Off Depot Air Sparge/ Soil Vapor Extraction System Annual Operations Report, Year Ten (August 2020 through July 2021)

Defense Depot Memphis, Tennessee

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July 2022

Off Depot Air Sparge/ Soil Vapor Extraction System
Annual Operations Report, Year Ten (August 2020 through July 2021)

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
BRAC	Base Realignment and Closure
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
HDPE	High Density Polyethylene
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
NPL	National Priorities List
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 report summarizes the operations and maintenance (O&M) activities and the results of system monitoring for Year Ten operations at the Off Depot air sparging and soil vapor extraction (AS/SVE) system at the former Defense Depot Memphis, Tennessee (DDMT). The AS/SVE system addresses the Off Depot groundwater plume west of Dunn Field ("the site"). The report was prepared under Contract W91278-16-D-0054, Delivery Order W9127820F0137 to the U.S. Army Corps of Engineers, Mobile District. The Year Ten report covers operations from 01 August 2020 through 31 July 2021.

Responses to comments from the Tennessee Department of Environment and Conservation (TDEC) and U.S. Environmental Protection Agency (EPA) Region 4 and approval letters are provided in Appendix A.

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 (BRAC).

DDMT was added to the National Priorities List (NPL) 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 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 (µg/L). AS/SVE operations began 21 December 2009. The AS/SVE system consists of 95 AS wells (including five new AS wells installed in September 2020), 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 into the 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 minimis* 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 95 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.

75 of the AS wells are presently in use, with approximately one-third of them operating 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 deep ('A') VMPs are screened at an average depth of 64 feet bgs and the shallow ('B') VMPs are screened at an average depth of 49 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 Nine, Revision 1* (Trinity, 2021) was approved by TDEC in March 2021 and by EPA in August 2021.

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 one-third of the original 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 9 operations took place from 1 August 2019 through 31 July 2020 and Year Ten operations occurred from 1 August 2020 through 31 July 2021. During years 8, 9, and 10, the system generally alternated between full and standby operation (as planned) on a roughly 4-week interval, except for relatively short periods of downtime related to system maintenance, equipment failure, or loss of power.

1.4.2 System Monitoring and Mass Removal

Average 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 averaged 73.0 ppbv in June 2021, at the end of Year Ten (Table 6).

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 ten 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). The cumulative mass of VOCs removed through July 2021 was 91 lbs.

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%	2.0
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
Year Ten (August 2020-July 2021)	94%	2.0
	Cumulative Mass Removed:	91.1[1]

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 to 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).

Year Ten AS/SVE operations included the following activities:

- Installation of five additional AS wells (AS-91 through AS-95) and associated piping;
- Weekly system inspections with measurements of operating conditions, operational adjustments and equipment maintenance checks;

[1]Cumulative mass removed is calculated from the quarterly mass removal estimates provided in Table 6 and differs slightly from the sum of the VOC removal values displayed above due to rounding functions in Table 6.

- Bi-weekly readings (every other week) 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;
- Bi-monthly PID measurements (every other month) at SVE wells and system effluent when the AS manifold is open;
- Bi-monthly PID and vacuum measurements (every other month) at VMPs;
- Quarterly collection of system effluent samples for laboratory analysis of VOCs;
- General equipment repair and modifications as described in Sections 2.3.1 and 2.3.2;
- Semiannual report describing O&M activities, system status, performance, and monitoring results; and
- Annual operations report summarizing system operations and monitoring results with data quality evaluation, and recommendations for future operations.

2. System Operations

The AS wells are operated in three groups of 22 to 25 AS wells with 69 AS wells operated 4 hours each per day (full-time) and 6 AS wells operated 2 hours each per day (half-time); the remaining 20 AS wells are closed (Figure 1). The three groups of AS wells that are operated 4 hours each per day are programmed such that while one group is operating, the other two groups are off. Operation is sequenced so that when one group shuts off, the next group immediately turns on. As each group operates for 4 hours per day, the total AS well operation sums to 12 hours per day. Other than the addition of the five new AS wells, this is consistent with Year Nine operations.

Five new AS wells were installed south of MW-159 to address the continued high trichloroethene (TCE) concentration at MW-159. The wells were installed in September 2020, connected to the AS manifold, and began operation in October 2020.

During full operation, the AS well network is 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 Ten, the AS manifold was open for full operation from 4 August through 25 August 2020, 20 September through 27 October 2020, 2 December 2020 through 5 January 2021, 29 January through 23 February 2021, 19 March through 30 March 2021, 6 April through 27 April 2021, 5 May through 15 June 2021, and 29 June through 13 July 2021. The AS manifold was opened on 27 July 2021 for the August operating period and that time will be accounted for as part of the Year Eleven reporting.

2.1 System Performance

The periods of full operation in Year Ten totaled 194 days with 2,328 hours available for system operations (the system is considered to be operating when the AS manifold is open). The AS/SVE system was down short periods of time in Year Ten due to an AWS overflow, debris accumulation in the AWS pump, and an electrical failure, for a total of 129 hours. AS/SVE system uptime during periods of full operation in Year Ten was approximately 94 percent. 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 101 to 154 standard cubic feet per minute (scfm) and averaged 123 scfm. Air extraction rates and vacuum measurements at SVE wells and system effluent are also shown on Table 1. The system was operated with all 12 SVE wells during Year Ten; average flow rates at individual SVE wells were 17 to 87 actual cubic feet per minute (acfm). Combined flow from all SVE wells during full operations averaged 509 scfm at 10.16 inches of mercury. Both blowers operated alternately in 12-hour blocks throughout most of Year Ten until 29 June 2021 when the alternation was changed to 24 hours based on the manufacturer's recommendation to prolong service life. An exception

occurred between 27 April and 03 May 2021 when the alternation was set to 6 hours as part of removal of blower B-1 for off-site repair.

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 123 scfm and the average combined SVE flow rate of 509 scfm, the SVE system extracted approximately 4.1 times the injection rate during Year Ten.

2.3 System Maintenance

System inspections were performed weekly and included 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. Semi-annual and annual equipment maintenance was conducted by the AS/SVE equipment manufacturer. Semiannual and annual 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 and annual maintenance reports are included in Appendix B. Routine and non-routine maintenance activities conducted in Year Ten are summarized below.

2.3.1 Routine System Maintenance

Routine Year Ten system maintenance included the following:

- On 30 September 2020, Kaeser performed preventative maintenance on AS compressor, dryer, drains, and oil-water separator.
- On 30 September 2020, Kaeser performed annual preventative maintenance on the SVE blowers and corrected the compressor dryer fan direction.
- On 06 April 2021, Kaeser performed semi-annual preventative maintenance on the AS compressor and SVE Blowers.

2.3.2 Non-Routine System Maintenance

Non-routine Year Ten system maintenance included the following:

- On 11 August 2020, Kaeser responded to a call for a leak in the condensate treatment system. A clogged discharge hose connection was causing water to leak from the side of the unit. The clog was removed and the system returned to service . The system was shut down for approximately 3.5 hours.
- On 30 September 2020, troubleshooting of the newly-installed AS well solenoids occurred. Because the AS manifold was closed, this activity did not result in any system downtime.
- On 09 – 17 September 2020, five new AS wells were installed and connected to the system and AS-3, AS-55, and AS-57 were repaired (discussed further in Section 2.4). Because the AS manifold was closed, this activity did not result in any system downtime.
- On 06 October 2020, adjustment to the PLC connections were made for the new AS wells. This activity did not result in any system downtime.
- On 19 November 2020, replaced fuse in the SVE control panel and restarted PLC communication. This corrected a PLC communication issue detected on 17 November 2020. Because the AS manifold was closed, this activity did not result in any system downtime.

- On 16 December 2020, sludge and debris were removed from the AWS transfer pump correcting a transfer pump overload condition that was detected earlier in the day. This resulted in approximately 4.75 hours of system shutdown time.
- On 29 January 2021, new flow meters were installed on wells SVE-2, 7, 9, 10, and 12. Because the AS manifold was closed during the month of January, this activity did not result in any system downtime.
- On 09 February 2021, the flow meters were adjusted. This activity did not result in any system downtime.
- On 02 March 2021, Kaeser checked Blower 1 for cause of motor overload alarm triggered on 23 February. It was observed that the lower ventilation fan electrical connection was not connected per code. Because the AS manifold was closed, this activity did not result in any system downtime.
- On 09 March 2021, Additional electrical inspection of Blower 1 and Blower 2 occurred, and the AWS transfer pump was replaced (the pump housing had cracked after freezing when power was lost during a winter storm event). Because the AS manifold was closed, these activities did not result in any system downtime.
- On 19 March 2021, the AWS transfer system flow meter was replaced. Because the AS manifold was closed, this activity did not result in any system downtime.
- On 30 March 2021, the blower/ventilator wiring was corrected for both blowers. Wiring was previously determined to be not to code. Because the AS manifold was closed, this activity did not result in any system downtime.
- On 07 April 2021, Kaeser conducted troubleshooting of Blower 1 motor malfunction. This activity did not result in any system downtime.
- On 27 April 2021, Blower 1 was removed for off-site repair of the winding. Because the AS manifold was closed, this activity did not result in any system downtime.
- On 06 May 2021, the compressor low mains alarm was triggered by thunderstorms and shut off the compressor at 1658 hours. The compressor was restarted during the next weekly system inspection on 11 May 2021 at 0900, resulting in approximately 113 hours of system shutdown. No repairs were necessary.
- On 11 – 12 May 2021, AS-55 well repairs were completed. The well had been previously damaged by a heavy vehicle driving over it. This activity did not result in any system downtime.
- On 14 May 2021, Blower 1 was reinstalled, but was not operable. This activity did not result in any system downtime.
- On 17 May 2021, Kaeser corrected a wiring issue related to the reinstallation of Blower No. 1 and the Blower returned to service. This activity did not result in any system downtime.

During Year Ten, system downtime during periods of full operation of the AS/SVE system equated to approximately 129 hours. This total includes the 121.25 hours identified above plus an additional 8 hours on 20 October 2020 when the manifold was closed in preparation for LTM sampling.

2.4 System Repairs and Modifications

Previously identified issues with the AS/SVE system were addressed through installation of five AS wells and associated piping and general repairs. Activities are summarized below; additional details are provided in Appendix G.

- New AS well installation
    - Five new AS wells (AS-91 through AS-95) were installed in September 2020. The boreholes were drilled using a Geoprobe 8150 LS Roto-sonic drilling rig with a 4-inch diameter core barrel within 6-inch diameter temporary casing. Lithologic cores were collected during drilling. The soil cores were continuously screened using a PID and the soil lithology was logged.
    - The total depths for each well ranged from 95.8 to 98.8 ft bgs. The microbubble screens were placed as close to the top of the dark clay layer described as a bluish-black, competent, stiff clay observed in the soil cores. The wells were constructed with 30 inch long, 2.5-inch diameter microbubble steel well screens and 2-inch diameter PVC couplers and risers. The natural formation and filter sand was used as backfill around the well screen. Hydrated bentonite pellets were used as a seal (3 to 4.5 ft thick) starting at one foot above the top of the well screen. A cement-bentonite grout slurry was installed to 3 ft bgs.
    - The wells were completed by installing flush-mounted well vaults and concrete well pads. The steel lids were labeled for easy identification in the field. Wells were then surveyed.
- AS lines and manifold installation
    - 0.5-inch diameter high density polyethylene (HDPE) conveyance lines were installed from the AS manifold exhaust to each of the five newly installed AS wells and connected via PVC reducing fittings to the well heads. These connections were completed at a depth of two feet bgs, and a two-inch diameter PVC pipe was added for well access inside of the roadway box at 0.5 feet bgs.
    - Individual lines were labeled at the well and manifold ends to be easily identified. Identification tape was placed approximately 0.5-1 ft above the conveyance lines within the trench. All lines were tested for leaks prior to backfilling.
    - The trench was surveyed.
- AS well repairs
    - Repair of AS-03 included installation of a new cap and coupling assembly to correct an air leak issue.
    - Repairs to AS-55 and AS-57 included replacing the roadway boxes and concrete pads and replacing the PVC connections to the airlines below ground surface.

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 bi-monthly (during months of full AS/SVE operation; e.g when the AS manifold is open). PID readings and vacuum measurements at VMPs are also collected bi-monthly. Effluent vapor samples are collected quarterly during full operation. System monitoring was performed during full operation in August, October, and December 2020, and February, April, and June 2021.

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 0.0 to 33.9 inches of water and the average at each VMP was 2.4 to 29.3 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 C-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

Total VOC concentrations are monitored 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. Total VOC concentrations ranged from 0.0 to 0.5 parts per million (ppm) at the SVE wells during Year Ten, and was 0.0 ppm to 0.1 ppm at the system effluent in every monitoring event (the readings were 0.1 ppm in 2 of the 6 monitoring events). 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 C-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. Total VOC concentrations were 0 ppm for approximately 78 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 C-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 (consistent with all sampling events beginning in Year 2). The Summa canisters are shipped from the laboratory with negative pressure; thus, a sampling pump is not required. For each sampling event, the field technician first confirms via the cannister vacuum gauge that the cannister has an initial vacuum in the range of -30 to -25 inches mercury. The technician then connects the cannister via tubing to the effluent sampling port and opens the cannister valve part-way to control the rate of flow into the cannister. The cannister is allowed to fill over a period of approximately five minutes, until the cannister vacuum gauge reads -5 inches mercury.

The quarterly vapor samples were collected on 6 October 2020, 9 December 2020, 13 April 2021, and 7 June 2021. The samples were submitted for laboratory analysis of VOCs by EPA Method TO-15.

The complete tabulated analytical results are presented in Appendix D, Table D-1; the complete laboratory analytical reports are provided in Appendix E (electronic copy only). Table 5 provides the analytical results for the primary CVOCs historically detected at Dunn Field and for other VOCs detected 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 50.1 ppbv to 73.0 ppbv during Year Ten. TCE has generally been the CVOC detected at the highest concentration since 2009, but cis-1,2-dichloroethene (cDCE) was detected at similar concentrations in Year Ten. During Year Ten, TCE was 38% to 44% of the total primary CVOC concentration, and cDCE was 36% to 46%.

Total VOCs were reported at 78.2 ppbv and 132.7 ppbv (duplicate sample) in October 2020 (Quarter 1), 100 ppbv in December 2020 (Quarter 2), 73.6 ppbv in April 2021 (Quarter 3), and 72.4 ppbv in June 2021 (Quarter 4). These totals do not include ethanol, which was detected in all of the Y10 samples but is considered anomalous based on historical reporting and is not a contaminant associated with this site. Ethanol was also detected in the Year Nine Quarter 3 and Quarter 4 samples and one method blank, and may be the result of contamination associated with increased and wide-spread use of sanitizers during the COVID-19 pandemic. 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 Ten were reviewed based on guidelines in the Quality Assurance Project Plan (QAPP). The complete analytical results for field and quality control (QC) samples, including data quality evaluation (DQE) flags, are presented in Appendix D, Table D-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 DQEs for Year Ten samples are provided in Appendix F.

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, ethanol was anomalously detected in all of the Y10 sample results, as well as the Y9 Quarter 3 and Quarter 4 samples. Because the ethanol results were considered anomalous and likely associated with cross-contamination during sample handling, they were omitted from the total VOC concentrations used for the mass emission calculations (Tables 5 and 6).

The average estimated VOC emission rate in the effluent was 0.0009 lb/hr during Year Ten. The emissions remained well below the SCHD *de minimis* standard of 0.1 lb/hr. The AS/SVE system removed approximately 2.0 lbs of VOCs in Year Ten and 91.1 lbs of VOCs since startup (Table 6).

4. Conclusions and Recommendations

4.1 System Operations

The AS/SVE system is generally limited to full operations in alternate 4-week periods in order to maintain northerly groundwater flow in the treatment area. System downtime was experienced during periods identified in Section 2.3.2. The AS/SVE system uptime was approximately 94% during periods of full operation in Year Ten (1 August 2020 to 31 July 2021).

The SVE system extracted approximately 4.1 times the AS injection rate during Year Ten. Vacuum measurements at VMPs indicated vapor capture throughout the AS/SVE treatment area. 100 percent of the PID measurements taken at the SVE wells were below 1 ppm (measurements were not recorded on two occasions at SVE-10 due to water in the piping) 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). As noted in Table 5, total VOC concentrations in effluent vapor samples, excluding ethanol attributed to cross-contamination during sample handling, ranged from 72.4 ppbv to 100 ppbv (the duplicate field sample collected in October 2020 had total VOC concentration of 132.7 ppbv, largely driven by an anomalously-high concentration of acetone likely attributable to laboratory cross-contamination). The estimated VOC emission rate in the effluent was 0.0009 lb/hr during Year Ten, well below the SCHD *de minimis* standard. Approximately 91 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 C-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 approximately 72 ppbv in July 2021 (Figure 2). The July 2021 total VOC concentration (72.4 ppbv, excluding ethanol) is approximately 5.8 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
Year Ten (August 2020-July 2021)	94%	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 the 50 µg/L treatment goal in monitoring well MW-159.

Current groundwater data in the AS/SVE area is provided in the *April 2021 Long-Term Monitoring Summary Report, Revision 0* (HDR, 2021). 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 76.4 µg/L in October 2020 and 55.3 µg/L in April 2021. Groundwater elevation contours and the April 2021 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 April 2021, CVOC concentrations exceeded a TC or MCL in only one of these wells, MW-159. Concentrations of 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 April 2021. 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 76.4 µg/L in October 2020 and 55.3 µg/L in April 2021, down from 91.0 µg/L in May 2020; the concentration remains above the TC of 5.0 µg/L for TCE, and is above the treatment goal for AS/SVE operations of 50 µg/L for any CVOC. The TeCA concentration at MW-159 was reported at 2.4 µg/L in October 2020 and 1.7 µg/L in April 2021, down from 4.9 µg/L in May 2020; both of these concentrations are below the TC of 3.0 µg/L for TeCA.
- 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 decreased to 4.2 µg/L in April 2021 (below the TC). TeCA concentrations at up-gradient well MW-54 decreased to 0.73J µg/L in April 2021 (below the TC).
- The TCE concentration in down-gradient well MW-246 has remained below the TC since the brief increase to 10.7 µg/L in October 2018. The April 2021 concentration was 2.3 µg/L. The TeCA concentration in MW-246 was reported below the TC during both the Year Nine LTM events (October 2019 and May 2020) and Year Ten events (October 2020 and April 2021) for the first time since monitoring began. The April 2021 concentration was 1.3 µg/L.
- 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 the respective TCs.

To address the continued high concentration of TCE in groundwater at MW-159, five additional AS wells were installed and incorporated into system operations in September 2020. TCE concentrations at MW-159 decreased from 91.0 µg/L (May 2020) to 76.4 µg/L in October 2020 and decreased again to 55.3 µg/L in April 2021.

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 after evaluation of the October 2021 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, 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, 2021. *April 2021 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, 2021. O*ff Depot Air Sparge – Soil Vapor Extraction System Annual Operations Report, Year Nine (August 2019 to July 2020), Dunn Field - Defense Depot Memphis, Tennessee, Department of the Army, Revision 1*. July 2021.

Figures

Figure 1 AS/SVE System Layout



- Air Sparge Location (full-time)
- Air Sparge Location (half-time)
- Air Sparge Location (closed)
- Air Sparge Location (installed 9/2020)
- Soil Vapor Extraction Location
- Vapor Monitoring Point
- Monitoring Well - Fluvial Aquifer
- Monitoring Well - Intermediate Aquifer
- Conveyance Line
- Conveyance Line (installed 9/2020)
- Parcel Boundary
- Railroad
- MLGW Transmission Tower with 20 foot No Construction Buffer
- AS/SVE System Enclosure

Notes:

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

0 25 50 100
Feet

Figure 1
AS/SVE
System Layout

Trinity Analysis & Development Corp.

Off Depot AS/SVE System
Year Ten, Annual
Operations Report
Dunn Field -
Defense Depot Memphis, Tennessee

U.S.ARMY

Contract: W91278-16-D-0054 / W9127820F0137

Scale: AS SHOWN

Date: 9/7/2021

X:\Shared\KGS\TRI\Projects\A023-004 - DDMT ERS 2020-2023\4. GIS\Maps\AS-SVE\Figure 1 - Y10 Annual Report\Figure 1 - Y10 Annual Report.aprx

Figure 2 Effluent Concentration Trend – Analytical Results and Field PID Measurements

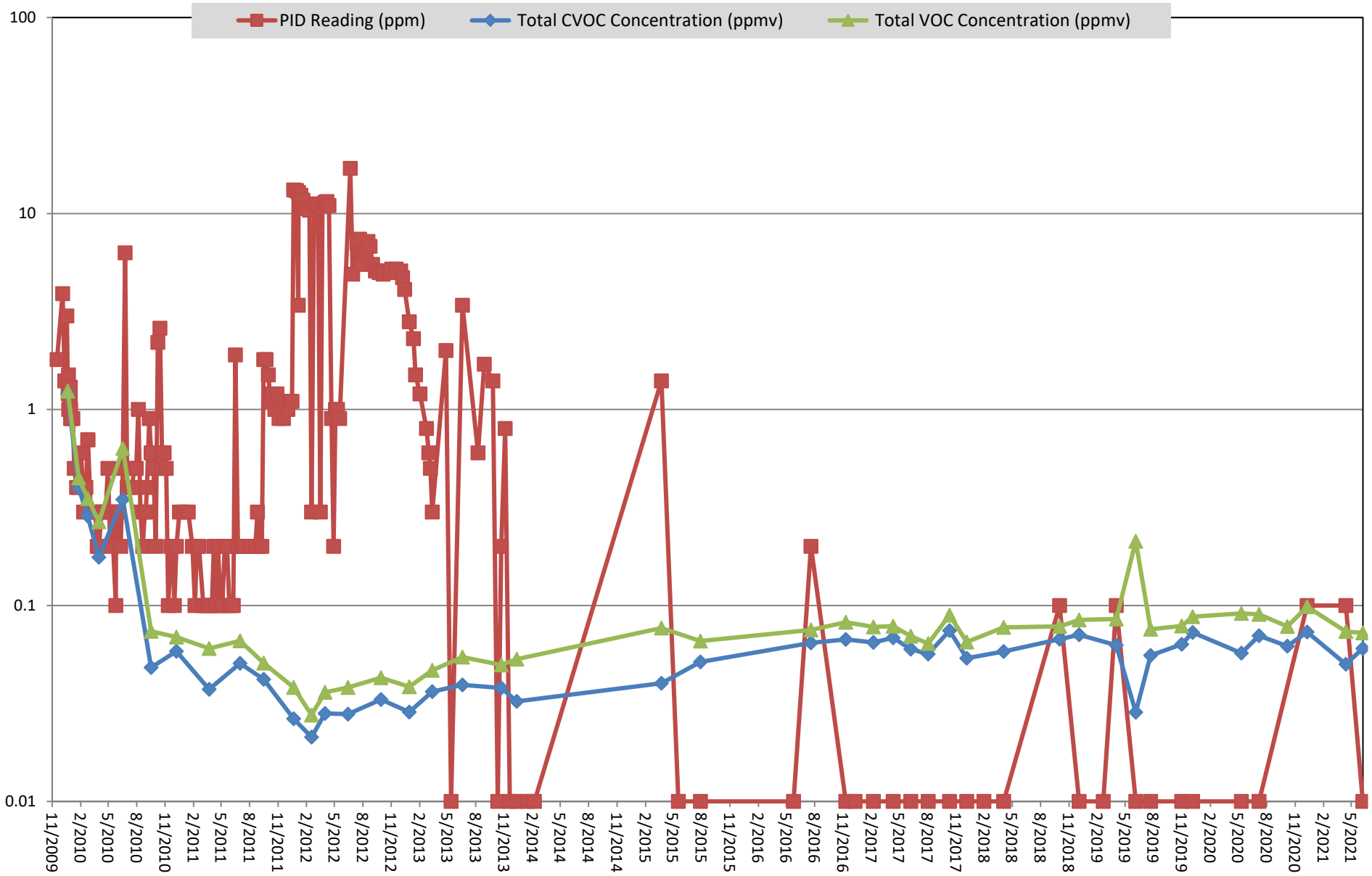


Figure 2
Effluent Concentration Trend - Analytical Results and Field PID Measurements
Off Depot AS/SVE Year Ten, Annual Operations Report
Defense Depot Memphis, Tennessee

Figure 3 Fluvial Aquifer TCE Concentrations, May 2021

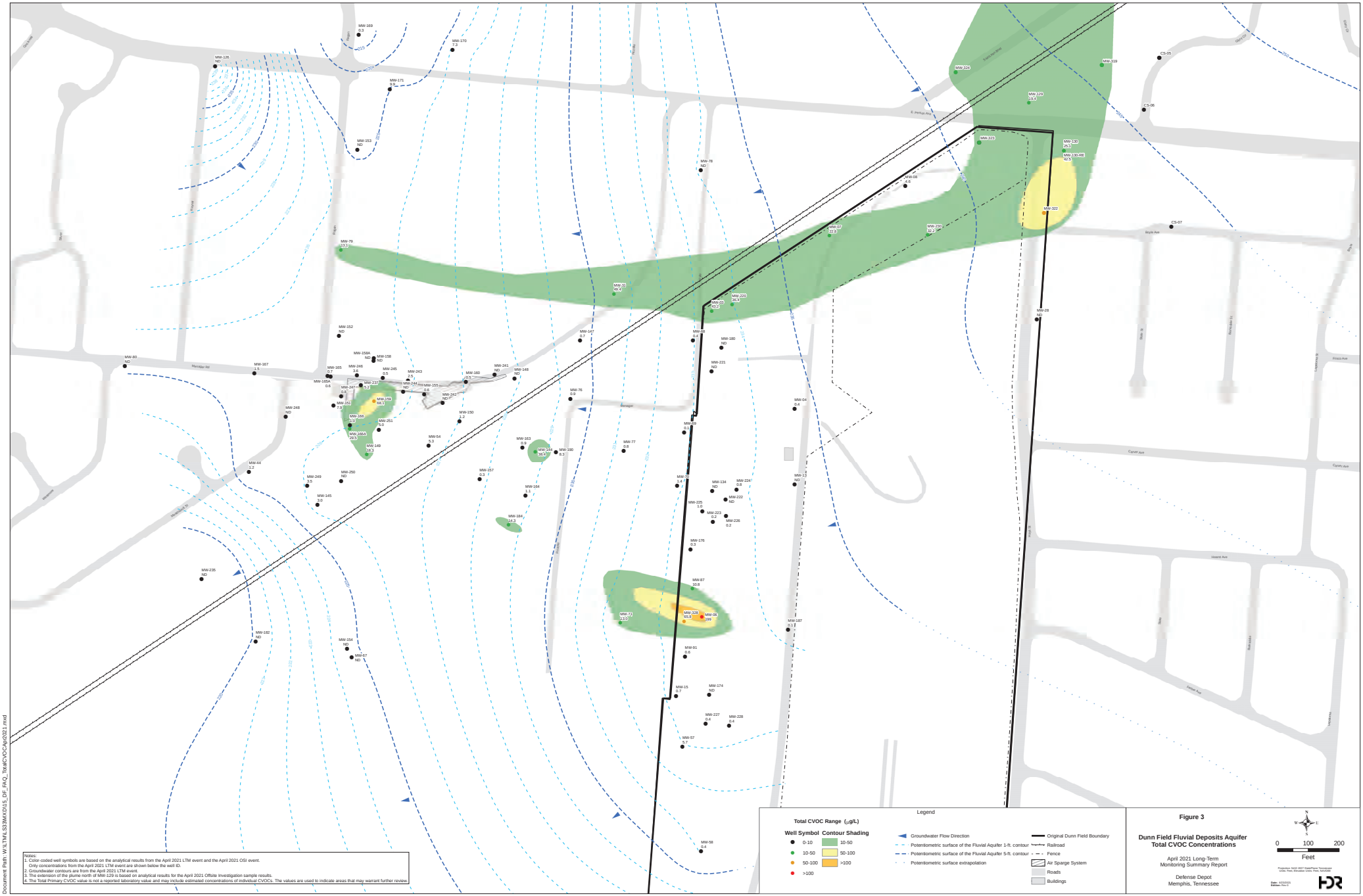

Legend
Total CVOC Range (µg/L)
Well Symbol
Contour Shading
0-10
10-50
10-50
50-100
50-100
>100
>100
Groundwater Flow Direction
Potentiometric surface of the Fluvial Aquifer 1-ft. contour
Potentiometric surface of the Fluvial Aquifer 5-ft. contour
Potentiometric surface extrapolation
Original Dunn Field Boundary
Railroad
Fence
Air Sparge System
Roads
Buildings
Notes:
1. Color-coded well symbols are based on the analytical results from the April 2021 LTM event and the April 2021 OSI event.
Only concentrations from the April 2021 LTM event are shown below the well ID.
2. Groundwater contours are from the April 2021 LTM event.
3. The extension of the plume north of MW-129 is based on analytical results for the April 2021 Offsite Investigation sample results.
4. The Total Primary CVOC value is not a reported laboratory value and may include estimated concentrations of individual CVOCs. The values are used to indicate areas that may warrant further review.
Figure 3
Dunn Field Fluvial Deposits Aquifer
Total CVOC Concentrations
April 2021 Long-Term
Monitoring Summary Report
Defense Depot
Memphis, Tennessee
0
100
200
Feet
Document Path: W:\LTM\LSS3MX\DI15_DF_FAQ_Total\CVOC\Apr2021.mxd

Figure 4 TeCA and TCE Concentration Trends at MW-159

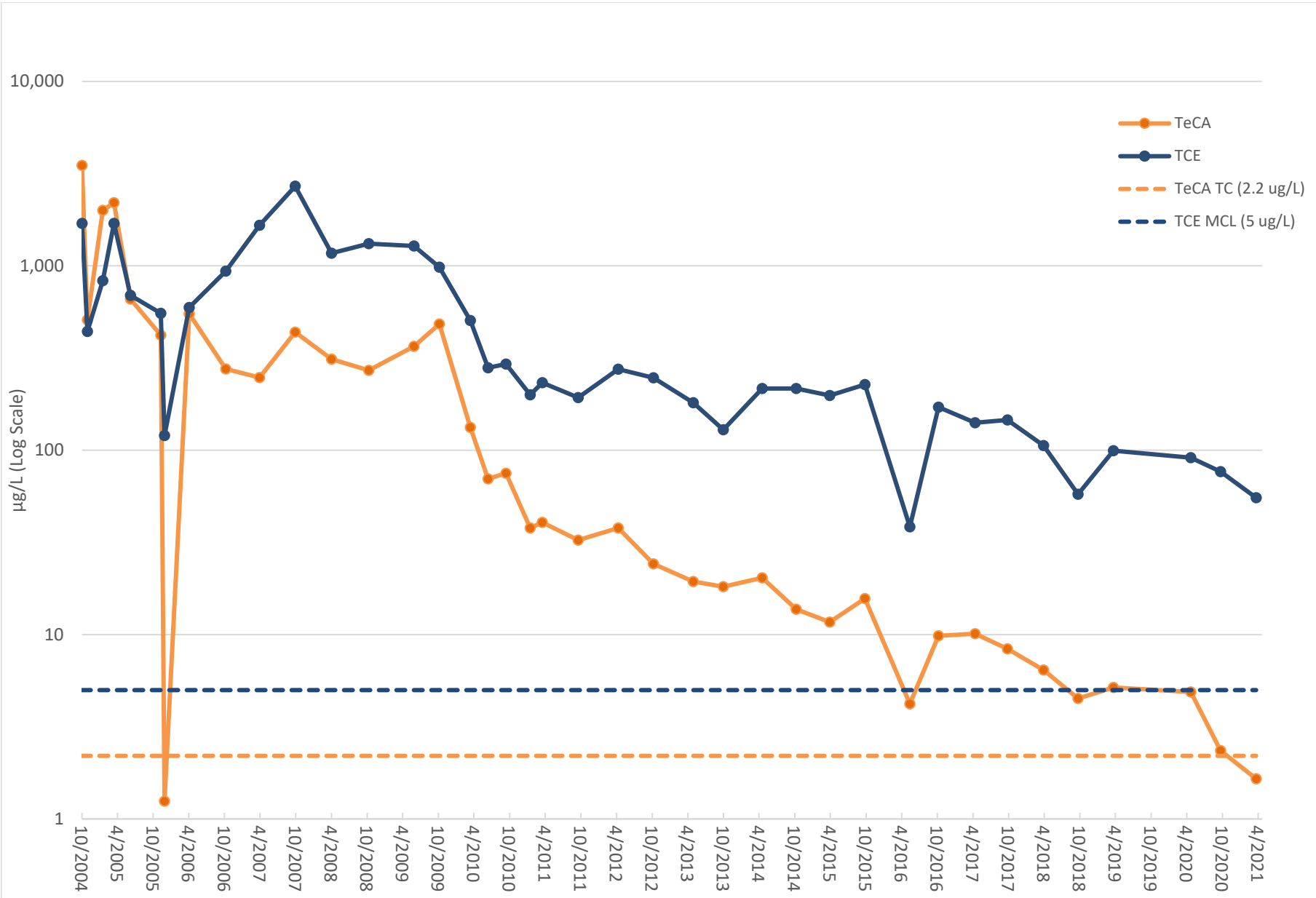


Figure 4
TeCA and TCE Concentration Trends at MW-159
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee

Tables

Table 1 Flow Rate and Vacuum Readings at SVE Wells and Effluent

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

	Number of	AS Compressor	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	
Date	Blowers in Operation	Flow rate (scfm)	Flow rate (scfm)	Vacuum (in. Hg.)	Flow rate (acfm)	Vacuum (in. H_2O)	Flow rate (acfm)	Vacuum (in. H_2O)	Flow rate (acfm)	Vacuum (in. H_2O)	Flow rate (acfm)	Vacuum (in. H_2O)	Flow rate (acfm)	Vacuum (in. H_2O)	Flow rate (acfm)	Vacuum (in. H_2O)	Flow rate (acfm)	Vacuum (in. H_2O)	Flow rate (acfm)	Vacuum (in. H_2O)	Flow rate (acfm)	Vacuum (in. H_2O)	Flow rate (acfm)	Vacuum (in. H_2O)	Flow rate (acfm)	Vacuum (in. H_2O)	Flow rate (acfm)	Vacuum (in. H_2O)
8/4/2020	1	104	470	10.8	50	71.2	NR	49.4	20	54.2	60	59.1	60	91.4	90	67.8	50	94.1	60	70.2	80	102.3	NR	15.8	50	64	70	45.5
8/25/2020	1	111	460	11	50	74.5	NR	50	30	53.4	60	59.7	60	91.8	90	70.2	40	95.9	60	69.7	80	102.9	NR	16.9	40	60.9	70	46.4
9/8/2020	1	111	470	10.8	50	68.6	NR	47.5	20	57	60	57	50	89.1	90	65.8	50	91.9	60	65.4	80	99.4	NR	32.2	50	58.6	60	45.5
9/24/2020	1	106	480	10.7	50	63.5	NR	47.5	20	50.2	60	55	50	86.8	80	64.1	50	89.4	60	63.4	80	95.2	NR	36.4	50	55.7	70	43.9
10/6/2020	1	115	480	11.4	50	66.8	NR	50.3	20	52.9	60	66.5	50	90.1	90	68.1	50	92.4	60	66.5	80	99.2	NR	27.9	50	57.2	70	46.9
10/20/2020	1	101	470	11.1	50	68.7	NR	53.6	20	54.7	60	61.6	60	90.9	90	69.8	50	94.9	60	67.9	80	100.3	NR	92.5	50	57.9	70	48.1
11/3/2020	1	120	490	10.4	60	65.2	NR	44.5	30	45.1	60	50.5	60	81.7	90	58.8	50	86.7	60	61.8	90	89.4	NR	75.9	50	49.8	70	42.6
11/19/2020	1	107	540	9.9	60	49.5	NR	33.3	30	33.5	70	40.4	60	73.9	100	48.6	60	78.2	70	48	90	81.5	NR	70.6	60	35.3	80	36.3
12/2/2020	1	125	510	10.6	60	61.4	NR	45.8	30	43.8	60	50.5	50	82.5	90	59.2	50	85.9	60	58.8	80	90.8	NR	75.5	60	45.8	80	44.9
12/8/2020	1	109	460	11	50	72.9	NR	56.6	30	55.7	60	60.8	60	88.6	90	68.2	50	92.1	70	67.3	90	96.9	NR	82.7	60	52.7	80	49.5
12/22/2020	1	145	520	11	60	71.7	NR	55.9	30	56.6	60	61.8	60	89.5	90	71.6	50	94.2	70	68.2	80	96.8	NR	83.7	60	52.7	80	48.8
1/5/2021	1	134	510	11	50	74.2	NR	64.7	30	58.8	60	63.9	60	90.9	90	70.7	50	96.2	60	68.1	80	99.4	NR	85	70	54.5	80	48.6
1/19/2021	1	128	520	10.9	60	66.1	NR	55.6	40	53.4	60	59.1	60	88.9	90	66.5	50	90.8	70	63.6	80	94.6	30	52.8	60	56.4	80	48.4
2/2/2021	1	154	550	10	50	68.5	100+	71.5	70	80	60	60.6	50	81.2	90	65.6	NR	88.8	60	63.2	NR	86.6	NR	72.3	60	50.6	100+	68.5
3/2/2021	1	138	560	9	70	76.5	70	44.7	100	78.3	60	50.6	50	78.3	90	55.6	40	* 89.1	60	53.8	40	* 86.9	NR	72.6	60	38.3	65	32.3
3/24/2021	1	140	540	9.5	70	79.7	65	45.9	90	82.7	50	55.2	50	80.5	80	61.6	50	* 88.5	60	58.2	60	89.2	10	72.6	60	41.8	60	33.6
4/13/2021	1	134	540	9.3	60	78.4	65	42.3	100	80.2	50	53.1	50	78.3	90	59.2	40	* 85.7	60	57.2	50	* 85.5	NR	69.9	50	39.9	60	33.6
4/27/2021	1	132	540	9.2	60	78.8	65	45.9	100	80.9	60	55.4	50	78.9	70	58.8	50	* 87.6	60	58.3	60	* 86.8	NR	70.3	50	39.9	60	38.5
5/11/2021	1	113	560	8.9	70	76.4	65	44.4	100	80.9	60	52.2	50	78.6	80	58.5	40	* 87	60	57.3	40	* 86.7	NR	70.1	60	39.6	60	33.4
5/25/2021	1	131	520	10	70	85.9	50	52.6	90	90.4	50	62.4	50	87.1	80	67.9	40	* 98.8	60	63.6	40	* 98.8	NR	79.9	50	46.7	60	37.9
6/7/2021	1	128	510	10	60	89.3	35	48	90	92.5	50	63	50	88.5	80	68.6	35	100.5	60	64.6	30	100.9	NR	85.1	50	45.9	55	37
6/22/2021	1	105	530	9.3	80	81.5	40	37.4	100	86.8	60	54.6	50	83.5	90	61.6	30	96.8	60	60.9	40	95.4	NR	76.9	50	41.2	50	33.5
7/8/2021	1	142	480	9.4	60	78.9	30	43.2	90	91.8	60	53.6	50	78.5	80	59.7	30	97.1	80	60.8	40	96.7	NR	77.2	90	55.3	45	34.1
7/20/2021	1	110	500	8.7	60	73.1	35	29.7	90	76.9	50	46.9	30	73.4	80	52.6	30	* 77.2	60	68.7	25	* 80.9	10	64.2	90	53.5	45	26.3
Average Flow Rate/Vacuum		123	509	10.2	59	72.6	52	48.3	57	66.3	58	56.4	53	84.3	87	63.3	45	90.8	63	62.7	65	93.5	17	65.0	58	49.8	66	41.8

Notes

scfm:	standard cubic feet per minute
acfm:	actual cubic feet per minute
in. Hg:	inches of mercury
in. H_2O:	inches of water
NR	No reading due to water in gauge; needle fluctuating
*	needle fluctuates; repeatedly hesitates at value shown

Table 2 Vacuum Readings at VMPs

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

Date	8/25/2020	10/6/2020	12/8/2020	2/2/2021	4/13/2021	6/7/2021
Number of Blowers in Operation	**1**	**1**	**1**	**1**	**1**	**1**
Air Sparge Manifold Open	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
VMP-1A	1.2	0.4	9.3	5.9	0.1	0.2
VMP-1B	16.4	13.4	22.0	15.0	8.8	14.2
VMP-2A	5.3	1.3	NM(W)	7.5	9.6	6.0
VMP-2B	16.5	17.5	17.2	18.2	11.8	18.6
VMP-3A	0.2	0.4	11.2	1.9	0.9	0.01
VMP-3B	20.0	19.2	28.1	20.4	15.3	20.2
VMP-4A	NM(W)	0.1	NM(W)	9.0	12.9	2.7
VMP-4B	27.5	24.2	26.7	27.6	23.8	27.6
VMP-5A	7.2	4.3	0.0	8.4	14.9	0.6
VMP-5B	23.5	23.5	20.2	23.5	16.9	23.8
VMP-6A	1.4	0.1	5.9	28.2	12.2	NM(W)
VMP-6B	24.5	24.0	26.9	16.3	11.2	28.6
VMP-7A	0.49	2.6	11.2	8	18.5	12.4
VMP-7B	25.5	18.2	24.7	24.7	13.6	9.5
VMP-8A	5.7	0.1	20.3	10.5	16.2	4.8
VMP-8B	25.6	23.9	28.0	28.0	21.2	26.8
VMP-9A	5.5	0.5	2.4	13.3	14.7	9.8
VMP-9B	28.8	27.5	26.8	31.7	29.5	31.6
VMP-10A	33.9	0.4	8.0	16.7	26.7	9.0
VMP-10B	27.0	24.4	29.1	32.1	22.4	32.3

Notes:

1) Vacuum measurements made with a digital manometer; units are in inches of water.
2) NM(W) = No measurement, water in line.

Table 3 PID Measurements at SVE Wells and Effluent

Table 3
PID Measurements at SVE Wells and Effluent
Off Depot AS/SVE Year Ten Annual Operations Report
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
8/25/2020	1	Yes	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
10/6/2020	1	Yes	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.3	0.5	0.0	0.0	0.0	0.0
12/8/2020	1	Yes	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.1	0.1	NM	0.0	0.0	0.1
2/2/2021	1	Yes	0.0	0.2	0.0	0.1	0.5	0.0	0.0	0.2	0.0	NM	0.0	0.0	0.0
4/13/2021	1	Yes	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
6/7/2021	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

Notes:

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

Yes: Sparge system was operating during measurements.

NM: No measurement due to water in piping.

NP: No measurements due to programmable logic controller issues.

Table 4 PID Measurements at VMPs

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

Date	8/25/2020	10/6/2020	12/8/2020	2/2/2021	4/13/2021	6/7/2021
Number of Blowers in Operation	**1**	**1**	**1**	**1**	**1**	**1**
Air Sparge Manifold Open	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
VMP-1A	NM1	0.1	0.1	0.0	0.0	0.0
VMP-1B	0.5	0.0	0.1	0.0	0.0	0.0
VMP-2A	NM1	0.2	0.0	0.0	0.0	0.0
VMP-2B	0.1	0.0	0.0	0.0	0.0	0.0
VMP-3A	NM1	NM1	0.1	0.0	0.0	0.0
VMP-3B	0.1	0.2	0.0	0.0	0.0	0.0
VMP-4A	0.5	NM1	0.0	0.0	0.0	0.0
VMP-4B	0.0	0.2	0.0	0.0	0.0	0.0
VMP-5A	NM1	0.3	0.0	0.0	0.0	0.0
VMP-5B	0.2	0.1	0.0	0.0	0.0	0.0
VMP-6A	NM1	NM1	NM2	0.0	0.0	0.0
VMP-6B	0.0	0.1	0.0	0.0	0.0	0.0
VMP-7A	0.0	NM1	0.0	0.0	0.0	0.0
VMP-7B	0.1	0.4	NM2	0.0	0.0	0.0
VMP-8A	NM1	NM1	0.0	0.0	NM3	0.0
VMP-8B	0.0	0.1	0.0	0.0	0.0	0.0
VMP-9A	NM1	NM1	0.0	0.0	0.0	0.0
VMP-9B	0.0	0.0	0.0	0.0	0.0	0.0
VMP-10A	NM1	NM1	NM2	0.0	0.1	0.0
VMP-10B	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

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

NM1: No meaurement; water in line

NM2: No measurement; pump unable to draw sample

NM3: No measurement; field notes do not identify reason

Table 5 Analytical Results Summary – SVE Effluent

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

	SampleID	ODSVE-EFF-Y10Q1	ODSVE-DUP1-Y10Q1	ODSVE-EFF-Y10Q2	ODSVE-EFF-Y10Q3	ODSVE-EFF-Y10Q4
	Lab ID	P2005708-001	P2005708-002	P2006988-001	P21019630-001	P2103157-001
	Date	10/6/2020	10/6/2020	12/9/2020	4/13/2021	6/7/2021
	Units					
Primary CVOCs						
1,1,2,2-Tetrachloroethane	ppbv	0.13	0.14	0.22	0.25	0.19
1,1,2-Trichloroethane	ppbv	0.38 U	0.029 J	0.045 J	0.037 J	0.039 U
1,1-Dichloroethene	ppbv	0.44	0.47	0.67	0.44	0.54
1,2-Dichloroethane	ppbv	0.051 U	0.051 U	0.056 U	0.054 U	0.053 U
Carbon Tetrachloride	ppbv	0.34	0.36	0.45	0.42	0.51
Chloroform	ppbv	5.2	5.6	7.4	5.6	5.8
cis-1,2-Dichloroethene	ppbv	28	30	32	18	24
Methylene Chloride	ppbv	0.059 J	0.11 U	0.12 U	0.60	0.12 U
Tetrachloroethene	ppbv	2.2	2.4	3.3	1.8	2.7
trans-1,2-Dichloroethene	ppbv	0.42	0.46	0.77	0.44	0.52
Trichloroethene	ppbv	25	26	28	22	26 D
Vinyl Chloride	ppbv	0.14 J	0.16 J	0.16 J	0.47 J	0.072 J
Total Primary CVOCs	**ppbv**	61.9	65.6	73.0	50.1	60.3
Other VOCs						
1,1,1-Trichloroethane	ppbv	0.23	0.25	0.32	0.24	0.23
1,1,2-Trichlorotrifluoroethane	ppbv	2.8	3.0	4.1	2.9	5.2
1,1-Dichloroethane	ppbv	0.24	0.26	0.34	0.29	0.29
1,2,4-Trichlorobenzene	ppbv	0.097 J	0.052 U	0.058 U	0.055 U	0.05 U
1,2,4-Trimethylbenzene	ppbv	0.054 J	0.048 J	0.046 U	0.023 J	0.044 U
1,3-Butadiene	ppbv	0.18 U	0.057 J	0.19 U	0.19 U	0.18 U
1,2-Dichlorobenzene	ppbv	0.039 J	0.034 U	0.038 U	0.036 U	0.036 U
1,3-Dichlorobenzene	ppbv	0.029 J	0.034 U	0.038 U	0.036 U	0.036 U
1,4-Dichlorobenzene	ppbv	0.039 J	0.021 J	0.071 U	0.068 U	0.067 U
1,4-Dioxane	ppbv	0.058 UJ	3.9 J	0.063 U	0.060 U	0.059U
1,2-Dichloro-1,1,2,2-tetrafluoro	ppbv	0.056 U	0.055 U	0.061 U	0.017 J	0.058 U
2-Butanone	ppbv	1.3 J	5.5 J	1.5	1.1	0.49
2-Hexanone	ppbv	0.74 J	0.22 J	0.098 J	0.24 J	0.05 U
2-Propanol	ppbv	0.35 J	0.71	0.21 J	0.36 J	0.32 U
4-Methyl-2-pentanone	ppbv	0.15 J	0.73 J	0.07 J	0.12 J	0.05 U
Acetone	ppbv	5.2 J	28 J	6.1	8.8	3.00
Acetonitrile	ppbv	0.23 UJ	1.8 J	0.36 J	0.82	0.90
Acrolein	ppbv	0.54 J	1.8 J	0.64 J	0.56 J	0.18 J
alpha-Pinene	ppbv	0.070 U	0.027 J	0.02 J	0.054 J	0.072 U
Benzene	ppbv	0.097 J	0.11 J	0.059 J	1.100	0.041 J
Bromomethane	ppbv	0.053 U	0.053 U	0.059 U	0.046 J	0.055 U
Carbon Disulfide	ppbv	0.28 J	3.7 J	6.7	1.10	0.23 J
Chlorobenzene	ppbv	0.045 U	0.045 U	0.049 U	0.030 J	0.047 U
Chloroethane	ppbv	0.15 U	0.10 J	0.16 U	0.16 U	0.15 U
Chloromethane	ppbv	0.19 U	0.072 J	0.056 J	0.20 U	0.20 U
Cyclohexane	ppbv	0.071 U	0.12 U	0.046 U	0.079 J	0.12 U
Dibromochloromethane	ppbv	0.071 J	0.12 U	0.13 U	0.026 U	0.025 U
Dichlorodifluoromethane	ppbv	0.87	0.91	1.2	1.1	0.73
d-Limonene	ppbv	0.036 J	0.037 J	0.12 U	0.088 J	0.072 U
Ethanol	ppbv	3.0* J	5.1*	1.2* J	5.1*	29*
Ethyl Acetate	ppbv	0.22 UJ	0.57 J	1.2 J	0.81 J+	0.23 UJ
Ethylbenzene	ppbv	0.047 J	0.053 J	0.26 J	0.05 U	0.056 J
Hexachlorobutadiene	ppbv	0.037 U	0.036 U	0.029 J	0.038 U	0.038 U
Cumene	ppbv	0.15 J	0.16 J	0.04 U	0.04 U	0.044U
m,p-Xylenes	ppbv	0.15 J	0.16 J	0.10 U	0.062 J	0.054 J
Methyl tert-Butyl Ether	ppbv	0.059 J	0.11 U	0.21 U	0.060 U	0.059 U

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

	SampleID	ODSVE-EFF-Y10Q1	ODSVE-DUP1-Y10Q1	ODSVE-EFF-Y10Q2	ODSVE-EFF-Y10Q3	ODSVE-EFF-Y10Q4
	Lab ID	P2005708-001	P2005708-002	P2006988-001	P21019630-001	P2103157-001
	Date	10/6/2020	10/6/2020	12/9/2020	4/13/2021	6/7/2021
	Units					
Naphthalene	ppbv	0.21 J	0.072 UJ	0.063 U	0.12 J	0.08 U
n-Butyl Acetate	ppbv	0.11 J	0.086 J	0.048 U	0.038 J	0.045 U
n-Heptane	ppbv	0.063 J	0.12 J	0.10 U	0.15 J	0.098 U
n-Hexane	ppbv	0.083 J	0.13 J	0.12 U	0.36	0.11 U
n-Nonane	ppbv	0.050 J	0.090 J	0.082 U	0.040 J	0.077 U
n-Octane	ppbv	0.032 J	0.086 J	0.092 U	0.063 J	0.086 U
o-Xylene	ppbv	0.062 J	0.060 J	0.052 U	0.05 U	0.049 U
Propene	ppbv	0.4 J	1.3 J	0.89	0.52	0.13 J
Styrene	ppbv	0.14 J	0.039 J	0.10 U	0.096 U	0.066 J
Tetrahydrofuran	ppbv	0.077 J	0.53 J	0.074 J	0.066 J	0.073 U
Toluene	ppbv	0.24	0.23	0.059 J	0.19	0.19
Trichlorofluoromethane	ppbv	0.26	0.26	0.32	0.29	0.28
Vinyl Acetate	ppbv	1.0 J	12 J	2.4	1.1 J	0.97 U
Total VOCs		78.2	132.7	100.0	73.6	72.4

Non-detect compounds were not included in the total primary CVOC and total VOC calculations.

* Indicates an anomalous detection of a compound not associated with the site, presumed to be associated with potential contamination from hand sanitizer; therefore, this result was not included in total VOC calculation.

CVOC = chlorinated VOCs

ppbv = parts per billion by volume

VOC = volatile organic compound

DQE Flags:

U: Analyte not detected above Reporting Limit

J: Estimated

J+: Estimated with a possible high bias (the target compound was recovered above the upper control limit in the associated laboratory spike samples)

Table 6 Mass Removal Calculations

Table 6
Mass Removal Calculations
Off Depot AS/SVE Year Ten Annual 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
Year 10	8/4/2020	11/3/2020	564	474	78.2	83.6	0.0008	0.5	89.7
	11/3/2020	1/29/2021	402	515	100.0	89.1	0.0010	0.4	90.0
	1/29/2021	4/27/2021	686	546	73.6	86.8	0.0010	0.7	90.7
	4/27/2021	7/27/2021	547	520	72.4	73.0	0.0008	0.4	91.1

Notes:

ft^3	cubic feet
lbs	pounds
lb/hr	pounds per hour
ppbv	parts per billion by volume
scfm	standard cubic feet per minute
TCE	trichloroethene
VOC	volatile organic compound
^0F	degrees Fahrenheit

Constants:

Mass of TCE:	131.4	lb/lb-mol
Molar Vol Air	379	ft^3/lb-mol (@ 60° F)

Due to rounding in the underlying formulas, the Year 10 cumulative mass removed differs slightly from the sum of the estimated mass removed during individual periods.

Table 7 Adjacent LTM Wells Exceeding TC or MCL

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

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

	TC: 2.2 µg/L			MCL: NA		
Date	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
Oct 2020	–	–	**2.4**	–	–	0.3 J
Apr 2021	0.73 J	<0.8	1.7	<0.8	0.748 J	1.3

Trichloroethene (TCE) Concentration (µg/L)

	TC: 5 µg/L			MCL: 5 µg/L		
Date	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
Oct 2020	–	–	**76.4**	–	–	0.988 J
Apr 2021	4.2	0.72 J	**55.3**	0.729 J	1.8	2.3

Notes:
J: estimated value
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 TEN (AUGUST 2020 – JULY 2021),
ANNUAL OPERATIONS REPORT

DUNN FIELD, REVISION 0
DATED JANUARY 2022

DEFENSE DEPOT
MEMPHIS, TENNESSEE

EPA General Comments:

1. An adequate assessment of system performance regarding the concentrations of volatile organic compounds (VOCs) being extracted by the system could not be performed. Many of the photoionization detector (PID) measurements for the soil vapor extraction (SVE) wells and vapor monitoring points (VMPs) were recorded as zero; therefore, the measurements do not provide useful data. As such, it appears a PID capable of meeting lower detection limits (parts per billion) is needed when the standard PID measurements indicate concentrations are zero or very low (0.2 parts per million or less). The use of a PID capable of measuring low, parts per billion (ppb) soil vapor levels will provide better quality data available to support system performance and optimization evaluations. Please revise the Off Depot Air Sparge/Soil Vapor Extraction System Annual Operations Report, Year Ten (Revision 0), January 2022 (the Report) to address how low ppb levels of soil vapor can be measured at SVE wells and VMPs to ensure an adequate assessment of system performance and/or optimization can be performed.

Response: Assessment of system performance in regards to concentrations of VOCs being extracted by the system is measured not by PID readings at VMP and SVE wells, but rather by quarterly air samples of the effluent air stream. Overall effectiveness of the remedial action is determined by concentrations of target VOCs in groundwater which have been below the treatment goal of 50 µg/L in all monitoring wells since 2012, except MW-159. Recent data for MW-159 from December 2021 and April 2022 (data that is still in the process of being reported), indicates that this well too is now well below 50 µg/L. PID measurements at VMP and SVE well locations have declined over the operational period of the AS/SVE system (see trend charts in Appendix C-2 and Appendix C-3) and are currently less than 1 ppm in all VMP and SVE wells. Part per billion PID measurements would only refine the data on what are already known to be very low VOC concentrations, but would not provide new insight into overall system performance and are therefore not proposed.

2. In several of the tables, many abbreviations and acronyms are not defined. For example, in Table 6 (Mass Removal Calculations) VOC and Trichloroethylene (TCE) are not defined. Please revise the tables as applicable to include definitions for all abbreviations and acronyms.

Response: Revisions were made to the tables based on the comment.

EPA Specific Comments:

1. **Section 1.4.1, System Operations and Monitoring, Page 1-3:** The text in the fifth paragraph states that the system has periodically operated in stand-by and auto modes during the first eight years of operation; however, there is no discussion of what operation modes were utilized during Year 9 and

10 operations. Please revise the text to describe what mode of operation the system was in for Years 9 and 10.

Response: The following text was added to the end of Section 1.4.1.: "During years 8, 9, and 10, the system generally alternated between full and standby operation (as planned) on a roughly 4-week interval, except for relatively short periods of downtime related to system maintenance, equipment failure, or loss of power".

2. **Section 1.5, Scope of Work, Pages 1-4 and 1-5:** It is unclear how the operation and maintenance (O&M) activities discussed in this section are documented since there are no O&M logs provided in the report. The text indicates O&M activities include weekly and biweekly inspections and measurements; however, it is unclear how these inspections and measurement activities are documented. Please provide text that describes how these weekly/biweekly inspections and measurements are documented and include O&M logs in the Report as an appendix. If O&M logs are not available, state why and discuss the need to include them in future reports.

   Response: Weekly inspections and biweekly system measurements are documented on field forms. Biweekly flow rate and vacuum measurements are transferred to an Excel spreadsheet on a biweekly basis. The spreadsheet is used to generate Table 1 in the annual report. Bimonthly VMP vacuum measurements and VMP, SVE well, and effluent air PID measurements are recorded on field forms. These data are used to generate Tables 2, 3, and 4 in the annual report. Scheduled and unscheduled maintenance activities are generally documented on the weekly site inspection reports and form the basis for the annual report sections 2.3.1 and 2.3.2. All of the pertinent system data is reported in the annual report tables, therefore, addition of the field forms is not necessary. This is consistent with how every annual report has been prepared since system startup.

3. **Section 1.5, Scope of Work, Page 1-5:** The text states that the annual operations report includes performance monitoring results with data validation; however, according to Section 3.4 (Data Quality Evaluation), a data quality evaluation of analytical results was conducted, which is not a stringent as data validation. Please revise the text to clarify that monitoring results have undergone a data quality evaluation.

   Response: The text was revised as follow: "Annual operations report summarizing system operations and monitoring results with data quality evaluation, and recommendations for future operations."

4. **Section 2, System Operations, Page 2-1:** The air sparge (AS) operations schedule that was implemented during Year 10 is unclear. The first paragraph states that 69 AS wells operated 4 hours per day (full-time), 6 AS wells operated 2 hours per day (half-time) and 20 wells are closed. However, the second paragraph of this section states that during full operation the AS well are operated 12 hours a day. Please revise the text to accurately and clearly describe the AS operations schedule that was implemented during Year 10.

   Response: The first paragraph of Section 2 was revised as follows: "The AS wells are operated in three groups of 22 to 25 AS wells with 69 AS wells operated 4 hours each per day (full-time) and 6 AS wells operated 2 hours each per day (half-time); the remaining 20 AS wells are closed (Figure 1). The three groups of AS wells that are operated 4 hours each per day are programmed such that while one group is operating, the other two groups are off. Operation is sequenced so that when one group shuts off, the next group immediately turns on. As each group operates for 4 hours per day, the total AS well operation sums to 12 hours per day. Other than the addition of the five new AS wells, this is consistent with Year Nine operations."

5. **Section 2.1, System Performance, Page 2-1:** The statement that the system operated a total of 194 days and 2,328 hours could not be verified, as no supporting documentation was presented. For

example, the Report does not include the appropriate field logs or programmable logic controller (PLC) report(s) with the dates and times for when the system was in operation. As such, inclusion of these field logs/PLC report(s) in future reports would be beneficial to the overall assessment of system performance. Please revise the Report to consider inclusion of the field logs/PLC report(s) to ensure an adequate assessment of system performance can be made.

Response: The system is considered operational when the AS manifold is open. System uptime is calculated based on the duration (hours) that the manifold was planned to be open, minus the duration of any system shutdown hours that occurred during the period when the manifold was planned to be open. System shutdown hours that occur during periods when the manifold is closed do not count towards system downtime. By necessity, this is a manual calculation and is consistent with how numerous prior annual reports were prepared. Field logs and/or PLC reports have not been provided in any annual report prepared since system startup. No revisions to the report are proposed.

6. **Section 2.2, System Flow Rates and Vacuums, Page 2-1:** It is unclear whether the actual combined SVE flow rate, which is more than the designed rate, will result in negative impacts due to diminished capture zone. The last paragraph states that the combined SVE flow rate was designed at 1.5 times the AS injection rate; however, the actual SVE flow rate was 4.1 times the AS injection rate, which is more than twice the designed rate. Please revise the text to include a discussion on whether this increased flow rate will have a negative impact on the system that would result in diminished vapor capture.

   Response: The combined SVE well flowrate has exceeded the design rate since system startup in 2011. Rates have generally been in the range of 3-4 times the AS well injection rate. The Year 10 rate of 4.1 times the AS well injection rate is only slightly higher than previous rates. Overall effectiveness of the remedial action is determined by concentrations of target VOCs in groundwater which have been below the treatment goal of 50 µg/L in all monitoring wells since 2012, except MW-159. Recent data for MW-159 from December 2021 and April 2022 (data that is still in the process of being reported), indicates that this well too is now well below 50 µg/L. Therefore, the system has been effective in reducing groundwater concentrations below the treatment goal at all points of compliance. No revisions to the text are proposed.

7. **Section 2.3.2, Non-Routine System Maintenance, Page 2-3:** The ninth bullet states the compressor was shut off due to a thunderstorm and remained off for five days; however, it is unclear if any repairs were conducted to bring the compressor back online. Please include text describing if any repairs/maintenance were conducted and by whom, to bring the compressor back online. If no repairs were conducted, discuss why the compressor remained off-line for five days.

   Response: The AS/SVE system does not have full-time operators. System inspections are conducted weekly. The compressor shutdown was discovered during the following weekly inspection and was restarted at that time. The text was revised as follows: "On 06 May 2021, the compressor low mains alarm was triggered by thunderstorms and shut off the compressor at 1658 hours. The compressor was restarted during the next weekly system inspection on 11 May 2021 at 0900, resulting in approximately 113 hours of system shutdown. No repairs were necessary."

8. **Section 3.2, PID Measurements, Page 3-1:** The text throughout this section states PID results for VOCs are qualified as "estimated"; however, there is no explanation in the text defining or describing why the PID results are qualified as "estimated". Please include text describing the rationale for describing PID results for VOCs as estimated or remove the estimated qualifier from the Report.

   Response: Section 3.2 was revised to remove "estimated VOCs" and replace with "Total VOCs".

9. **Section 3.3, Vapor Samples, Page 3-2:** The text states that effluent samples are collected using 6-liter Summa canisters without regulators; however, it is unclear the period of time that was required for sample collection if there is no regulator attached to the canister. Typically, regulators are used so the canisters are not completely filled, which can create a positive pressure and reverse flow, thus impacting the integrity of the sample. Please revise the text to describe the period of time the canisters are left open and how field technicians verify that the canisters are not over-filled to ensure sample integrity.

   Response: Effluent air samples have been collected without a regulator since Year 2. The text was revised as follows: "System effluent samples for laboratory analysis are collected in 6-liter Summa canisters without a flow regulator (consistent with all sampling events beginning in Year 2). The Summa canisters are shipped from the laboratory with negative pressure; thus, a sampling pump is not required. For each sampling event, the field technician first confirms via the cannister vacuum gauge that the cannister has an initial vacuum in the range of -30 to -25 inches mercury. The technician then connects the cannister via tubing to the effluent sampling port and opens the cannister valve part-way to control the rate of flow into the cannister. The cannister is allowed to fill over a period of approximately five minutes, until the cannister vacuum gauge reads -5 inches mercury."

10. **Section 3.5, Mass Removal Estimate Page 3-2:** The text provides a discussion of the VOC emission rate and VOC mass that was removed during the reporting period; however, there are no formulas included in this section that were used to calculate the emission rate and total mass removal. Please revise the Report to include the formulas used to calculate the VOC emission rate and total mass removal.

    Response: 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 estimated mass removed during each quarter is calculated by multiplying the effluent emission rate by the number of hours operating between dates. The operating hours are calculated by summing the hours that the air manifold is open during the quarter and subtracting any system shutdown hours that occurred during that period. The effluent emission rate is calculated as follows: (average effluent VOC concentrations / 1,000,000,000) x 131.4 (mass of TCE) x (1/379 (molar volume air) x average flow rate x 60. The formulas for these calculations have not been included in any annual report prepared since system startup and no revisions to the Year 10 annual report are proposed.

11. **Section 4.1, System Operations, Page 4-1:** The text states the VOC emission rate in the effluent during the reporting period was 0.0008 pound per hour (lb/hr); however, Section 3.5 states the VOC emission rate in the effluent was 0.0009 lb/hr. According to Table 6, the average VOC emission rate in the effluent during Year 10 is 0.0009 lb/hr. Please revise Section 4 to indicate the VOC emission rate in the effluent was 0.0009 lb/hr during Year 10.

    Response: The text was revised to report 0.0009 lb/hr VOC emission rate.

12. **Table 1, Flow Rate and Vacuum Readings at SVE Wells and Effluent:** The average flow rates and vacuum pressures discussed in the Section 2.2 (System Flow Rates and Vacuums) are not presented in Table 1. Please revise the table to add a row at the bottom to include average flow rate for the AS compressor, and average flow rate and vacuum pressures for the SVE Effluent and the twelve SVE wells.

    Response: The requested information has been added to Table 1.

13. **Table 5, Analytical Results Summary – SVE Effluent:** It appears that non-detect compounds were not included in the total primary chlorinated VOC (CVOC) and total VOC calculations. Typically, the detection limit or half the detection limit are used to add non-detect compounds to

total VOC calculations. However, not including non-detect compounds is also acceptable. Please include a note on the table stating that non-detect compounds were not included in the total primary CVOC and total VOC calculations.

Response: An appropriate note was added to Table 5.

14. **Appendix C-1, Figure 1 VMP Trends-Vacuum Readings, pdf Page 78:** The trends in vacuum pressure over time for each of the VMPs illustrated are not easily discernable and are difficult to interpret. This chart shows twenty VMPs and vacuum pressure over time; however, many of the data points and lines in the chart overlap, making trend interpretation difficult. Please revise the Report to consider creating additional charts to reduce the overlap of multiple VMP trend lines to ensure an adequate assessment of trends can be performed.

    Response: Appendix C-1 has been revised to breakout the VMP vacuum date by paired VMPs.

15. **Appendix C-2, Figure 1 SVE Wells and Effluent Concentration Trend – Field PID Measurements, pdf Page 80:** The trends in field PID measurements over time for each of the SVE wells illustrated are not easily discernable and are difficult to interpret. This chart shows all twelve SVE points and effluent PID results over time; however, many of the data points and lines in the chart overlap, making trend interpretation difficult. Please revise the Report to consider creating additional charts to reduce the overlap of multiple SVE trend lines to ensure an adequate assessment of trends can be performed.

    Response: Figures 2 through 14 in Appendix C-2 show the PID trends for each of the individual SVE points and the effluent. No additional figures are proposed.

16. **Appendix C-3, Figure 1 VMP Concentration Trend – Field PID Measurements, pdf Page 95:** The trends in PID measurements over time for each of the VPMs illustrated are not easily discernable and are difficult to interpret. This chart shows fourteen VMP points and PID results over time; however, many of the data points and lines in the chart overlap, making trend interpretation difficult. Please revise the Report to consider creating additional charts to reduce the overlap of multiple VMP trend lines to ensure an adequate assessment of trends can be performed.

    Response: Figures 2 through 11 in Appendix C-3 show the PID results over time for each of the paired VMPs. No additional figures are proposed.

17. **Appendix F, Data Quality Evaluation, pdf Pages 680 to 688:** Two of the data quality evaluation reports for data collected 13 April 2021 and 07 June 2021 are incorrectly titled as Data Validation Reports. Please revise the titles of these reports to indicate Data Quality Review Report, to be consistent with the data quality reports prepared for data collected 06 October 2020 and 09 December 2020.

    Response: The titles of the two reports in questions were revised to: “Data Quality Review Report”.

18. **Appendix G – Off-Depot Air Sparge/Soil Vapor Extraction System Optimization Report:** There is no text describing decontamination procedures of drilling equipment between locations. Section 2.1 (Air Sparge Well Installation) indicates decontamination of the casing and tooling was completed during removal from the borehole prior to well completion; however, no decontamination procedures were discussed. Please revise the text to include a discussion of decontamination procedures that were employed during the field program, or provide a reference citation of where this information is located (i.e., Trinity 2020, *Uniform Federal Policy-Quality Assurance Project Plan, Off Depot Air Sparge Well Installation Work Plan, Dunn Field, Defense Depot Memphis, Tennessee*. Rev 2. September).

Response: The text was revised as follows: "Decontamination of the casing and tooling was completed during removal from the borehole in accordance with the procedures described in the Workplan (Trinity, 2020)".

19. **Appendix G – Off-Depot Air Sparge/Soil Vapor Extraction System Optimization Report:** There is no text describing well development procedures, which is required to help facilitate connection between the AS screen and the surrounding aquifer. Please revise the text to include a discussion of well development procedures that were employed during the field program, or provide a reference citation of where this information is located (i.e., Trinity 2020, *Uniform Federal Policy-Quality Assurance Project Plan, Off Depot Air Sparge Well Installation Work Plan, Dunn Field, Defense Depot Memphis, Tennessee*. Rev 2. September).

    Response: . The following text was added to the end of Section 2.1: "In accordance with the Workplan (Trinity, 2020), due to the constructed nature of the AS point, development was not necessary nor performed".

20. **Appendix G – Off-Depot Air Sparge/Soil Vapor Extraction System Optimization Report, Section 3.0 Investigation Derived Waste (IDW) Analytical Results, Page 3:** The text states that IDW wastewater and soil was generated during drilling; however, there is no details regarding what kind of wastewater was generated (i.e. well development water, decontamination water). Please revise the text to provide greater detail regarding what kind of wastewater was generated during drilling.

    Response: The second sentence of Section 3.0 was revised as follows: "IDW wastewater, consisting of equipment decontamination water, was stored in 15 55-gallon steel drums staged at Dunn Field".

21. **Appendix G – Off-Depot Air Sparge/Soil Vapor Extraction System Optimization Report, Section 3.0 Investigation Derived Waste (IDW) Analytical Results, Page 3:** There is no discussion of what kind of samples were collected from the waste streams (grab or composite) and how samples were collected. Please revise the text to include a discussion of what kind of samples were collected (grab or composite) and how samples were collected or provide a reference citation of where this information is located (i.e., Trinity 2020, *Uniform Federal Policy-Quality Assurance Project Plan, Off Depot Air Sparge Well Installation Work Plan, Dunn Field, Defense Depot Memphis, Tennessee*. Rev 2. September).

    Response: Section 3.0, paragraph 1, was revised to include the following information: "IDW soil was likewise staged at Dunn Field in a single pile and was overlain and underlain with poly sheets. The IDW soil and wastewater were sampled on 16 September 2020. The soil pile was mixed using a skid-steer loader and a grab sample (DDMT-IDW-01) was collected from the center of the pile. A composite sample of the IDW wastewater (DDMT-IDW-02) was generated by combining aliquots from each of the water drums. The samples were submitted to Pace Analytical for analysis of Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOC), semi-volatile organic compounds, pesticides, herbicides, polychlorinated biphenyls, Resource Conservation Regulatory Act metals, reactivity, pH, and flashpoint. All results for both water and soil were below regulatory criteria (Table 1)".

22. **Appendix G – Off-Depot Air Sparge/Soil Vapor Extraction System Optimization Report, Appendix C, Air Sparge Well Construction Log, ODAS-95, pdf Page 746:** The well construction log indicates the well screen was placed at a depth of 97.5 to 99.0 feet below land surface, which suggests a screen length of 1.5 feet; however, according to Section 2.1 (Air Sparge Well Installation) the wells screens are 30 inches or 2.5 feet long. Please revise the log to reflect the proper screen interval and update any text that is affected, if necessary.

Response: The log was corrected to indicate that the top of the screen is 96.5 feet below land surface. No changes to the text were required.

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 4
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, S.W. ATLANTA, GEORGIA 30303

7/7/2022

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

Subject: United States Environmental Protection Agency Concurrence on the Responses to USEPA Comments on the Off Depot Air Sparge-Soil Vapor Extraction System Year Ten (August 2020 – July 2021), Annual Operations Report, Dunn Field, Revision 0, dated January 2022 and the Redline Off Depot Air Sparge /Soil Vapor Extraction System Annual Operations Report, Year 10 (August 2020 through July 2021), Revision 1.

The United States Environmental Protection Agency (USEPA) has completed the regulatory review of the United States ARMY (USARMY) responses to USEPA comments on the Off Depot Air Sparge-Soil Vapor Extraction System, Year Ten Annual Operations Report, Dunn Field, Revision 0, dated January 2022 (RTCs) and the Redline Off Depot Air Sparge / Soil Vapor Extraction System Annual Operations Report, Year 10, Revision 1 (Report).

This regulatory review revealed that the USARMY RTCs adequately addressed the USEPA comments. As a result, the USEPA concurs with the responses directed at this revision. Please update the Administrator Record as necessary and submit the regulators the updated Report in its final version.

The USEPA commends the USARMY for its efforts on further investigating the DDMT environmental conditions. If you have any questions about any of the comments on this letter, please contact me via email at martinez-torres.fernando@epa.gov or at 404-695- 4991.

Sincerely,

Fernando Martinez Torres
Remedial Project Manager
Restoration and DOD Coordination Section
Superfund & Emergency Management Division
United States Environmental Protection Agency

cc: Jaime A. Woods, TDEC
cc: William Millar, CALIBRE
cc: Thomas Holmes, HDR Inc

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

May 20, 2022

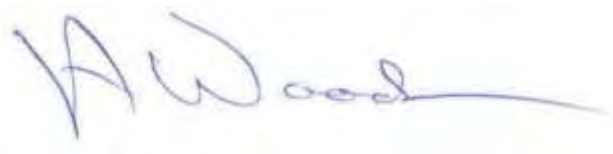
James C. Foster
BRAC Program Manager
Headquarters Department of the Army,
Assistant Chief of Staff for
Installation Management (DAIM-ODB)
Army Pentagon,
2530 Crystal Drive,
Arlington, VA 22202-3934

Subject: **Off Depot AS/SVE Annual Operations Report, Year 10 (Rev. 0)**
Defense Depot Memphis, Tennessee
TDoR ID # 79-736
TN4210020570

Mr. Foster,

TDEC-DoR has reviewed the **Off Depot AS/SVE Y10 Annual Operations Report (Rev. 0)** and has no specific comments regarding the document's contents. If there are questions regarding the approval, please contact me at (901) 371-3041 or at jamie.woods@tn.gov .

Regards,



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

cc: Bill Millar (CALIBRE)
T. Holmes (HDR Inc)
F. Martinez Torres (EPA-PM)

TDoR NCO: file 79-736
TDoR MEFO: file 79-736

Appendix B Semiannual and Annual Maintenance Reports

SERVICE ORDER 72614962

KAESER COMPRESSORS
Built for a lifetime.

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**	S436
	850-613-6800	**Pers.in charge**	Richard Montgomery
Start (approx.)	Wednesday, 9/30/20 / 12:00 AM		(877)882-8376
Service techn.	Sam Coats		

Attachments Add attachment

Periodical maintenance

Contract No: Maintenance Agreement- Sign Service Agreement 'Maintenance'

Major- CSD100, KCF 100, TE141 plus filtrtn.
service w 72621103
PU parts at the branch9am start time**
Sched 9/30-10/1 w Todd Calhoun. KCK 8/27
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
8:45 AM	4:45 AM	0 Min	Wednesday, 9/30/20	Sam Coats

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: 2020.09.30 19:40:14 -05'00'

☒ Signature unavailable

Remark:

Remark:
D. 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. 0020	**Maintain screw compressor - package B**			3.0
Type	CSD 100 125 psi	460/60 US		**1008031353**
Material No.	100818.1	**Year**	**2009**	
Serial No.	1234	**EMR**	**3498678**	

Previous service hours 51,366 h **Current service hours** 53,284 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	ok
☒	-Change filter mat(s) in compressor/control cabinet/SFC cabinet	replaced
☒	-Change air filter	replaced
☒	-Check oil filter and change if necessary	replaced
☒	-Check cooler and clean if necessary/check fan blades and guarding	blew out
☐	-Maintain condensate drain	na
☒	-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	ok
☒	-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 2 psi/bar,	ok
	change as needed	
☒	Check fan motor bearings | ☐ Re-greased	ok
☐	Check compressor motor bearings | ☐ Re-greased	
☒	-Check nominal pressure shutdown function,	ok
	shutdown at 115 | 90 psi/bar	
☒	-Check shutdown function when airend discharge temp. too high	ok
☒	-Check control voltage: L1 128 V	ok
☒	-Check power consumption: Line U1 95.4 A V1 89 A W1 94.6 A	ok
☒	-Check pressure relief valve(s)	ok
☒	-Check airend discharge temperature 173 °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 53284 Load h 22162 Ambient temp. 86 °F/°C	ok
	Oil type M460 Control mode Modulation	ok
	Existing safety deficiencies? ☒ No ☐ Yes:	
	Cause(s):	
	Arising danger:	

	Work to be done	Comment
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	
	>>>>> Equipment not released for use!	
	Rectified deficiencies:	
☒	Tasks fully completed	complete
☐	Follow-up assignment necessary for:	na
☐	Follow-up order issued for:	na
☐	Supply spares:	
☐		

Additional comments:

Took inventory of parts that were shipped to branch. Started Major/Package B Service.
Took oil sample. Changed oil, oil filter, oil separator, air filter and filter mats. Rebuilt CCVV. Blew out coolers. Wiped down unit inside and out. Test ran and adjusted modulation.

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

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
Filter mat 112x112x10	6.3572.0	2		0	○ Tech. ○ Customer
Oil filter 16bar	6.3465.0	1		0	○ Tech. ○ Customer
Air filter cartridge Ø420x135	6.4148.1	1		0	○ Tech. ○ Customer
KIT oil separator cartridge Ø28(	6.3623.0	1		0	○ Tech. ○ Customer
M-460 Semi-Synthetic Oil $/(5	ANM460-5	3		0	○ Tech. ○ Customer
Maintenance kit Com.aux.v(	400905.0	1		0	○ Tech. ○ Customer
Oil Analysis Kit (red)	ANKCPIND2BR	1		0	○ Tech. ○ Customer
					○ Tech. ○ Customer

Oper. 0030	**Maintain oil-water sep. - package A**			0.5
Type	KCF-100 Condensate Treatment System			**1008031355**
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	ok
☒	-Check activated carbon filter and prefilter, change if necessary	ok
☒	-Change expansion chamber filter	ok
☒	-Check settling tank for contamination and clean if necessary	ok
☒	-Check oil drain and clean if necessary	ok
☒	-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	none
	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	complete
☒	Follow-up assignment necessary for:	na
☐	Follow-up order issued for:	na
☐	Supply spares:	
☐		

Additional comments:

Replaced cartride/filter. Cleaned inside of KCF container. Found one 3/8 line going into KCF leaking. Cut line and reconnected. Leak appears to be fixed.

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

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
Replacement Filter Set - KCF1(	ANKCF100CAR	1		0	○ Tech. ○ Customer
					○ Tech. ○ Customer

Oper. 0050	**Maintain refrigeration dryer**			2.0
Type	Refrig. dryer TE 141 460/3/60			**1008031354**
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	none
☒	-Clean refrigerant condenser and straighten laminations	ok
☒	-Maintain condensate drain	serviced
☒	-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 [92] °F/°C | Outlet [61] °F/°C	ok
☒	-Check dew point: ☐ blue ☒ green ☐ red | [ ] °F/°C	ok
	Refilled/disposed refrigerant quantity: [ ] / [ ] kg/lb	na
	Refrigerant type and total quantity*: [R134] / [4.4] kg/lb	ok
☒	-Check refrigerant circuit for leaks	none
☒	-Check setting and function of the compressed air bypass/diversion	ok
☒	-Test run	ok
☒	-Register service: stick label/service manual	ok
	Refrigerant type [R134] Ambient temperature [84] °F/°C	ok
	Existing safety deficiencies? ☒ No ☐ Yes:	ok
	Cause(s):	
	Arising danger:	
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	na
	>>>>> Equipment not released for use!	
	Rectified deficiencies:	
☒	Tasks fully completed	complete
☐	Follow-up assignment necessary for:	
☐	Follow-up order issued for:	
☐	Supply spares:	
☐		

Additional comments:

Cleaned condensor. Serviced both Eco drains using one from van stock. Inspected dryer for leaks and proper operation.

Consumed material	Material No.	Pc	Serial No.	Part ID/batch	Stock
Eco Drain Service Unit	AN8247400370	1			1002

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
KIT Service-UNIT ECO-DRAIN	AN8247400370	1		0	○ Tech. ○ Customer
					○ Tech. ○ Customer

Oper. 0070	**Maintain compr. air filter - package B**			1.0
Type	Particulate KPF-485.2 w/ AMD1550			**1008031505**
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)	replaced
☒	-Clean filter housing and control bores in the filter head	cleaned
☒	-Maintain condensate drain	serviced
☒	-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	ok
	Existing safety deficiencies? ☒ No ☐ Yes:	ok
	Cause(s):	
	Arising danger:	
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	
	>>>>> Equipment not released for use!	
	Rectified deficiencies:	
☒	Tasks fully completed	complete
☐	Follow-up assignment necessary for:	na
☐	Follow-up order issued for:	na
☐	Supply spares:	
☐		

Additional comments:

Replaced element. Cleaned housing and rebuilt AMD1550. No O'ring sent for this filter. Used old o'ring. No leaks at this time.

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

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
KIT maintenance AMD 1550	AN55800	1		0	○ Tech. ○ Customer
Std 485 KPF Element	USPF-485	1		0	○ Tech. ○ Customer
					○ Tech. ○ Customer

Oper. 0090	**Maintain compr. air filter - package B**			1.0
Type	Oil Removal KOR-485.2 w/ AMD1550			**1008031356**
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)	replaced
☒	-Clean filter housing and control bores in the filter head	ok
☒	-Maintain condensate drain	serviced
☒	-Check pressure differential indicator (option)	ok
☐	-Check optional shutdown function, only with user's permission	na
☒	-Check for leaks	none
☒	-Register service: stick label/service manual/controller	ok
	Existing safety deficiencies? ☒ No ☐ Yes:	ok
	Cause(s):	
	Arising danger:	
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	
	>>>>> Equipment not released for use!	
	Rectified deficiencies:	
☒	Tasks fully completed	complete
☐	Follow-up assignment necessary for:	
☐	Follow-up order issued for:	
☐	Supply spares:	
☐		

Additional comments:

Replaced element and o'ring. cleaned housing and rebuilt AMD 1550 drain.

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

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
Std 485 KOR Element (RED)	USOR-485	1		0	○ Tech. ○ Customer
KIT maintenance AMD 1550	AN55800	1		0	○ Tech. ○ Customer
O-ring, BUNA 5.734 ID	US3098816	1		0	○ Tech. ○ Customer
					○ Tech. ○ Customer

Oper. 0110	**Maintain compr. air receiver - package B**			0.5
Type	200 Gal Tank w/ AMD 6550			**1008031490**
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	
☒	-Visually check air receiver exterior condition	ok
☒	-Maintain condensate drain	serviced
☒	-Check pressure indicator	ok
☒	-Check pressure relief valve(s) for visible damage/contamination	ok
☒	-Check for leaks	none
☒	-Register service: stick label/service manual	ok
	Existing safety deficiencies? ☒ No ☐ Yes:	none
	Cause(s):	
	Arising danger:	
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	
	>>>>> Equipment not released for use!	
	Rectified deficiencies:	
☒	Tasks fully completed	complets
☐	Follow-up assignment necessary for:	na
☐	Follow-up order issued for:	na
☐	Supply spares:	
☐		

Additional comments:

Rebuilt AMD 6550 drain. Inspected tank.

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

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
KIT maintenance AMD 6550	US50180	1		0	○ Tech. ○ Customer
					○ Tech. ○ Customer

Oper. 0120 **Maintain filter - package A** 1.0

Type Separator - KFS-485.2 AMD 1550 **1008031476**

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)	replaced
☒	-Check / maintain condensate drain	rebuilt
☐	-Check optional shutdown function, only with user's permission	na
☒	-Check for leaks	ok
☒	-Register service: stick label/service manual/controller	ok
	Existing safety deficiencies? ☒ No ☐ Yes:	none
	Cause(s):	
	Arising danger:	
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	na
	>>>>> Equipment not released for use!	
	Rectified deficiencies:	
☒	Tasks fully completed	complete
☐	Follow-up assignment necessary for:	
☐	Follow-up order issued for:	
☐	Supply spares:	
☐		

Additional comments:

Replaced element and o'ring. cleaned housing and rebuilt AMD 1550 drain.

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

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
KIT maintenance AMD 1550	AN55800	1		0	○ Tech. ○ Customer
Std 485 KFS Element	USFS-485	1		0	○ Tech. ○ Customer
O-ring, BUNA 5.734 ID	US3098816	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	
							+ -

SERVICE ORDER 72621103 Page1/7

KAESER COMPRESSORS
Built for a lifetime.

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**	S436
	850-613-6800	**Pers.in charge**	Richard Montgomery
Start (approx.)	Wednesday, 9/30/20 / 12:00 AM		(877)882-8376
Service techn.	Terry Linkous		

Attachments Add attachment

Periodical maintenance

Contract No: Maintenance Agreement/Signe
Maintenance Agreement, verbal

EB 420 C x2.
Service w 72614962 -
Part at Branch9am start time**
Sched 9/30-10/1 w Todd Calhoun. KCK 8/27
850-613-6800 Ext. 122

Label all returned goods!

Reason for return	Returned goods	to oper.	Pc	Material No.	Serial No.	Returned by
Disposal	As consumed	0030	1	SB220		○ Customer ◉ Technician ○ Waste contractor
Disposal	As Consumed	0060	1	SB220		○ Customer ◉ Technician ○ Waste contractor

Set up time

Date	Duration	Service technician		
			+	-

Wrap up time

Date	Duration	Service technician		
			+	-

Start of work	End of work	Breaks	Date / Weekday	Service technician
9:30 AM	1:00 PM	0 Min	Wednesday, 9/30/20	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)*
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: 2020.09.30 14:45:57 -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. 0030	**Maintain blower - package B**				4.0
Type	EB 420 C VAC 40,0 hp 2.460 rpm				**1008042011**
Material No.	EBC	**Year**	**2009**		
Serial No.	2138	**EMR**	**3605958**	**ID No.**	BLOWER #2

Previous service hours 8 h **Current service hours** 0 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 unit
☒	-Clean surface of airend and motor	cleaned
☒	-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	Inspected
☒	-Check guard	OK
☒	-Check extractor blade (enclosure)	cleaned
☒	-Change air filter	Changed
☒	-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	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	Checked
	-Check control voltage: L1 24 V	
☒	-Check power consumption: Line U1 28.5 A V1 30 A W1 29 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 de-energized equipment and verified prior to beginning work. Completed service changing the oil and air filter. Cleaned the extractor fan, inspected belts, cleaned unit up. Verified operation 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
~~Oil Analysis Kit (red)~~	~~ANKCPIND2BR~~	~~1~~		1	◉ Tech. ○ Customer
					○ Tech. ○ Customer

Oper. 0060	**Maintain blower - package B**				4.0
Type	EB 420 C VAC 40,0 hp 2.460 rpm				**1008042012**
Material No.	EBC	**Year**	**2009**		
Serial No.	2140	**EMR**	**3605982**	**ID No.**	BLOWER #1

Previous service hours 9 h **Current service hours** 0 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	Cleaned
☒	-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	Inspected
☒	-Check guard	OK
☒	-Check extractor blade (enclosure)	Cleaned
☒	-Change air filter	changed
☒	-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	inspected
	-Check control voltage: L1 24 V	
☒	-Check power consumption: Line U1 28 A V1 29 A W1 28 A	Ok
☒	-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 de-energized equipment and verified prior to beginning work. Completed service changing the oil and air filter. Cleaned the extractor fan, inspected belts, cleaned unit up. Verified operation 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
~~Oil Analysis Kit (red)~~	~~ANKCPIND2BR~~	~~1~~		1	◉ 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	
							+ -

SERVICE ORDER 72729755 Page1/12

KAESER COMPRESSORS
Built for a lifetime.

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**	Hold for PO
	901-268-2478	**Pers.in charge**	Richard Montgomery
Start (approx.)	Tuesday, 4/6/21 / 12:00 AM		(877)882-8376
Service techn.	Terry Linkous		

Attachments Add attachment

Periodical maintenance

Contract No: Maintenance Agreement- Sign
Service Agreement 'Maintenance'

Minor PM of CSD100, inspection of all others

Scheduled 4/6 with Denise -adm 3/26
Contact: Denise Cooper 901-268-2478

1Z2002910301414096 DELV 4/1 AT 956AM SIGNED FOR: COATS - 4/1 LCS

Label all returned goods!

Reason for return	Returned goods	to oper.	Pc	Material No.	Serial No.	Returned by
Disposal	As consumed	0010	1	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
11:00 AM	12:45 PM	0 Min	Tuesday, 4/6/21	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)*
richard.montgomery@kaeser.com

Customer e-mail*(for confirmation)*
denise.cooper@hdrinc.com

Service technician's signature	Kaeser Field Service PN	Digitally signed by Kaeser Field Service PN Date: 2021.04.06 16:01:10 -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 screw compressor - package A**		1.5
Type	CSD 100 125 psi	460/60 US	**1008470465**
Material No.	100818.1	**Year**	**2009**
Serial No.	1234	**EMR**	**3498678**

Previous service hours 53,284 h **Current service hours** 55,822 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
☒	-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	Changed
☒	-Check cooler and clean if necessary/check fan blades and guarding	Ok
☐	-Maintain condensate drain	Na
☒	-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	Ok
☒	-Check oil separator cartridge difference pressure 0 psi/bar,	Ok
	change as needed	
☒	Check fan motor bearings | ☐ Re-greased	Inspected
☒	Check compressor motor bearings | ☒ Re-greased	Greased
☒	-Check nominal pressure shutdown function,	
	shutdown at 120 | psi/bar	Ok
☒	-Check shutdown function when airend discharge temp. too high	Ok
☒	-Check control voltage: L1 128 V	OK
☒	-Check power consumption: Line U1 122 A V1 121 A W1 124 A	Ok
☒	-Check pressure relief valve(s)	Ok
☒	-Check airend discharge temperature 177 °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.	Topped off (CS)
☒	-Register service: stick label/service manual/controller	Ok
	Total h 55822 Load h 24636 Ambient temp. 75 °F/°C	Ok
	Oil type M460 Control mode Dual	Ok
	Existing safety deficiencies? ☒ No ☐ Yes:	Ok
	Cause(s):	Na
	Arising danger:	Na

	Work to be done	Comment
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	Na
	>>>>> Equipment not released for use!	Na
	Rectified deficiencies:	Na
☒	Tasks fully completed	
☐	Follow-up assignment necessary for:	
☐	Follow-up order issued for:	
☐	Supply spares:	
☐		

Additional comments:

Completed minor PM of this unit changing the oil filter, air filter, and filter mats. Inspected the drive coupling, topped off the oil and cleaned the modulation orifice. Test ran unit, then verified operation to be satisfactory at this time.

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

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
Filter mat 112x112x10	6.3572.0	2		0	○ Tech. ○ Customer
Oil filter 16bar	6.3465.0	1		0	○ Tech. ○ Customer
Oil Analysis Kit (red)	ANKCPIND2BR	1		0	○ Tech. ○ Customer
KIT Air filter cartridge	4E0302.0	1		0	○ Tech. ○ Customer
					○ Tech. ○ Customer

Oper. 0020	**Maintain compr. air receiver - package A**			0.5
Type	200 Gal Tank w/ AMD 6550			**1008470809**
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	Inspected
☒	-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):	Na
	Arising danger:	Na
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	Na
	>>>>> Equipment not released for use!	Na
	Rectified deficiencies:	Na
☒	Tasks fully completed	Ok
☐	Follow-up assignment necessary for:	Na
☐	Follow-up order issued for:	Na
☐	Supply spares:	Na
☐		Na

Additional comments:

Completed inspection of this receiver and the condensate drain. No issues found.

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. 0030	**Maintain refrigeration dryer**			2.0
Type	Refrig. dryer TE 141 460/3/60			**1008470468**
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
☒	-Check condensate drain	Ok
☒	-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 safety shutdown, switch-point [ ] °F/°C | [ ] psi/bar	Na
☒	-Check compressed air temp.: Inlet [78] °F/°C | Outlet [72] °F/°C	Ok
☒	-Check dew point: ☐ blue ☒ green ☐ red | [ ] °F/°C	Ok
☒	-Check refrigerant circuit for leaks	OK
	Refilled/disposed refrigerant quantity: [ ] / [ ] kg/lb	Na
	Refrigerant type and total quantity*: [ ] / [ ] kg/lb	Na
☒	-Check setting and function of the compressed air bypass/diversion	Ok
☒	-Test run	OK
☒	-Register service: stick label/service manual/controller	Ok
	Refrigerant type [R134a] Ambient temperature [75] °F/°C	Ok
	Existing safety deficiencies? ☒ No ☐ Yes:	Ok
	Cause(s):	Na
	Arising danger:	Na
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	Na
	>>>>> Equipment not released for use!	Na
	Rectified deficiencies:	Na
☒	Tasks fully completed	Ok
☐	Follow-up assignment necessary for:	Na
☐	Follow-up order issued for:	Na
☐	Supply spares:	Na
☐		Na

Additional comments:

Completed inspection of this dryer, operation satisfactory at this time.

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. 0040	**Maintain oil-water sep. - package A**			0.5
Type	KCF-100 Condensate Treatment System			**1008470469**
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	Inspected
☒	-Change expansion chamber filter	Inspected
☒	-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)	Na
☒	-Register service: stick label/service manual/controller	Ok
	Existing safety deficiencies? ☒ No ☐ Yes:	Ok
	Cause(s):	Na
	Arising danger:	Na
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	Na
	>>>>> Equipment not released for use!	Na
	Rectified deficiencies:	Na
☒	Tasks fully completed	Ok
☐	Follow-up assignment necessary for:	Na
☐	Follow-up order issued for:	Na
☐	Supply spares:	Na
☐		Na

Additional comments:

Completed inspection of the KCF100 no issues found.

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			**1008470470**
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)	Inspected
☒	-Clean filter housing and control bores in the filter head	Inspected
☒	-Maintain condensate drain	Inspectred
☒	-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	Ok
	Existing safety deficiencies? ☒ No ☐ Yes:	Ok
	Cause(s):	Na
	Arising danger:	Na
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	Na
	>>>>> Equipment not released for use!	Na
	Rectified deficiencies:	Na
☒	Tasks fully completed	Ok
☐	Follow-up assignment necessary for:	Na
☐	Follow-up order issued for:	Na
☐	Supply spares:	Na
☐		Na

Additional comments:

Completed inspection of the line filter. No issues found.

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			**1008470826**
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)	Inspected
☒	-Clean filter housing and control bores in the filter head	Inspected
☒	-Maintain condensate drain	Inspected
☒	-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	Ok
	Existing safety deficiencies? ☒ No ☐ Yes:	Ok
	Cause(s):	Na
	Arising danger:	Na
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	Na
	>>>>> Equipment not released for use!	Na
	Rectified deficiencies:	Na
☒	Tasks fully completed	Ok
☐	Follow-up assignment necessary for:	Na
☐	Follow-up order issued for:	na
☐	Supply spares:	Na
☐		Na

Additional comments:

Completed inspection of the line filter. No issues found.

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			**1008470774**
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
☒	-Change filter element(s)	Inspected
☒	-Clean filter housing and control bores in the filter head	Inspected
☒	-Check/maintain condensate drain	Ok
☐	-Check optional shutdown function, only with user's permission	Na
☒	-Check for leaks	Ok
☒	-Register service: stick label/service manual/controller	Ok
	Existing safety deficiencies? ☒ No ☐ Yes:	Ok
	Cause(s):	Na
	Arising danger:	Na
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	Na
	>>>>> Equipment not released for use!	Na
	Rectified deficiencies:	Na
☒	Tasks fully completed	Ok
☐	Follow-up assignment necessary for:	Na
☐	Follow-up order issued for:	Na
☐	Supply spares:	Na
☐		Na

Additional comments:

Completed inspection of the line filter. No issues found.

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	
							+ -

SERVICE ORDER 72729822 Page1/7

KAESER COMPRESSORS
Built for a lifetime.

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**	Hold for PO
	901-268-2478	**Pers.in charge**	Richard Montgomery
Start (approx.)	Tuesday, 4/6/21 / 12:00 AM		(877)882-8376
Service techn.	Terry Linkous		

Attachments Add attachment

Periodical maintenance

Contract No: Maintenance Agreement/Signe
Maintenance Agreement, verbal

Minor PM of two blowers

Sched 4/6 with Denise -adm 3/26
Contact: Denise Cooper 901-268-2478

1Z2002910301411795 DELV 3/31 AT 1013AM SIGNED FOR: MONTGOMERY - 3/31 LCS

Label all returned goods!

Reason for return	Returned goods	to oper.	Pc	Material No.	Serial No.	Returned by
Disposal	As consumed	0010	1	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
10:00 AM	11:00 AM	0 Min	Tuesday, 4/6/21	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)*
richard.montgomery@kaeser.com

Customer e-mail*(for confirmation)*
denise.cooper@hdrinc.com

Service technician's signature	Kaeser Field Service PN	Digitally signed by Kaeser Field Service PN Date: 2021.04.06 15:38:42 -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				**1008470466**
Material No.	EBC	**Year**	**2009**		
Serial No.	2138	**EMR**	**3605958**	**ID No.**	BLOWER #2

Previous service hours 0 h **Current service hours** 35,252 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	OK
☒	-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	Na
☐	-Open and check unloaded start valve	Na
☐	-Open and check the check valve	Na
☒	-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 25 A V1 25 A W1 26 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	Na
☒	-Check oil level and check for leaks	Ok
☒	-Register service: stick label/service manual/controller	Ok
	Operating hours: 35252 h Oil type: SB220	OK
	Existing safety deficiencies? ☒ No ☐ Yes:	Ok
	Cause(s):	Na
	Arising danger:	Na
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	Na
	>>>>> Equipment not released for use!	Na

	Work to be done	Comment
	Rectified deficiencies:	Na
☒	Tasks fully completed	Ok
☐	Follow-up assignment necessary for:	Na
☐	Follow-up order issued for:	Na
☐	Supply spares:	Na
☐		Na

Additional comments:

Completed PKG A PM on this unit replacing the inlet filter. Test ran and verified operation to be satisfactory at this time.

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 ○ Tech. ○ Customer

Oper. 0020	**Maintain blower - package A**				1.0
Type	EB 420 C VAC 40,0 hp 2.460 rpm				**1008470467**
Material No.	EBC	**Year**	**2009**		
Serial No.	2140	**EMR**	**3605982**	**ID No.**	BLOWER #1

Previous service hours 0 h **Current service hours** 30,436 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	Ok
☒	-Check guard	OK
☐	-Check extractor blade (enclosure)	Na
☒	-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	Na
☐	-Open and check unloaded start valve	Na
☐	-Open and check the check valve	Na
☒	-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	Na
☒	-Check control voltage: L1 [24] V	Ok
☐	-Check power consumption: Line U1 [ ] A V1 [ ] A W1 [ ] A	Na
☐	-Check overheating shutdown function (option)	Na
☐	-Check pressure relief valve(s)	OK
☐	-Test run, check conditions: start, load and shut-down	Na
☐	-Check display functions	Na
☒	-Check oil level and check for leaks	OK
☒	-Register service: stick label/service manual/controller	Ok
	Operating hours: [30436] h Oil type: [SB220]	Ok
	Existing safety deficiencies? ☒ No ☐ Yes:	Na
	Cause(s):	na
	Arising danger:	Na
	Safety deficiency rectified? ☐ Yes ☐ No; reason:	Na
	>>>>> Equipment not released for use!	Na

	Work to be done	Comment
	Rectified deficiencies:	Na
☒	Tasks fully completed	
☐	Follow-up assignment necessary for:	
☐	Follow-up order issued for:	
☐	Supply spares:	
☐		

Additional comments:

Replaced air filter, no other work performed. This unit is currently down with motor issues.

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
					○ 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.

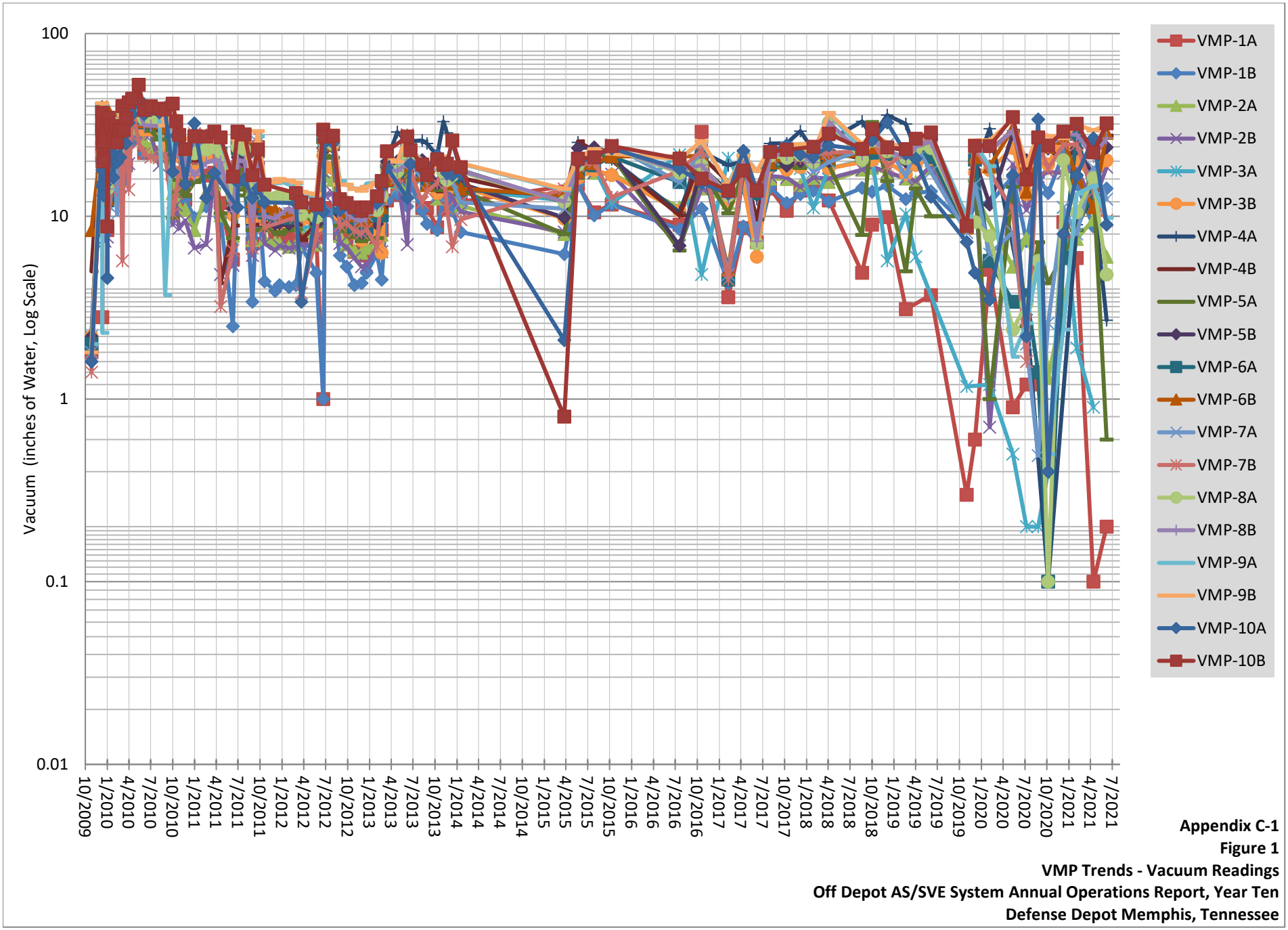
Type	S. Hr.	Year	Material No.	Serial No.		Station	
Refrig. dryer TE 141 460/3/60		2009	1.8039.00010	1343	reg.		-
CSD 100 125 psi 460/60 US		2009	100818.1	1234	reg.		-
200 Gal Tank w/ AMD 6550		2009	9.9999.9	41588	reg.		-
KCF-100 Condensate Treatment System		2009	ANKCF100	2144292	------		-
Separator - 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

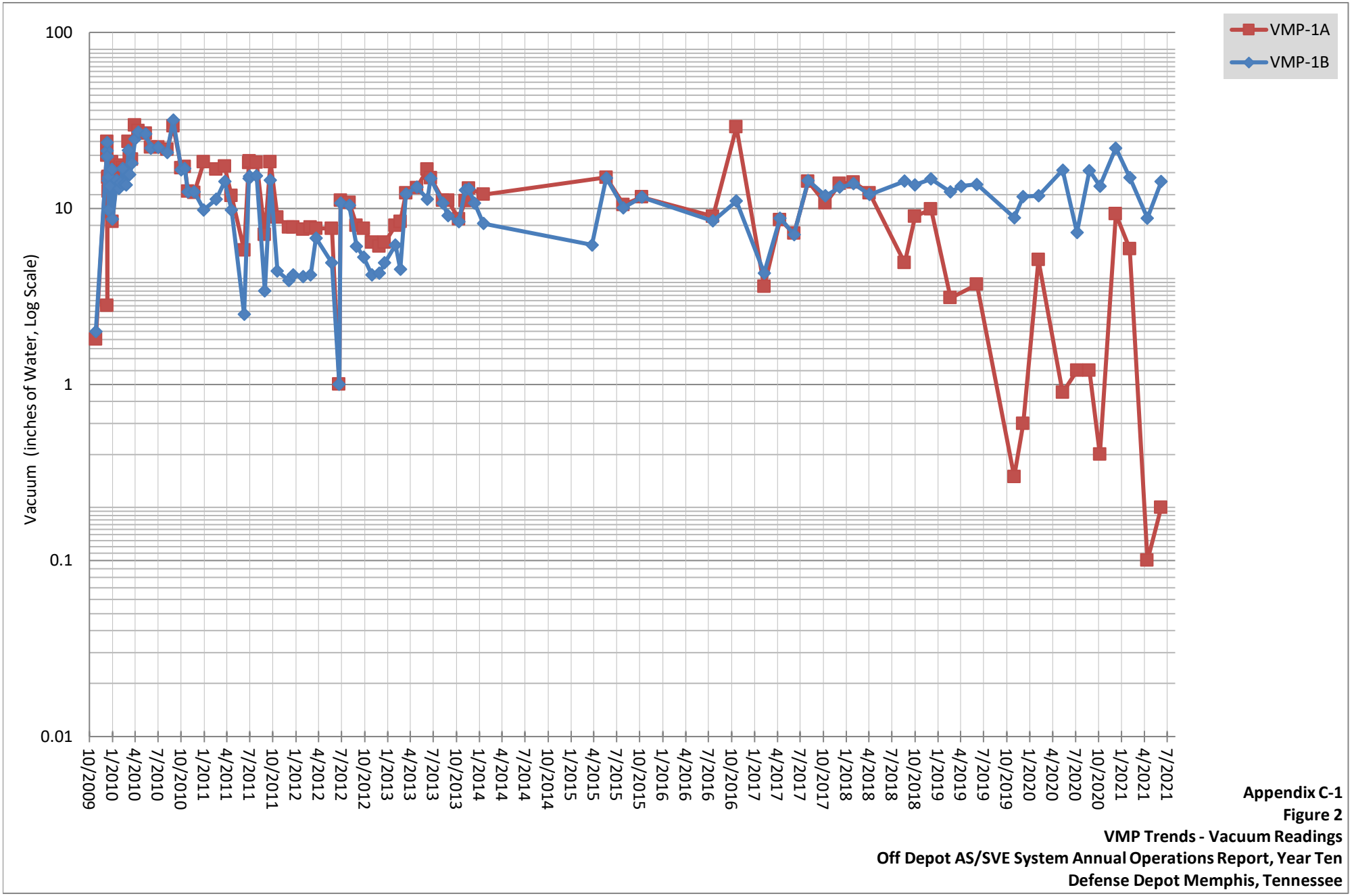
Type	S. Hr.	Year	Material No.	Serial No.		Station	
							+ -

Appendix C Trend Charts for Vacuum and PID Measurements

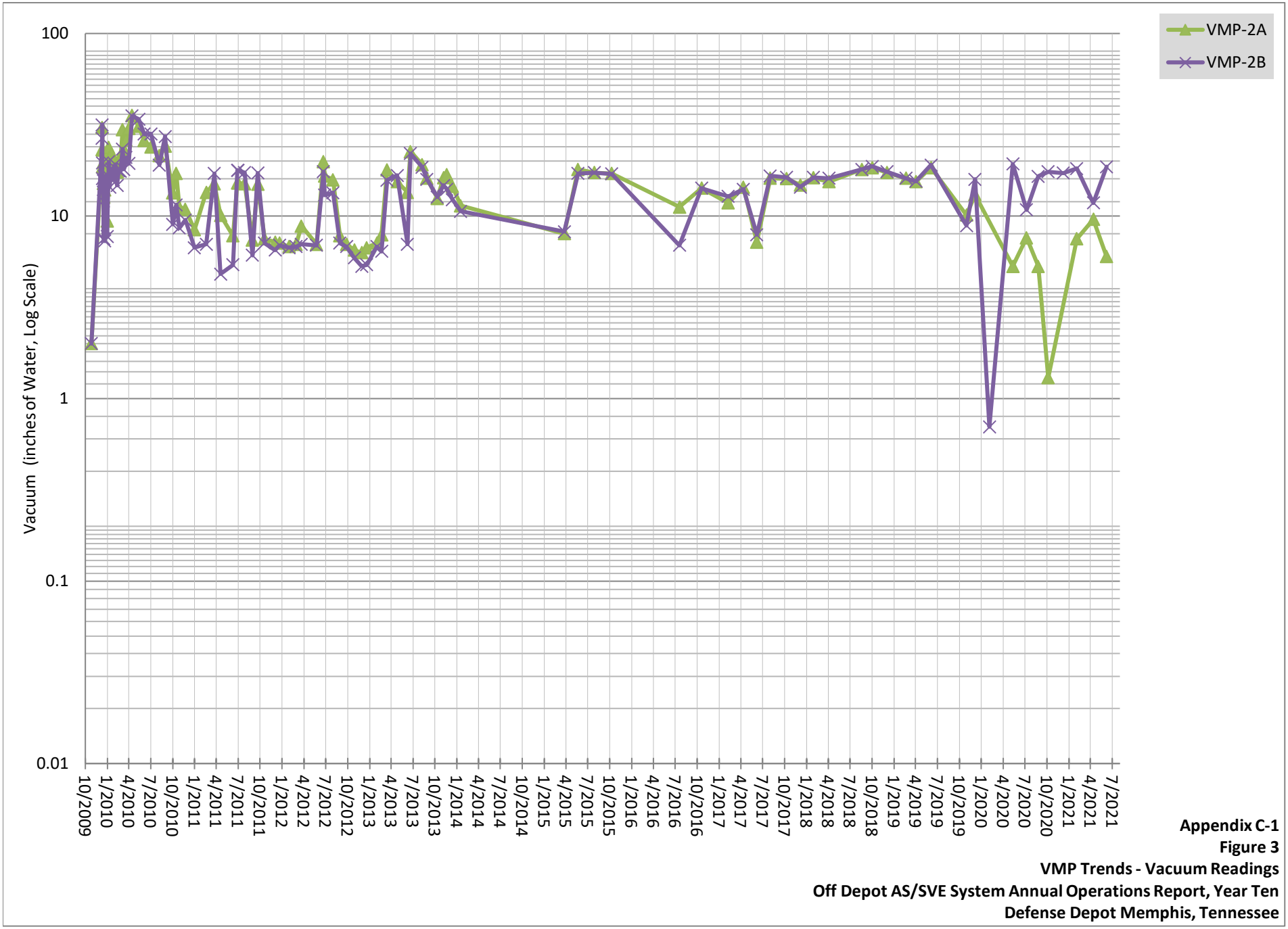
Appendix C-1 VMP Trends – Vacuum Readings



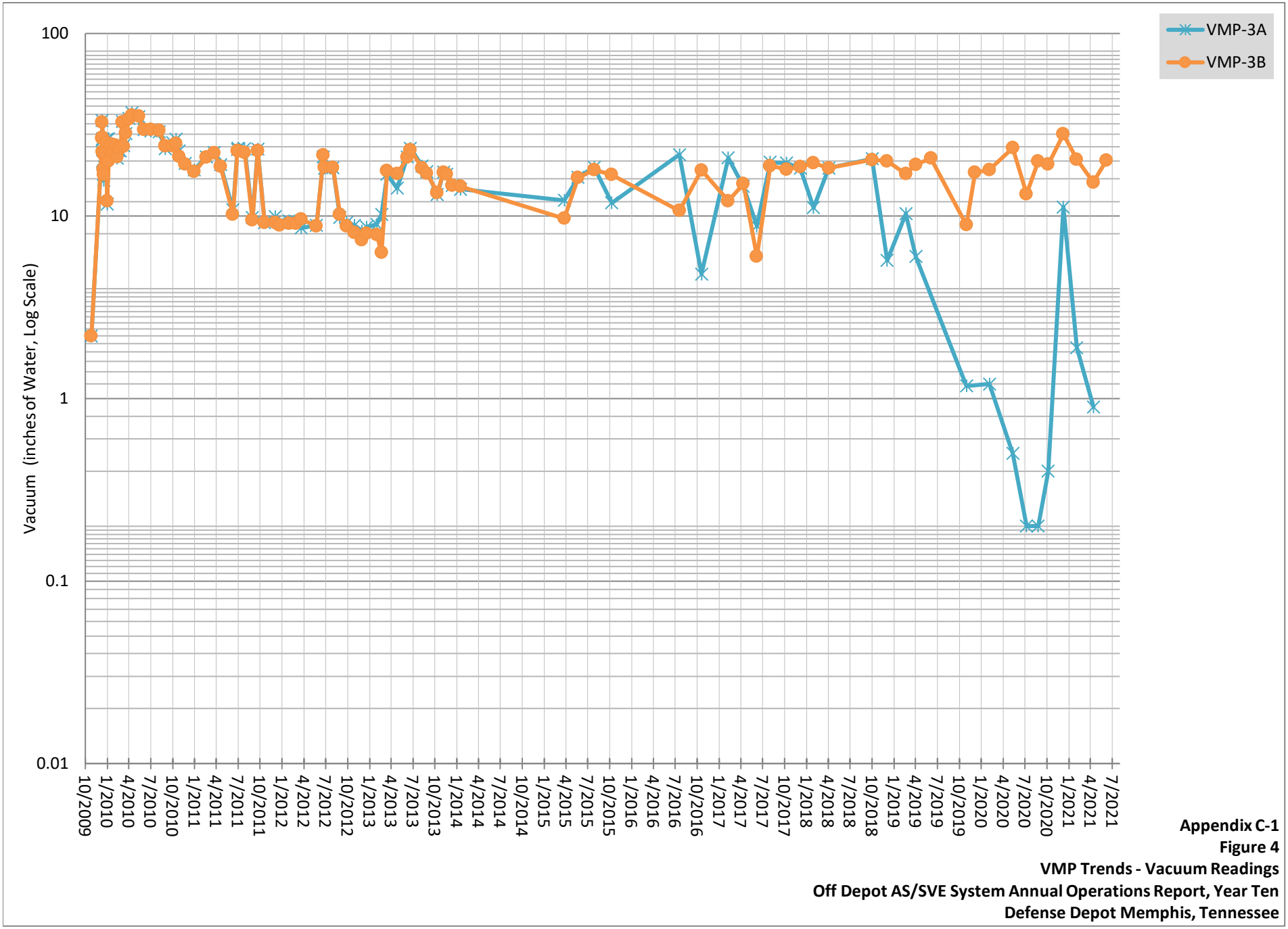
Appendix C-1
Figure 1
VMP Trends - Vacuum Readings
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



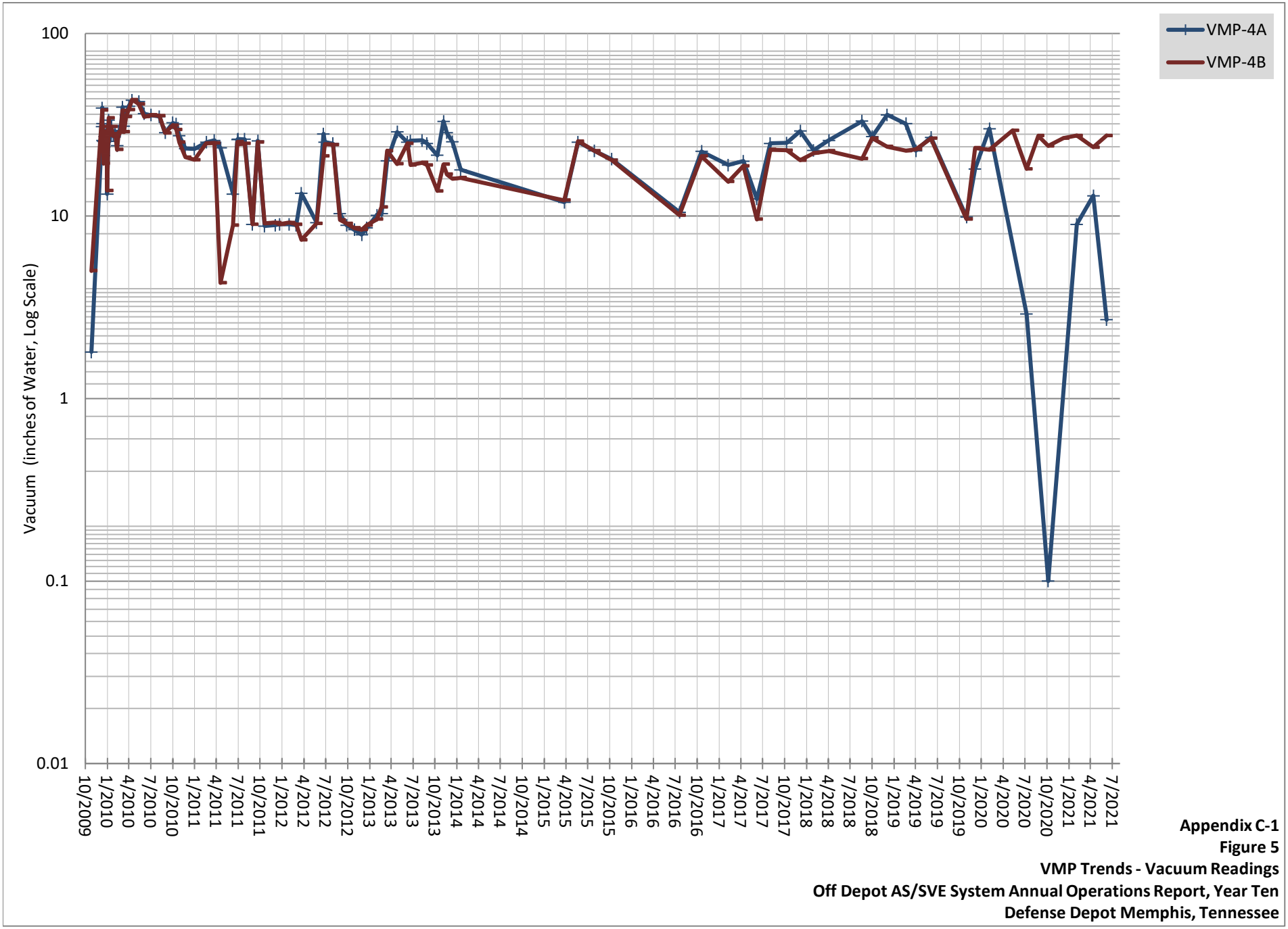
Appendix C-1
Figure 2
VMP Trends - Vacuum Readings
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



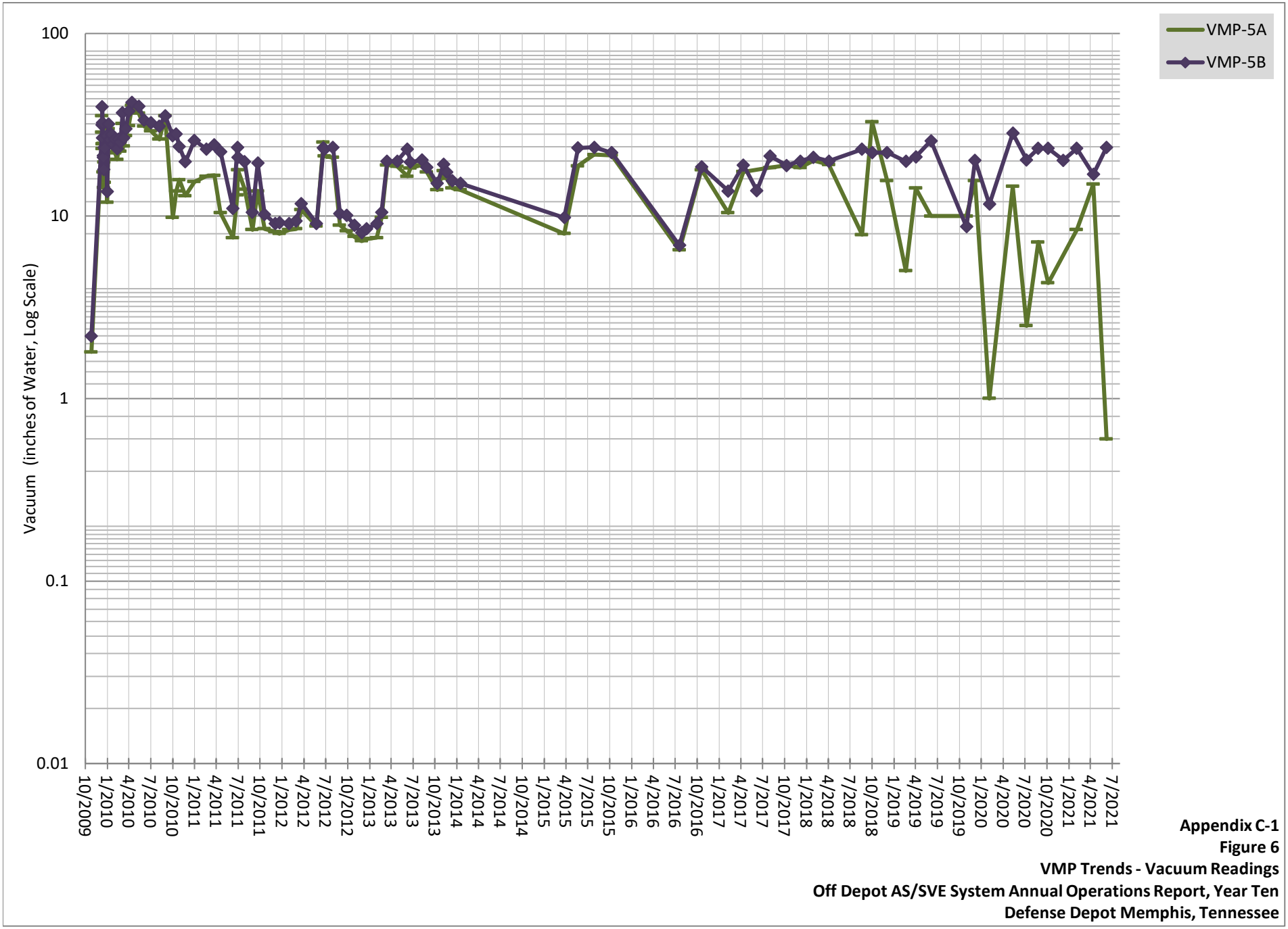
Appendix C-1
Figure 3
VMP Trends - Vacuum Readings
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



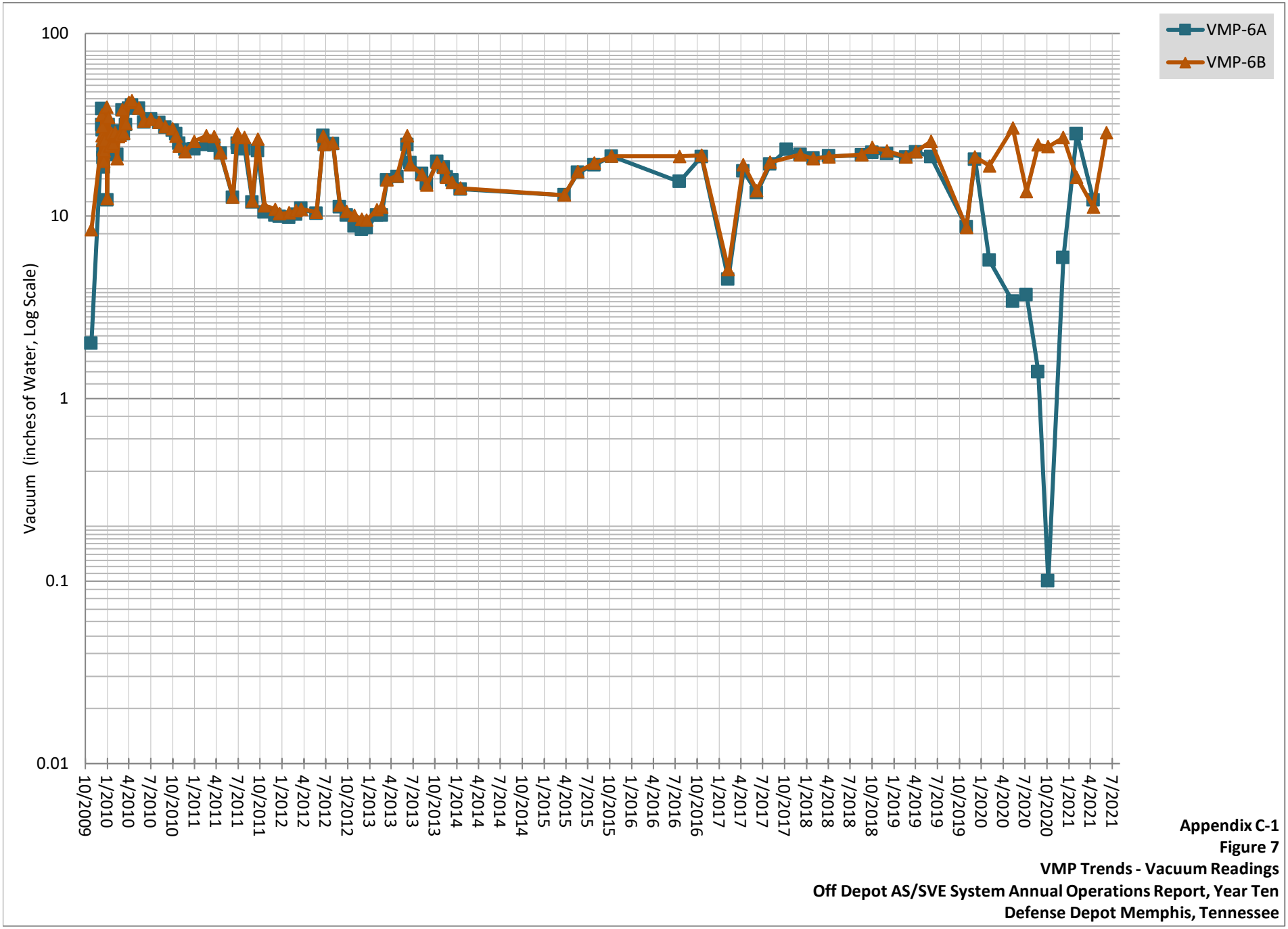
Appendix C-1
Figure 4
VMP Trends - Vacuum Readings
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



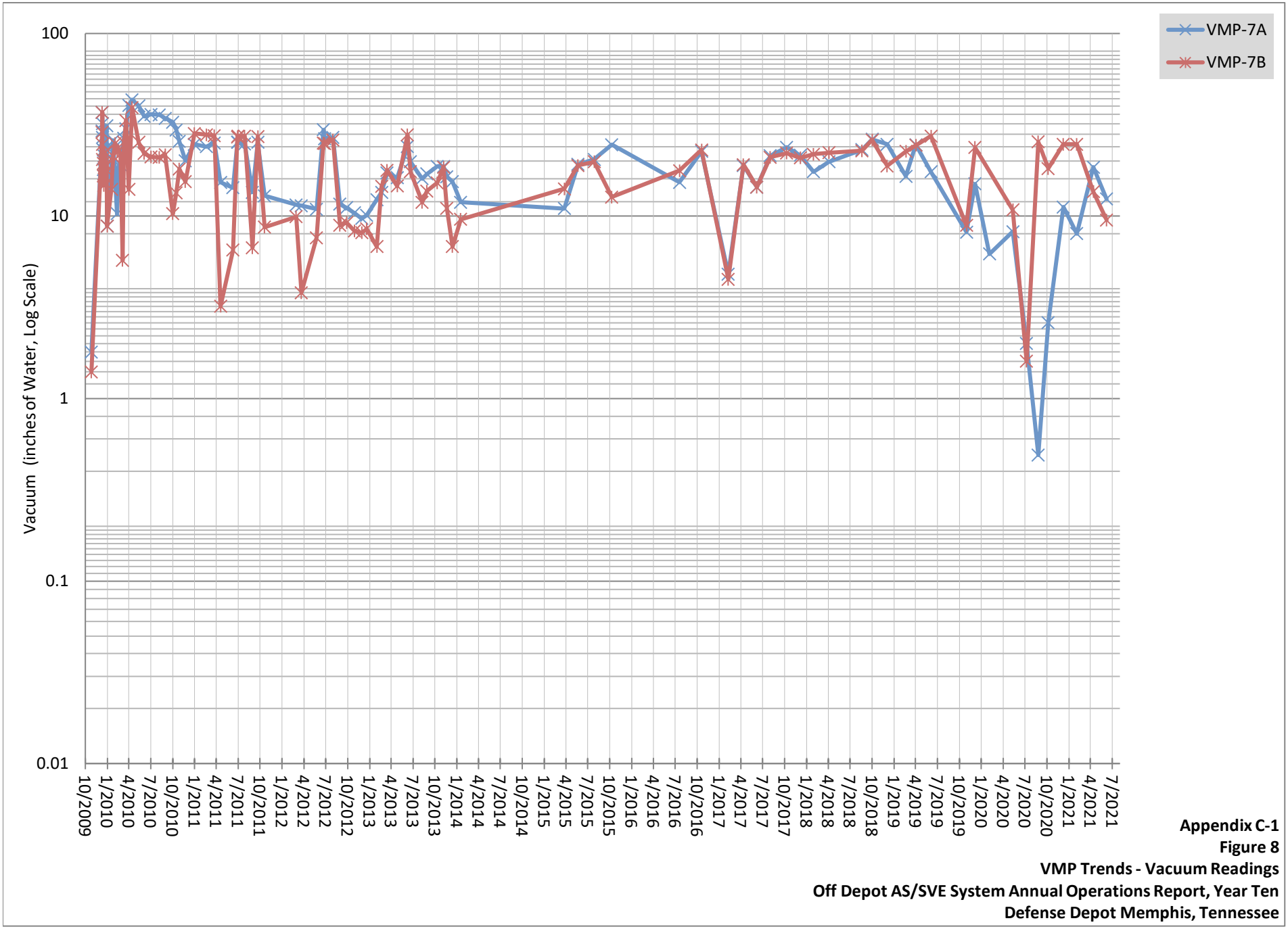
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Figure 5
VMP Trends - Vacuum Readings
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



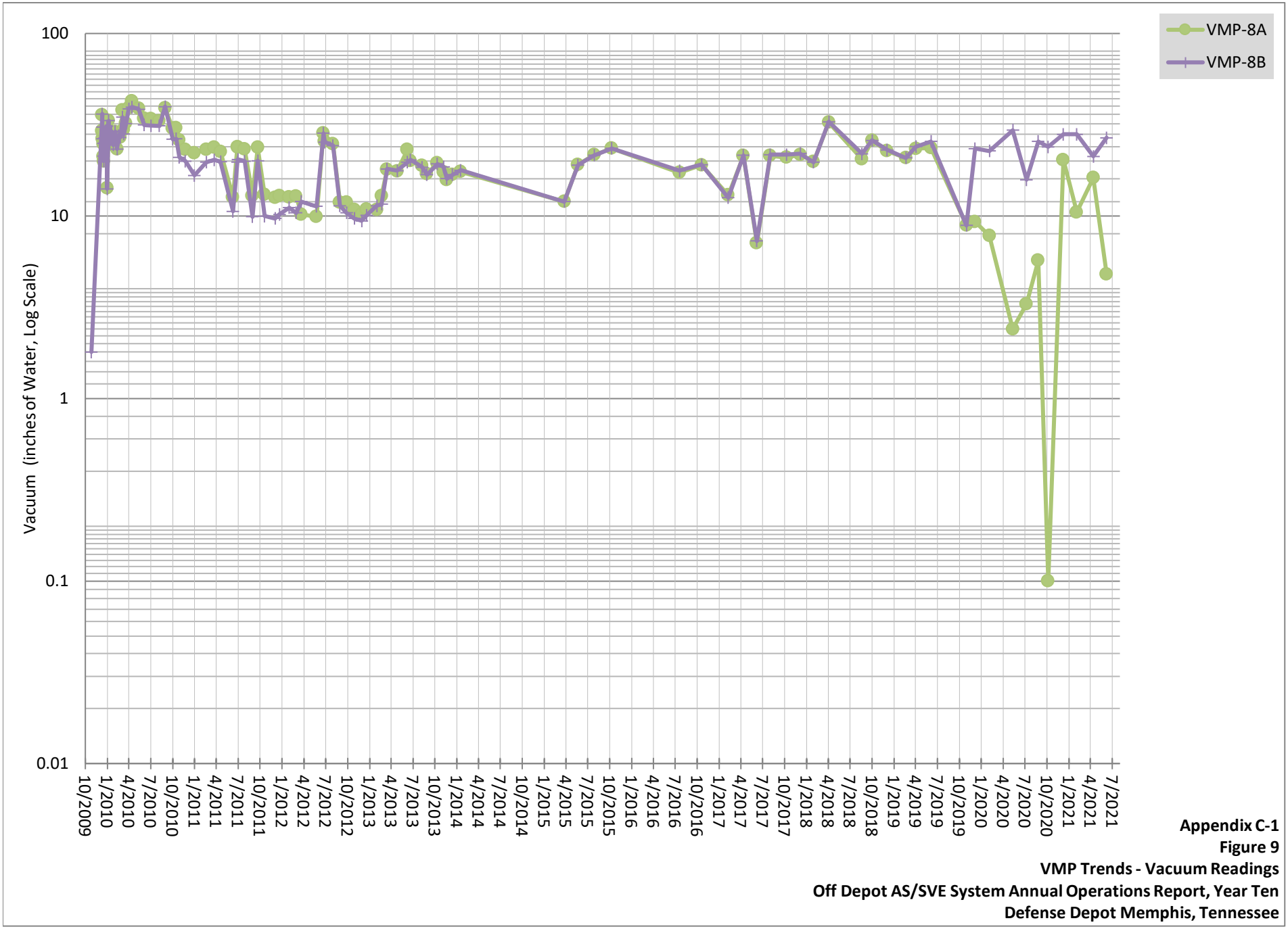
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Figure 6
VMP Trends - Vacuum Readings
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



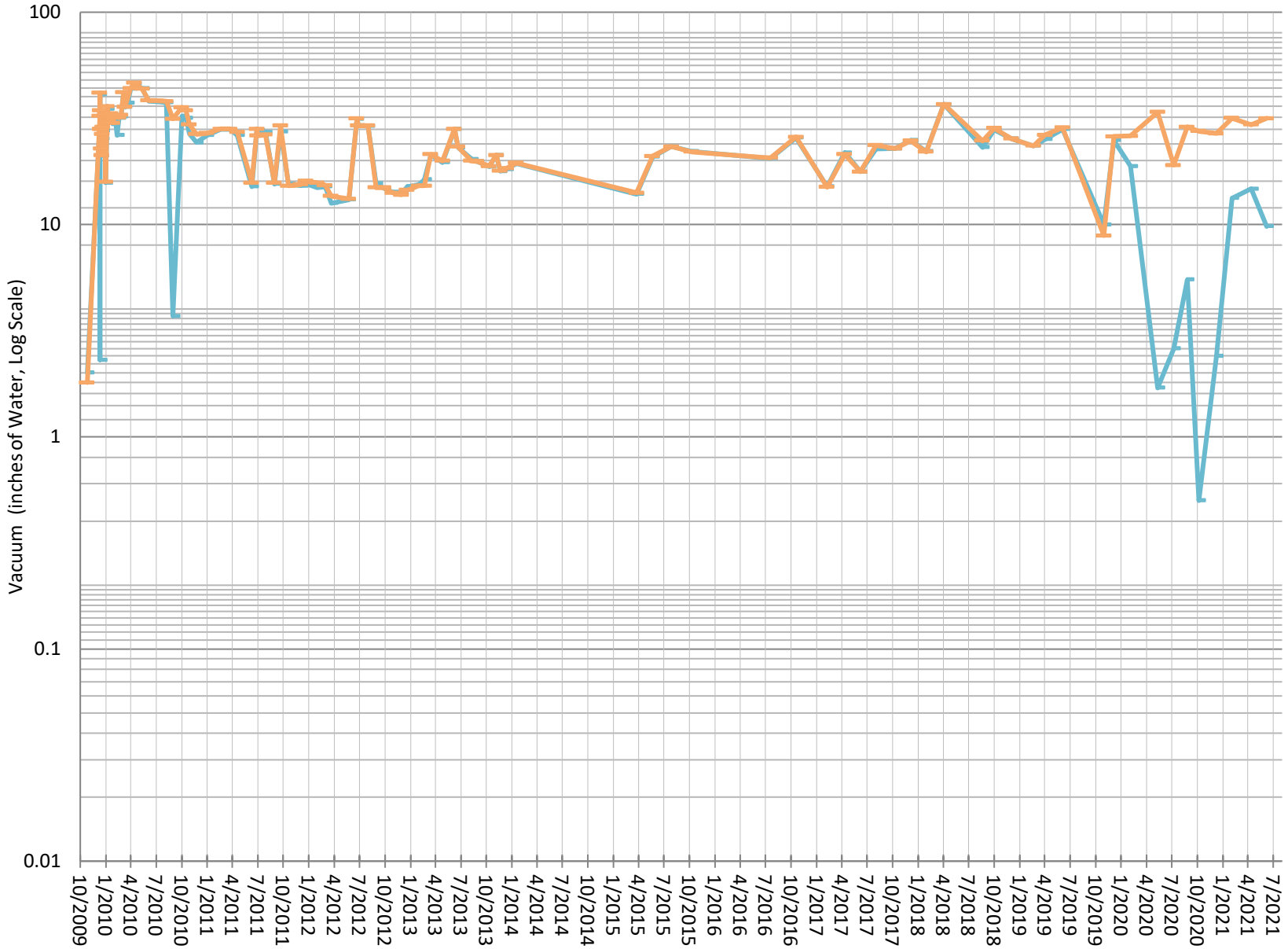
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Figure 7
VMP Trends - Vacuum Readings
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



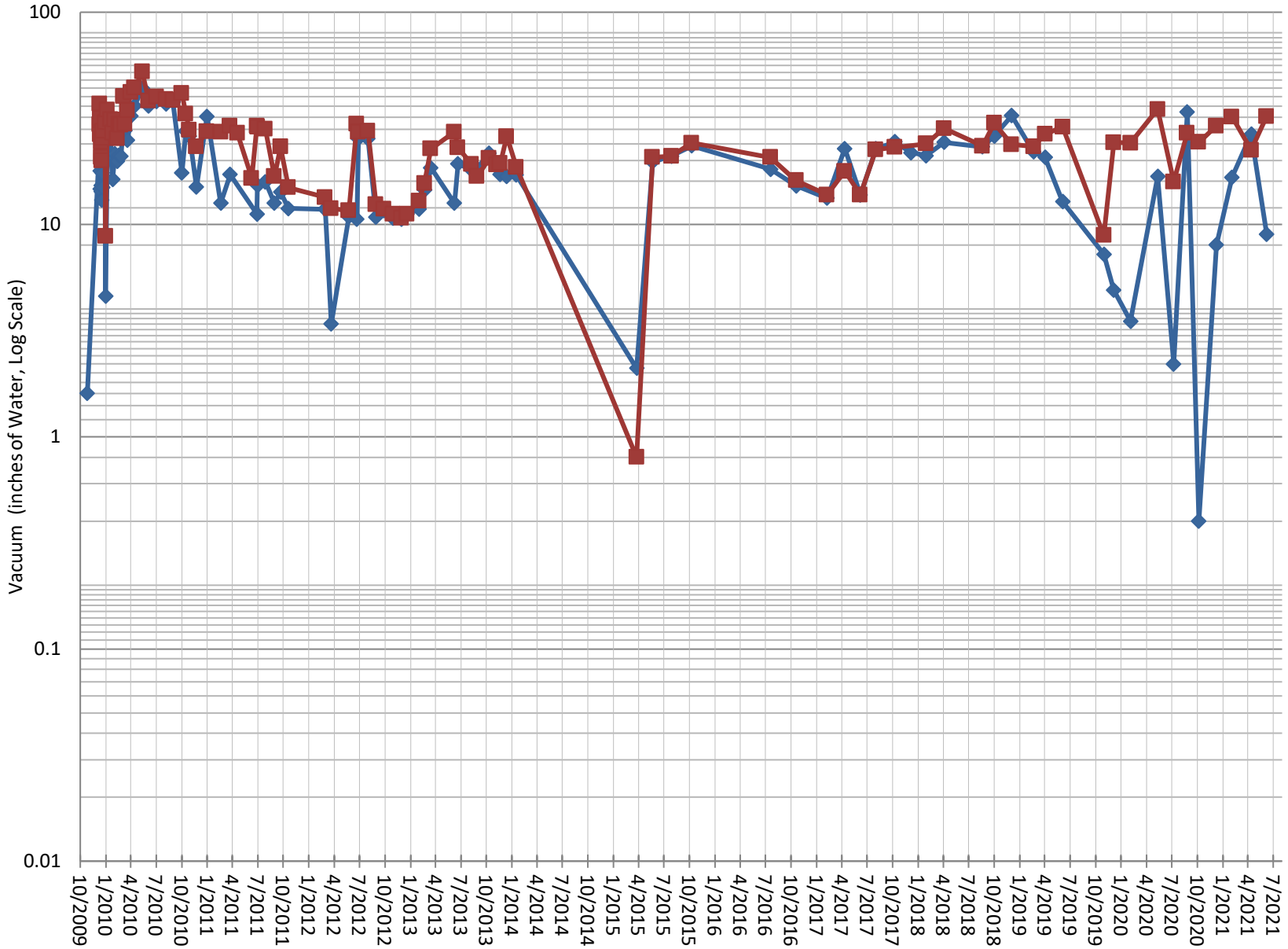
Appendix C-1
Figure 8
VMP Trends - Vacuum Readings
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



Appendix C-1
Figure 9
VMP Trends - Vacuum Readings
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee

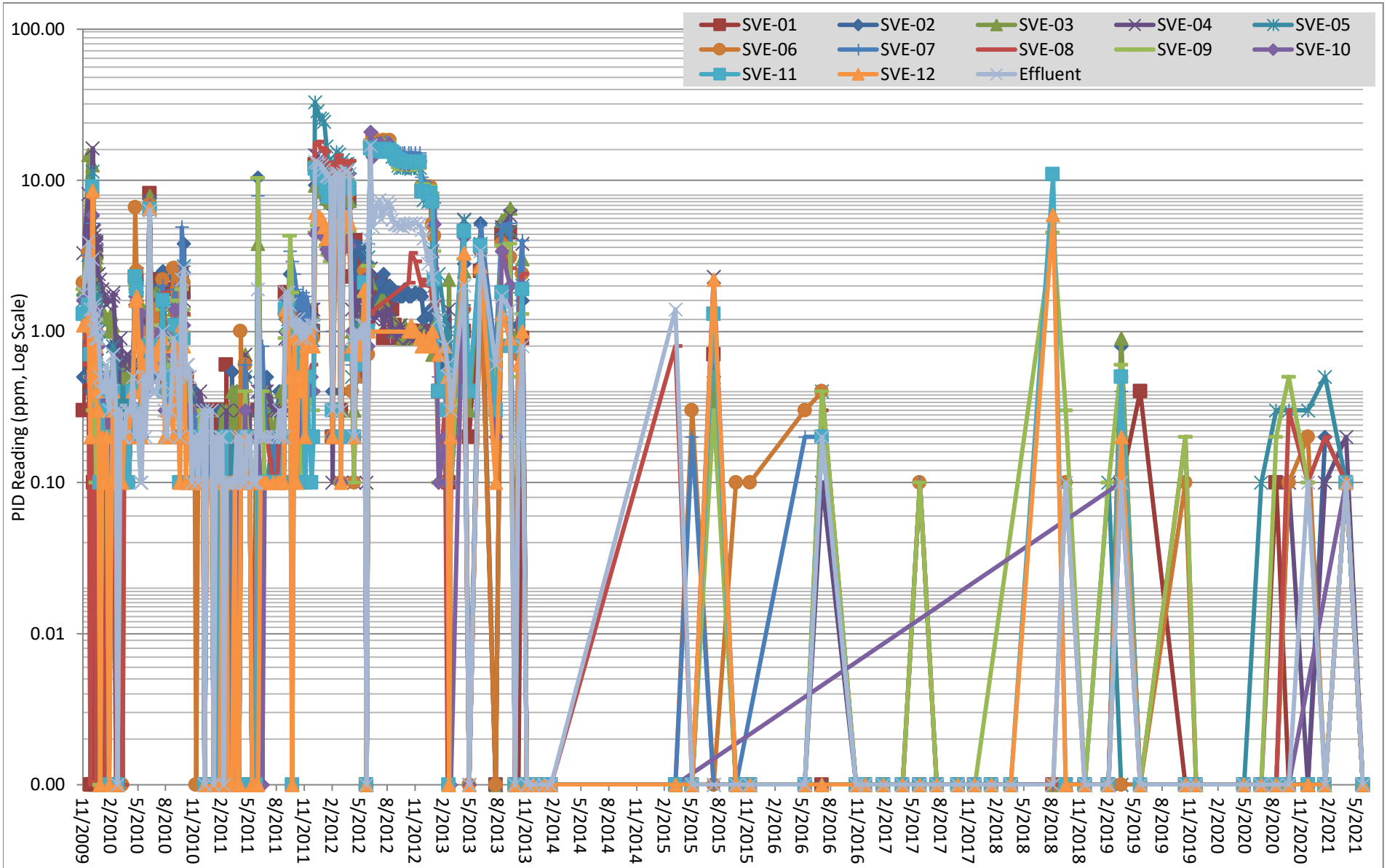


Appendix C-1
Figure 10
VMP Trends - Vacuum Readings
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee

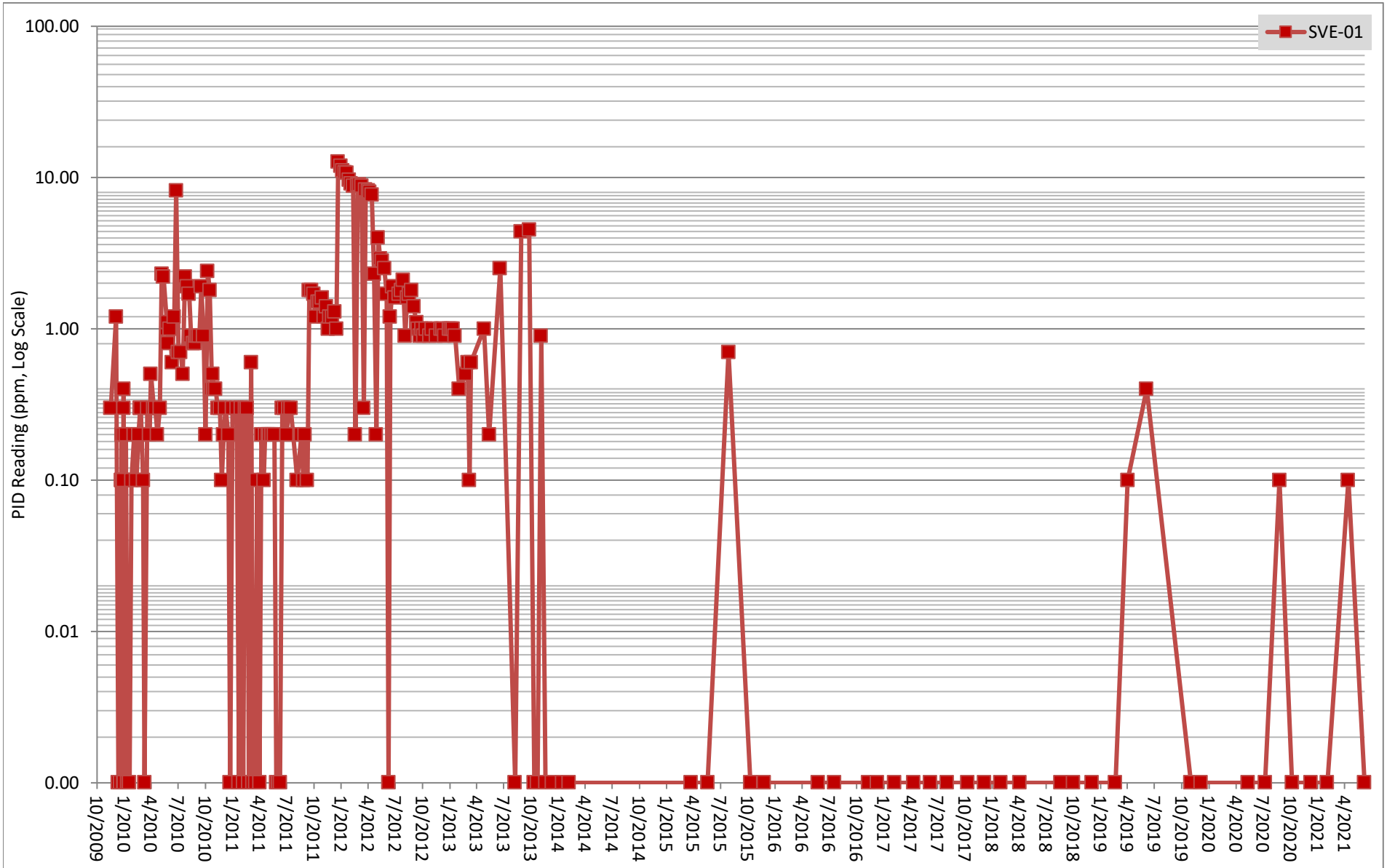


Appendix C-1
Figure 11
VMP Trends - Vacuum Readings
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee

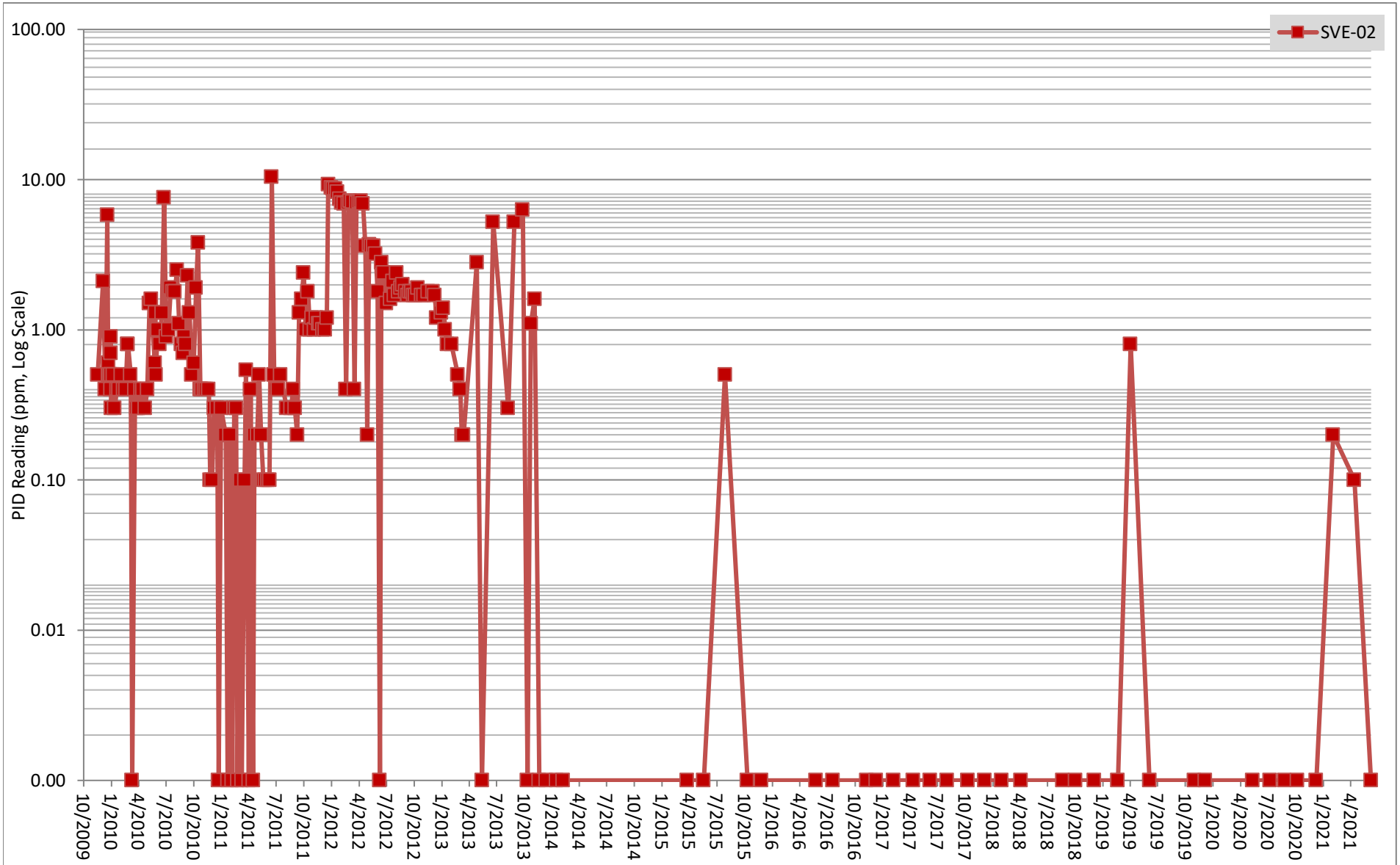
Appendix C-2 SVE Wells and Effluent Concentration Trends – Field PID Measurements



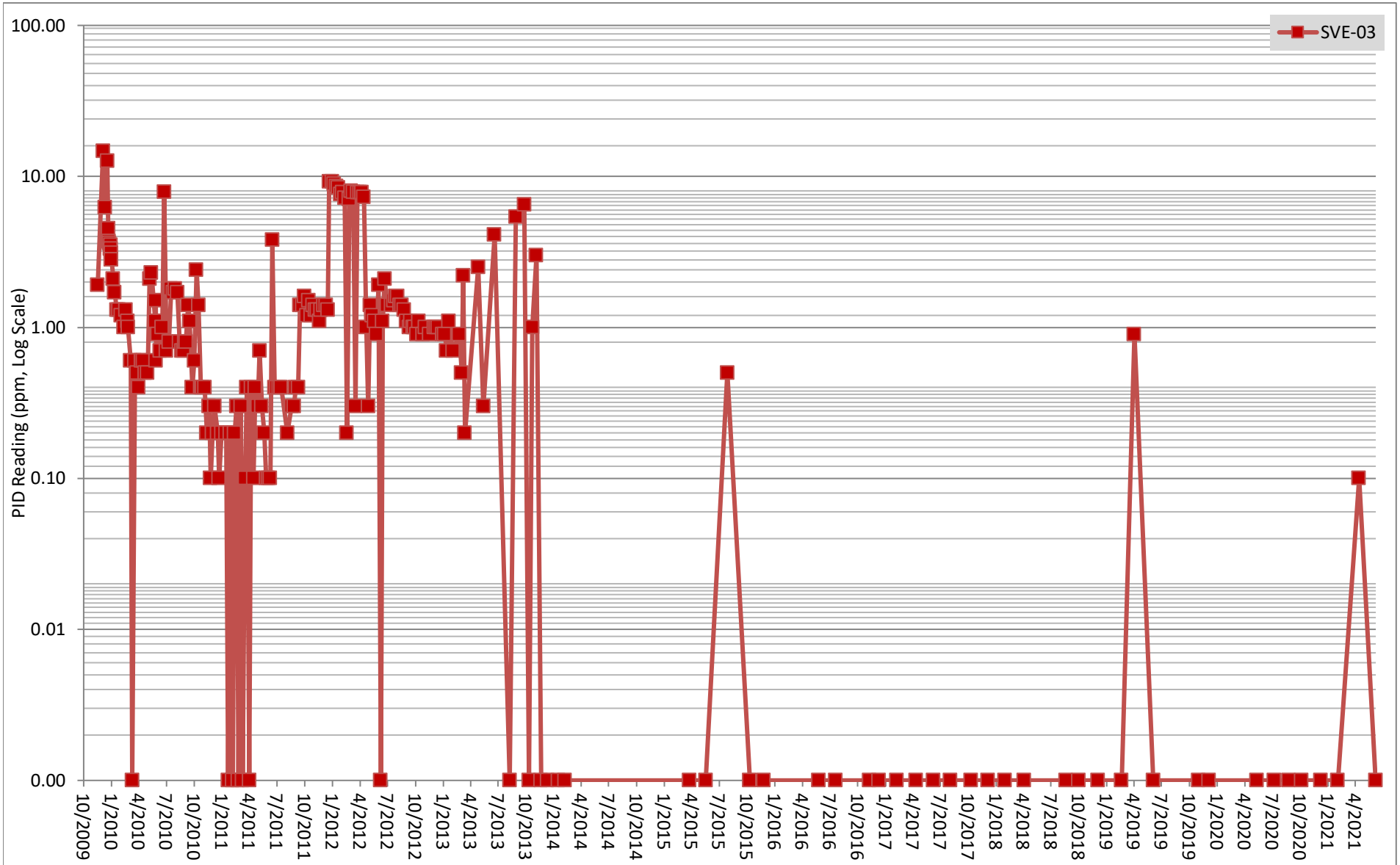
Appendix C-2
Figure 1
SVE Wells and Effluent Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



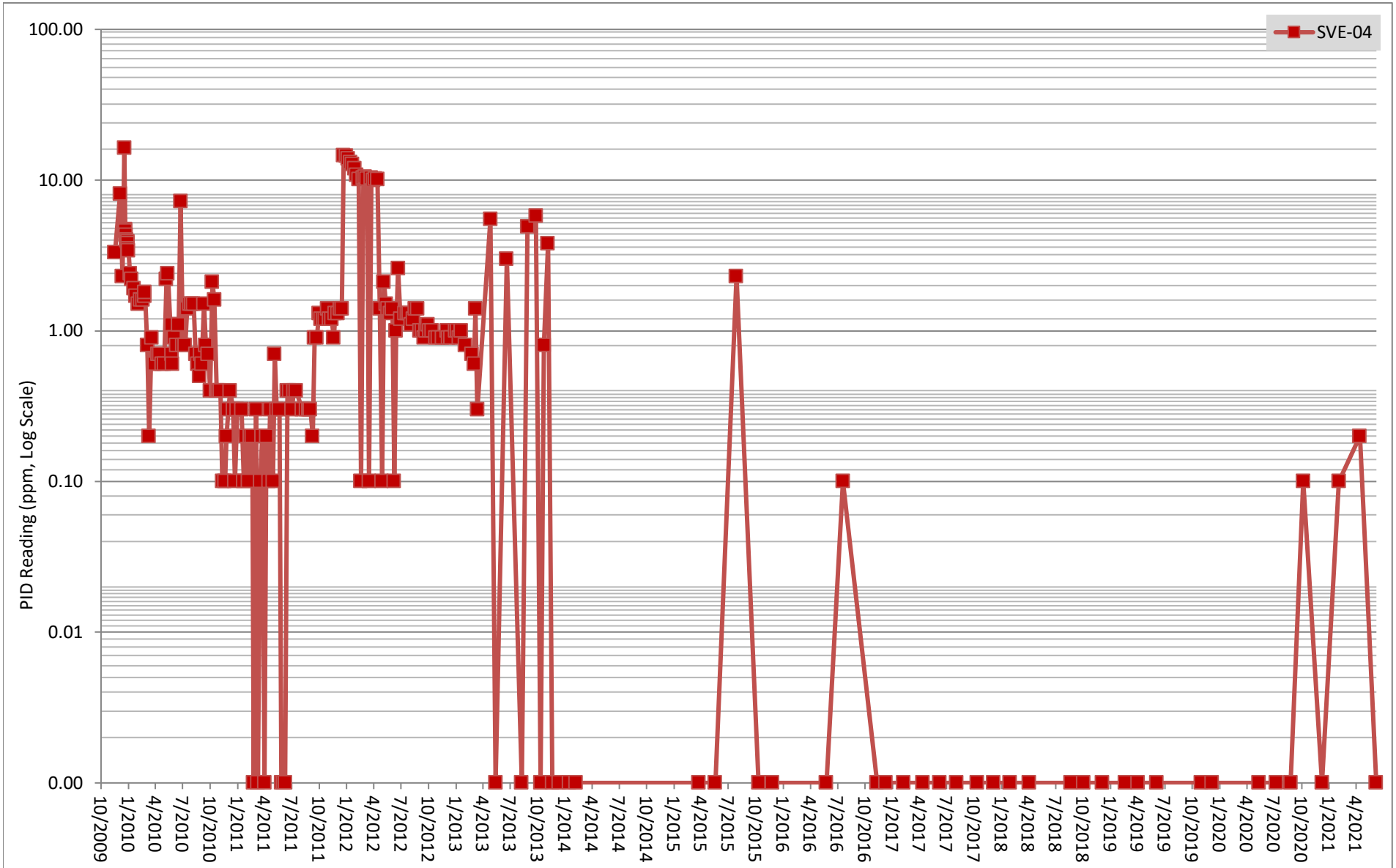
Appendix C-2
Figure 2
SVE Well #1 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



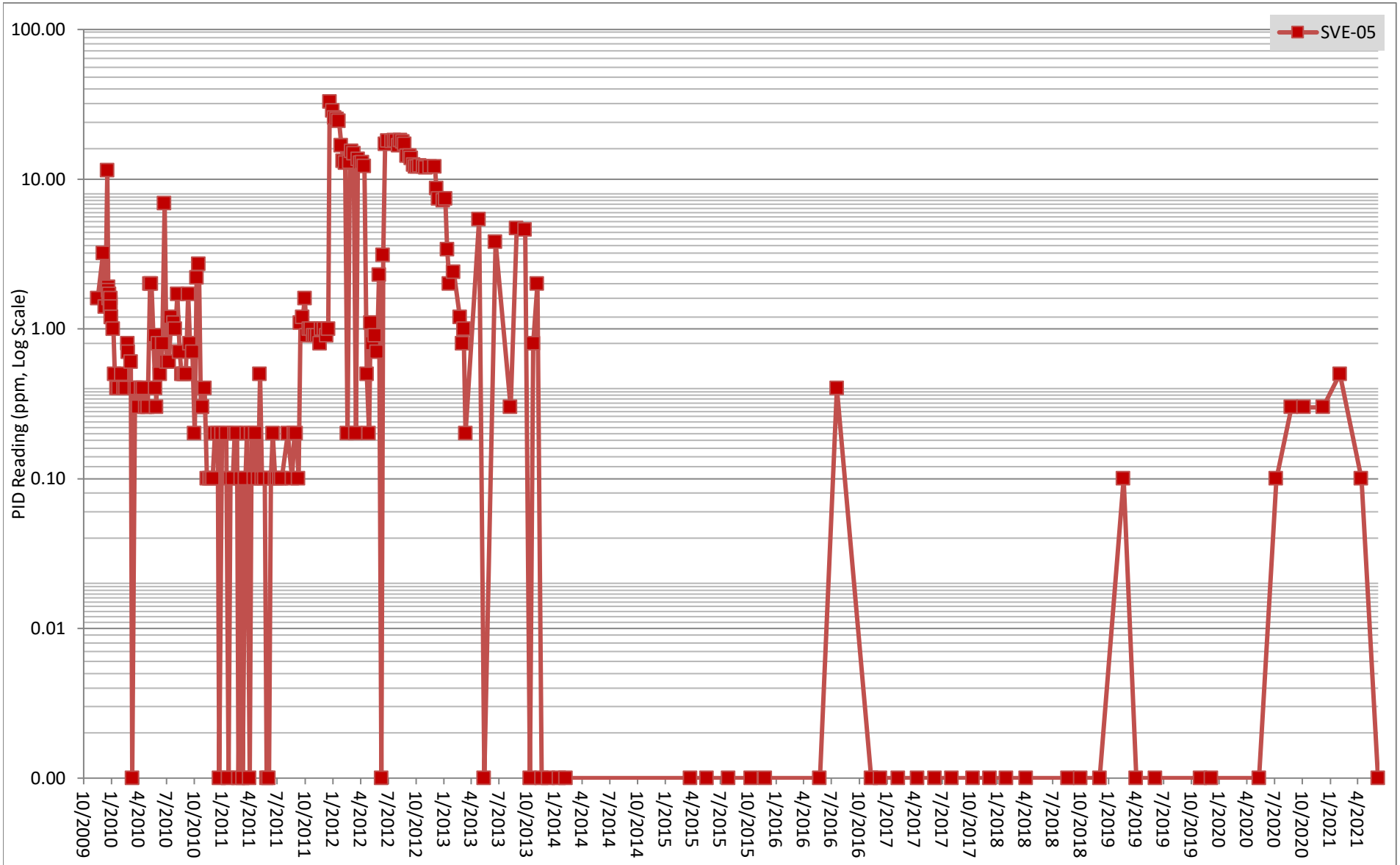
Appendix C-2
Figure 3
SVE Well #2 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



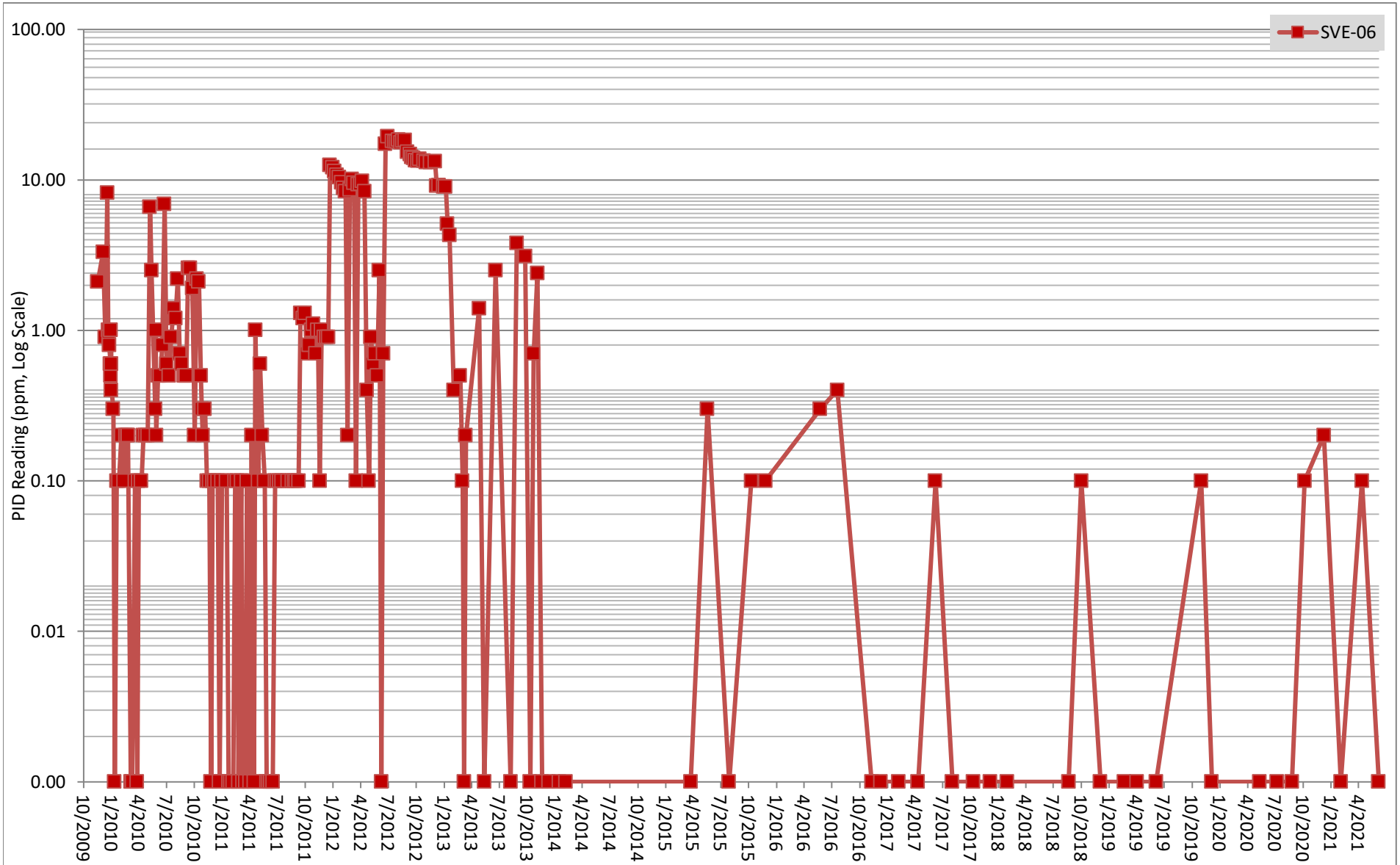
Appendix C-2
Figure 4
SVE Well # 3 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



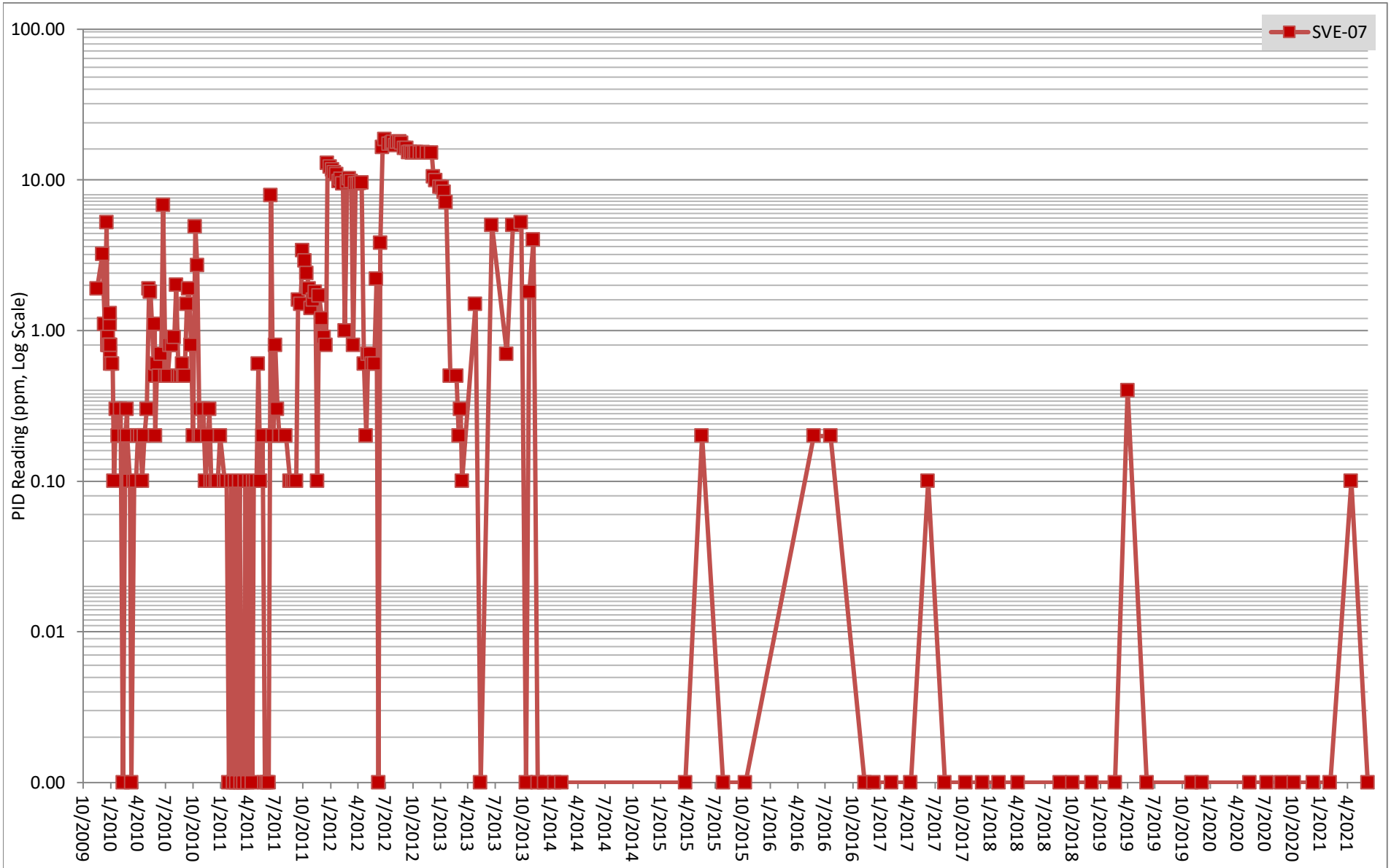
Appendix C-2
Figure 5
SVE Well #4 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



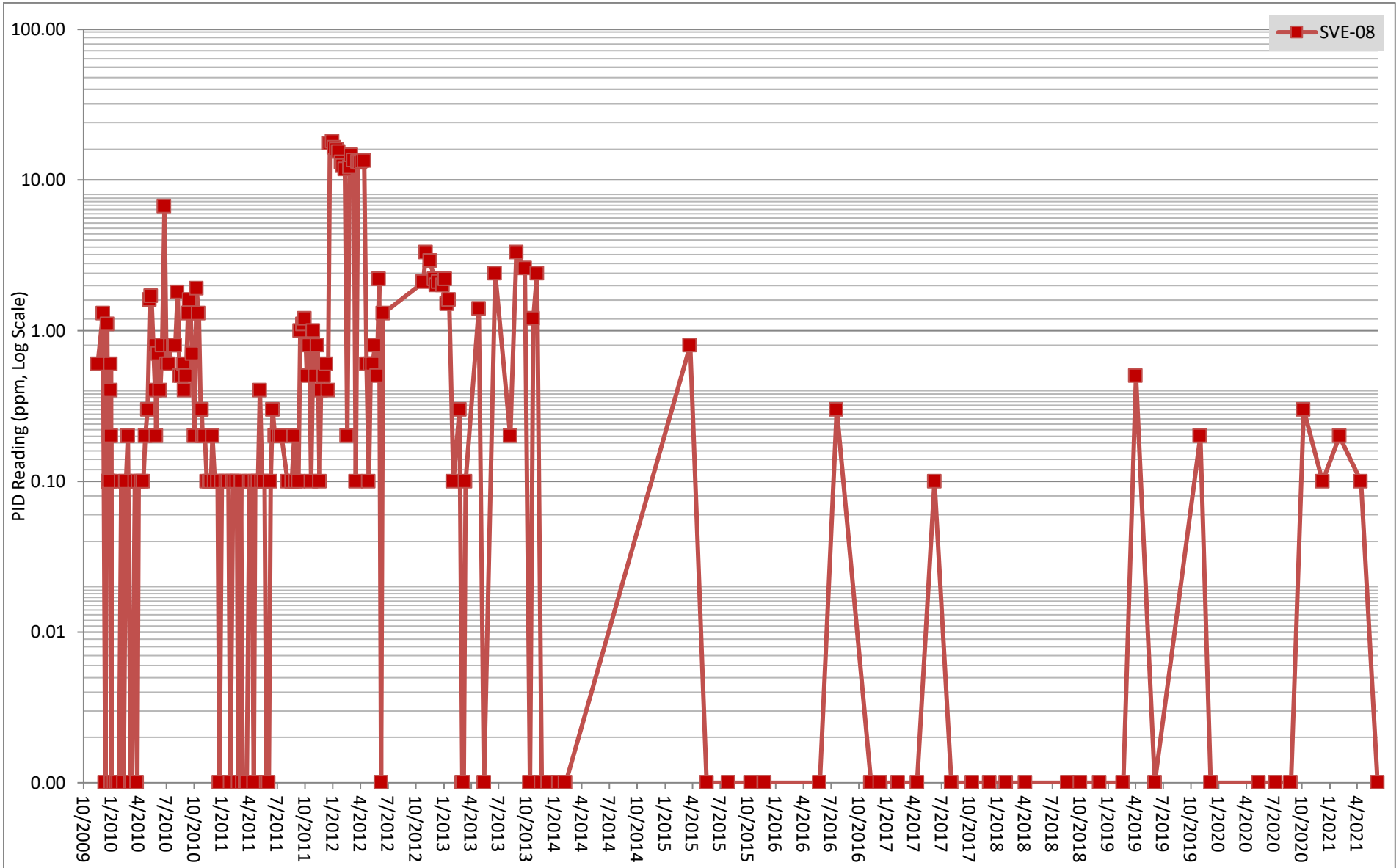
Appendix C-2
Figure 6
SVE Well #5 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



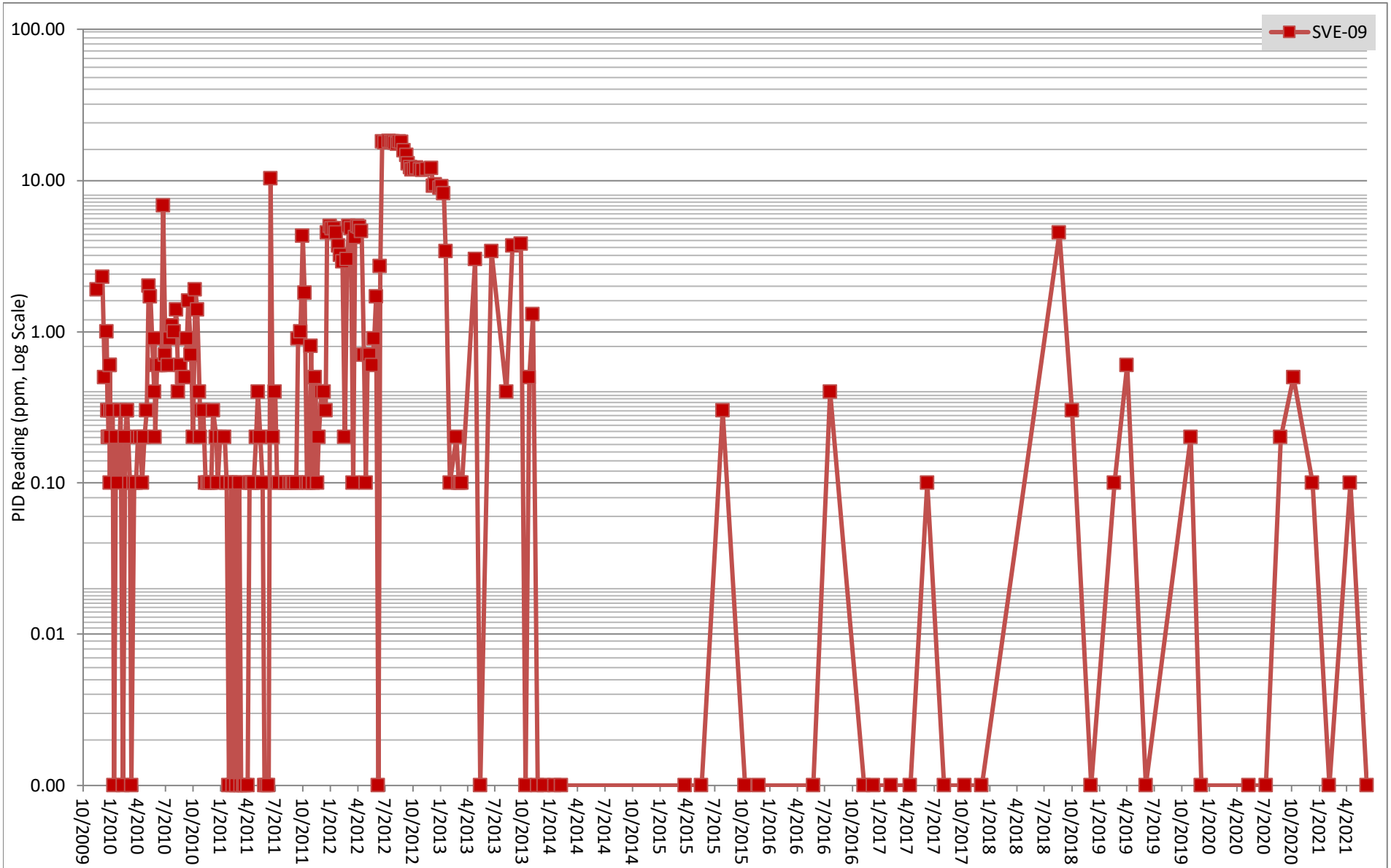
Appendix C-2
Figure 7
SVE Well #6 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



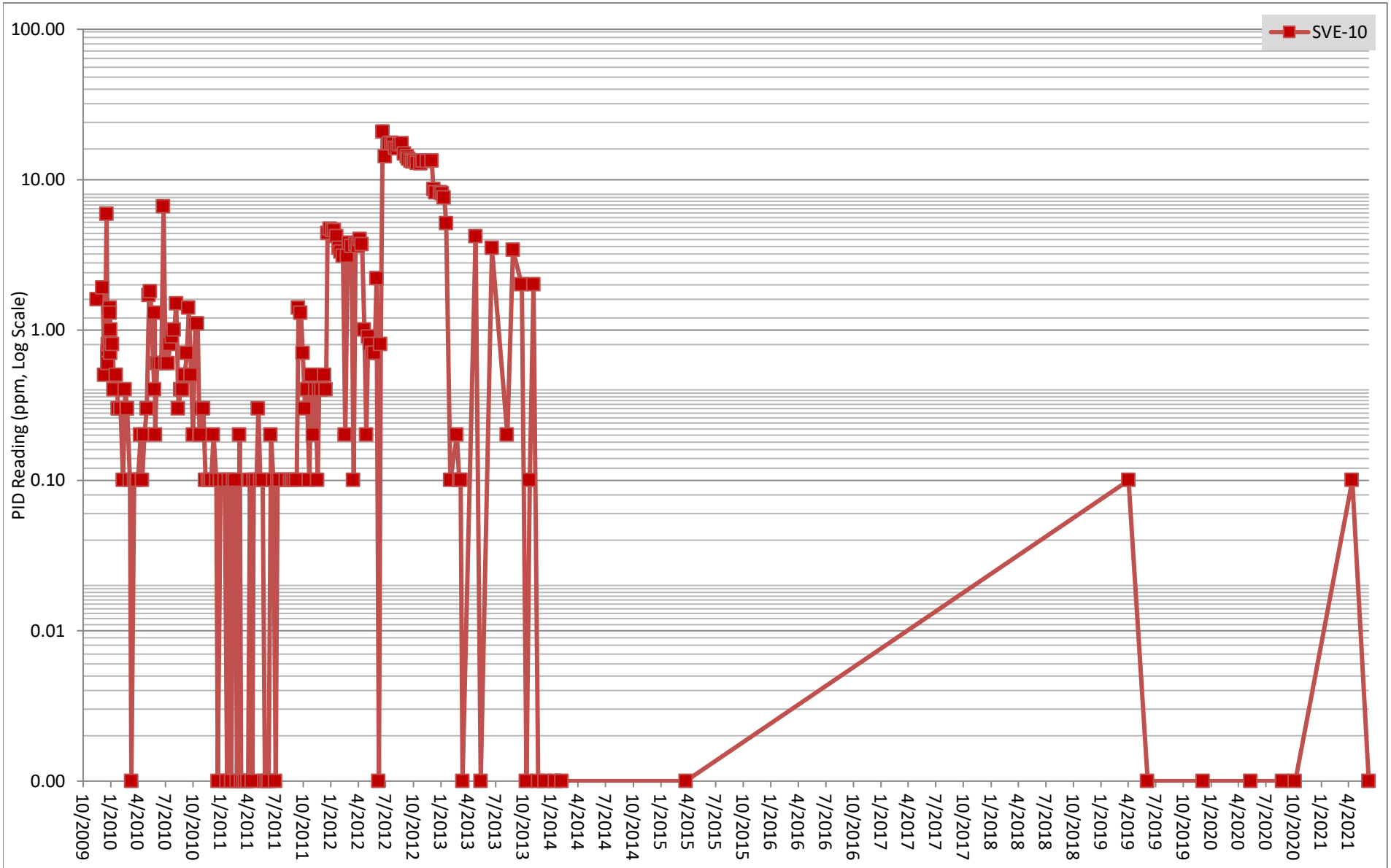
Appendix C-2
Figure 8
SVE Well #7 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



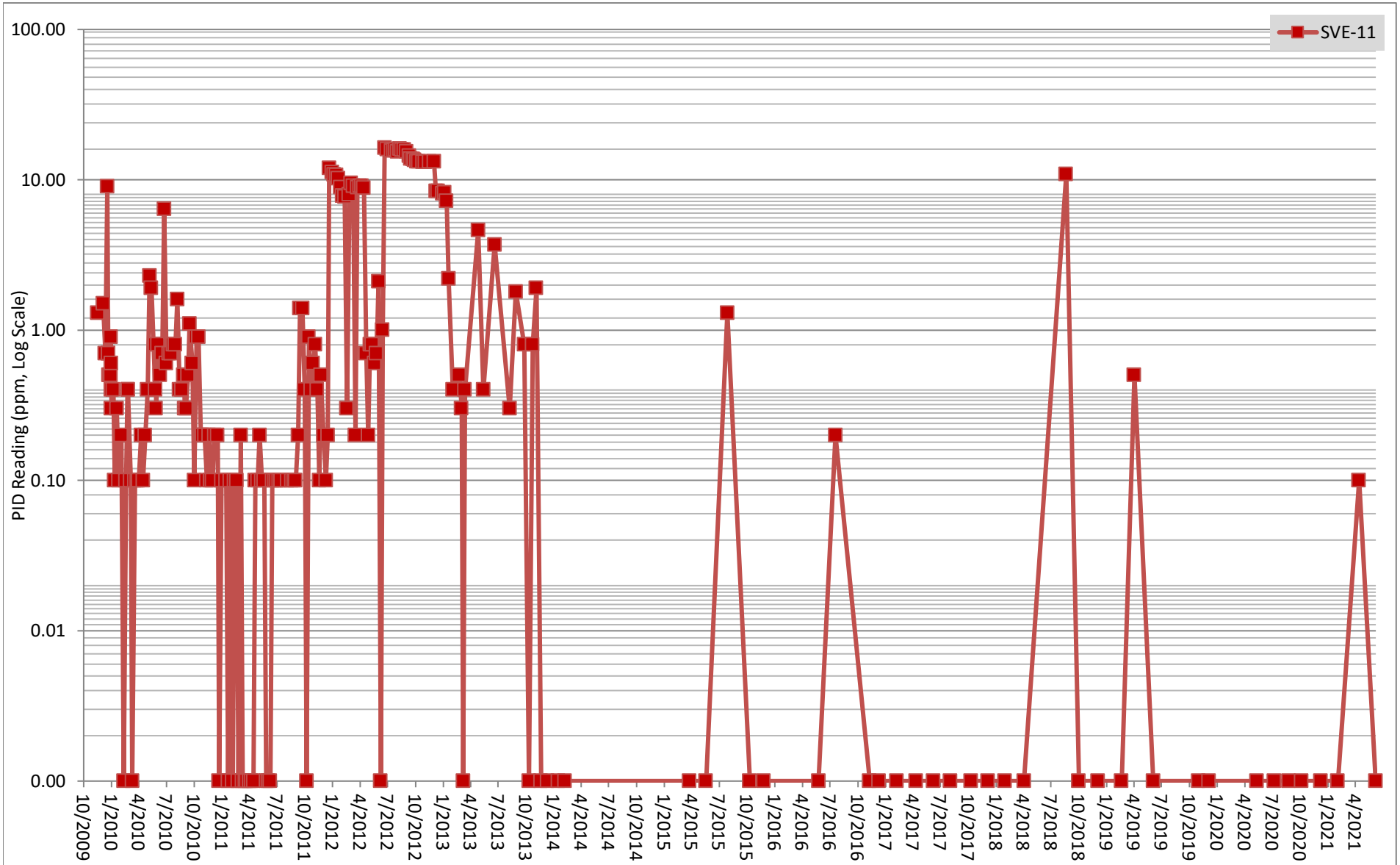
Appendix C-2
Figure 9
SVE Well #8 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



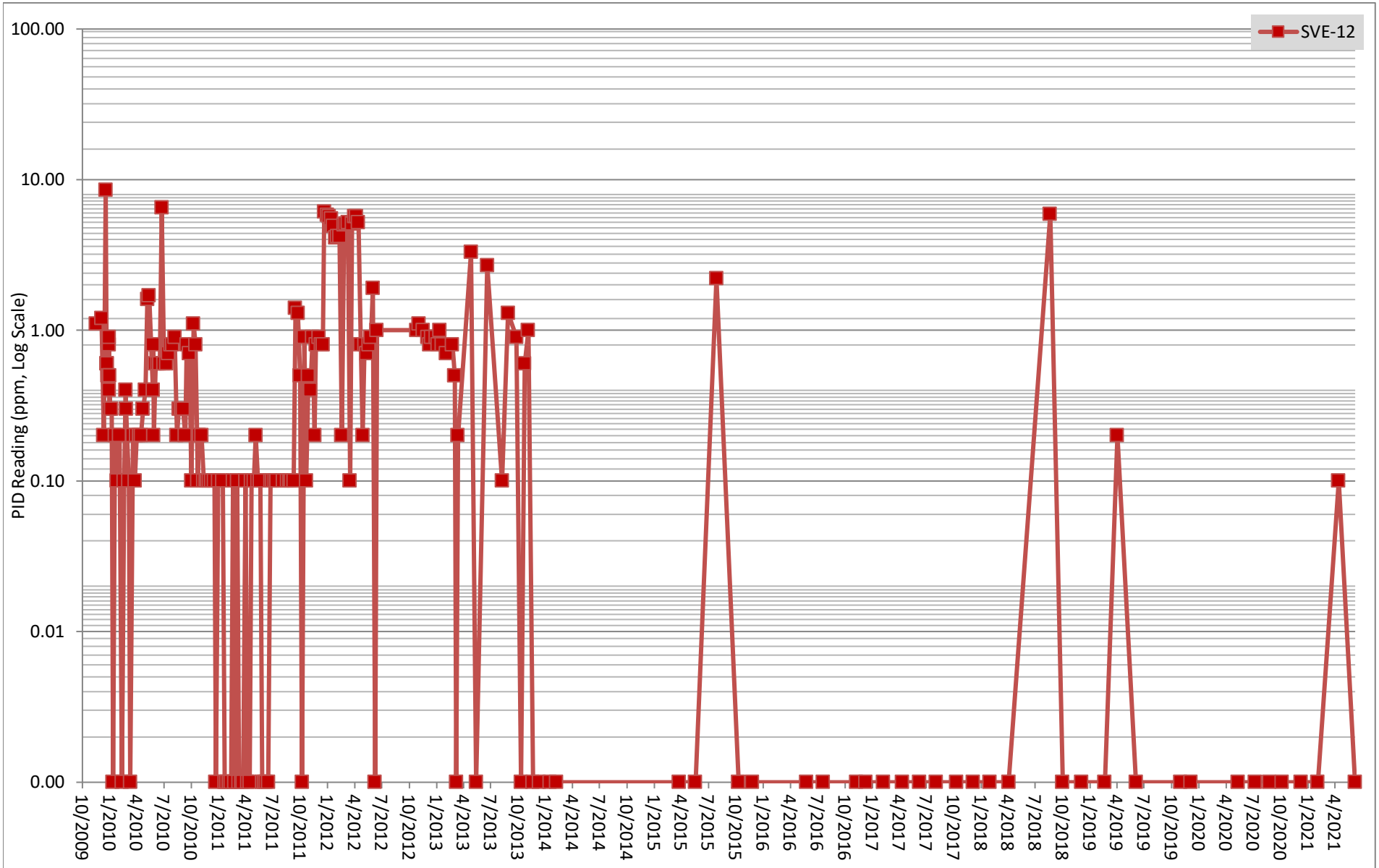
Appendix C-2
Figure 10
SVE Well #9 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



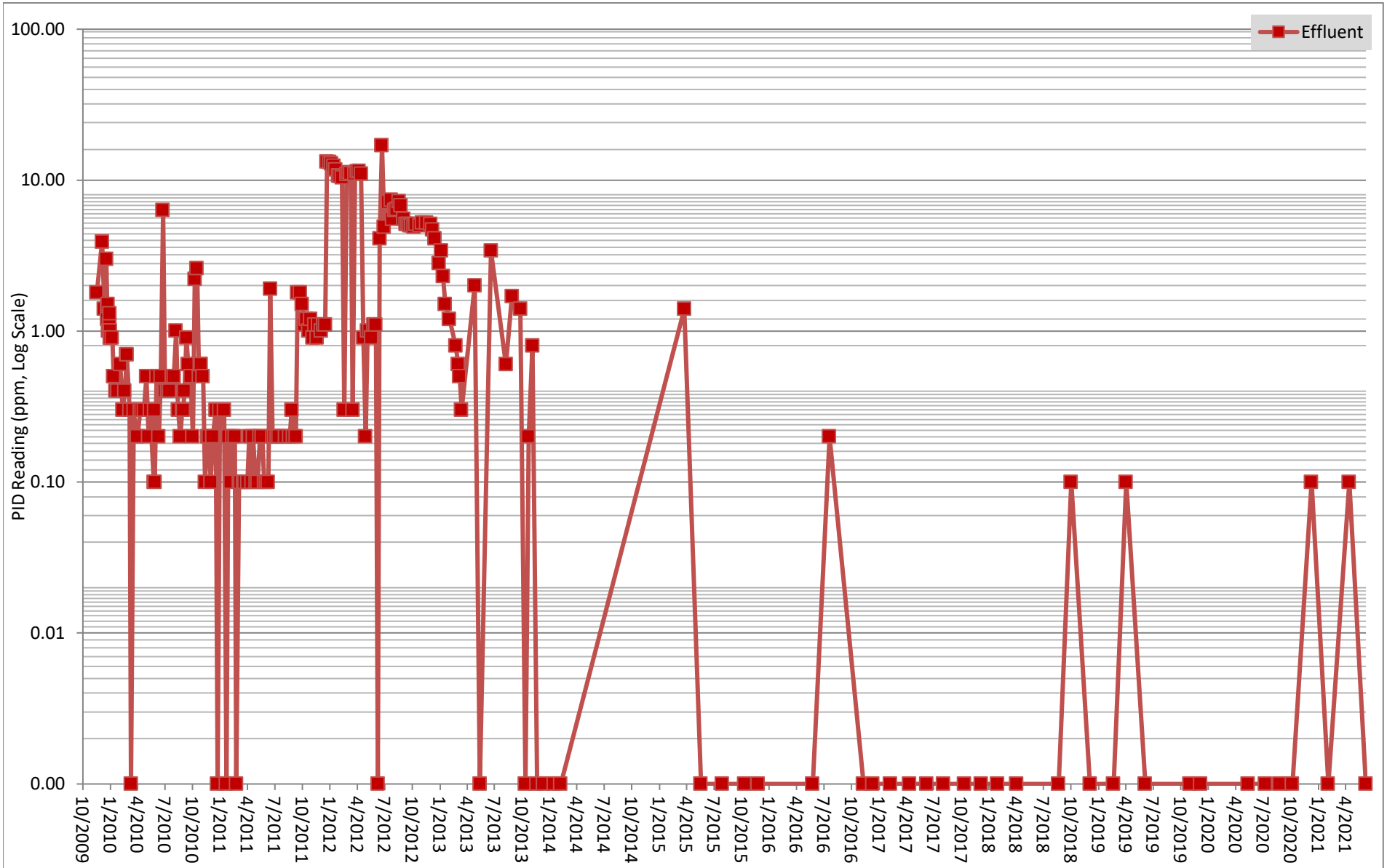
Appendix C-2
Figure 11
SVE Well #10 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



Appendix C-2
Figure 12
SVE Well #11 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee

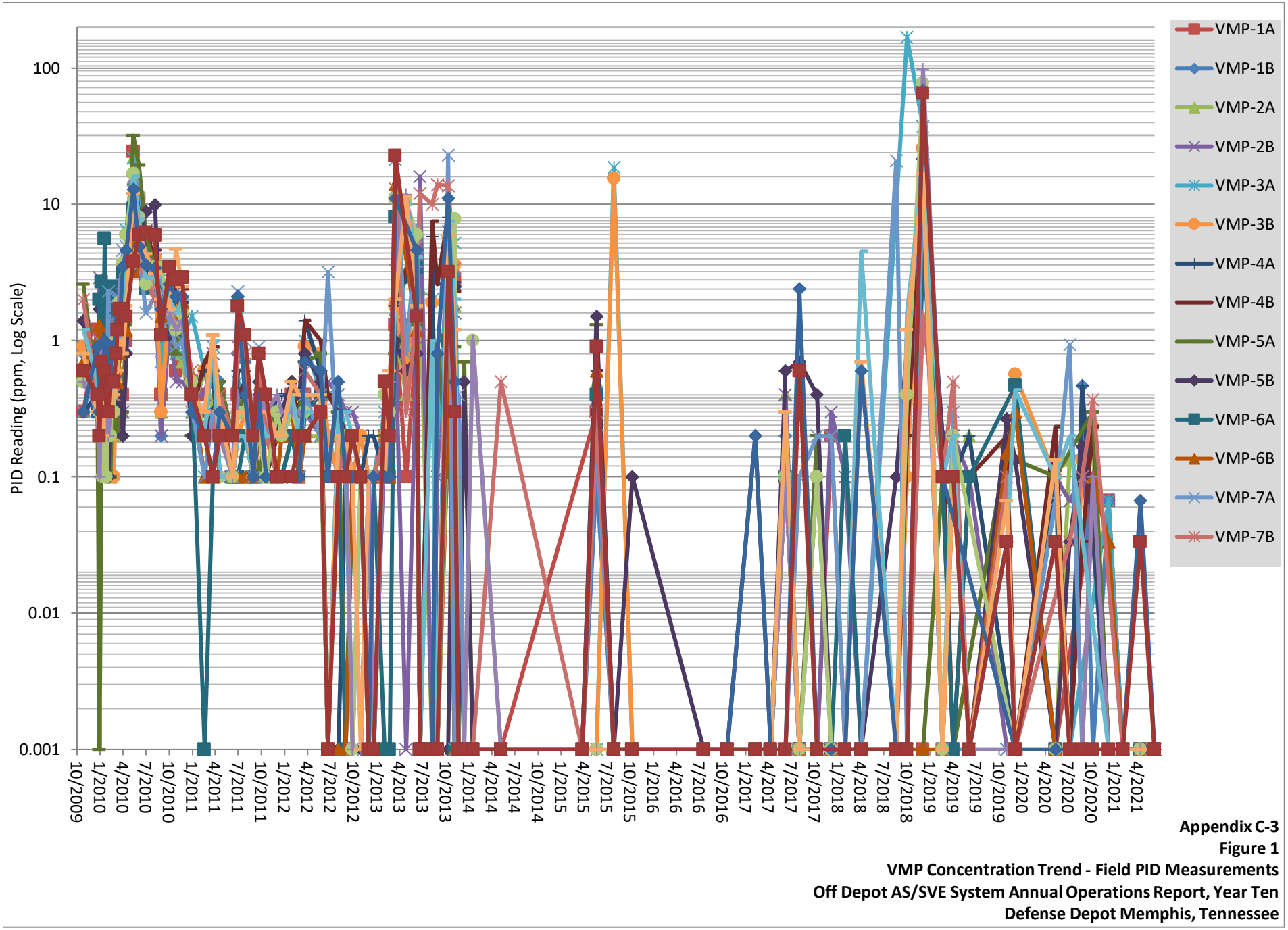


Appendix C-2
Figure 13
SVE Well #12 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee

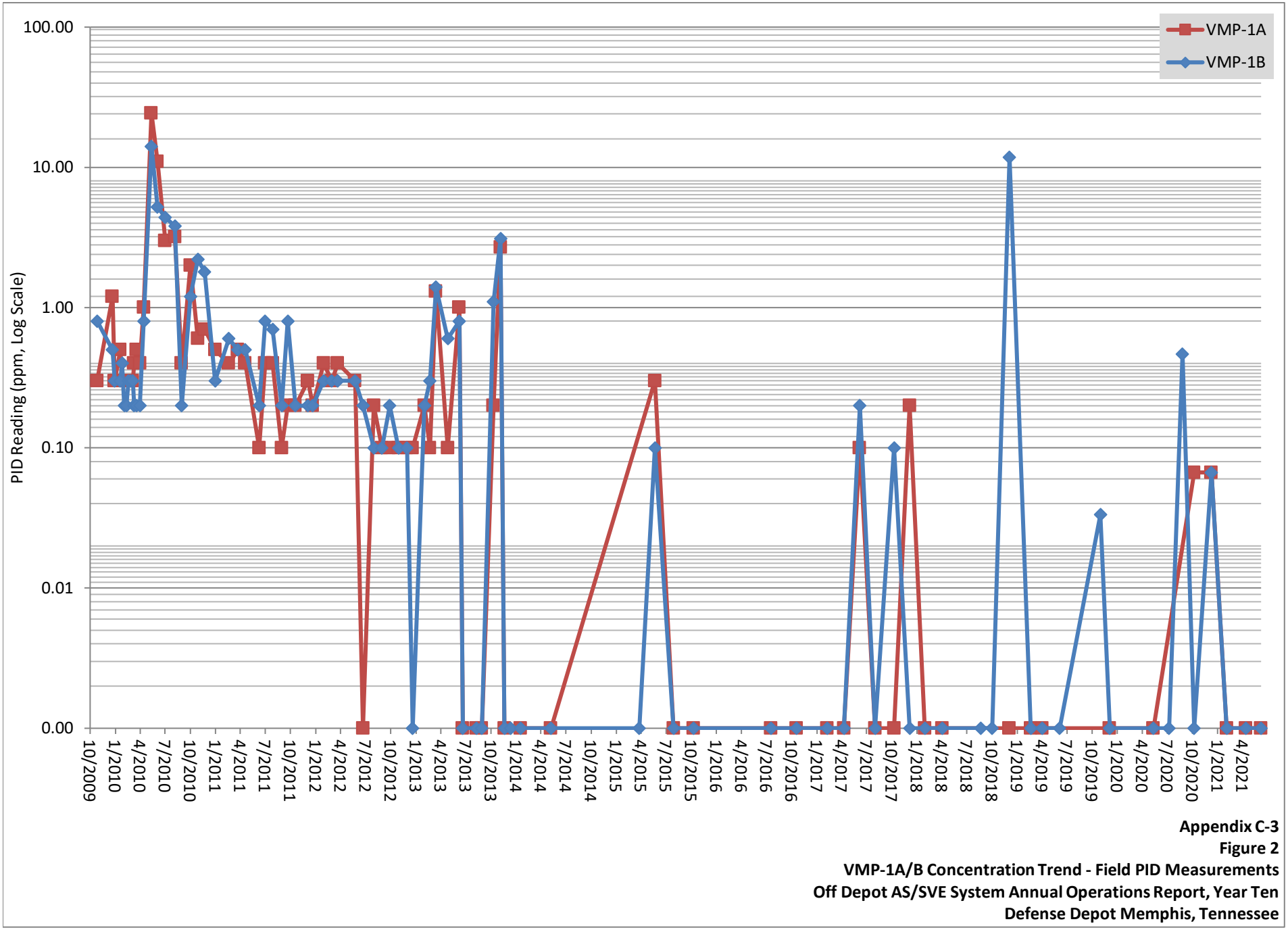


Appendix C-2
Figure 14
SVE Effluent Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee

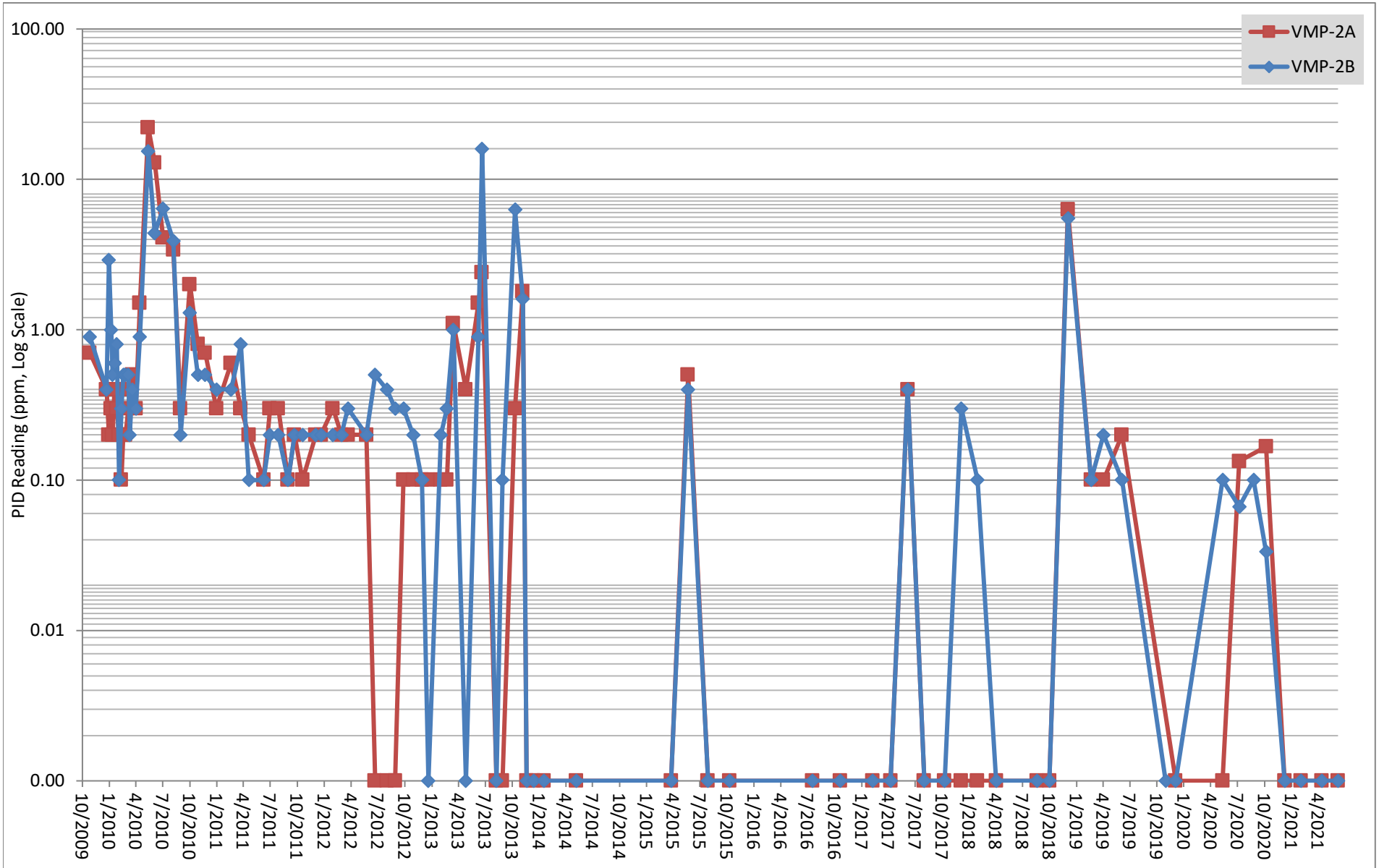
Appendix C-3 VMP Concentration Trends – Field PID Measurements



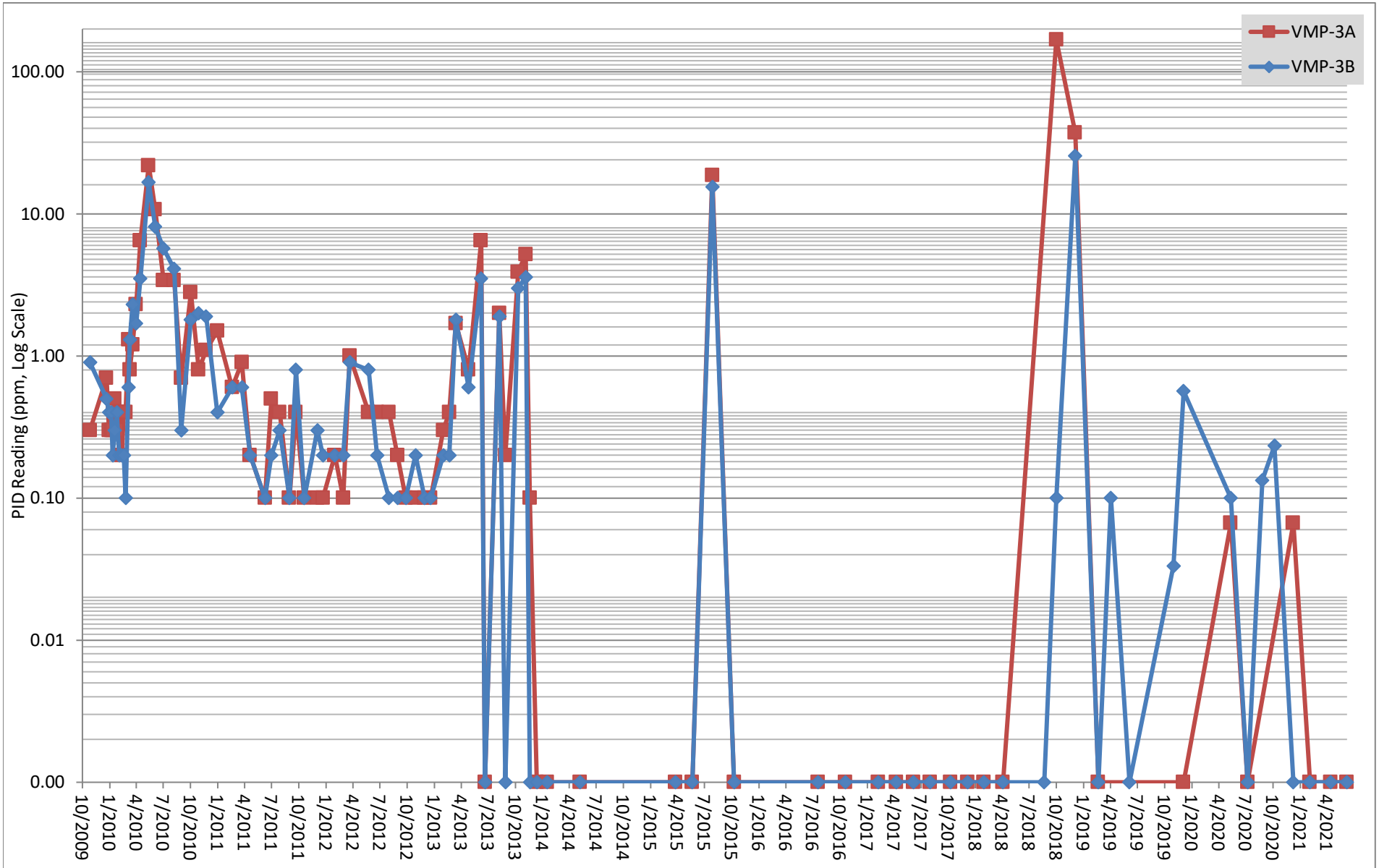
Appendix C-3
Figure 1
VMP Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



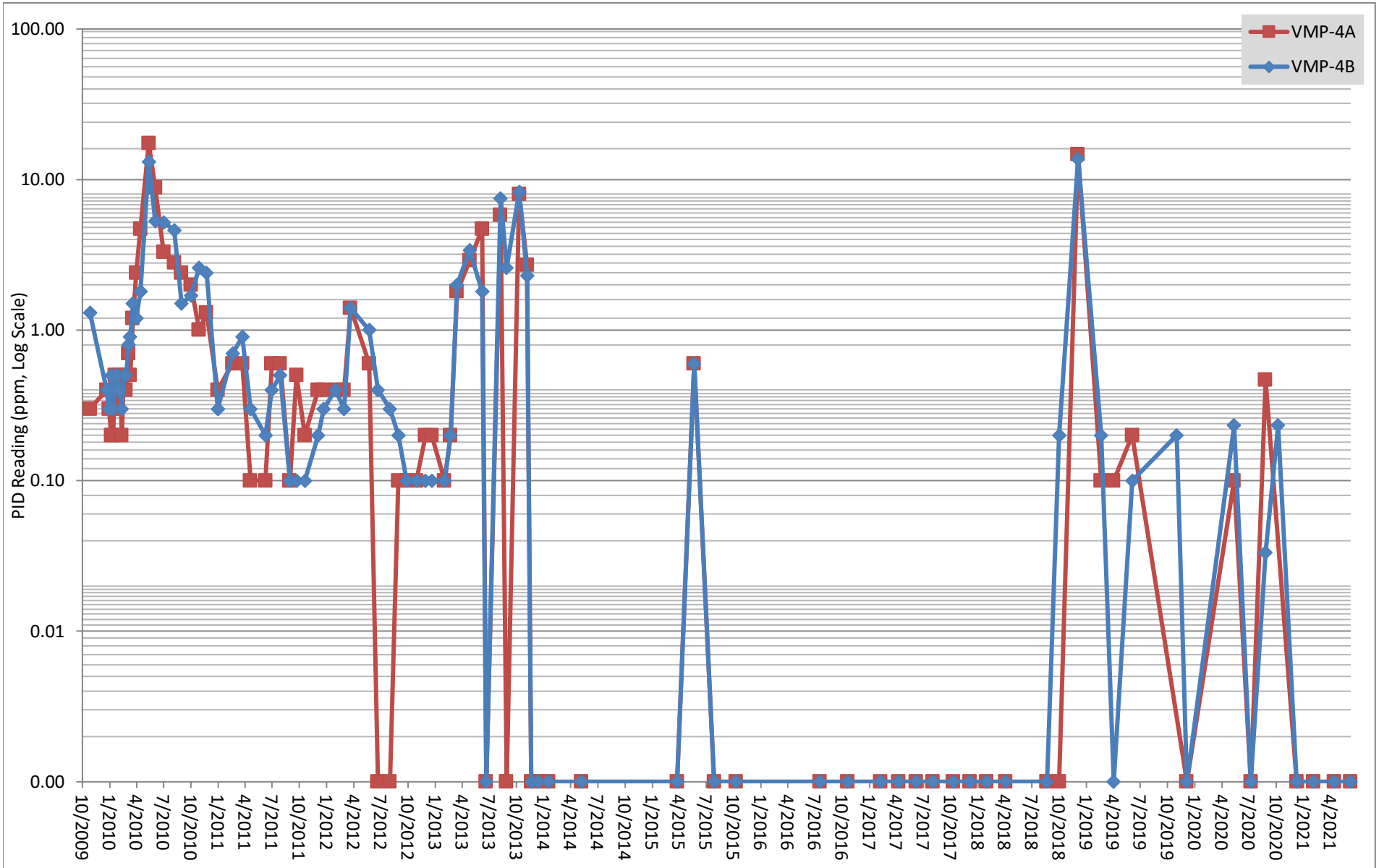
Appendix C-3
Figure 2
VMP-1A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



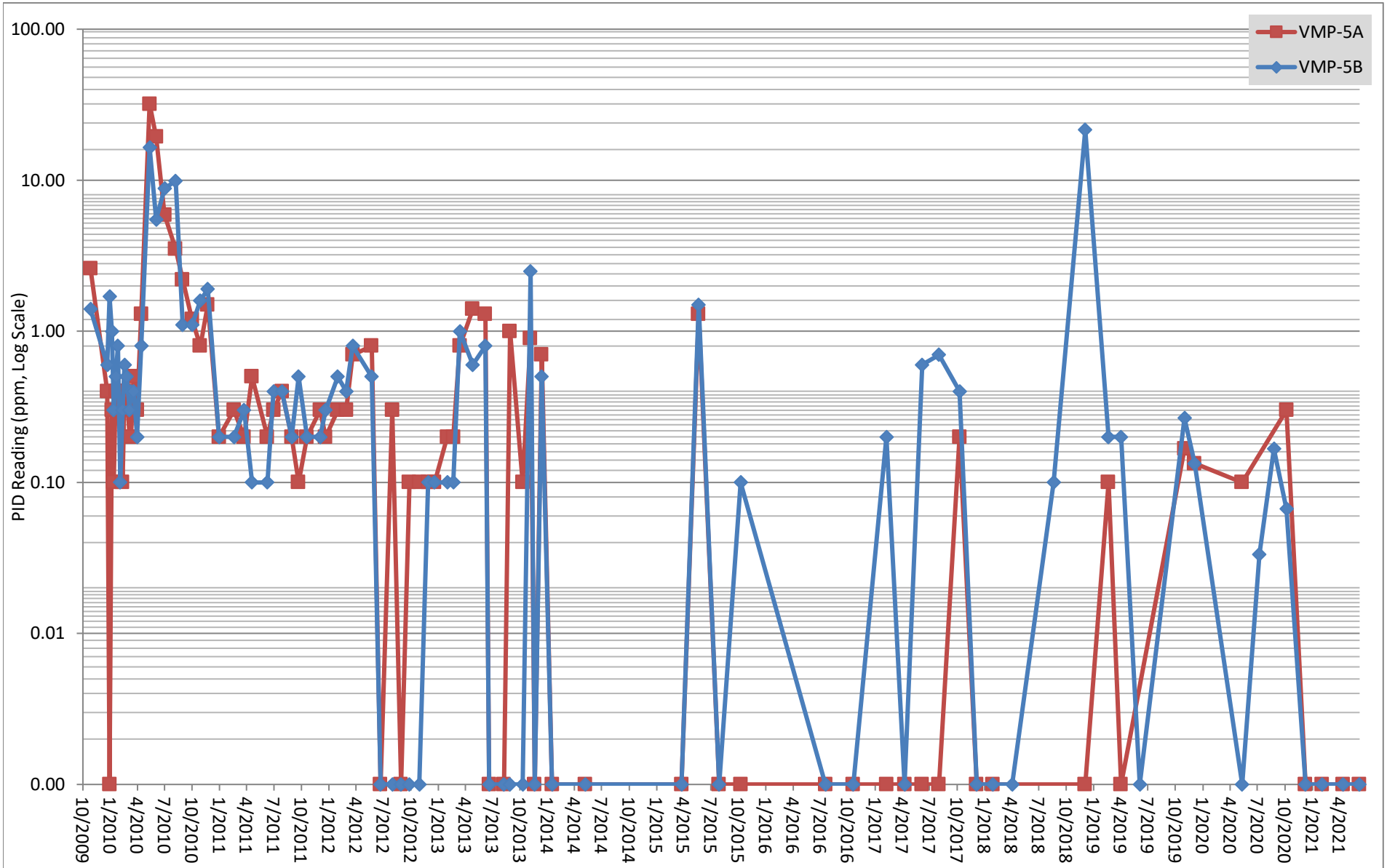
Appendix C-3
Figure 3
VMP-2A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



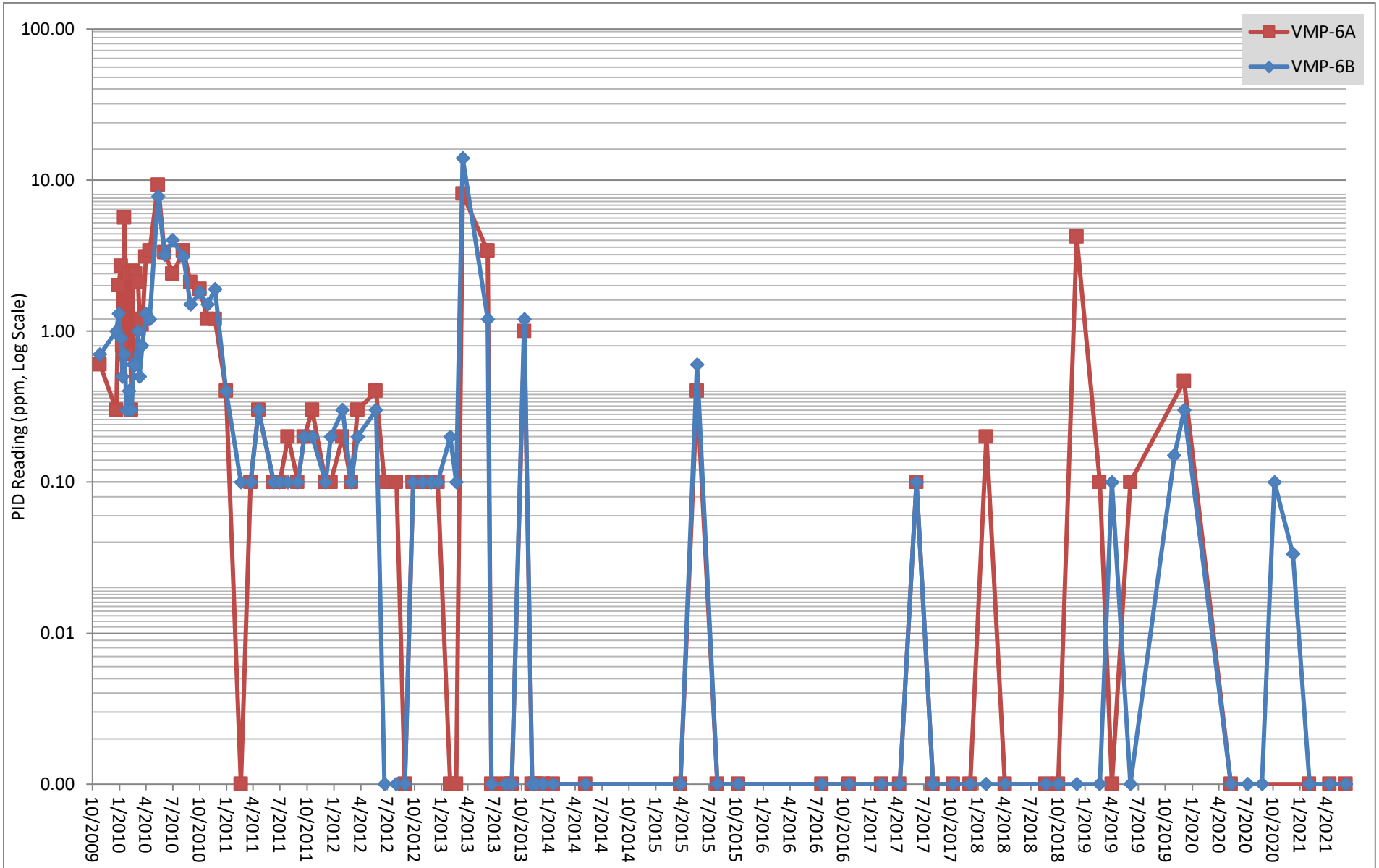
Appendix C-3
Figure 4
VMP-3A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



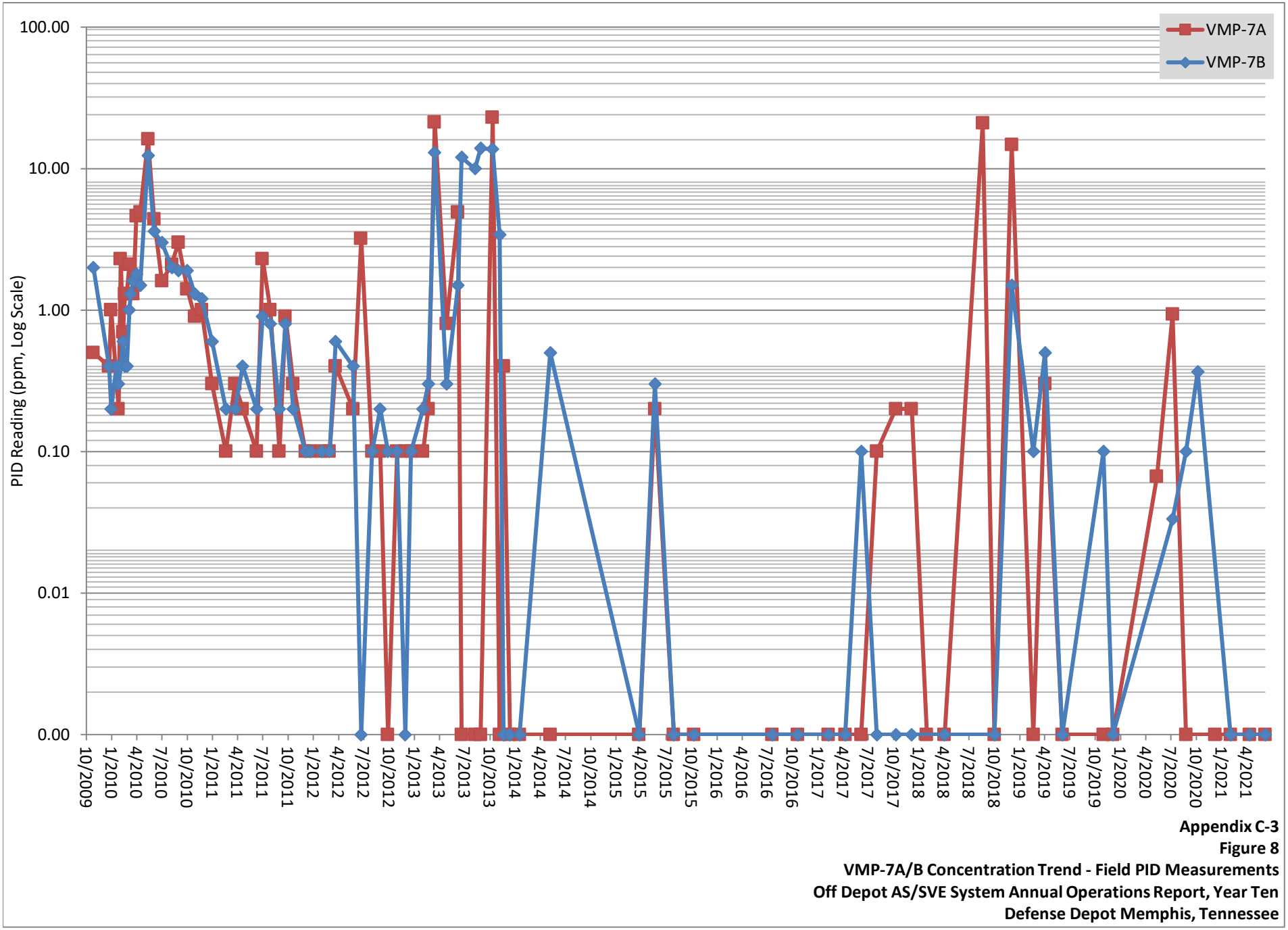
Appendix C-3
Figure 5
VMP-4A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



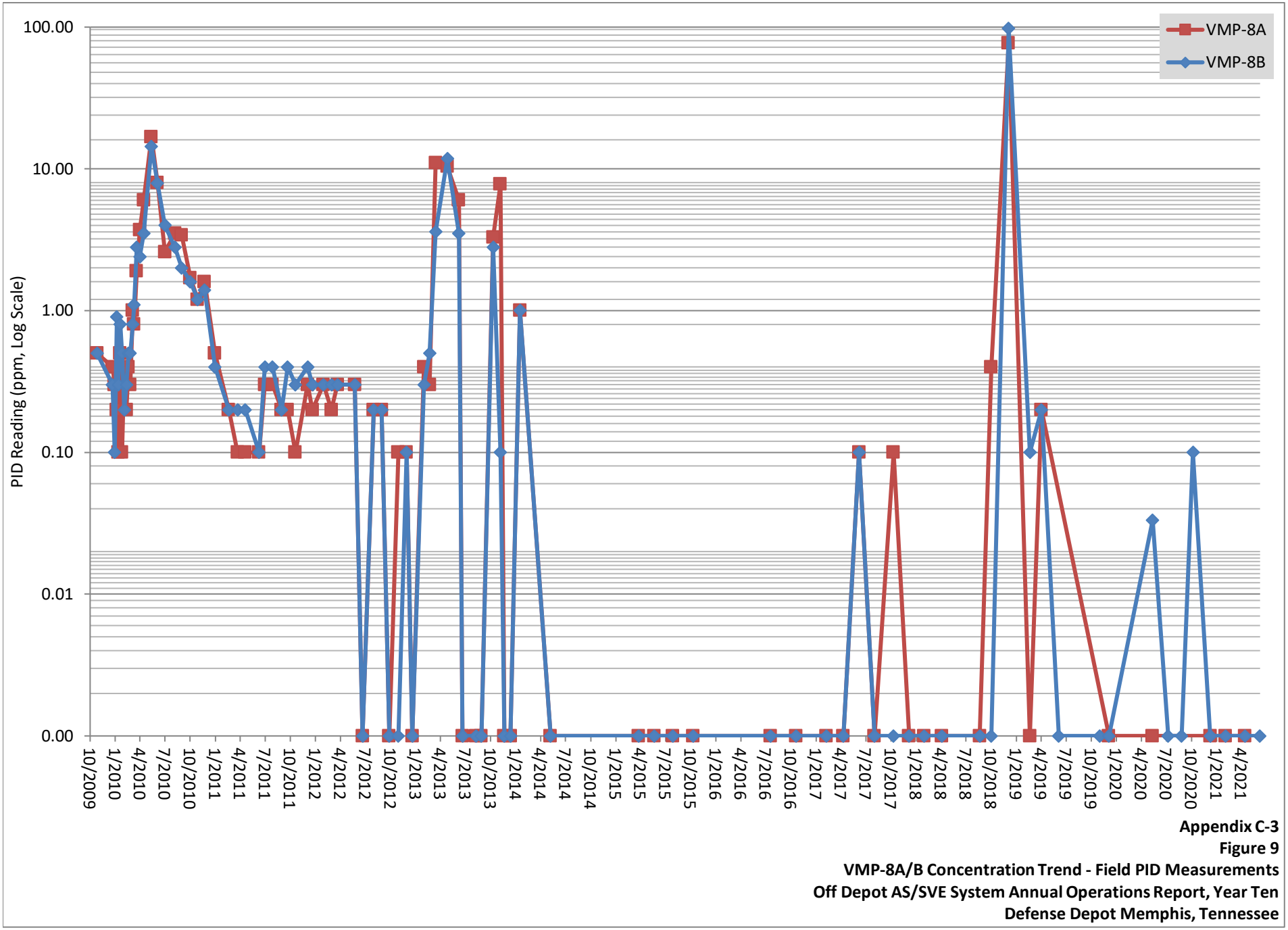
Appendix C-3
Figure 6
VMP-5A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



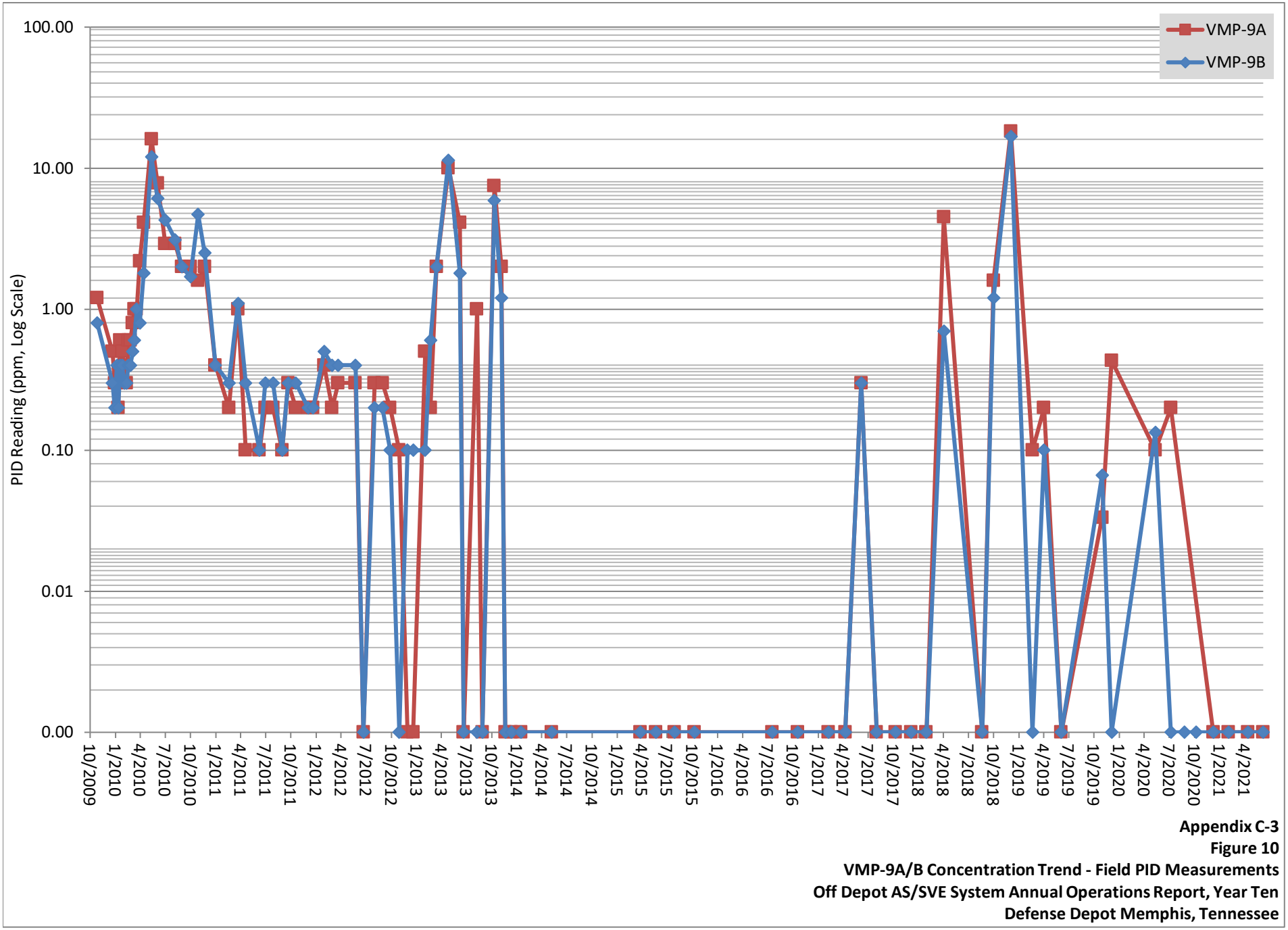
Appendix C-3
Figure 7
VMP-6A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



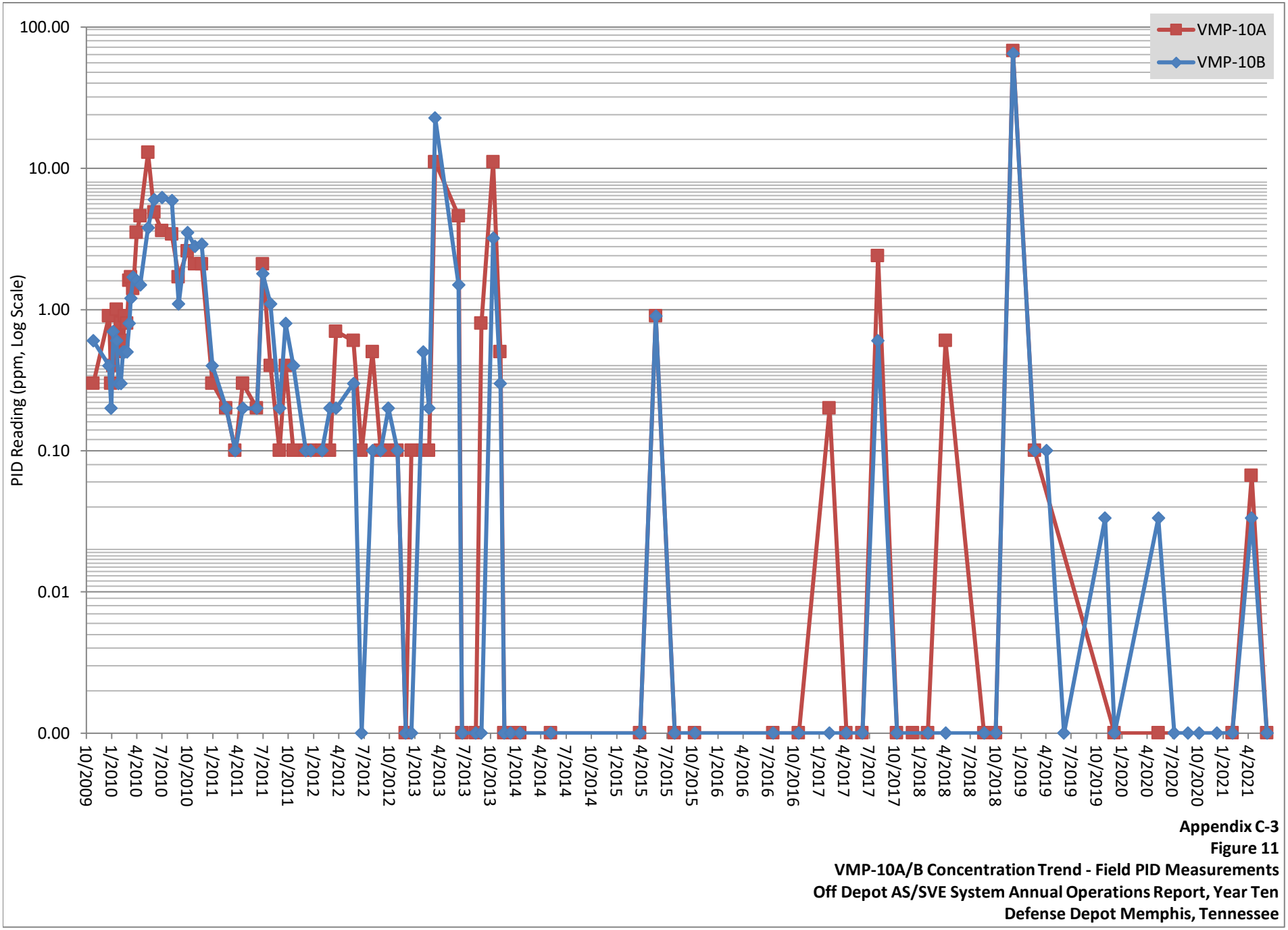
Appendix C-3
Figure 8
VMP-7A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



Appendix C-3
Figure 9
VMP-8A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



Appendix C-3
Figure 10
VMP-9A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee



Appendix C-3
Figure 11
VMP-10A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Ten
Defense Depot Memphis, Tennessee

Appendix D Results of Laboratory Analyses

Table D-1
Analytical Results - SVE Effluent
Off Depot AS/SVE Year Ten, Annual Operations Report
Dunn Field - Defense Depot Memphis, Tennessee

	Sample ID	ODSVE-EFF-Y10Q1	ODSVE-DUP1-Y10Q1	ODSVE-EFF-YQ10Q2	0DSVE-EFF-Y10Q3	ODSVE-EFF-Y10Q4
	Event	ODSVE-Y10Q1	ODSVE-Y10Q1	ODSVE-Y10Q2	ODSVE-Y10Q3	ODSVE-Y10Q4
	Date	6-Oct-20	6-Oct-20	9-Dec-20	13-Apr-21	7-Jun-21
	Lab ID	P2005708-001	P2005708-002	P2006988-001	P2101963-001	P2103157-001
Analyte	**Units**					
1,1,1-Trichloroethane	ppbv	0.23	0.25	0.32	0.24	0.23
1,1,2,2-Tetrachloroethane	ppbv	0.13	0.14	0.22	0.25	0.19
1,1,2-Trichloroethane	ppbv	0.038 U	0.029 J	0.045 J	0.037 J	0.039 U
1,1,2-Trichlorotrifluoroethane	ppbv	2.8	3.0	4.1	2.9	5.2
1,1-Dichloroethane	ppbv	0.24	0.26	0.34	0.29	0.29
1,1-Dichloroethene	ppbv	0.44	0.47	0.67	0.44	0.54
1,2,4-Trichlorobenzene	ppbv	0.097 J	0.052 U	0.058 U	0.055 U	0.05 U
1,2,4-Trimethylbenzene	ppbv	0.054 J	0.048 J	0.046 U	0.023 J	0.044 U
1,2-Dibromo 3-Chloropropane	ppbv	0.040 U	0.040 U	0.044 U	0.042 U	0.042 U
1,2-Dibromoethane	ppbv	0.027 U	0.027 U	0.03 U	0.028 U	0.028 U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ppbv	0.056 U	0.055 U	0.061 U	0.017 J	0.058 U
1,2-Dichlorobenzene	ppbv	0.039 J	0.034 U	0.038 U	0.036 U	0.036 U
1,2-Dichloroethane	ppbv	0.051 U	0.051 U	0.056 U	0.054 U	0.053 U
1,2-Dichloropropane	ppbv	0.045 U	0.045 U	0.049 U	0.047 U	0.046 U
1,3,5-Trimethylbenzene	ppbv	0.042 U	0.042 U	0.046 U	0.044 U	0.044 U
1,3-Butadiene	ppbv	0.18 U	0.057 J	0.19 U	0.19 U	0.18 U
1,3-Dichlorobenzene	ppbv	0.029 J	0.034 U	0.038 U	0.036 U	0.036 U
1,4-Dichlorobenzene	ppbv	0.039 J	0.021 J	0.071 U	0.068 U	0.067 U
1,4-Dioxane	ppbv	0.058 U [UJ]	3.9 [J]	0.063 U	0.060 U	0.059 U
2-Butanone (MEK)	ppbv	1.3 [J]	5.5 [J]	1.5	1.1	0.49
2-Hexanone	ppbv	0.74 [J]	0.22 J [J]	0.098 J	0.24 J	0.05 U
2-Propanol (Isopropyl Alcohol)	ppbv	0.35 J	0.71	0.21 J	0.36 J	0.32 U
3-Chloro-1-propene (Allyl Chloride)	ppbv	0.066 U	0.066 U	0.073 U	0.070 U	0.068 U
4-Ethyltoluene	ppbv	0.079 U	0.079 U	0.087 U	0.083 U	0.082 U
4-Methyl-2-pentanone	ppbv	0.15 J [J]	0.73 [J]	0.07 J	0.12 J	0.05 U
Acetone	ppbv	5.2 [J]	28 [J]	6.1	8.8	3.00
Acetonitrile	ppbv	0.23 U [UJ]	1.8 [J]	0.36 J	0.82	0.90
Acrolein	ppbv	0.54 J [J]	1.8 [J]	0.64 J	0.56 J	0.18 J
Acrylonitrile	ppbv	0.18 U	0.18 U	0.2 U	0.19 U	0.19 U
alpha-Pinene	ppbv	0.070 U	0.027 J	0.02 J	0.054 J	0.072 U
Benzene	ppbv	0.097 J	0.11 J	0.059 J	1.100	0.041 J
Benzyl Chloride	ppbv	0.075 U	0.075 U	0.083 U	0.079 U	0.078 U
Bromodichloromethane	ppbv	0.031 U	0.031 U	0.034 U	0.032 U	0.032 U
Bromoform	ppbv	0.038 U	0.037 U	0.041 U	0.040 U	0.039 U
Bromomethane	ppbv	0.053 U	0.053 U	0.059 U	0.046 J	0.055 U
Carbon Disulfide	ppbv	0.28 J [J]	3.7 [J]	6.7	1.10	0.23 J
Carbon Tetrachloride	ppbv	0.34	0.36	0.45	0.42	0.51
Chlorobenzene	ppbv	0.045 U	0.045 U	0.049 U	0.030 J	0.047 U
Chloroethane	ppbv	0.15 U	0.10 J	0.16 U	0.16 U	0.15 U
Chloroform	ppbv	5.2	5.6	7.4	5.6	5.80
Chloromethane	ppbv	0.19 U	0.072 J	0.056 J	0.20 U	0.20 U
cis-1,2-Dichloroethene	ppbv	28	30	32	18	24
cis-1,3-Dichloropropene	ppbv	0.046 U	0.045 U	0.05 U	0.048 U	0.047 U
Cyclohexane	ppbv	0.071 U	0.12 U	0.046 U	0.079 J	0.12 U
Dibromochloromethane	ppbv	0.071 J	0.12 U	0.13 U	0.026 U	0.025 U
Dichlorodifluoromethane (CFC 12)	ppbv	0.87	0.91	1.2	1.1	0.73
Methylene Chloride	ppbv	0.059 J	0.11 U	0.12 U	0.60	0.12 U
d-Limonene	ppbv	0.036 J	0.037 J	0.12 U	0.088 J	0.072 U
Ethanol	ppbv	3.0 J*	5.1 *	1.2 J*	5.1 *	29 *

Table D-1
Analytical Results - SVE Effluent
Off Depot AS/SVE Year Ten, Annual Operations Report
Dunn Field - Defense Depot Memphis, Tennessee

	Sample ID	ODSVE-EFF-Y10Q1	ODSVE-DUP1-Y10Q1	ODSVE-EFF-YQ10Q2	0DSVE-EFF-Y10Q3	ODSVE-EFF-Y10Q4
	Event	ODSVE-Y10Q1	ODSVE-Y10Q1	ODSVE-Y10Q2	ODSVE-Y10Q3	ODSVE-Y10Q4
	Date	6-Oct-20	6-Oct-20	9-Dec-20	13-Apr-21	7-Jun-21
	Lab ID	P2005708-001	P2005708-002	P2006988-001	P2101963-001	P2103157-001
Analyte	**Units**					
Ethyl Acetate	ppbv	0.22 U [UJ]	0.57 [J]	1.2 J	0.81 [J+]	0.23 U [UJ]
Ethylbenzene	ppbv	0.047 J	0.053 J	0.26 J	0.050 U	0.056 J
Hexachlorobutadiene	ppbv	0.037 U	0.036 U	0.029 J	0.038 U	0.038 U
Cumene	ppbv	0.15 J	0.16 J	0.04 U	0.04 U	0.044 U
m,p-Xylenes	ppbv	0.15 J	0.16 J	0.1 U	0.062 J	0.054 J
Methyl Methacrylate	ppbv	0.058 U, L	0.057 U, L	0.1 U	0.200 U	0.200 U
Methyl tert-Butyl Ether	ppbv	0.059 J	0.11 U	0.21 U	0.060 U	0.059 U
Naphthalene	ppbv	0.21 [J]	0.072 U [UJ]	0.063 U	0.12 J	0.08 U
n-Butyl Acetate	ppbv	0.11 J	0.086 J	0.048 U	0.038 J	0.045 U
n-Heptane	ppbv	0.063 J	0.12 J	0.1 U	0.15 J	0.098 U
n-Hexane	ppbv	0.083 J	0.13 J	0.12 U	0.36	0.11 U
n-Nonane	ppbv	0.050 J	0.090 J	0.082 U	0.040 J	0.077 U
n-Octane	ppbv	0.032 J	0.086 J	0.092 U	0.063 J	0.086 U
n-Propylbenzene	ppbv	0.042 U	0.042 U	0.046 U	0.044 U	0.044 U
o-Xylene	ppbv	0.062 J	0.060 J	0.052 U	0.050 U	0.049 U
Propene	ppbv	0.40 [J]	1.3 [J]	0.89	0.52	0.13 J
Styrene	ppbv	0.14 J	0.039 J	0.10 U	0.096 U	0.066 J
Tetrachloroethene	ppbv	2.2	2.4	3.3	1.8	2.7
Tetrahydrofuran (THF)	ppbv	0.077 J [J]	0.53 [J]	0.074 J	0.066 J	0.073 U
Toluene	ppbv	0.24	0.23	0.059 J	0.19	0.19
trans-1,2-Dichloroethene	ppbv	0.42	0.46	0.77	0.44	0.52
trans-1,3-Dichloropropene	ppbv	0.086 U	0.085 U	0.094 U	0.090 U	0.089 U
Trichloroethene	ppbv	25	26	28	22	26 D
Trichlorofluoromethane	ppbv	0.26	0.26	0.32	0.29	0.28
Vinyl Acetate	ppbv	1.0 J [J]	12 [J]	2.4	1.1 J	0.97 U
Vinyl Chloride	ppbv	0.14 J	0.16 J	0.16 J	0.047 J	0.072 J

Notes:
ppbv: part per billion volume
DQE Flags:
U: Analyte not detected above reporting limit
J: Estimated
J+: Estimated with a possible high bias (the target compound was recovered above the upper control limit in the associated laboratory spike samples)
D: Reported result is from a dilution
L: Laboratory control sample recovery outside the specified limits; results may be biased low
[Brackets] indicate data validation qualifiers.
* Indicates an anomalous detection of a compound not associated with the site, presumed to be associated with potential contamination from hand sanitizer.

Appendix E Laboratory Analytical Reports

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

LABORATORY REPORT

October 30, 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 samples submitted to our laboratory on October 9, 2020. For your reference, these analyses have been assigned our service request number P2005708.

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
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. Service Request No: P2005708
Project: DDMT / 10A023

CASE NARRATIVE

The samples were received intact under chain of custody on October 9, 2020 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.

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)
P2005708-001	Acetone
P2005708-002	Propene, d-Limonene

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.3 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. Service Request: P2005708

Project ID: DDMT / 10A023

Date Received: 10/9/2020

Time Received: 10:00

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pfl (psig)	TO-15 - VOC Cans
ODSVE-EFF-Y10Q1	P2005708-001	Air	10/6/2020	09:20	SC02306	0.35	3.60	X
ODSVE-DUP1-Y10Q1	P2005708-002	Air	10/6/2020	09:20	SC01717	0.46	3.66	X

Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone: +1 805 526 7161 Fax: +1 805 526 7270

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. P2005768

Company Name & Address (Reporting Information): Trinity ADC, 1062 N Eglin Pkwy Shalimar FL, 32579

Project Name: DDMT

Project Number: 10A023

ALS Contact:

Project Manager: Todd Calhoun

P.O. # / Billing Information: 8975

Phone: 850-613-6800

Fax:

Email Address for Result Reporting: TCalhoun@TrinityADC.com

Sampler (Print & Sign): Cody Miller

Client Sample ID	Laboratory ID #	~~Tube ID~~ Canister ID	Date Collected	~~Sampling Pump~~ Flow (ml/min) Sample Time	Canister ~~Sampling~~ Start Time Pressure	Canister ~~Sampling~~ End Time Pressure	Sample Volume	Analysis Method/Analytes		Comments e.g. Actual Preservative or specific instructions
ODSVE-EFF-Y10Q1	1	SC02306	10/6/2020	0920	-30	-1	6L	TO15		
ODSVE-DUP1-Y10Q1	2	SC01717	10/6/2020	0920	-32	-1	6L	TO15		

Report Tier Levels - please select
Tier I - (Results/Default if not specified) _____ Tier III (Data Validation Package) 10% Surcharge _____
Tier II (Results + QC) _____ Tier IV (client specified) _____
EDD required Yes / No
Type: _____

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Time:
Cody Miller	10/6/2020	1430		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Time:
				10-9-20 1000
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Time:

Cooler / Blank Temperature ____°C

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ALS Environmental

Sample Acceptance Check Form

Client: Trinity Analysis & Development Corp. Work order: P2005708

Project: DDMT / 10A023

Sample(s) received on: 10/09/20 Date opened: 10/09/20 by: ADAVID

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.

		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. 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 if necessary 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
P2005708-001.01	6.0 L Source Can					
P2005708-002.01	6.0 L Source Can					

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

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **ODSVE-EFF-Y10Q1** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023** ALS Sample ID: P2005708-001

Test Code: EPA TO-15 Date Collected: 10/6/20
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 10/9/20
Analyst: Wida Ang Date Analyzed: 10/22/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC02306

Initial Pressure (psig): 0.35 Final Pressure (psig): 3.60

Container Dilution Factor: 1.22

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**0.40**	0.37	0.23	0.092	
75-71-8	Dichlorodifluoromethane (CFC 12)	**0.87**	0.13	0.079	0.021	
74-87-3	Chloromethane	0.19	0.31	0.19	0.051	**U**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.056	0.091	0.056	0.015	**U**
75-01-4	Vinyl Chloride	**0.14**	0.25	0.081	0.027	**J**
106-99-0	1,3-Butadiene	0.18	0.29	0.18	0.049	**U**
74-83-9	Bromomethane	0.053	0.16	0.053	0.023	**U**
75-00-3	Chloroethane	0.15	0.24	0.15	0.031	**U**
64-17-5	Ethanol	**3.0**	3.4	0.54	0.24	**J**
75-05-8	Acetonitrile	0.23	0.39	0.23	0.095	**U**
107-02-8	Acrolein	**0.54**	0.59	0.17	0.080	**J**
67-64-1	Acetone	**5.2**	2.7	1.4	0.62	
75-69-4	Trichlorofluoromethane	**0.26**	0.11	0.069	0.018	
67-63-0	2-Propanol (Isopropyl Alcohol)	**0.35**	0.50	0.31	0.11	**J**
107-13-1	Acrylonitrile	0.18	0.56	0.18	0.062	**U**
75-35-4	1,1-Dichloroethene	**0.44**	0.16	0.052	0.023	
75-09-2	Methylene Chloride	**0.059**	0.18	0.11	0.053	**J**
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.066	0.20	0.066	0.028	**U**
76-13-1	Trichlorotrifluoroethane	**2.8**	0.084	0.027	0.012	
75-15-0	Carbon Disulfide	**0.28**	0.39	0.21	0.063	**J**
156-60-5	trans-1,2-Dichloroethene	**0.42**	0.16	0.052	0.023	
75-34-3	1,1-Dichloroethane	**0.24**	0.16	0.10	0.024	
1634-04-4	Methyl tert-Butyl Ether	0.058	0.18	0.058	0.021	**U, L**
108-05-4	Vinyl Acetate	**1.0**	1.9	0.94	0.42	**J**
78-93-3	2-Butanone (MEK)	**1.3**	0.41	0.13	0.046	

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.
L = Laboratory control sample recovery outside the specified limits, results may be biased low.

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **ODSVE-EFF-Y10Q1** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023** ALS Sample ID: P2005708-001

Test Code: EPA TO-15 Date Collected: 10/6/20
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 10/9/20
Analyst: Wida Ang Date Analyzed: 10/22/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC02306

Initial Pressure (psig): 0.35 Final Pressure (psig): 3.60

Container Dilution Factor: 1.22

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**28**	0.16	0.052	0.023	
141-78-6	Ethyl Acetate	0.22	0.34	0.22	0.095	**U**
110-54-3	n-Hexane	**0.083**	0.18	0.11	0.038	**J**
67-66-3	Chloroform	**5.2**	0.13	0.042	0.018	
109-99-9	Tetrahydrofuran (THF)	**0.077**	0.41	0.070	0.028	**J**
107-06-2	1,2-Dichloroethane	0.051	0.16	0.051	0.018	**U**
71-55-6	1,1,1-Trichloroethane	**0.23**	0.12	0.038	0.015	
71-43-2	Benzene	**0.097**	0.20	0.065	0.029	**J**
56-23-5	Carbon Tetrachloride	**0.34**	0.099	0.033	0.014	
110-82-7	Cyclohexane	**0.071**	0.35	0.12	0.053	**J**
78-87-5	1,2-Dichloropropane	0.045	0.14	0.045	0.017	**U**
75-27-4	Bromodichloromethane	0.031	0.095	0.031	0.014	**U**
79-01-6	Trichloroethene	**25**	1.2	0.39	0.16	**D**
123-91-1	1,4-Dioxane	0.058	0.18	0.058	0.021	**U**
80-62-6	Methyl Methacrylate	0.19	0.30	0.19	0.057	**U**
142-82-5	n-Heptane	**0.063**	0.15	0.095	0.025	**J**
10061-01-5	cis-1,3-Dichloropropene	0.046	0.14	0.046	0.022	**U**
108-10-1	4-Methyl-2-pentanone	**0.15**	0.30	0.051	0.022	**J**
10061-02-6	trans-1,3-Dichloropropene	0.086	0.14	0.086	0.030	**U**
79-00-5	1,1,2-Trichloroethane	0.038	0.12	0.038	0.012	**U**
108-88-3	Toluene	**0.24**	0.17	0.055	0.021	
591-78-6	2-Hexanone	**0.74**	0.30	0.051	0.020	
124-48-1	Dibromochloromethane	0.024	0.074	0.024	0.010	**U**
106-93-4	1,2-Dibromoethane	0.027	0.083	0.027	0.0098	**U**
123-86-4	n-Butyl Acetate	**0.11**	0.26	0.044	0.019	**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.

D = The reported result is from a dilution.

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **ODSVE-EFF-Y10Q1** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023** ALS Sample ID: P2005708-001

Test Code: EPA TO-15 Date Collected: 10/6/20
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 10/9/20
Analyst: Wida Ang Date Analyzed: 10/22/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC02306

Initial Pressure (psig): 0.35 Final Pressure (psig): 3.60

Container Dilution Factor: 1.22

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	**0.032**	0.14	0.084	0.031	**J**
127-18-4	Tetrachloroethene	**2.2**	0.094	0.031	0.012	
108-90-7	Chlorobenzene	0.045	0.14	0.045	0.019	**U**
100-41-4	Ethylbenzene	**0.047**	0.15	0.048	0.021	**J**
179601-23-1	m,p-Xylenes	**0.15**	0.28	0.096	0.039	**J**
75-25-2	Bromoform	0.038	0.063	0.038	0.013	**U**
100-42-5	Styrene	**0.14**	0.15	0.092	0.025	**J**
95-47-6	o-Xylene	**0.062**	0.15	0.048	0.022	**J**
111-84-2	n-Nonane	**0.050**	0.12	0.074	0.021	**J**
79-34-5	1,1,2,2-Tetrachloroethane	**0.13**	0.094	0.030	0.013	
98-82-8	Cumene	0.042	0.13	0.042	0.019	**U**
80-56-8	alpha-Pinene	0.070	0.12	0.070	0.018	**U**
103-65-1	n-Propylbenzene	0.042	0.13	0.042	0.019	**U**
622-96-8	4-Ethyltoluene	0.079	0.13	0.079	0.021	**U**
108-67-8	1,3,5-Trimethylbenzene	0.042	0.13	0.042	0.019	**U**
95-63-6	1,2,4-Trimethylbenzene	**0.054**	0.13	0.042	0.018	**J**
100-44-7	Benzyl Chloride	0.075	0.25	0.075	0.028	**U**
541-73-1	1,3-Dichlorobenzene	**0.029**	0.11	0.035	0.016	**J**
106-46-7	1,4-Dichlorobenzene	**0.039**	0.11	0.065	0.017	**J**
95-50-1	1,2-Dichlorobenzene	**0.039**	0.11	0.035	0.016	**J**
5989-27-5	d-Limonene	**0.036**	0.11	0.070	0.024	**J**
96-12-8	1,2-Dibromo-3-chloropropane	0.040	0.13	0.040	0.013	**U**
120-82-1	1,2,4-Trichlorobenzene	**0.097**	0.16	0.053	0.021	**J**
91-20-3	Naphthalene	**0.21**	0.12	0.072	0.030	
87-68-3	Hexachlorobutadiene	0.037	0.059	0.037	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

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **ODSVE-DUP1-Y10Q1** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023** ALS Sample ID: P2005708-002

Test Code: EPA TO-15 Date Collected: 10/6/20
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 10/9/20
Analyst: Wida Ang Date Analyzed: 10/22/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01717

Initial Pressure (psig): 0.46 Final Pressure (psig): 3.66

Container Dilution Factor: 1.21

CAS #	Compound	Result ppbV		LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**1.3**		0.37	0.23	0.091	
75-71-8	Dichlorodifluoromethane (CFC 12)	**0.91**		0.13	0.078	0.021	
74-87-3	Chloromethane	**0.072**		0.30	0.19	0.050	**J**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)		0.055	0.090	0.055	0.015	**U**
75-01-4	Vinyl Chloride	**0.16**		0.25	0.081	0.027	**J**
106-99-0	1,3-Butadiene	**0.057**		0.28	0.18	0.048	**J**
74-83-9	Bromomethane		0.053	0.16	0.053	0.023	**U**
75-00-3	Chloroethane	**0.10**		0.24	0.15	0.030	**J**
64-17-5	Ethanol	**5.1**		3.4	0.53	0.24	
75-05-8	Acetonitrile	**1.8**		0.38	0.23	0.094	
107-02-8	Acrolein	**1.8**		0.58	0.16	0.079	
67-64-1	Acetone	**28**		2.6	1.4	0.61	
75-69-4	Trichlorofluoromethane	**0.26**		0.11	0.069	0.017	
67-63-0	2-Propanol (Isopropyl Alcohol)	**0.71**		0.49	0.31	0.11	
107-13-1	Acrylonitrile		0.18	0.56	0.18	0.061	**U**
75-35-4	1,1-Dichloroethene	**0.47**		0.16	0.052	0.023	
75-09-2	Methylene Chloride		0.11	0.18	0.11	0.052	**U**
107-05-1	3-Chloro-1-propene (Allyl Chloride)		0.066	0.20	0.066	0.028	**U**
76-13-1	Trichlorotrifluoroethane	**3.0**		0.084	0.027	0.012	
75-15-0	Carbon Disulfide	**3.7**		0.39	0.21	0.062	
156-60-5	trans-1,2-Dichloroethene	**0.46**		0.16	0.052	0.023	
75-34-3	1,1-Dichloroethane	**0.26**		0.16	0.099	0.023	
1634-04-4	Methyl tert-Butyl Ether		0.057	0.17	0.057	0.021	**U, L**
108-05-4	Vinyl Acetate	**12**		1.9	0.93	0.41	
78-93-3	2-Butanone (MEK)	**5.5**		0.41	0.13	0.045	

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.
L = Laboratory control sample recovery outside the specified limits, results may be biased low.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **ODSVE-DUP1-Y10Q1** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023** ALS Sample ID: P2005708-002

Test Code: EPA TO-15 Date Collected: 10/6/20
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 10/9/20
Analyst: Wida Ang Date Analyzed: 10/22/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01717

Initial Pressure (psig): 0.46 Final Pressure (psig): 3.66

Container Dilution Factor: 1.21

CAS #	Compound	Result ppbV		LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**30**		0.16	0.052	0.023	
141-78-6	Ethyl Acetate	**0.57**		0.34	0.22	0.094	
110-54-3	n-Hexane	**0.13**		0.18	0.11	0.038	**J**
67-66-3	Chloroform	**5.6**		0.13	0.042	0.018	
109-99-9	Tetrahydrofuran (THF)	**0.53**		0.41	0.070	0.027	
107-06-2	1,2-Dichloroethane		0.051	0.16	0.051	0.018	**U**
71-55-6	1,1,1-Trichloroethane	**0.25**		0.12	0.038	0.015	
71-43-2	Benzene	**0.11**		0.20	0.064	0.029	**J**
56-23-5	Carbon Tetrachloride	**0.36**		0.098	0.033	0.014	
110-82-7	Cyclohexane		0.12	0.35	0.12	0.053	**U**
78-87-5	1,2-Dichloropropane		0.045	0.14	0.045	0.017	**U**
75-27-4	Bromodichloromethane		0.031	0.094	0.031	0.014	**U**
79-01-6	Trichloroethene	**26**		1.1	0.38	0.16	**D**
123-91-1	1,4-Dioxane	**3.9**		0.17	0.057	0.021	
80-62-6	Methyl Methacrylate		0.19	0.30	0.19	0.056	**U**
142-82-5	n-Heptane	**0.12**		0.15	0.095	0.025	**J**
10061-01-5	cis-1,3-Dichloropropene		0.045	0.14	0.045	0.022	**U**
108-10-1	4-Methyl-2-pentanone	**0.73**		0.30	0.050	0.022	
10061-02-6	trans-1,3-Dichloropropene		0.085	0.14	0.085	0.029	**U**
79-00-5	1,1,2-Trichloroethane	**0.029**		0.12	0.038	0.012	**J**
108-88-3	Toluene	**0.23**		0.17	0.055	0.021	
591-78-6	2-Hexanone	**0.22**		0.30	0.050	0.020	**J**
124-48-1	Dibromochloromethane		0.024	0.074	0.024	0.0099	**U**
106-93-4	1,2-Dibromoethane		0.027	0.082	0.027	0.0098	**U**
123-86-4	n-Butyl Acetate	**0.086**		0.25	0.043	0.019	**J**

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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.
D = The reported result is from a dilution.

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **ODSVE-DUP1-Y10Q1** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023** ALS Sample ID: P2005708-002

Test Code: EPA TO-15 Date Collected: 10/6/20
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 10/9/20
Analyst: Wida Ang Date Analyzed: 10/22/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01717

Initial Pressure (psig): 0.46 Final Pressure (psig): 3.66

Container Dilution Factor: 1.21

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	**0.086**	0.13	0.083	0.031	**J**
127-18-4	Tetrachloroethene	**2.4**	0.093	0.030	0.012	
108-90-7	Chlorobenzene	0.045	0.14	0.045	0.019	**U**
100-41-4	Ethylbenzene	**0.053**	0.14	0.047	0.021	**J**
179601-23-1	m,p-Xylenes	**0.16**	0.28	0.095	0.039	**J**
75-25-2	Bromoform	0.037	0.062	0.037	0.013	**U**
100-42-5	Styrene	**0.039**	0.15	0.091	0.024	**J**
95-47-6	o-Xylene	**0.060**	0.15	0.047	0.021	**J**
111-84-2	n-Nonane	**0.090**	0.12	0.074	0.021	**J**
79-34-5	1,1,2,2-Tetrachloroethane	**0.14**	0.093	0.030	0.013	
98-82-8	Cumene	0.042	0.13	0.042	0.019	**U**
80-56-8	alpha-Pinene	**0.027**	0.12	0.070	0.018	**J**
103-65-1	n-Propylbenzene	0.042	0.13	0.042	0.019	**U**
622-96-8	4-Ethyltoluene	0.079	0.13	0.079	0.021	**U**
108-67-8	1,3,5-Trimethylbenzene	0.042	0.13	0.042	0.019	**U**
95-63-6	1,2,4-Trimethylbenzene	**0.048**	0.13	0.042	0.018	**J**
100-44-7	Benzyl Chloride	0.075	0.25	0.075	0.028	**U**
541-73-1	1,3-Dichlorobenzene	0.034	0.11	0.034	0.016	**U**
106-46-7	1,4-Dichlorobenzene	**0.021**	0.10	0.064	0.017	**J**
95-50-1	1,2-Dichlorobenzene	0.034	0.11	0.034	0.016	**U**
5989-27-5	d-Limonene	**0.037**	0.11	0.070	0.024	**J**
96-12-8	1,2-Dibromo-3-chloropropane	0.040	0.13	0.040	0.013	**U**
120-82-1	1,2,4-Trichlorobenzene	0.052	0.16	0.052	0.021	**U**
91-20-3	Naphthalene	0.072	0.12	0.072	0.030	**U**
87-68-3	Hexachlorobutadiene	0.036	0.059	0.036	0.012	**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.

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **Method Blank** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023** ALS Sample ID: P201021-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/21/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.19	0.30	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	0.25	0.16	0.042	**U**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.046	0.074	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	0.13	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	0.48	0.14	0.065	**U**
67-64-1	Acetone	1.1	2.2	1.1	0.51	**U**
75-69-4	Trichlorofluoromethane	0.057	0.091	0.057	0.014	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.26	0.41	0.26	0.090	**U**
107-13-1	Acrylonitrile	0.15	0.46	0.15	0.051	**U**
75-35-4	1,1-Dichloroethene	0.043	0.13	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	0.069	0.022	0.0099	**U**
75-15-0	Carbon Disulfide	0.17	0.32	0.17	0.051	**U**
156-60-5	trans-1,2-Dichloroethene	0.043	0.13	0.043	0.019	**U**
75-34-3	1,1-Dichloroethane	0.082	0.13	0.082	0.019	**U**
1634-04-4	Methyl tert-Butyl Ether	0.047	0.14	0.047	0.017	**U, L**
108-05-4	Vinyl Acetate	0.77	1.6	0.77	0.34	**U**
78-93-3	2-Butanone (MEK)	0.11	0.34	0.11	0.037	**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.
L = Laboratory control sample recovery outside the specified limits, results may be biased low.

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **Method Blank** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023** ALS Sample ID: P201021-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/21/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

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	0.28	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	0.34	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	0.095	0.031	0.012	**U**
71-43-2	Benzene	0.053	0.16	0.053	0.024	**U**
56-23-5	Carbon Tetrachloride	0.027	0.081	0.027	0.012	**U**
110-82-7	Cyclohexane	0.099	0.29	0.099	0.044	**U**
78-87-5	1,2-Dichloropropane	0.037	0.11	0.037	0.014	**U**
75-27-4	Bromodichloromethane	0.025	0.078	0.025	0.011	**U**
79-01-6	Trichloroethene	0.032	0.095	0.032	0.013	**U**
123-91-1	1,4-Dioxane	0.047	0.14	0.047	0.017	**U**
80-62-6	Methyl Methacrylate	0.16	0.24	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	0.12	0.037	0.018	**U**
108-10-1	4-Methyl-2-pentanone	0.041	0.24	0.041	0.018	**U**
10061-02-6	trans-1,3-Dichloropropene	0.071	0.11	0.071	0.024	**U**
79-00-5	1,1,2-Trichloroethane	0.031	0.095	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	0.24	0.042	0.016	**U**
124-48-1	Dibromochloromethane	0.020	0.061	0.020	0.0082	**U**
106-93-4	1,2-Dibromoethane	0.022	0.068	0.022	0.0081	**U**
123-86-4	n-Butyl Acetate	0.036	0.21	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.

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **Method Blank** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023** ALS Sample ID: P201021-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/21/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.069	0.11	0.069	0.026	U
127-18-4	Tetrachloroethene	0.025	0.077	0.025	0.010	U
108-90-7	Chlorobenzene	0.037	0.11	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	0.23	0.078	0.032	U
75-25-2	Bromoform	0.031	0.051	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	0.077	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	0.095	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	0.20	0.062	0.023	U
541-73-1	1,3-Dichlorobenzene	0.028	0.088	0.028	0.013	U
106-46-7	1,4-Dichlorobenzene	0.053	0.087	0.053	0.014	U
95-50-1	1,2-Dichlorobenzene	0.028	0.088	0.028	0.013	U
5989-27-5	d-Limonene	0.057	0.093	0.057	0.020	U
96-12-8	1,2-Dibromo-3-chloropropane	0.033	0.10	0.033	0.010	U
120-82-1	1,2,4-Trichlorobenzene	0.043	0.13	0.043	0.018	U
91-20-3	Naphthalene	0.059	0.099	0.059	0.025	U
87-68-3	Hexachlorobutadiene	0.030	0.049	0.030	0.010	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.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **Trinity Analysis & Development Corp.**
Client Project ID: **DDMT / 10A023** ALS Project ID: P2005708

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date(s) Collected: 10/6/20
Analyst: Wida Ang Date(s) Received: 10/9/20
Sampling Media: 6.0 L Summa Canister(s) Date(s) Analyzed: 10/21 - 10/22/20
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P201021-MB	**102**	**99**	**108**	70-130	
Lab Control Sample	P201021-LCS	**101**	**96**	**106**	70-130	
Duplicate Lab Control Sample	P201021-DLCS	**101**	**96**	**107**	70-130	
ODSVE-EFF-Y10Q1	P2005708-001	**97**	**99**	**113**	70-130	
ODSVE-DUP1-Y10Q1	P2005708-002	**97**	**99**	**111**	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

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023** ALS Sample ID: P201021-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/21/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ppbV	Result LCS ppbV	Result DLCS ppbV	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	122	109	104	**89**	**85**	57-136	5	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	42.5	37.7	36.5	**89**	**86**	59-128	3	25	
74-87-3	Chloromethane	99.8	95.0	92.8	**95**	**93**	59-132	2	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	30.9	27.5	26.8	**89**	**87**	63-121	2	25	
75-01-4	Vinyl Chloride	81.4	78.3	76.7	**96**	**94**	64-127	2	25	
106-99-0	1,3-Butadiene	95.0	94.3	91.8	**99**	**97**	66-134	2	25	
74-83-9	Bromomethane	54.6	48.4	46.9	**89**	**86**	63-134	3	25	
75-00-3	Chloroethane	77.3	71.0	68.8	**92**	**89**	63-127	3	25	
64-17-5	Ethanol	530	439	426	**83**	**80**	59-125	4	25	
75-05-8	Acetonitrile	120	119	115	**99**	**96**	63-132	3	25	
107-02-8	Acrolein	190	176	171	**93**	**90**	62-126	3	25	
67-64-1	Acetone	435	364	351	**84**	**81**	58-128	4	25	
75-69-4	Trichlorofluoromethane	36.3	31.3	30.7	**86**	**85**	62-126	1	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	166	164	160	**99**	**96**	52-125	3	25	
107-13-1	Acrylonitrile	189	192	187	**102**	**99**	71-137	3	25	
75-35-4	1,1-Dichloroethene	53.5	47.2	46.0	**88**	**86**	61-133	2	25	
75-09-2	Methylene Chloride	59.9	54.0	52.7	**90**	**88**	62-115	2	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	67.1	65.4	63.8	**97**	**95**	71-131	2	25	
76-13-1	Trichlorotrifluoroethane	27.9	25.3	25.2	**91**	**90**	66-126	1	25	
75-15-0	Carbon Disulfide	137	114	112	**83**	**82**	57-134	1	25	
156-60-5	trans-1,2-Dichloroethene	53.5	52.3	51.3	**98**	**96**	67-124	2	25	
75-34-3	1,1-Dichloroethane	52.4	47.1	46.1	**90**	**88**	68-126	2	25	
1634-04-4	Methyl tert-Butyl Ether	58.8	57.4	56.5	**98**	**96**	66-126	2	25	
108-05-4	Vinyl Acetate	313	267	263	**85**	**84**	56-139	1	25	
78-93-3	2-Butanone (MEK)	140	141	139	**101**	**99**	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.

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023** ALS Sample ID: P201021-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/21/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ppbV	Result LCS ppbV	Result DLCS ppbV	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	52.5	49.0	48.0	**93**	**91**	70-121	2	25	
141-78-6	Ethyl Acetate	117	149	145	**127**	**124**	65-128	2	25	
110-54-3	n-Hexane	60.2	53.3	52.1	**89**	**87**	63-120	2	25	
67-66-3	Chloroform	43.8	38.1	37.3	**87**	**85**	68-123	2	25	
109-99-9	Tetrahydrofuran (THF)	136	122	119	**90**	**88**	64-123	2	25	
107-06-2	1,2-Dichloroethane	51.4	49.1	48.1	**96**	**94**	65-128	2	25	
71-55-6	1,1,1-Trichloroethane	37.8	33.3	32.6	**88**	**86**	68-125	2	25	
71-43-2	Benzene	63.9	56.9	55.5	**89**	**87**	69-119	2	25	
56-23-5	Carbon Tetrachloride	33.4	28.2	27.5	**84**	**82**	68-132	2	25	
110-82-7	Cyclohexane	121	109	107	**90**	**88**	70-117	2	25	
78-87-5	1,2-Dichloropropane	44.6	40.8	39.8	**91**	**89**	69-123	2	25	
75-27-4	Bromodichloromethane	31.4	28.9	28.3	**92**	**90**	72-128	2	25	
79-01-6	Trichloroethene	38.3	35.2	34.5	**92**	**90**	71-123	2	25	
123-91-1	1,4-Dioxane	57.7	58.8	57.3	**102**	**99**	71-122	3	25	
80-62-6	Methyl Methacrylate	102	104	102	**102**	**100**	70-128	2	25	
142-82-5	n-Heptane	51.3	46.5	45.4	**91**	**88**	69-123	3	25	
10061-01-5	cis-1,3-Dichloropropene	46.3	45.9	45.0	**99**	**97**	70-128	2	25	
108-10-1	4-Methyl-2-pentanone	102	104	102	**102**	**100**	67-130	2	25	
10061-02-6	trans-1,3-Dichloropropene	44.5	46.1	45.3	**104**	**102**	75-133	2	25	
79-00-5	1,1,2-Trichloroethane	37.8	34.8	34.1	**92**	**90**	73-119	2	25	
108-88-3	Toluene	54.7	46.0	45.4	**84**	**83**	66-119	1	25	
591-78-6	2-Hexanone	98.7	104	102	**105**	**103**	62-128	2	25	
124-48-1	Dibromochloromethane	24.7	22.5	22.3	**91**	**90**	70-130	1	25	
106-93-4	1,2-Dibromoethane	27.1	25.3	24.9	**93**	**92**	74-122	1	25	
123-86-4	n-Butyl Acetate	85.5	91.4	89.9	**107**	**105**	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.

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023** ALS Sample ID: P201021-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/21/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ppbV	Result LCS ppbV	Result DLCS ppbV	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
111-65-9	n-Octane	45.0	39.5	38.7	**88**	**86**	69-121	2	25	
127-18-4	Tetrachloroethene	30.4	26.1	25.9	**86**	**85**	66-124	1	25	
108-90-7	Chlorobenzene	44.7	38.4	38.0	**86**	**85**	70-119	1	25	
100-41-4	Ethylbenzene	47.4	41.5	40.9	**88**	**86**	70-124	2	25	
179601-23-1	m,p-Xylenes	94.9	80.1	79.1	**84**	**83**	61-134	1	25	
75-25-2	Bromoform	20.1	19.1	18.9	**95**	**94**	66-139	1	25	
100-42-5	Styrene	48.4	45.8	45.3	**95**	**94**	73-127	1	25	
95-47-6	o-Xylene	47.4	41.2	40.7	**87**	**86**	67-125	1	25	
111-84-2	n-Nonane	39.7	36.9	36.3	**93**	**91**	63-128	2	25	
79-34-5	1,1,2,2-Tetrachloroethane	30.0	26.5	26.2	**88**	**87**	65-127	1	25	
98-82-8	Cumene	42.3	36.4	35.8	**86**	**85**	68-124	1	25	
80-56-8	alpha-Pinene	38.4	35.0	34.6	**91**	**90**	62-136	1	25	
103-65-1	n-Propylbenzene	42.3	37.1	36.4	**88**	**86**	69-123	2	25	
622-96-8	4-Ethyltoluene	42.7	38.5	38.1	**90**	**89**	67-129	1	25	
108-67-8	1,3,5-Trimethylbenzene	41.9	35.2	34.6	**84**	**83**	67-130	1	25	
95-63-6	1,2,4-Trimethylbenzene	41.5	36.9	36.4	**89**	**88**	66-132	1	25	
100-44-7	Benzyl Chloride	77.7	77.2	76.7	**99**	**99**	50-147	0	25	
541-73-1	1,3-Dichlorobenzene	34.3	30.1	29.8	**88**	**87**	65-130	1	25	
106-46-7	1,4-Dichlorobenzene	33.9	28.6	28.3	**84**	**83**	60-131	1	25	
95-50-1	1,2-Dichlorobenzene	34.3	30.1	29.7	**88**	**87**	63-129	1	25	
5989-27-5	d-Limonene	37.3	36.3	35.7	**97**	**96**	65-136	1	25	
96-12-8	1,2-Dibromo-3-chloropropane	38.3	38.9	38.4	**102**	**100**	73-133	2	25	
120-82-1	1,2,4-Trichlorobenzene	52.3	50.1	49.8	**96**	**95**	55-142	1	25	
91-20-3	Naphthalene	37.8	38.6	38.4	**102**	**102**	57-138	0	25	
87-68-3	Hexachlorobutadiene	19.7	16.6	16.5	**84**	**84**	56-138	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.

Client: **Trinity Analysis & Development Corp.** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023**

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Lab File ID: 10212003.D
Analyst: Wida Ang Date Analyzed: 10/21/20
Sampling Media: 6.0 L Summa Canister(s) Time Analyzed: 21:07
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P201021-LCS	10212004.D	21:41
Duplicate Lab Control Sample	P201021-DLCS	10212005.D	22:16
ODSVE-EFF-Y10Q1	P2005708-001	10212030.D	12:35
ODSVE-DUP1-Y10Q1	P2005708-002	10212031.D	13:10
ODSVE-EFF-Y10Q1 (Dilution)	P2005708-001	10212032.D	13:58
ODSVE-DUP1-Y10Q1 (Dilution)	P2005708-002	10212033.D	14:32

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Trinity Analysis & Development Corp.** ALS Project ID: P2005708
Client Project ID: **DDMT / 10A023**

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Lab File ID: 10212001.D
Analyst: Wida Ang Date Analyzed: 10/21/20
Sampling Media: 6.0 L Summa Canister(s) Time Analyzed: 19:30
Test Notes:

		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 Hour Standard	116464	11.20	503468	13.32	235911	17.63
	Upper Limit	163050	11.53	704855	13.65	330275	17.96
	Lower Limit	69878	10.87	302081	12.99	141547	17.30
	Client Sample ID						
01	Method Blank	114148	11.18	502035	13.31	227690	17.63
02	Lab Control Sample	115192	11.20	501627	13.32	237174	17.63
03	Duplicate Lab Control Sample	116622	11.21	508666	13.32	239166	17.63
04	ODSVE-EFF-Y10Q1	115460	11.19	496386	13.31	226071	17.63
05	ODSVE-DUP1-Y10Q1	117818	11.19	501633	13.32	231027	17.63
06	ODSVE-EFF-Y10Q1 (Dilution)	117780	11.18	510224	13.31	230664	17.63
07	ODSVE-DUP1-Y10Q1 (Dilution)	114364	11.18	499556	13.31	225985	17.63
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.

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212030.D Vial: 2
Acq On : 22 Oct 2020 12:35 Operator: WA
Sample : P2005708-001 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 14:53:20 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	115460	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.31	114	496386	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.63	82	226071	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.04	65	147314	12.251	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.00%				
57) Toluene-d8 (SS2)	15.76	98	554977	12.415	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.28%				
73) Bromofluorobenzene (SS3)	19.01	174	202094	14.072	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 112.56%				
Target Compounds							Qvalue
2) Propene	4.17	42	7546	0.568	ng		93
3) Dichlorodifluoromethan...	4.33	85	74098	3.519	ng		100
4) Chloromethane	0.00	50	0	N.D.	d		
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	930	0.081	ng		85
6) Vinyl Chloride	5.03	62	4472	0.297	ng		99
7) 1,3-Butadiene	5.30	54	326	N.D.			
8) Bromomethane	5.73	94	109	N.D.			
9) Chloroethane	6.04	64	133	N.D.			
10) Ethanol	6.40	45	37921	4.582	ng		98
11) Acetonitrile	6.69	41	2306	0.119	ng	#	1
12) Acrolein	6.89	56	7423	1.023	ng		98
13) Acetone	7.08	58	86975m	10.079	ng		
14) Trichlorofluoromethane	7.30	101	22694	1.200	ng		99
15) 2-Propanol (Isopropanol)	7.59	45	18376	0.709	ng		92
16) Acrylonitrile	7.90	53	260	N.D.			
17) 1,1-Dichloroethene	8.26	96	15809	1.424	ng		99
18) 2-Methyl-2-Propanol (t...	8.54	59	606	N.D.			
19) Methylene Chloride	8.47	84	1922	0.167	ng		94
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d		
21) Trichlorotrifluoroethane	8.90	151	179625	17.282	ng		97
22) Carbon Disulfide	8.74	76	30874	0.723	ng		98
23) trans-1,2-Dichloroethene	9.74	61	19740	1.373	ng		100
24) 1,1-Dichloroethane	10.00	63	15042	0.792	ng		99
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	10.23	86	7391	2.992	ng	#	44
27) 2-Butanone (MEK)	10.52	72	21637	3.091	ng		98
28) cis-1,2-Dichloroethene	11.01	61	1318099	92.271	ng		100
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	4181	0.240	ng	#	38
32) Chloroform	11.35	83	380594	20.919	ng		100
34) Tetrahydrofuran (THF)	11.84	72	1365	0.187	ng	#	57
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.17	62	420	N.D.			
38) 1,1,1-Trichloroethane	12.44	97	16714	1.039	ng		98
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	12.91	56	34186	No Calib			
41) Benzene	12.92	78	11340	0.255	ng		99
42) Carbon Tetrachloride	13.08	117	26408	1.753	ng		99
43) Cyclohexane	13.20	84	3356	0.199	ng	#	79
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d		
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	13.90	83	171	N.D.			
47) Trichloroethene	14.01	130	1319262	105.917	ng		98
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		

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212030.D Vial: 2
Acq On : 22 Oct 2020 12:35 Operator: WA
Sample : P2005708-001 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 14:53:20 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

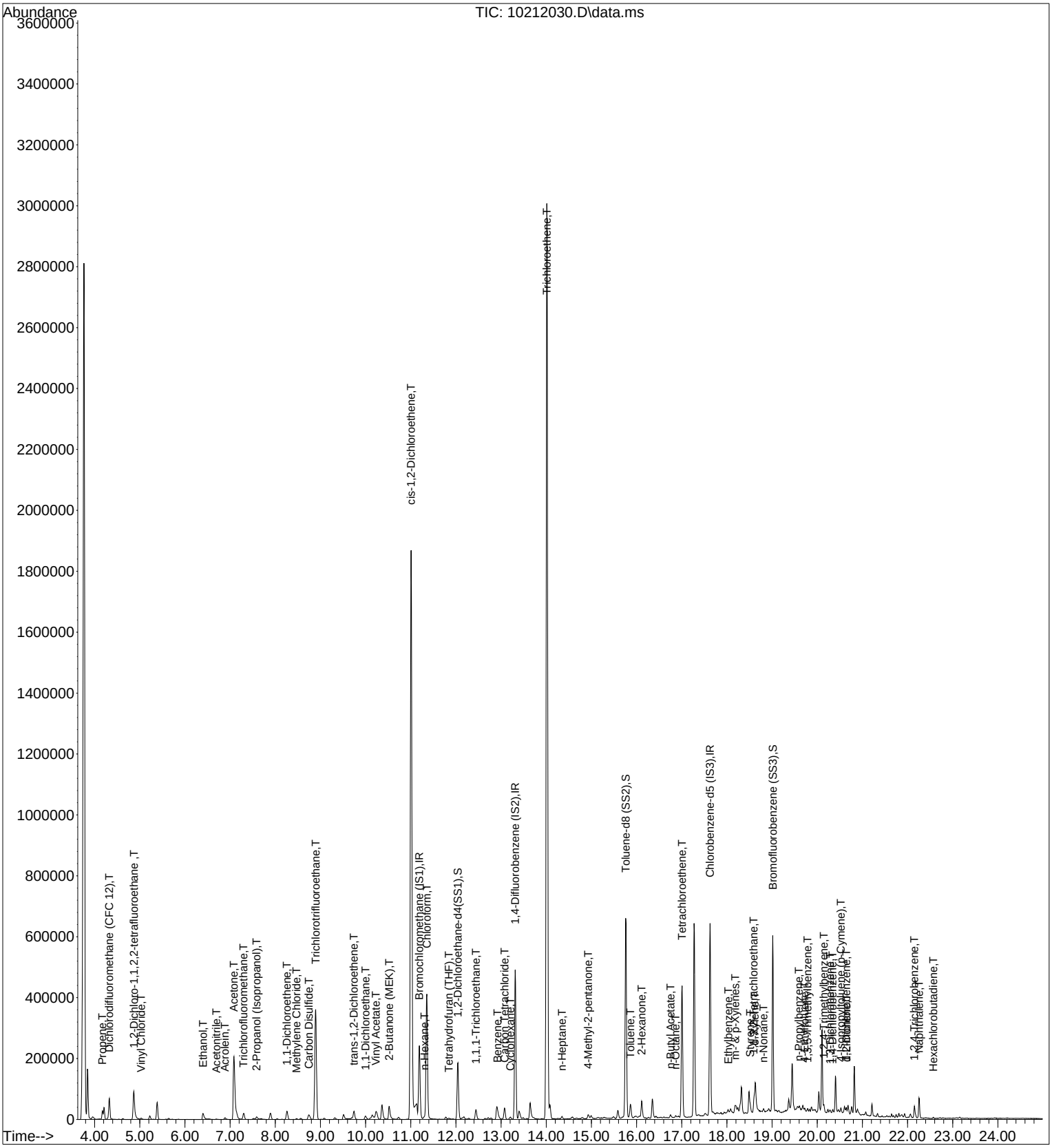
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.35	71	2390	0.212	ng		93
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
53) 4-Methyl-2-pentanone	14.93	58	4266	0.491	ng	#	47
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	d		
58) Toluene	15.86	91	34117	0.735	ng		96
59) 2-Hexanone	16.11	43	45809	2.475	ng		95
60) Dibromochloromethane	0.00	129	0	N.D.			
61) 1,2-Dibromoethane	16.52	107	165	N.D.			
62) n-Butyl Acetate	16.75	43	8598	0.421	ng		92
63) n-Octane	16.86	57	1158	0.124	ng		92
64) Tetrachloroethene	17.01	166	172748	12.464	ng		100
65) Chlorobenzene	0.00	112	0	N.D.	d		
66) Ethylbenzene	18.03	91	8352	0.167	ng		100
67) m- & p-Xylenes	18.18	91	21106	0.535	ng		99
68) Bromoform	18.25	173	312	N.D.			
69) Styrene	18.51	104	14124	0.474	ng		98
70) o-Xylene	18.62	91	8749	0.221	ng		99
71) n-Nonane	18.81	43	4095	0.216	ng		95
72) 1,1,2,2-Tetrachloroethane	18.59	83	13522	0.737	ng		82
74) Cumene	19.14	105	1725	N.D.			
75) alpha-Pinene	0.00	93	0	N.D.	d		
76) n-Propylbenzene	19.60	91	4267	0.071	ng	#	48
77) 3-Ethyltoluene	19.72	105	3265	No Calib			
78) 4-Ethyltoluene	19.72	105	3117	0.064	ng		82
79) 1,3,5-Trimethylbenzene	19.78	105	2977	0.068	ng		88
80) alpha-Methylstyrene	19.93	118	1355	No Calib			
81) 2-Ethyltoluene	19.95	105	3436	No Calib			
82) 1,2,4-Trimethylbenzene	20.15	105	9051	0.218	ng		93
83) n-Decane	20.10	57	4379	No Calib		#	
84) Benzyl Chloride	20.27	91	1527	N.D.			
85) 1,3-Dichlorobenzene	20.28	146	3691	0.141	ng		90
86) 1,4-Dichlorobenzene	20.34	146	5361	0.190	ng		93
87) sec-Butylbenzene	20.38	105	2249	N.D.			
88) 4-Isopropyltoluene (p-...	20.52	119	6152	0.124	ng		85
89) 1,2,3-Trimethylbenzene	20.52	105	4196	No Calib		#	
90) 1,2-Dichlorobenzene	20.64	146	4865	0.190	ng		97
91) d-Limonene	20.65	68	2355	0.166	ng		93
92) 1,2-Dibromo-3-Chloropr...	21.02	157	300	N.D.			
93) n-Undecane	21.34	57	3181	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.15	180	12518	0.593	ng		99
95) Naphthalene	22.26	128	51575	0.893	ng		99
96) n-Dodecane	22.25	57	3298	No Calib		#	
97) Hexachlorobutadiene	22.57	225	986	0.066	ng		91
98) Cyclohexanone	18.32	55	41057	No Calib			
99) tert-Butylbenzene	20.15	119	1856	N.D.			
100) n-Butylbenzene	0.00	91	0	N.D.	d		
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.	d		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212030.D Vial: 2
Acq On : 22 Oct 2020 12:35 Operator: WA
Sample : P2005708-001 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 14:53:20 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212030.D Vial: 2
Acq On : 22 Oct 2020 12:35 Operator: WA
Sample : P2005708-001 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 14:53:20 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	115460	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.31	114	496386	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.63	82	226071	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.04	65	147314	12.251	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.00%				
57) Toluene-d8 (SS2)	15.76	98	554977	12.415	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.28%				
73) Bromofluorobenzene (SS3)	19.01	174	202094	14.072	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 112.56%				
Target Compounds							Qvalue
2) Propene	4.17	42	7546	0.568	ng		93
3) Dichlorodifluoromethan...	4.33	85	74098	3.519	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	930	0.081	ng		85
6) Vinyl Chloride	5.03	62	4472	0.297	ng		99
10) Ethanol	6.40	45	37921	4.582	ng		98
11) Acetonitrile	6.69	41	2306	0.119	ng	#	1
12) Acrolein	6.89	56	7423	1.023	ng		98
13) Acetone	7.08	58	86975m	10.079	ng		
14) Trichlorofluoromethane	7.30	101	22694	1.200	ng		99
15) 2-Propanol (Isopropanol)	7.59	45	18376	0.709	ng		92
17) 1,1-Dichloroethene	8.26	96	15809	1.424	ng		99
19) Methylene Chloride	8.47	84	1922	0.167	ng		94
21) Trichlorotrifluoroethane	8.90	151	179625	17.282	ng		97
22) Carbon Disulfide	8.74	76	30874	0.723	ng		98
23) trans-1,2-Dichloroethene	9.74	61	19740	1.373	ng		100
24) 1,1-Dichloroethane	10.00	63	15042	0.792	ng		99
26) Vinyl Acetate	10.23	86	7391	2.992	ng	#	44
27) 2-Butanone (MEK)	10.52	72	21637	3.091	ng		98
28) cis-1,2-Dichloroethene	11.01	61	1318099	92.271	ng		100
31) n-Hexane	11.30	57	4181	0.240	ng	#	38
32) Chloroform	11.35	83	380594	20.919	ng		100
34) Tetrahydrofuran (THF)	11.84	72	1365	0.187	ng	#	57
38) 1,1,1-Trichloroethane	12.44	97	16714	1.039	ng		98
41) Benzene	12.92	78	11340	0.255	ng		99
42) Carbon Tetrachloride	13.08	117	26408	1.753	ng		99
43) Cyclohexane	13.20	84	3356	0.199	ng	#	79
47) Trichloroethene	14.01	130	1319262	105.917	ng		98
51) n-Heptane	14.35	71	2390	0.212	ng		93
53) 4-Methyl-2-pentanone	14.93	58	4266	0.491	ng	#	47
58) Toluene	15.86	91	34117	0.735	ng		96
59) 2-Hexanone	16.11	43	45809	2.475	ng		95
62) n-Butyl Acetate	16.75	43	8598	0.421	ng		92
63) n-Octane	16.86	57	1158	0.124	ng		92
64) Tetrachloroethene	17.01	166	172748	12.464	ng		100
66) Ethylbenzene	18.03	91	8352	0.167	ng		100
67) m- & p-Xylenes	18.18	91	21106	0.535	ng		99
69) Styrene	18.51	104	14124	0.474	ng		98
70) o-Xylene	18.62	91	8749	0.221	ng		99
71) n-Nonane	18.81	43	4095	0.216	ng		95
72) 1,1,2,2-Tetrachloroethane	18.59	83	13522	0.737	ng		82
76) n-Propylbenzene	19.60	91	4267	0.071	ng	#	48
78) 4-Ethyltoluene	19.72	105	3117	0.064	ng		82
79) 1,3,5-Trimethylbenzene	19.78	105	2977	0.068	ng		88
82) 1,2,4-Trimethylbenzene	20.15	105	9051	0.218	ng		93
85) 1,3-Dichlorobenzene	20.28	146	3691	0.141	ng		90
86) 1,4-Dichlorobenzene	20.34	146	5361	0.190	ng		93
88) 4-Isopropyltoluene (p-...	20.52	119	6152	0.124	ng		85

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212030.D Vial: 2
Acq On : 22 Oct 2020 12:35 Operator: WA
Sample : P2005708-001 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 14:53:20 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

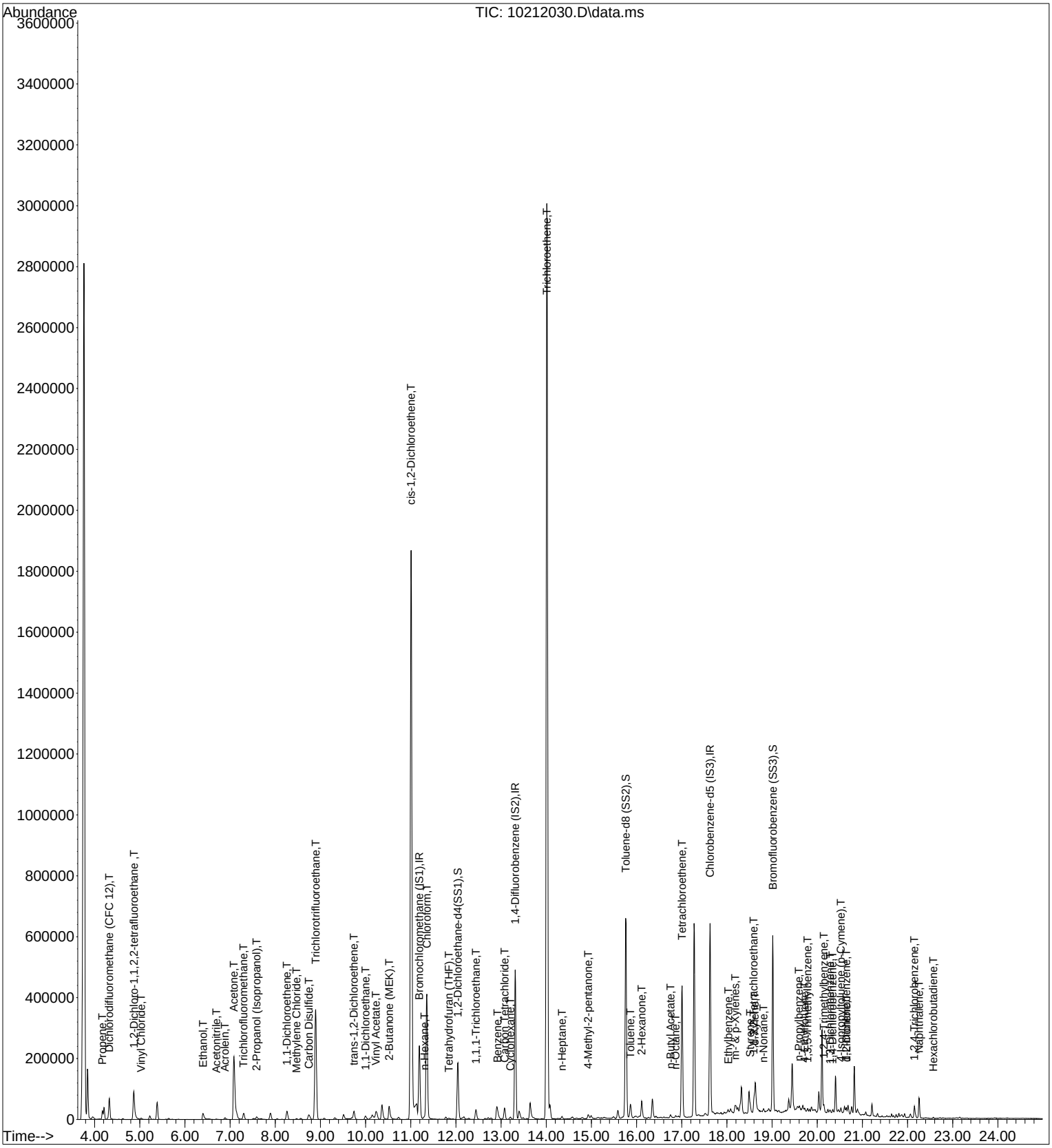
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
90) 1,2-Dichlorobenzene	20.64	146	4865	0.190	ng	97
91) d-Limonene	20.65	68	2355	0.166	ng	93
94) 1,2,4-Trichlorobenzene	22.15	180	12518	0.593	ng	99
95) Naphthalene	22.26	128	51575	0.893	ng	99
97) Hexachlorobutadiene	22.57	225	986	0.066	ng	91

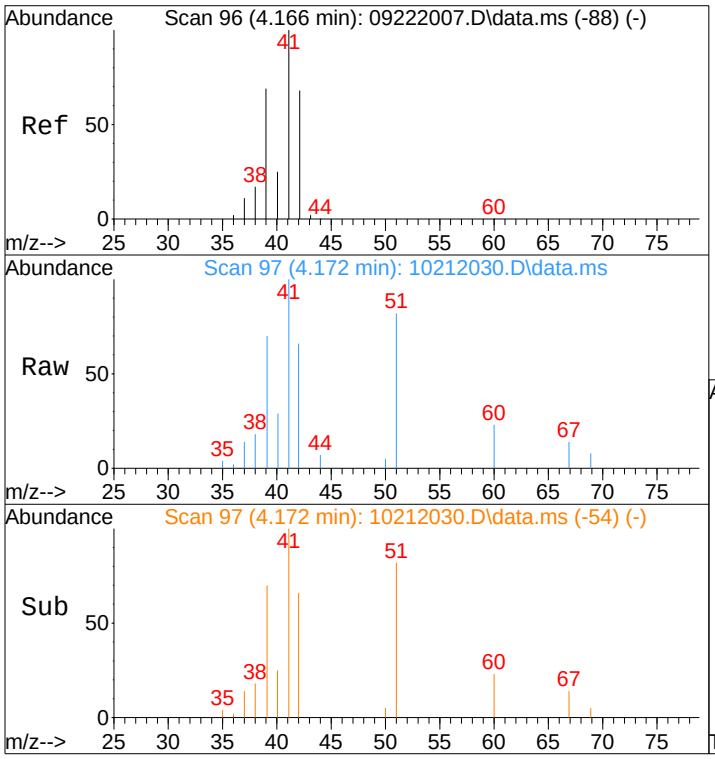
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212030.D Vial: 2
Acq On : 22 Oct 2020 12:35 Operator: WA
Sample : P2005708-001 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 14:53:20 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

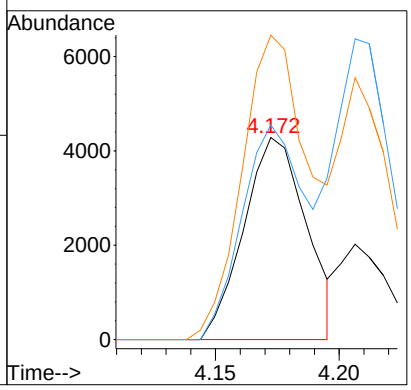


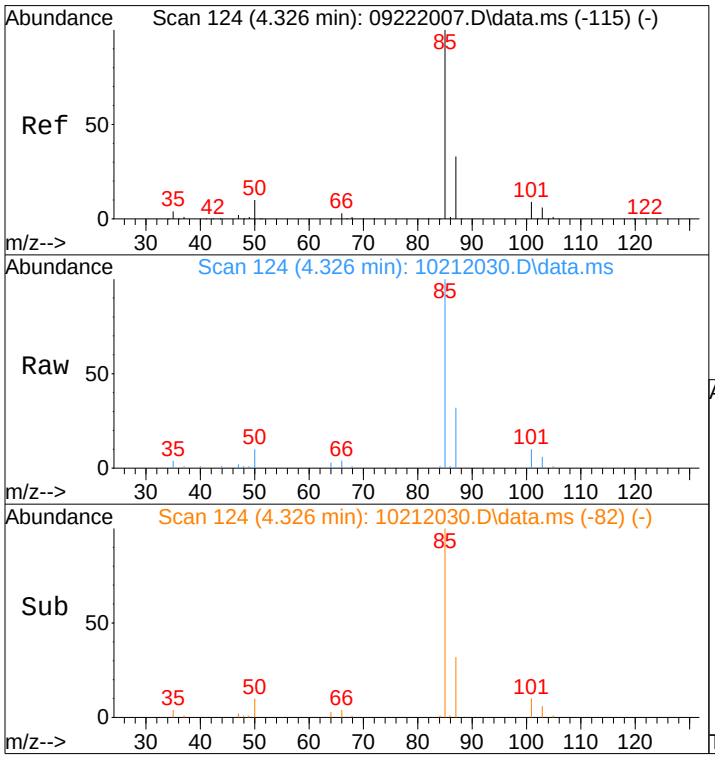


#2
Propene
Concen: 0.57 ng
RT: 4.17 min Scan# 97
Delta R.T. -0.005 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 42 Resp: 7546

Ion	Ratio	Lower	Upper
42	100		
39	105.2	82.3	122.3
41	161.4	128.5	168.5

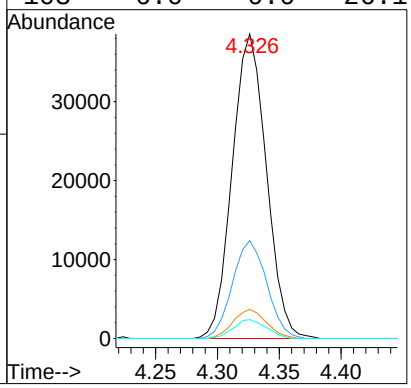


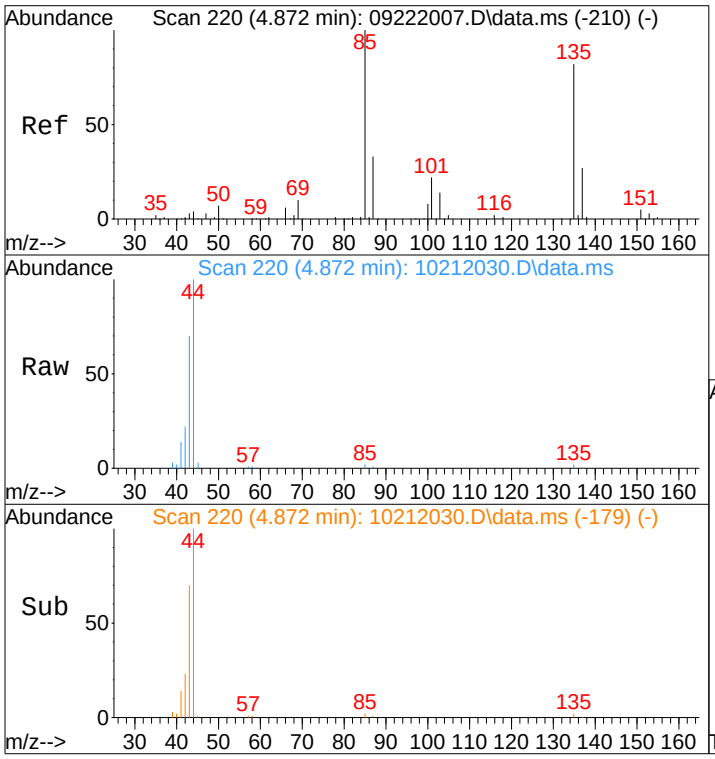


#3
Dichlorodifluoromethane (CFC 12)
Concen: 3.52 ng
RT: 4.33 min Scan# 124
Delta R.T. -0.011 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 85 Resp: 74098

Ion	Ratio	Lower	Upper
85	100		
87	32.4	12.7	52.7
101	9.3	0.0	29.3
103	6.0	0.0	26.1

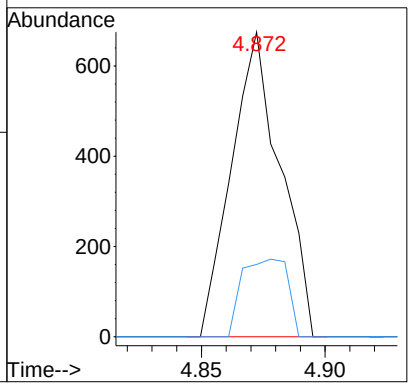


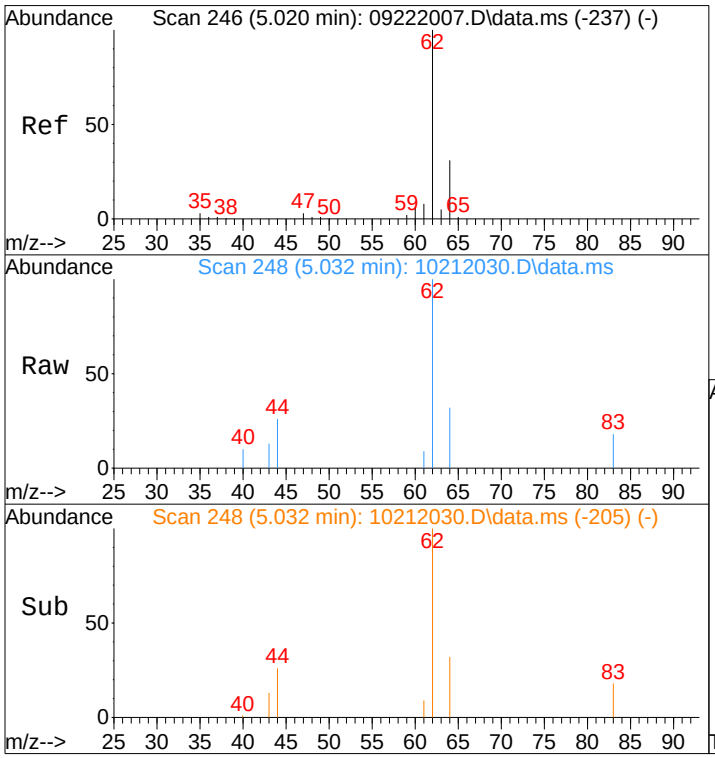


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.08 ng
RT: 4.87 min Scan# 220
Delta R.T. -0.017 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:135 Resp: 930

Ion	Ratio	Lower	Upper
135	100		
137	23.9	12.3	52.3

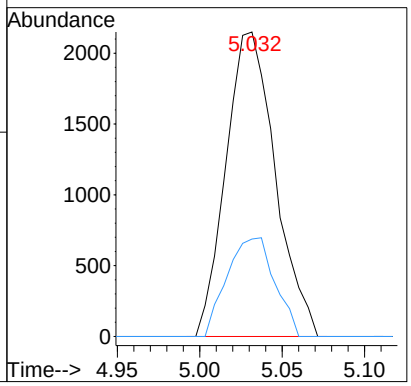


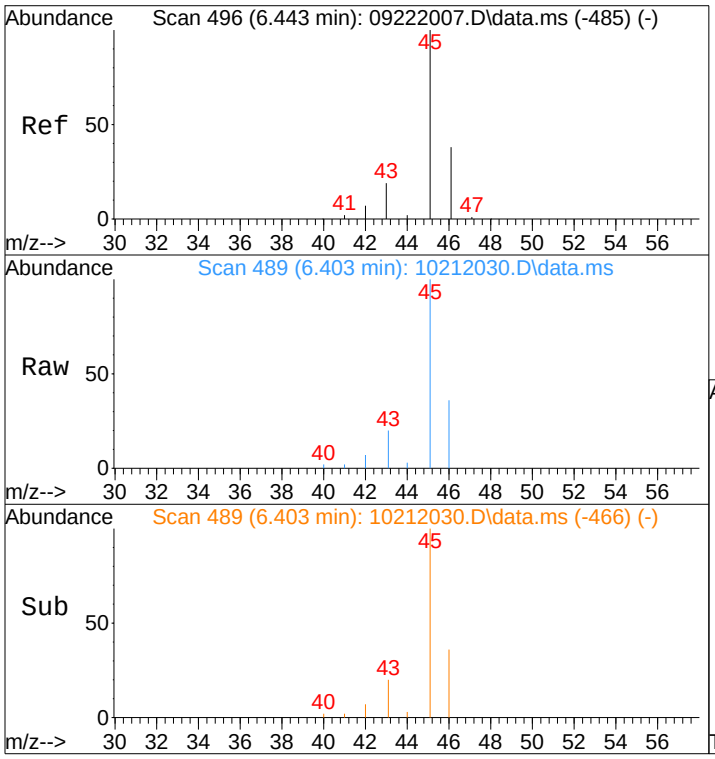


#6
Vinyl Chloride
Concen: 0.30 ng
RT: 5.03 min Scan# 248
Delta R.T. -0.005 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 62 Resp: 4472

Ion	Ratio	Lower	Upper
62	100		
64	31.3	11.9	51.9

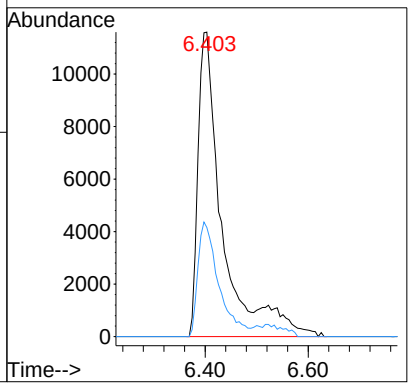


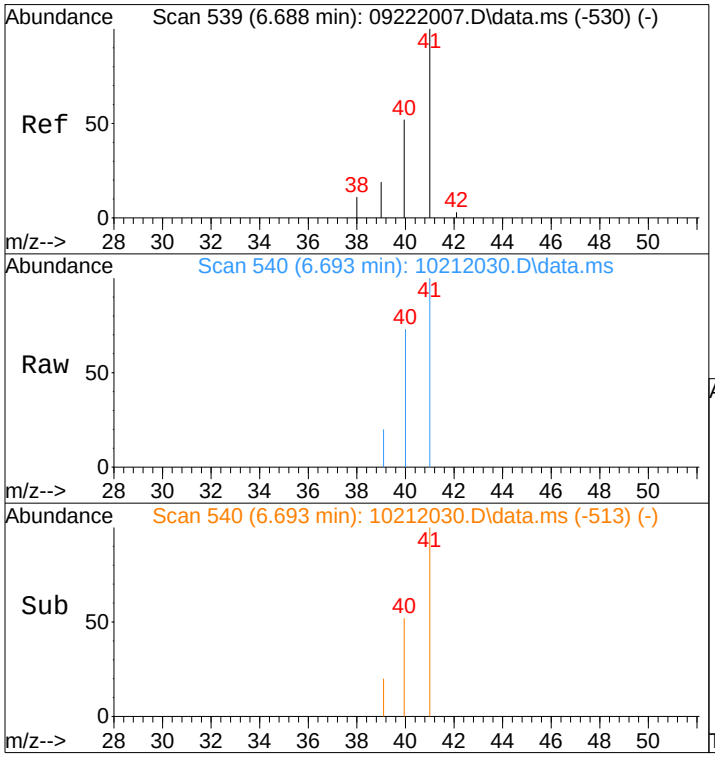


#10
Ethanol
Concen: 4.58 ng
RT: 6.40 min Scan# 489
Delta R.T. -0.120 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 45 Resp: 37921

Ion	Ratio	Lower	Upper
45	100		
46	37.1	18.1	58.1

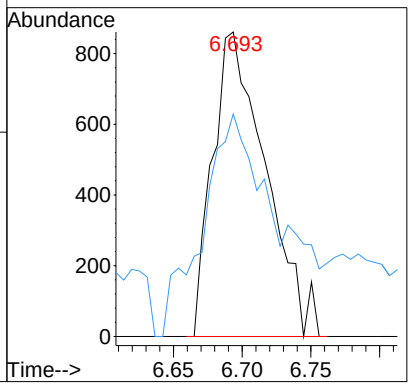


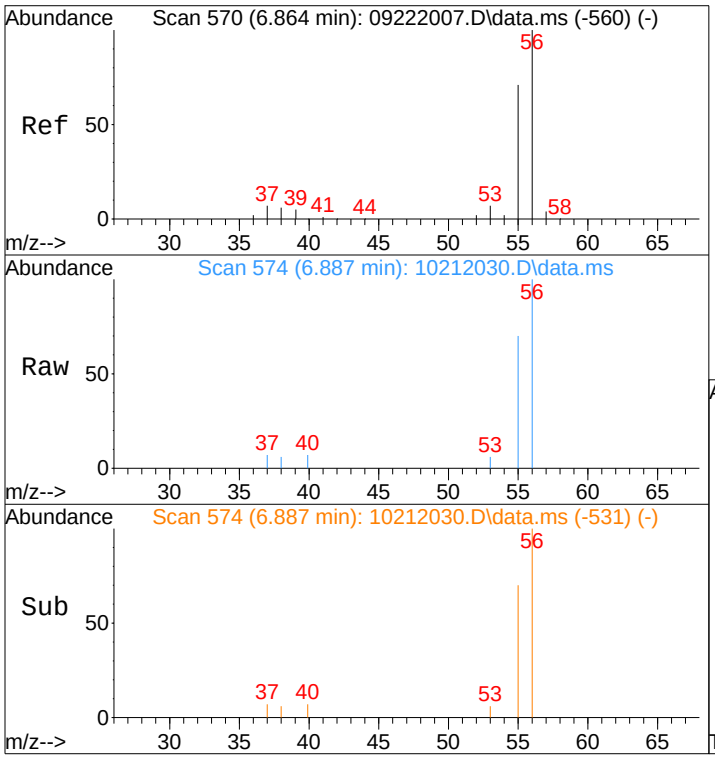


#11
Acetonitrile
Concen: 0.12 ng
RT: 6.69 min Scan# 540
Delta R.T. -0.045 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 41 Resp: 2306

Ion	Ratio	Lower	Upper
41	100		
40	147.2	33.0	73.0#

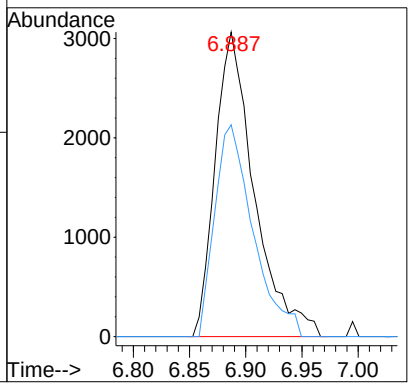


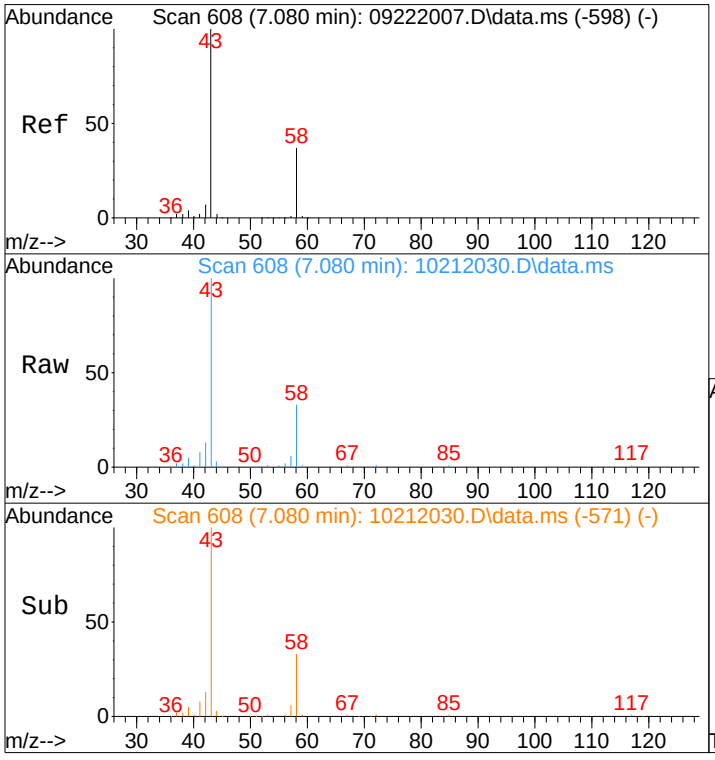


#12
Acrolein
Concen: 1.02 ng
RT: 6.89 min Scan# 574
Delta R.T. -0.005 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 56 Resp: 7423

Ion	Ratio	Lower	Upper
56	100		
55	68.2	49.7	89.7

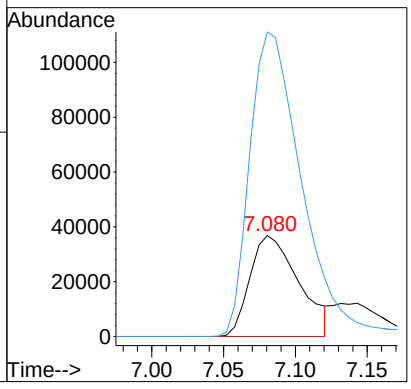


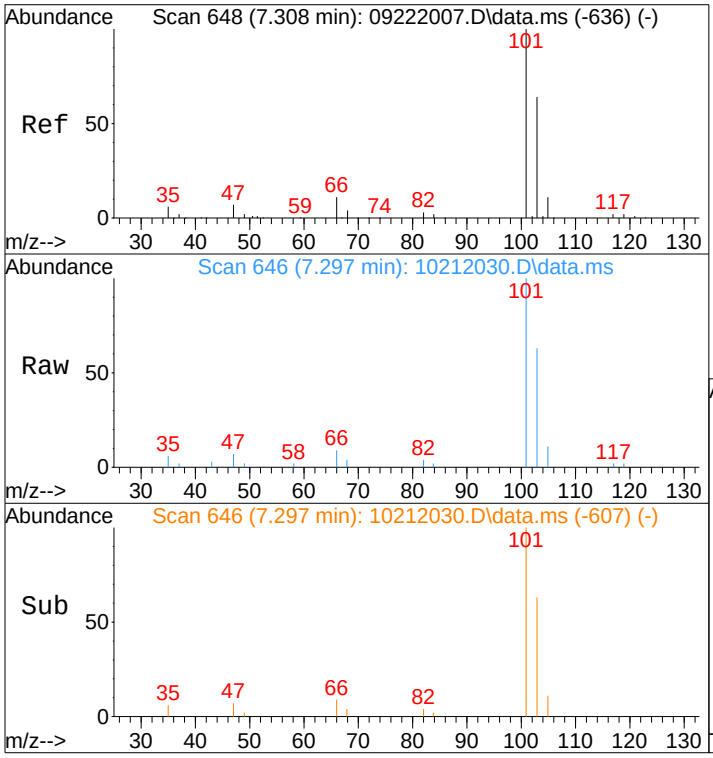


#13
Acetone
Concen: 10.08 ng m
RT: 7.08 min Scan# 608
Delta R.T. -0.040 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 58 Resp: 86975

Ion	Ratio	Lower	Upper
58	100		
43	329.1	241.6	301.6#

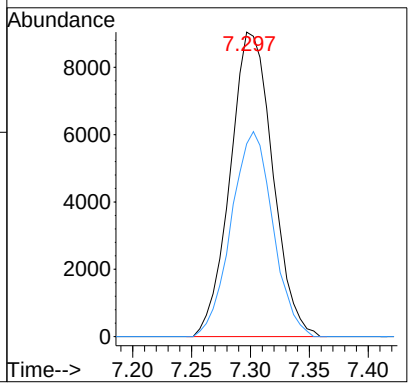


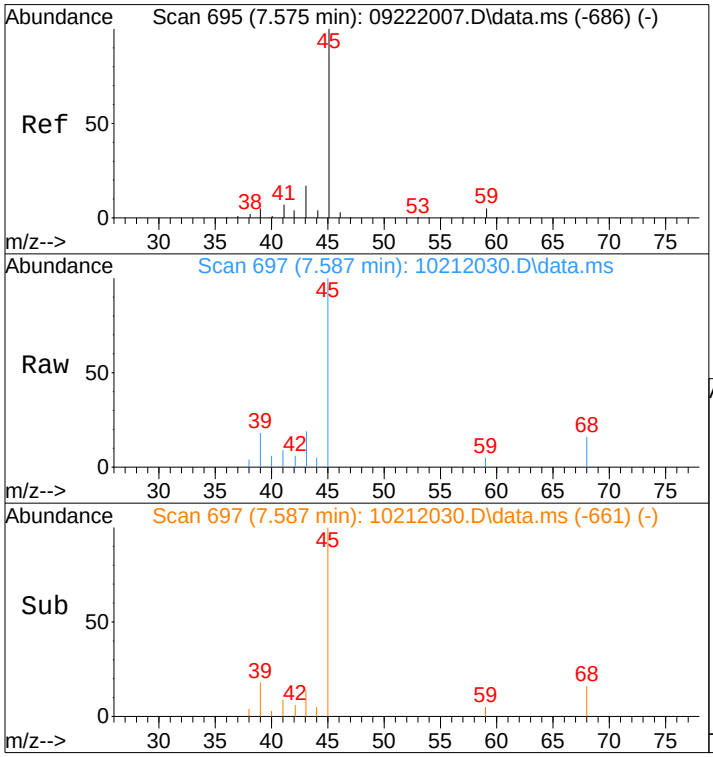


#14
Trichlorofluoromethane
Concen: 1.20 ng
RT: 7.30 min Scan# 646
Delta R.T. -0.028 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:101 Resp: 22694

Ion	Ratio	Lower	Upper
101	100		
103	66.0	45.3	85.3

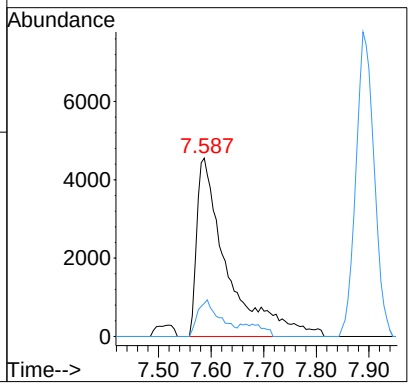


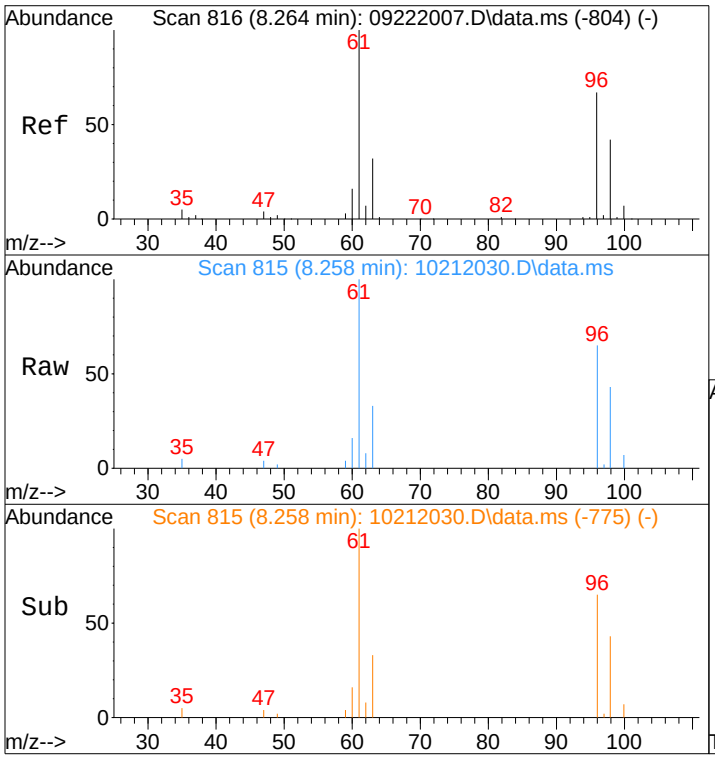


#15
2-Propanol (Isopropanol)
Concen: 0.71 ng
RT: 7.59 min Scan# 697
Delta R.T. -0.045 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 45 Resp: 18376

Ion	Ratio	Lower	Upper
45	100		
43	20.4	0.0	37.0

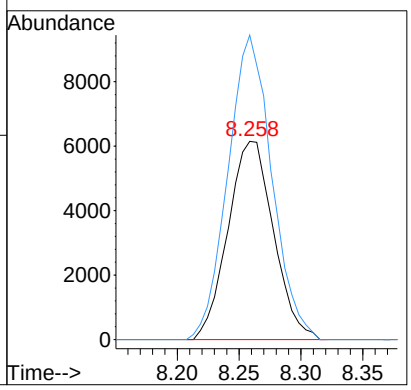


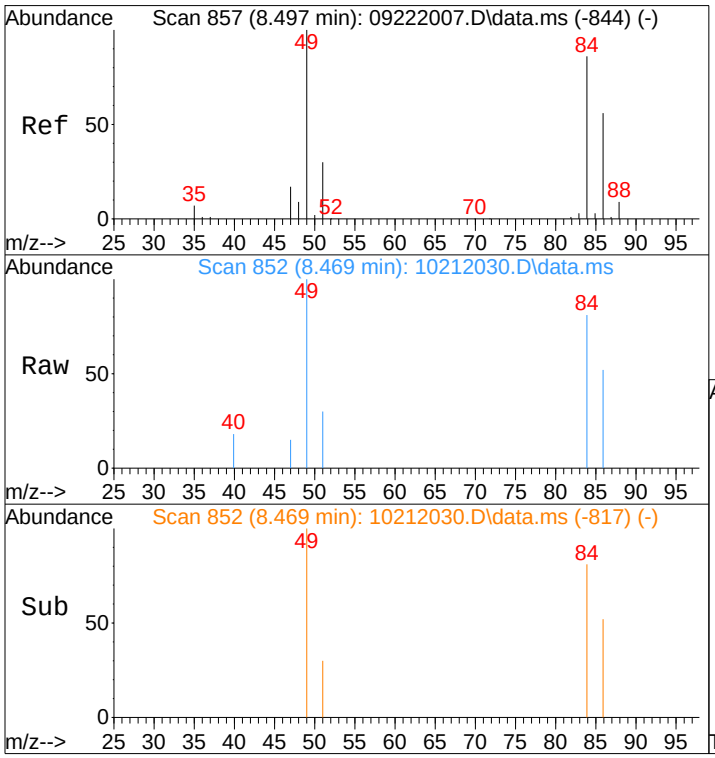


#17
1,1-Dichloroethene
Concen: 1.42 ng
RT: 8.26 min Scan# 815
Delta R.T. -0.023 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 96 Resp: 15809

Ion	Ratio	Lower	Upper
96	100		
61	148.0	129.6	169.6

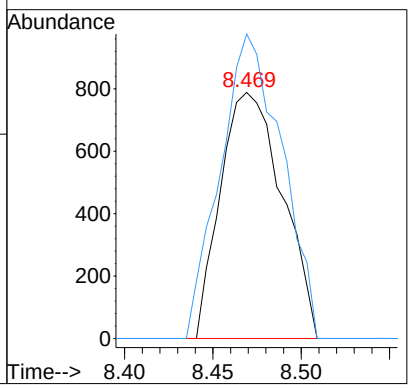


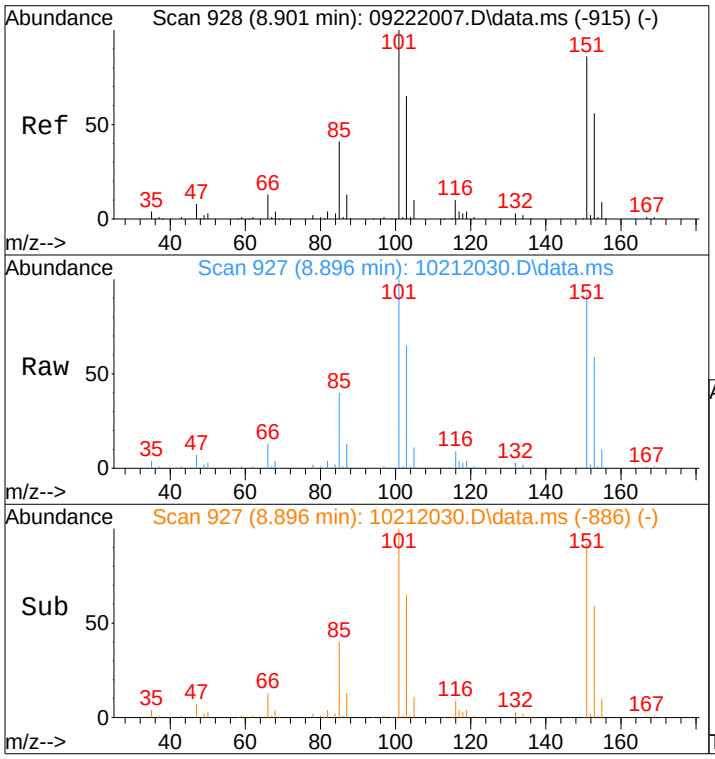


#19
Methylene Chloride
Concen: 0.17 ng
RT: 8.47 min Scan# 852
Delta R.T. -0.051 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 84 Resp: 1922

Ion	Ratio	Lower	Upper
84	100		
49	123.4	92.0	142.0

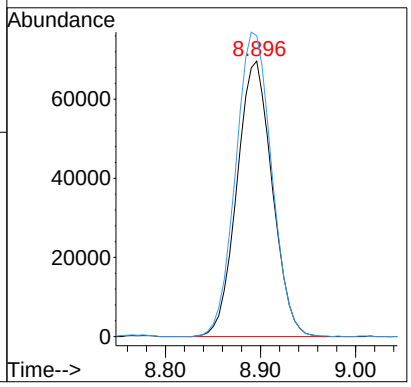


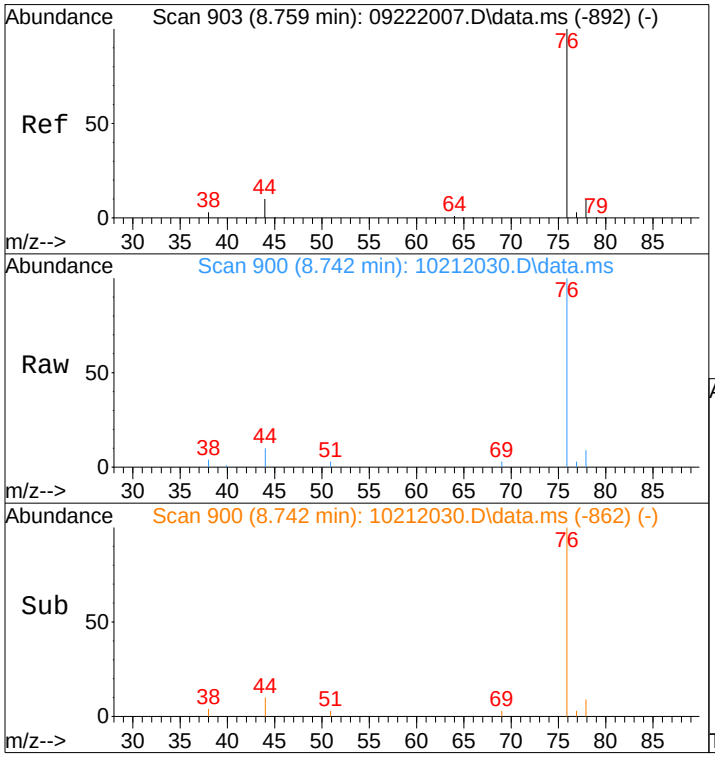


#21
Trichlorotrifluoroethane
Concen: 17.28 ng
RT: 8.90 min Scan# 927
Delta R.T. -0.017 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:151 Resp: 179625

Ion	Ratio	Lower	Upper
151	100		
101	112.9	96.1	136.1

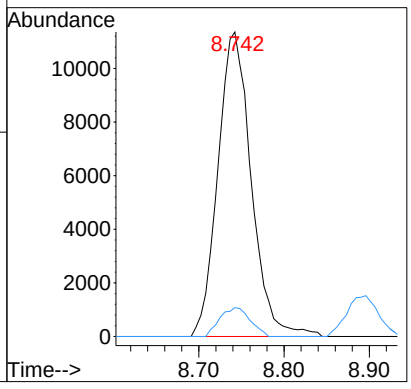


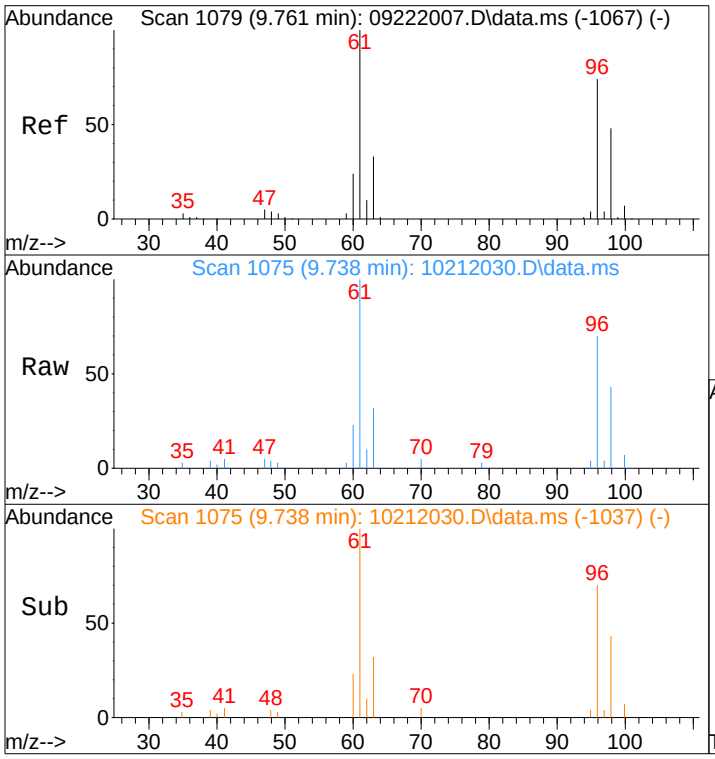


#22
Carbon Disulfide
Concen: 0.72 ng
RT: 8.74 min Scan# 900
Delta R.T. -0.034 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 76 Resp: 30874

Ion	Ratio	Lower	Upper
76	100		
78	8.6	0.0	29.4

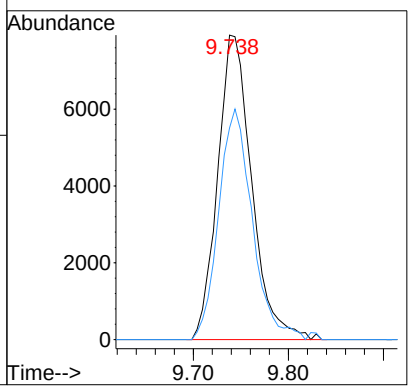


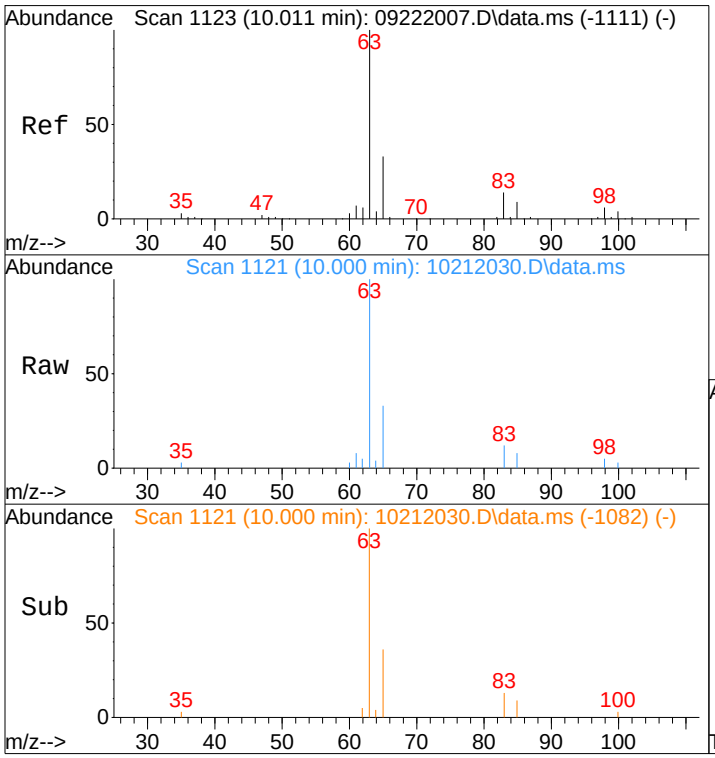


#23
trans-1,2-Dichloroethene
Concen: 1.37 ng
RT: 9.74 min Scan# 1075
Delta R.T. -0.034 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 61 Resp: 19740

Ion	Ratio	Lower	Upper
61	100		
96	74.6	54.6	94.6

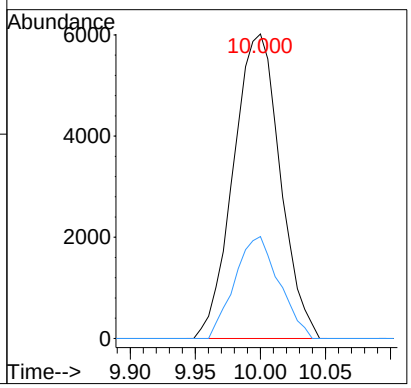


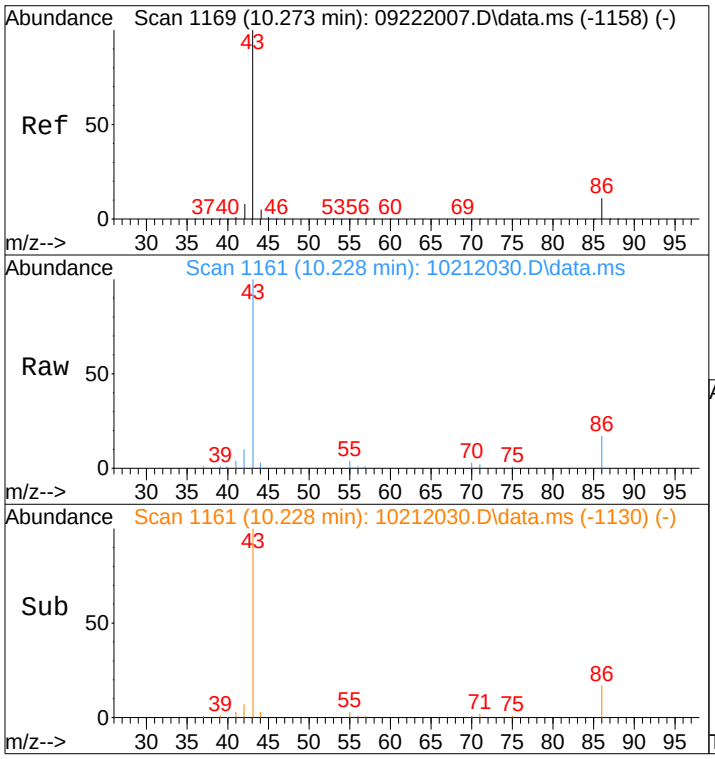


#24
1,1-Dichloroethane
Concen: 0.79 ng
RT: 10.00 min Scan# 1121
Delta R.T. -0.028 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 63 Resp: 15042

Ion	Ratio	Lower	Upper
63	100		
65	31.7	12.1	52.1

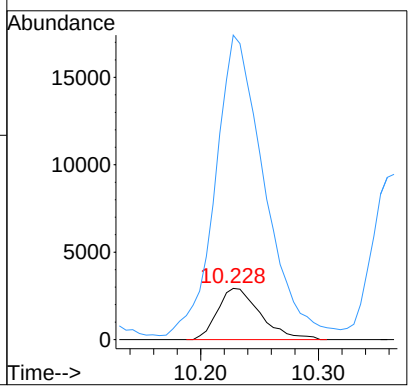


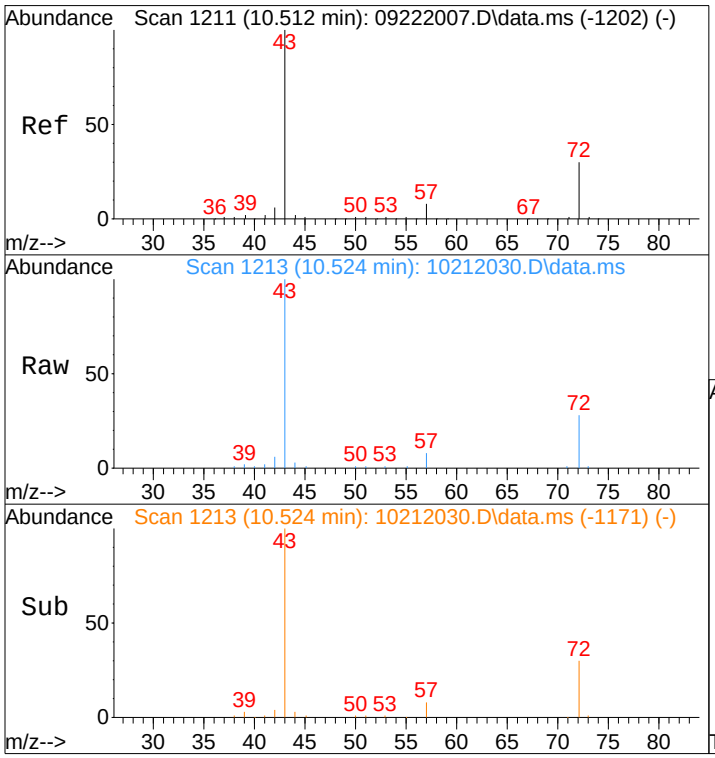


#26
Vinyl Acetate
Concen: 2.99 ng
RT: 10.23 min Scan# 1161
Delta R.T. -0.073 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 86 Resp: 7391

Ion	Ratio	Lower	Upper
86	100		
43	686.3	899.9	939.9#

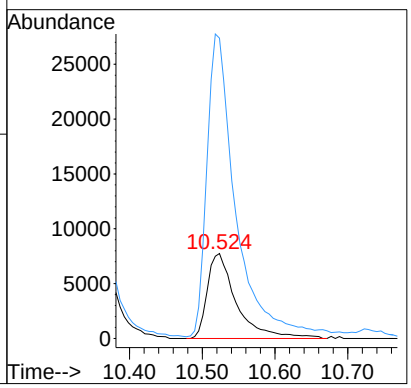


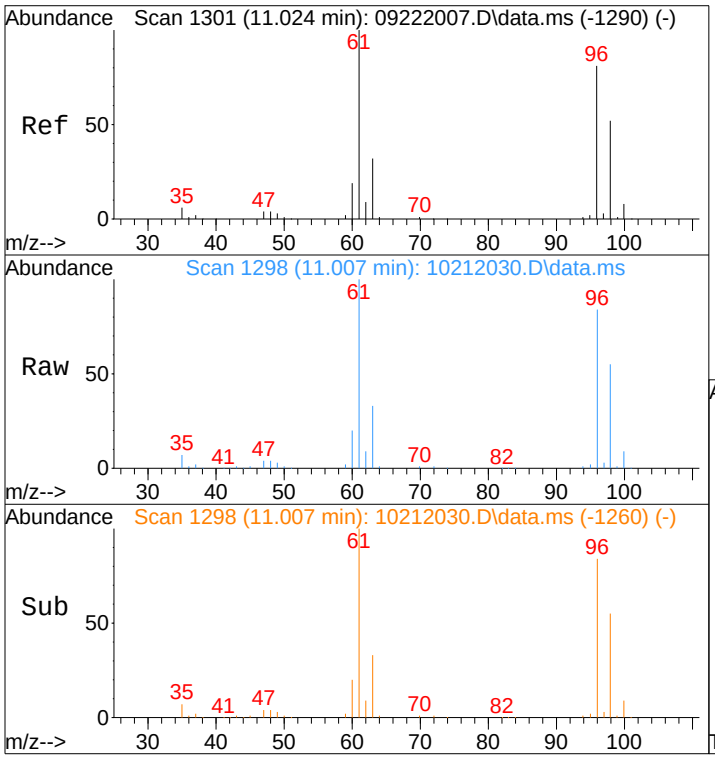


#27
2-Butanone (MEK)
Concen: 3.09 ng
RT: 10.52 min Scan# 1213
Delta R.T. -0.011 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 72 Resp: 21637

Ion	Ratio	Lower	Upper
72	100		
43	353.0	328.5	368.5

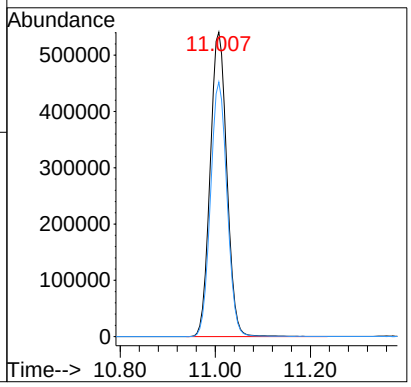


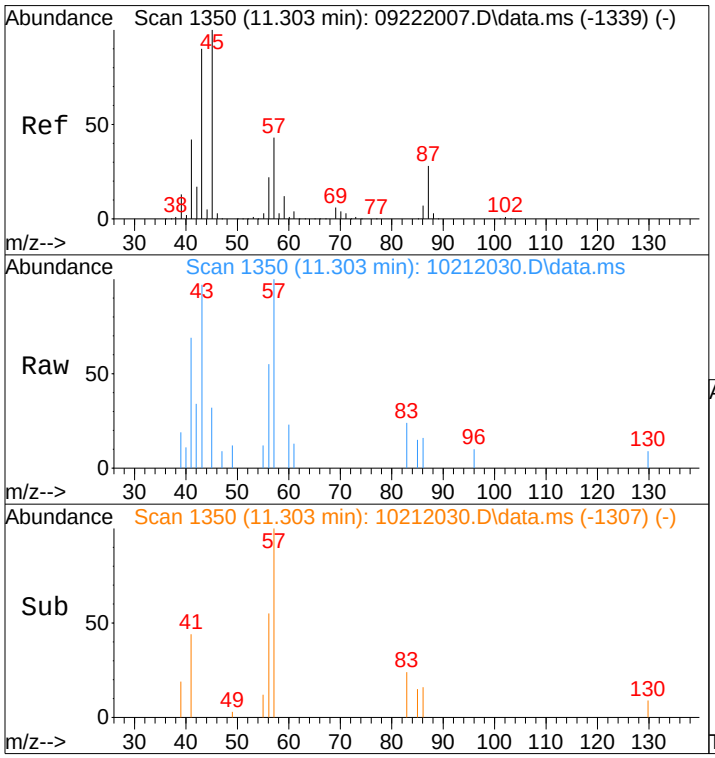


#28
cis-1,2-Dichloroethene
Concen: 92.27 ng
RT: 11.01 min Scan# 1298
Delta R.T. -0.034 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 61 Resp: 1318099

Ion	Ratio	Lower	Upper
61	100		
96	83.0	63.1	103.1

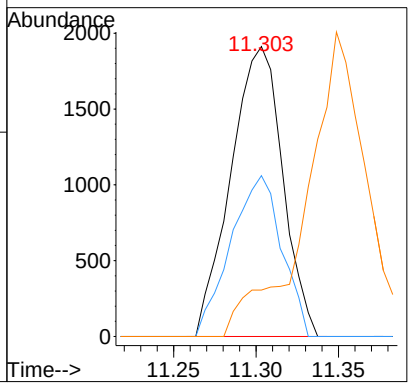


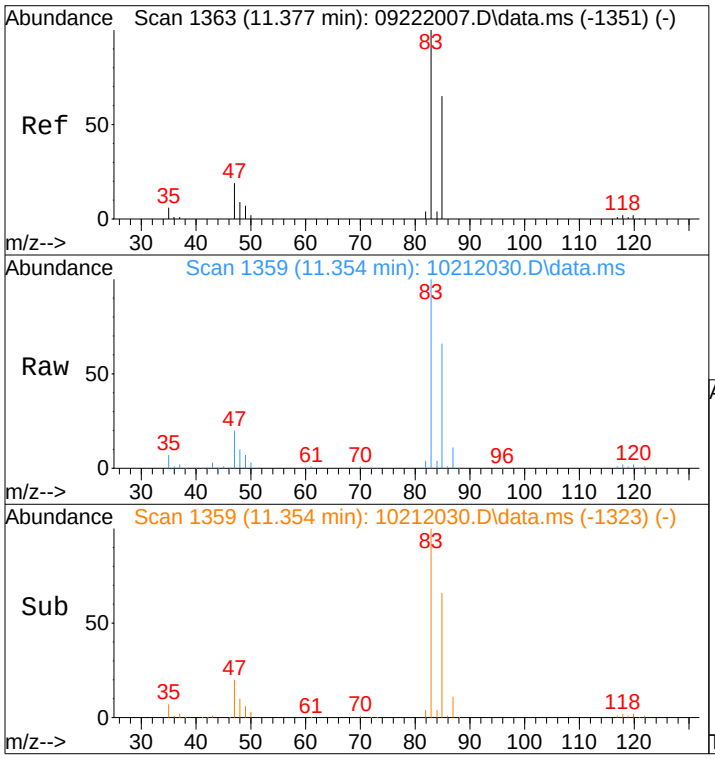


#31
n-Hexane
Concen: 0.24 ng
RT: 11.30 min Scan# 1350
Delta R.T. -0.005 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 57 Resp: 4181

Ion	Ratio	Lower	Upper
57	100		
56	54.7	40.6	61.0
86	117.2	13.2	19.8#

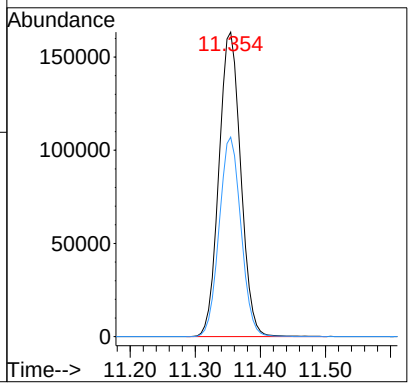


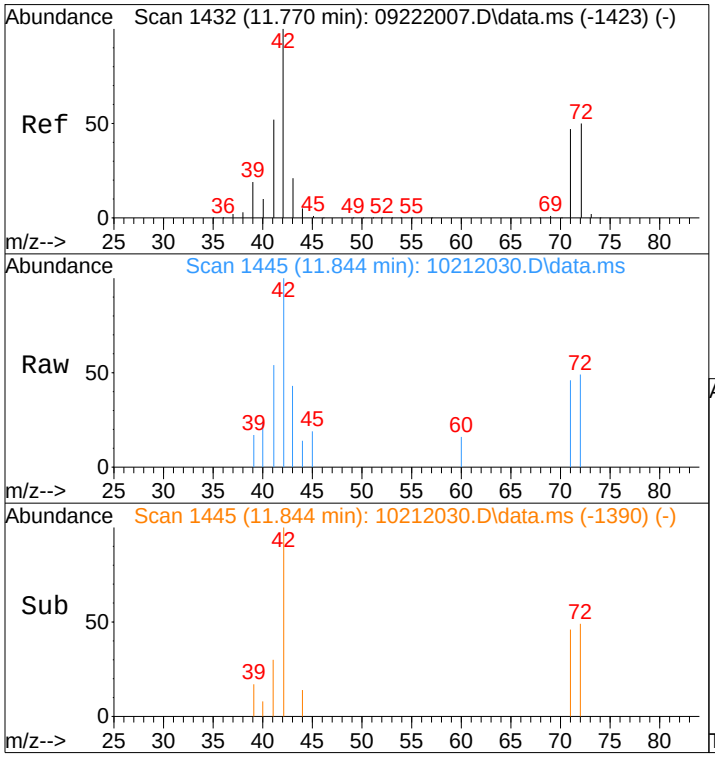


#32
Chloroform
Concen: 20.92 ng
RT: 11.35 min Scan# 1359
Delta R.T. -0.046 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 83 Resp: 380594

Ion	Ratio	Lower	Upper
83	100		
85	65.4	45.5	85.5

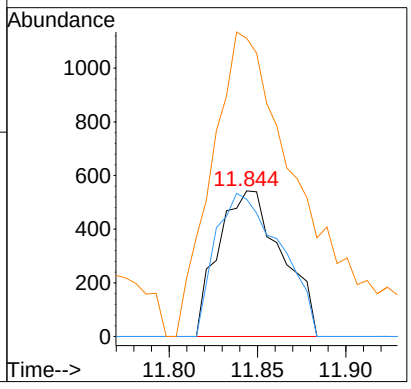


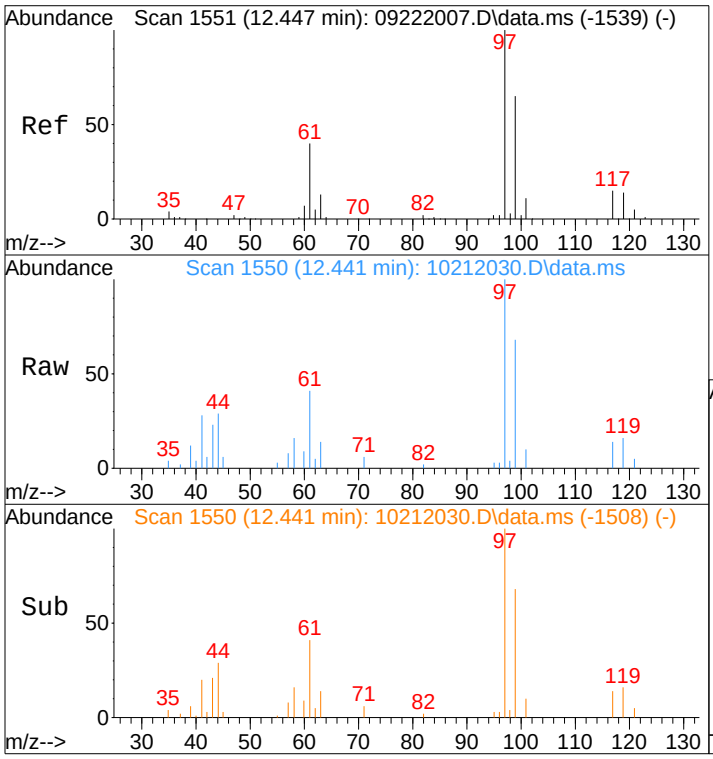


#34
Tetrahydrofuran (THF)
Concen: 0.19 ng
RT: 11.84 min Scan# 1445
Delta R.T. 0.063 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 72 Resp: 1365

Ion	Ratio	Lower	Upper
72	100		
71	100.4	75.4	115.4
42	296.4	183.2	223.2#

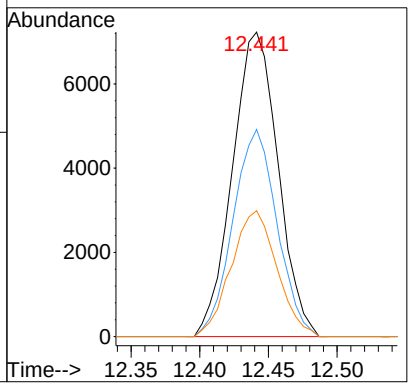


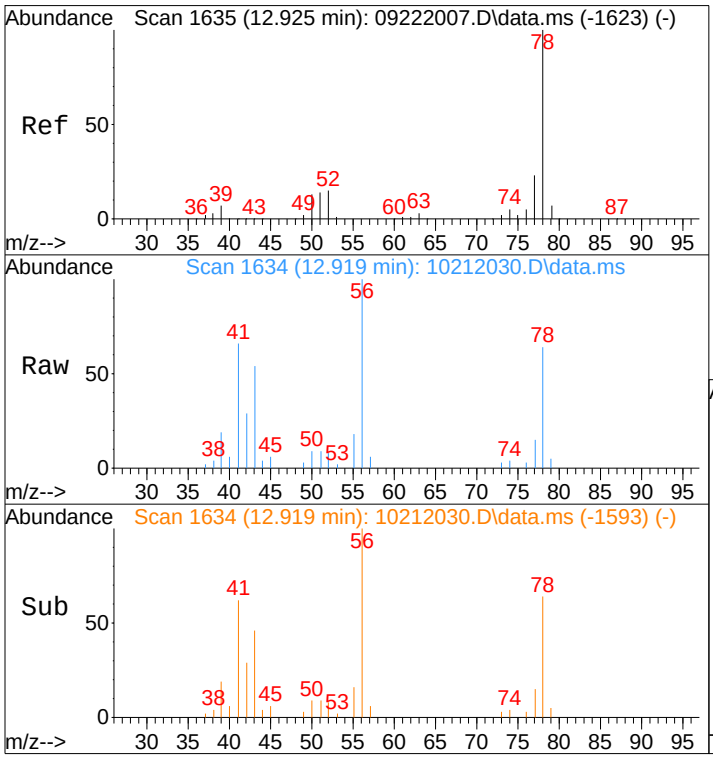


#38
1,1,1-Trichloroethane
Concen: 1.04 ng
RT: 12.44 min Scan# 1550
Delta R.T. -0.011 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 97 Resp: 16714

Ion	Ratio	Lower	Upper
97	100		
99	65.6	44.9	84.9
61	41.4	19.4	59.4

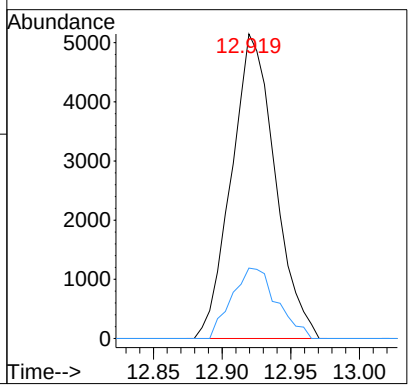


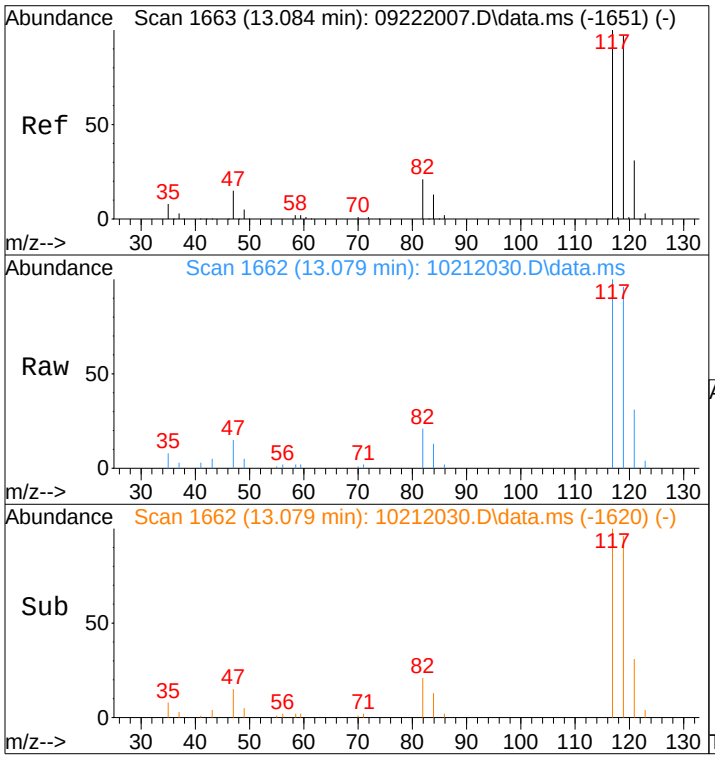


#41
Benzene
Concen: 0.26 ng
RT: 12.92 min Scan# 1634
Delta R.T. -0.017 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 78 Resp: 11340

Ion	Ratio	Lower	Upper
78	100		
77	23.9	3.3	43.3

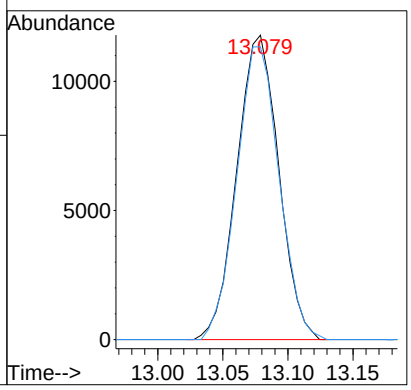


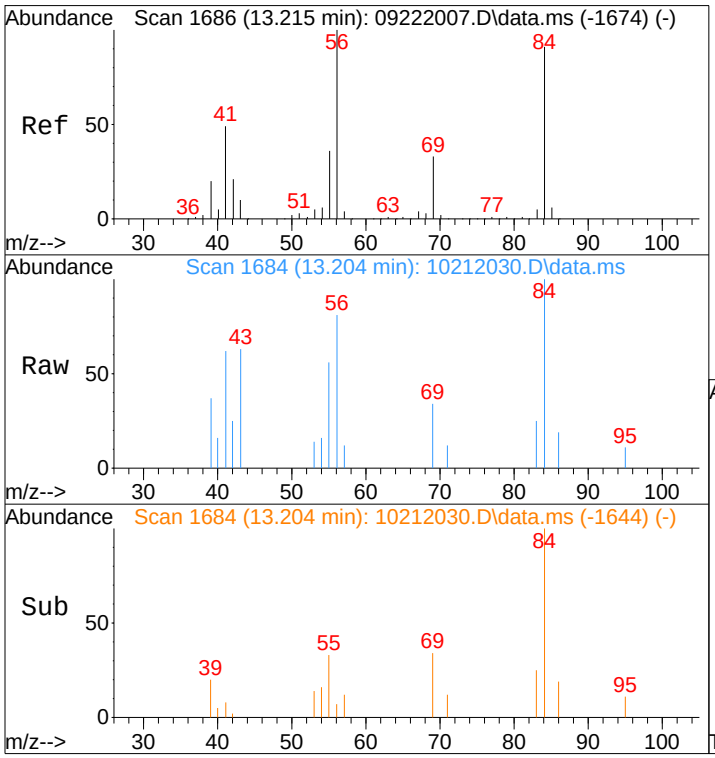


#42
Carbon Tetrachloride
Concen: 1.75 ng
RT: 13.08 min Scan# 1662
Delta R.T. -0.011 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:117 Resp: 26408

Ion	Ratio	Lower	Upper
117	100		
119	97.6	76.2	116.2

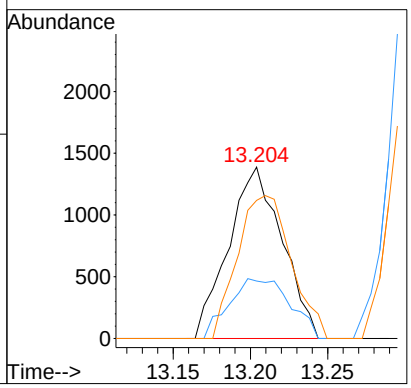


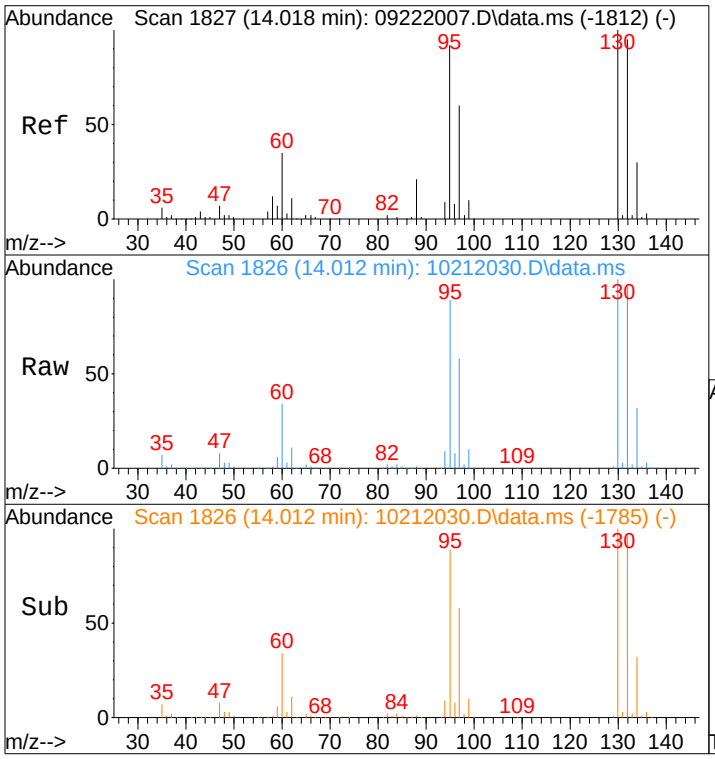


#43
Cyclohexane
Concen: 0.20 ng
RT: 13.20 min Scan# 1684
Delta R.T. -0.023 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 84 Resp: 3356

Ion	Ratio	Lower	Upper
84	100		
69	39.5	16.4	56.4
56	83.6	91.5	131.5#

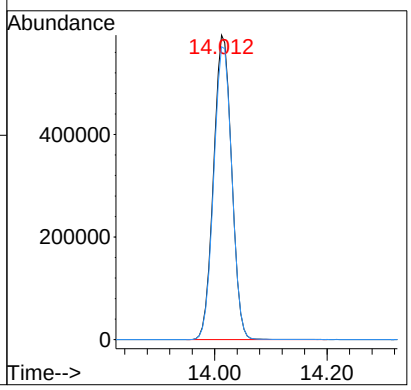


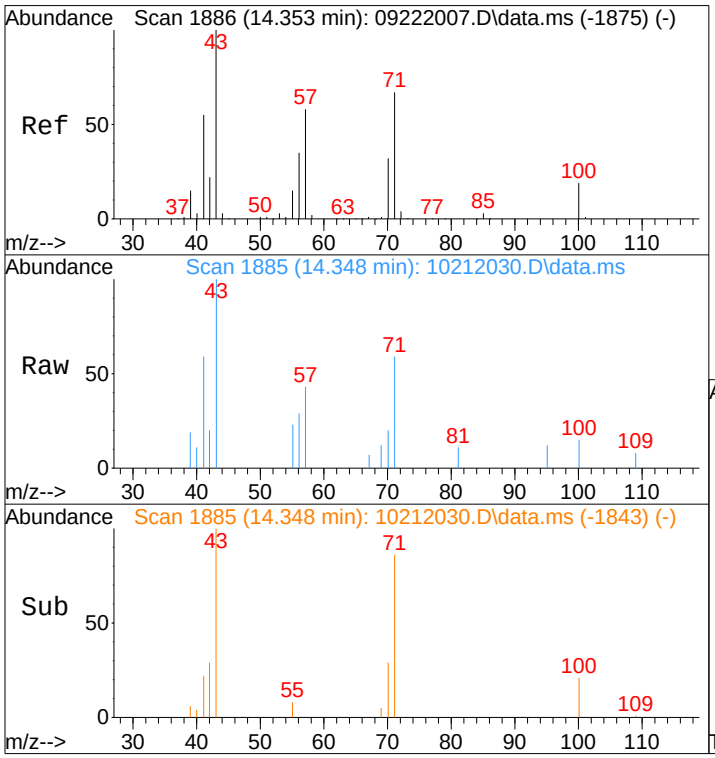


#47
Trichloroethene
Concen: 105.92 ng
RT: 14.01 min Scan# 1826
Delta R.T. -0.017 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:130 Resp: 1319262

Ion	Ratio	Lower	Upper
130	100		
132	97.0	75.5	115.5

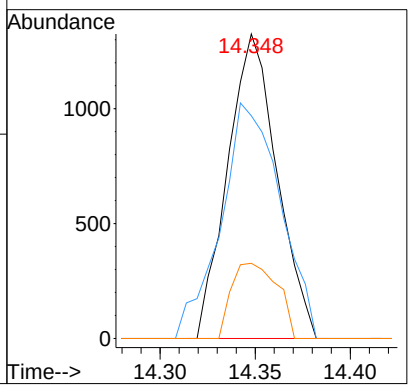


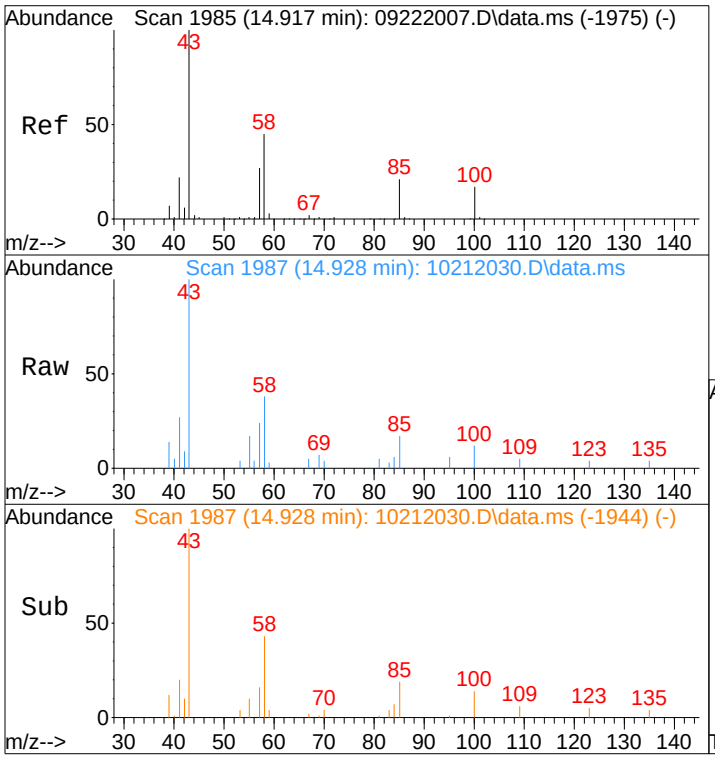


#51
n-Heptane
Concen: 0.21 ng
RT: 14.35 min Scan# 1885
Delta R.T. -0.011 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 71 Resp: 2390

Ion	Ratio	Lower	Upper
71	100		
57	93.1	67.7	107.7
100	23.0	9.1	49.1

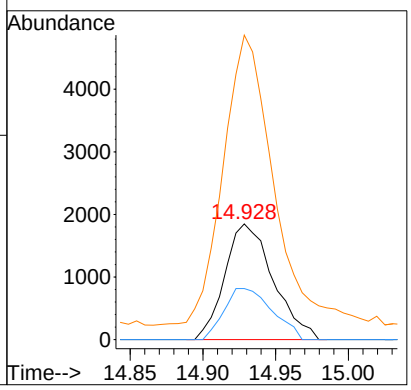


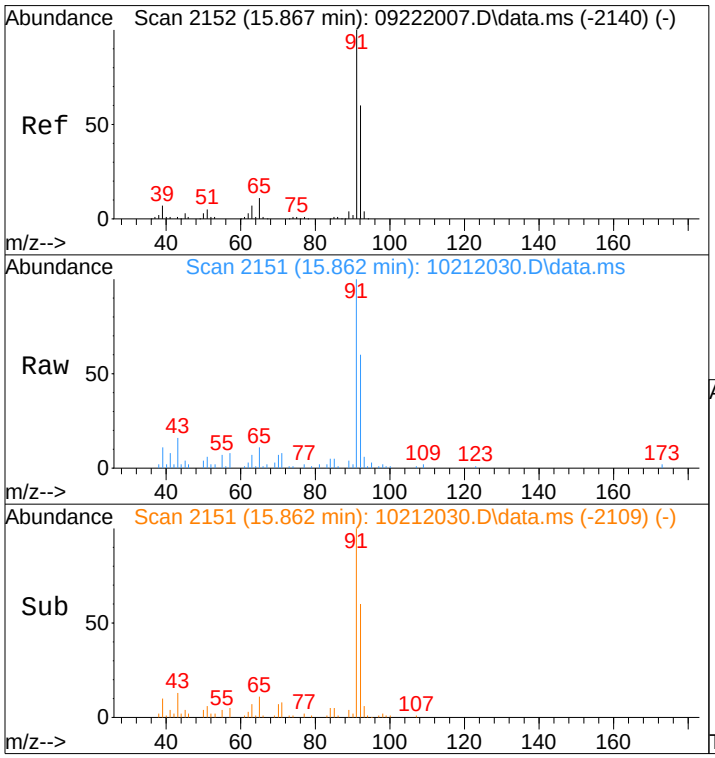


#53
4-Methyl-2-pentanone
Concen: 0.49 ng
RT: 14.93 min Scan# 1987
Delta R.T. -0.006 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 58 Resp: 4266

Ion	Ratio	Lower	Upper
58	100		
85	44.0	37.3	55.9
43	326.0	178.9	268.3#

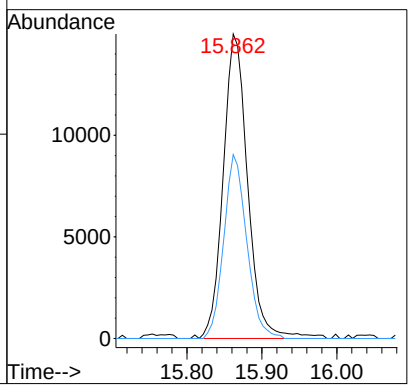


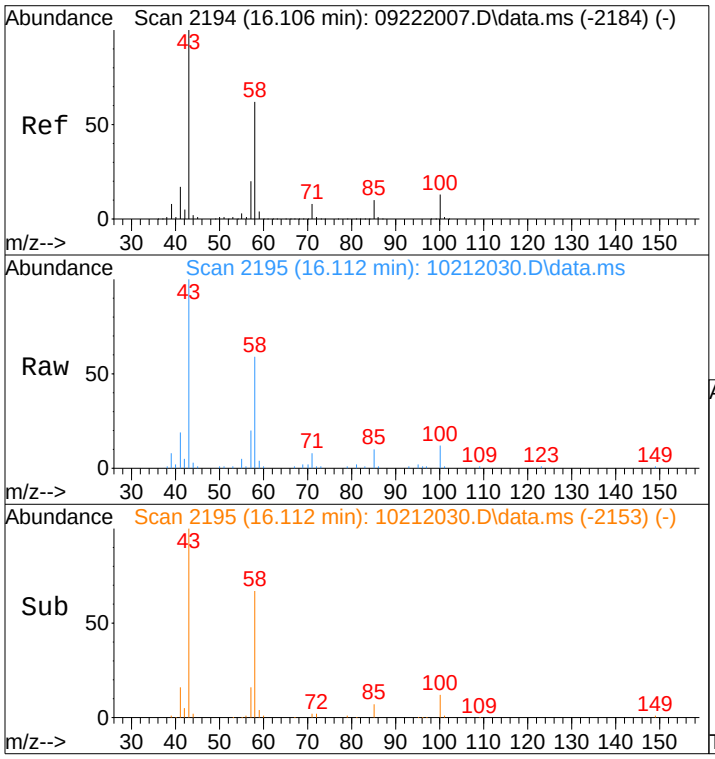


#58
Toluene
Concen: 0.74 ng
RT: 15.86 min Scan# 2151
Delta R.T. -0.011 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 91 Resp: 34117

Ion	Ratio	Lower	Upper
91	100		
92	56.5	39.6	79.6

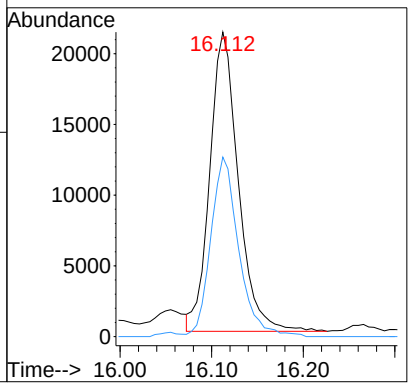


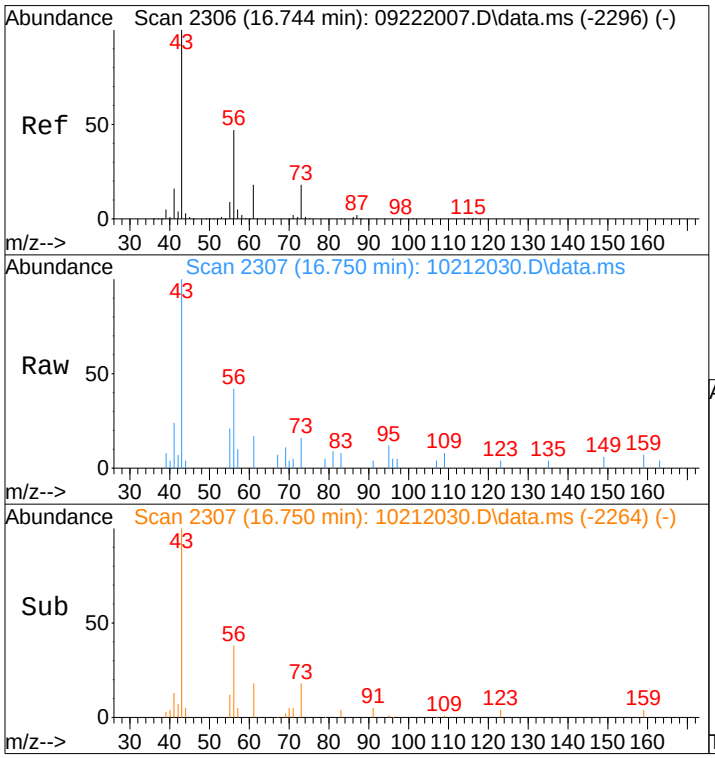


#59
2-Hexanone
Concen: 2.47 ng
RT: 16.11 min Scan# 2195
Delta R.T. -0.011 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 43 Resp: 45809

Ion	Ratio	Lower	Upper
43	100		
58	58.8	42.3	82.3

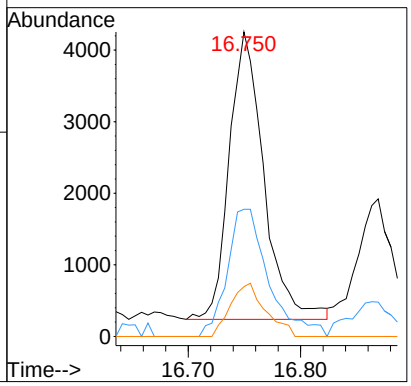


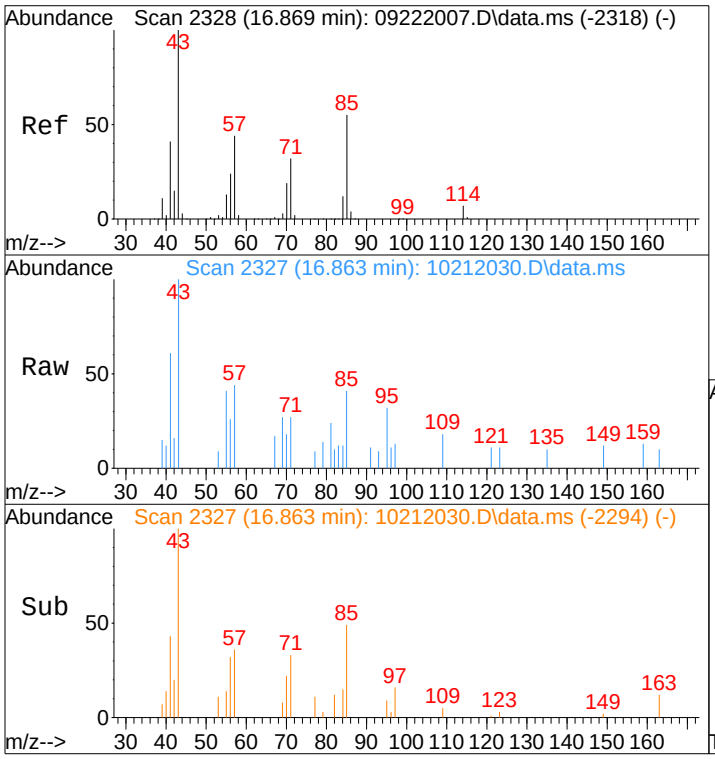


#62
n-Butyl Acetate
Concen: 0.42 ng
RT: 16.75 min Scan# 2307
Delta R.T. -0.005 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 43 Resp: 8598

Ion	Ratio	Lower	Upper
43	100		
56	52.6	26.3	66.3
73	18.6	0.0	37.6

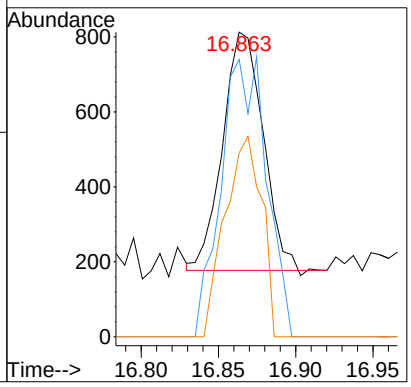


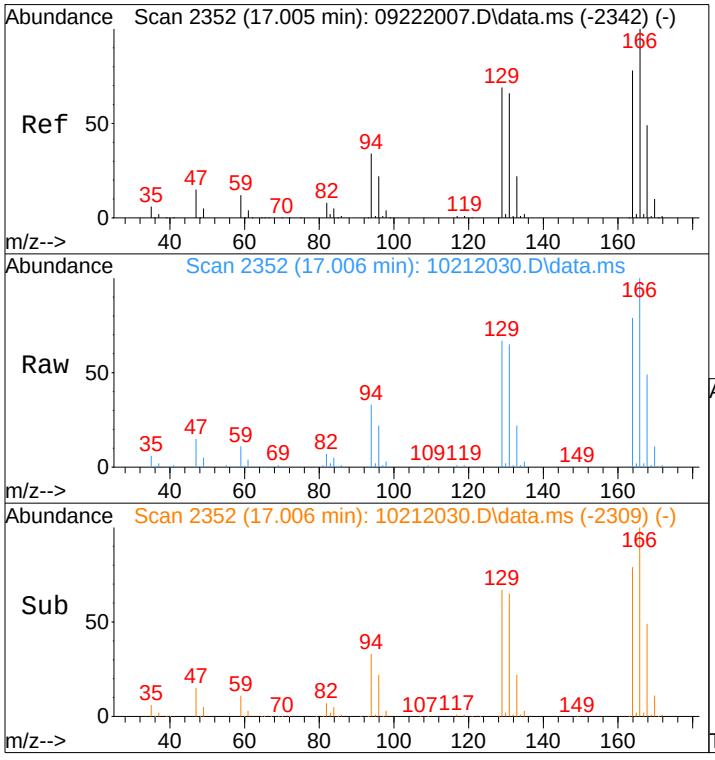


#63
n-Octane
Concen: 0.12 ng
RT: 16.86 min Scan# 2327
Delta R.T. -0.011 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 57 Resp: 1158

Ion	Ratio	Lower	Upper
57	100		
85	132.0	97.0	145.6
71	76.5	57.8	86.8

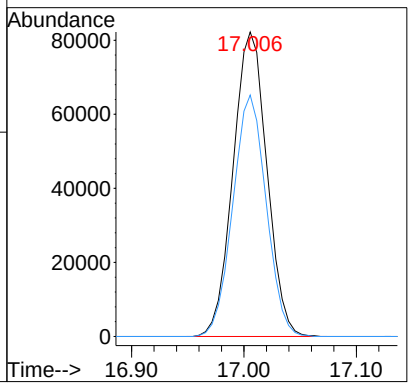


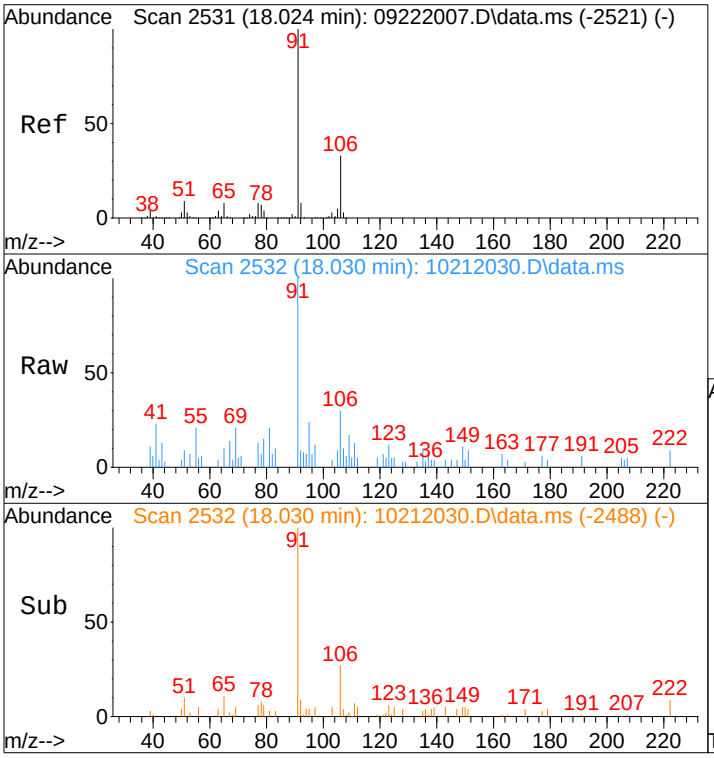


#64
Tetrachloroethene
Concen: 12.46 ng
RT: 17.01 min Scan# 2352
Delta R.T. -0.005 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:166 Resp: 172748

Ion	Ratio	Lower	Upper
166	100		
164	77.9	58.2	98.2

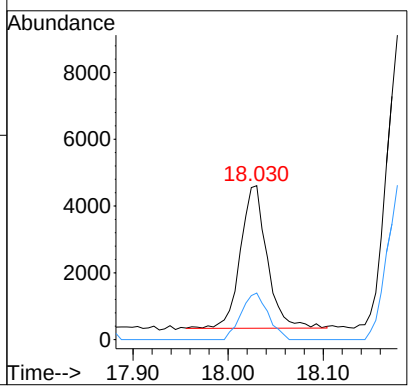


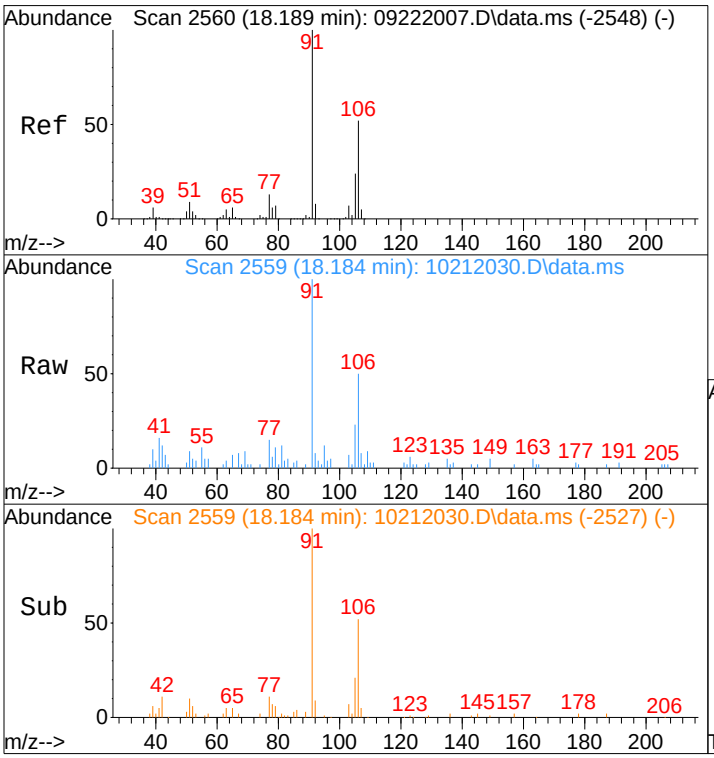


#66
Ethylbenzene
Concen: 0.17 ng
RT: 18.03 min Scan# 2532
Delta R.T. 0.000 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 91 Resp: 8352

Ion	Ratio	Lower	Upper
91	100		
106	32.7	12.6	52.6

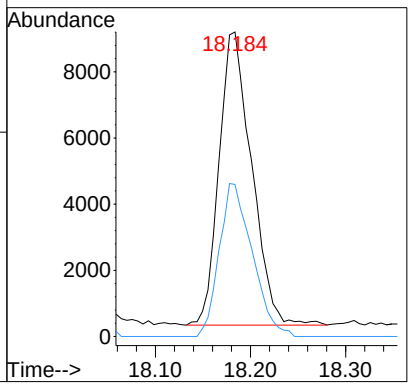


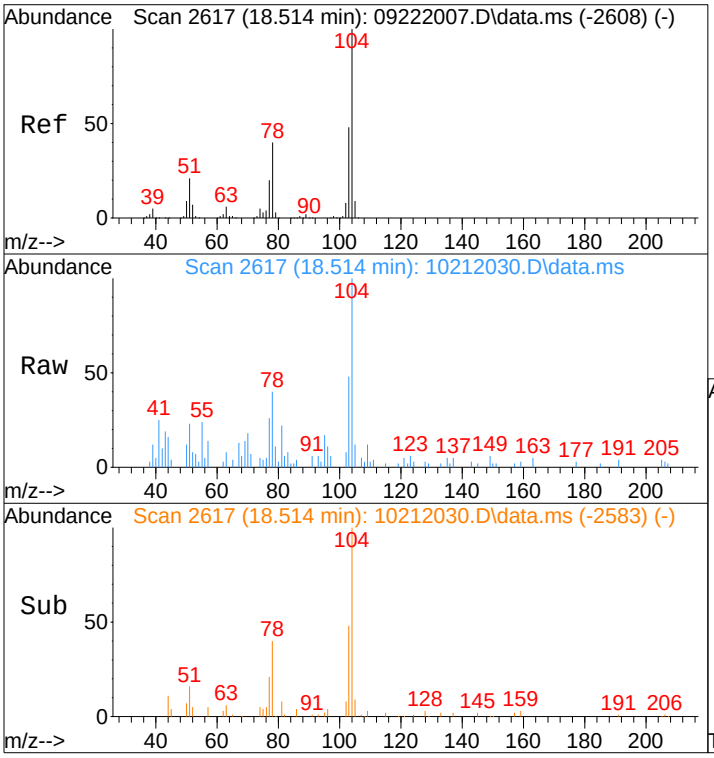


#67
m- & p-Xylenes
Concen: 0.53 ng
RT: 18.18 min Scan# 2559
Delta R.T. -0.017 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 91 Resp: 21106

Ion	Ratio	Lower	Upper
91	100		
106	52.8	31.9	71.9

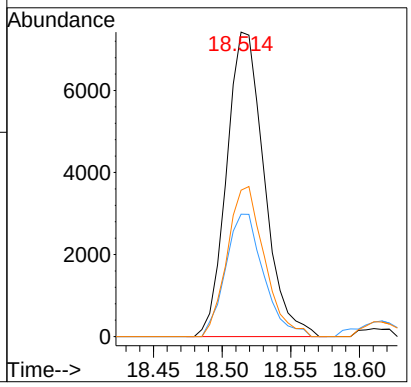


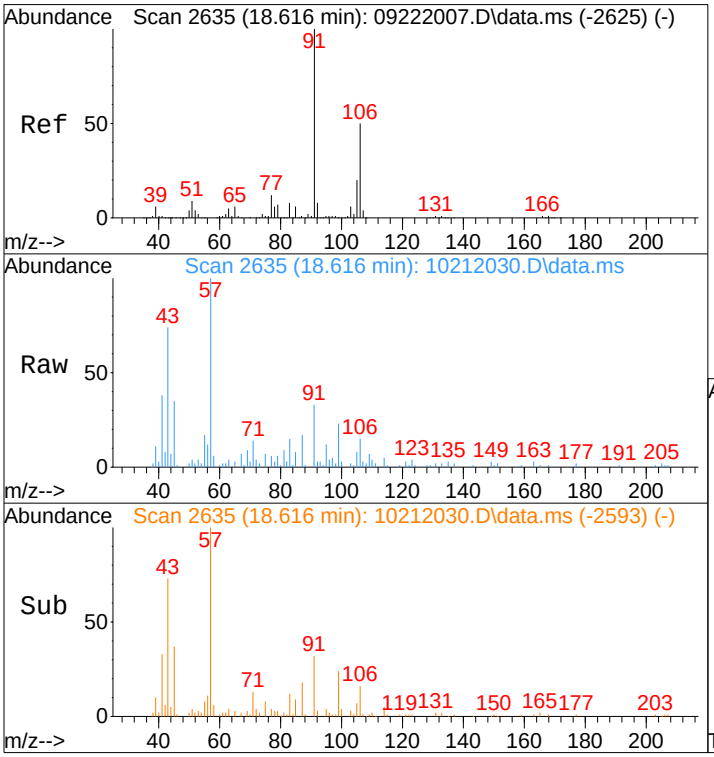


#69
Styrene
Concen: 0.47 ng
RT: 18.51 min Scan# 2617
Delta R.T. -0.005 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:104 Resp: 14124

Ion	Ratio	Lower	Upper
104	100		
78	40.7	19.5	59.5
103	48.6	27.4	67.4

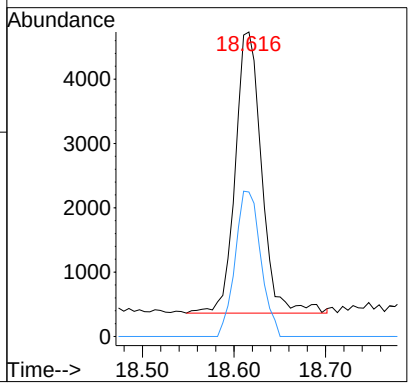


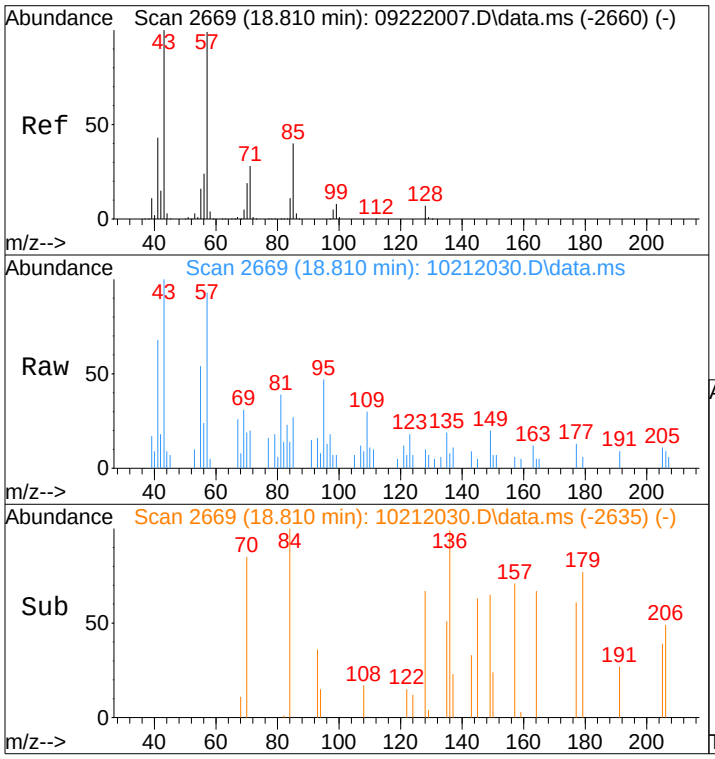


#70
o-Xylene
Concen: 0.22 ng
RT: 18.62 min Scan# 2635
Delta R.T. -0.011 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 91 Resp: 8749

Ion	Ratio	Lower	Upper
91	100		
106	49.9	29.5	69.5

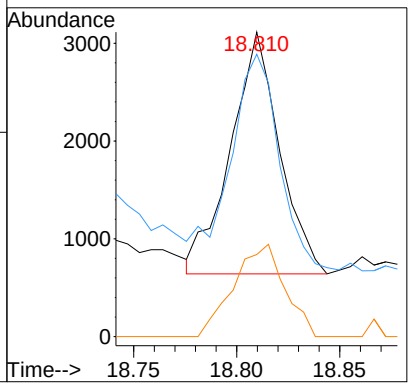


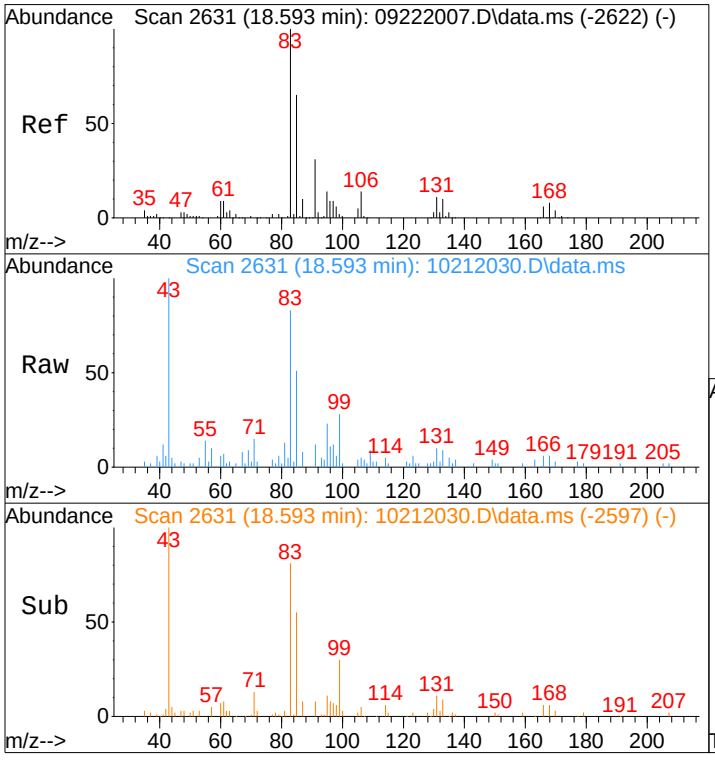


#71
n-Nonane
Concen: 0.22 ng
RT: 18.81 min Scan# 2669
Delta R.T. -0.005 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 43 Resp: 4095

Ion	Ratio	Lower	Upper
43	100		
57	91.6	78.2	118.2
85	39.6	19.8	59.8

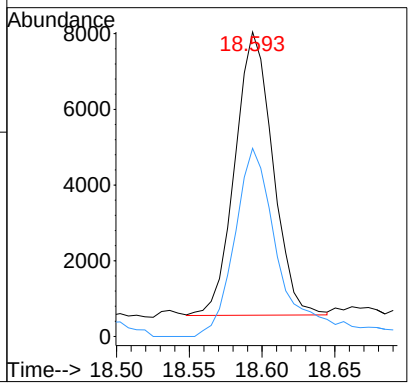


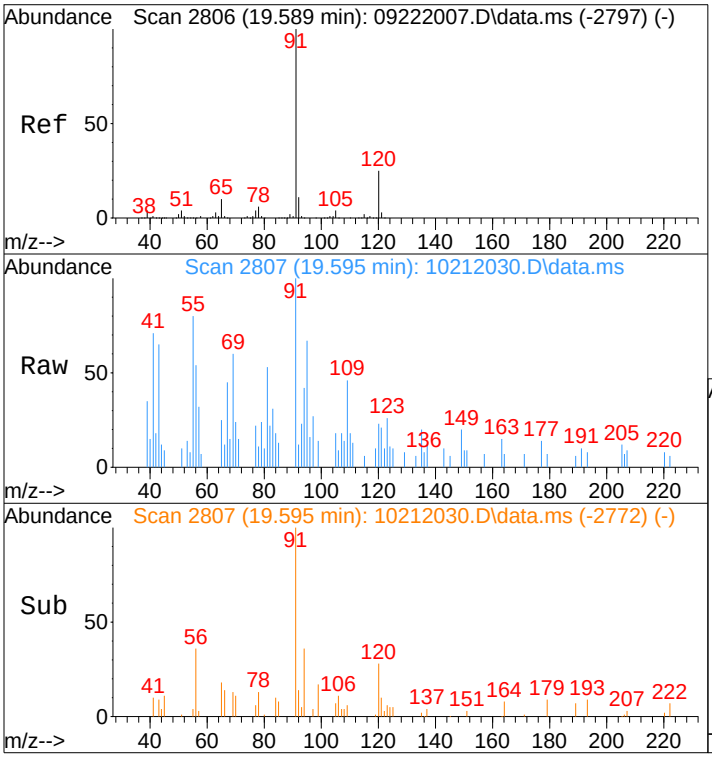


#72
1,1,2,2-Tetrachloroethane
Concen: 0.74 ng
RT: 18.59 min Scan# 2631
Delta R.T. -0.005 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 83 Resp: 13522

Ion	Ratio	Lower	Upper
83	100		
85	79.3	44.9	84.9

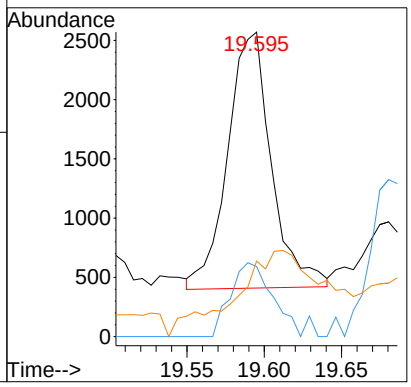


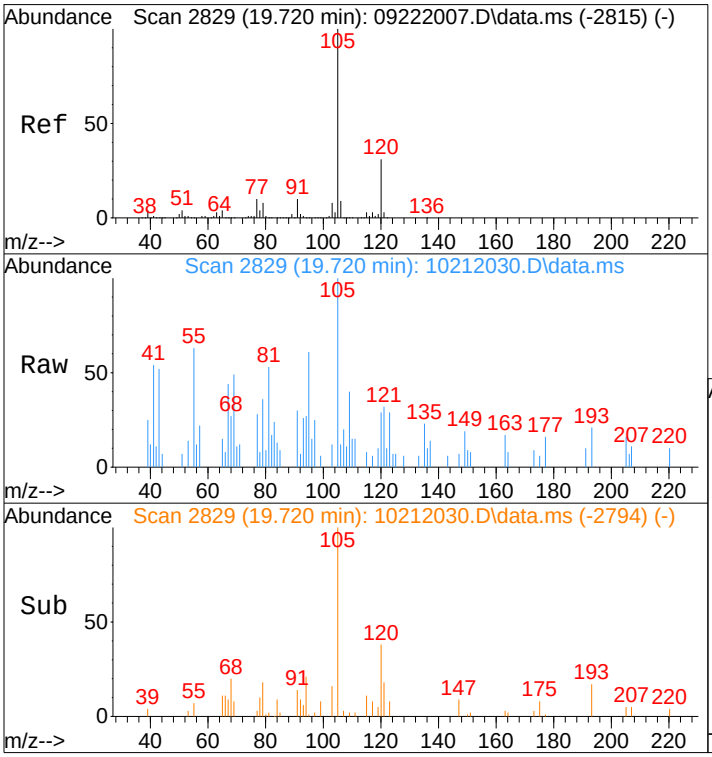


#76
n-Propylbenzene
Concen: 0.07 ng
RT: 19.60 min Scan# 2807
Delta R.T. 0.000 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 91 Resp: 4267

Ion	Ratio	Lower	Upper
91	100		
120	29.0	4.5	44.5
65	69.3	0.0	29.5#

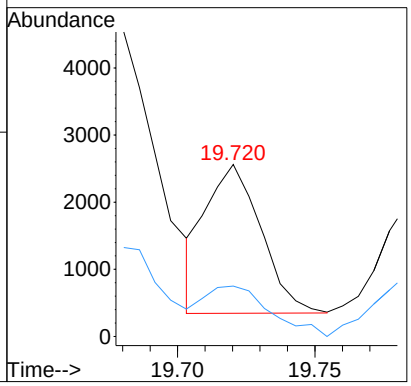


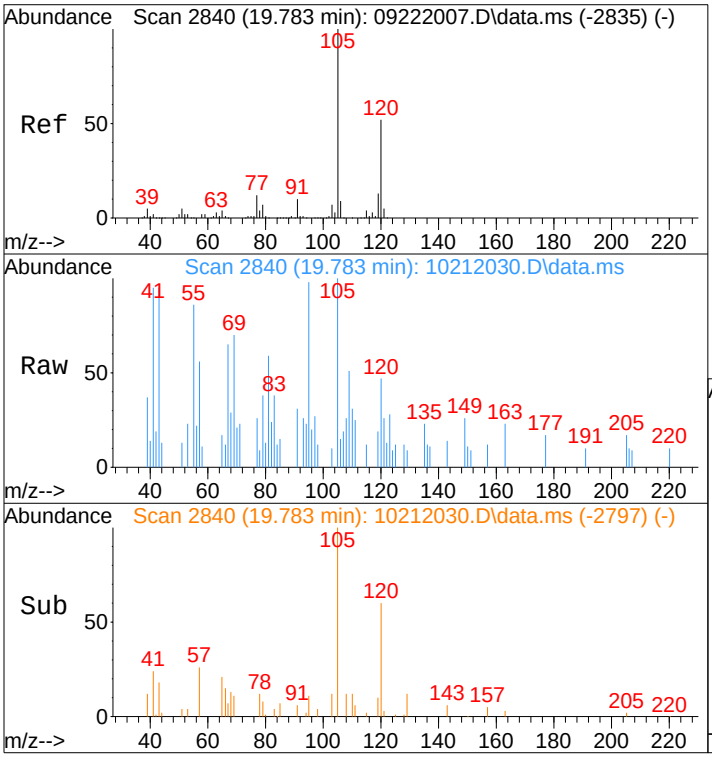


#78
4-Ethyltoluene
Concen: 0.06 ng
RT: 19.72 min Scan# 2829
Delta R.T. 0.000 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:105 Resp: 3117

Ion	Ratio	Lower	Upper
105	100		
120	41.0	11.0	51.0

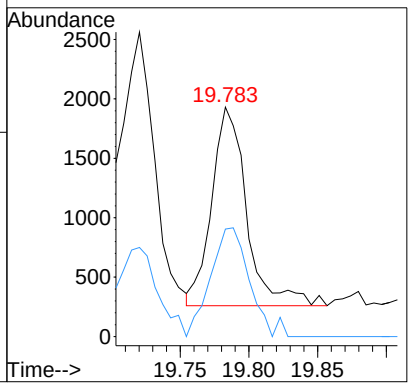


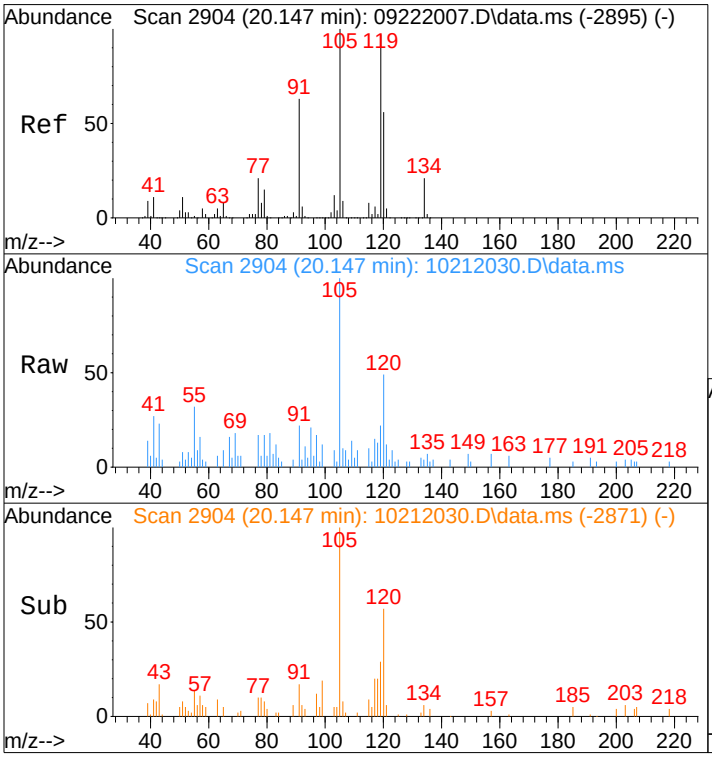


#79
1,3,5-Trimethylbenzene
Concen: 0.07 ng
RT: 19.78 min Scan# 2840
Delta R.T. -0.005 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:105 Resp: 2977

Ion	Ratio	Lower	Upper
105	100		
120	60.4	32.3	72.3

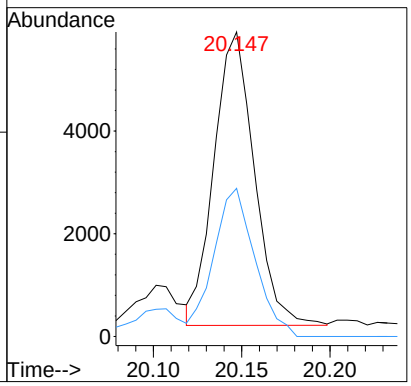


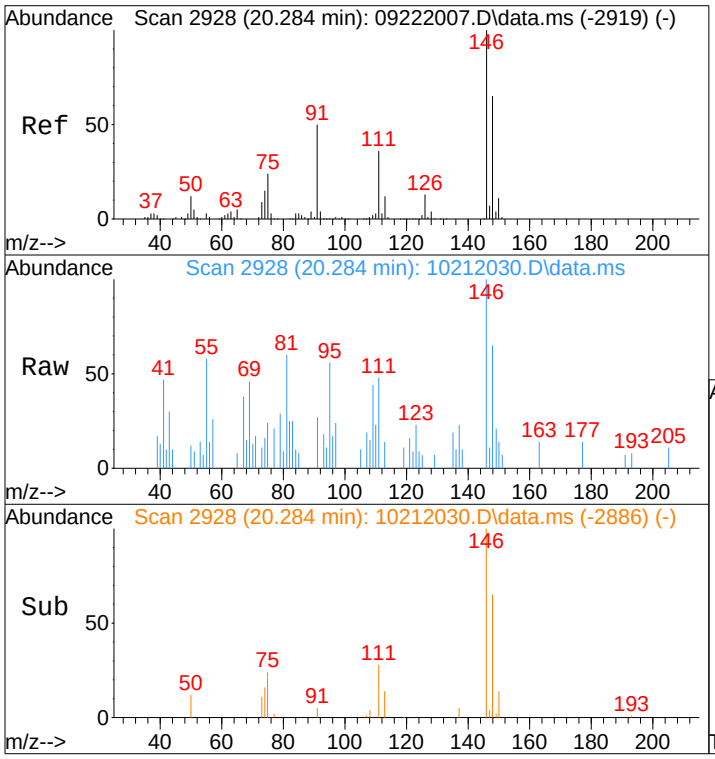


#82
1,2,4-Trimethylbenzene
Concen: 0.22 ng
RT: 20.15 min Scan# 2904
Delta R.T. -0.011 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:105 Resp: 9051

Ion	Ratio	Lower	Upper
105	100		
120	51.6	36.5	76.5

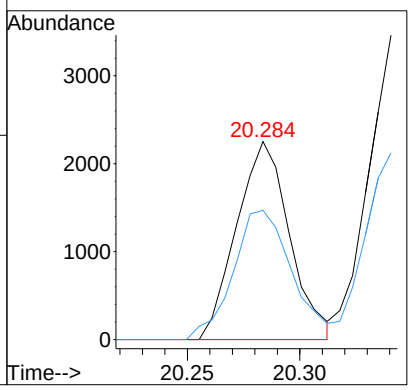


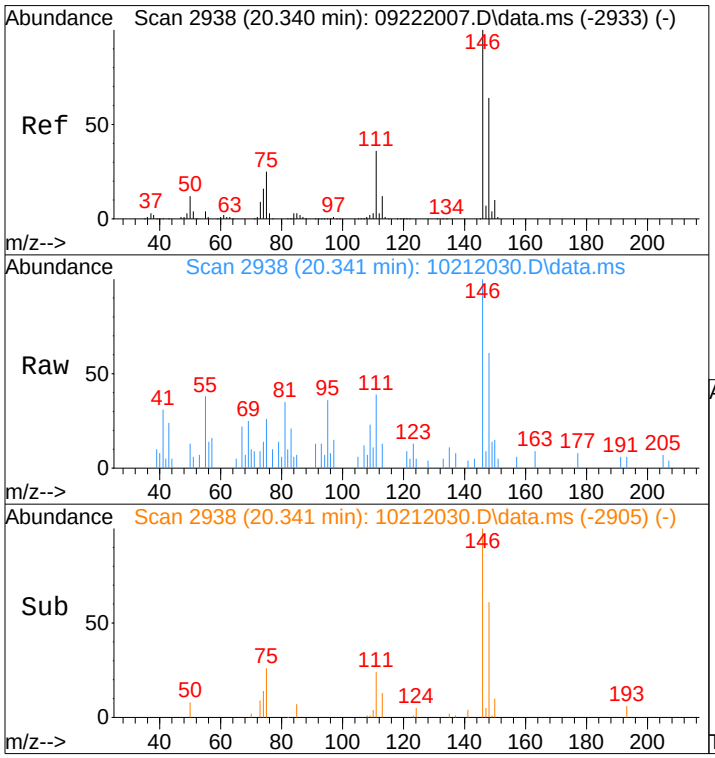


#85
1,3-Dichlorobenzene
Concen: 0.14 ng
RT: 20.28 min Scan# 2928
Delta R.T. -0.011 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:146 Resp: 3691

Ion	Ratio	Lower	Upper
146	100		
148	72.1	44.5	84.5

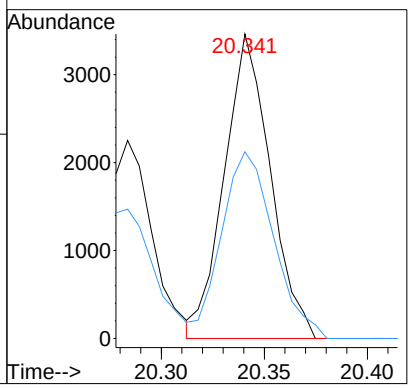


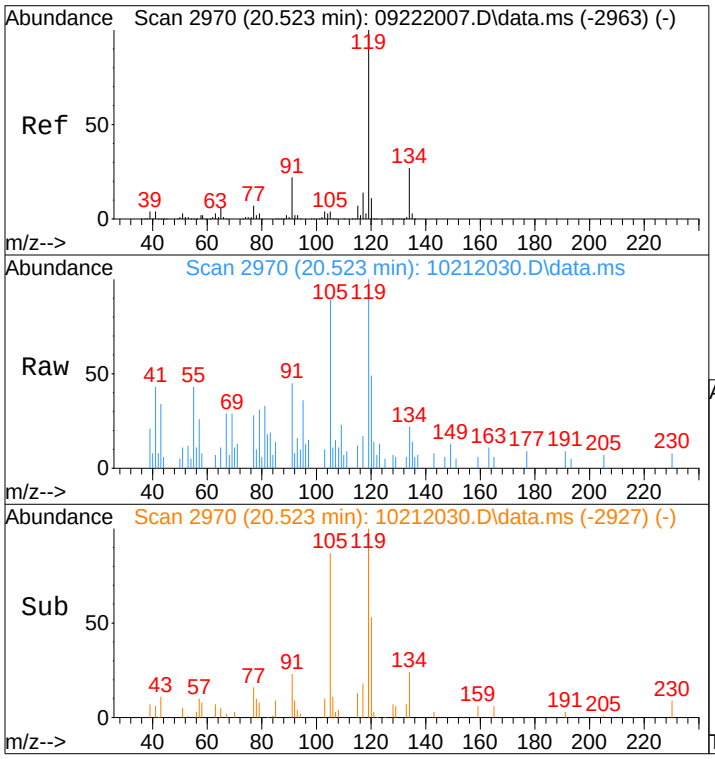


#86
1,4-Dichlorobenzene
Concen: 0.19 ng
RT: 20.34 min Scan# 2938
Delta R.T. -0.011 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:146 Resp: 5361

Ion	Ratio	Lower	Upper
146	100		
148	69.8	44.2	84.2

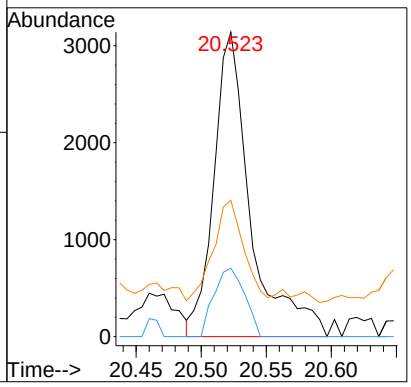


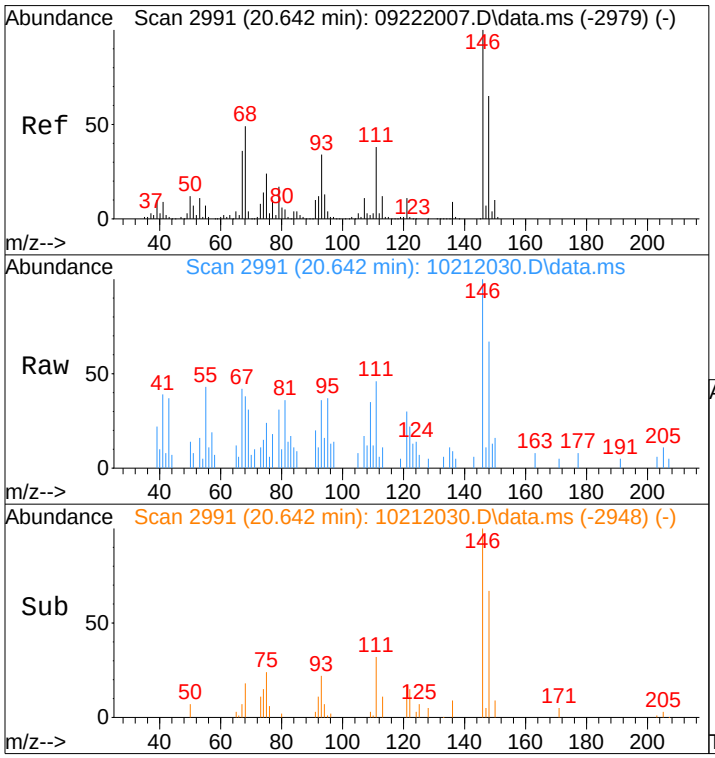


#88
4-Isopropyltoluene (p-Cymene)
Concen: 0.12 ng
RT: 20.52 min Scan# 2970
Delta R.T. -0.005 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:119 Resp: 6152

Ion	Ratio	Lower	Upper
119	100		
134	18.8	7.2	47.2
91	27.5	1.4	41.4

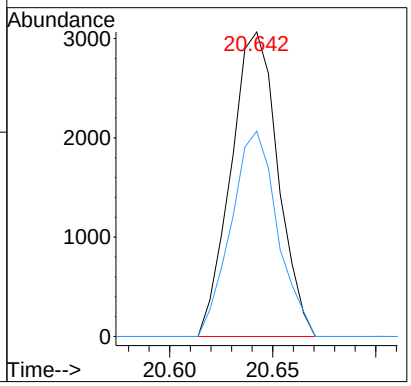


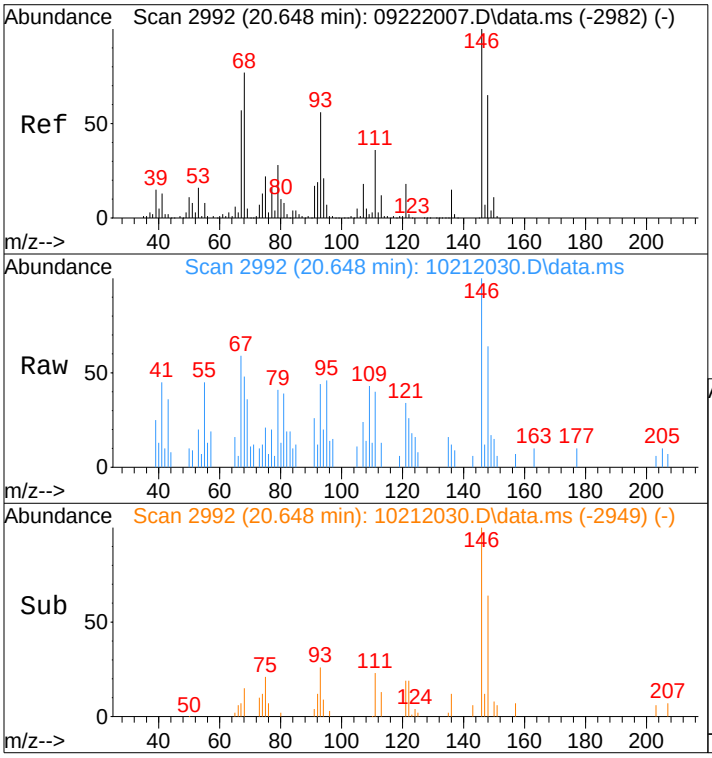


#90
1,2-Dichlorobenzene
Concen: 0.19 ng
RT: 20.64 min Scan# 2991
Delta R.T. -0.005 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:146 Resp: 4865

Ion	Ratio	Lower	Upper
146	100		
148	66.7	44.3	84.3

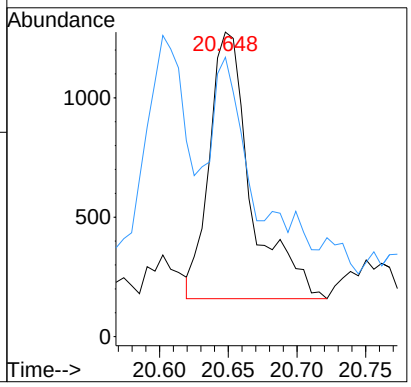


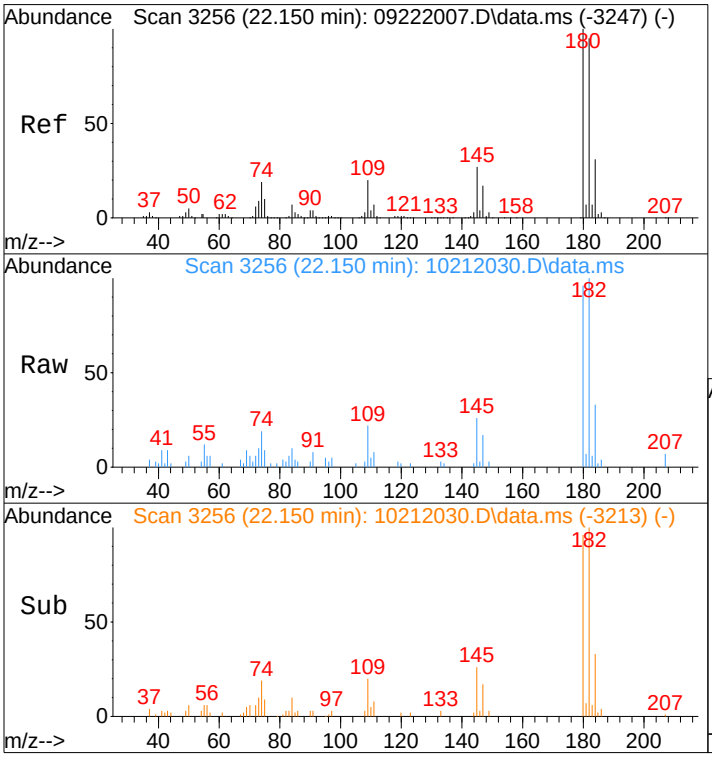


#91
d-Limonene
Concen: 0.17 ng
RT: 20.65 min Scan# 2992
Delta R.T. -0.005 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion: 68 Resp: 2355

Ion	Ratio	Lower	Upper
68	100		
93	79.2	52.9	92.9

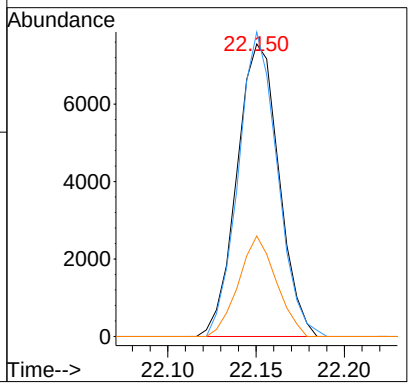


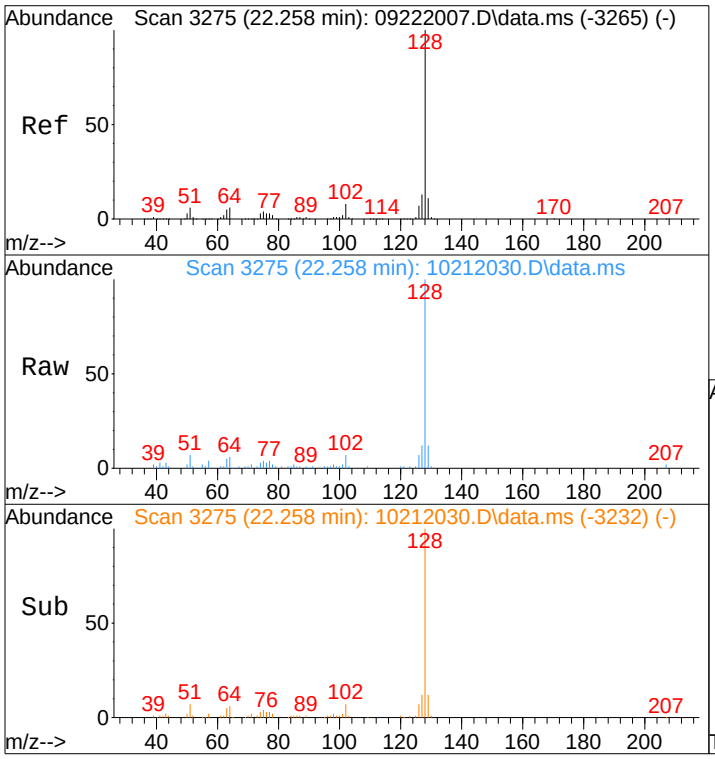


#94
1,2,4-Trichlorobenzene
Concen: 0.59 ng
RT: 22.15 min Scan# 3256
Delta R.T. -0.006 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:180 Resp: 12518

Ion	Ratio	Lower	Upper
180	100		
182	96.6	76.3	114.5
184	30.7	24.9	37.3

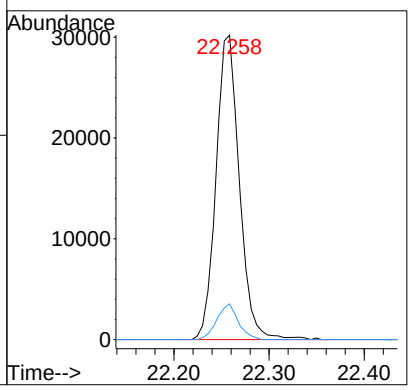


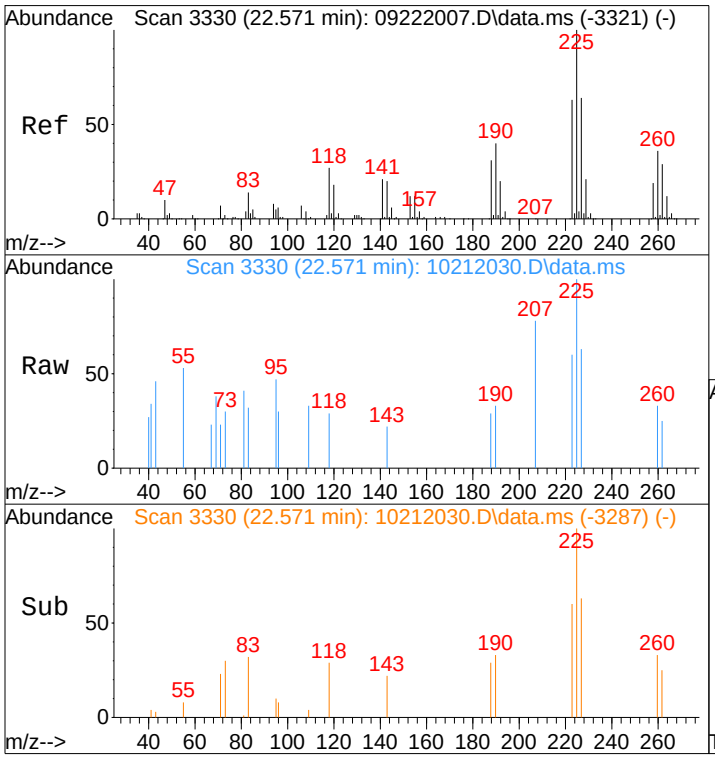


#95
Naphthalene
Concen: 0.89 ng
RT: 22.26 min Scan# 3275
Delta R.T. -0.006 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:128 Resp: 51575

Ion	Ratio	Lower	Upper
128	100		
129	10.7	0.0	31.1

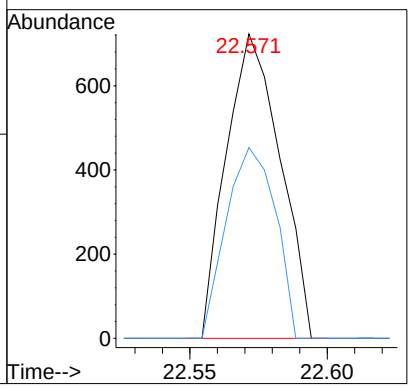




#97
Hexachlorobutadiene
Concen: 0.07 ng
RT: 22.57 min Scan# 3330
Delta R.T. -0.006 min
Lab File: 10212030.D
Acq: 22 Oct 2020 12:35

Tgt Ion:225 Resp: 986

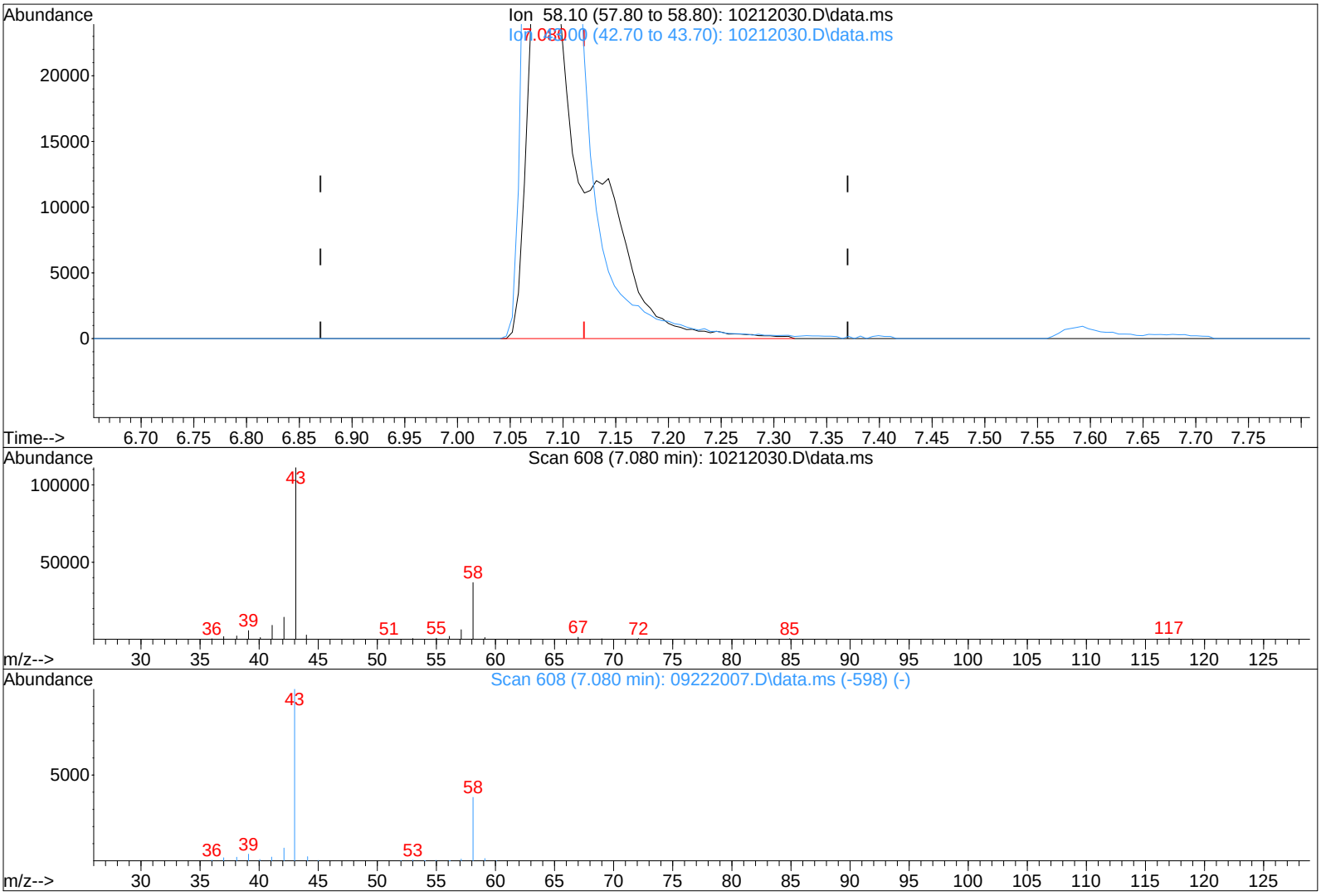
Ion	Ratio	Lower	Upper
225	100		
227	57.4	44.4	84.4



Quantitation Report (Qedit)

Data File : I:\MS13\DATA\2020_10\21\10212030.D Vial: 2
Acq On : 22 Oct 2020 12:35 Operator: WA
Sample : P2005708-001 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 13:41:50 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10212030.D\data.ms

(13) Acetone (T)

7.080min (-0.040) 14.05ng

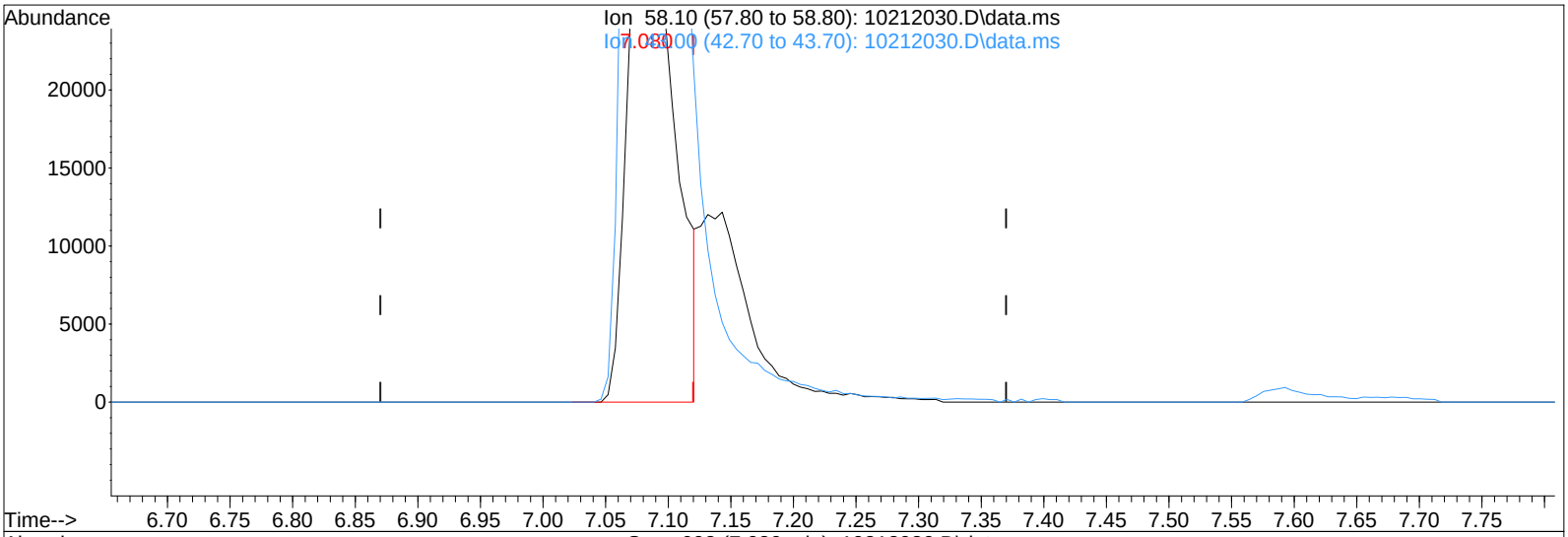
response 121222

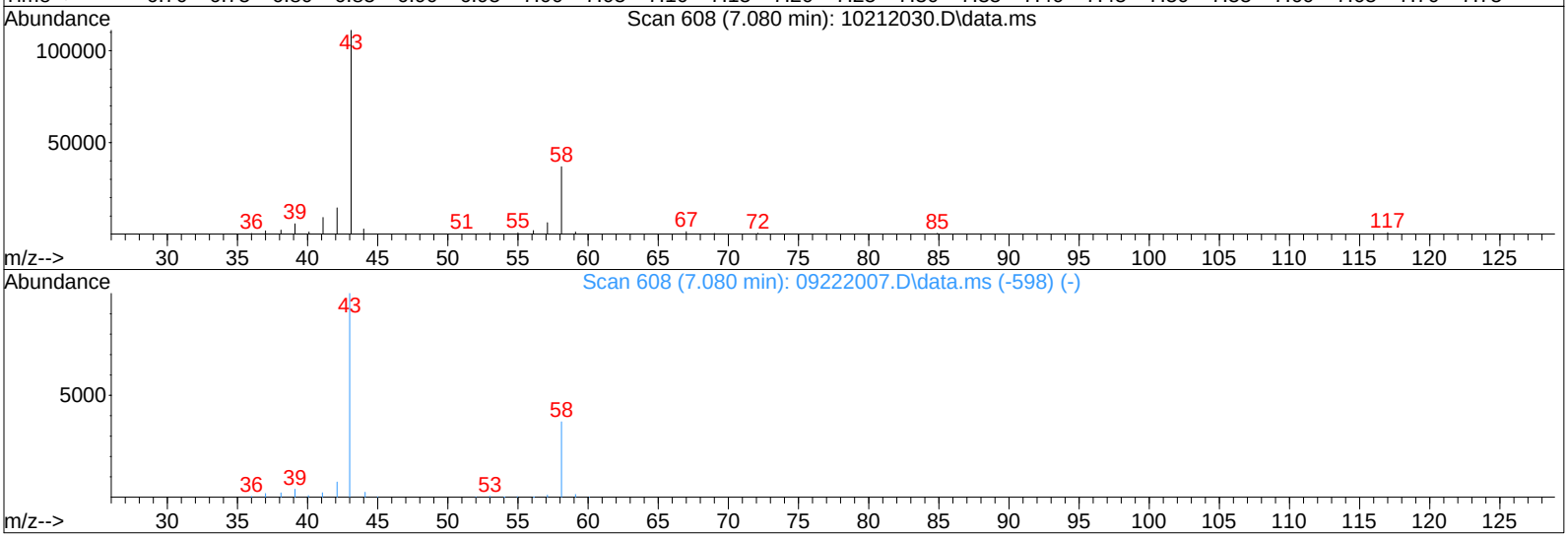
Ion	Exp%	Act%
58.10	100	100
43.00	271.60	236.16#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS13\DATA\2020_10\21\10212030.D Vial: 2
Acq On : 22 Oct 2020 12:35 Operator: WA
Sample : P2005708-001 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 13:41:50 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M





TIC: 10212030.D\data.ms

(13) Acetone (T)

7.080min (-0.040) 10.08ng m

response 86975

Ion	Exp%	Act%
58.10	100	100
43.00	271.60	329.15#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212032.D Vial: 2
Acq On : 22 Oct 2020 13:58 Operator: WA
Sample : P2005708-001dil (100mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 15:10:55 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	117780	12.500	ng		-0.04
37) 1,4-Difluorobenzene (IS2)	13.31	114	510224	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.63	82	230664	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.04	65	152163	12.405	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.20%				
57) Toluene-d8 (SS2)	15.76	98	567465	12.441	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.52%				
73) Bromofluorobenzene (SS3)	19.01	174	205554	14.028	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 112.24%				
Target Compounds							Qvalue
2) Propene	4.21	42	1124	0.083	ng	#	44
3) Dichlorodifluoromethan...	4.35	85	8212	0.382	ng		96
4) Chloromethane	4.65	50	125	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	5.07	62	299	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	6.55	45	181	N.D.			
11) Acetonitrile	0.00	41	0	N.D.			
12) Acrolein	0.00	56	0	N.D.	d		
13) Acetone	7.10	58	13841	1.572	ng	#	75
14) Trichlorofluoromethane	7.32	101	2218	0.115	ng		90
15) 2-Propanol (Isopropanol)	0.00	45	0	N.D.	d		
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	8.27	96	1495	0.132	ng		99
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	8.90	151	19113	1.803	ng		94
22) Carbon Disulfide	8.76	76	5905	0.136	ng		89
23) trans-1,2-Dichloroethene	9.76	61	1492	0.102	ng		99
24) 1,1-Dichloroethane	9.99	63	1344	0.069	ng		86
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.	d		
27) 2-Butanone (MEK)	10.57	72	1518	0.213	ng	#	21
28) cis-1,2-Dichloroethene	11.00	61	140159	9.618	ng		99
29) Diisopropyl Ether	0.00	87	0	N.D.	d		
30) Ethyl Acetate	11.18	61	174	N.D.			
31) n-Hexane	11.30	57	321	N.D.			
32) Chloroform	11.35	83	38138	2.055	ng		100
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	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	12.44	97	1607	0.097	ng		91
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	12.97	56	2476	No Calib			
41) Benzene	12.93	78	1165	N.D.			
42) Carbon Tetrachloride	13.07	117	2545	0.164	ng		94
43) Cyclohexane	13.08	84	109	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.	d		
47) Trichloroethene	14.01	130	138926	10.851	ng		98
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.			

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212032.D Vial: 2
Acq On : 22 Oct 2020 13:58 Operator: WA
Sample : P2005708-001dil (100mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 15:10:55 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

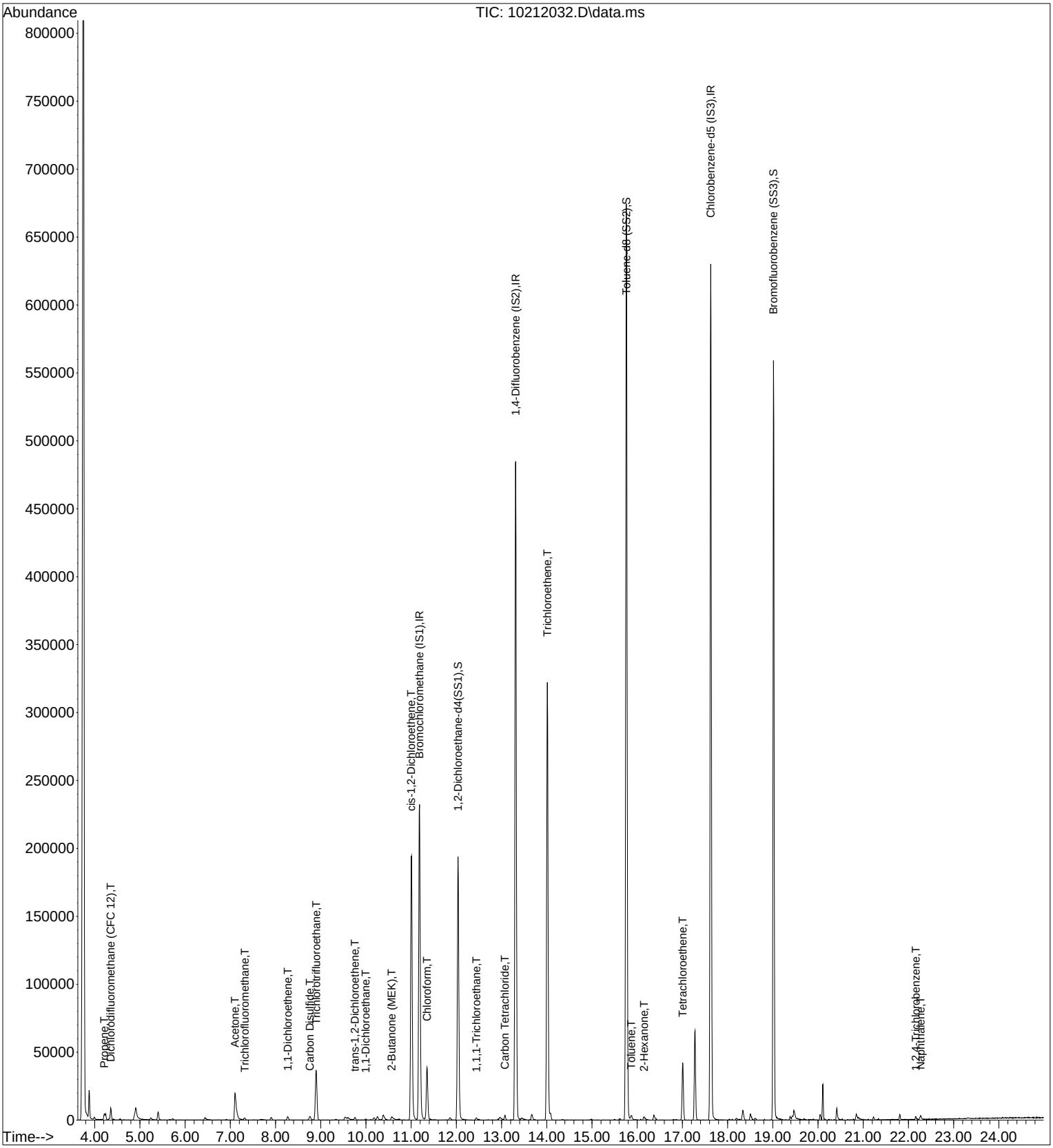
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	15.87	91	3255	0.069 ng	97
59) 2-Hexanone	16.15	43	3947	0.209 ng	79
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	16.80	43	626	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	17.01	166	17271	1.221 ng	99
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	18.04	91	586	N.D.	
67) m- & p-Xylenes	18.20	91	1986	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	18.54	104	1078	N.D.	
70) o-Xylene	18.62	91	751	N.D.	
71) n-Nonane	18.82	43	359	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d	
74) Cumene	0.00	105	0	N.D.	
75) alpha-Pinene	19.49	93	207	N.D.	
76) n-Propylbenzene	19.60	91	221	N.D.	
77) 3-Ethyltoluene	19.72	105	449	No Calib #	
78) 4-Ethyltoluene	19.72	105	449	N.D.	
79) 1,3,5-Trimethylbenzene	19.80	105	218	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	19.96	105	261	No Calib #	
82) 1,2,4-Trimethylbenzene	20.16	105	829	N.D.	
83) n-Decane	20.05	57	804	No Calib #	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	20.29	146	235	N.D.	
86) 1,4-Dichlorobenzene	20.36	146	388	N.D.	
87) sec-Butylbenzene	20.52	105	266	N.D.	
88) 4-Isopropyltoluene (p-...	20.53	119	491	N.D.	
89) 1,2,3-Trimethylbenzene	20.52	105	266	No Calib #	
90) 1,2-Dichlorobenzene	20.65	146	371	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	21.34	57	345	No Calib #	
94) 1,2,4-Trichlorobenzene	22.16	180	1106	0.051 ng #	93
95) Naphthalene	22.27	128	4528	0.077 ng	84
96) n-Dodecane	22.25	57	344	No Calib #	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	18.34	55	3796	No Calib	
99) tert-Butylbenzene	20.10	119	482	N.D.	
100) n-Butylbenzene	20.89	91	451	N.D.	
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.	

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212032.D Vial: 2
Acq On : 22 Oct 2020 13:58 Operator: WA
Sample : P2005708-001dil (100mL) Inst : MS13
Misc : S34-09182001

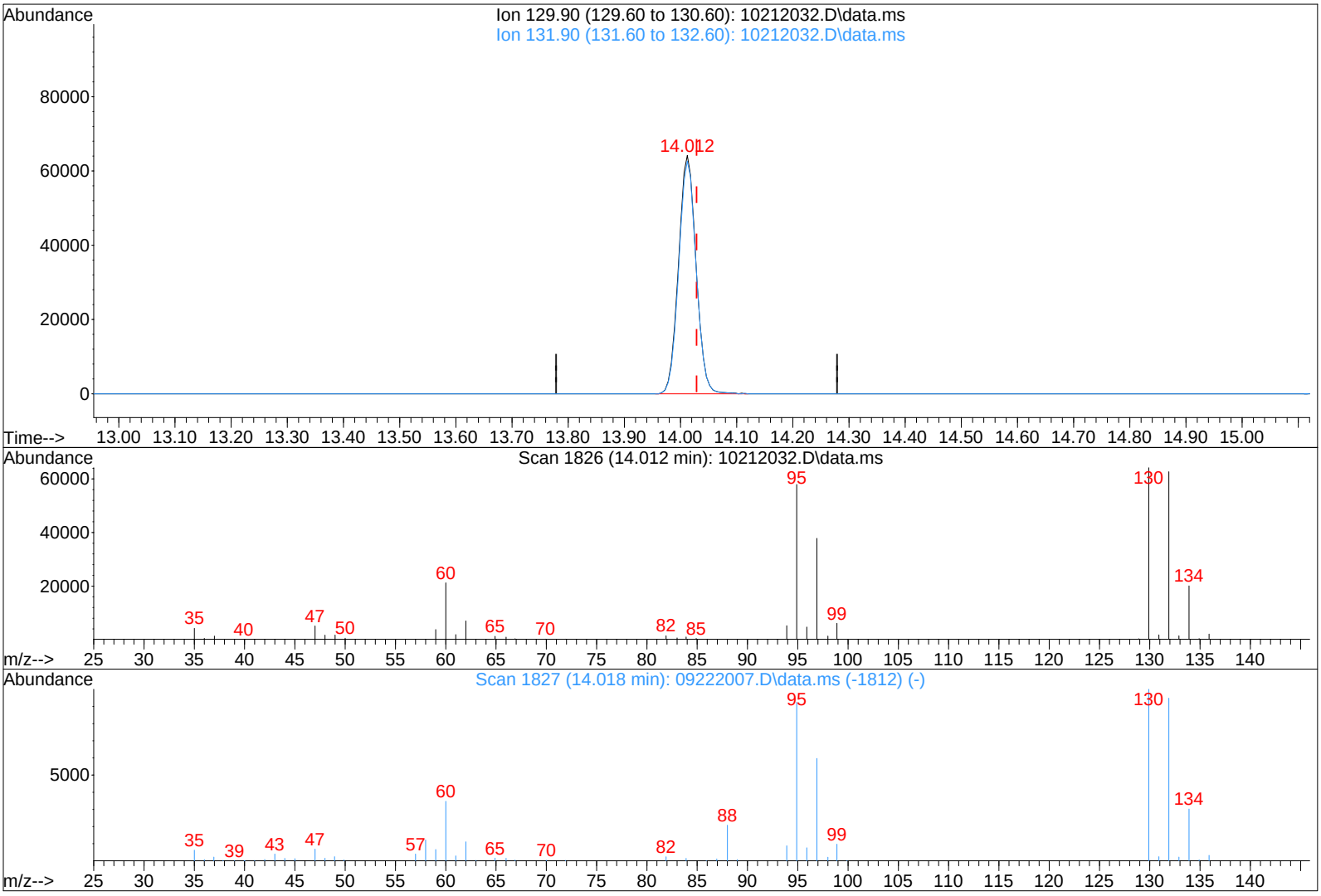
Quant Time: Oct 22 15:10:55 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS13\DATA\2020_10\21\10212032.D Vial: 2
Acq On : 22 Oct 2020 13:58 Operator: WA
Sample : P2005708-001dil (100mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 15:07:47 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10212032.D\data.ms

(47) Trichloroethene (T)

14.012min (-0.017) 10.85ng

response 138926

Ion	Exp%	Act%
129.90	100	100
131.90	95.50	96.96
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212031.D Vial: 3
Acq On : 22 Oct 2020 13:10 Operator: WA
Sample : P2005708-002 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 15:05:50 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	117818	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.32	114	501633	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.63	82	231027	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.04	65	150153	12.237	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.92%				
57) Toluene-d8 (SS2)	15.76	98	564636	12.360	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.88%				
73) Bromofluorobenzene (SS3)	19.01	174	203100	13.839	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.72%				
Target Compounds							Qvalue
2) Propene	4.17	42	25028m	1.846	ng		
3) Dichlorodifluoromethan...	4.33	85	79760	3.712	ng		100
4) Chloromethane	4.62	50	1792	0.123	ng		85
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	880	0.075	ng		66
6) Vinyl Chloride	5.03	62	5167	0.336	ng		96
7) 1,3-Butadiene	5.30	54	1353	0.105	ng	#	81
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	6.05	64	1848	0.222	ng		93
10) Ethanol	6.41	45	67571	8.002	ng		98
11) Acetonitrile	6.69	41	48872	2.462	ng		86
12) Acrolein	6.86	56	25668	3.465	ng		98
13) Acetone	7.07	58	492386	55.920	ng		88
14) Trichlorofluoromethane	7.31	101	23052	1.194	ng		99
15) 2-Propanol (Isopropanol)	7.58	45	37885	1.432	ng		99
16) Acrylonitrile	7.89	53	566	N.D.			
17) 1,1-Dichloroethene	8.26	96	17597	1.553	ng		100
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	8.47	84	1351	0.115	ng		92
20) 3-Chloro-1-propene (Al...	8.65	41	120	N.D.			
21) Trichlorotrifluoroethane	8.90	151	198417	18.708	ng		97
22) Carbon Disulfide	8.75	76	413140	9.484	ng		99
23) trans-1,2-Dichloroethene	9.74	61	22164	1.510	ng		98
24) 1,1-Dichloroethane	10.00	63	16579	0.855	ng		99
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d		
26) Vinyl Acetate	10.22	86	85196	33.802	ng	#	9
27) 2-Butanone (MEK)	10.51	72	95510	13.373	ng		94
28) cis-1,2-Dichloroethene	11.01	61	1444904	99.123	ng		100
29) Diisopropyl Ether	0.00	87	0	N.D.	d		
30) Ethyl Acetate	11.35	61	6833	1.690	ng		88
31) n-Hexane	11.30	57	6868	0.387	ng		94
32) Chloroform	11.36	83	418157	22.524	ng		100
34) Tetrahydrofuran (THF)	11.80	72	9551	1.284	ng	#	54
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.16	62	577	N.D.			
38) 1,1,1-Trichloroethane	12.44	97	18088	1.112	ng		99
39) Isopropyl Acetate	13.00	61	183	No Calib		#	
40) 1-Butanol	12.89	56	128920	No Calib			
41) Benzene	12.92	78	12573	0.280	ng		97
42) Carbon Tetrachloride	13.08	117	28813	1.893	ng		99
43) Cyclohexane	0.00	84	0	N.D.	d		
44) tert-Amyl Methyl Ether	13.53	73	1039	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	14.02	130	1432399	113.797	ng		99
48) 1,4-Dioxane	13.99	88	99236	11.674	ng		99
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d		
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212031.D Vial: 3
Acq On : 22 Oct 2020 13:10 Operator: WA
Sample : P2005708-002 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 15:05:50 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

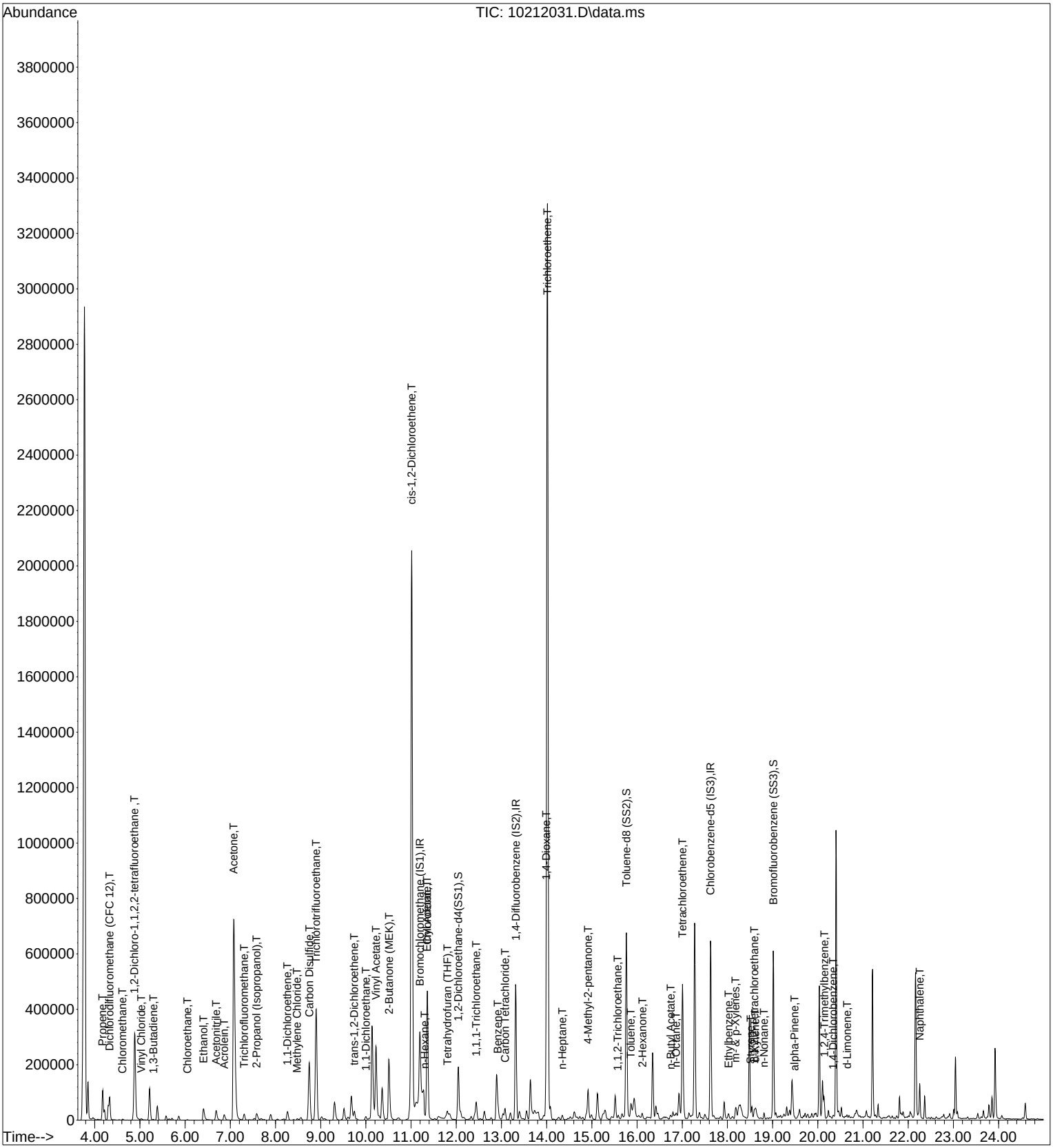
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.35	71	4667	0.410	ng		95
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
53) 4-Methyl-2-pentanone	14.92	58	21622	2.461	ng	#	1
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
55) 1,1,2-Trichloroethane	15.57	97	1398	0.130	ng	#	2
58) Toluene	15.86	91	34535	0.728	ng		98
59) 2-Hexanone	16.12	43	14011	0.741	ng		96
60) Dibromochloromethane	0.00	129	0	N.D.			
61) 1,2-Dibromoethane	0.00	107	0	N.D.			
62) n-Butyl Acetate	16.74	43	7024	0.337	ng		88
63) n-Octane	16.86	57	3165	0.333	ng	#	72
64) Tetrachloroethene	17.01	166	188618	13.317	ng		99
65) Chlorobenzene	17.67	112	703	N.D.			
66) Ethylbenzene	18.02	91	9802	0.191	ng		100
67) m- & p-Xylenes	18.18	91	22968	0.569	ng		99
68) Bromoform	0.00	173	0	N.D.			
69) Styrene	18.51	104	4159	0.137	ng		96
70) o-Xylene	18.62	91	8629	0.214	ng		96
71) n-Nonane	18.81	43	7538	0.390	ng		99
72) 1,1,2,2-Tetrachloroethane	18.59	83	14796	0.789	ng		96
74) Cumene	19.15	105	1107	N.D.			
75) alpha-Pinene	19.49	93	3125	0.123	ng	#	1
76) n-Propylbenzene	0.00	91	0	N.D.	d		
77) 3-Ethyltoluene	19.72	105	2474	No Calib			
78) 4-Ethyltoluene	19.72	105	2474	N.D.			
79) 1,3,5-Trimethylbenzene	19.78	105	2178	N.D.			
80) alpha-Methylstyrene	19.92	118	795	No Calib		#	
81) 2-Ethyltoluene	19.95	105	2405	No Calib			
82) 1,2,4-Trimethylbenzene	20.15	105	8230	0.194	ng		91
83) n-Decane	20.14	57	8998	No Calib		#	
84) Benzyl Chloride	20.26	91	1105	N.D.			
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d		
86) 1,4-Dichlorobenzene	20.34	146	3051	0.106	ng		95
87) sec-Butylbenzene	20.39	105	269	N.D.			
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d		
89) 1,2,3-Trimethylbenzene	20.52	105	3192	No Calib		#	
90) 1,2-Dichlorobenzene	20.45	146	547	N.D.			
91) d-Limonene	20.65	68	2456m	0.169	ng		
92) 1,2-Dibromo-3-Chloropr...	21.14	157	126	N.D.			
93) n-Undecane	21.34	57	15839	No Calib			
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.			
95) Naphthalene	22.26	128	7038	0.119	ng		97
96) n-Dodecane	22.25	57	17220	No Calib		#	
97) Hexachlorobutadiene	22.58	225	228	N.D.			
98) Cyclohexanone	18.32	55	5550	No Calib			
99) tert-Butylbenzene	20.15	119	1141	N.D.			
100) n-Butylbenzene	0.00	91	0	N.D.	d		
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212031.D Vial: 3
Acq On : 22 Oct 2020 13:10 Operator: WA
Sample : P2005708-002 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 15:05:50 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212031.D Vial: 3
Acq On : 22 Oct 2020 13:10 Operator: WA
Sample : P2005708-002 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 15:05:50 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	117818	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.32	114	501633	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.63	82	231027	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.04	65	150153	12.237	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.92%				
57) Toluene-d8 (SS2)	15.76	98	564636	12.360	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.88%				
73) Bromofluorobenzene (SS3)	19.01	174	203100	13.839	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.72%				
Target Compounds							Qvalue
2) Propene	4.17	42	25028m	1.846	ng		
3) Dichlorodifluoromethan...	4.33	85	79760	3.712	ng		100
4) Chloromethane	4.62	50	1792	0.123	ng		85
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	880	0.075	ng		66
6) Vinyl Chloride	5.03	62	5167	0.336	ng		96
7) 1,3-Butadiene	5.30	54	1353	0.105	ng	#	81
9) Chloroethane	6.05	64	1848	0.222	ng		93
10) Ethanol	6.41	45	67571	8.002	ng		98
11) Acetonitrile	6.69	41	48872	2.462	ng		86
12) Acrolein	6.86	56	25668	3.465	ng		98
13) Acetone	7.07	58	492386	55.920	ng		88
14) Trichlorofluoromethane	7.31	101	23052	1.194	ng		99
15) 2-Propanol (Isopropanol)	7.58	45	37885	1.432	ng		99
17) 1,1-Dichloroethene	8.26	96	17597	1.553	ng		100
19) Methylene Chloride	8.47	84	1351	0.115	ng		92
21) Trichlorotrifluoroethane	8.90	151	198417	18.708	ng		97
22) Carbon Disulfide	8.75	76	413140	9.484	ng		99
23) trans-1,2-Dichloroethene	9.74	61	22164	1.510	ng		98
24) 1,1-Dichloroethane	10.00	63	16579	0.855	ng		99
26) Vinyl Acetate	10.22	86	85196	33.802	ng	#	9
27) 2-Butanone (MEK)	10.51	72	95510	13.373	ng		94
28) cis-1,2-Dichloroethene	11.01	61	1444904	99.123	ng		100
30) Ethyl Acetate	11.35	61	6833	1.690	ng		88
31) n-Hexane	11.30	57	6868	0.387	ng		94
32) Chloroform	11.36	83	418157	22.524	ng		100
34) Tetrahydrofuran (THF)	11.80	72	9551	1.284	ng	#	54
38) 1,1,1-Trichloroethane	12.44	97	18088	1.112	ng		99
41) Benzene	12.92	78	12573	0.280	ng		97
42) Carbon Tetrachloride	13.08	117	28813	1.893	ng		99
47) Trichloroethene	14.02	130	1432399	113.797	ng		99
48) 1,4-Dioxane	13.99	88	99236	11.674	ng		99
51) n-Heptane	14.35	71	4667	0.410	ng		95
53) 4-Methyl-2-pentanone	14.92	58	21622	2.461	ng	#	1
55) 1,1,2-Trichloroethane	15.57	97	1398	0.130	ng	#	2
58) Toluene	15.86	91	34535	0.728	ng		98
59) 2-Hexanone	16.12	43	14011	0.741	ng		96
62) n-Butyl Acetate	16.74	43	7024	0.337	ng		88
63) n-Octane	16.86	57	3165	0.333	ng	#	72
64) Tetrachloroethene	17.01	166	188618	13.317	ng		99
66) Ethylbenzene	18.02	91	9802	0.191	ng		100
67) m- & p-Xylenes	18.18	91	22968	0.569	ng		99
69) Styrene	18.51	104	4159	0.137	ng		96
70) o-Xylene	18.62	91	8629	0.214	ng		96
71) n-Nonane	18.81	43	7538	0.390	ng		99
72) 1,1,2,2-Tetrachloroethane	18.59	83	14796	0.789	ng		96
75) alpha-Pinene	19.49	93	3125	0.123	ng	#	1
82) 1,2,4-Trimethylbenzene	20.15	105	8230	0.194	ng		91

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212031.D Vial: 3
Acq On : 22 Oct 2020 13:10 Operator: WA
Sample : P2005708-002 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 15:05:50 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

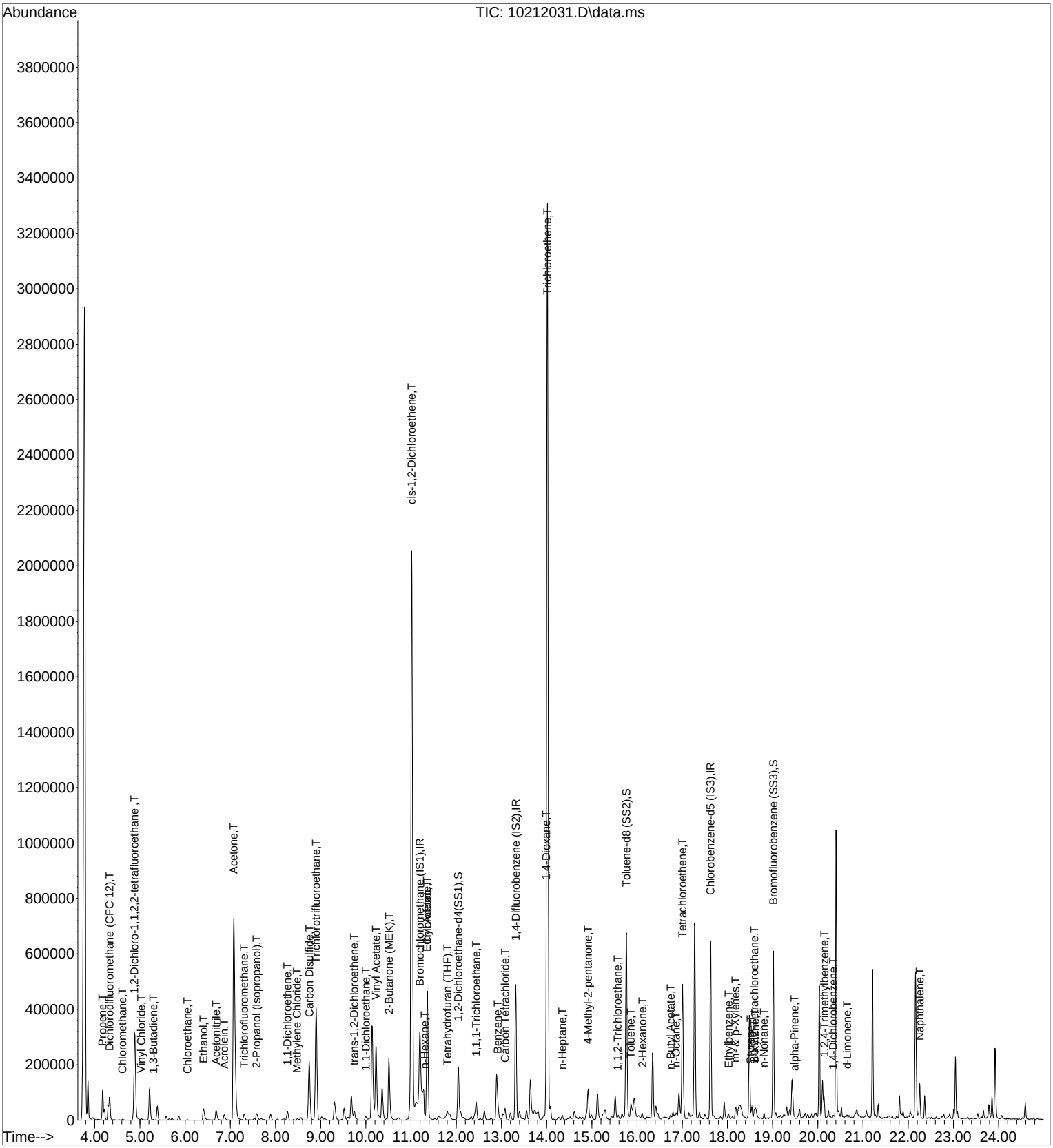
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
86) 1,4-Dichlorobenzene	20.34	146	3051	0.106	ng	95
91) d-Limonene	20.65	68	2456m	0.169	ng	
95) Naphthalene	22.26	128	7038	0.119	ng	97

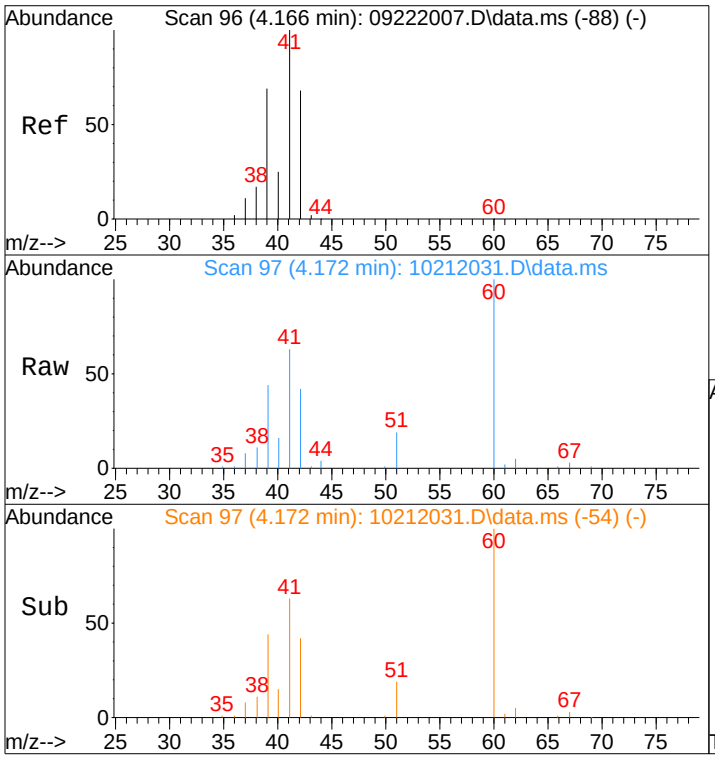
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212031.D Vial: 3
Acq On : 22 Oct 2020 13:10 Operator: WA
Sample : P2005708-002 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 15:05:50 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

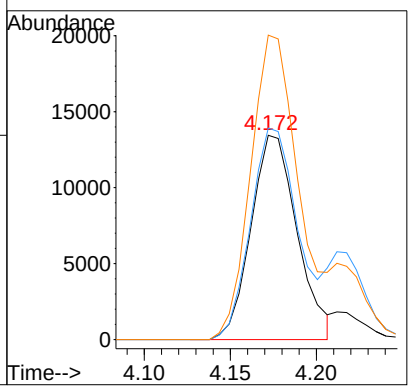


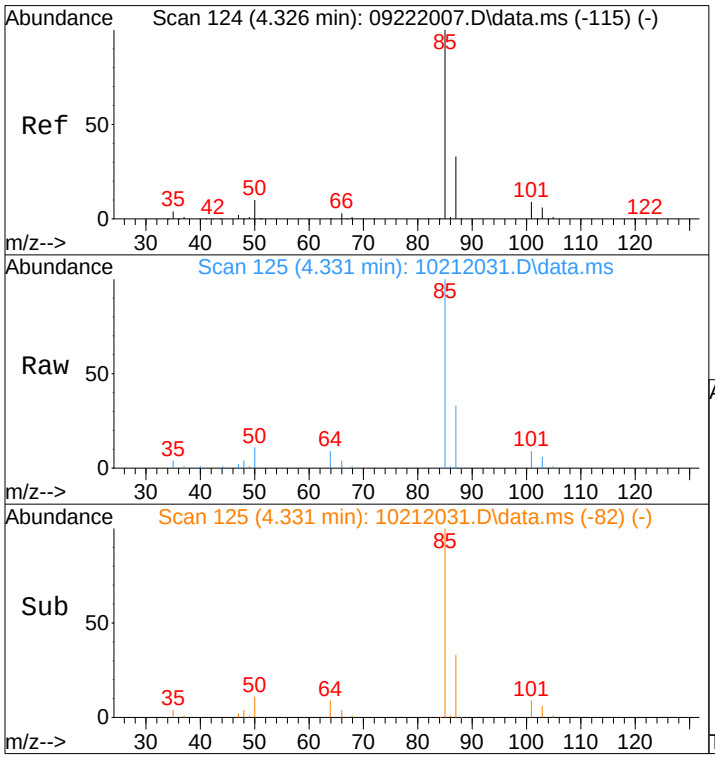


#2
Propene
Concen: 1.85 ng m
RT: 4.17 min Scan# 97
Delta R.T. -0.006 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 42 Resp: 25028

Ion	Ratio	Lower	Upper
42	100		
39	105.8	82.3	122.3
41	181.6	128.5	168.5#

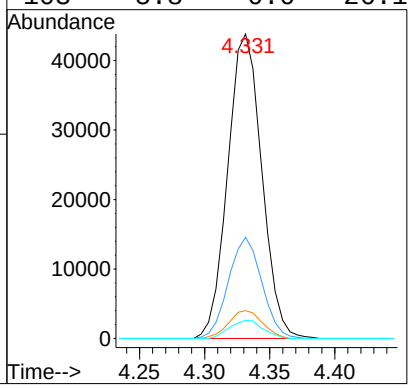


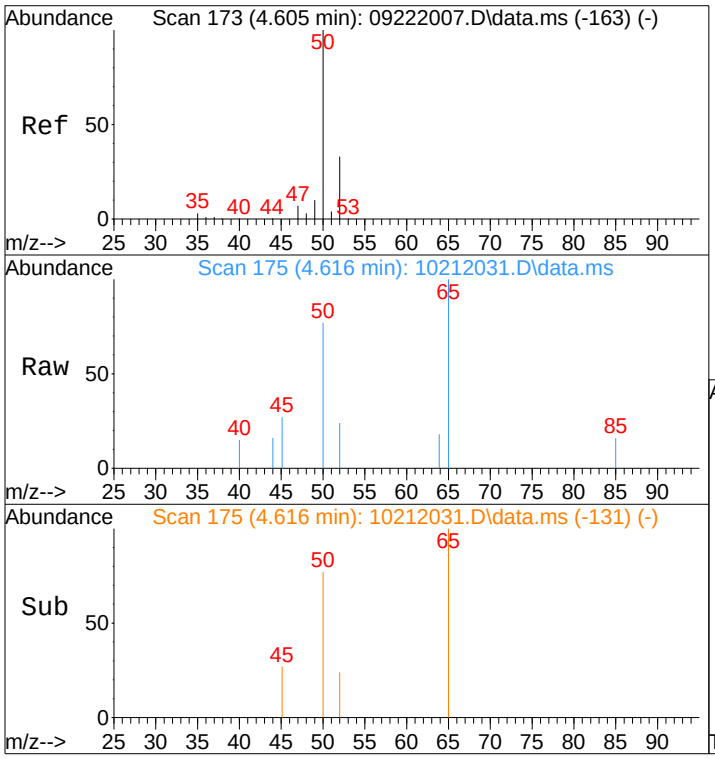


#3
Dichlorodifluoromethane (CFC 12)
Concen: 3.71 ng
RT: 4.33 min Scan# 125
Delta R.T. -0.006 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 85 Resp: 79760

Ion	Ratio	Lower	Upper
85	100		
87	32.6	12.7	52.7
101	9.1	0.0	29.3
103	5.8	0.0	26.1

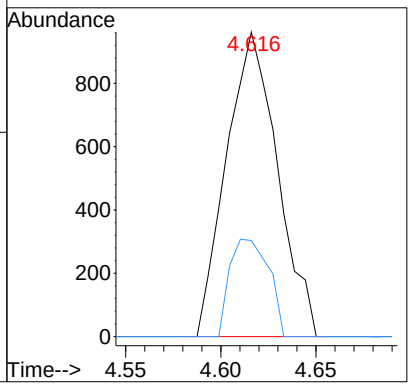


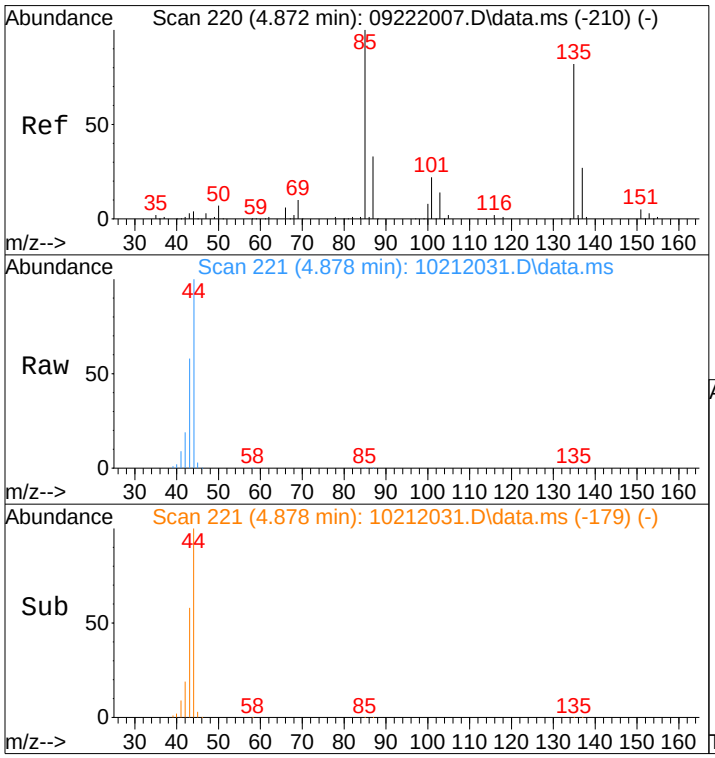


#4
Chloromethane
Concen: 0.12 ng
RT: 4.62 min Scan# 175
Delta R.T. -0.000 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 50 Resp: 1792

Ion	Ratio	Lower	Upper
50	100		
52	24.4	12.8	52.8

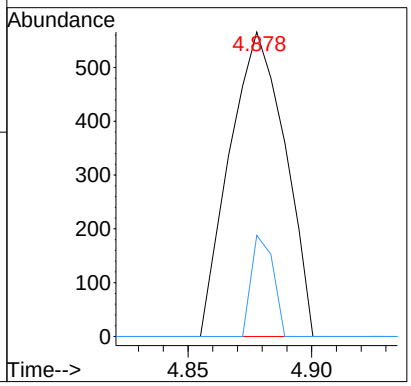


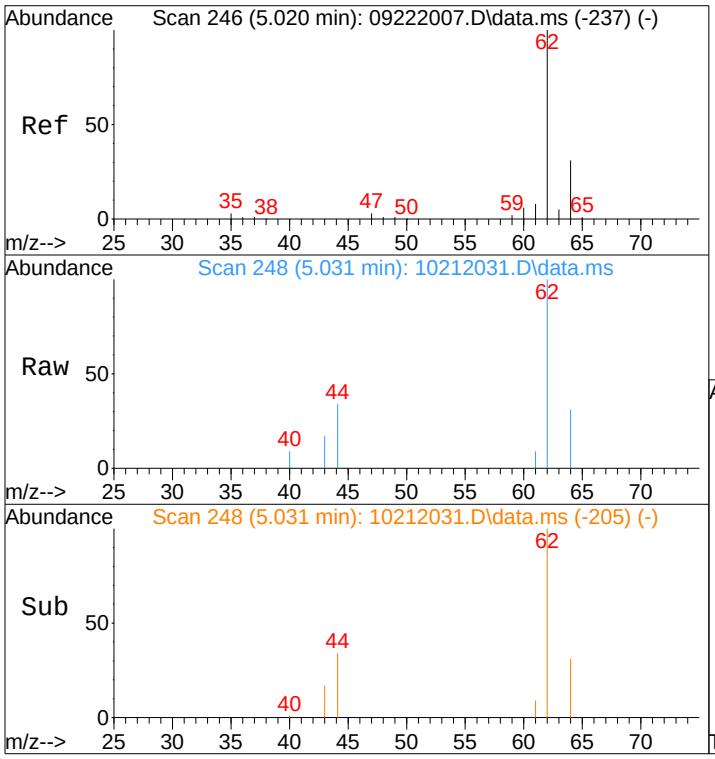


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.07 ng
RT: 4.88 min Scan# 221
Delta R.T. -0.011 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion:135 Resp: 880

Ion	Ratio	Lower	Upper
135	100		
137	13.2	12.3	52.3

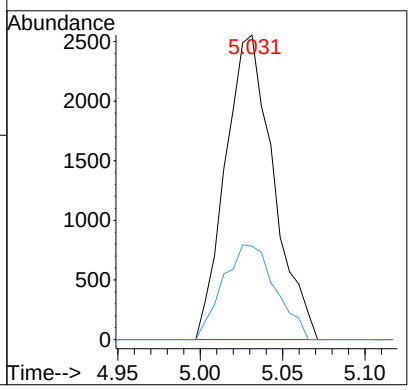


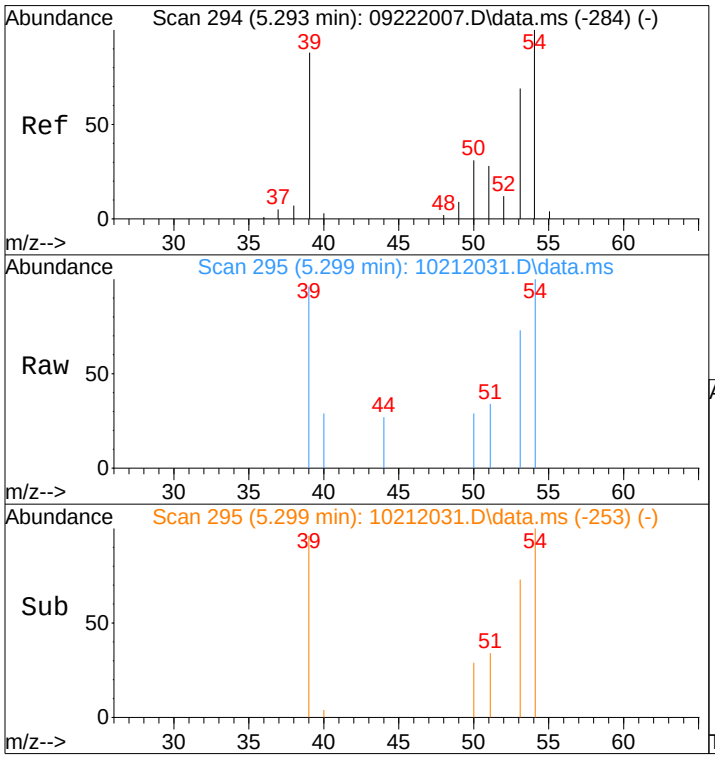


#6
Vinyl Chloride
Concen: 0.34 ng
RT: 5.03 min Scan# 248
Delta R.T. -0.006 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 62 Resp: 5167

Ion	Ratio	Lower	Upper
62	100		
64	34.0	11.9	51.9

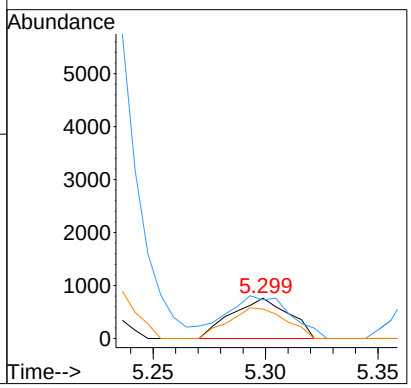


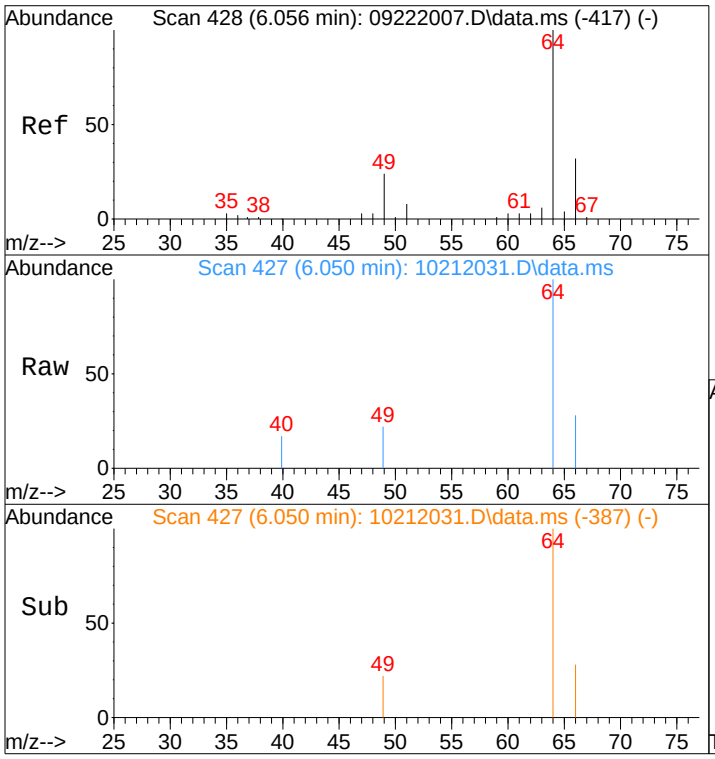


#7
1,3-Butadiene
Concen: 0.10 ng
RT: 5.30 min Scan# 295
Delta R.T. -0.011 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 54 Resp: 1353

Ion	Ratio	Lower	Upper
54	100		
39	116.1	70.6	110.6#
53	75.9	48.9	88.9

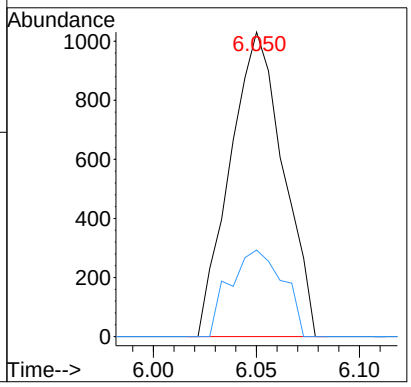


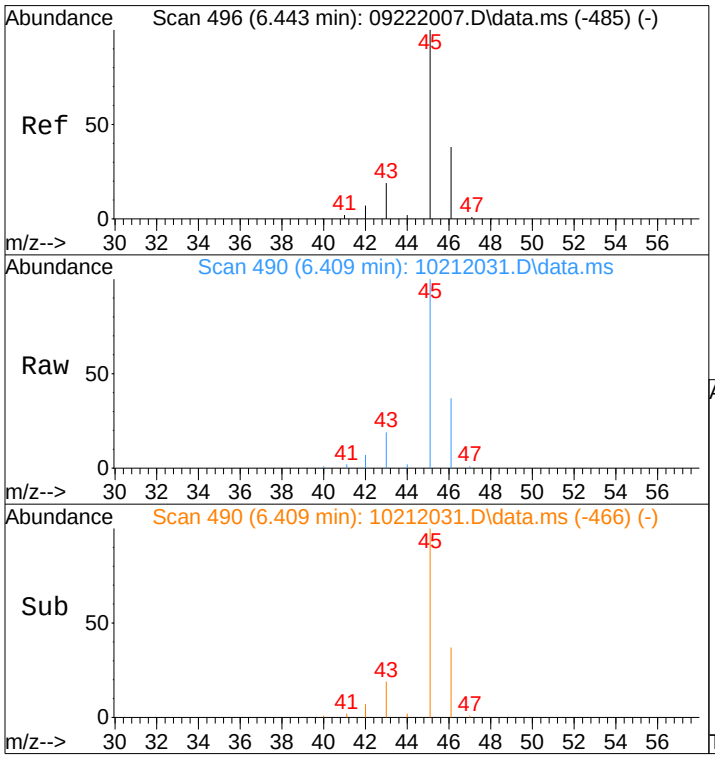


#9
Chloroethane
Concen: 0.22 ng
RT: 6.05 min Scan# 427
Delta R.T. -0.023 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 64 Resp: 1848

Ion	Ratio	Lower	Upper
64	100		
66	28.5	12.2	52.2

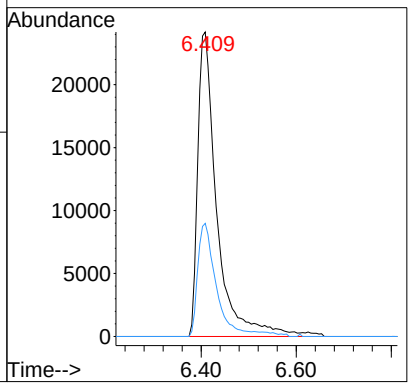


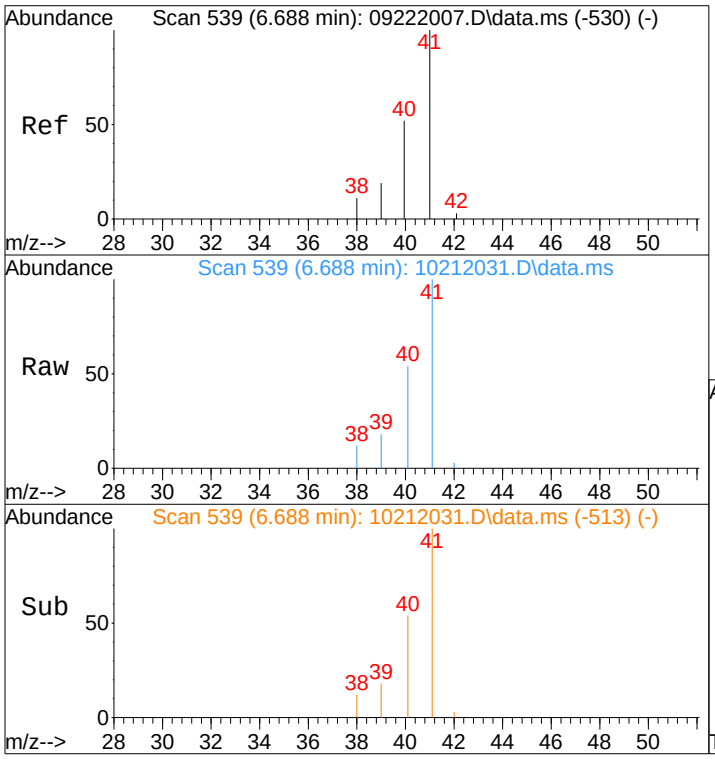


#10
Ethanol
Concen: 8.00 ng
RT: 6.41 min Scan# 490
Delta R.T. -0.114 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 45 Resp: 67571

Ion	Ratio	Lower	Upper
45	100		
46	36.9	18.1	58.1

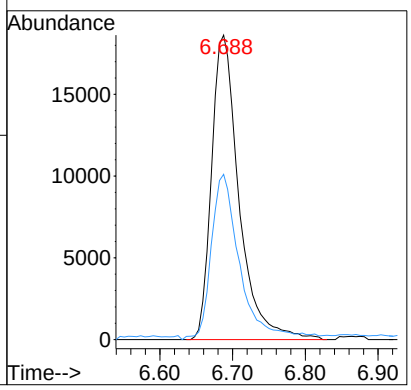


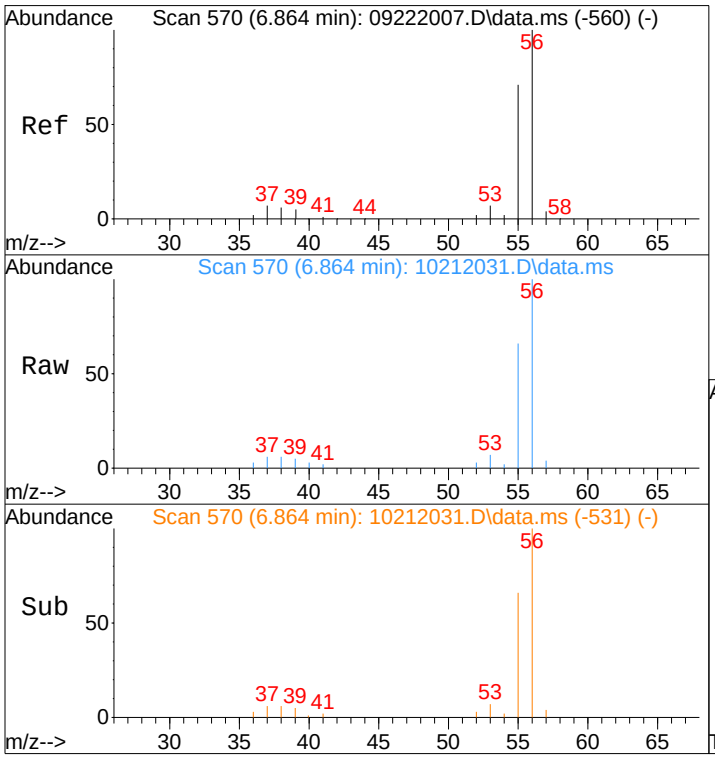


#11
Acetonitrile
Concen: 2.46 ng
RT: 6.69 min Scan# 539
Delta R.T. -0.051 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 41 Resp: 48872

Ion	Ratio	Lower	Upper
41	100		
40	63.1	33.0	73.0

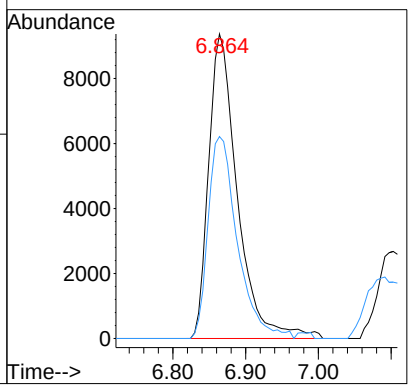


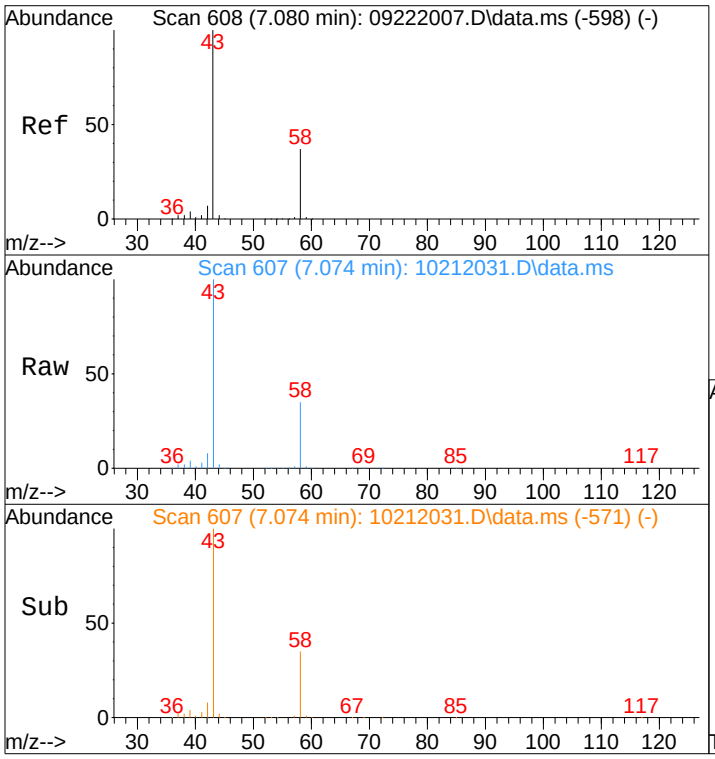


#12
Acrolein
Concen: 3.47 ng
RT: 6.86 min Scan# 570
Delta R.T. -0.029 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 56 Resp: 25668

Ion	Ratio	Lower	Upper
56	100		
55	67.7	49.7	89.7

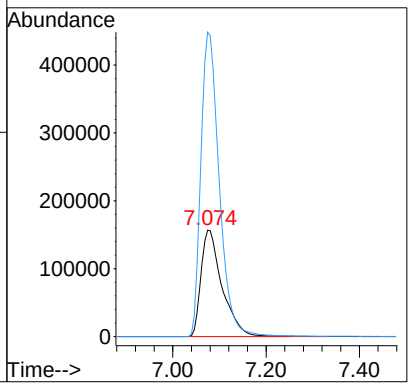


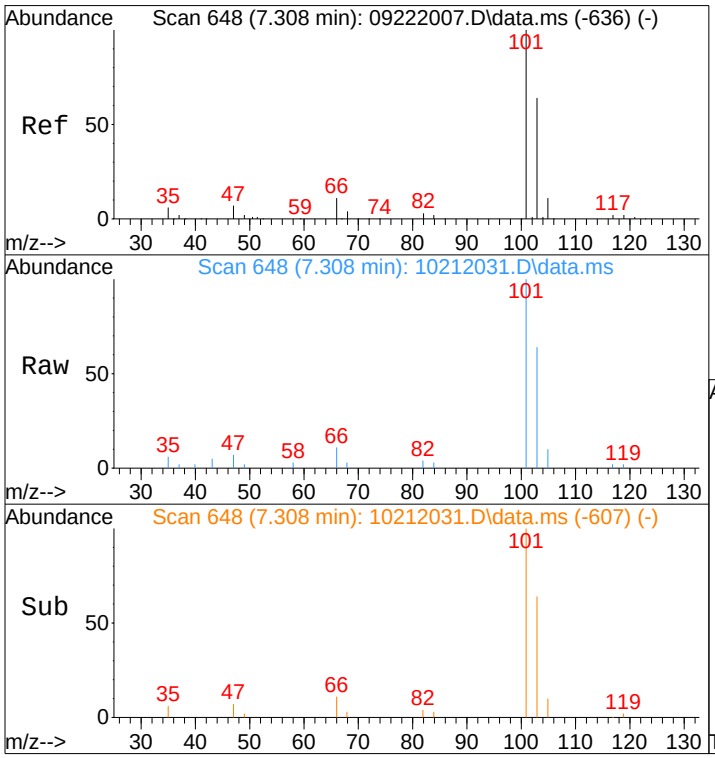


#13
Acetone
Concen: 55.92 ng
RT: 7.07 min Scan# 607
Delta R.T. -0.046 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 58 Resp: 492386

Ion	Ratio	Lower	Upper
58	100		
43	250.1	241.6	301.6

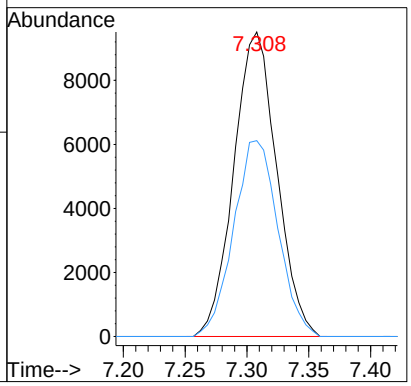


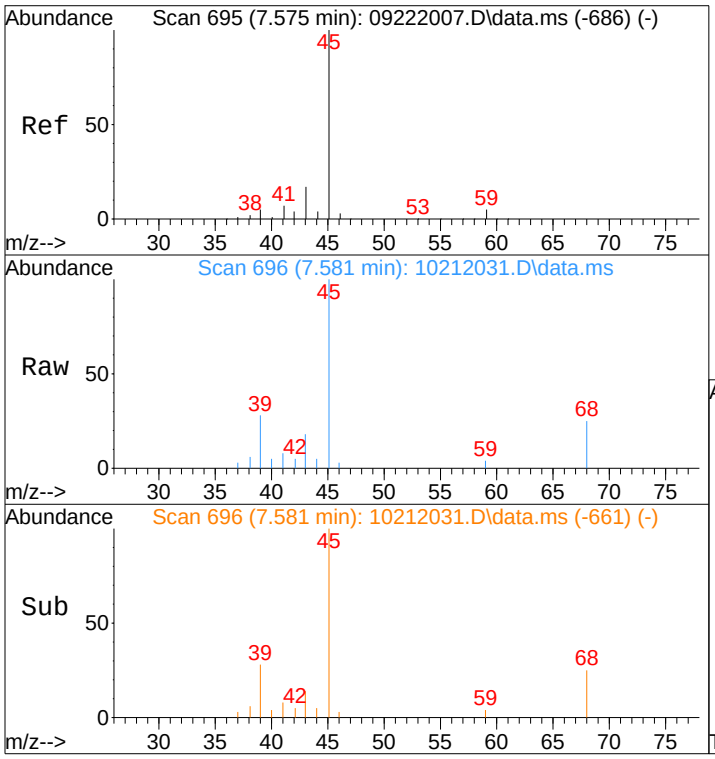


#14
Trichlorofluoromethane
Concen: 1.19 ng
RT: 7.31 min Scan# 648
Delta R.T. -0.017 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion:101 Resp: 23052

Ion	Ratio	Lower	Upper
101	100		
103	66.4	45.3	85.3

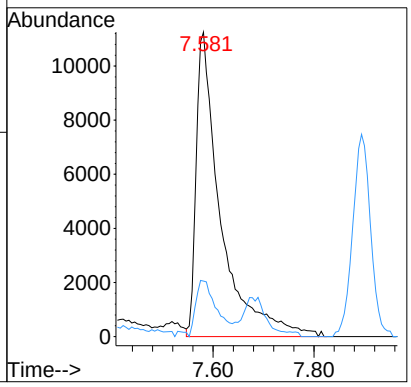


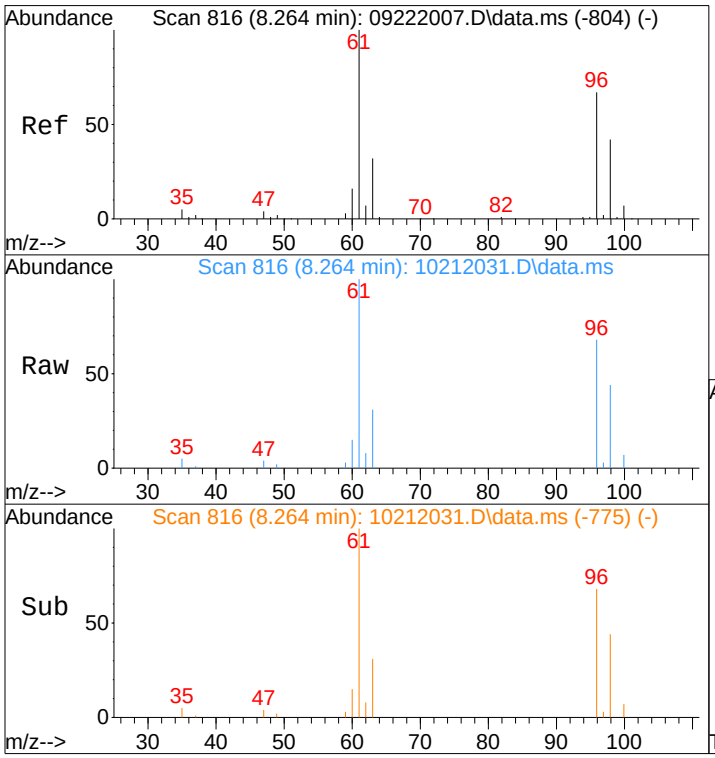


#15
2-Propanol (Isopropanol)
Concen: 1.43 ng
RT: 7.58 min Scan# 696
Delta R.T. -0.051 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 45 Resp: 37885

Ion	Ratio	Lower	Upper
45	100		
43	17.2	0.0	37.0

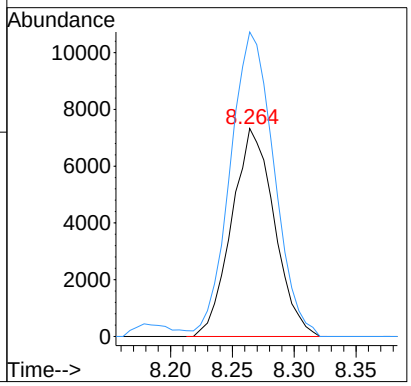


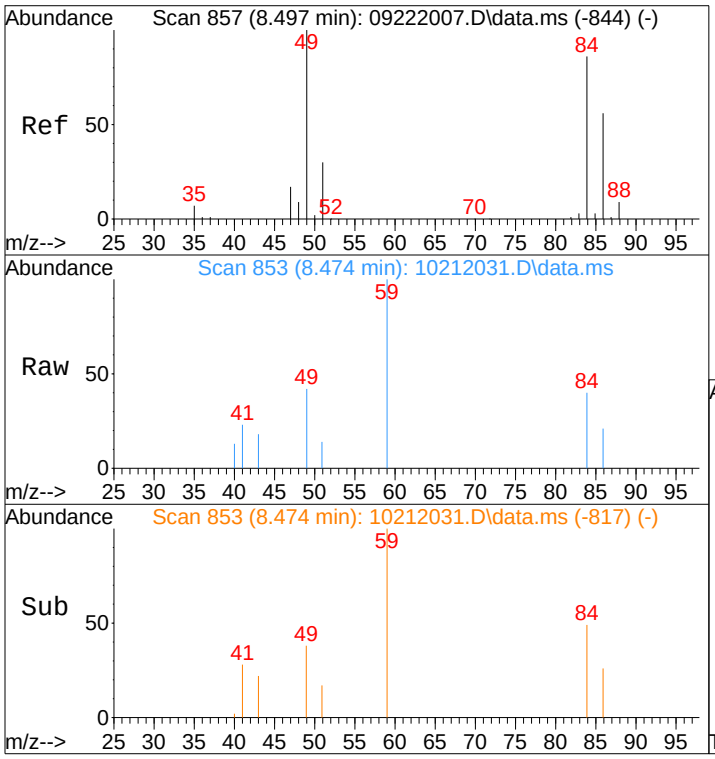


#17
1,1-Dichloroethene
Concen: 1.55 ng
RT: 8.26 min Scan# 816
Delta R.T. -0.017 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 96 Resp: 17597

Ion	Ratio	Lower	Upper
96	100		
61	150.2	129.6	169.6

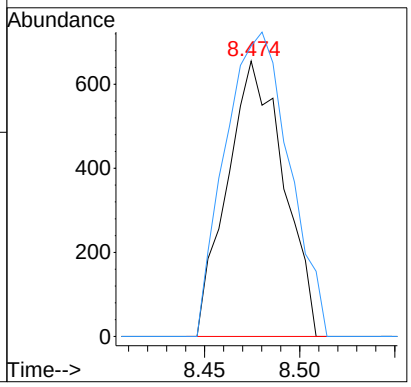


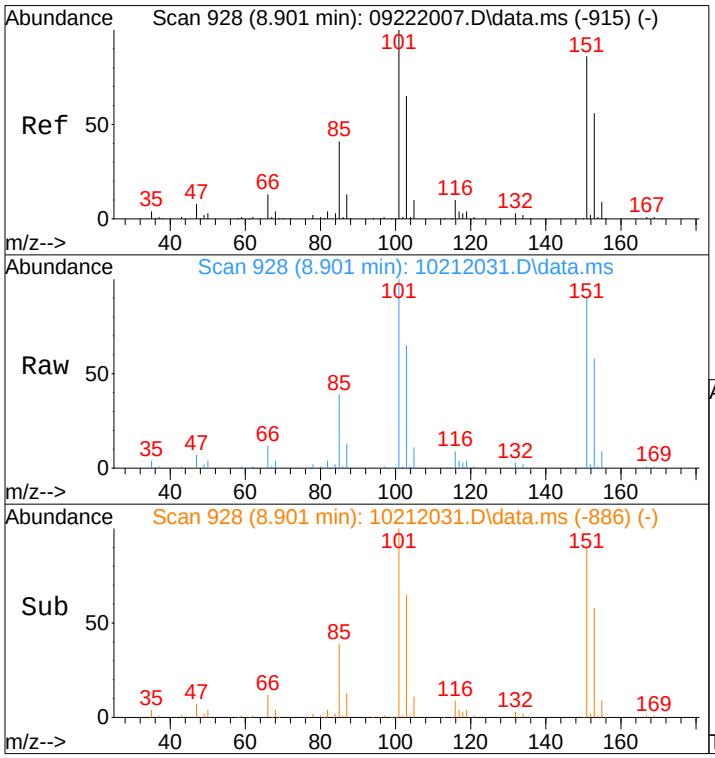


#19
Methylene Chloride
Concen: 0.12 ng
RT: 8.47 min Scan# 853
Delta R.T. -0.046 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 84 Resp: 1351

Ion	Ratio	Lower	Upper
84	100		
49	125.6	92.0	142.0

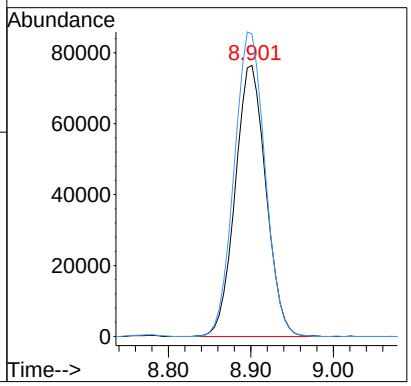


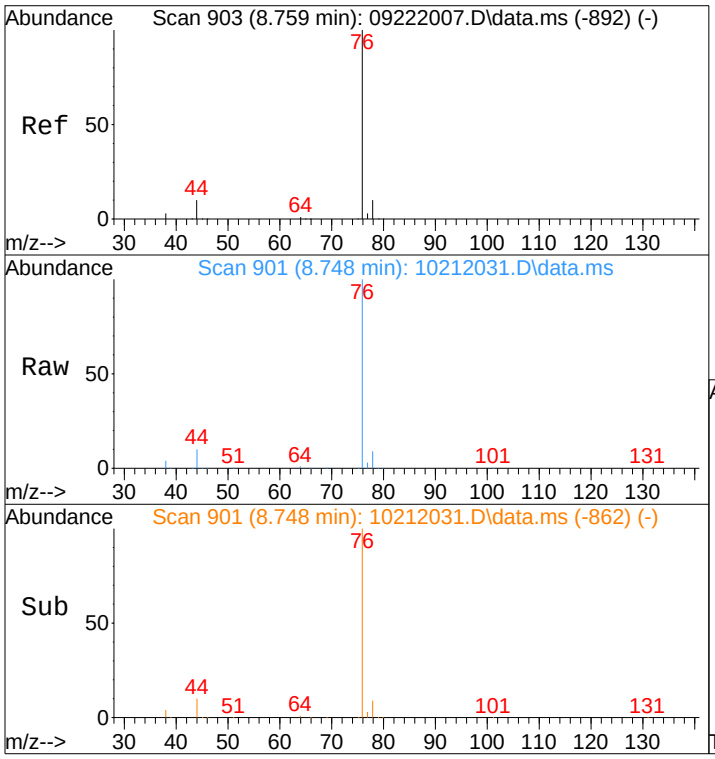


#21
Trichlorotrifluoroethane
Concen: 18.71 ng
RT: 8.90 min Scan# 928
Delta R.T. -0.012 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion:151 Resp: 198417

Ion	Ratio	Lower	Upper
151	100		
101	113.0	96.1	136.1

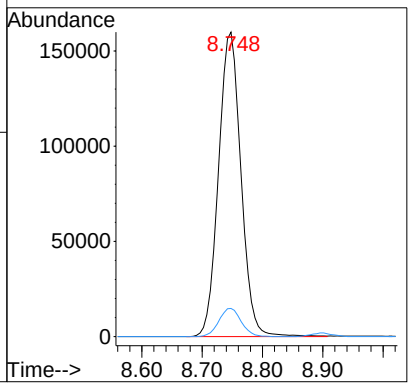


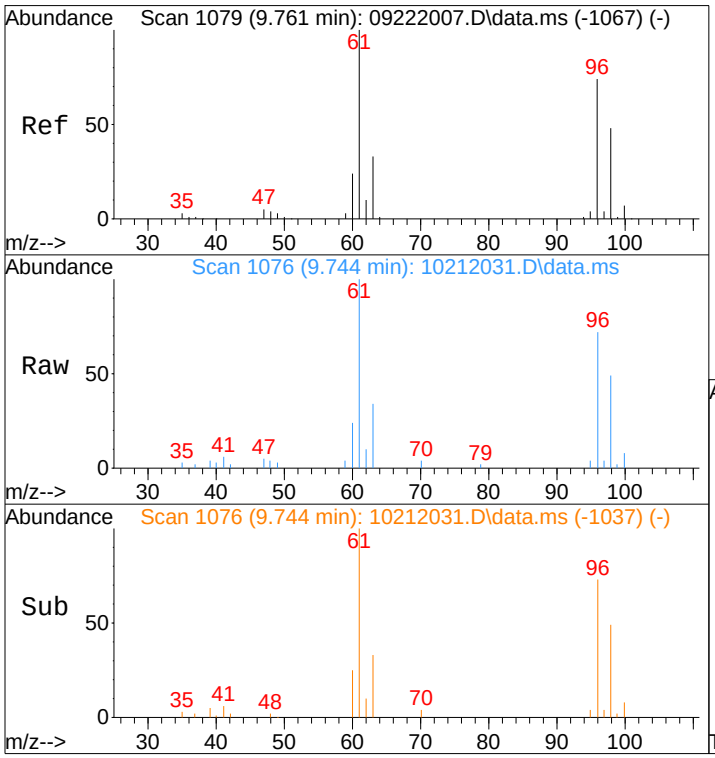


#22
Carbon Disulfide
Concen: 9.48 ng
RT: 8.75 min Scan# 901
Delta R.T. -0.028 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 76 Resp: 413140

Ion	Ratio	Lower	Upper
76	100		
78	9.2	0.0	29.4

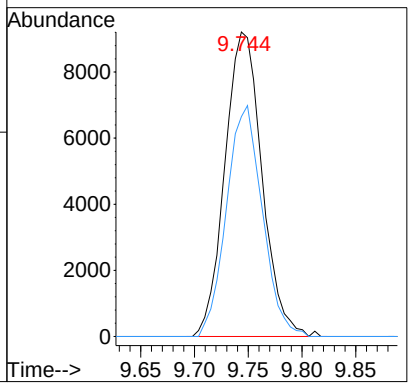


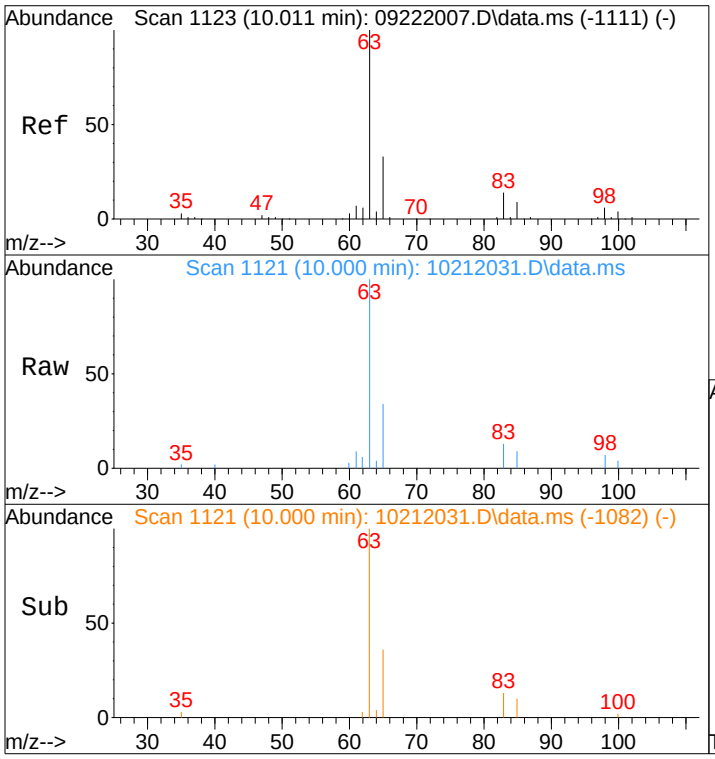


#23
trans-1,2-Dichloroethene
Concen: 1.51 ng
RT: 9.74 min Scan# 1076
Delta R.T. -0.028 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 61 Resp: 22164

Ion	Ratio	Lower	Upper
61	100		
96	73.0	54.6	94.6

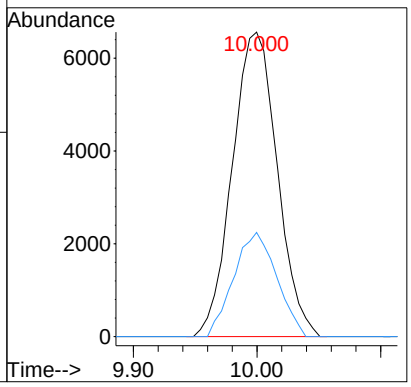


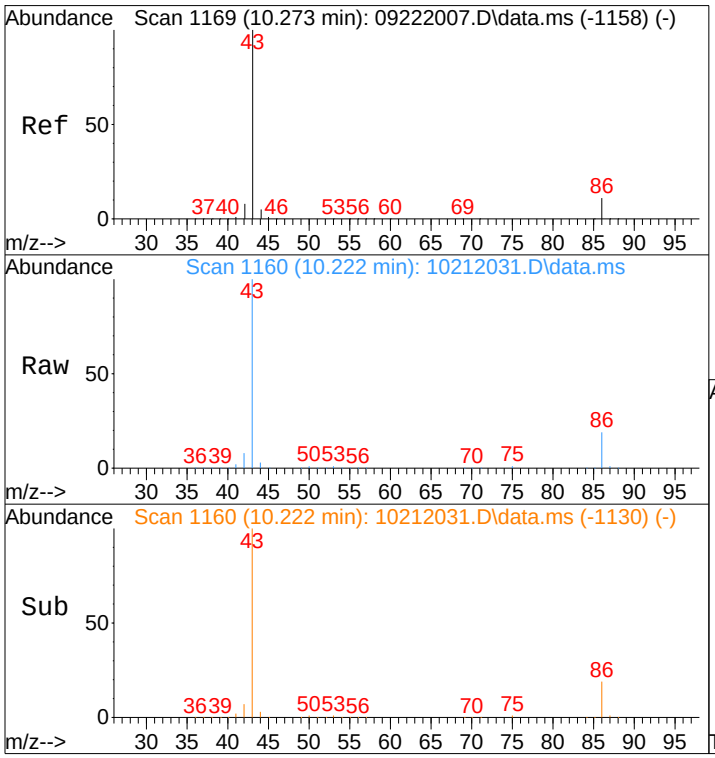


#24
1,1-Dichloroethane
Concen: 0.86 ng
RT: 10.00 min Scan# 1121
Delta R.T. -0.028 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 63 Resp: 16579

Ion	Ratio	Lower	Upper
63	100		
65	32.7	12.1	52.1

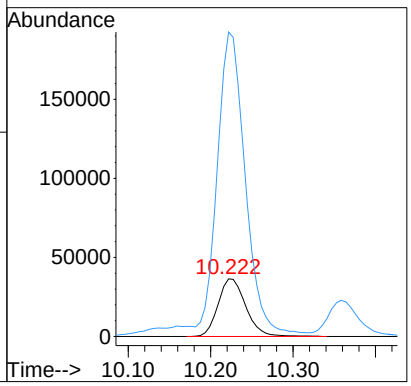


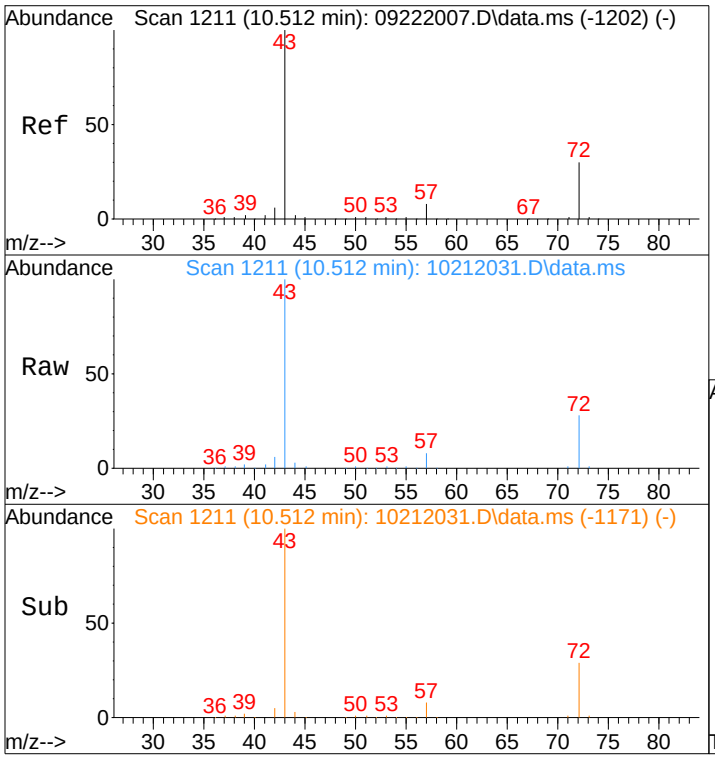


#26
Vinyl Acetate
Concen: 33.80 ng
RT: 10.22 min Scan# 1160
Delta R.T. -0.079 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 86 Resp: 85196

Ion	Ratio	Lower	Upper
86	100		
43	536.4	899.9	939.9#

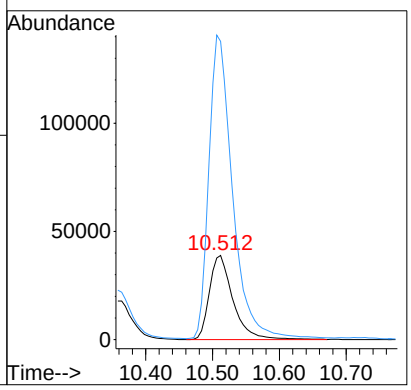


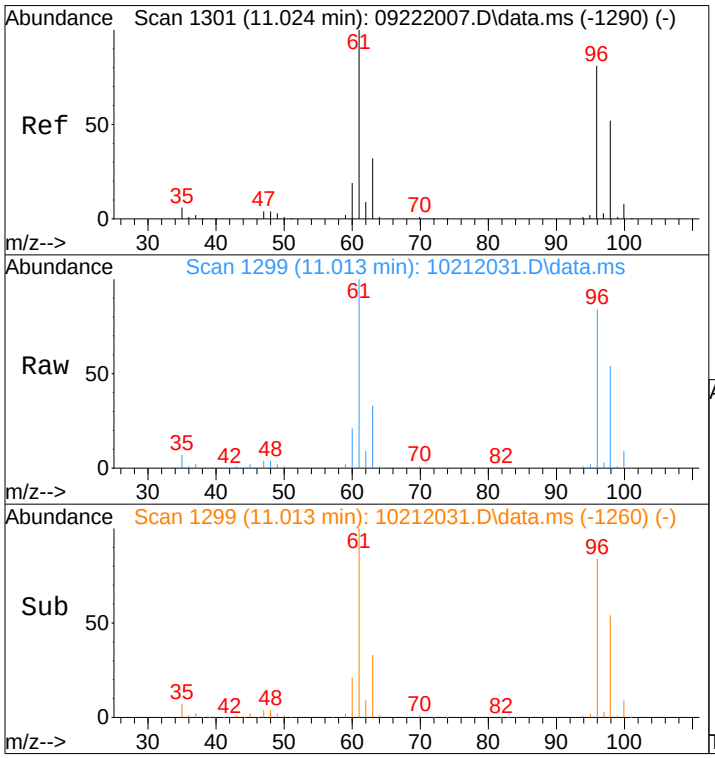


#27
2-Butanone (MEK)
Concen: 13.37 ng
RT: 10.51 min Scan# 1211
Delta R.T. -0.023 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 72 Resp: 95510

Ion	Ratio	Lower	Upper
72	100		
43	361.0	328.5	368.5

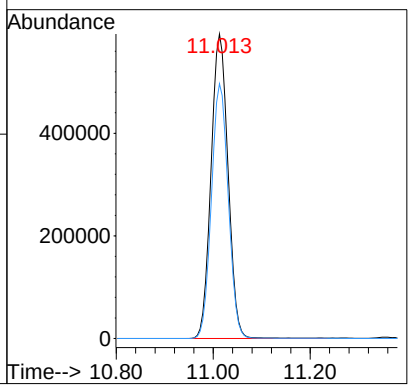


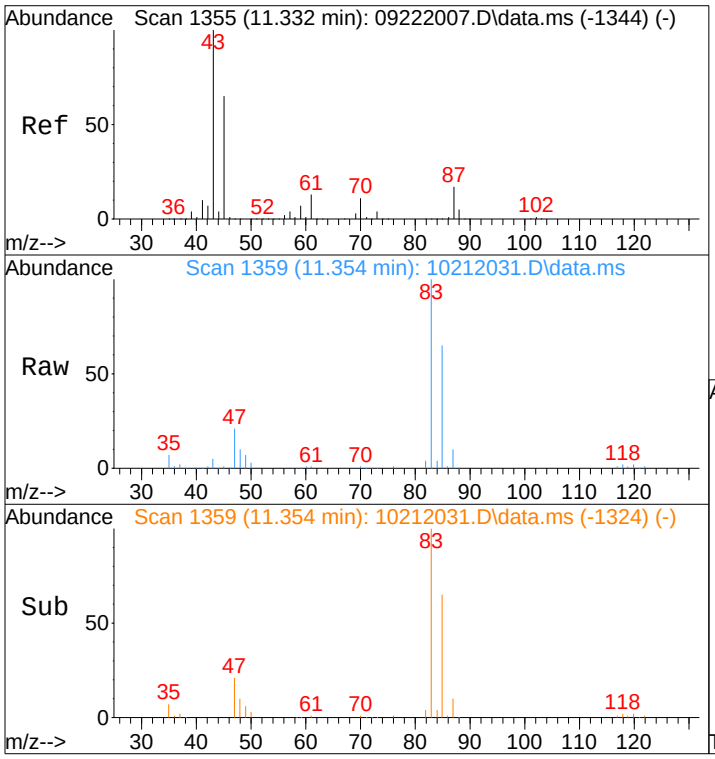


#28
cis-1,2-Dichloroethene
Concen: 99.12 ng
RT: 11.01 min Scan# 1299
Delta R.T. -0.028 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 61 Resp: 1444904

Ion	Ratio	Lower	Upper
61	100		
96	82.8	63.1	103.1

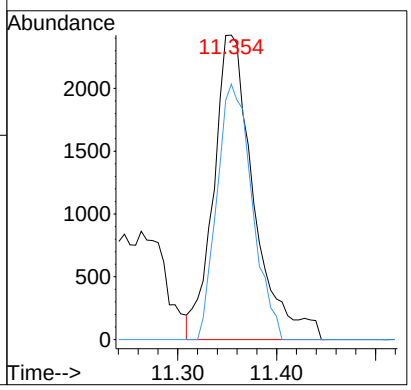


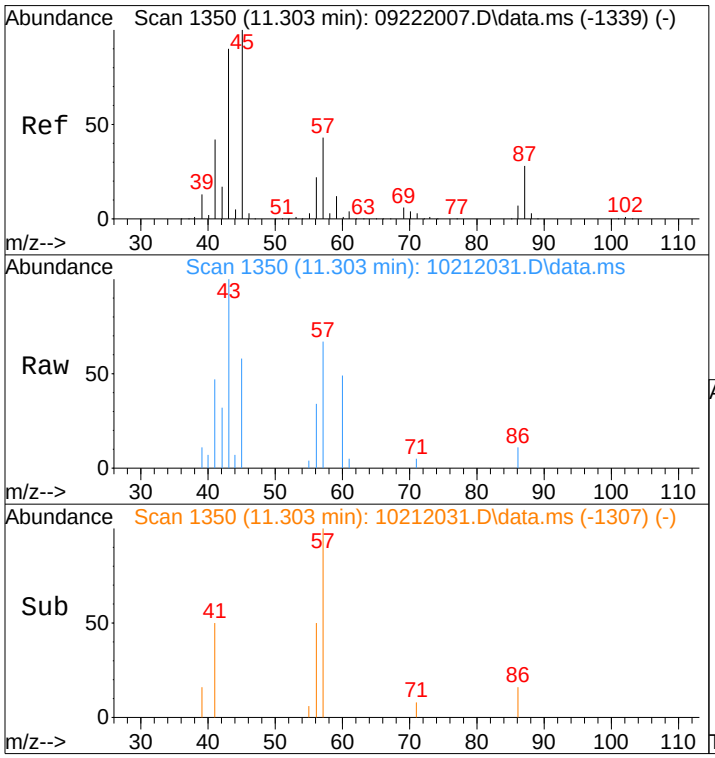


#30
Ethyl Acetate
Concen: 1.69 ng
RT: 11.35 min Scan# 1359
Delta R.T. 0.000 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 61 Resp: 6833

Ion	Ratio	Lower	Upper
61	100		
70	73.2	63.8	103.8

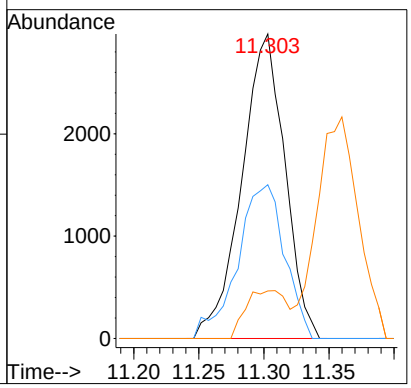


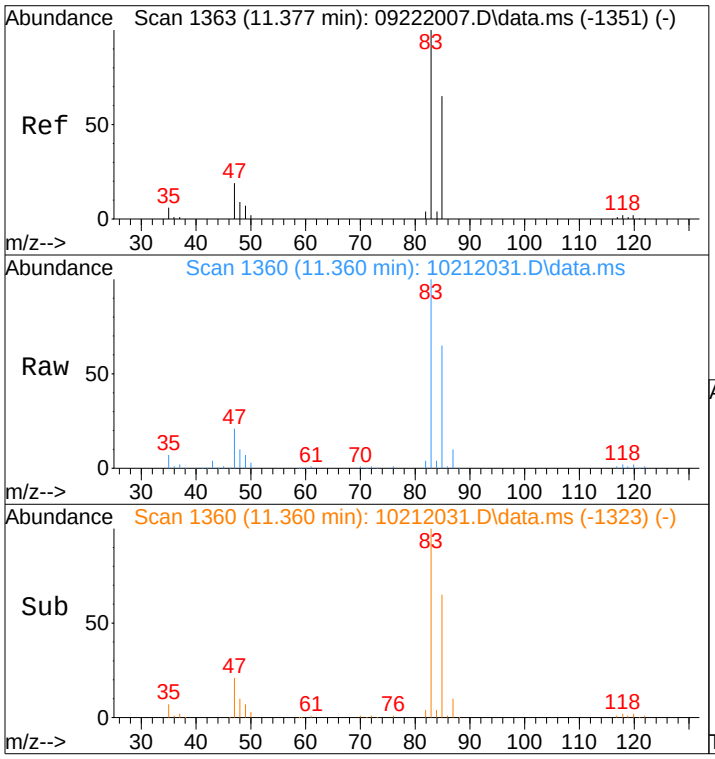


#31
n-Hexane
Concen: 0.39 ng
RT: 11.30 min Scan# 1350
Delta R.T. -0.006 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 57 Resp: 6868

Ion	Ratio	Lower	Upper
57	100		
56	55.1	40.6	61.0
86	14.9	13.2	19.8

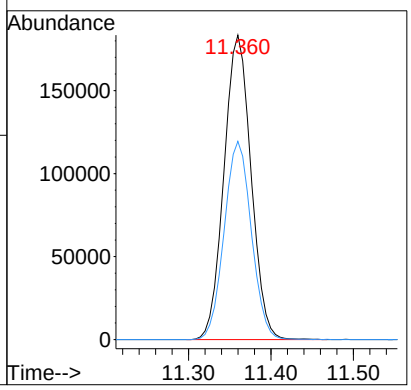


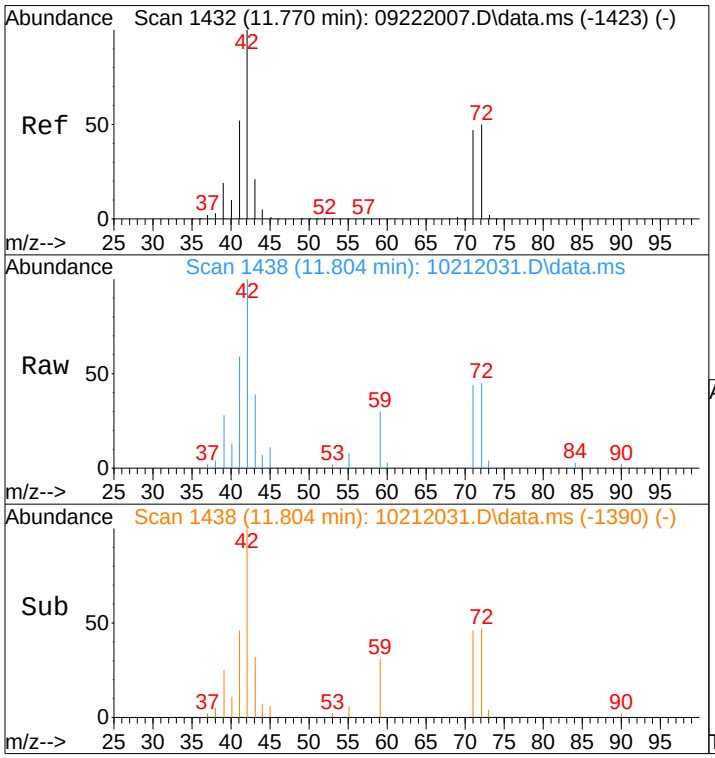


#32
Chloroform
Concen: 22.52 ng
RT: 11.36 min Scan# 1360
Delta R.T. -0.040 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 83 Resp: 418157

Ion	Ratio	Lower	Upper
83	100		
85	65.3	45.5	85.5

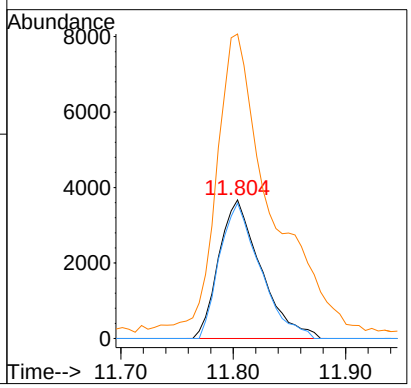


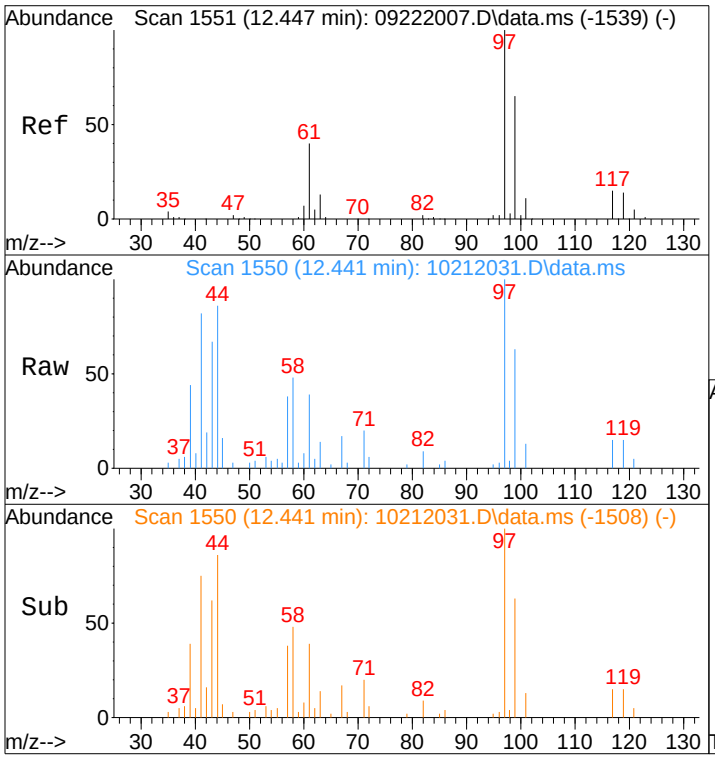


#34
Tetrahydrofuran (THF)
Concen: 1.28 ng
RT: 11.80 min Scan# 1438
Delta R.T. 0.023 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 72 Resp: 9551

Ion	Ratio	Lower	Upper
72	100		
71	94.5	75.4	115.4
42	306.3	183.2	223.2#

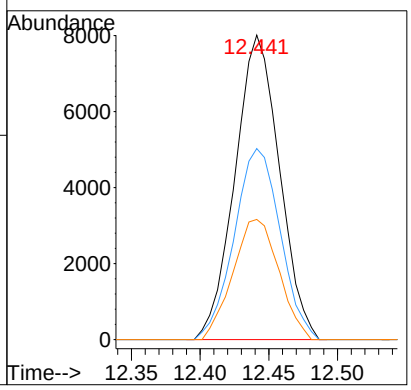


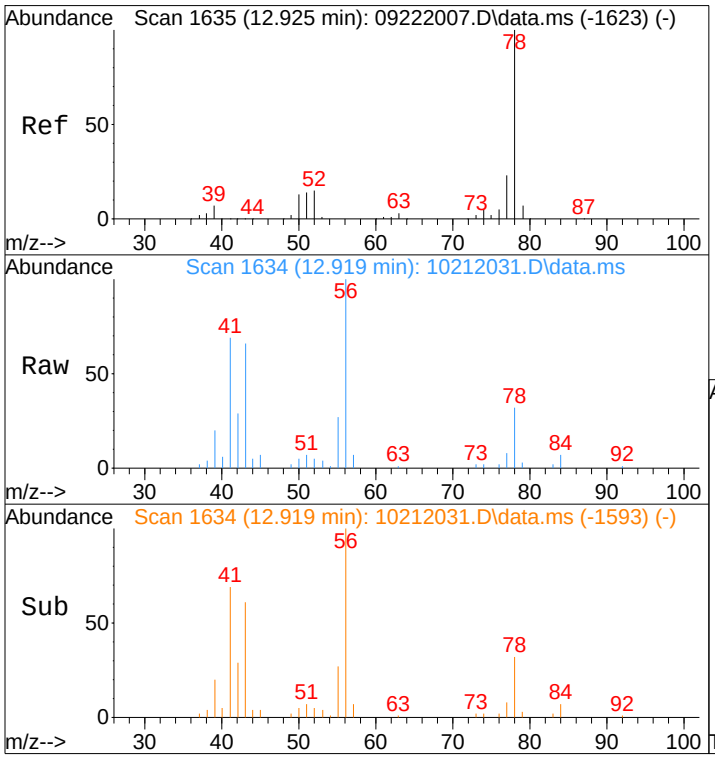


#38
1,1,1-Trichloroethane
Concen: 1.11 ng
RT: 12.44 min Scan# 1550
Delta R.T. -0.011 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 97 Resp: 18088

Ion	Ratio	Lower	Upper
97	100		
99	64.8	44.9	84.9
61	40.7	19.4	59.4

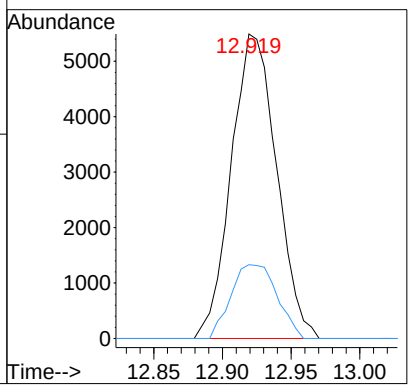


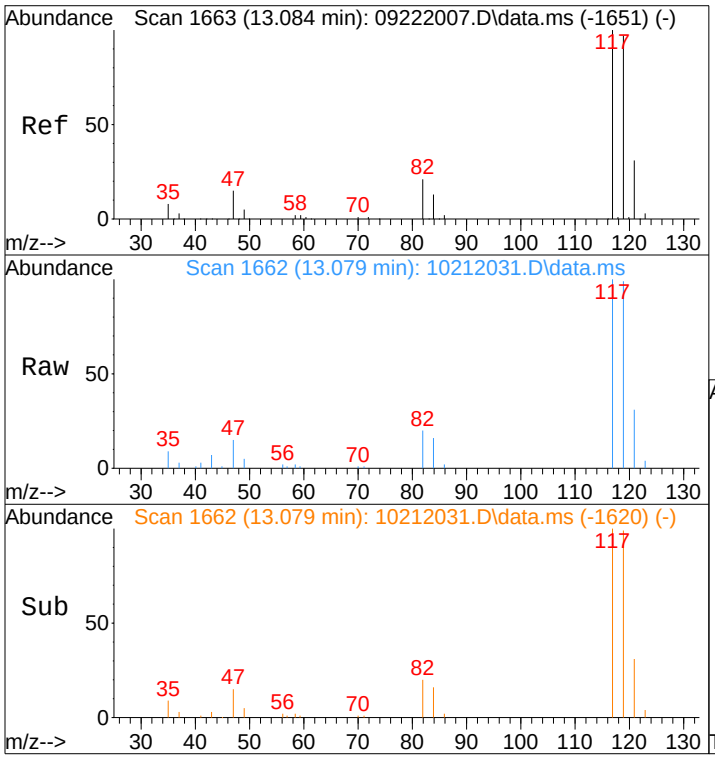


#41
Benzene
Concen: 0.28 ng
RT: 12.92 min Scan# 1634
Delta R.T. -0.017 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 78 Resp: 12573

Ion	Ratio	Lower	Upper
78	100		
77	24.7	3.3	43.3

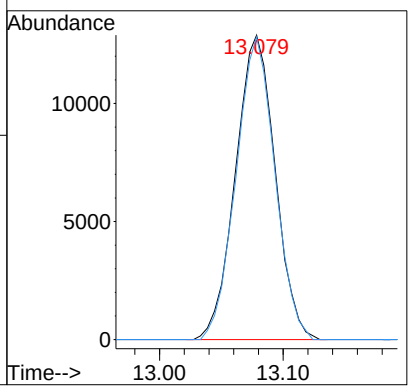


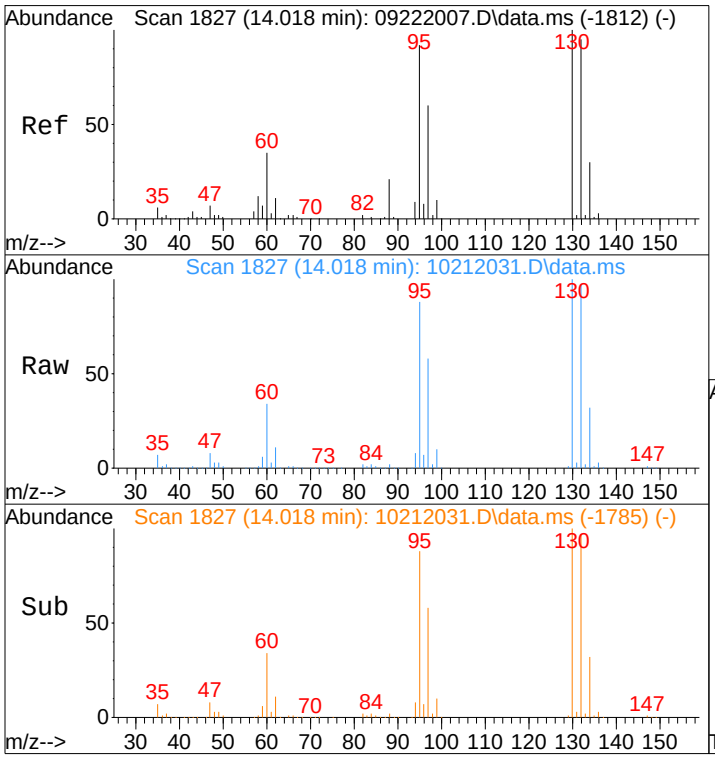


#42
Carbon Tetrachloride
Concen: 1.89 ng
RT: 13.08 min Scan# 1662
Delta R.T. -0.011 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion:117 Resp: 28813

Ion	Ratio	Lower	Upper
117	100		
119	97.0	76.2	116.2

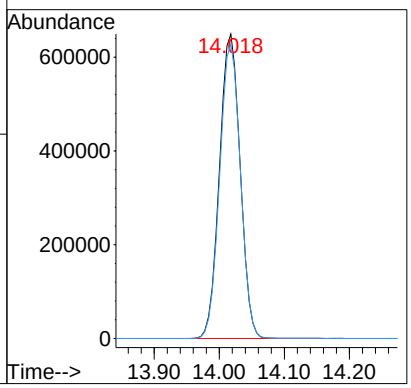


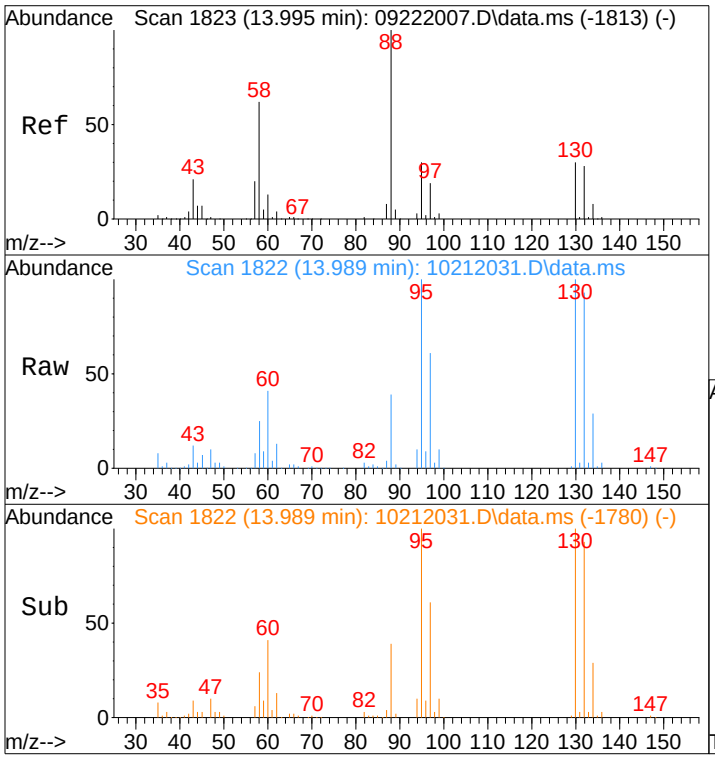


#47
Trichloroethene
Concen: 113.80 ng
RT: 14.02 min Scan# 1827
Delta R.T. -0.011 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion:130 Resp: 1432399

Ion	Ratio	Lower	Upper
130	100		
132	96.8	75.5	115.5

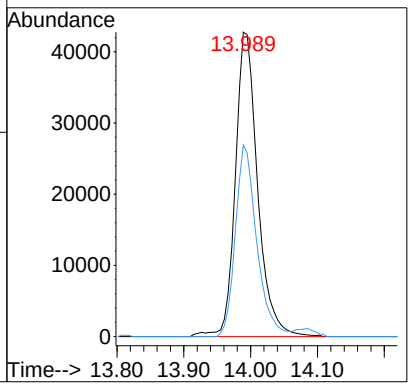


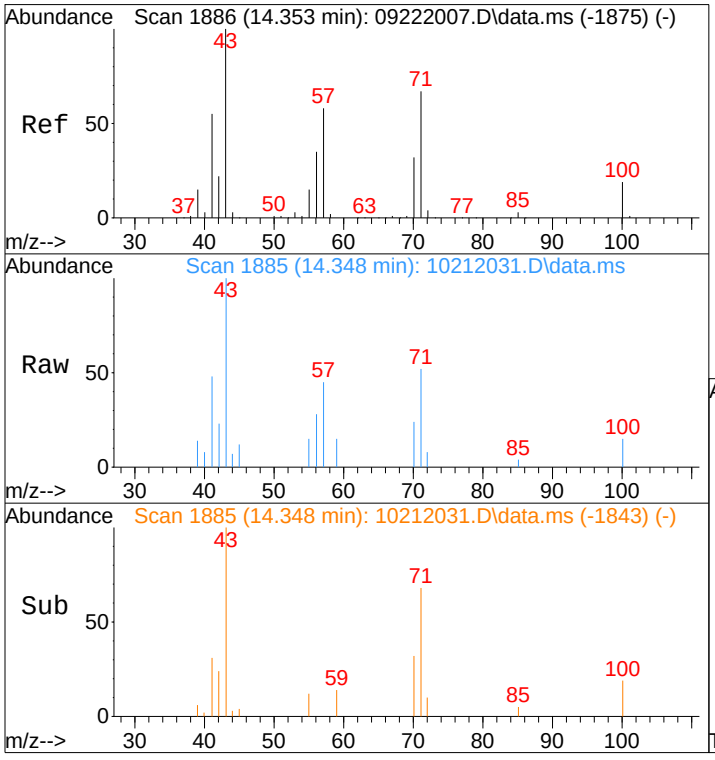


#48
1,4-Dioxane
Concen: 11.67 ng
RT: 13.99 min Scan# 1822
Delta R.T. -0.012 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 88 Resp: 99236

Ion	Ratio	Lower	Upper
88	100		
58	60.2	41.0	81.0

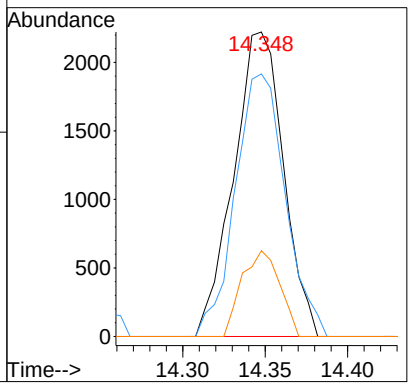


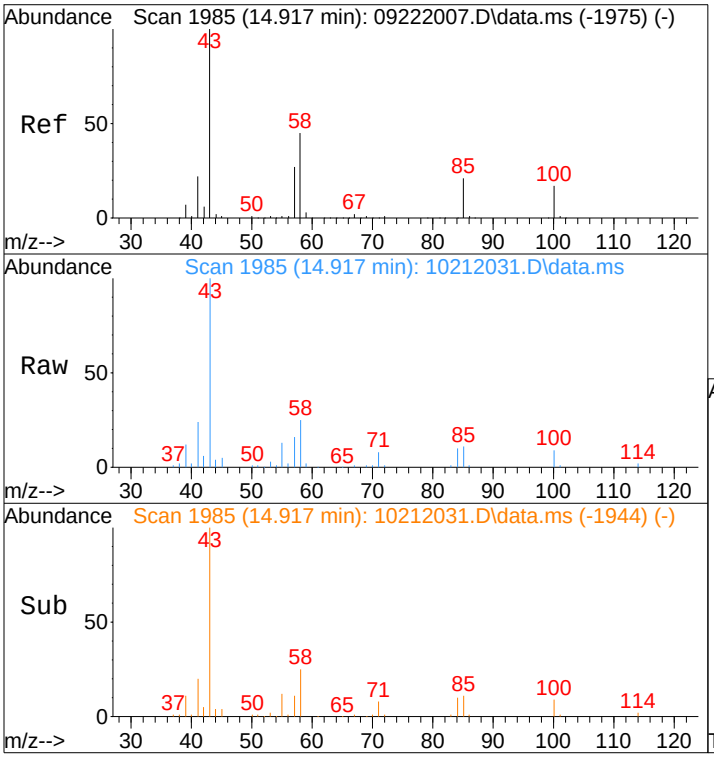


#51
n-Heptane
Concen: 0.41 ng
RT: 14.35 min Scan# 1885
Delta R.T. -0.011 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 71 Resp: 4667

Ion	Ratio	Lower	Upper
71	100		
57	86.5	67.7	107.7
100	21.5	9.1	49.1

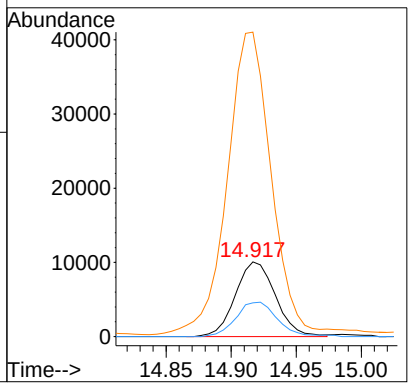


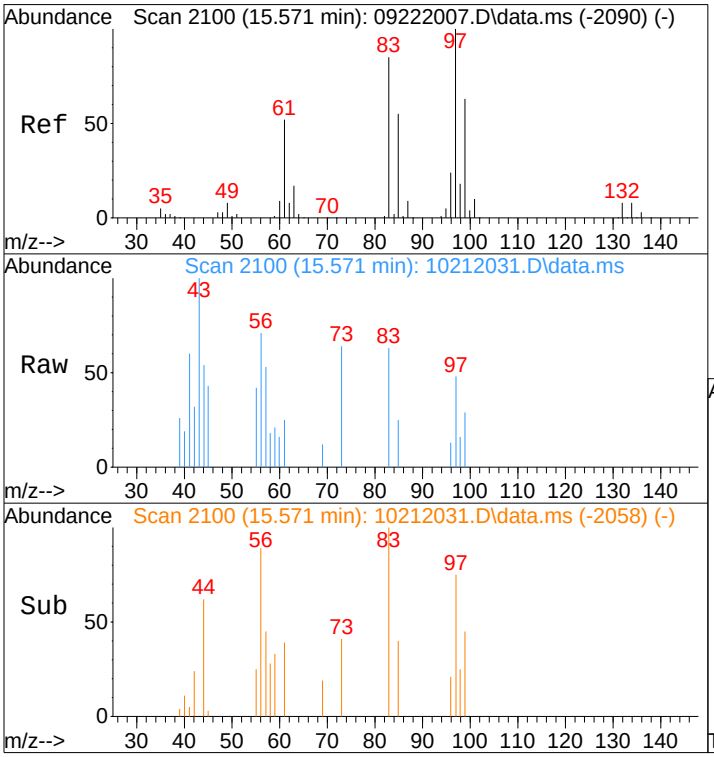


#53
4-Methyl-2-pentanone
Concen: 2.46 ng
RT: 14.92 min Scan# 1985
Delta R.T. -0.017 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 58 Resp: 21622

Ion	Ratio	Lower	Upper
58	100		
85	47.7	37.3	55.9
43	449.6	178.9	268.3#

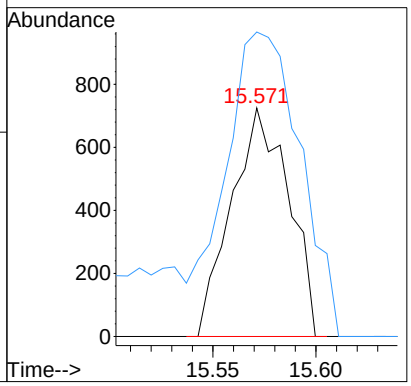


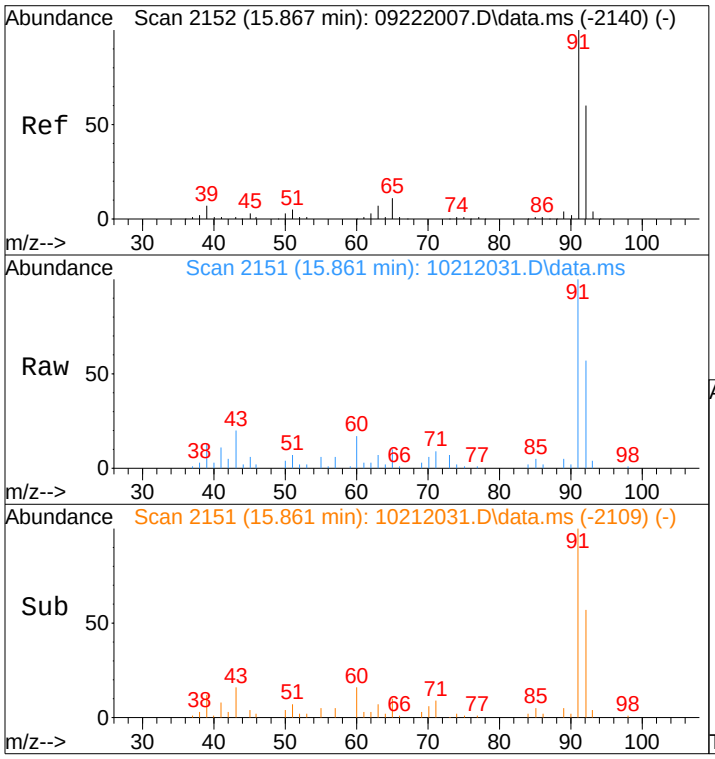


#55
1,1,2-Trichloroethane
Concen: 0.13 ng
RT: 15.57 min Scan# 2100
Delta R.T. -0.012 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 97 Resp: 1398

Ion	Ratio	Lower	Upper
97	100		
83	175.0	65.3	105.3#

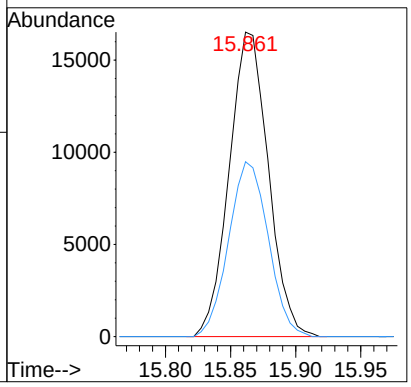


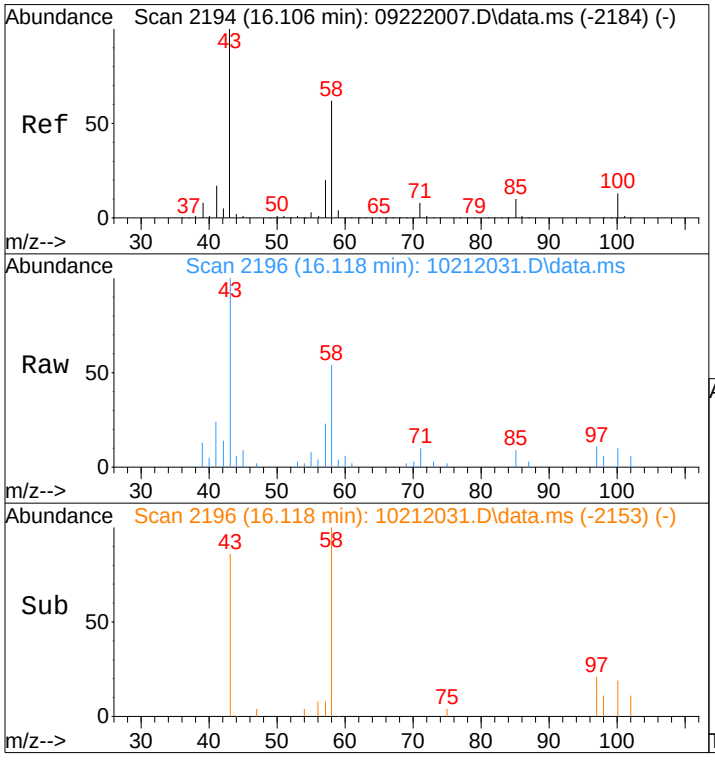


#58
Toluene
Concen: 0.73 ng
RT: 15.86 min Scan# 2151
Delta R.T. -0.011 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 91 Resp: 34535

Ion	Ratio	Lower	Upper
91	100		
92	58.1	39.6	79.6

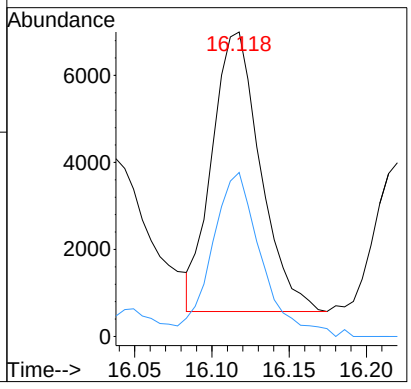


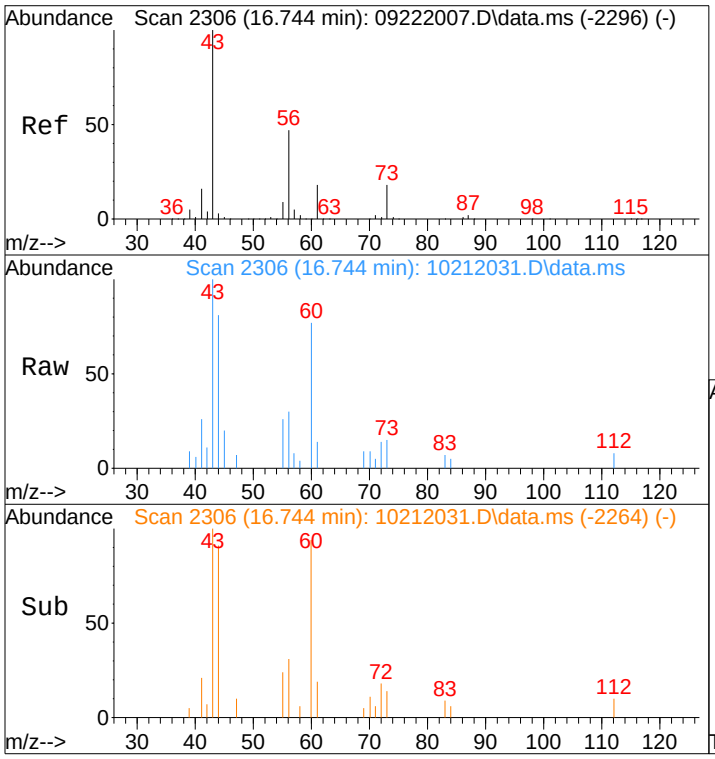


#59
2-Hexanone
Concen: 0.74 ng
RT: 16.12 min Scan# 2196
Delta R.T. -0.005 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 43 Resp: 14011

Ion	Ratio	Lower	Upper
43	100		
58	59.5	42.3	82.3

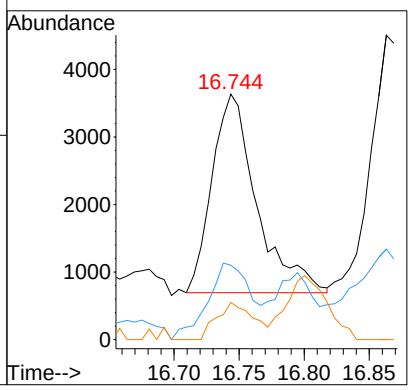


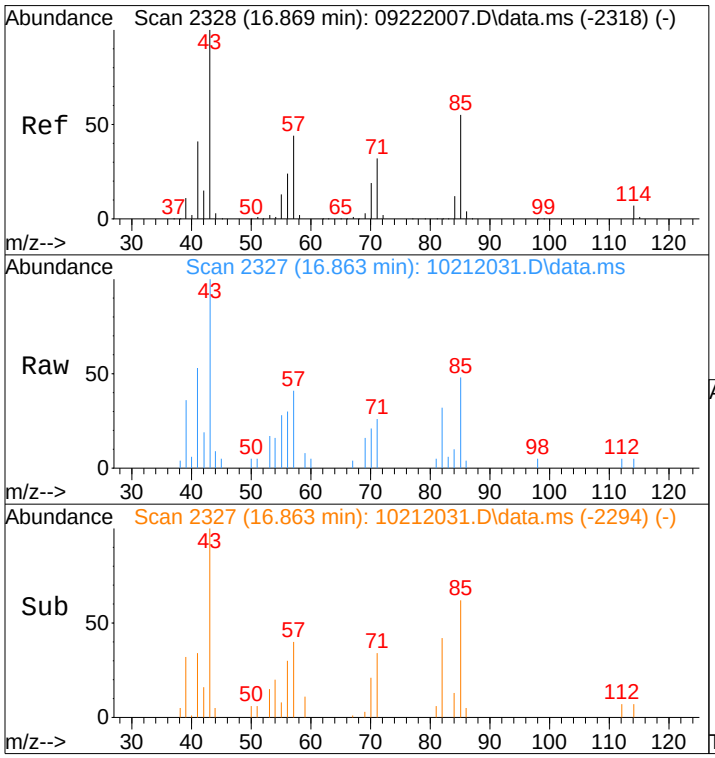


#62
n-Butyl Acetate
Concen: 0.34 ng
RT: 16.74 min Scan# 2306
Delta R.T. -0.011 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 43 Resp: 7024

Ion	Ratio	Lower	Upper
43	100		
56	36.7	26.3	66.3
73	15.5	0.0	37.6

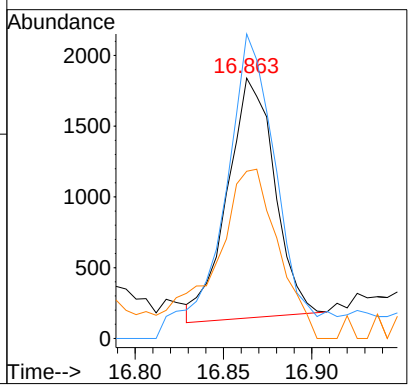


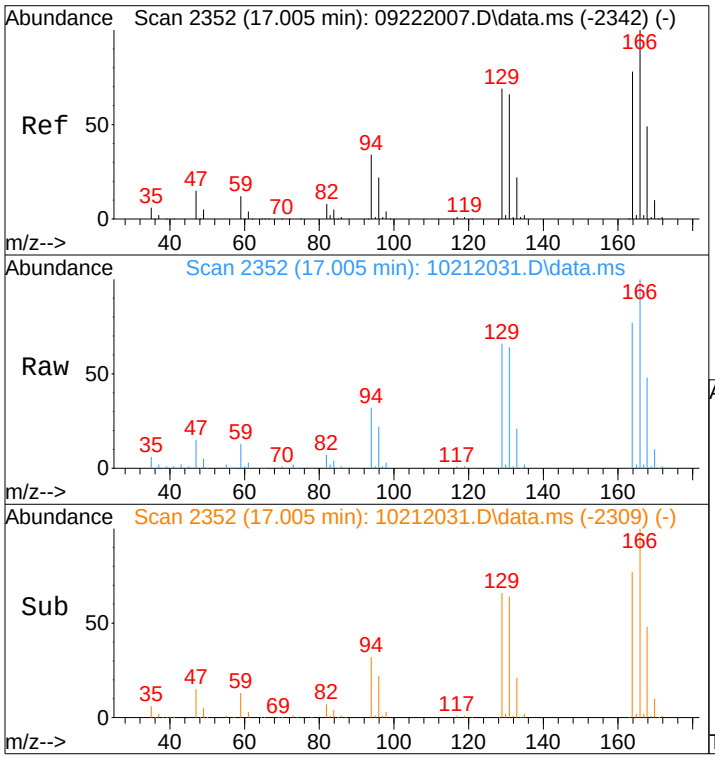


#63
n-Octane
Concen: 0.33 ng
RT: 16.86 min Scan# 2327
Delta R.T. -0.011 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 57 Resp: 3165

Ion	Ratio	Lower	Upper
57	100		
85	152.8	97.0	145.6#
71	94.8	57.8	86.8#

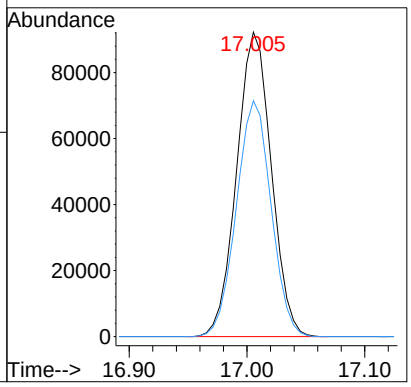


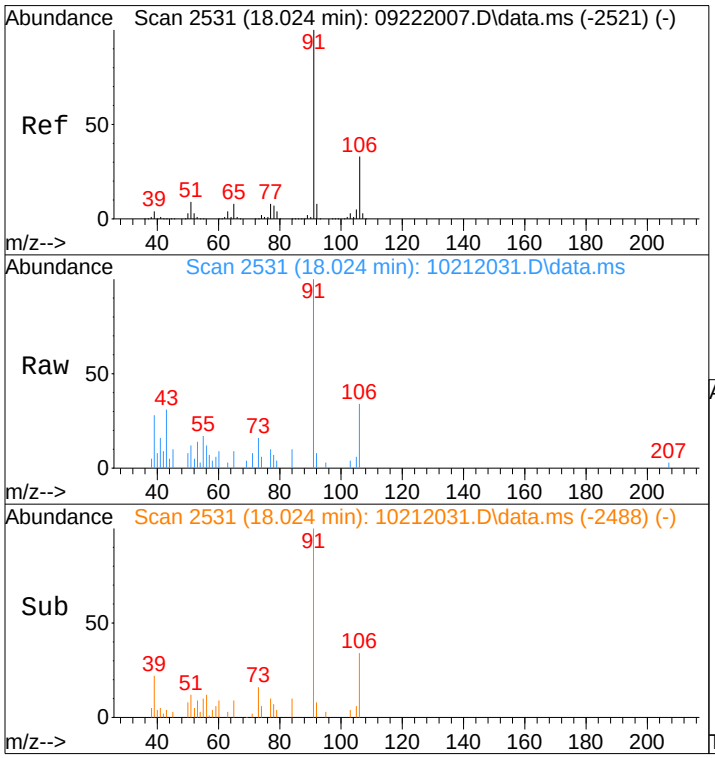


#64
Tetrachloroethene
Concen: 13.32 ng
RT: 17.01 min Scan# 2352
Delta R.T. -0.006 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion:166 Resp: 188618

Ion	Ratio	Lower	Upper
166	100		
164	77.8	58.2	98.2

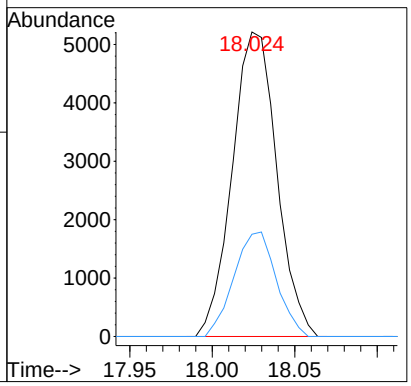


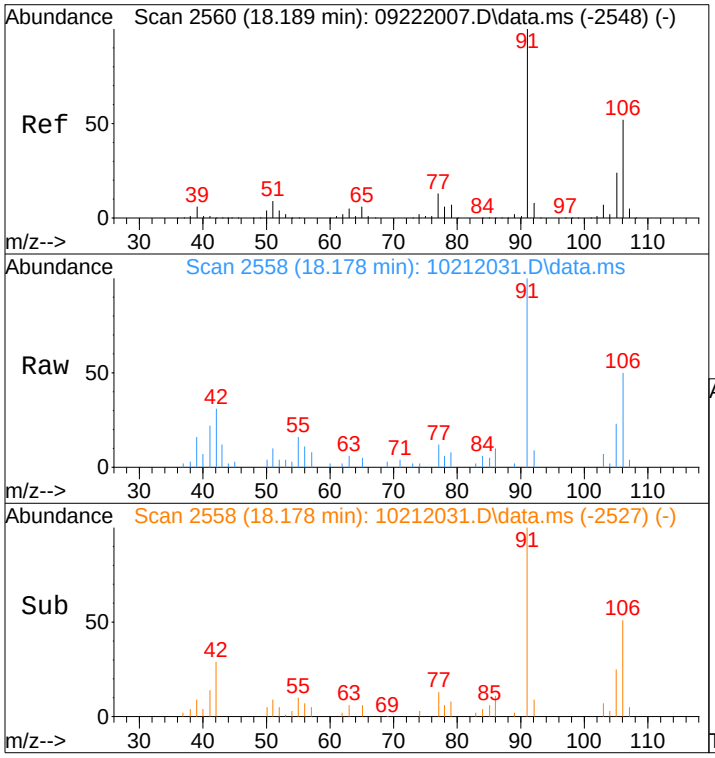


#66
Ethylbenzene
Concen: 0.19 ng
RT: 18.02 min Scan# 2531
Delta R.T. -0.006 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 91 Resp: 9802

Ion	Ratio	Lower	Upper
91	100		
106	32.6	12.6	52.6

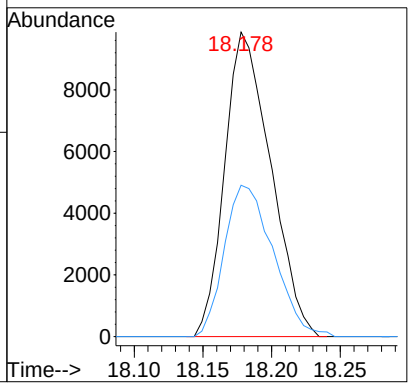


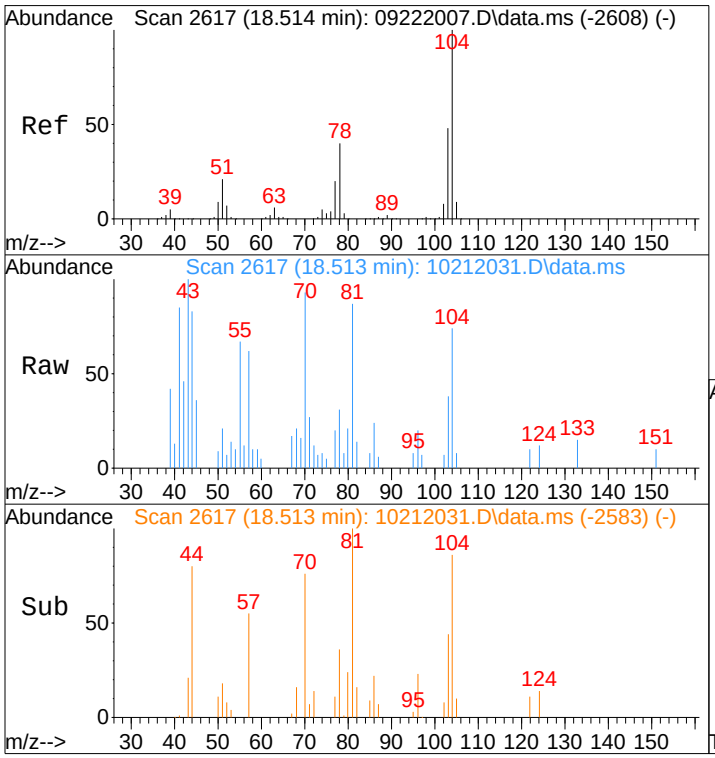


#67
m- & p-Xylenes
Concen: 0.57 ng
RT: 18.18 min Scan# 2558
Delta R.T. -0.023 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 91 Resp: 22968

Ion	Ratio	Lower	Upper
91	100		
106	52.7	31.9	71.9

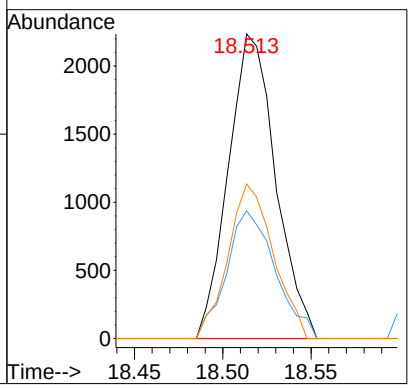


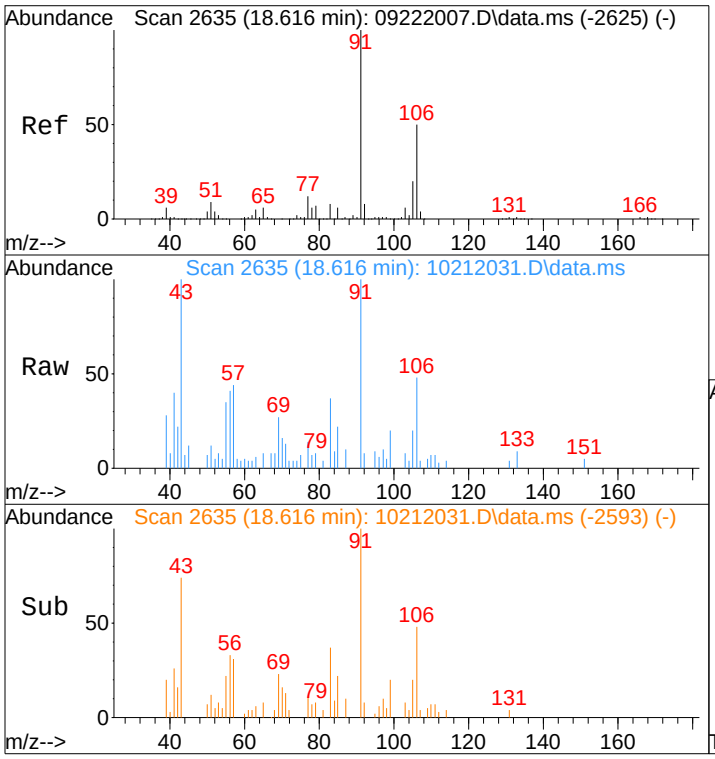


#69
Styrene
Concen: 0.14 ng
RT: 18.51 min Scan# 2617
Delta R.T. -0.006 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion:104 Resp: 4159

Ion	Ratio	Lower	Upper
104	100		
78	43.2	19.5	59.5
103	48.8	27.4	67.4

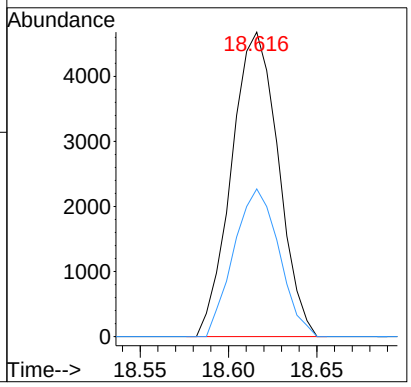


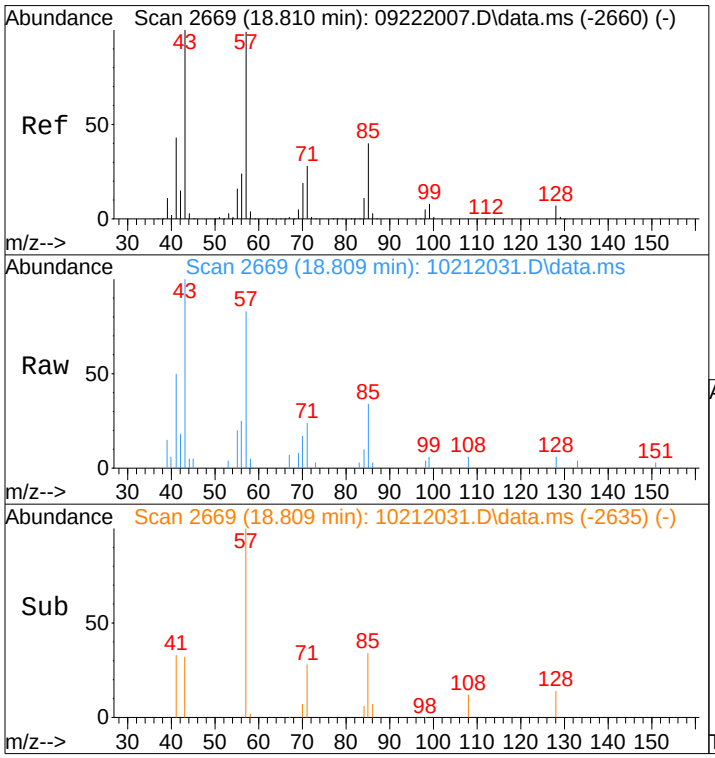


#70
o-Xylene
Concen: 0.21 ng
RT: 18.62 min Scan# 2635
Delta R.T. -0.011 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 91 Resp: 8629

Ion	Ratio	Lower	Upper
91	100		
106	46.9	29.5	69.5

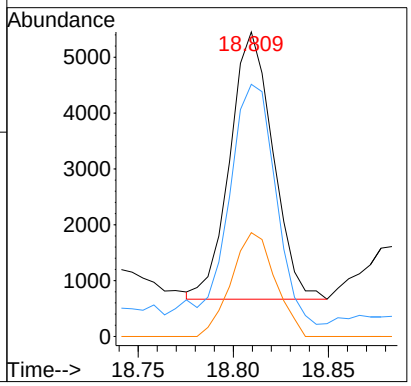


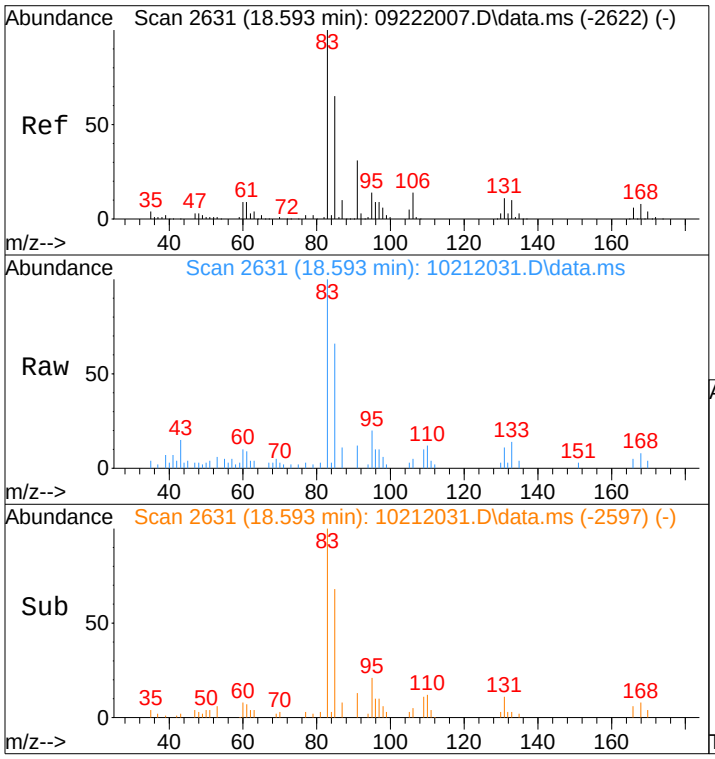


#71
n-Nonane
Concen: 0.39 ng
RT: 18.81 min Scan# 2669
Delta R.T. -0.006 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 43 Resp: 7538

Ion	Ratio	Lower	Upper
43	100		
57	99.6	78.2	118.2
85	39.4	19.8	59.8

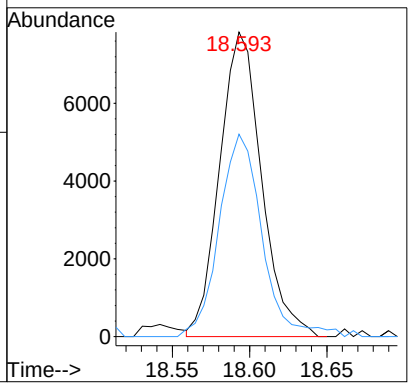


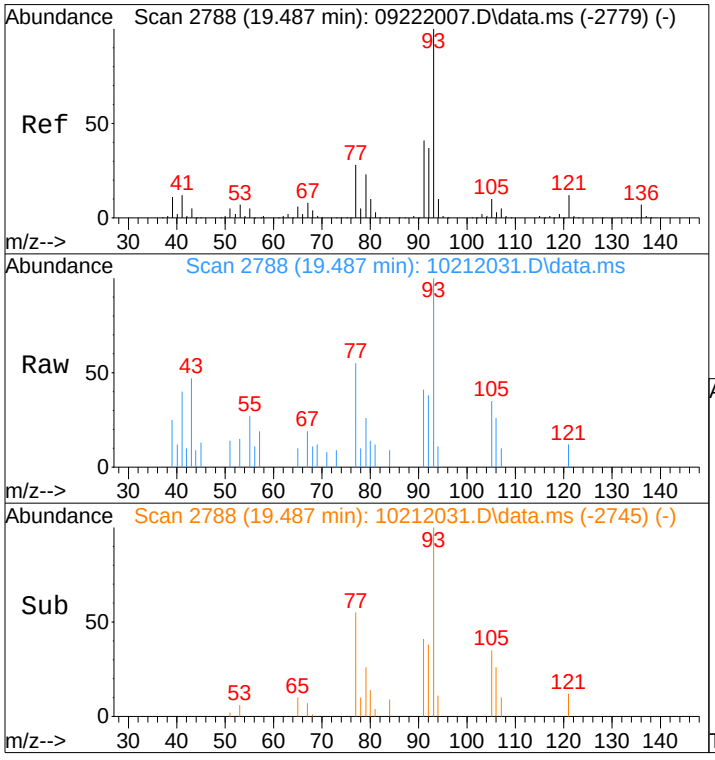


#72
1,1,2,2-Tetrachloroethane
Concen: 0.79 ng
RT: 18.59 min Scan# 2631
Delta R.T. -0.006 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 83 Resp: 14796

Ion	Ratio	Lower	Upper
83	100		
85	68.2	44.9	84.9

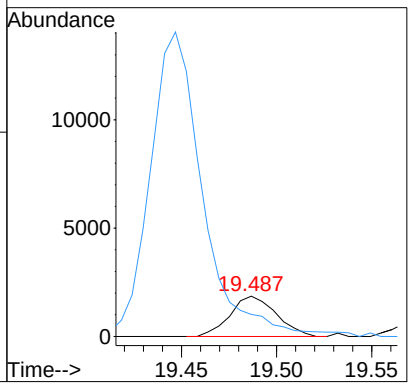


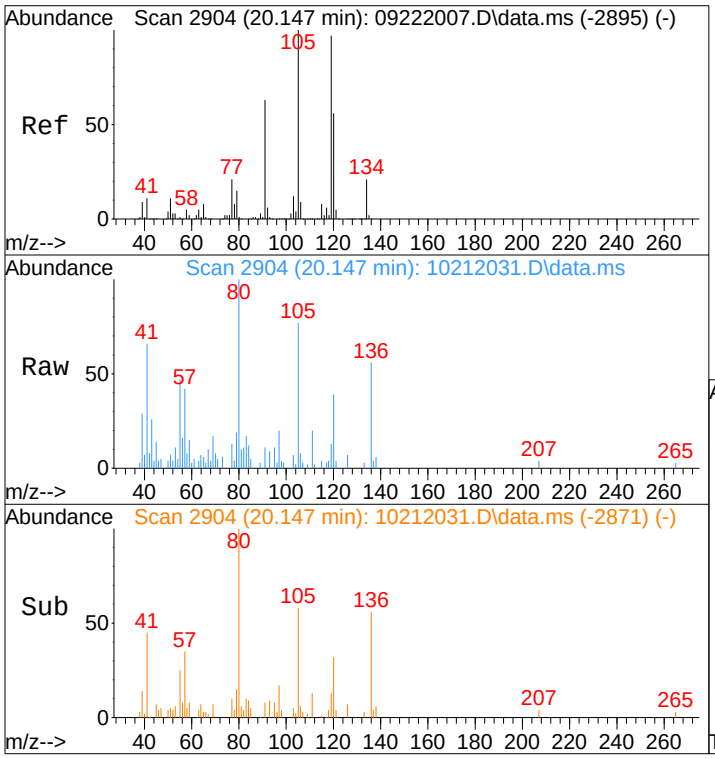


#75
alpha-Pinene
Concen: 0.12 ng
RT: 19.49 min Scan# 2788
Delta R.T. -0.006 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 93 Resp: 3125

Ion	Ratio	Lower	Upper
93	100		
77	867.7	8.3	48.3#

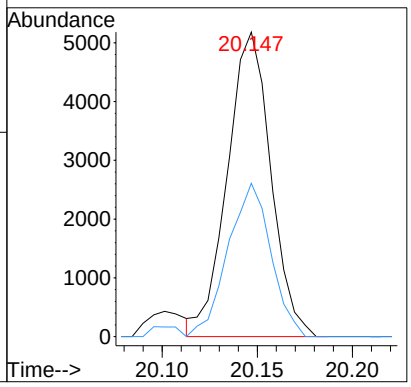


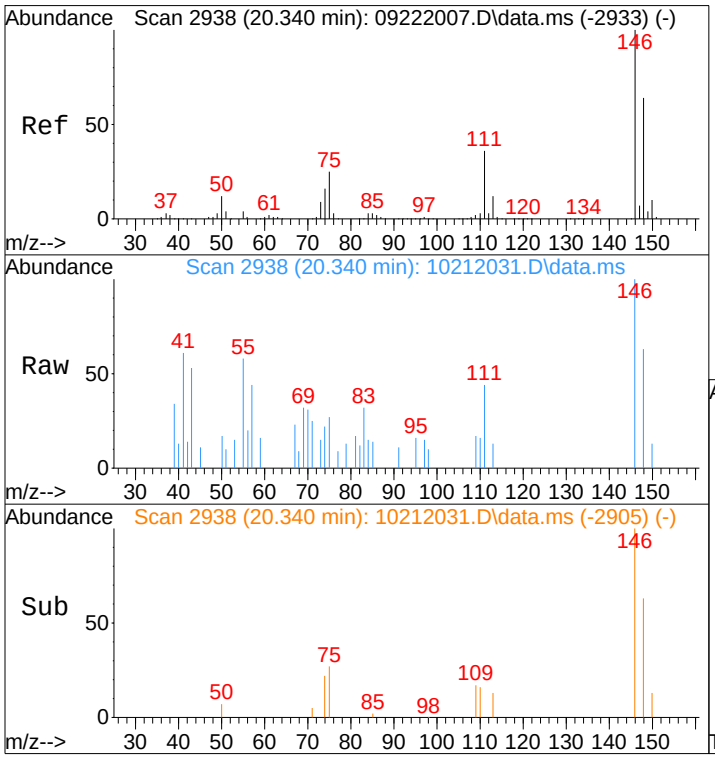


#82
1,2,4-Trimethylbenzene
Concen: 0.19 ng
RT: 20.15 min Scan# 2904
Delta R.T. -0.011 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion:105 Resp: 8230

Ion	Ratio	Lower	Upper
105	100		
120	49.6	36.5	76.5

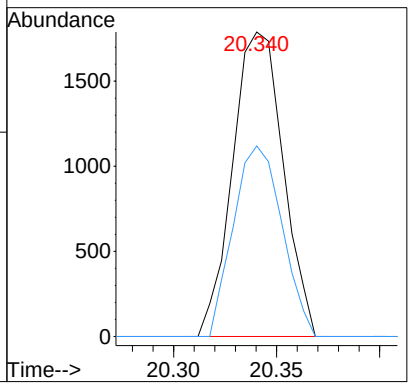


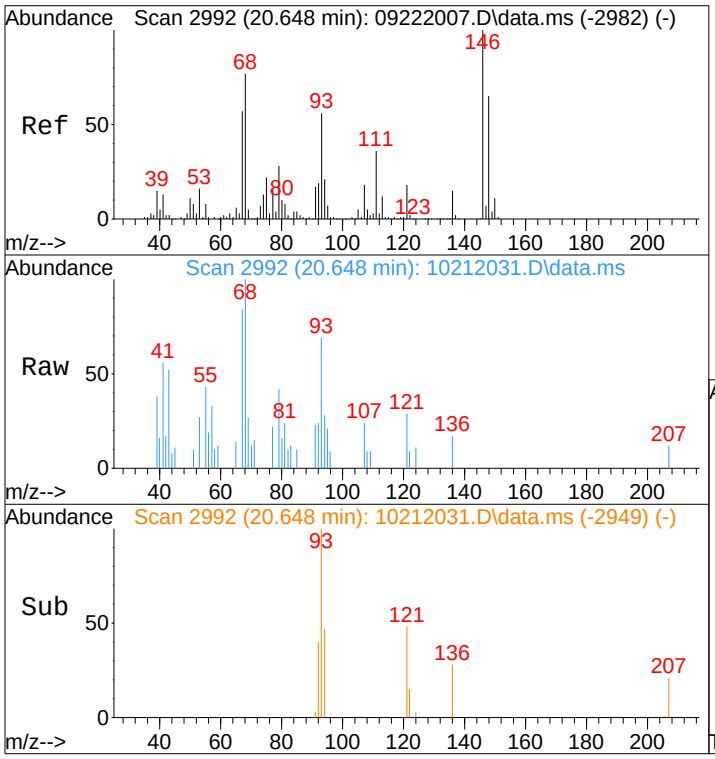


#86
1,4-Dichlorobenzene
Concen: 0.11 ng
RT: 20.34 min Scan# 2938
Delta R.T. -0.011 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion:146 Resp: 3051

Ion	Ratio	Lower	Upper
146	100		
148	60.2	44.2	84.2

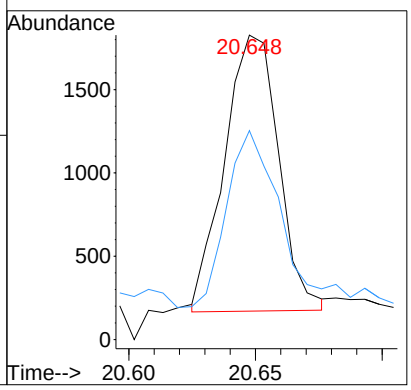


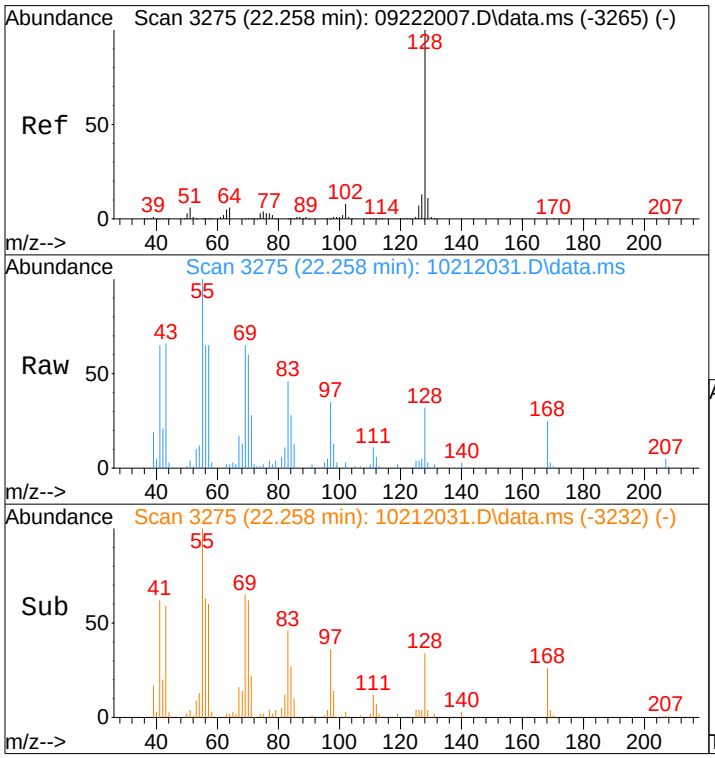


#91
d-Limonene
Concen: 0.17 ng m
RT: 20.65 min Scan# 2992
Delta R.T. -0.006 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion: 68 Resp: 2456

Ion	Ratio	Lower	Upper
68	100		
93	107.6	52.9	92.9#

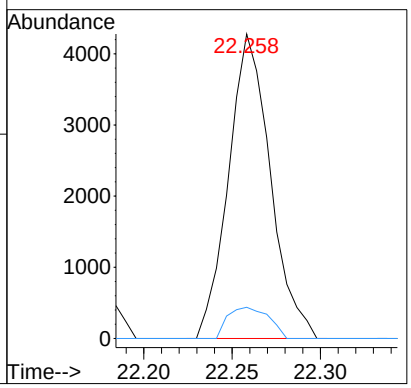




#95
Naphthalene
Concen: 0.12 ng
RT: 22.26 min Scan# 3275
Delta R.T. -0.006 min
Lab File: 10212031.D
Acq: 22 Oct 2020 13:10

Tgt Ion:128 Resp: 7038

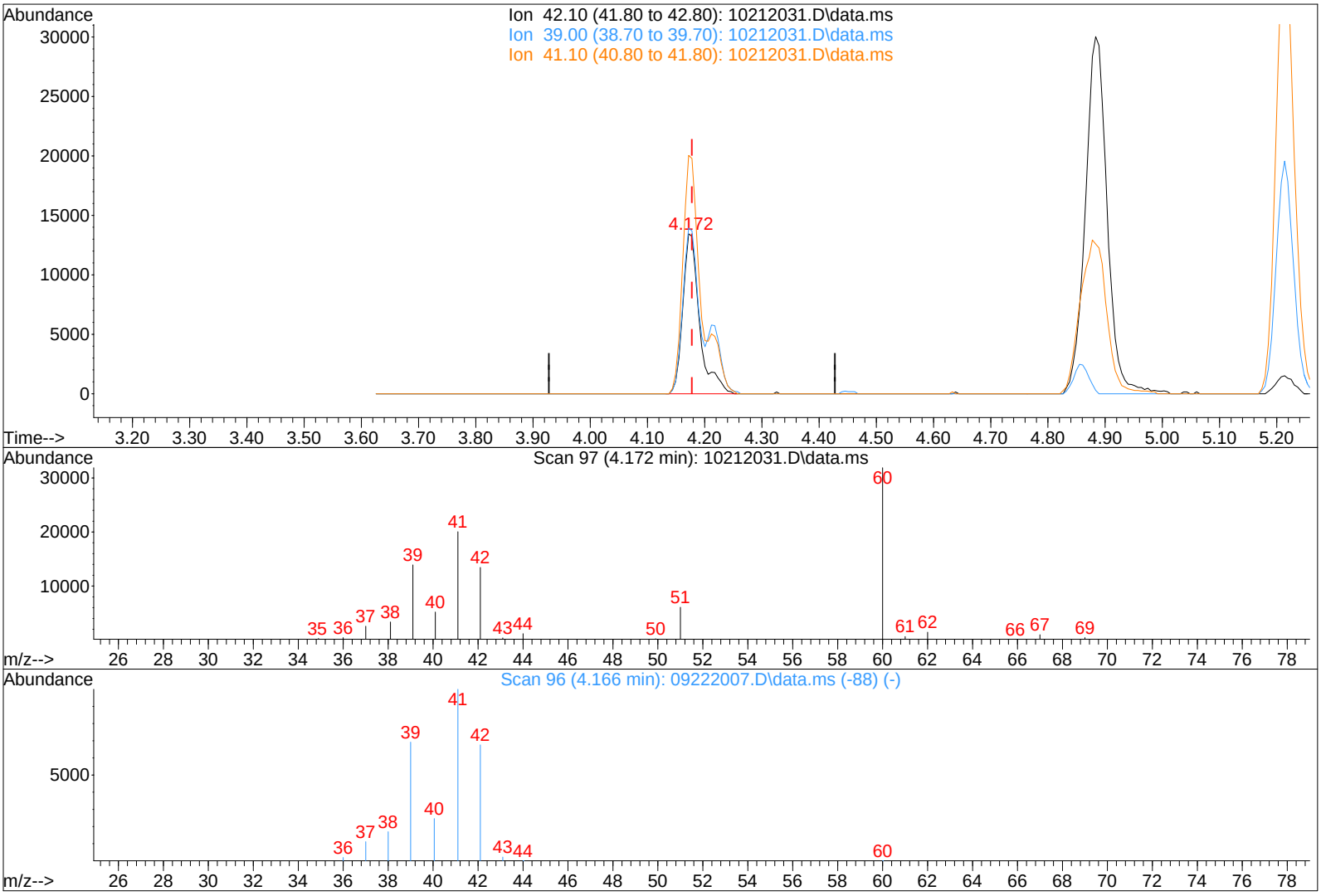
Ion	Ratio	Lower	Upper
128	100		
129	10.0	0.0	31.1



Quantitation Report (Qedit)

Data File : I:\MS13\DATA\2020_10\21\10212031.D Vial: 3
Acq On : 22 Oct 2020 13:10 Operator: WA
Sample : P2005708-002 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 13:42:15 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10212031.D\data.ms

(2) Propene (T)

4.172min (-0.006) 2.02ng

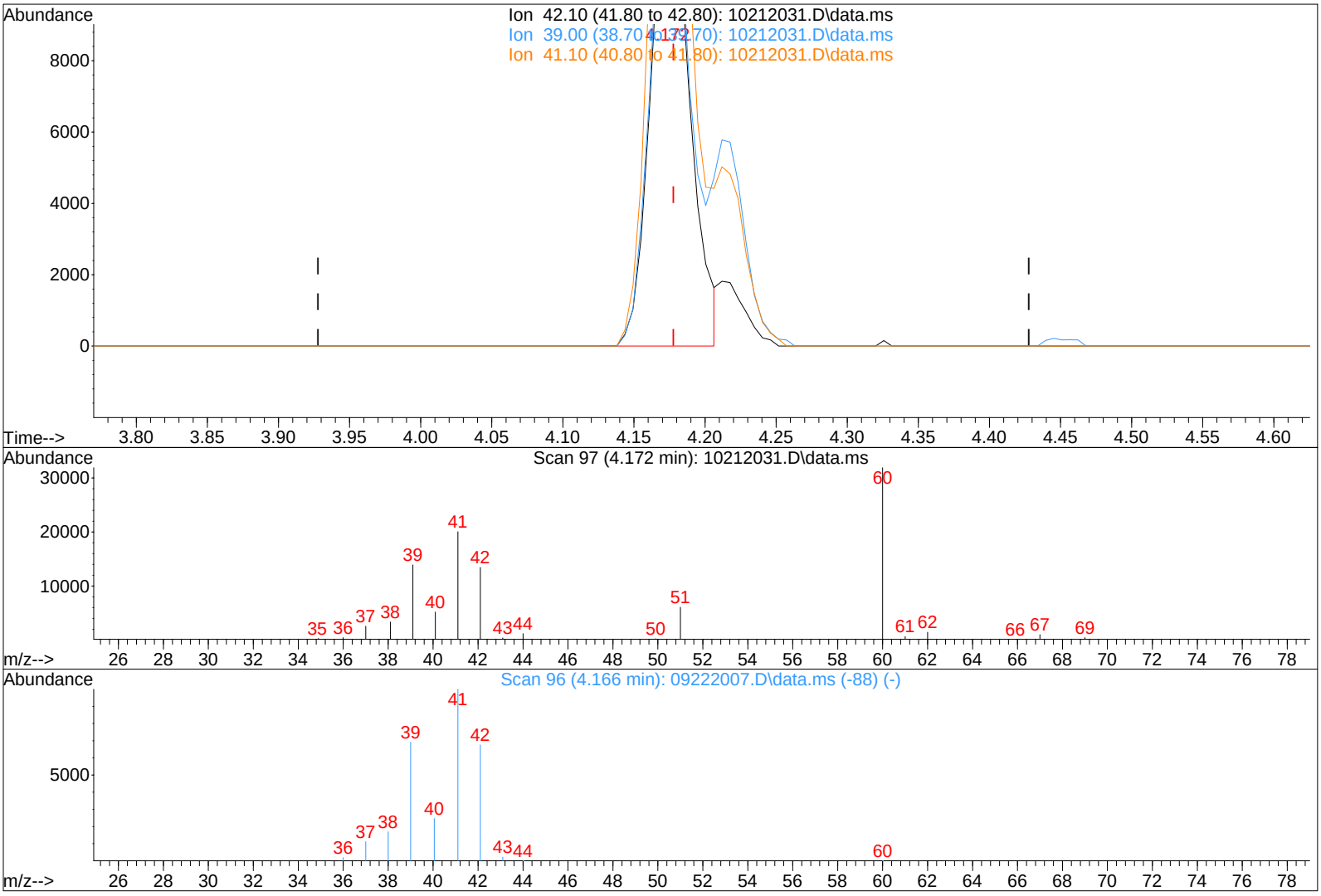
response 27352

Ion	Exp%	Act%
42.10	100	100
39.00	102.30	96.80
41.10	148.50	166.15
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS13\DATA\2020_10\21\10212031.D Vial: 3
Acq On : 22 Oct 2020 13:10 Operator: WA
Sample : P2005708-002 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 13:42:15 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10212031.D\data.ms

(2) Propene (T)

4.172min (-0.006) 1.85ng m

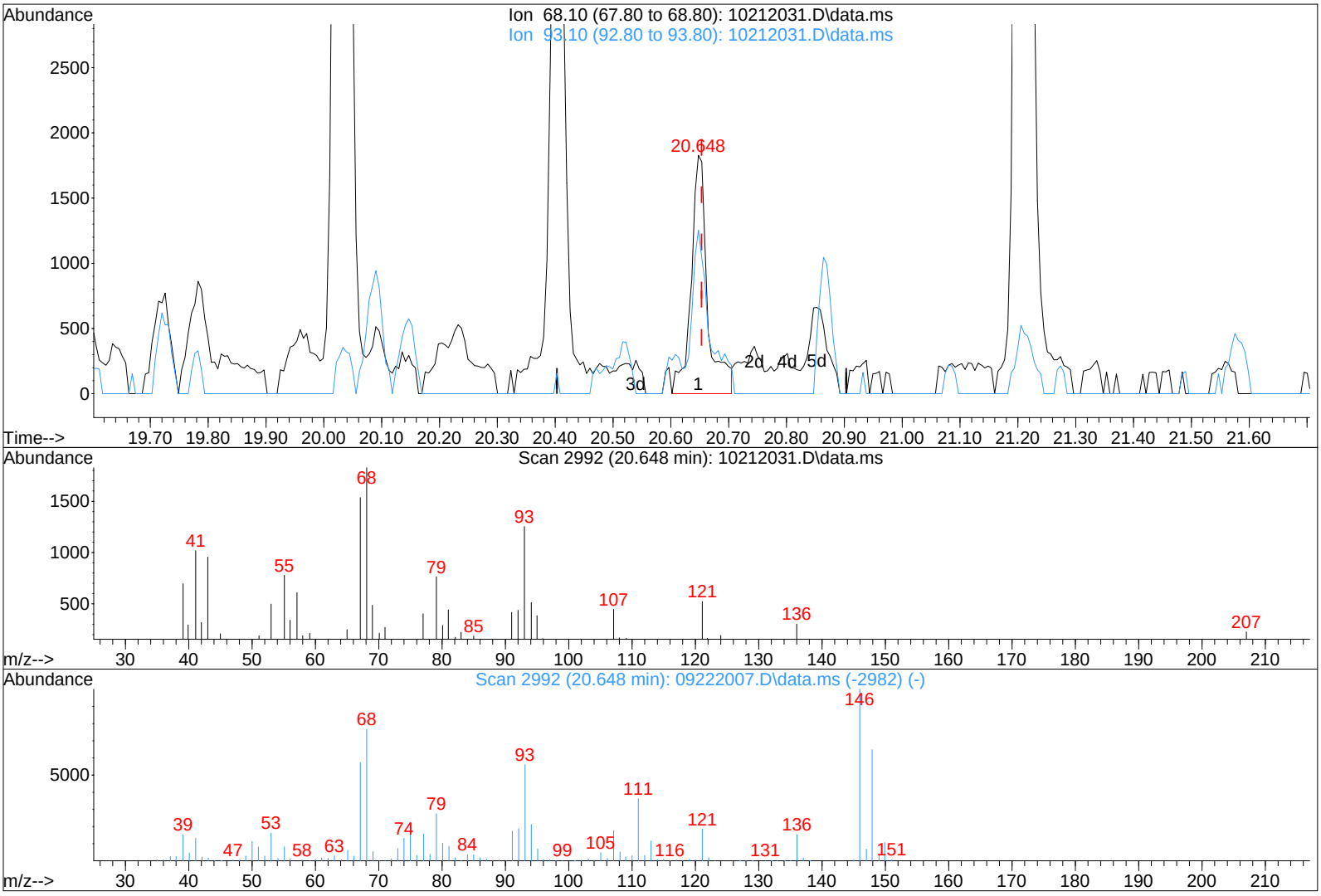
response 25028

Ion	Exp%	Act%
42.10	100	100
39.00	102.30	105.79
41.10	148.50	181.57#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS13\DATA\2020_10\21\10212031.D Vial: 3
Acq On : 22 Oct 2020 13:10 Operator: WA
Sample : P2005708-002 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 13:42:15 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10212031.D\data.ms

(91) d-Limonene (T)

20.648min (-0.006) 0.25ng

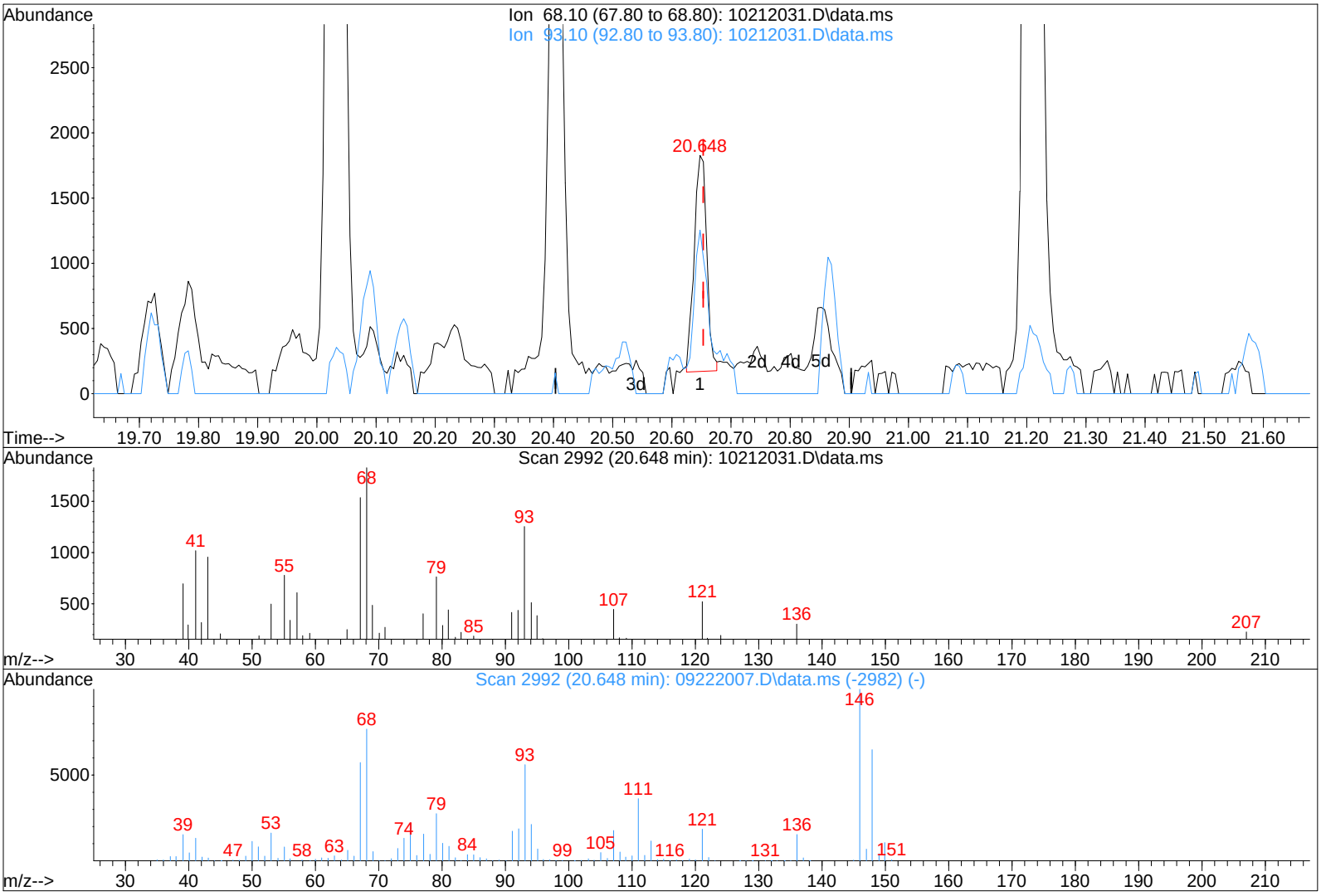
response 3622

Ion	Exp%	Act%
68.10	100	100
93.10	72.90	72.97
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS13\DATA\2020_10\21\10212031.D Vial: 3
Acq On : 22 Oct 2020 13:10 Operator: WA
Sample : P2005708-002 (1000mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 13:42:15 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10212031.D\data.ms

(91) d-Limonene (T)

20.648min (-0.006) 0.17ng m

response 2456

Ion	Exp%	Act%
68.10	100	100
93.10	72.90	107.61#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212033.D Vial: 3
Acq On : 22 Oct 2020 14:32 Operator: WA
Sample : P2005708-002dil (100mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 15:07:53 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	114364	12.500	ng		-0.04
37) 1,4-Difluorobenzene (IS2)	13.31	114	499556	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.63	82	225985	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.04	65	147701	12.401	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.20%				
57) Toluene-d8 (SS2)	15.76	98	556301	12.449	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.60%				
73) Bromofluorobenzene (SS3)	19.01	174	202996	14.141	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 113.12%				
Target Compounds							Qvalue
2) Propene	4.21	42	2437	0.185	ng	#	71
3) Dichlorodifluoromethan...	4.35	85	7854	0.377	ng		98
4) Chloromethane	4.64	50	585	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	5.05	62	322	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	6.43	45	5913	0.721	ng		90
11) Acetonitrile	6.69	41	4164	0.216	ng	#	19
12) Acrolein	6.89	56	1791	0.249	ng		83
13) Acetone	7.08	58	50528	5.912	ng	#	83
14) Trichlorofluoromethane	7.32	101	2145	0.114	ng		98
15) 2-Propanol (Isopropanol)	7.66	45	3399	0.132	ng		69
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	8.28	96	1492	0.136	ng		92
18) 2-Methyl-2-Propanol (t...	8.53	59	1598	0.070	ng	#	68
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	8.90	151	19923	1.935	ng		96
22) Carbon Disulfide	8.75	76	41237	0.975	ng		98
23) trans-1,2-Dichloroethene	9.76	61	1632	0.115	ng		94
24) 1,1-Dichloroethane	10.00	63	1434	0.076	ng		86
25) Methyl tert-Butyl Ether	10.15	73	111	N.D.			
26) Vinyl Acetate	10.23	86	7037	2.876	ng	#	17
27) 2-Butanone (MEK)	10.53	72	8695	1.254	ng	#	84
28) cis-1,2-Dichloroethene	11.01	61	146601	10.361	ng		99
29) Diisopropyl Ether	11.35	87	3984	0.439	ng	#	1
30) Ethyl Acetate	11.36	61	114	N.D.			
31) n-Hexane	11.30	57	473	N.D.			
32) Chloroform	11.35	83	40002	2.220	ng		98
34) Tetrahydrofuran (THF)	11.85	72	1044	0.145	ng	#	63
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	12.44	97	1726	0.107	ng		93
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	12.93	56	10362	No Calib			
41) Benzene	12.92	78	1096	N.D.			
42) Carbon Tetrachloride	13.07	117	2462	0.162	ng		92
43) Cyclohexane	13.07	84	760	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	14.02	83	1400	0.102	ng		93
47) Trichloroethene	14.01	130	145654	11.620	ng		99
48) 1,4-Dioxane	14.02	88	9316	1.100	ng		98
49) 2,2,4-Trimethylpentane...	14.08	57	4334	0.095	ng		96
50) Methyl Methacrylate	14.01	100	115	N.D.			

Quantitation Report (Not Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212033.D Vial: 3
Acq On : 22 Oct 2020 14:32 Operator: WA
Sample : P2005708-002dil (100mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 15:07:53 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

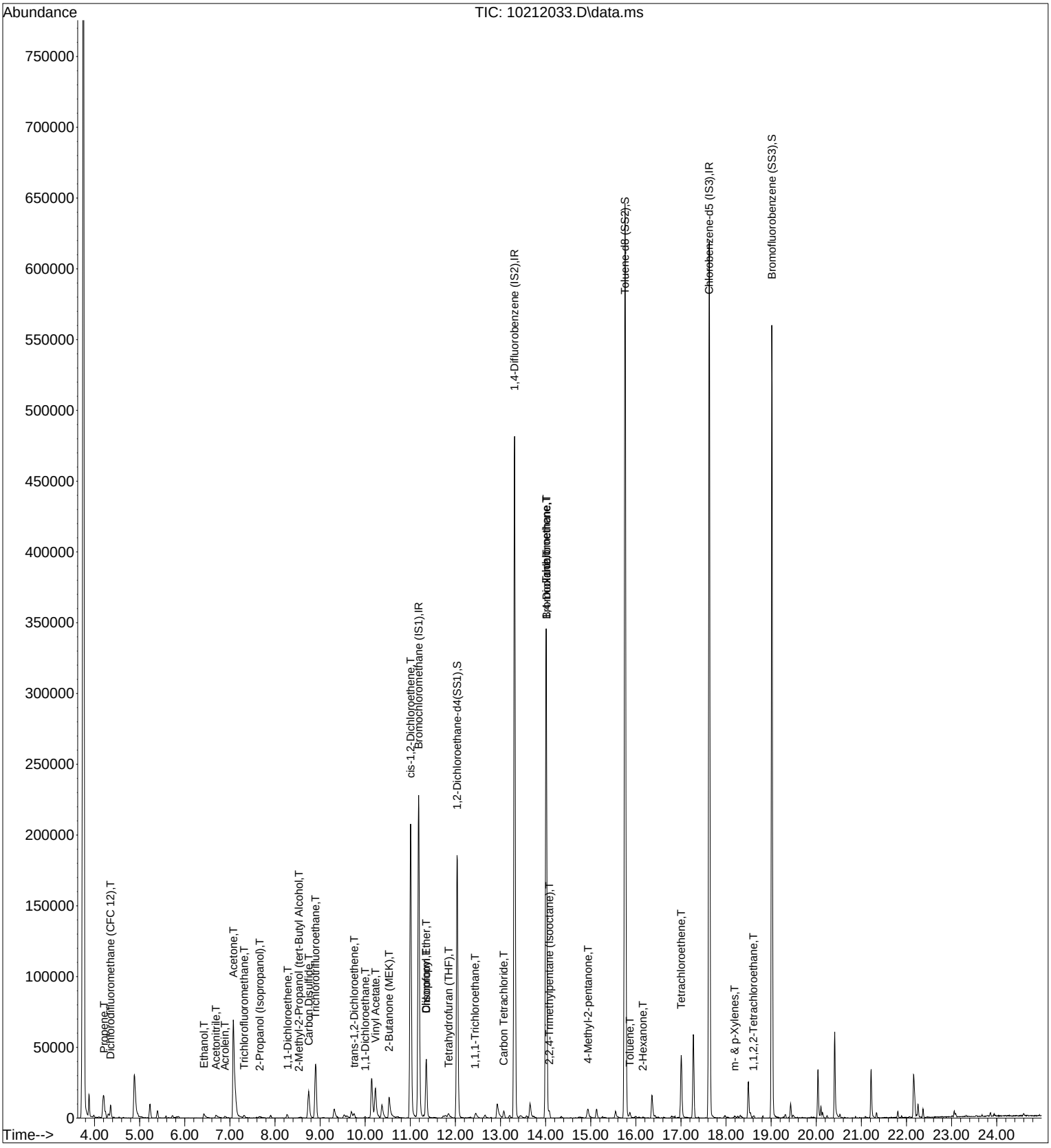
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
51) n-Heptane	14.34	71	119	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	14.94	58	1622	0.185 ng	#	1
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.87	91	3276	0.071 ng		97
59) 2-Hexanone	16.16	43	1384	0.075 ng	#	48
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.79	43	446	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	17.01	166	18121	1.308 ng		100
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	18.04	91	869	N.D.		
67) m- & p-Xylenes	18.19	91	1989	0.050 ng		96
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.54	104	168	N.D.		
70) o-Xylene	18.62	91	662	N.D.		
71) n-Nonane	18.81	43	812	N.D.		
72) 1,1,2,2-Tetrachloroethane	18.60	83	1284	0.070 ng		92
74) Cumene	0.00	105	0	N.D.		
75) alpha-Pinene	19.49	93	137	N.D.		
76) n-Propylbenzene	19.58	91	369	N.D.		
77) 3-Ethyltoluene	19.72	105	119	No Calib	#	
78) 4-Ethyltoluene	19.72	105	119	N.D.		
79) 1,3,5-Trimethylbenzene	19.72	105	119	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	20.15	105	678	No Calib		
82) 1,2,4-Trimethylbenzene	20.15	105	678	N.D.		
83) n-Decane	20.14	57	836	No Calib	#	
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	20.53	105	173	N.D.		
88) 4-Isopropyltoluene (p-...	20.53	119	1601	N.D.		
89) 1,2,3-Trimethylbenzene	20.53	105	173	No Calib	#	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.65	68	204	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.33	57	1594	No Calib		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.29	128	719	N.D.		
96) n-Dodecane	22.25	57	1690	No Calib	#	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	18.35	55	446	No Calib	#	
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	20.87	91	327	N.D.		
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		

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

Quantitation Report (Not Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212033.D Vial: 3
Acq On : 22 Oct 2020 14:32 Operator: WA
Sample : P2005708-002dil (100mL) Inst : MS13
Misc : S34-09182001

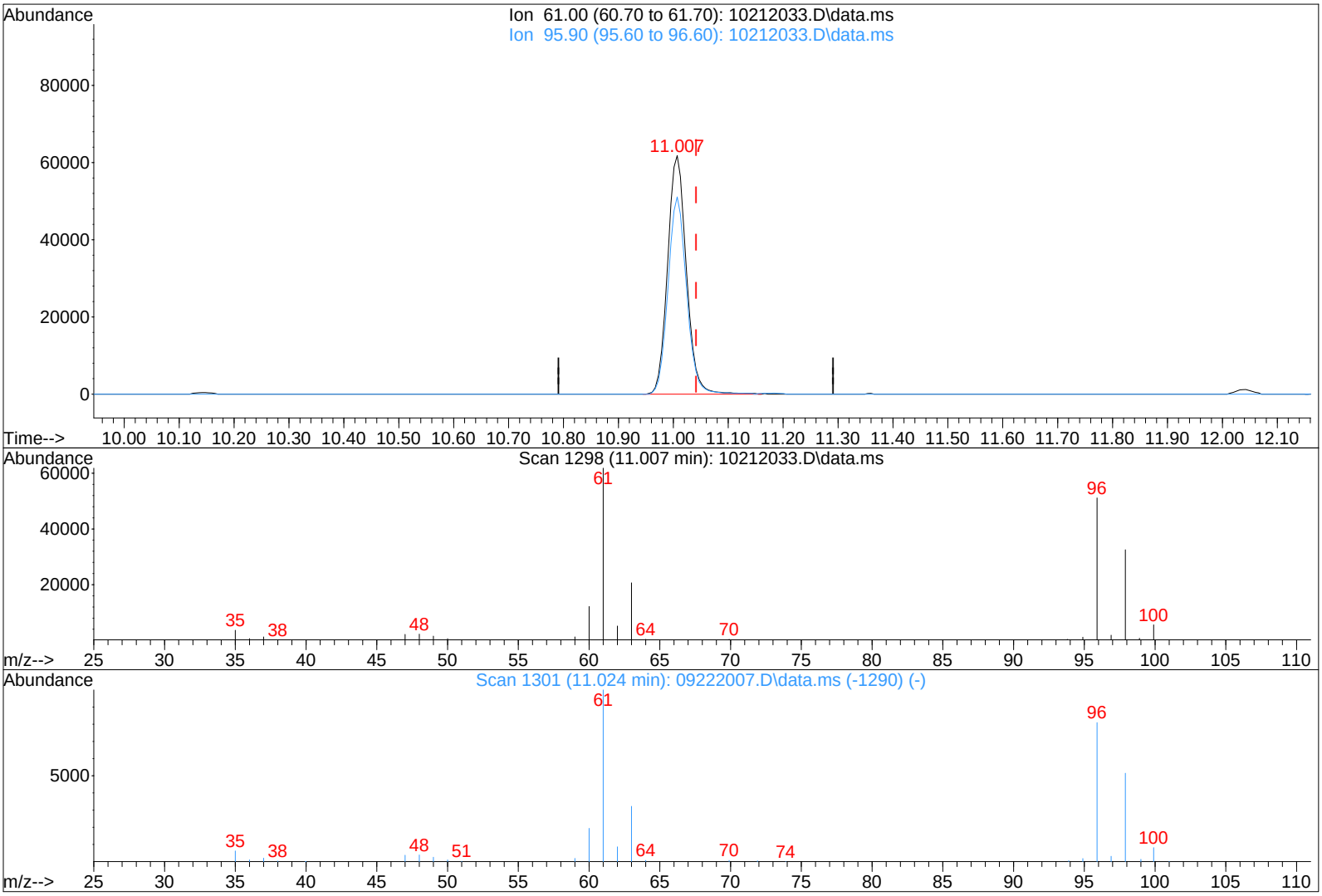
Quant Time: Oct 22 15:07:53 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS13\DATA\2020_10\21\10212033.D Vial: 3
Acq On : 22 Oct 2020 14:32 Operator: WA
Sample : P2005708-002dil (100mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 15:07:53 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10212033.D\data.ms

(28) cis-1,2-Dichloroethene (T)

11.007min (-0.034) 10.36ng

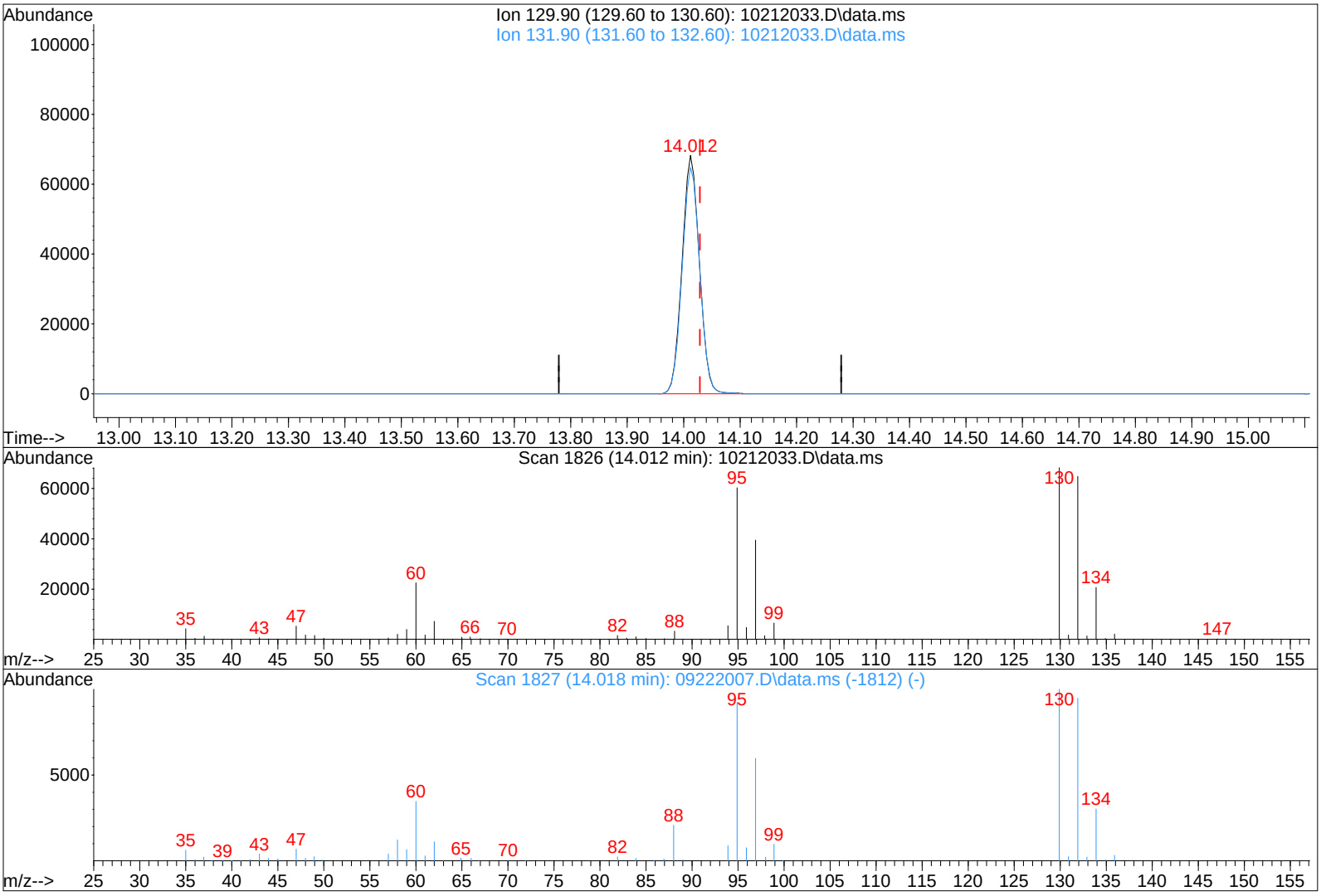
response 146601

Ion	Exp%	Act%
61.00	100	100
95.90	83.10	82.13
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS13\DATA\2020_10\21\10212033.D Vial: 3
Acq On : 22 Oct 2020 14:32 Operator: WA
Sample : P2005708-002dil (100mL) Inst : MS13
Misc : S34-09182001

Quant Time: Oct 22 15:07:53 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10212033.D\data.ms

(47) Trichloroethene (T)

14.012min (-0.017) 11.62ng

response 145654

Ion	Exp%	Act%
129.90	100	100
131.90	95.50	96.21
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212003.D Vial: 1
Acq On : 21 Oct 2020 21:07 Operator: WA
Sample : MB R13102120_1000mL Inst : MS13
Misc : S34-09182001/AC01837

Quant Time: Oct 22 05:33:41 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	114148	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	13.31	114	502035	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.63	82	227690	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	12.04	65	151238	12.722	ng	-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.76%			
57) Toluene-d8 (SS2)	15.76	98	559745	12.432	ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.44%			
73) Bromofluorobenzene (SS3)	19.01	174	195068	13.487	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.92%			
Target Compounds						Qvalue
2) Propene	4.23	42	120	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.		
11) Acetonitrile	0.00	41	0	N.D.		
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	7.19	58	673	0.079	ng #	47
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	0.00	76	0	N.D. 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	0.00	56	0	N.D.		
41) Benzene	0.00	78	0	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	0.00	84	0	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.		

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212003.D Vial: 1
Acq On : 21 Oct 2020 21:07 Operator: WA
Sample : MB R13102120_1000mL Inst : MS13
Misc : S34-09182001/AC01837

Quant Time: Oct 22 05:33:41 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

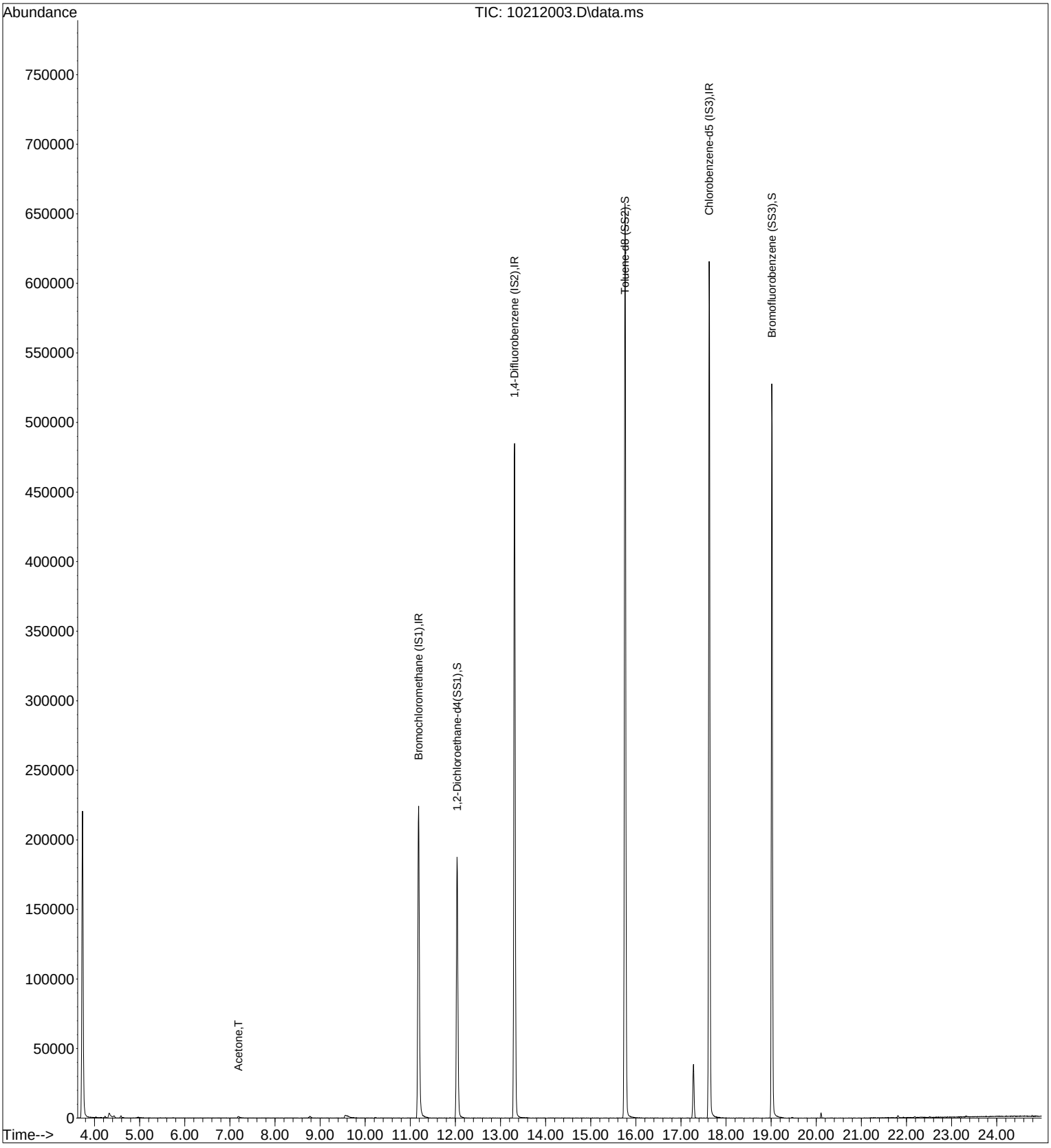
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	0.00	91	0	N.D.		
59) 2-Hexanone	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	0.00	91	0	N.D.		
67) m- & p-Xylenes	0.00	91	0	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	0.00	105	0	N.D.		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D.		
77) 3-Ethyltoluene	0.00	105	0	N.D.		
78) 4-Ethyltoluene	0.00	105	0	N.D.		
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	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	22.18	180	647	N.D.		
95) Naphthalene	22.30	128	1221	N.D.		
96) n-Dodecane	0.00	57	0	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.		
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212003.D Vial: 1
Acq On : 21 Oct 2020 21:07 Operator: WA
Sample : MB R13102120_1000mL Inst : MS13
Misc : S34-09182001/AC01837

Quant Time: Oct 22 05:33:41 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212004.D Vial: 1
Acq On : 21 Oct 2020 21:41 Operator: WA
Sample : LCS R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-10152004 (11/14)

Quant Time: Oct 22 03:03:51 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	115192	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	501627	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.63	82	237174	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	151991	12.669	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.36%				
57) Toluene-d8 (SS2)	15.76	98	559778	11.936	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.52%				
73) Bromofluorobenzene (SS3)	19.02	174	200124	13.283	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 106.24%				
Target Compounds							Qvalue
2) Propene	4.16	42	312001	23.536	ng		99
3) Dichlorodifluoromethan...	4.31	85	488987	23.277	ng		100
4) Chloromethane	4.60	50	347962	24.509	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	275353	23.979	ng		100
6) Vinyl Chloride	5.01	62	375473	25.009	ng		99
7) 1,3-Butadiene	5.28	54	329688	26.068	ng		98
8) Bromomethane	5.71	94	231026	23.481	ng		100
9) Chloroethane	6.04	64	190770	23.426	ng		99
10) Ethanol	6.43	45	854195	103.458	ng		100
11) Acetonitrile	6.68	41	484503	24.959	ng		100
12) Acrolein	6.86	56	364528	50.331	ng		100
13) Acetone	7.07	58	929510	107.970	ng		95
14) Trichlorofluoromethane	7.30	101	415042	21.990	ng		99
15) 2-Propanol (Isopropanol)	7.57	45	1299209	50.230	ng		99
16) Acrylonitrile	7.83	53	708264	52.086	ng		100
17) 1,1-Dichloroethene	8.26	96	259003	23.382	ng		100
18) 2-Methyl-2-Propanol (t...	8.43	59	1235184	53.448	ng		99
19) Methylene Chloride	8.49	84	268479	23.422	ng		97
20) 3-Chloro-1-propene (Al...	8.65	41	406597	25.562	ng		97
21) Trichlorotrifluoroethane	8.90	151	251517	24.255	ng		98
22) Carbon Disulfide	8.75	76	1884308	44.244	ng		100
23) trans-1,2-Dichloroethene	9.76	61	371661	25.903	ng		99
24) 1,1-Dichloroethane	10.01	63	451787	23.833	ng		100
25) Methyl tert-Butyl Ether	10.10	73	791428	25.856	ng		100
26) Vinyl Acetate	10.27	86	289906	117.644	ng	#	89
27) 2-Butanone (MEK)	10.51	72	363673	52.082	ng		97
28) cis-1,2-Dichloroethene	11.02	61	345908	24.271	ng		99
29) Diisopropyl Ether	11.31	87	424226	46.460	ng	#	80
30) Ethyl Acetate	11.33	61	265629	67.205	ng		99
31) n-Hexane	11.30	57	407992	23.493	ng		100
32) Chloroform	11.37	83	421817	23.239	ng		100
34) Tetrahydrofuran (THF)	11.77	72	325600	44.776	ng		97
35) Ethyl tert-Butyl Ether	11.91	87	625098	50.478	ng		99
36) 1,2-Dichloroethane	12.17	62	298841	24.832	ng		100
38) 1,1,1-Trichloroethane	12.44	97	368795	22.680	ng		99
39) Isopropyl Acetate	12.90	61	13866	No Calib		#	
40) 1-Butanol	12.95	56	5172	No Calib			
41) Benzene	12.93	78	1019456	22.708	ng		100
42) Carbon Tetrachloride	13.08	117	336807	22.127	ng		100
43) Cyclohexane	13.22	84	802327	46.962	ng		99
44) tert-Amyl Methyl Ether	13.56	73	1453014	49.989	ng		99
45) 1,2-Dichloropropane	13.77	63	258722	23.561	ng		100
46) Bromodichloromethane	13.96	83	334490	24.186	ng		99
47) Trichloroethene	14.02	130	297627	23.645	ng		100
48) 1,4-Dioxane	14.00	88	224890	26.455	ng		100
49) 2,2,4-Trimethylpentane...	14.09	57	1103953	24.134	ng		98
50) Methyl Methacrylate	14.22	100	230098	53.029	ng		99

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212004.D Vial: 1
Acq On : 21 Oct 2020 21:41 Operator: WA
Sample : LCS R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-10152004 (11/14)

Quant Time: Oct 22 03:03:51 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

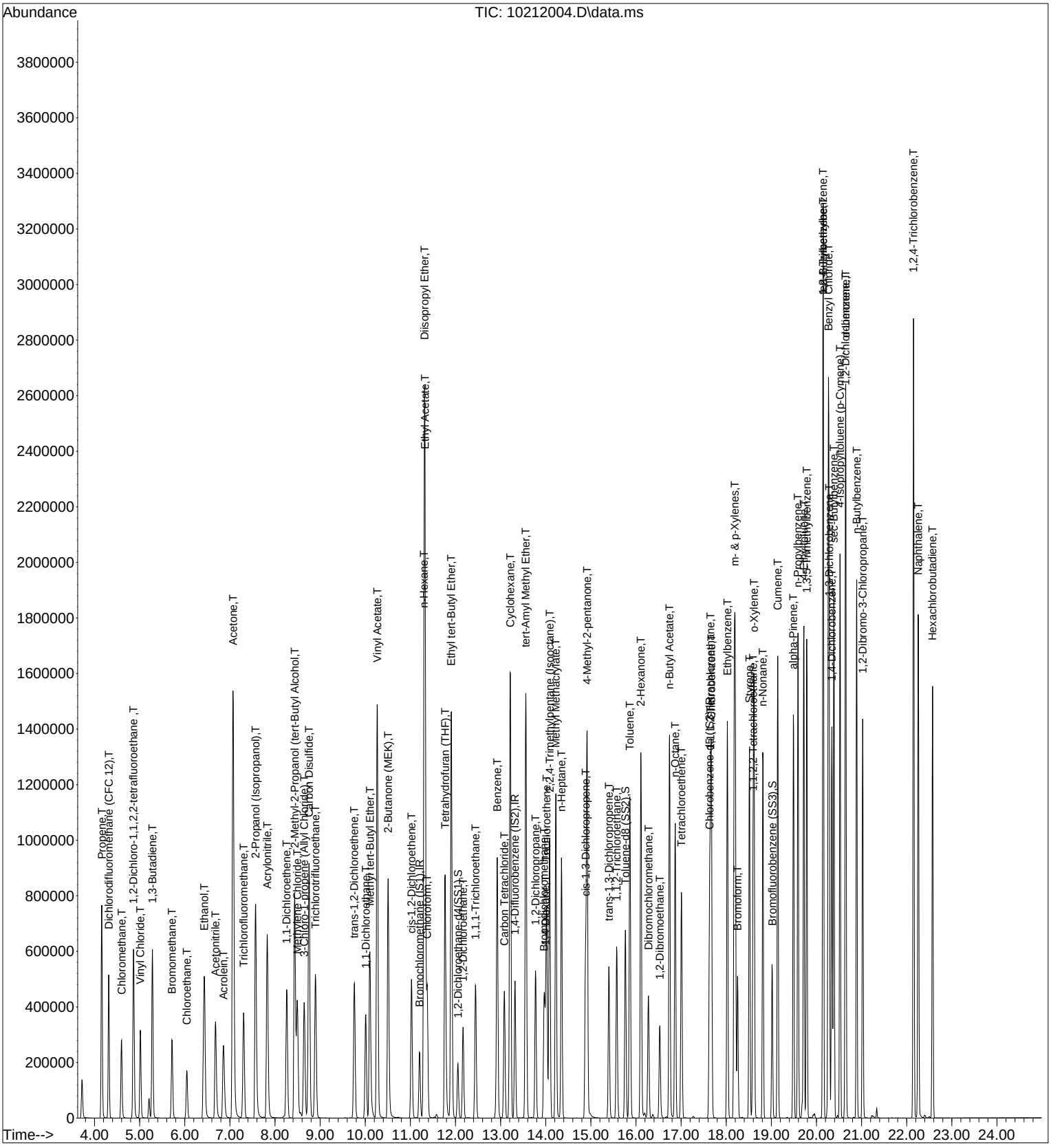
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.35	71	271104	23.804	ng		100
52) cis-1,3-Dichloropropene	14.88	75	420165	26.023	ng		100
53) 4-Methyl-2-pentanone	14.92	58	469607	53.452	ng		97
54) trans-1,3-Dichloropropene	15.40	75	383328	26.159	ng		100
55) 1,1,2-Trichloroethane	15.57	97	254327	23.729	ng		100
58) Toluene	15.86	91	1053841	21.652	ng		100
59) 2-Hexanone	16.11	43	1031977	53.136	ng		99
60) Dibromochloromethane	16.28	129	311561	23.903	ng		99
61) 1,2-Dibromoethane	16.53	107	295747	24.265	ng		100
62) n-Butyl Acetate	16.74	43	1161670	54.251	ng		99
63) n-Octane	16.87	57	225345	23.078	ng		99
64) Tetrachloroethene	17.01	166	322062	22.149	ng		100
65) Chlorobenzene	17.67	112	728100	22.069	ng		100
66) Ethylbenzene	18.02	91	1183229	22.496	ng		100
67) m- & p-Xylenes	18.19	91	1800431	43.476	ng		100
68) Bromoform	18.25	173	287114	24.681	ng		100
69) Styrene	18.51	104	762225	24.370	ng		100
70) o-Xylene	18.62	91	927586	22.356	ng		100
71) n-Nonane	18.81	43	480987	24.213	ng		98
72) 1,1,2,2-Tetrachloroethane	18.59	83	437947	22.747	ng		100
74) Cumene	19.14	105	1205078	22.352	ng		100
75) alpha-Pinene	19.49	93	632966	24.348	ng		99
76) n-Propylbenzene	19.59	91	1433487	22.761	ng		100
77) 3-Ethyltoluene	19.72	105	1216150	No Calib			
78) 4-Ethyltoluene	19.72	105	1216150	23.670	ng		100
79) 1,3,5-Trimethylbenzene	19.78	105	989915	21.640	ng		100
80) alpha-Methylstyrene	19.72	118	7100	No Calib		#	
81) 2-Ethyltoluene	19.96	105	11552	No Calib			
82) 1,2,4-Trimethylbenzene	20.15	105	987790	22.693	ng		100
83) n-Decane	20.18	57	208	No Calib		#	
84) Benzyl Chloride	20.27	91	1736242	49.974	ng		100
85) 1,3-Dichlorobenzene	20.28	146	622285	22.639	ng		100
86) 1,4-Dichlorobenzene	20.34	146	637819	21.510	ng		100
87) sec-Butylbenzene	20.39	105	1358026	22.818	ng		100
88) 4-Isopropyltoluene (p-...	20.52	119	1194189	23.026	ng		100
89) 1,2,3-Trimethylbenzene	20.52	105	51082	No Calib			
90) 1,2-Dichlorobenzene	20.64	146	608148	22.594	ng		100
91) d-Limonene	20.65	68	376687	25.297	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.02	157	478819	46.923	ng		98
93) n-Undecane	21.34	57	11204	No Calib			
94) 1,2,4-Trichlorobenzene	22.15	180	1029517	46.482	ng		100
95) Naphthalene	22.26	128	1532656	25.308	ng		100
96) n-Dodecane	22.25	57	21446	No Calib		#	
97) Hexachlorobutadiene	22.57	225	344478	22.140	ng		100
98) Cyclohexanone	18.35	55	1360	No Calib			
99) tert-Butylbenzene	20.15	119	972376	22.481	ng		100
100) n-Butylbenzene	20.89	91	1069532	22.914	ng		100
101) 1,1,1,2-Tetrachloroethane	17.65	131	261953	22.703	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212004.D Vial: 1
Acq On : 21 Oct 2020 21:41 Operator: WA
Sample : LCS R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-10152004 (11/14)

Quant Time: Oct 22 03:03:51 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212005.D Vial: 1
Acq On : 21 Oct 2020 22:16 Operator: WA
Sample : LCSD R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-10152004 (11/14)

Quant Time: Oct 22 03:03:53 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	116622	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	508666	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.63	82	239166	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	153185	12.612	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.88%				
57) Toluene-d8 (SS2)	15.76	98	566559	11.980	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.84%				
73) Bromofluorobenzene (SS3)	19.02	174	203861	13.418	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.36%				
Target Compounds							Qvalue
2) Propene	4.17	42	300333	22.378	ng		99
3) Dichlorodifluoromethan...	4.32	85	478992	22.521	ng		100
4) Chloromethane	4.60	50	344262	23.951	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	272270	23.420	ng		100
6) Vinyl Chloride	5.02	62	372152	24.484	ng		100
7) 1,3-Butadiene	5.29	54	325074	25.388	ng		98
8) Bromomethane	5.72	94	226764	22.765	ng		100
9) Chloroethane	6.05	64	187013	22.683	ng		100
10) Ethanol	6.44	45	838456	100.307	ng		100
11) Acetonitrile	6.68	41	476013	24.221	ng		100
12) Acrolein	6.86	56	358753	48.926	ng		99
13) Acetone	7.07	58	908238	104.205	ng		94
14) Trichlorofluoromethane	7.31	101	411951	21.559	ng		100
15) 2-Propanol (Isopropanol)	7.57	45	1287774	49.177	ng		99
16) Acrylonitrile	7.83	53	698333	50.726	ng		100
17) 1,1-Dichloroethene	8.26	96	255491	22.783	ng		100
18) 2-Methyl-2-Propanol (t...	8.43	59	1258082	53.771	ng		100
19) Methylene Chloride	8.50	84	265703	22.896	ng		99
20) 3-Chloro-1-propene (Al...	8.65	41	402031	24.965	ng		97
21) Trichlorotrifluoroethane	8.90	151	253390	24.136	ng		98
22) Carbon Disulfide	8.75	76	1875198	43.490	ng		100
23) trans-1,2-Dichloroethene	9.76	61	368854	25.392	ng		99
24) 1,1-Dichloroethane	10.01	63	447812	23.334	ng		100
25) Methyl tert-Butyl Ether	10.10	73	788480	25.444	ng		100
26) Vinyl Acetate	10.27	86	288632	115.690	ng	#	90
27) 2-Butanone (MEK)	10.51	72	361756	51.172	ng		97
28) cis-1,2-Dichloroethene	11.02	61	342770	23.756	ng		99
29) Diisopropyl Ether	11.31	87	420006	45.434	ng	#	79
30) Ethyl Acetate	11.33	61	261827	65.430	ng		100
31) n-Hexane	11.30	57	403435	22.946	ng		100
32) Chloroform	11.37	83	418696	22.784	ng		100
34) Tetrahydrofuran (THF)	11.77	72	322753	43.840	ng		97
35) Ethyl tert-Butyl Ether	11.91	87	622739	49.671	ng		99
36) 1,2-Dichloroethane	12.17	62	296361	24.324	ng		100
38) 1,1,1-Trichloroethane	12.45	97	366446	22.224	ng		99
39) Isopropyl Acetate	12.90	61	13805	No Calib		#	
40) 1-Butanol	12.96	56	5386	No Calib			
41) Benzene	12.92	78	1008141	22.145	ng		100
42) Carbon Tetrachloride	13.08	117	333983	21.638	ng		99
43) Cyclohexane	13.22	84	794602	45.866	ng		99
44) tert-Amyl Methyl Ether	13.56	73	1444878	49.021	ng		99
45) 1,2-Dichloropropane	13.77	63	256053	22.995	ng		100
46) Bromodichloromethane	13.97	83	332032	23.677	ng		100
47) Trichloroethene	14.02	130	295395	23.143	ng		100
48) 1,4-Dioxane	13.99	88	222456	25.807	ng		100
49) 2,2,4-Trimethylpentane...	14.09	57	1092166	23.545	ng		98
50) Methyl Methacrylate	14.22	100	228576	51.949	ng		100

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212005.D Vial: 1
Acq On : 21 Oct 2020 22:16 Operator: WA
Sample : LCSD R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-10152004 (11/14)

Quant Time: Oct 22 03:03:53 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

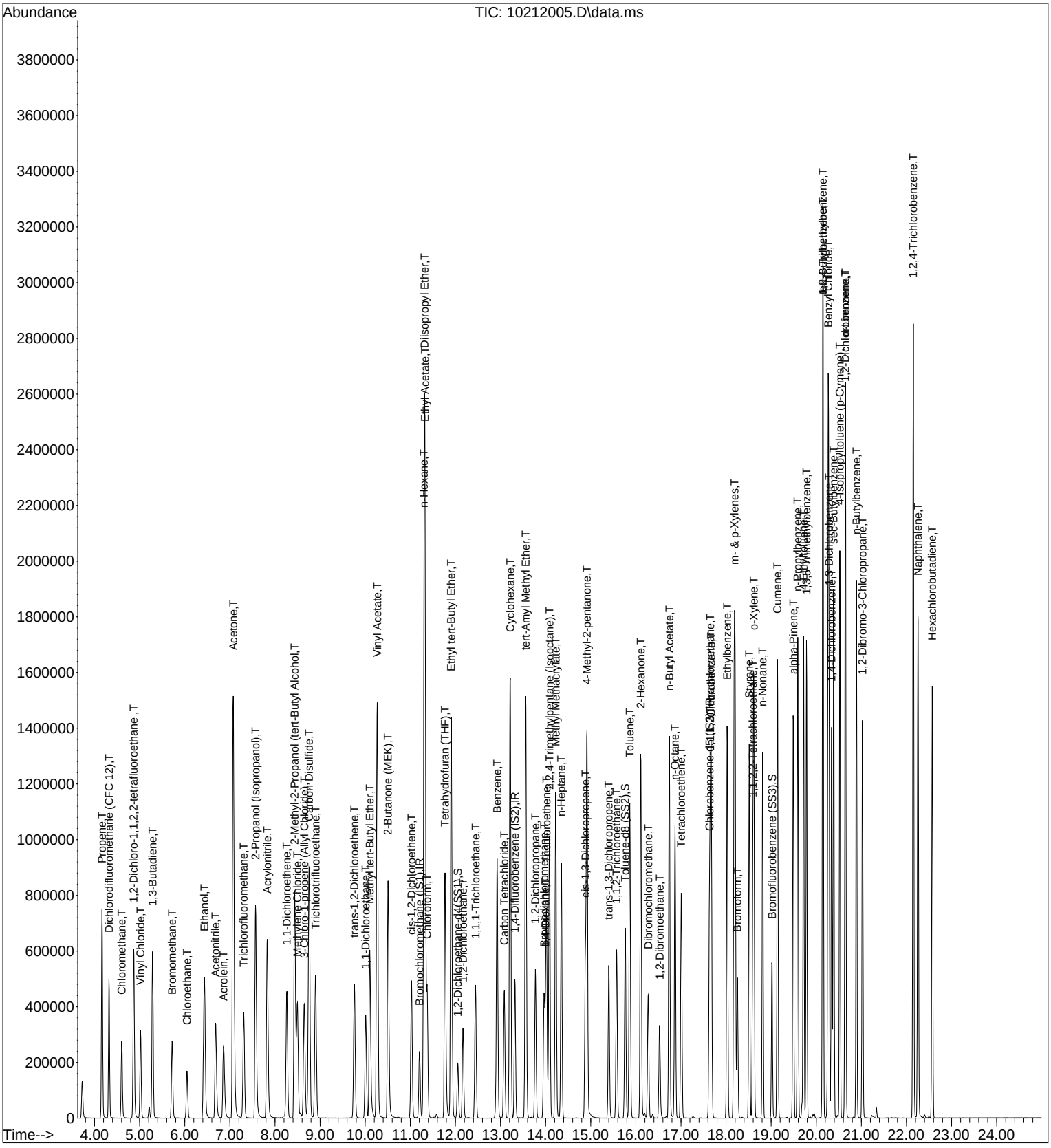
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.35	71	268343	23.236	ng		99
52) cis-1,3-Dichloropropene	14.88	75	417798	25.518	ng		100
53) 4-Methyl-2-pentanone	14.92	58	465704	52.274	ng		97
54) trans-1,3-Dichloropropene	15.40	75	381928	25.703	ng		100
55) 1,1,2-Trichloroethane	15.57	97	252421	23.225	ng		100
58) Toluene	15.87	91	1048154	21.355	ng		100
59) 2-Hexanone	16.11	43	1027041	52.442	ng		98
60) Dibromochloromethane	16.28	129	311584	23.706	ng		100
61) 1,2-Dibromoethane	16.53	107	294153	23.933	ng		100
62) n-Butyl Acetate	16.74	43	1152401	53.370	ng		99
63) n-Octane	16.87	57	222489	22.596	ng		100
64) Tetrachloroethene	17.01	166	321556	21.930	ng		100
65) Chlorobenzene	17.67	112	726798	21.846	ng		100
66) Ethylbenzene	18.02	91	1176322	22.178	ng		100
67) m- & p-Xylenes	18.19	91	1793466	42.947	ng		100
68) Bromoform	18.25	173	286482	24.421	ng		100
69) Styrene	18.51	104	760250	24.104	ng		100
70) o-Xylene	18.62	91	923716	22.077	ng		100
71) n-Nonane	18.81	43	476823	23.803	ng		98
72) 1,1,2,2-Tetrachloroethane	18.59	83	435809	22.447	ng		100
74) Cumene	19.14	105	1197076	22.019	ng		100
75) alpha-Pinene	19.49	93	631993	24.109	ng		100
76) n-Propylbenzene	19.59	91	1419608	22.353	ng		100
77) 3-Ethyltoluene	19.72	105	1212603	No Calib			
78) 4-Ethyltoluene	19.72	105	1212603	23.405	ng		100
79) 1,3,5-Trimethylbenzene	19.78	105	979251	21.229	ng		100
80) alpha-Methylstyrene	19.72	118	6797	No Calib		#	
81) 2-Ethyltoluene	19.95	105	11549	No Calib			
82) 1,2,4-Trimethylbenzene	20.15	105	980358	22.334	ng		100
83) n-Decane	20.18	57	259	No Calib		#	
84) Benzyl Chloride	20.27	91	1737258	49.587	ng		100
85) 1,3-Dichlorobenzene	20.28	146	620511	22.387	ng		100
86) 1,4-Dichlorobenzene	20.34	146	635314	21.247	ng		100
87) sec-Butylbenzene	20.39	105	1352679	22.539	ng		100
88) 4-Isopropyltoluene (p-...	20.52	119	1183918	22.638	ng		100
89) 1,2,3-Trimethylbenzene	20.52	105	49289	No Calib			
90) 1,2-Dichlorobenzene	20.64	146	605578	22.311	ng		100
91) d-Limonene	20.65	68	373648	24.884	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.02	157	477726	46.425	ng		99
93) n-Undecane	21.34	57	11051	No Calib			
94) 1,2,4-Trichlorobenzene	22.15	180	1032475	46.228	ng		100
95) Naphthalene	22.26	128	1536399	25.158	ng		100
96) n-Dodecane	22.25	57	21439	No Calib		#	
97) Hexachlorobutadiene	22.57	225	345701	22.034	ng		100
98) Cyclohexanone	18.35	55	1227	No Calib			
99) tert-Butylbenzene	20.15	119	966367	22.156	ng		100
100) n-Butylbenzene	20.89	91	1065341	22.634	ng		100
101) 1,1,1,2-Tetrachloroethane	17.65	131	260804	22.415	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212005.D Vial: 1
Acq On : 21 Oct 2020 22:16 Operator: WA
Sample : LCSD R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-10152004 (11/14)

Quant Time: Oct 22 03:03:53 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Response Factor Report MS13

Method Path : I:\MS13\METHODS\
Method File : R13092220.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Sep 22 10:50:31 2020
Response Via : Initial Calibration

Calibration Files
0.1 =09222002.D 0.2 =09222003.D 0.5 =09222004.D 1.0 =09222005.D 5.0 =09222006.D 25 =09222007.D 50 =09222008.D
100 =09222009.D

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	----------	----------	ISTD	----------	----------	----------	----------		
2)	T	Propene	1.573	1.567	1.371	1.360	1.309	1.455	1.459	1.416	1.439	6.62
3)	T	Dichlorodifluo...	2.391	2.349	2.282	2.270	2.235	2.375	2.248	2.087	2.280	4.27
4)	T	Chloromethane	1.501	1.388	1.445	1.655	1.708	1.712	1.374		1.541	9.63
5)	T	1,2-Dichloro-1...	1.435	1.249	1.149	1.223	1.166	1.281	1.250	1.214	1.246	7.08
6)	T	Vinyl Chloride	1.721	1.598	1.365	1.645	1.628	1.765	1.687	1.624	1.629	7.39
7)	T	1,3-Butadiene	1.282	1.180	1.338	1.450	1.474	1.524	1.433	1.298	1.372	8.48
8)	T	Bromomethane	1.044	1.024	1.039	1.086	1.042	1.158	1.108	1.040	1.068	4.32
9)	T	Chloroethane		0.880	0.856	0.880	0.869	0.949	0.906	0.845	0.884	3.94
10)	T	Ethanol	1.254	1.074	0.829	0.855	0.826	0.845	0.782	0.702	0.896	19.97
11)	T	Acetonitrile	2.376	2.253	1.922	2.056	1.969	2.182	2.112	1.981	2.106	7.42
12)	T	Acrolein	0.657	0.792	0.739	0.810	0.808	0.875	0.837	0.770	0.786	8.43
13)	T	Acetone	1.201	1.206	0.880	0.923	0.887	0.897	0.807	0.673	0.934	19.66
14)	T	Trichlorofluor...	2.155	2.135	2.006	2.040	1.965	2.101	2.050	1.931	2.048	3.87
15)	T	2-Propanol (Is...	2.784	2.717	2.794	3.006	3.028	3.140	2.737	2.248	2.807	9.77
16)	T	Acrylonitrile	1.105	1.389	1.418	1.569	1.557	1.696	1.613	1.457	1.476	12.33
17)	T	1,1-Dichloroet...	1.214	1.195	1.186	1.186	1.162	1.269	1.234	1.170	1.202	2.97
18)	T	2-Methyl-2-Pro...	2.142	2.006	2.589	2.784	2.834	2.929	2.271		2.508	14.64
19)	T	Methylene Chlo...	1.308	1.297	1.181	1.223	1.201	1.304	1.263	1.174	1.244	4.51
20)	T	3-Chloro-1-pro...	1.813	1.681	1.670	1.726	1.715	1.828	1.754	1.621	1.726	4.11
21)	T	Trichlorotrifl...	1.136	1.114	1.143	1.141	1.075	1.161	1.147	1.085	1.125	2.73
22)	T	Carbon Disulfide	6.133	5.212	4.635	4.576	4.237	4.445	4.137	3.596	4.622	16.57
23)	T	trans-1,2-Dich...	1.331	1.451	1.458	1.588	1.589	1.753	1.699	1.587	1.557	8.87
24)	T	1,1-Dichloroet...	2.160	2.066	1.998	2.063	2.020	2.163	2.075	1.911	2.057	4.05
25)	T	Methyl tert-Bu...	3.138	3.104	3.270	3.424	3.434	3.735	3.504	2.965	3.322	7.53
26)	T	Vinyl Acetate		0.244	0.245	0.283	0.286	0.305	0.277	0.232	0.267	10.18
27)	T	2-Butanone (MEK)		0.644	0.651	0.787	0.802	0.864	0.823	0.734	0.758	11.20
28)	T	cis-1,2-Dichlo...	1.524	1.549	1.482	1.546	1.531	1.664	1.602	1.475	1.547	4.02
29)	T	Diisopropyl Ether	1.069	1.085	1.046	1.098	1.054	0.991	0.875	0.707	0.991	13.61
30)	T	Ethyl Acetate			0.406	0.466	0.473	0.484	0.415	0.331	0.429	13.40
31)	T	n-Hexane	2.036	2.039	1.966	2.060	1.958	1.951	1.697	1.369	1.884	12.61
32)	T	Chloroform	2.094	2.059	1.910	1.964	1.892	2.042	1.967	1.830	1.970	4.62
33)	S	1,2-Dichloroet...	1.295	1.322	1.304	1.314	1.305	1.313	1.286	1.276	1.302	1.18
34)	T	Tetrahydrofura...	0.872	0.809	0.761	0.793	0.780	0.825	0.780	0.693	0.789	6.55
35)	T	Ethyl tert-But...	1.179	1.280	1.381	1.422	1.387	1.489	1.393	1.220	1.344	7.94
36)	T	1,2-Dichloroet...	1.128	1.264	1.262	1.333	1.320	1.438	1.393	1.309	1.306	7.17
37)	IR	1,4-Difluorobenzen...	----------	----------	----------	ISTD	----------	----------	----------	----------		
38)	T	1,1,1-Trichlor...	0.424	0.421	0.391	0.395	0.389	0.423	0.411	0.387	0.405	3.97
39)	T	Isopropyl Acetate									0.000	-1.00
40)	T	1-Butanol									0.000	-1.00
41)	T	Benzene	1.182	1.174	1.119	1.138	1.092	1.153	1.101	0.991	1.119	5.43
42)	T	Carbon Tetrach...	0.376	0.352	0.362	0.356	0.357	0.390	0.478	0.364	0.379	10.97

Method Path : I:\MS13\METHODS\
Method File : R13092220.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

43)	T	Cyclohexane	0.456	0.451	0.425	0.436	0.424	0.444	0.414	0.354	0.426	7.56
44)	T	tert-Amyl Meth...	0.705	0.716	0.741	0.757	0.745	0.788	0.728	0.614	0.724	7.06
45)	T	1,2-Dichloropr...	0.277	0.279	0.268	0.274	0.269	0.289	0.279	0.254	0.274	3.76
46)	T	Bromodichlorom...	0.303	0.329	0.339	0.348	0.350	0.378	0.368	0.342	0.345	6.72
47)	T	Trichloroethene	0.317	0.299	0.298	0.307	0.310	0.338	0.331	0.310	0.314	4.53
48)	T	1,4-Dioxane		0.172	0.190	0.211	0.220	0.242	0.234	0.213	0.212	11.42
49)	T	2,2,4-Trimethy...	1.279	1.199	1.151	1.170	1.107	1.165	1.096	0.952	1.140	8.32
50)	T	Methyl Methacr...			0.081	0.101	0.112	0.125	0.120	0.109	0.108	14.47
51)	T	n-Heptane	0.278	0.301	0.280	0.295	0.280	0.298	0.285	0.254	0.284	5.31
52)	T	cis-1,3-Dichlo...	0.332	0.353	0.379	0.407	0.424	0.466	0.448	0.411	0.402	11.37
53)	T	4-Methyl-2-pen...		0.187	0.200	0.231	0.238	0.252	0.230	0.194	0.219	11.36
54)	T	trans-1,3-Dich...		0.245	0.316	0.351	0.387	0.436	0.426	0.395	0.365	18.42
55)	T	1,1,2-Trichlor...	0.265	0.269	0.254	0.266	0.265	0.285	0.276	0.257	0.267	3.76
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------									
57)	S	Toluene-d8 (SS2)	2.539	2.554	2.563	2.565	2.544	2.450	2.349	2.210	2.472	5.25
58)	T	Toluene	2.929	2.865	2.592	2.667	2.532	2.576	2.378	1.981	2.565	11.52
59)	T	2-Hexanone		0.928	0.944	1.091	1.175	1.185	1.037	0.805	1.024	13.63
60)	T	Dibromochlorom...	0.655	0.669	0.662	0.691	0.705	0.752	0.720	0.642	0.687	5.40
61)	T	1,2-Dibromoethane	0.543	0.612	0.605	0.690	0.682	0.720	0.685	0.602	0.642	9.38
62)	T	n-Butyl Acetate		0.858	1.034	1.219	1.342	1.355	1.187	0.905	1.129	17.73
63)	T	n-Octane	0.543	0.535	0.543	0.552	0.528	0.535	0.487	0.394	0.515	10.21
64)	T	Tetrachloroethene	0.808	0.791	0.772	0.779	0.754	0.790	0.759	0.679	0.766	5.16
65)	T	Chlorobenzene	1.995	1.856	1.780	1.778	1.713	1.779	1.645	1.366	1.739	10.49
66)	T	Ethylbenzene	3.014	2.858	2.827	2.872	2.870	2.906	2.656	2.173	2.772	9.43
67)	T	m- & p-Xylenes	2.547	2.311	2.276	2.347	2.233	2.199	1.974	1.574	2.183	13.44
68)	T	Bromoform	0.565	0.582	0.572	0.596	0.626	0.694	0.668	0.603	0.613	7.58
69)	T	Styrene	1.602	1.517	1.502	1.669	1.788	1.891	1.750	1.468	1.648	9.25
70)	T	o-Xylene	2.449	2.292	2.277	2.312	2.227	2.244	2.042	1.652	2.187	11.15
71)	T	n-Nonane	1.039	1.102	1.106	1.167	1.132	1.116	0.973	0.740	1.047	13.15
72)	T	1,1,2,2-Tetrac...	1.012	1.069	1.053	1.093	1.065	1.079	0.970	0.777	1.015	10.26
73)	S	Bromofluoroben...	0.821	0.808	0.810	0.805	0.807	0.791	0.769	0.741	0.794	3.32
74)	T	Cumene	3.222	3.045	2.888	2.982	2.879	2.925	2.653	2.138	2.841	11.50
75)	T	alpha-Pinene	1.283	1.321	1.409	1.481	1.454	1.514	1.379	1.120	1.370	9.31
76)	T	n-Propylbenzene	3.590	3.487	3.433	3.560	3.474	3.468	3.097	2.445	3.319	11.57
77)	T	3-Ethyltoluene									0.000	-1.00
78)	T	4-Ethyltoluene	2.802	2.831	2.674	2.850	2.839	2.908	2.634	2.125	2.708	9.34
79)	T	1,3,5-Trimethy...	2.944	2.545	2.536	2.543	2.369	2.391	2.182	1.777	2.411	13.95
80)	T	alpha-Methylst...									0.000	-1.00
81)	T	2-Ethyltoluene									0.000	-1.00
82)	T	1,2,4-Trimethy...	2.467	2.363	2.402	2.530	2.429	2.428	2.115	1.618	2.294	13.04
83)	T	n-Decane									0.000	-1.00
84)	T	Benzyl Chloride	1.704	1.722	1.853	2.018	2.046	2.131	1.830	1.346	1.831	13.61
85)	T	1,3-Dichlorobe...	1.689	1.503	1.455	1.492	1.451	1.510	1.388	1.101	1.449	11.41
86)	T	1,4-Dichlorobe...	2.007	1.658	1.552	1.566	1.485	1.556	1.449	1.228	1.563	14.07
87)	T	sec-Butylbenzene	3.530	3.338	3.263	3.353	3.236	3.142	2.919	2.313	3.137	12.00
88)	T	4-Isopropyltol...	2.944	2.811	2.798	2.899	2.843	2.887	2.607	2.076	2.733	10.40
89)	T	1,2,3-Trimethy...									0.000	-1.00
90)	T	1,2-Dichlorobe...	1.696	1.507	1.441	1.492	1.406	1.446	1.314	1.047	1.419	13.07
91)	T	d-Limonene	0.643	0.719	0.819	0.898	0.922	0.926	0.780	0.572	0.785	16.86
92)	T	1,2-Dibromo-3-...	0.542	0.497	0.498	0.544	0.565	0.611	0.571	0.476	0.538	8.42
93)	T	n-Undecane									0.000	-1.00
94)	T	1,2,4-Trichlor...	1.477	1.039	1.147	1.191	1.146	1.252	1.155	0.931	1.167	13.61

Method Path : I:\MS13\METHODS\
Method File : R13092220.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

95)	T	Naphthalene		3.276	3.044	3.308	3.205	3.534	3.281	2.694	3.192	8.24
96)	T	n-Dodecane									0.000	-1.00
97)	T	Hexachlorobuta...	0.952	0.833	0.795	0.791	0.784	0.848	0.822	0.736	0.820	7.73
98)	T	Cyclohexanone									0.000	-1.00
99)	T	tert-Butylbenzene	2.603	2.436	2.381	2.445	2.391	2.363	2.050	1.568	2.280	14.31
100)	T	n-Butylbenzene	2.523	2.471	2.549	2.735	2.609	2.619	2.338	1.837	2.460	11.27
101)	T	1,1,1,2-tetrac...	0.657	0.605	0.600	0.628	0.611	0.643	0.605	0.515	0.608	7.05

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:	S34-09182005	40ng/L Std. ID:	
4ng/L Std. ID:		200ng/L Std. ID:	S34-09182002
20ng/L Std. ID:	S34-09182003	1000ng/L Std. ID:	

Dilution Factors:		1	5	25	50	250	1000	Working STD Conc.(ng/L):	1	1	20	20	200	200	200	200
	Source Std.		Primary Working Standards					Injection (L):	0.100	0.200	0.0250	0.050	0.025	0.125	0.25	0.50
Compounds	mg/m³	1000ng/L	200ng/L	40ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
Propene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Dichlorodifluoromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chloromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Freon-114	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Vinyl Chloride	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,3-Butadiene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Bromomethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Ethanol	5.28	5280	1056	211.2	105.6	21.12	5.28		0.528	1.056	2.640	5.28	26.40	132.00	264.0	528
Acetonitrile	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
Acrolein	2.18	2180	436	87.2	43.6	8.72	2.18		0.218	0.436	1.090	2.18	10.90	54.50	109.0	218
Acetone	5.16	5160	1032	206.4	103.2	20.64	5.16		0.516	1.032	2.580	5.16	25.80	129.00	258.0	516
Trichlorofluoromethane	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
Isopropanol	2.05	2050	410	82.0	41.0	8.20	2.05		0.205	0.410	1.025	2.05	10.25	51.25	102.5	205
Acrylonitrile	2.05	2050	410	82.0	41.0	8.20	2.05		0.205	0.410	1.025	2.05	10.25	51.25	102.5	205
1,1-Dichloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
tert-Butanol	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
Methylene Chloride	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Allyl Chloride	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Trichlorotrifluoroethane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Carbon Disulfide	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
trans-1,2-Dichloroethene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,1-Dichloroethane	1.07	1070	214	42.8	21.4	4.28	1.07		0.107	0.214	0.535	1.07	5.35	26.75	53.5	107
Methyl tert-Butyl Ether	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Vinyl Acetate	5.49	5490	1098	219.6	109.8	21.96	5.49		0.549	1.098	2.745	5.49	27.45	137.25	274.5	549
2-Butanone	2.06	2060	412	82.4	41.2	8.24	2.06		0.206	0.412	1.030	2.06	10.30	51.50	103.0	206
cis-1,2-Dichloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Diisopropyl Ether	2.09	2090	418	83.6	41.8	8.36	2.09		0.209	0.418	1.045	2.09	10.45	52.25	104.5	209
Ethyl Acetate	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
n-Hexane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chloroform	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Tetrahydrofuran	2.04	2040	408	81.6	40.8	8.16	2.04		0.204	0.408	1.020	2.04	10.20	51.00	102.0	204
Ethyl tert-Butyl Ether	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
1,2-Dichloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,1,1-Trichloroethane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Benzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Carbon Tetrachloride	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
Cyclohexane	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
tert-Amyl Methyl Ether	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
1,2-Dichloropropane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Bromodichloromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Trichloroethene	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
1,4-Dioxane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Isooctane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Methyl Methacrylate	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
n-Heptane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103

LL 9/19/2020

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:	**S34-09182005**	**40ng/L Std. ID:**	
4ng/L Std. ID:		**200ng/L Std. ID:**	**S34-09182002**
20ng/L Std. ID:	**S34-09182003**	**1000ng/L Std. ID:**	

Dilution Factors:		**1**	**5**	**25**	**50**	**250**	**1000**	**Working STD Conc.(ng/L):**	**1**	**1**	**20**	**20**	**200**	**200**	**200**	**200**
	Source Std.			**Primary Working Standards**				**Injection (L):**	**0.100**	**0.200**	**0.0250**	**0.050**	**0.025**	**0.125**	**0.25**	**0.50**
Compounds	**mg/m³**	**1000ng/L**	**200ng/L**	**40ng/L**	**20ng/L**	**4ng/L**	**1ng/L**	**ICAL Points:**	**0.1ng**	**0.2ng**	**0.5ng**	**1ng**	**5ng**	**25ng**	**50ng**	**100ng**
cis-1,3-Dichloropropene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
4-Methyl-2-pentanone	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
trans-1,3-Dichloropropene	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
1,1,2-Trichloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Toluene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
2-Hexanone	2.06	2060	412	82.4	41.2	8.24	2.06		0.206	0.412	1.030	2.06	10.30	51.50	103.0	206
Dibromochloromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,2-Dibromoethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
n-Butyl Acetate	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
n-Octane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Tetrachloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chlorobenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Ethylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
m-&p-Xylene	2.09	2090	418	83.6	41.8	8.36	2.09		0.209	0.418	1.045	2.09	10.45	52.25	104.5	209
Bromoform	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
Styrene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
o-Xylene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
n-Nonane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,1,2,2-Tetrachloroethane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Cumene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
alpha-Pinene	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
n-Propylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
4-Ethyltoluene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,3,5-Trimethylbenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,2,4-Trimethylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Benzyl Chloride	2.10	2100	420	84.0	42.0	8.40	2.10		0.210	0.420	1.050	2.10	10.50	52.50	105.0	210
1,3-Dichlorobenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,4-Dichlorobenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
sec-Butylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
p-Isopropyltoluene	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
1,2-Dichlorobenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
d-Limonene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
1,2-Dibromo-3-chloropropane	2.00	2000	400	80.0	40.0	8.00	2.00		0.200	0.400	1.000	2.00	10.00	50.00	100.0	200
1,2,4-Trichlorobenzene	2.00	2000	400	80.0	40.0	8.00	2.00		0.200	0.400	1.000	2.00	10.00	50.00	100.0	200
Naphthalene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Hexachloro-1,3-butadiene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
tert-Butylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
n-Butylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
1,1,1,2-Tetrachloroethane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103

Lab Use Only

Calibration Status Report MS13

Method   : I:\MS13\METHODS\R13092220.M (RTE Integrator)
Title   : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS13\DATA\2020_09\22\09222002.D
2	0.2	0	13	I:\MS13\DATA\2020_09\22\09222003.D
3	0.5	1	13	I:\MS13\DATA\2020_09\22\09222004.D
4	1.0	1	13	I:\MS13\DATA\2020_09\22\09222005.D
5	5.0	5	13	I:\MS13\DATA\2020_09\22\09222006.D
6	25	26	13	I:\MS13\DATA\2020_09\22\09222007.D
7	50	52	13	I:\MS13\DATA\2020_09\22\09222008.D
8	100	104	13	I:\MS13\DATA\2020_09\22\09222009.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Sep 22 09:49 2020	Sep 22 09:43 2020	22 Sep 2020 6:25
2	0.2	Sep 22 09:49 2020	Sep 22 09:44 2020	22 Sep 2020 6:59
3	0.5	Sep 22 09:49 2020	Sep 22 09:45 2020	22 Sep 2020 7:33
4	1.0	Sep 22 09:49 2020	Sep 22 09:46 2020	22 Sep 2020 8:07
5	5.0	Sep 22 09:49 2020	Sep 22 09:47 2020	22 Sep 2020 8:41
6	25	Sep 22 09:50 2020	Sep 22 09:48 2020	22 Sep 2020 9:16
7	50	Sep 22 10:39 2020	Sep 22 10:39 2020	22 Sep 2020 9:50
8	100	Sep 22 10:50 2020	Sep 22 10:49 2020	22 Sep 2020 10:24

R13092220.M Tue Sep 22 12:18:31 2020

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222002.D Vial: 13
Acq On : 22 Sep 2020 6:25 Operator: WA
Sample : 0.1ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182005 (10/17)

Quant Time: Sep 22 09:43:49 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	131705	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.31	114	571661	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	252136	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.04	65	170554	12.217	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.76%				
57) Toluene-d8 (SS2)	15.76	98	640239	13.012	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.08%				
73) Bromofluorobenzene (SS3)	19.01	174	206944	12.884	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.04%				
Target Compounds							Qvalue
2) Propene	4.22	42	1724	0.112	ng		93
3) Dichlorodifluoromethan...	4.36	85	2620	0.106	ng	#	89
4) Chloromethane	4.66	50	1645	0.103	ng		90
5) 1,2-Dichloro-1,1,2,2-t...	4.90	135	1573	0.122	ng		90
6) Vinyl Chloride	5.06	62	1904	0.110	ng		91
7) 1,3-Butadiene	5.33	54	1405	0.096	ng		98
8) Bromomethane	5.74	94	1144	0.101	ng		99
9) Chloroethane	6.07	64	1054	0.112	ng	#	42
10) Ethanol	6.43	45	6976	0.733	ng		87
11) Acetonitrile	6.72	41	2654	0.114	ng	#	1
12) Acrolein	6.90	56	1509	0.183	ng		87
13) Acetone	7.12	58	6527	0.642	ng		94
14) Trichlorofluoromethane	7.33	101	2316	0.106	ng		99
15) 2-Propanol (Isopropanol)	7.65	45	6014	0.202	ng		81
16) Acrylonitrile	7.87	53	2386	0.150	ng		95
17) 1,1-Dichloroethene	8.27	96	1330	0.105	ng		100
18) 2-Methyl-2-Propanol (t...	8.55	59	4671	0.181	ng	#	78
19) Methylene Chloride	8.49	84	1433	0.110	ng		100
20) 3-Chloro-1-propene (Al...	8.66	41	1987	0.108	ng		74
21) Trichlorotrifluoroethane	8.91	151	1257	0.106	ng		99
22) Carbon Disulfide	8.77	76	13442	0.270	ng		94
23) trans-1,2-Dichloroethene	9.77	61	1473	0.089	ng		90
24) 1,1-Dichloroethane	10.00	63	2435	0.112	ng		89
25) Methyl tert-Butyl Ether	10.18	73	3405	0.096	ng		94
26) Vinyl Acetate	10.30	86	888	0.316	ng	#	1
27) 2-Butanone (MEK)	10.59	72	1047	0.134	ng	#	48
28) cis-1,2-Dichloroethene	11.02	61	1670	0.101	ng		99
29) Diisopropyl Ether	11.34	87	2354	0.225	ng	#	45
30) Ethyl Acetate	0.00	61	0	N.D.	d		
31) n-Hexane	11.30	57	2231	0.111	ng	#	87
32) Chloroform	11.36	83	2317	0.112	ng		93
34) Tetrahydrofuran (THF)	11.85	72	1875	0.225	ng	#	84
35) Ethyl tert-Butyl Ether	11.93	87	2584	0.180	ng		93
36) 1,2-Dichloroethane	12.17	62	1236	0.087	ng	#	60
38) 1,1,1-Trichloroethane	12.44	97	1997	0.107	ng		93
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	12.92	78	5622	0.108	ng		96
42) Carbon Tetrachloride	13.07	117	1754	0.100	ng		97
43) Cyclohexane	13.20	84	4321	0.222	ng		97
44) tert-Amyl Methyl Ether	13.59	73	6677	0.200	ng		97
45) 1,2-Dichloropropane	13.78	63	1317	0.103	ng		85
46) Bromodichloromethane	13.97	83	1439	0.088	ng		92
47) Trichloroethene	14.02	130	1477	0.104	ng		94
48) 1,4-Dioxane	14.07	88	625	0.066	ng	#	49
49) 2,2,4-Trimethylpentane...	14.08	57	6141	0.117	ng		99
50) Methyl Methacrylate	14.35	100	509	0.109	ng	#	1

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222002.D Vial: 13
Acq On : 22 Sep 2020 6:25 Operator: WA
Sample : 0.1ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182005 (10/17)

Quant Time: Sep 22 09:43:49 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

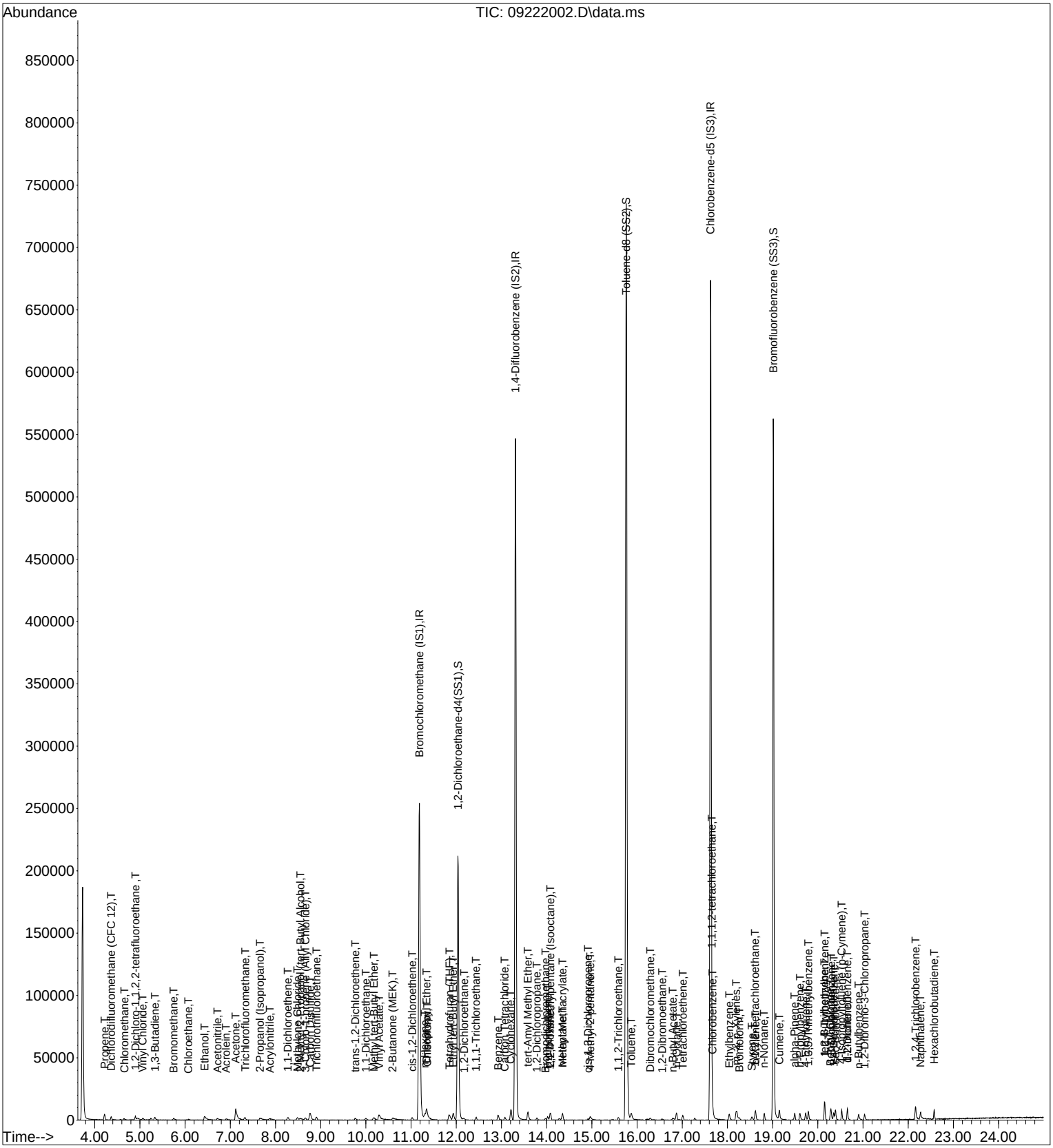
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.35	71	1310	0.101	ng		91
52) cis-1,3-Dichloropropene	14.92	75	1593	0.087	ng	#	56
53) 4-Methyl-2-pentanone	14.97	58	1378	0.142	ng	#	50
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
55) 1,1,2-Trichloroethane	15.59	97	1260	0.104	ng		89
58) Toluene	15.87	91	6145	0.120	ng		99
59) 2-Hexanone	0.00	43	0	N.D.	d		
60) Dibromochloromethane	16.29	129	1375	0.101	ng		93
61) 1,2-Dibromoethane	16.56	107	1139	0.089	ng		95
62) n-Butyl Acetate	16.79	43	2696	0.118	ng	#	80
63) n-Octane	16.87	57	1140	0.110	ng		95
64) Tetrachloroethene	17.01	166	1695	0.112	ng		95
65) Chlorobenzene	17.67	112	4144	0.120	ng		99
66) Ethylbenzene	18.04	91	6323	0.114	ng		94
67) m- & p-Xylenes	18.19	91	10737	0.248	ng		95
68) Bromoform	18.26	173	1208	0.100	ng		87
69) Styrene	18.54	104	3328	0.103	ng		77
70) o-Xylene	18.62	91	5187	0.120	ng		100
71) n-Nonane	18.81	43	2200	0.104	ng		97
72) 1,1,2,2-Tetrachloroethane	18.61	83	2144	0.104	ng		100
74) Cumene	19.15	105	6758	0.119	ng		97
75) alpha-Pinene	19.49	93	2743	0.101	ng		96
76) n-Propylbenzene	19.61	91	7531	0.113	ng		94
77) 3-Ethyltoluene	0.00	105	0	N.D.	d		
78) 4-Ethyltoluene	19.73	105	5934	0.110	ng		96
79) 1,3,5-Trimethylbenzene	19.79	105	6235	0.131	ng		90
80) alpha-Methylstyrene	0.00	118	0	N.D.			
81) 2-Ethyltoluene	0.00	105	0	N.D.	d		
82) 1,2,4-Trimethylbenzene	20.15	105	5126	0.113	ng		96
83) n-Decane	0.00	57	0	N.D.			
84) Benzyl Chloride	20.28	91	7217	0.196	ng		85
85) 1,3-Dichlorobenzene	20.29	146	3578	0.127	ng		99
86) 1,4-Dichlorobenzene	20.35	146	4211	0.138	ng		96
87) sec-Butylbenzene	20.39	105	7333	0.118	ng		89
88) 4-Isopropyltoluene (p-...	20.53	119	6058	0.112	ng		95
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d		
90) 1,2-Dichlorobenzene	20.65	146	3592	0.129	ng		93
91) d-Limonene	20.65	68	1335	0.085	ng		92
92) 1,2-Dibromo-3-Chloropr...	21.03	157	2185	0.205	ng		89
93) n-Undecane	0.00	57	0	N.D.			
94) 1,2,4-Trichlorobenzene	22.16	180	5957	0.266	ng		95
95) Naphthalene	22.27	128	10825	0.166	ng		87
96) n-Dodecane	0.00	57	0	N.D.			
97) Hexachlorobutadiene	22.58	225	1977	0.122	ng		100
98) Cyclohexanone	0.00	55	0	N.D.			
99) tert-Butylbenzene	20.15	119	5460	0.121	ng		94
100) n-Butylbenzene	20.90	91	5241	0.108	ng	#	87
101) 1,1,1,2-tetrachloroethane	17.65	131	1366	0.114	ng	#	87

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222002.D Vial: 13
Acq On : 22 Sep 2020 6:25 Operator: WA
Sample : 0.1ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182005 (10/17)

Quant Time: Sep 22 09:43:49 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222003.D Vial: 13
Acq On : 22 Sep 2020 6:59 Operator: WA
Sample : 0.2ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182005 (10/17)

Quant Time: Sep 22 09:44:44 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	134204	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.31	114	586724	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	258362	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.04	65	177389	12.470	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.76%				
57) Toluene-d8 (SS2)	15.76	98	659908	13.089	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.72%				
73) Bromofluorobenzene (SS3)	19.02	174	208796	12.686	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.52%				
Target Compounds							Qvalue
2) Propene	4.21	42	3499	0.223	ng		95
3) Dichlorodifluoromethan...	4.36	85	5246	0.209	ng		97
4) Chloromethane	4.64	50	3100	0.190	ng		90
5) 1,2-Dichloro-1,1,2,2-t...	4.89	135	2789	0.212	ng		95
6) Vinyl Chloride	5.05	62	3603	0.204	ng		98
7) 1,3-Butadiene	5.32	54	2636	0.177	ng		92
8) Bromomethane	5.74	94	2287	0.197	ng		96
9) Chloroethane	6.07	64	1966	0.206	ng		79
10) Ethanol	6.41	45	12177	1.256	ng		92
11) Acetonitrile	6.70	41	5129	0.216	ng	#	29
12) Acrolein	6.89	56	3706	0.441	ng		86
13) Acetone	7.10	58	13367	1.291	ng		96
14) Trichlorofluoromethane	7.32	101	4676	0.210	ng		96
15) 2-Propanol (Isopropanol)	7.63	45	11959	0.395	ng		95
16) Acrylonitrile	7.84	53	6114	0.377	ng		96
17) 1,1-Dichloroethene	8.27	96	2669	0.206	ng		97
18) 2-Methyl-2-Propanol (t...	8.52	59	8917	0.338	ng		91
19) Methylene Chloride	8.49	84	2896	0.219	ng		97
20) 3-Chloro-1-propene (Al...	8.66	41	3754	0.200	ng		87
21) Trichlorotrifluoroethane	8.90	151	2512	0.207	ng		97
22) Carbon Disulfide	8.76	76	23280	0.459	ng		96
23) trans-1,2-Dichloroethene	9.77	61	3272	0.194	ng		95
24) 1,1-Dichloroethane	10.00	63	4747	0.213	ng		94
25) Methyl tert-Butyl Ether	10.15	73	6864	0.190	ng		94
26) Vinyl Acetate	10.28	86	2872	1.004	ng	#	42
27) 2-Butanone (MEK)	10.57	72	2850	0.358	ng	#	71
28) cis-1,2-Dichloroethene	11.02	61	3459	0.206	ng		99
29) Diisopropyl Ether	11.34	87	4871	0.457	ng	#	41
30) Ethyl Acetate	11.37	61	1439	0.314	ng		83
31) n-Hexane	11.30	57	4554	0.222	ng	#	96
32) Chloroform	11.35	83	4642	0.221	ng		93
34) Tetrahydrofuran (THF)	11.83	72	3542	0.417	ng	#	87
35) Ethyl tert-Butyl Ether	11.92	87	5715	0.391	ng		89
36) 1,2-Dichloroethane	12.17	62	2823	0.195	ng		89
38) 1,1,1-Trichloroethane	12.44	97	4069	0.212	ng		95
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	12.93	78	11457	0.214	ng		95
42) Carbon Tetrachloride	13.07	117	3369	0.187	ng		95
43) Cyclohexane	13.21	84	8769	0.439	ng		99
44) tert-Amyl Methyl Ether	13.57	73	13908	0.406	ng		97
45) 1,2-Dichloropropane	13.78	63	2721	0.208	ng		94
46) Bromodichloromethane	13.97	83	3213	0.192	ng		94
47) Trichloroethene	14.02	130	2863	0.196	ng		100
48) 1,4-Dioxane	14.06	88	1665	0.172	ng	#	54
49) 2,2,4-Trimethylpentane...	14.08	57	11816	0.219	ng		99
50) Methyl Methacrylate	14.26	100	1022	0.213	ng	#	52

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222003.D Vial: 13
Acq On : 22 Sep 2020 6:59 Operator: WA
Sample : 0.2ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182005 (10/17)

Quant Time: Sep 22 09:44:44 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

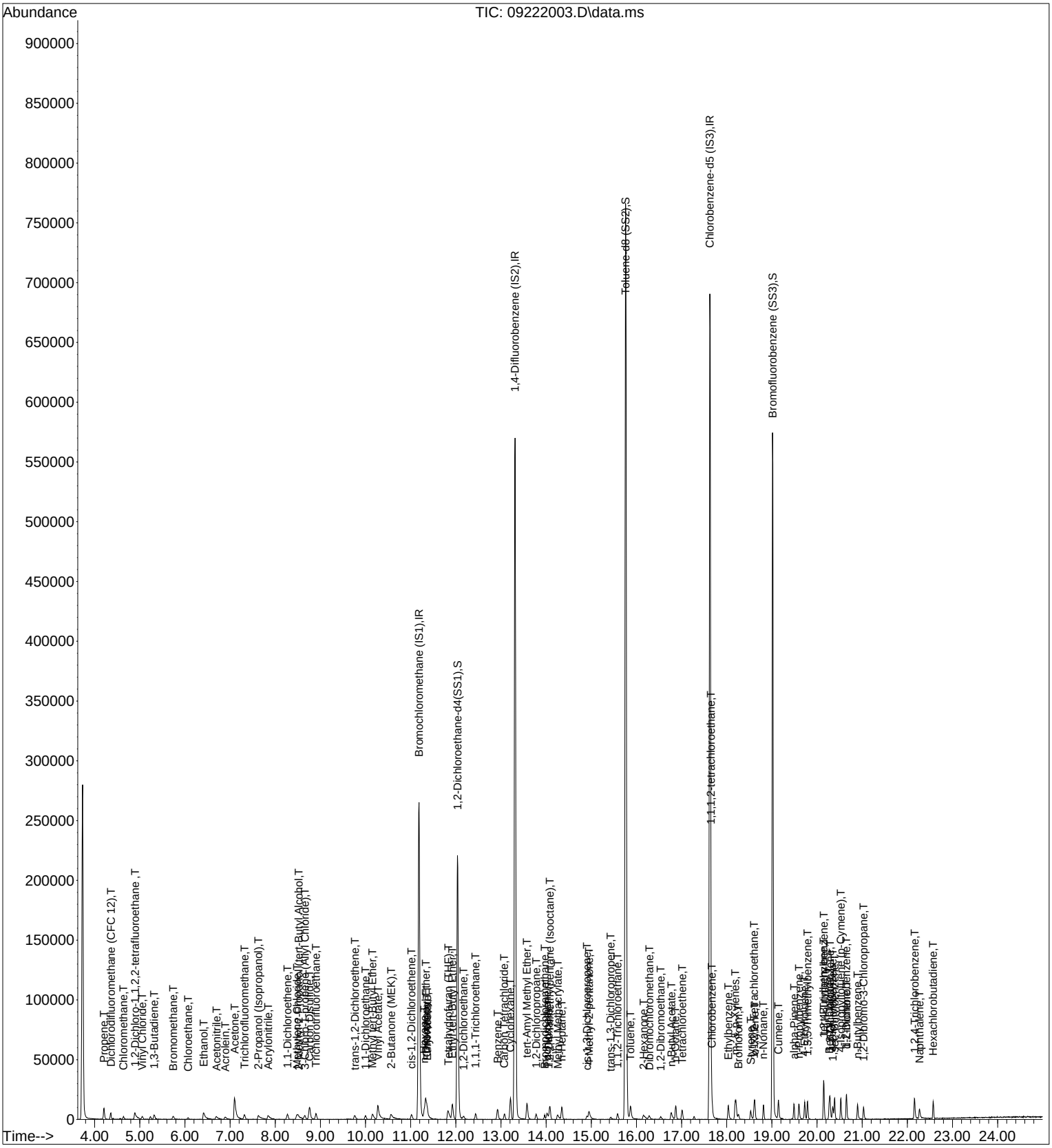
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.35	71	2908	0.218	ng		93
52) cis-1,3-Dichloropropene	14.91	75	3476	0.184	ng		84
53) 4-Methyl-2-pentanone	14.95	58	3653	0.367	ng	#	78
54) trans-1,3-Dichloropropene	15.43	75	2343	0.143	ng		78
55) 1,1,2-Trichloroethane	15.58	97	2622	0.211	ng		98
58) Toluene	15.87	91	12319	0.236	ng		95
59) 2-Hexanone	16.16	43	7902	0.371	ng		91
60) Dibromochloromethane	16.29	129	2875	0.206	ng		100
61) 1,2-Dibromoethane	16.54	107	2633	0.202	ng		95
62) n-Butyl Acetate	16.77	43	7341	0.313	ng		97
63) n-Octane	16.86	57	2298	0.217	ng		98
64) Tetrachloroethene	17.01	166	3402	0.220	ng		97
65) Chlorobenzene	17.67	112	7902	0.223	ng		99
66) Ethylbenzene	18.04	91	12288	0.216	ng		97
67) m- & p-Xylenes	18.19	91	19966	0.450	ng		97
68) Bromoform	18.26	173	2549	0.207	ng		95
69) Styrene	18.53	104	6457	0.195	ng		93
70) o-Xylene	18.62	91	9948	0.224	ng		97
71) n-Nonane	18.81	43	4784	0.221	ng		93
72) 1,1,2,2-Tetrachloroethane	18.60	83	4639	0.220	ng		94
74) Cumene	19.15	105	13093	0.226	ng		97
75) alpha-Pinene	19.49	93	5789	0.208	ng		97
76) n-Propylbenzene	19.60	91	14992	0.220	ng		96
77) 3-Ethyltoluene	0.00	105	0	N.D.	d		
78) 4-Ethyltoluene	19.73	105	12287	0.223	ng		98
79) 1,3,5-Trimethylbenzene	19.79	105	11048	0.227	ng		94
80) alpha-Methylstyrene	0.00	118	0	N.D.			
81) 2-Ethyltoluene	0.00	105	0	N.D.	d		
82) 1,2,4-Trimethylbenzene	20.15	105	10063	0.217	ng		98
83) n-Decane	0.00	57	0	N.D.	d		
84) Benzyl Chloride	20.27	91	14948	0.396	ng		94
85) 1,3-Dichlorobenzene	20.29	146	6523	0.227	ng		100
86) 1,4-Dichlorobenzene	20.35	146	7130	0.228	ng		99
87) sec-Butylbenzene	20.39	105	14211	0.223	ng		91
88) 4-Isopropyltoluene (p-...	20.53	119	11854	0.213	ng		97
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d		
90) 1,2-Dichlorobenzene	20.65	146	6542	0.229	ng		99
91) d-Limonene	20.65	68	3061	0.191	ng		89
92) 1,2-Dibromo-3-Chloropr...	21.03	157	4106	0.377	ng		89
93) n-Undecane	0.00	57	0	N.D.			
94) 1,2,4-Trichlorobenzene	22.16	180	8589	0.375	ng		99
95) Naphthalene	22.27	128	13947	0.209	ng		90
96) n-Dodecane	0.00	57	0	N.D.			
97) Hexachlorobutadiene	22.57	225	3545	0.214	ng		97
98) Cyclohexanone	0.00	55	0	N.D.			
99) tert-Butylbenzene	20.15	119	10471	0.227	ng		97
100) n-Butylbenzene	20.90	91	10523	0.211	ng		90
101) 1,1,1,2-tetrachloroethane	17.65	131	2577	0.209	ng		97

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222003.D Vial: 13
Acq On : 22 Sep 2020 6:59 Operator: WA
Sample : 0.2ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182005 (10/17)

Quant Time: Sep 22 09:44:44 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222004.D Vial: 15
Acq On : 22 Sep 2020 7:33 Operator: WA
Sample : 0.5ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182003 (10/17)

Quant Time: Sep 22 09:45:44 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	145004	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.31	114	627390	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	274552	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.04	65	189037	12.299	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.40%				
57) Toluene-d8 (SS2)	15.76	98	703714	13.135	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.04%				
73) Bromofluorobenzene (SS3)	19.02	174	222512	12.722	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.76%				
Target Compounds							Qvalue
2) Propene	4.20	42	8269	0.488	ng		99
3) Dichlorodifluoromethan...	4.35	85	13766	0.507	ng		99
4) Chloromethane	4.63	50	8717	0.493	ng		98
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	6930	0.487	ng		98
6) Vinyl Chloride	5.04	62	8313	0.436	ng		97
7) 1,3-Butadiene	5.31	54	8069	0.500	ng		98
8) Bromomethane	5.74	94	6267	0.500	ng		100
9) Chloroethane	6.06	64	5161	0.500	ng		94
10) Ethanol	6.40	45	25396	2.425	ng		96
11) Acetonitrile	6.68	41	11818	0.461	ng	#	52
12) Acrolein	6.88	56	9343	1.030	ng		99
13) Acetone	7.09	58	26326	2.353	ng		95
14) Trichlorofluoromethane	7.31	101	11870	0.493	ng		99
15) 2-Propanol (Isopropanol)	7.59	45	33220	1.014	ng		94
16) Acrylonitrile	7.83	53	16863	0.963	ng		99
17) 1,1-Dichloroethene	8.26	96	7156	0.512	ng		95
18) 2-Methyl-2-Propanol (t...	8.47	59	31082	1.092	ng		97
19) Methylene Chloride	8.48	84	7122	0.499	ng		93
20) 3-Chloro-1-propene (Al...	8.65	41	10074	0.496	ng		94
21) Trichlorotrifluoroethane	8.90	151	6963	0.532	ng		98
22) Carbon Disulfide	8.75	76	55922	1.021	ng		98
23) trans-1,2-Dichloroethene	9.76	61	8878	0.488	ng		99
24) 1,1-Dichloroethane	9.99	63	12400	0.516	ng		97
25) Methyl tert-Butyl Ether	10.14	73	19538	0.501	ng		96
26) Vinyl Acetate	10.26	86	7797	2.523	ng	#	51
27) 2-Butanone (MEK)	10.55	72	7775	0.904	ng	#	90
28) cis-1,2-Dichloroethene	11.02	61	8940	0.492	ng		97
29) Diisopropyl Ether	11.33	87	12685	1.101	ng		97
30) Ethyl Acetate	11.35	61	4896	0.989	ng		95
31) n-Hexane	11.30	57	11857	0.534	ng		99
32) Chloroform	11.35	83	11630	0.513	ng		98
34) Tetrahydrofuran (THF)	11.80	72	9001	0.980	ng		91
35) Ethyl tert-Butyl Ether	11.92	87	16662	1.055	ng		97
36) 1,2-Dichloroethane	12.17	62	7612	0.486	ng		99
38) 1,1,1-Trichloroethane	12.44	97	10118	0.493	ng		99
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	12.92	78	29201	0.511	ng		98
42) Carbon Tetrachloride	13.07	117	9261	0.481	ng		99
43) Cyclohexane	13.21	84	22087	1.035	ng		99
44) tert-Amyl Methyl Ether	13.57	73	38503	1.052	ng		98
45) 1,2-Dichloropropane	13.77	63	6990	0.499	ng		97
46) Bromodichloromethane	13.97	83	8853	0.495	ng		98
47) Trichloroethene	14.02	130	7626	0.487	ng		99
48) 1,4-Dioxane	14.03	88	4923	0.475	ng		85
49) 2,2,4-Trimethylpentane...	14.08	57	30332	0.527	ng		98
50) Methyl Methacrylate	14.24	100	4240	0.825	ng	#	64

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222004.D Vial: 15
Acq On : 22 Sep 2020 7:33 Operator: WA
Sample : 0.5ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182003 (10/17)

Quant Time: Sep 22 09:45:44 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

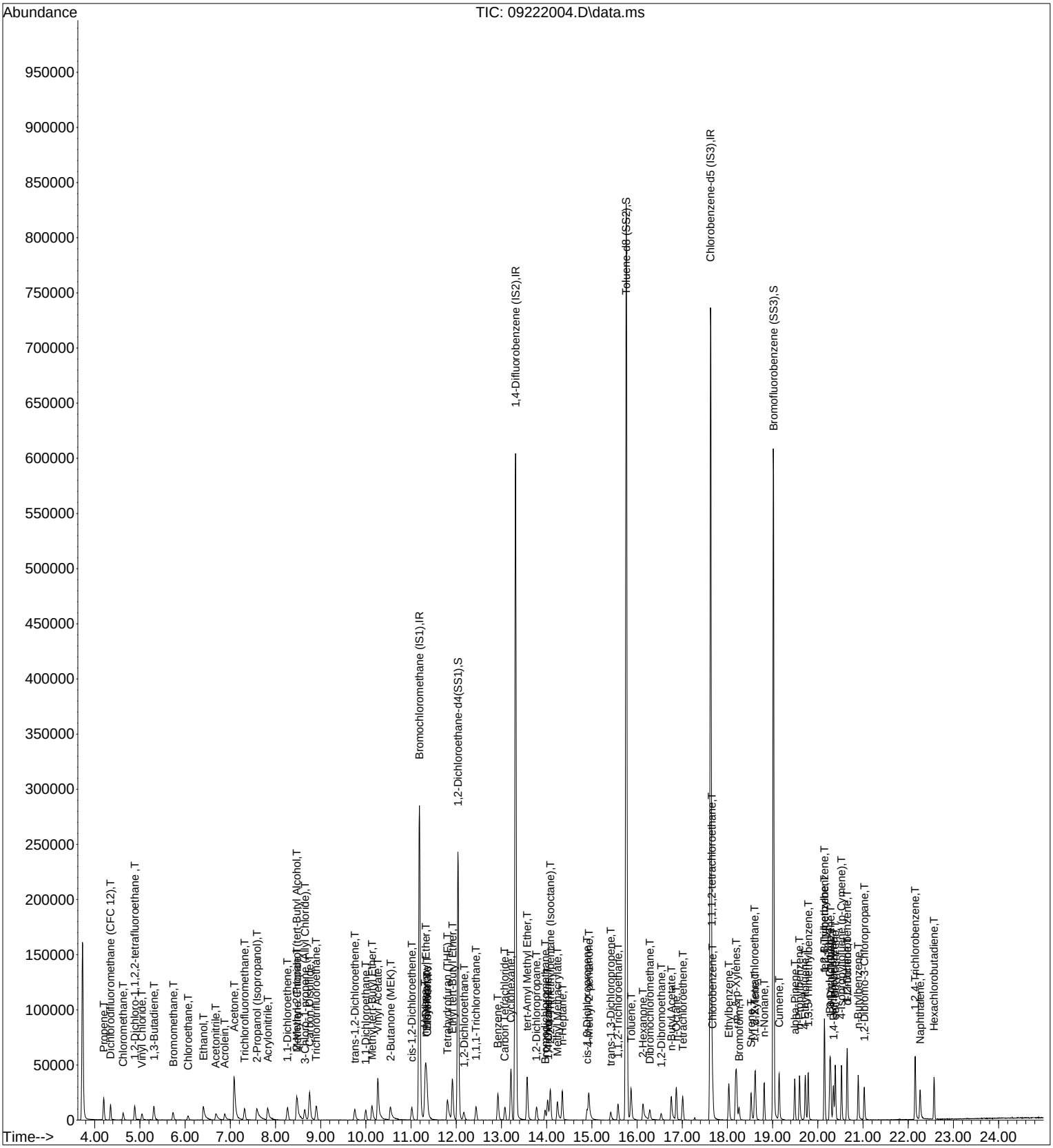
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	14.35	71	7225	0.507 ng	95
52) cis-1,3-Dichloropropene	14.89	75	9990	0.496 ng	96
53) 4-Methyl-2-pentanone	14.93	58	10455	0.982 ng	83
54) trans-1,3-Dichloropropene	15.42	75	8100	0.463 ng	89
55) 1,1,2-Trichloroethane	15.58	97	6619	0.498 ng	98
58) Toluene	15.87	91	29609	0.533 ng	99
59) 2-Hexanone	16.13	43	21350	0.943 ng	98
60) Dibromochloromethane	16.28	129	7565	0.510 ng	99
61) 1,2-Dibromoethane	16.53	107	6914	0.499 ng	99
62) n-Butyl Acetate	16.76	43	23509	0.943 ng	98
63) n-Octane	16.87	57	6198	0.551 ng	96
64) Tetrachloroethene	17.01	166	8814	0.537 ng	100
65) Chlorobenzene	17.67	112	20134	0.534 ng	98
66) Ethylbenzene	18.03	91	32283	0.534 ng	97
67) m- & p-Xylenes	18.19	91	52232	1.108 ng	97
68) Bromoform	18.26	173	6655	0.507 ng	97
69) Styrene	18.52	104	16995	0.483 ng	99
70) o-Xylene	18.62	91	26251	0.556 ng	96
71) n-Nonane	18.82	43	12753	0.554 ng	96
72) 1,1,2,2-Tetrachloroethane	18.60	83	12143	0.541 ng	99
74) Cumene	19.15	105	32980	0.535 ng	98
75) alpha-Pinene	19.49	93	16397	0.554 ng	99
76) n-Propylbenzene	19.59	91	39209	0.542 ng	97
77) 3-Ethyltoluene	0.00	105	0	N.D. d	
78) 4-Ethyltoluene	19.72	105	30833	0.525 ng	99
79) 1,3,5-Trimethylbenzene	19.79	105	29244	0.566 ng	98
80) alpha-Methylstyrene	0.00	118	0	N.D. d	
81) 2-Ethyltoluene	0.00	105	0	N.D. d	
82) 1,2,4-Trimethylbenzene	20.15	105	27168	0.552 ng	99
83) n-Decane	0.00	57	0	N.D. d	
84) Benzyl Chloride	20.27	91	42739	1.066 ng	96
85) 1,3-Dichlorobenzene	20.28	146	16776	0.548 ng	98
86) 1,4-Dichlorobenzene	20.35	146	17729	0.533 ng	100
87) sec-Butylbenzene	20.39	105	36912	0.546 ng	93
88) 4-Isopropyltoluene (p-...	20.52	119	31347	0.530 ng	96
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D. d	
90) 1,2-Dichlorobenzene	20.65	146	16614	0.548 ng	100
91) d-Limonene	20.65	68	9266	0.545 ng	98
92) 1,2-Dibromo-3-Chloropr...	21.03	157	10934	0.944 ng	90
93) n-Undecane	0.00	57	0	N.D.	
94) 1,2,4-Trichlorobenzene	22.16	180	25201	1.035 ng	98
95) Naphthalene	22.26	128	34435	0.486 ng	96
96) n-Dodecane	0.00	57	0	N.D.	
97) Hexachlorobutadiene	22.57	225	8996	0.511 ng	98
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	20.15	119	27198	0.555 ng	99
100) n-Butylbenzene	20.89	91	28831	0.545 ng	95
101) 1,1,1,2-tetrachloroethane	17.65	131	6791	0.518 ng	99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222004.D Vial: 15
Acq On : 22 Sep 2020 7:33 Operator: WA
Sample : 0.5ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182003 (10/17)

Quant Time: Sep 22 09:45:44 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222005.D Vial: 15
Acq On : 22 Sep 2020 8:07 Operator: WA
Sample : 1.0ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182003 (10/17)

Quant Time: Sep 22 09:46:43 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	143001	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.31	114	623335	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	272033	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.04	65	187870	12.394	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.12%				
57) Toluene-d8 (SS2)	15.76	98	697662	13.142	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.12%				
73) Bromofluorobenzene (SS3)	19.01	174	218964	12.635	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.04%				
Target Compounds							Qvalue
2) Propene	4.18	42	16177	0.968	ng		98
3) Dichlorodifluoromethan...	4.34	85	27013	1.009	ng		99
4) Chloromethane	4.61	50	19695	1.130	ng		98
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	14553	1.037	ng		98
6) Vinyl Chloride	5.03	62	19764	1.051	ng		98
7) 1,3-Butadiene	5.29	54	17248	1.084	ng		98
8) Bromomethane	5.73	94	12924	1.046	ng		98
9) Chloroethane	6.05	64	10474	1.029	ng		98
10) Ethanol	6.40	45	51629	4.999	ng		99
11) Acetonitrile	6.66	41	24927	0.986	ng		77
12) Acrolein	6.85	56	20206	2.258	ng		99
13) Acetone	7.06	58	54479	4.938	ng		97
14) Trichlorofluoromethane	7.31	101	23810	1.002	ng		100
15) 2-Propanol (Isopropanol)	7.56	45	70503	2.183	ng		97
16) Acrylonitrile	7.81	53	36793	2.131	ng		98
17) 1,1-Dichloroethene	8.26	96	14106	1.023	ng		100
18) 2-Methyl-2-Propanol (t...	8.45	59	65928	2.348	ng		98
19) Methylene Chloride	8.47	84	14556	1.033	ng		97
20) 3-Chloro-1-propene (Al...	8.64	41	20535	1.024	ng		96
21) Trichlorotrifluoroethane	8.90	151	13701	1.061	ng		99
22) Carbon Disulfide	8.75	76	108893	2.016	ng		99
23) trans-1,2-Dichloroethene	9.74	61	19076	1.064	ng		99
24) 1,1-Dichloroethane	9.99	63	25259	1.066	ng		99
25) Methyl tert-Butyl Ether	10.13	73	40342	1.048	ng		99
26) Vinyl Acetate	10.26	86	17772	5.831	ng	#	70
27) 2-Butanone (MEK)	10.52	72	18550	2.188	ng		100
28) cis-1,2-Dichloroethene	11.01	61	18389	1.026	ng		100
29) Diisopropyl Ether	11.32	87	26251	2.310	ng		97
30) Ethyl Acetate	11.34	61	10974	2.248	ng		98
31) n-Hexane	11.30	57	24505	1.119	ng		100
32) Chloroform	11.35	83	23591	1.054	ng		100
34) Tetrahydrofuran (THF)	11.79	72	18499	2.042	ng		99
35) Ethyl tert-Butyl Ether	11.91	87	33836	2.173	ng		95
36) 1,2-Dichloroethane	12.16	62	15859	1.026	ng		99
38) 1,1,1-Trichloroethane	12.44	97	20304	0.996	ng		100
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	12.92	78	59037	1.040	ng		100
42) Carbon Tetrachloride	13.07	117	18109	0.947	ng		98
43) Cyclohexane	13.21	84	45014	2.123	ng		98
44) tert-Amyl Methyl Ether	13.56	73	78171	2.149	ng		98
45) 1,2-Dichloropropane	13.77	63	14229	1.022	ng		99
46) Bromodichloromethane	13.96	83	18027	1.014	ng		99
47) Trichloroethene	14.02	130	15622	1.005	ng		98
48) 1,4-Dioxane	14.01	88	10840	1.053	ng		88
49) 2,2,4-Trimethylpentane...	14.08	57	61254	1.070	ng		99
50) Methyl Methacrylate	14.23	100	10498	2.056	ng	#	83

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222005.D Vial: 15
Acq On : 22 Sep 2020 8:07 Operator: WA
Sample : 1.0ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182003 (10/17)

Quant Time: Sep 22 09:46:43 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

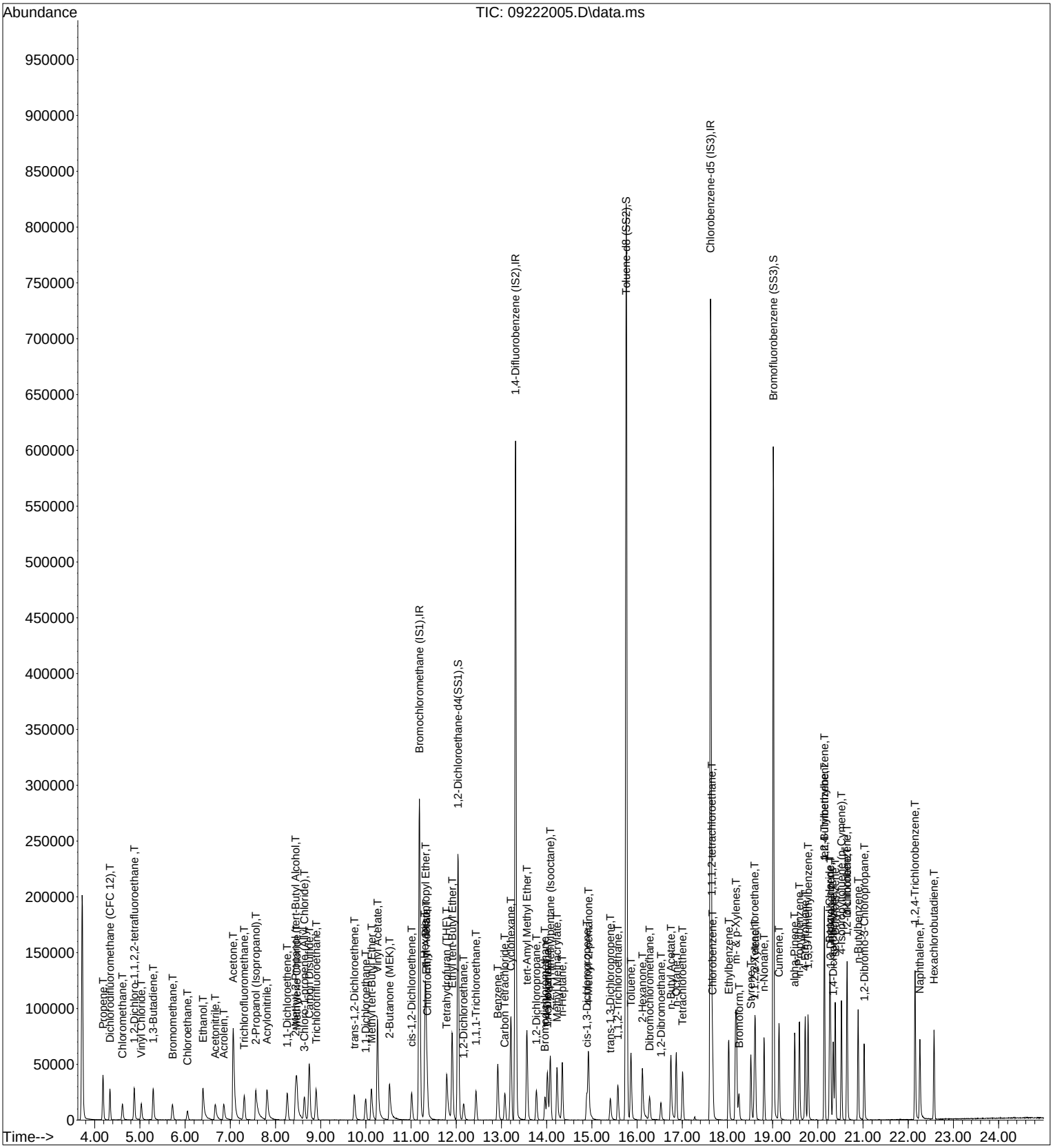
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	15172	1.071	ng	97
52) cis-1,3-Dichloropropene	14.89	75	21311	1.064	ng	97
53) 4-Methyl-2-pentanone	14.92	58	23988	2.267	ng	92
54) trans-1,3-Dichloropropene	15.41	75	17855	1.027	ng	97
55) 1,1,2-Trichloroethane	15.58	97	13820	1.047	ng	99
58) Toluene	15.87	91	60365	1.096	ng	98
59) 2-Hexanone	16.12	43	48897	2.180	ng	98
60) Dibromochloromethane	16.28	129	15640	1.064	ng	99
61) 1,2-Dibromoethane	16.53	107	15608	1.136	ng	96
62) n-Butyl Acetate	16.75	43	54923	2.223	ng	98
63) n-Octane	16.87	57	12500	1.121	ng	98
64) Tetrachloroethene	17.01	166	17624	1.083	ng	99
65) Chlorobenzene	17.67	112	39845	1.066	ng	100
66) Ethylbenzene	18.03	91	65006	1.086	ng	99
67) m- & p-Xylenes	18.19	91	106770	2.285	ng	97
68) Bromoform	18.26	173	13749	1.058	ng	99
69) Styrene	18.52	104	37415	1.073	ng	100
70) o-Xylene	18.62	91	52833	1.129	ng	97
71) n-Nonane	18.81	43	26671	1.169	ng	97
72) 1,1,2,2-Tetrachloroethane	18.60	83	24982	1.123	ng	99
74) Cumene	19.14	105	67496	1.104	ng	98
75) alpha-Pinene	19.49	93	34154	1.164	ng	100
76) n-Propylbenzene	19.59	91	80573	1.124	ng	98
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.72	105	65132	1.120	ng	100
79) 1,3,5-Trimethylbenzene	19.78	105	58108	1.135	ng	97
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.15	105	56718	1.163	ng	99
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.26	91	92211	2.321	ng	96
85) 1,3-Dichlorobenzene	20.28	146	34089	1.124	ng	100
86) 1,4-Dichlorobenzene	20.34	146	35441	1.075	ng	99
87) sec-Butylbenzene	20.39	105	75153	1.122	ng	96
88) 4-Isopropyltoluene (p-...	20.52	119	64357	1.099	ng	98
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.64	146	34089	1.135	ng	99
91) d-Limonene	20.65	68	20137	1.195	ng	97
92) 1,2-Dibromo-3-Chloropr...	21.03	157	23681	2.063	ng	91
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.15	180	51848	2.149	ng	99
95) Naphthalene	22.26	128	74158	1.056	ng	97
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	22.57	225	17728	1.016	ng	98
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	20.15	119	55335	1.140	ng	100
100) n-Butylbenzene	20.89	91	61304	1.169	ng	95
101) 1,1,1,2-tetrachloroethane	17.65	131	14068	1.083	ng	99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222005.D Vial: 15
Acq On : 22 Sep 2020 8:07 Operator: WA
Sample : 1.0ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182003 (10/17)

Quant Time: Sep 22 09:46:43 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222006.D Vial: 16
Acq On : 22 Sep 2020 8:41 Operator: WA
Sample : 5.0ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182002 (10/17)

Quant Time: Sep 22 09:47:45 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	142506	12.500	ng		-0.01
37) 1,4-Difluorobenzene (IS2)	13.31	114	618096	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	269633	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.04	65	186003	12.314	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.48%				
57) Toluene-d8 (SS2)	15.76	98	685867	13.035	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.32%				
73) Bromofluorobenzene (SS3)	19.01	174	217503	12.662	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.28%				
Target Compounds							Qvalue
2) Propene	4.17	42	77580	4.660	ng		98
3) Dichlorodifluoromethan...	4.33	85	132467	4.965	ng		99
4) Chloromethane	4.60	50	101237	5.830	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	69153	4.944	ng		99
6) Vinyl Chloride	5.02	62	97456	5.199	ng		99
7) 1,3-Butadiene	5.28	54	87401	5.515	ng		99
8) Bromomethane	5.71	94	61755	5.018	ng		99
9) Chloroethane	6.04	64	51537	5.079	ng		99
10) Ethanol	6.40	45	248651	24.160	ng		100
11) Acetonitrile	6.66	41	118990	4.723	ng		96
12) Acrolein	6.85	56	100430	11.263	ng		99
13) Acetone	7.06	58	260946	23.732	ng		99
14) Trichlorofluoromethane	7.30	101	114277	4.826	ng		99
15) 2-Propanol (Isopropanol)	7.55	45	353874	10.996	ng		99
16) Acrylonitrile	7.81	53	181992	10.578	ng		99
17) 1,1-Dichloroethene	8.26	96	68873	5.014	ng		100
18) 2-Methyl-2-Propanol (t...	8.42	59	334436	11.954	ng		99
19) Methylene Chloride	8.48	84	71227	5.074	ng		100
20) 3-Chloro-1-propene (Al...	8.64	41	101686	5.090	ng		98
21) Trichlorotrifluoroethane	8.90	151	64361	4.999	ng		99
22) Carbon Disulfide	8.75	76	502359	9.331	ng		99
23) trans-1,2-Dichloroethene	9.75	61	95080	5.319	ng		99
24) 1,1-Dichloroethane	10.00	63	123189	5.216	ng		100
25) Methyl tert-Butyl Ether	10.11	73	201606	5.256	ng		100
26) Vinyl Acetate	10.26	86	89623	29.509	ng	#	82
27) 2-Butanone (MEK)	10.51	72	94122	11.141	ng		99
28) cis-1,2-Dichloroethene	11.02	61	90759	5.083	ng		99
29) Diisopropyl Ether	11.31	87	125626	11.094	ng		97
30) Ethyl Acetate	11.32	61	56029	11.517	ng		99
31) n-Hexane	11.30	57	116090	5.319	ng		100
32) Chloroform	11.36	83	113250	5.079	ng		100
34) Tetrahydrofuran (THF)	11.77	72	90732	10.050	ng		99
35) Ethyl tert-Butyl Ether	11.91	87	164452	10.596	ng		97
36) 1,2-Dichloroethane	12.16	62	78267	5.083	ng		99
38) 1,1,1-Trichloroethane	12.44	97	99008	4.898	ng		99
39) Isopropyl Acetate	0.00	61	0	N.D.	d		
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	12.92	78	280670	4.986	ng		100
42) Carbon Tetrachloride	13.08	117	90010	4.749	ng		100
43) Cyclohexane	13.21	84	217035	10.321	ng		99
44) tert-Amyl Methyl Ether	13.56	73	381200	10.567	ng		99
45) 1,2-Dichloropropane	13.77	63	69110	5.007	ng		100
46) Bromodichloromethane	13.96	83	90002	5.106	ng		99
47) Trichloroethene	14.02	130	78080	5.064	ng		100
48) 1,4-Dioxane	14.00	88	56148	5.501	ng		97
49) 2,2,4-Trimethylpentane...	14.08	57	287501	5.067	ng		100
50) Methyl Methacrylate	14.22	100	57713	11.400	ng		96

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222006.D Vial: 16
Acq On : 22 Sep 2020 8:41 Operator: WA
Sample : 5.0ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182002 (10/17)

Quant Time: Sep 22 09:47:45 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

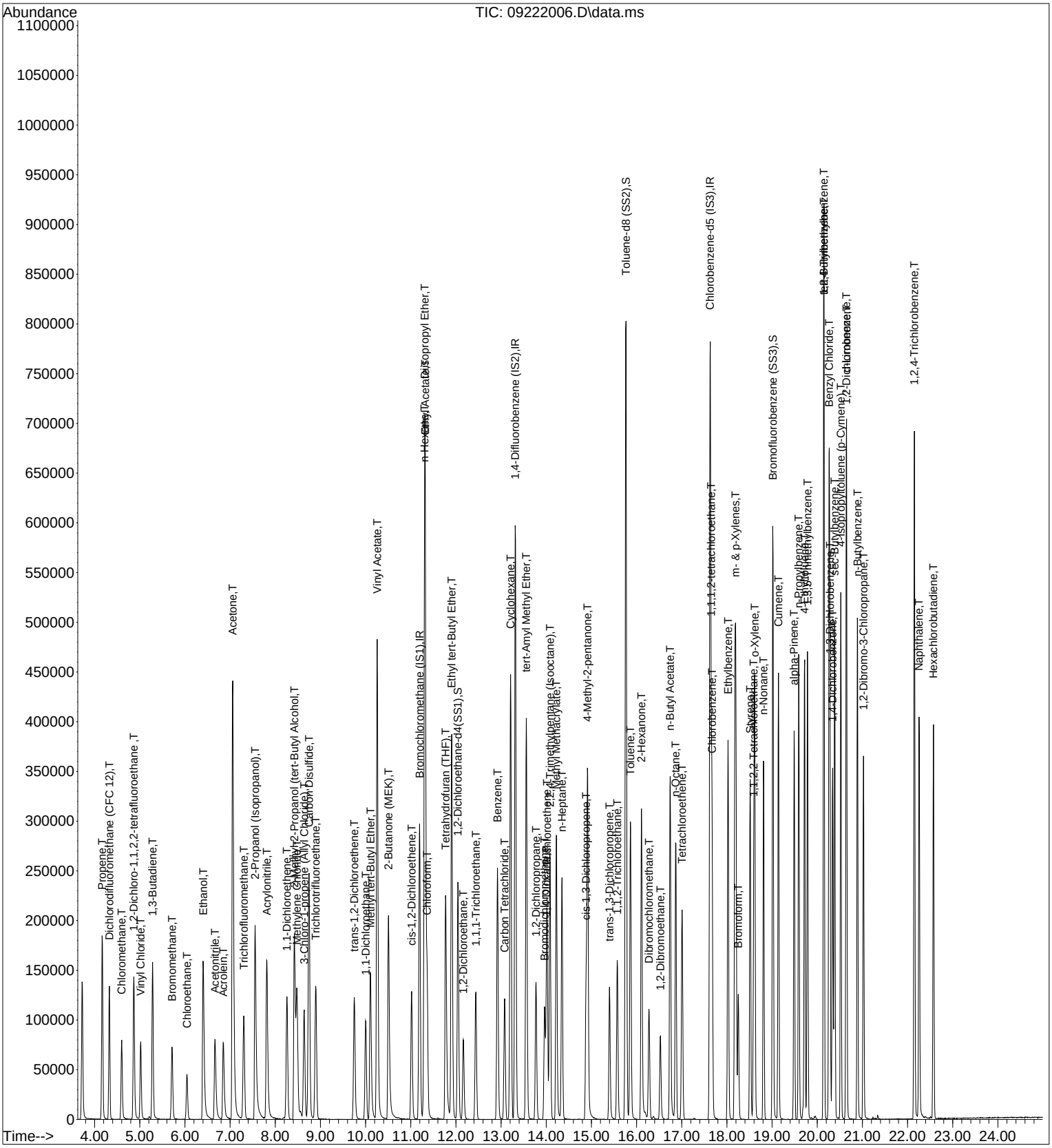
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	71353	5.079	ng	100
52) cis-1,3-Dichloropropene	14.88	75	110002	5.540	ng	99
53) 4-Methyl-2-pentanone	14.91	58	122279	11.652	ng	96
54) trans-1,3-Dichloropropene	15.40	75	97637	5.663	ng	99
55) 1,1,2-Trichloroethane	15.57	97	68107	5.204	ng	100
58) Toluene	15.86	91	284047	5.203	ng	100
59) 2-Hexanone	16.11	43	260955	11.736	ng	99
60) Dibromochloromethane	16.27	129	79022	5.423	ng	100
61) 1,2-Dibromoethane	16.53	107	76479	5.615	ng	100
62) n-Butyl Acetate	16.74	43	299525	12.229	ng	98
63) n-Octane	16.86	57	59250	5.360	ng	99
64) Tetrachloroethene	17.01	166	84570	5.244	ng	99
65) Chlorobenzene	17.67	112	190269	5.135	ng	99
66) Ethylbenzene	18.02	91	321963	5.425	ng	99
67) m- & p-Xylenes	18.19	91	503428	10.871	ng	98
68) Bromoform	18.25	173	71586	5.557	ng	100
69) Styrene	18.51	104	198659	5.749	ng	100
70) o-Xylene	18.62	91	252191	5.439	ng	99
71) n-Nonane	18.81	43	128168	5.668	ng	98
72) 1,1,2,2-Tetrachloroethane	18.59	83	120581	5.468	ng	99
74) Cumene	19.14	105	322980	5.330	ng	99
75) alpha-Pinene	19.49	93	166208	5.714	ng	100
76) n-Propylbenzene	19.59	91	389699	5.483	ng	98
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.72	105	321481	5.579	ng	99
79) 1,3,5-Trimethylbenzene	19.78	105	268254	5.287	ng	99
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.15	105	269805	5.579	ng	99
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.26	91	463428	11.770	ng	97
85) 1,3-Dichlorobenzene	20.28	146	164297	5.467	ng	100
86) 1,4-Dichlorobenzene	20.34	146	166606	5.097	ng	100
87) sec-Butylbenzene	20.39	105	359468	5.417	ng	99
88) 4-Isopropyltoluene (p-...	20.52	119	312730	5.386	ng	99
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.64	146	159171	5.345	ng	100
91) d-Limonene	20.65	68	102417	6.130	ng	98
92) 1,2-Dibromo-3-Chloropr...	21.02	157	121845	10.709	ng	97
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.15	180	247265	10.340	ng	100
95) Naphthalene	22.25	128	356082	5.116	ng	100
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.57	225	87062	5.036	ng	99
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.15	119	268223	5.577	ng	99
100) n-Butylbenzene	20.89	91	289865	5.576	ng	98
101) 1,1,1,2-tetrachloroethane	17.65	131	67887	5.275	ng	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222006.D Vial: 16
Acq On : 22 Sep 2020 8:41 Operator: WA
Sample : 5.0ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182002 (10/17)

Quant Time: Sep 22 09:47:45 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222007.D Vial: 16
Acq On : 22 Sep 2020 9:16 Operator: WA
Sample : 25ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182002 (10/17)

Quant Time: Sep 22 09:48:36 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	131247	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.32	114	570773	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	259543	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	12.05	65	172360	12.389	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.12%			
57) Toluene-d8 (SS2)	15.76	98	635971	12.557	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.48%			
73) Bromofluorobenzene (SS3)	19.02	174	205331	12.418	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.36%			
Target Compounds						Qvalue
2) Propene	4.17	42	397136	25.901	ng	100
3) Dichlorodifluoromethan...	4.33	85	648328	26.383	ng	100
4) Chloromethane	4.60	50	467489	29.233	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	349747	27.152	ng	100
6) Vinyl Chloride	5.02	62	486577	28.184	ng	100
7) 1,3-Butadiene	5.29	54	416136	28.508	ng	100
8) Bromomethane	5.73	94	316220	27.898	ng	100
9) Chloroethane	6.06	64	259043	27.719	ng	100
10) Ethanol	6.44	45	1171732	123.616	ng	100
11) Acetonitrile	6.69	41	607144	26.167	ng	100
12) Acrolein	6.86	56	500610	60.957	ng	100
13) Acetone	7.08	58	1214862	119.967	ng	100
14) Trichlorofluoromethane	7.31	101	562554	25.797	ng	100
15) 2-Propanol (Isopropanol)	7.58	45	1689504	57.002	ng	100
16) Acrylonitrile	7.83	53	912822	57.608	ng	100
17) 1,1-Dichloroethene	8.26	96	346478	27.389	ng	100
18) 2-Methyl-2-Propanol (t...	8.44	59	1591281	61.758	ng	100
19) Methylene Chloride	8.50	84	356059	27.541	ng	100
20) 3-Chloro-1-propene (Al...	8.65	41	499108	27.124	ng	100
21) Trichlorotrifluoroethane	8.90	151	319900	26.981	ng	100
22) Carbon Disulfide	8.76	76	2426954	48.948	ng	100
23) trans-1,2-Dichloroethene	9.76	61	483244	29.354	ng	100
24) 1,1-Dichloroethane	10.01	63	607606	27.934	ng	100
25) Methyl tert-Butyl Ether	10.11	73	1009790	28.587	ng	100
26) Vinyl Acetate	10.27	86	439953	157.283	ng	100
27) 2-Butanone (MEK)	10.51	72	467357	60.063	ng	100
28) cis-1,2-Dichloroethene	11.02	61	454370	27.629	ng	100
29) Diisopropyl Ether	11.31	87	543565	52.122	ng	100
30) Ethyl Acetate	11.33	61	264013	58.923	ng	100
31) n-Hexane	11.30	57	532643	26.499	ng	100
32) Chloroform	11.38	83	562825	27.405	ng	100
34) Tetrahydrofuran (THF)	11.77	72	441761	53.128	ng	100
35) Ethyl tert-Butyl Ether	11.91	87	813211	56.893	ng	100
36) 1,2-Dichloroethane	12.17	62	392692	27.692	ng	100
38) 1,1,1-Trichloroethane	12.45	97	496877	26.619	ng	100
39) Isopropyl Acetate	0.00	61	0	N.D.	d	
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.92	78	1368850	26.332	ng	100
42) Carbon Tetrachloride	13.08	117	454060	25.941	ng	100
43) Cyclohexane	13.22	84	1048985	54.022	ng	100
44) tert-Amyl Methyl Ether	13.56	73	1860878	55.862	ng	100
45) 1,2-Dichloropropane	13.77	63	343436	26.944	ng	100
46) Bromodichloromethane	13.97	83	449040	27.589	ng	100
47) Trichloroethene	14.02	130	393202	27.614	ng	100
48) 1,4-Dioxane	13.99	88	284462	30.182	ng	100
49) 2,2,4-Trimethylpentane...	14.09	57	1396954	26.660	ng	100
50) Methyl Methacrylate	14.22	100	297050	63.541	ng	100

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222007.D Vial: 16
Acq On : 22 Sep 2020 9:16 Operator: WA
Sample : 25ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182002 (10/17)

Quant Time: Sep 22 09:48:36 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

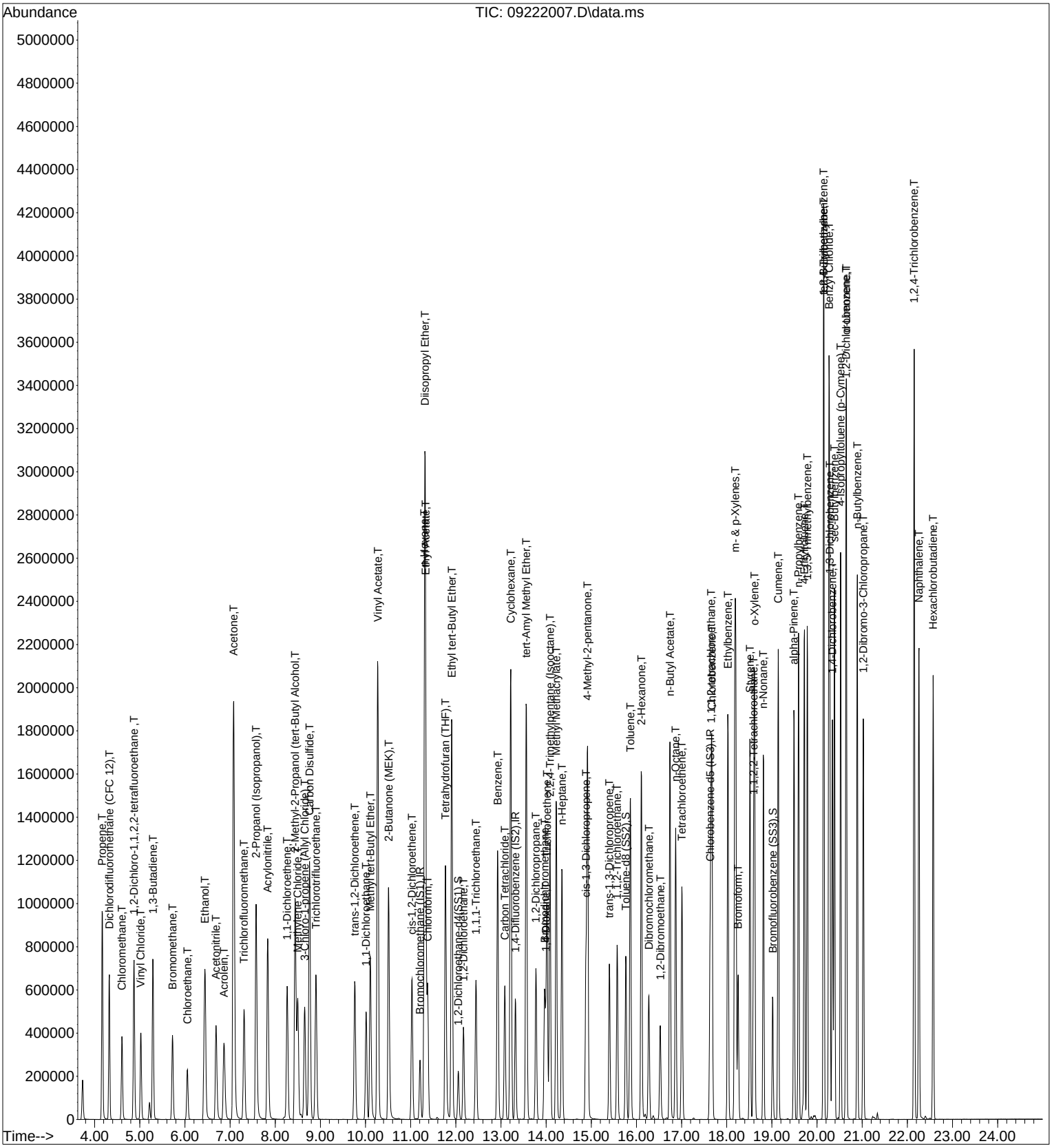
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	350488	27.019	ng	100
52) cis-1,3-Dichloropropene	14.88	75	558137	30.442	ng	100
53) 4-Methyl-2-pentanone	14.92	58	597997	61.710	ng	100
54) trans-1,3-Dichloropropene	15.40	75	507415	31.871	ng	100
55) 1,1,2-Trichloroethane	15.57	97	338485	28.009	ng	100
58) Toluene	15.87	91	1390568	26.463	ng	100
59) 2-Hexanone	16.11	43	1267434	59.215	ng	100
60) Dibromochloromethane	16.28	129	406034	28.950	ng	100
61) 1,2-Dibromoethane	16.53	107	388824	29.657	ng	100
62) n-Butyl Acetate	16.74	43	1455526	61.736	ng	100
63) n-Octane	16.87	57	288634	27.124	ng	100
64) Tetrachloroethene	17.01	166	426294	27.463	ng	100
65) Chlorobenzene	17.67	112	951239	26.671	ng	100
66) Ethylbenzene	18.02	91	1569043	27.466	ng	100
67) m- & p-Xylenes	18.19	91	2385690	53.520	ng	100
68) Bromoform	18.25	173	381624	30.777	ng	100
69) Styrene	18.51	104	1011300	30.402	ng	100
70) o-Xylene	18.62	91	1223071	27.404	ng	100
71) n-Nonane	18.81	43	608417	27.952	ng	100
72) 1,1,2,2-Tetrachloroethane	18.59	83	587943	27.700	ng	100
74) Cumene	19.14	105	1579111	27.074	ng	100
75) alpha-Pinene	19.49	93	833138	29.756	ng	100
76) n-Propylbenzene	19.59	91	1872411	27.370	ng	100
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.72	105	1585190	28.578	ng	100
79) 1,3,5-Trimethylbenzene	19.78	105	1303281	26.685	ng	100
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.15	105	1298206	27.890	ng	100
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.27	91	2322568	61.280	ng	100
85) 1,3-Dichlorobenzene	20.28	146	823274	28.460	ng	100
86) 1,4-Dichlorobenzene	20.34	146	840150	26.704	ng	100
87) sec-Butylbenzene	20.39	105	1745054	27.317	ng	100
88) 4-Isopropyltoluene (p-...	20.52	119	1528735	27.351	ng	100
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.64	146	788336	27.503	ng	100
91) d-Limonene	20.65	68	494872	30.772	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.02	157	634067	57.895	ng	100
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.15	180	1299655	56.460	ng	100
95) Naphthalene	22.26	128	1889246	28.198	ng	100
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.57	225	453376	27.245	ng	100
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.15	119	1275717	27.559	ng	100
100) n-Butylbenzene	20.89	91	1400004	27.979	ng	100
101) 1,1,1,2-tetrachloroethane	17.65	131	343898	27.760	ng	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222007.D Vial: 16
Acq On : 22 Sep 2020 9:16 Operator: WA
Sample : 25ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182002 (10/17)

Quant Time: Sep 22 09:48:36 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:40:26 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222008.D Vial: 16
Acq On : 22 Sep 2020 9:50 Operator: WA
Sample : 50ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182002 (10/17)

Quant Time: Sep 22 10:39:06 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:50:06 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	132563	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.32	114	571139	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	267197	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.06	65	170517	12.294	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.32%				
57) Toluene-d8 (SS2)	15.77	98	627761	11.907	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.28%				
73) Bromofluorobenzene (SS3)	19.02	174	205450	12.064	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.48%				
Target Compounds							Qvalue
2) Propene	4.17	42	804333	53.043	ng		99
3) Dichlorodifluoromethan...	4.33	85	1239527	51.235	ng		100
4) Chloromethane	4.61	50	757940	47.912	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	689375	52.225	ng		100
6) Vinyl Chloride	5.03	62	939244	54.277	ng		99
7) 1,3-Butadiene	5.30	54	790134	54.463	ng		100
8) Bromomethane	5.74	94	610957	53.947	ng		100
9) Chloroethane	6.06	64	499762	52.706	ng		100
10) Ethanol	6.48	45	2189625	230.062	ng		100
11) Acetonitrile	6.71	41	1186907	52.999	ng		99
12) Acrolein	6.88	56	967260	115.939	ng		100
13) Acetone	7.10	58	2209221	222.799	ng		99
14) Trichlorofluoromethane	7.32	101	1108852	51.034	ng		100
15) 2-Propanol (Isopropanol)	7.60	45	2975264	99.187	ng		100
16) Acrylonitrile	7.85	53	1753346	111.876	ng		100
17) 1,1-Dichloroethene	8.27	96	680616	53.403	ng		99
18) 2-Methyl-2-Propanol (t...	8.46	59	2492674	96.936	ng		100
19) Methylene Chloride	8.51	84	696434	52.840	ng		99
20) 3-Chloro-1-propene (Al...	8.66	41	967158	52.749	ng		99
21) Trichlorotrifluoroethane	8.91	151	638401	53.464	ng		99
22) Carbon Disulfide	8.77	76	4562737	93.085	ng		100
23) trans-1,2-Dichloroethene	9.77	61	945794	57.223	ng		100
24) 1,1-Dichloroethane	10.02	63	1177218	53.892	ng		100
25) Methyl tert-Butyl Ether	10.11	73	1913544	53.858	ng		100
26) Vinyl Acetate	10.28	86	805385	299.704	ng	#	86
27) 2-Butanone (MEK)	10.52	72	898492	117.084	ng		95
28) cis-1,2-Dichloroethene	11.04	61	883228	53.781	ng		100
29) Diisopropyl Ether	11.32	87	970071	92.372	ng	#	90
30) Ethyl Acetate	11.34	61	457198	103.995	ng		97
31) n-Hexane	11.30	57	935983	46.832	ng		99
32) Chloroform	11.38	83	1094930	52.370	ng		100
34) Tetrahydrofuran (THF)	11.78	72	843461	100.760	ng		98
35) Ethyl tert-Butyl Ether	11.91	87	1535985	107.756	ng		97
36) 1,2-Dichloroethane	12.17	62	768076	55.413	ng		100
38) 1,1,1-Trichloroethane	12.45	97	967988	52.219	ng		100
39) Isopropyl Acetate	0.00	61	0	N.D.	d		
40) 1-Butanol	0.00	56	0	N.D.	d		
41) Benzene	12.93	78	2615866	51.187	ng		100
42) Carbon Tetrachloride	13.09	117	894678	51.625	ng		100
43) Cyclohexane	13.22	84	1959893	100.770	ng		98
44) tert-Amyl Methyl Ether	13.56	73	3443788	104.041	ng		99
45) 1,2-Dichloropropane	13.78	63	662747	52.978	ng		100
46) Bromodichloromethane	13.97	83	874137	55.494	ng		100
47) Trichloroethene	14.02	130	770981	53.865	ng		100
48) 1,4-Dioxane	13.99	88	551022	59.659	ng		99
49) 2,2,4-Trimethylpentane...	14.09	57	2629098	50.456	ng		99
50) Methyl Methacrylate	14.23	100	571299	132.686	ng		97

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222008.D Vial: 16
Acq On : 22 Sep 2020 9:50 Operator: WA
Sample : 50ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182002 (10/17)

Quant Time: Sep 22 10:39:06 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:50:06 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

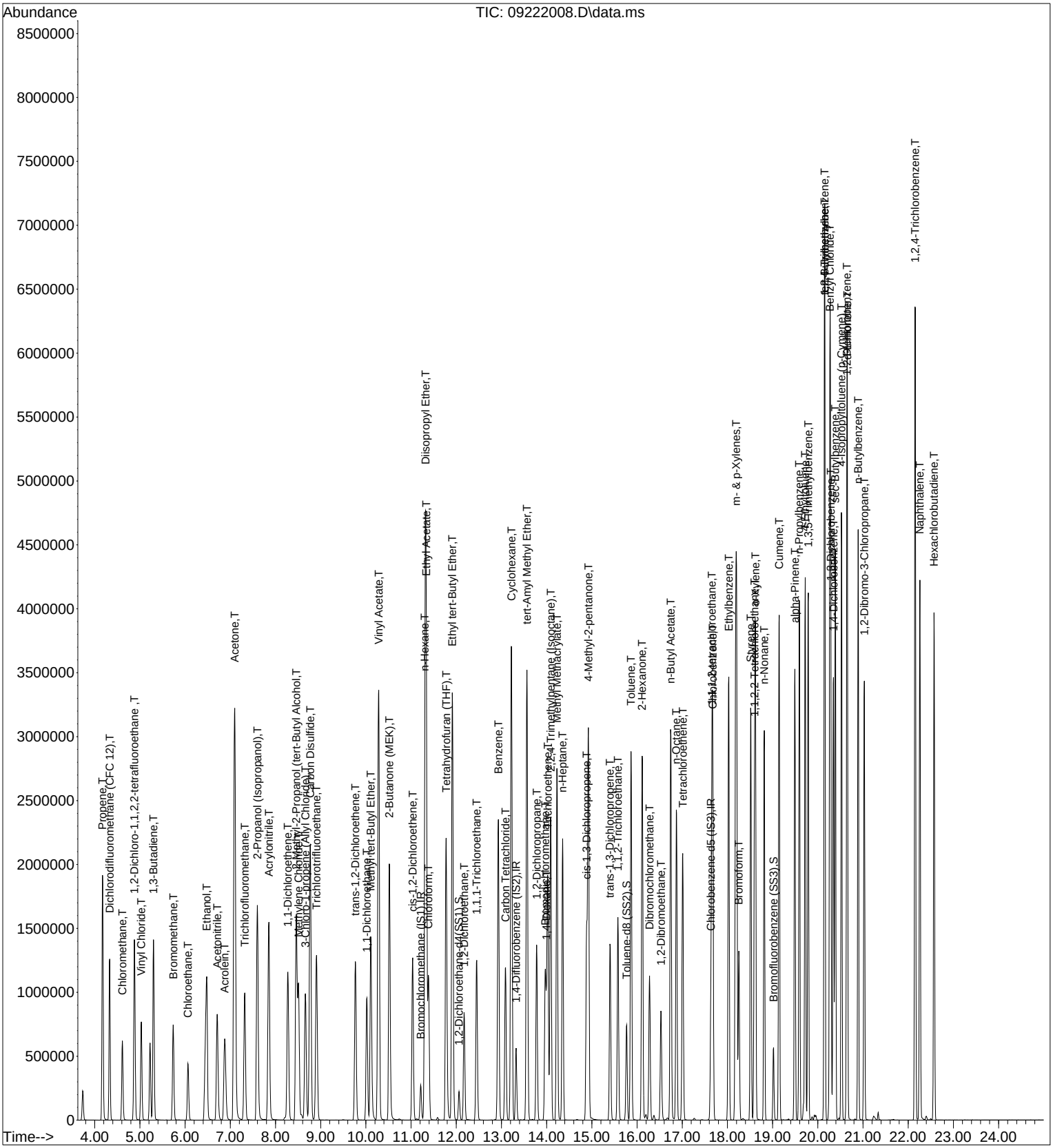
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	669575	51.659	ng	99
52) cis-1,3-Dichloropropene	14.88	75	1074913	58.444	ng	99
53) 4-Methyl-2-pentanone	14.92	58	1094395	114.078	ng	97
54) trans-1,3-Dichloropropene	15.40	75	991957	63.400	ng	100
55) 1,1,2-Trichloroethane	15.58	97	656167	53.797	ng	99
58) Toluene	15.87	91	2643407	48.376	ng	99
59) 2-Hexanone	16.11	43	2284033	104.503	ng	99
60) Dibromochloromethane	16.28	129	800123	54.739	ng	100
61) 1,2-Dibromoethane	16.53	107	761108	55.637	ng	100
62) n-Butyl Acetate	16.74	43	2626152	115.312	ng	99
63) n-Octane	16.87	57	541468	49.352	ng	99
64) Tetrachloroethene	17.01	166	843441	51.766	ng	100
65) Chlorobenzene	17.68	112	1810567	48.900	ng	100
66) Ethylbenzene	18.03	91	2951879	49.979	ng	99
67) m- & p-Xylenes	18.19	91	4408349	94.812	ng	99
68) Bromoform	18.25	173	757026	58.069	ng	99
69) Styrene	18.51	104	1926147	54.894	ng	100
70) o-Xylene	18.62	91	2291353	49.195	ng	99
71) n-Nonane	18.82	43	1092402	48.931	ng	97
72) 1,1,2,2-Tetrachloroethane	18.60	83	1088857	50.339	ng	100
74) Cumene	19.15	105	2948398	48.731	ng	99
75) alpha-Pinene	19.49	93	1562629	53.535	ng	100
76) n-Propylbenzene	19.59	91	3441893	48.702	ng	98
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.72	105	2955520	51.284	ng	99
79) 1,3,5-Trimethylbenzene	19.79	105	2448772	47.669	ng	100
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.15	105	2328737	47.661	ng	100
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.27	91	4106663	105.311	ng	98
85) 1,3-Dichlorobenzene	20.29	146	1557965	50.575	ng	100
86) 1,4-Dichlorobenzene	20.35	146	1610699	48.426	ng	99
87) sec-Butylbenzene	20.39	105	3213498	48.125	ng	98
88) 4-Isopropyltoluene (p-...	20.52	119	2842089	48.854	ng	99
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.64	146	1474780	48.875	ng	100
91) d-Limonene	20.65	68	858371	51.338	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.03	157	1220464	106.693	ng	99
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.16	180	2469681	99.466	ng	100
95) Naphthalene	22.26	128	3612410	49.293	ng	99
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.57	225	905132	51.933	ng	99
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.15	119	2278243	46.923	ng	99
100) n-Butylbenzene	20.89	91	2573867	49.135	ng	99
101) 1,1,1,2-tetrachloroethane	17.65	131	666305	51.459	ng	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222008.D Vial: 16
Acq On : 22 Sep 2020 9:50 Operator: WA
Sample : 50ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182002 (10/17)

Quant Time: Sep 22 10:39:06 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 09:50:06 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222009.D Vial: 16
Acq On : 22 Sep 2020 10:24 Operator: WA
Sample : 100ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182002 (10/17)

Quant Time: Sep 22 10:49:49 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:39:30 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	133925	12.500	ng		0.01
37) 1,4-Difluorobenzene (IS2)	13.33	114	573631	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	287336	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.07	65	170861	12.231	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.84%				
57) Toluene-d8 (SS2)	15.77	98	634883	11.181	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.44%				
73) Bromofluorobenzene (SS3)	19.02	174	213047	11.662	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.28%				
Target Compounds							Qvalue
2) Propene	4.18	42	1577341	102.382	ng		99
3) Dichlorodifluoromethan...	4.34	85	2325802	95.144	ng		99
4) Chloromethane	4.62	50	1016559	64.343	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.89	135	1353257	101.303	ng		99
6) Vinyl Chloride	5.04	62	1826426	104.535	ng		99
7) 1,3-Butadiene	5.31	54	1446338	98.417	ng		99
8) Bromomethane	5.75	94	1159029	101.243	ng		100
9) Chloroethane	6.07	64	941694	98.258	ng		100
10) Ethanol	6.52	45	3970502	413.058	ng		100
11) Acetonitrile	6.74	41	2250011	99.523	ng		99
12) Acrolein	6.89	56	1798057	213.214	ng		99
13) Acetone	7.12	58	3718528	371.128	ng		99
14) Trichlorofluoromethane	7.32	101	2110447	96.072	ng		99
15) 2-Propanol (Isopropanol)	7.63	45	4936666	163.692	ng		99
16) Acrylonitrile	7.88	53	3200690	202.126	ng		100
17) 1,1-Dichloroethene	8.28	96	1303639	101.161	ng		97
18) 2-Methyl-2-Propanol (t...	8.48	59	3090997	120.743	ng		99
19) Methylene Chloride	8.52	84	1307767	98.110	ng		96
20) 3-Chloro-1-propene (Al...	8.67	41	1805789	97.491	ng		97
21) Trichlorotrifluoroethane	8.91	151	1220731	101.038	ng		96
22) Carbon Disulfide	8.78	76	8014032	161.735	ng		99
23) trans-1,2-Dichloroethene	9.77	61	1784992	106.860	ng		99
24) 1,1-Dichloroethane	10.03	63	2190696	99.251	ng		99
25) Methyl tert-Butyl Ether	10.11	73	3271845	91.415	ng		100
26) Vinyl Acetate	10.30	86	1365045	502.634	ng	#	73
27) 2-Butanone (MEK)	10.53	72	1619006	208.722	ng	#	88
28) cis-1,2-Dichloroethene	11.04	61	1643255	99.007	ng		98
29) Diisopropyl Ether	11.33	87	1584048	149.167	ng	#	82
30) Ethyl Acetate	11.35	61	738351	166.298	ng		92
31) n-Hexane	11.31	57	1525084	75.465	ng		98
32) Chloroform	11.40	83	2058567	97.449	ng		100
34) Tetrahydrofuran (THF)	11.78	72	1515750	179.135	ng		93
35) Ethyl tert-Butyl Ether	11.92	87	2718013	188.637	ng		91
36) 1,2-Dichloroethane	12.18	62	1458557	104.119	ng		99
38) 1,1,1-Trichloroethane	12.45	97	1830720	98.311	ng		100
39) Isopropyl Acetate	0.00	61	0	N.D.	d		
40) 1-Butanol	0.00	56	0	N.D.	d		
41) Benzene	12.94	78	4731764	92.112	ng		99
42) Carbon Tetrachloride	13.09	117	1705250	97.881	ng		99
43) Cyclohexane	13.23	84	3366936	172.204	ng		95
44) tert-Amyl Methyl Ether	13.57	73	5836849	175.443	ng		98
45) 1,2-Dichloropropane	13.78	63	1213627	96.563	ng		100
46) Bromodichloromethane	13.97	83	1633821	103.222	ng		100
47) Trichloroethene	14.03	130	1452990	100.910	ng		100
48) 1,4-Dioxane	14.00	88	1004517	108.252	ng		97
49) 2,2,4-Trimethylpentane...	14.09	57	4584821	87.558	ng		97
50) Methyl Methacrylate	14.24	100	1038150	239.751	ng		91

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222009.D Vial: 16
Acq On : 22 Sep 2020 10:24 Operator: WA
Sample : 100ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182002 (10/17)

Quant Time: Sep 22 10:49:49 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:39:30 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

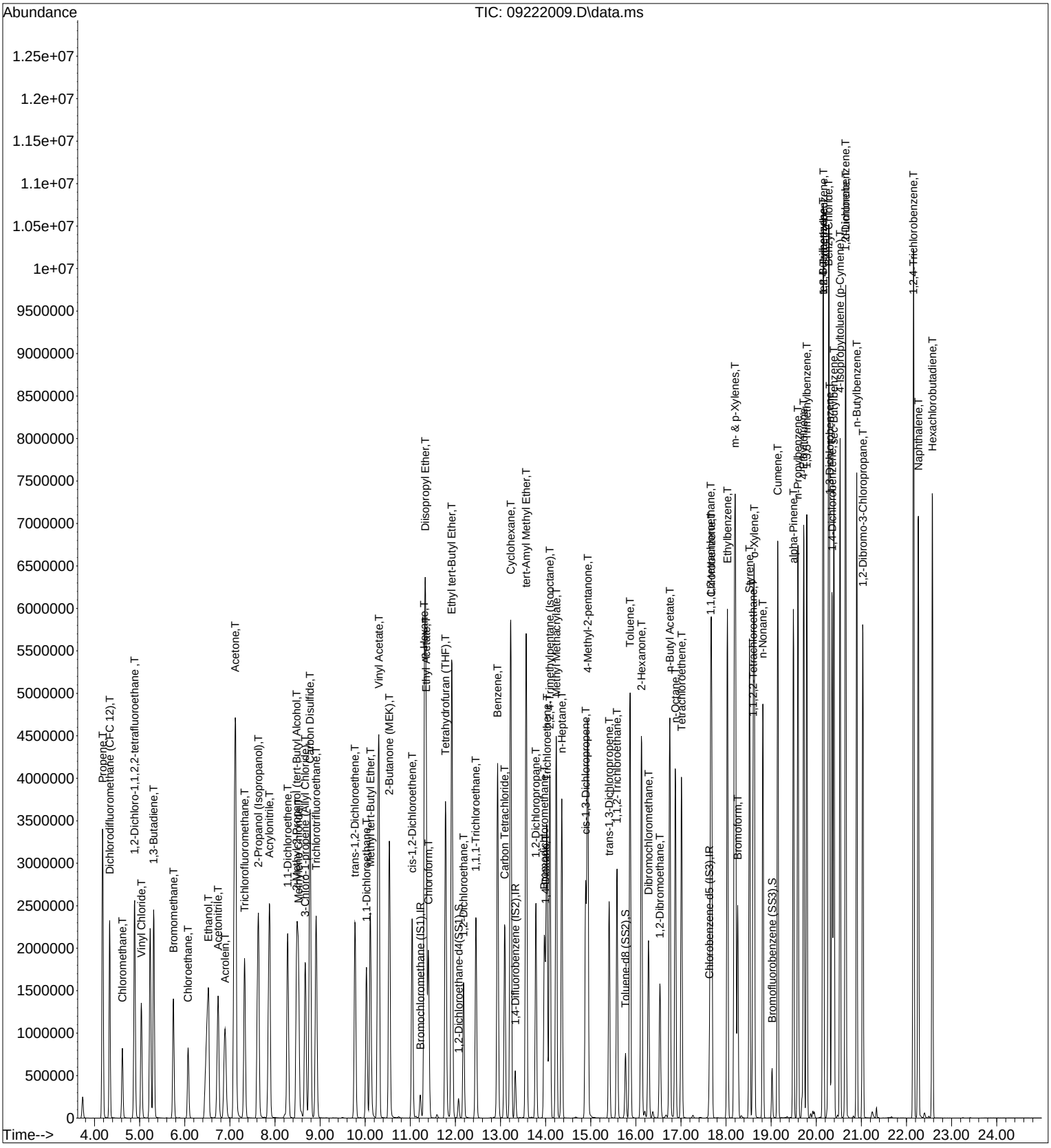
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.36	71	1199555	92.051	ng	97
52) cis-1,3-Dichloropropene	14.89	75	1979234	107.084	ng	99
53) 4-Methyl-2-pentanone	14.93	58	1850868	192.138	ng	94
54) trans-1,3-Dichloropropene	15.41	75	1850431	117.720	ng	100
55) 1,1,2-Trichloroethane	15.58	97	1226221	100.017	ng	99
58) Toluene	15.87	91	4736634	80.326	ng	99
59) 2-Hexanone	16.12	43	3814131	161.960	ng	98
60) Dibromochloromethane	16.28	129	1533887	97.200	ng	99
61) 1,2-Dibromoethane	16.53	107	1438714	97.439	ng	100
62) n-Butyl Acetate	16.75	43	4307964	175.421	ng	97
63) n-Octane	16.87	57	941905	79.601	ng	95
64) Tetrachloroethene	17.01	166	1622772	92.181	ng	99
65) Chlorobenzene	17.68	112	3233401	80.924	ng	98
66) Ethylbenzene	18.03	91	5195736	81.555	ng	97
67) m- & p-Xylenes	18.20	91	7560911	150.759	ng	99
68) Bromoform	18.26	173	1468095	104.275	ng	99
69) Styrene	18.52	104	3475644	91.758	ng	98
70) o-Xylene	18.63	91	3986580	79.326	ng	99
71) n-Nonane	18.82	43	1786307	74.218	ng	94
72) 1,1,2,2-Tetrachloroethane	18.60	83	1874577	80.378	ng	100
74) Cumene	19.15	105	5110469	78.282	ng	97
75) alpha-Pinene	19.49	93	2729850	86.664	ng	98
76) n-Propylbenzene	19.59	91	5846065	76.647	ng	95
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.72	105	5129313	82.456	ng	97
79) 1,3,5-Trimethylbenzene	19.79	105	4288300	77.379	ng	99
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.16	105	3831615	72.688	ng	100
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.27	91	6495784	154.311	ng	96
85) 1,3-Dichlorobenzene	20.29	146	2657251	79.856	ng	99
86) 1,4-Dichlorobenzene	20.35	146	2934515	81.729	ng	99
87) sec-Butylbenzene	20.39	105	5477353	76.006	ng	96
88) 4-Isopropyltoluene (p-...	20.53	119	4867662	77.505	ng	96
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.65	146	2526581	77.558	ng	99
91) d-Limonene	20.65	68	1354261	75.095	ng	90
92) 1,2-Dibromo-3-Chloropr...	21.03	157	2187430	177.045	ng	99
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.16	180	4279569	159.660	ng	99
95) Naphthalene	22.26	128	6378434	80.623	ng	98
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.58	225	1742292	92.552	ng	99
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.15	119	3749187	71.574	ng	97
100) n-Butylbenzene	20.90	91	4348848	76.935	ng	97
101) 1,1,1,2-tetrachloroethane	17.66	131	1218640	87.189	ng	99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222009.D Vial: 16
Acq On : 22 Sep 2020 10:24 Operator: WA
Sample : 100ng R13092220 ICAL Std Inst : MS13
Misc : S34-09182001/S34-09182002 (10/17)

Quant Time: Sep 22 10:49:49 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:39:30 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222011.D Vial: 1
Acq On : 22 Sep 2020 11:33 Operator: WA
Sample : 25ng R13092220 ICV Std Inst : MS13
Misc : S34-09182001/S34-09172007 (10/16)

Quant Time: Sep 22 12:09:24 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	131110	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	562948	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.63	82	254334	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	168185	12.317	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.56%				
57) Toluene-d8 (SS2)	15.76	98	622164	12.371	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.96%				
73) Bromofluorobenzene (SS3)	19.02	174	208457	12.902	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.20%				
Target Compounds							Qvalue
2) Propene	4.16	42	355686	23.574	ng		99
3) Dichlorodifluoromethan...	4.31	85	606622	25.370	ng		100
4) Chloromethane	4.60	50	445579	29.055	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	340985	26.089	ng		100
6) Vinyl Chloride	5.01	62	461849	27.027	ng		99
7) 1,3-Butadiene	5.28	54	400642	27.832	ng		100
8) Bromomethane	5.72	94	290771	25.965	ng		100
9) Chloroethane	6.04	64	237741	25.649	ng		99
10) Ethanol	6.44	45	1078468	114.763	ng		100
11) Acetonitrile	6.68	41	586830	26.560	ng		100
12) Acrolein	6.86	56	444840	53.963	ng		100
13) Acetone	7.07	58	1162854	118.675	ng		99
14) Trichlorofluoromethane	7.31	101	532709	24.798	ng		100
15) 2-Propanol (Isopropanol)	7.57	45	1616388	54.906	ng		99
16) Acrylonitrile	7.83	53	872926	56.401	ng		100
17) 1,1-Dichloroethene	8.26	96	329977	26.173	ng		98
18) 2-Methyl-2-Propanol (t...	8.43	59	1590940	60.484	ng		100
19) Methylene Chloride	8.50	84	336494	25.791	ng		99
20) 3-Chloro-1-propene (Al...	8.65	41	482051	26.627	ng		99
21) Trichlorotrifluoroethane	8.90	151	315387	26.722	ng		98
22) Carbon Disulfide	8.75	76	2340585	48.285	ng		100
23) trans-1,2-Dichloroethene	9.76	61	459875	28.160	ng		99
24) 1,1-Dichloroethane	10.01	63	559061	25.911	ng		100
25) Methyl tert-Butyl Ether	10.10	73	980096	28.132	ng		100
26) Vinyl Acetate	10.27	86	383972	136.898	ng		98
27) 2-Butanone (MEK)	10.51	72	447992	56.368	ng		98
28) cis-1,2-Dichloroethene	11.02	61	429168	26.457	ng		99
29) Diisopropyl Ether	11.31	87	520023	50.037	ng	#	91
30) Ethyl Acetate	11.33	61	300437	66.783	ng		100
31) n-Hexane	11.30	57	496484	25.118	ng		99
32) Chloroform	11.37	83	529641	25.637	ng		100
34) Tetrahydrofuran (THF)	11.77	72	404197	48.836	ng		100
35) Ethyl tert-Butyl Ether	11.91	87	774961	54.982	ng		99
36) 1,2-Dichloroethane	12.17	62	369618	26.984	ng		100
38) 1,1,1-Trichloroethane	12.45	97	467450	25.616	ng		100
39) Isopropyl Acetate	0.00	61	0	N.D.	d		
40) 1-Butanol	0.00	56	0	N.D.	d		
41) Benzene	12.92	78	1276792	25.342	ng		100
42) Carbon Tetrachloride	13.08	117	433267	25.363	ng		99
43) Cyclohexane	13.22	84	996342	51.966	ng		100
44) tert-Amyl Methyl Ether	13.56	73	1776820	54.470	ng		100
45) 1,2-Dichloropropane	13.77	63	320249	25.987	ng		99
46) Bromodichloromethane	13.96	83	422718	27.237	ng		99
47) Trichloroethene	14.02	130	371179	26.277	ng		99
48) 1,4-Dioxane	13.99	88	279261	29.273	ng		99
49) 2,2,4-Trimethylpentane...	14.09	57	1343863	26.178	ng		100
50) Methyl Methacrylate	14.22	100	285899	58.711	ng		98

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222011.D Vial: 1
Acq On : 22 Sep 2020 11:33 Operator: WA
Sample : 25ng R13092220 ICV Std Inst : MS13
Misc : S34-09182001/S34-09172007 (10/16)

Quant Time: Sep 22 12:09:24 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

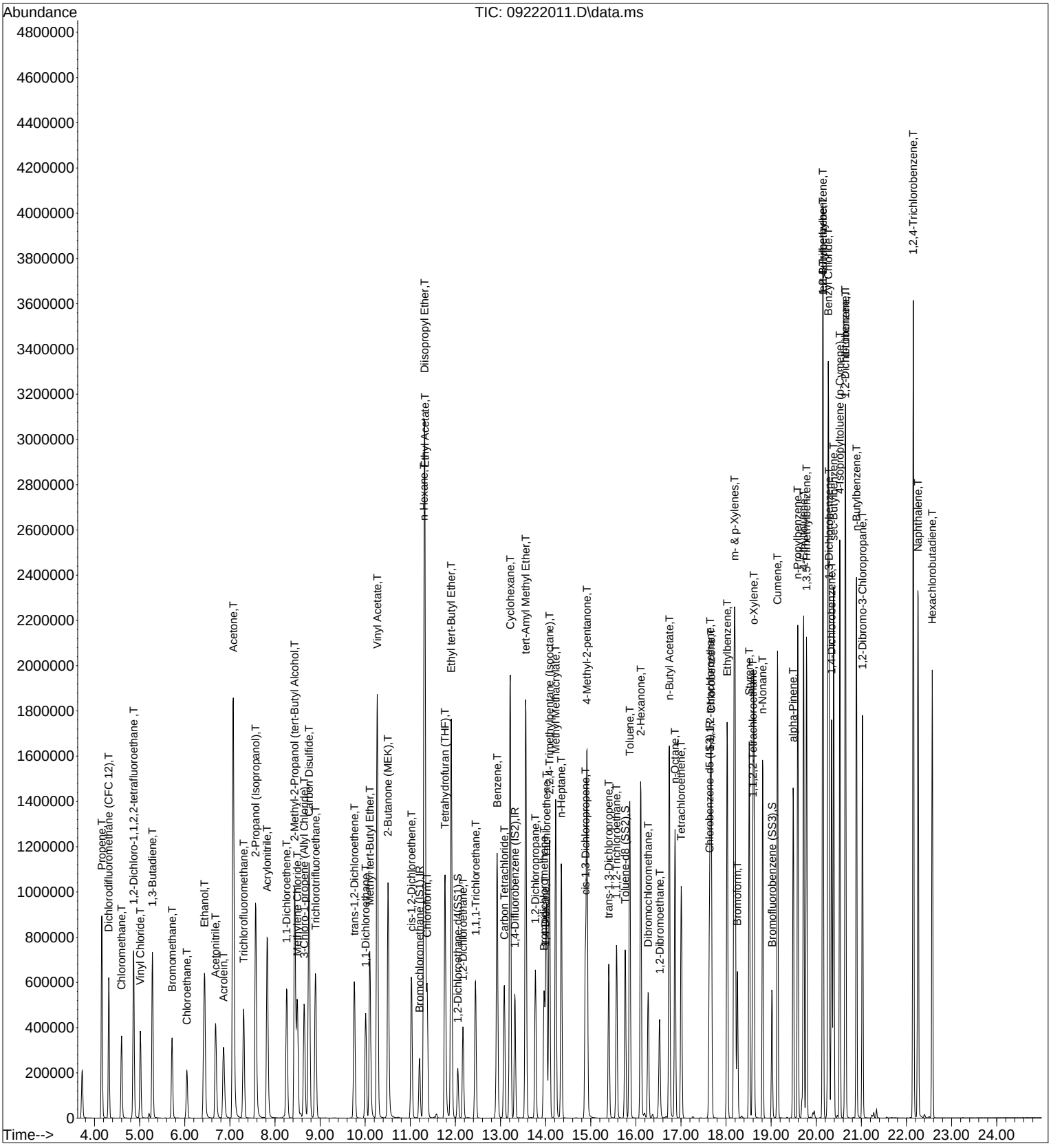
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	334948	26.207	ng	99
52) cis-1,3-Dichloropropene	14.88	75	526952	29.081	ng	100
53) 4-Methyl-2-pentanone	14.92	58	562120	57.013	ng	100
54) trans-1,3-Dichloropropene	15.40	75	485135	29.500	ng	100
55) 1,1,2-Trichloroethane	15.57	97	320929	26.681	ng	99
58) Toluene	15.87	91	1313712	25.170	ng	100
59) 2-Hexanone	16.11	43	1159696	55.684	ng	100
60) Dibromochloromethane	16.27	129	397103	28.411	ng	100
61) 1,2-Dibromoethane	16.53	107	376098	28.775	ng	100
62) n-Butyl Acetate	16.74	43	1370149	59.670	ng	100
63) n-Octane	16.87	57	274056	26.173	ng	99
64) Tetrachloroethene	17.01	166	410196	26.306	ng	100
65) Chlorobenzene	17.67	112	914040	25.836	ng	100
66) Ethylbenzene	18.02	91	1480622	26.251	ng	100
67) m- & p-Xylenes	18.19	91	2244141	50.534	ng	100
68) Bromoform	18.25	173	367921	29.493	ng	100
69) Styrene	18.51	104	968663	28.881	ng	100
70) o-Xylene	18.62	91	1152578	25.905	ng	100
71) n-Nonane	18.81	43	566058	26.573	ng	99
72) 1,1,2,2-Tetrachloroethane	18.59	83	547837	26.534	ng	100
74) Cumene	19.14	105	1504152	26.017	ng	100
75) alpha-Pinene	19.49	93	638336	22.898	ng	99
76) n-Propylbenzene	19.59	91	1789055	26.490	ng	99
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.72	105	1536432	27.887	ng	100
79) 1,3,5-Trimethylbenzene	19.78	105	1230143	25.078	ng	100
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.15	105	1232623	26.406	ng	100
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.27	91	2202259	59.111	ng	100
85) 1,3-Dichlorobenzene	20.28	146	785111	26.636	ng	100
86) 1,4-Dichlorobenzene	20.34	146	808540	25.428	ng	99
87) sec-Butylbenzene	20.39	105	1677136	26.279	ng	100
88) 4-Isopropyltoluene (p-...	20.52	119	1482452	26.656	ng	100
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.64	146	764591	26.490	ng	100
91) d-Limonene	20.65	68	436977	27.366	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.02	157	607219	55.490	ng	99
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.15	180	1342426	56.521	ng	100
95) Naphthalene	22.26	128	2016066	31.044	ng	100
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.57	225	441309	26.450	ng	100
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.15	119	1213651	26.166	ng	100
100) n-Butylbenzene	20.89	91	1332719	26.626	ng	100
101) 1,1,1,2-tetrachloroethane	17.65	131	329499	26.630	ng	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_09\22\09222011.D Vial: 1
Acq On : 22 Sep 2020 11:33 Operator: WA
Sample : 25ng R13092220 ICV Std Inst : MS13
Misc : S34-09182001/S34-09172007 (10/16)

Quant Time: Sep 22 12:09:24 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **09222011.D** Acq. Method File: **TO15.M**
Data File Path: **I:\MS13\DATA\2020_09\22** Sample Name: **25ng R13092220 ICV Std**
Operator: **WA** Misc Info: **S34-09182001/S34-09172007 (**
Date Acquired: **9/22/2020 11:33** 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**	**23.6**	26.25	90	**51**	**133**	*	*
3)	**Dichlorodifluoromethane (CFC 1**	**4.31**	**25.4**	**26.25**	97	**64**	**115**	*****	*
4)	**Chloromethane**	**4.60**	**29.1**	**26.50**	110	**49**	**127**	*****	*
5)	**1,2-Dichloro-1,1,2,2-tetrafluoroet**	**4.87**	**26.1**	**27.00**	97	**65**	**114**	*****	*
6)	**Vinyl Chloride**	**5.01**	**27.0**	**26.00**	104	**61**	**129**	*****	*
7)	**1,3-Butadiene**	**5.28**	**27.8**	**26.25**	106	**54**	**140**	*****	*
8)	**Bromomethane**	**5.72**	**26.0**	**26.50**	98	**68**	**120**	*****	*
9)	**Chloroethane**	**6.04**	**25.6**	**25.50**	100	**63**	**123**	*****	*
10)	**Ethanol**	**6.44**	**115**	**124.75**	92	**49**	**134**	*****	*
11)	**Acetonitrile**	**6.68**	**26.6**	**25.25**	105	**50**	**137**	*****	*
12)	**Acrolein**	**6.86**	**54.0**	**54.50**	99	**62**	**128**	*****	*
13)	**Acetone**	**7.07**	**119**	**129.00**	92	**56**	**125**	*****	*
14)	**Trichlorofluoromethane**	**7.31**	**24.8**	**25.50**	97	**64**	**115**	*****	*
15)	**2-Propanol (Isopropanol)**	**7.57**	**54.9**	**51.00**	108	**57**	**133**	*****	*
16)	**Acrylonitrile**	**7.83**	**56.4**	**51.25**	110	**64**	**136**	*****	*
17)	**1,1-Dichloroethene**	**8.26**	**26.2**	**26.50**	99	**68**	**115**	*****	*
18)	2-Methyl-2-Propanol (tert-Butyl Alc	8.43	60.5	52.25	116	56	132	*	*
19)	**Methylene Chloride**	**8.50**	**25.8**	**26.00**	99	**68**	**114**	*****	*
20)	**3-Chloro-1-propene (Allyl Chloric**	**8.65**	**26.6**	**26.25**	101	**55**	**139**	*****	*
21)	**Trichlorotrifluoroethane**	**8.90**	**26.7**	**26.75**	100	**65**	**115**	*****	*
22)	**Carbon Disulfide**	**8.75**	**48.3**	**53.50**	90	**68**	**113**	*****	*
23)	**trans-1,2-Dichloroethene**	**9.76**	**28.2**	**26.50**	106	**65**	**122**	*****	*
24)	**1,1-Dichloroethane**	**10.01**	**25.9**	**26.50**	98	**63**	**118**	*****	*
25)	**Methyl tert-Butyl Ether**	**10.10**	**28.1**	**26.50**	106	**57**	**131**	*****	*
26)	**Vinyl Acetate**	**10.27**	**137**	**137.50**	100	**71**	**128**	*****	*
27)	**2-Butanone (MEK)**	**10.51**	**56.4**	**51.50**	110	**67**	**123**	*****	*
28)	**cis-1,2-Dichloroethene**	**11.02**	**26.5**	**26.00**	102	**64**	**120**	*****	*
29)	Diisopropyl Ether	11.31	50.0	53.00	94	62	121	*	*
30)	**Ethyl Acetate**	**11.33**	**66.8**	**52.75**	127	**64**	**131**	*	*
31)	**n-Hexane**	**11.30**	**25.1**	**26.50**	95	**58**	**125**	*****	*
32)	**Chloroform**	**11.37**	**25.6**	**26.75**	96	**65**	**114**	*****	*
34)	**Tetrahydrofuran (THF)**	**11.77**	**48.8**	**50.00**	98	**65**	**115**	*	*
35)	Ethyl tert-Butyl Ether	11.91	55.0	52.50	105	61	130	*	*
36)	**1,2-Dichloroethane**	**12.17**	**27.0**	**26.00**	104	**59**	**120**	*****	*
38)	**1,1,1-Trichloroethane**	**12.45**	**25.6**	**25.75**	99	**66**	**115**	*****	*
41)	**Benzene**	**12.92**	**25.3**	**25.50**	99	**66**	**109**	*****	*
42)	**Carbon Tetrachloride**	**13.08**	**25.4**	**26.25**	97	**66**	**119**	*****	*
43)	**Cyclohexane**	**13.22**	**52.0**	**52.00**	100	**67**	**117**	*	*
44)	tert-Amyl Methyl Ether	13.56	54.5	**52.25**	104	62	133	*****	*
45)	**1,2-Dichloropropane**	**13.77**	**26.0**	**25.75**	101	**66**	**119**	*****	*
46)	**Bromodichloromethane**	**13.96**	**27.2**	**26.25**	104	**71**	**119**	*****	*
47)	**Trichloroethene**	**14.02**	**26.3**	**25.75**	102	**70**	**114**	*****	*
48)	**1,4-Dioxane**	**13.99**	**29.3**	**26.00**	113	**71**	**117**	*****	*
49)	2,2,4-Trimethylpentane (Isooctane)	14.09	26.2	26.50	99	61	122	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **09222011.D** **TO15.M**
Data File Path: **I:\MS13\DATA\2020_09\22** Sample Name: **25ng R13092220 ICV Std**
Operator: **WA** Misc Info: **S34-09182001/S34-09172007 (**
Date Acquired: **9/22/2020 11:33** 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**	**14.22**	**58.7**	**52.00**	113	**76**	**121**	*	*
51)	**n-Heptane**	**14.35**	**26.2**	**26.25**	100	**66**	**119**	*	*
52)	**cis-1,3-Dichloropropene**	**14.88**	**29.1**	**26.25**	111	**72**	**125**	*	*
53)	**4-Methyl-2-pentanone**	**14.92**	**57.0**	**52.00**	110	**68**	**130**	*	*
54)	**trans-1,3-Dichloropropene**	**15.40**	**29.5**	**25.25**	117	**71**	**132**	*	*
55)	**1,1,2-Trichloroethane**	**15.57**	**26.7**	**25.75**	104	**70**	**117**	*	*
58)	**Toluene**	**15.87**	**25.2**	**25.75**	98	**67**	**113**	*	*
59)	**2-Hexanone**	**16.11**	**55.7**	**50.50**	110	**62**	**135**	*	*
60)	**Dibromochloromethane**	**16.27**	**28.4**	**26.25**	108	**73**	**126**	*	*
61)	**1,2-Dibromoethane**	**16.53**	**28.8**	**26.00**	111	**71**	**122**	*	*
62)	**n-Butyl Acetate**	**16.74**	**59.7**	**50.75**	118	**65**	**134**	*	*
63)	**n-Octane**	**16.87**	**26.2**	**26.25**	100	**63**	**120**	*	*
64)	**Tetrachloroethene**	**17.01**	**26.3**	**25.75**	102	**64**	**120**	*	*
65)	**Chlorobenzene**	**17.67**	**25.8**	**25.75**	100	**65**	**116**	*	*
66)	**Ethylbenzene**	**18.02**	**26.3**	**25.75**	102	**65**	**117**	*	*
67)	**m- & p-Xylenes**	**18.19**	**50.5**	**51.50**	98	**64**	**121**	*	*
68)	**Bromoform**	**18.25**	**29.5**	**26.00**	113	**72**	**130**	*	*
69)	**Styrene**	**18.51**	**28.9**	**25.75**	112	**72**	**126**	*	*
70)	**o-Xylene**	**18.62**	**25.9**	**25.75**	101	**64**	**120**	*	*
71)	**n-Nonane**	**18.81**	**26.6**	**26.00**	102	**56**	**132**	*	*
72)	**1,1,2,2-Tetrachloroethane**	**18.59**	**26.5**	**25.75**	103	**66**	**122**	*	*
74)	**Cumene**	**19.14**	**26.0**	**26.00**	100	**64**	**121**	*	*
75)	**alpha-Pinene**	**19.49**	**22.9**	**26.75**	86	**62**	**136**	*	*
76)	**n-Propylbenzene**	**19.59**	**26.5**	**26.00**	102	**65**	**123**	*	*
78)	**4-Ethyltoluene**	**19.72**	**27.9**	**26.25**	**106**	**71**	**126**	*	*
79)	**1,3,5-Trimethylbenzene**	**19.78**	**25.1**	**25.75**	**97**	**65**	**120**	*	*
82)	**1,2,4-Trimethylbenzene**	**20.15**	**26.4**	**25.50**	**104**	**63**	**129**	*	*
84)	**Benzyl Chloride**	**20.27**	**59.1**	**50.25**	**118**	**66**	**138**	*	*
85)	**1,3-Dichlorobenzene**	**20.28**	**26.6**	**25.75**	**103**	**65**	**127**	*	*
86)	**1,4-Dichlorobenzene**	**20.34**	**25.4**	**25.50**	**100**	**66**	**125**	*	*
87)	sec-Butylbenzene	20.39	26.3	25.75	**102**	68	123	*	*
88)	4-Isopropyltoluene (p-Cymene)	20.52	26.7	25.75	**104**	61	129	*	*
90)	**1,2-Dichlorobenzene**	**20.64**	**26.5**	**25.75**	**103**	**67**	**128**	*	*
91)	**d-Limonene**	**20.65**	**27.4**	**26.00**	**105**	**65**	**136**	*	*
92)	**1,2-Dibromo-3-Chloropropane**	**21.02**	**55.5**	**46.25**	**120**	**73**	**133**	*	*
94)	**1,2,4-Trichlorobenzene**	**22.15**	**56.5**	**48.50**	**116**	**62**	**140**	*	*
95)	**Naphthalene**	**22.26**	**31.0**	**24.75**	**125**	**57**	**149**	*	*
97)	**Hexachlorobutadiene**	**22.57**	**26.5**	**26.25**	**101**	57	129	*	*
99)	tert-Butylbenzene	20.15	26.2	25.75	102	62	130	*	*
100)	n-Butylbenzene	20.89	26.6	25.75	103	67	124	*	*
101)	1,1,1,2-tetrachloroethane	17.65	26.6	25.75	103	67	124	*	*

Bold = 75 Compound List
*** = Pass**

Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2020_10\21\10212001.D Vial: 1
Acq On : 21 Oct 2020 19:30 Operator: WA
Sample : CCV R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-09282004 (10/27)

Quant Time: Oct 21 21:05:26 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 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)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	89	-0.02
2	T	Propene	1.439	1.261	12.4	77	-0.02
3	T	Dichlorodifluoromethane (CF	2.280	2.021	11.4	76	-0.02
4	T	Chloromethane	1.541	1.534	0.5	80	-0.02
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.246	1.153	7.5	80	-0.02
6	T	Vinyl Chloride	1.629	1.603	1.6	81	-0.02
7	T	1,3-Butadiene	1.372	1.357	1.1	79	-0.03
8	T	Bromomethane	1.068	0.978	8.4	75	-0.03
9	T	Chloroethane	0.884	0.805	8.9	75	-0.03
10	T	Ethanol	0.896	0.769	14.2	81	-0.09
11	T	Acetonitrile	2.106	1.982	5.9	81	-0.06
12	T	Acrolein	0.786	0.748	4.8	76	-0.03
13	T	Acetone	0.934	0.777	16.8	77	-0.05
14	T	Trichlorofluoromethane	2.048	1.771	13.5	75	-0.02
15	T	2-Propanol (Isopropanol)	2.807	2.853	-1.6	81	-0.06
16	T	Acrylonitrile	1.476	1.482	-0.4	78	-0.05
17	T	1,1-Dichloroethene	1.202	1.084	9.8	76	-0.02
18	T	2-Methyl-2-Propanol (tert-B	2.508	2.718	-8.4	82	-0.05
19	T	Methylene Chloride	1.244	1.124	9.6	76	-0.03
20	T	3-Chloro-1-propene (Allyl C	1.726	1.647	4.6	80	-0.02
21	T	Trichlorotrifluoroethane	1.125	1.057	6.0	81	-0.02
22	T	Carbon Disulfide	4.622	3.864	16.4	77	-0.02
23	T	trans-1,2-Dichloroethene	1.557	1.537	1.3	78	-0.02
24	T	1,1-Dichloroethane	2.057	1.879	8.7	77	-0.02
25	T	Methyl tert-Butyl Ether	3.322	3.282	1.2	78	-0.01
26	T	Vinyl Acetate	0.267	0.268	-0.4	78	-0.03
27	T	2-Butanone (MEK)	0.758	0.763	-0.7	78	-0.03
28	T	cis-1,2-Dichloroethene	1.547	1.450	6.3	77	-0.02
29	T	Diisopropyl Ether	0.991	0.885	10.7	79	-0.02
30	T	Ethyl Acetate	0.429	0.432	-0.7	79	-0.03
31	T	n-Hexane	1.884	1.713	9.1	78	-0.01
32	T	Chloroform	1.970	1.758	10.8	76	-0.03
33	S	1,2-Dichloroethane-d4(SS1)	1.302	1.304	-0.2	88	-0.02
34	T	Tetrahydrofuran (THF)	0.789	0.717	9.1	77	-0.01
35	T	Ethyl tert-Butyl Ether	1.344	1.303	3.1	78	-0.01
36	T	1,2-Dichloroethane	1.306	1.251	4.2	77	-0.01
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	88	-0.01
38	T	1,1,1-Trichloroethane	0.405	0.363	10.4	76	-0.01
39	T	Isopropyl Acetate	0.000	0.000	0.0	78	-0.02
40	T	1-Butanol	0.000	0.000	0.0	0#	0.04
41	T	Benzene	1.119	1.010	9.7	77	-0.01
42	T	Carbon Tetrachloride	0.379	0.335	11.6	76	-0.01
43	T	Cyclohexane	0.426	0.390	8.5	78	-0.02
44	T	tert-Amyl Methyl Ether	0.724	0.697	3.7	78	-0.01
45	T	1,2-Dichloropropane	0.274	0.254	7.3	77	-0.01
46	T	Bromodichloromethane	0.345	0.327	5.2	76	-0.01
47	T	Trichloroethene	0.314	0.297	5.4	78	-0.01
48	T	1,4-Dioxane	0.212	0.215	-1.4	78	-0.01
49	T	2,2,4-Trimethylpentane (Iso	1.140	1.036	9.1	78	0.00
50	T	Methyl Methacrylate	0.108	0.112	-3.7	79	-0.02
51	T	n-Heptane	0.284	0.263	7.4	78	-0.01
52	T	cis-1,3-Dichloropropene	0.402	0.406	-1.0	77	0.00
53	T	4-Methyl-2-pentanone	0.219	0.224	-2.3	79	-0.02
54	T	trans-1,3-Dichloropropene	0.365	0.383	-4.9	77	0.00
55	T	1,1,2-Trichloroethane	0.267	0.248	7.1	77	-0.01

Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2020_10\21\10212001.D Vial: 1
Acq On : 21 Oct 2020 19:30 Operator: WA
Sample : CCV R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-09282004 (10/27)

Quant Time: Oct 21 21:05:26 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 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	91	0.00
57	S	Toluene-d8 (SS2)	2.472	2.393	3.2	89	0.00
58	T	Toluene	2.565	2.207	14.0	78	-0.01
59	T	2-Hexanone	1.024	1.060	-3.5	81	-0.02
60	T	Dibromochloromethane	0.687	0.632	8.0	76	-0.01
61	T	1,2-Dibromoethane	0.642	0.607	5.5	77	0.00
62	T	n-Butyl Acetate	1.129	1.203	-6.6	81	-0.01
63	T	n-Octane	0.515	0.460	10.7	78	0.00
64	T	Tetrachloroethene	0.766	0.674	12.0	78	0.00
65	T	Chlorobenzene	1.739	1.519	12.7	78	0.00
66	T	Ethylbenzene	2.772	2.458	11.3	77	0.00
67	T	m- & p-Xylenes	2.183	1.874	14.2	77	-0.01
68	T	Bromoform	0.613	0.584	4.7	77	0.00
69	T	Styrene	1.648	1.588	3.6	76	0.00
70	T	o-Xylene	2.187	1.926	11.9	78	-0.01
71	T	n-Nonane	1.047	0.986	5.8	80	0.00
72	T	1,1,2,2-Tetrachloroethane	1.015	0.909	10.4	77	0.00
73	S	Bromofluorobenzene (SS3)	0.794	0.851	-7.2	98	0.00
74	T	Cumene	2.841	2.476	12.8	77	0.00
75	T	alpha-Pinene	1.370	1.227	10.4	74	0.00
76	T	n-Propylbenzene	3.319	2.919	12.1	76	0.00
77	T	3-Ethyltoluene	0.000	0.000	0.0	0#	0.00
78	T	4-Ethyltoluene	2.708	2.439	9.9	76	0.00
79	T	1,3,5-Trimethylbenzene	2.411	2.039	15.4	78	0.00
80	T	alpha-Methylstyrene	0.000	0.000	0.0	0#	0.00
81	T	2-Ethyltoluene	0.000	0.000	0.0	0#	-0.01
82	T	1,2,4-Trimethylbenzene	2.294	2.070	9.8	78	-0.01
83	T	n-Decane	0.000	0.000	0.0	21#	0.11
84	T	Benzyl Chloride	1.831	1.828	0.2	78	-0.01
85	T	1,3-Dichlorobenzene	1.449	1.290	11.0	78	-0.01
86	T	1,4-Dichlorobenzene	1.563	1.332	14.8	78	-0.01
87	T	sec-Butylbenzene	3.137	2.694	14.1	78	0.00
88	T	4-Isopropyltoluene (p-Cymen	2.733	2.460	10.0	77	0.00
89	T	1,2,3-Trimethylbenzene	0.000	0.000	0.0	65	0.00
90	T	1,2-Dichlorobenzene	1.419	1.232	13.2	77	0.00
91	T	d-Limonene	0.785	0.725	7.6	71	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.538	0.516	4.1	77	-0.01
93	T	n-Undecane	0.000	0.000	0.0	13#	0.00
94	T	1,2,4-Trichlorobenzene	1.167	1.119	4.1	81	0.00
95	T	Naphthalene	3.192	3.139	1.7	81	-0.01
96	T	n-Dodecane	0.000	0.000	0.0	15#	0.00
97	T	Hexachlorobutadiene	0.820	0.701	14.5	75	0.00
98	T	Cyclohexanone	0.000	0.000	0.0	19#	0.02
99	T	tert-Butylbenzene	2.280	2.007	12.0	77	0.00
100	T	n-Butylbenzene	2.460	2.224	9.6	77	0.00
101	T	1,1,1,2-Tetrachloroethane	0.608	0.546	10.2	77	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212001.D Vial: 1
Acq On : 21 Oct 2020 19:30 Operator: WA
Sample : CCV R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-09282004 (10/27)

Quant Time: Oct 21 21:05:26 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	116464	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	503468	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.63	82	235911	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	151866	12.520	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.16%				
57) Toluene-d8 (SS2)	15.76	98	564540	12.102	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.80%				
73) Bromofluorobenzene (SS3)	19.02	174	200661	13.390	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.12%				
Target Compounds							Qvalue
2) Propene	4.16	42	305463	22.791	ng		99
3) Dichlorodifluoromethan...	4.32	85	489530	23.048	ng		100
4) Chloromethane	4.60	50	371667	25.893	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	279282	24.056	ng		100
6) Vinyl Chloride	5.01	62	392068	25.829	ng		100
7) 1,3-Butadiene	5.28	54	328686	25.705	ng		98
8) Bromomethane	5.72	94	236965	23.821	ng		100
9) Chloroethane	6.04	64	194948	23.677	ng		100
10) Ethanol	6.44	45	945767	113.298	ng		99
11) Acetonitrile	6.68	41	489323	24.932	ng		100
12) Acrolein	6.86	56	379713	51.855	ng		100
13) Acetone	7.07	58	933720	107.274	ng		95
14) Trichlorofluoromethane	7.30	101	420795	22.052	ng		100
15) 2-Propanol (Isopropanol)	7.57	45	1362298	52.094	ng		99
16) Acrylonitrile	7.83	53	707874	51.489	ng		100
17) 1,1-Dichloroethene	8.26	96	262645	23.452	ng		100
18) 2-Methyl-2-Propanol (t...	8.43	59	1310441	56.085	ng		100
19) Methylene Chloride	8.49	84	272167	23.484	ng		98
20) 3-Chloro-1-propene (Al...	8.65	41	398989	24.810	ng		98
21) Trichlorotrifluoroethane	8.90	151	258433	24.650	ng		99
22) Carbon Disulfide	8.75	76	1871933	43.473	ng		100
23) trans-1,2-Dichloroethene	9.76	61	375945	25.916	ng		99
24) 1,1-Dichloroethane	10.01	63	468258	24.432	ng		100
25) Methyl tert-Butyl Ether	10.10	73	787443	25.445	ng		100
26) Vinyl Acetate	10.27	86	342124	137.317	ng	#	91
27) 2-Butanone (MEK)	10.51	72	366267	51.880	ng		97
28) cis-1,2-Dichloroethene	11.02	61	351212	24.374	ng		98
29) Diisopropyl Ether	11.31	87	430852	46.670	ng		98
30) Ethyl Acetate	11.33	61	209276	52.369	ng		100
31) n-Hexane	11.30	57	414986	23.635	ng		99
32) Chloroform	11.37	83	430076	23.435	ng		100
34) Tetrahydrofuran (THF)	11.77	72	340873	46.364	ng		96
35) Ethyl tert-Butyl Ether	11.91	87	631260	50.419	ng		99
36) 1,2-Dichloroethane	12.17	62	302984	24.901	ng		100
38) 1,1,1-Trichloroethane	12.44	97	376339	23.060	ng		99
41) Benzene	12.92	78	1057871	23.477	ng		100
42) Carbon Tetrachloride	13.08	117	344169	22.528	ng		100
43) Cyclohexane	13.21	84	813750	47.457	ng		99
44) tert-Amyl Methyl Ether	13.56	73	1452932	49.803	ng		99
45) 1,2-Dichloropropane	13.77	63	265751	24.112	ng		100
46) Bromodichloromethane	13.96	83	342244	24.657	ng		99
47) Trichloroethene	14.02	130	305476	24.180	ng		99
48) 1,4-Dioxane	13.99	88	223127	26.152	ng		100
49) 2,2,4-Trimethylpentane...	14.09	57	1095356	23.858	ng		98
50) Methyl Methacrylate	14.22	100	234062	53.745	ng		99
51) n-Heptane	14.35	71	272956	23.879	ng		100
52) cis-1,3-Dichloropropene	14.88	75	429234	26.487	ng		100

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212001.D Vial: 1
Acq On : 21 Oct 2020 19:30 Operator: WA
Sample : CCV R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-09282004 (10/27)

Quant Time: Oct 21 21:05:26 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

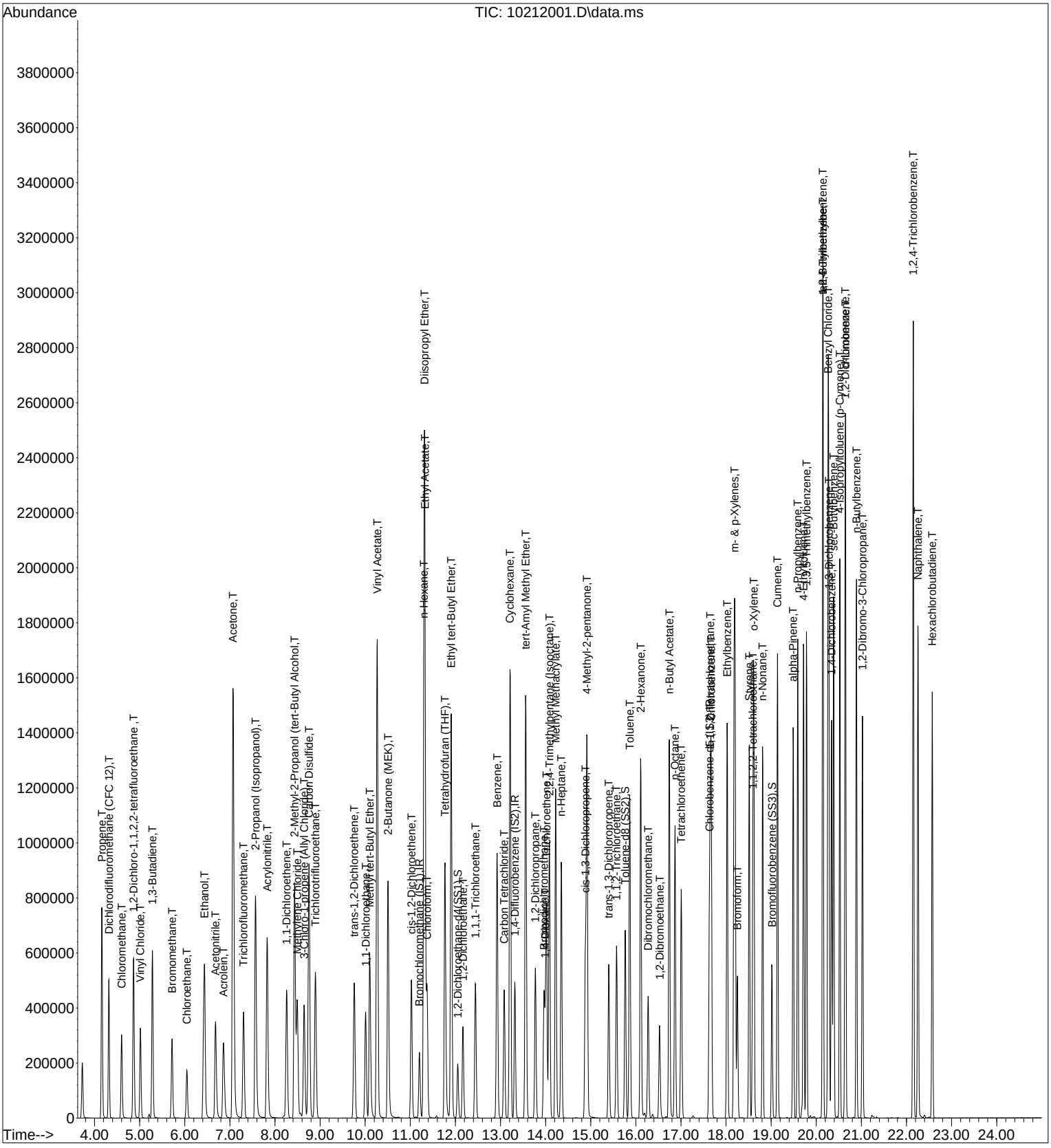
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
53) 4-Methyl-2-pentanone	14.92	58	470191	53.323	ng	97
54) trans-1,3-Dichloropropene	15.40	75	393013	26.722	ng	99
55) 1,1,2-Trichloroethane	15.57	97	260048	24.174	ng	100
58) Toluene	15.86	91	1082915	22.368	ng	100
59) 2-Hexanone	16.11	43	1030304	53.334	ng	98
60) Dibromochloromethane	16.27	129	310157	23.923	ng	100
61) 1,2-Dibromoethane	16.53	107	298088	24.588	ng	100
62) n-Butyl Acetate	16.74	43	1174798	55.158	ng	99
63) n-Octane	16.87	57	225661	23.235	ng	99
64) Tetrachloroethene	17.01	166	330800	22.871	ng	100
65) Chlorobenzene	17.67	112	738015	22.490	ng	100
66) Ethylbenzene	18.02	91	1205993	23.051	ng	100
67) m- & p-Xylenes	18.19	91	1848303	44.871	ng	100
68) Bromoform	18.25	173	292010	25.236	ng	100
69) Styrene	18.51	104	771855	24.810	ng	100
70) o-Xylene	18.62	91	954282	23.123	ng	100
71) n-Nonane	18.81	43	488447	24.720	ng	98
72) 1,1,2,2-Tetrachloroethane	18.59	83	450488	23.523	ng	100
74) Cumene	19.14	105	1214807	22.653	ng	100
75) alpha-Pinene	19.49	93	613647	23.732	ng	100
76) n-Propylbenzene	19.59	91	1432292	22.863	ng	100
78) 4-Ethyltoluene	19.72	105	1208088	23.639	ng	100
79) 1,3,5-Trimethylbenzene	19.78	105	1010053	22.199	ng	100
82) 1,2,4-Trimethylbenzene	20.15	105	1006133	23.238	ng	100
84) Benzyl Chloride	20.26	91	1810840	52.400	ng	100
85) 1,3-Dichlorobenzene	20.28	146	639315	23.383	ng	100
86) 1,4-Dichlorobenzene	20.34	146	653442	22.155	ng	100
87) sec-Butylbenzene	20.39	105	1360067	22.975	ng	100
88) 4-Isopropyltoluene (p-...	20.52	119	1184131	22.955	ng	100
90) 1,2-Dichlorobenzene	20.64	146	610554	22.805	ng	100
91) d-Limonene	20.65	68	352322	23.788	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.02	157	487339	48.013	ng	98
94) 1,2,4-Trichlorobenzene	22.15	180	1056356	47.950	ng	100
95) Naphthalene	22.25	128	1525342	25.322	ng	100
97) Hexachlorobutadiene	22.57	225	340539	22.004	ng	100
99) tert-Butylbenzene	20.15	119	985053	22.896	ng	100
100) n-Butylbenzene	20.89	91	1080636	23.275	ng	100
101) 1,1,1,2-Tetrachloroethane	17.65	131	265298	23.116	ng	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212001.D Vial: 1
Acq On : 21 Oct 2020 19:30 Operator: WA
Sample : CCV R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-09282004 (10/27)

Quant Time: Oct 21 21:05:26 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2020_10\21\10212035.D Vial: 1
Acq On : 22 Oct 2020 15:40 Operator: WA
Sample : CCVend R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-09282004 (10/27)

Quant Time: Oct 22 18:48:27 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 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)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	90	-0.02
2	T	Propene	1.439	1.214	15.6	75	0.00
3	T	Dichlorodifluoromethane (CF	2.280	1.978	13.2	75	-0.01
4	T	Chloromethane	1.541	1.468	4.7	77	-0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.246	1.135	8.9	80	-0.02
6	T	Vinyl Chloride	1.629	1.537	5.6	78	-0.01
7	T	1,3-Butadiene	1.372	1.325	3.4	78	-0.02
8	T	Bromomethane	1.068	0.959	10.2	75	-0.02
9	T	Chloroethane	0.884	0.781	11.7	74	-0.02
10	T	Ethanol	0.896	0.734	18.1	78	-0.08
11	T	Acetonitrile	2.106	1.883	10.6	78	-0.05
12	T	Acrolein	0.786	0.724	7.9	75	-0.03
13	T	Acetone	0.934	0.747	20.0	75	-0.05
14	T	Trichlorofluoromethane	2.048	1.726	15.7	74	-0.02
15	T	2-Propanol (Isopropanol)	2.807	2.729	2.8	78	-0.06
16	T	Acrylonitrile	1.476	1.434	2.8	76	-0.05
17	T	1,1-Dichloroethene	1.202	1.069	11.1	76	-0.02
18	T	2-Methyl-2-Propanol (tert-B	2.508	2.616	-4.3	80	-0.04
19	T	Methylene Chloride	1.244	1.098	11.7	76	-0.02
20	T	3-Chloro-1-propene (Allyl C	1.726	1.567	9.2	77	-0.02
21	T	Trichlorotrifluoroethane	1.125	1.045	7.1	81	-0.01
22	T	Carbon Disulfide	4.622	3.719	19.5	75	-0.02
23	T	trans-1,2-Dichloroethene	1.557	1.462	6.1	75	-0.01
24	T	1,1-Dichloroethane	2.057	1.787	13.1	74	-0.02
25	T	Methyl tert-Butyl Ether	3.322	3.148	5.2	76	0.00
26	T	Vinyl Acetate	0.267	0.256	4.1	76	-0.03
27	T	2-Butanone (MEK)	0.758	0.731	3.6	76	-0.02
28	T	cis-1,2-Dichloroethene	1.547	1.383	10.6	75	-0.02
29	T	Diisopropyl Ether	0.991	0.852	14.0	77	-0.02
30	T	Ethyl Acetate	0.429	0.413	3.7	77	-0.03
31	T	n-Hexane	1.884	1.633	13.3	75	0.00
32	T	Chloroform	1.970	1.687	14.4	74	-0.03
33	S	1,2-Dichloroethane-d4(SS1)	1.302	1.275	2.1	87	-0.02
34	T	Tetrahydrofuran (THF)	0.789	0.693	12.2	76	-0.01
35	T	Ethyl tert-Butyl Ether	1.344	1.259	6.3	76	-0.01
36	T	1,2-Dichloroethane	1.306	1.198	8.3	75	-0.01
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	89	-0.01
38	T	1,1,1-Trichloroethane	0.405	0.349	13.8	74	0.00
39	T	Isopropyl Acetate	0.000	0.000	0.0	73	-0.01
40	T	1-Butanol	0.000	0.000	0.0	0#	0.03
41	T	Benzene	1.119	0.973	13.0	75	-0.01
42	T	Carbon Tetrachloride	0.379	0.322	15.0	74	0.00
43	T	Cyclohexane	0.426	0.376	11.7	76	-0.01
44	T	tert-Amyl Methyl Ether	0.724	0.672	7.2	76	-0.01
45	T	1,2-Dichloropropane	0.274	0.242	11.7	75	-0.01
46	T	Bromodichloromethane	0.345	0.313	9.3	74	-0.01
47	T	Trichloroethene	0.314	0.293	6.7	78	-0.01
48	T	1,4-Dioxane	0.212	0.209	1.4	77	0.00
49	T	2,2,4-Trimethylpentane (Iso	1.140	0.984	13.7	75	0.00
50	T	Methyl Methacrylate	0.108	0.108	0.0	77	-0.02
51	T	n-Heptane	0.284	0.251	11.6	75	-0.01
52	T	cis-1,3-Dichloropropene	0.402	0.391	2.7	75	0.00
53	T	4-Methyl-2-pentanone	0.219	0.213	2.7	76	-0.02
54	T	trans-1,3-Dichloropropene	0.365	0.367	-0.5	75	0.00
55	T	1,1,2-Trichloroethane	0.267	0.241	9.7	76	-0.01

Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2020_10\21\10212035.D Vial: 1
Acq On : 22 Oct 2020 15:40 Operator: WA
Sample : CCVend R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-09282004 (10/27)

Quant Time: Oct 22 18:48:27 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 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	91	0.00
57	S	Toluene-d8 (SS2)	2.472	2.395	3.1	89	0.00
58	T	Toluene	2.565	2.160	15.8	76	0.00
59	T	2-Hexanone	1.024	1.015	0.9	78	-0.02
60	T	Dibromochloromethane	0.687	0.626	8.9	76	0.00
61	T	1,2-Dibromoethane	0.642	0.599	6.7	76	0.00
62	T	n-Butyl Acetate	1.129	1.151	-1.9	77	-0.01
63	T	n-Octane	0.515	0.443	14.0	76	0.00
64	T	Tetrachloroethene	0.766	0.676	11.7	78	0.00
65	T	Chlorobenzene	1.739	1.503	13.6	77	0.00
66	T	Ethylbenzene	2.772	2.415	12.9	76	0.00
67	T	m- & p-Xylenes	2.183	1.841	15.7	76	-0.01
68	T	Bromoform	0.613	0.584	4.7	77	0.00
69	T	Styrene	1.648	1.564	5.1	75	0.00
70	T	o-Xylene	2.187	1.879	14.1	76	-0.01
71	T	n-Nonane	1.047	0.938	10.4	77	0.00
72	T	1,1,2,2-Tetrachloroethane	1.015	0.884	12.9	75	0.00
73	S	Bromofluorobenzene (SS3)	0.794	0.876	-10.3	101	0.00
74	T	Cumene	2.841	2.441	14.1	76	0.00
75	T	alpha-Pinene	1.370	1.206	12.0	73	0.00
76	T	n-Propylbenzene	3.319	2.870	13.5	75	0.00
77	T	3-Ethyltoluene	0.000	0.000	0.0	0#	0.00
78	T	4-Ethyltoluene	2.708	2.396	11.5	75	0.00
79	T	1,3,5-Trimethylbenzene	2.411	2.009	16.7	77	0.00
80	T	alpha-Methylstyrene	0.000	0.000	0.0	0#	0.00
81	T	2-Ethyltoluene	0.000	0.000	0.0	0#	-0.01
82	T	1,2,4-Trimethylbenzene	2.294	2.037	11.2	77	-0.01
83	T	n-Decane	0.000	0.000	0.0	3#	0.05
84	T	Benzyl Chloride	1.831	1.785	2.5	76	0.00
85	T	1,3-Dichlorobenzene	1.449	1.287	11.2	78	-0.01
86	T	1,4-Dichlorobenzene	1.563	1.326	15.2	78	-0.01
87	T	sec-Butylbenzene	3.137	2.642	15.8	77	0.00
88	T	4-Isopropyltoluene (p-Cymen	2.733	2.447	10.5	77	0.00
89	T	1,2,3-Trimethylbenzene	0.000	0.000	0.0	64	0.00
90	T	1,2-Dichlorobenzene	1.419	1.229	13.4	78	0.00
91	T	d-Limonene	0.785	0.701	10.7	69	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.538	0.515	4.3	77	-0.01
93	T	n-Undecane	0.000	0.000	0.0	13#	0.00
94	T	1,2,4-Trichlorobenzene	1.167	1.118	4.2	81	0.00
95	T	Naphthalene	3.192	3.113	2.5	80	0.00
96	T	n-Dodecane	0.000	0.000	0.0	16#	0.00
97	T	Hexachlorobutadiene	0.820	0.703	14.3	76	0.00
98	T	Cyclohexanone	0.000	0.000	0.0	19#	0.02
99	T	tert-Butylbenzene	2.280	1.983	13.0	77	0.00
100	T	n-Butylbenzene	2.460	2.175	11.6	76	0.00
101	T	1,1,1,2-Tetrachloroethane	0.608	0.540	11.2	77	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212035.D Vial: 1
Acq On : 22 Oct 2020 15:40 Operator: WA
Sample : CCVend R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-09282004 (10/27)

Quant Time: Oct 22 18:48:27 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	118274	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	510405	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.63	82	236693	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	12.05	65	150786	12.241	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.92%			
57) Toluene-d8 (SS2)	15.76	98	566935	12.113	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.88%			
73) Bromofluorobenzene (SS3)	19.01	174	207240	13.783	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.24%			
Target Compounds						Qvalue
2) Propene	4.17	42	298760	21.950	ng	98
3) Dichlorodifluoromethan...	4.33	85	486683	22.563	ng	100
4) Chloromethane	4.60	50	361169	24.776	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	279262	23.686	ng	100
6) Vinyl Chloride	5.03	62	381734	24.763	ng	100
7) 1,3-Butadiene	5.29	54	325884	25.095	ng	98
8) Bromomethane	5.73	94	235825	23.344	ng	100
9) Chloroethane	6.06	64	192236	22.991	ng	100
10) Ethanol	6.44	45	917158	108.190	ng	100
11) Acetonitrile	6.69	41	472233	23.693	ng	100
12) Acrolein	6.86	56	373550	50.233	ng	100
13) Acetone	7.07	58	912128	103.190	ng	96
14) Trichlorofluoromethane	7.31	101	416350	21.485	ng	100
15) 2-Propanol (Isopropanol)	7.58	45	1323424	49.833	ng	99
16) Acrylonitrile	7.83	53	695380	49.806	ng	100
17) 1,1-Dichloroethene	8.26	96	263053	23.129	ng	98
18) 2-Methyl-2-Propanol (t...	8.44	59	1280954	53.984	ng	100
19) Methylene Chloride	8.50	84	270003	22.941	ng	100
20) 3-Chloro-1-propene (Al...	8.65	41	385577	23.609	ng	98
21) Trichlorotrifluoroethane	8.90	151	259497	24.373	ng	96
22) Carbon Disulfide	8.76	76	1830040	41.850	ng	100
23) trans-1,2-Dichloroethene	9.76	61	363018	24.641	ng	99
24) 1,1-Dichloroethane	10.01	63	452276	23.237	ng	100
25) Methyl tert-Butyl Ether	10.11	73	766956	24.404	ng	100
26) Vinyl Acetate	10.27	86	332534	131.426	ng	96
27) 2-Butanone (MEK)	10.51	72	356296	49.696	ng	99
28) cis-1,2-Dichloroethene	11.02	61	340303	23.255	ng	100
29) Diisopropyl Ether	11.31	87	421057	44.911	ng	99
30) Ethyl Acetate	11.33	61	203027	50.028	ng	100
31) n-Hexane	11.30	57	401826	22.535	ng	100
32) Chloroform	11.37	83	419067	22.486	ng	99
34) Tetrahydrofuran (THF)	11.77	72	334437	44.792	ng	99
35) Ethyl tert-Butyl Ether	11.91	87	619274	48.704	ng	99
36) 1,2-Dichloroethane	12.17	62	294826	23.860	ng	100
38) 1,1,1-Trichloroethane	12.45	97	366886	22.175	ng	100
39) Isopropyl Acetate	12.92	61	7184	No Calib	#	
40) 1-Butanol	12.96	56	2611	No Calib		
41) Benzene	12.92	78	1032559	22.604	ng	100
42) Carbon Tetrachloride	13.08	117	335583	21.667	ng	100
43) Cyclohexane	13.22	84	795174	45.743	ng	100
44) tert-Amyl Methyl Ether	13.56	73	1419862	48.008	ng	99
45) 1,2-Dichloropropane	13.77	63	257191	23.019	ng	100
46) Bromodichloromethane	13.96	83	332109	23.601	ng	100
47) Trichloroethene	14.02	130	305098	23.822	ng	99
48) 1,4-Dioxane	13.99	88	219368	25.362	ng	98
49) 2,2,4-Trimethylpentane...	14.09	57	1054543	22.657	ng	98
50) Methyl Methacrylate	14.22	100	228966	51.860	ng	98

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212035.D Vial: 1
Acq On : 22 Oct 2020 15:40 Operator: WA
Sample : CCVend R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-09282004 (10/27)

Quant Time: Oct 22 18:48:27 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

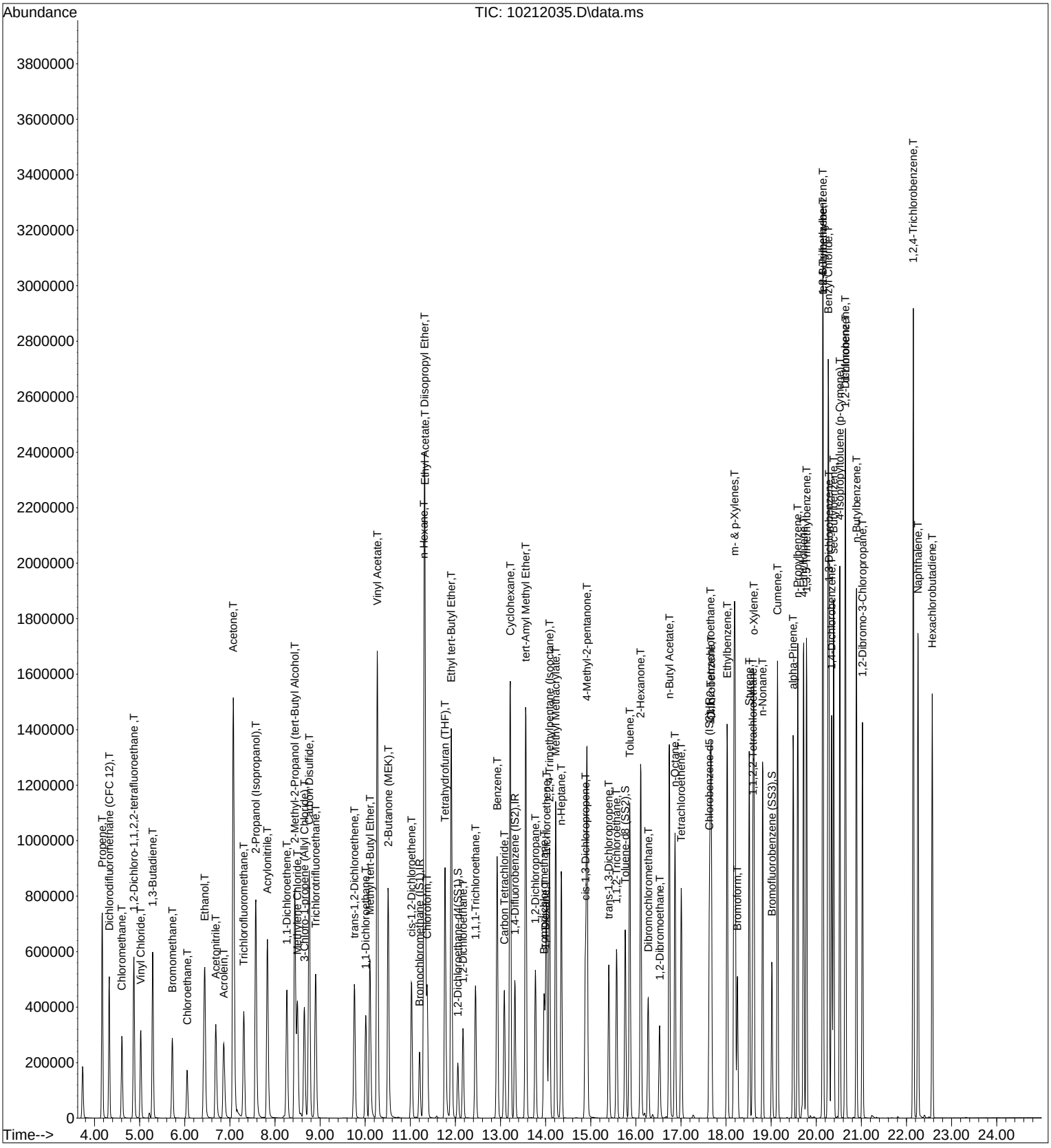
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.35	71	263793	22.764	ng		100
52) cis-1,3-Dichloropropene	14.88	75	419252	25.519	ng		100
53) 4-Methyl-2-pentanone	14.92	58	452786	50.651	ng		98
54) trans-1,3-Dichloropropene	15.40	75	381976	25.618	ng		100
55) 1,1,2-Trichloroethane	15.57	97	256015	23.476	ng		99
58) Toluene	15.87	91	1063654	21.898	ng		100
59) 2-Hexanone	16.11	43	989950	51.076	ng		99
60) Dibromochloromethane	16.28	129	308072	23.684	ng		100
61) 1,2-Dibromoethane	16.53	107	294686	24.227	ng		100
62) n-Butyl Acetate	16.74	43	1127570	52.765	ng		99
63) n-Octane	16.87	57	218268	22.399	ng		99
64) Tetrachloroethene	17.01	166	332798	22.933	ng		100
65) Chlorobenzene	17.67	112	732787	22.256	ng		100
66) Ethylbenzene	18.02	91	1188885	22.649	ng		99
67) m- & p-Xylenes	18.19	91	1821214	44.067	ng		99
68) Bromoform	18.25	173	292892	25.229	ng		100
69) Styrene	18.51	104	762552	24.430	ng		100
70) o-Xylene	18.62	91	933792	22.551	ng		100
71) n-Nonane	18.81	43	466376	23.525	ng		100
72) 1,1,2,2-Tetrachloroethane	18.59	83	439262	22.861	ng		100
74) Cumene	19.14	105	1201767	22.336	ng		100
75) alpha-Pinene	19.49	93	605228	23.329	ng		100
76) n-Propylbenzene	19.59	91	1412964	22.480	ng		99
77) 3-Ethyltoluene	19.72	105	1190863	No Calib			
78) 4-Ethyltoluene	19.72	105	1190863	23.225	ng		99
79) 1,3,5-Trimethylbenzene	19.78	105	998438	21.871	ng		100
80) alpha-Methylstyrene	19.71	118	6758	No Calib		#	
81) 2-Ethyltoluene	19.96	105	4153	No Calib			
82) 1,2,4-Trimethylbenzene	20.15	105	993215	22.864	ng		99
83) n-Decane	20.18	57	203	No Calib		#	
84) Benzyl Chloride	20.27	91	1774894	51.190	ng		99
85) 1,3-Dichlorobenzene	20.28	146	639639	23.318	ng		100
86) 1,4-Dichlorobenzene	20.34	146	652914	22.064	ng		100
87) sec-Butylbenzene	20.39	105	1338469	22.535	ng		100
88) 4-Isopropyltoluene (p-...	20.52	119	1181384	22.826	ng		100
89) 1,2,3-Trimethylbenzene	20.52	105	41285	No Calib		#	
90) 1,2-Dichlorobenzene	20.64	146	610965	22.745	ng		99
91) d-Limonene	20.65	68	341732	22.997	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.02	157	487900	47.910	ng		98
93) n-Undecane	21.34	57	1247	No Calib			
94) 1,2,4-Trichlorobenzene	22.15	180	1058403	47.884	ng		100
95) Naphthalene	22.26	128	1517707	25.112	ng		100
96) n-Dodecane	22.25	57	1919	No Calib		#	
97) Hexachlorobutadiene	22.57	225	342960	22.088	ng		100
98) Cyclohexanone	18.36	55	592	No Calib		#	
99) tert-Butylbenzene	20.15	119	976502	22.622	ng		100
100) n-Butylbenzene	20.89	91	1060530	22.767	ng		99
101) 1,1,1,2-Tetrachloroethane	17.65	131	263339	22.869	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2020_10\21\10212035.D Vial: 1
Acq On : 22 Oct 2020 15:40 Operator: WA
Sample : CCVend R13102120_25ng Inst : MS13
Misc : S34-09182001/S34-09282004 (10/27)

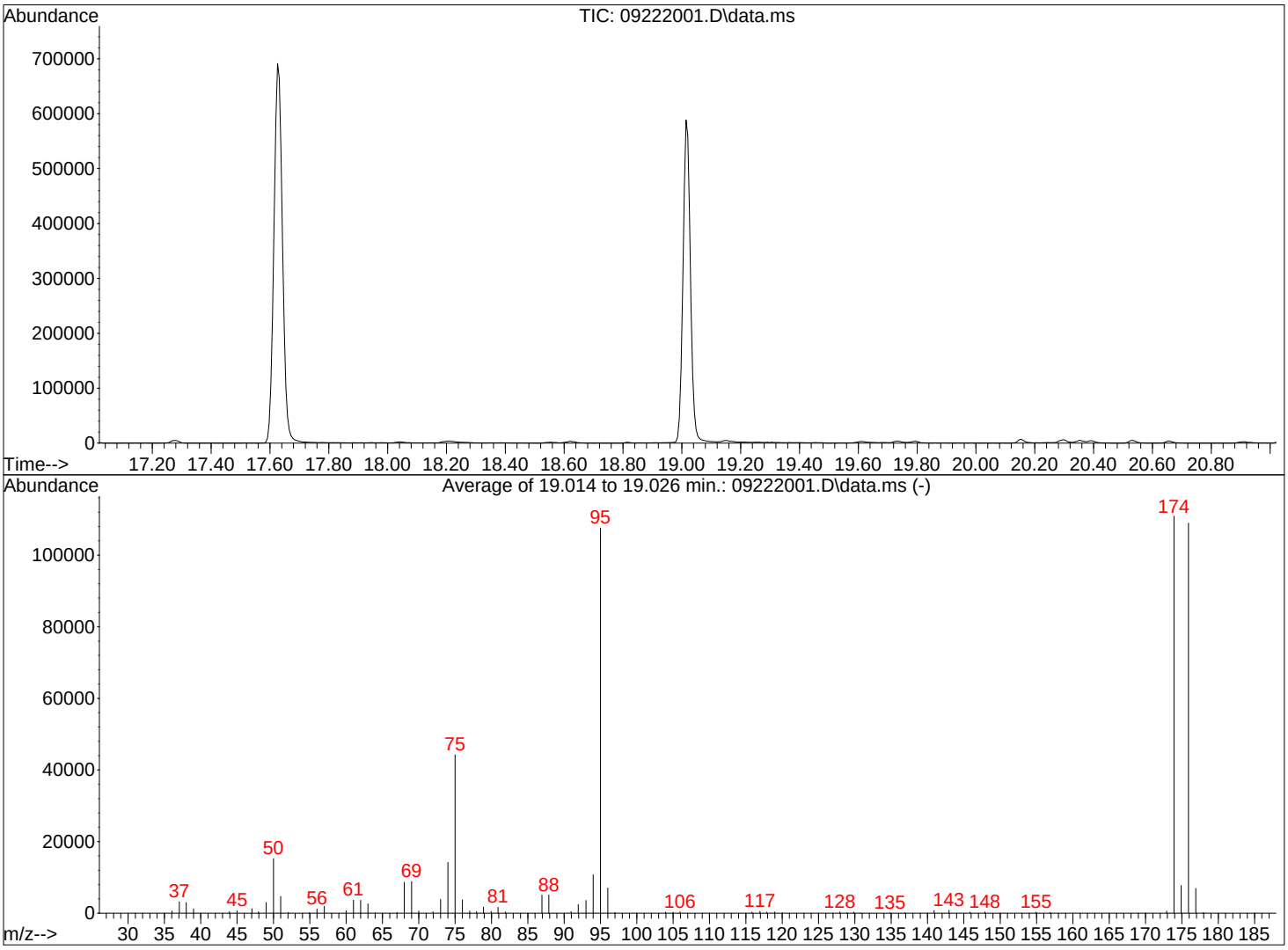
Quant Time: Oct 22 18:48:27 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data Path : I:\MS13\DATA\2020_09\22\
Data File : 09222001.D
Acq On : 22 Sep 2020 5:51
Operator : WA
Sample : R13092220 BFB Std
Misc : S34-09182001
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS13\METHODS\R13092220.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Sep 22 10:50:31 2020



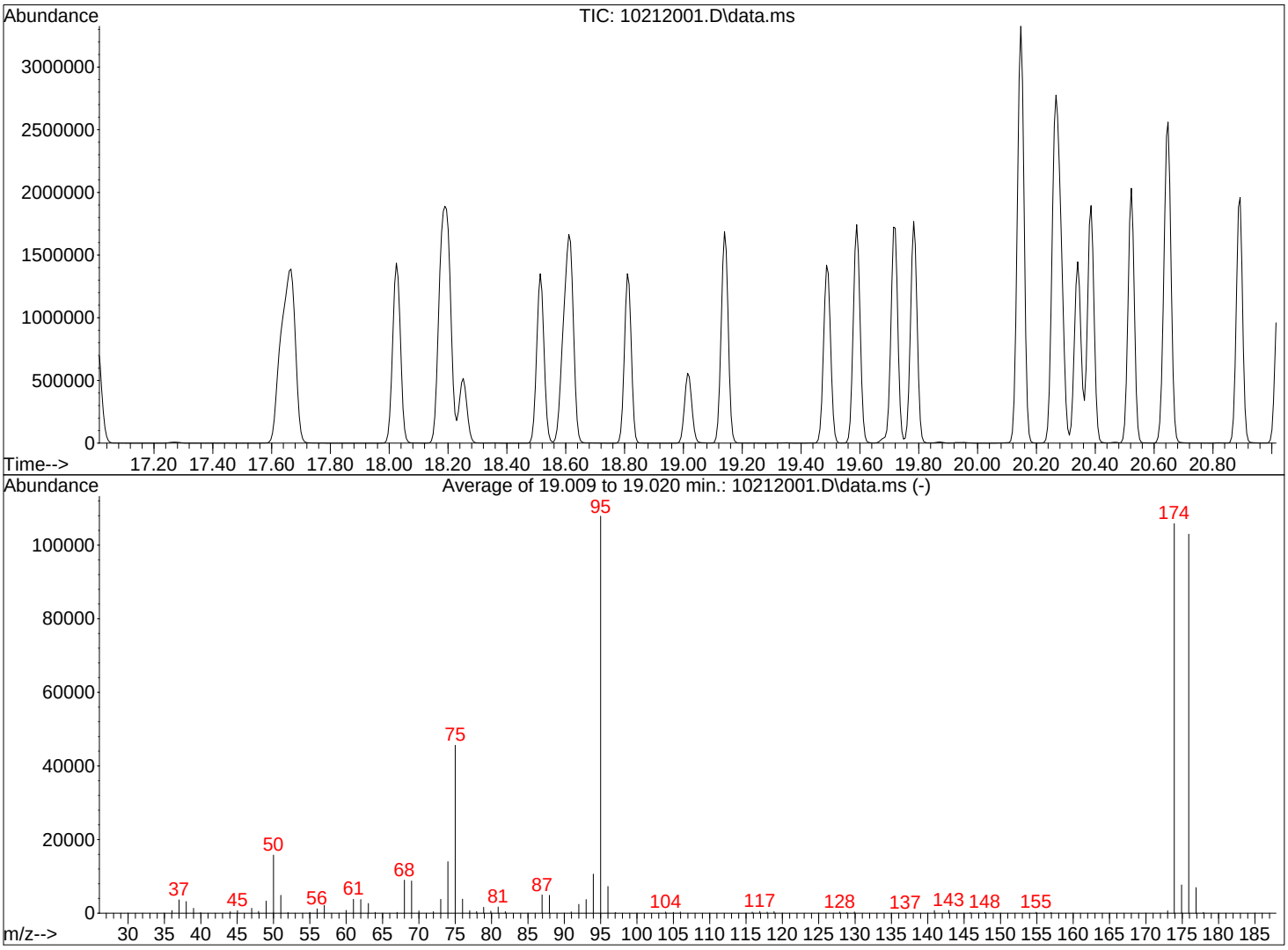
AutoFind: Scans 2705, 2706, 2707; Background Corrected with Scan 2697

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	14.2	15252	PASS
75	95	30	66	41.1	44245	PASS
95	95	100	100	100.0	107565	PASS
96	95	5	9	6.5	7024	PASS
173	174	0.00	2	0.5	598	PASS
174	95	50	120	103.1	110893	PASS
175	174	4	9	7.0	7760	PASS
176	174	93	101	98.3	108965	PASS
177	176	5	9	6.3	6916	PASS

Data Path : I:\MS13\DATA\2020_10\21\
Data File : 10212001.D
Acq On : 21 Oct 2020 19:30
Operator : WA
Sample : CCV R13102120_25ng
Misc : S34-09182001/S34-09282004 (10/27)
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS13\METHODS\R13092220.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Sep 22 10:50:31 2020



AutoFind: Scans 2704, 2705, 2706; 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	14.6	15802	PASS
75	95	30	66	42.3	45611	PASS
95	95	100	100	100.0	107872	PASS
96	95	5	9	6.7	7251	PASS
173	174	0.00	2	0.6	655	PASS
174	95	50	120	98.1	105861	PASS
175	174	4	9	7.3	7703	PASS
176	174	93	101	97.3	102992	PASS
177	176	5	9	6.7	6950	PASS

Injection Log

Directory: J:\MS13\DATA\2020_09\22\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	9/22/20 5:51	09222001.D	R13092220 BFB Std	S34-09182001	WA	1	*Pass*
2	9/22/20 6:25	09222002.D	0.1ng R13092220 ICAL Std	S34-09182001/S34-09182005 (10/17)	WA	13	***R13092220.M***
3	9/22/20 6:59	09222003.D	0.2ng R13092220 ICAL Std	S34-09182001/S34-09182005 (10/17)	WA	13	
4	9/22/20 7:33	09222004.D	0.5ng R13092220 ICAL Std	S34-09182001/S34-09182003 (10/17)	WA	15	
5	9/22/20 8:07	09222005.D	1.0ng R13092220 ICAL Std	S34-09182001/S34-09182003 (10/17)	WA	15	
6	9/22/20 8:41	09222006.D	5.0ng R13092220 ICAL Std	S34-09182001/S34-09182002 (10/17)	WA	16	
7	9/22/20 9:16	09222007.D	25ng R13092220 ICAL Std	S34-09182001/S34-09182002 (10/17)	WA	16	
8	9/22/20 9:50	09222008.D	50ng R13092220 ICAL Std	S34-09182001/S34-09182002 (10/17)	WA	16	
9	9/22/20 10:24	09222009.D	100ng R13092220 ICAL Std	S34-09182001/S34-09182002 (10/17)	WA	16	
10	9/22/20 10:59	09222010.D	Blank	S34-09182001	WA	1	
11	9/22/20 11:33	09222011.D	25ng R13092220 ICV Std	S34-09182001/S34-09172007 (10/16)	WA	1	*Pass*
12	9/22/20 12:07	09222012.D	25ng R13092220 ICV Std	S34-09182001/S34-09172007 (10/16)	WA	12	*Pass*
	R13092220.M: ranges from 0.1ng --> 100ng; except: chloroethane, 1,4-dioxane, trans-1,3-DCP,naphthalene: from 0.2ng --> 100ng;						
	2-Butanone, MIBK, 2-hexanone, Butyl Acetate; from 0.4ng --> 200ng; Ethyl Acetate, Me-methacrylate: from 1.0ng --> 200ng, Vinyl Ac. : 1ng--> 500ng						

Injection Log

Directory: I:\MS13\DATA\2020_10\21\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/21/20 19:30	10212001.D	CCV R13102120_25ng	S34-09182001/S34-09282004 (10/27)	WA	1	passed
2	10/21/20 20:04	10212002.D	CCV C13102120_5ng	S34-09182001/S34-09222001 (10/21)	WA	1	passed
3	10/21/20 21:07	10212003.D	MB R13102120_1000mL	S34-09182001/AC01837	WA	1	passed
4	10/21/20 21:41	10212004.D	LCS R13102120_25ng	S34-09182001/S34-10152004 (11/14)	WA	1	passed
5	10/21/20 22:16	10212005.D	LCSD R13102120_25ng	S34-09182001/S34-10152004 (11/14)	WA	1	passed
6	10/21/20 22:50	10212006.D	101920_AS00828_26532	S34-09182001	WA	15	
7	10/21/20 23:25	10212007.D	P2005847-006 (1000mL)	S34-09182001	WA	6	
8	10/21/20 23:59	10212008.D	P2005847-006dup (1000mL)	S34-09182001	WA	6	passed
9	10/22/20 0:33	10212009.D	P2005847-007 (1000mL)	S34-09182001	WA	7	
10	10/22/20 1:08	10212010.D	P2005847-008 (1000mL)	S34-09182001	WA	8	
11	10/22/20 1:42	10212011.D	P2005847-009 (1000mL)	S34-09182001	WA	9	
12	10/22/20 2:16	10212012.D	P2005847-010 (1000mL)	S34-09182001	WA	10	
13	10/22/20 2:51	10212013.D	P2005847-011 (1000mL)	S34-09182001	WA	11	
14	10/22/20 3:25	10212014.D	P2005847-013 (1000mL)	S34-09182001	WA	12	
15	10/22/20 3:59	10212015.D	P2005715-001 (896mL)	S34-09182001	WA	13	
16	10/22/20 4:34	10212016.D	P2005715-002 (1000mL)	S34-09182001	WA	14	
17	10/22/20 5:08	10212017.D	P2005715-003 (1000mL)	S34-09182001	WA	2	
18	10/22/20 5:42	10212018.D	P2005715-004 (1000mL)	S34-09182001	WA	3	
19	10/22/20 6:16	10212019.D	101420_AS00532_26503	S34-09182001	WA	5	
20	10/22/20 6:51	10212020.D	P2005715-001dil (100mL)	S34-09182001	WA	13	
21	10/22/20 7:26	10212021.D	P2005743-006 (0.25mL)	S34-09182001	WA	4	
22	10/22/20 8:00	10212022.D	P2005847-010dil (100mL)	S34-09182001	WA	10	
23	10/22/20 8:34	10212023.D	P2005847-011dil (100mL)	S34-09182001	WA	11	
24	10/22/20 9:08	10212024.D	P2005847-010dil (25mL)	S34-09182001	WA	10	
25	10/22/20 9:44	10212025.D	P2005716-001 (1000mL)	S34-09182001	WA	5	
26	10/22/20 10:19	10212026.D	P2005716-002 (1000mL)	S34-09182001	WA	6	
27	10/22/20 10:53	10212027.D	P2005716-003 (1000mL)	S34-09182001	WA	7	
28	10/22/20 11:27	10212028.D	P2005716-001dil (100mL)	S34-09182001	WA	5	
29	10/22/20 12:01	10212029.D	P2005716-002dil (100mL)	S34-09182001	WA	6	
30	10/22/20 12:35	10212030.D	P2005708-001 (1000mL)	S34-09182001	WA	2	
31	10/22/20 13:10	10212031.D	P2005708-002 (1000mL)	S34-09182001	WA	3	
32	10/22/20 13:58	10212032.D	P2005708-001dil (100mL)	S34-09182001	WA	2	
33	10/22/20 14:32	10212033.D	P2005708-002dil (100mL)	S34-09182001	WA	3	
34	10/22/20 15:06	10212034.D	P2005716-003 (1000mL)	S34-09182001	WA	7	
35	10/22/20 15:40	10212035.D	CCVend R13102120_25ng	S34-09182001/S34-09282004 (10/27)	WA	1	passed
36	10/22/20 16:31	10212036.D	Screen 5717-001 (100mL)	S34-09182001	WA	2	

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-07
Cycles: 30
Batch: 26349

Batch Started By: ANAKLOWYCZ on 9/17/20 0910
Finished Cleaning By: ANAKLOWYCZ on 9/17/20 0910

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
AC02018	9/17/20	9/24/20	Fail	-14.3	9/17/20 0910	ANAKLOWYCZ				mistake with barcode 2014/ m13_09242006
Passed For: Fail										
SSC00431	9/17/20	9/25/20	Pass w/ Conditions	-14.3	9/17/20 0910	ANAKLOWYCZ				MS21_09252014
SC00960	9/17/20	9/25/20	Pass w/ Conditions	-14.3	9/17/20 0910	ANAKLOWYCZ	-14.0	10/1/20 1038		
SC01062	9/17/20	9/25/20	Pass w/ Conditions	-14.3	9/17/20 0910	ANAKLOWYCZ	26.0	10/5/20 0244		
SC00612	9/17/20	9/25/20	Pass w/ Conditions	-14.3	9/17/20 0910	ANAKLOWYCZ	-14.0	9/29/20 0340		
SSC00546	9/17/20	9/25/20	Pass w/ Conditions	-14.3	9/17/20 0910	ANAKLOWYCZ				
SC02282	9/17/20	9/25/20	Pass w/ Conditions	-14.3	9/17/20 0910	ANAKLOWYCZ	-8.0	10/5/20 0925		
SC02295	9/17/20	9/25/20	Pass w/ Conditions	-14.3	9/17/20 0910	ANAKLOWYCZ	-14.0	9/30/20 0238		
SC02306	9/17/20	9/25/20	Pass w/ Conditions	-14.3	9/17/20 0910	ANAKLOWYCZ	-14.0	9/29/20 0118		
SC02296	9/17/20	9/25/20	Pass w/ Conditions	-14.3	9/17/20 0911	ANAKLOWYCZ	-14.0	9/29/20 0340		
Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)										

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

*** QC Canister**

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2020_09\25\
Data File : 09252014.D
Acq On : 25 Sep 2020 18:20
Operator : WA/RVT
Sample : 092520_SSC00431_26349
Misc : LL+TICS (Sig #1); S34-09082001 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 26 08:49:00 2020
Quant Method : I:\MS21\Methods\F21092420.M
Quant Title : EPA TO-15
QLast Update : Fri Sep 25 11:39:32 2020
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS1)	7.483	130	62319	1000.00	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.729	114	235834	1000.00	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.667	54	46253	1000.00	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.301	65	116773	1007.71	pg		0.00
Spiked Amount 1000.000			Recovery = 100.77%				
57) Toluene-d8 (SS2)	12.577	98	208462	922.93	pg		0.00
Spiked Amount 1000.000			Recovery = 92.29%				
74) Bromofluorobenzene (SS3)	16.111	174	66771	917.67	pg		0.00
Spiked Amount 1000.000			Recovery = 91.77%				
Target Compounds							Qvalue
2] * Propene	3.474	42	3543	32.73	pg	#	19
3] * Dichlorodifluoromethane	3.534	85	3614	17.54	pg		100
4] * Chloromethane	3.663	50	1593	11.87	pg		99
5] * 1,2-Dichloro-1,1,2,2...	3.738	85	206	1.43	pg	#	42
6) * Vinyl Chloride	0.000		0	N.D.			
7] * 1,3-Butadiene	3.954	54	141	1.43	pg	#	1
8] * Bromomethane	4.160	94	110	1.25	pg	#	58
9] * Chloroethane	4.295	64	115	1.89	pg	#	23
10] * Ethanol	4.378	45	40078	823.27	pg		100
11] * Acetonitrile	4.550	41	1954	16.55	pg	#	81
12] * Acrolein	4.660	56	1164	22.47	pg		99
13] * Acetone	4.769	58	63552	1022.35	pg		86
14] * Trichlorofluoromethane	4.906	101	2028	9.74	pg		96
15] * 2-Propanol (Isopropa...	4.965	45	10205	52.38	pg	#	86
16] * Acrylonitrile	5.131	53	137	1.53	pg	#	70
17] * 1,1-Dichloroethene	5.405	96	272	3.28	pg	#	18
18] tert-Butanol	5.488	59	1002	6.92	pg		94
19] * Methylene Chloride	5.508	84	6709	75.47	pg		97
20) * 3-Chloro-1-propene (...	0.000		0	N.D.			
21] * Trichlorotrifluoroet...	5.751	151	267	3.77	pg	#	66
22] * Carbon Disulfide	5.780	76	20088	76.78	pg		98
23] * trans-1,2-Dichloroet...	6.313	96	57	0.75	pg	#	18
24) * 1,1-Dichloroethane	0.000		0	N.D.			
25) * Methyl tert-Butyl Ether	0.000		0	N.D.			
26] * Vinyl Acetate	6.649	86	239	16.05	pg		98
27] * 2-Butanone (MEK)	6.911	72	13604	307.62	pg		96
28] * cis-1,2-Dichloroethene	7.327	96	75	0.91	pg	#	18
29] DIPE	7.567	45	8066	29.52	pg	#	61
30] * Ethyl Acetate	7.574	61	7167	253.74	pg		92
31] * n-Hexane	7.567	57	696	5.66	pg		96
32] * Chloroform	7.612	83	184	1.24	pg	#	79
34] * Tetrahydrofuran	8.075	71	116	2.99	pg	#	65
35) ETBE	0.000		0	N.D.			
36] * 1,2-Dichloroethane	8.421	62	87	0.70	pg	#	42
38) * 1,1,1-Trichloroethane	0.000		0	N.D.			
39] * Benzene	9.287	78	3621	11.87	pg		93
40] Isopropyl Acetate	9.120	61	118	94.61	pg		87
41] 1-Butanol	9.245	56	1347	203.98	pg	#	15
42] * Carbon Tetrachloride	9.469	117	129	1.50	pg	#	2
43] * Cyclohexane	9.641	84	150	1.55	pg	#	42
44) TAME	0.000		0	N.D.			
45) * 1,2-Dichloropropane	0.000		0	N.D.			
46] * Bromodichloromethane	10.448	83	69	0.64	pg	#	18
47] * Trichloroethene	10.572	130	93	0.95	pg	#	45

Data Path : I:\MS21\DATA\2020_09\25\
Data File : 09252014.D
Acq On : 25 Sep 2020 18:20
Operator : WA/RVT
Sample : 092520_SSC00431_26349
Misc : LL+TICS (Sig #1); S34-09082001 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 26 08:49:00 2020
Quant Method : I:\MS21\Methods\F21092420.M
Quant Title : EPA TO-15
QLast Update : Fri Sep 25 11:39:32 2020
Response via : Initial Calibration

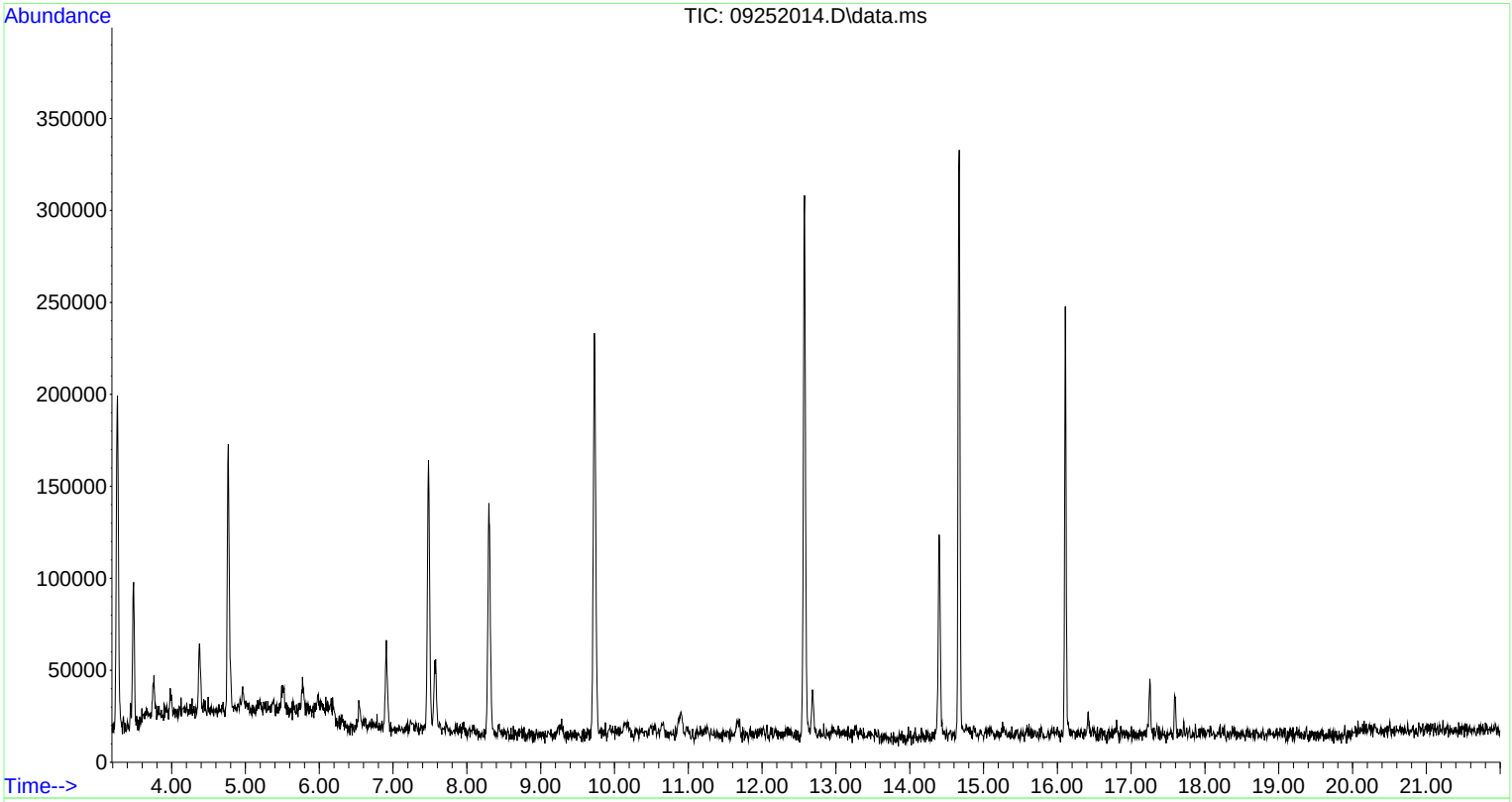
	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
48]	* 1,4-Dioxane	10.592	88	151	2.17	pg	#	59
49]	Isooctane	10.654	56	847	5.85	pg		97
50]	* Methyl Methacrylate	10.889	69	76	0.80	pg	#	8
51]	* n-Heptane	10.978	71	874	8.91	pg	#	73
52)	* cis-1,3-Dichloropropene	0.000		0	N.D.			
53]	* 4-Methyl-2-pentanone	11.666	58	2810	47.71	pg		97
54]	* trans-1,3-Dichloropr...	12.182	75	71	1.55	pg	#	43
55)	* 1,1,2-Trichloroethane	0.000		0	N.D.			
58]	* Toluene	12.685	91	16856	61.00	pg		100
59]	* 2-Hexanone	13.019	58	80	1.59	pg	#	62
60)	* Dibromochloromethane	0.000		0	N.D.			
61]	* 1,2-Dibromoethane	13.411	107	59	0.87	pg		98
62]	* n-Butyl Acetate	13.762	56	96	2.49	pg	#	36
63]	* n-Octane	13.886	85	66	1.23	pg	#	1
64]	* Tetrachloroethene	13.974	166	216	2.50	pg	#	52
65]	* Chlorobenzene	14.714	112	147	0.82	pg	#	81
66]	* Ethylbenzene	15.101	91	715	2.67	pg	#	85
67]	* m- & p-Xylenes	15.266	91	1671	8.06	pg		100
68)	* Bromoform	0.000		0	N.D.			
69)	Cyclohexanone	0.000		0	N.D.			
70]	* Styrene	15.608	104	586	5.00	pg	#	82
71]	* o-Xylene	15.711	91	674	3.10	pg		89
72]	* n-Nonane	15.951	57	385	3.98	pg		95
73]	* 1,1,2,2-Tetrachloroe...	15.694	83	77	0.62	pg	#	18
75]	* Cumene	16.246	105	183	0.66	pg	#	50
76]	* alpha-Pinene	16.585	93	162	1.17	pg	#	28
77]	* n-Propylbenzene	16.687	91	422	1.39	pg	#	84
78]	3-Ethyltoluene	16.818	105	380	2.01	pg		99
79]	* 4-Ethyltoluene	16.818	105	355	1.68	pg		97
80]	* 1,3,5-Trimethylbenzene	16.881	105	259	1.29	pg		93
81]	alpha-Methylstyrene	17.022	118	125	22.16	pg	#	77
82)	2-Ethyltoluene	0.000		0	N.D.			
83]	tert-Butylbenzene	17.251	134	523	11.64	pg	#	1
84]	* 1,2,4-Trimethylbenzene	17.229	105	577	3.09	pg		88
85)	* Benzyl Chloride	0.000		0	N.D.			
86]	* 1,3-Dichlorobenzene	17.348	146	228	2.21	pg		93
87]	* 1,4-Dichlorobenzene	17.348	146	228	2.54	pg		96
88]	n-Decane	17.343	85	163	23.38	pg	#	1
89]	sec-Butylbenzene	17.229	105	577	3.09	pg	#	1
90]	1,2,3-Trimethylbenzene	17.591	105	491	26.78	pg		82
91]	p-Isopropyltoluene	17.596	134	2246	42.18	pg		99
92]	* 1,2-Dichlorobenzene	17.688	146	236	2.15	pg		87
93]	* D-Limonene	17.715	68	979	13.86	pg		96
94]	n-Butylbenzene	17.948	134	116	3.23	pg	#	34
95]	* 1,2-Dibromo-3-chloro...	18.052	157	106	5.66	pg		89
96]	n-Undecane	18.398	85	54	50.63	pg		74
97]	* 1,2,4-Trichlorobenzene	19.154	180	395	23.34	pg		86
98]	* Naphthalene	19.262	128	598	23.04	pg	#	68
99]	n-Dodecane	19.281	85	59	92.14	pg	#	1
100]	* Hexachlorobutadiene	19.587	225	76	1.35	pg	#	43

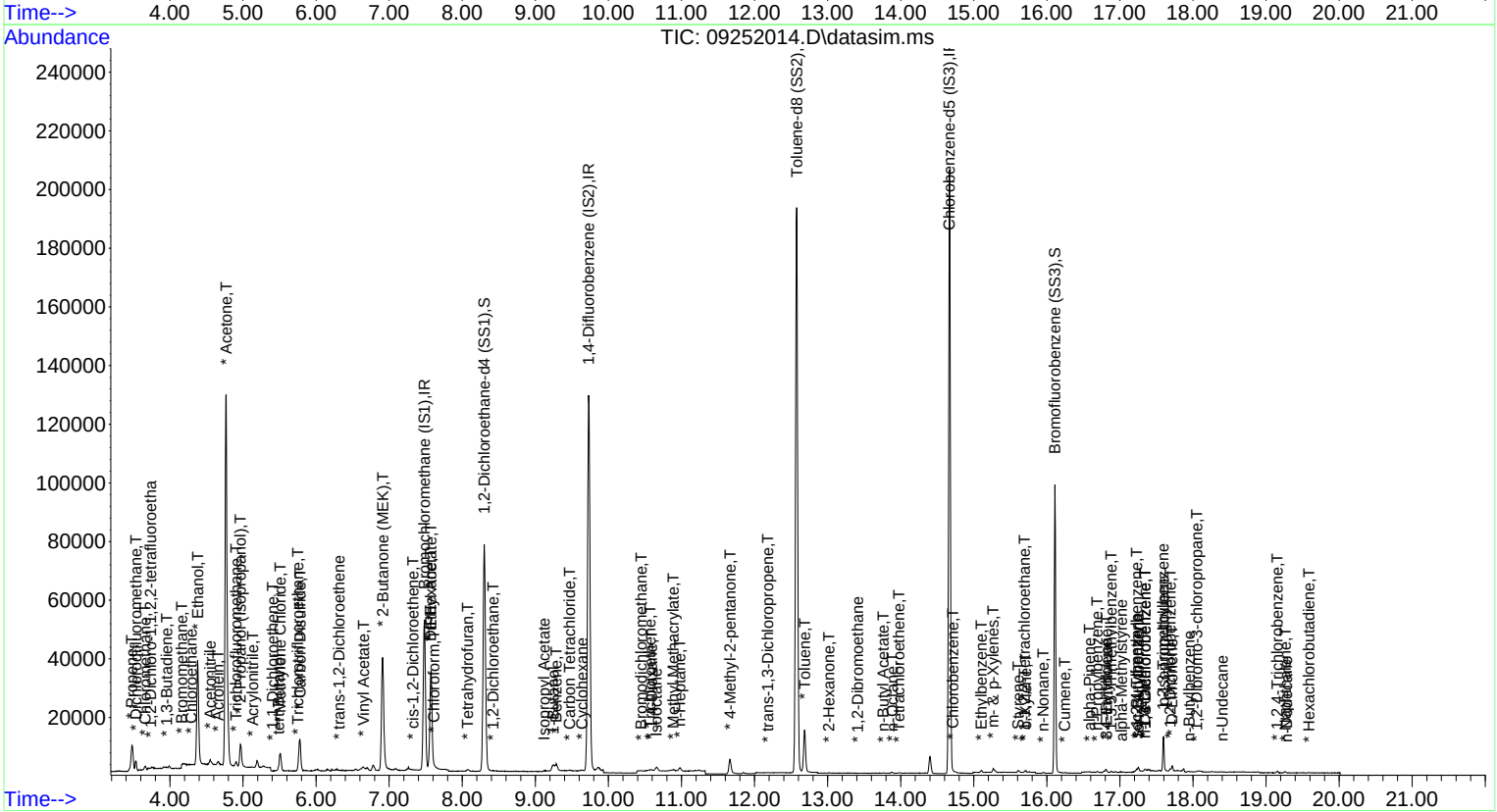
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2020_09\25\
Data File : 09252014.D
Acq On : 25 Sep 2020 18:20
Operator : WA/RVT
Sample : 092520_SSC00431_26349
Misc : LL+TICS (Sig #1); S34-09082001 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 26 08:49:00 2020
Quant Method : I:\MS21\Methods\F21092420.M
Quant Title : EPA TO-15
QLast Update : Fri Sep 25 11:39:32 2020
Response via : Initial Calibration





SIMIVALLEY QC Certification

Conditioner: P-Conditioner-08
Cycles: 30
Batch: 26361

Batch Started By: ANAKLOWYCZ on 9/18/20 0936
Finished Cleaning By: ANAKLOWYCZ on 9/18/20 0936

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
SSC00326	9/18/20	9/22/20	Pass w/ Conditions	-14.3	9/18/20 0936	ANAKLOWYCZ	-14.0	9/23/20 0328		MS13_09222035
SC01873	9/18/20	9/22/20	Pass w/ Conditions	-14.3	9/18/20 0936	ANAKLOWYCZ	-14.0	9/24/20 0825		
SC00764	9/18/20	9/22/20	Pass w/ Conditions	-14.3	9/18/20 0936	ANAKLOWYCZ	-14.0	9/24/20 0825		
SC01810	9/18/20	9/22/20	Pass w/ Conditions	-14.3	9/18/20 0936	ANAKLOWYCZ	-14.0	9/24/20 0825		
SC01508	9/18/20	9/22/20	Pass w/ Conditions	-14.3	9/18/20 0936	ANAKLOWYCZ	-14.0	9/24/20 0827		
SC01993	9/18/20	9/22/20	Pass w/ Conditions	-14.3	9/18/20 0936	ANAKLOWYCZ	-14.0	9/24/20 0827		
SC01717	9/18/20	9/22/20	Pass w/ Conditions	-14.3	9/18/20 0936	ANAKLOWYCZ	-14.0	9/29/20 0118		
SC00306	9/18/20	9/22/20	Pass w/ Conditions	-14.3	9/18/20 0936	ANAKLOWYCZ	-14.0	9/23/20 0328		
SC00304	9/18/20	9/22/20	Pass w/ Conditions	-14.3	9/18/20 0936	ANAKLOWYCZ	-14.0	9/23/20 0328		
SC02194	9/18/20	9/22/20	Pass w/ Conditions	-14.3	9/18/20 0936	ANAKLOWYCZ	-14.0	9/23/20 0328		

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

*** QC Canister**

No Name Entered Quantitation Report (QT Reviewed)

Data Path : J:\MS13\DATA\2020_09\22\
Data File : 09222035.D
Acq On : 23 Sep 2020 2:53 am
Operator : WA
Sample : SSC00326_QC1 26361
Misc : S34-09182001
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 23 06:29:45 2020
Quant Method : I:\MS13\METHODS\R13092220.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Sep 22 10:50:31 2020
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS1)	11.184	130	128163	12.50	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	13.306	114	555235	12.50	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.626	82	248342	12.50	ng	# 0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	12.037	65	167411	12.54	ng	-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.32%			
57) Toluene-d8 (SS2)	15.759	98	623365	12.69	ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.52%			
73) Bromofluorobenzene (SS3)	19.014	174	200528	12.71	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.68%			
Target Compounds						Qvalue
2) Propene	4.189	42	469	0.032	ng	97
3) Dichlorodifluoromethan...	0.000		0	N.D.		
4) Chloromethane	0.000		0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.000		0	N.D.		
6) Vinyl Chloride	0.000		0	N.D.		
7) 1,3-Butadiene	0.000		0	N.D.		
8) Bromomethane	0.000		0	N.D.		
9) Chloroethane	0.000		0	N.D.		
10) Ethanol	0.000		0	N.D.	d	
11) Acetonitrile	0.000		0	N.D.		
12) Acrolein	0.000		0	N.D.		
13) Acetone	7.137	58	4345	0.454	ng #	82
14) Trichlorofluoromethane	0.000		0	N.D.		
15) 2-Propanol (Isopropanol)	0.000		0	N.D.		
16) Acrylonitrile	0.000		0	N.D.		
17) 1,1-Dichloroethene	0.000		0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.000		0	N.D.		
19) Methylene Chloride	0.000		0	N.D.		
20) 3-Chloro-1-propene (Al...	0.000		0	N.D.		
21) Trichlorotrifluoroethane	0.000		0	N.D.		
22) Carbon Disulfide	8.748	76	21630	0.456	ng	95
23) trans-1,2-Dichloroethene	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	0.000		0	N.D.		
27) 2-Butanone (MEK)	0.000		0	N.D.		
28) cis-1,2-Dichloroethene	0.000		0	N.D.		
29) Diisopropyl Ether	0.000		0	N.D.		
30) Ethyl Acetate	0.000		0	N.D.		
31) n-Hexane	0.000		0	N.D.		
32) Chloroform	0.000		0	N.D.		
34) Tetrahydrofuran (THF)	0.000		0	N.D.		
35) Ethyl tert-Butyl Ether	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) Isopropyl Acetate	0.000		0	N.D.		
40) 1-Butanol	0.000		0	N.D.		
41) Benzene	12.942	78	177	0.004	ng #	52

42) Carbon Tetrachloride	0.000		0	N.D.			
43) Cyclohexane	13.289	84	339	0.018	ng	#	1
44) tert-Amyl Methyl Ether	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.			
48) 1,4-Dioxane	0.000		0	N.D.			
49) 2,2,4-Trimethylpentane...	0.000		0	N.D.			
50) Methyl Methacrylate	0.000		0	N.D.			
51) n-Heptane	0.000		0	N.D.			
52) cis-1,3-Dichloropropene	0.000		0	N.D.			
53) 4-Methyl-2-pentanone	0.000		0	N.D.			
54) trans-1,3-Dichloropropene	0.000		0	N.D.			
55) 1,1,2-Trichloroethane	0.000		0	N.D.			
58) Toluene	15.867	91	363	0.007	ng	#	21
59) 2-Hexanone	0.000		0	N.D.			
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	0.000		0	N.D.			
65) Chlorobenzene	0.000		0	N.D.			
66) Ethylbenzene	0.000		0	N.D.			
67) m- & p-Xylenes	0.000		0	N.D.			
68) Bromoform	0.000		0	N.D.			
69) Styrene	0.000		0	N.D.			
70) o-Xylene	0.000		0	N.D.			
71) n-Nonane	0.000		0	N.D.			
72) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.			
74) Cumene	0.000		0	N.D.			
75) alpha-Pinene	0.000		0	N.D.			
76) n-Propylbenzene	0.000		0	N.D.			
77) 3-Ethyltoluene	0.000		0	N.D.			
78) 4-Ethyltoluene	0.000		0	N.D.			
79) 1,3,5-Trimethylbenzene	0.000		0	N.D.			
80) alpha-Methylstyrene	0.000		0	N.D.			
81) 2-Ethyltoluene	20.101	105	524	No Calib			
82) 1,2,4-Trimethylbenzene	20.101	105	524	0.011	ng		82
83) n-Decane	0.000		0	N.D.			
84) Benzyl Chloride	0.000		0	N.D.			
85) 1,3-Dichlorobenzene	0.000		0	N.D.			
86) 1,4-Dichlorobenzene	0.000		0	N.D.			
87) sec-Butylbenzene	0.000		0	N.D.			
88) 4-Isopropyltoluene (p-...	0.000		0	N.D.			
89) 1,2,3-Trimethylbenzene	0.000		0	N.D.			
90) 1,2-Dichlorobenzene	0.000		0	N.D.			
91) d-Limonene	0.000		0	N.D.			
92) 1,2-Dibromo-3-Chloropr...	0.000		0	N.D.			
93) n-Undecane	21.342	57	114	No Calib	#		
94) 1,2,4-Trichlorobenzene	0.000		0	N.D.			
95) Naphthalene	22.344	128	491	0.008	ng	#	71
96) n-Dodecane	0.000		0	N.D.			
97) Hexachlorobutadiene	0.000		0	N.D.			
98) Cyclohexanone	0.000		0	N.D.			
99) tert-Butylbenzene	0.000		0	N.D. d			
100) n-Butylbenzene	0.000		0	N.D.			
101) 1,1,1,2-tetrachloroethane	0.000		0	N.D.			

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

F21033120A.M Wed Sep 23 08:03:29 2020

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

LABORATORY REPORT

January 5, 2021

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

RE: DDMT / 10A023

Dear Todd:

Your report P2006988 has been amended for the sample submitted to our laboratory on December 14, 2020. Per client instructions the sample ID has been changed to reference ODSVE-EFF-Y10Q2. The change has been indicated by the "Revised Page" footer located at the bottom right corner of each affected page.

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

Sue Anderson
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. Service Request No: P2006988
Project: DDMT / 10A023

CASE NARRATIVE

The sample was received intact under chain of custody on December 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 samples 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)
P2006988-001	Propene, ethanol, acetone
P2006988-001dup	Propene, ethanol, acetone, bromodichloromethane

The container was cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.3 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. Service Request: P2006988

Project ID: DDMT / 10A023

Date Received: 12/14/2020

Time Received: 09:00

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pfl (psig)	TO-15 - VOC Cans
ODSVE-EFF-Y10Q2	P2006988-001	Air	12/9/2020	08:50	SC01521	-0.72	4.04	X

Air - Chain of Custody Record & Analytical Service Request

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

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. P2006988

Company Name & Address (Reporting Information)	Trinity ADL 1002 Eglin Pkwy Shalimar, FL 32579
Project Manager	Larry Parnell
Phone	850-613-6800
Fax	
Email Address for Result Reporting	LParnell@Komexgs.com
Project Name	DDMT
Project Number	10A023
P.O. # / Billing Information	8975
Sampler (Print & Sign)	Cody Miller
ALS Contact:	

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	Analysis Method		Comments e.g. Actual Preservative or specific instructions
ODSVE-EFF-YQ10Q2		12/9/2020	0850	6017257	—	-28	-1	6L	TO-15		

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 ____

EDD required Yes / No Type: _____ Units: _____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature) Cody Miller	Date: 12/9/2020	Time: 0850	Received by: (Signature)	Date: 12/14/20	Time: 0900
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Cooler / Blank Temperature ____°C

ALS Environmental
Sample Acceptance Check Form

Client: Trinity Analysis & Development Corp. Work order: P2006988

Project: DDMT / 10A023

Sample(s) received on: 12/14/20 Date opened: 12/14/20 by: MBERGKAMP

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.

		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)? Side of box 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 if necessary 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
P2006988-001.01	6.0 L Source Can					

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

Per client instructions sample ID should be referenced as ODSVE-EFF-Y10Q2

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **ODSVE-EFF-Y10Q2** ALS Project ID: P2006988
Client Project ID: **DDMT / 10A023** ALS Sample ID: P2006988-001

Test Code: EPA TO-15 Date Collected: 12/9/20
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/14/20
Analyst: Lusine Hakobyan Date Analyzed: 12/22/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01521

Initial Pressure (psig): -0.72 Final Pressure (psig): 4.04

Container Dilution Factor: 1.34

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**0.89**	0.41	0.25	0.10	
75-71-8	Dichlorodifluoromethane (CFC 12)	**1.2**	0.14	0.087	0.024	
74-87-3	Chloromethane	**0.056**	0.34	0.21	0.056	**J**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.061	0.10	0.061	0.016	**U**
75-01-4	Vinyl Chloride	**0.16**	0.28	0.089	0.030	**J**
106-99-0	1,3-Butadiene	0.19	0.32	0.19	0.053	**U**
74-83-9	Bromomethane	0.059	0.18	0.059	0.026	**U**
75-00-3	Chloroethane	0.16	0.26	0.16	0.034	**U**
64-17-5	Ethanol	**1.2**	3.8	0.59	0.26	**J**
75-05-8	Acetonitrile	**0.36**	0.42	0.26	0.10	**J**
107-02-8	Acrolein	**0.64**	0.64	0.18	0.088	**J**
67-64-1	Acetone	**6.1**	2.9	1.5	0.68	
75-69-4	Trichlorofluoromethane	**0.32**	0.12	0.076	0.019	
67-63-0	2-Propanol (Isopropyl Alcohol)	**0.21**	0.55	0.34	0.12	**J**
107-13-1	Acrylonitrile	0.20	0.62	0.20	0.068	**U**
75-35-4	1,1-Dichloroethene	**0.67**	0.18	0.057	0.025	
75-09-2	Methylene Chloride	0.12	0.20	0.12	0.058	**U**
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.073	0.22	0.073	0.031	**U**
76-13-1	Trichlorotrifluoroethane	**4.1**	0.093	0.030	0.013	
75-15-0	Carbon Disulfide	**6.7**	0.43	0.23	0.069	
156-60-5	trans-1,2-Dichloroethene	**0.77**	0.18	0.057	0.025	
75-34-3	1,1-Dichloroethane	**0.34**	0.18	0.11	0.026	
1634-04-4	Methyl tert-Butyl Ether	0.063	0.19	0.063	0.023	**U**
108-05-4	Vinyl Acetate	**2.4**	2.1	1.0	0.46	
78-93-3	2-Butanone (MEK)	**1.5**	0.45	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.

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **ODSVE-EFF-Y10Q2** ALS Project ID: P2006988
Client Project ID: **DDMT / 10A023** ALS Sample ID: P2006988-001

Test Code: EPA TO-15 Date Collected: 12/9/20
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/14/20
Analyst: Lusine Hakobyan Date Analyzed: 12/22/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01521

Initial Pressure (psig): -0.72 Final Pressure (psig): 4.04

Container Dilution Factor: 1.34

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**32**	0.18	0.057	0.025	
141-78-6	Ethyl Acetate	0.24	0.37	0.24	0.10	**U**
110-54-3	n-Hexane	0.12	0.20	0.12	0.042	**U**
67-66-3	Chloroform	**7.4**	0.15	0.047	0.019	
109-99-9	Tetrahydrofuran (THF)	**0.074**	0.45	0.077	0.030	**J**
107-06-2	1,2-Dichloroethane	0.056	0.17	0.056	0.020	**U**
71-55-6	1,1,1-Trichloroethane	**0.32**	0.13	0.042	0.016	
71-43-2	Benzene	**0.059**	0.22	0.071	0.032	**J**
56-23-5	Carbon Tetrachloride	**0.45**	0.11	0.036	0.016	
110-82-7	Cyclohexane	0.13	0.39	0.13	0.058	**U**
78-87-5	1,2-Dichloropropane	0.049	0.15	0.049	0.019	**U**
75-27-4	Bromodichloromethane	0.034	0.10	0.034	0.015	**U**
79-01-6	Trichloroethene	**28**	1.3	0.42	0.18	**D**
123-91-1	1,4-Dioxane	0.063	0.19	0.063	0.023	**U**
80-62-6	Methyl Methacrylate	0.21	0.33	0.21	0.062	**U**
142-82-5	n-Heptane	0.10	0.17	0.10	0.028	**U**
10061-01-5	cis-1,3-Dichloropropene	0.050	0.16	0.050	0.025	**U**
108-10-1	4-Methyl-2-pentanone	**0.070**	0.33	0.056	0.024	**J**
10061-02-6	trans-1,3-Dichloropropene	0.094	0.15	0.094	0.032	**U**
79-00-5	1,1,2-Trichloroethane	**0.045**	0.13	0.042	0.013	**J**
108-88-3	Toluene	**0.059**	0.18	0.060	0.023	**J**
591-78-6	2-Hexanone	**0.098**	0.33	0.056	0.022	**J**
124-48-1	Dibromochloromethane	0.027	0.082	0.027	0.011	**U**
106-93-4	1,2-Dibromoethane	0.030	0.091	0.030	0.011	**U**
123-86-4	n-Butyl Acetate	0.048	0.28	0.048	0.021	**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.
D = The reported result is from a dilution.

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **ODSVE-EFF-Y10Q2** ALS Project ID: P2006988
Client Project ID: **DDMT / 10A023** ALS Sample ID: P2006988-001

Test Code: EPA TO-15 Date Collected: 12/9/20
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/14/20
Analyst: Lusine Hakobyan Date Analyzed: 12/22/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01521

Initial Pressure (psig): -0.72 Final Pressure (psig): 4.04

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	**3.3**	0.10	0.034	0.014	
108-90-7	Chlorobenzene	0.049	0.15	0.049	0.021	**U**
100-41-4	Ethylbenzene	**0.029**	0.16	0.052	0.023	**J**
179601-23-1	m,p-Xylenes	0.10	0.31	0.10	0.043	**U**
75-25-2	Bromoform	0.041	0.069	0.041	0.014	**U**
100-42-5	Styrene	0.10	0.16	0.10	0.027	**U**
95-47-6	o-Xylene	0.052	0.16	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	**0.22**	0.10	0.033	0.014	
98-82-8	Cumene	0.046	0.14	0.046	0.021	**U**
80-56-8	alpha-Pinene	**0.020**	0.13	0.077	0.020	**J**
103-65-1	n-Propylbenzene	0.046	0.14	0.046	0.021	**U**
622-96-8	4-Ethyltoluene	0.087	0.14	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	0.14	0.046	0.020	**U**
100-44-7	Benzyl Chloride	0.083	0.27	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	**0.028**	0.13	0.077	0.026	**J**
96-12-8	1,2-Dibromo-3-chloropropane	0.044	0.14	0.044	0.014	**U**
120-82-1	1,2,4-Trichlorobenzene	0.058	0.18	0.058	0.023	**U**
91-20-3	Naphthalene	**0.064**	0.13	0.079	0.033	**J**
87-68-3	Hexachlorobutadiene	0.040	0.065	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

SURROGATE SPIKE RECOVERY RESULTS

Client: **Trinity Analysis & Development Corp.**
Client Project ID: **DDMT / 10A023** ALS Project ID: P2006988

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 12/9/20
Analyst: Lusine Hakobyan Date(s) Received: 12/14/20
Sampling Media: 6.0 L Summa Canister(s) Date(s) Analyzed: 12/22/20
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P201222-MB	**102**	**101**	**98**	70-130	
Lab Control Sample	P201222-LCS	**99**	**100**	**102**	70-130	
Duplicate Lab Control Sample	P201222-DLCS	**98**	**103**	**103**	70-130	
ODSVE-EFF-Y10Q2	P2006988-001	**99**	**103**	**101**	70-130	
ODSVE-EFF-Y10Q2	P2006988-001DUP	**97**	**103**	**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 DUPLICATE SUMMARY RESULTS

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **ODSVE-EFF-Y10Q2** ALS Project ID: P2006988
Client Project ID: **DDMT / 10A023** ALS Sample ID: P2006988-001DUP

Test Code: EPA TO-15 Date Collected: 12/9/20
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/14/20
Analyst: Lusine Hakobyan Date Analyzed: 12/22/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01521

Initial Pressure (psig): -0.72 Final Pressure (psig): 4.04

Container Dilution Factor: 1.34

Compound	Sample Result ppbV	Duplicate Sample Result ppbV	Average ppbV	% RPD	RPD Limit	Data Qualifier
Propene	0.890	0.855	0.8725	**4**	25	
Dichlorodifluoromethane (CFC 12)	1.23	1.19	1.21	**3**	25	
Chloromethane	0.0565	ND	-	-	25	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.0165	-	-	25	**J**
Vinyl Chloride	0.161	0.157	0.159	**3**	25	**J**
1,3-Butadiene	ND	0.0557	-	-	25	**J**
Bromomethane	ND	ND	-	-	25	
Chloroethane	ND	ND	-	-	25	
Ethanol	1.22	1.07	1.145	**13**	25	**J**
Acetonitrile	0.362	0.336	0.349	**7**	25	**J**
Acrolein	0.642	0.638	0.64	**0.6**	25	**J**
Acetone	6.08	5.90	5.99	**3**	25	
Trichlorofluoromethane	0.322	0.315	0.3185	**2**	25	
2-Propanol (Isopropyl Alcohol)	0.212	0.215	0.2135	**1**	25	**J**
Acrylonitrile	ND	ND	-	-	25	
1,1-Dichloroethene	0.670	0.678	0.674	**1**	25	
Methylene Chloride	ND	ND	-	-	25	
3-Chloro-1-propene (Allyl Chloride)	ND	ND	-	-	25	
Trichlorotrifluoroethane	4.10	4.04	4.07	**1**	25	
Carbon Disulfide	6.69	6.69	6.69	**0**	25	
trans-1,2-Dichloroethene	0.773	0.769	0.771	**0.5**	25	
1,1-Dichloroethane	0.342	0.337	0.3395	**1**	25	
Methyl tert-Butyl Ether	ND	ND	-	-	25	
Vinyl Acetate	2.43	2.28	2.355	**6**	25	
2-Butanone (MEK)	1.51	1.41	1.46	**7**	25	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **ODSVE-EFF-Y10Q2** ALS Project ID: P2006988
Client Project ID: **DDMT / 10A023** ALS Sample ID: P2006988-001DUP

Test Code: EPA TO-15 Date Collected: 12/9/20
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/14/20
Analyst: Lusine Hakobyan Date Analyzed: 12/22/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01521

Initial Pressure (psig): -0.72 Final Pressure (psig): 4.04

Container Dilution Factor: 1.34

Compound	Sample Result ppbV	Duplicate Sample Result ppbV	Average ppbV	% RPD	RPD Limit	Data Qualifier
cis-1,2-Dichloroethene	31.5	31.2	31.35	**1**	25	
Ethyl Acetate	ND	ND	-	-	25	
n-Hexane	ND	ND	-	-	25	
Chloroform	7.44	7.38	7.41	**0.8**	25	
Tetrahydrofuran (THF)	0.0741	0.0677	0.0709	**9**	25	**J**
1,2-Dichloroethane	ND	ND	-	-	25	
1,1,1-Trichloroethane	0.324	0.319	0.3215	**2**	25	
Benzene	0.0587	0.0571	0.0579	**3**	25	**J**
Carbon Tetrachloride	0.453	0.442	0.4475	**2**	25	
Cyclohexane	ND	ND	-	-	25	
1,2-Dichloropropane	ND	ND	-	-	25	
Bromodichloromethane	ND	ND	-	-	25	
Trichloroethene	27.9	29.0	28.45	**4**	25	**D**
1,4-Dioxane	ND	ND	-	-	25	
Methyl Methacrylate	ND	ND	-	-	25	
n-Heptane	ND	ND	-	-	25	
cis-1,3-Dichloropropene	ND	ND	-	-	25	
4-Methyl-2-pentanone	0.0703	0.0700	0.07015	**0.4**	25	**J**
trans-1,3-Dichloropropene	ND	ND	-	-	25	
1,1,2-Trichloroethane	0.0455	0.0455	0.0455	**0**	25	**J**
Toluene	0.0587	0.0601	0.0594	**2**	25	**J**
2-Hexanone	0.0975	0.0900	0.09375	**8**	25	**J**
Dibromochloromethane	ND	ND	-	-	25	
1,2-Dibromoethane	ND	ND	-	-	25	
n-Butyl Acetate	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.
D = The reported result is from a dilution.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **Trinity Analysis & Development Corp.**
Client Sample ID: **ODSVE-EFF-Y10Q2** ALS Project ID: P2006988
Client Project ID: **DDMT / 10A023** ALS Sample ID: P2006988-001DUP

Test Code: EPA TO-15 Date Collected: 12/9/20
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/14/20
Analyst: Lusine Hakobyan Date Analyzed: 12/22/20
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01521

Initial Pressure (psig): -0.72 Final Pressure (psig): 4.04

Container Dilution Factor: 1.34

Compound	Sample Result ppbV	Duplicate Sample Result ppbV	Average ppbV	% RPD	RPD Limit	Data Qualifier
n-Octane	ND	ND	-	-	25	
Tetrachloroethene	3.33	3.33	3.33	**0**	25	
Chlorobenzene	ND	ND	-	-	25	
Ethylbenzene	0.0290	0.0299	0.02945	**3**	25	**J**
m,p-Xylenes	ND	ND	-	-	25	
Bromoform	ND	ND	-	-	25	
Styrene	ND	ND	-	-	25	
o-Xylene	ND	ND	-	-	25	
n-Nonane	ND	ND	-	-	25	
1,1,2,2-Tetrachloroethane	0.216	0.222	0.219	**3**	25	
Cumene	ND	ND	-	-	25	
alpha-Pinene	0.0200	0.0207	0.02035	**3**	25	**J**
n-Propylbenzene	ND	ND	-	-	25	
4-Ethyltoluene	ND	ND	-	-	25	
1,3,5-Trimethylbenzene	ND	ND	-	-	25	
1,2,4-Trimethylbenzene	ND	ND	-	-	25	
Benzyl Chloride	ND	ND	-	-	25	
1,3-Dichlorobenzene	ND	ND	-	-	25	
1,4-Dichlorobenzene	ND	ND	-	-	25	
1,2-Dichlorobenzene	ND	ND	-	-	25	
d-Limonene	0.0279	0.0342	0.03105	**20**	25	**J**
1,2-Dibromo-3-chloropropane	ND	ND	-	-	25	
1,2,4-Trichlorobenzene	ND	ND	-	-	25	
Naphthalene	0.0642	0.0591	0.06165	**8**	25	**J**
Hexachlorobutadiene	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
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

Client: **Trinity Analysis & Development Corp.** ALS Project ID: P2006988
Client Project ID: **DDMT / 10A023**

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Lab File ID: 12212036.D
Analyst: Lusine Hakobyan Date Analyzed: 12/22/20
Sampling Media: 6.0 L Summa Canister(s) Time Analyzed: 01:16
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P201222-LCS	12212037.D	01:50
Duplicate Lab Control Sample	P201222-DLCS	12212038.D	02:24
ODSVE-EFF-Y10Q2	P2006988-001	12212040.D	03:32
ODSVE-EFF-Y10Q2 (Lab Duplicate)	P2006988-001DUP	12212041.D	04:06
ODSVE-EFF-Y10Q2 (Dilution)	P2006988-001	12212062.D	17:26
ODSVE-EFF-Y10Q2 (Lab Duplicate - Dilution)	P2006988-001DUP	12212063.D	17:59

Client: **Trinity Analysis & Development Corp.** ALS Project ID: P2006988
Client Project ID: **DDMT / 10A023**

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Lab File ID: 12212034.D
Analyst: Lusine Hakobyan Date Analyzed: 12/22/20
Sampling Media: 6.0 L Summa Canister(s) Time Analyzed: 00:07
Test Notes:

		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 Hour Standard	176057	11.22	758695	13.33	166252	17.64
	Upper Limit	246480	11.55	1062173	13.66	232753	17.97
	Lower Limit	105634	10.89	455217	13.00	99751	17.31
	Client Sample ID						
01	Method Blank	171155	11.19	748988	13.32	162380	17.64
02	Lab Control Sample	176922	11.21	765351	13.33	166209	17.64
03	Duplicate Lab Control Sample	184890	11.21	803162	13.33	169555	17.64
04	ODSVE-EFF-Y10Q2	179302	11.20	784322	13.32	165884	17.64
05	ODSVE-EFF-Y10Q2 (Lab Duplicate)	185242	11.20	802710	13.32	169431	17.64
06	ODSVE-EFF-Y10Q2 (Dilution)	204630	11.19	884720	13.32	193370	17.64
07	ODSVE-EFF-Y10Q2 (Lab Duplicate - Dilution)	196707	11.19	843179	13.32	184075	17.64
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.

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212040.D Vial: 15
Acq On : 22 Dec 2020 3:32 Operator: LH
Sample : P2006988-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 17:12:40 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	179302	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.32	114	784322	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	165884	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	309416	12.403	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.20%				
57) Toluene-d8 (SS2)	15.77	98	792008	12.941	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.52%				
73) Bromofluorobenzene (SS3)	19.03	174	285917	12.686	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.52%				
Target Compounds							Qvalue
2) Propene	4.15	42	37389m	1.143	ng		
3) Dichlorodifluoromethan...	4.31	85	173212	4.555	ng		100
4) Chloromethane	4.59	50	2987	0.087	ng		88
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	1571	0.081	ng		86
6) Vinyl Chloride	5.00	62	8045	0.307	ng		98
7) 1,3-Butadiene	5.27	54	1851	0.084	ng		92
8) Bromomethane	5.70	94	796	0.054	ng		95
9) Chloroethane	6.03	64	565	N.D.			
10) Ethanol	6.40	45	32760m	1.713	ng		
11) Acetonitrile	6.68	41	23793	0.454	ng		90
12) Acrolein	6.88	56	15088	1.098	ng		99
13) Acetone	7.08	58	171423m	10.781	ng		
14) Trichlorofluoromethane	7.30	101	47143	1.351	ng		99
15) 2-Propanol (Isopropanol)	7.59	45	22901	0.389	ng	#	58
16) Acrylonitrile	7.84	53	2600	0.085	ng		82
17) 1,1-Dichloroethene	8.25	96	32753	1.983	ng		99
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D. d			
19) Methylene Chloride	8.47	84	1258	0.074	ng		96
20) 3-Chloro-1-propene (Al...	8.64	41	385	N.D.			
21) Trichlorotrifluoroethane	8.90	151	393593	23.438	ng		100
22) Carbon Disulfide	8.74	76	928962	15.540	ng		100
23) trans-1,2-Dichloroethene	9.74	61	64170	2.287	ng		99
24) 1,1-Dichloroethane	10.01	63	34816	1.032	ng		100
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	10.24	86	20817	6.374	ng	#	1
27) 2-Butanone (MEK)	10.53	72	36483	3.321	ng		100
28) cis-1,2-Dichloroethene	11.01	61	2583647	93.277	ng		100
29) Diisopropyl Ether	0.00	87	0	N.D. d			
30) Ethyl Acetate	0.00	61	0	N.D. d			
31) n-Hexane	0.00	57	0	N.D. d			
32) Chloroform	11.36	83	841622	27.109	ng		100
34) Tetrahydrofuran (THF)	11.82	72	1740	0.163	ng	#	20
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.17	62	1222	N.D.			
38) 1,1,1-Trichloroethane	12.45	97	39088	1.318	ng		99
39) Isopropyl Acetate	12.93	61	124	No Calib	#		
40) 1-Butanol	12.92	56	17686	No Calib	#		
41) Benzene	12.93	78	9980	0.140	ng		97
42) Carbon Tetrachloride	13.09	117	58646	2.127	ng		99
43) Cyclohexane	13.21	84	2004	0.081	ng	#	85
44) tert-Amyl Methyl Ether	0.00	73	0	N.D. d			
45) 1,2-Dichloropropane	13.78	63	422	N.D.			
46) Bromodichloromethane	13.97	83	1477	0.058	ng		84
47) Trichloroethene	14.03	130	2850425	119.464	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			

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212040.D Vial: 15
Acq On : 22 Dec 2020 3:32 Operator: LH
Sample : P2006988-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 17:12:40 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

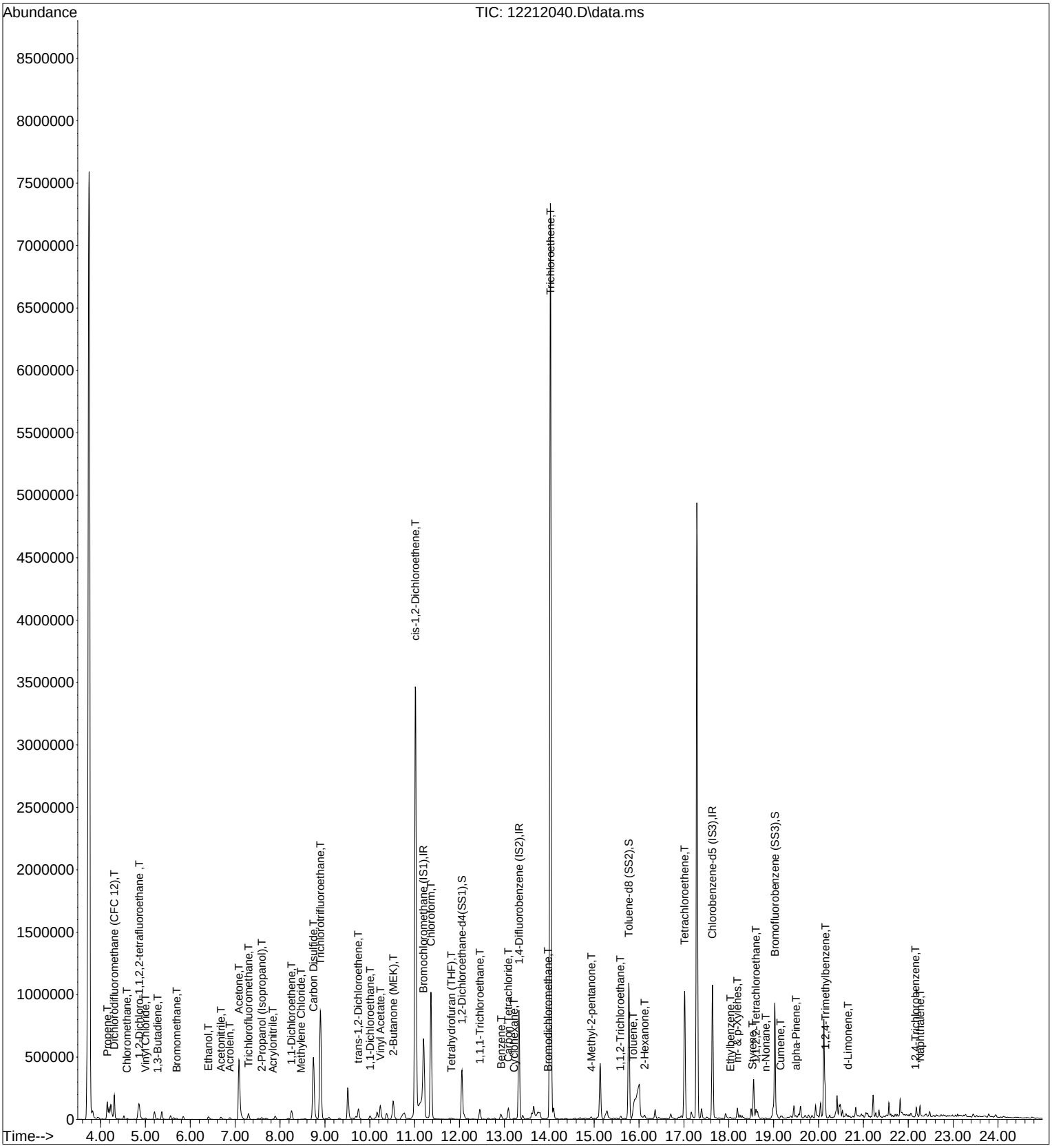
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.35	71	482	N.D.			
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
53) 4-Methyl-2-pentanone	14.94	58	3995	0.215	ng	#	59
54) trans-1,3-Dichloropropene	15.43	75	155	N.D.			
55) 1,1,2-Trichloroethane	15.58	97	3163	0.185	ng		95
58) Toluene	15.87	91	11474	0.165	ng		100
59) 2-Hexanone	16.12	43	16553	0.298	ng		97
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	16.88	57	788	N.D.			
64) Tetrachloroethene	17.01	166	360910	16.825	ng		100
65) Chlorobenzene	17.68	112	878	N.D.			
66) Ethylbenzene	18.04	91	7439	0.094	ng		98
67) m- & p-Xylenes	18.19	91	5138	0.083	ng		97
68) Bromoform	0.00	173	0	N.D.			
69) Styrene	18.53	104	2998	0.063	ng	#	77
70) o-Xylene	18.62	91	2944	N.D.			
71) n-Nonane	18.82	43	3009	0.061	ng		83
72) 1,1,2,2-Tetrachloroethane	18.60	83	31957	1.104	ng		98
74) Cumene	19.15	105	5285	0.064	ng		99
75) alpha-Pinene	19.50	93	3257	0.083	ng	#	1
76) n-Propylbenzene	19.59	91	2634	N.D.			
77) 3-Ethyltoluene	19.73	105	1556	No Calib			
78) 4-Ethyltoluene	19.73	105	1556	N.D.			
79) 1,3,5-Trimethylbenzene	19.79	105	2339	N.D.			
80) alpha-Methylstyrene	19.93	118	4129	No Calib		#	
81) 2-Ethyltoluene	19.96	105	2178	No Calib			
82) 1,2,4-Trimethylbenzene	20.15	105	4746	0.067	ng		94
83) n-Decane	20.24	57	6093	No Calib		#	
84) Benzyl Chloride	20.27	91	2199	N.D.			
85) 1,3-Dichlorobenzene	20.29	146	734	N.D.			
86) 1,4-Dichlorobenzene	20.35	146	1344	N.D.			
87) sec-Butylbenzene	20.40	105	1512	N.D.			
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d		
89) 1,2,3-Trimethylbenzene	20.53	105	3153	No Calib		#	
90) 1,2-Dichlorobenzene	20.65	146	721	N.D.			
91) d-Limonene	20.65	68	2821	0.116	ng		90
92) 1,2-Dibromo-3-Chloropr...	21.03	157	180	N.D.			
93) n-Undecane	21.35	57	15178	No Calib			
94) 1,2,4-Trichlorobenzene	22.16	180	2067	0.057	ng		99
95) Naphthalene	22.27	128	28360	0.251	ng		98
96) n-Dodecane	22.25	57	14986	No Calib		#	
97) Hexachlorobutadiene	22.58	225	756	N.D.			
98) Cyclohexanone	18.33	55	5134	No Calib		#	
99) tert-Butylbenzene	0.00	119	0	N.D.	d		
100) n-Butylbenzene	0.00	91	0	N.D.	d		
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212040.D Vial: 15
Acq On : 22 Dec 2020 3:32 Operator: LH
Sample : P2006988-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 17:12:40 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212040.D Vial: 15
Acq On : 22 Dec 2020 3:32 Operator: LH
Sample : P2006988-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 17:12:40 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	179302	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.32	114	784322	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	165884	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	309416	12.403	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.20%				
57) Toluene-d8 (SS2)	15.77	98	792008	12.941	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.52%				
73) Bromofluorobenzene (SS3)	19.03	174	285917	12.686	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.52%				
Target Compounds							Qvalue
2) Propene	4.15	42	37389m	1.143	ng		
3) Dichlorodifluoromethan...	4.31	85	173212	4.555	ng		100
4) Chloromethane	4.59	50	2987	0.087	ng		88
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	1571	0.081	ng		86
6) Vinyl Chloride	5.00	62	8045	0.307	ng		98
7) 1,3-Butadiene	5.27	54	1851	0.084	ng		92
8) Bromomethane	5.70	94	796	0.054	ng		95
10) Ethanol	6.40	45	32760m	1.713	ng		
11) Acetonitrile	6.68	41	23793	0.454	ng		90
12) Acrolein	6.88	56	15088	1.098	ng		99
13) Acetone	7.08	58	171423m	10.781	ng		
14) Trichlorofluoromethane	7.30	101	47143	1.351	ng		99
15) 2-Propanol (Isopropanol)	7.59	45	22901	0.389	ng	#	58
16) Acrylonitrile	7.84	53	2600	0.085	ng		82
17) 1,1-Dichloroethene	8.25	96	32753	1.983	ng		99
19) Methylene Chloride	8.47	84	1258	0.074	ng		96
21) Trichlorotrifluoroethane	8.90	151	393593	23.438	ng		100
22) Carbon Disulfide	8.74	76	928962	15.540	ng		100
23) trans-1,2-Dichloroethene	9.74	61	64170	2.287	ng		99
24) 1,1-Dichloroethane	10.01	63	34816	1.032	ng		100
26) Vinyl Acetate	10.24	86	20817	6.374	ng	#	1
27) 2-Butanone (MEK)	10.53	72	36483	3.321	ng		100
28) cis-1,2-Dichloroethene	11.01	61	2583647	93.277	ng		100
32) Chloroform	11.36	83	841622	27.109	ng		100
34) Tetrahydrofuran (THF)	11.82	72	1740	0.163	ng	#	20
38) 1,1,1-Trichloroethane	12.45	97	39088	1.318	ng		99
41) Benzene	12.93	78	9980	0.140	ng		97
42) Carbon Tetrachloride	13.09	117	58646	2.127	ng		99
43) Cyclohexane	13.21	84	2004	0.081	ng	#	85
46) Bromodichloromethane	13.97	83	1477	0.058	ng		84
47) Trichloroethene	14.03	130	2850425	119.464	ng		100
53) 4-Methyl-2-pentanone	14.94	58	3995	0.215	ng	#	59
55) 1,1,2-Trichloroethane	15.58	97	3163	0.185	ng		95
58) Toluene	15.87	91	11474	0.165	ng		100
59) 2-Hexanone	16.12	43	16553	0.298	ng		97
64) Tetrachloroethene	17.01	166	360910	16.825	ng		100
66) Ethylbenzene	18.04	91	7439	0.094	ng		98
67) m- & p-Xylenes	18.19	91	5138	0.083	ng		97
69) Styrene	18.53	104	2998	0.063	ng	#	77
71) n-Nonane	18.82	43	3009	0.061	ng		83
72) 1,1,2,2-Tetrachloroethane	18.60	83	31957	1.104	ng		98
74) Cumene	19.15	105	5285	0.064	ng		99
75) alpha-Pinene	19.50	93	3257	0.083	ng	#	1
82) 1,2,4-Trimethylbenzene	20.15	105	4746	0.067	ng		94
91) d-Limonene	20.65	68	2821	0.116	ng		90
94) 1,2,4-Trichlorobenzene	22.16	180	2067	0.057	ng		99
95) Naphthalene	22.27	128	28360	0.251	ng		98

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212040.D Vial: 15
Acq On : 22 Dec 2020 3:32 Operator: LH
Sample : P2006988-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 17:12:40 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

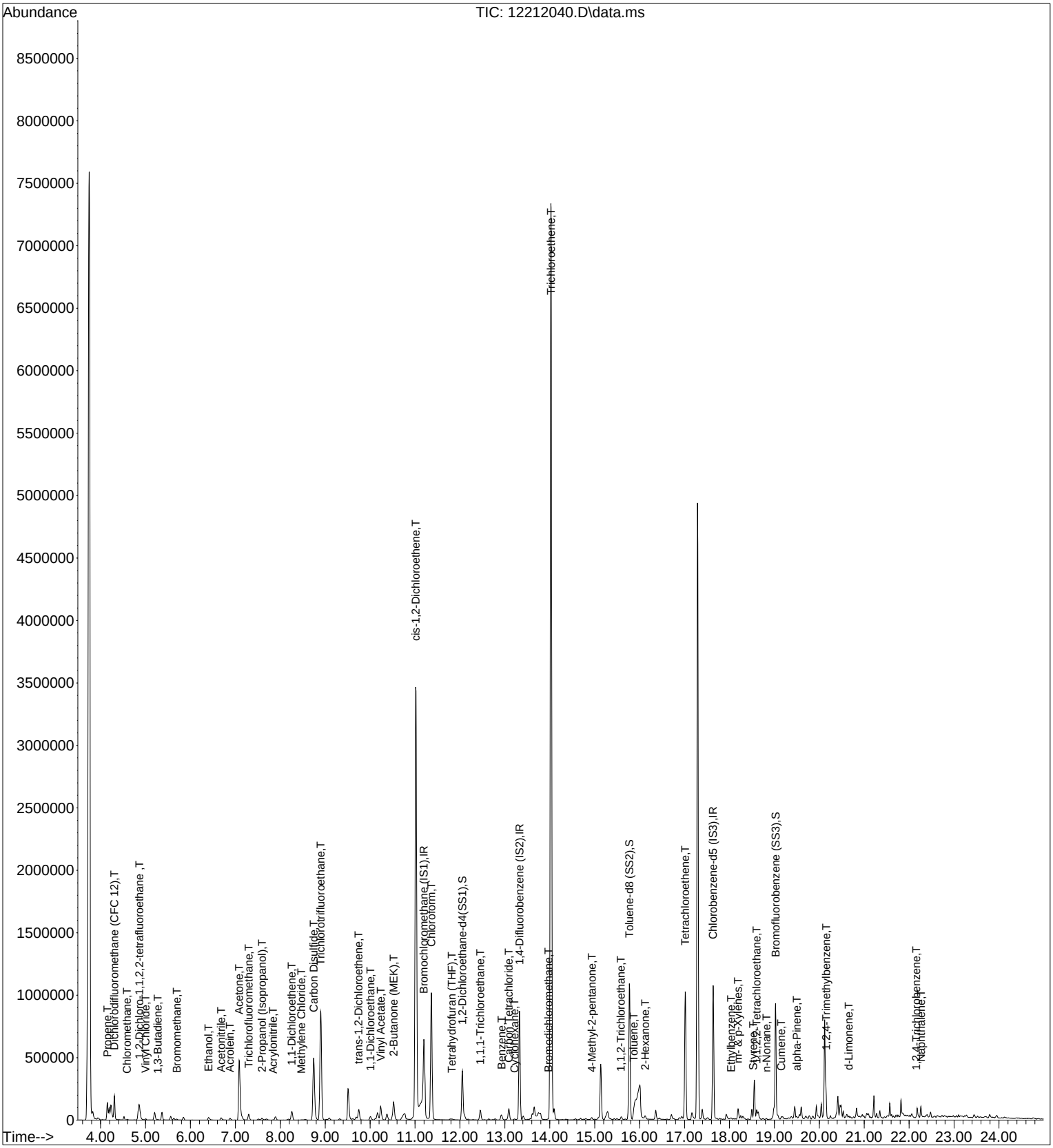
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

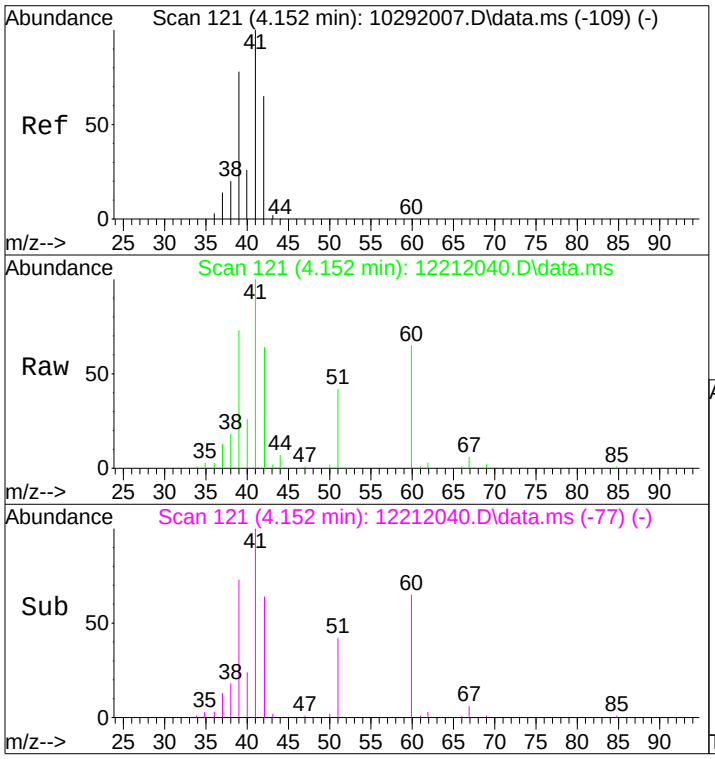
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212040.D Vial: 15
Acq On : 22 Dec 2020 3:32 Operator: LH
Sample : P2006988-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 17:12:40 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

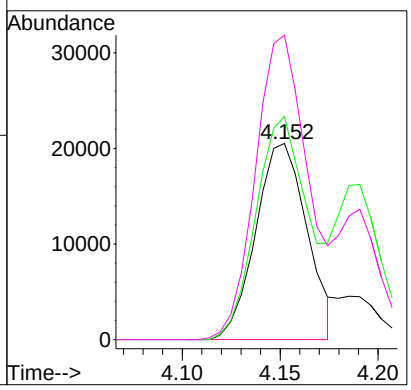


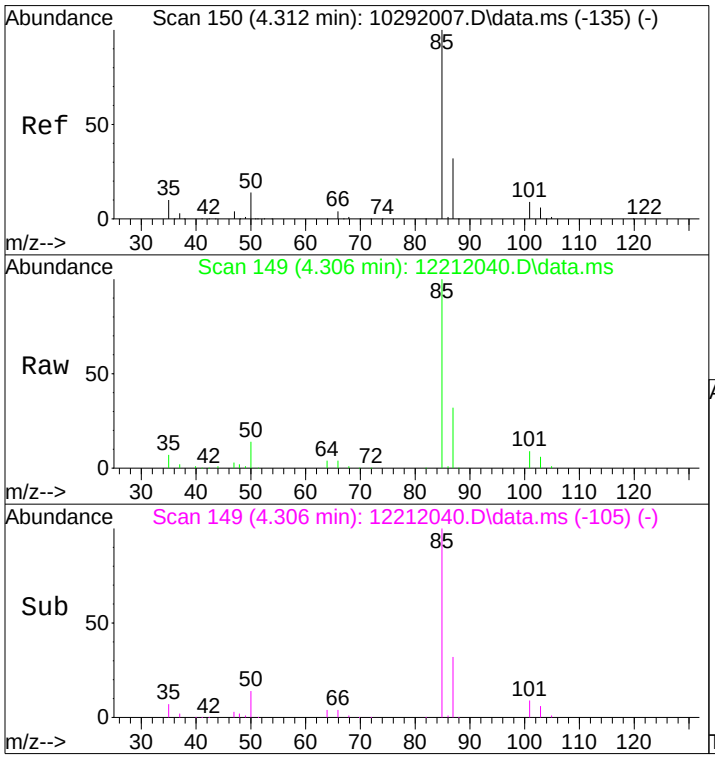


#2
Propene
Concen: 1.14 ng m
RT: 4.15 min Scan# 121
Delta R.T. -0.005 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 42 Resp: 37389

Ion	Ratio	Lower	Upper
42	100		
39	118.9	94.2	134.2
41	158.1	134.5	174.5

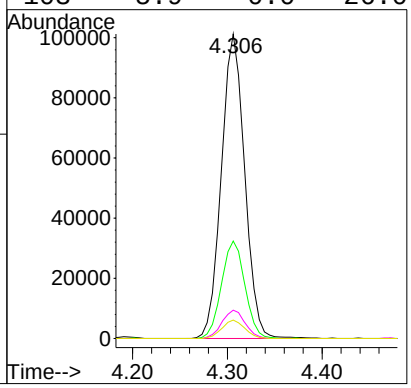


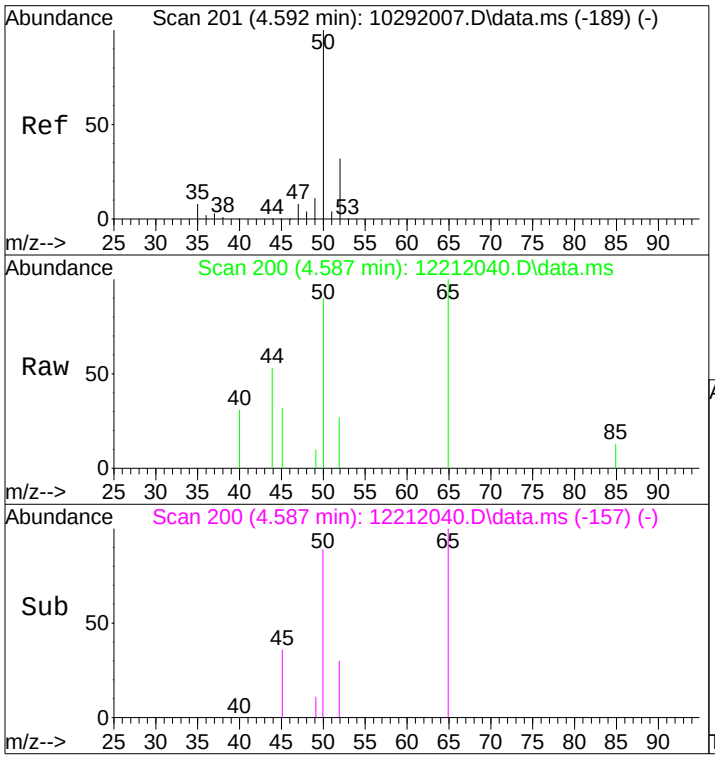


#3
Dichlorodifluoromethane (CFC 12)
Concen: 4.56 ng
RT: 4.31 min Scan# 149
Delta R.T. -0.005 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 85 Resp: 173212

Ion	Ratio	Lower	Upper
85	100		
87	32.0	12.2	52.2
101	9.2	0.0	29.2
103	5.9	0.0	26.0

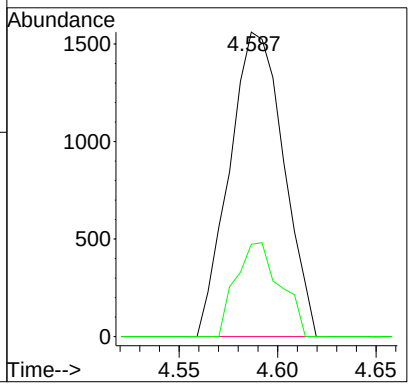


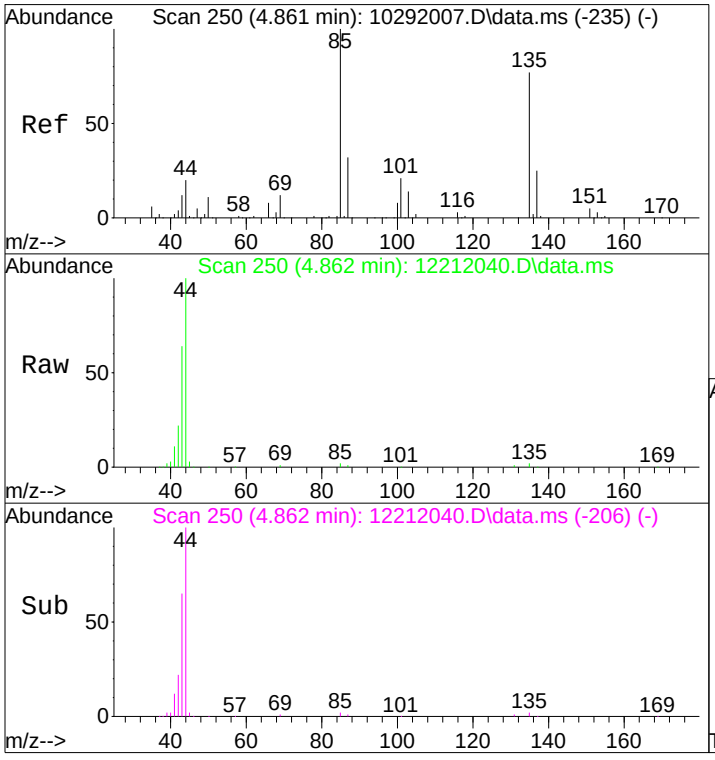


#4
Chloromethane
Concen: 0.09 ng
RT: 4.59 min Scan# 200
Delta R.T. -0.011 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 50 Resp: 2987

Ion	Ratio	Lower	Upper
50	100		
52	25.2	12.1	52.1

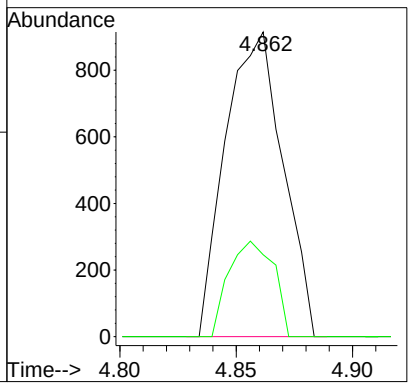


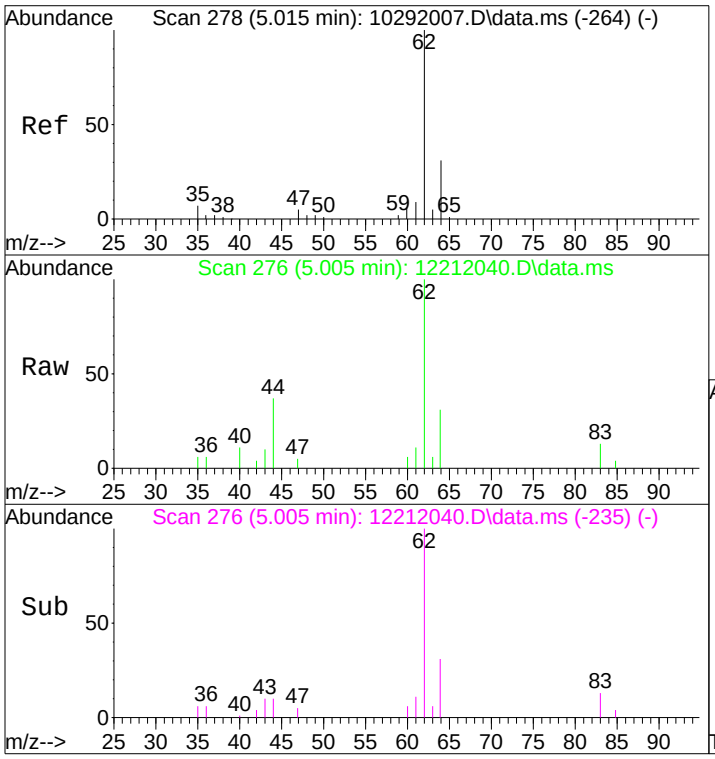


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.08 ng
RT: 4.86 min Scan# 250
Delta R.T. -0.005 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion:135 Resp: 1571

Ion	Ratio	Lower	Upper
135	100		
137	24.4	12.2	52.2

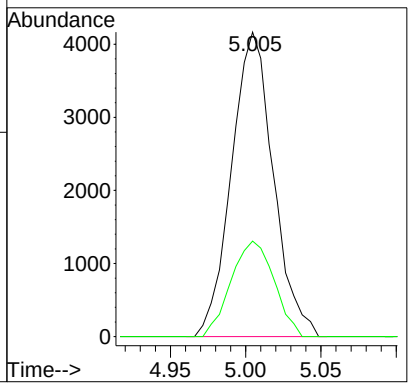


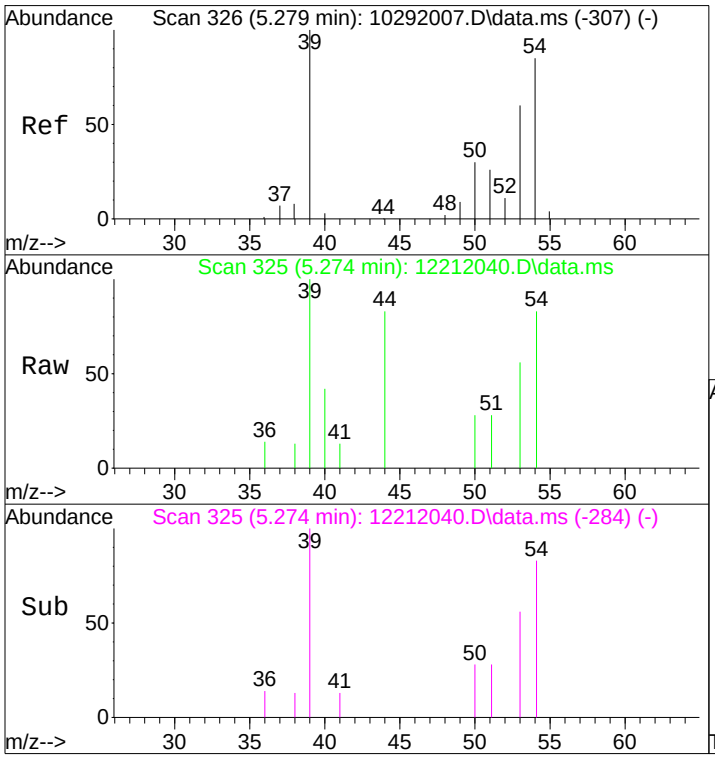


#6
Vinyl Chloride
Concen: 0.31 ng
RT: 5.00 min Scan# 276
Delta R.T. -0.022 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 62 Resp: 8045

Ion	Ratio	Lower	Upper
62	100		
64	32.3	11.2	51.2

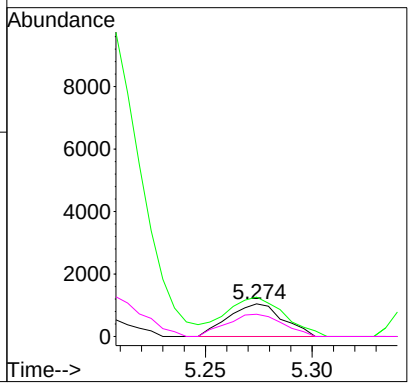


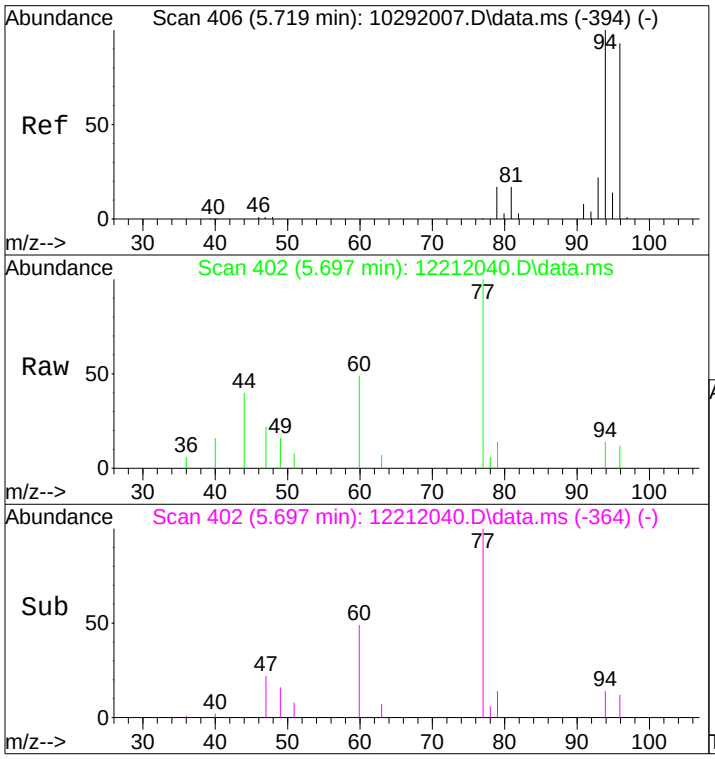


#7
1,3-Butadiene
Concen: 0.08 ng
RT: 5.27 min Scan# 325
Delta R.T. -0.022 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 54 Resp: 1851

Ion	Ratio	Lower	Upper
54	100		
39	131.0	97.2	137.2
53	70.3	51.3	91.3

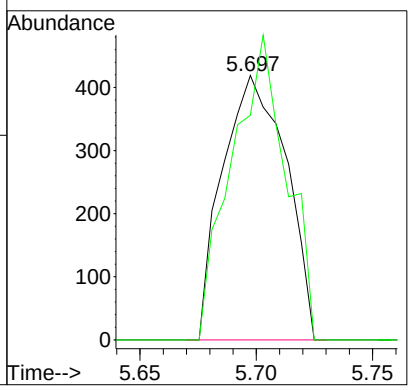


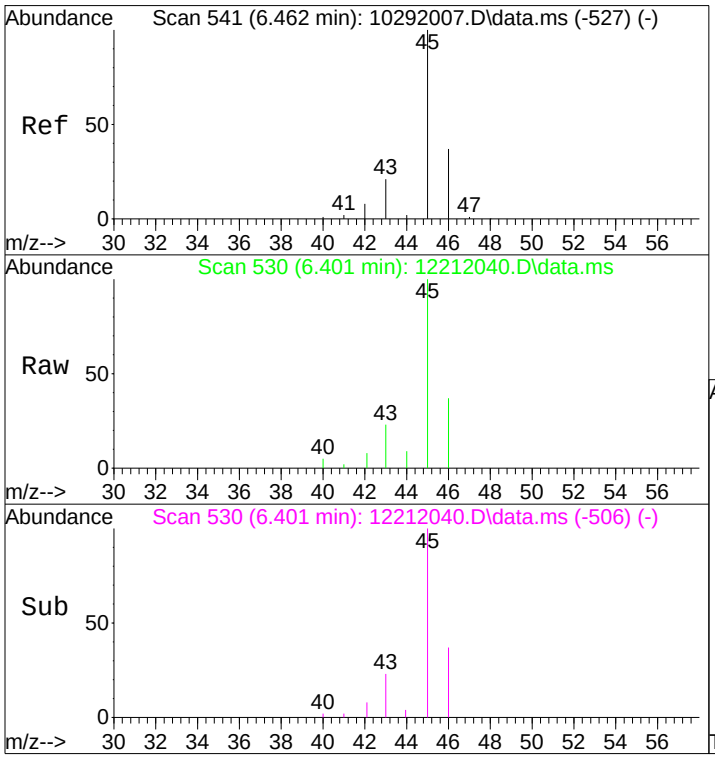


#8
Bromomethane
Concen: 0.05 ng
RT: 5.70 min Scan# 402
Delta R.T. -0.038 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 94 Resp: 796

Ion	Ratio	Lower	Upper
94	100		
96	98.7	73.5	113.5

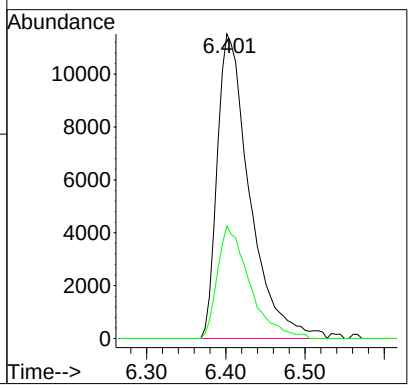


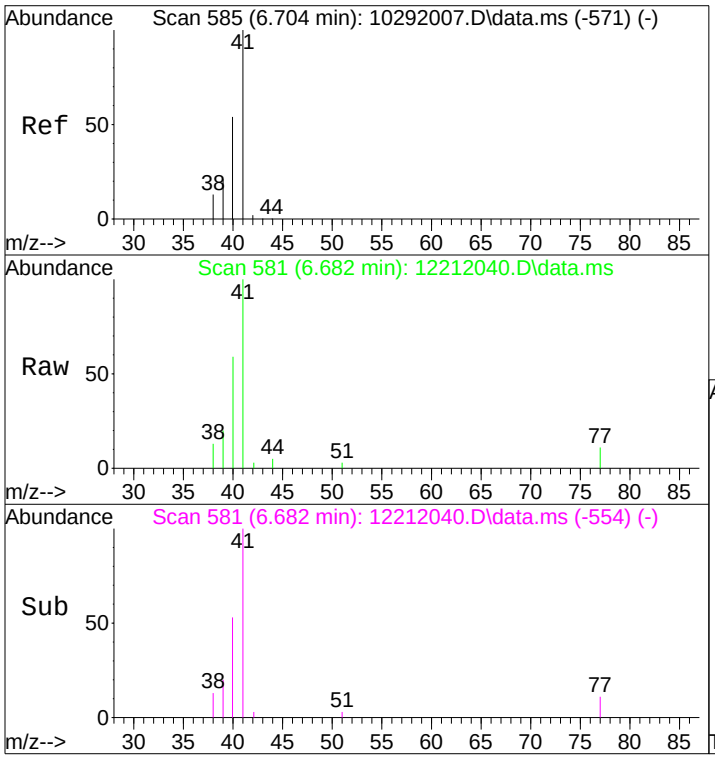


#10
Ethanol
Concen: 1.71 ng m
RT: 6.40 min Scan# 530
Delta R.T. -0.115 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 45 Resp: 32760

Ion	Ratio	Lower	Upper
45	100		
46	0.0	17.0	57.0#

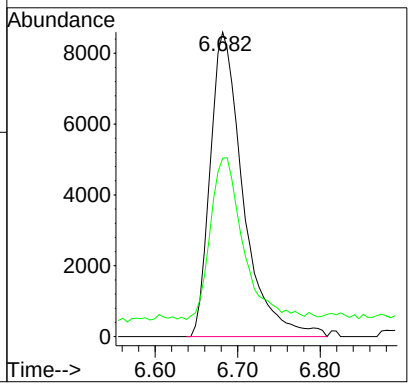


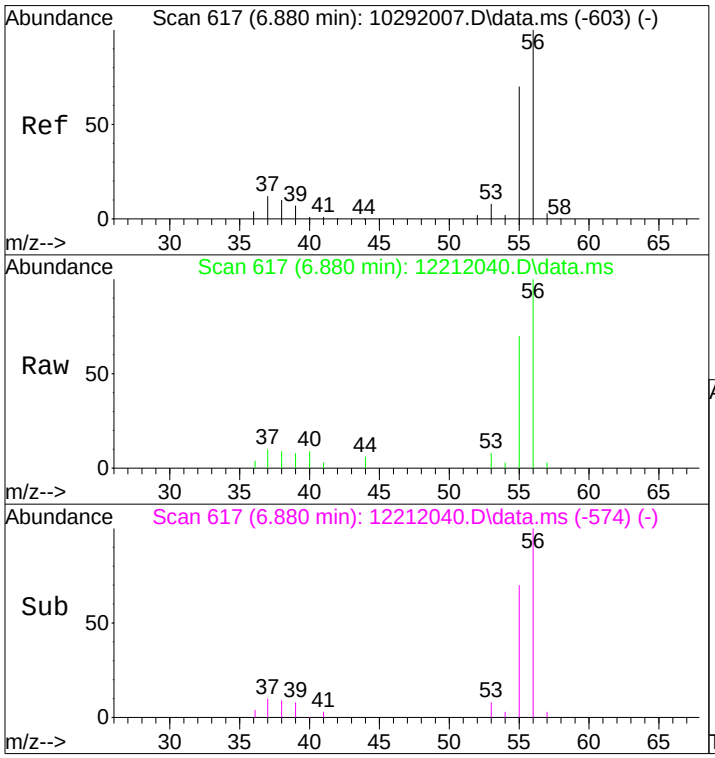


#11
Acetonitrile
Concen: 0.45 ng
RT: 6.68 min Scan# 581
Delta R.T. -0.049 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 41 Resp: 23793

Ion	Ratio	Lower	Upper
41	100		
40	60.8	33.6	73.6

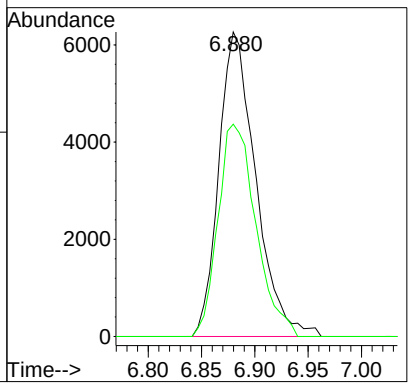


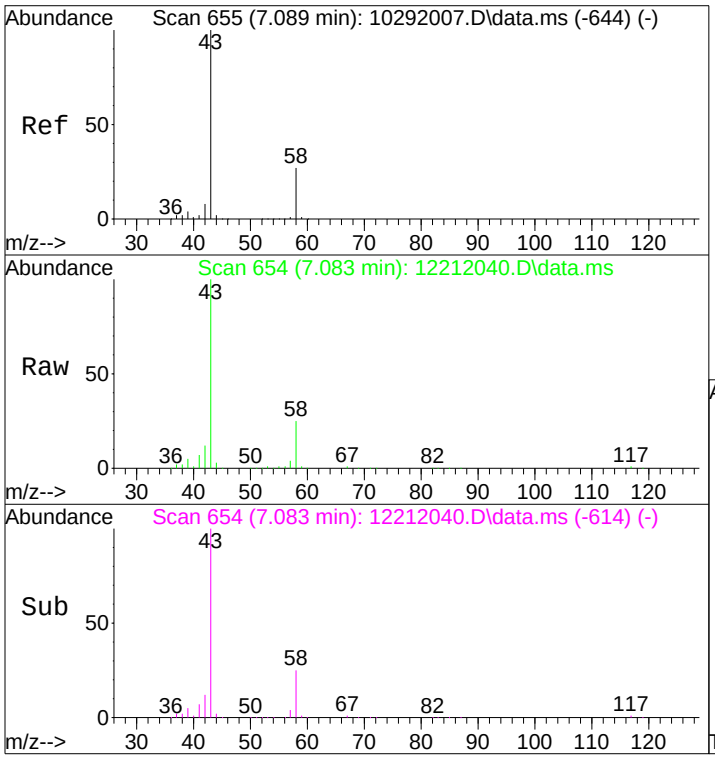


#12
Acrolein
Concen: 1.10 ng
RT: 6.88 min Scan# 617
Delta R.T. -0.011 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 56 Resp: 15088

Ion	Ratio	Lower	Upper
56	100		
55	71.6	50.7	90.7

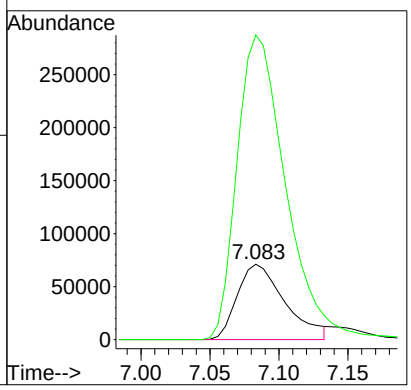


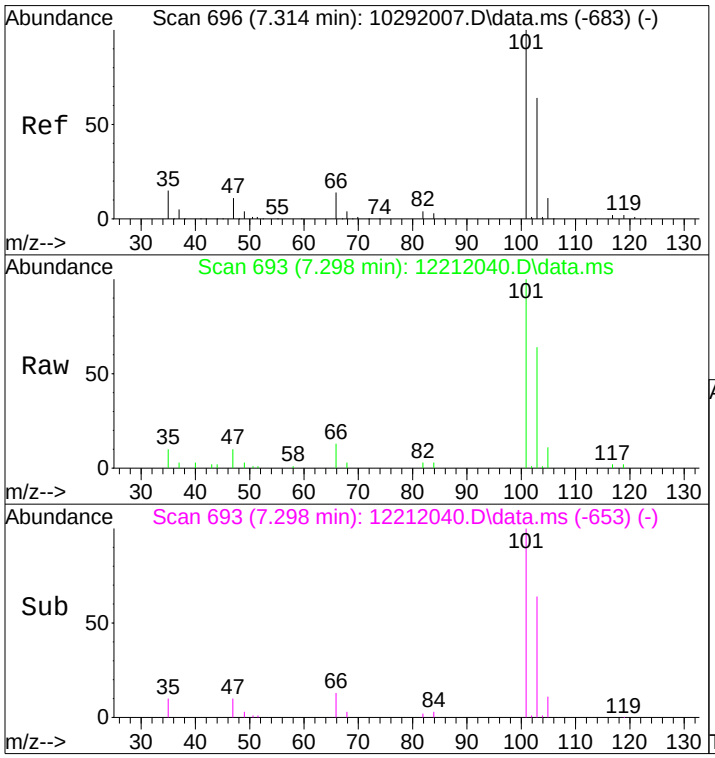


#13
Acetone
Concen: 10.78 ng m
RT: 7.08 min Scan# 654
Delta R.T. -0.027 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 58 Resp: 171423

Ion	Ratio	Lower	Upper
58	100		
43	417.6	362.5	422.5

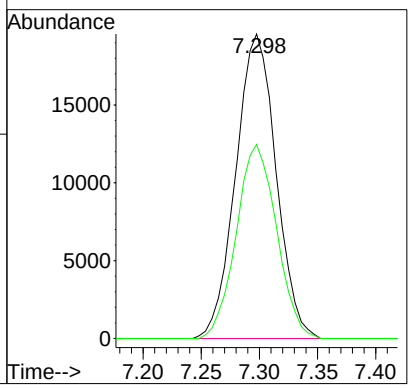


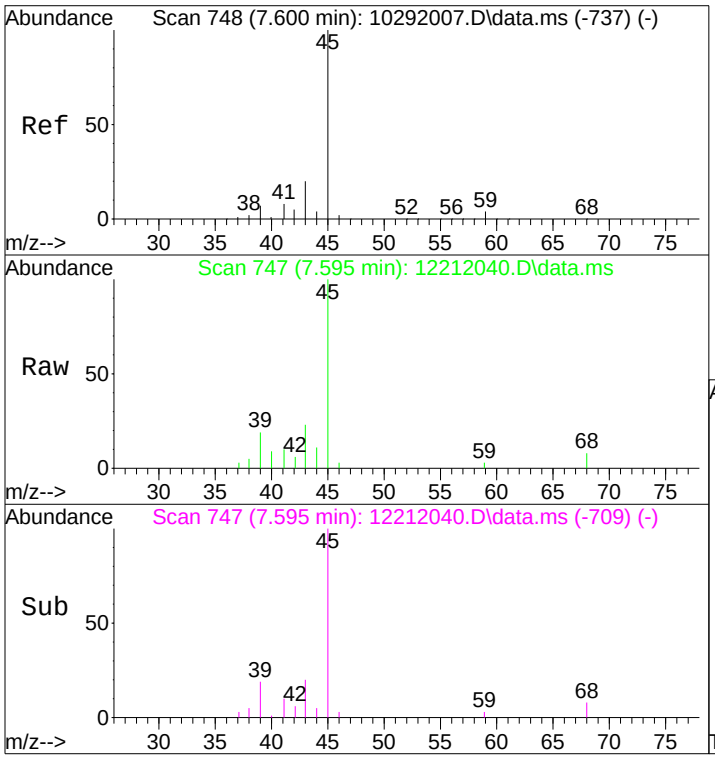


#14
Trichlorofluoromethane
Concen: 1.35 ng
RT: 7.30 min Scan# 693
Delta R.T. -0.027 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion:101 Resp: 47143

Ion	Ratio	Lower	Upper
101	100		
103	63.7	44.4	84.4

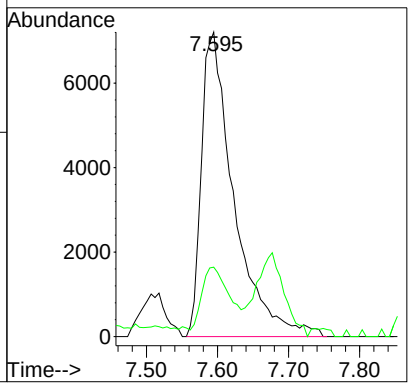


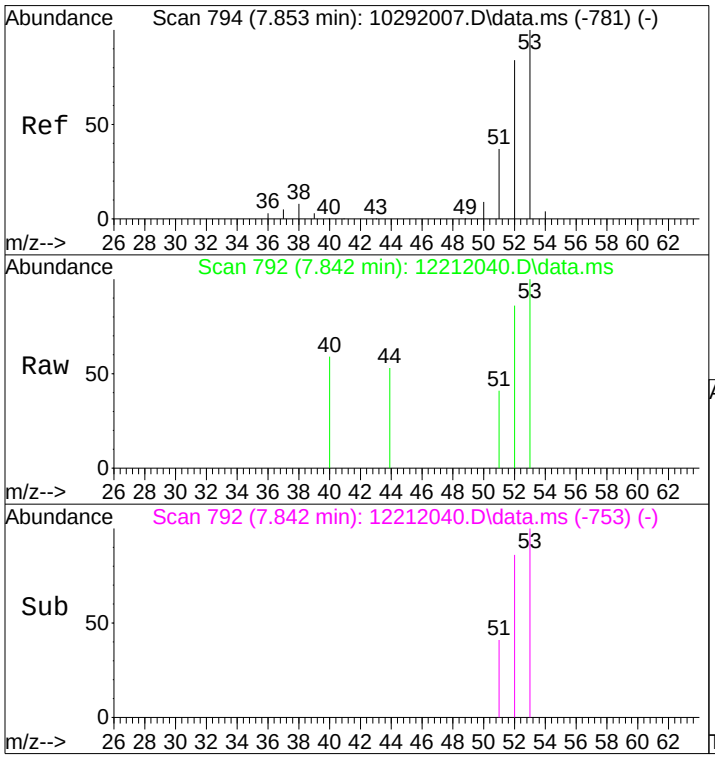


#15
2-Propanol (Isopropanol)
Concen: 0.39 ng
RT: 7.59 min Scan# 747
Delta R.T. -0.038 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 45 Resp: 22901

Ion	Ratio	Lower	Upper
45	100		
43	0.0	0.0	38.6

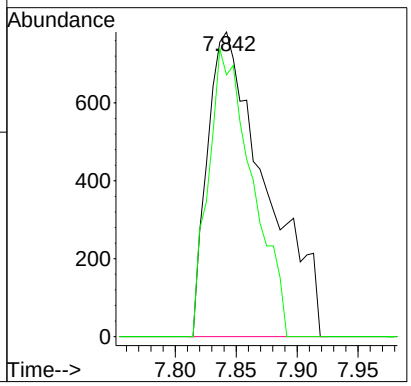


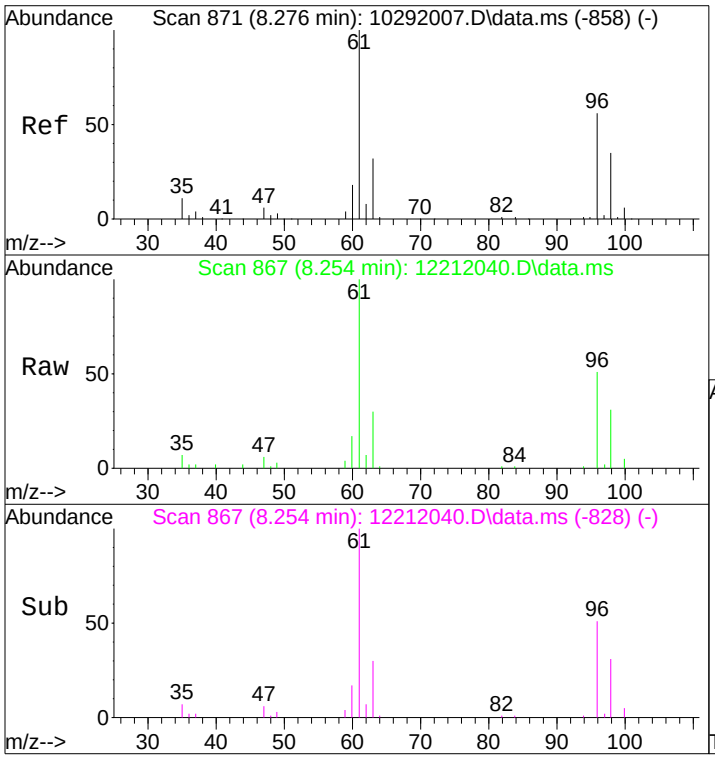


#16
Acrylonitrile
Concen: 0.08 ng
RT: 7.84 min Scan# 792
Delta R.T. -0.033 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 53 Resp: 2600

Ion	Ratio	Lower	Upper
53	100		
52	70.7	67.3	107.3

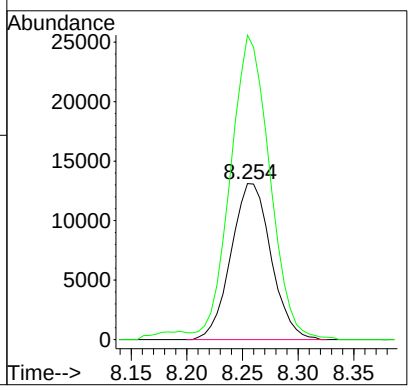


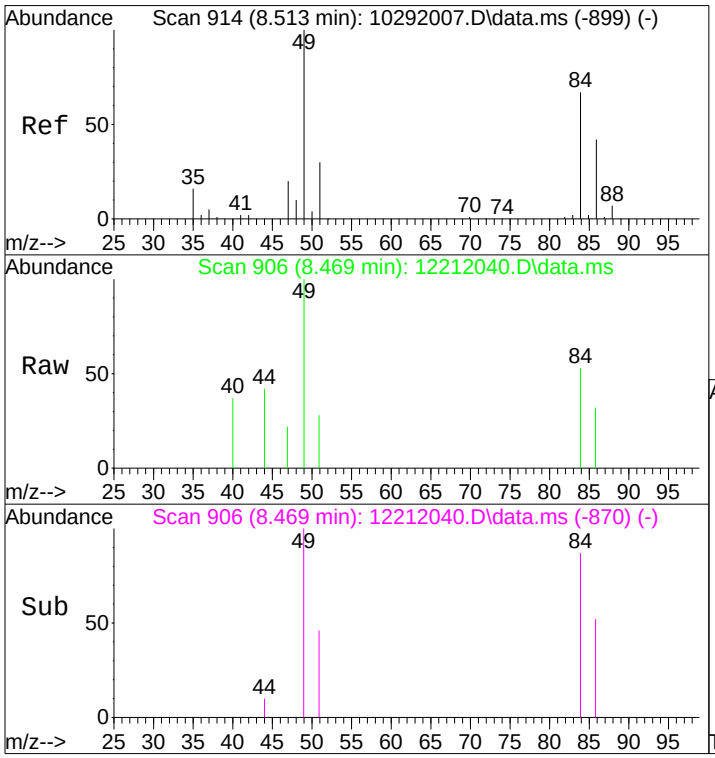


#17
1,1-Dichloroethene
Concen: 1.98 ng
RT: 8.25 min Scan# 867
Delta R.T. -0.033 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 96 Resp: 32753

Ion	Ratio	Lower	Upper
96	100		
61	192.1	173.9	213.9

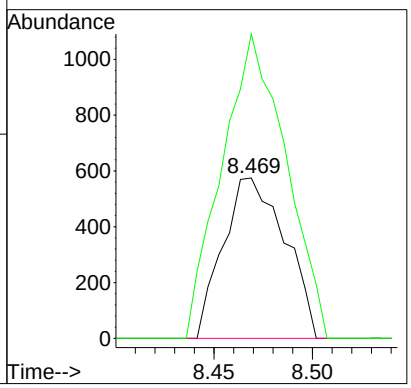


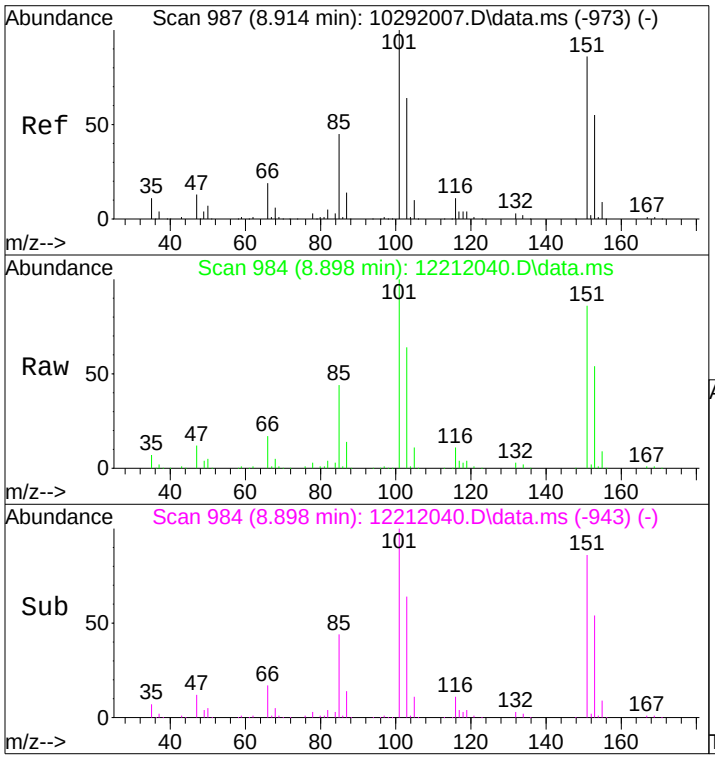


#19
Methylene Chloride
Concen: 0.07 ng
RT: 8.47 min Scan# 906
Delta R.T. -0.049 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 84 Resp: 1258

Ion	Ratio	Lower	Upper
84	100		
49	196.3	164.9	214.9

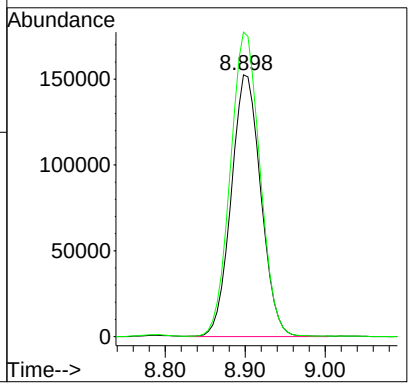


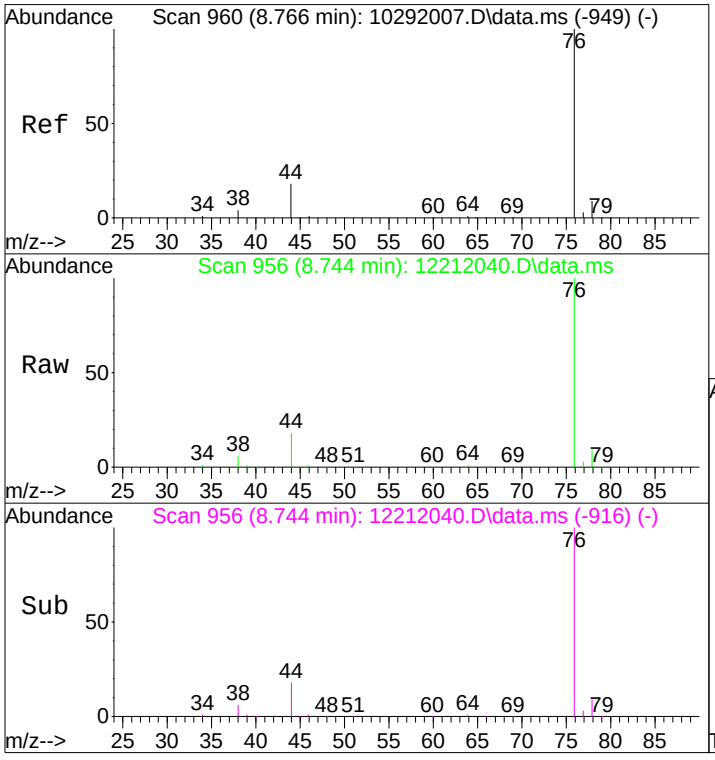


#21
Trichlorotrifluoroethane
Concen: 23.44 ng
RT: 8.90 min Scan# 984
Delta R.T. -0.022 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion:151 Resp: 393593

Ion	Ratio	Lower	Upper
151	100		
101	116.1	96.6	136.6

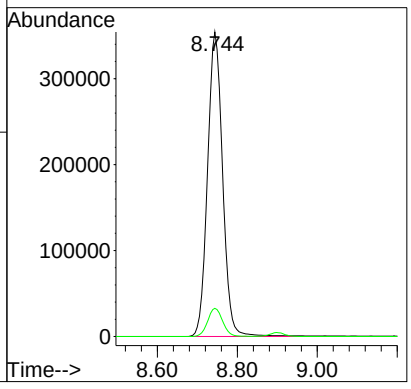


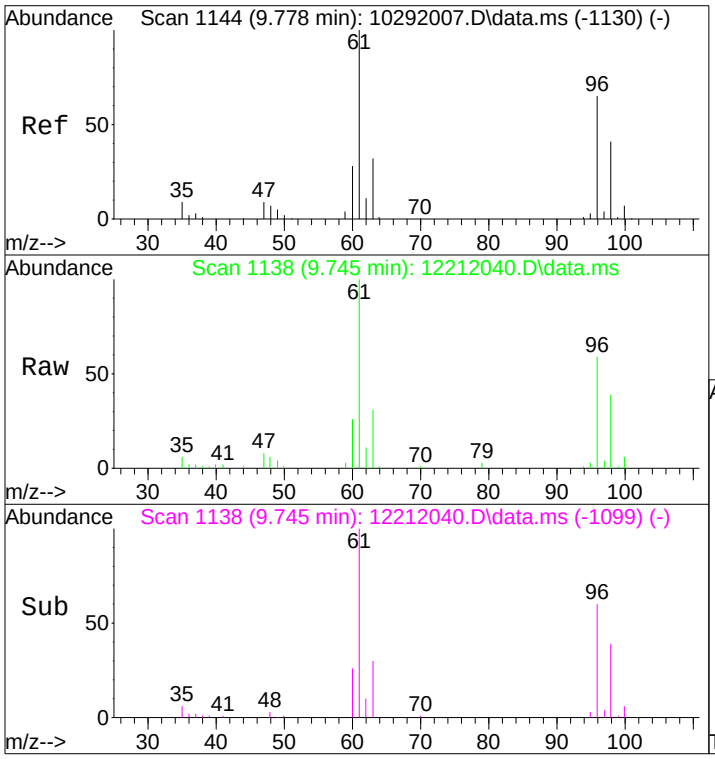


#22
Carbon Disulfide
Concen: 15.54 ng
RT: 8.74 min Scan# 956
Delta R.T. -0.027 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 76 Resp: 928962

Ion	Ratio	Lower	Upper
76	100		
78	9.2	0.0	29.4

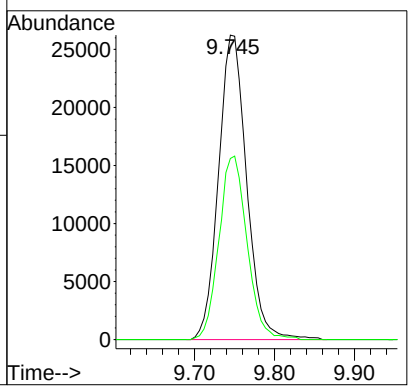


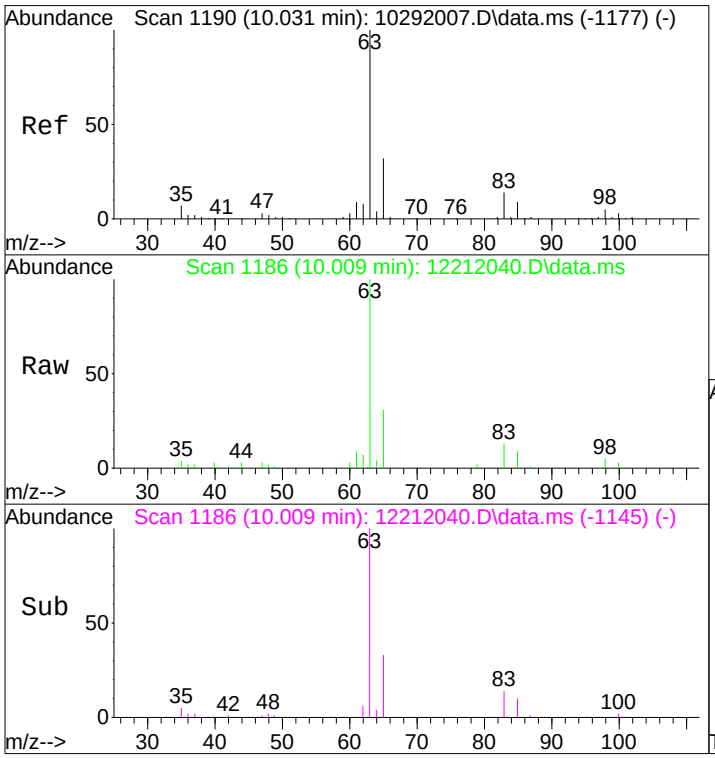


#23
trans-1,2-Dichloroethene
Concen: 2.29 ng
RT: 9.74 min Scan# 1138
Delta R.T. -0.033 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 61 Resp: 64170

Ion	Ratio	Lower	Upper
61	100		
96	60.2	39.6	79.6

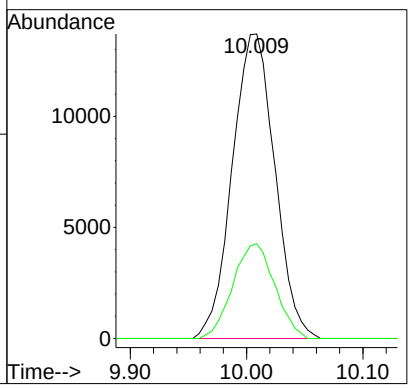


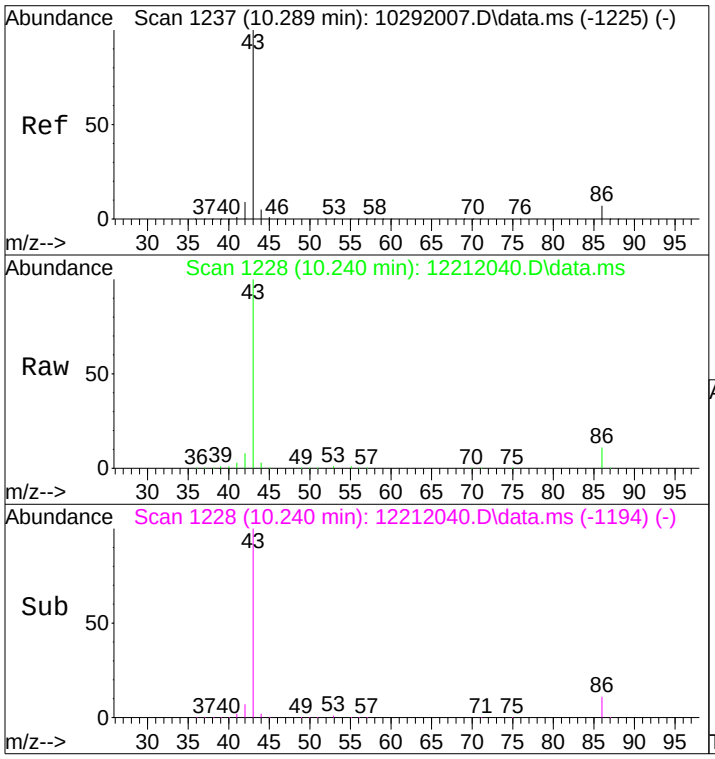


#24
1,1-Dichloroethane
Concen: 1.03 ng
RT: 10.01 min Scan# 1186
Delta R.T. -0.022 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 63 Resp: 34816

Ion	Ratio	Lower	Upper
63	100		
65	30.7	10.6	50.6

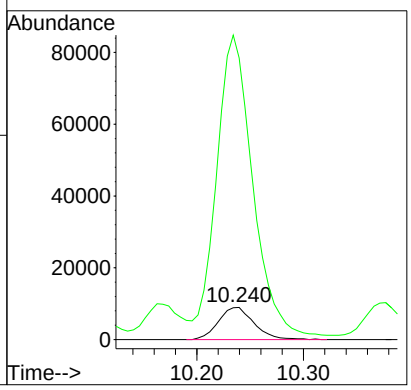


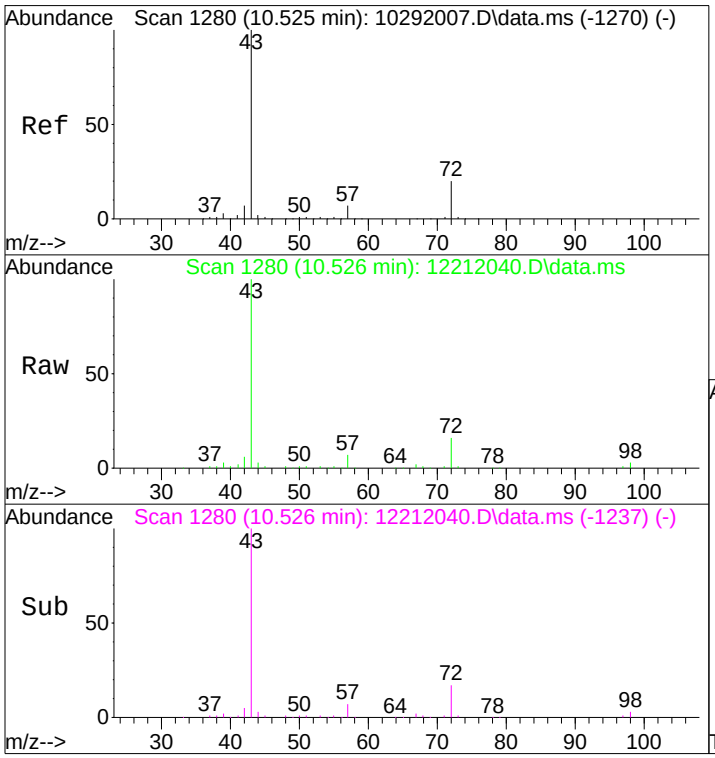


#26
Vinyl Acetate
Concen: 6.37 ng
RT: 10.24 min Scan# 1228
Delta R.T. -0.060 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 86 Resp: 20817

Ion	Ratio	Lower	Upper
86	100		
43	971.1	1672.7	1712.7#

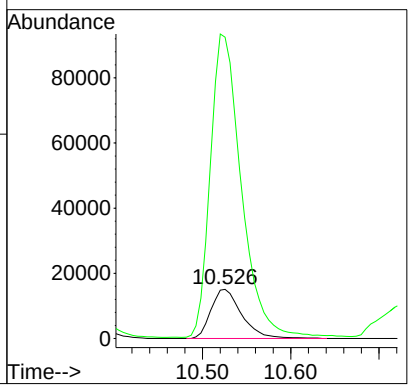


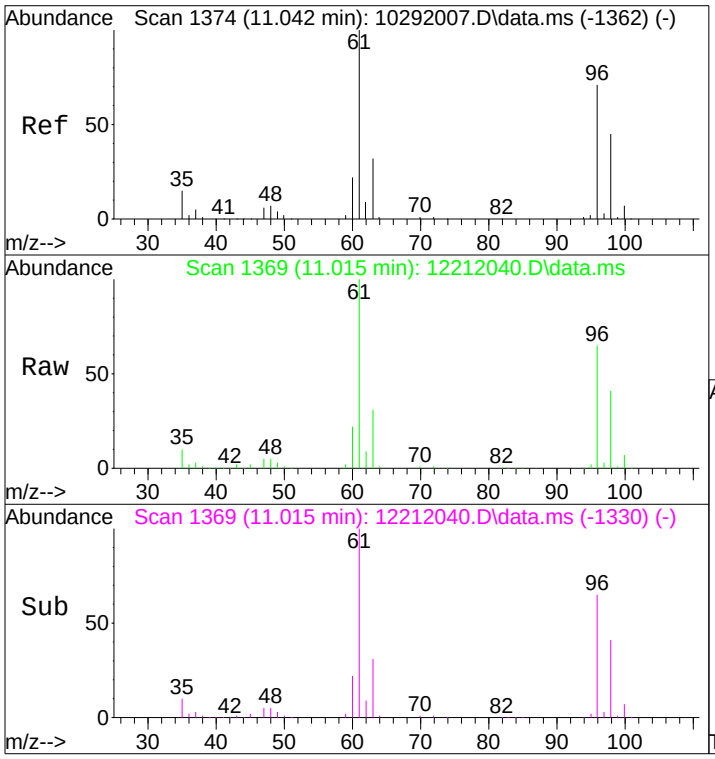


#27
2-Butanone (MEK)
Concen: 3.32 ng
RT: 10.53 min Scan# 1280
Delta R.T. -0.011 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 72 Resp: 36483

Ion	Ratio	Lower	Upper
72	100		
43	623.5	603.4	643.4

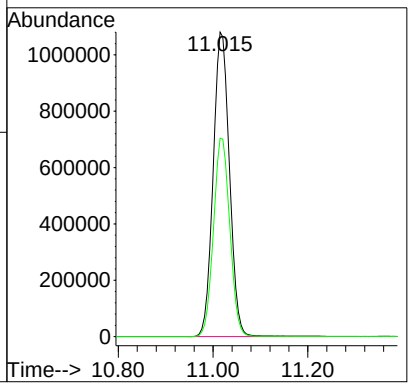


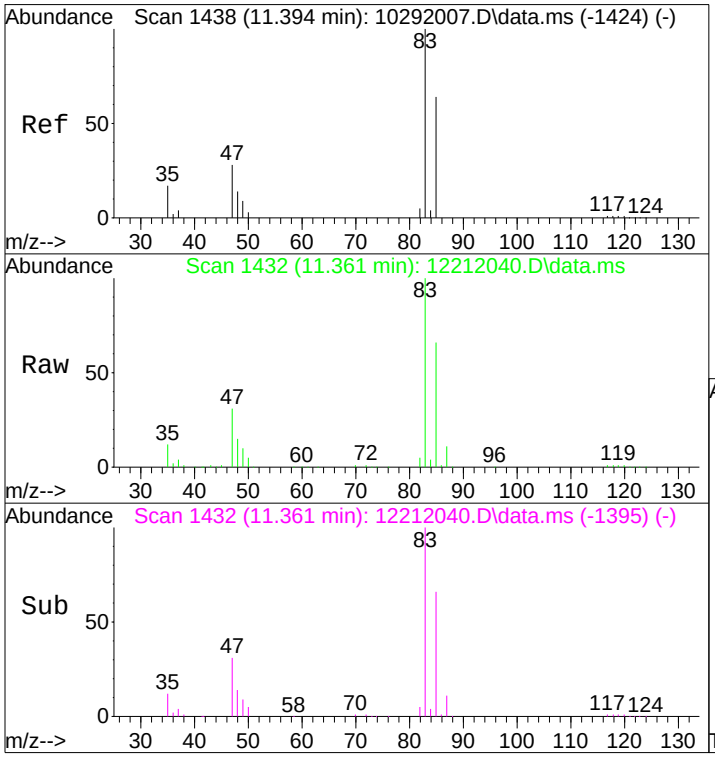


#28
cis-1,2-Dichloroethene
Concen: 93.28 ng
RT: 11.01 min Scan# 1369
Delta R.T. -0.033 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 61 Resp: 2583647

Ion	Ratio	Lower	Upper
61	100		
96	65.2	45.3	85.3

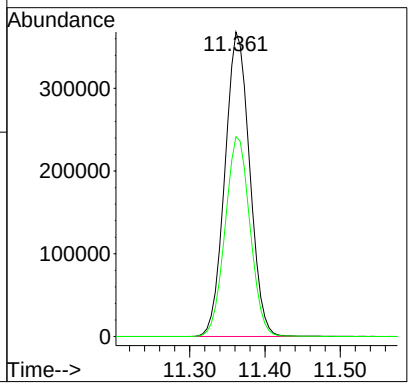


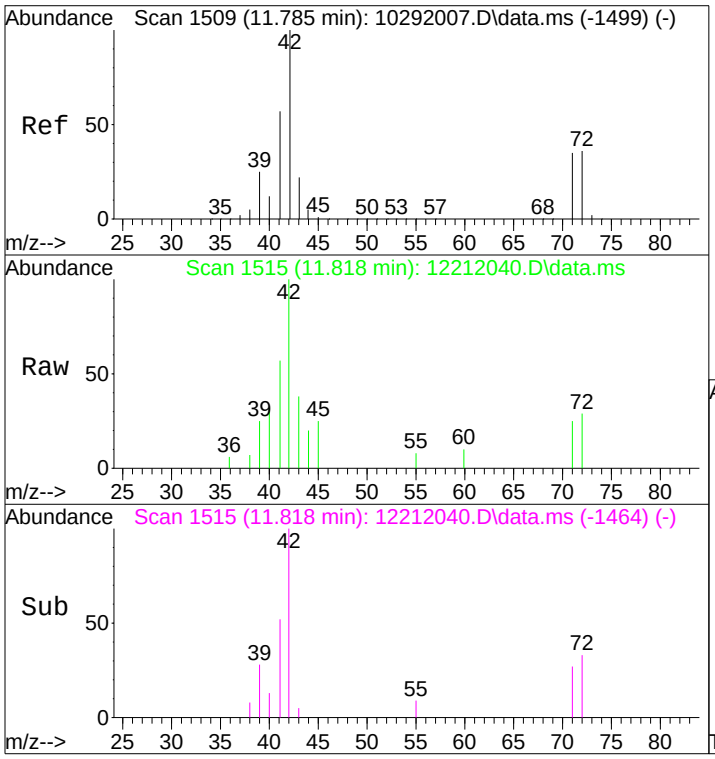


#32
Chloroform
Concen: 27.11 ng
RT: 11.36 min Scan# 1432
Delta R.T. -0.044 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 83 Resp: 841622

Ion	Ratio	Lower	Upper
83	100		
85	66.1	46.2	86.2

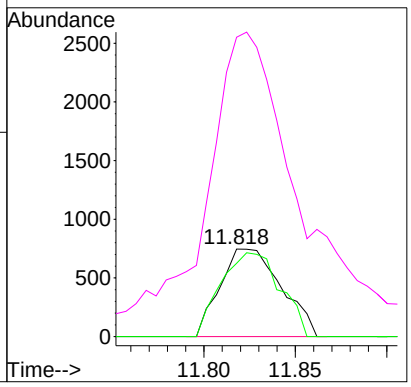


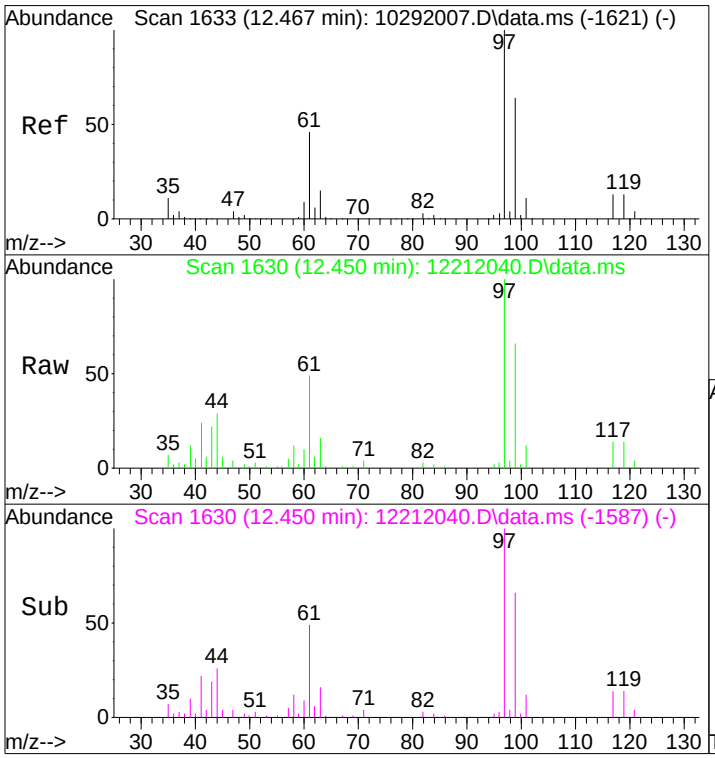


#34
Tetrahydrofuran (THF)
Concen: 0.16 ng
RT: 11.82 min Scan# 1515
Delta R.T. 0.033 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 72 Resp: 1740

Ion	Ratio	Lower	Upper
72	100		
71	93.0	78.4	118.4
42	569.4	329.5	369.5#

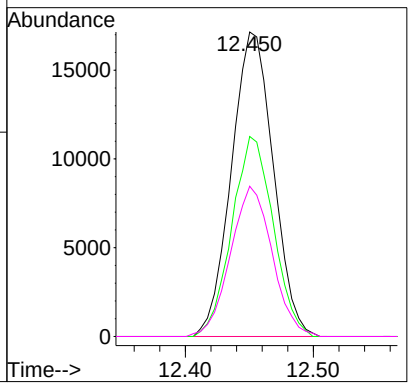


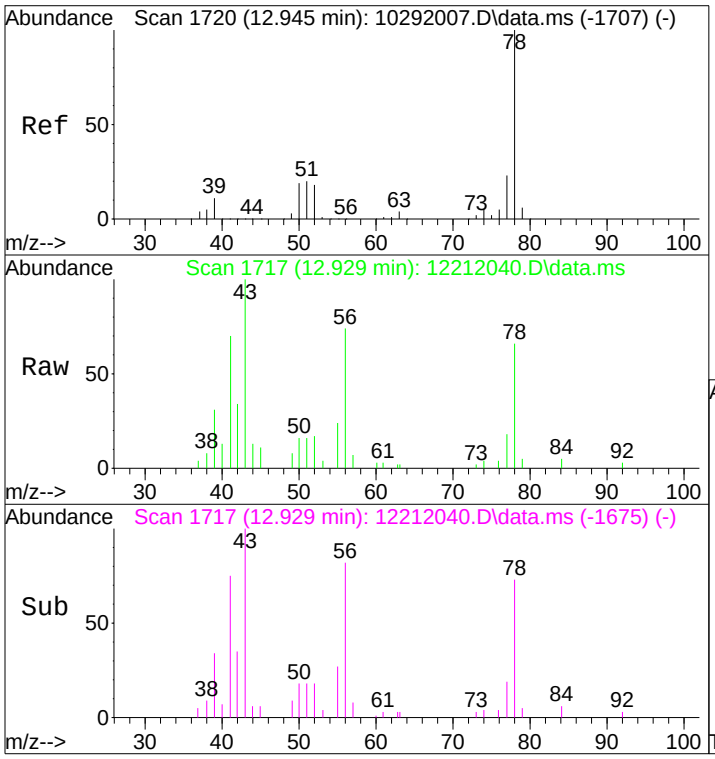


#38
1,1,1-Trichloroethane
Concen: 1.32 ng
RT: 12.45 min Scan# 1630
Delta R.T. -0.011 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 97 Resp: 39088

Ion	Ratio	Lower	Upper
97	100		
99	64.8	44.2	84.2
61	49.1	27.6	67.6

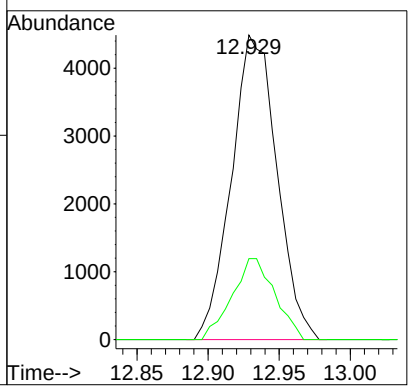


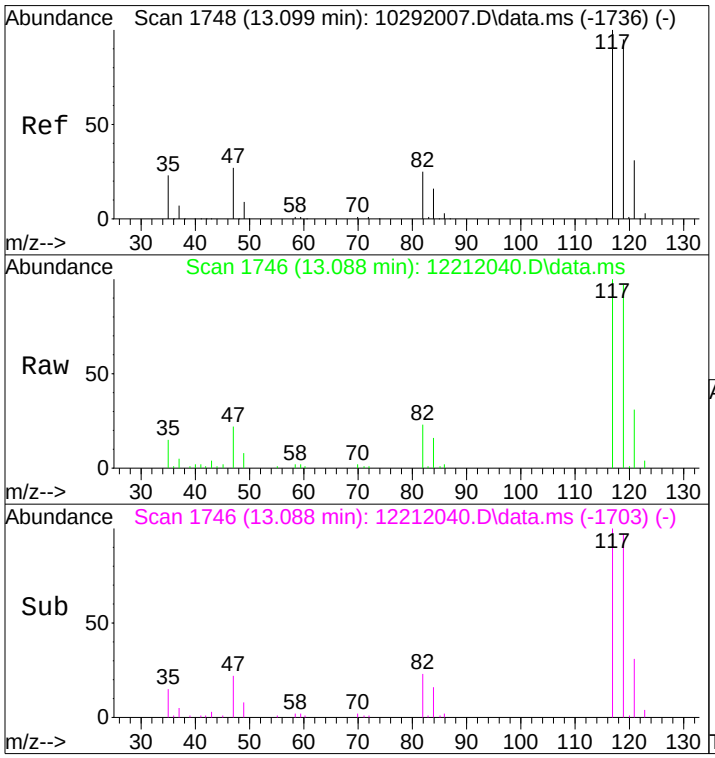


#41
Benzene
Concen: 0.14 ng
RT: 12.93 min Scan# 1717
Delta R.T. -0.016 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 78 Resp: 9980

Ion	Ratio	Lower	Upper
78	100		
77	25.0	3.4	43.4

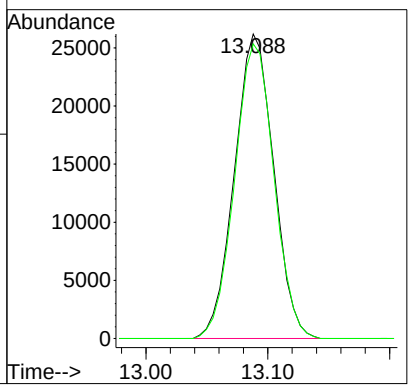


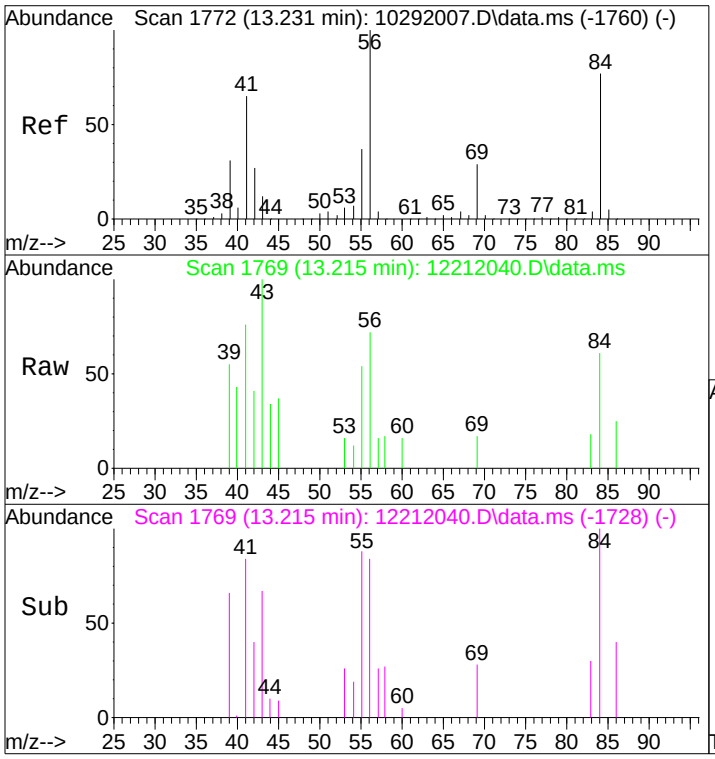


#42
Carbon Tetrachloride
Concen: 2.13 ng
RT: 13.09 min Scan# 1746
Delta R.T. -0.011 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion:117 Resp: 58646

Ion	Ratio	Lower	Upper
117	100		
119	96.8	75.9	115.9

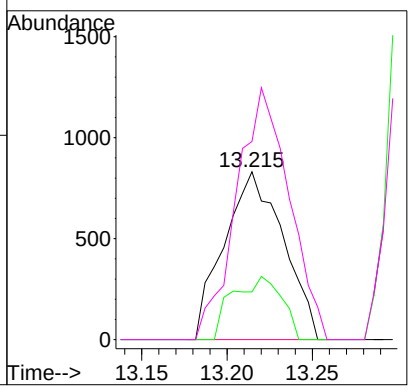


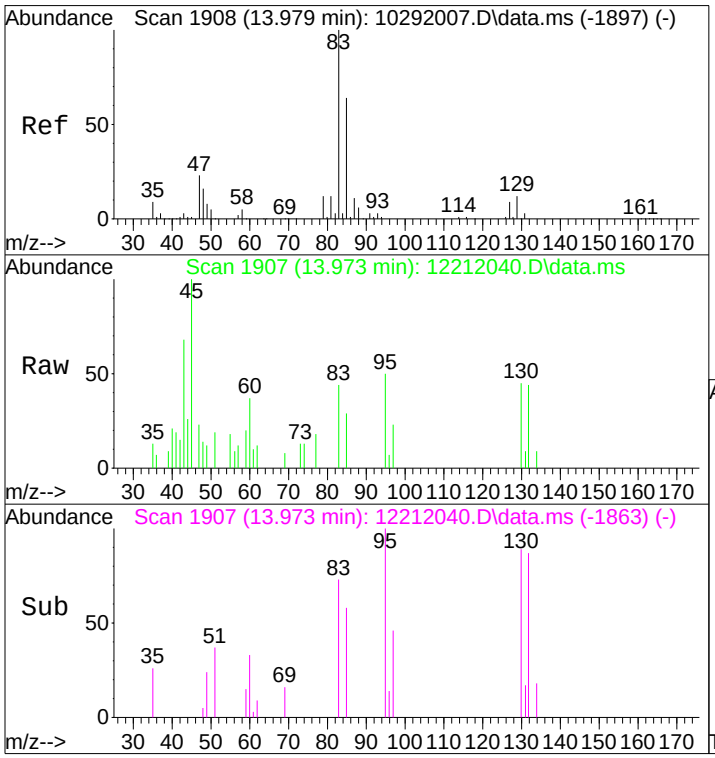


#43
Cyclohexane
Concen: 0.08 ng
RT: 13.21 min Scan# 1769
Delta R.T. -0.022 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 84 Resp: 2004

Ion	Ratio	Lower	Upper
84	100		
69	31.0	17.8	57.8
56	133.9	134.7	174.7#

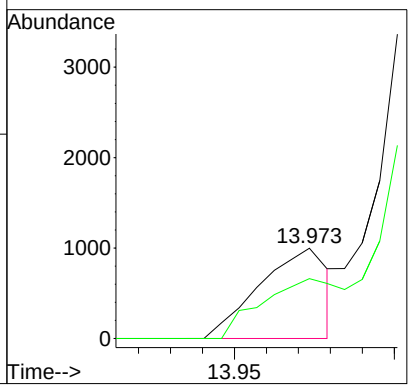


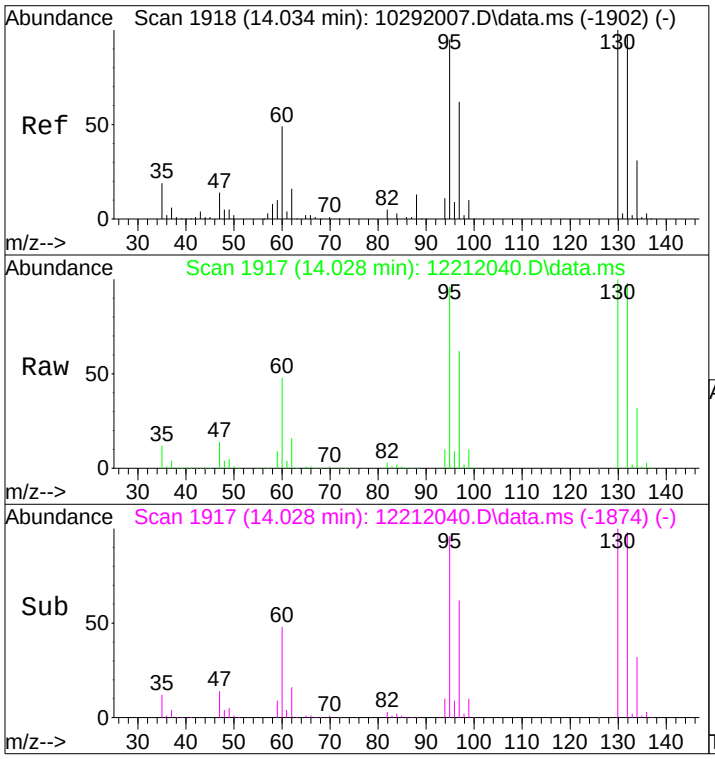


#46
Bromodichloromethane
Concen: 0.06 ng
RT: 13.97 min Scan# 1907
Delta R.T. -0.005 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 83 Resp: 1477

Ion	Ratio	Lower	Upper
83	100		
85	78.7	45.6	85.6

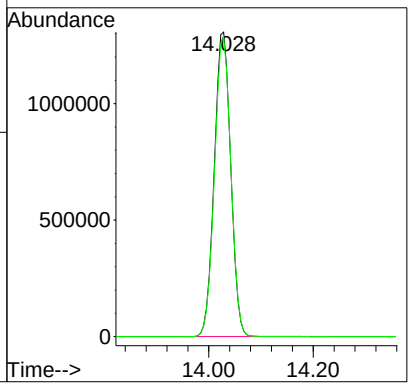


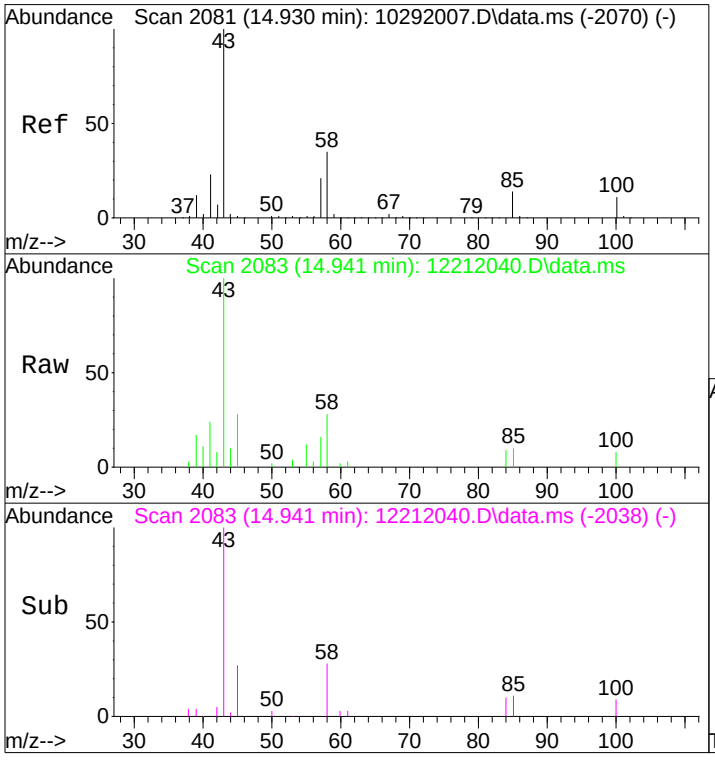


#47
Trichloroethene
Concen: 119.46 ng
RT: 14.03 min Scan# 1917
Delta R.T. -0.011 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion:130 Resp: 2850425

Ion	Ratio	Lower	Upper
130	100		
132	98.1	78.3	118.3

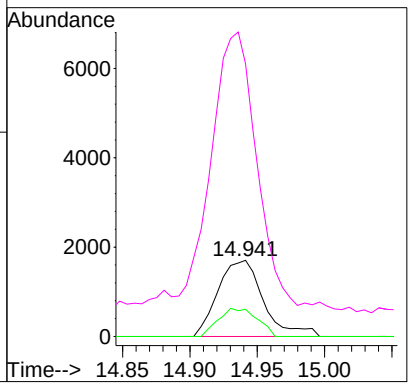


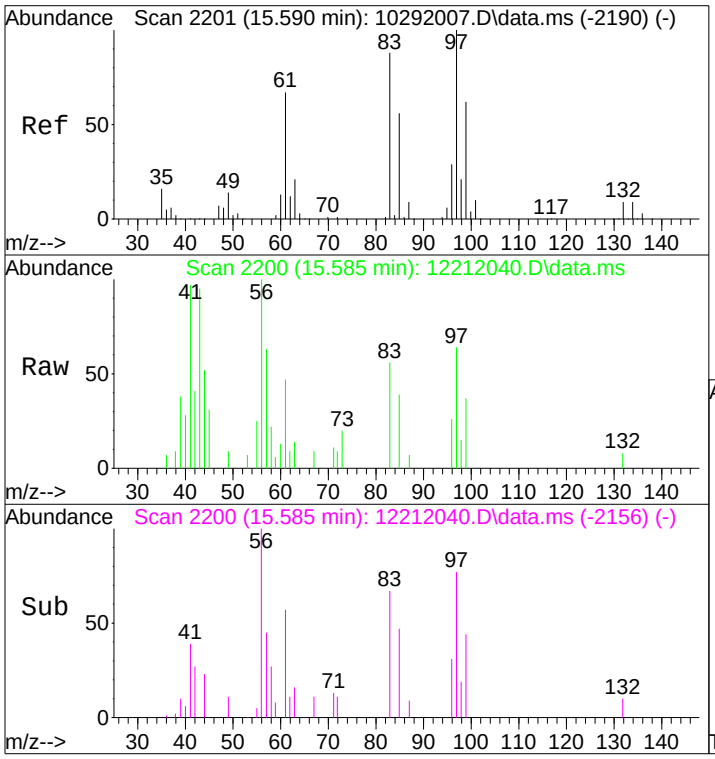


#53
4-Methyl-2-pentanone
Concen: 0.22 ng
RT: 14.94 min Scan# 2083
Delta R.T. 0.000 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 58 Resp: 3995

Ion	Ratio	Lower	Upper
58	100		
85	31.5	29.6	44.4
43	392.1	243.0	364.4#

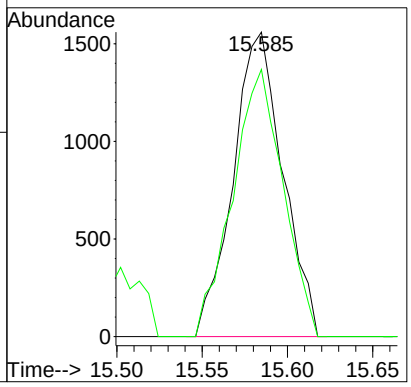


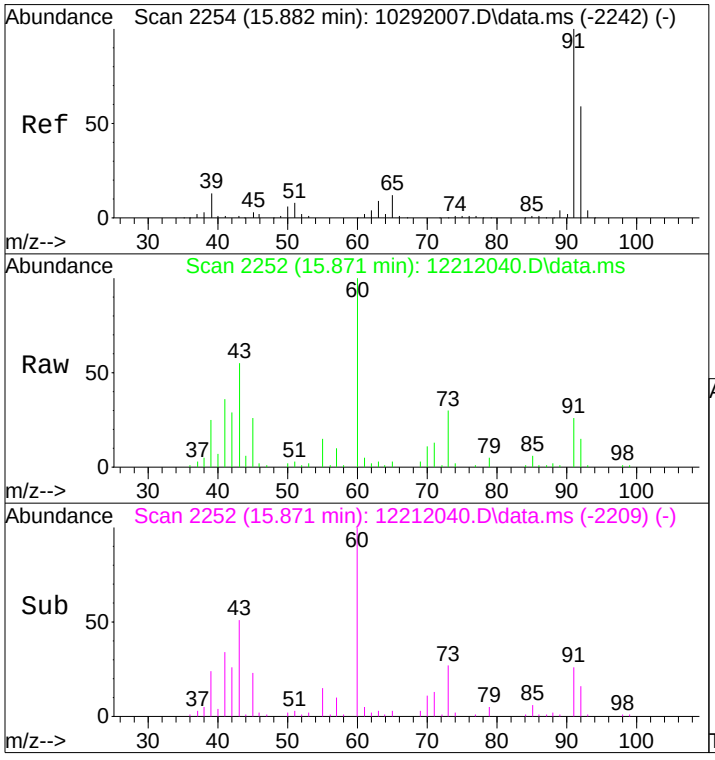


#55
1,1,2-Trichloroethane
Concen: 0.19 ng
RT: 15.58 min Scan# 2200
Delta R.T. -0.005 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 97 Resp: 3163

Ion	Ratio	Lower	Upper
97	100		
83	89.0	64.4	104.4

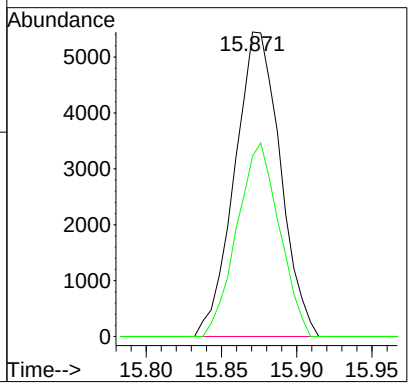


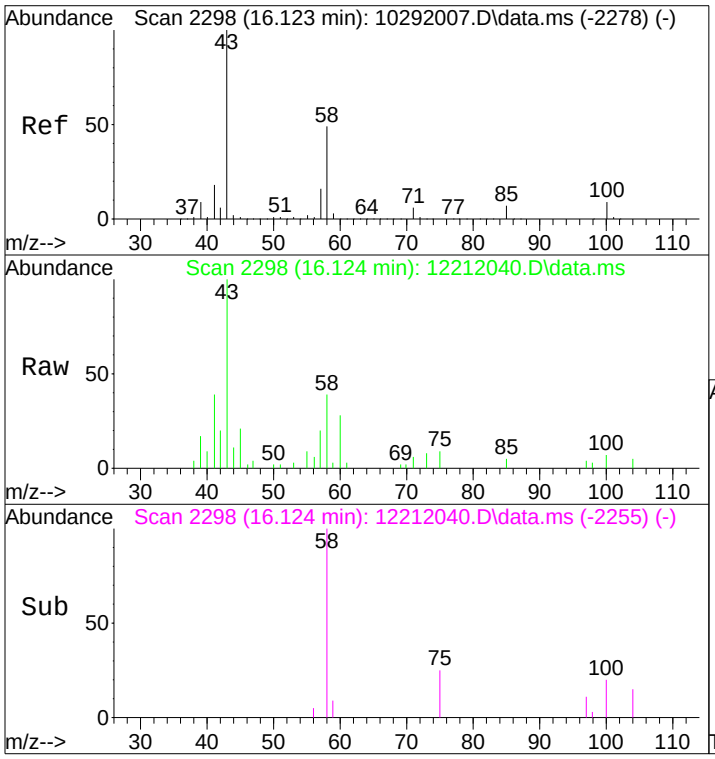


#58
Toluene
Concen: 0.16 ng
RT: 15.87 min Scan# 2252
Delta R.T. -0.011 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 91 Resp: 11474

Ion	Ratio	Lower	Upper
91	100		
92	59.0	39.1	79.1

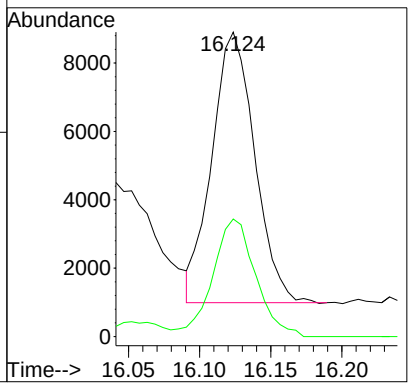


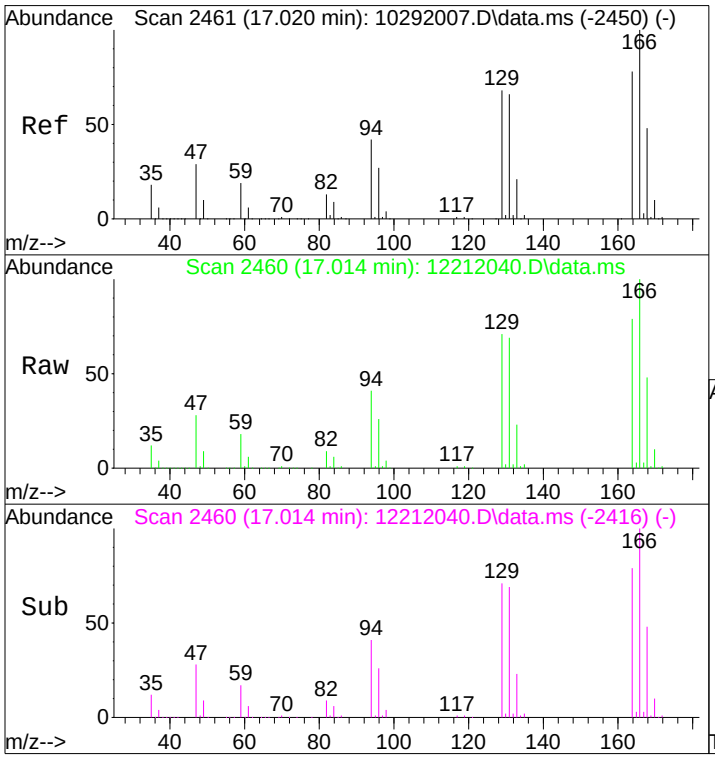


#59
2-Hexanone
Concen: 0.30 ng
RT: 16.12 min Scan# 2298
Delta R.T. -0.011 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 43 Resp: 16553

Ion	Ratio	Lower	Upper
43	100		
58	43.7	25.7	65.7

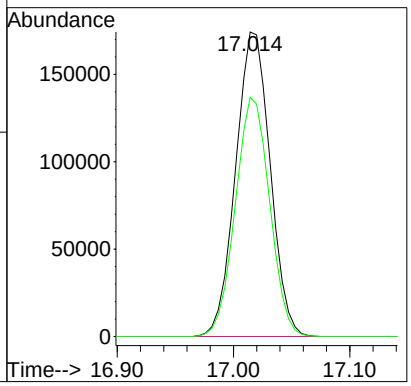


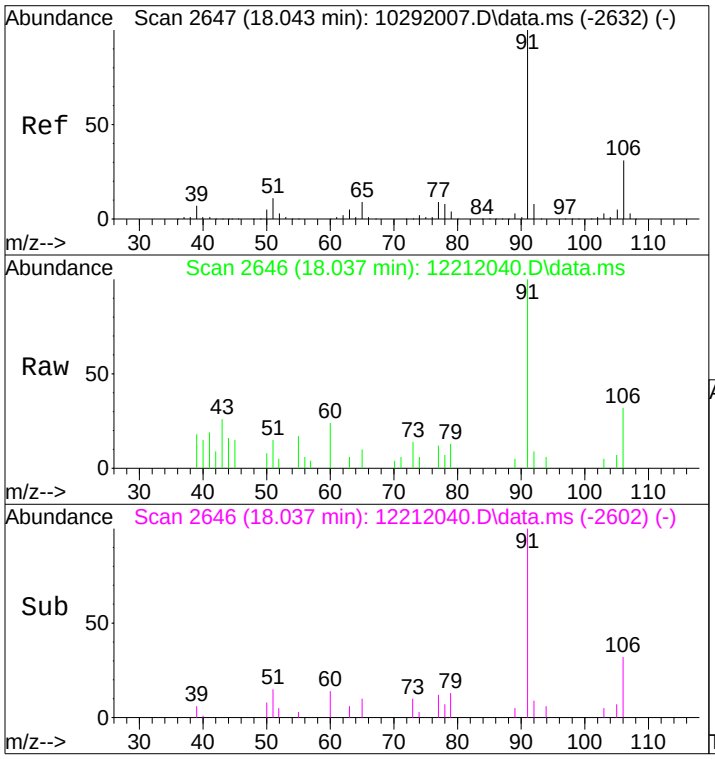


#64
Tetrachloroethene
Concen: 16.83 ng
RT: 17.01 min Scan# 2460
Delta R.T. -0.005 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion:166 Resp: 360910

Ion	Ratio	Lower	Upper
166	100		
164	78.0	58.2	98.2

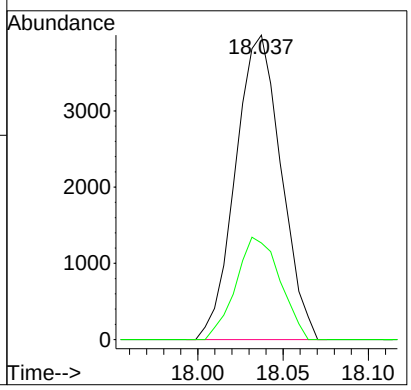


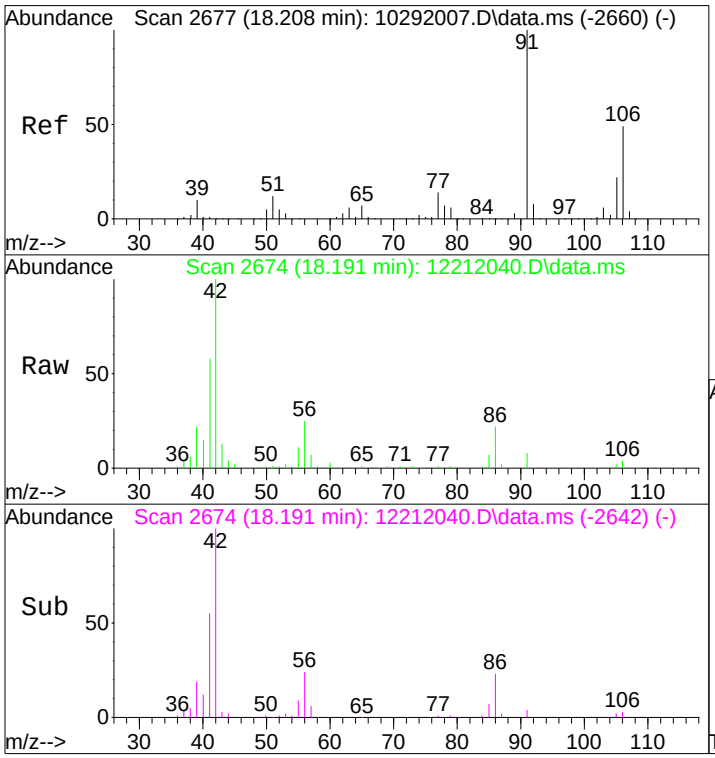


#66
Ethylbenzene
Concen: 0.09 ng
RT: 18.04 min Scan# 2646
Delta R.T. -0.005 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 91 Resp: 7439

Ion	Ratio	Lower	Upper
91	100		
106	32.5	11.5	51.5

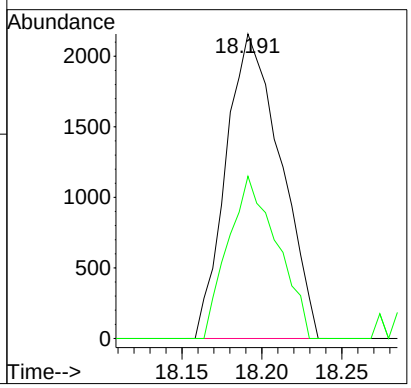


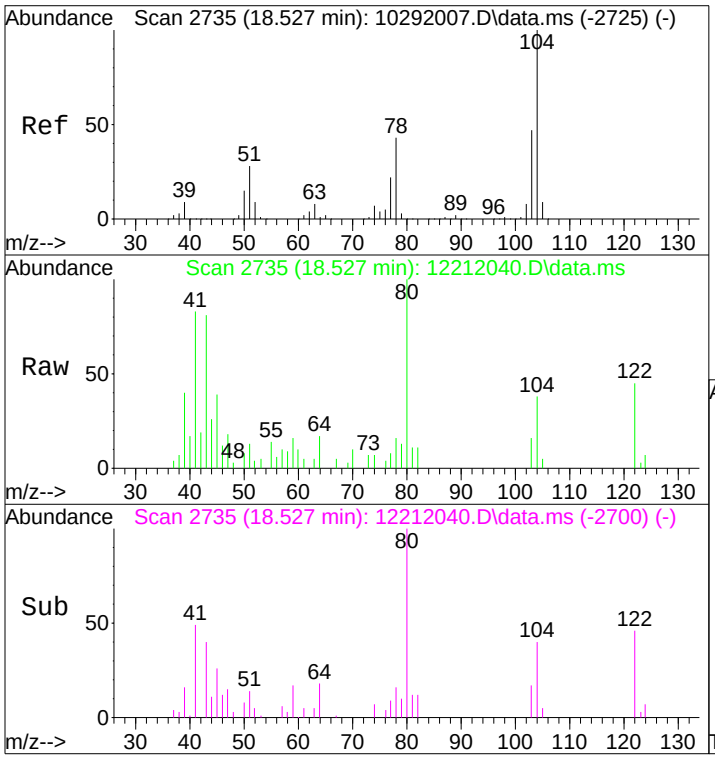


#67
m- & p-Xylenes
Concen: 0.08 ng
RT: 18.19 min Scan# 2674
Delta R.T. -0.022 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 91 Resp: 5138

Ion	Ratio	Lower	Upper
91	100		
106	47.8	29.5	69.5

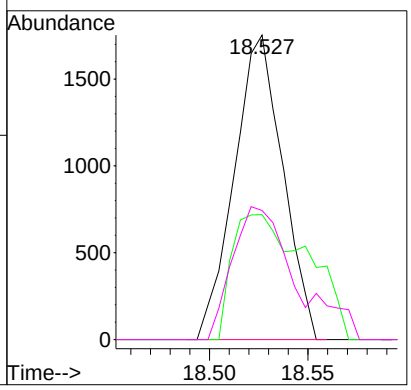


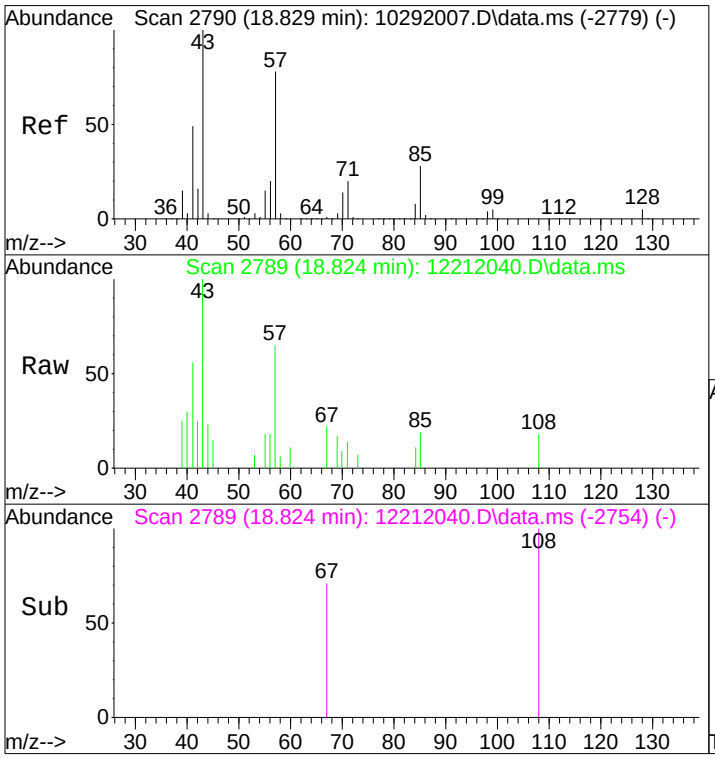


#69
Styrene
Concen: 0.06 ng
RT: 18.53 min Scan# 2735
Delta R.T. -0.005 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion:104 Resp: 2998

Ion	Ratio	Lower	Upper
104	100		
78	64.1	23.0	63.0#
103	57.0	27.5	67.5

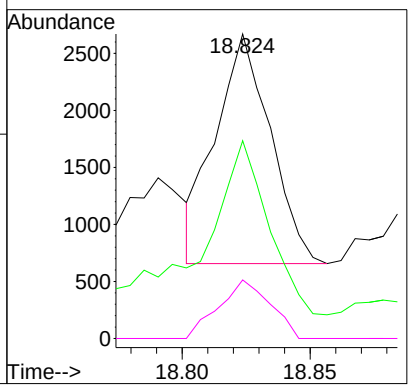


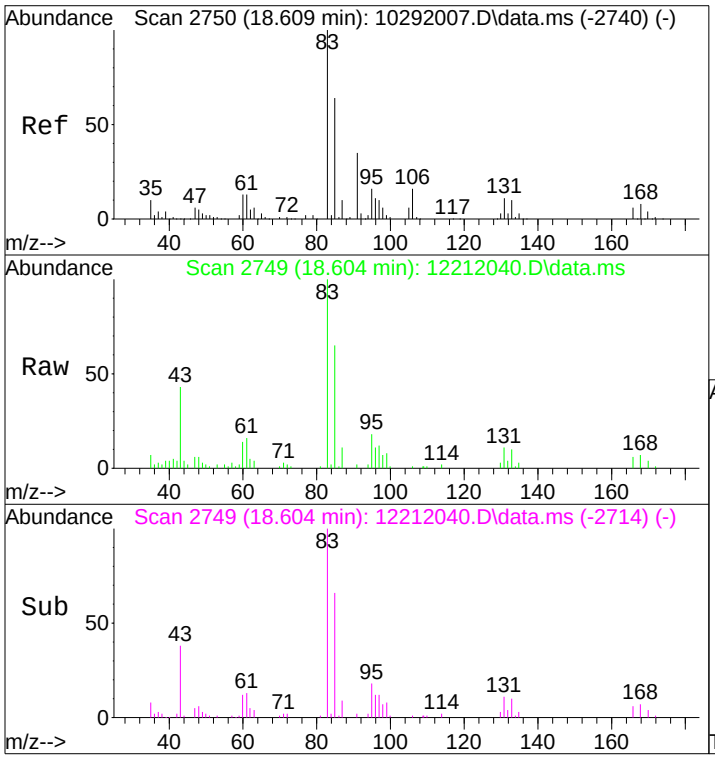


#71
n-Nonane
Concen: 0.06 ng
RT: 18.82 min Scan# 2789
Delta R.T. -0.005 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 43 Resp: 3009

Ion	Ratio	Lower	Upper
43	100		
57	92.5	54.1	94.1
85	23.8	2.9	42.9

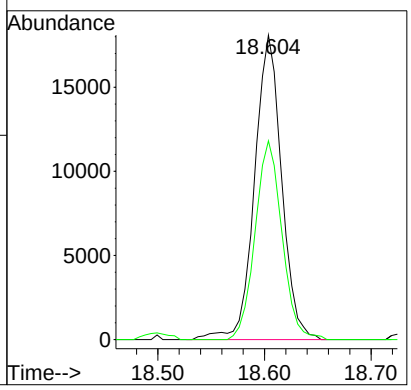


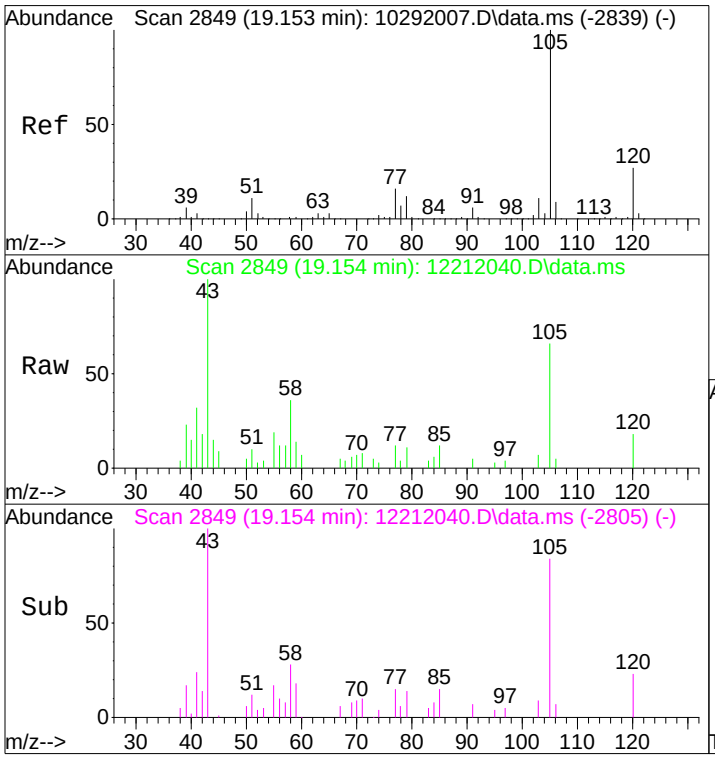


#72
1,1,2,2-Tetrachloroethane
Concen: 1.10 ng
RT: 18.60 min Scan# 2749
Delta R.T. -0.005 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 83 Resp: 31957

Ion	Ratio	Lower	Upper
83	100		
85	64.6	46.6	86.6

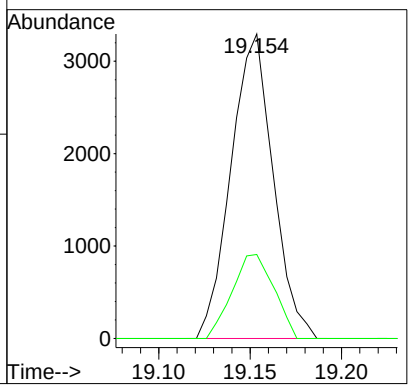


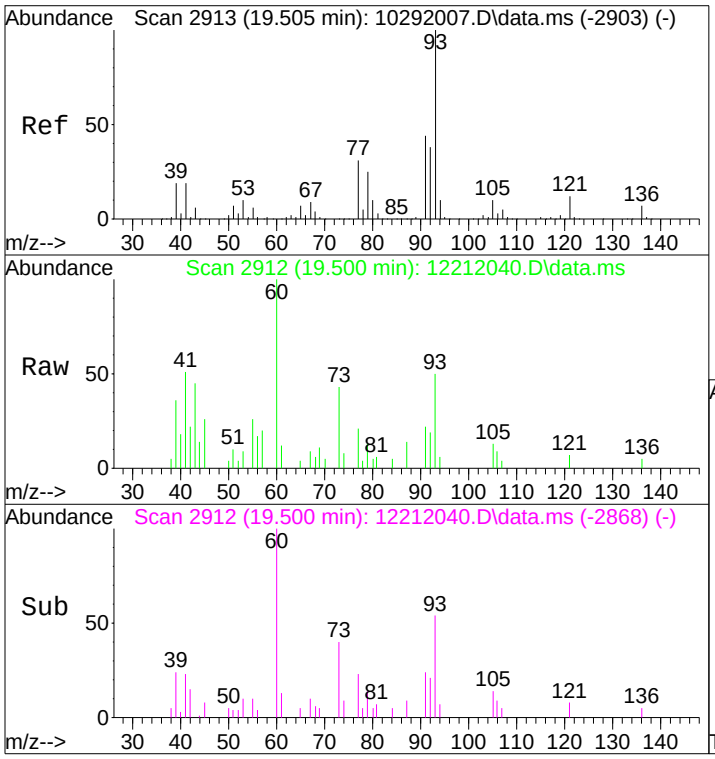


#74
Cumene
Concen: 0.06 ng
RT: 19.15 min Scan# 2849
Delta R.T. -0.005 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion:105 Resp: 5285

Ion	Ratio	Lower	Upper
105	100		
120	27.3	6.7	46.7

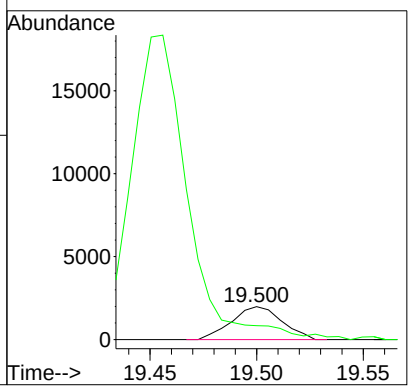


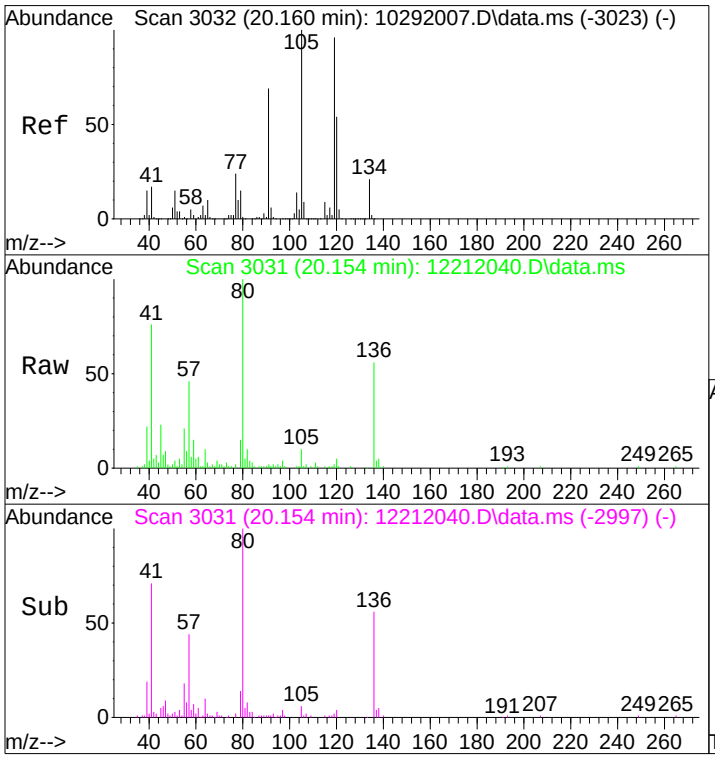


#75
alpha-Pinene
Concen: 0.08 ng
RT: 19.50 min Scan# 2912
Delta R.T. -0.005 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 93 Resp: 3257

Ion	Ratio	Lower	Upper
93	100		
77	1034.0	11.5	51.5#

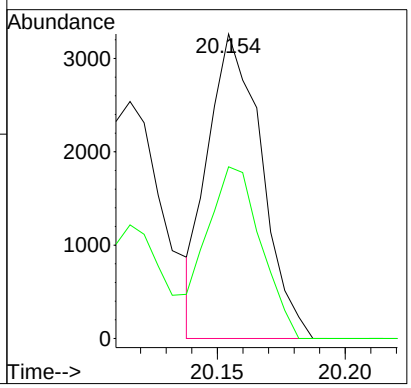


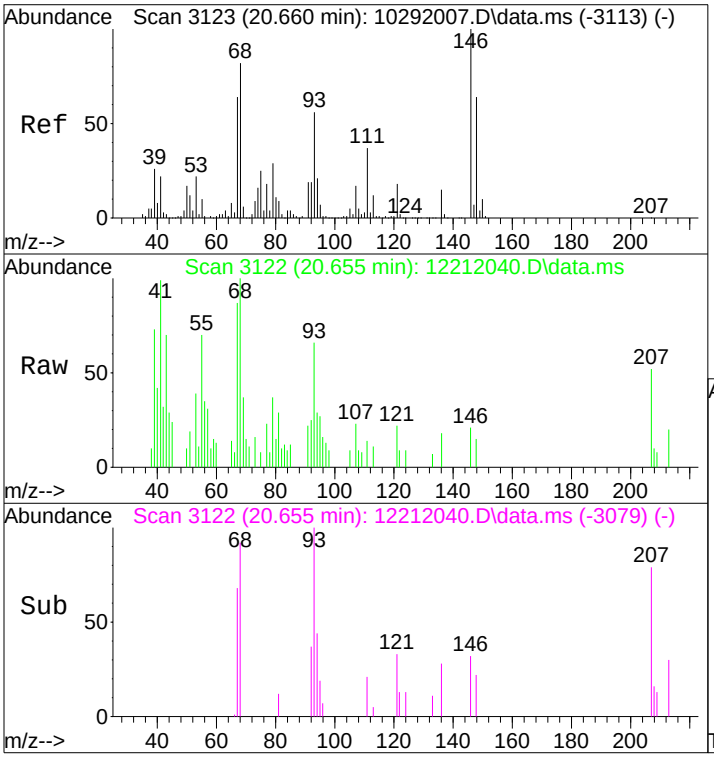


#82
1,2,4-Trimethylbenzene
Concen: 0.07 ng
RT: 20.15 min Scan# 3031
Delta R.T. -0.011 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion:105 Resp: 4746

Ion	Ratio	Lower	Upper
105	100		
120	59.5	34.9	74.9

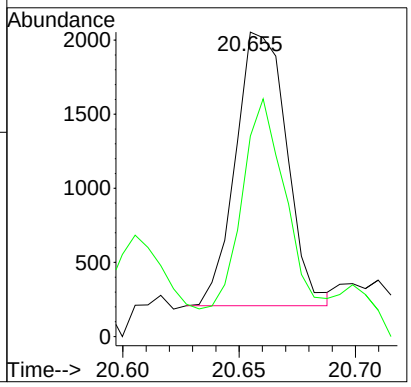


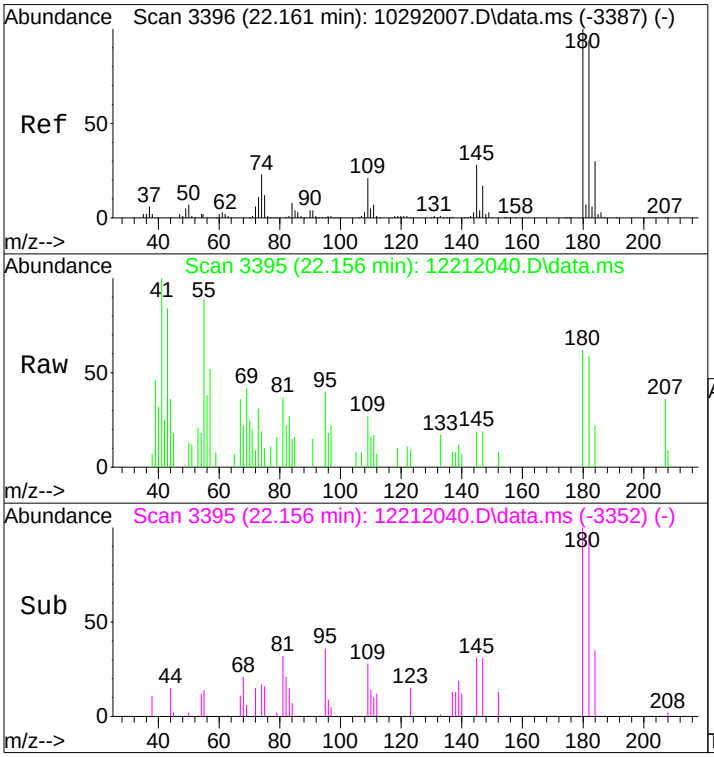


#91
d-Limonene
Concen: 0.12 ng
RT: 20.65 min Scan# 3122
Delta R.T. -0.011 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion: 68 Resp: 2821

Ion	Ratio	Lower	Upper
68	100		
93	63.5	52.0	92.0

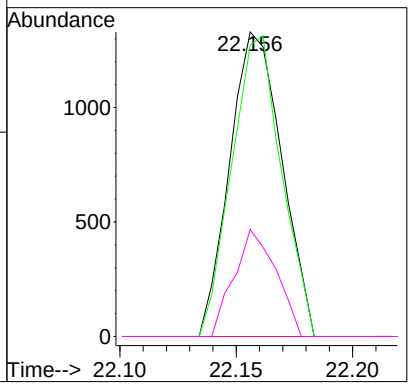


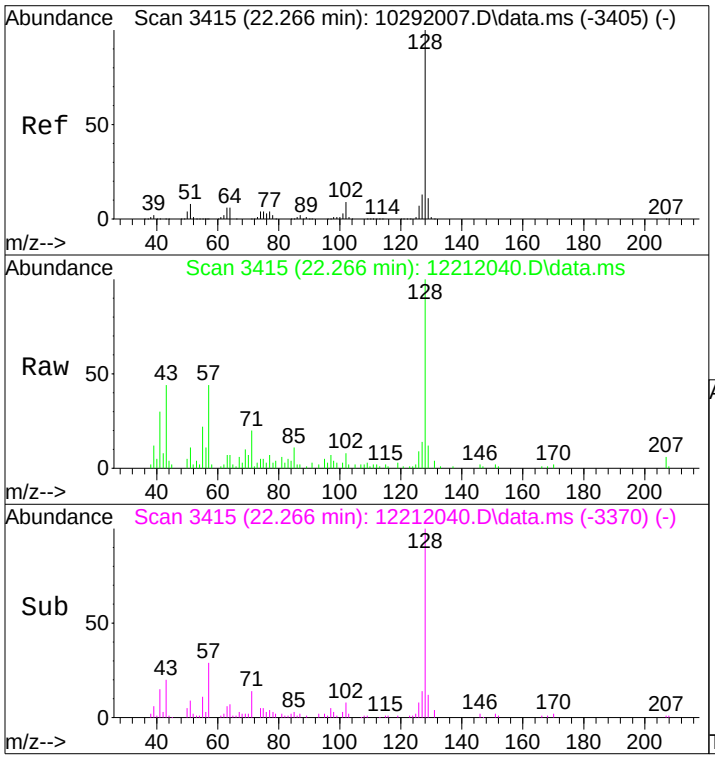


#94
1,2,4-Trichlorobenzene
Concen: 0.06 ng
RT: 22.16 min Scan# 3395
Delta R.T. -0.011 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion:180 Resp: 2067

Ion	Ratio	Lower	Upper
180	100		
182	94.5	75.6	113.4
184	28.4	24.2	36.4

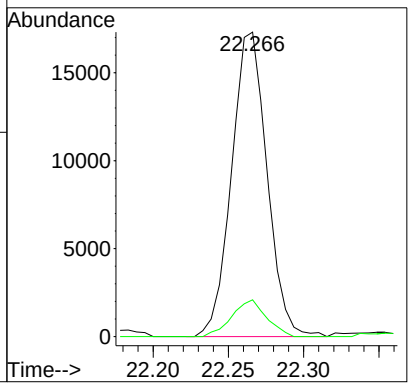




#95
Naphthalene
Concen: 0.25 ng
RT: 22.27 min Scan# 3415
Delta R.T. -0.005 min
Lab File: 12212040.D
Acq: 22 Dec 2020 3:32

Tgt Ion:128 Resp: 28360

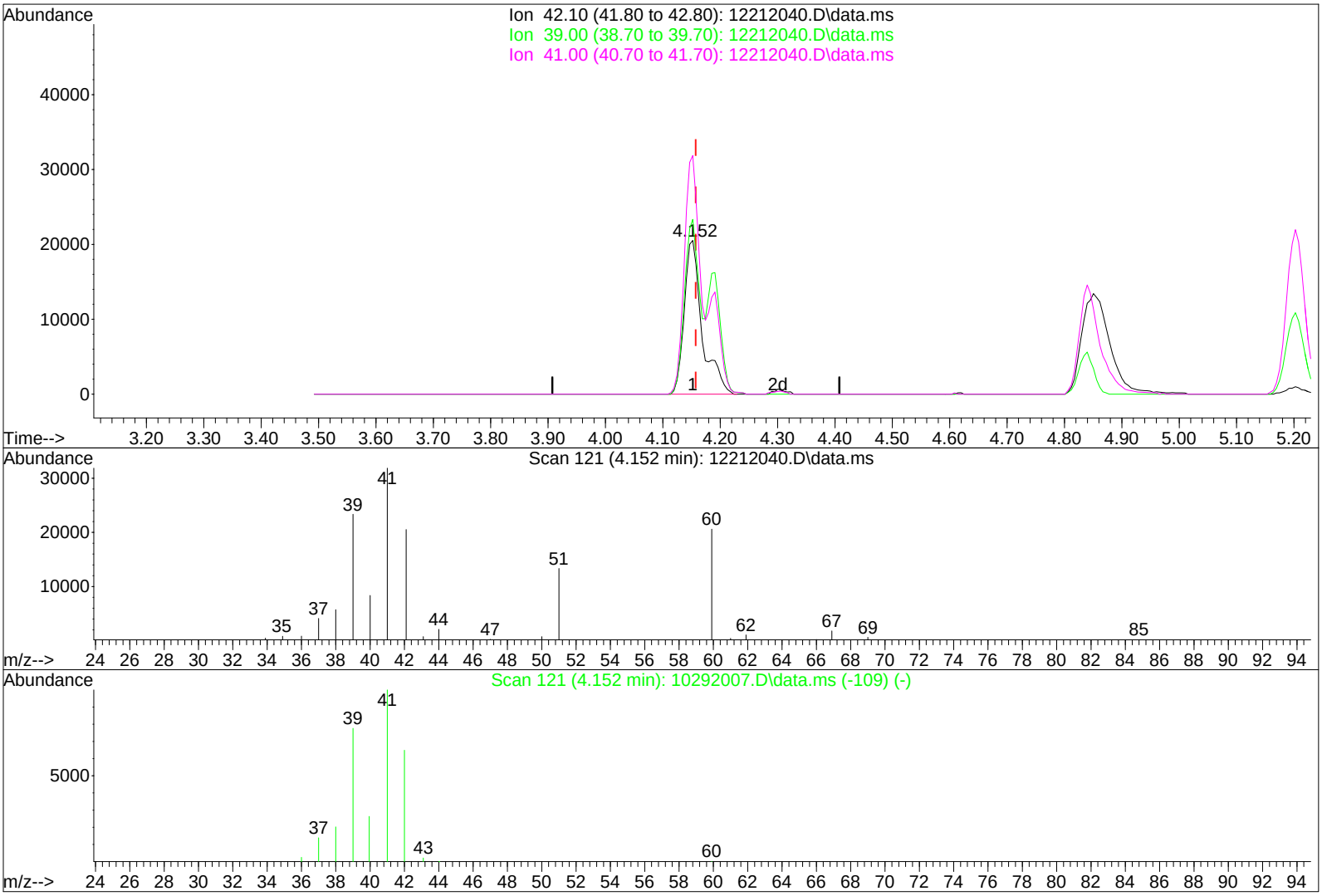
Ion	Ratio	Lower	Upper
128	100		
129	11.8	0.0	30.9



Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212040.D Vial: 15
Acq On : 22 Dec 2020 3:32 Operator: LH
Sample : P2006988-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:06 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 12212040.D\data.ms

(2) Propene (T)

4.152min (-0.005) 1.36ng

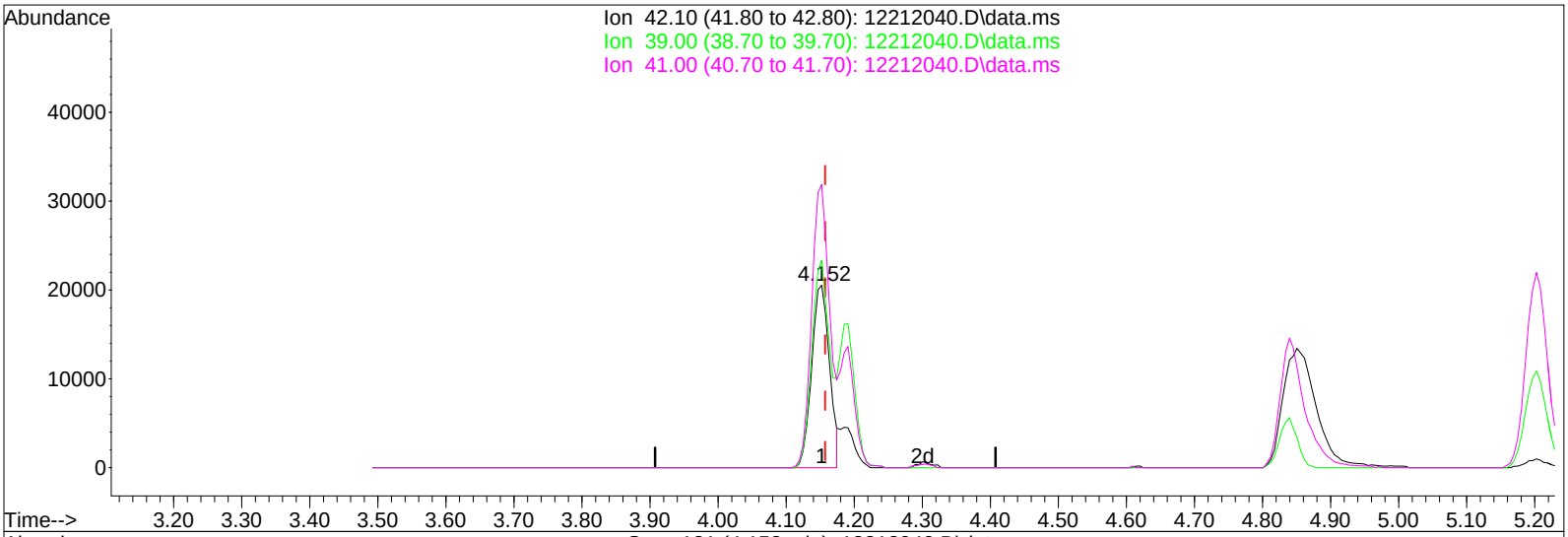
response 44387

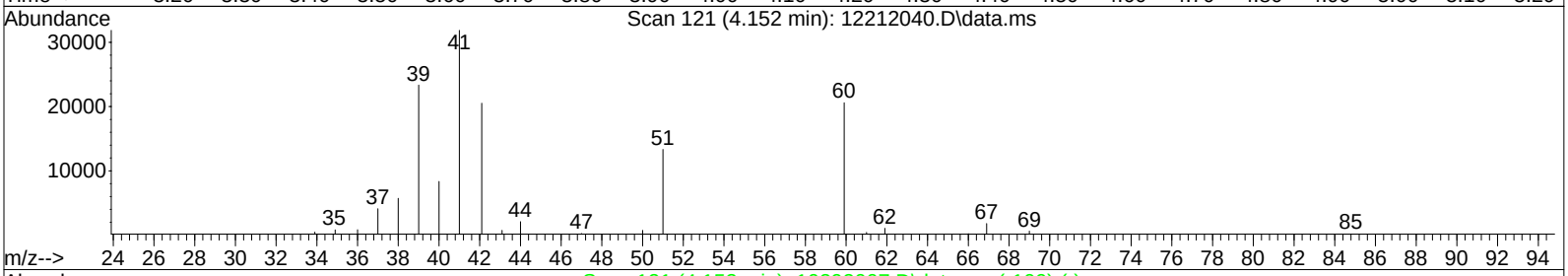
Ion	Exp%	Act%
42.10	100	100
39.00	114.20	100.18
41.00	154.50	133.18#
0.00	0.00	0.00

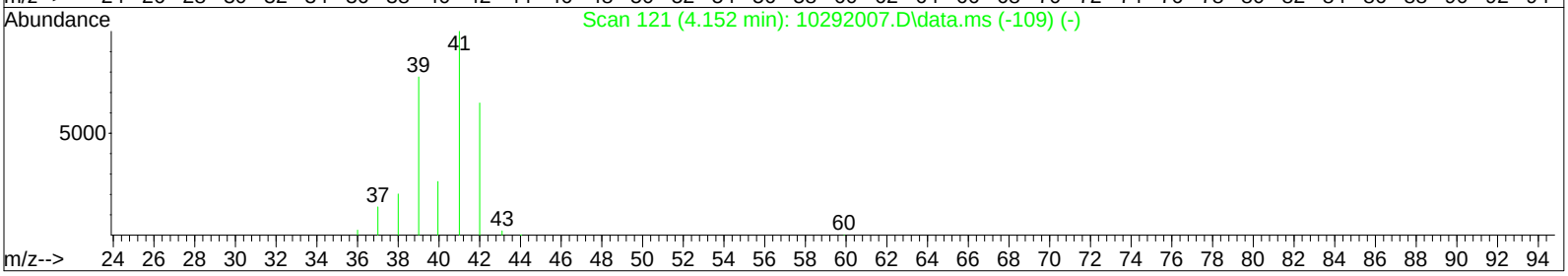
Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212040.D Vial: 15
Acq On : 22 Dec 2020 3:32 Operator: LH
Sample : P2006988-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:06 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 12212040.D\data.ms

(2) Propene (T)

4.152min (-0.005) 1.14ng m

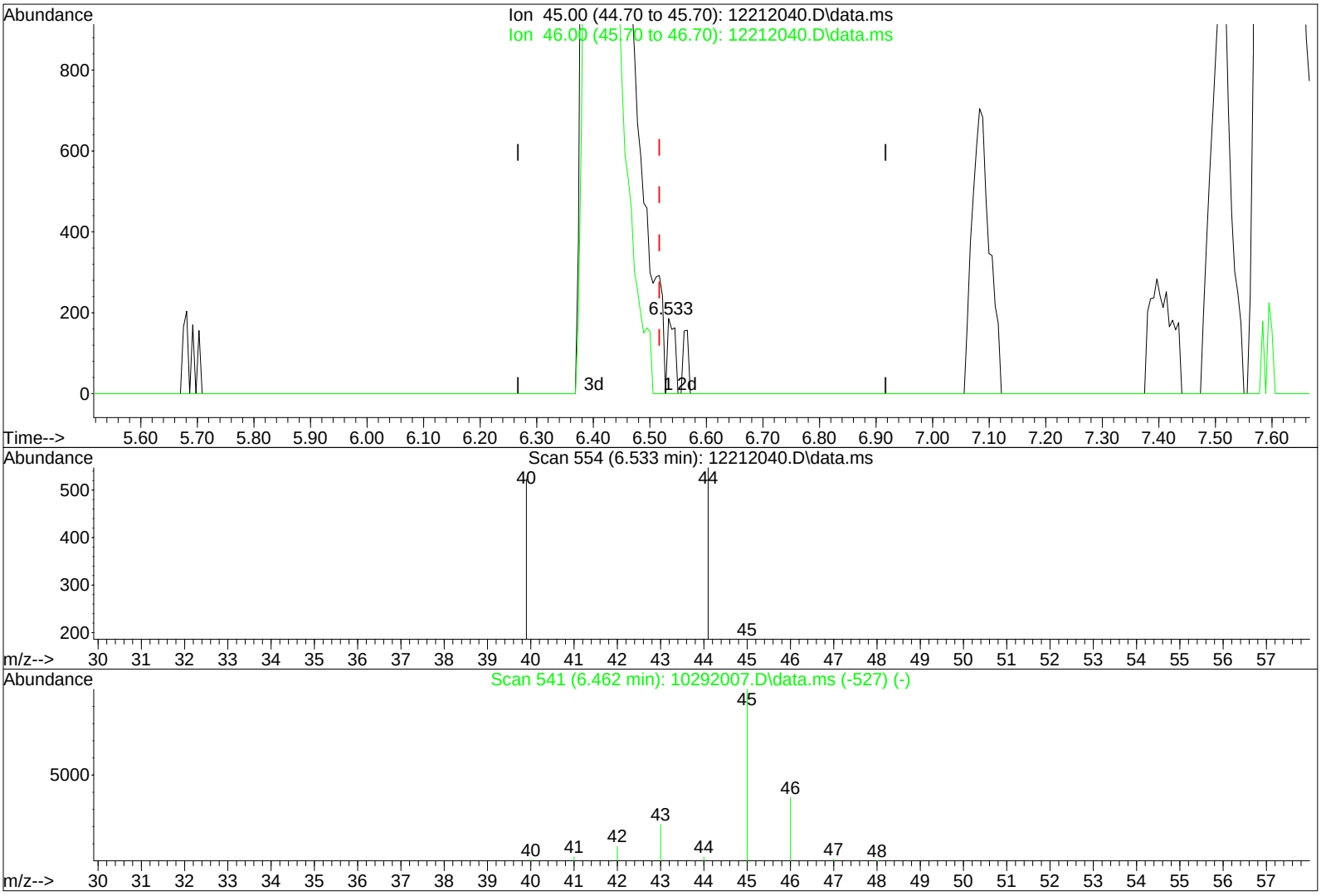
response 37389

Ion	Exp%	Act%
42.10	100	100
39.00	114.20	118.93
41.00	154.50	158.10
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212040.D Vial: 15
Acq On : 22 Dec 2020 3:32 Operator: LH
Sample : P2006988-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:06 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 12212040.D\data.ms

(10) Ethanol (T)

6.533min (+0.017) 0.01ng

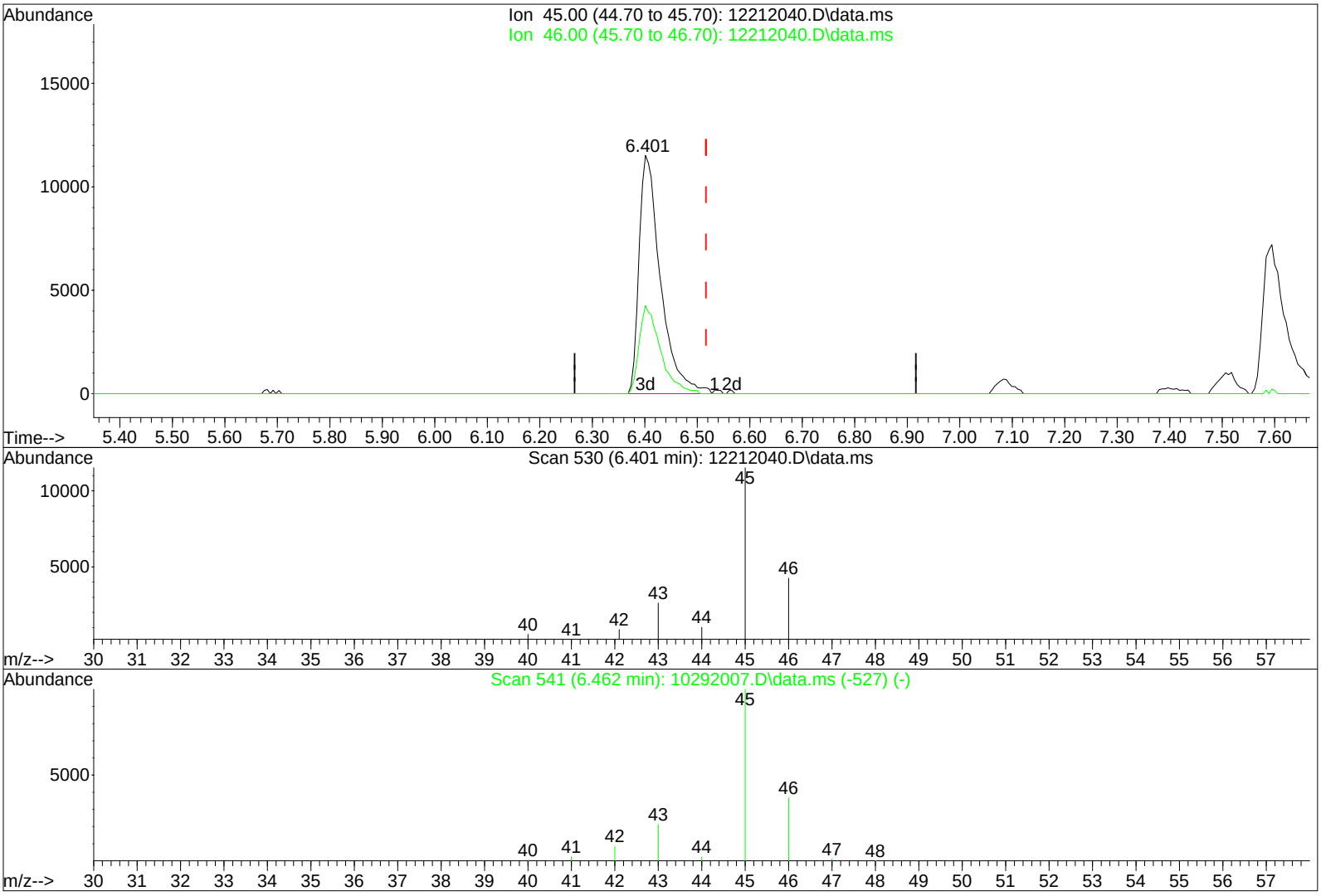
response 168

Ion	Exp%	Act%
45.00	100	100
46.00	37.00	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212040.D Vial: 15
Acq On : 22 Dec 2020 3:32 Operator: LH
Sample : P2006988-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:06 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 12212040.D\data.ms

(10) Ethanol (T)

6.401min (-0.115) 1.71ng m

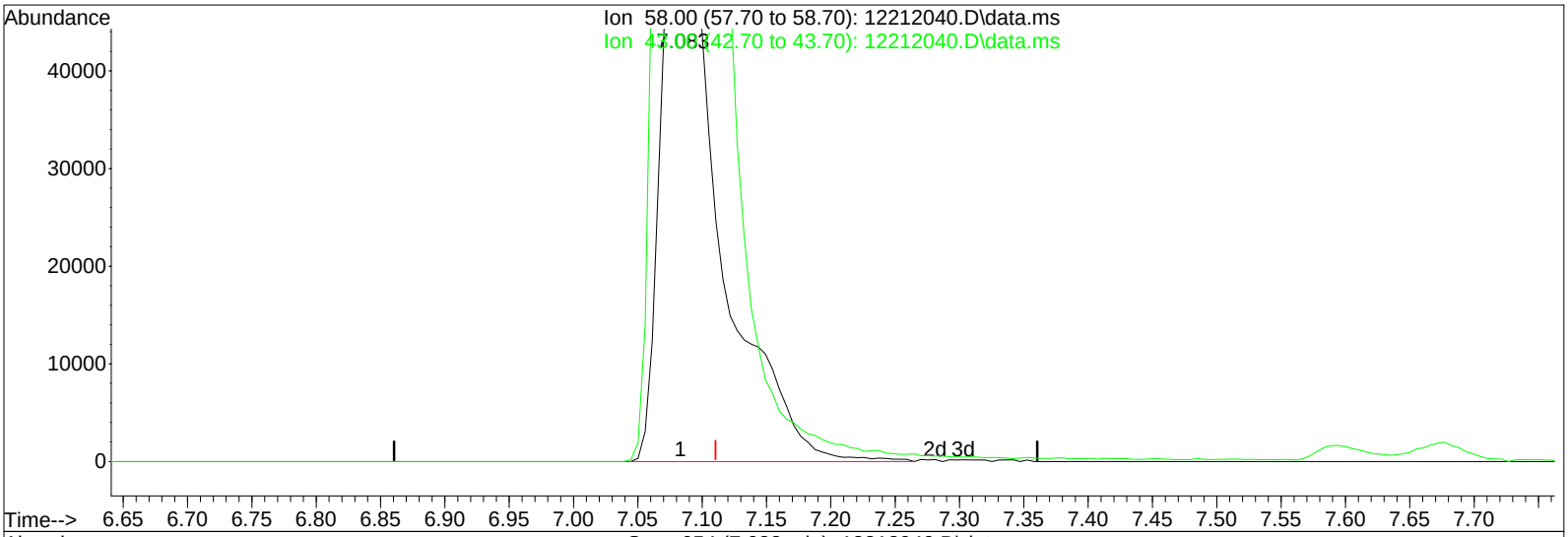
response 32760

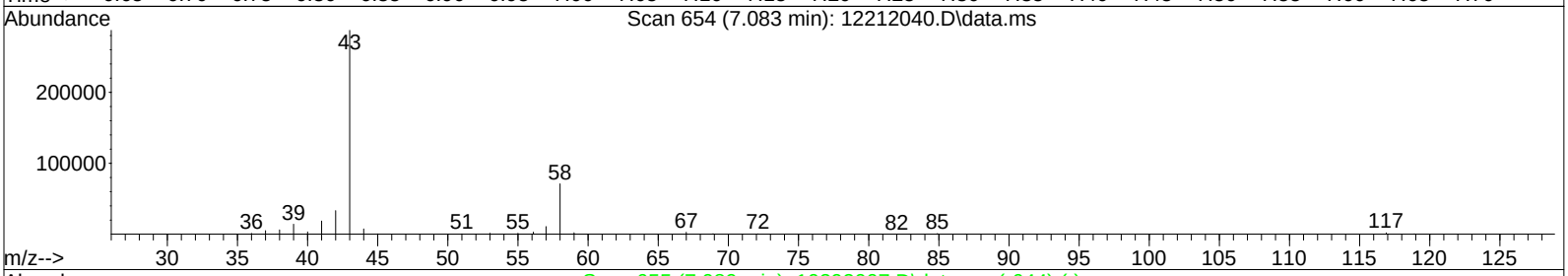
Ion	Exp%	Act%
45.00	100	100
46.00	37.00	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

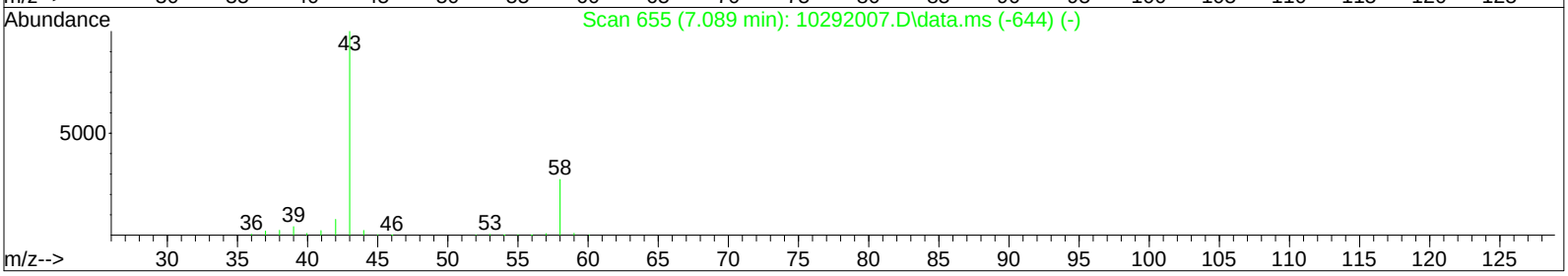
Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212040.D Vial: 15
Acq On : 22 Dec 2020 3:32 Operator: LH
Sample : P2006988-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:06 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 12212040.D\data.ms

(13) Acetone (T)

7.083min (-0.027) 12.28ng

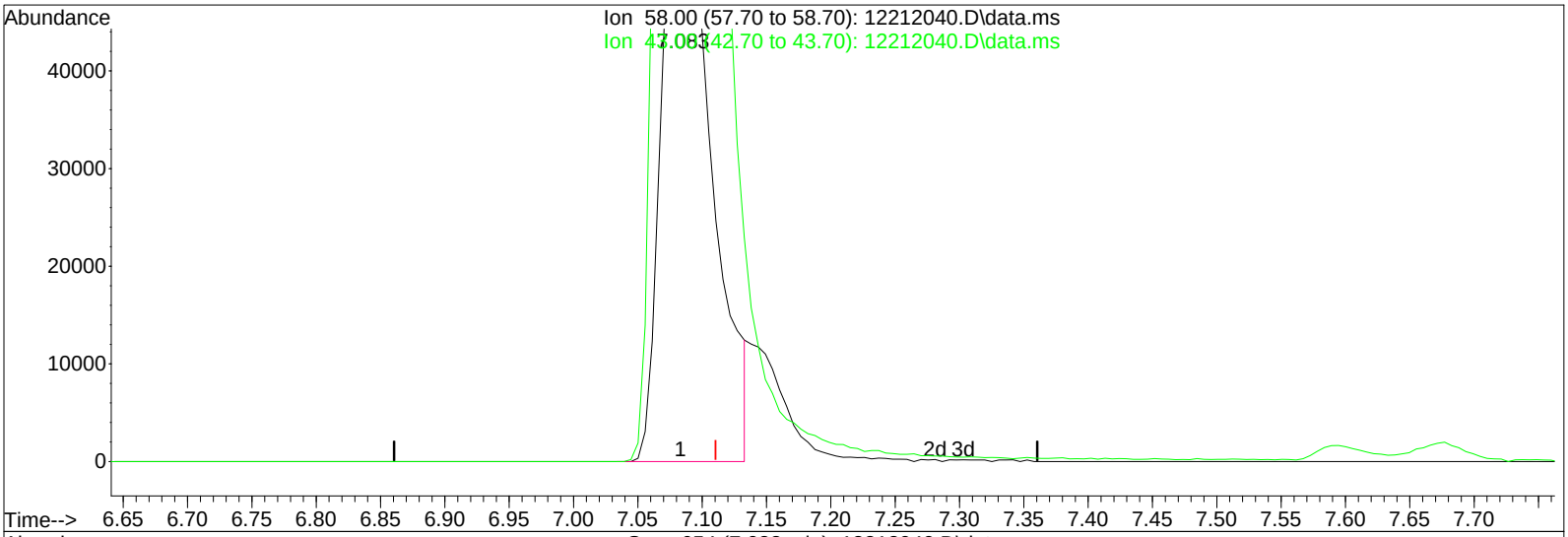
response 195288

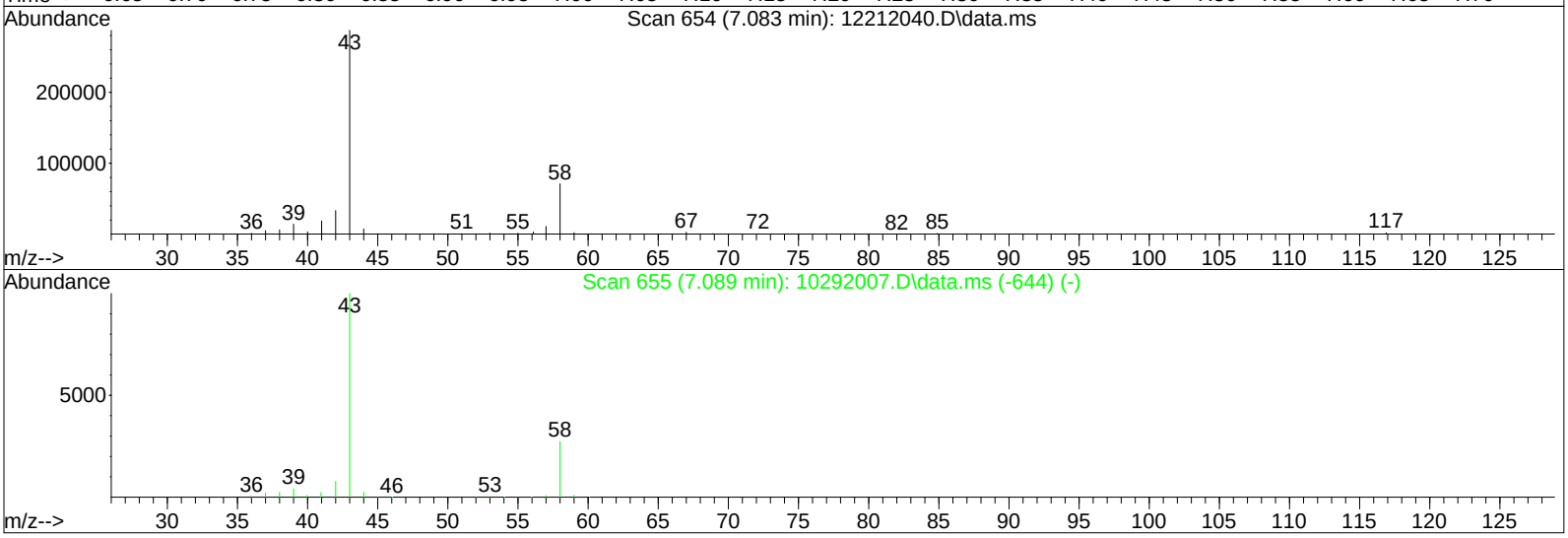
Ion	Exp%	Act%
58.00	100	100
43.00	392.50	366.56
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212040.D Vial: 15
Acq On : 22 Dec 2020 3:32 Operator: LH
Sample : P2006988-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:06 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M





TIC: 12212040.D\data.ms

(13) Acetone (T)

7.083min (-0.027) 10.78ng m

response 171423

Ion	Exp%	Act%
58.00	100	100
43.00	392.50	417.60
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212062.D Vial: 6
Acq On : 22 Dec 2020 17:26 Operator: LH
Sample : P2006988-001dil (100mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 18:40:16 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	204630	12.500	ng		-0.04
37) 1,4-Difluorobenzene (IS2)	13.32	114	884720	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	193370	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	342812	12.041	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.32%				
57) Toluene-d8 (SS2)	15.77	98	909950	12.754	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.00%				
73) Bromofluorobenzene (SS3)	19.03	174	343561	13.077	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.64%				
Target Compounds							Qvalue
2) Propene	4.17	42	5428	0.145	ng	#	80
3) Dichlorodifluoromethan...	4.33	85	16812	0.387	ng		98
4) Chloromethane	4.60	50	1469	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	5.03	62	794	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	6.50	45	128	N.D.			
11) Acetonitrile	6.68	41	2736	N.D.			
12) Acrolein	6.88	56	1552	0.099	ng		91
13) Acetone	7.09	58	23600	1.301	ng	#	74
14) Trichlorofluoromethane	7.30	101	4598	0.115	ng		99
15) 2-Propanol (Isopropanol)	7.63	45	2099	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	8.25	96	3004	0.159	ng		97
18) 2-Methyl-2-Propanol (t...	8.57	59	1118	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	8.56	41	216	N.D.			
21) Trichlorotrifluoroethane	8.90	151	39708	2.072	ng		99
22) Carbon Disulfide	8.74	76	94603	1.387	ng		99
23) trans-1,2-Dichloroethene	9.75	61	6025	0.188	ng		100
24) 1,1-Dichloroethane	10.00	63	3353	0.087	ng		99
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	10.24	86	2250	0.604	ng	#	12
27) 2-Butanone (MEK)	10.54	72	4292	0.342	ng	#	83
28) cis-1,2-Dichloroethene	11.01	61	262458	8.303	ng		98
29) Diisopropyl Ether	0.00	87	0	N.D. d			
30) Ethyl Acetate	11.28	61	245	N.D.			
31) n-Hexane	11.31	57	315	N.D.			
32) Chloroform	11.36	83	85565	2.415	ng		99
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	12.44	97	4264	0.127	ng		98
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	12.96	56	1949	No Calib		#	
41) Benzene	12.93	78	2892	N.D.			
42) Carbon Tetrachloride	13.09	117	6008	0.193	ng		97
43) Cyclohexane	13.23	84	1787	0.064	ng	#	78
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. d			
47) Trichloroethene	14.02	130	300545	11.167	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D. d			
50) Methyl Methacrylate	14.02	100	506	0.060	ng	#	52

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212062.D Vial: 6
Acq On : 22 Dec 2020 17:26 Operator: LH
Sample : P2006988-001dil (100mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 18:40:16 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

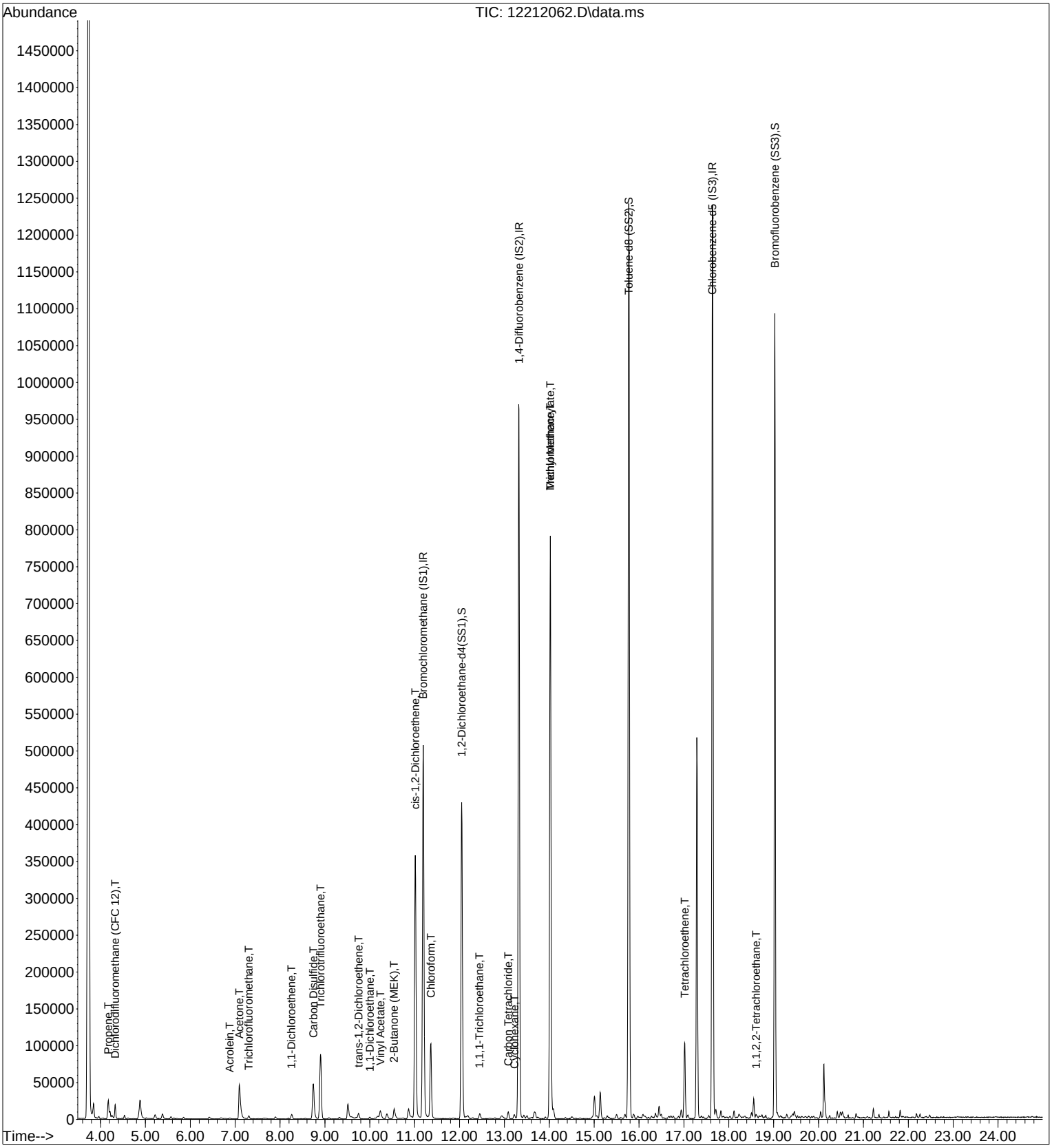
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.36	71	132	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	15.59	97	249	N.D.		
58) Toluene	15.87	91	1540	N.D.		
59) 2-Hexanone	16.13	43	2173	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.77	43	388	N.D.		
63) n-Octane	16.88	57	578	N.D.		
64) Tetrachloroethene	17.02	166	36174	1.447	ng	100
65) Chlorobenzene	17.71	112	824	N.D.		
66) Ethylbenzene	18.04	91	705	N.D.		
67) m- & p-Xylenes	18.20	91	639	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.53	104	133	N.D.		
70) o-Xylene	18.63	91	1089	N.D.		
71) n-Nonane	18.82	43	1875	N.D.		
72) 1,1,2,2-Tetrachloroethane	18.61	83	3137	0.093	ng	97
74) Cumene	19.15	105	524	N.D.		
75) alpha-Pinene	19.49	93	195	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D.		
77) 3-Ethyltoluene	19.73	105	123	No Calib	#	
78) 4-Ethyltoluene	19.73	105	123	N.D.		
79) 1,3,5-Trimethylbenzene	19.79	105	492	N.D.		
80) alpha-Methylstyrene	19.93	118	199	No Calib	#	
81) 2-Ethyltoluene	19.97	105	565	No Calib	#	
82) 1,2,4-Trimethylbenzene	20.16	105	608	N.D.		
83) n-Decane	20.25	57	1309	No Calib		
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	20.53	105	733	N.D.		
88) 4-Isopropyltoluene (p-...	20.53	119	2990	N.D.		
89) 1,2,3-Trimethylbenzene	20.53	105	733	No Calib	#	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.66	68	778	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.34	57	1785	No Calib		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.27	128	2110	N.D.		
96) n-Dodecane	22.25	57	1203	No Calib	#	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	18.35	55	1668	No Calib	#	
99) tert-Butylbenzene	20.12	119	1476	N.D.		
100) n-Butylbenzene	20.90	91	387	N.D.		
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212062.D Vial: 6
Acq On : 22 Dec 2020 17:26 Operator: LH
Sample : P2006988-001dil (100mL) Inst : GCMS-16
Misc : S34-12182001

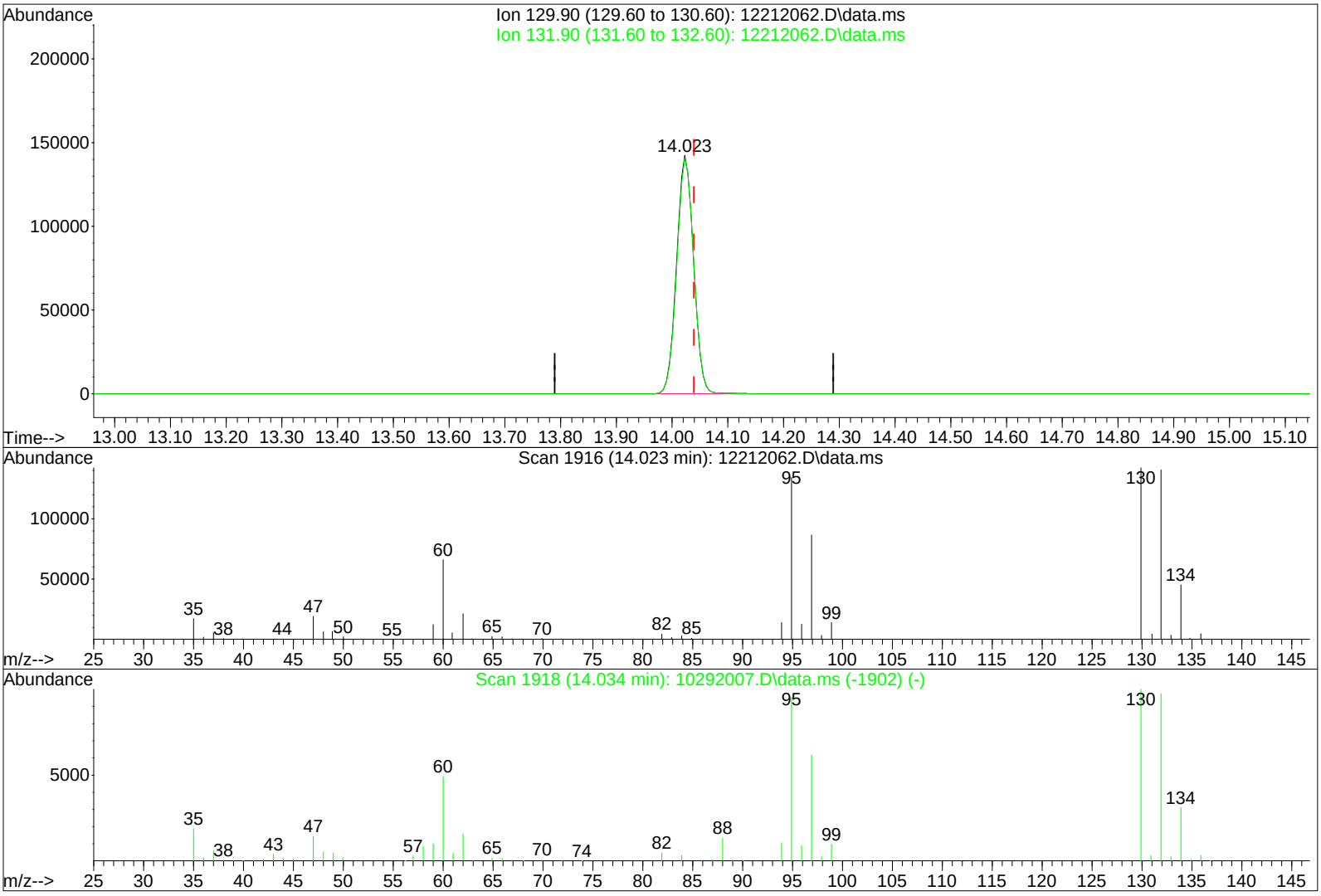
Quant Time: Dec 22 18:40:16 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212062.D Vial: 6
Acq On : 22 Dec 2020 17:26 Operator: LH
Sample : P2006988-001dil (100mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 18:39:32 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 12212062.D\data.ms

(47) Trichloroethene (T)

14.023min (-0.017) 11.17ng

response 300545

Ion	Exp%	Act%
129.90	100	100
131.90	98.30	98.42
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212036.D Vial: 2
Acq On : 22 Dec 2020 1:16 Operator: LH
Sample : MB2 R16122120_1000mL Inst : GCMS-16
Misc : S34-12182001/AS01319

Quant Time: Dec 22 07:45:57 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	171155	12.500	ng		-0.04
37) 1,4-Difluorobenzene (IS2)	13.32	114	748988	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.64	54	162380	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	302169	12.689	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.52%				
57) Toluene-d8 (SS2)	15.77	98	751916	12.551	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.40%				
73) Bromofluorobenzene (SS3)	19.03	174	271529	12.308	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.48%				
Target Compounds							Qvalue
2) Propene	4.20	42	396	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	6.45	45	2959	0.162	ng		88
11) Acetonitrile	6.72	41	1231	N.D.			
12) Acrolein	0.00	56	0	N.D.			
13) Acetone	7.14	58	1542	0.102	ng	#	74
14) Trichlorofluoromethane	0.00	101	0	N.D.			
15) 2-Propanol (Isopropanol)	7.72	45	53	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	187	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	0.00	56	0	N.D.			
41) Benzene	12.92	78	1090	N.D.			
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	13.31	84	672	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.			

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212036.D Vial: 2
Acq On : 22 Dec 2020 1:16 Operator: LH
Sample : MB2 R16122120_1000mL Inst : GCMS-16
Misc : S34-12182001/AS01319

Quant Time: Dec 22 07:45:57 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

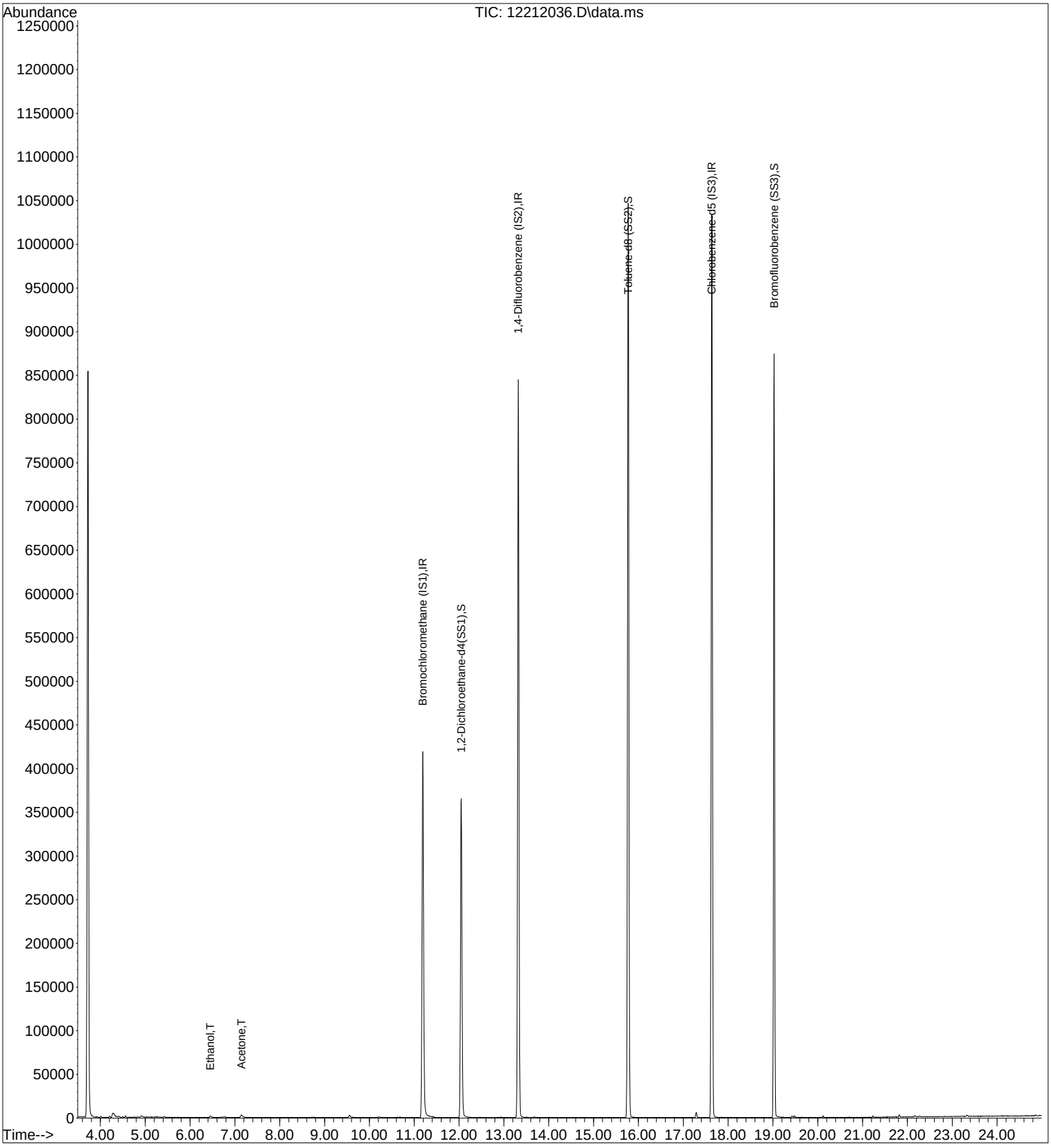
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	15.88	91	185	N.D.	
59) 2-Hexanone	16.17	43	325	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	16.79	43	254	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	0.00	91	0	N.D.	
67) m- & p-Xylenes	0.00	91	0	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	19.03	105	287	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	19.57	91	464	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	0.00	105	0	N.D.	
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.	
83) n-Decane	20.43	57	179	No Calib	#
84) Benzyl Chloride	20.28	91	103	N.D.	
85) 1,3-Dichlorobenzene	20.36	146	237	N.D.	
86) 1,4-Dichlorobenzene	20.36	146	237	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	20.65	146	114	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	21.23	57	314	No Calib	#
94) 1,2,4-Trichlorobenzene	22.17	180	781	N.D.	
95) Naphthalene	22.27	128	1710	N.D.	
96) n-Dodecane	0.00	57	0	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.	
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.	

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212036.D Vial: 2
Acq On : 22 Dec 2020 1:16 Operator: LH
Sample : MB2 R16122120_1000mL Inst : GCMS-16
Misc : S34-12182001/AS01319

Quant Time: Dec 22 07:45:57 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212037.D Vial: 2
Acq On : 22 Dec 2020 1:50 Operator: LH
Sample : LCS2 R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12152004 (1/14)

Quant Time: Dec 22 07:46:00 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	176922	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.33	114	765351	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	166209	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.07	65	306867	12.466	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.76%				
57) Toluene-d8 (SS2)	15.78	98	768197	12.527	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.24%				
73) Bromofluorobenzene (SS3)	19.03	174	287401	12.727	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.84%				
Target Compounds							Qvalue
2) Propene	4.15	42	905094	28.034	ng		100
3) Dichlorodifluoromethan...	4.31	85	969160	25.831	ng		100
4) Chloromethane	4.59	50	814263	23.971	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	493571	25.805	ng		100
6) Vinyl Chloride	5.01	62	653732	25.255	ng		100
7) 1,3-Butadiene	5.27	54	623310	28.591	ng		99
8) Bromomethane	5.71	94	380627	25.933	ng		100
9) Chloroethane	6.05	64	327486	25.232	ng		100
10) Ethanol	6.45	45	2075986	110.013	ng		100
11) Acetonitrile	6.69	41	1279004	24.735	ng		100
12) Acrolein	6.86	56	740907	54.627	ng		100
13) Acetone	7.07	58	1841219	117.357	ng		99
14) Trichlorofluoromethane	7.31	101	876128	25.446	ng		100
15) 2-Propanol (Isopropanol)	7.58	45	2728205	47.015	ng		100
16) Acrylonitrile	7.84	53	1584996	52.500	ng		100
17) 1,1-Dichloroethene	8.27	96	430358	26.404	ng		99
18) 2-Methyl-2-Propanol (t...	8.45	59	2327503	50.612	ng		100
19) Methylene Chloride	8.50	84	429944	25.639	ng		99
20) 3-Chloro-1-propene (Al...	8.66	41	1002542	27.852	ng		99
21) Trichlorotrifluoroethane	8.91	151	438787	26.480	ng		99
22) Carbon Disulfide	8.76	76	3119958	52.893	ng		100
23) trans-1,2-Dichloroethene	9.77	61	757724	27.363	ng		100
24) 1,1-Dichloroethane	10.02	63	868229	26.080	ng		100
25) Methyl tert-Butyl Ether	10.11	73	1372993	28.574	ng		100
26) Vinyl Acetate	10.28	86	394219	122.327	ng		100
27) 2-Butanone (MEK)	10.51	72	578916	53.409	ng		98
28) cis-1,2-Dichloroethene	11.04	61	719906	26.340	ng		99
29) Diisopropyl Ether	11.33	87	693531	49.675	ng	#	79
30) Ethyl Acetate	11.33	61	588603	66.229	ng		100
31) n-Hexane	11.32	57	842029	24.952	ng		100
32) Chloroform	11.38	83	799887	26.112	ng		100
34) Tetrahydrofuran (THF)	11.77	72	520373	49.363	ng		98
35) Ethyl tert-Butyl Ether	11.92	87	1051632	53.691	ng		99
36) 1,2-Dichloroethane	12.18	62	712225	26.103	ng		100
38) 1,1,1-Trichloroethane	12.46	97	754709	26.081	ng		100
39) Isopropyl Acetate	12.90	61	35541	No Calib	#		
40) 1-Butanol	12.92	56	15428	No Calib	#		
41) Benzene	12.93	78	1709823	24.494	ng		100
42) Carbon Tetrachloride	13.09	117	694461	25.806	ng		100
43) Cyclohexane	13.23	84	1257489	52.068	ng		99
44) tert-Amyl Methyl Ether	13.57	73	2491587	53.699	ng		99
45) 1,2-Dichloropropane	13.79	63	478068	25.395	ng		100
46) Bromodichloromethane	13.97	83	656269	26.589	ng		100
47) Trichloroethene	14.03	130	517178	22.213	ng		99
48) 1,4-Dioxane	14.00	88	365583	26.885	ng		99
49) 2,2,4-Trimethylpentane...	14.10	57	2265987	26.250	ng		99
50) Methyl Methacrylate	14.24	100	391488	53.777	ng		100

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212037.D Vial: 2
Acq On : 22 Dec 2020 1:50 Operator: LH
Sample : LCS2 R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12152004 (1/14)

Quant Time: Dec 22 07:46:00 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

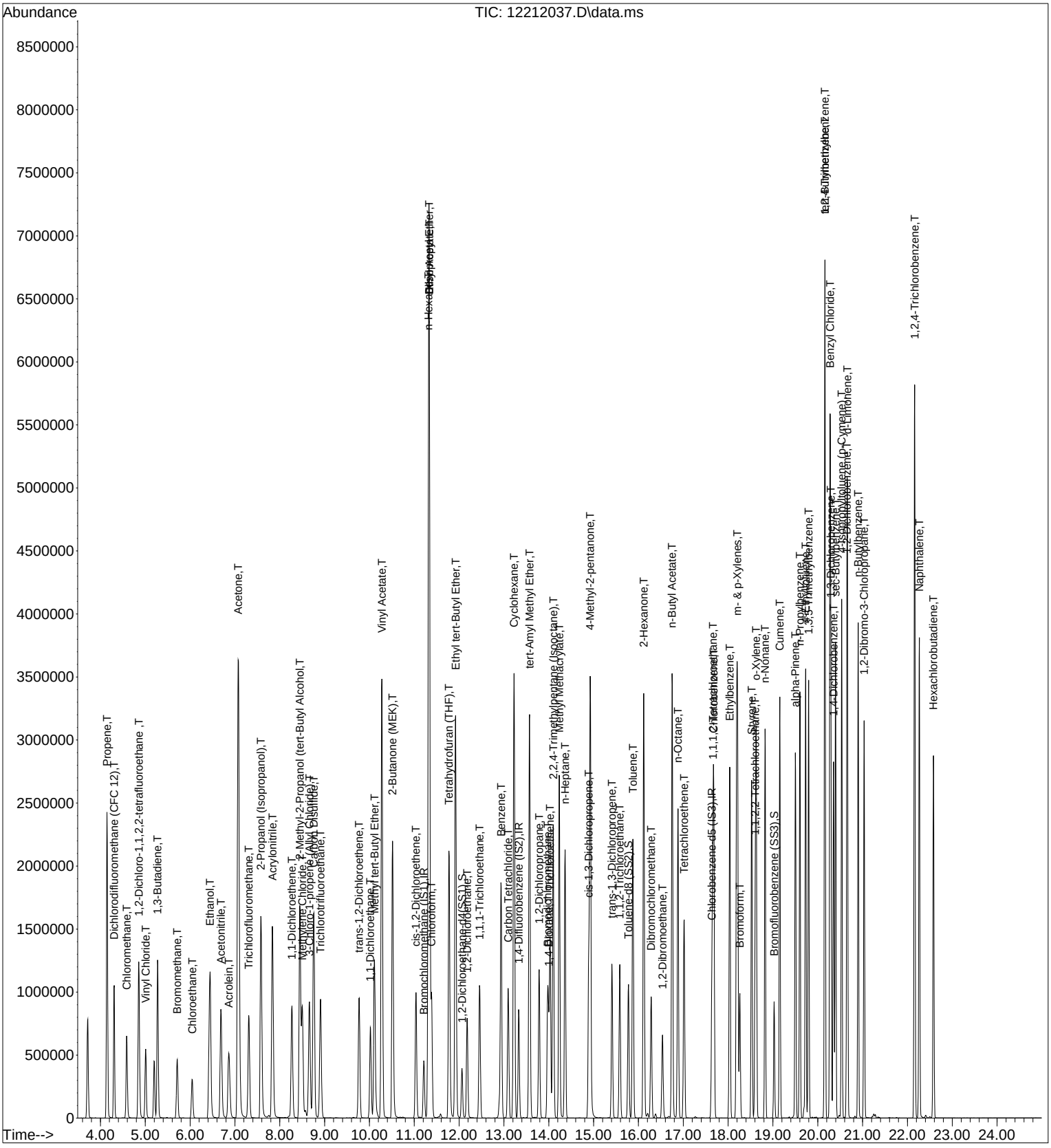
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	429791	25.987	ng		100
52) cis-1,3-Dichloropropene	14.89	75	729503	28.216	ng		100
53) 4-Methyl-2-pentanone	14.92	58	1004936	55.440	ng		98
54) trans-1,3-Dichloropropene	15.41	75	704031	26.810	ng		99
55) 1,1,2-Trichloroethane	15.58	97	440387	26.445	ng		100
58) Toluene	15.88	91	1782539	25.537	ng		100
59) 2-Hexanone	16.12	43	2920567	52.419	ng		99
60) Dibromochloromethane	16.28	129	610564	28.476	ng		100
61) 1,2-Dibromoethane	16.54	107	533097	27.757	ng		100
62) n-Butyl Acetate	16.75	43	3303268	54.008	ng		100
63) n-Octane	16.88	57	471460	26.470	ng		99
64) Tetrachloroethene	17.02	166	564563	26.268	ng		100
65) Chlorobenzene	17.68	112	1274359	25.759	ng		100
66) Ethylbenzene	18.04	91	2106927	26.670	ng		100
67) m- & p-Xylenes	18.20	91	3286857	52.849	ng		100
68) Bromoform	18.26	173	538528	30.007	ng		100
69) Styrene	18.53	104	1367333	28.621	ng		100
70) o-Xylene	18.63	91	1676379	26.740	ng		100
71) n-Nonane	18.82	43	1305022	26.442	ng		99
72) 1,1,2,2-Tetrachloroethane	18.60	83	767311	26.461	ng		100
74) Cumene	19.15	105	2195012	26.630	ng		100
75) alpha-Pinene	19.50	93	1112402	28.437	ng		100
76) n-Propylbenzene	19.60	91	2612991	27.119	ng		100
77) 3-Ethyltoluene	19.73	105	2224385	No Calib			
78) 4-Ethyltoluene	19.73	105	2224385	27.786	ng		100
79) 1,3,5-Trimethylbenzene	19.80	105	1808434	26.921	ng		100
80) alpha-Methylstyrene	19.93	118	1847	No Calib			
81) 2-Ethyltoluene	19.96	105	6151	No Calib			
82) 1,2,4-Trimethylbenzene	20.16	105	1858967	26.329	ng		100
83) n-Decane	20.25	57	2425	No Calib		#	
84) Benzyl Chloride	20.28	91	3287087	59.233	ng		100
85) 1,3-Dichlorobenzene	20.29	146	1149632	26.704	ng		100
86) 1,4-Dichlorobenzene	20.35	146	1167419	26.092	ng		100
87) sec-Butylbenzene	20.40	105	2441059	27.120	ng		100
88) 4-Isopropyltoluene (p-...	20.53	119	2204352	27.333	ng		100
89) 1,2,3-Trimethylbenzene	20.53	105	81290	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	1115370	26.819	ng		100
91) d-Limonene	20.66	68	679342	27.828	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.03	157	884083	55.679	ng		99
93) n-Undecane	21.34	57	2092	No Calib			
94) 1,2,4-Trichlorobenzene	22.16	180	1914960	52.678	ng		100
95) Naphthalene	22.27	128	3032821	26.792	ng		100
96) n-Dodecane	22.25	57	6190	No Calib		#	
97) Hexachlorobutadiene	22.58	225	577942	26.822	ng		100
98) Cyclohexanone	18.36	55	790	No Calib		#	
99) tert-Butylbenzene	20.16	119	1822764	27.072	ng		100
100) n-Butylbenzene	20.90	91	1978673	27.131	ng		100
101) 1,1,1,2-Tetrachloroethane	17.66	131	503157	26.672	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212037.D Vial: 2
Acq On : 22 Dec 2020 1:50 Operator: LH
Sample : LCS2 R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12152004 (1/14)

Quant Time: Dec 22 07:46:00 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212038.D Vial: 2
Acq On : 22 Dec 2020 2:24 Operator: LH
Sample : LCSD2 R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12152004 (1/14)

Quant Time: Dec 22 07:46:02 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	184890	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.33	114	803162	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	169555	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.07	65	317447	12.340	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.72%				
57) Toluene-d8 (SS2)	15.78	98	809650	12.943	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.52%				
73) Bromofluorobenzene (SS3)	19.03	174	297009	12.893	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.12%				
Target Compounds							Qvalue
2) Propene	4.15	42	897342	26.596	ng		100
3) Dichlorodifluoromethan...	4.31	85	970656	24.756	ng		100
4) Chloromethane	4.59	50	821620	23.145	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	514119	25.721	ng		99
6) Vinyl Chloride	5.01	62	697252	25.775	ng		100
7) 1,3-Butadiene	5.27	54	636256	27.927	ng		99
8) Bromomethane	5.71	94	392068	25.561	ng		100
9) Chloroethane	6.05	64	341162	25.152	ng		100
10) Ethanol	6.44	45	2137179	108.374	ng		100
11) Acetonitrile	6.69	41	1310122	24.245	ng		100
12) Acrolein	6.86	56	765617	54.016	ng		100
13) Acetone	7.07	58	1900258	115.900	ng		97
14) Trichlorofluoromethane	7.31	101	897715	24.949	ng		100
15) 2-Propanol (Isopropanol)	7.58	45	2783511	45.901	ng		100
16) Acrylonitrile	7.84	53	1641702	52.035	ng		100
17) 1,1-Dichloroethene	8.27	96	449278	26.376	ng		98
18) 2-Methyl-2-Propanol (t...	8.45	59	2360271	49.112	ng		99
19) Methylene Chloride	8.50	84	447383	25.529	ng		97
20) 3-Chloro-1-propene (Al...	8.66	41	1034694	27.506	ng		98
21) Trichlorotrifluoroethane	8.91	151	452862	26.152	ng		99
22) Carbon Disulfide	8.76	76	3269496	53.040	ng		100
23) trans-1,2-Dichloroethene	9.77	61	787073	27.198	ng		99
24) 1,1-Dichloroethane	10.02	63	901485	25.912	ng		100
25) Methyl tert-Butyl Ether	10.11	73	1423752	28.353	ng		100
26) Vinyl Acetate	10.28	86	414617	123.112	ng	#	95
27) 2-Butanone (MEK)	10.51	72	609191	53.780	ng		94
28) cis-1,2-Dichloroethene	11.04	61	750470	26.275	ng		99
29) Diisopropyl Ether	11.33	87	722871	49.546	ng	#	81
30) Ethyl Acetate	11.33	61	613887	66.098	ng		100
31) n-Hexane	11.32	57	877893	24.894	ng		100
32) Chloroform	11.38	83	828380	25.876	ng		100
34) Tetrahydrofuran (THF)	11.77	72	543887	49.370	ng		97
35) Ethyl tert-Butyl Ether	11.92	87	1095696	53.530	ng		99
36) 1,2-Dichloroethane	12.18	62	732402	25.686	ng		100
38) 1,1,1-Trichloroethane	12.46	97	773107	25.459	ng		100
39) Isopropyl Acetate	12.90	61	36923	No Calib		#	
40) 1-Butanol	12.92	56	15989	No Calib		#	
41) Benzene	12.93	78	1785483	24.373	ng		100
42) Carbon Tetrachloride	13.09	117	717105	25.393	ng		100
43) Cyclohexane	13.23	84	1319044	52.046	ng		98
44) tert-Amyl Methyl Ether	13.57	73	2595582	53.307	ng		99
45) 1,2-Dichloropropane	13.79	63	501712	25.396	ng		100
46) Bromodichloromethane	13.97	83	677830	26.169	ng		100
47) Trichloroethene	14.03	130	537291	21.990	ng		100
48) 1,4-Dioxane	14.00	88	381986	26.768	ng		98
49) 2,2,4-Trimethylpentane...	14.10	57	2365935	26.118	ng		99
50) Methyl Methacrylate	14.24	100	408391	53.458	ng		100

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212038.D Vial: 2
Acq On : 22 Dec 2020 2:24 Operator: LH
Sample : LCSD2 R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12152004 (1/14)

Quant Time: Dec 22 07:46:02 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

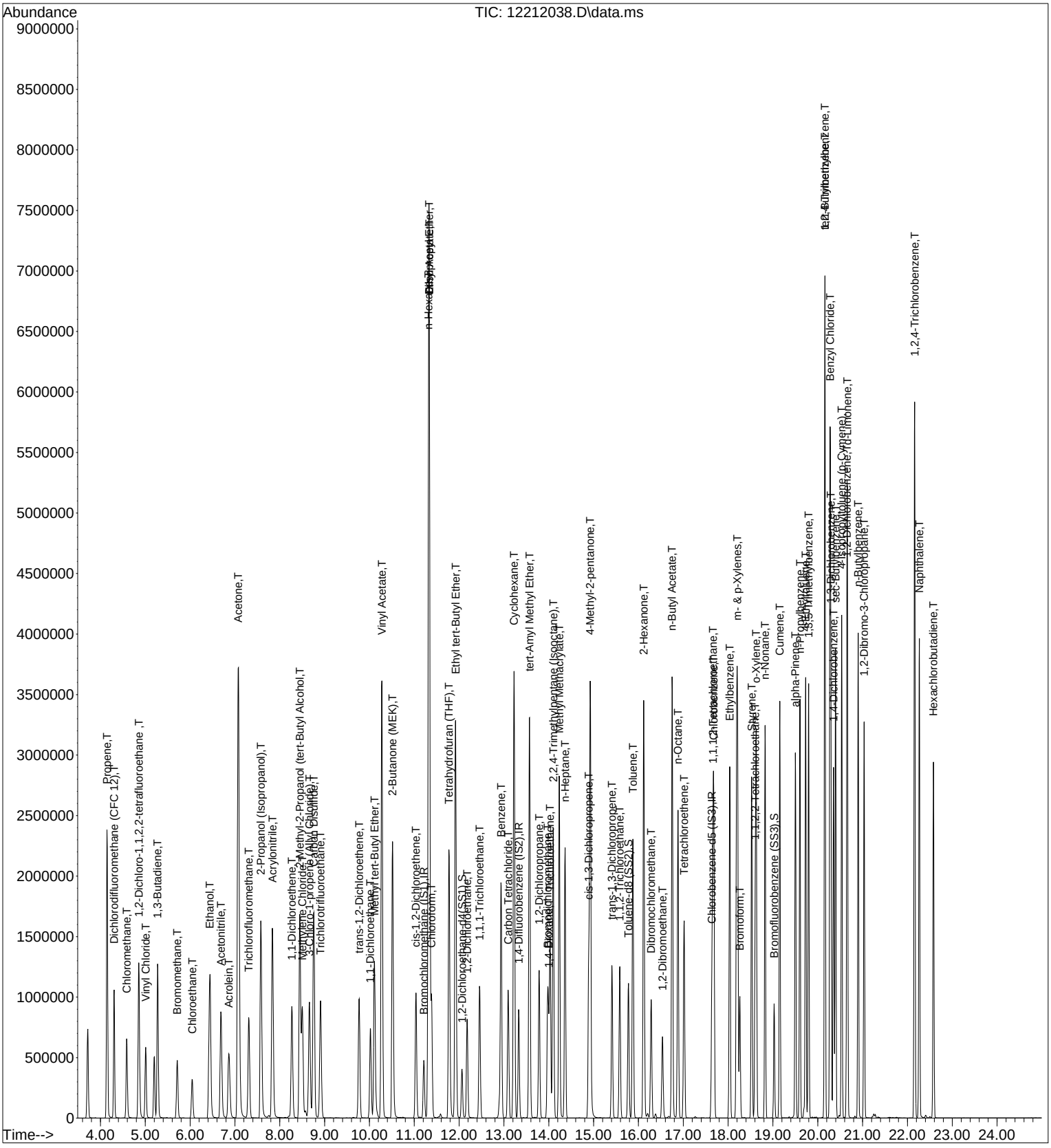
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	453344	26.121	ng		99
52) cis-1,3-Dichloropropene	14.89	75	764451	28.176	ng		100
53) 4-Methyl-2-pentanone	14.92	58	1041241	54.739	ng		97
54) trans-1,3-Dichloropropene	15.41	75	735121	26.676	ng		100
55) 1,1,2-Trichloroethane	15.58	97	458027	26.210	ng		99
58) Toluene	15.88	91	1845846	25.922	ng		100
59) 2-Hexanone	16.12	43	3012676	53.005	ng		99
60) Dibromochloromethane	16.28	129	625525	28.598	ng		100
61) 1,2-Dibromoethane	16.54	107	548750	28.008	ng		99
62) n-Butyl Acetate	16.75	43	3394664	54.407	ng		99
63) n-Octane	16.88	57	491938	27.075	ng		99
64) Tetrachloroethene	17.02	166	581788	26.535	ng		100
65) Chlorobenzene	17.68	112	1323628	26.227	ng		100
66) Ethylbenzene	18.04	91	2182114	27.077	ng		100
67) m- & p-Xylenes	18.20	91	3380539	53.283	ng		100
68) Bromoform	18.26	173	550318	30.059	ng		100
69) Styrene	18.53	104	1407058	28.871	ng		100
70) o-Xylene	18.63	91	1726826	27.001	ng		100
71) n-Nonane	18.82	43	1345180	26.718	ng		99
72) 1,1,2,2-Tetrachloroethane	18.60	83	794672	26.864	ng		100
74) Cumene	19.15	105	2251726	26.779	ng		99
75) alpha-Pinene	19.50	93	1150757	28.837	ng		100
76) n-Propylbenzene	19.60	91	2686884	27.335	ng		100
77) 3-Ethyltoluene	19.73	105	2279113	No Calib			
78) 4-Ethyltoluene	19.73	105	2279113	27.907	ng		99
79) 1,3,5-Trimethylbenzene	19.80	105	1860537	27.151	ng		99
80) alpha-Methylstyrene	19.93	118	1832	No Calib			
81) 2-Ethyltoluene	19.97	105	6404	No Calib			
82) 1,2,4-Trimethylbenzene	20.16	105	1903436	26.427	ng		99
83) n-Decane	20.25	57	2572	No Calib		#	
84) Benzyl Chloride	20.28	91	3389575	59.875	ng		100
85) 1,3-Dichlorobenzene	20.29	146	1181474	26.902	ng		100
86) 1,4-Dichlorobenzene	20.35	146	1196218	26.208	ng		100
87) sec-Butylbenzene	20.40	105	2505758	27.289	ng		100
88) 4-Isopropyltoluene (p-...	20.53	119	2273452	27.634	ng		100
89) 1,2,3-Trimethylbenzene	20.53	105	81557	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	1141068	26.896	ng		100
91) d-Limonene	20.66	68	707854	28.424	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.03	157	907882	56.049	ng		98
93) n-Undecane	21.35	57	2279	No Calib			
94) 1,2,4-Trichlorobenzene	22.16	180	1960302	52.861	ng		100
95) Naphthalene	22.27	128	3111060	26.941	ng		100
96) n-Dodecane	22.26	57	6268	No Calib		#	
97) Hexachlorobutadiene	22.58	225	591249	26.898	ng		100
98) Cyclohexanone	18.35	55	804	No Calib			
99) tert-Butylbenzene	20.16	119	1880779	27.382	ng		100
100) n-Butylbenzene	20.90	91	2024503	27.212	ng		100
101) 1,1,1,2-Tetrachloroethane	17.66	131	517466	26.889	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212038.D Vial: 2
Acq On : 22 Dec 2020 2:24 Operator: LH
Sample : LCSD2 R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12152004 (1/14)

Quant Time: Dec 22 07:46:02 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 17:12:18 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	185242	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.32	114	802710	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	169431	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	314699	12.210	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.68%				
57) Toluene-d8 (SS2)	15.77	98	809442	12.949	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.60%				
73) Bromofluorobenzene (SS3)	19.03	174	291590	12.667	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.36%				
Target Compounds							Qvalue
2) Propene	4.16	42	37110m	1.098	ng		
3) Dichlorodifluoromethan...	4.31	85	172417	4.389	ng		100
4) Chloromethane	4.60	50	2542	0.071	ng		86
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	1725	0.086	ng		92
6) Vinyl Chloride	5.01	62	8113	0.299	ng		96
7) 1,3-Butadiene	5.27	54	2097	0.092	ng	#	83
8) Bromomethane	5.71	94	777	0.051	ng		99
9) Chloroethane	0.00	64	0	N.D.	d		
10) Ethanol	6.41	45	29649m	1.501	ng		
11) Acetonitrile	6.69	41	22819	0.421	ng		89
12) Acrolein	6.89	56	15514	1.092	ng		99
13) Acetone	7.08	58	171824m	10.460	ng		
14) Trichlorofluoromethane	7.30	101	47650	1.322	ng		99
15) 2-Propanol (Isopropanol)	7.59	45	23976	0.395	ng	#	58
16) Acrylonitrile	7.84	53	1381	N.D.			
17) 1,1-Dichloroethene	8.26	96	34209	2.005	ng		98
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	8.47	84	1317	0.075	ng		93
20) 3-Chloro-1-propene (Al...	8.64	41	525	N.D.			
21) Trichlorotrifluoroethane	8.90	151	400910	23.108	ng		100
22) Carbon Disulfide	8.75	76	959222	15.532	ng		100
23) trans-1,2-Dichloroethene	9.75	61	65904	2.273	ng		99
24) 1,1-Dichloroethane	10.01	63	35400	1.016	ng		100
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	10.23	86	20193	5.984	ng	#	1
27) 2-Butanone (MEK)	10.53	72	35143	3.097	ng		99
28) cis-1,2-Dichloroethene	11.02	61	2644538	92.414	ng		100
29) Diisopropyl Ether	0.00	87	0	N.D.	d		
30) Ethyl Acetate	0.00	61	0	N.D.	d		
31) n-Hexane	0.00	57	0	N.D.	d		
32) Chloroform	11.37	83	862339	26.886	ng		100
34) Tetrahydrofuran (THF)	11.83	72	1645	0.149	ng	#	38
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.18	62	1214	N.D.			
38) 1,1,1-Trichloroethane	12.46	97	39383	1.298	ng		98
39) Isopropyl Acetate	12.92	61	303	No Calib	#		
40) 1-Butanol	12.92	56	18108	No Calib	#		
41) Benzene	12.94	78	9971	0.136	ng		95
42) Carbon Tetrachloride	13.09	117	58554	2.075	ng		99
43) Cyclohexane	13.22	84	2106	0.083	ng	#	80
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d		
45) 1,2-Dichloropropane	13.78	63	407	N.D.			
46) Bromodichloromethane	13.98	83	1661m	0.064	ng		
47) Trichloroethene	14.03	130	2912499	119.269	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	14.09	100	107	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 17:12:18 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

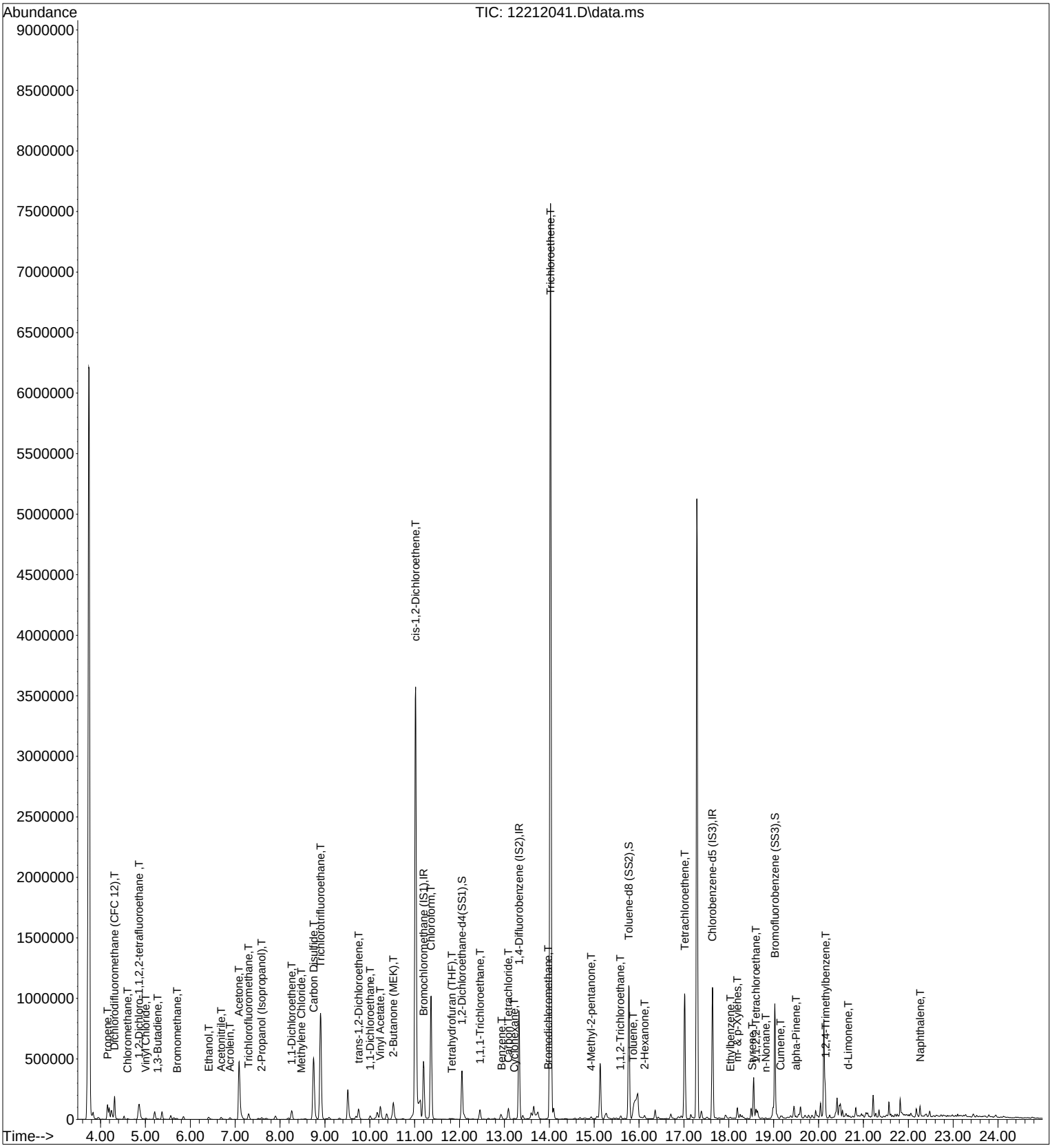
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
51) n-Heptane	14.36	71	524	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	14.94	58	4064	0.214 ng	#	62
54) trans-1,3-Dichloropropene	15.44	75	125	N.D.		
55) 1,1,2-Trichloroethane	15.58	97	3232	0.185 ng		88
58) Toluene	15.87	91	12025	0.169 ng		98
59) 2-Hexanone	16.12	43	15609	0.275 ng		99
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	16.88	57	698	N.D.		
64) Tetrachloroethene	17.02	166	369346	16.858 ng		99
65) Chlorobenzene	17.67	112	782	N.D.		
66) Ethylbenzene	18.04	91	7792	0.097 ng		100
67) m- & p-Xylenes	18.19	91	5252	0.083 ng		98
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.52	104	2867	0.059 ng	#	72
70) o-Xylene	18.62	91	3008	N.D.		
71) n-Nonane	18.82	43	3285	0.065 ng		86
72) 1,1,2,2-Tetrachloroethane	18.60	83	33557	1.135 ng		98
74) Cumene	19.15	105	5341	0.064 ng		97
75) alpha-Pinene	19.50	93	3416	0.086 ng	#	1
76) n-Propylbenzene	19.60	91	2721	N.D.		
77) 3-Ethyltoluene	19.73	105	1505	No Calib		
78) 4-Ethyltoluene	19.73	105	1505	N.D.		
79) 1,3,5-Trimethylbenzene	19.80	105	2236	N.D.		
80) alpha-Methylstyrene	19.93	118	3914	No Calib		
81) 2-Ethyltoluene	19.96	105	2071	No Calib		
82) 1,2,4-Trimethylbenzene	20.16	105	4790	0.067 ng		95
83) n-Decane	20.25	57	6297	No Calib	#	
84) Benzyl Chloride	20.27	91	1697	N.D.		
85) 1,3-Dichlorobenzene	20.29	146	471	N.D.		
86) 1,4-Dichlorobenzene	20.35	146	1109	N.D.		
87) sec-Butylbenzene	20.40	105	1226	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	20.53	105	3255	No Calib	#	
90) 1,2-Dichlorobenzene	20.65	146	468	N.D.		
91) d-Limonene	20.66	68	3523	0.142 ng		76
92) 1,2-Dibromo-3-Chloropr...	20.96	157	527	N.D.		
93) n-Undecane	21.35	57	15878	No Calib		
94) 1,2,4-Trichlorobenzene	22.16	180	1153	N.D.		
95) Naphthalene	22.27	128	26653	0.231 ng		96
96) n-Dodecane	22.26	57	15542	No Calib	#	
97) Hexachlorobutadiene	22.58	225	632	N.D.		
98) Cyclohexanone	18.33	55	5283	No Calib		
99) tert-Butylbenzene	0.00	119	0	N.D. d		
100) n-Butylbenzene	0.00	91	0	N.D. d		
101) 1,1,1,2-Tetrachloroethane	17.66	131	173	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 17:12:18 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 17:12:18 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	185242	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.32	114	802710	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	169431	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	314699	12.210	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.68%				
57) Toluene-d8 (SS2)	15.77	98	809442	12.949	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.60%				
73) Bromofluorobenzene (SS3)	19.03	174	291590	12.667	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.36%				
Target Compounds							Qvalue
2) Propene	4.16	42	37110m	1.098	ng		
3) Dichlorodifluoromethan...	4.31	85	172417	4.389	ng		100
4) Chloromethane	4.60	50	2542	0.071	ng		86
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	1725	0.086	ng		92
6) Vinyl Chloride	5.01	62	8113	0.299	ng		96
7) 1,3-Butadiene	5.27	54	2097	0.092	ng	#	83
8) Bromomethane	5.71	94	777	0.051	ng		99
10) Ethanol	6.41	45	29649m	1.501	ng		
11) Acetonitrile	6.69	41	22819	0.421	ng		89
12) Acrolein	6.89	56	15514	1.092	ng		99
13) Acetone	7.08	58	171824m	10.460	ng		
14) Trichlorofluoromethane	7.30	101	47650	1.322	ng		99
15) 2-Propanol (Isopropanol)	7.59	45	23976	0.395	ng	#	58
17) 1,1-Dichloroethene	8.26	96	34209	2.005	ng		98
19) Methylene Chloride	8.47	84	1317	0.075	ng		93
21) Trichlorotrifluoroethane	8.90	151	400910	23.108	ng		100
22) Carbon Disulfide	8.75	76	959222	15.532	ng		100
23) trans-1,2-Dichloroethene	9.75	61	65904	2.273	ng		99
24) 1,1-Dichloroethane	10.01	63	35400	1.016	ng		100
26) Vinyl Acetate	10.23	86	20193	5.984	ng	#	1
27) 2-Butanone (MEK)	10.53	72	35143	3.097	ng		99
28) cis-1,2-Dichloroethene	11.02	61	2644538	92.414	ng		100
32) Chloroform	11.37	83	862339	26.886	ng		100
34) Tetrahydrofuran (THF)	11.83	72	1645	0.149	ng	#	38
38) 1,1,1-Trichloroethane	12.46	97	39383	1.298	ng		98
41) Benzene	12.94	78	9971	0.136	ng		95
42) Carbon Tetrachloride	13.09	117	58554	2.075	ng		99
43) Cyclohexane	13.22	84	2106	0.083	ng	#	80
46) Bromodichloromethane	13.98	83	1661m	0.064	ng		
47) Trichloroethene	14.03	130	2912499	119.269	ng		100
53) 4-Methyl-2-pentanone	14.94	58	4064	0.214	ng	#	62
55) 1,1,2-Trichloroethane	15.58	97	3232	0.185	ng		88
58) Toluene	15.87	91	12025	0.169	ng		98
59) 2-Hexanone	16.12	43	15609	0.275	ng		99
64) Tetrachloroethene	17.02	166	369346	16.858	ng		99
66) Ethylbenzene	18.04	91	7792	0.097	ng		100
67) m- & p-Xylenes	18.19	91	5252	0.083	ng		98
69) Styrene	18.52	104	2867	0.059	ng	#	72
71) n-Nonane	18.82	43	3285	0.065	ng		86
72) 1,1,2,2-Tetrachloroethane	18.60	83	33557	1.135	ng		98
74) Cumene	19.15	105	5341	0.064	ng		97
75) alpha-Pinene	19.50	93	3416	0.086	ng	#	1
82) 1,2,4-Trimethylbenzene	20.16	105	4790	0.067	ng		95
91) d-Limonene	20.66	68	3523	0.142	ng		76
95) Naphthalene	22.27	128	26653	0.231	ng		96

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 17:12:18 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

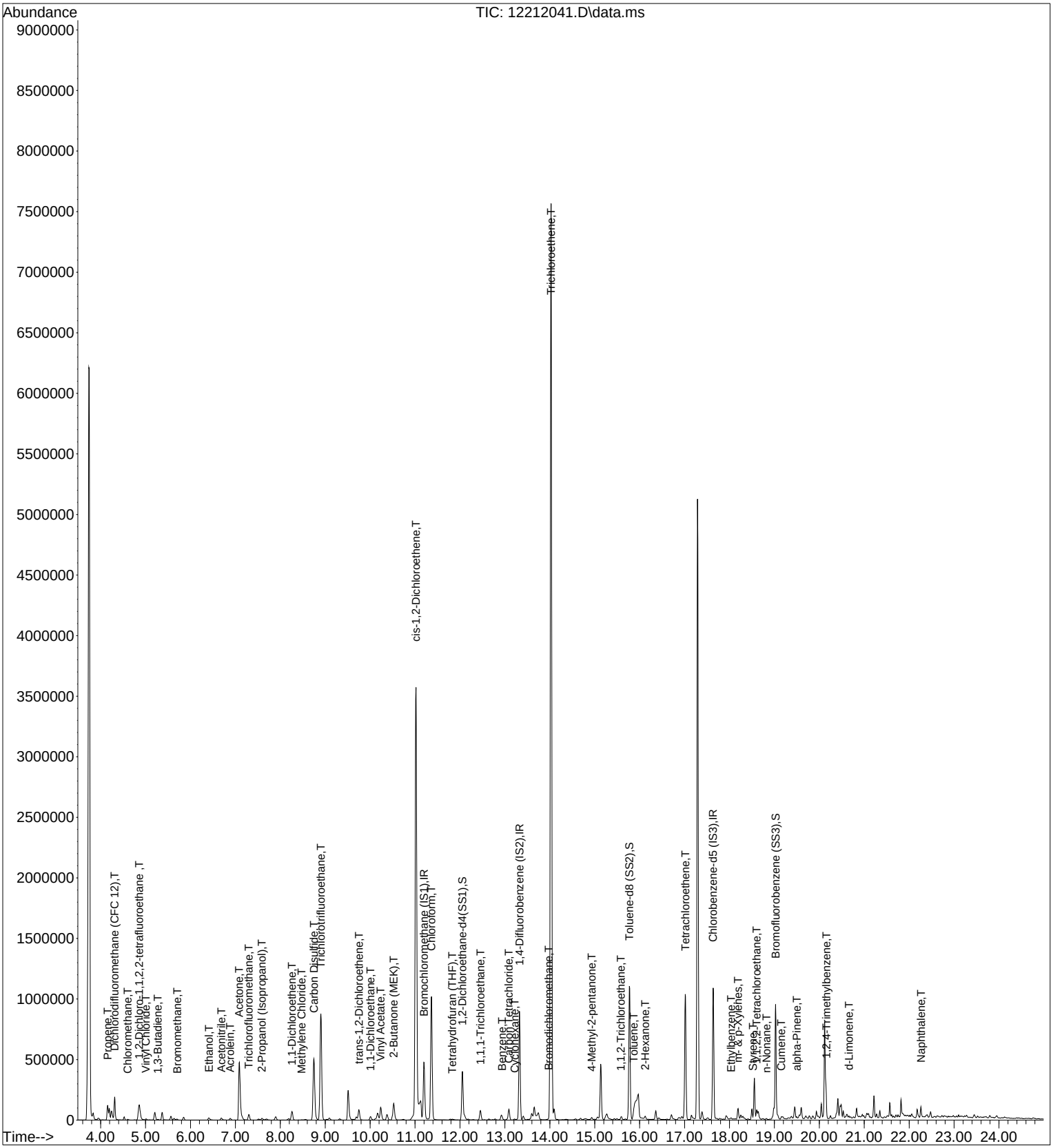
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

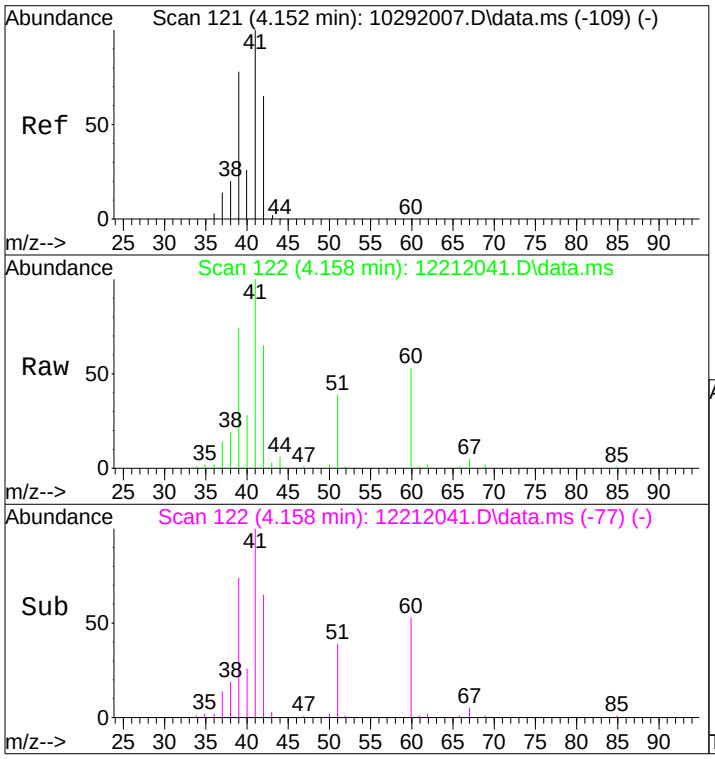
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 17:12:18 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

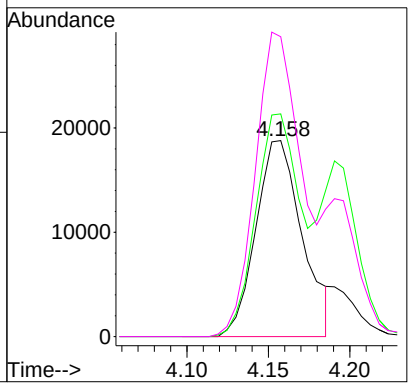


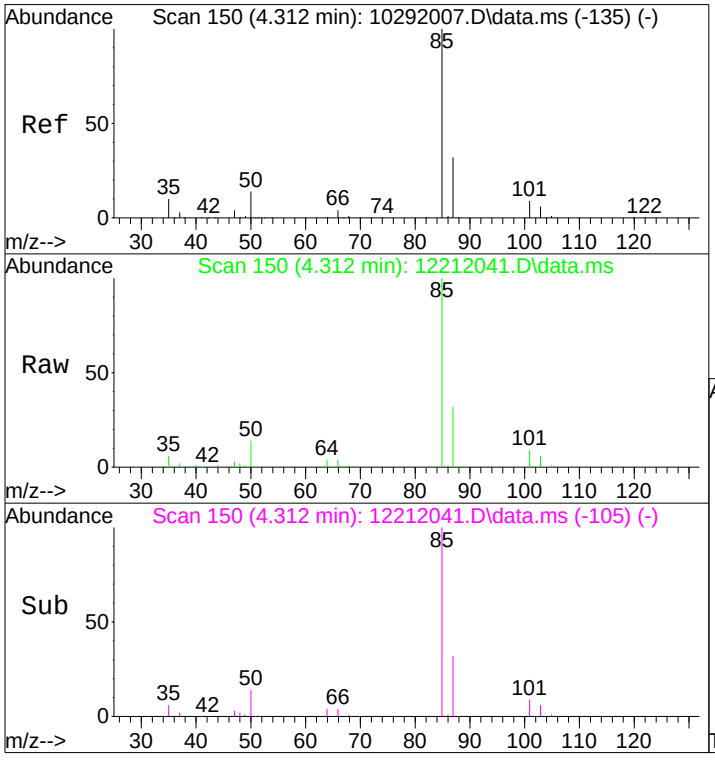


#2
Propene
Concen: 1.10 ng m
RT: 4.16 min Scan# 122
Delta R.T. -0.000 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 42 Resp: 37110

Ion	Ratio	Lower	Upper
42	100		
39	106.4	94.2	134.2
41	206.7	134.5	174.5#

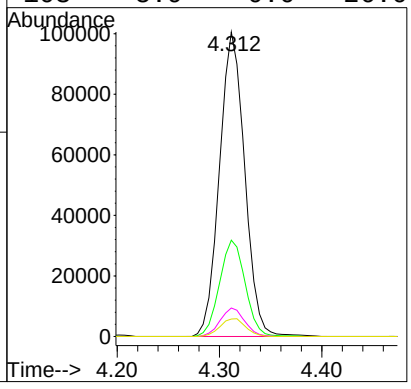


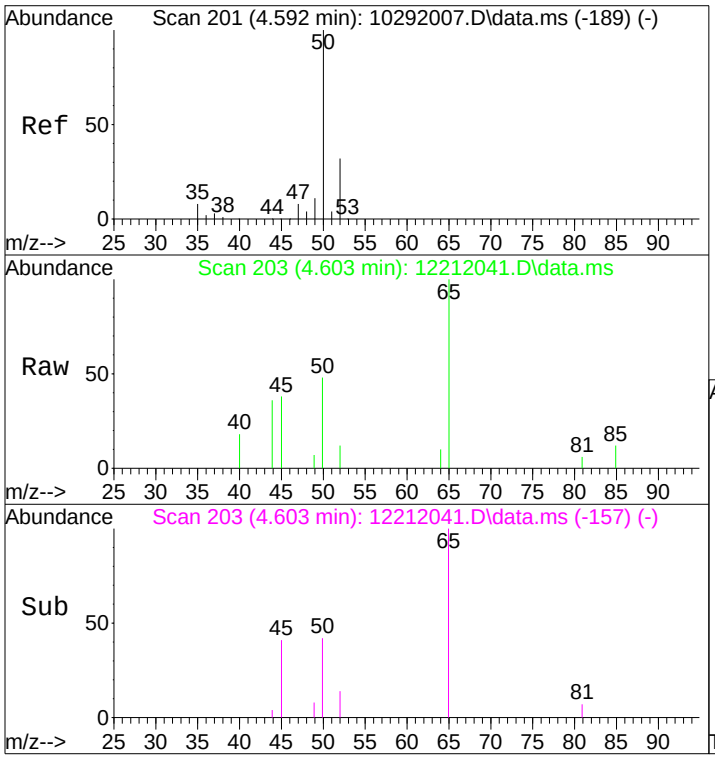


#3
Dichlorodifluoromethane (CFC 12)
Concen: 4.39 ng
RT: 4.31 min Scan# 150
Delta R.T. -0.000 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 85 Resp: 172417

Ion	Ratio	Lower	Upper
85	100		
87	32.1	12.2	52.2
101	9.1	0.0	29.2
103	5.9	0.0	26.0

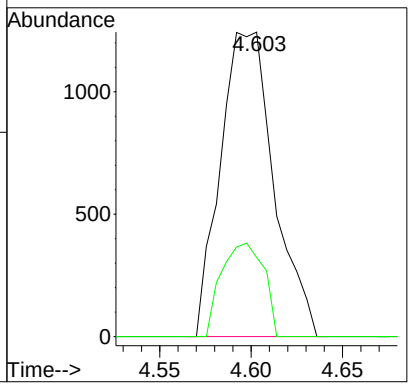


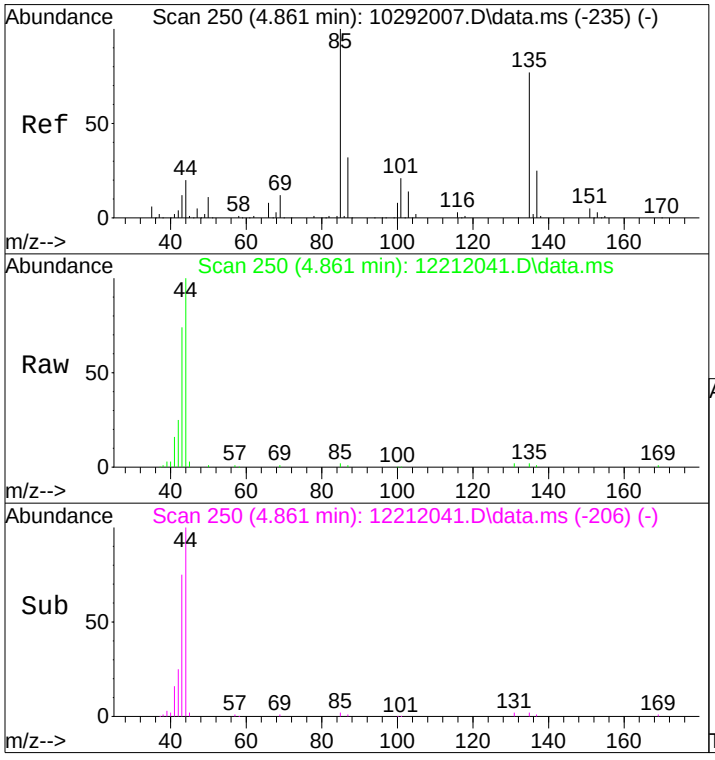


#4
Chloromethane
Concen: 0.07 ng
RT: 4.60 min Scan# 203
Delta R.T. 0.005 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 50 Resp: 2542

Ion	Ratio	Lower	Upper
50	100		
52	24.2	12.1	52.1

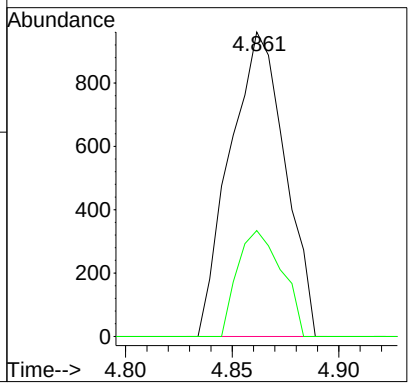


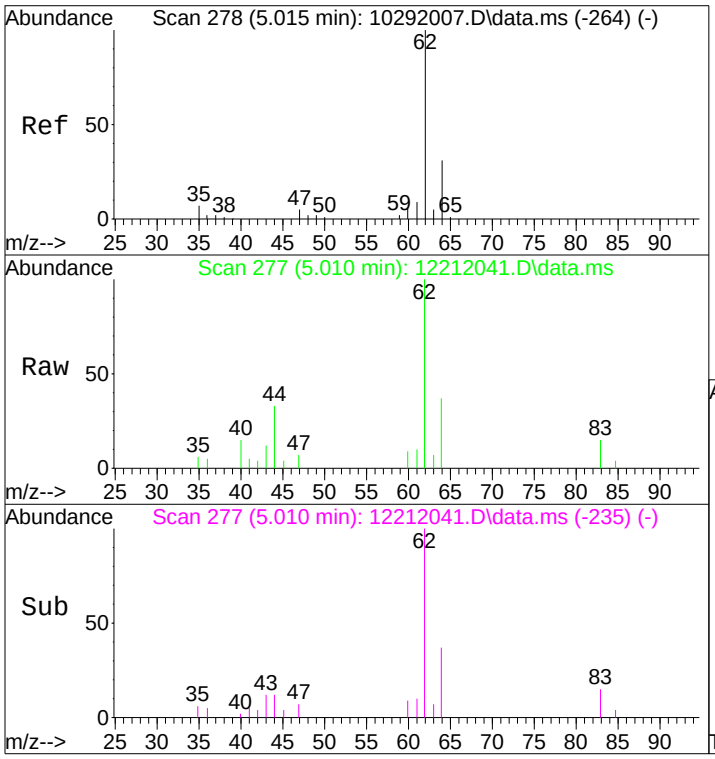


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.09 ng
RT: 4.86 min Scan# 250
Delta R.T. -0.006 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion:135 Resp: 1725

Ion	Ratio	Lower	Upper
135	100		
137	28.0	12.2	52.2

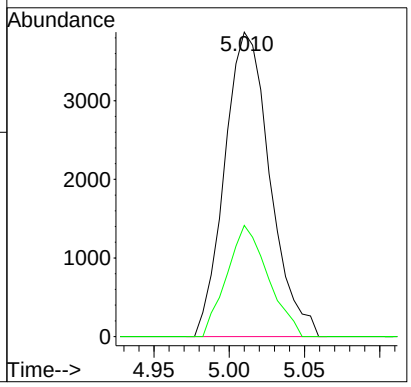


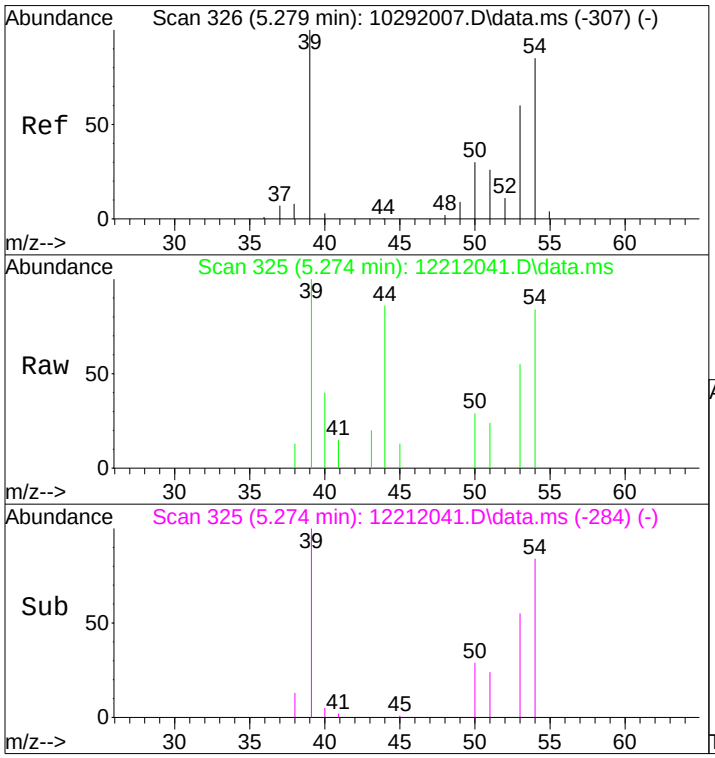


#6
Vinyl Chloride
Concen: 0.30 ng
RT: 5.01 min Scan# 277
Delta R.T. -0.017 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 62 Resp: 8113

Ion	Ratio	Lower	Upper
62	100		
64	33.2	11.2	51.2

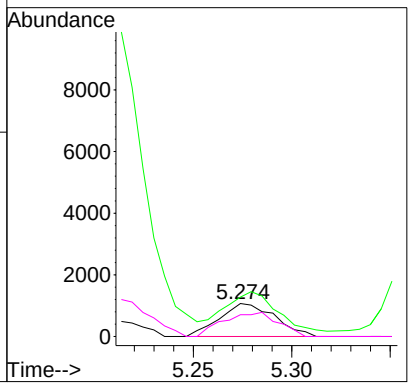


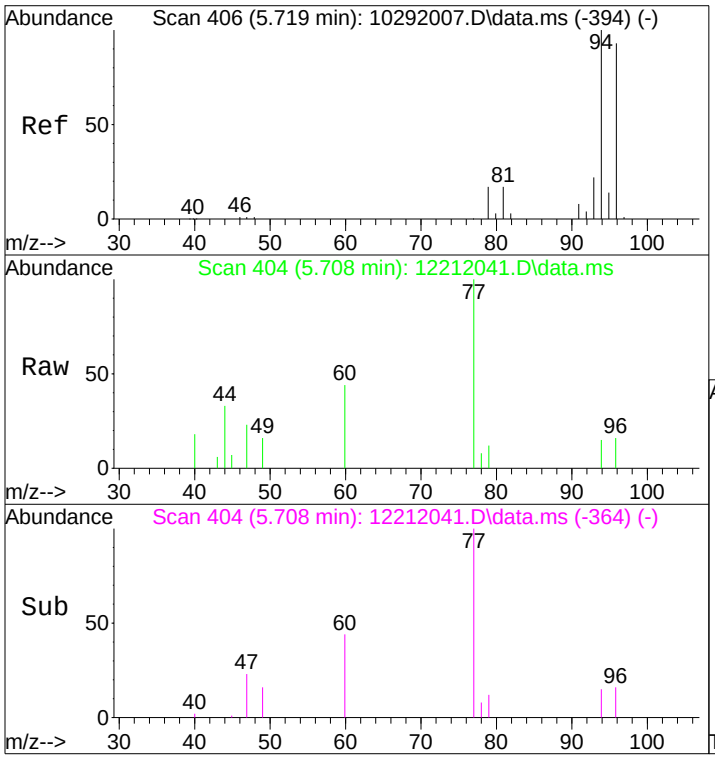


#7
1,3-Butadiene
Concen: 0.09 ng
RT: 5.27 min Scan# 325
Delta R.T. -0.022 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 54 Resp: 2097

Ion	Ratio	Lower	Upper
54	100		
39	145.8	97.2	137.2#
53	72.2	51.3	91.3

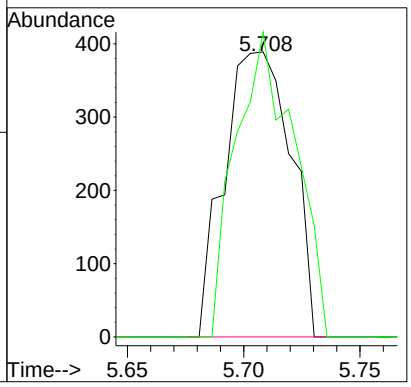


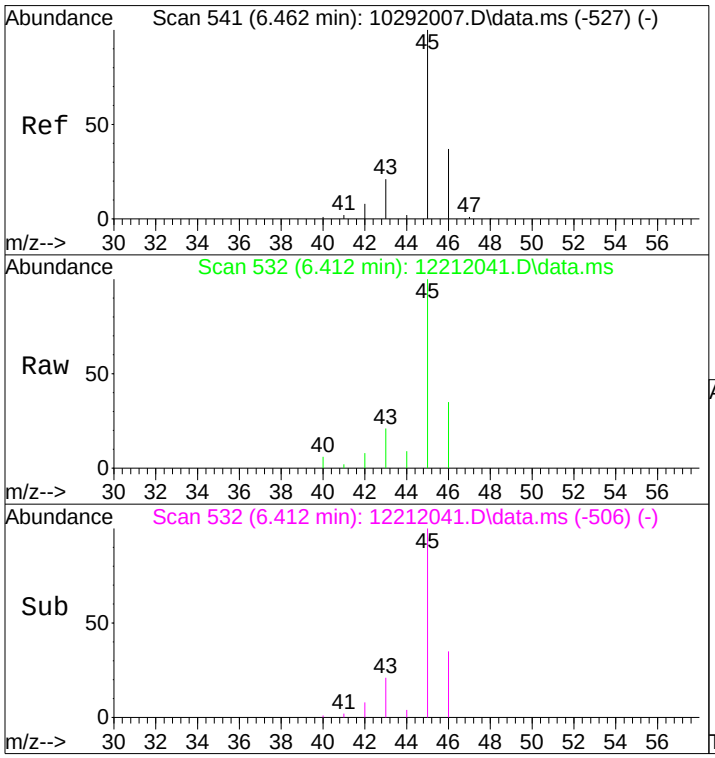


#8
Bromomethane
Concen: 0.05 ng
RT: 5.71 min Scan# 404
Delta R.T. -0.028 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 94 Resp: 777

Ion	Ratio	Lower	Upper
94	100		
96	94.3	73.5	113.5

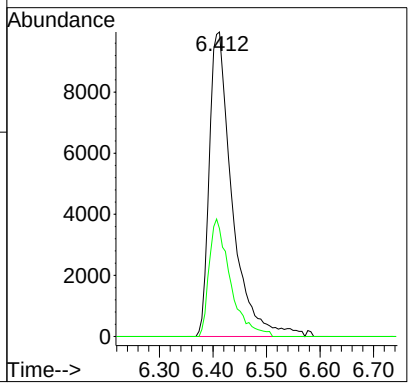


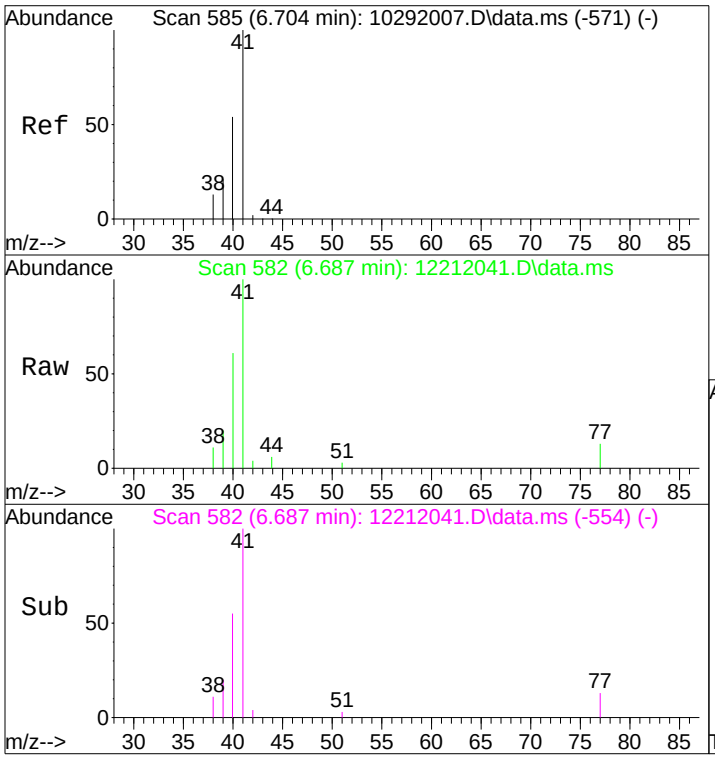


#10
Ethanol
Concen: 1.50 ng m
RT: 6.41 min Scan# 532
Delta R.T. -0.105 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 45 Resp: 29649

Ion	Ratio	Lower	Upper
45	100		
46	0.0	17.0	57.0#

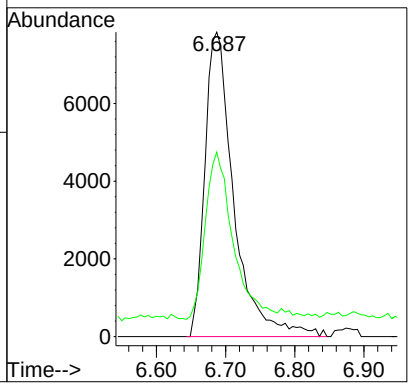


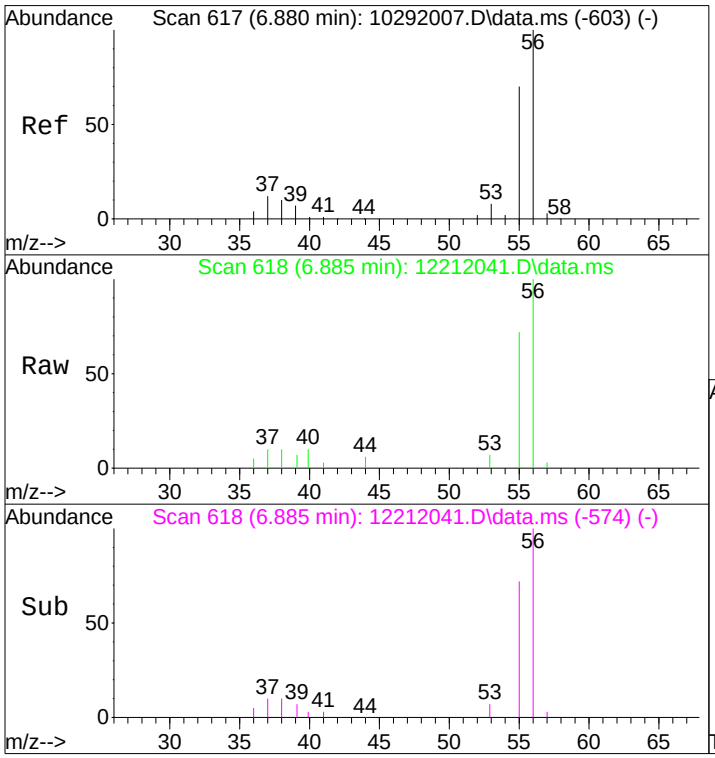


#11
Acetonitrile
Concen: 0.42 ng
RT: 6.69 min Scan# 582
Delta R.T. -0.044 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 41 Resp: 22819

Ion	Ratio	Lower	Upper
41	100		
40	61.5	33.6	73.6

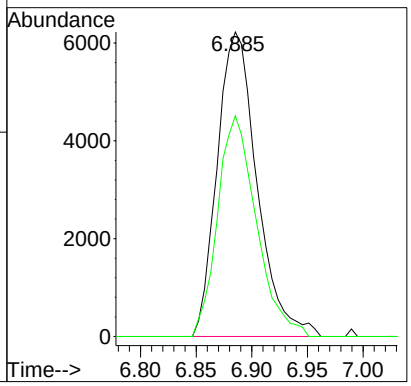


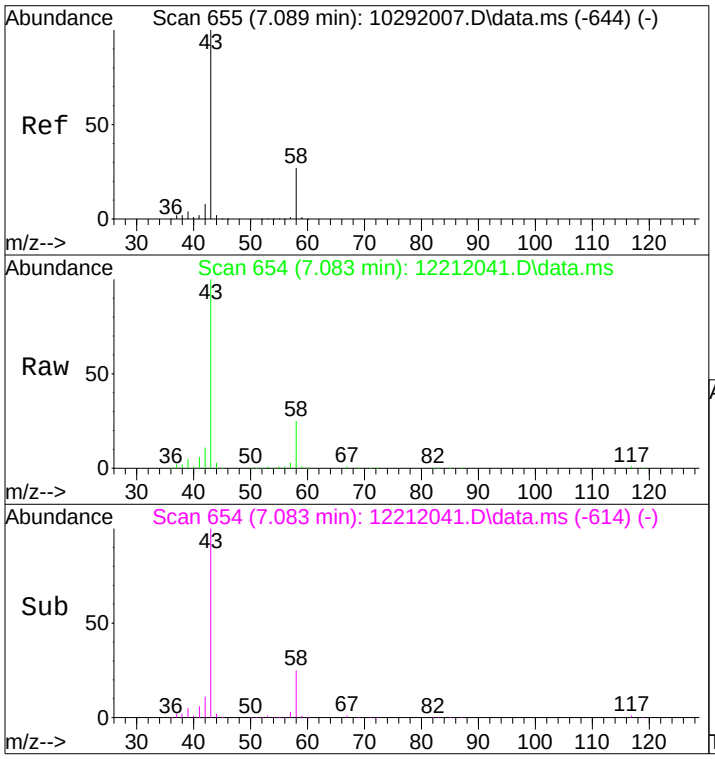


#12
Acrolein
Concen: 1.09 ng
RT: 6.89 min Scan# 618
Delta R.T. -0.006 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 56 Resp: 15514

Ion	Ratio	Lower	Upper
56	100		
55	70.3	50.7	90.7

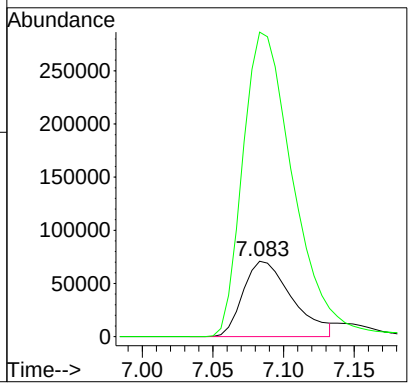


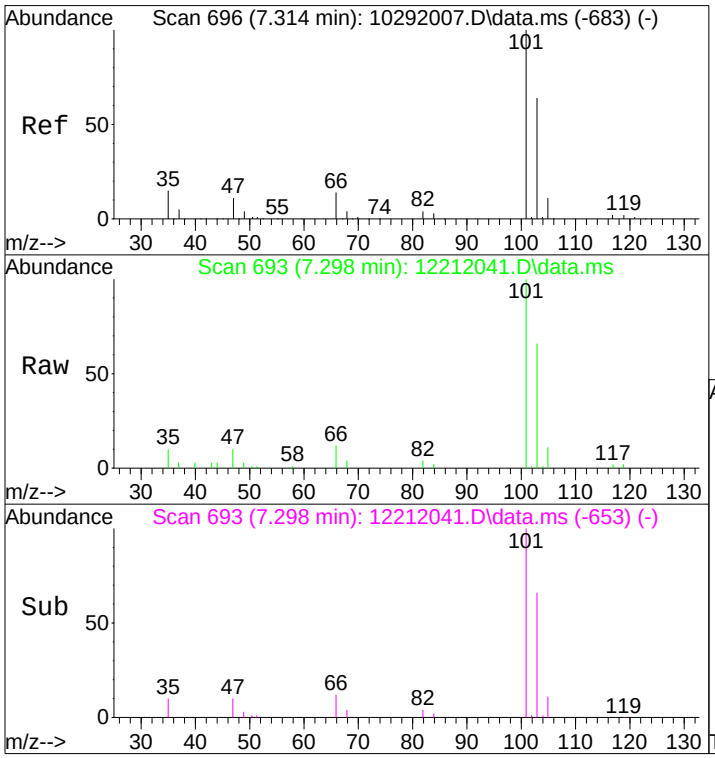


#13
Acetone
Concen: 10.46 ng m
RT: 7.08 min Scan# 654
Delta R.T. -0.028 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 58 Resp: 171824

Ion	Ratio	Lower	Upper
58	100		
43	421.9	362.5	422.5

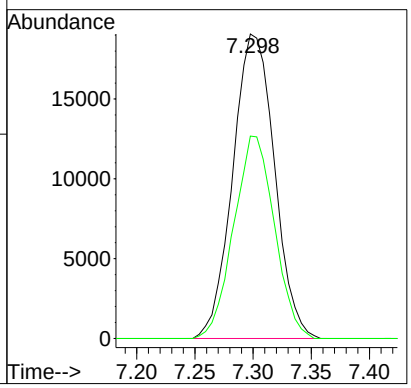


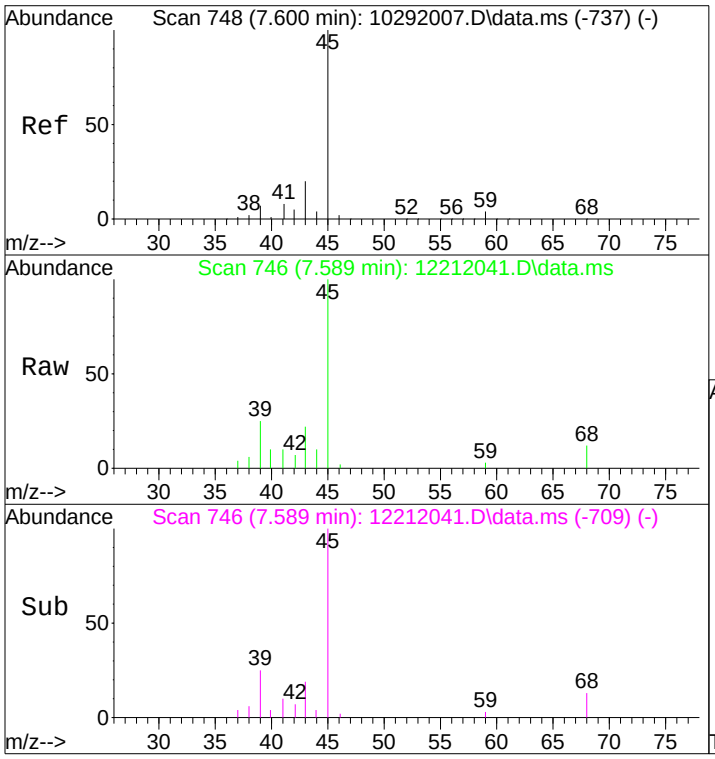


#14
Trichlorofluoromethane
Concen: 1.32 ng
RT: 7.30 min Scan# 693
Delta R.T. -0.028 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion:101 Resp: 47650

Ion	Ratio	Lower	Upper
101	100		
103	64.8	44.4	84.4

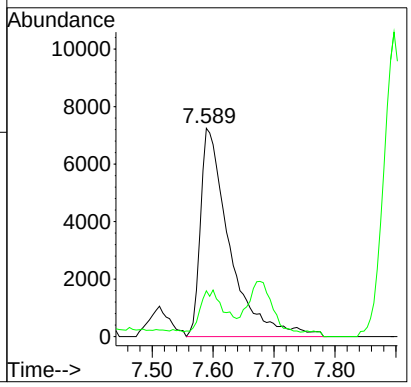


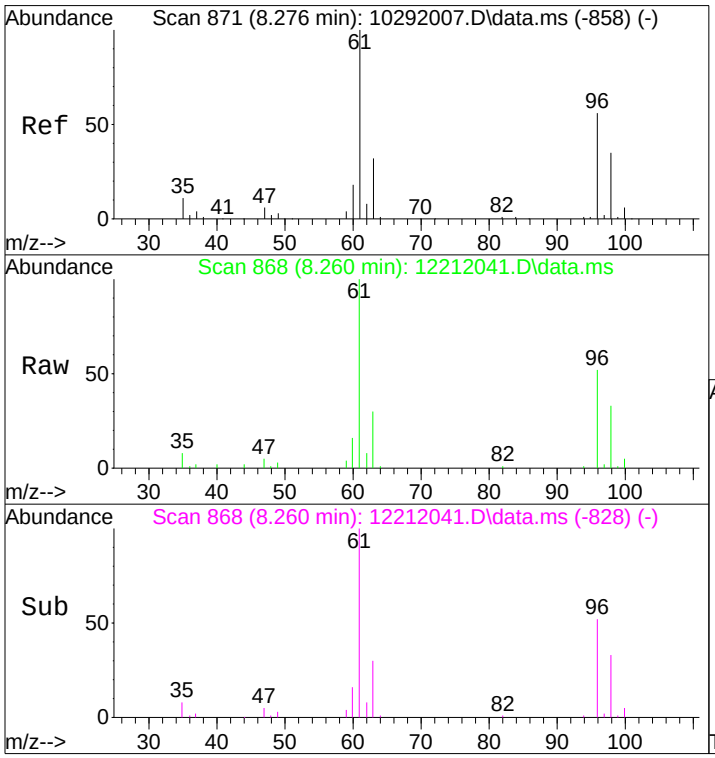


#15
2-Propanol (Isopropanol)
Concen: 0.39 ng
RT: 7.59 min Scan# 746
Delta R.T. -0.044 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 45 Resp: 23976

Ion	Ratio	Lower	Upper
45	100		
43	0.0	0.0	38.6

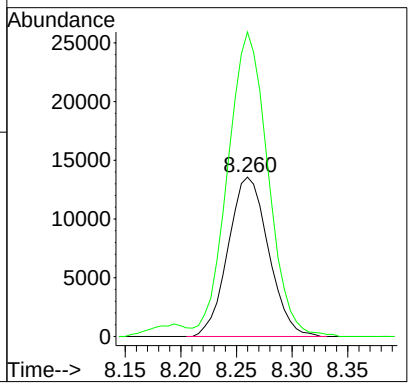


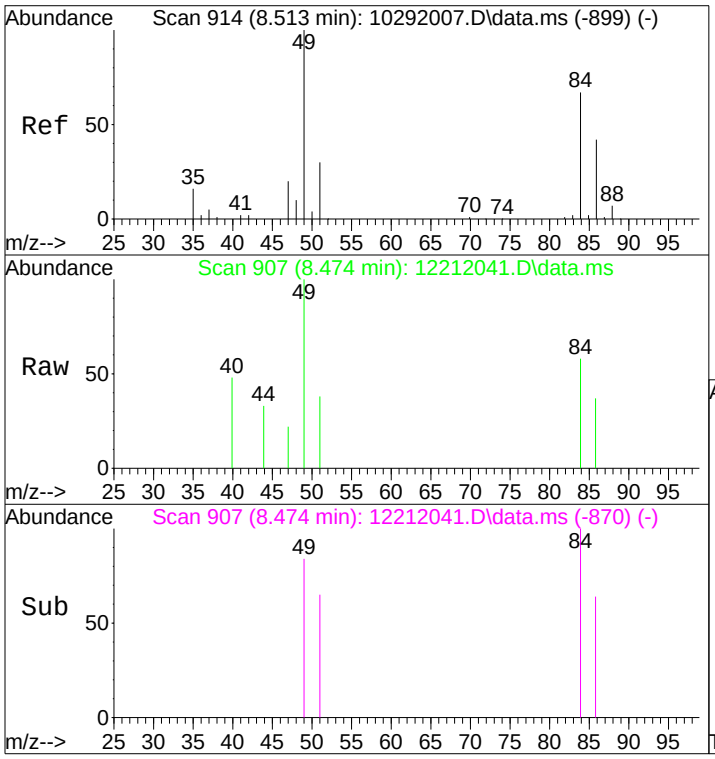


#17
1,1-Dichloroethene
Concen: 2.00 ng
RT: 8.26 min Scan# 868
Delta R.T. -0.028 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 96 Resp: 34209

Ion	Ratio	Lower	Upper
96	100		
61	190.5	173.9	213.9

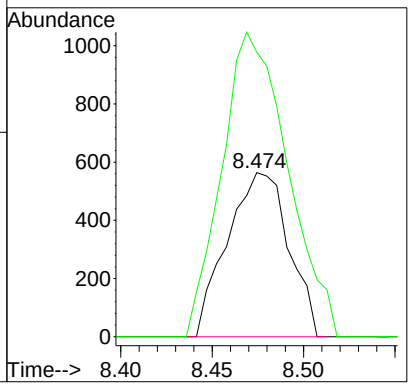


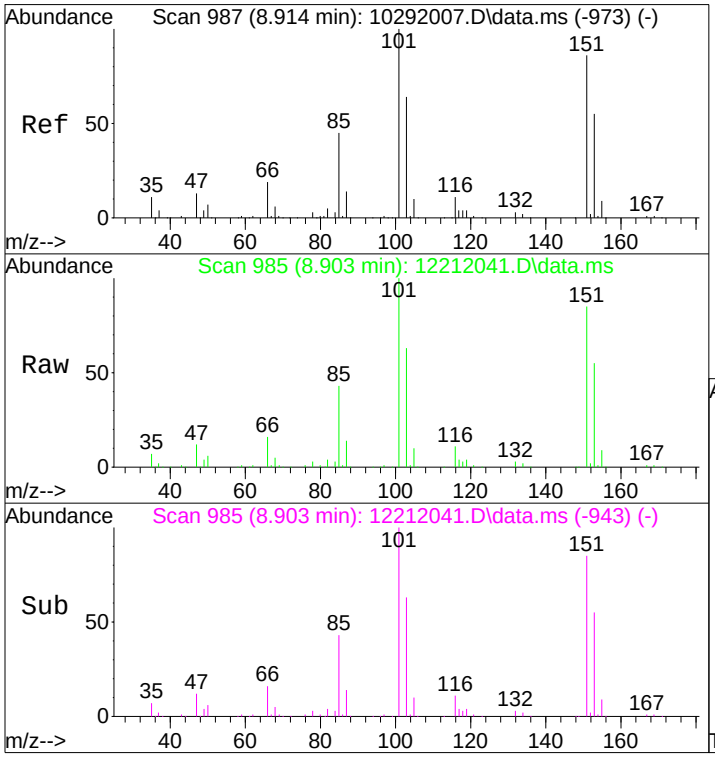


#19
Methylene Chloride
Concen: 0.08 ng
RT: 8.47 min Scan# 907
Delta R.T. -0.044 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 84 Resp: 1317

Ion	Ratio	Lower	Upper
84	100		
49	199.5	164.9	214.9

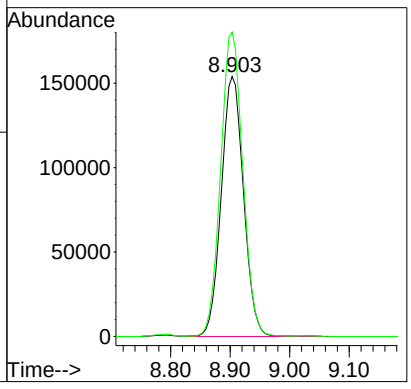


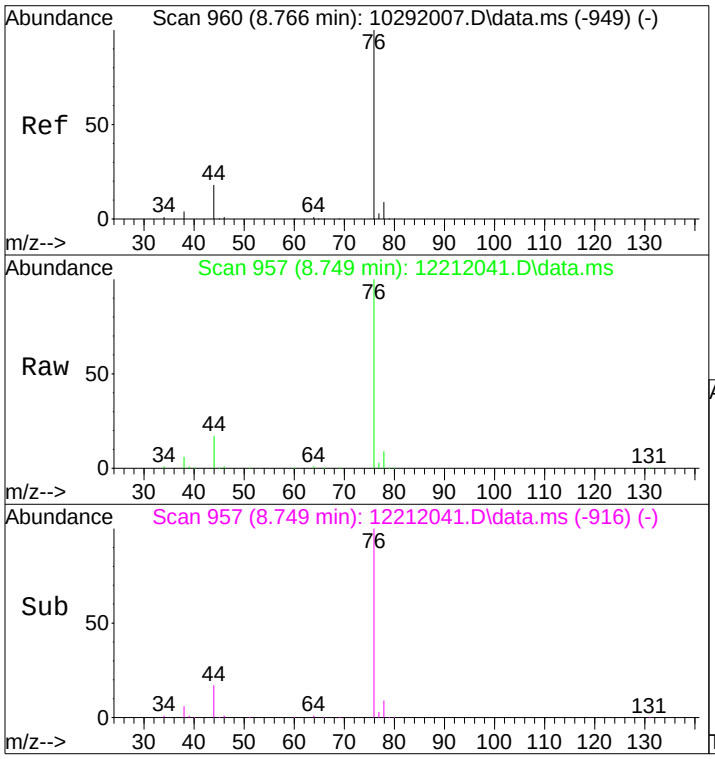


#21
Trichlorotrifluoroethane
Concen: 23.11 ng
RT: 8.90 min Scan# 985
Delta R.T. -0.017 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion:151 Resp: 400910

Ion	Ratio	Lower	Upper
151	100		
101	116.5	96.6	136.6

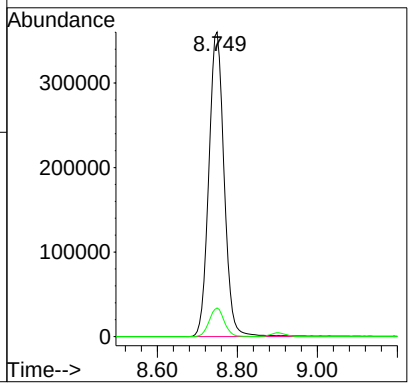


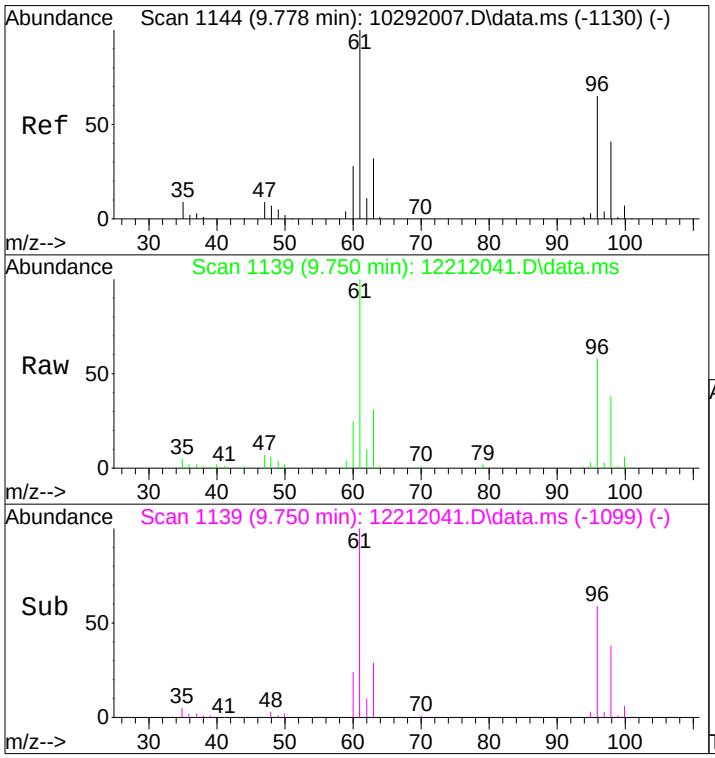


#22
Carbon Disulfide
Concen: 15.53 ng
RT: 8.75 min Scan# 957
Delta R.T. -0.022 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 76 Resp: 959222

Ion	Ratio	Lower	Upper
76	100		
78	9.3	0.0	29.4

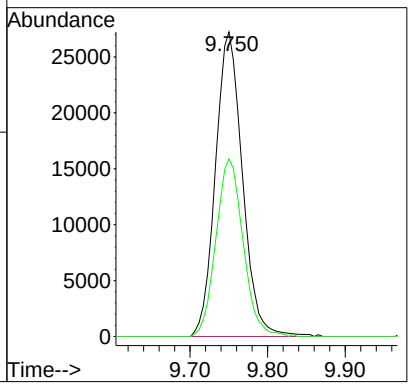


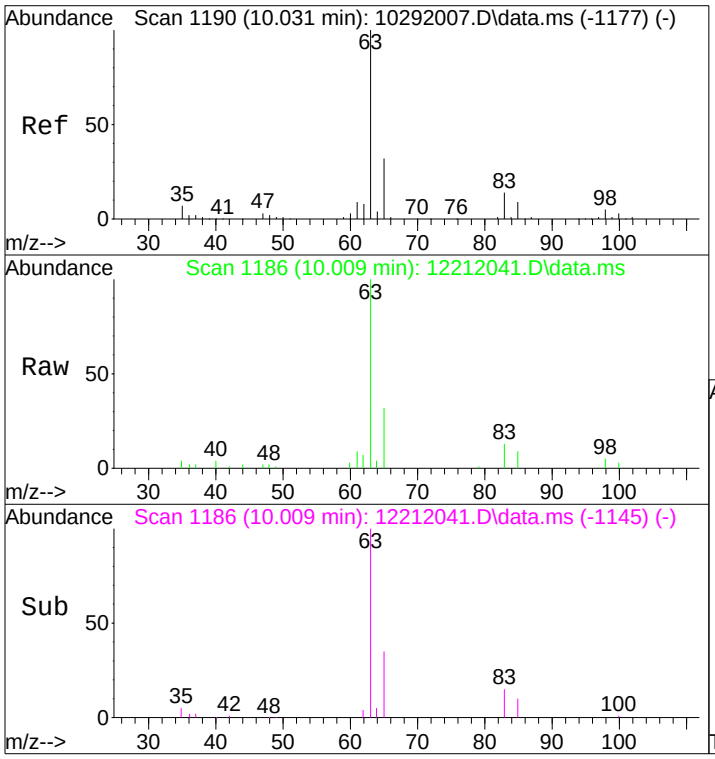


#23
trans-1,2-Dichloroethene
Concen: 2.27 ng
RT: 9.75 min Scan# 1139
Delta R.T. -0.028 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 61 Resp: 65904

Ion	Ratio	Lower	Upper
61	100		
96	58.5	39.6	79.6

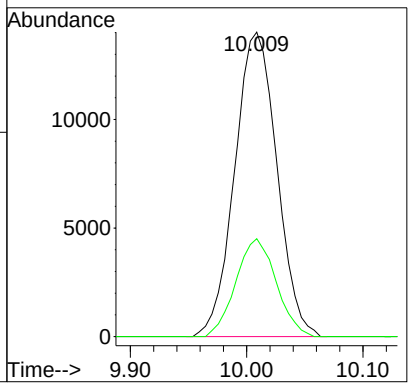


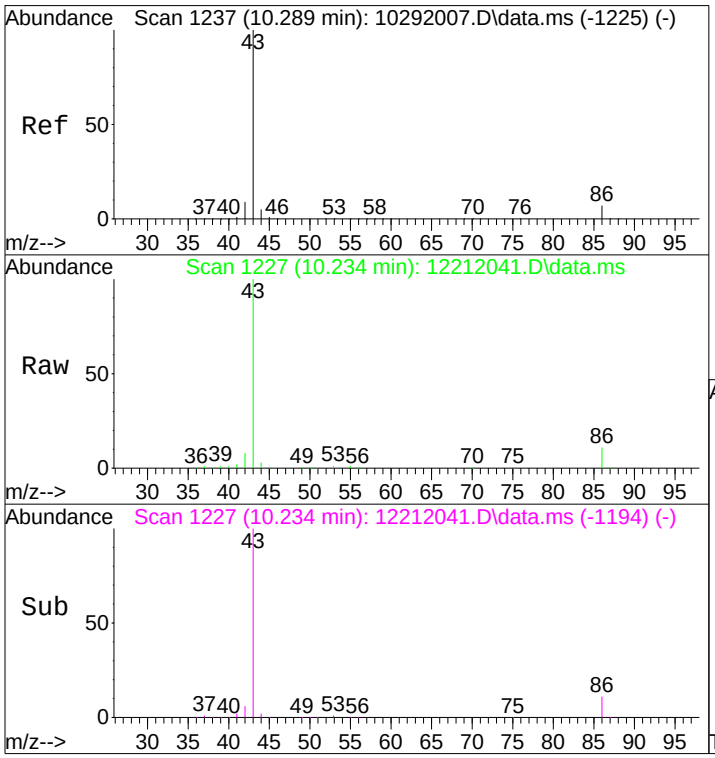


#24
1,1-Dichloroethane
Concen: 1.02 ng
RT: 10.01 min Scan# 1186
Delta R.T. -0.022 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 63 Resp: 35400

Ion	Ratio	Lower	Upper
63	100		
65	30.8	10.6	50.6

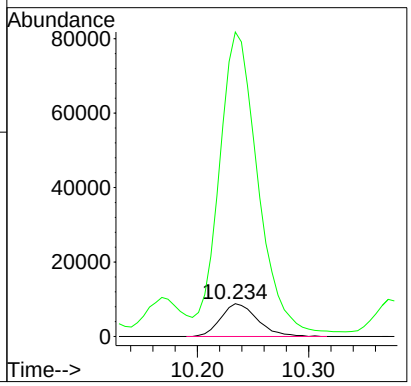


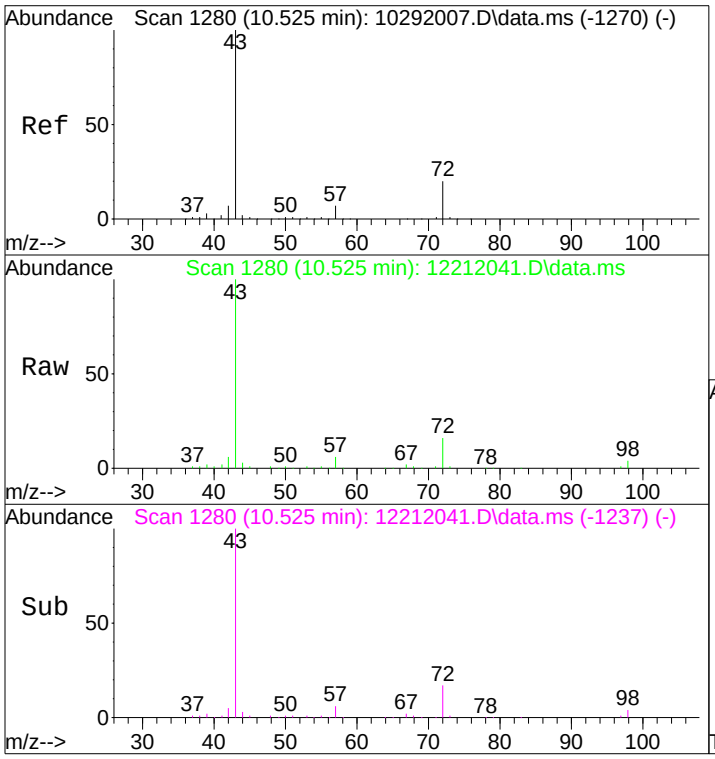


#26
Vinyl Acetate
Concen: 5.98 ng
RT: 10.23 min Scan# 1227
Delta R.T. -0.066 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 86 Resp: 20193

Ion	Ratio	Lower	Upper
86	100		
43	988.2	1672.7	1712.7#

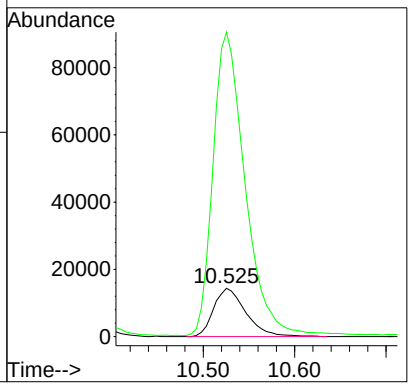


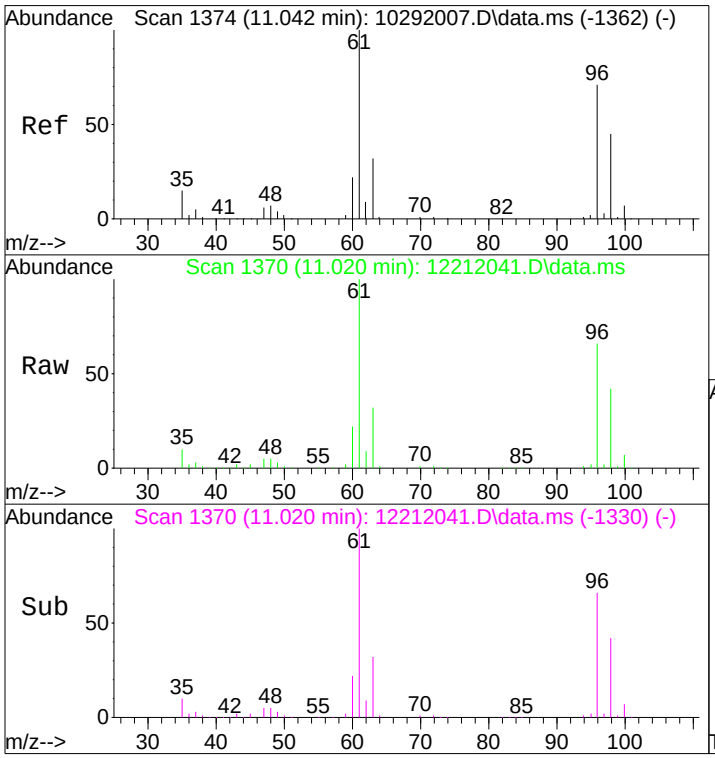


#27
2-Butanone (MEK)
Concen: 3.10 ng
RT: 10.53 min Scan# 1280
Delta R.T. -0.012 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 72 Resp: 35143

Ion	Ratio	Lower	Upper
72	100		
43	626.7	603.4	643.4

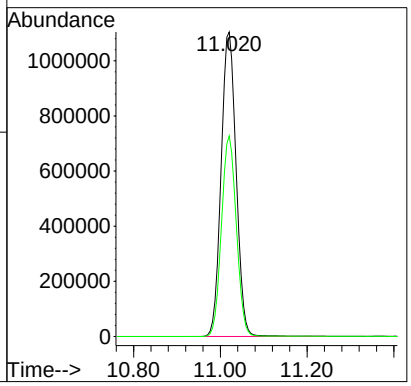


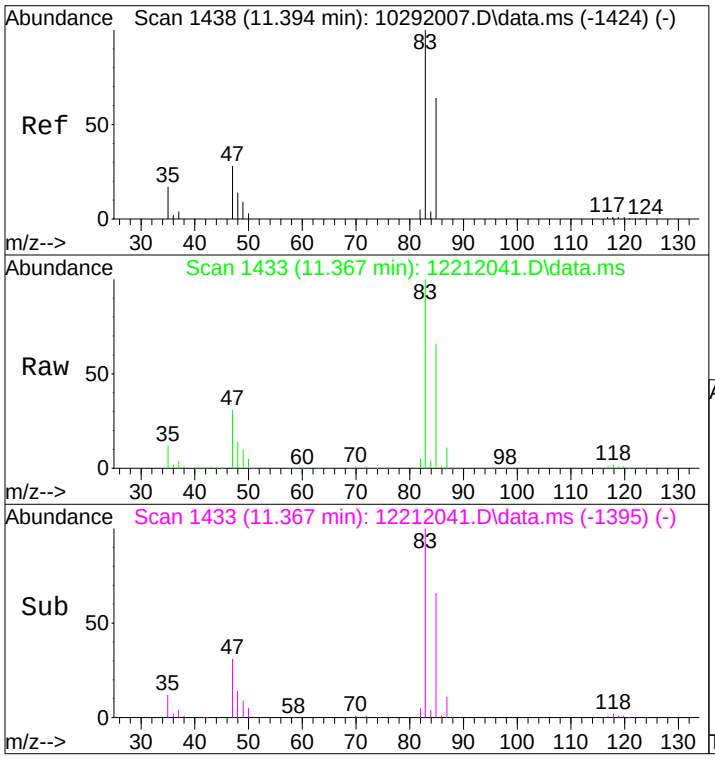


#28
cis-1,2-Dichloroethene
Concen: 92.41 ng
RT: 11.02 min Scan# 1370
Delta R.T. -0.028 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 61 Resp: 2644538

Ion	Ratio	Lower	Upper
61	100		
96	65.3	45.3	85.3

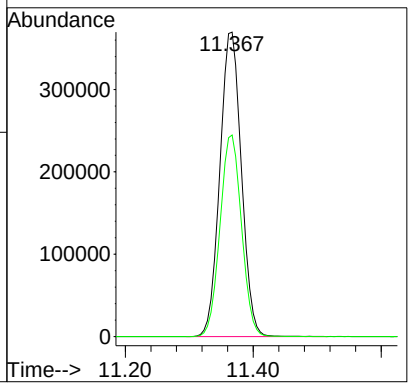


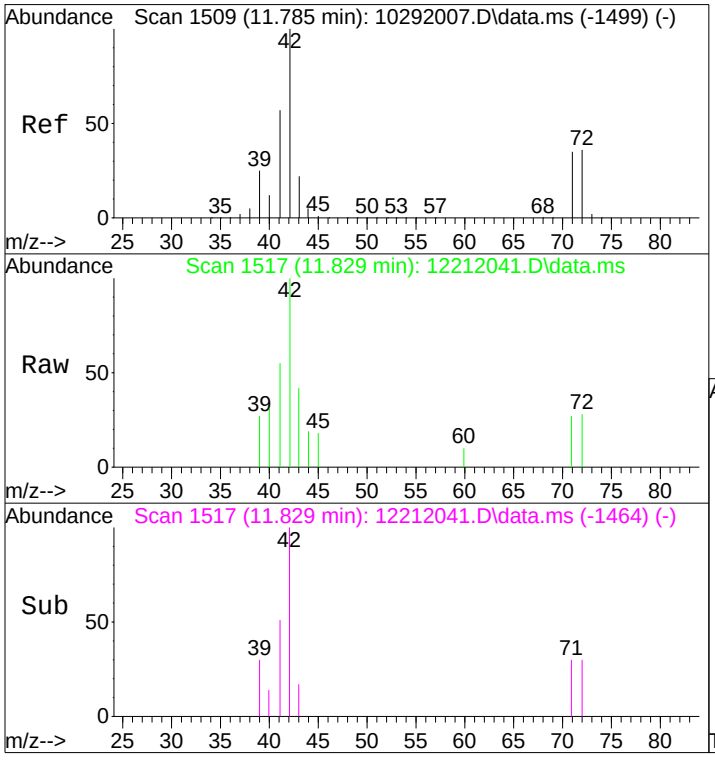


#32
Chloroform
Concen: 26.89 ng
RT: 11.37 min Scan# 1433
Delta R.T. -0.039 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 83 Resp: 862339

Ion	Ratio	Lower	Upper
83	100		
85	66.1	46.2	86.2

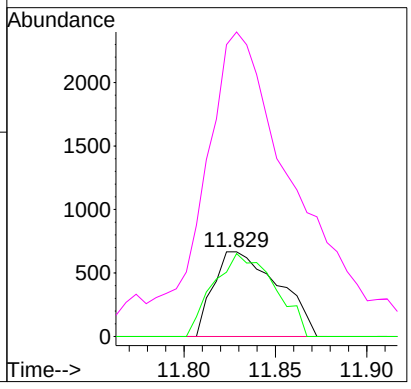


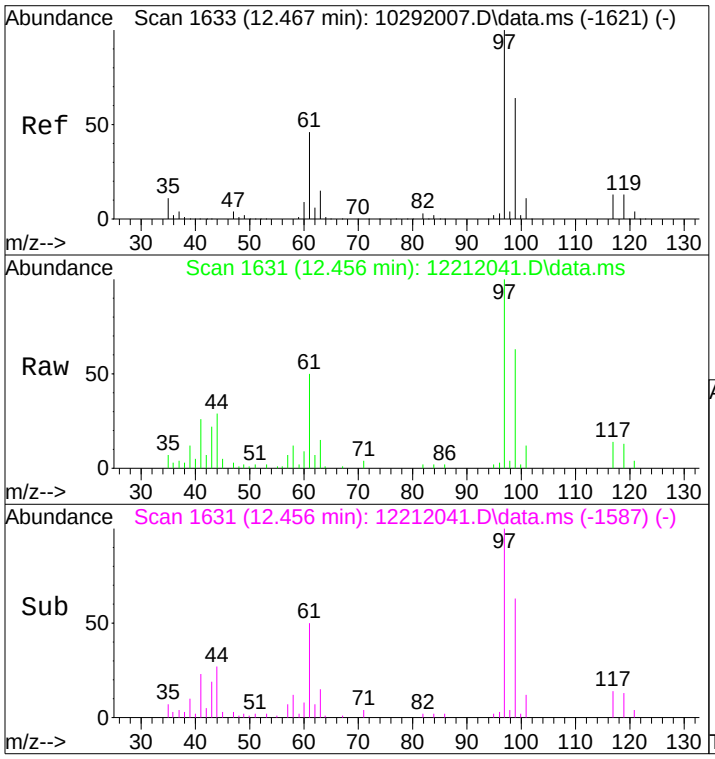


#34
Tetrahydrofuran (THF)
Concen: 0.15 ng
RT: 11.83 min Scan# 1517
Delta R.T. 0.044 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 72 Resp: 1645

Ion	Ratio	Lower	Upper
72	100		
71	92.6	78.4	118.4
42	517.4	329.5	369.5#

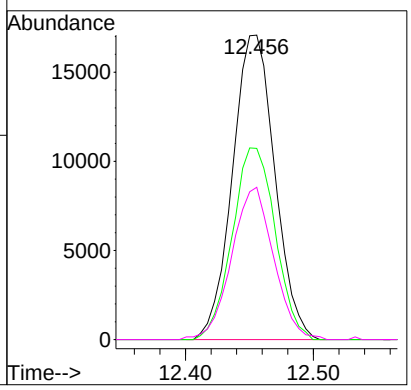


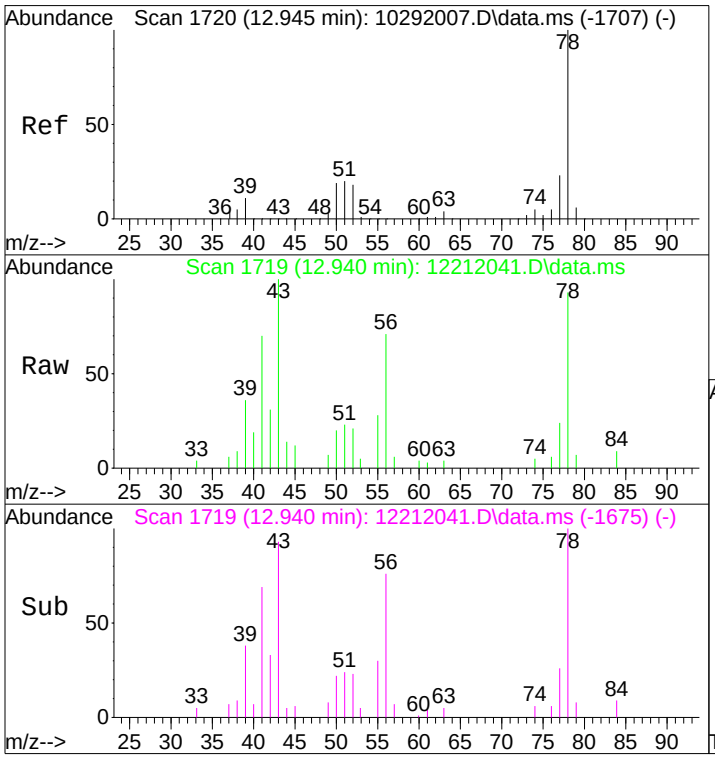


#38
1,1,1-Trichloroethane
Concen: 1.30 ng
RT: 12.46 min Scan# 1631
Delta R.T. -0.006 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 97 Resp: 39383

Ion	Ratio	Lower	Upper
97	100		
99	63.9	44.2	84.2
61	49.7	27.6	67.6

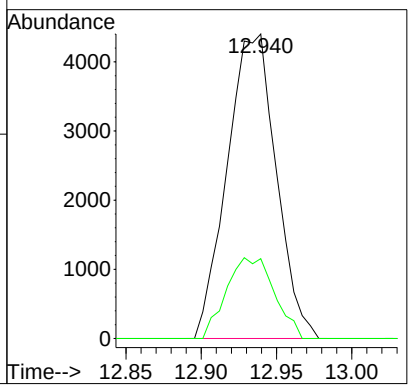


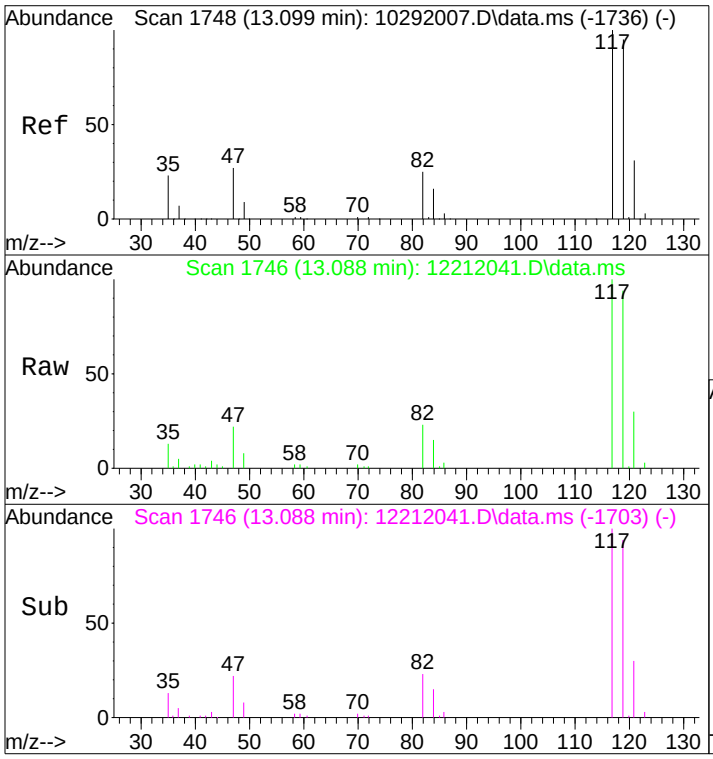


#41
Benzene
Concen: 0.14 ng
RT: 12.94 min Scan# 1719
Delta R.T. -0.006 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 78 Resp: 9971

Ion	Ratio	Lower	Upper
78	100		
77	26.0	3.4	43.4

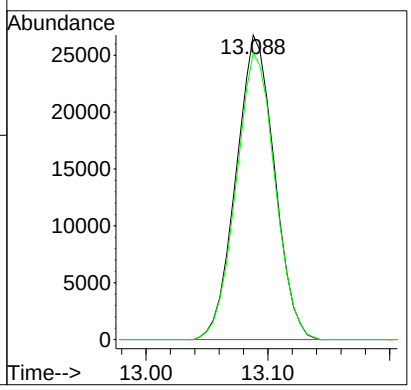


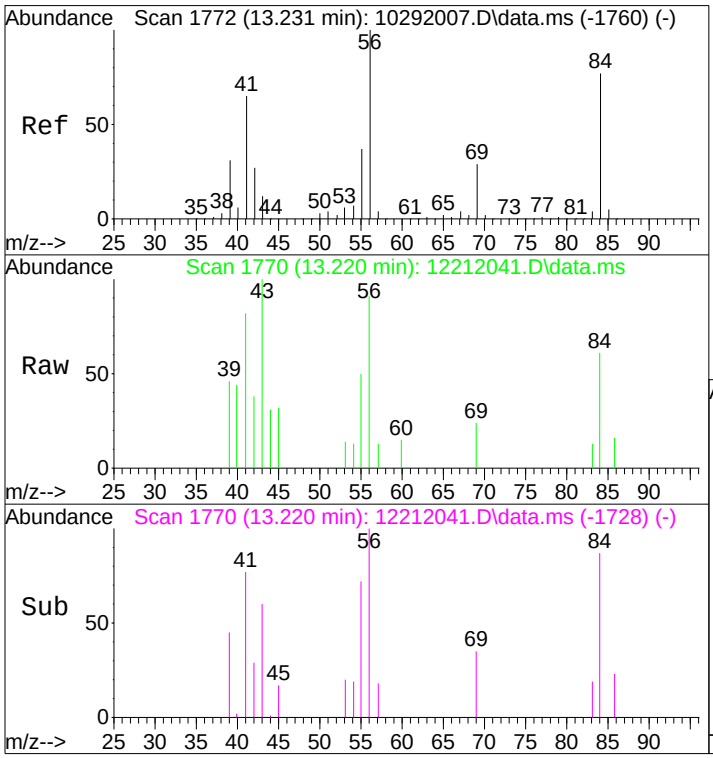


#42
Carbon Tetrachloride
Concen: 2.07 ng
RT: 13.09 min Scan# 1746
Delta R.T. -0.011 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion:117 Resp: 58554

Ion	Ratio	Lower	Upper
117	100		
119	95.4	75.9	115.9

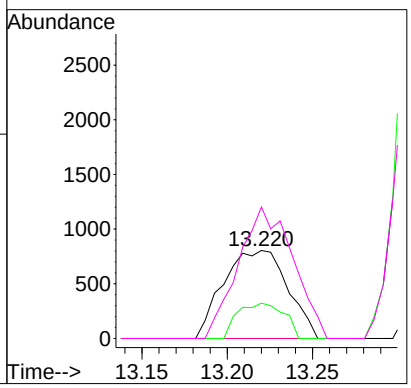


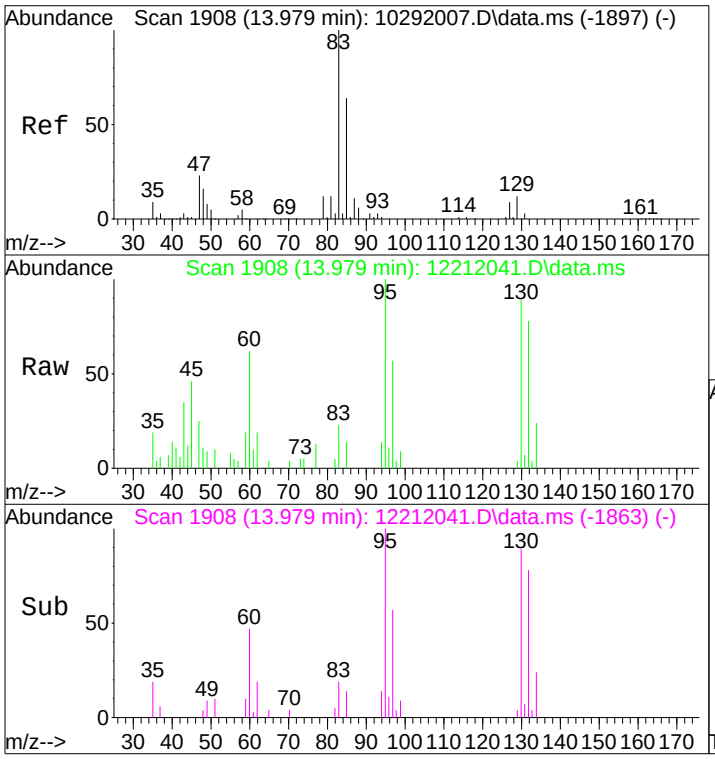


#43
Cyclohexane
Concen: 0.08 ng
RT: 13.22 min Scan# 1770
Delta R.T. -0.017 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 84 Resp: 2106

Ion	Ratio	Lower	Upper
84	100		
69	28.9	17.8	57.8
56	127.4	134.7	174.7#

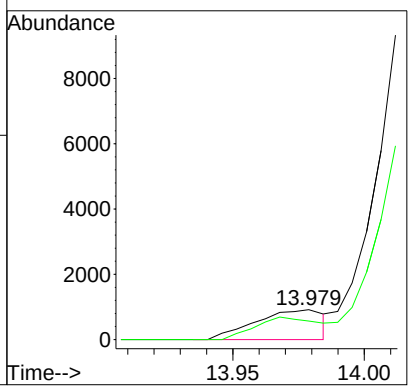


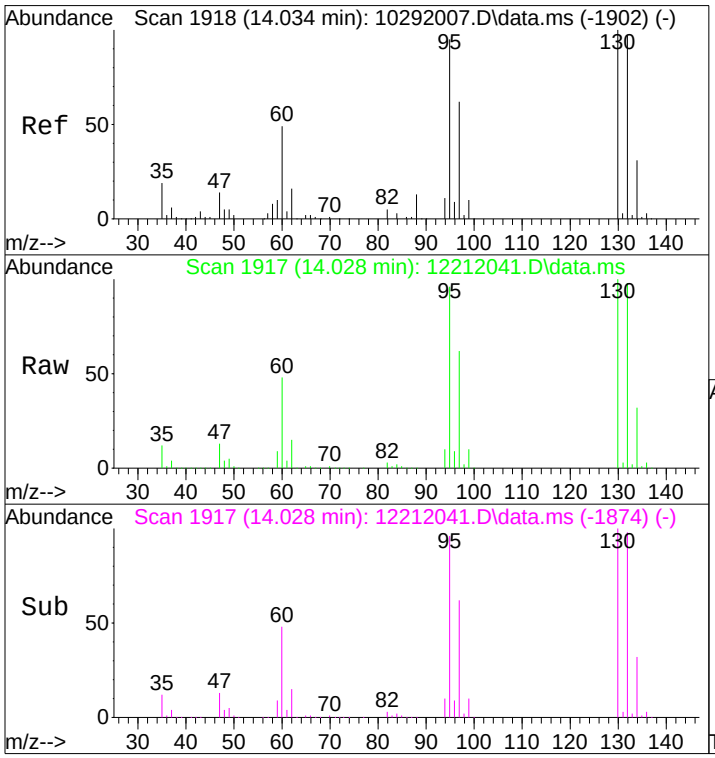


#46
Bromodichloromethane
Concen: 0.06 ng m
RT: 13.98 min Scan# 1908
Delta R.T. -0.000 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 83 Resp: 1661

Ion	Ratio	Lower	Upper
83	100		
85	1314.3	45.6	85.6#

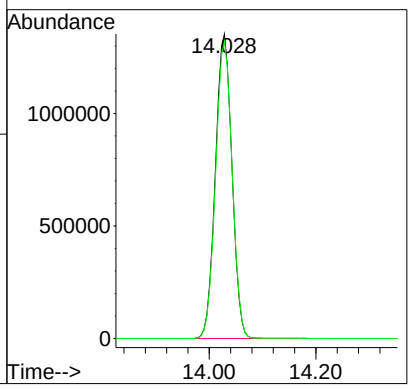


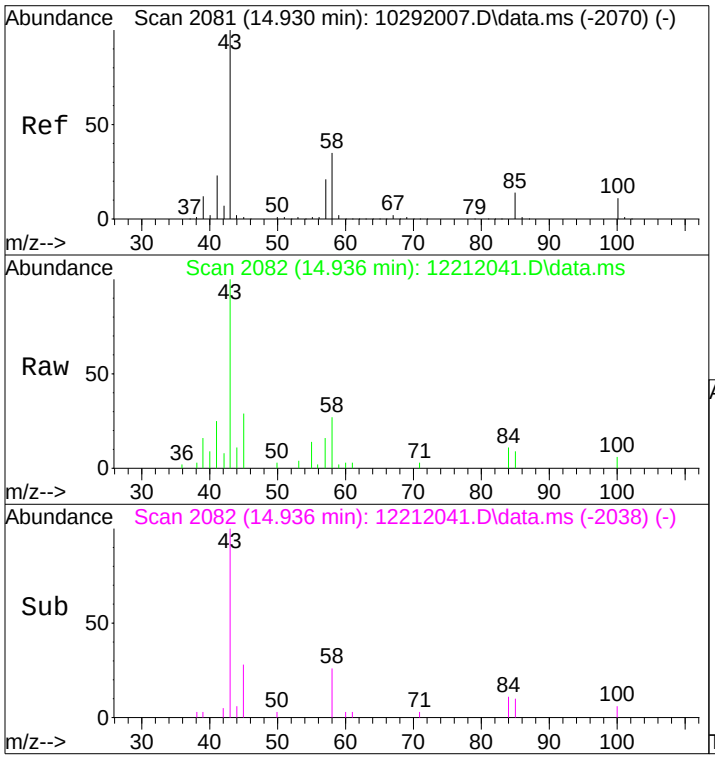


#47
Trichloroethene
Concen: 119.27 ng
RT: 14.03 min Scan# 1917
Delta R.T. -0.011 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion:130 Resp: 2912499

Ion	Ratio	Lower	Upper
130	100		
132	98.0	78.3	118.3

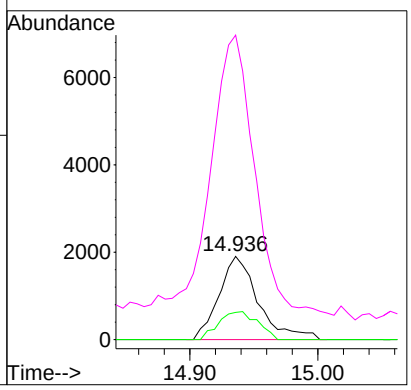


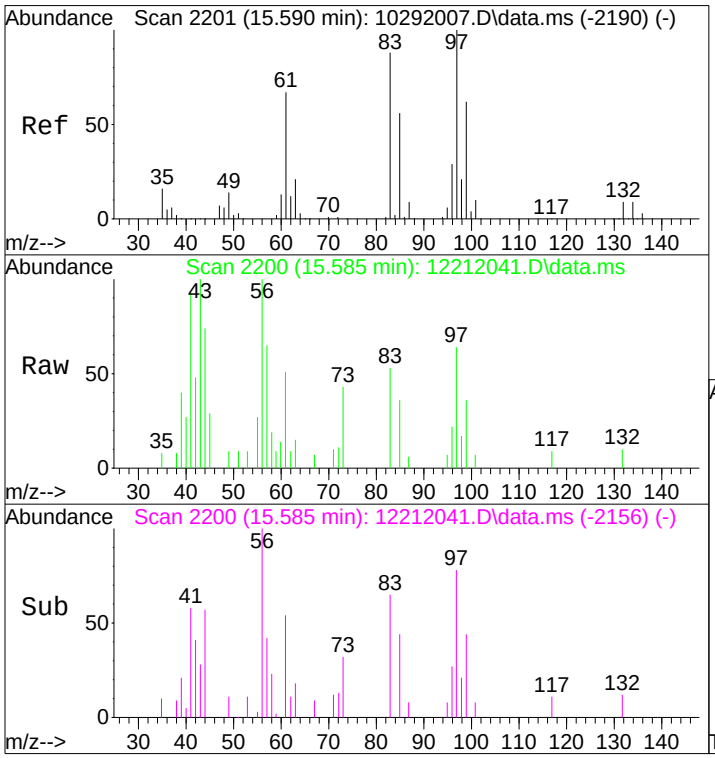


#53
4-Methyl-2-pentanone
Concen: 0.21 ng
RT: 14.94 min Scan# 2082
Delta R.T. -0.006 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 58 Resp: 4064

Ion	Ratio	Lower	Upper
58	100		
85	33.4	29.6	44.4
43	385.7	243.0	364.4#

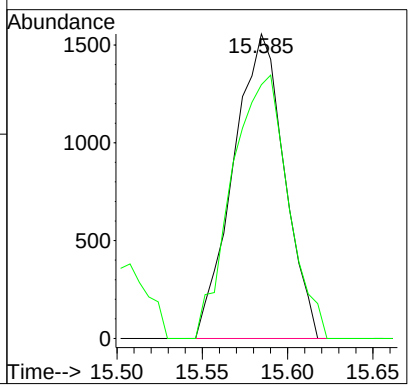


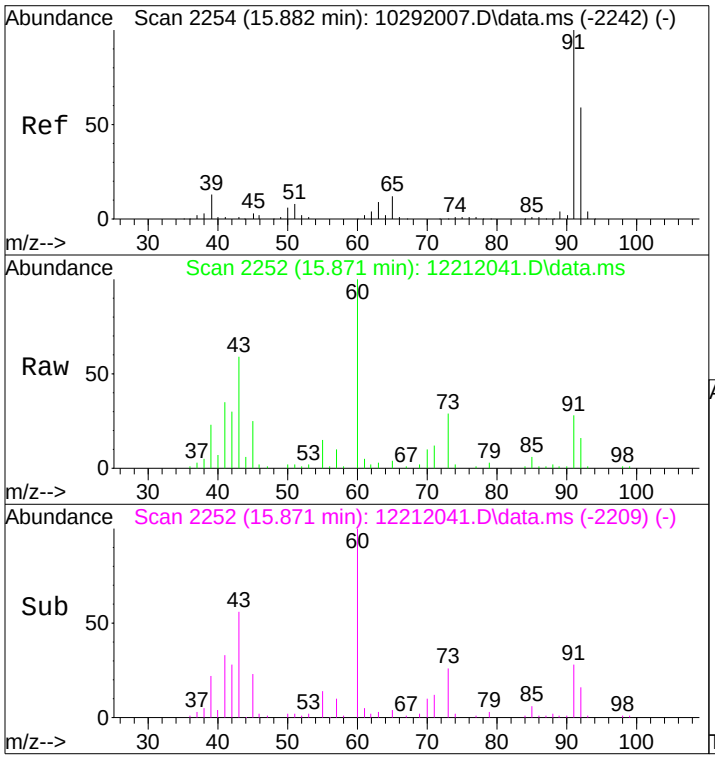


#55
1,1,2-Trichloroethane
Concen: 0.19 ng
RT: 15.58 min Scan# 2200
Delta R.T. -0.006 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 97 Resp: 3232

Ion	Ratio	Lower	Upper
97	100		
83	95.4	64.4	104.4

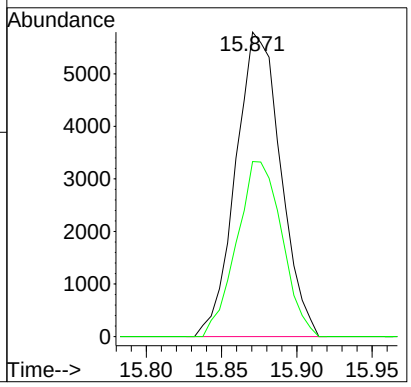


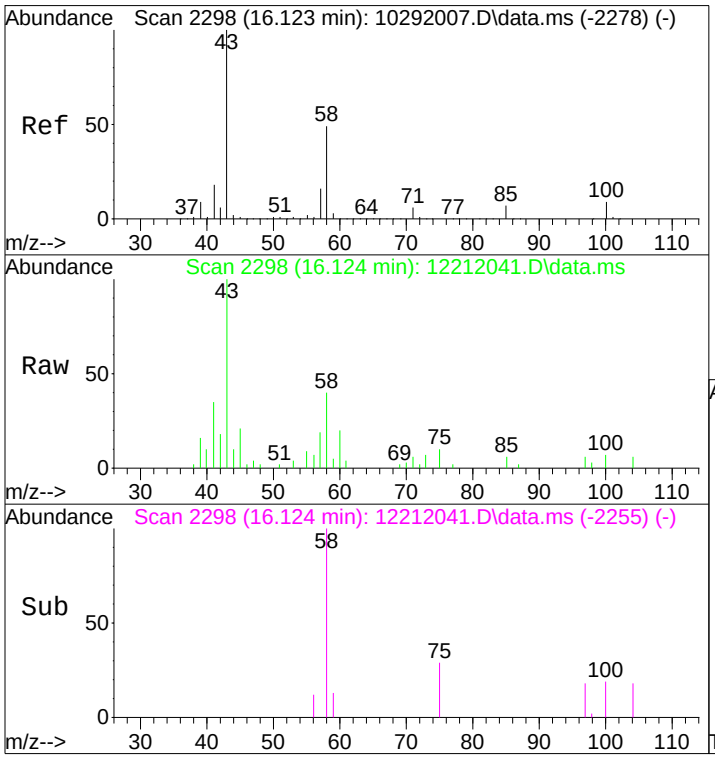


#58
Toluene
Concen: 0.17 ng
RT: 15.87 min Scan# 2252
Delta R.T. -0.011 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 91 Resp: 12025

Ion	Ratio	Lower	Upper
91	100		
92	57.8	39.1	79.1

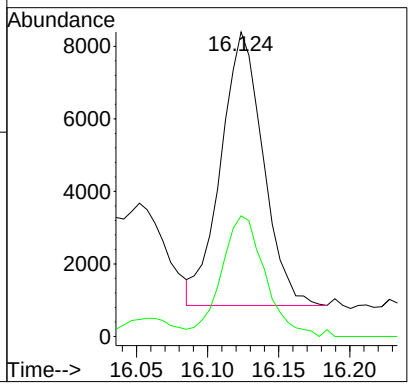


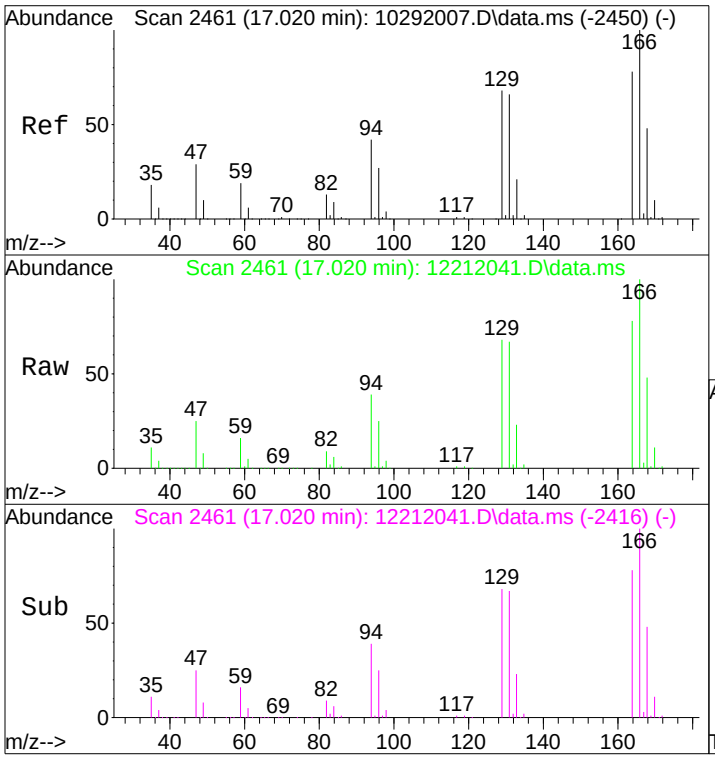


#59
2-Hexanone
Concen: 0.27 ng
RT: 16.12 min Scan# 2298
Delta R.T. -0.011 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 43 Resp: 15609

Ion	Ratio	Lower	Upper
43	100		
58	45.3	25.7	65.7

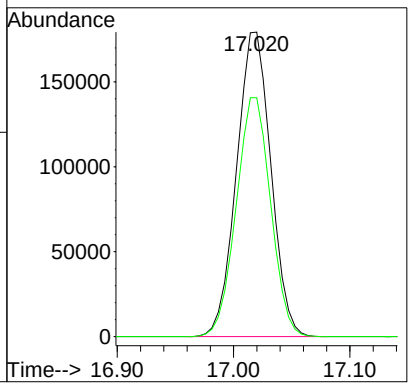


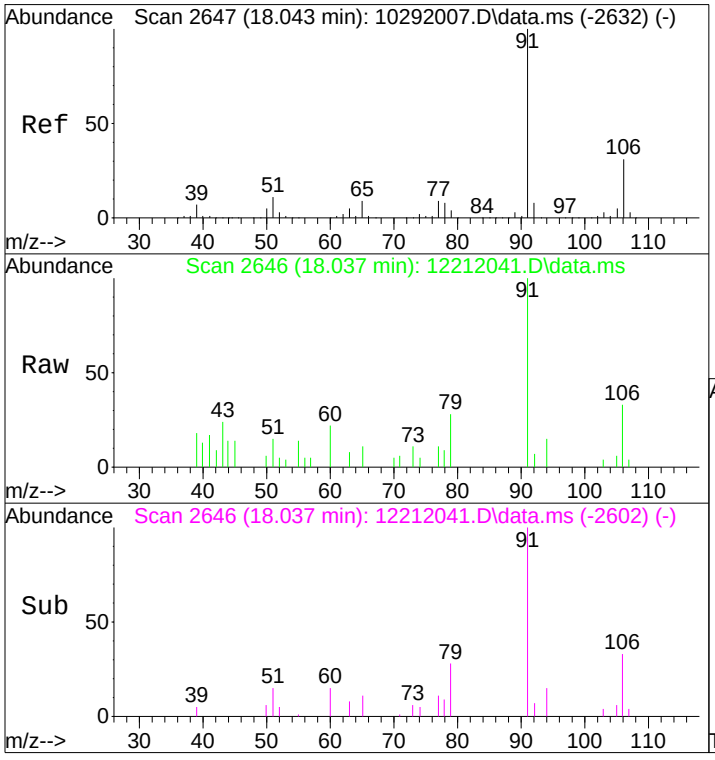


#64
Tetrachloroethene
Concen: 16.86 ng
RT: 17.02 min Scan# 2461
Delta R.T. -0.000 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion:166 Resp: 369346

Ion	Ratio	Lower	Upper
166	100		
164	78.7	58.2	98.2

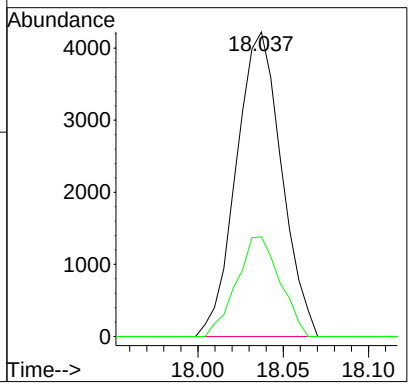


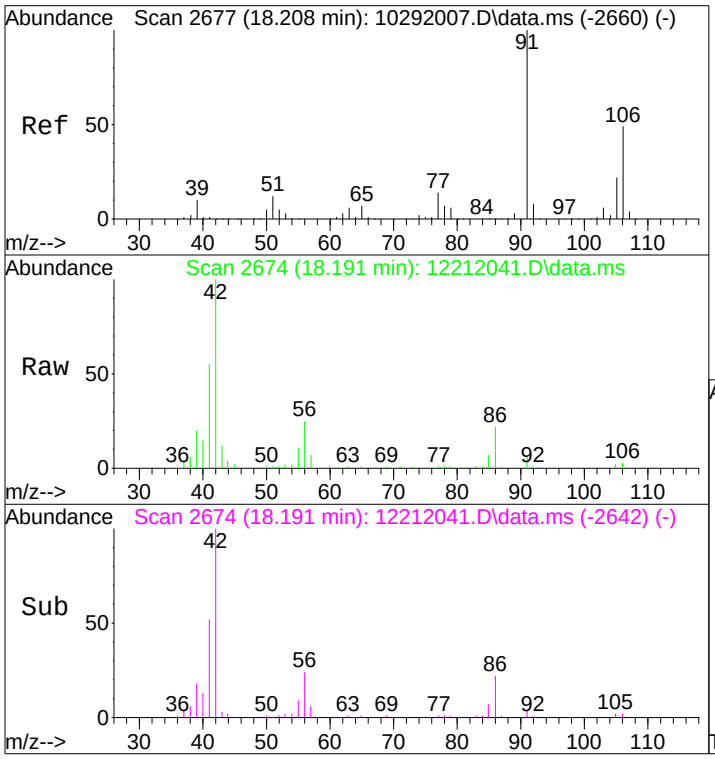


#66
Ethylbenzene
Concen: 0.10 ng
RT: 18.04 min Scan# 2646
Delta R.T. -0.006 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 91 Resp: 7792

Ion	Ratio	Lower	Upper
91	100		
106	31.4	11.5	51.5

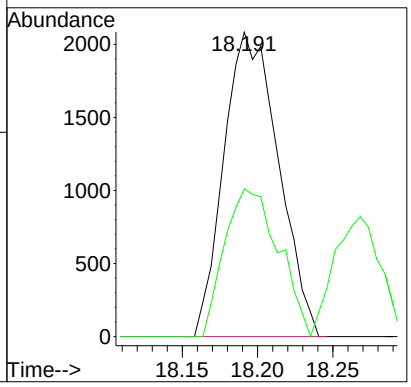


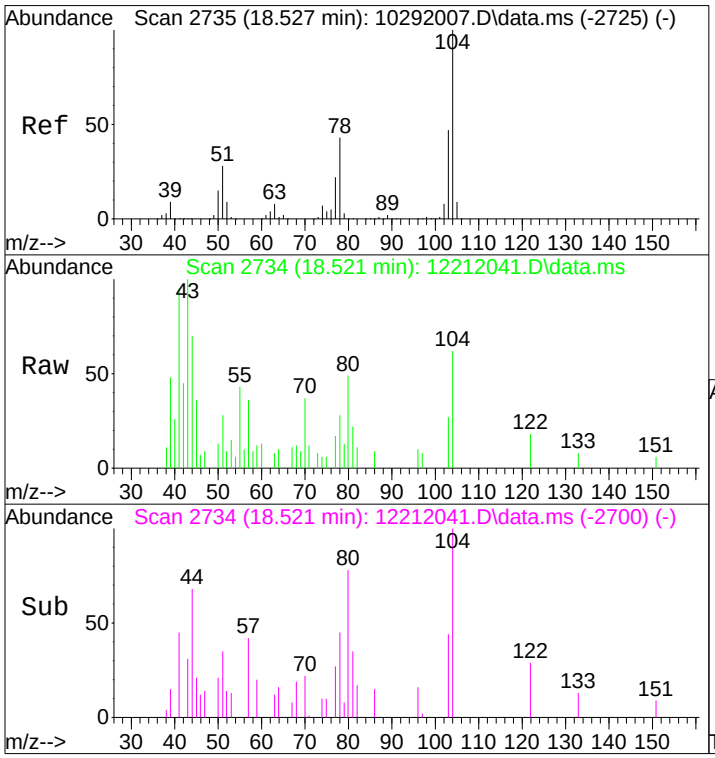


#67
m- & p-Xylenes
Concen: 0.08 ng
RT: 18.19 min Scan# 2674
Delta R.T. -0.022 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 91 Resp: 5252

Ion	Ratio	Lower	Upper
91	100		
106	47.9	29.5	69.5

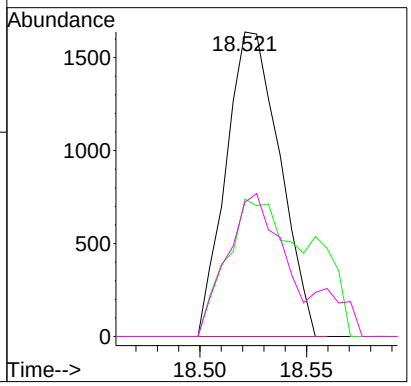


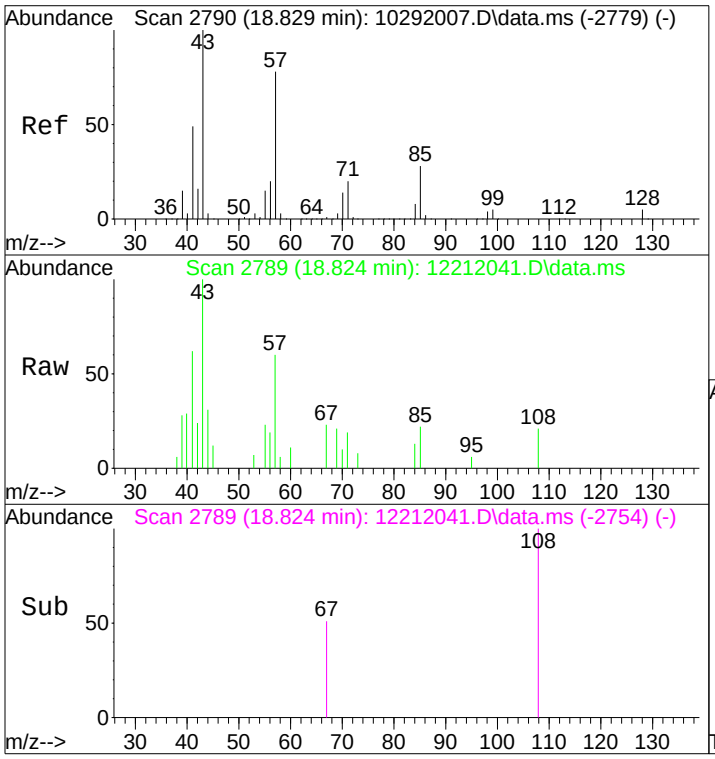


#69
Styrene
Concen: 0.06 ng
RT: 18.52 min Scan# 2734
Delta R.T. -0.011 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion:104 Resp: 2867

Ion	Ratio	Lower	Upper
104	100		
78	69.7	23.0	63.0#
103	58.1	27.5	67.5

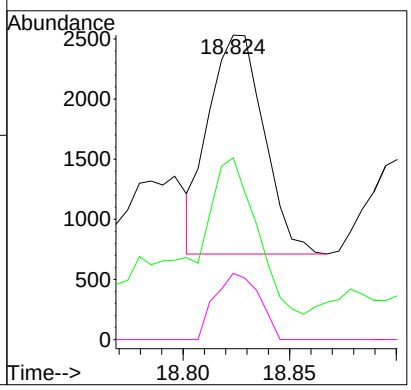


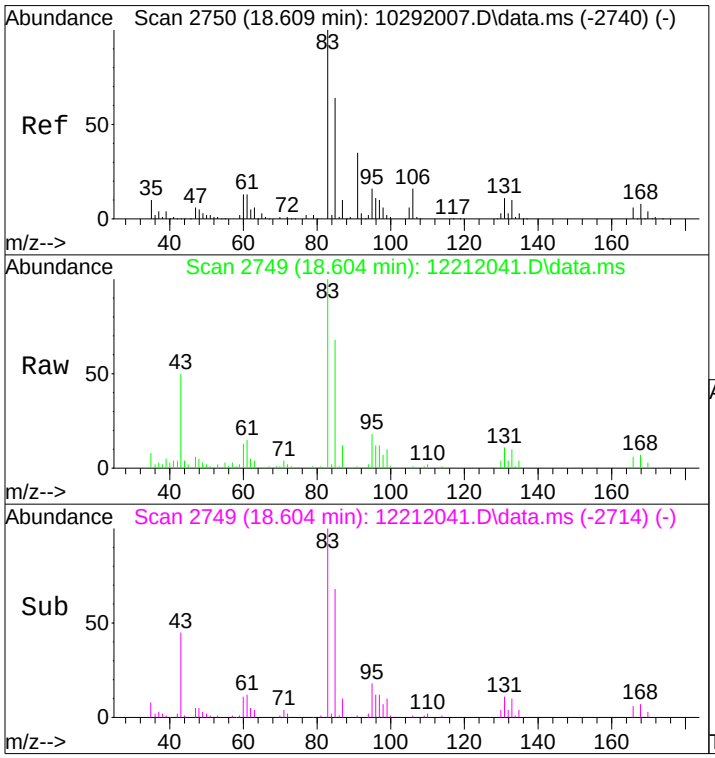


#71
n-Nonane
Concen: 0.07 ng
RT: 18.82 min Scan# 2789
Delta R.T. -0.006 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 43 Resp: 3285

Ion	Ratio	Lower	Upper
43	100		
57	89.4	54.1	94.1
85	24.2	2.9	42.9

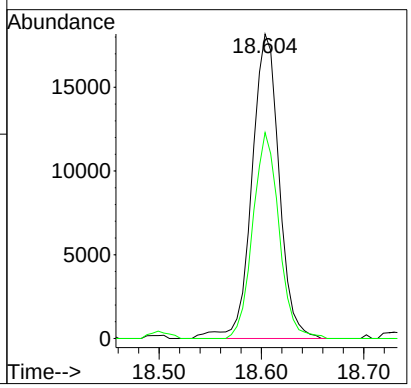


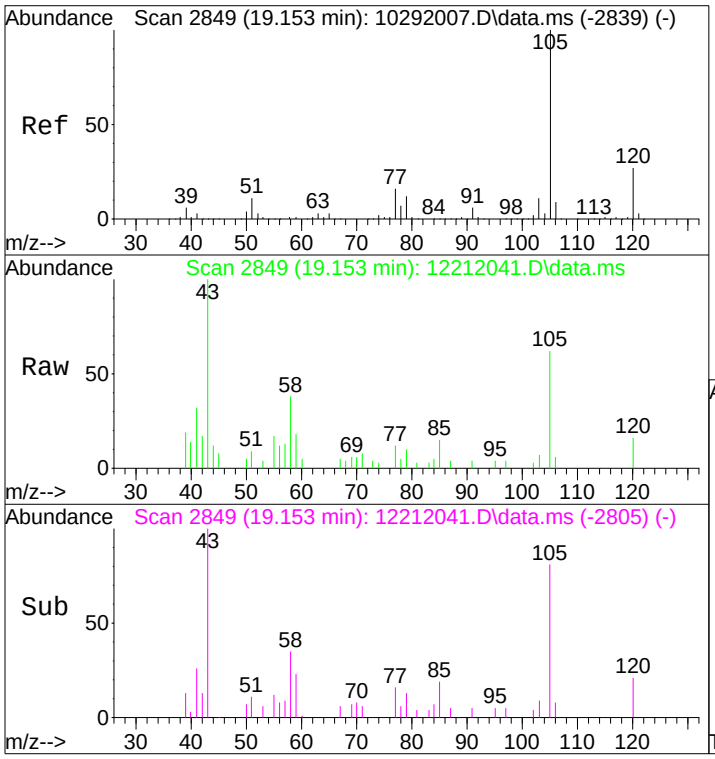


#72
1,1,2,2-Tetrachloroethane
Concen: 1.14 ng
RT: 18.60 min Scan# 2749
Delta R.T. -0.006 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 83 Resp: 33557

Ion	Ratio	Lower	Upper
83	100		
85	65.2	46.6	86.6

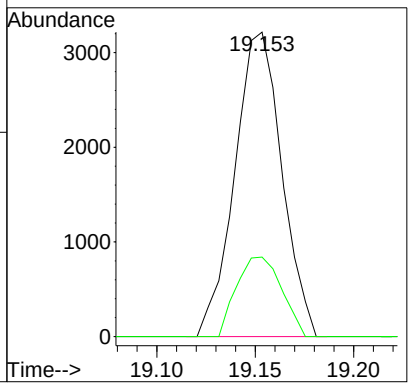


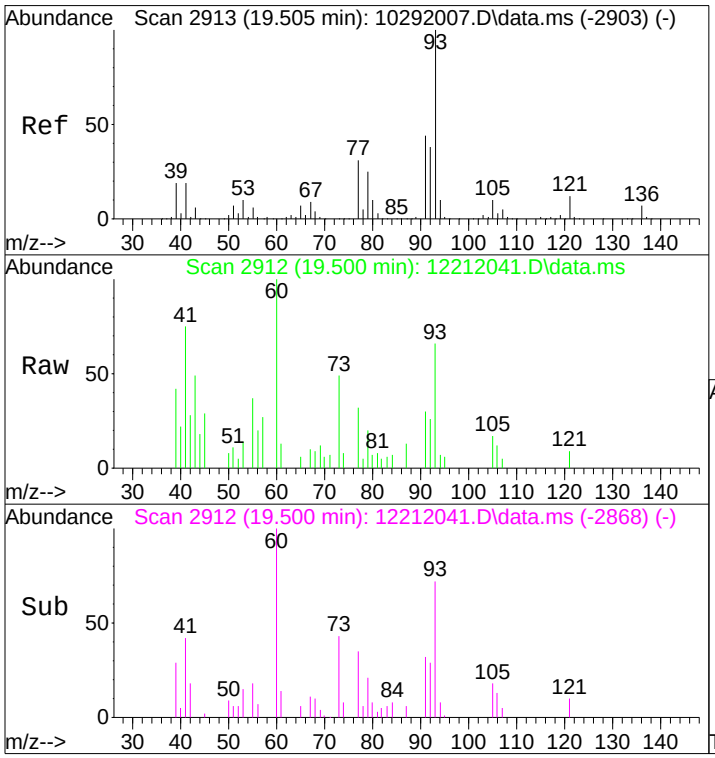


#74
Cumene
Concen: 0.06 ng
RT: 19.15 min Scan# 2849
Delta R.T. -0.006 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion:105 Resp: 5341

Ion	Ratio	Lower	Upper
105	100		
120	25.0	6.7	46.7

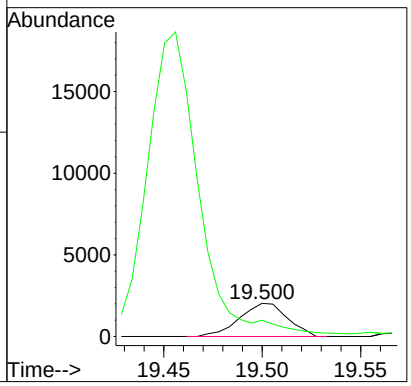


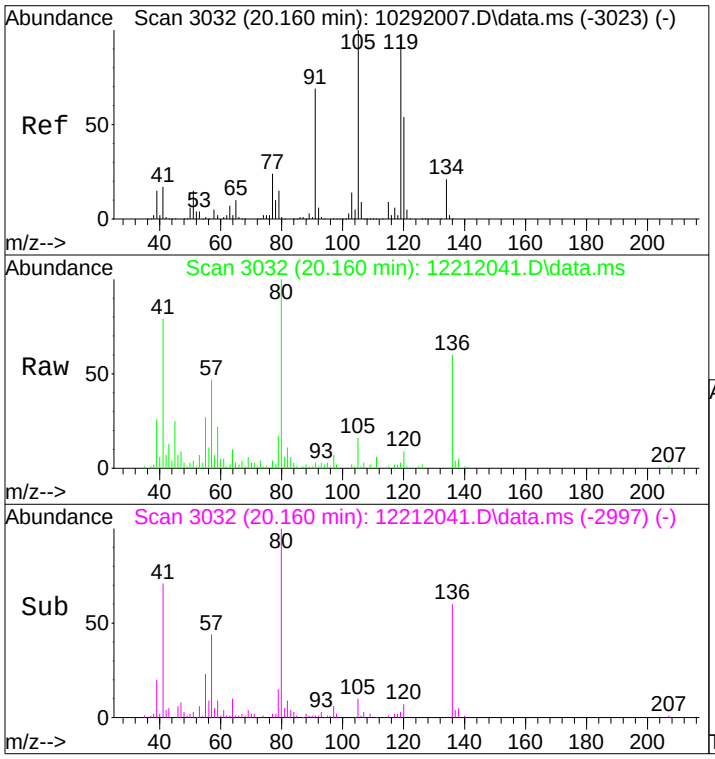


#75
alpha-Pinene
Concen: 0.09 ng
RT: 19.50 min Scan# 2912
Delta R.T. -0.006 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 93 Resp: 3416

Ion	Ratio	Lower	Upper
93	100		
77	999.1	11.5	51.5#

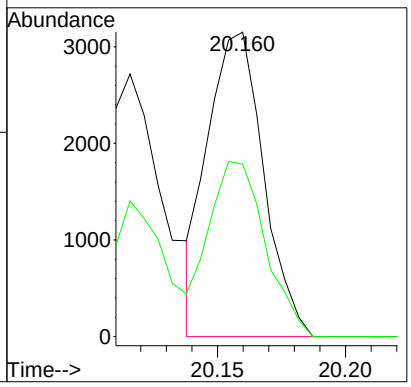


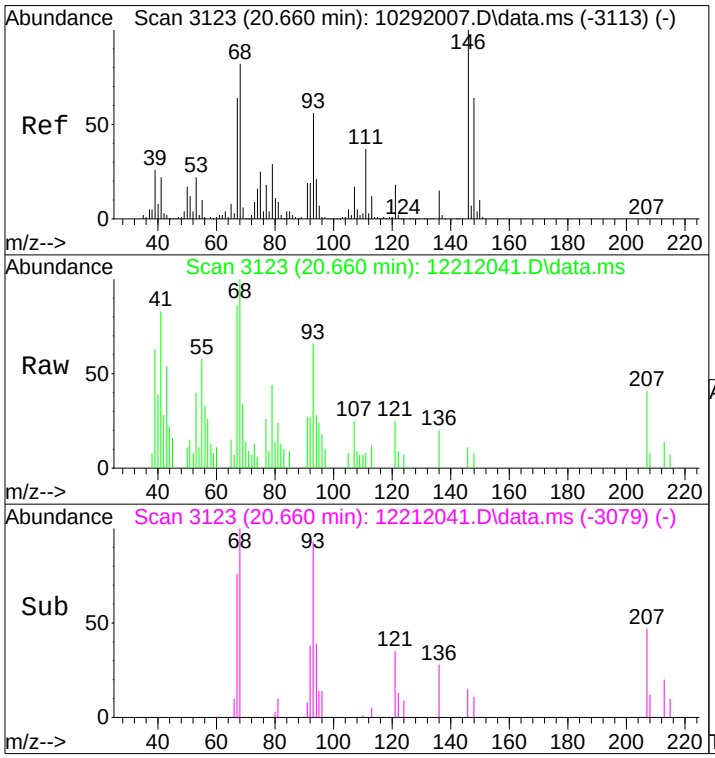


#82
1,2,4-Trimethylbenzene
Concen: 0.07 ng
RT: 20.16 min Scan# 3032
Delta R.T. -0.005 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion:105 Resp: 4790

Ion	Ratio	Lower	Upper
105	100		
120	58.2	34.9	74.9

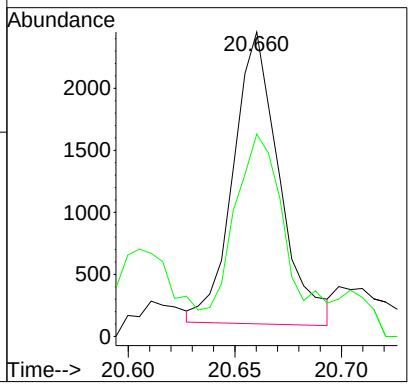


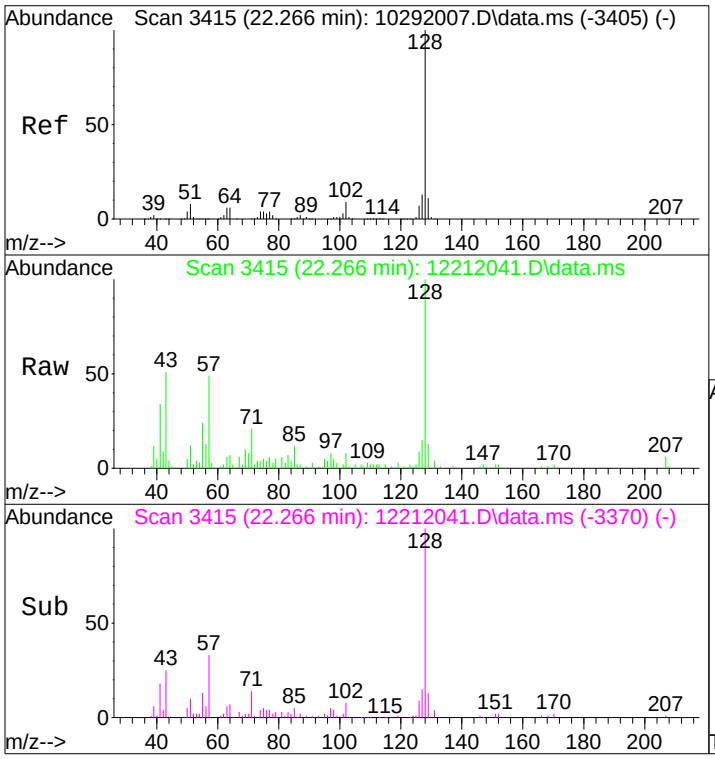


#91
d-Limonene
Concen: 0.14 ng
RT: 20.66 min Scan# 3123
Delta R.T. -0.006 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion: 68 Resp: 3523

Ion	Ratio	Lower	Upper
68	100		
93	91.8	52.0	92.0

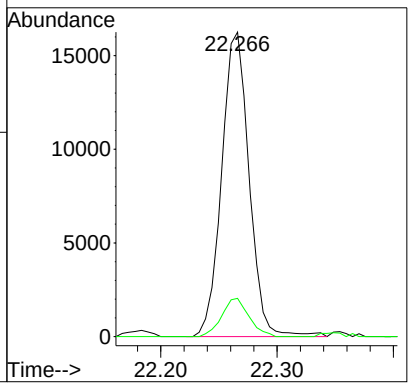




#95
Naphthalene
Concen: 0.23 ng
RT: 22.27 min Scan# 3415
Delta R.T. -0.005 min
Lab File: 12212041.D
Acq: 22 Dec 2020 4:06

Tgt Ion:128 Resp: 26653

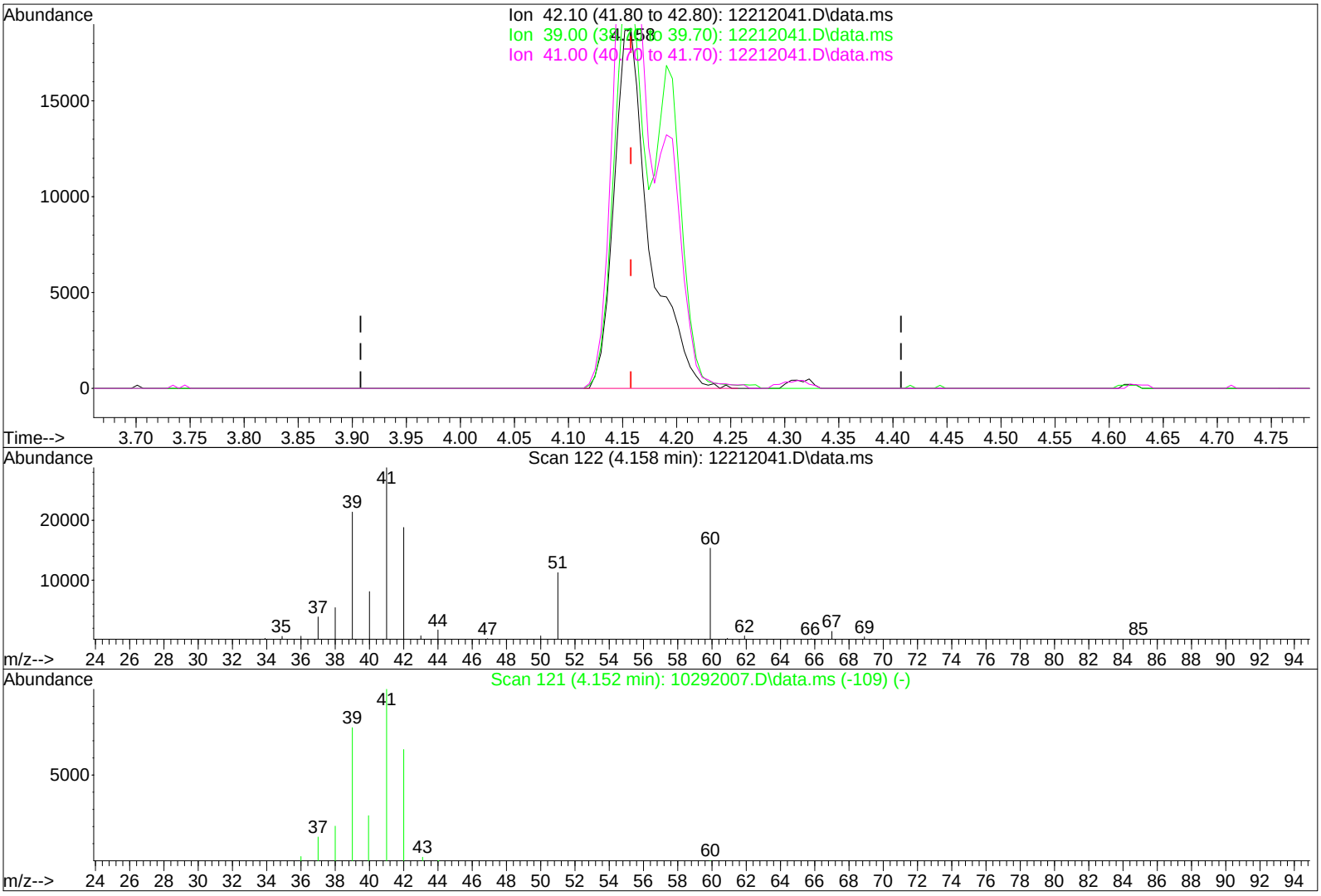
Ion	Ratio	Lower	Upper
128	100		
129	12.5	0.0	30.9



Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:08 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 12212041.D\data.ms

(2) Propene (T)

4.158min (-0.000) 1.26ng

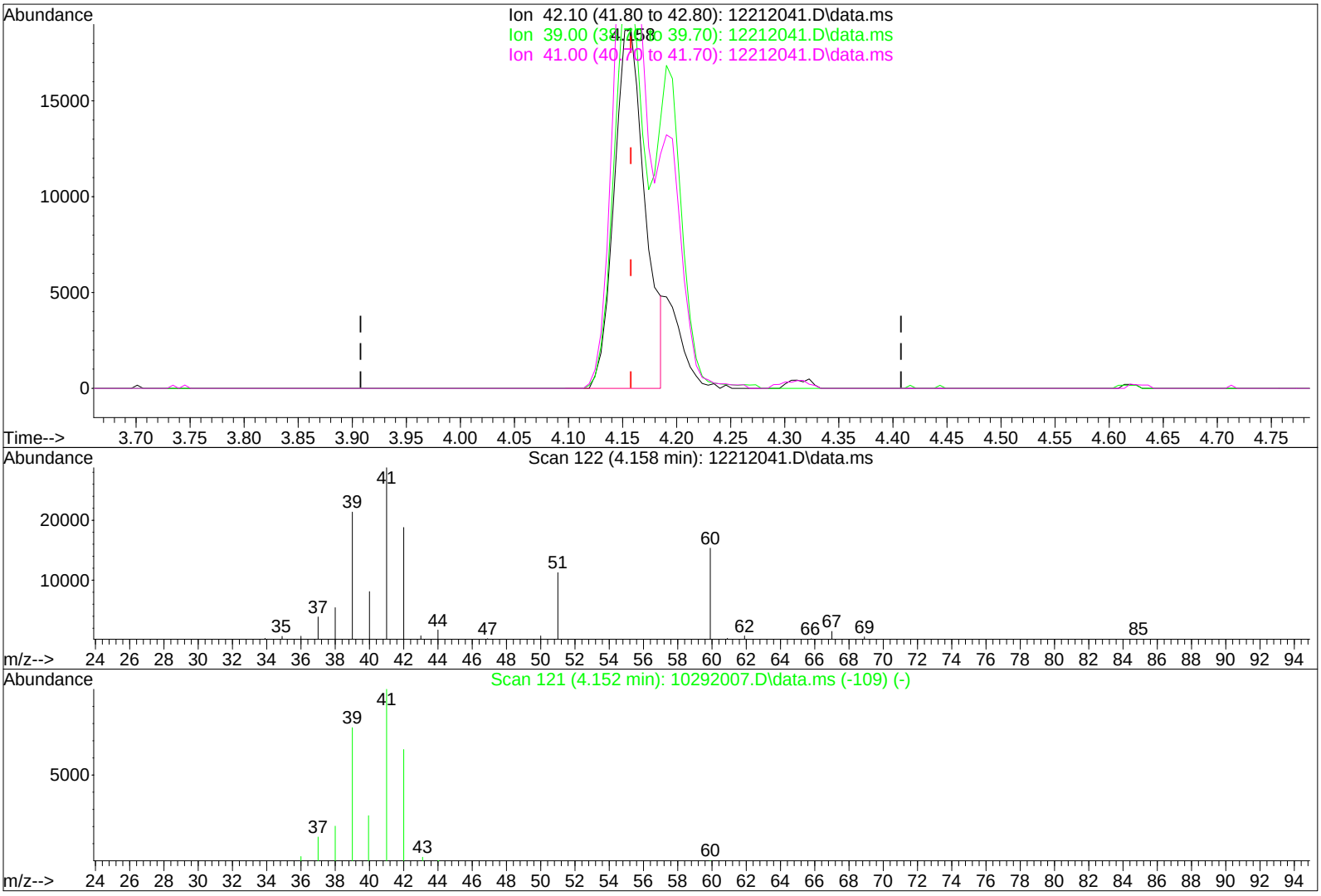
response 42631

Ion	Exp%	Act%
42.10	100	100
39.00	114.20	92.59#
41.00	154.50	179.91#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:08 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 12212041.D\data.ms

(2) Propene (T)

4.158min (-0.000) 1.10ng m

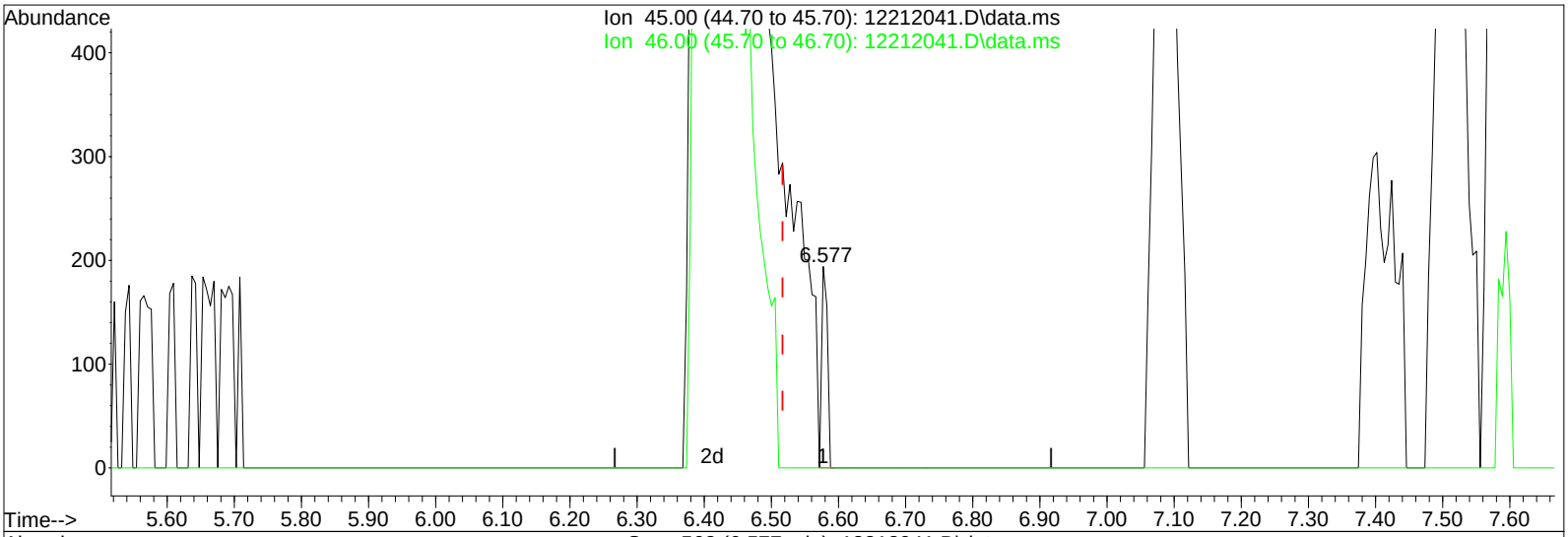
response 37110

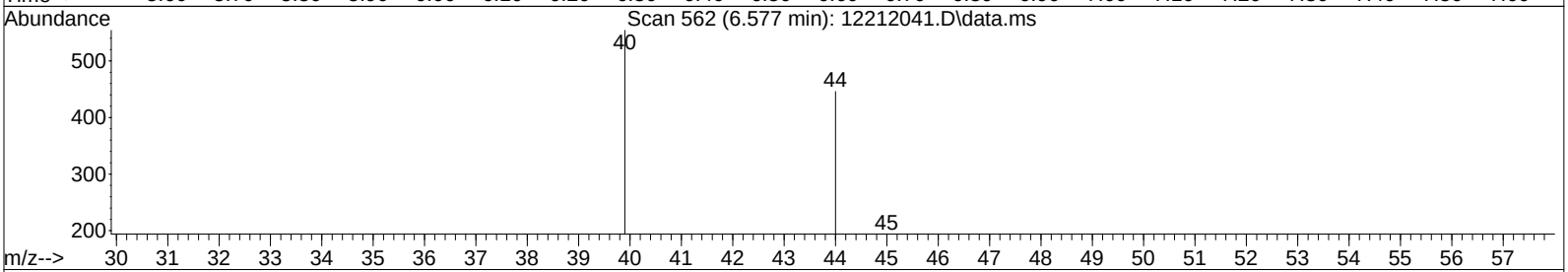
Ion	Exp%	Act%
42.10	100	100
39.00	114.20	106.36
41.00	154.50	206.68#
0.00	0.00	0.00

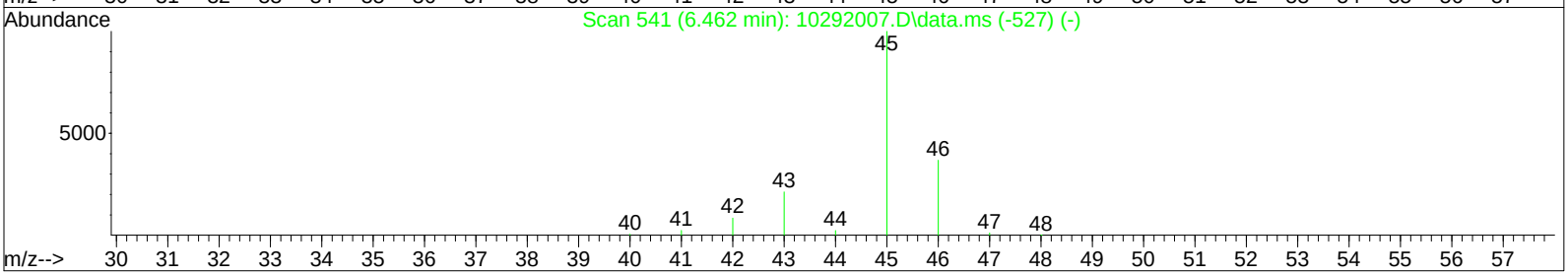
Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:08 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 12212041.D\data.ms

(10) Ethanol (T)

6.577min (+0.060) 0.01ng

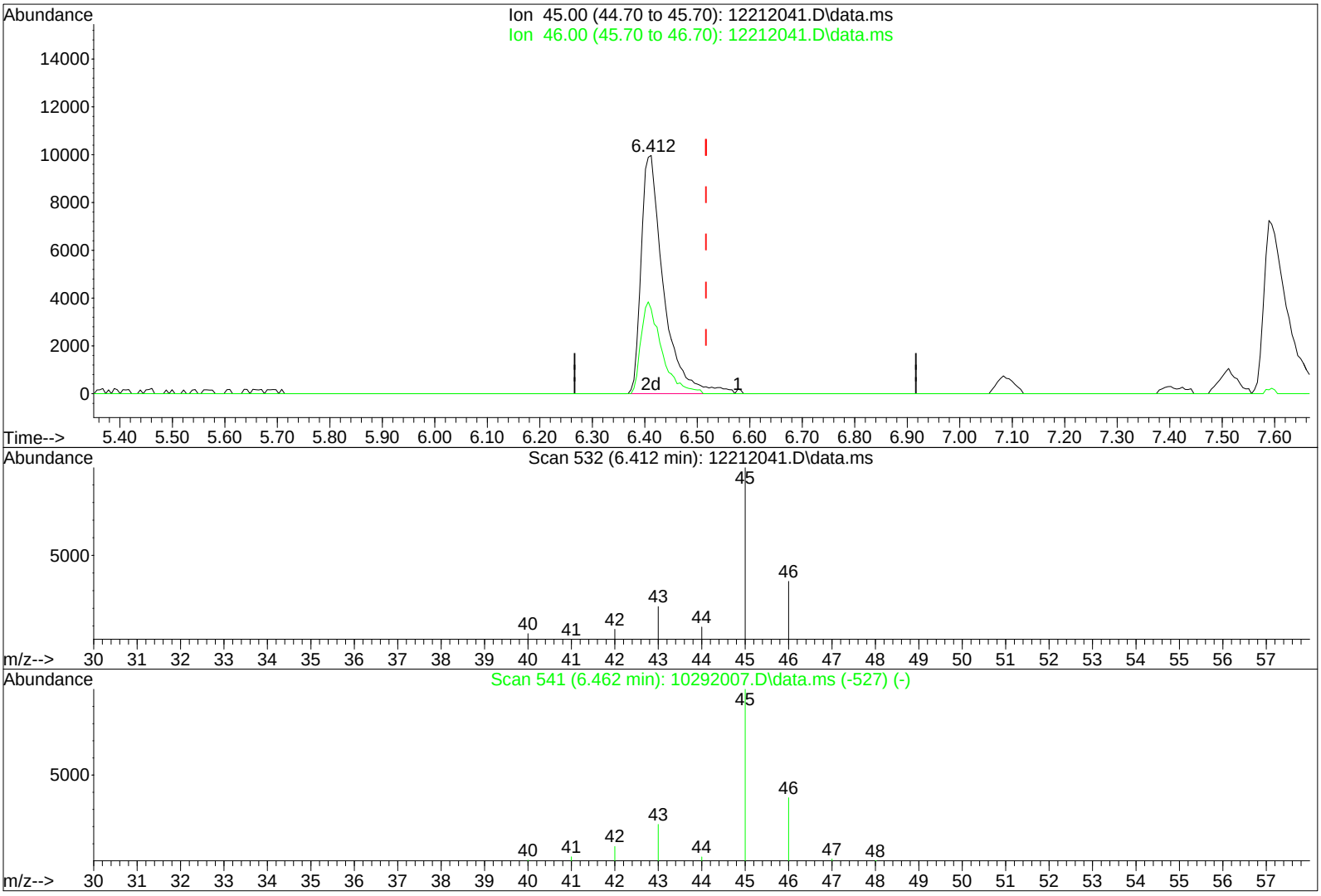
response 116

Ion	Exp%	Act%
45.00	100	100
46.00	37.00	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:08 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 12212041.D\data.ms

(10) Ethanol (T)

6.412min (-0.105) 1.50ng m

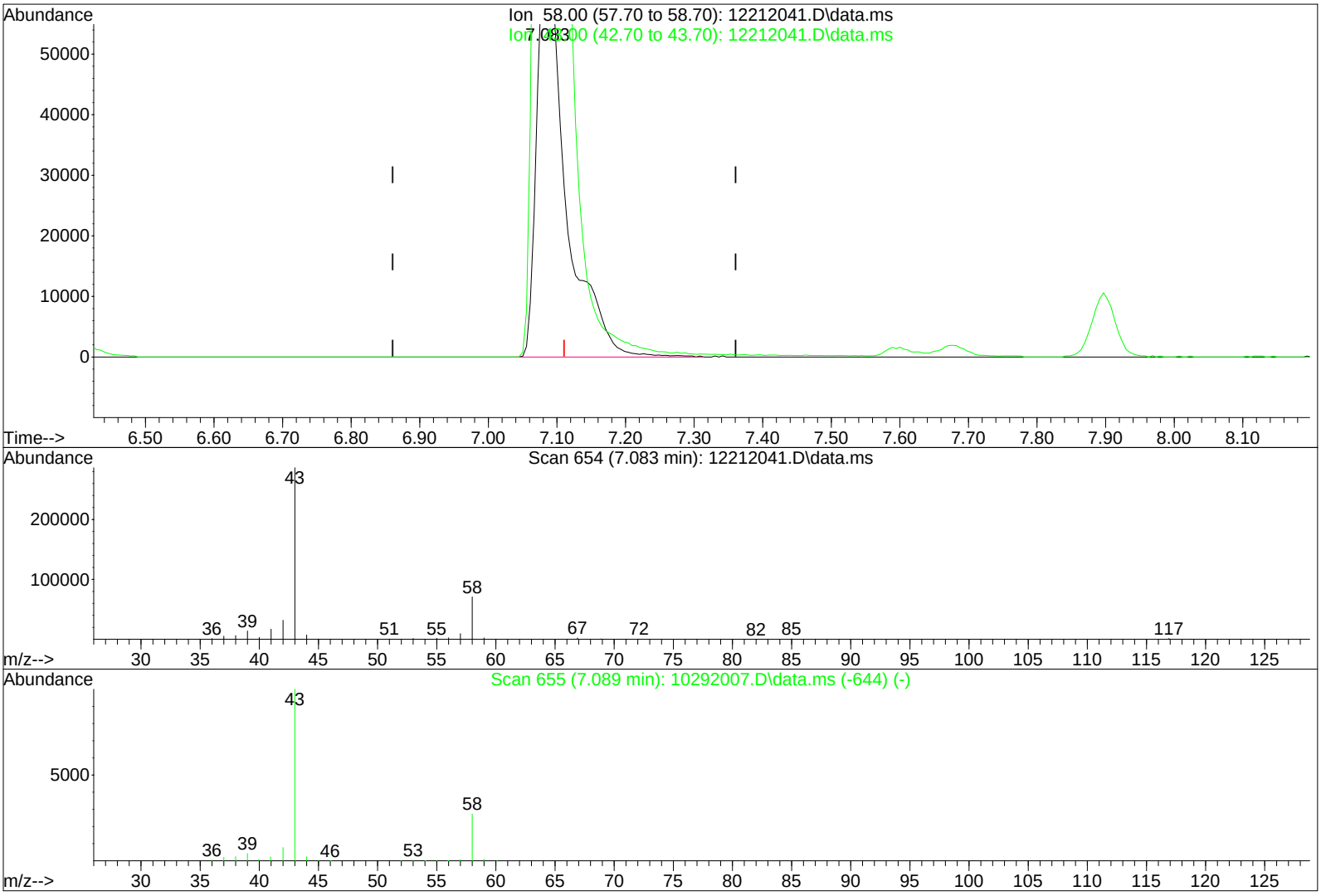
response 29649

Ion	Exp%	Act%
45.00	100	100
46.00	37.00	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:08 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 12212041.D\data.ms

(13) Acetone (T)

7.083min (-0.028) 12.12ng

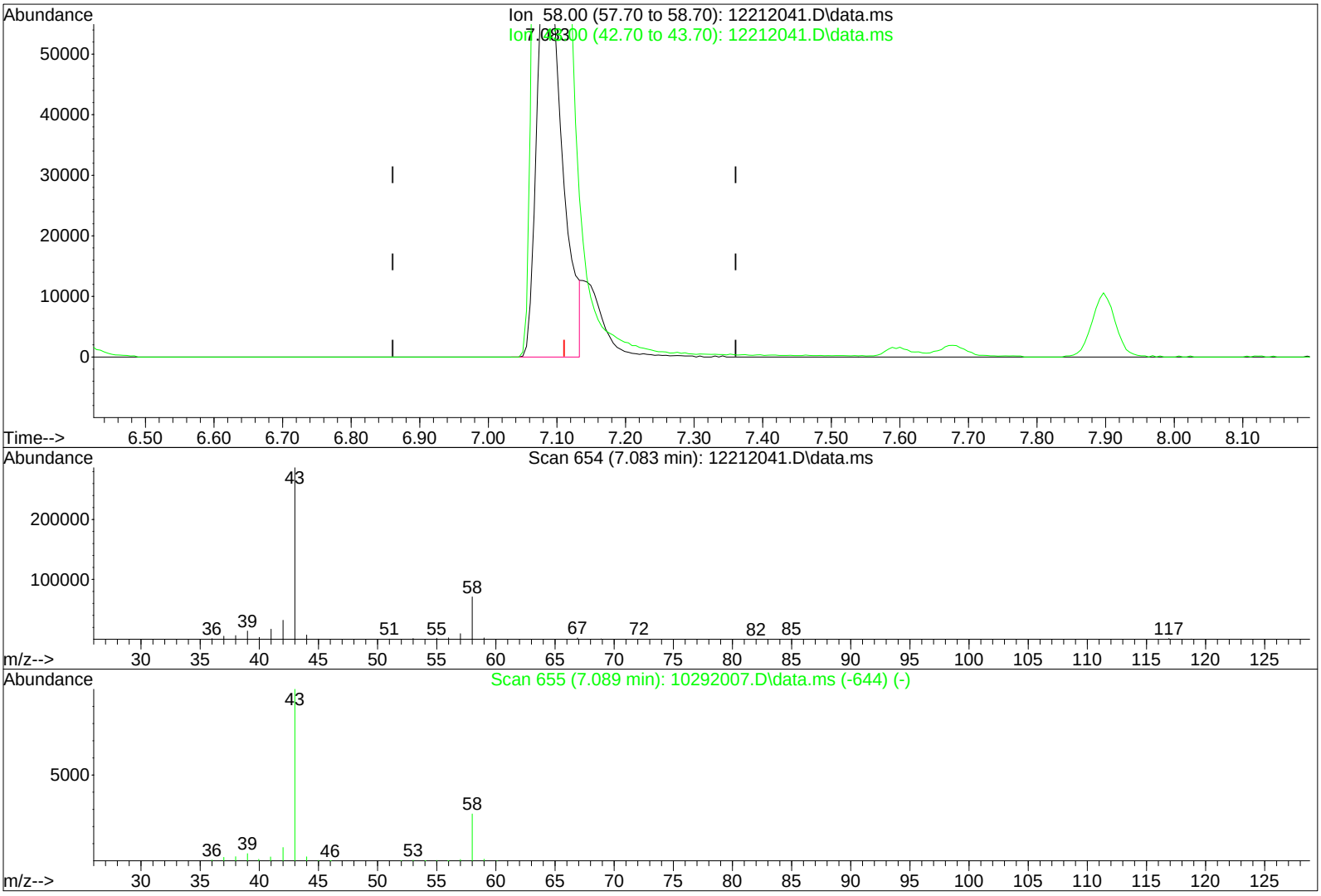
response 199106

Ion	Exp%	Act%
58.00	100	100
43.00	392.50	364.06
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:08 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 12212041.D\data.ms

(13) Acetone (T)

7.083min (-0.028) 10.46ng m

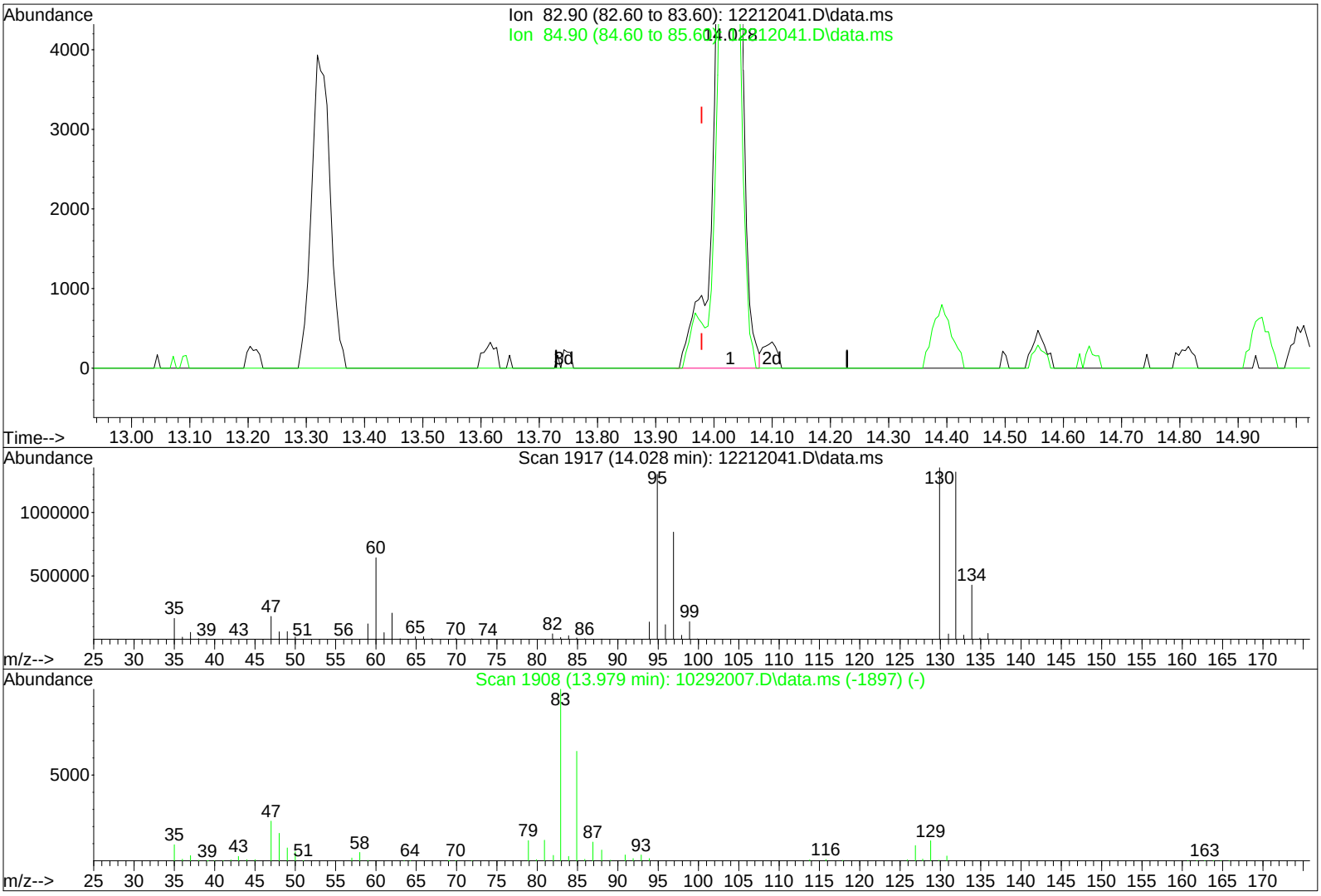
response 171824

Ion	Exp%	Act%
58.00	100	100
43.00	392.50	421.87
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:08 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 12212041.D\data.ms

(46) Bromodichloromethane (T)

14.028min (+0.049) 1.35ng

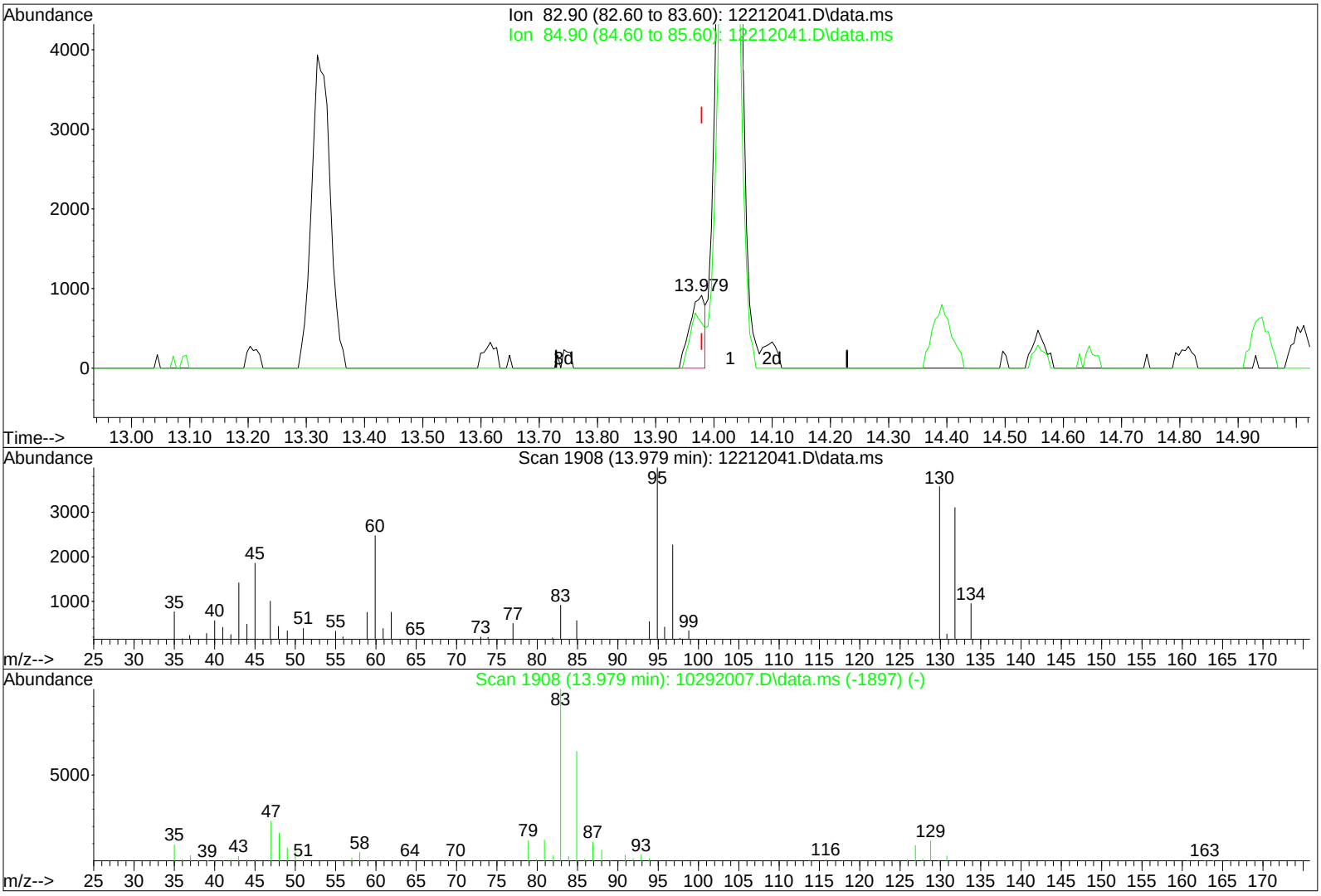
response 34861

Ion	Exp%	Act%
82.90	100	100
84.90	65.60	62.62
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212041.D Vial: 15
Acq On : 22 Dec 2020 4:06 Operator: LH
Sample : P2006988-001dup (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 07:46:08 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 12212041.D\data.ms

(46) Bromodichloromethane (T)

13.979min (-0.000) 0.06ng m

response 1661

Ion	Exp%	Act%
82.90	100	100
84.90	65.60	1314.27#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212063.D Vial: 6
Acq On : 22 Dec 2020 17:59 Operator: LH
Sample : P2006988-001dup dil (100mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 18:40:57 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	196707	12.500	ng		-0.04
37) 1,4-Difluorobenzene (IS2)	13.32	114	843179	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	184075	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	329321	12.033	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.24%				
57) Toluene-d8 (SS2)	15.77	98	861138	12.680	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.44%				
73) Bromofluorobenzene (SS3)	19.03	174	328283	13.127	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.04%				
Target Compounds							Qvalue
2) Propene	4.19	42	5282	0.147	ng	#	75
3) Dichlorodifluoromethan...	4.33	85	17606	0.422	ng		99
4) Chloromethane	4.61	50	1465	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	5.03	62	663	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	6.42	45	3599	0.172	ng		86
11) Acetonitrile	6.68	41	2796	N.D.			
12) Acrolein	6.87	56	1495	0.099	ng		93
13) Acetone	7.09	58	23715	1.360	ng	#	75
14) Trichlorofluoromethane	7.31	101	4658	0.122	ng		99
15) 2-Propanol (Isopropanol)	7.66	45	2023	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	8.26	96	2981	0.164	ng		99
18) 2-Methyl-2-Propanol (t...	8.55	59	1198	N.D.			
19) Methylene Chloride	8.48	84	162	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	8.90	151	39835	2.162	ng		100
22) Carbon Disulfide	8.74	76	97103	1.481	ng		99
23) trans-1,2-Dichloroethene	9.76	61	6074	0.197	ng		99
24) 1,1-Dichloroethane	10.00	63	3432	0.093	ng		92
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	10.24	86	2142	0.598	ng	#	20
27) 2-Butanone (MEK)	10.55	72	4276	0.355	ng	#	86
28) cis-1,2-Dichloroethene	11.01	61	263587	8.674	ng		99
29) Diisopropyl Ether	0.00	87	0	N.D. d			
30) Ethyl Acetate	11.37	61	116	N.D.			
31) n-Hexane	11.31	57	214	N.D.			
32) Chloroform	11.36	83	85541	2.512	ng		100
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	12.45	97	4263	0.134	ng		98
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	12.96	56	1501	No Calib		#	
41) Benzene	12.93	78	2075	N.D.			
42) Carbon Tetrachloride	13.09	117	5838	0.197	ng		99
43) Cyclohexane	13.22	84	1037	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. d			
47) Trichloroethene	14.02	130	298203	11.626	ng		100
48) 1,4-Dioxane	14.07	88	277	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D. d			
50) Methyl Methacrylate	14.02	100	553	0.069	ng	#	1

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212063.D Vial: 6
Acq On : 22 Dec 2020 17:59 Operator: LH
Sample : P2006988-001dup dil (100mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 18:40:57 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

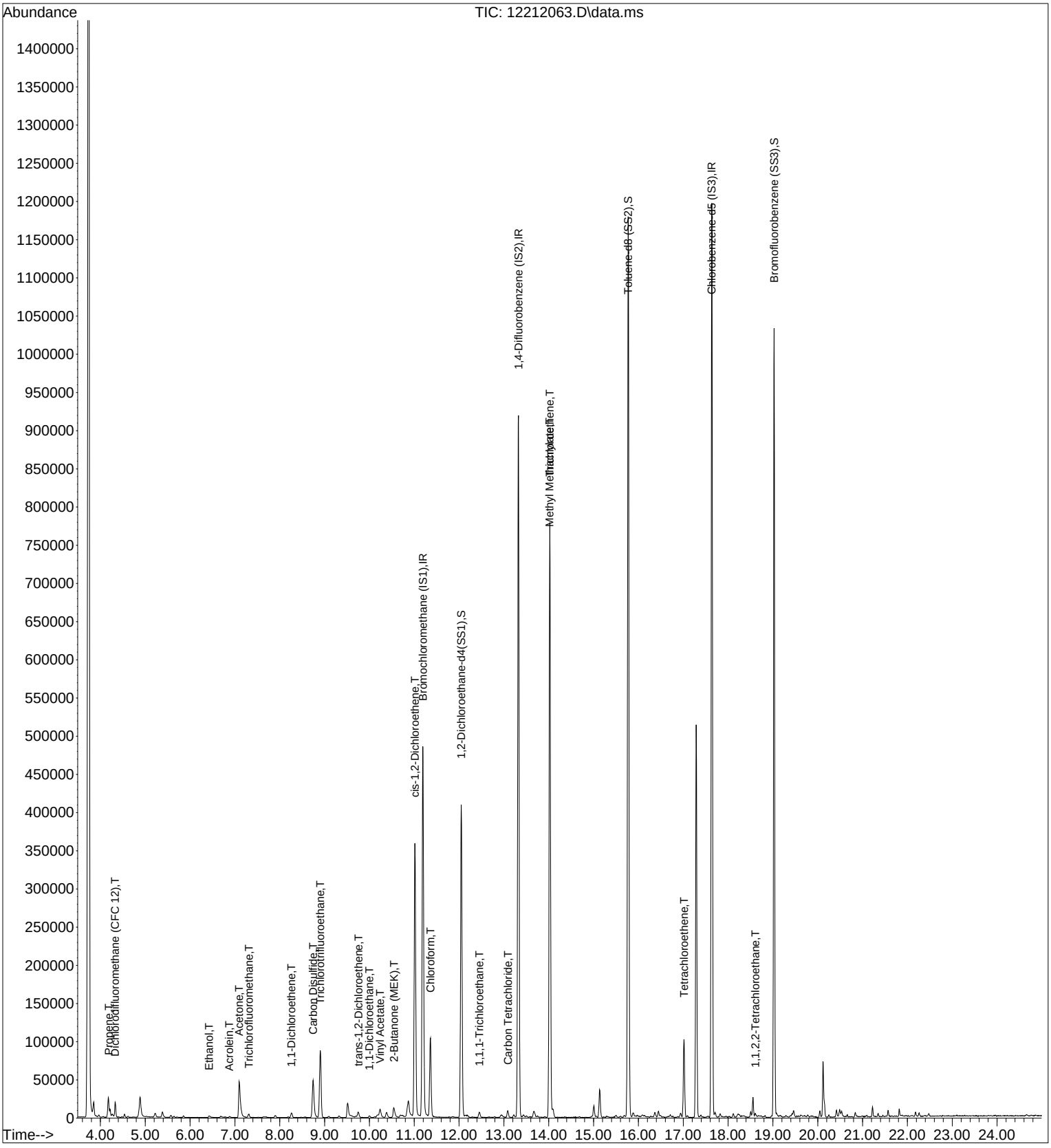
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	15.58	97	240	N.D.		
58) Toluene	15.87	91	1360	N.D.		
59) 2-Hexanone	16.14	43	1719	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.77	43	309	N.D.		
63) n-Octane	16.87	57	162	N.D.		
64) Tetrachloroethene	17.02	166	36589	1.537	ng	100
65) Chlorobenzene	17.71	112	332	N.D.		
66) Ethylbenzene	18.04	91	711	N.D.		
67) m- & p-Xylenes	18.19	91	532	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.53	104	112	N.D.		
70) o-Xylene	18.63	91	614	N.D.		
71) n-Nonane	18.82	43	1962	N.D.		
72) 1,1,2,2-Tetrachloroethane	18.61	83	2960	0.092	ng	98
74) Cumene	19.15	105	499	N.D.		
75) alpha-Pinene	19.50	93	216	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D.		
77) 3-Ethyltoluene	19.69	105	150	No Calib	#	
78) 4-Ethyltoluene	19.69	105	150	N.D.		
79) 1,3,5-Trimethylbenzene	19.80	105	324	N.D.		
80) alpha-Methylstyrene	19.93	118	239	No Calib	#	
81) 2-Ethyltoluene	19.96	105	295	No Calib	#	
82) 1,2,4-Trimethylbenzene	20.15	105	580	N.D.		
83) n-Decane	20.25	57	910	No Calib	#	
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	20.53	105	410	N.D.		
88) 4-Isopropyltoluene (p-...	20.53	119	2672	N.D.		
89) 1,2,3-Trimethylbenzene	20.53	105	410	No Calib	#	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.66	68	705	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.35	57	1517	No Calib		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.27	128	2173	N.D.		
96) n-Dodecane	22.25	57	1111	No Calib	#	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	18.35	55	1130	No Calib	#	
99) tert-Butylbenzene	20.12	119	1421	N.D.		
100) n-Butylbenzene	20.90	91	326	N.D.		
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212063.D Vial: 6
Acq On : 22 Dec 2020 17:59 Operator: LH
Sample : P2006988-001dup dil (100mL) Inst : GCMS-16
Misc : S34-12182001

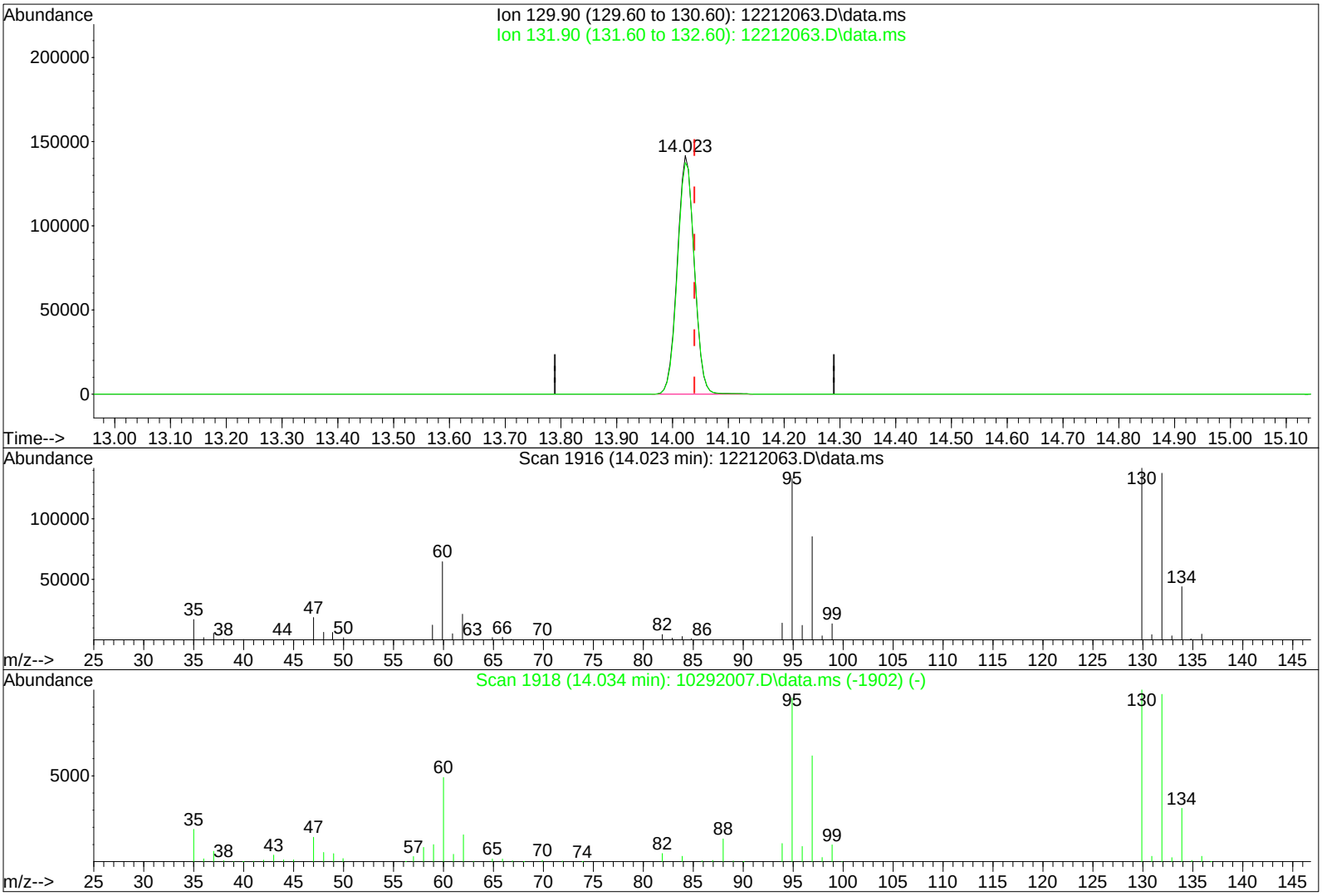
Quant Time: Dec 22 18:40:57 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2020_12\21\12212063.D Vial: 6
Acq On : 22 Dec 2020 17:59 Operator: LH
Sample : P2006988-001dup dil (100mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: Dec 22 18:40:57 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 12212063.D\data.ms

(47) Trichloroethene (T)

14.023min (-0.016) 11.63ng

response 298203

Ion	Exp%	Act%
129.90	100	100
131.90	98.30	98.37
0.00	0.00	0.00
0.00	0.00	0.00

Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\
Method File : R16121820.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Dec 21 15:39:15 2020
Response Via : Initial Calibration

Calibration Files
0.1 =12182031.D 0.2 =12182032.D 0.5 =12182040.D 1.0 =12182034.D 5.0 =12182035.D 25 =12182
100 =12182038.D

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	ISTD	----------							
2)	T	Propene	2.079	2.015	1.868	2.941	2.123	2.447	2.478	2.297	2.281	14.90
3)	T	Dichlorodifluo...	2.831	2.737	2.371	2.830	2.886	2.700	2.530	2.321	2.651	8.21
4)	T	Chloromethane	2.599	2.649	2.335	2.039	2.758	2.439	1.981		2.400	12.52
5)	T	1,2-Dichloro-1...	1.319	1.394	1.247	1.426	1.461	1.371	1.345	1.249	1.351	5.75
6)	T	Vinyl Chloride	1.819	1.862	1.679	1.899	1.948	1.847	1.856	1.721	1.829	4.87
7)	T	1,3-Butadiene	1.396	1.420	1.462	1.513	1.713	1.669	1.642	1.507	1.540	7.76
8)	T	Bromomethane	1.051	1.016	0.968	1.040	1.126	1.071	1.042	0.981	1.037	4.86
9)	T	Chloroethane	0.977	0.891	0.833	0.942	0.985	0.934	0.914	0.860	0.917	5.86
10)	T	Ethanol	1.541	1.405	1.417	1.351	1.408	1.283	1.192	1.068	1.333	11.13
11)	T	Acetonitrile	3.956	3.598	4.071	3.710	3.710	3.570	3.433	3.180	3.653	7.71
12)	T	Acrolein	0.860	0.907	0.939	0.987	1.072	1.018	0.978	0.905	0.958	7.19
13)	T	Acetone	1.250	1.208	1.194	1.179	1.180	1.041	0.960	0.854	1.108	12.69
14)	T	Trichlorofluor...	2.450	2.398	2.167	2.604	2.674	2.514	2.409	2.245	2.433	6.98
15)	T	2-Propanol (Is...	4.706	4.555	4.297	3.445	5.379	4.229	3.470	2.718	4.100	20.62
16)	T	Acrylonitrile	1.945	1.979	2.136	2.266	2.339	2.253	2.164	1.984	2.133	7.01
17)	T	1,1-Dichloroet...	1.101	1.086	1.053	1.184	1.245	1.208	1.187	1.148	1.152	5.76
18)	T	2-Methyl-2-Pro...	3.251	3.237	3.138	2.823	4.041	3.634	2.621		3.249	14.67
19)	T	Methylene Chlo...	1.254	1.147	1.088	1.230	1.257	1.212	1.177	1.113	1.185	5.40
20)	T	3-Chloro-1-pro...	2.386	2.452	2.261	2.586	2.769	2.747	2.653	2.492	2.543	6.99
21)	T	Trichlorotrifl...	1.142	1.177	1.075	1.228	1.269	1.207	1.167	1.100	1.171	5.52
22)	T	Carbon Disulfide	4.321	4.176	3.870	4.259	4.511	4.288	4.129	3.786	4.168	5.74
23)	T	trans-1,2-Dich...	1.733	1.880	1.759	2.000	2.168	2.099	2.065	1.948	1.956	8.05
24)	T	1,1-Dichloroet...	2.296	2.374	2.132	2.445	2.539	2.427	2.371	2.233	2.352	5.47
25)	T	Methyl tert-Bu...	3.227	3.258	3.168	3.602	3.927	3.843	3.630	2.503	3.395	13.53
26)	T	Vinyl Acetate			0.191	0.198	0.254	0.256	0.246	0.221	0.228	12.62
27)	T	2-Butanone (MEK)		0.697	0.729	0.813	0.847	0.819	0.788	0.669	0.766	8.83
28)	T	cis-1,2-Dichlo...	1.886	1.818	1.742	1.989	2.100	2.037	1.993	1.883	1.931	6.17
29)	T	Diisopropyl Ether	0.974	1.018	0.955	1.095	1.140	0.964	0.914	0.832	0.986	9.92
30)	T	Ethyl Acetate			0.592	0.660	0.686	0.629	0.573		0.628	7.40
31)	T	n-Hexane	2.483	2.501	2.292	2.564	2.665	2.398	2.213	1.956	2.384	9.47
32)	T	Chloroform	2.162	2.180	1.920	2.278	2.346	2.243	2.159	2.025	2.164	6.33
33)	S	1,2-Dichloroet...	1.747	1.782	1.718	1.777	1.758	1.745	1.720	1.666	1.739	2.16
34)	T	Tetrahydrofura...	0.687	0.720	0.783	0.758	0.812	0.781	0.746	0.672	0.745	6.55
35)	T	Ethyl tert-But...	1.322	1.321	1.244	1.434	1.518	1.474	1.430	1.328	1.384	6.76
36)	T	1,2-Dichloroet...	1.949	1.910	1.694	2.018	2.101	2.014	1.938	1.799	1.928	6.72
37)	IR	1,4-Difluorobenzen...	----------	ISTD	----------							
38)	T	1,1,1-Trichlor...	0.469	0.469	0.412	0.490	0.523	0.504	0.479	0.436	0.473	7.57
39)	T	Isopropyl Acetate									0.000	-1.00
40)	T	1-Butanol									0.000	-1.00
41)	T	Benzene	1.242	1.134	1.108	1.148	1.204	1.146	1.104	1.035	1.140	5.52
42)	T	Carbon Tetrach...	0.419	0.397	0.365	0.440	0.475	0.458	0.551	0.413	0.440	12.88
43)	T	Cyclohexane	0.398	0.373	0.365	0.408	0.434	0.414	0.398	0.364	0.394	6.37
44)	T	tert-Amyl Meth...	0.726	0.709	0.680	0.782	0.838	0.816	0.784	0.728	0.758	7.28
45)	T	1,2-Dichloropr...	0.301	0.305	0.284	0.316	0.333	0.320	0.309	0.292	0.307	5.14
46)	T	Bromodichlorom...	0.391	0.383	0.350	0.410	0.447	0.434	0.417	0.393	0.403	7.63
47)	T	Trichloroethene	0.547	0.416	0.353	0.359	0.361	0.347	0.339	0.319	0.380	19.19
48)	T	1,4-Dioxane	0.188	0.204	0.214	0.230	0.247	0.241	0.234	0.219	0.222	8.94
49)	T	2,2,4-Trimethy...	1.487	1.389	1.301	1.473	1.547	1.455	1.382	1.245	1.410	7.16
50)	T	Methyl Methacr...			0.104	0.115	0.130	0.128	0.122	0.114	0.119	8.19
51)	T	n-Heptane	0.261	0.264	0.249	0.277	0.296	0.283	0.273	0.257	0.270	5.69
52)	T	cis-1,3-Dichlo...	0.360	0.374	0.369	0.418	0.476	0.473	0.466	0.444	0.422	11.62
53)	T	4-Methyl-2-pen...	0.258	0.259	0.278	0.314	0.348	0.329	0.306	0.275	0.296	11.25
54)	T	trans-1,3-Dich...			0.343	0.387	0.463	0.472	0.464	0.444	0.429	12.13

55)	T	1,1,2-Trichlor...	0.265	0.246	0.249	0.282	0.302	0.289	0.279	0.263	0.272	7.16
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------									
57)	S	Toluene-d8 (SS2)	4.651	4.573	4.651	4.550	4.510	4.553	4.660	4.747	4.612	1.70
58)	T	Toluene	5.659	5.241	4.875	5.269	5.507	5.321	5.195	4.931	5.250	5.01
59)	T	2-Hexanone	4.094	3.899	4.373	4.383	4.743	4.424	4.076	3.529	4.190	8.91
60)	T	Dibromochlorom...	1.506	1.454	1.380	1.606	1.779	1.762	1.741	1.672	1.613	9.41
61)	T	1,2-Dibromoethane	1.315	1.344	1.307	1.419	1.585	1.558	1.544	1.483	1.444	7.87
62)	T	n-Butyl Acetate	4.344	4.099	4.628	4.824	5.324	5.029	4.633	3.918	4.600	10.20
63)	T	n-Octane	1.348	1.249	1.223	1.386	1.478	1.404	1.366	1.261	1.339	6.58
64)	T	Tetrachloroethene	1.597	1.558	1.490	1.661	1.730	1.685	1.645	1.565	1.616	4.85
65)	T	Chlorobenzene	3.952	3.625	3.524	3.701	3.890	3.791	3.751	3.531	3.721	4.22
66)	T	Ethylbenzene	5.814	5.567	5.525	5.974	6.472	6.304	6.125	5.749	5.941	5.74
67)	T	m- & p-Xylenes	4.553	4.463	4.361	4.907	5.062	4.909	4.744	4.420	4.677	5.64
68)	T	Bromoform	1.163	1.168	1.140	1.312	1.508	1.536	1.524	1.447	1.350	12.92
69)	T	Styrene	2.980	3.067	3.424	3.511	4.061	4.054	3.936	3.710	3.593	11.77
70)	T	o-Xylene	4.636	4.473	4.386	4.851	5.162	4.968	4.787	4.455	4.715	5.82
71)	T	n-Nonane	3.713	3.516	3.534	4.013	4.255	3.927	3.646	3.089	3.712	9.63
72)	T	1,1,2,2-Tetrac...	2.174	2.096	1.975	2.257	2.332	2.283	2.231	2.100	2.181	5.42
73)	S	Bromofluoroben...	1.684	1.666	1.718	1.686	1.675	1.707	1.723	1.726	1.698	1.37
74)	T	Cumene	6.477	5.960	5.619	6.402	6.698	6.466	6.240	5.730	6.199	6.26
75)	T	alpha-Pinene	2.530	2.720	2.490	3.049	3.268	3.284	3.197	2.998	2.942	10.95
76)	T	n-Propylbenzene	7.080	6.817	6.928	7.545	7.942	7.683	7.331	6.645	7.246	6.27
77)	T	3-Ethyltoluene									0.000	-1.00
78)	T	4-Ethyltoluene	5.702	5.612	5.654	6.282	6.608	6.445	6.195	5.668	6.021	6.73
79)	T	1,3,5-Trimethy...	4.842	4.795	4.636	5.255	5.525	5.369	5.192	4.803	5.052	6.39
80)	T	alpha-Methylst...									0.000	-1.00
81)	T	2-Ethyltoluene									0.000	-1.00
82)	T	1,2,4-Trimethy...			4.905	5.360	5.796	5.624	5.392	4.783	5.310	7.47
83)	T	n-Decane									0.000	-1.00
84)	T	Benzyl Chloride			3.458	3.473	4.528	4.846	4.681	4.055	4.174	14.58
85)	T	1,3-Dichlorobe...	3.212	3.059	3.480	3.249	3.503	3.405	3.198	2.796	3.238	7.25
86)	T	1,4-Dichlorobe...	3.423	3.174	3.706	3.230	3.567	3.438	3.330	3.051	3.365	6.36
87)	T	sec-Butylbenzene	6.690	6.436	6.263	7.286	7.523	6.923	6.889	6.145	6.769	7.14
88)	T	4-Isopropyltol...	5.635	5.650	5.591	6.449	6.771	6.539	6.288	5.599	6.065	8.17
89)	T	1,2,3-Trimethy...									0.000	-1.00
90)	T	1,2-Dichlorobe...	3.213	3.011	3.249	3.222	3.361	3.241	3.042	2.683	3.128	6.80
91)	T	d-Limonene	1.576	1.559	1.412	1.919	2.132	2.114	2.056	1.920	1.836	15.27
92)	T	1,2-Dibromo-3-...	1.033	1.041	1.109	1.233	1.337	1.346	1.296	1.159	1.194	10.65
93)	T	n-Undecane									0.000	-1.00
94)	T	1,2,4-Trichlor...			3.377	2.132	2.851	2.915	2.765	2.365	2.734	16.02
95)	T	Naphthalene			1.262	0.545	0.848	0.876	0.838	0.739	0.851	E1 27.61
96)	T	n-Dodecane									0.000	-1.00
97)	T	Hexachlorobuta...	1.735	1.608	1.410	1.697	1.642	1.684	1.661	1.528	1.621	6.51
98)	T	Cyclohexanone									0.000	-1.00
99)	T	tert-Butylbenzene	4.906	4.884	4.695	5.422	5.671	5.419	5.107	4.405	5.064	8.35
100)	T	n-Butylbenzene	5.116	5.009	5.317	5.740	6.109	5.896	5.590	5.102	5.485	7.46
101)	T	1,1,1,2-Tetrac...	1.379	1.353	1.341	1.450	1.525	1.485	1.458	1.360	1.419	4.88

(#) = Out of Range

R16121820.M Mon Dec 21 16:21:36 2020

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID: | 40ng/L Std. ID:
4ng/L Std. ID: S34-12142004 | 200ng/L Std. ID: S34-12142002
20ng/L Std. ID: S34-12142003 | 1000ng/L Std. ID:

Dilution Factors:		1	5	25	50	250	1000	Working STD Conc.(ng/L):	4	4	20	4	200	200	200	200
	Source Std.		Primary Working Standards					Injection (L):	0.025	0.050	0.0250	0.250	0.025	0.125	0.25	0.50
Compounds	mg/m³	1000ng/L	200ng/L	40ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
Propene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Dichlorodifluoromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chloromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Freon-114	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Vinyl Chloride	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,3-Butadiene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Bromomethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Ethanol	5.28	5280	1056	211.2	105.6	21.12	5.28		0.528	1.056	2.640	5.28	26.40	132.00	264.0	528
Acetonitrile	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
Acrolein	2.18	2180	436	87.2	43.6	8.72	2.18		0.218	0.436	1.090	2.18	10.90	54.50	109.0	218
Acetone	5.16	5160	1032	206.4	103.2	20.64	5.16		0.516	1.032	2.580	5.16	25.80	129.00	258.0	516
Trichlorofluoromethane	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
Isopropanol	2.05	2050	410	82.0	41.0	8.20	2.05		0.205	0.410	1.025	2.05	10.25	51.25	102.5	205
Acrylonitrile	2.05	2050	410	82.0	41.0	8.20	2.05		0.205	0.410	1.025	2.05	10.25	51.25	102.5	205
1,1-Dichloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
tert-Butanol	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
Methylene Chloride	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Allyl Chloride	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Trichlorotrifluoroethane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Carbon Disulfide	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
trans-1,2-Dichloroethene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,1-Dichloroethane	1.07	1070	214	42.8	21.4	4.28	1.07		0.107	0.214	0.535	1.07	5.35	26.75	53.5	107
Methyl tert-Butyl Ether	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Vinyl Acetate	5.49	5490	1098	219.6	109.8	21.96	5.49		0.549	1.098	2.745	5.49	27.45	137.25	274.5	549
2-Butanone	2.06	2060	412	82.4	41.2	8.24	2.06		0.206	0.412	1.030	2.06	10.30	51.50	103.0	206
cis-1,2-Dichloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Diisopropyl Ether	2.09	2090	418	83.6	41.8	8.36	2.09		0.209	0.418	1.045	2.09	10.45	52.25	104.5	209
Ethyl Acetate	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
n-Hexane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chloroform	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Tetrahydrofuran	2.04	2040	408	81.6	40.8	8.16	2.04		0.204	0.408	1.020	2.04	10.20	51.00	102.0	204
Ethyl tert-Butyl Ether	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
1,2-Dichloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,1,1-Trichloroethane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Benzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Carbon Tetrachloride	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
Cyclohexane	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
tert-Amyl Methyl Ether	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
1,2-Dichloropropane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Bromodichloromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Trichloroethene	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
1,4-Dioxane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Isooctane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Methyl Methacrylate	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
n-Heptane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:		**40ng/L Std. ID:**	
4ng/L Std. ID:	**S34-12142004**	**200ng/L Std. ID:**	**S34-12142002**
20ng/L Std. ID:	**S34-12142003**	**1000ng/L Std. ID:**	

Dilution Factors:		**1**	**5**	**25**	**50**	**250**	**1000**	**Working STD Conc.(ng/L):**	**4**	**4**	**20**	**4**	**200**	**200**	**200**	**200**
	Source Std.		**Primary Working Standards**					**Injection (L):**	**0.025**	**0.050**	**0.0250**	**0.250**	**0.025**	**0.125**	**0.25**	**0.50**
Compounds	**mg/m^3**	**1000ng/L**	**200ng/L**	**40ng/L**	**20ng/L**	**4ng/L**	**1ng/L**	**ICAL Points:**	**0.1ng**	**0.2ng**	**0.5ng**	**1ng**	**5ng**	**25ng**	**50ng**	**100ng**
cis-1,3-Dichloropropene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
4-Methyl-2-pentanone	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
trans-1,3-Dichloropropene	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
1,1,2-Trichloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Toluene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
2-Hexanone	2.06	2060	412	82.4	41.2	8.24	2.06		0.206	0.412	1.030	2.06	10.30	51.50	103.0	206
Dibromochloromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,2-Dibromoethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
n-Butyl Acetate	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
n-Octane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Tetrachloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chlorobenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Ethylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
m-&p-Xylene	2.09	2090	418	83.6	41.8	8.36	2.09		0.209	0.418	1.045	2.09	10.45	52.25	104.5	209
Bromoform	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
Styrene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
o-Xylene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
n-Nonane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,1,2,2-Tetrachloroethane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Cumene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
alpha-Pinene	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
n-Propylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
4-Ethyltoluene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,3,5-Trimethylbenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,2,4-Trimethylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Benzyl Chloride	2.10	2100	420	84.0	42.0	8.40	2.10		0.210	0.420	1.050	2.10	10.50	52.50	105.0	210
1,3-Dichlorobenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,4-Dichlorobenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
sec-Butylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
p-Isopropyltoluene	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
1,2-Dichlorobenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
d-Limonene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
1,2-Dibromo-3-chloropropane	2.00	2000	400	80.0	40.0	8.00	2.00		0.200	0.400	1.000	2.00	10.00	50.00	100.0	200
1,2,4-Trichlorobenzene	2.00	2000	400	80.0	40.0	8.00	2.00		0.200	0.400	1.000	2.00	10.00	50.00	100.0	200
Naphthalene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Hexachloro-1,3-butadiene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
tert-Butylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
n-Butylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
1,1,1,2-Tetrachloroethane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103

Calibration Status Report GCMS-16

Method : I:\MS16\METHODS\R16121820.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS16\DATA\2020_12\18\12182031.D
2	0.2	0	13	I:\MS16\DATA\2020_12\18\12182032.D
3	0.5	1	13	I:\MS16\DATA\2020_12\18\12182040.D
4	1.0	1	13	I:\MS16\DATA\2020_12\18\12182034.D
5	5.0	5	13	I:\MS16\DATA\2020_12\18\12182035.D
6	25	26	13	I:\MS16\DATA\2020_12\18\12182036.D
7	50	52	13	I:\MS16\DATA\2020_12\18\12182037.D
8	100	104	13	I:\MS16\DATA\2020_12\18\12182038.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Dec 19 11:53 2020	Dec 19 11:50 2020	18 Dec 2020 21:19
2	0.2	Dec 19 11:53 2020	Dec 19 11:50 2020	18 Dec 2020 21:53
3	0.5	Dec 21 15:39 2020	Dec 19 11:50 2020	19 Dec 2020 11:15
4	1.0	Dec 19 11:53 2020	Dec 19 11:50 2020	18 Dec 2020 23:00
5	5.0	Dec 19 11:53 2020	Dec 19 11:50 2020	18 Dec 2020 23:34
6	25	Dec 19 11:53 2020	Dec 19 11:50 2020	19 Dec 2020 00:08
7	50	Dec 19 11:54 2020	Dec 19 11:50 2020	19 Dec 2020 00:42
8	100	Dec 19 11:54 2020	Dec 19 11:50 2020	19 Dec 2020 1:16

R16121820.M Mon Dec 21 15:46:41 2020

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182031.D Vial: 4
Acq On : 18 Dec 2020 21:19 Operator: LH
Sample : 0.1ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142004 (1/13)

Quant Time: Dec 19 11:50:30 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	201434	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	872735	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	189452	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	351856	12.373	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.96%				
57) Toluene-d8 (SS2)	15.77	98	881124	13.010	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.08%				
73) Bromofluorobenzene (SS3)	19.03	174	319116	11.141	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.12%				
Target Compounds							Qvalue
2) Propene	4.19	42	3484	0.109	ng		98
3) Dichlorodifluoromethan...	4.34	85	4745	0.112	ng		95
4) Chloromethane	4.63	50	4355	0.140	ng		96
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	2211	0.094	ng		97
6) Vinyl Chloride	5.04	62	3078	0.097	ng		92
7) 1,3-Butadiene	5.30	54	2340	0.094	ng		93
8) Bromomethane	5.73	94	1762	0.111	ng		97
9) Chloroethane	6.06	64	1638	0.122	ng		86
10) Ethanol	6.42	45	13114	0.794	ng		99
11) Acetonitrile	6.69	41	6758	0.161	ng		84
12) Acrolein	6.89	56	3022	0.235	ng		100
13) Acetone	7.11	58	10397	0.638	ng		96
14) Trichlorofluoromethane	7.32	101	4027	0.105	ng		100
15) 2-Propanol (Isopropanol)	7.61	45	15546	0.306	ng		92
16) Acrylonitrile	7.83	53	6424	0.232	ng		96
17) 1,1-Dichloroethene	8.28	96	1845	0.103	ng		97
18) 2-Methyl-2-Propanol (t...	8.51	59	10845	0.221	ng		93
19) Methylene Chloride	8.48	84	2101	0.109	ng		97
20) 3-Chloro-1-propene (Al...	8.65	41	3999	0.120	ng		92
21) Trichlorotrifluoroethane	8.91	151	1933	0.103	ng		88
22) Carbon Disulfide	8.75	76	14482	0.214	ng		95
23) trans-1,2-Dichloroethene	9.76	61	2932	0.101	ng		97
24) 1,1-Dichloroethane	10.00	63	3959	0.113	ng		98
25) Methyl tert-Butyl Ether	10.16	73	5357	0.092	ng		95
26) Vinyl Acetate	10.28	86	1097	0.255	ng	#	7
27) 2-Butanone (MEK)	10.56	72	2107	0.168	ng	#	37
28) cis-1,2-Dichloroethene	11.02	61	3161	0.110	ng		99
29) Diisopropyl Ether	11.35	87	3280	0.199	ng	#	82
30) Ethyl Acetate	11.36	61	1736	0.177	ng		90
31) n-Hexane	11.31	57	4162	0.115	ng	#	96
32) Chloroform	11.36	83	3659	0.104	ng		96
34) Tetrahydrofuran (THF)	11.82	72	2260	0.188	ng	#	81
35) Ethyl tert-Butyl Ether	11.94	87	4430	0.190	ng		97
36) 1,2-Dichloroethane	12.17	62	3267	0.111	ng		93
38) 1,1,1-Trichloroethane	12.45	97	3370	0.105	ng		99
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	12.92	78	9016	0.119	ng		98
42) Carbon Tetrachloride	13.09	117	2982	0.101	ng		97
43) Cyclohexane	13.22	84	5757	0.200	ng		99
44) tert-Amyl Methyl Ether	13.58	73	10491	0.186	ng		94
45) 1,2-Dichloropropane	13.78	63	2184	0.108	ng		99
46) Bromodichloromethane	13.97	83	2836	0.103	ng		98
47) Trichloroethene	14.02	130	3897	0.173	ng		99
48) 1,4-Dioxane	14.05	88	1349	0.088	ng		85
49) 2,2,4-Trimethylpentane...	14.09	57	10900	0.128	ng		100
50) Methyl Methacrylate	14.25	100	1288	0.153	ng	#	84

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182031.D Vial: 4
Acq On : 18 Dec 2020 21:19 Operator: LH
Sample : 0.1ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142004 (1/13)

Quant Time: Dec 19 11:50:30 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

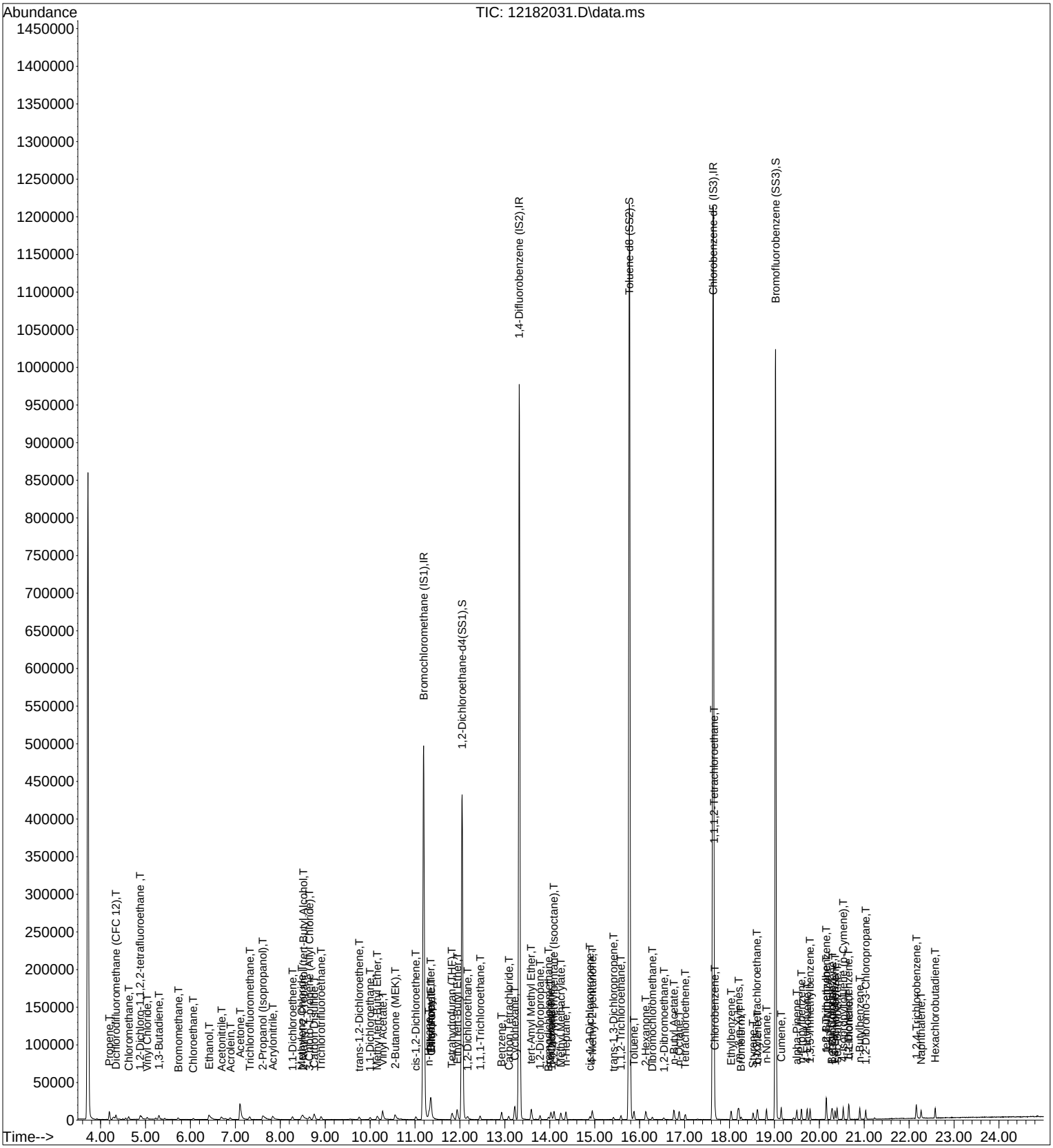
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	1878	0.099	ng		95
52) cis-1,3-Dichloropropene	14.89	75	2636	0.090	ng		99
53) 4-Methyl-2-pentanone	14.95	58	3746	0.194	ng		81
54) trans-1,3-Dichloropropene	15.42	75	2125	0.077	ng		85
55) 1,1,2-Trichloroethane	15.58	97	1927	0.105	ng		98
58) Toluene	15.87	91	8920	0.110	ng		97
59) 2-Hexanone	16.13	43	12783	0.233	ng		91
60) Dibromochloromethane	16.28	129	2374	0.101	ng		99
61) 1,2-Dibromoethane	16.54	107	2073	0.094	ng		97
62) n-Butyl Acetate	16.76	43	13628	0.219	ng		96
63) n-Octane	16.88	57	2125	0.116	ng		90
64) Tetrachloroethene	17.01	166	2517	0.098	ng		100
65) Chlorobenzene	17.67	112	6169	0.108	ng		92
66) Ethylbenzene	18.04	91	9164	0.098	ng		99
67) m- & p-Xylenes	18.21	91	14422	0.195	ng		99
68) Bromoform	18.26	173	1868	0.081	ng		96
69) Styrene	18.52	104	4652	0.087	ng		98
70) o-Xylene	18.63	91	7378	0.100	ng		95
71) n-Nonane	18.82	43	5909	0.123	ng		92
72) 1,1,2,2-Tetrachloroethane	18.61	83	3459	0.099	ng		96
74) Cumene	19.15	105	10209	0.109	ng		98
75) alpha-Pinene	19.50	93	4064	0.086	ng	#	60
76) n-Propylbenzene	19.60	91	11160	0.097	ng		97
77) 3-Ethyltoluene	19.73	105	9074	No Calib			
78) 4-Ethyltoluene	19.73	105	9074	0.100	ng		97
79) 1,3,5-Trimethylbenzene	19.79	105	7706	0.103	ng		96
80) alpha-Methylstyrene	0.00	118	0	N.D.			
81) 2-Ethyltoluene	19.79	105	7706	No Calib		#	
82) 1,2,4-Trimethylbenzene	20.15	105	7377	0.093	ng		98
83) n-Decane	20.15	57	299	No Calib		#	
84) Benzyl Chloride	20.28	91	7591	0.110	ng		95
85) 1,3-Dichlorobenzene	20.29	146	5112	0.105	ng		96
86) 1,4-Dichlorobenzene	20.35	146	5395	0.109	ng		97
87) sec-Butylbenzene	20.40	105	10443	0.102	ng		97
88) 4-Isopropyltoluene (p-...	20.53	119	8711	0.098	ng		97
89) 1,2,3-Trimethylbenzene	20.53	105	429	No Calib		#	
90) 1,2-Dichlorobenzene	20.65	146	5113	0.109	ng		99
91) d-Limonene	20.66	68	2460	0.076	ng		97
92) 1,2-Dibromo-3-Chloropr...	21.03	157	3132	0.159	ng	#	82
93) n-Undecane	21.23	57	408	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.16	180	6967	0.186	ng		98
95) Naphthalene	22.27	128	10099	0.098	ng		93
96) n-Dodecane	22.18	57	181	No Calib		#	
97) Hexachlorobutadiene	22.58	225	2708	0.108	ng		99
98) Cyclohexanone	18.36	55	113	No Calib		#	
99) tert-Butylbenzene	20.15	119	7733	0.101	ng		100
100) n-Butylbenzene	20.90	91	7986	0.095	ng		96
101) 1,1,1,2-Tetrachloroethane	17.66	131	2153	0.100	ng		97

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182031.D Vial: 4
Acq On : 18 Dec 2020 21:19 Operator: LH
Sample : 0.1ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142004 (1/13)

Quant Time: Dec 19 11:50:30 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182032.D Vial: 4
Acq On : 18 Dec 2020 21:53 Operator: LH
Sample : 0.2ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142004 (1/13)

Quant Time: Dec 19 11:50:31 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	193930	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	855713	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	185850	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	345588	12.623	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.96%				
57) Toluene-d8 (SS2)	15.77	98	849895	12.792	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.32%				
73) Bromofluorobenzene (SS3)	19.03	174	309704	11.022	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.16%				
Target Compounds							Qvalue
2) Propene	4.19	42	6502	0.211	ng		97
3) Dichlorodifluoromethan...	4.34	85	8831	0.217	ng		99
4) Chloromethane	4.62	50	8548	0.285	ng		97
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	4498	0.199	ng		99
6) Vinyl Chloride	5.03	62	6065	0.199	ng		98
7) 1,3-Butadiene	5.30	54	4582	0.191	ng		98
8) Bromomethane	5.73	94	3279	0.214	ng		100
9) Chloroethane	6.06	64	2874	0.222	ng		95
10) Ethanol	6.41	45	23023	1.449	ng		97
11) Acetonitrile	6.68	41	11835	0.294	ng		91
12) Acrolein	6.87	56	6132	0.494	ng		98
13) Acetone	7.09	58	19346	1.234	ng		99
14) Trichlorofluoromethane	7.32	101	7590	0.206	ng		96
15) 2-Propanol (Isopropanol)	7.59	45	28976	0.593	ng		90
16) Acrylonitrile	7.83	53	12586	0.472	ng		99
17) 1,1-Dichloroethene	8.27	96	3506	0.203	ng		92
18) 2-Methyl-2-Propanol (t...	8.48	59	20788	0.441	ng		93
19) Methylene Chloride	8.47	84	3702	0.199	ng		87
20) 3-Chloro-1-propene (Al...	8.65	41	7913	0.247	ng		93
21) Trichlorotrifluoroethane	8.91	151	3835	0.213	ng		100
22) Carbon Disulfide	8.75	76	26950	0.414	ng		98
23) trans-1,2-Dichloroethene	9.75	61	6126	0.219	ng		99
24) 1,1-Dichloroethane	10.00	63	7883	0.234	ng		99
25) Methyl tert-Butyl Ether	10.15	73	10414	0.187	ng		100
26) Vinyl Acetate	10.27	86	2535	0.613	ng	#	37
27) 2-Butanone (MEK)	10.54	72	4455	0.368	ng	#	79
28) cis-1,2-Dichloroethene	11.02	61	5868	0.213	ng		99
29) Diisopropyl Ether	11.34	87	6602	0.416	ng	#	93
30) Ethyl Acetate	11.35	61	3868	0.410	ng		91
31) n-Hexane	11.31	57	8072	0.232	ng		98
32) Chloroform	11.36	83	7103	0.210	ng		99
34) Tetrahydrofuran (THF)	11.81	72	4556	0.395	ng	#	92
35) Ethyl tert-Butyl Ether	11.93	87	8526	0.380	ng		96
36) 1,2-Dichloroethane	12.17	62	6163	0.218	ng		99
38) 1,1,1-Trichloroethane	12.45	97	6614	0.211	ng		98
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	12.93	78	16140	0.217	ng		100
42) Carbon Tetrachloride	13.08	117	5544	0.191	ng		99
43) Cyclohexane	13.22	84	10580	0.374	ng		98
44) tert-Amyl Methyl Ether	13.58	73	20099	0.363	ng		95
45) 1,2-Dichloropropane	13.78	63	4342	0.219	ng		99
46) Bromodichloromethane	13.97	83	5457	0.203	ng		99
47) Trichloroethene	14.02	130	5815	0.263	ng		98
48) 1,4-Dioxane	14.04	88	2879	0.192	ng		97
49) 2,2,4-Trimethylpentane...	14.09	57	19969	0.238	ng		98
50) Methyl Methacrylate	14.24	100	2666	0.322	ng		93

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182032.D Vial: 4
Acq On : 18 Dec 2020 21:53 Operator: LH
Sample : 0.2ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142004 (1/13)

Quant Time: Dec 19 11:50:31 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

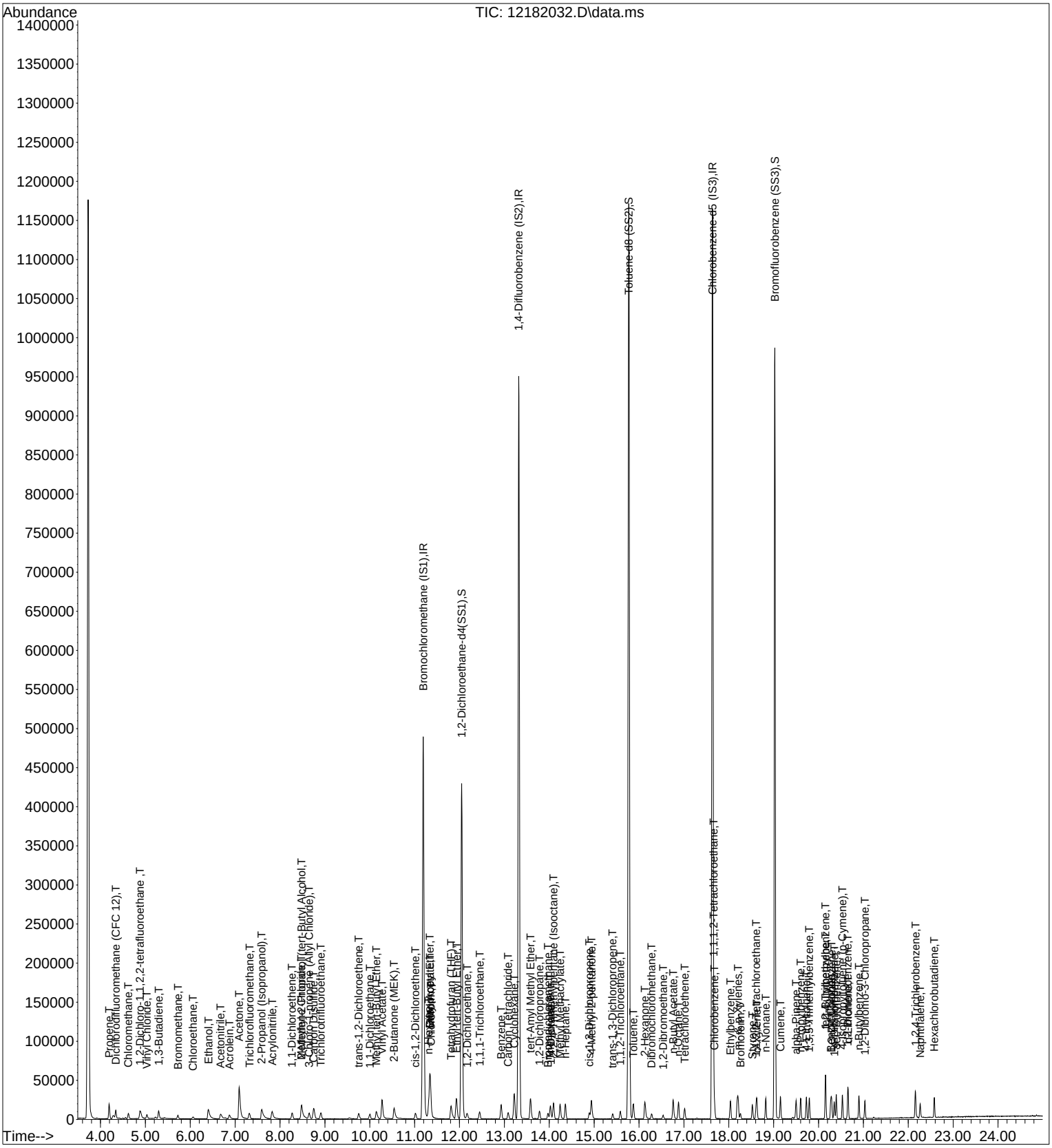
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	3721	0.200	ng		98
52) cis-1,3-Dichloropropene	14.89	75	5374	0.187	ng		95
53) 4-Methyl-2-pentanone	14.94	58	7386	0.391	ng		83
54) trans-1,3-Dichloropropene	15.41	75	4272	0.158	ng		99
55) 1,1,2-Trichloroethane	15.58	97	3506	0.195	ng		96
58) Toluene	15.88	91	16207	0.204	ng		97
59) 2-Hexanone	16.13	43	23886	0.444	ng		95
60) Dibromochloromethane	16.28	129	4496	0.196	ng		97
61) 1,2-Dibromoethane	16.54	107	4155	0.192	ng		98
62) n-Butyl Acetate	16.76	43	25228	0.414	ng		99
63) n-Octane	16.88	57	3864	0.216	ng		99
64) Tetrachloroethene	17.02	166	4817	0.192	ng		98
65) Chlorobenzene	17.68	112	11104	0.198	ng		95
66) Ethylbenzene	18.04	91	17216	0.188	ng		99
67) m- & p-Xylenes	18.20	91	27738	0.381	ng		99
68) Bromoform	18.26	173	3682	0.164	ng		99
69) Styrene	18.53	104	9393	0.179	ng		98
70) o-Xylene	18.63	91	13965	0.193	ng		98
71) n-Nonane	18.82	43	10978	0.232	ng		95
72) 1,1,2,2-Tetrachloroethane	18.61	83	6543	0.191	ng		99
74) Cumene	19.15	105	18433	0.200	ng		99
75) alpha-Pinene	19.50	93	8572	0.185	ng		72
76) n-Propylbenzene	19.60	91	21082	0.187	ng		99
77) 3-Ethyltoluene	19.73	105	17523	No Calib			
78) 4-Ethyltoluene	19.73	105	17523	0.197	ng		97
79) 1,3,5-Trimethylbenzene	19.79	105	14971	0.203	ng		97
80) alpha-Methylstyrene	19.73	118	109	No Calib		#	
81) 2-Ethyltoluene	19.79	105	14971	No Calib		#	
82) 1,2,4-Trimethylbenzene	20.15	105	14216	0.183	ng		98
83) n-Decane	20.14	57	176	No Calib		#	
84) Benzyl Chloride	20.28	91	15111	0.223	ng		95
85) 1,3-Dichlorobenzene	20.29	146	9550	0.201	ng		98
86) 1,4-Dichlorobenzene	20.35	146	9816	0.203	ng		97
87) sec-Butylbenzene	20.40	105	19712	0.196	ng		99
88) 4-Isopropyltoluene (p-...	20.53	119	17136	0.197	ng		98
89) 1,2,3-Trimethylbenzene	20.53	105	788	No Calib		#	
90) 1,2-Dichlorobenzene	20.65	146	9400	0.205	ng		97
91) d-Limonene	20.66	68	4776	0.150	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.03	157	6192	0.321	ng		86
93) n-Undecane	21.23	57	305	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.16	180	12000	0.326	ng		99
95) Naphthalene	22.27	128	15766	0.156	ng		97
96) n-Dodecane	0.00	57	0	N.D.			
97) Hexachlorobutadiene	22.58	225	4926	0.201	ng		98
98) Cyclohexanone	0.00	55	0	N.D.			
99) tert-Butylbenzene	20.15	119	15103	0.201	ng		100
100) n-Butylbenzene	20.90	91	15343	0.186	ng		96
101) 1,1,1,2-Tetrachloroethane	17.66	131	4143	0.196	ng		96

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182032.D Vial: 4
Acq On : 18 Dec 2020 21:53 Operator: LH
Sample : 0.2ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142004 (1/13)

Quant Time: Dec 19 11:50:31 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182040.D Vial: 4
Acq On : 19 Dec 2020 11:15 Operator: LH
Sample : 0.5ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142003 (1/13)

Quant Time: Dec 19 11:50:45 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	214187	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	932980	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	202102	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	368032	12.171	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.36%				
57) Toluene-d8 (SS2)	15.78	98	939965	13.010	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.08%				
73) Bromofluorobenzene (SS3)	19.03	174	347291	11.366	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 90.96%				
Target Compounds							Qvalue
2) Propene	4.18	42	16647	0.490	ng		98
3) Dichlorodifluoromethan...	4.33	85	21126	0.471	ng		99
4) Chloromethane	4.60	50	20805	0.628	ng		98
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	11110	0.445	ng		98
6) Vinyl Chloride	5.02	62	15104	0.449	ng		99
7) 1,3-Butadiene	5.28	54	13027	0.493	ng		99
8) Bromomethane	5.71	94	8625	0.509	ng		100
9) Chloroethane	6.05	64	7422	0.520	ng		99
10) Ethanol	6.40	45	64112	3.653	ng		100
11) Acetonitrile	6.67	41	36968	0.830	ng		97
12) Acrolein	6.86	56	17540	1.280	ng		100
13) Acetone	7.07	58	52784	3.048	ng		93
14) Trichlorofluoromethane	7.31	101	18935	0.465	ng		99
15) 2-Propanol (Isopropanol)	7.57	45	75471	1.399	ng		95
16) Acrylonitrile	7.81	53	37512	1.274	ng		100
17) 1,1-Dichloroethene	8.27	96	9383	0.491	ng		98
18) 2-Methyl-2-Propanol (t...	8.46	59	55646	1.068	ng		96
19) Methylene Chloride	8.47	84	9693	0.472	ng		99
20) 3-Chloro-1-propene (Al...	8.64	41	20146	0.570	ng		98
21) Trichlorotrifluoroethane	8.91	151	9672	0.486	ng		98
22) Carbon Disulfide	8.74	76	68965	0.958	ng		99
23) trans-1,2-Dichloroethene	9.75	61	15823	0.511	ng		100
24) 1,1-Dichloroethane	10.00	63	19542	0.525	ng		99
25) Methyl tert-Butyl Ether	10.14	73	27960	0.454	ng		99
26) Vinyl Acetate	10.27	86	8988	1.967	ng	#	81
27) 2-Butanone (MEK)	10.53	72	12871	0.963	ng		97
28) cis-1,2-Dichloroethene	11.02	61	15522	0.510	ng		100
29) Diisopropyl Ether	11.33	87	17092	0.974	ng		98
30) Ethyl Acetate	11.34	61	10556	1.013	ng		98
31) n-Hexane	11.32	57	20422	0.530	ng		100
32) Chloroform	11.37	83	17274	0.463	ng		99
34) Tetrahydrofuran (THF)	11.80	72	13690	1.073	ng		100
35) Ethyl tert-Butyl Ether	11.93	87	22172	0.894	ng		96
36) 1,2-Dichloroethane	12.17	62	15092	0.484	ng		100
38) 1,1,1-Trichloroethane	12.45	97	15819	0.463	ng		99
39) Isopropyl Acetate	12.92	61	339	No Calib		#	
40) 1-Butanol	12.98	56	344	No Calib		#	
41) Benzene	12.93	78	43021	0.531	ng		99
42) Carbon Tetrachloride	13.09	117	13894	0.439	ng		99
43) Cyclohexane	13.22	84	28182	0.915	ng		99
44) tert-Amyl Methyl Ether	13.58	73	52554	0.870	ng		98
45) 1,2-Dichloropropane	13.78	63	11006	0.510	ng		99
46) Bromodichloromethane	13.97	83	13579	0.463	ng		98
47) Trichloroethene	14.03	130	13436	0.558	ng		99
48) 1,4-Dioxane	14.02	88	8230	0.504	ng		100
49) 2,2,4-Trimethylpentane...	14.09	57	50968	0.558	ng		99
50) Methyl Methacrylate	14.24	100	8062	0.893	ng		96

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182040.D Vial: 4
Acq On : 19 Dec 2020 11:15 Operator: LH
Sample : 0.5ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142003 (1/13)

Quant Time: Dec 19 11:50:45 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

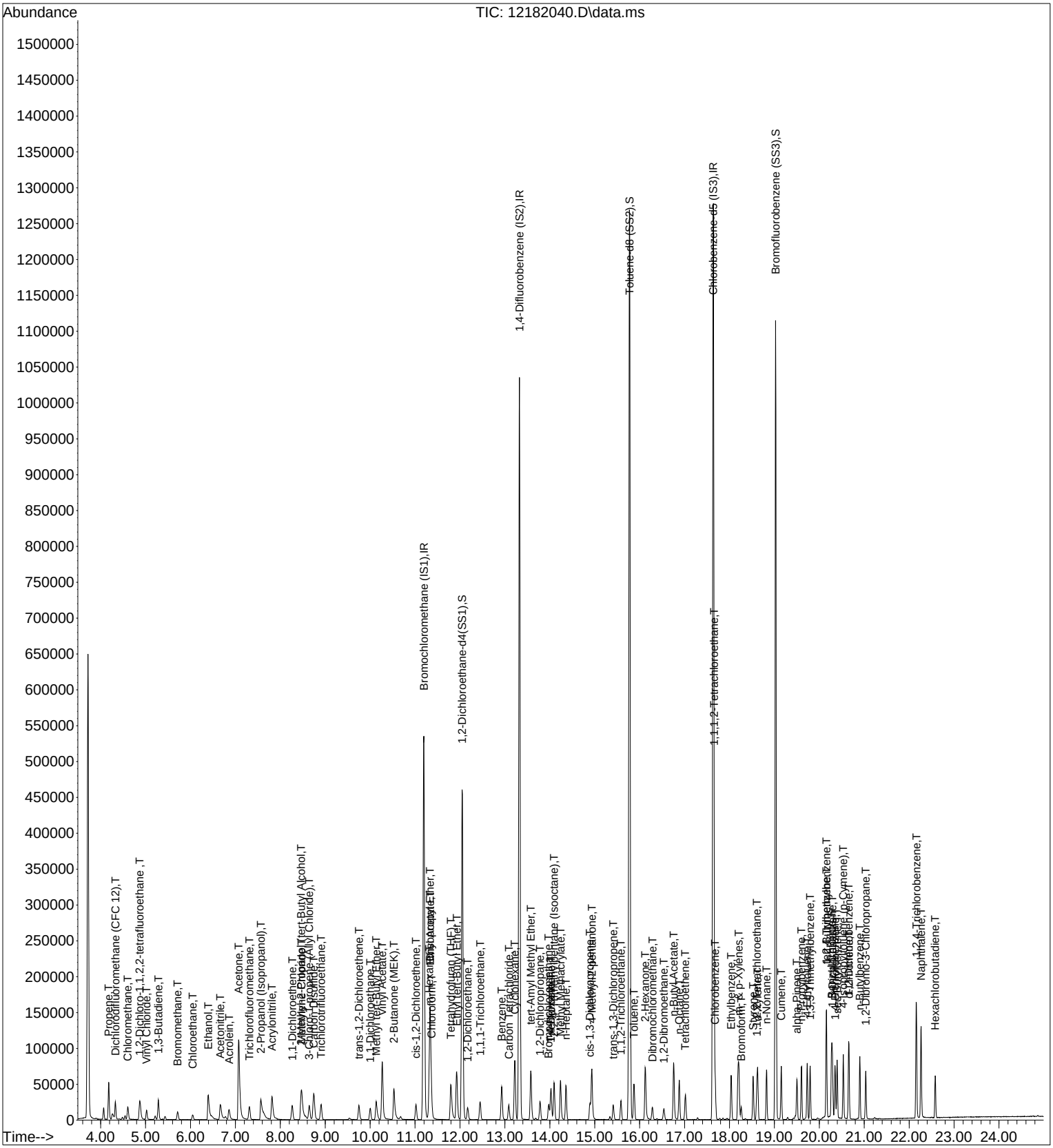
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	9557	0.471	ng		99
52) cis-1,3-Dichloropropene	14.89	75	14464	0.461	ng		99
53) 4-Methyl-2-pentanone	14.94	58	21618	1.050	ng		94
54) trans-1,3-Dichloropropene	15.41	75	13071	0.444	ng		97
55) 1,1,2-Trichloroethane	15.58	97	9660	0.494	ng		100
58) Toluene	15.88	91	40986	0.473	ng		99
59) 2-Hexanone	16.12	43	72819	1.244	ng		98
60) Dibromochloromethane	16.29	129	11599	0.464	ng		99
61) 1,2-Dibromoethane	16.54	107	10991	0.468	ng		99
62) n-Butyl Acetate	16.76	43	77438	1.168	ng		100
63) n-Octane	16.88	57	10279	0.528	ng		99
64) Tetrachloroethene	17.01	166	12526	0.459	ng		100
65) Chlorobenzene	17.68	112	29340	0.482	ng		98
66) Ethylbenzene	18.04	91	46447	0.466	ng		100
67) m- & p-Xylenes	18.20	91	73680	0.932	ng		99
68) Bromoform	18.26	173	9767	0.399	ng		99
69) Styrene	18.53	104	28513	0.500	ng		100
70) o-Xylene	18.63	91	37232	0.472	ng		100
71) n-Nonane	18.82	43	29997	0.583	ng		96
72) 1,1,2,2-Tetrachloroethane	18.61	83	16761	0.450	ng		100
74) Cumene	19.15	105	47242	0.472	ng		99
75) alpha-Pinene	19.50	93	21340	0.423	ng		79
76) n-Propylbenzene	19.60	91	58244	0.474	ng		99
77) 3-Ethyltoluene	19.73	105	47997	No Calib			
78) 4-Ethyltoluene	19.73	105	47997	0.495	ng		100
79) 1,3,5-Trimethylbenzene	19.80	105	39350	0.491	ng		99
80) alpha-Methylstyrene	19.79	118	125	No Calib		#	
81) 2-Ethyltoluene	19.96	105	129	No Calib		#	
82) 1,2,4-Trimethylbenzene	20.16	105	40841	0.485	ng		100
83) n-Decane	20.25	57	193	No Calib		#	
84) Benzyl Chloride	20.28	91	58713	0.795	ng		100
85) 1,3-Dichlorobenzene	20.29	146	29535	0.571	ng		100
86) 1,4-Dichlorobenzene	20.35	146	31159	0.592	ng		98
87) sec-Butylbenzene	20.40	105	52151	0.476	ng		99
88) 4-Isopropyltoluene (p-...	20.53	119	46102	0.487	ng		99
89) 1,2,3-Trimethylbenzene	20.53	105	1987	No Calib		#	
90) 1,2-Dichlorobenzene	20.65	146	27581	0.553	ng		100
91) d-Limonene	20.66	68	11761	0.339	ng		98
92) 1,2-Dibromo-3-Chloropr...	21.03	157	17925	0.855	ng		91
93) n-Undecane	21.35	57	266	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.16	180	54596	1.363	ng		99
95) Naphthalene	22.27	128	105090	0.957	ng		99
96) n-Dodecane	22.25	57	315	No Calib		#	
97) Hexachlorobutadiene	22.58	225	11741	0.439	ng		98
98) Cyclohexanone	18.35	55	530	No Calib		#	
99) tert-Butylbenzene	20.16	119	39477	0.483	ng		99
100) n-Butylbenzene	20.90	91	44269	0.493	ng		98
101) 1,1,1,2-Tetrachloroethane	17.66	131	11164	0.486	ng		90

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182040.D Vial: 4
Acq On : 19 Dec 2020 11:15 Operator: LH
Sample : 0.5ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142003 (1/13)

Quant Time: Dec 19 11:50:45 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182034.D Vial: 4
Acq On : 18 Dec 2020 23:00 Operator: LH
Sample : 1.0ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142004 (1/13)

Quant Time: Dec 19 11:50:35 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	171355	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	742724	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	163060	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	304485	12.587	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.72%				
57) Toluene-d8 (SS2)	15.77	98	741925	12.728	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.84%				
73) Bromofluorobenzene (SS3)	19.03	174	274923	11.152	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.20%				
Target Compounds							Qvalue
2) Propene	4.17	42	41925	1.542	ng		99
3) Dichlorodifluoromethan...	4.33	85	40347	1.124	ng		100
4) Chloromethane	4.60	50	29068	1.097	ng		98
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	20327	1.017	ng		100
6) Vinyl Chloride	5.02	62	27332	1.015	ng		99
7) 1,3-Butadiene	5.29	54	21576	1.020	ng		98
8) Bromomethane	5.71	94	14833	1.094	ng		98
9) Chloroethane	6.04	64	13431	1.176	ng		99
10) Ethanol	6.40	45	97798	6.965	ng		100
11) Acetonitrile	6.66	41	53904	1.513	ng		95
12) Acrolein	6.85	56	29495	2.691	ng		100
13) Acetone	7.06	58	83369	6.017	ng		99
14) Trichlorofluoromethane	7.31	101	36407	1.117	ng		100
15) 2-Propanol (Isopropanol)	7.56	45	96799	2.243	ng		90
16) Acrylonitrile	7.81	53	63666	2.704	ng		97
17) 1,1-Dichloroethene	8.26	96	16883	1.104	ng		97
18) 2-Methyl-2-Propanol (t...	8.44	59	80110	1.923	ng		94
19) Methylene Chloride	8.47	84	17531	1.067	ng		97
20) 3-Chloro-1-propene (Al...	8.64	41	36861	1.304	ng		97
21) Trichlorotrifluoroethane	8.90	151	17679	1.111	ng		99
22) Carbon Disulfide	8.74	76	121450	2.110	ng		100
23) trans-1,2-Dichloroethene	9.74	61	28787	1.162	ng		99
24) 1,1-Dichloroethane	10.00	63	35856	1.204	ng		99
25) Methyl tert-Butyl Ether	10.12	73	50858	1.032	ng		99
26) Vinyl Acetate	10.26	86	14900	4.076	ng	#	79
27) 2-Butanone (MEK)	10.52	72	22948	2.146	ng	#	90
28) cis-1,2-Dichloroethene	11.02	61	28350	1.164	ng		100
29) Diisopropyl Ether	11.33	87	31375	2.235	ng		97
30) Ethyl Acetate	11.33	61	18637	2.235	ng		96
31) n-Hexane	11.31	57	36557	1.187	ng		99
32) Chloroform	11.36	83	32794	1.100	ng		100
34) Tetrahydrofuran (THF)	11.78	72	21192	2.077	ng		94
35) Ethyl tert-Butyl Ether	11.92	87	40892	2.061	ng		96
36) 1,2-Dichloroethane	12.17	62	28771	1.152	ng		100
38) 1,1,1-Trichloroethane	12.45	97	29958	1.101	ng		98
39) Isopropyl Acetate	12.93	61	647	No Calib		#	
40) 1-Butanol	12.97	56	760	No Calib		#	
41) Benzene	12.93	78	70944	1.100	ng		100
42) Carbon Tetrachloride	13.08	117	26640	1.057	ng		99
43) Cyclohexane	13.22	84	50162	2.045	ng		97
44) tert-Amyl Methyl Ether	13.57	73	96128	1.999	ng		96
45) 1,2-Dichloropropane	13.78	63	19497	1.135	ng		99
46) Bromodichloromethane	13.97	83	25358	1.086	ng		100
47) Trichloroethene	14.02	130	21760	1.135	ng		99
48) 1,4-Dioxane	14.01	88	14067	1.083	ng		100
49) 2,2,4-Trimethylpentane...	14.09	57	91920	1.265	ng		98
50) Methyl Methacrylate	14.23	100	14263	1.985	ng		96

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182034.D Vial: 4
Acq On : 18 Dec 2020 23:00 Operator: LH
Sample : 1.0ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142004 (1/13)

Quant Time: Dec 19 11:50:35 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

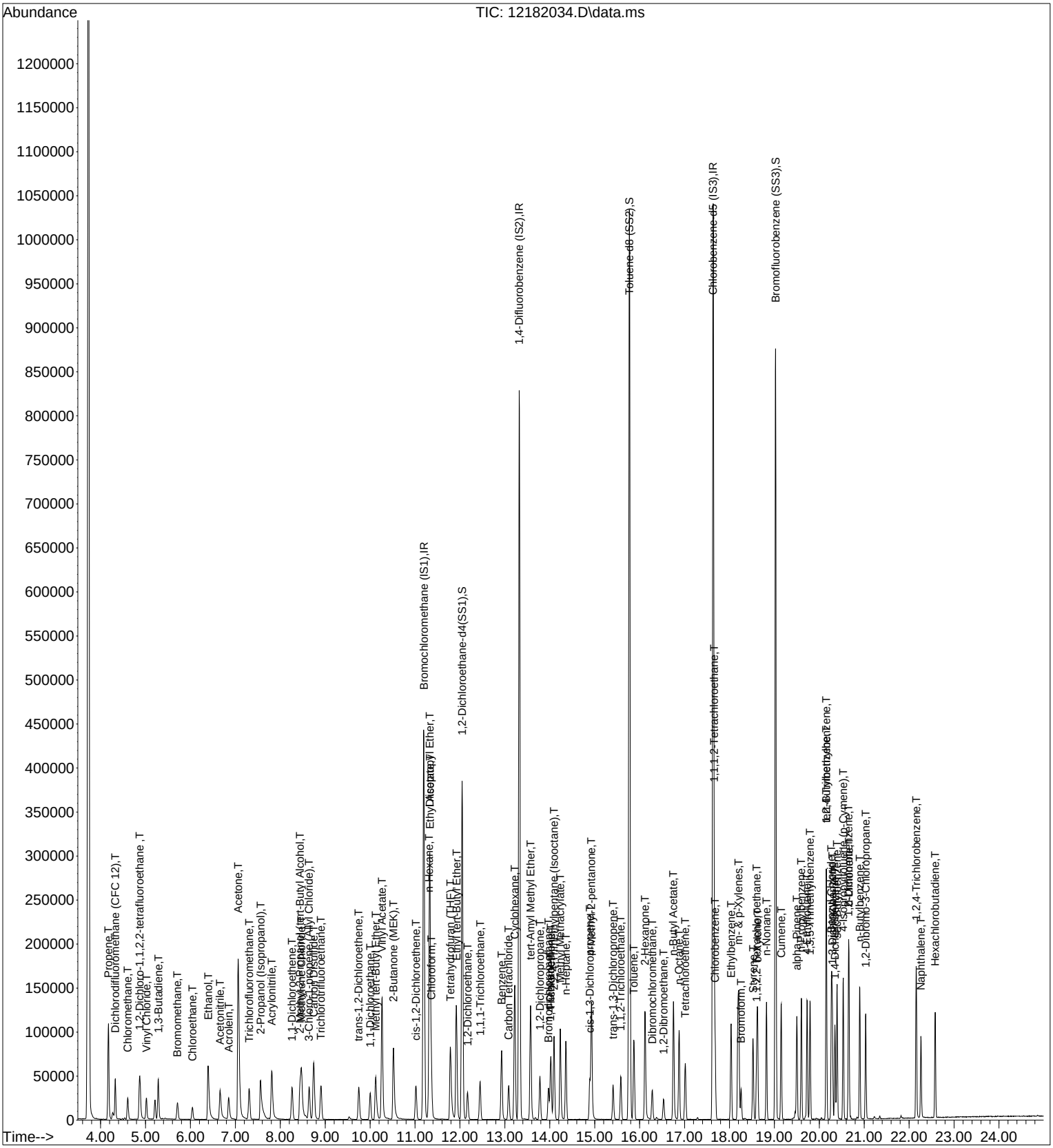
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	16983	1.051	ng		100
52) cis-1,3-Dichloropropene	14.89	75	26064	1.043	ng		98
53) 4-Methyl-2-pentanone	14.92	58	38774	2.365	ng		92
54) trans-1,3-Dichloropropene	15.41	75	23462	1.001	ng		99
55) 1,1,2-Trichloroethane	15.58	97	17440	1.120	ng		98
58) Toluene	15.87	91	71486	1.023	ng		99
59) 2-Hexanone	16.12	43	117794	2.493	ng		96
60) Dibromochloromethane	16.28	129	21788	1.080	ng		100
61) 1,2-Dibromoethane	16.54	107	19252	1.016	ng		99
62) n-Butyl Acetate	16.75	43	130265	2.434	ng		98
63) n-Octane	16.88	57	18806	1.197	ng		99
64) Tetrachloroethene	17.01	166	22537	1.023	ng		100
65) Chlorobenzene	17.68	112	49729	1.012	ng		99
66) Ethylbenzene	18.04	91	81048	1.007	ng		100
67) m- & p-Xylenes	18.20	91	133770	2.096	ng		98
68) Bromoform	18.26	173	18142	0.919	ng		100
69) Styrene	18.53	104	47177	1.026	ng		98
70) o-Xylene	18.63	91	66446	1.044	ng		100
71) n-Nonane	18.82	43	54969	1.324	ng		97
72) 1,1,2,2-Tetrachloroethane	18.60	83	30920	1.030	ng		99
74) Cumene	19.15	105	86849	1.075	ng		99
75) alpha-Pinene	19.50	93	42165	1.035	ng		94
76) n-Propylbenzene	19.60	91	102364	1.032	ng		99
77) 3-Ethyltoluene	19.73	105	86041	No Calib			
78) 4-Ethyltoluene	19.73	105	86041	1.100	ng		99
79) 1,3,5-Trimethylbenzene	19.79	105	71973	1.113	ng		99
80) alpha-Methylstyrene	19.93	118	498	No Calib			
81) 2-Ethyltoluene	19.96	105	720	No Calib		#	
82) 1,2,4-Trimethylbenzene	20.15	105	72023	1.059	ng		98
83) n-Decane	20.25	57	483	No Calib		#	
84) Benzyl Chloride	20.27	91	95152	1.597	ng		97
85) 1,3-Dichlorobenzene	20.29	146	44502	1.066	ng		100
86) 1,4-Dichlorobenzene	20.35	146	43824	1.032	ng		100
87) sec-Butylbenzene	20.40	105	97896	1.108	ng		98
88) 4-Isopropyltoluene (p-...	20.53	119	85808	1.122	ng		99
89) 1,2,3-Trimethylbenzene	20.53	105	4207	No Calib		#	
90) 1,2-Dichlorobenzene	20.65	146	44137	1.097	ng		99
91) d-Limonene	20.66	68	25783	0.922	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.03	157	32161	1.902	ng		92
93) n-Undecane	21.34	57	981	No Calib			
94) 1,2,4-Trichlorobenzene	22.16	180	55618	1.721	ng		99
95) Naphthalene	22.26	128	73174	0.826	ng		99
96) n-Dodecane	22.26	57	898	No Calib		#	
97) Hexachlorobutadiene	22.58	225	22797	1.058	ng		98
98) Cyclohexanone	18.35	55	613	No Calib		#	
99) tert-Butylbenzene	20.15	119	73561	1.115	ng		100
100) n-Butylbenzene	20.90	91	77126	1.064	ng		99
101) 1,1,1,2-Tetrachloroethane	17.66	131	19488	1.051	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182034.D Vial: 4
Acq On : 18 Dec 2020 23:00 Operator: LH
Sample : 1.0ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142004 (1/13)

Quant Time: Dec 19 11:50:35 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182035.D Vial: 2
Acq On : 18 Dec 2020 23:34 Operator: LH
Sample : 5.0ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 19 11:50:37 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	190777	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.32	114	817809	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	181459	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	335459	12.456	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.68%				
57) Toluene-d8 (SS2)	15.77	98	818410	12.617	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.96%				
73) Bromofluorobenzene (SS3)	19.03	174	303955	11.079	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.64%				
Target Compounds							Qvalue
2) Propene	4.16	42	168519	5.568	ng		99
3) Dichlorodifluoromethan...	4.31	85	229070	5.731	ng		99
4) Chloromethane	4.59	50	218906	7.422	ng		98
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	115953	5.211	ng		99
6) Vinyl Chloride	5.01	62	156105	5.206	ng		100
7) 1,3-Butadiene	5.27	54	135931	5.770	ng		99
8) Bromomethane	5.71	94	89396	5.920	ng		100
9) Chloroethane	6.04	64	78178	6.150	ng		99
10) Ethanol	6.42	45	567366	36.292	ng		100
11) Acetonitrile	6.67	41	300119	7.567	ng		100
12) Acrolein	6.85	56	178412	14.622	ng		100
13) Acetone	7.06	58	464784	30.129	ng		98
14) Trichlorofluoromethane	7.30	101	208148	5.734	ng		100
15) 2-Propanol (Isopropanol)	7.56	45	841451	17.510	ng		99
16) Acrylonitrile	7.82	53	365843	13.954	ng		100
17) 1,1-Dichloroethene	8.27	96	98818	5.805	ng		99
18) 2-Methyl-2-Propanol (t...	8.43	59	638263	13.759	ng		98
19) Methylene Chloride	8.49	84	99759	5.452	ng		96
20) 3-Chloro-1-propene (Al...	8.65	41	219735	6.982	ng		99
21) Trichlorotrifluoroethane	8.90	151	101666	5.739	ng		99
22) Carbon Disulfide	8.75	76	716051	11.172	ng		100
23) trans-1,2-Dichloroethene	9.76	61	173727	6.301	ng		99
24) 1,1-Dichloroethane	10.01	63	207307	6.255	ng		99
25) Methyl tert-Butyl Ether	10.11	73	308681	5.625	ng		100
26) Vinyl Acetate	10.27	86	106580	26.189	ng	#	82
27) 2-Butanone (MEK)	10.51	72	133080	11.181	ng		95
28) cis-1,2-Dichloroethene	11.03	61	166632	6.147	ng		99
29) Diisopropyl Ether	11.32	87	181780	11.632	ng		97
30) Ethyl Acetate	11.33	61	108808	11.720	ng		97
31) n-Hexane	11.31	57	211539	6.168	ng		100
32) Chloroform	11.37	83	188003	5.662	ng		100
34) Tetrahydrofuran (THF)	11.77	72	126339	11.121	ng		96
35) Ethyl tert-Butyl Ether	11.92	87	240936	10.909	ng		98
36) 1,2-Dichloroethane	12.18	62	166706	5.997	ng		100
38) 1,1,1-Trichloroethane	12.45	97	176222	5.884	ng		99
39) Isopropyl Acetate	12.93	61	4620	No Calib			
40) 1-Butanol	12.97	56	1190	No Calib		#	
41) Benzene	12.93	78	409447	5.764	ng		99
42) Carbon Tetrachloride	13.09	117	158370	5.709	ng		100
43) Cyclohexane	13.22	84	294038	10.889	ng		98
44) tert-Amyl Methyl Ether	13.57	73	567436	10.716	ng		98
45) 1,2-Dichloropropane	13.78	63	113312	5.989	ng		99
46) Bromodichloromethane	13.97	83	152007	5.910	ng		100
47) Trichloroethene	14.03	130	120599	5.714	ng		99
48) 1,4-Dioxane	14.00	88	83074	5.807	ng		100
49) 2,2,4-Trimethylpentane...	14.09	57	531481	6.641	ng		99
50) Methyl Methacrylate	14.23	100	88186	11.148	ng		97

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182035.D Vial: 2
Acq On : 18 Dec 2020 23:34 Operator: LH
Sample : 5.0ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 19 11:50:37 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

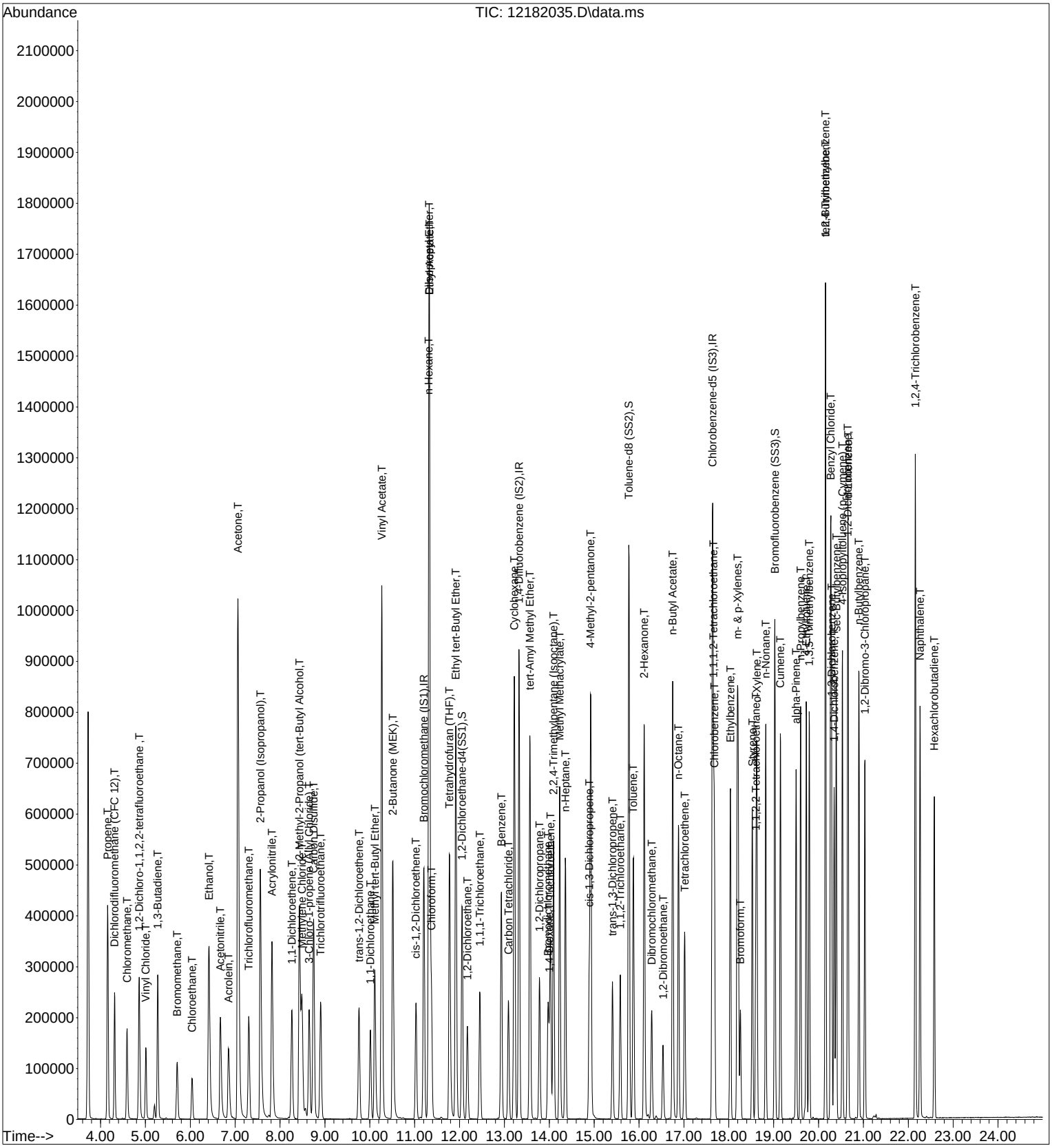
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	99727	5.606	ng		98
52) cis-1,3-Dichloropropene	14.89	75	163358	5.940	ng		100
53) 4-Methyl-2-pentanone	14.92	58	236934	13.126	ng		96
54) trans-1,3-Dichloropropene	15.41	75	154495	5.988	ng		100
55) 1,1,2-Trichloroethane	15.58	97	102813	5.996	ng		99
58) Toluene	15.87	91	415683	5.346	ng		100
59) 2-Hexanone	16.11	43	709142	13.488	ng		98
60) Dibromochloromethane	16.28	129	134315	5.983	ng		100
61) 1,2-Dibromoethane	16.54	107	119664	5.676	ng		100
62) n-Butyl Acetate	16.75	43	799955	13.433	ng		99
63) n-Octane	16.88	57	111605	6.383	ng		99
64) Tetrachloroethene	17.02	166	130602	5.327	ng		100
65) Chlorobenzene	17.68	112	290855	5.317	ng		100
66) Ethylbenzene	18.04	91	488549	5.456	ng		100
67) m- & p-Xylenes	18.20	91	767956	10.815	ng		100
68) Bromoform	18.26	173	115990	5.277	ng		100
69) Styrene	18.53	104	303630	5.935	ng		100
70) o-Xylene	18.63	91	393411	5.555	ng		100
71) n-Nonane	18.82	43	324300	7.021	ng		97
72) 1,1,2,2-Tetrachloroethane	18.60	83	177716	5.319	ng		100
74) Cumene	19.15	105	505578	5.621	ng		100
75) alpha-Pinene	19.50	93	251421	5.547	ng		99
76) n-Propylbenzene	19.60	91	599536	5.433	ng		100
77) 3-Ethyltoluene	19.73	105	503580	No Calib			
78) 4-Ethyltoluene	19.73	105	503580	5.785	ng		100
79) 1,3,5-Trimethylbenzene	19.79	105	421067	5.853	ng		100
80) alpha-Methylstyrene	19.93	118	418	No Calib			
81) 2-Ethyltoluene	19.96	105	1528	No Calib			
82) 1,2,4-Trimethylbenzene	20.15	105	433351	5.728	ng		100
83) n-Decane	20.24	57	517	No Calib		#	
84) Benzyl Chloride	20.27	91	690156	10.411	ng		99
85) 1,3-Dichlorobenzene	20.29	146	266962	5.746	ng		100
86) 1,4-Dichlorobenzene	20.35	146	269272	5.698	ng		100
87) sec-Butylbenzene	20.40	105	562429	5.720	ng		100
88) 4-Isopropyltoluene (p-...	20.53	119	501264	5.892	ng		100
89) 1,2,3-Trimethylbenzene	20.53	105	19416	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	256140	5.718	ng		100
91) d-Limonene	20.66	68	159368	5.120	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.03	157	194121	10.314	ng		96
93) n-Undecane	21.35	57	348	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.16	180	413824	11.506	ng		99
95) Naphthalene	22.26	128	633753	6.425	ng		100
96) n-Dodecane	22.26	57	815	No Calib			
97) Hexachlorobutadiene	22.58	225	122728	5.116	ng		100
98) Cyclohexanone	18.35	55	239	No Calib		#	
99) tert-Butylbenzene	20.15	119	428052	5.832	ng		100
100) n-Butylbenzene	20.90	91	456688	5.661	ng		99
101) 1,1,1,2-Tetrachloroethane	17.66	131	113974	5.525	ng		99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182035.D Vial: 2
Acq On : 18 Dec 2020 23:34 Operator: LH
Sample : 5.0ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 19 11:50:37 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182036.D Vial: 2
Acq On : 19 Dec 2020 00:08 Operator: LH
Sample : 25ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 19 11:50:39 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	180401	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.33	114	773641	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	170809	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	12.07	65	314792	12.361	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.88%			
57) Toluene-d8 (SS2)	15.78	98	777620	12.735	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.92%			
73) Bromofluorobenzene (SS3)	19.03	174	291494	11.287	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 90.32%			
Target Compounds						Qvalue
2) Propene	4.15	42	918179	32.080	ng	100
3) Dichlorodifluoromethan...	4.31	85	1013262	26.808	ng	100
4) Chloromethane	4.59	50	915366	32.819	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	514359	24.447	ng	100
6) Vinyl Chloride	5.01	62	699848	24.683	ng	100
7) 1,3-Butadiene	5.28	54	626352	28.119	ng	100
8) Bromomethane	5.71	94	401864	28.143	ng	100
9) Chloroethane	6.05	64	350570	29.166	ng	100
10) Ethanol	6.45	45	2443561	165.296	ng	100
11) Acetonitrile	6.69	41	1365262	36.402	ng	100
12) Acrolein	6.87	56	800465	69.379	ng	100
13) Acetone	7.08	58	1938789	132.907	ng	100
14) Trichlorofluoromethane	7.31	101	925133	26.950	ng	100
15) 2-Propanol (Isopropanol)	7.58	45	3128098	68.836	ng	100
16) Acrylonitrile	7.84	53	1666486	67.220	ng	100
17) 1,1-Dichloroethene	8.27	96	453290	28.159	ng	100
18) 2-Methyl-2-Propanol (t...	8.45	59	2713971	61.871	ng	100
19) Methylene Chloride	8.50	84	454844	26.290	ng	100
20) 3-Chloro-1-propene (Al...	8.66	41	1030713	34.634	ng	100
21) Trichlorotrifluoroethane	8.91	151	457259	27.298	ng	100
22) Carbon Disulfide	8.76	76	3218029	53.098	ng	100
23) trans-1,2-Dichloroethene	9.77	61	795125	30.499	ng	100
24) 1,1-Dichloroethane	10.02	63	937100	29.900	ng	100
25) Methyl tert-Butyl Ether	10.11	73	1428123	27.519	ng	100
26) Vinyl Acetate	10.28	86	507525	131.885	ng	100
27) 2-Butanone (MEK)	10.51	72	608376	54.052	ng	100
28) cis-1,2-Dichloroethene	11.04	61	764390	29.821	ng	100
29) Diisopropyl Ether	11.33	87	726920	49.193	ng	100
30) Ethyl Acetate	11.34	61	471893	53.752	ng	100
31) n-Hexane	11.32	57	899981	27.749	ng	100
32) Chloroform	11.38	83	849633	27.061	ng	100
34) Tetrahydrofuran (THF)	11.78	72	574484	53.478	ng	100
35) Ethyl tert-Butyl Ether	11.92	87	1106205	52.967	ng	100
36) 1,2-Dichloroethane	12.18	62	755576	28.744	ng	100
38) 1,1,1-Trichloroethane	12.46	97	803226	28.352	ng	100
39) Isopropyl Acetate	12.94	61	21943	No Calib		
40) 1-Butanol	12.93	56	6921	No Calib		
41) Benzene	12.93	78	1844365	27.449	ng	100
42) Carbon Tetrachloride	13.09	117	722284	27.524	ng	100
43) Cyclohexane	13.23	84	1327200	51.957	ng	100
44) tert-Amyl Methyl Ether	13.57	73	2612548	52.152	ng	100
45) 1,2-Dichloropropane	13.79	63	515603	28.806	ng	100
46) Bromodichloromethane	13.97	83	698503	28.708	ng	100
47) Trichloroethene	14.03	130	548202	27.456	ng	100
48) 1,4-Dioxane	14.00	88	384866	28.437	ng	100
49) 2,2,4-Trimethylpentane...	14.10	57	2363313	31.216	ng	100
50) Methyl Methacrylate	14.24	100	412113	55.072	ng	100

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182036.D Vial: 2
Acq On : 19 Dec 2020 00:08 Operator: LH
Sample : 25ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 19 11:50:39 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

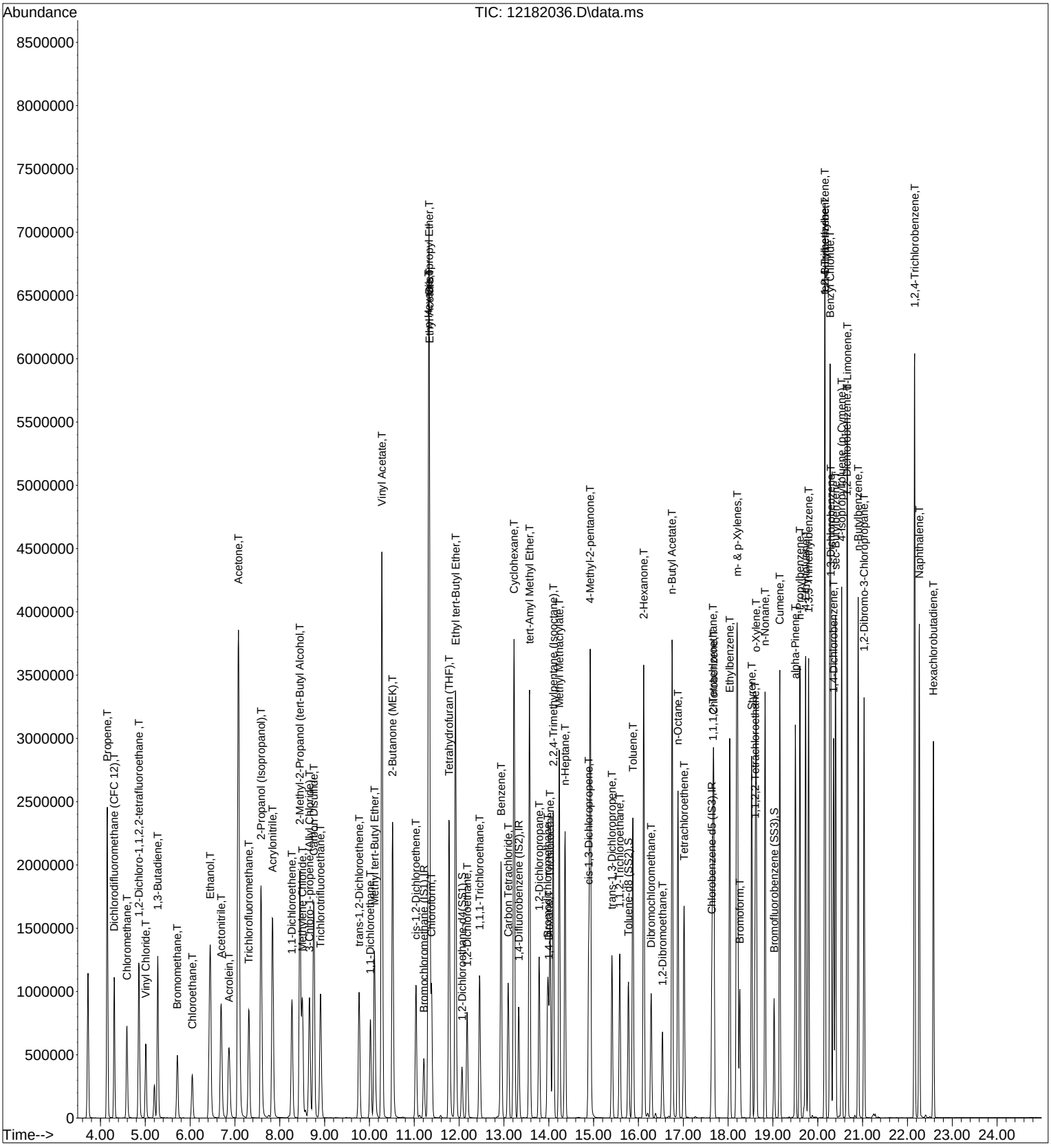
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	451428	26.826	ng		100
52) cis-1,3-Dichloropropene	14.89	75	768138	29.523	ng		100
53) 4-Methyl-2-pentanone	14.92	58	1059350	62.038	ng		100
54) trans-1,3-Dichloropropene	15.41	75	745087	30.529	ng		100
55) 1,1,2-Trichloroethane	15.58	97	464377	28.630	ng		100
58) Toluene	15.88	91	1890302	25.829	ng		100
59) 2-Hexanone	16.12	43	3113306	62.907	ng		100
60) Dibromochloromethane	16.28	129	625942	29.622	ng		100
61) 1,2-Dibromoethane	16.54	107	553703	27.900	ng		100
62) n-Butyl Acetate	16.75	43	3556304	63.442	ng		100
63) n-Octane	16.88	57	498847	30.311	ng		100
64) Tetrachloroethene	17.02	166	598729	25.946	ng		100
65) Chlorobenzene	17.68	112	1333944	25.906	ng		100
66) Ethylbenzene	18.04	91	2239580	26.570	ng		100
67) m- & p-Xylenes	18.20	91	3505040	52.440	ng		100
68) Bromoform	18.26	173	556337	26.890	ng		100
69) Styrene	18.53	104	1426594	29.624	ng		100
70) o-Xylene	18.63	91	1782000	26.732	ng		100
71) n-Nonane	18.82	43	1408692	32.401	ng		100
72) 1,1,2,2-Tetrachloroethane	18.60	83	818799	26.033	ng		100
74) Cumene	19.15	105	2297295	27.133	ng		100
75) alpha-Pinene	19.50	93	1189040	27.868	ng		100
76) n-Propylbenzene	19.60	91	2729805	26.282	ng		100
77) 3-Ethyltoluene	19.73	105	2311862	No Calib			
78) 4-Ethyltoluene	19.73	105	2311862	28.212	ng		100
79) 1,3,5-Trimethylbenzene	19.80	105	1925867	28.439	ng		100
80) alpha-Methylstyrene	19.93	118	2444	No Calib			
81) 2-Ethyltoluene	19.97	105	6598	No Calib			
82) 1,2,4-Trimethylbenzene	20.16	105	1978852	27.788	ng		100
83) n-Decane	20.25	57	2637	No Calib		#	
84) Benzyl Chloride	20.28	91	3476322	55.712	ng		100
85) 1,3-Dichlorobenzene	20.29	146	1221363	27.926	ng		100
86) 1,4-Dichlorobenzene	20.35	146	1221487	27.461	ng		100
87) sec-Butylbenzene	20.40	105	2530449	27.339	ng		100
88) 4-Isopropyltoluene (p-...	20.53	119	2278680	28.454	ng		100
89) 1,2,3-Trimethylbenzene	20.53	105	84117	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	1162409	27.569	ng		100
91) d-Limonene	20.66	68	743837	25.386	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.03	157	919425	51.895	ng		100
93) n-Undecane	21.34	57	2078	No Calib			
94) 1,2,4-Trichlorobenzene	22.16	180	1991546	58.824	ng		100
95) Naphthalene	22.27	128	3081731	33.193	ng		100
96) n-Dodecane	22.25	57	4133	No Calib			
97) Hexachlorobutadiene	22.58	225	592522	26.242	ng		100
98) Cyclohexanone	18.35	55	935	No Calib			
99) tert-Butylbenzene	20.16	119	1925398	27.868	ng		100
100) n-Butylbenzene	20.90	91	2074521	27.321	ng		100
101) 1,1,1,2-Tetrachloroethane	17.66	131	522354	26.900	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182036.D Vial: 2
Acq On : 19 Dec 2020 00:08 Operator: LH
Sample : 25ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 19 11:50:39 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182041.D Vial: 2
Acq On : 19 Dec 2020 11:49 Operator: LH
Sample : 25ng TO15 ICV STD Inst : GCMS-16
Misc : S34-12182001/S34-12152004 (1/14)

Quant Time: Dec 21 16:23:51 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	200613	12.500	ng		-0.01
37) 1,4-Difluorobenzene (IS2)	13.33	114	868828	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	190590	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.07	65	342097	12.256	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.08%				
57) Toluene-d8 (SS2)	15.78	98	885121	12.587	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.72%				
73) Bromofluorobenzene (SS3)	19.03	174	332955	12.858	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.88%				
Target Compounds							Qvalue
2) Propene	4.15	42	1007438	27.519	ng		99
3) Dichlorodifluoromethan...	4.31	85	1057411	24.855	ng		100
4) Chloromethane	4.59	50	956375	24.830	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	553591	25.525	ng		100
6) Vinyl Chloride	5.02	62	775875	26.434	ng		100
7) 1,3-Butadiene	5.28	54	704530	28.500	ng		99
8) Bromomethane	5.72	94	436371	26.220	ng		100
9) Chloroethane	6.05	64	382546	25.993	ng		100
10) Ethanol	6.45	45	2406920	112.487	ng		100
11) Acetonitrile	6.69	41	1478411	25.215	ng		100
12) Acrolein	6.87	56	859562	55.891	ng		100
13) Acetone	7.08	58	2147644	120.722	ng		93
14) Trichlorofluoromethane	7.31	101	964744	24.711	ng		100
15) 2-Propanol (Isopropanol)	7.58	45	3197424	48.594	ng		99
16) Acrylonitrile	7.84	53	1838323	53.700	ng		99
17) 1,1-Dichloroethene	8.28	96	496552	26.867	ng		97
18) 2-Methyl-2-Propanol (t...	8.45	59	2796421	53.627	ng		99
19) Methylene Chloride	8.51	84	502493	26.427	ng		96
20) 3-Chloro-1-propene (Al...	8.66	41	1160856	28.441	ng		97
21) Trichlorotrifluoroethane	8.91	151	492492	26.212	ng		100
22) Carbon Disulfide	8.76	76	3637443	54.384	ng		100
23) trans-1,2-Dichloroethene	9.77	61	875524	27.883	ng		99
24) 1,1-Dichloroethane	10.03	63	1002924	26.568	ng		100
25) Methyl tert-Butyl Ether	10.11	73	1593198	29.241	ng		100
26) Vinyl Acetate	10.28	86	462012	126.433	ng	#	96
27) 2-Butanone (MEK)	10.52	72	683007	55.571	ng	#	93
28) cis-1,2-Dichloroethene	11.04	61	828347	26.729	ng		99
29) Diisopropyl Ether	11.33	87	796063	50.286	ng	#	79
30) Ethyl Acetate	11.34	61	689055	68.376	ng		99
31) n-Hexane	11.32	57	982337	25.672	ng		100
32) Chloroform	11.39	83	905584	26.071	ng		100
34) Tetrahydrofuran (THF)	11.78	72	613646	51.337	ng		96
35) Ethyl tert-Butyl Ether	11.92	87	1215458	54.727	ng		99
36) 1,2-Dichloroethane	12.18	62	788274	25.479	ng		100
38) 1,1,1-Trichloroethane	12.46	97	843042	25.664	ng		100
39) Isopropyl Acetate	12.90	61	42088	No Calib	#		
40) 1-Butanol	12.92	56	18410	No Calib	#		
41) Benzene	12.94	78	1999775	25.236	ng		100
42) Carbon Tetrachloride	13.09	117	764927	25.040	ng		100
43) Cyclohexane	13.23	84	1466944	53.507	ng		99
44) tert-Amyl Methyl Ether	13.57	73	2908869	55.226	ng		98
45) 1,2-Dichloropropane	13.79	63	561250	26.262	ng		99
46) Bromodichloromethane	13.98	83	743467	26.534	ng		100
47) Trichloroethene	14.03	130	580215	21.952	ng		99
48) 1,4-Dioxane	14.00	88	423838	27.456	ng		100
49) 2,2,4-Trimethylpentane...	14.10	57	2632591	26.865	ng		98
50) Methyl Methacrylate	14.24	100	452178	54.716	ng		98

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182041.D Vial: 2
Acq On : 19 Dec 2020 11:49 Operator: LH
Sample : 25ng TO15 ICV STD Inst : GCMS-16
Misc : S34-12182001/S34-12152004 (1/14)

Quant Time: Dec 21 16:23:51 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

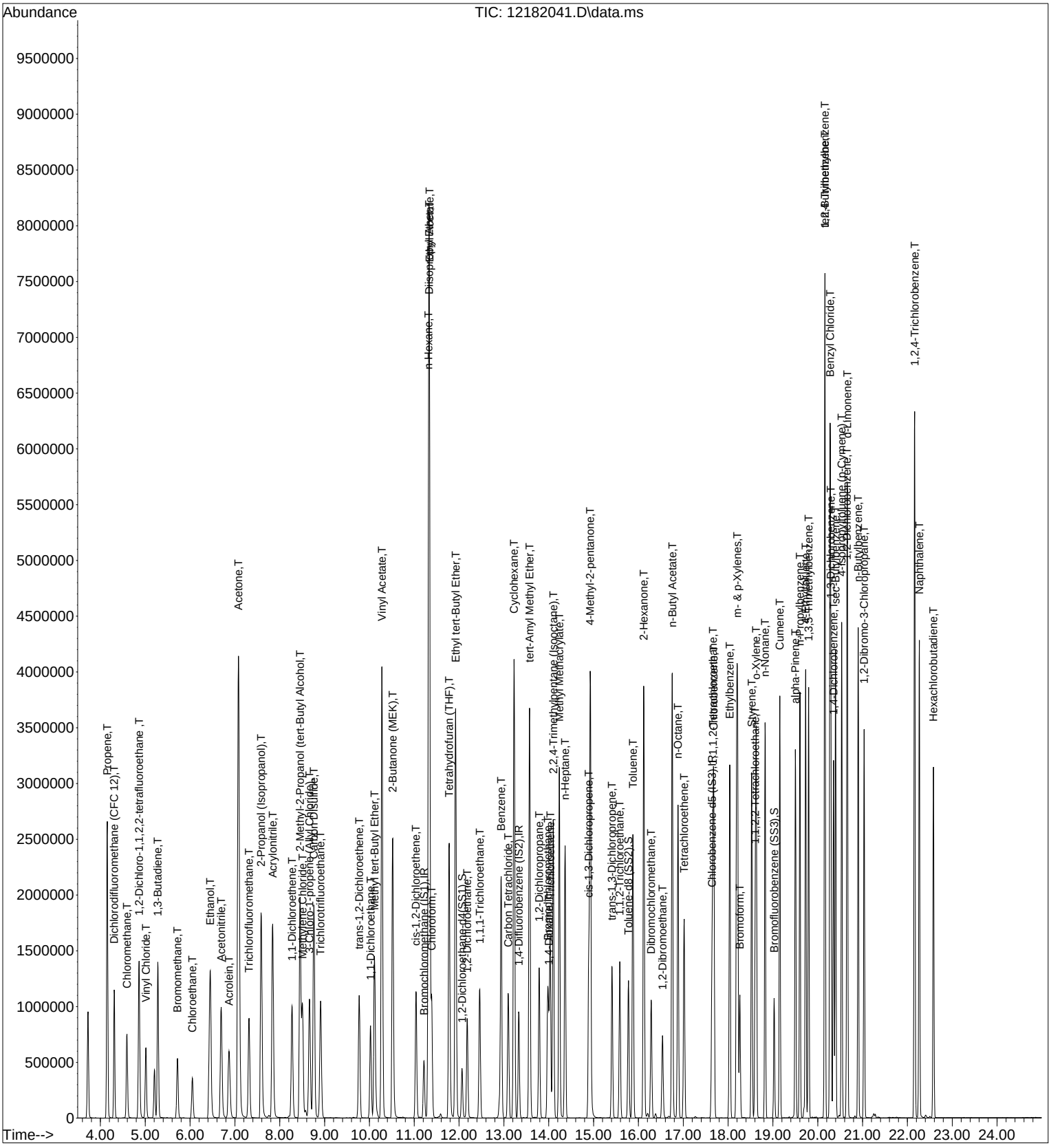
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	505847	26.943	ng		99
52) cis-1,3-Dichloropropene	14.89	75	848598	28.913	ng		100
53) 4-Methyl-2-pentanone	14.92	58	1171827	56.948	ng		97
54) trans-1,3-Dichloropropene	15.41	75	813173	27.278	ng		100
55) 1,1,2-Trichloroethane	15.58	97	507794	26.861	ng		100
58) Toluene	15.88	91	2050699	25.620	ng		100
59) 2-Hexanone	16.12	43	3369036	52.733	ng		98
60) Dibromochloromethane	16.28	129	682076	27.742	ng		100
61) 1,2-Dibromoethane	16.54	107	604984	27.470	ng		100
62) n-Butyl Acetate	16.76	43	3815304	54.400	ng		99
63) n-Octane	16.88	57	547013	26.784	ng		99
64) Tetrachloroethene	17.02	166	634118	25.729	ng		100
65) Chlorobenzene	17.68	112	1449578	25.553	ng		100
66) Ethylbenzene	18.04	91	2406842	26.569	ng		100
67) m- & p-Xylenes	18.20	91	3726643	52.255	ng		100
68) Bromoform	18.26	173	594262	28.876	ng		100
69) Styrene	18.53	104	1549705	28.289	ng		100
70) o-Xylene	18.63	91	1894662	26.355	ng		100
71) n-Nonane	18.82	43	1500523	26.514	ng		99
72) 1,1,2,2-Tetrachloroethane	18.60	83	884167	26.590	ng		100
74) Cumene	19.15	105	2463680	26.066	ng		100
75) alpha-Pinene	19.50	93	1276245	28.452	ng		99
76) n-Propylbenzene	19.60	91	2956573	26.759	ng		100
77) 3-Ethyltoluene	19.73	105	2504432	No Calib			
78) 4-Ethyltoluene	19.73	105	2504432	27.282	ng		100
79) 1,3,5-Trimethylbenzene	19.80	105	2037832	26.456	ng		100
80) alpha-Methylstyrene	19.93	118	1962	No Calib		#	
81) 2-Ethyltoluene	19.97	105	7351	No Calib			
82) 1,2,4-Trimethylbenzene	20.16	105	2086794	25.775	ng		100
83) n-Decane	20.25	57	2891	No Calib		#	
84) Benzyl Chloride	20.28	91	3730517	58.624	ng		100
85) 1,3-Dichlorobenzene	20.29	146	1278731	25.903	ng		100
86) 1,4-Dichlorobenzene	20.35	146	1290981	25.163	ng		100
87) sec-Butylbenzene	20.40	105	2739137	26.539	ng		100
88) 4-Isopropyltoluene (p-...	20.53	119	2454342	26.540	ng		100
89) 1,2,3-Trimethylbenzene	20.53	105	89465	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	1234218	25.881	ng		100
91) d-Limonene	20.66	68	793818	28.357	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.03	157	974821	53.539	ng		99
93) n-Undecane	21.35	57	2641	No Calib			
94) 1,2,4-Trichlorobenzene	22.16	180	2094209	50.240	ng		100
95) Naphthalene	22.27	128	3360721	25.891	ng		100
96) n-Dodecane	22.26	57	7084	No Calib		#	
97) Hexachlorobutadiene	22.58	225	630838	25.531	ng		100
98) Cyclohexanone	18.35	55	1089	No Calib			
99) tert-Butylbenzene	20.16	119	2034945	26.357	ng		100
100) n-Butylbenzene	20.90	91	2219343	26.538	ng		100
101) 1,1,1,2-Tetrachloroethane	17.66	131	560306	25.901	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182041.D Vial: 2
Acq On : 19 Dec 2020 11:49 Operator: LH
Sample : 25ng TO15 ICV STD Inst : GCMS-16
Misc : S34-12182001/S34-12152004 (1/14)

Quant Time: Dec 21 16:23:51 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **12182041.D** Acq. Method File: **TO15.M**
Data File Path: **I:\MS16\DATA\2020_12\18** Sample Name: **25ng TO15 ICV STD**
Operator: **LH** Misc Info: **S34-12182001/S34-12152004 (**
Date Acquired: **12/19/2020 11:49** 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**	**4.15**	**27.5**	26.25	105	**51**	**133**	*	*
3)	**Dichlorodifluoromethane (CFC 1**	**4.31**	**24.9**	**26.25**	95	**64**	**115**	*	*
4)	**Chloromethane**	**4.59**	**24.8**	**25.75**	96	**49**	**127**	*	*
5)	**1,2-Dichloro-1,1,2,2-tetrafluoroet**	**4.86**	**25.5**	**27.00**	94	**65**	**114**	*	*
6)	**Vinyl Chloride**	**5.02**	**26.4**	**26.00**	102	**61**	**129**	*	*
7)	**1,3-Butadiene**	**5.28**	**28.5**	**26.25**	109	**54**	**140**	*	*
8)	**Bromomethane**	**5.72**	**26.2**	**25.50**	103	**68**	**120**	*	*
9)	**Chloroethane**	**6.05**	**26.0**	**25.50**	102	**63**	**123**	*	*
10)	**Ethanol**	**6.45**	**112**	**124.75**	90	**49**	**134**	*	*
11)	**Acetonitrile**	**6.69**	**25.2**	**25.25**	100	**50**	**137**	*	*
12)	**Acrolein**	**6.87**	**55.9**	**54.50**	103	**62**	**128**	*	*
13)	**Acetone**	**7.08**	**121**	**129.00**	94	**56**	**125**	*	*
14)	**Trichlorofluoromethane**	**7.31**	**24.7**	**25.50**	97	**64**	**115**	*	*
15)	**2-Propanol (Isopropanol)**	**7.58**	**48.6**	**51.00**	95	**57**	**133**	*	*
16)	**Acrylonitrile**	**7.84**	**53.7**	**51.25**	105	**64**	**136**	*	*
17)	**1,1-Dichloroethene**	**8.28**	**26.9**	**26.50**	102	**68**	**115**	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alc	8.45	53.6	52.25	103	56	132	*	*
19)	**Methylene Chloride**	**8.51**	**26.4**	**26.00**	102	**68**	**114**	*	*
20)	**3-Chloro-1-propene (Allyl Chloric**	**8.66**	**28.4**	**26.25**	108	**55**	**139**	*	*
21)	**Trichlorotrifluoroethane**	**8.91**	**26.2**	**26.75**	98	**65**	**115**	*	*
22)	**Carbon Disulfide**	**8.76**	**54.4**	**53.50**	102	**68**	**113**	*	*
23)	**trans-1,2-Dichloroethene**	**9.77**	**27.9**	**26.50**	105	**65**	**122**	*	*
24)	**1,1-Dichloroethane**	**10.03**	**26.6**	**26.50**	100	**63**	**118**	*	*
25)	**Methyl tert-Butyl Ether**	**10.11**	**29.2**	**26.50**	110	**57**	**131**	*	*
26)	**Vinyl Acetate**	**10.28**	**126**	**137.50**	92	**71**	**128**	*	*
27)	**2-Butanone (MEK)**	**10.52**	**55.6**	**51.50**	108	**67**	**123**	*	*
28)	**cis-1,2-Dichloroethene**	**11.04**	**26.7**	**26.00**	103	**64**	**120**	*	*
29)	Diisopropyl Ether	11.33	50.3	53.00	95	62	121	*	*
30)	**Ethyl Acetate**	**11.34**	**68.4**	**52.75**	130	**64**	**131**	*	*
31)	**n-Hexane**	**11.32**	**25.7**	**26.50**	97	**58**	**125**	*	*
32)	**Chloroform**	**11.39**	**26.1**	**26.75**	98	**65**	**114**	*	*
34)	**Tetrahydrofuran (THF)**	**11.78**	**51.3**	**50.00**	103	**65**	**115**	*	*
35)	Ethyl tert-Butyl Ether	11.92	54.7	52.50	104	61	130	*	*
36)	**1,2-Dichloroethane**	**12.18**	**25.5**	**26.00**	98	**59**	**120**	*	*
38)	**1,1,1-Trichloroethane**	**12.46**	**25.7**	**25.75**	100	**66**	**115**	*	*
41)	**Benzene**	**12.94**	**25.2**	**25.50**	99	**66**	**109**	*	*
42)	**Carbon Tetrachloride**	**13.09**	**25.0**	**26.25**	95	**66**	**119**	*	*
43)	**Cyclohexane**	**13.23**	**53.5**	**52.00**	103	**67**	**117**	*	*
44)	tert-Amyl Methyl Ether	13.57	55.2	**52.25**	106	62	133	*	*
45)	**1,2-Dichloropropane**	**13.79**	**26.3**	**25.75**	102	**66**	**119**	*	*
46)	**Bromodichloromethane**	**13.98**	**26.5**	**26.25**	101	**71**	**119**	*	*
47)	**Trichloroethene**	**14.03**	**22.0**	**25.75**	85	**70**	**114**	*	*
48)	**1,4-Dioxane**	**14.00**	**27.5**	**26.00**	106	**71**	**117**	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	14.10	26.9	26.50	102	61	122	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **12182041.D** **TO15.M**
Data File Path: **I:\MS16\DATA\2020_12\18** Sample Name: **25ng TO15 ICV STD**
Operator: **LH** Misc Info: **S34-12182001/S34-12152004 (**
Date Acquired: **12/19/2020 11:49** 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**	**14.24**	**54.7**	**52.00**	105	**76**	**121**	*	*
51)	**n-Heptane**	**14.36**	**26.9**	**26.25**	102	**66**	**119**	*	*
52)	**cis-1,3-Dichloropropene**	**14.89**	**28.9**	**26.25**	110	**72**	**125**	*	*
53)	**4-Methyl-2-pentanone**	**14.92**	**56.9**	**52.00**	109	**68**	**130**	*	*
54)	**trans-1,3-Dichloropropene**	**15.41**	**27.3**	**25.25**	108	**71**	**132**	*	*
55)	**1,1,2-Trichloroethane**	**15.58**	**26.9**	**25.75**	104	**70**	**117**	*	*
58)	**Toluene**	**15.88**	**25.6**	**25.75**	99	**67**	**113**	*	*
59)	**2-Hexanone**	**16.12**	**52.7**	**50.50**	104	**62**	**135**	*	*
60)	**Dibromochloromethane**	**16.28**	**27.7**	**26.25**	106	**73**	**126**	*	*
61)	**1,2-Dibromoethane**	**16.54**	**27.5**	**26.00**	106	**71**	**122**	*	*
62)	**n-Butyl Acetate**	**16.76**	**54.4**	**50.75**	107	**65**	**134**	*	*
63)	**n-Octane**	**16.88**	**26.8**	**26.25**	102	**63**	**120**	*	*
64)	**Tetrachloroethene**	**17.02**	**25.7**	**25.75**	100	**64**	**120**	*	*
65)	**Chlorobenzene**	**17.68**	**25.6**	**25.75**	99	**65**	**116**	*	*
66)	**Ethylbenzene**	**18.04**	**26.6**	**25.75**	103	**65**	**117**	*	*
67)	**m- & p-Xylenes**	**18.20**	**52.3**	**51.50**	102	**64**	**121**	*	*
68)	**Bromoform**	**18.26**	**28.9**	**26.00**	111	**72**	**130**	*	*
69)	**Styrene**	**18.53**	**28.3**	**25.75**	110	**72**	**126**	*	*
70)	**o-Xylene**	**18.63**	**26.4**	**25.75**	103	**64**	**120**	*	*
71)	**n-Nonane**	**18.82**	**26.5**	**26.00**	102	**56**	**132**	*	*
72)	**1,1,2,2-Tetrachloroethane**	**18.60**	**26.6**	**25.75**	103	**66**	**122**	*	*
74)	**Cumene**	**19.15**	**26.1**	**26.00**	100	**64**	**121**	*	*
75)	**alpha-Pinene**	**19.50**	**28.5**	**26.75**	107	**62**	**136**	*	*
76)	**n-Propylbenzene**	**19.60**	**26.8**	**26.00**	103	**65**	**123**	*	*
78)	**4-Ethyltoluene**	**19.73**	**27.3**	**26.25**	**104**	**71**	**126**	*	*
79)	**1,3,5-Trimethylbenzene**	**19.80**	**26.5**	**25.75**	**103**	**65**	**120**	*	*
82)	**1,2,4-Trimethylbenzene**	**20.16**	**25.8**	**25.50**	**101**	**63**	**129**	*	*
84)	**Benzyl Chloride**	**20.28**	**58.6**	**50.25**	**117**	**66**	**138**	*	*
85)	**1,3-Dichlorobenzene**	**20.29**	**25.9**	**25.75**	**101**	**65**	**127**	*	*
86)	**1,4-Dichlorobenzene**	**20.35**	**25.2**	**25.50**	**99**	**66**	**125**	*	*
87)	sec-Butylbenzene	20.40	26.5	25.75	**103**	68	123	*	*
88)	4-Isopropyltoluene (p-Cymene)	20.53	26.5	25.75	**103**	61	129	*	*
90)	**1,2-Dichlorobenzene**	**20.65**	**25.9**	**25.75**	**101**	**67**	**128**	*	*
91)	**d-Limonene**	**20.66**	**28.4**	**26.00**	**109**	**65**	**136**	*	*
92)	**1,2-Dibromo-3-Chloropropane**	**21.03**	**53.5**	**46.25**	**116**	**73**	**133**	*	*
94)	**1,2,4-Trichlorobenzene**	**22.16**	**50.2**	**48.50**	**104**	**62**	**140**	*	*
95)	**Naphthalene**	**22.27**	**25.9**	**24.75**	**105**	**57**	**149**	*	*
97)	**Hexachlorobutadiene**	**22.58**	**25.5**	**26.25**	**97**	57	129	*	*
99)	tert-Butylbenzene	20.16	26.4	25.75	103	62	130	*	*
100)	n-Butylbenzene	20.90	26.5	25.75	103	67	124	*	*
101)	1,1,1,2-Tetrachloroethane	17.66	25.9	25.75	101	70	130	*	*

Bold = 75 Compound List
*** = Pass**

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182037.D Vial: 2
Acq On : 19 Dec 2020 00:42 Operator: LH
Sample : 50ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 19 11:50:42 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	187397	12.500	ng		0.01
37) 1,4-Difluorobenzene (IS2)	13.34	114	809030	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	174737	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.07	65	322320	12.184	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.44%				
57) Toluene-d8 (SS2)	15.78	98	814338	13.037	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.32%				
73) Bromofluorobenzene (SS3)	19.03	174	301090	11.397	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.20%				
Target Compounds							Qvalue
2) Propene	4.16	42	1931832	64.976	ng		100
3) Dichlorodifluoromethan...	4.31	85	1972585	50.241	ng		100
4) Chloromethane	4.60	50	1544028	53.291	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	1048134	47.958	ng		100
6) Vinyl Chloride	5.02	62	1460629	49.592	ng		100
7) 1,3-Butadiene	5.29	54	1279977	55.316	ng		99
8) Bromomethane	5.72	94	812293	54.762	ng		100
9) Chloroethane	6.06	64	712478	57.062	ng		100
10) Ethanol	6.48	45	4718345	307.259	ng		100
11) Acetonitrile	6.71	41	2727357	70.005	ng		100
12) Acrolein	6.88	56	1597557	133.295	ng		100
13) Acetone	7.09	58	3714678	245.140	ng		95
14) Trichlorofluoromethane	7.32	101	1842097	51.660	ng		100
15) 2-Propanol (Isopropanol)	7.60	45	5332700	112.969	ng		99
16) Acrylonitrile	7.86	53	3324684	129.099	ng		100
17) 1,1-Dichloroethene	8.28	96	925273	55.333	ng		99
18) 2-Methyl-2-Propanol (t...	8.46	59	4066971	89.254	ng		100
19) Methylene Chloride	8.51	84	917839	51.071	ng		98
20) 3-Chloro-1-propene (Al...	8.67	41	2068373	66.907	ng		98
21) Trichlorotrifluoroethane	8.91	151	918310	52.775	ng		100
22) Carbon Disulfide	8.77	76	6438069	102.263	ng		100
23) trans-1,2-Dichloroethene	9.78	61	1625535	60.023	ng		100
24) 1,1-Dichloroethane	10.03	63	1901799	58.416	ng		100
25) Methyl tert-Butyl Ether	10.12	73	2802863	51.994	ng		100
26) Vinyl Acetate	10.29	86	1011790	253.108	ng	#	75
27) 2-Butanone (MEK)	10.53	72	1216689	104.062	ng	#	92
28) cis-1,2-Dichloroethene	11.04	61	1553526	58.346	ng		100
29) Diisopropyl Ether	11.33	87	1431190	93.237	ng	#	82
30) Ethyl Acetate	11.34	61	893289	97.953	ng		96
31) n-Hexane	11.32	57	1725234	51.208	ng		100
32) Chloroform	11.39	83	1699573	52.112	ng		100
34) Tetrahydrofuran (THF)	11.78	72	1141154	102.263	ng		97
35) Ethyl tert-Butyl Ether	11.93	87	2229403	102.762	ng		97
36) 1,2-Dichloroethane	12.18	62	1510514	55.318	ng		100
38) 1,1,1-Trichloroethane	12.46	97	1597767	53.930	ng		100
39) Isopropyl Acetate	12.94	61	44302	No Calib			
40) 1-Butanol	12.93	56	14971	No Calib			
41) Benzene	12.94	78	3715661	52.879	ng		100
42) Carbon Tetrachloride	13.10	117	1461266	53.249	ng		100
43) Cyclohexane	13.23	84	2667987	99.877	ng		98
44) tert-Amyl Methyl Ether	13.57	73	5249981	100.217	ng		99
45) 1,2-Dichloropropane	13.79	63	1041254	55.628	ng		99
46) Bromodichloromethane	13.98	83	1404270	55.191	ng		100
47) Trichloroethene	14.03	130	1117609	53.525	ng		99
48) 1,4-Dioxane	14.00	88	779371	55.066	ng		99
49) 2,2,4-Trimethylpentane...	14.10	57	4695999	59.315	ng		99
50) Methyl Methacrylate	14.24	100	824424	105.352	ng		99

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182037.D Vial: 2
Acq On : 19 Dec 2020 00:42 Operator: LH
Sample : 50ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 19 11:50:42 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

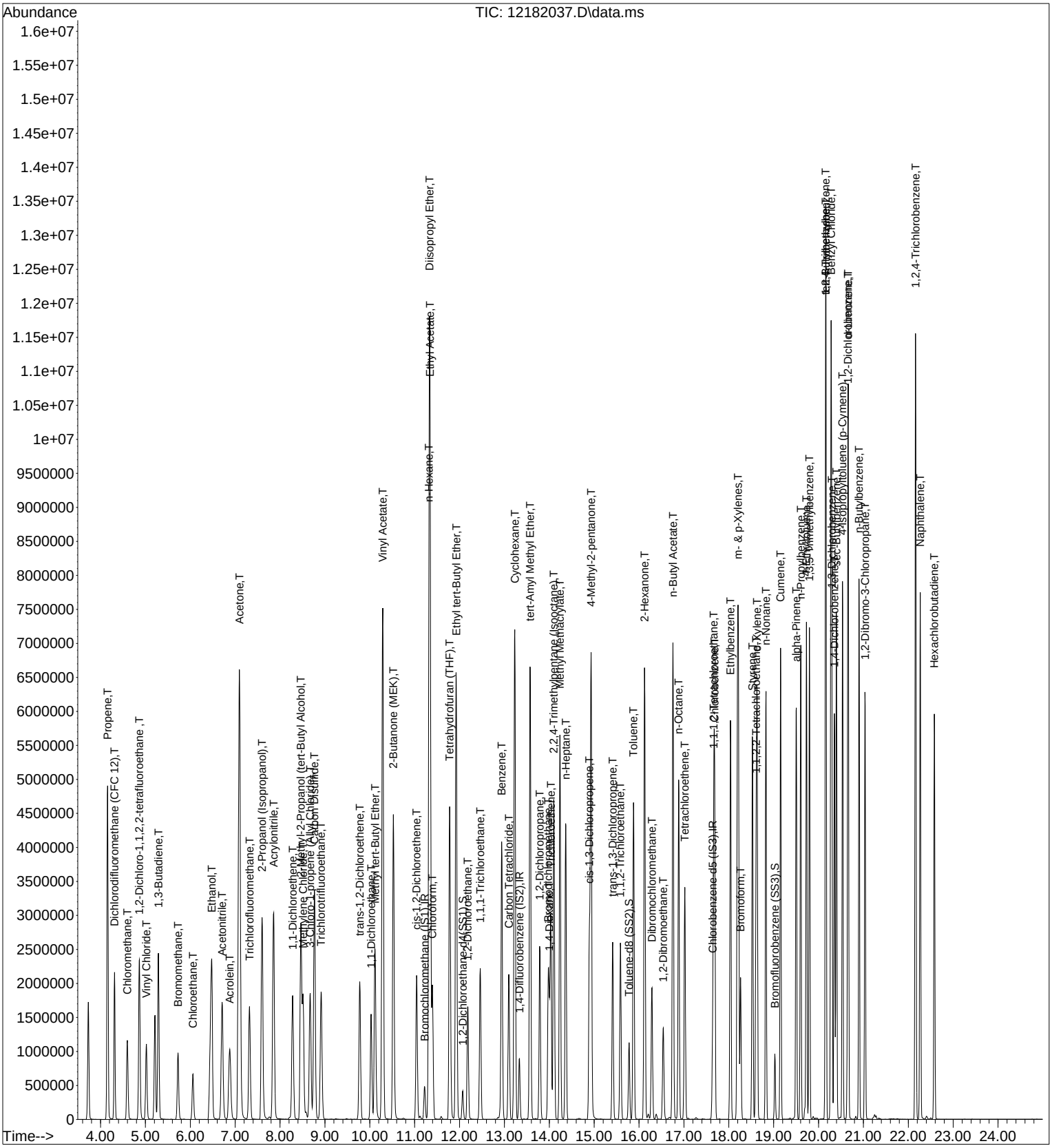
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.37	71	910778	51.755	ng		99
52) cis-1,3-Dichloropropene	14.89	75	1581992	58.144	ng		100
53) 4-Methyl-2-pentanone	14.93	58	2060250	115.376	ng		95
54) trans-1,3-Dichloropropene	15.41	75	1531047	59.989	ng		99
55) 1,1,2-Trichloroethane	15.58	97	938739	55.343	ng		100
58) Toluene	15.88	91	3776570	50.442	ng		100
59) 2-Hexanone	16.12	43	5869051	115.923	ng		98
60) Dibromochloromethane	16.29	129	1265621	58.548	ng		100
61) 1,2-Dibromoethane	16.54	107	1122188	55.275	ng		100
62) n-Butyl Acetate	16.76	43	6703046	116.890	ng		98
63) n-Octane	16.88	57	993006	58.982	ng		98
64) Tetrachloroethene	17.02	166	1195978	50.663	ng		100
65) Chlorobenzene	17.69	112	2700218	51.261	ng		100
66) Ethylbenzene	18.04	91	4452481	51.636	ng		100
67) m- & p-Xylenes	18.21	91	6930072	101.352	ng		100
68) Bromoform	18.26	173	1128949	53.340	ng		100
69) Styrene	18.53	104	2833397	57.514	ng		99
70) o-Xylene	18.63	91	3513519	51.523	ng		99
71) n-Nonane	18.83	43	2675593	60.158	ng		97
72) 1,1,2,2-Tetrachloroethane	18.61	83	1637181	50.883	ng		99
74) Cumene	19.15	105	4536132	52.371	ng		99
75) alpha-Pinene	19.51	93	2368965	54.274	ng		100
76) n-Propylbenzene	19.60	91	5328888	50.151	ng		99
77) 3-Ethyltoluene	19.73	105	4546311	No Calib			
78) 4-Ethyltoluene	19.73	105	4546311	54.232	ng		99
79) 1,3,5-Trimethylbenzene	19.80	105	3810077	54.998	ng		100
80) alpha-Methylstyrene	19.93	118	5220	No Calib			
81) 2-Ethyltoluene	19.97	105	11323	No Calib			
82) 1,2,4-Trimethylbenzene	20.16	105	3881638	53.282	ng		99
83) n-Decane	20.25	57	5299	No Calib		#	
84) Benzyl Chloride	20.28	91	6870722	107.636	ng		100
85) 1,3-Dichlorobenzene	20.30	146	2347306	52.465	ng		99
86) 1,4-Dichlorobenzene	20.35	146	2420445	53.192	ng		100
87) sec-Butylbenzene	20.40	105	4959436	52.377	ng		100
88) 4-Isopropyltoluene (p-...	20.53	119	4482970	54.722	ng		100
89) 1,2,3-Trimethylbenzene	20.53	105	165125	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	2232540	51.759	ng		100
91) d-Limonene	20.66	68	1479985	49.374	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.04	157	1811535	99.949	ng		98
93) n-Undecane	21.35	57	4118	No Calib			
94) 1,2,4-Trichlorobenzene	22.16	180	3864500	111.579	ng		99
95) Naphthalene	22.27	128	6036407	63.555	ng		100
96) n-Dodecane	22.25	57	8382	No Calib			
97) Hexachlorobutadiene	22.58	225	1195797	51.770	ng		100
98) Cyclohexanone	18.35	55	1794	No Calib		#	
99) tert-Butylbenzene	20.16	119	3712234	52.522	ng		99
100) n-Butylbenzene	20.90	91	4024346	51.808	ng		99
101) 1,1,1,2-Tetrachloroethane	17.66	131	1049917	52.853	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182037.D Vial: 2
Acq On : 19 Dec 2020 00:42 Operator: LH
Sample : 50ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 19 11:50:42 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182038.D Vial: 2
Acq On : 19 Dec 2020 1:16 Operator: LH
Sample : 100ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 19 11:50:44 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.23	130	200243	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	13.34	114	857384	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	182934	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.08	65	333611	11.801	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.40%				
57) Toluene-d8 (SS2)	15.78	98	868355	13.279	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 106.24%				
73) Bromofluorobenzene (SS3)	19.03	174	315814	11.418	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.36%				
Target Compounds							Qvalue
2) Propene	4.16	42	3827473	120.477	ng		99
3) Dichlorodifluoromethan...	4.31	85	3866013	92.149	ng		100
4) Chloromethane	4.60	50	1919074	61.987	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	2080805	89.100	ng		100
6) Vinyl Chloride	5.03	62	2894788	91.980	ng		100
7) 1,3-Butadiene	5.30	54	2510833	101.549	ng		98
8) Bromomethane	5.74	94	1633918	103.086	ng		100
9) Chloroethane	6.07	64	1432453	107.365	ng		100
10) Ethanol	6.52	45	9033516	550.525	ng		100
11) Acetonitrile	6.73	41	5399177	129.693	ng		100
12) Acrolein	6.89	56	3162116	246.912	ng		99
13) Acetone	7.11	58	7062476	436.170	ng	#	87
14) Trichlorofluoromethane	7.33	101	3668427	96.277	ng		100
15) 2-Propanol (Isopropanol)	7.63	45	8924508	176.930	ng		99
16) Acrylonitrile	7.87	53	6516839	236.818	ng		99
17) 1,1-Dichloroethene	8.29	96	1912580	107.038	ng		98
18) 2-Methyl-2-Propanol (t...	8.49	59	3512732	72.145	ng		98
19) Methylene Chloride	8.52	84	1854768	96.583	ng		94
20) 3-Chloro-1-propene (Al...	8.67	41	4151613	125.681	ng		97
21) Trichlorotrifluoroethane	8.92	151	1850918	99.548	ng		100
22) Carbon Disulfide	8.77	76	12614533	187.516	ng		100
23) trans-1,2-Dichloroethene	9.78	61	3276027	113.207	ng		100
24) 1,1-Dichloroethane	10.03	63	3827519	110.025	ng		100
25) Methyl tert-Butyl Ether	10.12	73	4129345	71.686	ng		100
26) Vinyl Acetate	10.30	86	1939944	454.160	ng	#	37
27) 2-Butanone (MEK)	10.54	72	2207255	176.673	ng	#	80
28) cis-1,2-Dichloroethene	11.05	61	3137786	110.286	ng		100
29) Diisopropyl Ether	11.34	87	2786787	169.902	ng	#	61
30) Ethyl Acetate	11.36	61	1721033	176.613	ng		92
31) n-Hexane	11.32	57	3258265	90.506	ng		100
32) Chloroform	11.41	83	3406242	97.741	ng		100
34) Tetrahydrofuran (THF)	11.78	72	2195204	184.101	ng	#	88
35) Ethyl tert-Butyl Ether	11.93	87	4424569	190.863	ng	#	91
36) 1,2-Dichloroethane	12.19	62	2997235	102.724	ng		100
38) 1,1,1-Trichloroethane	12.46	97	3079541	98.083	ng		100
39) Isopropyl Acetate	12.95	61	59533	No Calib	#		
40) 1-Butanol	12.93	56	31009	No Calib			
41) Benzene	12.95	78	7386370	99.190	ng		100
42) Carbon Tetrachloride	13.10	117	2888383	99.317	ng		100
43) Cyclohexane	13.24	84	5172692	182.721	ng		94
44) tert-Amyl Methyl Ether	13.58	73	10337464	186.204	ng		97
45) 1,2-Dichloropropane	13.79	63	2083427	105.028	ng		99
46) Bromodichloromethane	13.98	83	2801945	103.911	ng		100
47) Trichloroethene	14.04	130	2232860	100.906	ng		99
48) 1,4-Dioxane	14.01	88	1548385	103.231	ng		97
49) 2,2,4-Trimethylpentane...	14.11	57	8964898	106.849	ng		99
50) Methyl Methacrylate	14.25	100	1626119	196.080	ng		100

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182038.D Vial: 2
Acq On : 19 Dec 2020 1:16 Operator: LH
Sample : 100ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 19 11:50:44 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

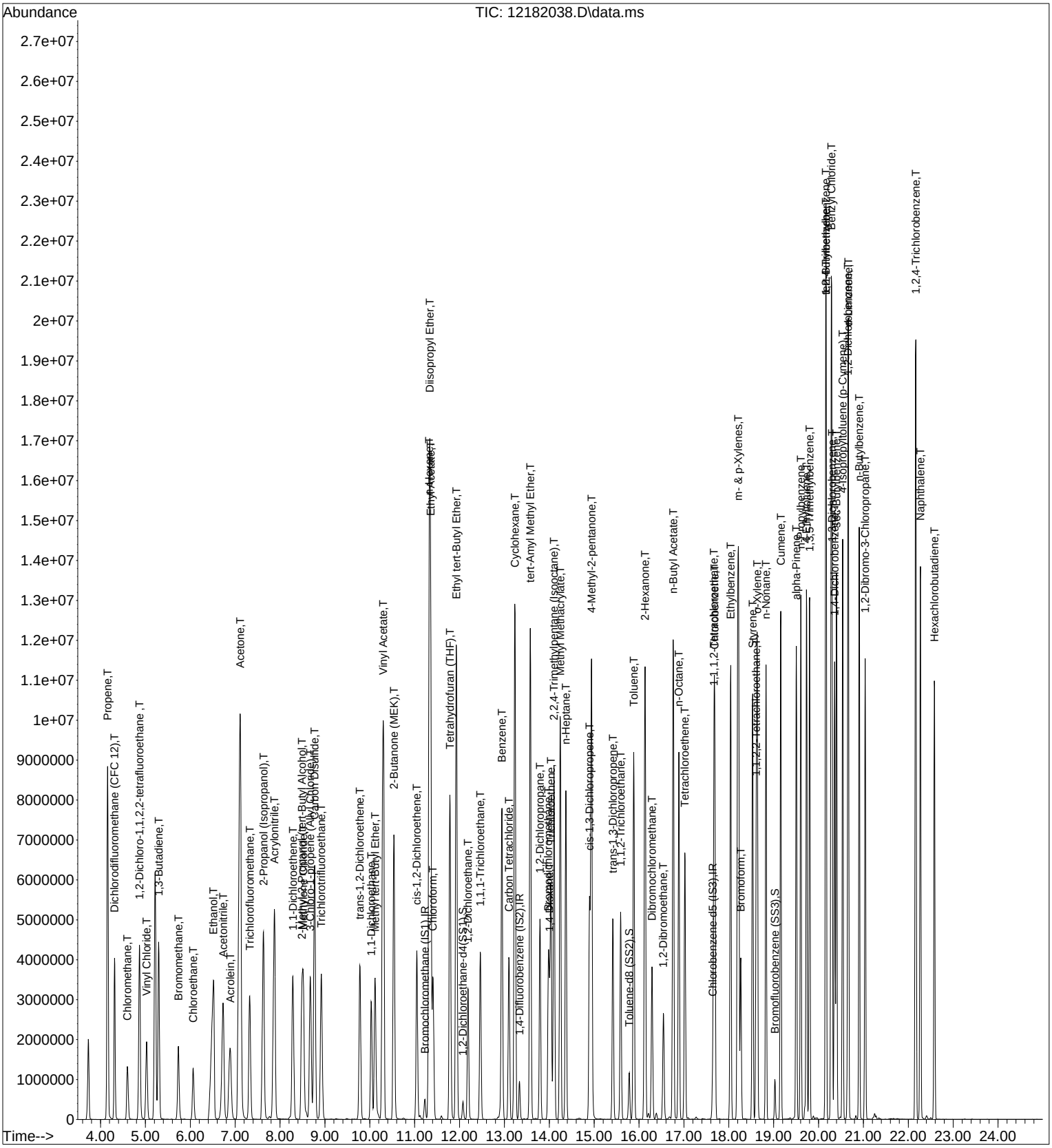
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.37	71	1817887	97.476	ng		97
52) cis-1,3-Dichloropropene	14.90	75	3196368	110.852	ng		100
53) 4-Methyl-2-pentanone	14.94	58	3929154	207.626	ng		87
54) trans-1,3-Dichloropropene	15.42	75	3105464	114.815	ng		100
55) 1,1,2-Trichloroethane	15.59	97	1878865	104.522	ng		99
58) Toluene	15.88	91	7504848	95.748	ng		99
59) 2-Hexanone	16.13	43	10638159	200.705	ng		94
60) Dibromochloromethane	16.29	129	2545249	112.468	ng		99
61) 1,2-Dibromoethane	16.54	107	2256877	106.184	ng		100
62) n-Butyl Acetate	16.76	43	11870252	197.723	ng		94
63) n-Octane	16.89	57	1919105	108.882	ng		96
64) Tetrachloroethene	17.02	166	2381973	96.381	ng		99
65) Chlorobenzene	17.69	112	5322295	96.511	ng		100
66) Ethylbenzene	18.04	91	8750800	96.937	ng		99
67) m- & p-Xylenes	18.21	91	13517950	188.841	ng		99
68) Bromoform	18.27	173	2245252	101.330	ng		100
69) Styrene	18.53	104	5591762	108.419	ng		99
70) o-Xylene	18.64	91	6846413	95.898	ng		100
71) n-Nonane	18.83	43	4747107	101.951	ng		92
72) 1,1,2,2-Tetrachloroethane	18.61	83	3227288	95.809	ng		99
74) Cumene	19.16	105	8720409	96.168	ng		99
75) alpha-Pinene	19.51	93	4650154	101.763	ng		100
76) n-Propylbenzene	19.60	91	10113828	90.918	ng		98
77) 3-Ethyltoluene	19.73	105	8709119	No Calib			
78) 4-Ethyltoluene	19.73	105	8709119	99.235	ng		99
79) 1,3,5-Trimethylbenzene	19.80	105	7379791	101.753	ng		99
80) alpha-Methylstyrene	19.93	118	10443	No Calib			
81) 2-Ethyltoluene	19.97	105	23522	No Calib			
82) 1,2,4-Trimethylbenzene	20.17	105	7209472	94.528	ng		97
83) n-Decane	20.25	57	11138	No Calib		#	
84) Benzyl Chloride	20.29	91	12460809	186.462	ng		99
85) 1,3-Dichlorobenzene	20.30	146	4296945	91.737	ng		100
86) 1,4-Dichlorobenzene	20.36	146	4643373	97.470	ng		99
87) sec-Butylbenzene	20.40	105	9263443	93.448	ng		99
88) 4-Isopropyltoluene (p-...	20.54	119	8357273	97.442	ng		99
89) 1,2,3-Trimethylbenzene	20.54	105	318156	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	4122971	91.303	ng		99
91) d-Limonene	20.67	68	2893745	92.212	ng		98
92) 1,2-Dibromo-3-Chloropr...	21.04	157	3391274	178.726	ng		96
93) n-Undecane	21.34	57	8564	No Calib			
94) 1,2,4-Trichlorobenzene	22.17	180	6921703	190.894	ng		98
95) Naphthalene	22.27	128	11142895	112.063	ng		98
96) n-Dodecane	22.25	57	16019	No Calib			
97) Hexachlorobutadiene	22.58	225	2303022	95.238	ng		100
98) Cyclohexanone	18.35	55	3909	No Calib		#	
99) tert-Butylbenzene	20.17	119	6704841	90.612	ng		99
100) n-Butylbenzene	20.91	91	7690850	94.573	ng		99
101) 1,1,1,2-Tetrachloroethane	17.67	131	2049536	98.552	ng		99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\18\12182038.D Vial: 2
Acq On : 19 Dec 2020 1:16 Operator: LH
Sample : 100ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 19 11:50:44 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Dec 19 11:50:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File : I:\MS16\DATA\2020_12\21\12212034.D Vial: 2
Acq On : 22 Dec 2020 00:07 Operator: LH
Sample : CCV2 R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 22 07:45:54 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 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)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	98	-0.01
2	T	Propene	2.281	2.406	-5.5	96	-0.01
3	T	Dichlorodifluoromethane (CF	2.651	2.624	1.0	95	0.00
4	T	Chloromethane	2.400	2.316	3.5	93	-0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.351	1.345	0.4	96	-0.01
6	T	Vinyl Chloride	1.829	1.789	2.2	95	-0.02
7	T	1,3-Butadiene	1.540	1.602	-4.0	94	-0.02
8	T	Bromomethane	1.037	1.049	-1.2	96	-0.02
9	T	Chloroethane	0.917	0.902	1.6	94	-0.02
10	T	Ethanol	1.333	1.222	8.3	93	-0.07
11	T	Acetonitrile	3.653	3.375	7.6	92	-0.04
12	T	Acrolein	0.958	0.983	-2.6	94	-0.02
13	T	Acetone	1.108	1.004	9.4	94	-0.03
14	T	Trichlorofluoromethane	2.433	2.457	-1.0	95	-0.02
15	T	2-Propanol (Isopropanol)	4.100	3.941	3.9	91	-0.05
16	T	Acrylonitrile	2.133	2.153	-0.9	93	-0.04
17	T	1,1-Dichloroethene	1.152	1.177	-2.2	95	-0.02
18	T	2-Methyl-2-Propanol (tert-B	3.249	3.364	-3.5	90	-0.03
19	T	Methylene Chloride	1.185	1.164	1.8	94	-0.02
20	T	3-Chloro-1-propene (Allyl C	2.543	2.630	-3.4	93	-0.01
21	T	Trichlorotrifluoroethane	1.171	1.182	-0.9	96	-0.01
22	T	Carbon Disulfide	4.168	4.140	0.7	94	-0.01
23	T	trans-1,2-Dichloroethene	1.956	2.040	-4.3	95	0.00
24	T	1,1-Dichloroethane	2.352	2.344	0.3	94	0.00
25	T	Methyl tert-Butyl Ether	3.395	3.698	-8.9	94	0.00
26	T	Vinyl Acetate	0.228	0.246	-7.9	94	-0.02
27	T	2-Butanone (MEK)	0.766	0.786	-2.6	94	-0.02
28	T	cis-1,2-Dichloroethene	1.931	1.968	-1.9	94	-0.01
29	T	Diisopropyl Ether	0.986	0.936	5.1	95	-0.01
30	T	Ethyl Acetate	0.628	0.604	3.8	94	-0.02
31	T	n-Hexane	2.384	2.311	3.1	94	0.00
32	T	Chloroform	2.164	2.176	-0.6	95	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.739	1.748	-0.5	98	-0.01
34	T	Tetrahydrofuran (THF)	0.745	0.748	-0.4	94	0.00
35	T	Ethyl tert-Butyl Ether	1.384	1.422	-2.7	94	0.00
36	T	1,2-Dichloroethane	1.928	1.953	-1.3	95	0.00
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	98	0.00
38	T	1,1,1-Trichloroethane	0.473	0.487	-3.0	95	0.00
39	T	Isopropyl Acetate	0.000	0.000	0.0	94	-0.01
40	T	1-Butanol	0.000	0.000	0.0	96	0.00
41	T	Benzene	1.140	1.103	3.2	94	-0.01
42	T	Carbon Tetrachloride	0.440	0.443	-0.7	95	0.00
43	T	Cyclohexane	0.394	0.399	-1.3	94	-0.01
44	T	tert-Amyl Methyl Ether	0.758	0.784	-3.4	94	0.00
45	T	1,2-Dichloropropane	0.307	0.305	0.7	93	0.00
46	T	Bromodichloromethane	0.403	0.418	-3.7	94	0.00
47	T	Trichloroethene	0.380	0.339	10.8	96	-0.01
48	T	1,4-Dioxane	0.222	0.232	-4.5	94	0.00
49	T	2,2,4-Trimethylpentane (Iso	1.410	1.389	1.5	94	0.00
50	T	Methyl Methacrylate	0.119	0.123	-3.4	94	-0.01
51	T	n-Heptane	0.270	0.272	-0.7	94	0.00
52	T	cis-1,3-Dichloropropene	0.422	0.456	-8.1	95	0.00
53	T	4-Methyl-2-pentanone	0.296	0.315	-6.4	94	-0.02
54	T	trans-1,3-Dichloropropene	0.429	0.453	-5.6	94	-0.01
55	T	1,1,2-Trichloroethane	0.272	0.280	-2.9	95	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS16\DATA\2020_12\21\12212034.D Vial: 2
Acq On : 22 Dec 2020 00:07 Operator: LH
Sample : CCV2 R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 22 07:45:54 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 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	97	0.00
57	S	Toluene-d8 (SS2)	4.612	4.592	0.4	98	0.00
58	T	Toluene	5.250	5.158	1.8	94	0.00
59	T	2-Hexanone	4.190	4.237	-1.1	93	-0.02
60	T	Dibromochloromethane	1.613	1.718	-6.5	95	0.00
61	T	1,2-Dibromoethane	1.444	1.514	-4.8	95	0.00
62	T	n-Butyl Acetate	4.600	4.804	-4.4	93	-0.01
63	T	n-Octane	1.339	1.350	-0.8	94	0.00
64	T	Tetrachloroethene	1.616	1.656	-2.5	96	0.00
65	T	Chlorobenzene	3.721	3.690	0.8	95	0.00
66	T	Ethylbenzene	5.941	6.153	-3.6	95	0.00
67	T	m- & p-Xylenes	4.677	4.776	-2.1	95	-0.01
68	T	Bromoform	1.350	1.512	-12.0	96	0.00
69	T	Styrene	3.593	3.940	-9.7	95	0.00
70	T	o-Xylene	4.715	4.854	-2.9	95	-0.01
71	T	n-Nonane	3.712	3.743	-0.8	93	0.00
72	T	1,1,2,2-Tetrachloroethane	2.181	2.207	-1.2	94	0.00
73	S	Bromofluorobenzene (SS3)	1.698	1.740	-2.5	99	0.00
74	T	Cumene	6.199	6.311	-1.8	95	0.00
75	T	alpha-Pinene	2.942	3.162	-7.5	94	0.00
76	T	n-Propylbenzene	7.246	7.415	-2.3	94	0.00
77	T	3-Ethyltoluene	0.000	0.000	0.0	94	0.00
78	T	4-Ethyltoluene	6.021	6.251	-3.8	94	0.00
79	T	1,3,5-Trimethylbenzene	5.052	5.226	-3.4	95	0.00
80	T	alpha-Methylstyrene	0.000	0.000	0.0	99	0.00
81	T	2-Ethyltoluene	0.000	0.000	0.0	89	0.00
82	T	1,2,4-Trimethylbenzene	5.310	5.442	-2.5	94	0.00
83	T	n-Decane	0.000	0.000	0.0	96	0.00
84	T	Benzyl Chloride	4.174	4.690	-12.4	94	-0.01
85	T	1,3-Dichlorobenzene	3.238	3.305	-2.1	94	-0.01
86	T	1,4-Dichlorobenzene	3.365	3.340	0.7	95	0.00
87	T	sec-Butylbenzene	6.769	6.744	0.4	95	0.00
88	T	4-Isopropyltoluene (p-Cymen	6.065	6.402	-5.6	95	0.00
89	T	1,2,3-Trimethylbenzene	0.000	0.000	0.0	0#	0.00
90	T	1,2-Dichlorobenzene	3.128	3.155	-0.9	95	0.00
91	T	d-Limonene	1.836	2.025	-10.3	93	0.00
92	T	1,2-Dibromo-3-Chloropropane	1.194	1.311	-9.8	95	0.00
93	T	n-Undecane	0.000	0.000	0.0	96	0.00
94	T	1,2,4-Trichlorobenzene	2.734	2.848	-4.2	95	0.00
95	T	Naphthalene	8.513	8.528	-0.2	95	0.00
96	T	n-Dodecane	0.000	0.000	0.0	94	0.00
97	T	Hexachlorobutadiene	1.621	1.654	-2.0	96	0.00
98	T	Cyclohexanone	0.000	0.000	0.0	93	0.00
99	T	tert-Butylbenzene	5.064	5.304	-4.7	95	0.00
100	T	n-Butylbenzene	5.485	5.709	-4.1	94	0.00
101	T	1,1,1,2-Tetrachloroethane	1.419	1.455	-2.5	95	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212034.D Vial: 2
Acq On : 22 Dec 2020 00:07 Operator: LH
Sample : CCV2 R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 22 07:45:54 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	176057	12.500	ng		-0.01
37) 1,4-Difluorobenzene (IS2)	13.33	114	758695	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	166252	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.07	65	307805	12.566	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.56%				
57) Toluene-d8 (SS2)	15.78	98	763409	12.446	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.60%				
73) Bromofluorobenzene (SS3)	19.03	174	289288	12.807	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.48%				
Target Compounds							Qvalue
2) Propene	4.15	42	881132	27.426	ng		99
3) Dichlorodifluoromethan...	4.31	85	960869	25.736	ng		100
4) Chloromethane	4.59	50	848005	25.087	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	492655	25.883	ng		100
6) Vinyl Chloride	5.01	62	661594	25.684	ng		100
7) 1,3-Butadiene	5.27	54	586734	27.045	ng		100
8) Bromomethane	5.71	94	384089	26.297	ng		100
9) Chloroethane	6.04	64	330427	25.583	ng		99
10) Ethanol	6.45	45	2271525	120.966	ng		100
11) Acetonitrile	6.69	41	1259550	24.478	ng		100
12) Acrolein	6.87	56	754853	55.929	ng		100
13) Acetone	7.08	58	1824075	116.835	ng		100
14) Trichlorofluoromethane	7.31	101	882270	25.750	ng		100
15) 2-Propanol (Isopropanol)	7.58	45	2844668	49.263	ng		100
16) Acrylonitrile	7.84	53	1554447	51.741	ng		100
17) 1,1-Dichloroethene	8.27	96	431172	26.583	ng		100
18) 2-Methyl-2-Propanol (t...	8.45	59	2452037	53.582	ng		100
19) Methylene Chloride	8.50	84	426255	25.544	ng		100
20) 3-Chloro-1-propene (Al...	8.66	41	963197	26.890	ng		99
21) Trichlorotrifluoroethane	8.91	151	437062	26.506	ng		99
22) Carbon Disulfide	8.76	76	3031852	51.652	ng		100
23) trans-1,2-Dichloroethene	9.77	61	754137	27.367	ng		100
24) 1,1-Dichloroethane	10.03	63	883301	26.663	ng		100
25) Methyl tert-Butyl Ether	10.11	73	1341022	28.045	ng		100
26) Vinyl Acetate	10.28	86	476284	148.518	ng	#	97
27) 2-Butanone (MEK)	10.51	72	569946	52.840	ng		98
28) cis-1,2-Dichloroethene	11.04	61	720708	26.499	ng		100
29) Diisopropyl Ether	11.33	87	689018	49.595	ng		97
30) Ethyl Acetate	11.34	61	442259	50.007	ng		99
31) n-Hexane	11.32	57	846361	25.204	ng		100
32) Chloroform	11.38	83	804513	26.392	ng		100
34) Tetrahydrofuran (THF)	11.78	72	537605	51.249	ng		99
35) Ethyl tert-Butyl Ether	11.92	87	1041686	53.445	ng		99
36) 1,2-Dichloroethane	12.18	62	715063	26.336	ng		100
38) 1,1,1-Trichloroethane	12.46	97	761446	26.544	ng		100
39) Isopropyl Acetate	12.93	61	20685	No Calib			
40) 1-Butanol	12.93	56	6639	No Calib		#	
41) Benzene	12.93	78	1739847	25.143	ng		100
42) Carbon Tetrachloride	13.09	117	684927	25.675	ng		100
43) Cyclohexane	13.23	84	1252043	52.298	ng		99
44) tert-Amyl Methyl Ether	13.57	73	2463300	53.556	ng		100
45) 1,2-Dichloropropane	13.79	63	481070	25.778	ng		100
46) Bromodichloromethane	13.97	83	659980	26.974	ng		100
47) Trichloroethene	14.03	130	525183	22.754	ng		100
48) 1,4-Dioxane	14.00	88	362492	26.891	ng		100
49) 2,2,4-Trimethylpentane...	14.10	57	2212757	25.859	ng		100
50) Methyl Methacrylate	14.24	100	388142	53.785	ng		100

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212034.D Vial: 2
Acq On : 22 Dec 2020 00:07 Operator: LH
Sample : CCV2 R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 22 07:45:54 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

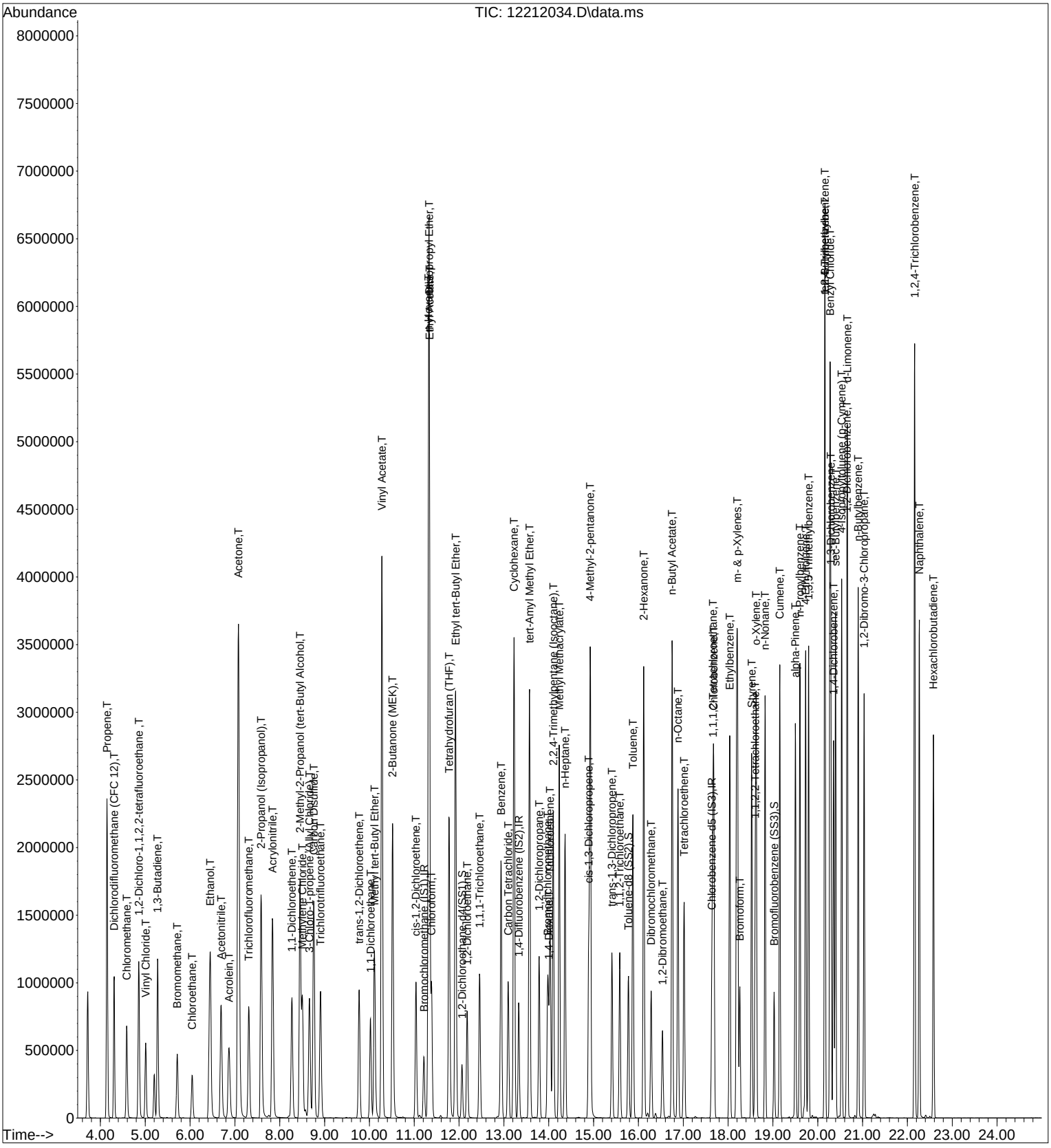
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	424937	25.919	ng		99
52) cis-1,3-Dichloropropene	14.89	75	726578	28.350	ng		100
53) 4-Methyl-2-pentanone	14.92	58	993646	55.298	ng		99
54) trans-1,3-Dichloropropene	15.41	75	701306	26.940	ng		100
55) 1,1,2-Trichloroethane	15.58	97	441876	26.768	ng		99
58) Toluene	15.88	91	1783794	25.548	ng		100
59) 2-Hexanone	16.12	43	2901872	52.070	ng		100
60) Dibromochloromethane	16.28	129	594247	27.708	ng		100
61) 1,2-Dibromoethane	16.54	107	523397	27.245	ng		100
62) n-Butyl Acetate	16.75	43	3306306	54.044	ng		100
63) n-Octane	16.88	57	466842	26.204	ng		99
64) Tetrachloroethene	17.02	166	572788	26.643	ng		100
65) Chlorobenzene	17.68	112	1263886	25.541	ng		100
66) Ethylbenzene	18.04	91	2127562	26.925	ng		100
67) m- & p-Xylenes	18.20	91	3319253	53.356	ng		100
68) Bromoform	18.26	173	532823	29.681	ng		100
69) Styrene	18.53	104	1349399	28.238	ng		100
70) o-Xylene	18.63	91	1694766	27.026	ng		100
71) n-Nonane	18.82	43	1306683	26.469	ng		99
72) 1,1,2,2-Tetrachloroethane	18.60	83	770603	26.567	ng		100
74) Cumene	19.15	105	2182503	26.472	ng		100
75) alpha-Pinene	19.50	93	1114446	28.482	ng		100
76) n-Propylbenzene	19.60	91	2563978	26.603	ng		99
77) 3-Ethyltoluene	19.73	105	2182548	No Calib			
78) 4-Ethyltoluene	19.73	105	2182548	27.256	ng		100
79) 1,3,5-Trimethylbenzene	19.80	105	1824698	27.157	ng		99
80) alpha-Methylstyrene	19.93	118	2420	No Calib		#	
81) 2-Ethyltoluene	19.96	105	5897	No Calib			
82) 1,2,4-Trimethylbenzene	20.16	105	1863876	26.391	ng		99
83) n-Decane	20.25	57	2536	No Calib		#	
84) Benzyl Chloride	20.28	91	3274908	58.999	ng		100
85) 1,3-Dichlorobenzene	20.29	146	1154044	26.799	ng		100
86) 1,4-Dichlorobenzene	20.35	146	1155095	25.810	ng		100
87) sec-Butylbenzene	20.40	105	2399500	26.651	ng		100
88) 4-Isopropyltoluene (p-...	20.53	119	2171236	26.916	ng		100
89) 1,2,3-Trimethylbenzene	20.53	105	79807	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	1101576	26.481	ng		100
91) d-Limonene	20.66	68	693428	28.397	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.03	157	871969	54.901	ng		100
93) n-Undecane	21.35	57	2000	No Calib			
94) 1,2,4-Trichlorobenzene	22.16	180	1893654	52.079	ng		100
95) Naphthalene	22.27	128	2920598	25.794	ng		100
96) n-Dodecane	22.26	57	3866	No Calib			
97) Hexachlorobutadiene	22.58	225	566361	26.277	ng		100
98) Cyclohexanone	18.35	55	872	No Calib		#	
99) tert-Butylbenzene	20.16	119	1834048	27.233	ng		100
100) n-Butylbenzene	20.90	91	1955087	26.801	ng		100
101) 1,1,1,2-Tetrachloroethane	17.66	131	498295	26.407	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212034.D Vial: 2
Acq On : 22 Dec 2020 00:07 Operator: LH
Sample : CCV2 R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 22 07:45:54 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File : I:\MS16\DATA\2020_12\21\12212064.D Vial: 2
Acq On : 22 Dec 2020 18:33 Operator: LH
Sample : CCV2end R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 22 19:01:30 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 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)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	109	-0.01
2	T	Propene	2.281	2.403	-5.3	107	0.00
3	T	Dichlorodifluoromethane (CF	2.651	2.546	4.0	103	0.00
4	T	Chloromethane	2.400	2.279	5.0	102	-0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.351	1.322	2.1	106	-0.01
6	T	Vinyl Chloride	1.829	1.803	1.4	107	-0.02
7	T	1,3-Butadiene	1.540	1.646	-6.9	108	-0.02
8	T	Bromomethane	1.037	1.067	-2.9	109	-0.02
9	T	Chloroethane	0.917	0.923	-0.7	108	-0.02
10	T	Ethanol	1.333	1.211	9.2	103	-0.07
11	T	Acetonitrile	3.653	3.357	8.1	103	-0.04
12	T	Acrolein	0.958	1.004	-4.8	108	-0.03
13	T	Acetone	1.108	1.025	7.5	108	-0.03
14	T	Trichlorofluoromethane	2.433	2.351	3.4	102	-0.02
15	T	2-Propanol (Isopropanol)	4.100	3.818	6.9	99	-0.05
16	T	Acrylonitrile	2.133	2.165	-1.5	105	-0.04
17	T	1,1-Dichloroethene	1.152	1.196	-3.8	108	-0.02
18	T	2-Methyl-2-Propanol (tert-B	3.249	2.945	9.4	89	-0.04
19	T	Methylene Chloride	1.185	1.190	-0.4	107	-0.02
20	T	3-Chloro-1-propene (Allyl C	2.543	2.602	-2.3	104	-0.01
21	T	Trichlorotrifluoroethane	1.171	1.163	0.7	105	-0.01
22	T	Carbon Disulfide	4.168	4.196	-0.7	107	-0.02
23	T	trans-1,2-Dichloroethene	1.956	2.030	-3.8	106	-0.01
24	T	1,1-Dichloroethane	2.352	2.347	0.2	106	-0.01
25	T	Methyl tert-Butyl Ether	3.395	3.461	-1.9	99	0.00
26	T	Vinyl Acetate	0.228	0.250	-9.6	107	-0.02
27	T	2-Butanone (MEK)	0.766	0.803	-4.8	107	-0.02
28	T	cis-1,2-Dichloroethene	1.931	1.955	-1.2	105	-0.01
29	T	Diisopropyl Ether	0.986	0.941	4.6	107	-0.01
30	T	Ethyl Acetate	0.628	0.607	3.3	106	-0.02
31	T	n-Hexane	2.384	2.311	3.1	105	0.00
32	T	Chloroform	2.164	2.134	1.4	104	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.739	1.666	4.2	104	-0.01
34	T	Tetrahydrofuran (THF)	0.745	0.760	-2.0	106	0.00
35	T	Ethyl tert-Butyl Ether	1.384	1.431	-3.4	106	0.00
36	T	1,2-Dichloroethane	1.928	1.855	3.8	101	0.00
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	109	0.00
38	T	1,1,1-Trichloroethane	0.473	0.467	1.3	101	0.00
39	T	Isopropyl Acetate	0.000	0.000	0.0	103	-0.01
40	T	1-Butanol	0.000	0.000	0.0	109	0.00
41	T	Benzene	1.140	1.123	1.5	107	0.00
42	T	Carbon Tetrachloride	0.440	0.424	3.6	101	0.00
43	T	Cyclohexane	0.394	0.403	-2.3	106	-0.01
44	T	tert-Amyl Methyl Ether	0.758	0.797	-5.1	107	0.00
45	T	1,2-Dichloropropane	0.307	0.312	-1.6	106	0.00
46	T	Bromodichloromethane	0.403	0.415	-3.0	104	0.00
47	T	Trichloroethene	0.380	0.338	11.1	106	-0.01
48	T	1,4-Dioxane	0.222	0.236	-6.3	107	0.00
49	T	2,2,4-Trimethylpentane (Iso	1.410	1.395	1.1	105	0.00
50	T	Methyl Methacrylate	0.119	0.124	-4.2	106	-0.01
51	T	n-Heptane	0.270	0.277	-2.6	107	0.00
52	T	cis-1,3-Dichloropropene	0.422	0.462	-9.5	107	0.00
53	T	4-Methyl-2-pentanone	0.296	0.316	-6.8	105	-0.02
54	T	trans-1,3-Dichloropropene	0.429	0.451	-5.1	104	-0.01
55	T	1,1,2-Trichloroethane	0.272	0.282	-3.7	107	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS16\DATA\2020_12\21\12212064.D Vial: 2
Acq On : 22 Dec 2020 18:33 Operator: LH
Sample : CCV2end R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 22 19:01:30 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 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)	4.612	4.692	-1.7	111	0.00
58	T	Toluene	5.250	5.253	-0.1	106	0.00
59	T	2-Hexanone	4.190	4.175	0.4	101	-0.02
60	T	Dibromochloromethane	1.613	1.697	-5.2	103	0.00
61	T	1,2-Dibromoethane	1.444	1.524	-5.5	105	0.00
62	T	n-Butyl Acetate	4.600	4.744	-3.1	101	-0.01
63	T	n-Octane	1.339	1.366	-2.0	104	0.00
64	T	Tetrachloroethene	1.616	1.644	-1.7	105	0.00
65	T	Chlorobenzene	3.721	3.708	0.3	105	0.00
66	T	Ethylbenzene	5.941	6.175	-3.9	105	0.00
67	T	m- & p-Xylenes	4.677	4.763	-1.8	104	-0.01
68	T	Bromoform	1.350	1.493	-10.6	104	0.00
69	T	Styrene	3.593	3.952	-10.0	105	0.00
70	T	o-Xylene	4.715	4.816	-2.1	104	-0.01
71	T	n-Nonane	3.712	3.672	1.1	100	0.00
72	T	1,1,2,2-Tetrachloroethane	2.181	2.237	-2.6	105	0.00
73	S	Bromofluorobenzene (SS3)	1.698	1.824	-7.4	115	0.00
74	T	Cumene	6.199	6.288	-1.4	104	0.00
75	T	alpha-Pinene	2.942	3.204	-8.9	105	0.00
76	T	n-Propylbenzene	7.246	7.438	-2.6	104	0.00
77	T	3-Ethyltoluene	0.000	0.000	0.0	104	0.00
78	T	4-Ethyltoluene	6.021	6.232	-3.5	104	0.00
79	T	1,3,5-Trimethylbenzene	5.052	5.180	-2.5	104	0.00
80	T	alpha-Methylstyrene	0.000	0.000	0.0	103	0.00
81	T	2-Ethyltoluene	0.000	0.000	0.0	97	0.00
82	T	1,2,4-Trimethylbenzene	5.310	5.394	-1.6	103	0.00
83	T	n-Decane	0.000	0.000	0.0	113	0.00
84	T	Benzyl Chloride	4.174	4.694	-12.5	104	-0.01
85	T	1,3-Dichlorobenzene	3.238	3.256	-0.6	103	-0.01
86	T	1,4-Dichlorobenzene	3.365	3.321	1.3	104	0.00
87	T	sec-Butylbenzene	6.769	6.711	0.9	104	0.00
88	T	4-Isopropyltoluene (p-Cymen	6.065	6.274	-3.4	103	0.00
89	T	1,2,3-Trimethylbenzene	0.000	0.000	0.0	0#	0.00
90	T	1,2-Dichlorobenzene	3.128	3.103	0.8	103	0.00
91	T	d-Limonene	1.836	2.035	-10.8	103	0.00
92	T	1,2-Dibromo-3-Chloropropane	1.194	1.286	-7.7	103	0.00
93	T	n-Undecane	0.000	0.000	0.0	99	0.00
94	T	1,2,4-Trichlorobenzene	2.734	2.770	-1.3	102	0.00
95	T	Naphthalene	8.513	8.398	1.4	103	0.00
96	T	n-Dodecane	0.000	0.000	0.0	102	0.00
97	T	Hexachlorobutadiene	1.621	1.621	0.0	103	0.00
98	T	Cyclohexanone	0.000	0.000	0.0	116	0.00
99	T	tert-Butylbenzene	5.064	5.171	-2.1	102	0.00
100	T	n-Butylbenzene	5.485	5.654	-3.1	103	0.00
101	T	1,1,1,2-Tetrachloroethane	1.419	1.431	-0.8	104	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212064.D Vial: 2
Acq On : 22 Dec 2020 18:33 Operator: LH
Sample : CCV2end R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 22 19:01:30 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	197378	12.500	ng		-0.01
37) 1,4-Difluorobenzene (IS2)	13.33	114	844959	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	183474	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.07	65	328786	11.972	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.76%				
57) Toluene-d8 (SS2)	15.78	98	860872	12.717	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.76%				
73) Bromofluorobenzene (SS3)	19.03	174	334581	13.422	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.36%				
Target Compounds							Qvalue
2) Propene	4.15	42	986531	27.389	ng		100
3) Dichlorodifluoromethan...	4.31	85	1045179	24.970	ng		100
4) Chloromethane	4.59	50	935602	24.689	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	542929	25.443	ng		100
6) Vinyl Chloride	5.01	62	747355	25.880	ng		100
7) 1,3-Butadiene	5.28	54	675933	27.791	ng		98
8) Bromomethane	5.71	94	438156	26.759	ng		100
9) Chloroethane	6.04	64	379136	26.184	ng		100
10) Ethanol	6.45	45	2523108	119.850	ng		100
11) Acetonitrile	6.69	41	1404657	24.349	ng		100
12) Acrolein	6.86	56	863626	57.076	ng		100
13) Acetone	7.08	58	2087319	119.254	ng		92
14) Trichlorofluoromethane	7.31	101	946613	24.644	ng		100
15) 2-Propanol (Isopropanol)	7.58	45	3089545	47.724	ng		99
16) Acrylonitrile	7.84	53	1752234	52.024	ng		99
17) 1,1-Dichloroethene	8.27	96	490863	26.995	ng		96
18) 2-Methyl-2-Propanol (t...	8.45	59	2406085	46.898	ng		99
19) Methylene Chloride	8.50	84	488449	26.109	ng		94
20) 3-Chloro-1-propene (Al...	8.66	41	1068126	26.598	ng		97
21) Trichlorotrifluoroethane	8.91	151	481909	26.069	ng		99
22) Carbon Disulfide	8.75	76	3445417	52.357	ng		100
23) trans-1,2-Dichloroethene	9.77	61	841621	27.243	ng		99
24) 1,1-Dichloroethane	10.02	63	991472	26.695	ng		100
25) Methyl tert-Butyl Ether	10.11	73	1407199	26.250	ng		100
26) Vinyl Acetate	10.28	86	541239	150.541	ng	#	86
27) 2-Butanone (MEK)	10.51	72	652811	53.985	ng	#	90
28) cis-1,2-Dichloroethene	11.04	61	802696	26.326	ng		99
29) Diisopropyl Ether	11.33	87	776275	49.840	ng	#	90
30) Ethyl Acetate	11.34	61	498619	50.290	ng		99
31) n-Hexane	11.32	57	948956	25.207	ng		100
32) Chloroform	11.38	83	884515	25.882	ng		100
34) Tetrahydrofuran (THF)	11.78	72	611727	52.015	ng		95
35) Ethyl tert-Butyl Ether	11.92	87	1175383	53.790	ng		97
36) 1,2-Dichloroethane	12.18	62	761405	25.014	ng		100
38) 1,1,1-Trichloroethane	12.46	97	813637	25.468	ng		99
39) Isopropyl Acetate	12.93	61	22592	No Calib			
40) 1-Butanol	12.93	56	7577	No Calib			
41) Benzene	12.94	78	1972950	25.600	ng		100
42) Carbon Tetrachloride	13.09	117	731197	24.612	ng		100
43) Cyclohexane	13.23	84	1410465	52.900	ng		98
44) tert-Amyl Methyl Ether	13.57	73	2787497	54.417	ng		98
45) 1,2-Dichloropropane	13.79	63	548870	26.409	ng		100
46) Bromodichloromethane	13.97	83	728576	26.737	ng		99
47) Trichloroethene	14.03	130	581894	22.638	ng		100
48) 1,4-Dioxane	14.00	88	410906	27.371	ng		98
49) 2,2,4-Trimethylpentane...	14.10	57	2474849	25.969	ng		97
50) Methyl Methacrylate	14.24	100	437049	54.379	ng		99

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212064.D Vial: 2
Acq On : 22 Dec 2020 18:33 Operator: LH
Sample : CCV2end R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

Quant Time: Dec 22 19:01:30 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M

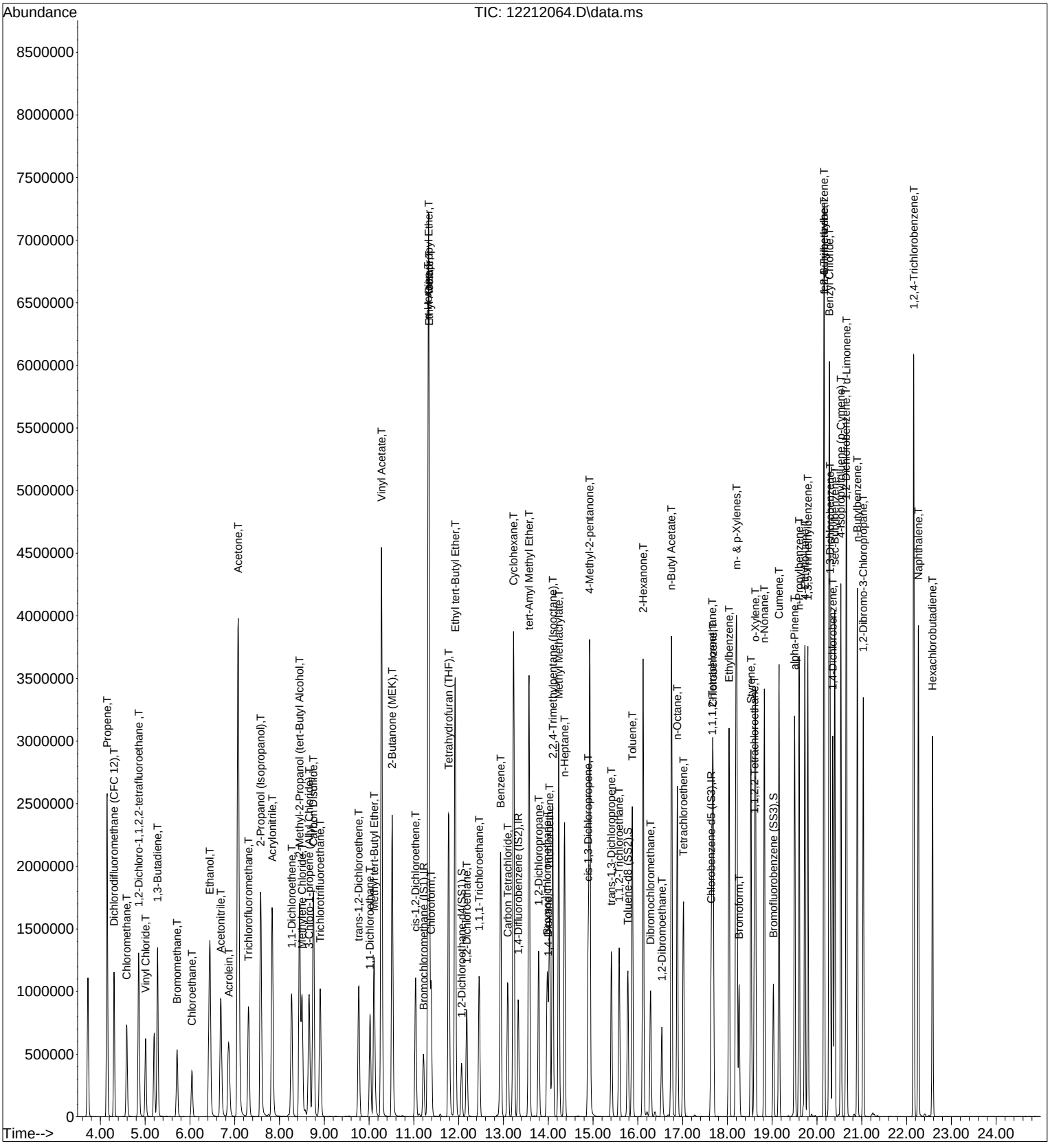
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	482530	26.427	ng		98
52) cis-1,3-Dichloropropene	14.89	75	818947	28.691	ng		100
53) 4-Methyl-2-pentanone	14.92	58	1111516	55.543	ng		95
54) trans-1,3-Dichloropropene	15.41	75	776626	26.788	ng		99
55) 1,1,2-Trichloroethane	15.58	97	494920	26.920	ng		100
58) Toluene	15.88	91	2004760	26.017	ng		100
59) 2-Hexanone	16.12	43	3155869	51.312	ng		97
60) Dibromochloromethane	16.28	129	647603	27.362	ng		100
61) 1,2-Dibromoethane	16.54	107	581523	27.429	ng		100
62) n-Butyl Acetate	16.75	43	3603628	53.374	ng		98
63) n-Octane	16.88	57	521173	26.508	ng		98
64) Tetrachloroethene	17.02	166	627325	26.441	ng		100
65) Chlorobenzene	17.68	112	1401345	25.660	ng		100
66) Ethylbenzene	18.04	91	2356475	27.022	ng		100
67) m- & p-Xylenes	18.20	91	3653180	53.212	ng		100
68) Bromoform	18.26	173	580627	29.308	ng		100
69) Styrene	18.53	104	1493692	28.324	ng		100
70) o-Xylene	18.63	91	1855474	26.811	ng		100
71) n-Nonane	18.82	43	1414655	25.966	ng		98
72) 1,1,2,2-Tetrachloroethane	18.60	83	861728	26.920	ng		100
74) Cumene	19.15	105	2399851	26.376	ng		100
75) alpha-Pinene	19.50	93	1246173	28.859	ng		99
76) n-Propylbenzene	19.60	91	2838679	26.689	ng		100
77) 3-Ethyltoluene	19.73	105	2401035	No Calib			
78) 4-Ethyltoluene	19.73	105	2401035	27.170	ng		100
79) 1,3,5-Trimethylbenzene	19.80	105	1995881	26.916	ng		100
80) alpha-Methylstyrene	19.93	118	2511	No Calib			
81) 2-Ethyltoluene	19.96	105	6428	No Calib			
82) 1,2,4-Trimethylbenzene	20.16	105	2038513	26.155	ng		100
83) n-Decane	20.25	57	2977	No Calib		#	
84) Benzyl Chloride	20.28	91	3617456	59.052	ng		100
85) 1,3-Dichlorobenzene	20.29	146	1254508	26.398	ng		100
86) 1,4-Dichlorobenzene	20.35	146	1267349	25.660	ng		100
87) sec-Butylbenzene	20.40	105	2635094	26.521	ng		99
88) 4-Isopropyltoluene (p-...	20.53	119	2348308	26.378	ng		100
89) 1,2,3-Trimethylbenzene	20.53	105	85605	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	1195534	26.042	ng		100
91) d-Limonene	20.66	68	769107	28.540	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.03	157	943899	53.852	ng		97
93) n-Undecane	21.35	57	2053	No Calib			
94) 1,2,4-Trichlorobenzene	22.16	180	2033059	50.664	ng		100
95) Naphthalene	22.27	128	3173965	25.401	ng		100
96) n-Dodecane	22.25	57	4214	No Calib			
97) Hexachlorobutadiene	22.58	225	612856	25.766	ng		100
98) Cyclohexanone	18.35	55	1087	No Calib			
99) tert-Butylbenzene	20.16	119	1973413	26.551	ng		100
100) n-Butylbenzene	20.90	91	2136845	26.543	ng		100
101) 1,1,1,2-Tetrachloroethane	17.66	131	540983	25.978	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2020_12\21\12212064.D Vial: 2
Acq On : 22 Dec 2020 18:33 Operator: LH
Sample : CCV2end R16122120_25ng Inst : GCMS-16
Misc : S34-12182001/S34-12142002 (1/13)

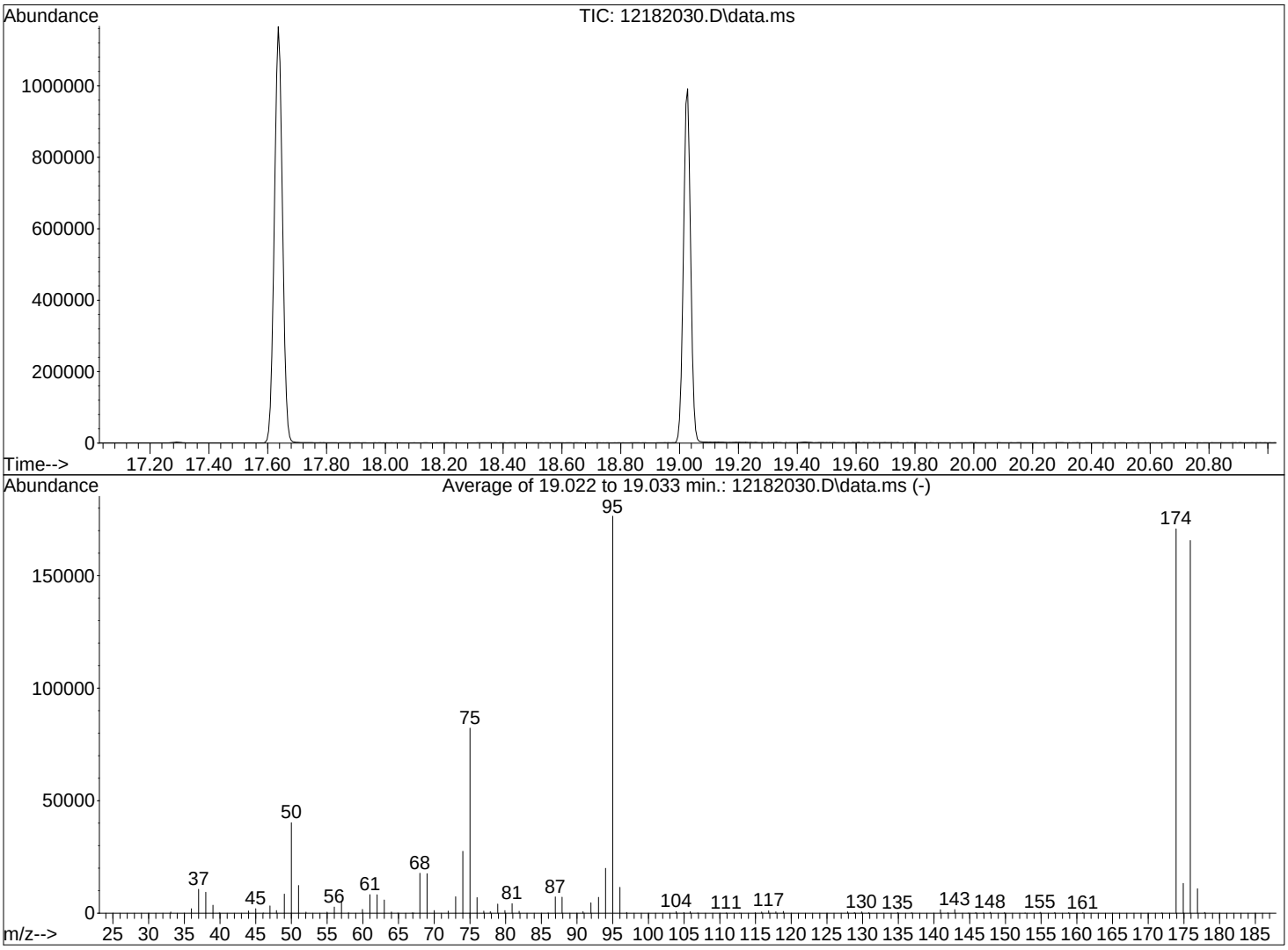
Quant Time: Dec 22 19:01:30 2020
Quant Method : I:\MS16\METHODS\R16121820.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Dec 21 15:39:15 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data Path : I:\MS16\DATA\2020_12\18\
Data File : 12182030.D
Acq On : 18 Dec 2020 20:45
Operator : LH
Sample : 12.5ng BFB STD
Misc : S34-12182001
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16121820.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Dec 19 11:46:54 2020



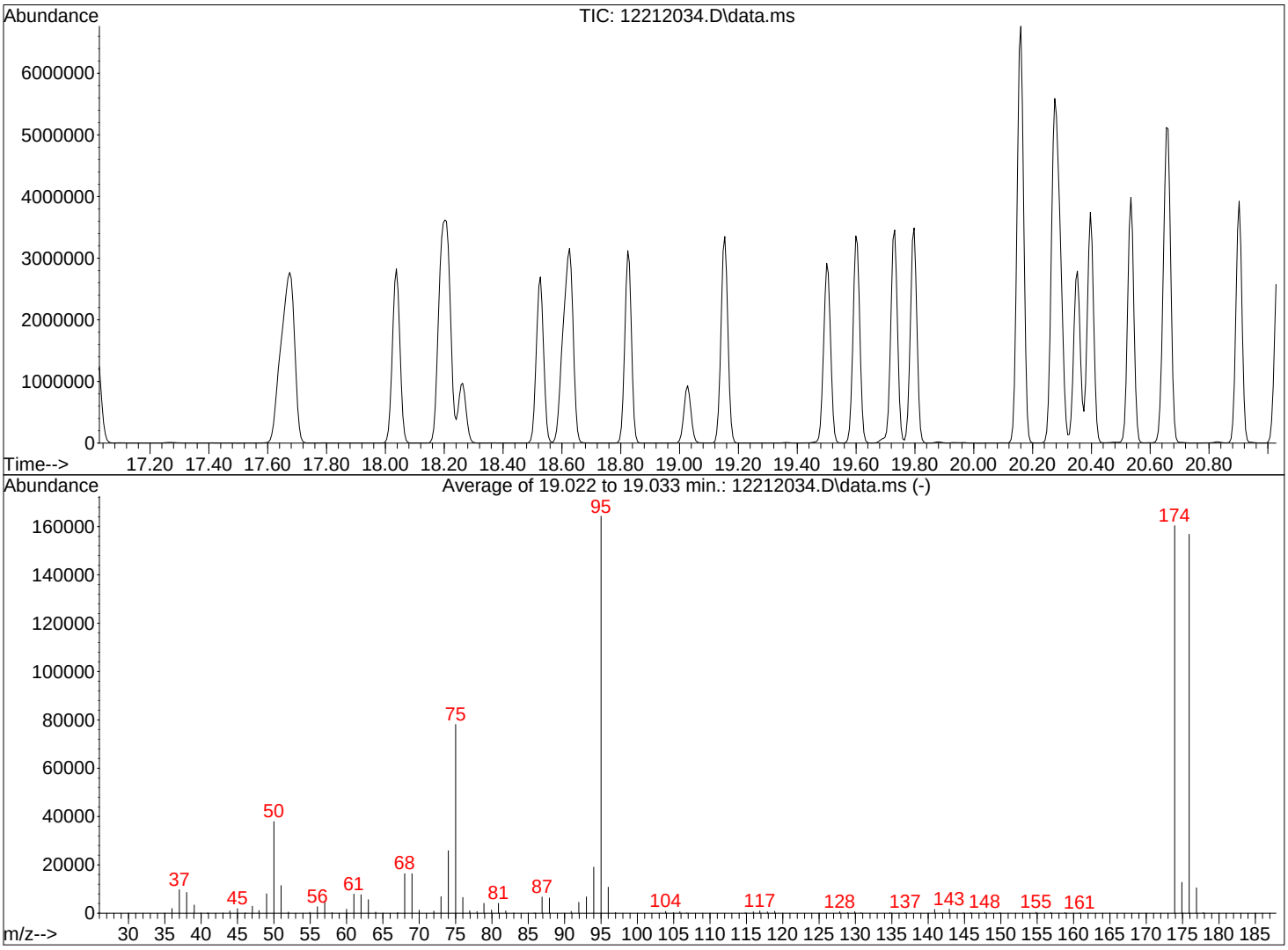
AutoFind: Scans 2825, 2826, 2827; Background Corrected with Scan 2817

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	22.8	40245	PASS
75	95	30	66	46.6	82272	PASS
95	95	100	100	100.0	176427	PASS
96	95	5	9	6.5	11503	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	96.8	170837	PASS
175	174	4	9	7.8	13283	PASS
176	174	93	101	96.9	165589	PASS
177	176	5	9	6.6	10909	PASS

Data Path : I:\MS16\DATA\2020_12\21\
Data File : 12212034.D
Acq On : 22 Dec 2020 00:07
Operator : LH
Sample : CCV2 R16122120_25ng
Misc : S34-12182001/S34-12142002 (1/13)
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16121820.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Dec 21 15:39:15 2020



AutoFind: Scans 2825, 2826, 2827; Background Corrected with Scan 2817

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	23.1	37949	PASS
75	95	30	66	47.5	78083	PASS
95	95	100	100	100.0	164309	PASS
96	95	5	9	6.6	10787	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	97.6	160320	PASS
175	174	4	9	8.0	12769	PASS
176	174	93	101	97.8	156779	PASS
177	176	5	9	6.7	10504	PASS

Injection Log

Directory: I:\MS16\DATA\2020_12\18\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
30	12/18/20 20:45	12182030.D	12.5ng BFB STD	S34-12182001	LH	2	passed
31	12/18/20 21:19	12182031.D	0.1ng TO15 ICAL STD	S34-12182001/S34-12142004 (1/13)	LH	4	
32	12/18/20 21:53	12182032.D	0.2ng TO15 ICAL STD	S34-12182001/S34-12142004 (1/13)	LH	4	
33	12/18/20 22:26	12182033.D	0.5ng TO15 ICAL STD	S34-12182001/S34-12142004 (1/13)	LH	4	not used
34	12/18/20 23:00	12182034.D	1.0ng TO15 ICAL STD	S34-12182001/S34-12142004 (1/13)	LH	4	
35	12/18/20 23:34	12182035.D	5.0ng TO15 ICAL STD	S34-12182001/S34-12142002 (1/13)	LH	2	
36	12/19/20 0:08	12182036.D	25ng TO15 ICAL STD	S34-12182001/S34-12142002 (1/13)	LH	2	**R16121820.M**
37	12/19/20 0:42	12182037.D	50ng TO15 ICAL STD	S34-12182001/S34-12142002 (1/13)	LH	2	
38	12/19/20 1:16	12182038.D	100ng TO15 ICAL STD	S34-12182001/S34-12142002 (1/13)	LH	2	
39	12/19/20 1:50	12182039.D	25ng TO15 ICV STD	S34-12182001/S34-12152004 (1/14)	LH	2	not used
40	12/19/20 11:15	12182040.D	0.5ng TO15 ICAL STD	S34-12182001/S34-12142003 (1/13)	LH	4	
41	12/19/20 11:49	12182041.D	25ng TO15 ICV STD	S34-12182001/S34-12152004 (1/14)	LH	2	passed

ICAL R121820.M passed for all compounds 0.1ng-100ng, except: chloromethane 0.1ng-50ng, tert-butanol 0.2ng-100ng, vinyl acetate 2.5ng-500ng, 2-butanone 0.4ng-200ng, ethyl acetate 1.0ng-100ng, methyl methacrylate, benzyl chloride, 1,2,4-trichlorobenzene 1.0ng-200ng, trans-1,3-dichloropropene, 1,2,4-trimethylbenzene, naphthalene 0.5ng-100ng,

Injection Log

Directory: I:\MS16\DATA\2020_12\21\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	12/21/20 23:34	12212033.D	CCV2 C16122120_25ng	S34-12182001/S34-11232002 (12/21)	LH	3	passed
2	12/22/20 0:07	12212034.D	CCV2 R16122120_25ng	S34-12182001/S34-12142002 (1/13)	LH	2	passed
3	12/22/20 0:41	12212035.D	Blank (100mL)	S34-12182001	LH	2	
4	12/22/20 1:16	12212036.D	MB2 R16122120_1000mL	S34-12182001/AS01319	LH	2	passed
5	12/22/20 1:50	12212037.D	LCS2 R16122120_25ng	S34-12182001/S34-12152004 (1/14)	LH	2	passed
6	12/22/20 2:24	12212038.D	LCSD2 R16122120_25ng	S34-12182001/S34-12152004 (1/14)	LH	2	passed
7	12/22/20 2:57	12212039.D	Blank (100mL)	S34-12182001	LH	2	
8	12/22/20 3:32	12212040.D	P2006988-001 (1000mL)	S34-12182001	LH	15	
9	12/22/20 4:06	12212041.D	P2006988-001dup (1000mL)	S34-12182001	LH	15	passed
10	12/22/20 4:40	12212042.D	P2007094-001 (400mL)	S34-12182001	LH	16	
11	12/22/20 5:14	12212043.D	P2007094-002 (400mL)	S34-12182001	LH	1	
12	12/22/20 5:47	12212044.D	P2007094-003 (400mL)	S34-12182001	LH	4	
13	12/22/20 6:21	12212045.D	P2007094-004 (400mL)	S34-12182001	LH	5	
14	12/22/20 6:55	12212046.D	P2007094-005 (400mL)	S34-12182001	LH	6	
15	12/22/20 7:29	12212047.D	P2007094-006 (400mL)	S34-12182001	LH	7	
16	12/22/20 8:02	12212048.D	P2007094-007 (400mL)	S34-12182001	LH	8	
17	12/22/20 8:36	12212049.D	P2007094-008 (400mL)	S34-12182001	LH	9	
18	12/22/20 9:10	12212050.D	P2007094-009 (400mL)	S34-12182001	LH	10	
19	12/22/20 9:43	12212051.D	P2007094-010 (20mL)	S34-12182001	LH	11	
20	12/22/20 10:24	12212052.D	P2007094-010 (100mL)	S34-12182001	LH	11	
21	12/22/20 10:58	12212053.D	P2007094-011 (75mL)	S34-12182001	LH	4	
22	12/22/20 11:32	12212054.D	P2007094-012 (100mL)	S34-12182001	LH	5	
23	12/22/20 12:06	12212055.D	P2007094-013 (400mL)	S34-12182001	LH	6	
24	12/22/20 12:40	12212056.D	P2007094-014 (400mL)	S34-12182001	LH	7	
25	12/22/20 13:14	12212057.D	P2007094-015 (400mL)	S34-12182001	LH	8	
26	12/22/20 14:21	12212058.D	P2006952-001 (2.0mL)	S34-12182001	LH	1	over diluted
27	12/22/20 15:31	12212059.D	P2006945-001 (1.0mL)	S34-12182001	LH	1	
28	12/22/20 16:17	12212060.D	P2006945-002 (400mL)	S34-12182001	LH	4	
29	12/22/20 16:50	12212061.D	P2006952-001 (20mL)	S34-12182001	LH	5	
30	12/22/20 17:26	12212062.D	P2006988-001dil (100mL)	S34-12182001	LH	6	
31	12/22/20 17:59	12212063.D	P2006988-001dup dil (100mL)	S34-12182001	LH	6	
32	12/22/20 18:33	12212064.D	CCV2end R16122120_25ng	S34-12182001/S34-12142002 (1/13)	LH	2	passed

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-11
Cycles: 30
Batch: 26644

Batch Started By: **ANAKLOWYCZ on 11/6/20 0812**
Finished Cleaning By: **ANAKLOWYCZ on 11/6/20 0812**

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
SC01732	11/6/20	11/6/20	Fail	-14.3	11/6/20 0812	ANAKLOWYCZ				MS21_11062009
Passed For: Fail										
SC01515	11/6/20	11/9/20	Pass w/ Conditions	-14.3	11/6/20 0812	ANAKLOWYCZ	-14.0	12/15/20 1035		
SC00764	11/6/20	11/9/20	Pass w/ Conditions	-14.3	11/6/20 0812	ANAKLOWYCZ	-14.0	11/17/20 1255		
SC01065	11/6/20	11/9/20	Pass w/ Conditions	-14.3	11/6/20 0812	ANAKLOWYCZ	-14.0	11/17/20 1255		
SC01591	11/6/20	11/9/20	Pass w/ Conditions	-14.3	11/6/20 0812	ANAKLOWYCZ	-14.0	12/15/20 0120		
SC00872	11/6/20	11/9/20	Pass w/ Conditions	-14.3	11/6/20 0812	ANAKLOWYCZ	-14.0	11/17/20 1255		
SC01750	11/6/20	11/9/20	Pass w/ Conditions	-14.3	11/6/20 0812	ANAKLOWYCZ	-14.0	11/17/20 1255		
SC01521	11/6/20	11/9/20	Pass w/ Conditions	-14.3	11/6/20 0812	ANAKLOWYCZ	-14.0	11/25/20 0857		
SC01482	11/6/20	11/9/20	Pass w/ Conditions	-14.3	11/6/20 0812	ANAKLOWYCZ	-14.0	11/13/20 1238		MS21_11092013
SC01557	11/6/20	11/9/20	Pass w/ Conditions	-14.3	11/6/20 0812	ANAKLOWYCZ	-14.0	12/16/20 0216		
Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)										

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

*** QC Canister**

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2020_11\09\
Data File : 11092013.D
Acq On : 9 Nov 2020 17:50
Operator : WA/RVT
Sample : 110920_SC01482_26644
Misc : LL+TICS (Sig #1); S34-11092001 (Sig #2)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 06:40:13 2020
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS1)	7.489	130	78849	1000.00	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.724	114	279611	1000.00	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.674	54	35474	1000.00	pg		0.01
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.301	65	112176	887.72	pg		0.00
Spiked Amount 1000.000			Recovery = 88.77%				
57) Toluene-d8 (SS2)	12.577	98	210551	1047.94	pg		0.00
Spiked Amount 1000.000			Recovery = 104.79%				
74) Bromofluorobenzene (SS3)	16.127	174	82374	823.03	pg		-0.01
Spiked Amount 1000.000			Recovery = 82.30%				
Target Compounds							Qvalue
2] * Propene	3.491	42	3441	45.27	pg	#	36
3] * Dichlorodifluoromethane	3.551	85	7096	28.63	pg		97
4] * Chloromethane	3.676	50	2322	22.56	pg	#	63
5] * 1,2-Dichloro-1,1,2,2...	3.763	85	153	1.06	pg	#	42
6] * Vinyl Chloride	3.828	62	85	0.79	pg	#	42
7] * 1,3-Butadiene	3.954	54	135	1.76	pg	#	1
8] * Bromomethane	4.186	94	129	1.38	pg		91
9] * Chloroethane	4.316	64	229	4.66	pg		92
10] * Ethanol	4.399	45	17392	430.93	pg		98
11] * Acetonitrile	4.571	41	1809	19.86	pg		91
12] * Acrolein	4.675	56	3115	77.12	pg		94
13] * Acetone	4.784	58	89330	1663.17	pg	#	44
14] * Trichlorofluoromethane	4.917	101	3550	14.61	pg		92
15] * 2-Propanol (Isopropa...	4.983	45	11393	74.44	pg	#	45
16] * Acrylonitrile	5.131	53	167	2.08	pg		94
17] * 1,1-Dichloroethene	5.386	96	275	3.02	pg	#	73
18] tert-Butanol	5.493	59	2524	20.91	pg	#	50
19] * Methylene Chloride	5.522	84	9865	103.57	pg		98
20] * 3-Chloro-1-propene (...	5.576	41	127	1.54	pg	#	27
21] * Trichlorotrifluoroet...	5.765	151	806	8.26	pg		91
22] * Carbon Disulfide	5.789	76	11632	42.80	pg		96
23] * trans-1,2-Dichloroet...	6.343	96	88	1.08	pg	#	16
24] * 1,1-Dichloroethane	6.484	63	53	0.40	pg	#	1
25] * Methyl tert-Butyl Ether	6.539	73	60	0.40	pg	#	56
26] * Vinyl Acetate	6.655	86	2266	147.07	pg	#	20
27] * 2-Butanone (MEK)	6.916	72	14764	306.90	pg		87
28) * cis-1,2-Dichloroethene	0.000		0	N.D.			
29] DIPE	7.580	45	1561	8.06	pg	#	50
30] * Ethyl Acetate	7.580	61	1653	61.49	pg		99
31] * n-Hexane	7.574	57	1518	15.76	pg		98
32] * Chloroform	7.625	83	320	1.96	pg	#	67
34] * Tetrahydrofuran	8.085	71	180	4.92	pg	#	58
35) ETBE	0.000		0	N.D.			
36) * 1,2-Dichloroethane	0.000		0	N.D.			
38] * 1,1,1-Trichloroethane	8.763	97	52	0.37	pg	#	18
39] * Benzene	9.281	78	3360	11.03	pg		96
40] Isopropyl Acetate	9.229	61	71	98.26	pg	#	36
41] 1-Butanol	9.234	56	4842	1125.40	pg	#	100
42) * Carbon Tetrachloride	0.000		0	N.D.			
43] * Cyclohexane	9.636	84	684	7.44	pg		86
44) TAME	0.000		0	N.D.			
45) * 1,2-Dichloropropane	0.000		0	N.D.			
46] * Bromodichloromethane	10.537	83	104	0.70	pg	#	18
47] * Trichloroethene	10.558	130	167	1.32	pg		98

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2020_11\09\
Data File : 11092013.D
Acq On : 9 Nov 2020 17:50
Operator : WA/RVT
Sample : 110920_SC01482_26644
Misc : LL+TICS (Sig #1); S34-11092001 (Sig #2)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 06:40:13 2020
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

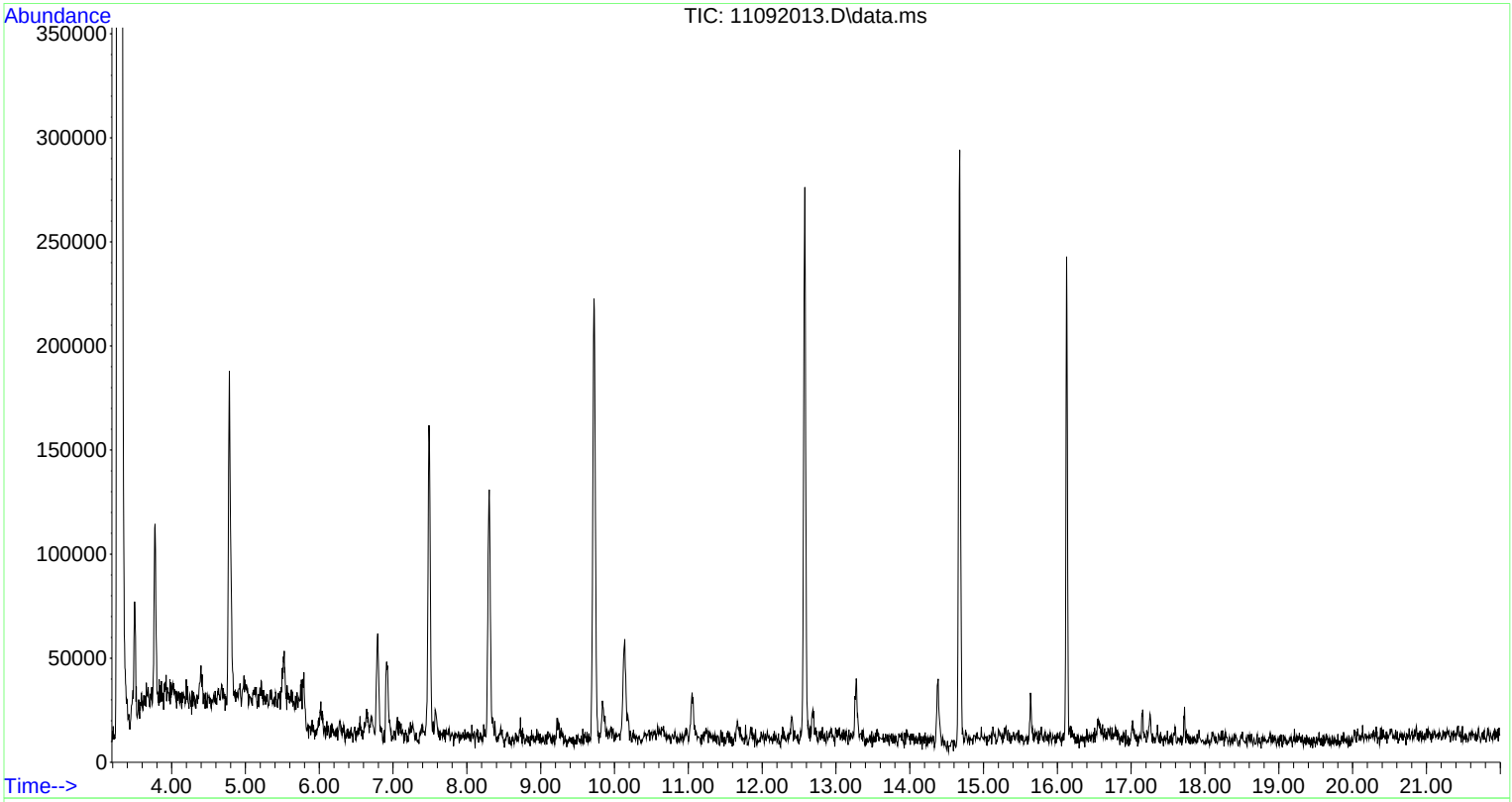
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
48] * 1,4-Dioxane	10.551	88	75	0.98	pg	#	18
49] Isooctane	10.654	56	1870	14.97	pg	#	62
50] * Methyl Methacrylate	10.840	69	65	0.73	pg	#	3
51] * n-Heptane	10.978	71	913	10.61	pg	#	69
52) * cis-1,3-Dichloropropene	0.000		0	N.D.			
53] * 4-Methyl-2-pentanone	11.661	58	2762	52.70	pg		93
54] * trans-1,3-Dichloropr...	12.144	75	55	0.76	pg	#	1
55] * 1,1,2-Trichloroethane	12.290	97	70	0.83	pg	#	79
58] * Toluene	12.691	91	10872	44.25	pg		99
59] * 2-Hexanone	13.013	58	1810	38.35	pg		95
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	13.860	85	272	6.02	pg		93
64] * Tetrachloroethene	13.963	166	90	0.92	pg		98
65] * Chlorobenzene	14.680	112	106	0.57	pg	#	58
66] * Ethylbenzene	15.124	91	1806	7.87	pg	#	81
67] * m- & p-Xylenes	15.283	91	4342	23.56	pg		96
68] * Bromoform	15.369	173	50	0.81	pg	#	27
69] Cyclohexanone	15.432	98	62	10.26	pg		86
70] * Styrene	15.631	104	363	2.74	pg		88
71] * o-Xylene	15.728	91	1799	9.38	pg		94
72] * n-Nonane	15.967	57	336	4.57	pg		95
73] * 1,1,2,2-Tetrachloroe...	15.774	83	157	1.26	pg	#	17
75] * Cumene	16.261	105	236	0.89	pg		99
76] * alpha-Pinene	16.590	93	299	2.68	pg	#	76
77] * n-Propylbenzene	16.697	91	625	2.11	pg		93
78] 3-Ethyltoluene	16.794	105	1225	201.99	pg		95
79] * 4-Ethyltoluene	16.891	105	498	2.23	pg	#	53
80] * 1,3,5-Trimethylbenzene	16.891	105	498	2.50	pg		91
81] alpha-Methylstyrene	17.022	118	207	71.85	pg		100
82] 2-Ethyltoluene	17.109	105	75	22.62	pg	#	43
83] tert-Butylbenzene	17.262	134	211	4.32	pg	#	1
84] * 1,2,4-Trimethylbenzene	17.235	105	1790	8.81	pg		88
85] * Benzyl Chloride	17.316	126	66	4.02	pg	#	1
86] * 1,3-Dichlorobenzene	17.407	146	158	1.01	pg	#	73
87] * 1,4-Dichlorobenzene	17.407	146	158	1.18	pg	#	69
88] n-Decane	17.407	85	82	10.06	pg	#	1
89] sec-Butylbenzene	17.235	105	1790	8.81	pg	#	78
90] 1,2,3-Trimethylbenzene	17.591	105	518	35.25	pg	#	1
91] p-Isopropyltoluene	17.596	134	387	5.94	pg	#	41
92] * 1,2-Dichlorobenzene	17.650	146	76	0.48	pg	#	72
93] * D-Limonene	17.720	68	1743	29.16	pg		95
94] n-Butylbenzene	17.941	134	238	4.05	pg	#	24
95) * 1,2-Dibromo-3-chloro...	0.000		0	N.D.			
96] n-Undecane	18.385	85	132	83.46	pg	#	17
97] * 1,2,4-Trichlorobenzene	19.154	180	206	2.59	pg		97
98] * Naphthalene	19.257	128	398	2.12	pg		98
99] n-Dodecane	19.267	85	60	25.12	pg	#	1
100) * Hexachlorobutadiene	0.000		0	N.D.			

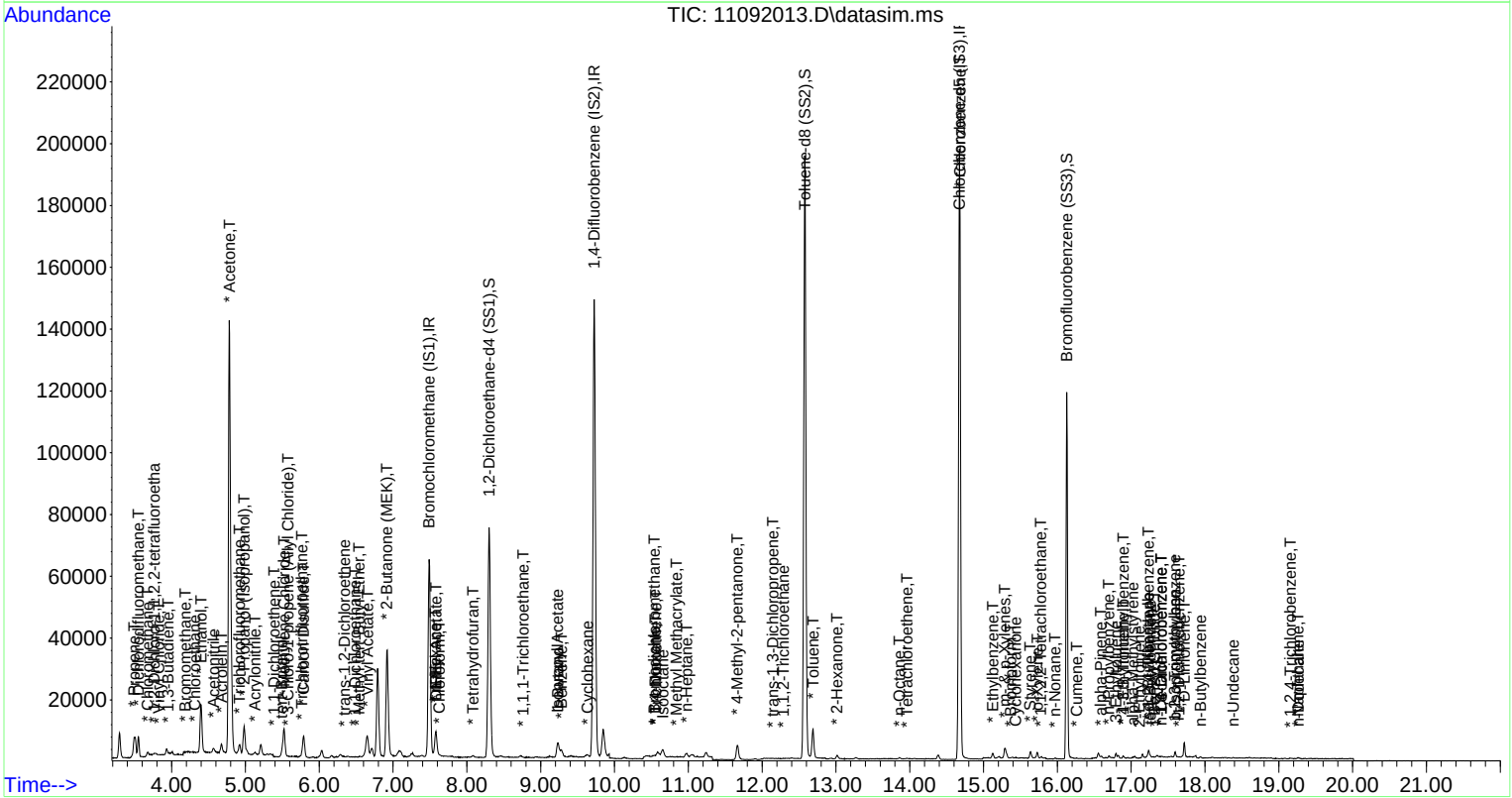
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2020_11\09\
Data File : 11092013.D
Acq On : 9 Nov 2020 17:50
Operator : WA/RVT
Sample : 110920_SC01482_26644
Misc : LL+TICS (Sig #1); S34-11092001 (Sig #2)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 06:40:13 2020
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration





2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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www.alsglobal.com

LABORATORY REPORT

May 6, 2021

Larry Pannell, PG, PMP
KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100
Marlborough, MA 01752

RE: DDMT Memphis / 10A023

Dear Larry:

Enclosed are the results of the sample submitted to our laboratory on April 15, 2021. For your reference, this analysis has been assigned our service request number P2101963.

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

Sue Anderson
Project Manager

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

Client: KOMAN Government Solutions, LLC
Project: DDMT Memphis / 10A023

Service Request No: P2101963

CASE NARRATIVE

The sample was received intact under chain of custody on April 15, 2021 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 spike recovery of ethyl acetate for Laboratory Control Sample (LCS) and Duplicate Laboratory Control Sample (DLCS) was outside the Department of Defense (DoD) upper control criterion. The error associated with eleavated recovery equates to a potential high bias. However, the spike recovery of the analyte in question was within laboratory control criteria; therefore, the data quality has not been significantly affected. No further corrective action was taken.

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)
P2101962-001	Propene, Hexanone

The container was cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.3 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	4068-008
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: KOMAN Government Solutions, LLC Service Request: P2101963

Project ID: DDMT Memphis / 10A023

Date Received: 4/15/2021

Time Received: 10:07

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pfl (psig)	TO-15 - VOC Cans
0DSVE-EFF-Y10Q3	P2101963-001	Air	4/13/2021	12:17	AS00724	-0.32	3.65	X

Air - Chain of Custody Record & Analytical Service Request

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

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. P2101963

Company Name & Address (Reporting Information)
Trinity Analysis and Development Corp.
1002 Eglin Pkwy
Shalimar, FL 32579

Project Name: DDMT Memphis

Project Number: 10A023

Project Manager: Larry Pannell

P.O. # / Billing Information: 8975

Phone: 505-280-9948 Fax: 505-366-7445

Email Address for Result Reporting: lpannell@Komangs.com

Sampler (Print & Sign): Brett Anchukaitis

ALS Contact:

Analysis Method: TO-15

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	Analysis Method		Comments e.g. Actual Preservative or specific instructions
1 ODSVE-EFF-410Q3		4/13/21	1217	AS00724	None	-27.5	-2	6.0L	TO-15		

5 of 115

Report Tier Levels - please select

Tier I - Results (Default if not specified) _____ Tier III (Results + QC & Calibration Summaries) _____
Tier II (Results + QC Summaries) _____ Tier IV (Data Validation Package) 10% Surcharge _____

EDD required Yes / No
Type: _____ Units: _____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Brett Anchukaitis	4/14/21	1100	FedEx	4/14/21	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
			Jeremy Anderson	4/15/21	1007

Cooler / Blank Temperature ____ °C

ALS Environmental
Sample Acceptance Check Form

Client: KOMAN Government Solutions, LLC Work order: P2101963

Project: DDMT Memphis / 10A023

Sample(s) received on: 4/15/21 Date opened: 4/15/21 by: JANDERSON

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.

		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 if necessary 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
P2101963-001.01	6.0 L Silonite Can					

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

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **0DSVE-EFF-Y10Q3** ALS Project ID: P2101963
Client Project ID: **DDMT Memphis / 10A023** ALS Sample ID: P2101963-001

Test Code: EPA TO-15 Date Collected: 4/13/21
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 4/15/21
Analyst: Lusine Hakobyan Date Analyzed: 5/3/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00724

Initial Pressure (psig): -0.32 Final Pressure (psig): 3.65

Container Dilution Factor: 1.28

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**0.52**	0.39	0.24	0.097	
75-71-8	Dichlorodifluoromethane (CFC 12)	**1.1**	0.13	0.083	0.023	
74-87-3	Chloromethane	0.20	0.32	0.20	0.053	**U**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	**0.017**	0.095	0.059	0.015	**J**
75-01-4	Vinyl Chloride	**0.047**	0.27	0.085	0.029	**J**
106-99-0	1,3-Butadiene	0.19	0.30	0.19	0.051	**U**
74-83-9	Bromomethane	**0.046**	0.17	0.056	0.024	**J**
75-00-3	Chloroethane	0.16	0.25	0.16	0.032	**U**
64-17-5	Ethanol	**5.1**	3.6	0.56	0.25	
75-05-8	Acetonitrile	**0.82**	0.40	0.24	0.099	
107-02-8	Acrolein	**0.56**	0.61	0.17	0.084	**J**
67-64-1	Acetone	**8.8**	2.8	1.5	0.65	
75-69-4	Trichlorofluoromethane	**0.29**	0.12	0.073	0.018	
67-63-0	2-Propanol (Isopropyl Alcohol)	**0.36**	0.52	0.33	0.11	**J**
107-13-1	Acrylonitrile	0.19	0.59	0.19	0.065	**U**
75-35-4	1,1-Dichloroethene	**0.44**	0.17	0.055	0.024	
75-09-2	Methylene Chloride	**0.60**	0.19	0.12	0.055	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.070	0.21	0.070	0.029	**U**
76-13-1	Trichlorotrifluoroethane	**2.9**	0.089	0.028	0.013	
75-15-0	Carbon Disulfide	**1.1**	0.41	0.22	0.066	
156-60-5	trans-1,2-Dichloroethene	**0.44**	0.17	0.055	0.024	
75-34-3	1,1-Dichloroethane	**0.29**	0.17	0.10	0.025	
1634-04-4	Methyl tert-Butyl Ether	0.060	0.18	0.060	0.022	**U**
108-05-4	Vinyl Acetate	**1.1**	2.0	0.98	0.44	**J**
78-93-3	2-Butanone (MEK)	**1.1**	0.43	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.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **0DSVE-EFF-Y10Q3** ALS Project ID: P2101963
Client Project ID: **DDMT Memphis / 10A023** ALS Sample ID: P2101963-001

Test Code: EPA TO-15 Date Collected: 4/13/21
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 4/15/21
Analyst: Lusine Hakobyan Date Analyzed: 5/3/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00724

Initial Pressure (psig): -0.32 Final Pressure (psig): 3.65

Container Dilution Factor: 1.28

CAS #	Compound	Result ppbV		LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**18**		0.17	0.055	0.024	
141-78-6	Ethyl Acetate	**0.81**		0.36	0.23	0.099	
110-54-3	n-Hexane	**0.36**		0.19	0.12	0.040	
67-66-3	Chloroform	**5.6**		0.14	0.045	0.019	
109-99-9	Tetrahydrofuran (THF)	**0.066**		0.43	0.074	0.029	**J**
107-06-2	1,2-Dichloroethane		0.054	0.16	0.054	0.019	**U**
71-55-6	1,1,1-Trichloroethane	**0.24**		0.12	0.040	0.015	
71-43-2	Benzene	**1.1**		0.21	0.068	0.031	
56-23-5	Carbon Tetrachloride	**0.42**		0.10	0.035	0.015	
110-82-7	Cyclohexane	**0.079**		0.37	0.13	0.056	**J**
78-87-5	1,2-Dichloropropane		0.047	0.14	0.047	0.018	**U**
75-27-4	Bromodichloromethane		0.032	0.099	0.032	0.015	**U**
79-01-6	Trichloroethene	**22**		0.12	0.041	0.017	
123-91-1	1,4-Dioxane		0.060	0.18	0.060	0.022	**U**
80-62-6	Methyl Methacrylate		0.20	0.31	0.20	0.059	**U**
142-82-5	n-Heptane	**0.15**		0.16	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	**0.12**		0.31	0.053	0.023	**J**
10061-02-6	trans-1,3-Dichloropropene		0.090	0.14	0.090	0.031	**U**
79-00-5	1,1,2-Trichloroethane	**0.037**		0.12	0.040	0.013	**J**
108-88-3	Toluene	**0.19**		0.18	0.058	0.022	
591-78-6	2-Hexanone	**0.24**		0.31	0.053	0.021	**J**
124-48-1	Dibromochloromethane		0.026	0.078	0.026	0.011	**U**
106-93-4	1,2-Dibromoethane		0.028	0.087	0.028	0.010	**U**
123-86-4	n-Butyl Acetate	**0.038**		0.27	0.046	0.020	**J**

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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.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **0DSVE-EFF-Y10Q3** ALS Project ID: P2101963
Client Project ID: **DDMT Memphis / 10A023** ALS Sample ID: P2101963-001

Test Code: EPA TO-15 Date Collected: 4/13/21
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 4/15/21
Analyst: Lusine Hakobyan Date Analyzed: 5/3/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00724

Initial Pressure (psig): -0.32 Final Pressure (psig): 3.65

Container Dilution Factor: 1.28

CAS #	Compound	Result ppbV		LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	**0.063**		0.14	0.088	0.033	**J**
127-18-4	Tetrachloroethene	**1.8**		0.098	0.032	0.013	
108-90-7	Chlorobenzene	**0.030**		0.14	0.047	0.020	**J**
100-41-4	Ethylbenzene		0.050	0.15	0.050	0.022	**U**
179601-23-1	m,p-Xylenes	**0.062**		0.29	0.10	0.041	**J**
75-25-2	Bromoform		0.040	0.066	0.040	0.014	**U**
100-42-5	Styrene		0.096	0.16	0.096	0.026	**U**
95-47-6	o-Xylene		0.050	0.16	0.050	0.023	**U**
111-84-2	n-Nonane	**0.040**		0.13	0.078	0.022	**J**
79-34-5	1,1,2,2-Tetrachloroethane	**0.25**		0.099	0.032	0.014	
98-82-8	Cumene		0.044	0.14	0.044	0.020	**U**
80-56-8	alpha-Pinene	**0.054**		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		0.044	0.14	0.044	0.020	**U**
95-63-6	1,2,4-Trimethylbenzene	**0.023**		0.14	0.044	0.019	**J**
100-44-7	Benzyl Chloride		0.079	0.26	0.079	0.030	**U**
541-73-1	1,3-Dichlorobenzene		0.036	0.11	0.036	0.017	**U**
106-46-7	1,4-Dichlorobenzene		0.068	0.11	0.068	0.017	**U**
95-50-1	1,2-Dichlorobenzene		0.036	0.11	0.036	0.017	**U**
5989-27-5	d-Limonene	**0.088**		0.12	0.074	0.025	**J**
96-12-8	1,2-Dibromo-3-chloropropane		0.042	0.13	0.042	0.013	**U**
120-82-1	1,2,4-Trichlorobenzene		0.055	0.17	0.055	0.022	**U**
91-20-3	Naphthalene	**0.12**		0.13	0.076	0.032	**J**
87-68-3	Hexachlorobutadiene		0.038	0.062	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.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Method Blank** ALS Project ID: P2101963
Client Project ID: **DDMT Memphis / 10A023** ALS Sample ID: P210503-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Topacio Zavala Date Analyzed: 5/3/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.19	0.30	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	0.25	0.16	0.042	**U**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.046	0.074	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	0.13	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	0.48	0.14	0.065	**U**
67-64-1	Acetone	1.1	2.2	1.1	0.51	**U**
75-69-4	Trichlorofluoromethane	0.057	0.091	0.057	0.014	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.26	0.41	0.26	0.090	**U**
107-13-1	Acrylonitrile	0.15	0.46	0.15	0.051	**U**
75-35-4	1,1-Dichloroethene	0.043	0.13	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	0.069	0.022	0.0099	**U**
75-15-0	Carbon Disulfide	0.17	0.32	0.17	0.051	**U**
156-60-5	trans-1,2-Dichloroethene	0.043	0.13	0.043	0.019	**U**
75-34-3	1,1-Dichloroethane	0.082	0.13	0.082	0.019	**U**
1634-04-4	Methyl tert-Butyl Ether	0.047	0.14	0.047	0.017	**U**
108-05-4	Vinyl Acetate	0.77	1.6	0.77	0.34	**U**
78-93-3	2-Butanone (MEK)	0.11	0.34	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.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Method Blank** ALS Project ID: P2101963
Client Project ID: **DDMT Memphis / 10A023** ALS Sample ID: P210503-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Topacio Zavala Date Analyzed: 5/3/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

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	0.28	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	0.34	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	0.095	0.031	0.012	**U**
71-43-2	Benzene	0.053	0.16	0.053	0.024	**U**
56-23-5	Carbon Tetrachloride	0.027	0.081	0.027	0.012	**U**
110-82-7	Cyclohexane	0.099	0.29	0.099	0.044	**U**
78-87-5	1,2-Dichloropropane	0.037	0.11	0.037	0.014	**U**
75-27-4	Bromodichloromethane	0.025	0.078	0.025	0.011	**U**
79-01-6	Trichloroethene	0.032	0.095	0.032	0.013	**U**
123-91-1	1,4-Dioxane	0.047	0.14	0.047	0.017	**U**
80-62-6	Methyl Methacrylate	0.16	0.24	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	0.12	0.037	0.018	**U**
108-10-1	4-Methyl-2-pentanone	0.041	0.24	0.041	0.018	**U**
10061-02-6	trans-1,3-Dichloropropene	0.071	0.11	0.071	0.024	**U**
79-00-5	1,1,2-Trichloroethane	0.031	0.095	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	0.24	0.042	0.016	**U**
124-48-1	Dibromochloromethane	0.020	0.061	0.020	0.0082	**U**
106-93-4	1,2-Dibromoethane	0.022	0.068	0.022	0.0081	**U**
123-86-4	n-Butyl Acetate	0.036	0.21	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.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Method Blank** ALS Project ID: P2101963
Client Project ID: **DDMT Memphis / 10A023** ALS Sample ID: P210503-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Topacio Zavala Date Analyzed: 5/3/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.069	0.11	0.069	0.026	U
127-18-4	Tetrachloroethene	0.025	0.077	0.025	0.010	U
108-90-7	Chlorobenzene	0.037	0.11	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	0.23	0.078	0.032	U
75-25-2	Bromoform	0.031	0.051	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	0.077	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	0.095	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	0.20	0.062	0.023	U
541-73-1	1,3-Dichlorobenzene	0.028	0.088	0.028	0.013	U
106-46-7	1,4-Dichlorobenzene	0.053	0.087	0.053	0.014	U
95-50-1	1,2-Dichlorobenzene	0.028	0.088	0.028	0.013	U
5989-27-5	d-Limonene	0.057	0.093	0.057	0.020	U
96-12-8	1,2-Dibromo-3-chloropropane	0.033	0.10	0.033	0.010	U
120-82-1	1,2,4-Trichlorobenzene	0.043	0.13	0.043	0.018	U
91-20-3	Naphthalene	0.059	0.099	0.059	0.025	U
87-68-3	Hexachlorobutadiene	0.030	0.049	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

Client: **KOMAN Government Solutions, LLC**
Client Project ID: **DDMT Memphis / 10A023** ALS Project ID: P2101963

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 4/13/21
Analyst: Topacio Zavala Date(s) Received: 4/15/21
Sampling Media: 6.0 L Silonite Canister(s) Date(s) Analyzed: 5/3/21
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P210503-MB	**102**	**93**	**94**	70-130	
Lab Control Sample	P210503-LCS	**101**	**93**	**96**	70-130	
Duplicate Lab Control Sample	P210503-DLCS	**100**	**94**	**96**	70-130	
0DSVE-EFF-Y10Q3	P2101963-001	**108**	**89**	**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

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2101963
Client Project ID: **DDMT Memphis / 10A023** ALS Sample ID: P210503-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Topacio Zavala Date Analyzed: 5/3/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ppbV	Result LCS ppbV	Result DLCS ppbV	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	122	135	135	**111**	**111**	57-136	0	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	42.5	40.5	39.7	**95**	**93**	59-128	2	25	
74-87-3	Chloromethane	99.8	93.8	92.3	**94**	**92**	59-132	2	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	30.9	28.1	27.9	**91**	**90**	63-121	1	25	
75-01-4	Vinyl Chloride	81.4	81.7	79.9	**100**	**98**	64-127	2	25	
106-99-0	1,3-Butadiene	95.0	107	104	**113**	**109**	66-134	4	25	
74-83-9	Bromomethane	54.6	50.6	50.4	**93**	**92**	63-134	1	25	
75-00-3	Chloroethane	77.3	76.7	76.2	**99**	**99**	63-127	0	25	
64-17-5	Ethanol	530	493	490	**93**	**92**	59-125	1	25	
75-05-8	Acetonitrile	120	135	133	**113**	**111**	63-132	2	25	
107-02-8	Acrolein	190	194	192	**102**	**101**	62-126	1	25	
67-64-1	Acetone	435	423	418	**97**	**96**	58-128	1	25	
75-69-4	Trichlorofluoromethane	36.3	34.4	34.2	**95**	**94**	62-126	1	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	166	165	158	**99**	**95**	52-125	4	25	
107-13-1	Acrylonitrile	189	203	201	**107**	**106**	71-137	0.9	25	
75-35-4	1,1-Dichloroethene	53.5	51.0	51.2	**95**	**96**	61-133	1	25	
75-09-2	Methylene Chloride	59.9	58.4	58.0	**97**	**97**	62-115	0	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	67.1	74.4	74.1	**111**	**110**	71-131	0.9	25	
76-13-1	Trichlorotrifluoroethane	27.9	25.9	26.0	**93**	**93**	66-126	0	25	
75-15-0	Carbon Disulfide	137	138	138	**101**	**101**	57-134	0	25	
156-60-5	trans-1,2-Dichloroethene	53.5	54.9	54.4	**103**	**102**	67-124	1	25	
75-34-3	1,1-Dichloroethane	52.4	50.8	50.5	**97**	**96**	68-126	1	25	
1634-04-4	Methyl tert-Butyl Ether	58.8	47.9	46.3	**81**	**79**	66-126	3	25	
108-05-4	Vinyl Acetate	313	282	281	**90**	**90**	56-139	0	25	
78-93-3	2-Butanone (MEK)	140	152	151	**109**	**108**	67-130	0.9	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.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2101963
Client Project ID: **DDMT Memphis / 10A023** ALS Sample ID: P210503-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Topacio Zavala Date Analyzed: 5/3/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ppbV	Result LCS ppbV	Result DLCS ppbV	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	52.5	52.5	52.1	**100**	**99**	70-121	1	25	
141-78-6	Ethyl Acetate	117	168	166	**144**	**142**	65-128	1	25	**L**
110-54-3	n-Hexane	60.2	55.9	55.5	**93**	**92**	63-120	1	25	
67-66-3	Chloroform	43.8	41.7	41.4	**95**	**95**	68-123	0	25	
109-99-9	Tetrahydrofuran (THF)	136	133	132	**98**	**97**	64-123	1	25	
107-06-2	1,2-Dichloroethane	51.4	50.2	49.8	**98**	**97**	65-128	1	25	
71-55-6	1,1,1-Trichloroethane	37.8	37.2	36.5	**98**	**97**	68-125	1	25	
71-43-2	Benzene	63.9	62.1	61.2	**97**	**96**	69-119	1	25	
56-23-5	Carbon Tetrachloride	33.4	33.5	33.2	**100**	**99**	68-132	1	25	
110-82-7	Cyclohexane	121	120	119	**99**	**98**	70-117	1	25	
78-87-5	1,2-Dichloropropane	44.6	44.5	44.1	**100**	**99**	69-123	1	25	
75-27-4	Bromodichloromethane	31.4	32.3	32.0	**103**	**102**	72-128	1	25	
79-01-6	Trichloroethene	38.3	37.0	36.7	**97**	**96**	71-123	1	25	
123-91-1	1,4-Dioxane	57.7	61.3	60.4	**106**	**105**	71-122	0.9	25	
80-62-6	Methyl Methacrylate	102	112	111	**110**	**109**	70-128	0.9	25	
142-82-5	n-Heptane	51.3	51.3	50.6	**100**	**99**	69-123	1	25	
10061-01-5	cis-1,3-Dichloropropene	46.3	49.9	49.4	**108**	**107**	70-128	0.9	25	
108-10-1	4-Methyl-2-pentanone	102	114	112	**112**	**110**	67-130	2	25	
10061-02-6	trans-1,3-Dichloropropene	44.5	51.1	50.8	**115**	**114**	75-133	0.9	25	
79-00-5	1,1,2-Trichloroethane	37.8	38.6	38.0	**102**	**101**	73-119	1	25	
108-88-3	Toluene	54.7	49.5	49.5	**90**	**90**	66-119	0	25	
591-78-6	2-Hexanone	98.7	105	104	**106**	**105**	62-128	0.9	25	
124-48-1	Dibromochloromethane	24.7	24.5	24.5	**99**	**99**	70-130	0	25	
106-93-4	1,2-Dibromoethane	27.1	26.0	26.0	**96**	**96**	74-122	0	25	
123-86-4	n-Butyl Acetate	85.5	90.6	90.4	**106**	**106**	65-134	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.
L = Laboratory control sample recovery outside the specified limits, results may be biased high.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2101963
Client Project ID: **DDMT Memphis / 10A023** ALS Sample ID: P210503-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Topacio Zavala Date Analyzed: 5/3/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ppbV	Result LCS ppbV	Result DLCS ppbV	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
111-65-9	n-Octane	45.0	42.4	42.4	**94**	**94**	69-121	0	25	
127-18-4	Tetrachloroethene	30.4	28.4	28.5	**93**	**94**	66-124	1	25	
108-90-7	Chlorobenzene	44.7	40.9	40.9	**91**	**91**	70-119	0	25	
100-41-4	Ethylbenzene	47.4	44.1	44.0	**93**	**93**	70-124	0	25	
179601-23-1	m,p-Xylenes	94.9	87.9	87.7	**93**	**92**	61-134	1	25	
75-25-2	Bromoform	20.1	20.7	20.9	**103**	**104**	66-139	1	25	
100-42-5	Styrene	48.4	47.6	47.7	**98**	**99**	73-127	1	25	
95-47-6	o-Xylene	47.4	43.7	43.6	**92**	**92**	67-125	0	25	
111-84-2	n-Nonane	39.7	39.1	38.8	**98**	**98**	63-128	0	25	
79-34-5	1,1,2,2-Tetrachloroethane	30.0	28.7	28.7	**96**	**96**	65-127	0	25	
98-82-8	Cumene	42.3	39.2	39.2	**93**	**93**	68-124	0	25	
80-56-8	alpha-Pinene	38.4	37.0	37.0	**96**	**96**	62-136	0	25	
103-65-1	n-Propylbenzene	42.3	39.3	39.2	**93**	**93**	69-123	0	25	
622-96-8	4-Ethyltoluene	42.7	40.6	40.6	**95**	**95**	67-129	0	25	
108-67-8	1,3,5-Trimethylbenzene	41.9	39.5	39.5	**94**	**94**	67-130	0	25	
95-63-6	1,2,4-Trimethylbenzene	41.5	39.9	39.8	**96**	**96**	66-132	0	25	
100-44-7	Benzyl Chloride	77.7	81.3	82.8	**105**	**107**	50-147	2	25	
541-73-1	1,3-Dichlorobenzene	34.3	33.3	33.4	**97**	**97**	65-130	0	25	
106-46-7	1,4-Dichlorobenzene	33.9	32.1	32.2	**95**	**95**	60-131	0	25	
95-50-1	1,2-Dichlorobenzene	34.3	32.4	32.4	**94**	**94**	63-129	0	25	
5989-27-5	d-Limonene	37.3	37.7	37.7	**101**	**101**	65-136	0	25	
96-12-8	1,2-Dibromo-3-chloropropane	38.3	41.0	41.2	**107**	**108**	73-133	0.9	25	
120-82-1	1,2,4-Trichlorobenzene	52.3	55.2	55.9	**106**	**107**	55-142	0.9	25	
91-20-3	Naphthalene	37.8	43.4	44.2	**115**	**117**	57-138	2	25	
87-68-3	Hexachlorobutadiene	19.7	17.0	17.2	**86**	**87**	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.

Client: **KOMAN Government Solutions, LLC** ALS Project ID: P2101963
Client Project ID: **DDMT Memphis / 10A023**

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Lab File ID: 05032104.D
Analyst: Topacio Zavala Date Analyzed: 5/3/21
Sampling Media: 6.0 L Silonite Canister(s) Time Analyzed: 10:44
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P210503-LCS	05032105.D	11:18
Duplicate Lab Control Sample	P210503-DLCS	05032106.D	11:52
0DSVE-EFF-Y10Q3	P2101963-001	05032119.D	19:44

Client: **KOMAN Government Solutions, LLC** ALS Project ID: P2101963
Client Project ID: **DDMT Memphis / 10A023**

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Lab File ID: 05032101.D
Analyst: Topacio Zavala Date Analyzed: 5/3/21
Sampling Media: 6.0 L Silonite Canister(s) Time Analyzed: 08:47
Test Notes:

		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 Hour Standard	247628	11.22	1063095	13.34	152623	17.64
	Upper Limit	346679	11.55	1488333	13.67	213672	17.97
	Lower Limit	148577	10.89	637857	13.01	91574	17.31
	Client Sample ID						
01	Method Blank	231184	11.20	1021014	13.32	149109	17.64
02	Lab Control Sample	241737	11.22	1035763	13.33	153271	17.64
03	Duplicate Lab Control Sample	245605	11.22	1060676	13.34	154936	17.64
04	0DSVE-EFF-Y10Q3	222116	11.20	974998	13.32	152131	17.64
05							
06							
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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.

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032119.D Vial: 7
Acq On : 3 May 2021 19:44 Operator: LH
Sample : P2101963-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: May 05 12:58:00 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	222116	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.32	114	974998	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	152131	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	291914	13.443	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.52%				
57) Toluene-d8 (SS2)	15.78	98	1009191	11.108	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.88%				
73) Bromofluorobenzene (SS3)	19.03	174	368430	11.136	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.12%				
Target Compounds							Qvalue
2) Propene	4.16	42	17735m	0.699	ng		
3) Dichlorodifluoromethan...	4.31	85	164023	4.173	ng		100
4) Chloromethane	4.60	50	2076	0.067	ng		83
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	2169	0.094	ng		85
6) Vinyl Chloride	5.02	62	2889	0.094	ng		97
7) 1,3-Butadiene	5.29	54	454	N.D.			
8) Bromomethane	5.71	94	2732	0.139	ng		98
9) Chloroethane	6.04	64	230	N.D.			
10) Ethanol	6.41	45	108872	7.544	ng		99
11) Acetonitrile	6.68	41	39833	1.077	ng		98
12) Acrolein	6.88	56	13426	0.998	ng		100
13) Acetone	7.08	58	261021	16.406	ng	#	79
14) Trichlorofluoromethane	7.30	101	43934	1.272	ng		100
15) 2-Propanol (Isopropanol)	7.60	45	32156	0.692	ng		76
16) Acrylonitrile	0.00	53	0	N.D. d			
17) 1,1-Dichloroethene	8.27	96	30187	1.362	ng		90
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D. d			
19) Methylene Chloride	8.47	84	37025	1.640	ng		91
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D. d			
21) Trichlorotrifluoroethane	8.90	151	350298	17.251	ng		96
22) Carbon Disulfide	8.74	76	206501	2.713	ng		99
23) trans-1,2-Dichloroethene	9.76	61	38411	1.347	ng		96
24) 1,1-Dichloroethane	10.01	63	33119	0.905	ng		100
25) Methyl tert-Butyl Ether	10.16	73	1512	N.D.			
26) Vinyl Acetate	10.24	86	10891	2.926	ng		100
27) 2-Butanone (MEK)	10.53	72	35794	2.581	ng	#	78
28) cis-1,2-Dichloroethene	11.02	61	1553318	55.260	ng		96
29) Diisopropyl Ether	0.00	87	0	N.D. d			
30) Ethyl Acetate	11.35	61	21514	2.276	ng		93
31) n-Hexane	11.31	57	34637	1.003	ng		98
32) Chloroform	11.37	83	737342	21.262	ng		99
34) Tetrahydrofuran (THF)	11.83	72	2167	0.152	ng	#	78
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.18	62	1098	N.D.			
38) 1,1,1-Trichloroethane	12.45	97	30527	1.023	ng		98
39) Isopropyl Acetate	12.93	61	1507	No Calib		#	
40) 1-Butanol	12.92	56	26538	No Calib		#	
41) Benzene	12.93	78	250672	2.737	ng		100
42) Carbon Tetrachloride	13.09	117	53713	2.043	ng		100
43) Cyclohexane	13.21	84	7098	0.212	ng	#	69
44) tert-Amyl Methyl Ether	0.00	73	0	N.D. d			
45) 1,2-Dichloropropane	13.78	63	501	N.D.			
46) Bromodichloromethane	13.98	83	1851	0.069	ng		96
47) Trichloroethene	14.03	130	2410848	94.139	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	14.17	100	388	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032119.D Vial: 7
Acq On : 3 May 2021 19:44 Operator: LH
Sample : P2101963-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: May 05 12:58:00 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

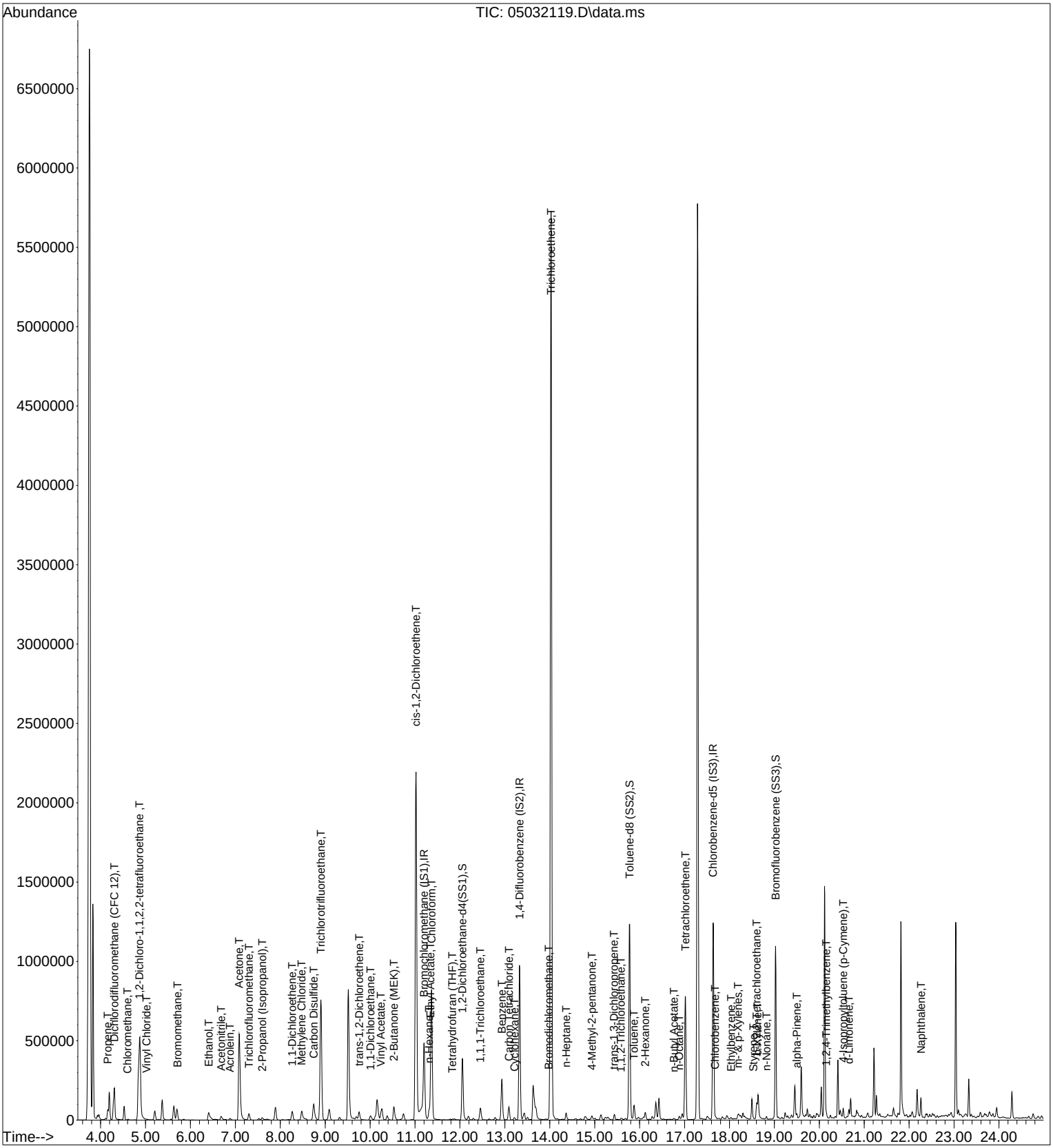
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	11104	0.493	ng		96
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
53) 4-Methyl-2-pentanone	14.94	58	7293	0.391	ng	#	64
54) trans-1,3-Dichloropropene	15.43	75	1444	0.053	ng	#	1
55) 1,1,2-Trichloroethane	15.58	97	3467	0.159	ng		89
58) Toluene	15.88	91	59079	0.565	ng		100
59) 2-Hexanone	16.12	43	34733m	0.755	ng		
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	7300	0.140	ng		87
63) n-Octane	16.88	57	4890	0.231	ng		87
64) Tetrachloroethene	17.02	166	296486	9.489	ng		100
65) Chlorobenzene	17.68	112	7606	0.108	ng		97
66) Ethylbenzene	18.04	91	8399	0.073	ng		98
67) m- & p-Xylenes	18.19	91	18647	0.211	ng		98
68) Bromoform	0.00	173	0	N.D.			
69) Styrene	18.53	104	3538	0.051	ng		92
70) o-Xylene	18.63	91	6468	0.073	ng		94
71) n-Nonane	18.82	43	7057	0.162	ng		89
72) 1,1,2,2-Tetrachloroethane	18.60	83	57564	1.333	ng		99
74) Cumene	19.16	105	1050	N.D.			
75) alpha-Pinene	19.50	93	13171	0.233	ng	#	1
76) n-Propylbenzene	19.60	91	4023	N.D.			
77) 3-Ethyltoluene	19.73	105	3217	No Calib			
78) 4-Ethyltoluene	19.73	105	3217	N.D.			
79) 1,3,5-Trimethylbenzene	19.80	105	2509	N.D.			
80) alpha-Methylstyrene	19.93	118	2337	No Calib		#	
81) 2-Ethyltoluene	19.97	105	2492	No Calib			
82) 1,2,4-Trimethylbenzene	20.15	105	8006	0.089	ng		85
83) n-Decane	20.15	58	1370	No Calib		#	
84) Benzyl Chloride	20.27	91	1395	N.D.			
85) 1,3-Dichlorobenzene	20.29	146	689	N.D.			
86) 1,4-Dichlorobenzene	20.35	146	1766	N.D.			
87) sec-Butylbenzene	20.40	105	1643	N.D.			
88) 4-Isopropyltoluene (p-...	20.53	119	31372	0.287	ng		95
89) 1,2,3-Trimethylbenzene	20.53	105	3801	No Calib		#	
90) 1,2-Dichlorobenzene	20.65	146	686	N.D.			
91) d-Limonene	20.66	68	12705	0.383	ng		89
92) 1,2-Dibromo-3-Chloropr...	20.96	157	526	N.D.			
93) n-Undecane	21.22	57	64760	No Calib			
94) 1,2,4-Trichlorobenzene	22.16	180	1060	N.D.			
95) Naphthalene	22.27	128	51861	0.472	ng		100
96) n-Dodecane	22.26	57	17904	No Calib		#	
97) Hexachlorobutadiene	22.58	225	257	N.D.			
98) Cyclohexanone	18.33	55	9528	No Calib		#	
99) tert-Butylbenzene	0.00	119	0	N.D. d			
100) n-Butylbenzene	20.90	91	4820	N.D.			
101) 1,1,1,2-Tetrachloroethane	17.67	131	243	N.D.			

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032119.D Vial: 7
Acq On : 3 May 2021 19:44 Operator: LH
Sample : P2101963-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: May 05 12:58:00 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

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Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	222116	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.32	114	974998	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	152131	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	291914	13.443	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.52%				
57) Toluene-d8 (SS2)	15.78	98	1009191	11.108	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.88%				
73) Bromofluorobenzene (SS3)	19.03	174	368430	11.136	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.12%				
Target Compounds							Qvalue
2) Propene	4.16	42	17735m	0.699	ng		
3) Dichlorodifluoromethan...	4.31	85	164023	4.173	ng		100
4) Chloromethane	4.60	50	2076	0.067	ng		83
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	2169	0.094	ng		85
6) Vinyl Chloride	5.02	62	2889	0.094	ng		97
8) Bromomethane	5.71	94	2732	0.139	ng		98
10) Ethanol	6.41	45	108872	7.544	ng		99
11) Acetonitrile	6.68	41	39833	1.077	ng		98
12) Acrolein	6.88	56	13426	0.998	ng		100
13) Acetone	7.08	58	261021	16.406	ng	#	79
14) Trichlorofluoromethane	7.30	101	43934	1.272	ng		100
15) 2-Propanol (Isopropanol)	7.60	45	32156	0.692	ng		76
17) 1,1-Dichloroethene	8.27	96	30187	1.362	ng		90
19) Methylene Chloride	8.47	84	37025	1.640	ng		91
21) Trichlorotrifluoroethane	8.90	151	350298	17.251	ng		96
22) Carbon Disulfide	8.74	76	206501	2.713	ng		99
23) trans-1,2-Dichloroethene	9.76	61	38411	1.347	ng		96
24) 1,1-Dichloroethane	10.01	63	33119	0.905	ng		100
26) Vinyl Acetate	10.24	86	10891	2.926	ng		100
27) 2-Butanone (MEK)	10.53	72	35794	2.581	ng	#	78
28) cis-1,2-Dichloroethene	11.02	61	1553318	55.260	ng		96
30) Ethyl Acetate	11.35	61	21514	2.276	ng		93
31) n-Hexane	11.31	57	34637	1.003	ng		98
32) Chloroform	11.37	83	737342	21.262	ng		99
34) Tetrahydrofuran (THF)	11.83	72	2167	0.152	ng	#	78
38) 1,1,1-Trichloroethane	12.45	97	30527	1.023	ng		98
41) Benzene	12.93	78	250672	2.737	ng		100
42) Carbon Tetrachloride	13.09	117	53713	2.043	ng		100
43) Cyclohexane	13.21	84	7098	0.212	ng	#	69
46) Bromodichloromethane	13.98	83	1851	0.069	ng		96
47) Trichloroethene	14.03	130	2410848	94.139	ng		99
51) n-Heptane	14.36	71	11104	0.493	ng		96
53) 4-Methyl-2-pentanone	14.94	58	7293	0.391	ng	#	64
54) trans-1,3-Dichloropropene	15.43	75	1444	0.053	ng	#	1
55) 1,1,2-Trichloroethane	15.58	97	3467	0.159	ng		89
58) Toluene	15.88	91	59079	0.565	ng		100
59) 2-Hexanone	16.12	43	34733m	0.755	ng		
62) n-Butyl Acetate	16.76	43	7300	0.140	ng		87
63) n-Octane	16.88	57	4890	0.231	ng		87
64) Tetrachloroethene	17.02	166	296486	9.489	ng		100
65) Chlorobenzene	17.68	112	7606	0.108	ng		97
66) Ethylbenzene	18.04	91	8399	0.073	ng		98
67) m- & p-Xylenes	18.19	91	18647	0.211	ng		98
69) Styrene	18.53	104	3538	0.051	ng		92
70) o-Xylene	18.63	91	6468	0.073	ng		94
71) n-Nonane	18.82	43	7057	0.162	ng		89
72) 1,1,2,2-Tetrachloroethane	18.60	83	57564	1.333	ng		99

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032119.D Vial: 7
Acq On : 3 May 2021 19:44 Operator: LH
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Misc : S34-12182001

Quant Time: May 05 12:58:00 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

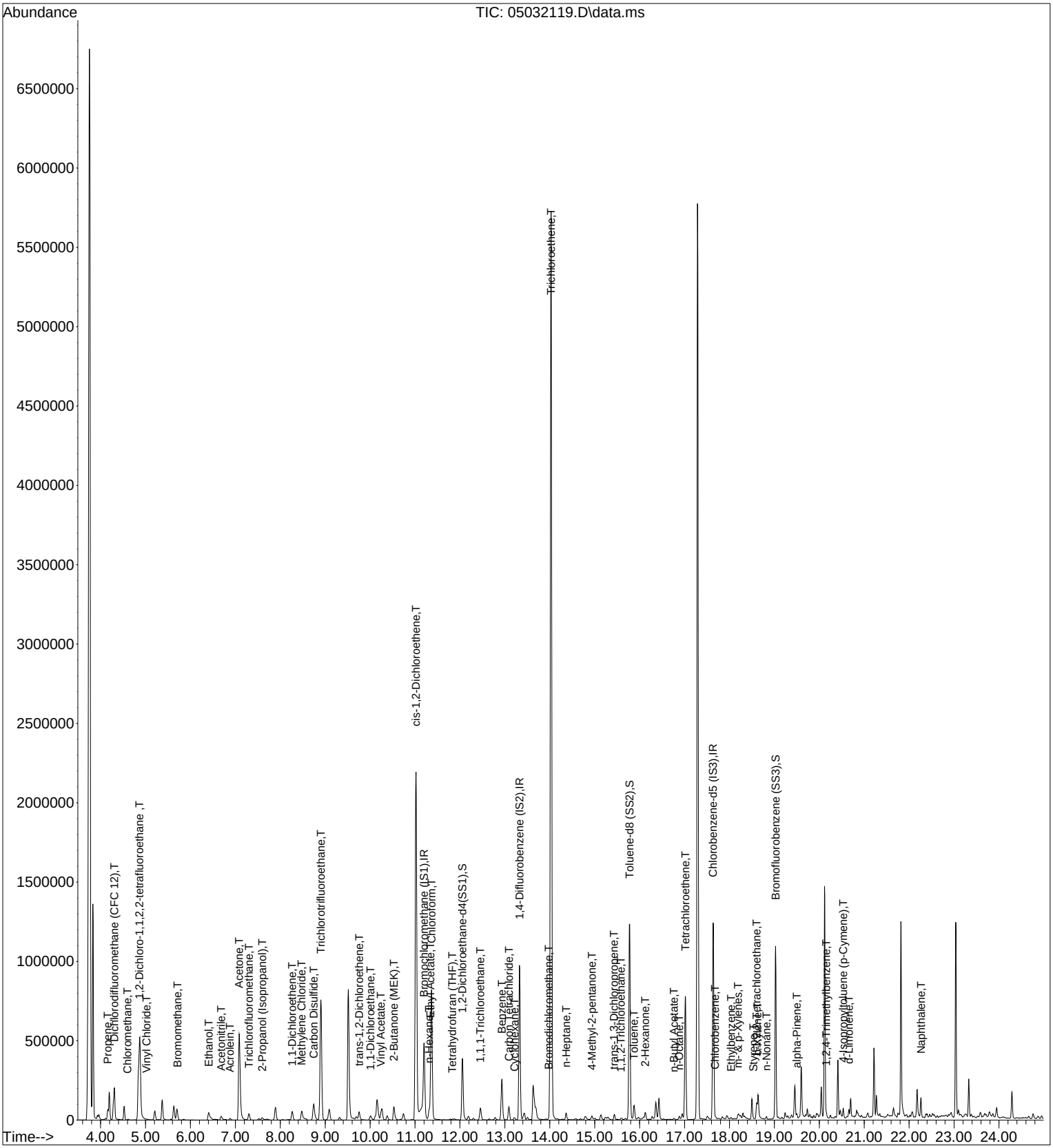
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
75) alpha-Pinene	19.50	93	13171	0.233	ng	#	1
82) 1,2,4-Trimethylbenzene	20.15	105	8006	0.089	ng		85
88) 4-Isopropyltoluene (p-...	20.53	119	31372	0.287	ng		95
91) d-Limonene	20.66	68	12705	0.383	ng		89
95) Naphthalene	22.27	128	51861	0.472	ng		100

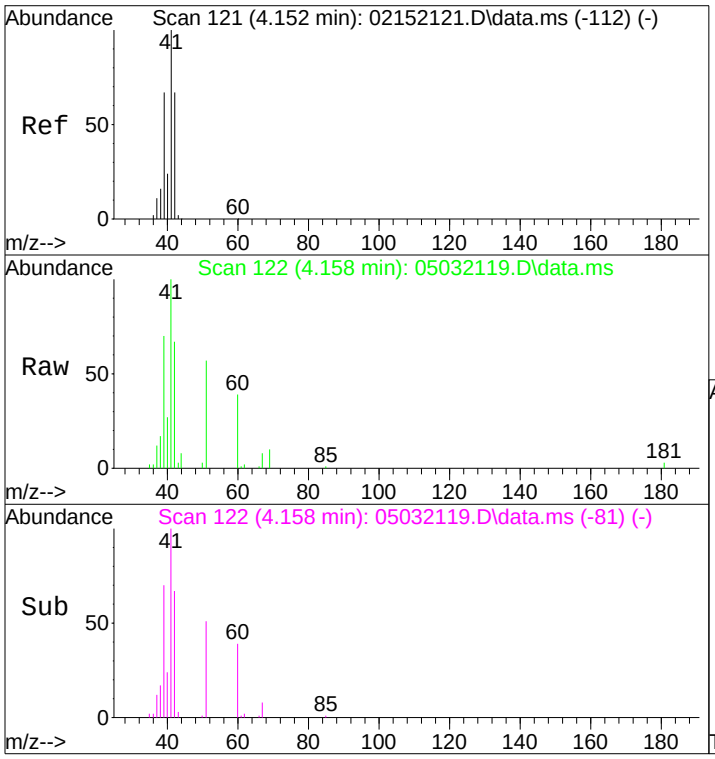
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032119.D Vial: 7
Acq On : 3 May 2021 19:44 Operator: LH
Sample : P2101963-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: May 05 12:58:00 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

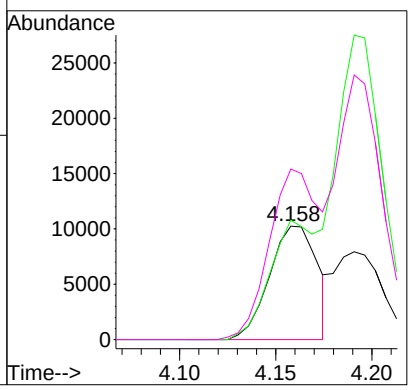


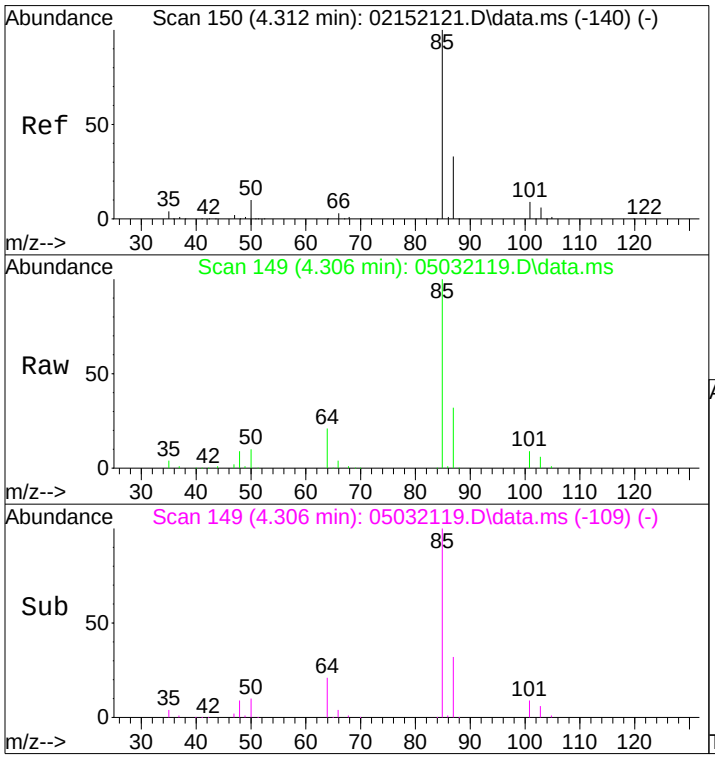


#2
Propene
Concen: 0.70 ng m
RT: 4.16 min Scan# 122
Delta R.T. -0.022 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 42 Resp: 17735

Ion	Ratio	Lower	Upper
42	100		
39	270.8	80.4	120.4#
41	221.8	129.3	169.3#

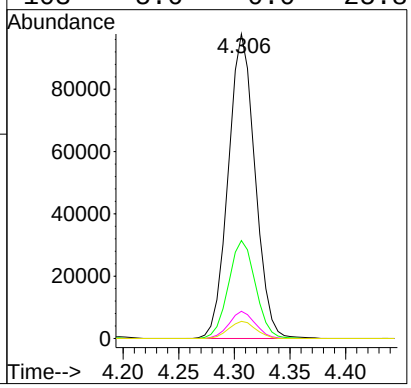


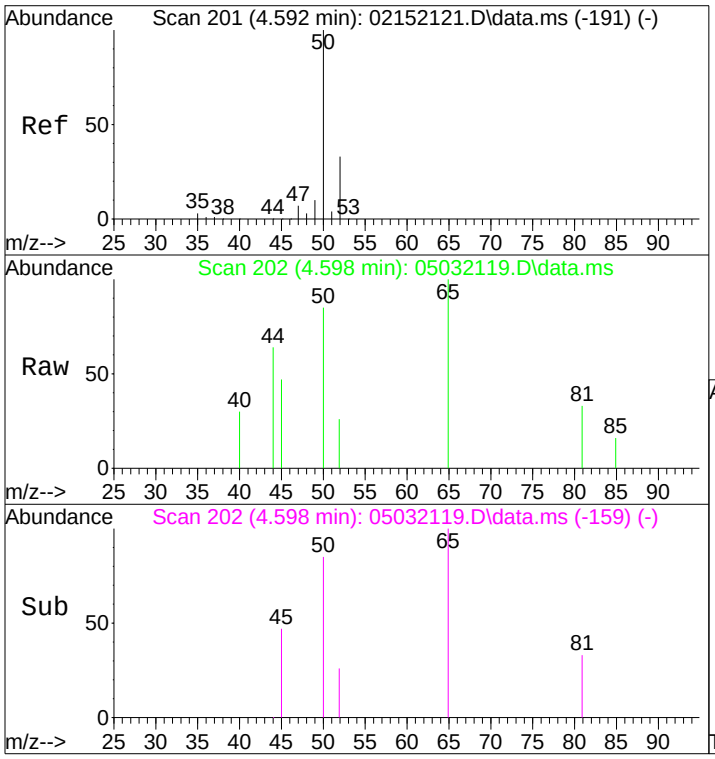


#3
Dichlorodifluoromethane (CFC 12)
Concen: 4.17 ng
RT: 4.31 min Scan# 149
Delta R.T. -0.027 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 85 Resp: 164023

Ion	Ratio	Lower	Upper
85	100		
87	32.4	12.6	52.6
101	8.7	0.0	28.9
103	5.6	0.0	25.8

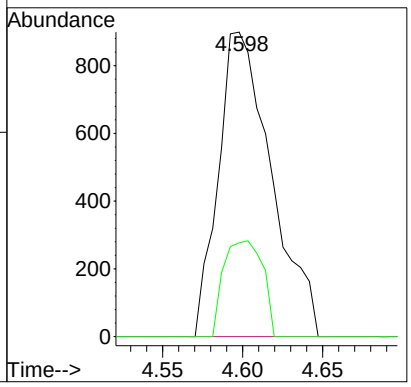


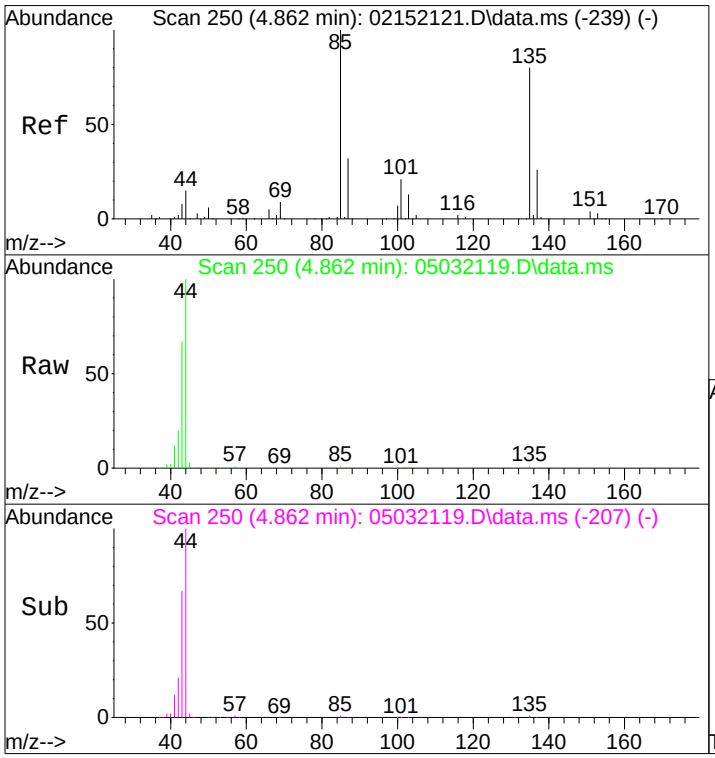


#4
Chloromethane
Concen: 0.07 ng
RT: 4.60 min Scan# 202
Delta R.T. -0.011 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 50 Resp: 2076

Ion	Ratio	Lower	Upper
50	100		
52	23.1	12.9	52.9

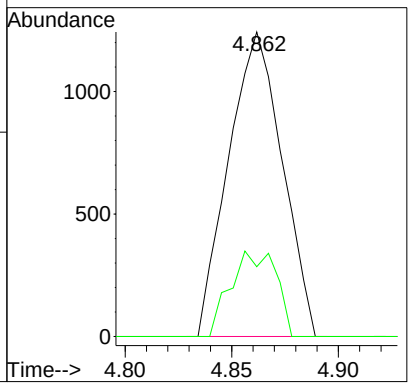


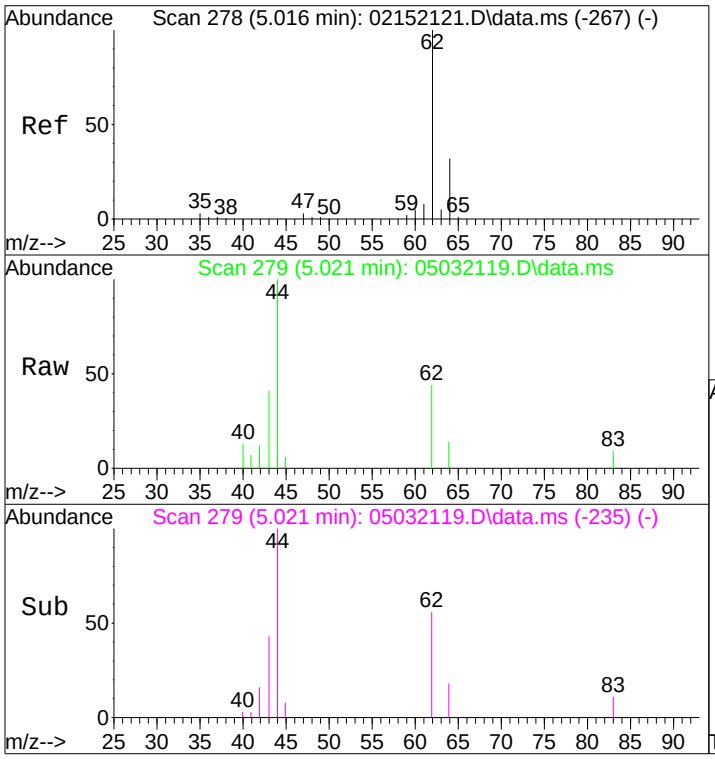


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.09 ng
RT: 4.86 min Scan# 250
Delta R.T. -0.011 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion:135 Resp: 2169

Ion	Ratio	Lower	Upper
135	100		
137	23.9	12.1	52.1

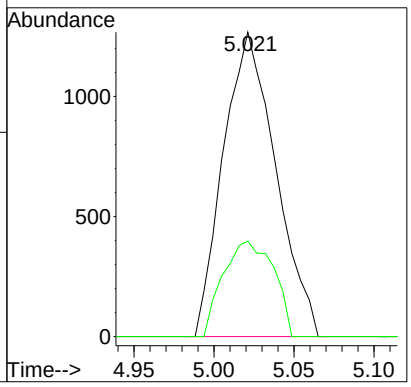


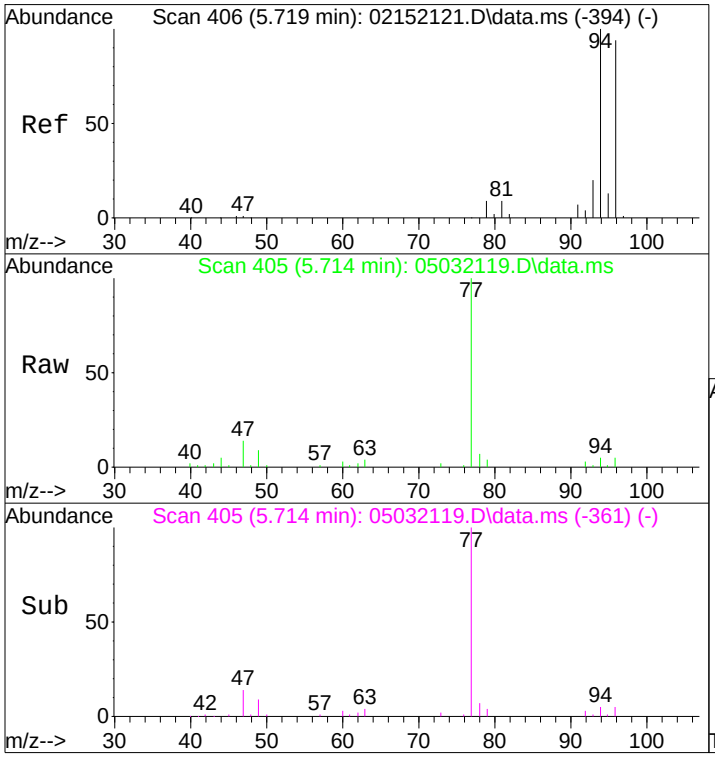


#6
Vinyl Chloride
Concen: 0.09 ng
RT: 5.02 min Scan# 279
Delta R.T. -0.005 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 62 Resp: 2889

Ion	Ratio	Lower	Upper
62	100		
64	30.3	11.9	51.9

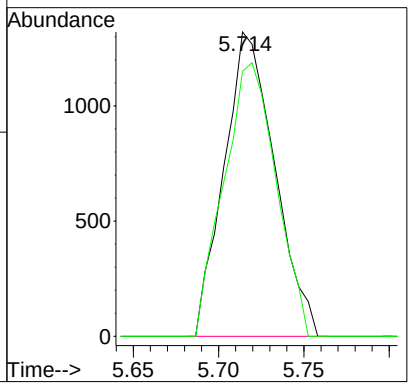


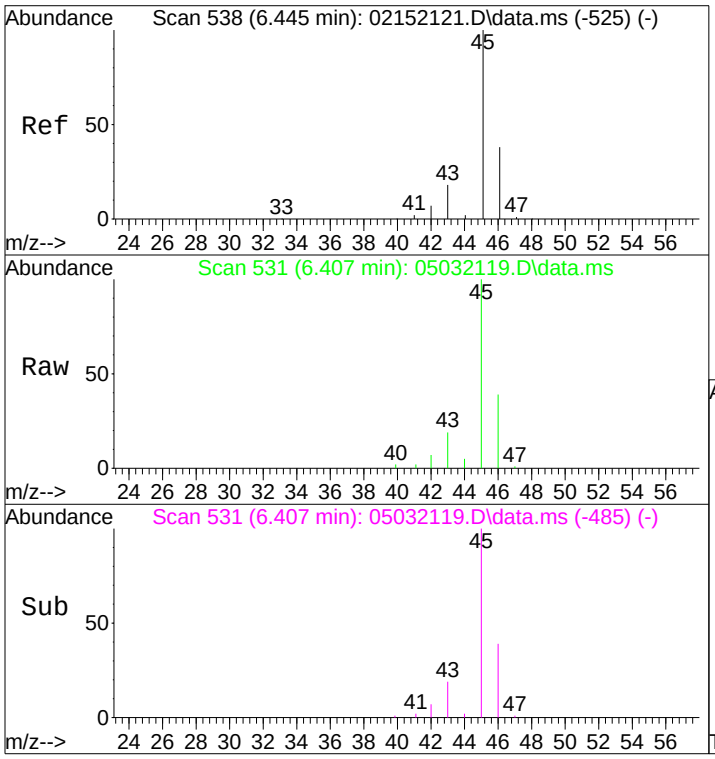


#8
Bromomethane
Concen: 0.14 ng
RT: 5.71 min Scan# 405
Delta R.T. -0.005 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 94 Resp: 2732

Ion	Ratio	Lower	Upper
94	100		
96	92.5	74.5	114.5

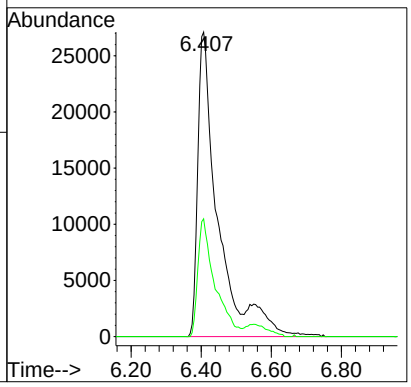


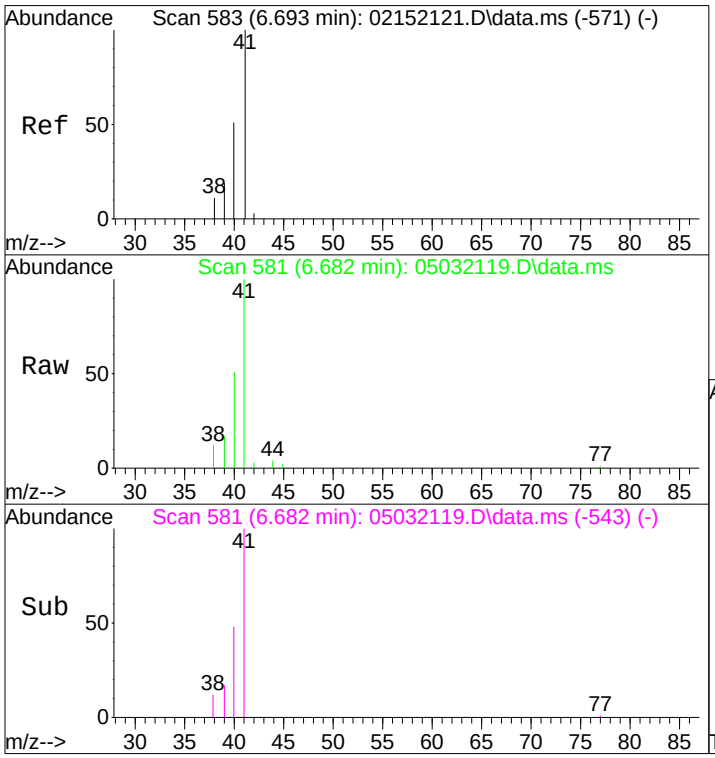


#10
Ethanol
Concen: 7.54 ng
RT: 6.41 min Scan# 531
Delta R.T. 0.006 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 45 Resp: 108872

Ion	Ratio	Lower	Upper
45	100		
46	37.2	17.9	57.9

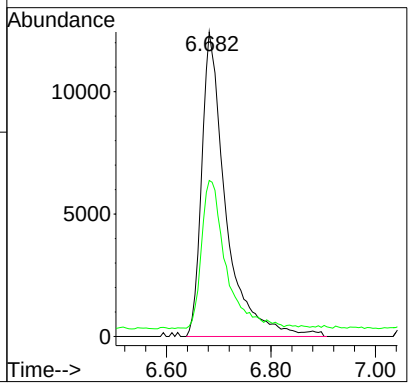


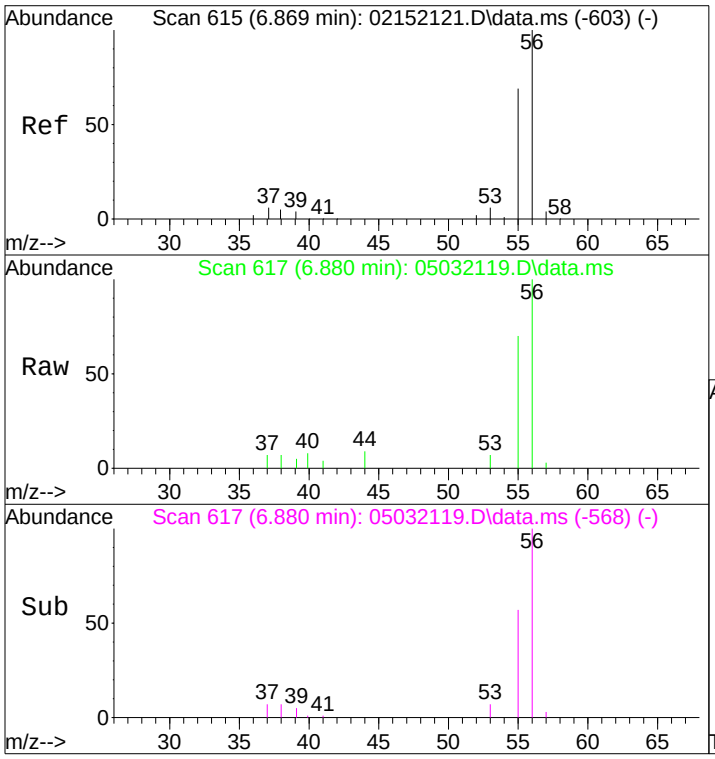


#11
Acetonitrile
Concen: 1.08 ng
RT: 6.68 min Scan# 581
Delta R.T. 0.011 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 41 Resp: 39833

Ion	Ratio	Lower	Upper
41	100		
40	50.6	31.7	71.7

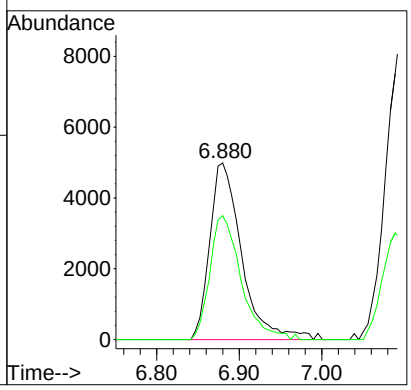


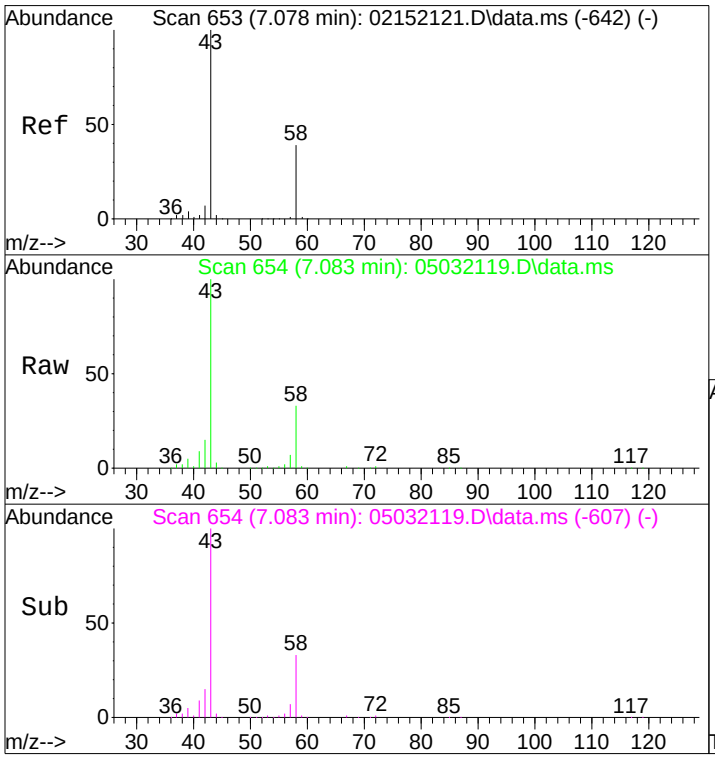


#12
Acrolein
Concen: 1.00 ng
RT: 6.88 min Scan# 617
Delta R.T. 0.022 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 56 Resp: 13426

Ion	Ratio	Lower	Upper
56	100		
55	68.6	49.0	89.0

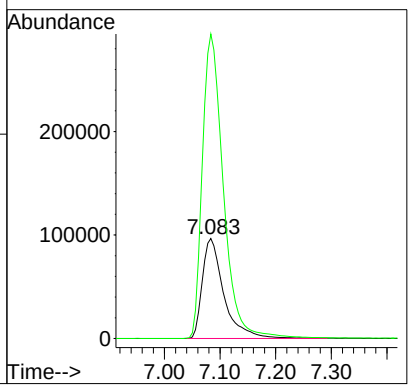


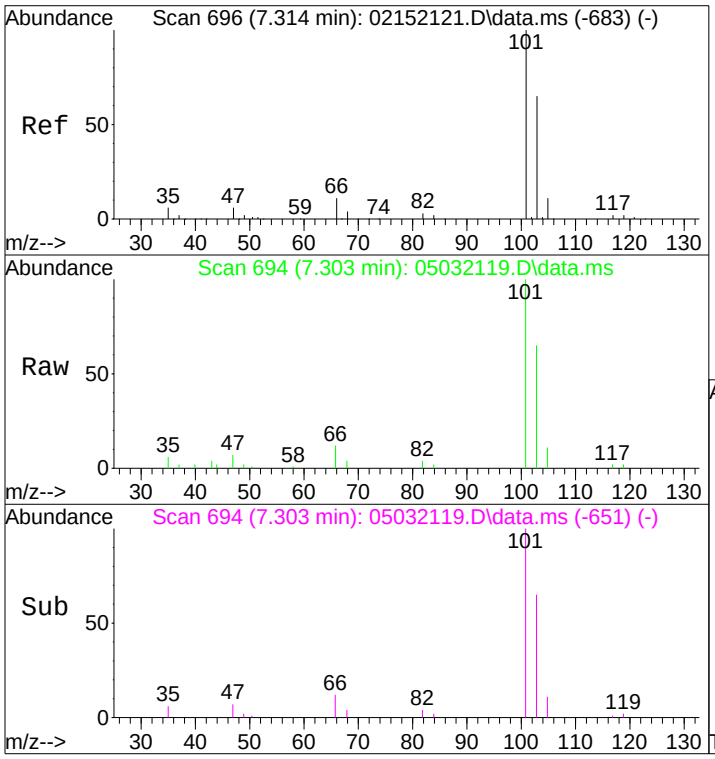


#13
Acetone
Concen: 16.41 ng
RT: 7.08 min Scan# 654
Delta R.T. 0.011 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 58 Resp: 261021

Ion	Ratio	Lower	Upper
58	100		
43	296.5	228.6	288.6#

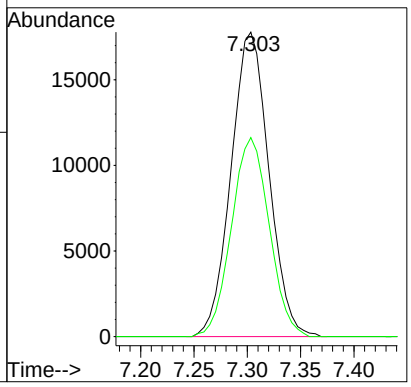


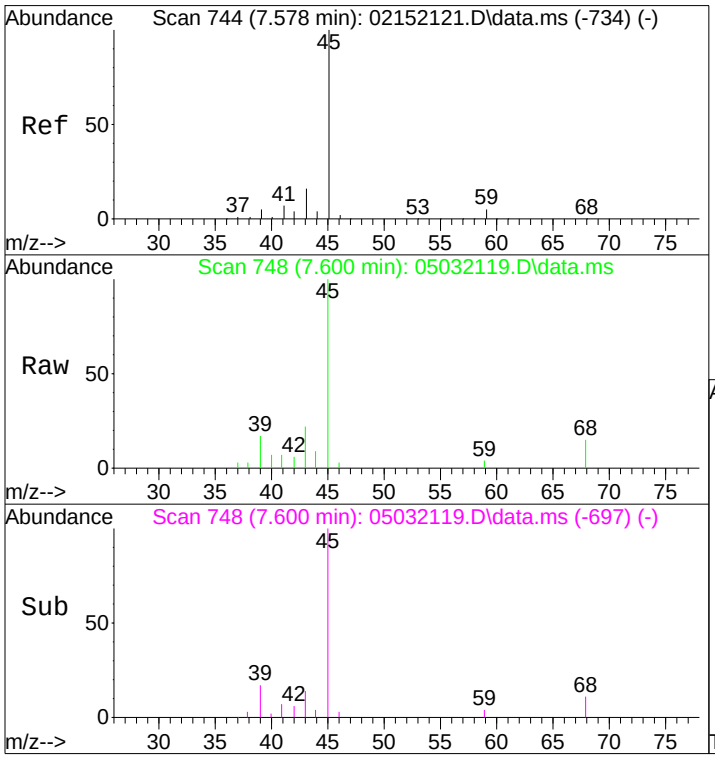


#14
Trichlorofluoromethane
Concen: 1.27 ng
RT: 7.30 min Scan# 694
Delta R.T. -0.011 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion:101 Resp: 43934

Ion	Ratio	Lower	Upper
101	100		
103	65.1	45.2	85.2

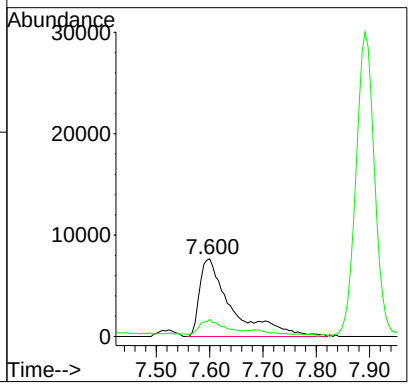


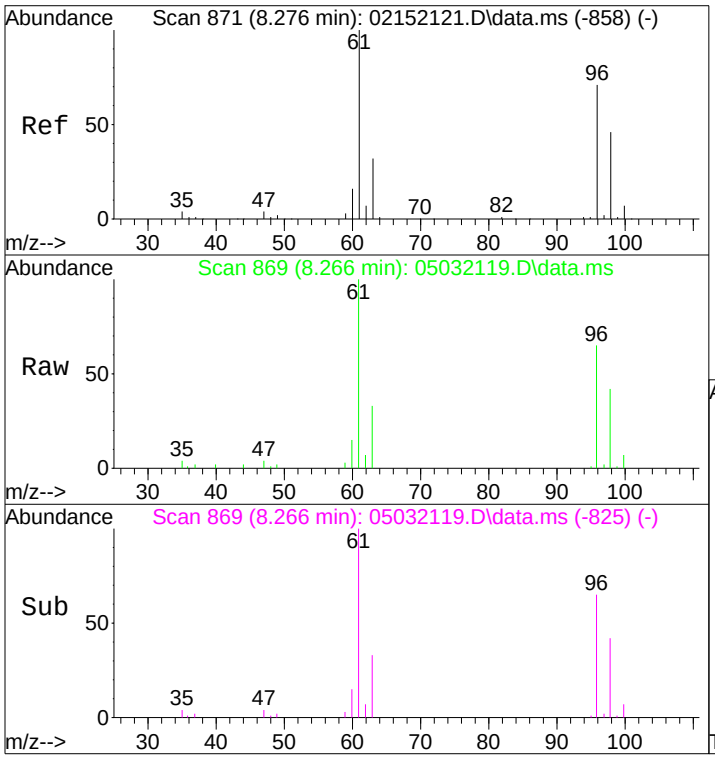


#15
2-Propanol (Isopropanol)
Concen: 0.69 ng
RT: 7.60 min Scan# 748
Delta R.T. 0.033 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 45 Resp: 32156

Ion	Ratio	Lower	Upper
45	100		
43	26.9	0.0	36.5

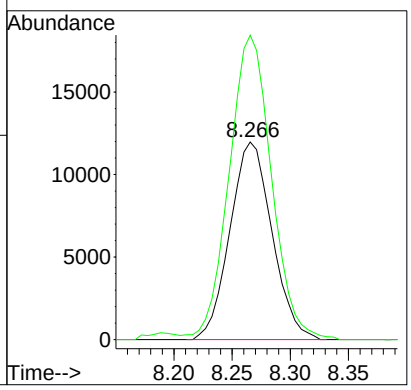


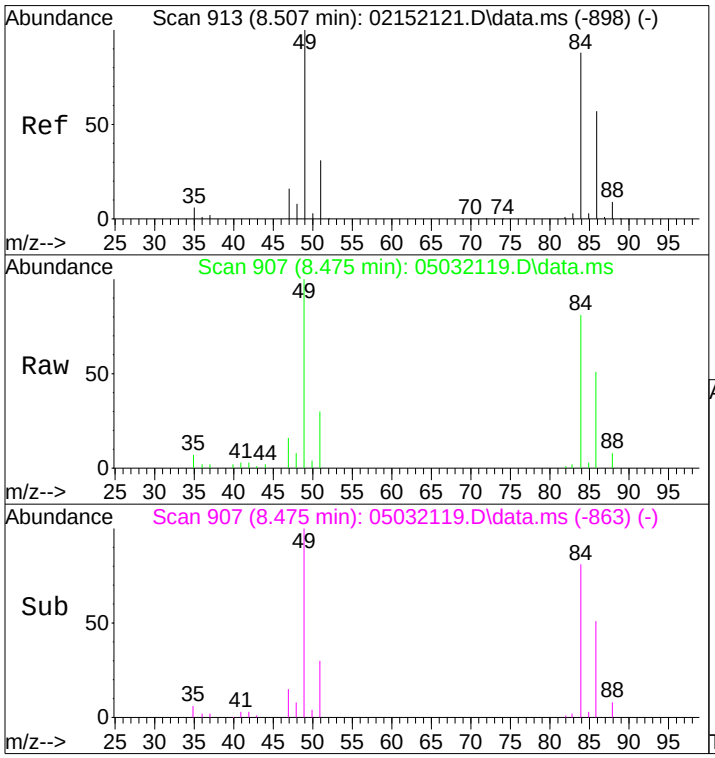


#17
1,1-Dichloroethene
Concen: 1.36 ng
RT: 8.27 min Scan# 869
Delta R.T. -0.005 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 96 Resp: 30187

Ion	Ratio	Lower	Upper
96	100		
61	155.3	122.9	162.9

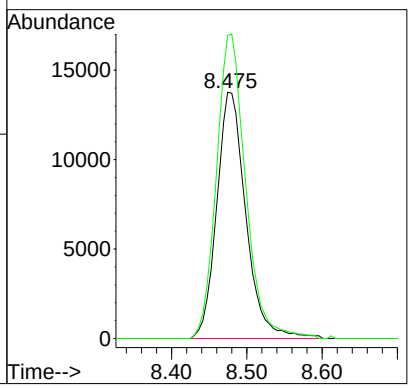


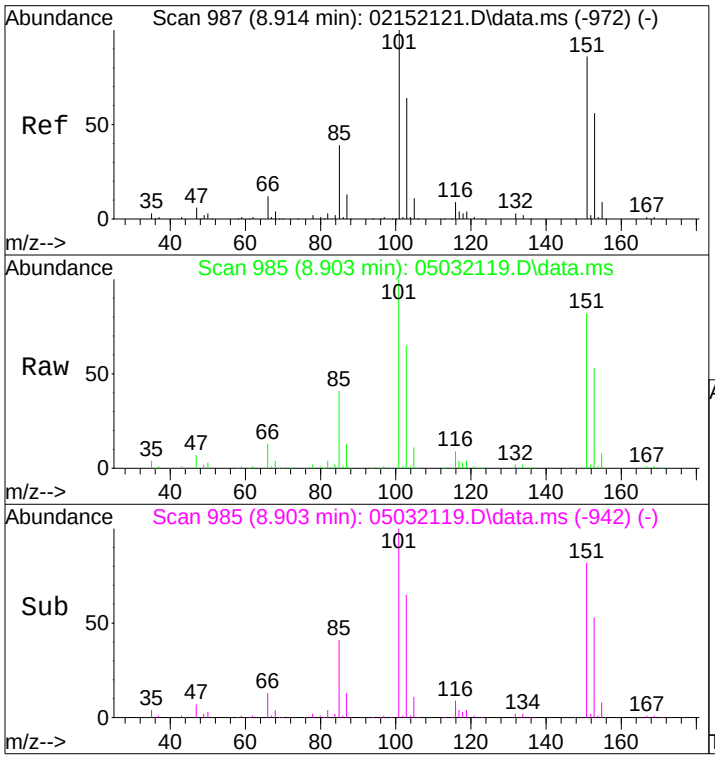


#19
Methylene Chloride
Concen: 1.64 ng
RT: 8.47 min Scan# 907
Delta R.T. -0.005 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 84 Resp: 37025

Ion	Ratio	Lower	Upper
84	100		
49	124.1	89.8	139.8

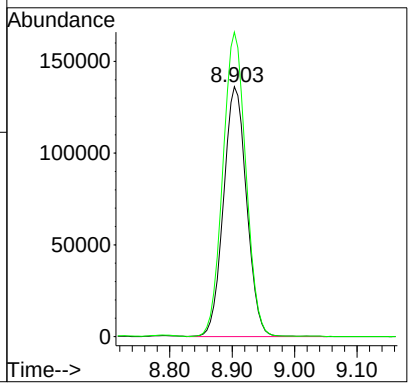


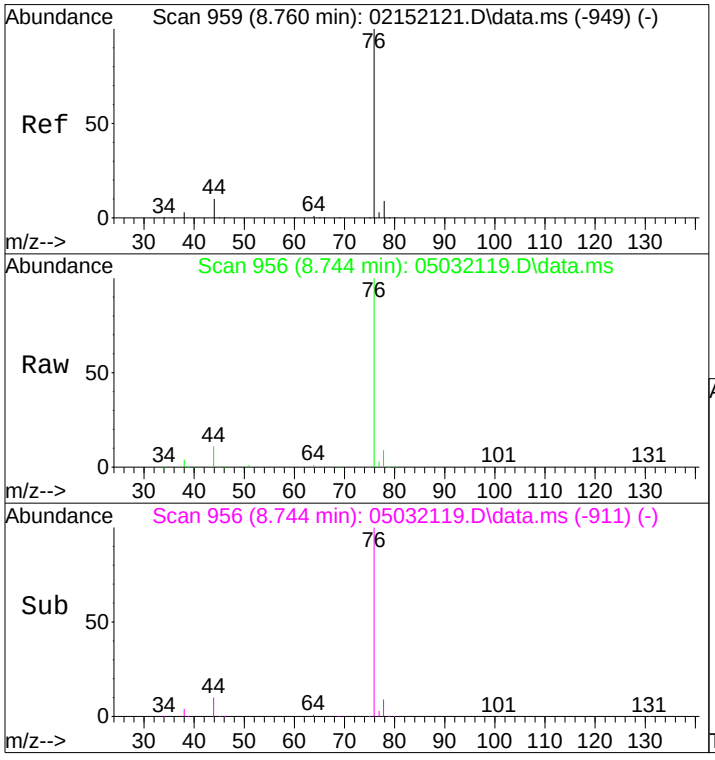


#21
Trichlorotrifluoroethane
Concen: 17.25 ng
RT: 8.90 min Scan# 985
Delta R.T. -0.011 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion:151 Resp: 350298

Ion	Ratio	Lower	Upper
151	100		
101	121.5	97.2	137.2

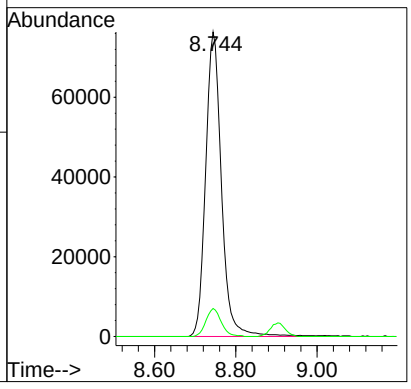


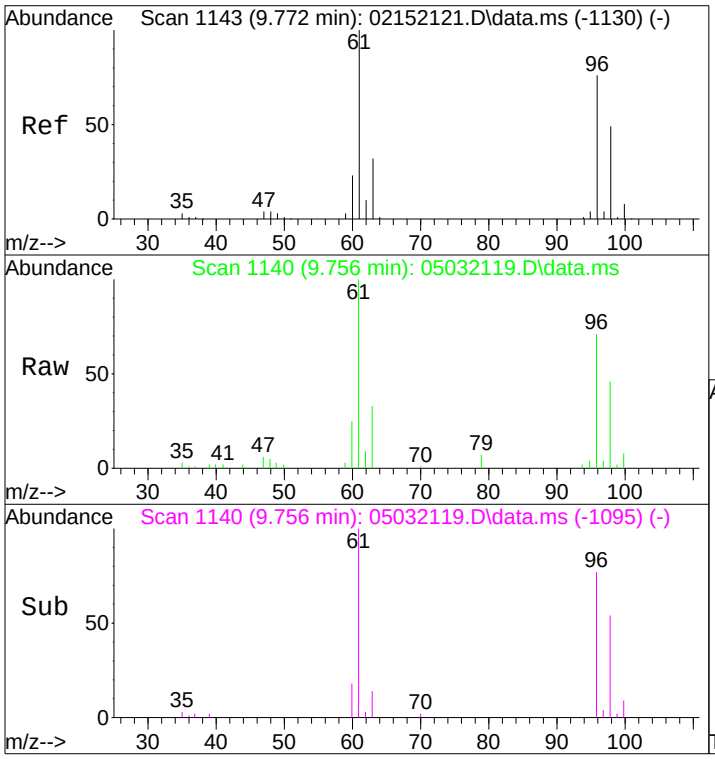


#22
Carbon Disulfide
Concen: 2.71 ng
RT: 8.74 min Scan# 956
Delta R.T. -0.005 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 76 Resp: 206501

Ion	Ratio	Lower	Upper
76	100		
78	8.9	0.0	29.3

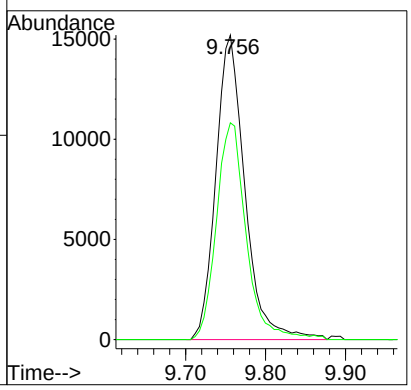


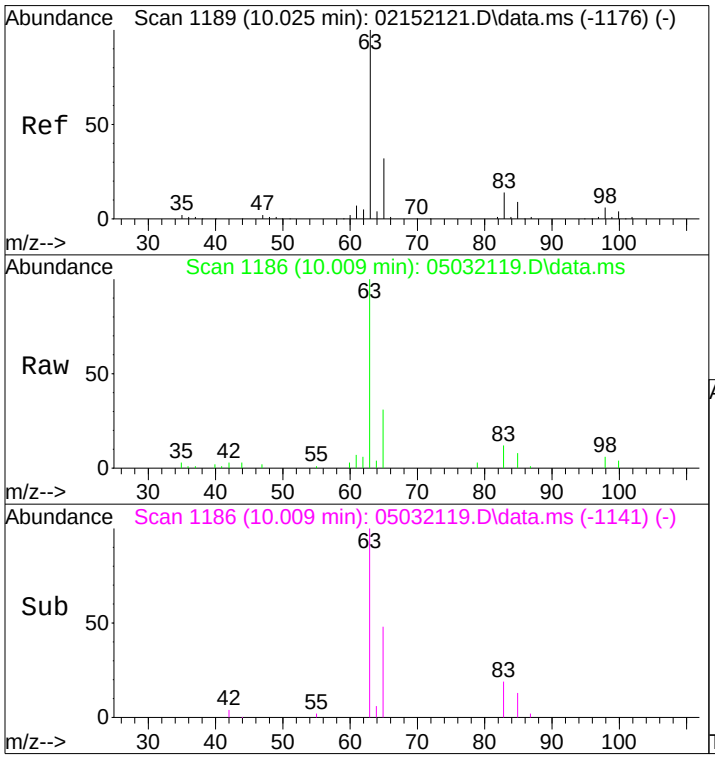


#23
trans-1,2-Dichloroethene
Concen: 1.35 ng
RT: 9.76 min Scan# 1140
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 61 Resp: 38411

Ion	Ratio	Lower	Upper
61	100		
96	72.8	56.1	96.1

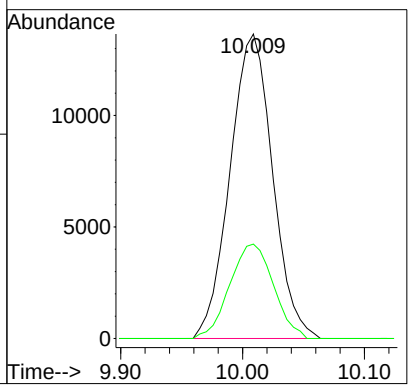


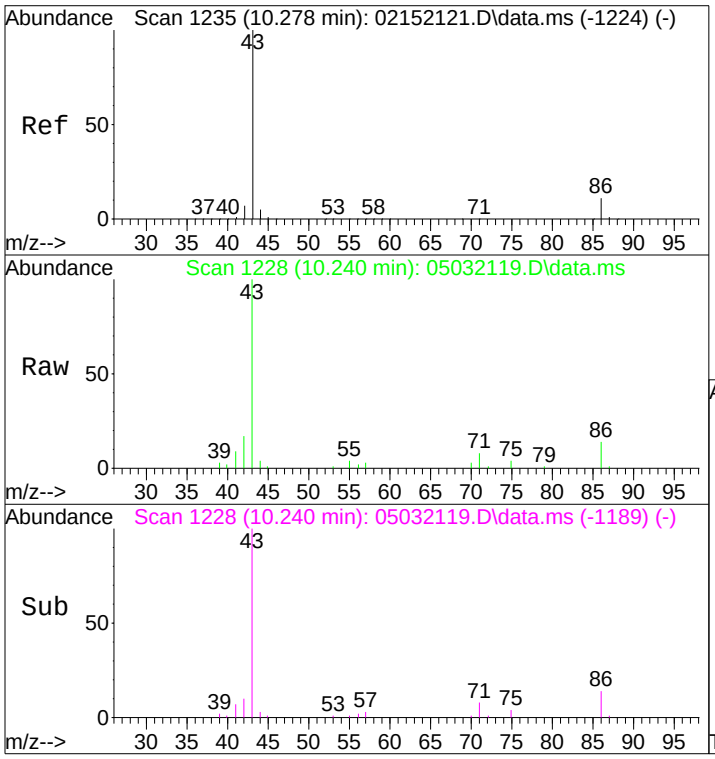


#24
1,1-Dichloroethane
Concen: 0.90 ng
RT: 10.01 min Scan# 1186
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 63 Resp: 33119

Ion	Ratio	Lower	Upper
63	100		
65	31.8	12.1	52.1

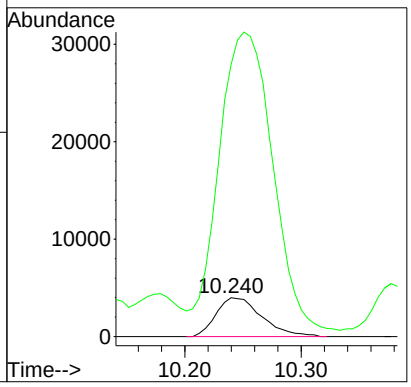


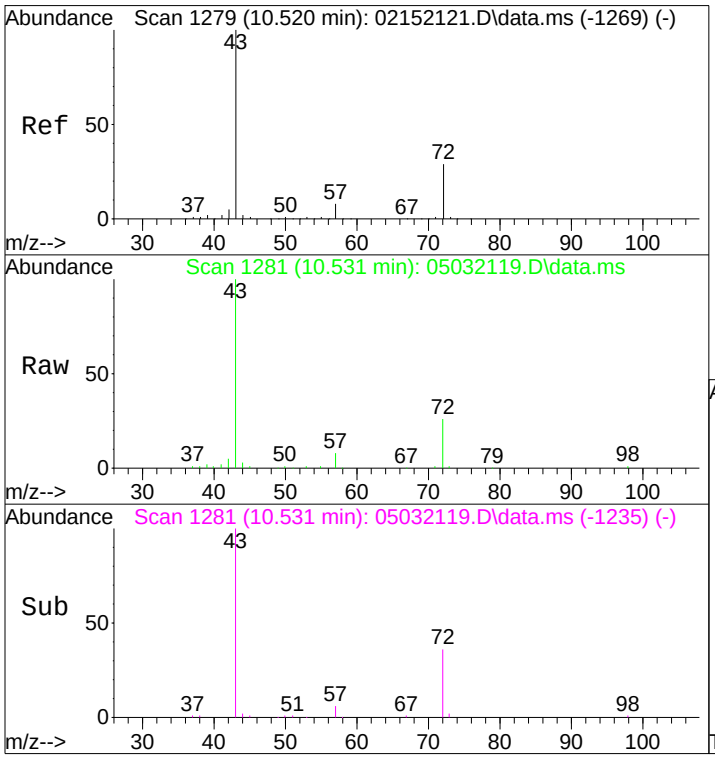


#26
Vinyl Acetate
Concen: 2.93 ng
RT: 10.24 min Scan# 1228
Delta R.T. -0.033 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 86 Resp: 10891

Ion	Ratio	Lower	Upper
86	100		
43	932.6	913.3	953.3

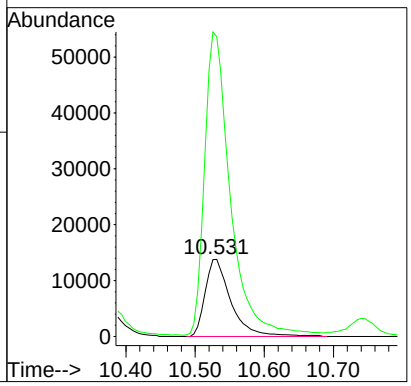


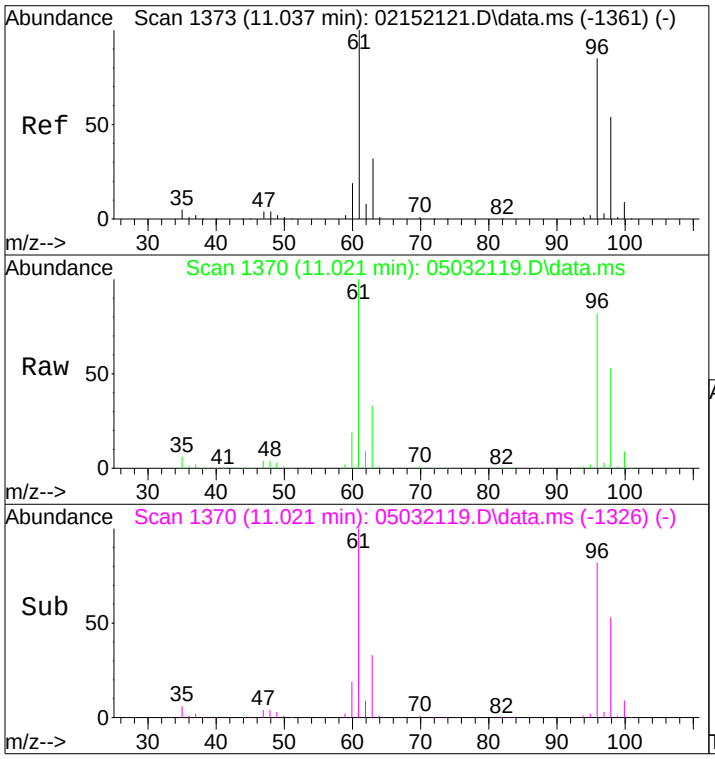


#27
2-Butanone (MEK)
Concen: 2.58 ng
RT: 10.53 min Scan# 1281
Delta R.T. 0.006 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 72 Resp: 35794

Ion	Ratio	Lower	Upper
72	100		
43	391.5	324.8	364.8#

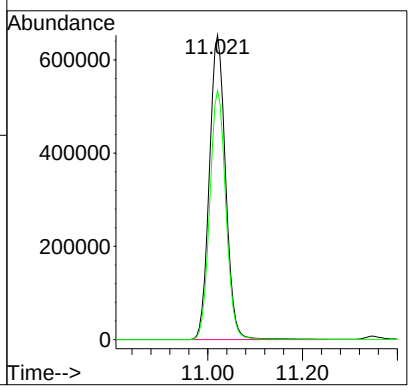


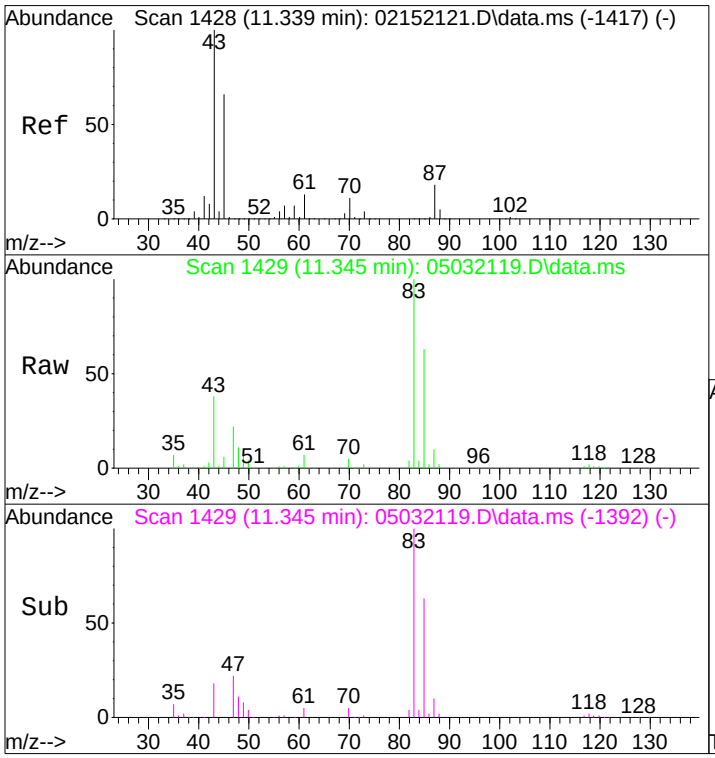


#28
cis-1,2-Dichloroethene
Concen: 55.26 ng
RT: 11.02 min Scan# 1370
Delta R.T. -0.005 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 61 Resp: 1553318

Ion	Ratio	Lower	Upper
61	100		
96	81.3	64.7	104.7

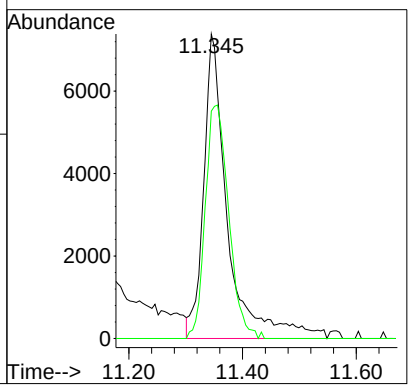


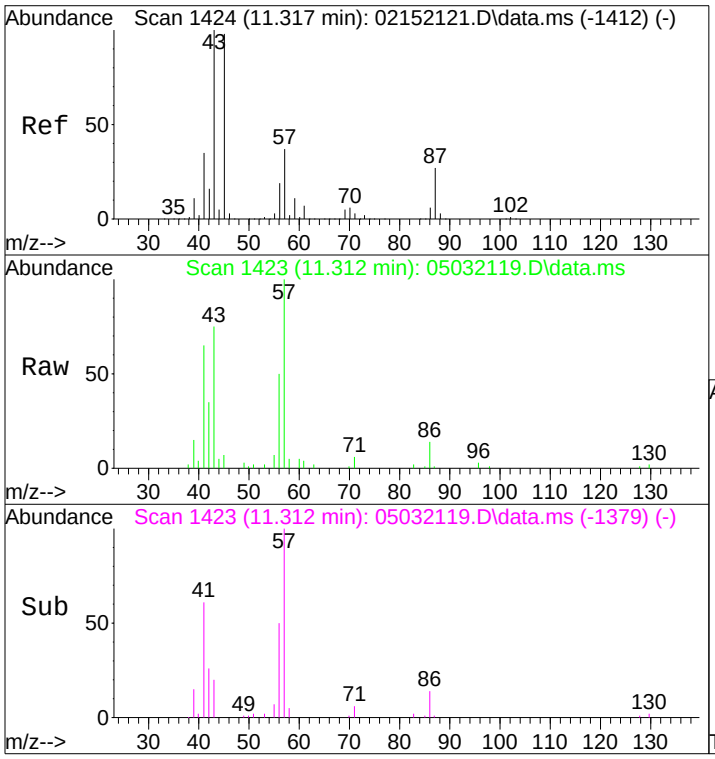


#30
Ethyl Acetate
Concen: 2.28 ng
RT: 11.35 min Scan# 1429
Delta R.T. 0.006 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 61 Resp: 21514

Ion	Ratio	Lower	Upper
61	100		
70	75.2	61.3	101.3

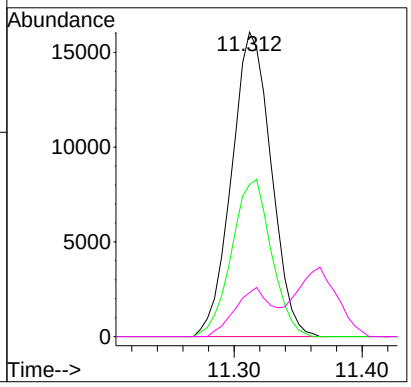


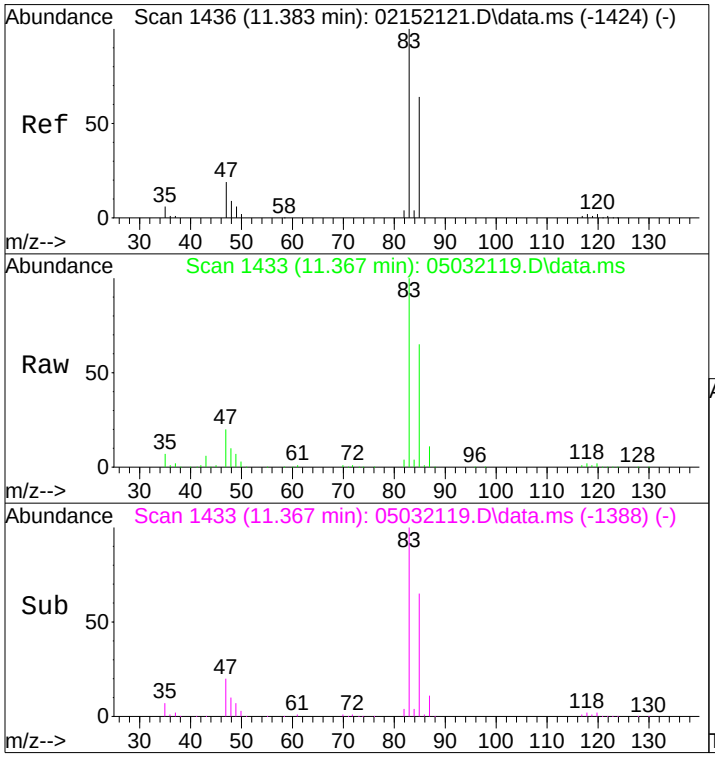


#31
n-Hexane
Concen: 1.00 ng
RT: 11.31 min Scan# 1423
Delta R.T. -0.005 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 57 Resp: 34637

Ion	Ratio	Lower	Upper
57	100		
56	51.7	40.5	60.7
86	14.8	13.1	19.7

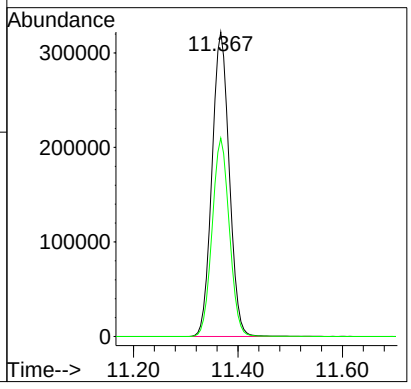


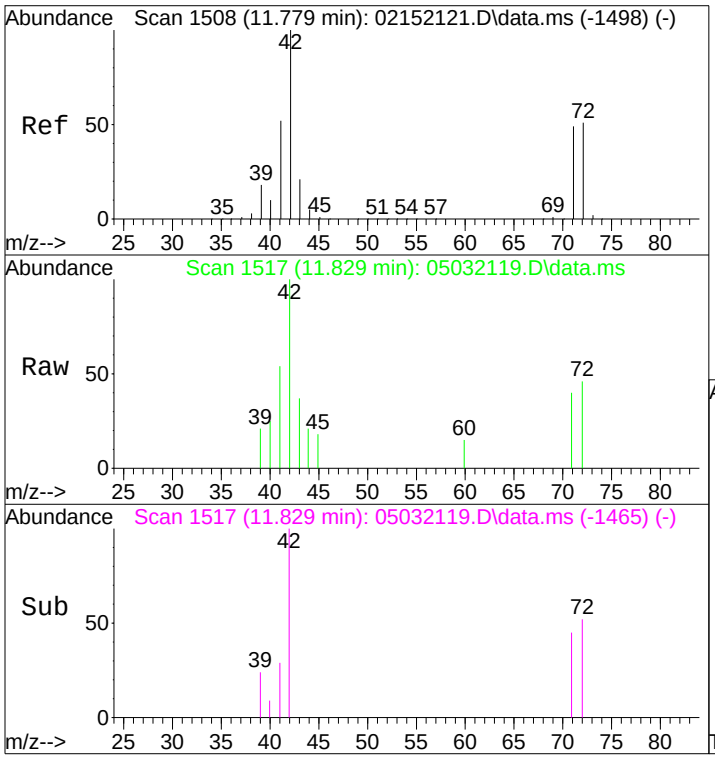


#32
Chloroform
Concen: 21.26 ng
RT: 11.37 min Scan# 1433
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 83 Resp: 737342

Ion	Ratio	Lower	Upper
83	100		
85	64.8	45.4	85.4

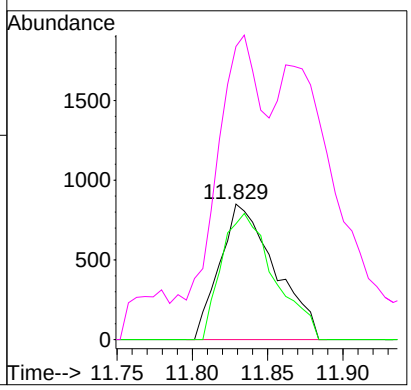


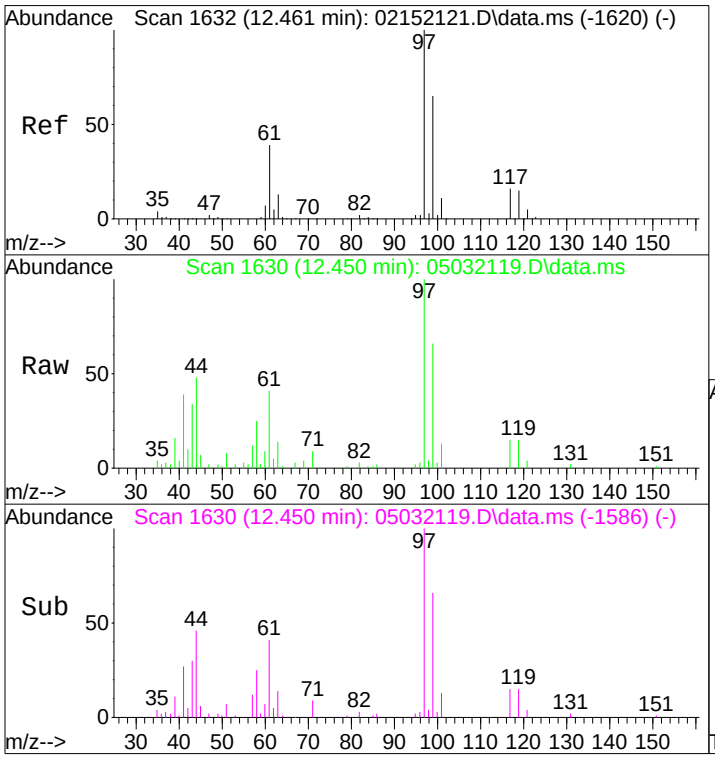


#34
Tetrahydrofuran (THF)
Concen: 0.15 ng
RT: 11.83 min Scan# 1517
Delta R.T. 0.039 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 72 Resp: 2167

Ion	Ratio	Lower	Upper
72	100		
71	89.1	75.4	115.4
42	156.6	181.2	221.2#

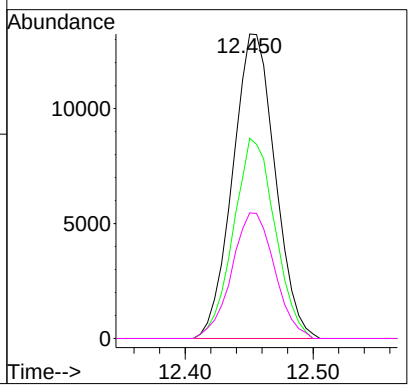


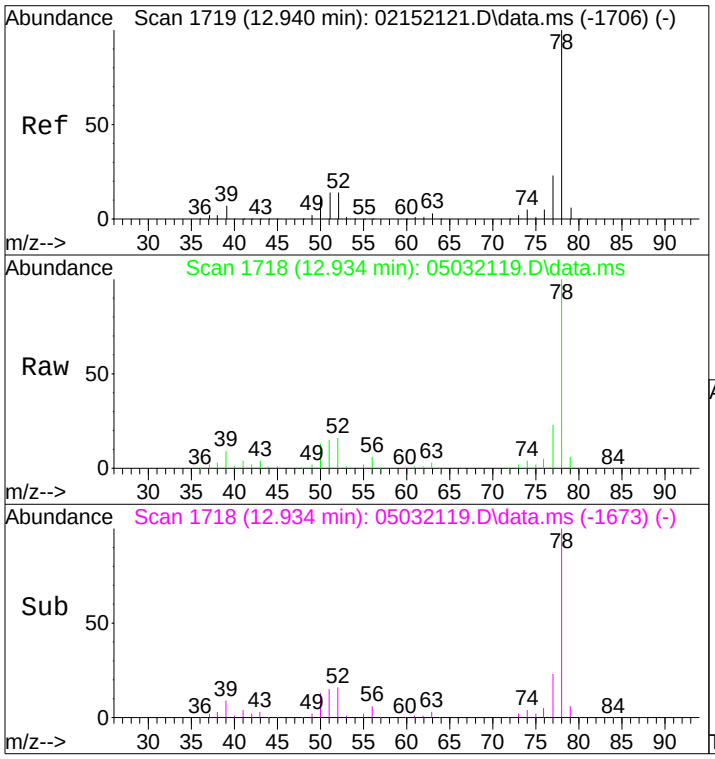


#38
1,1,1-Trichloroethane
Concen: 1.02 ng
RT: 12.45 min Scan# 1630
Delta R.T. -0.005 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 97 Resp: 30527

Ion	Ratio	Lower	Upper
97	100		
99	64.4	44.8	84.8
61	41.8	19.5	59.5

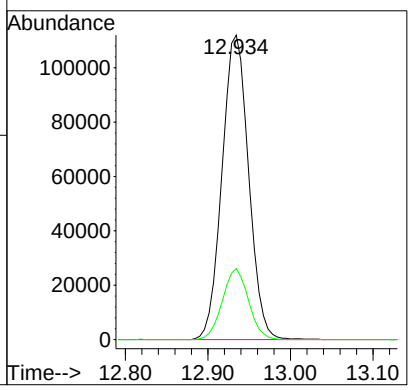


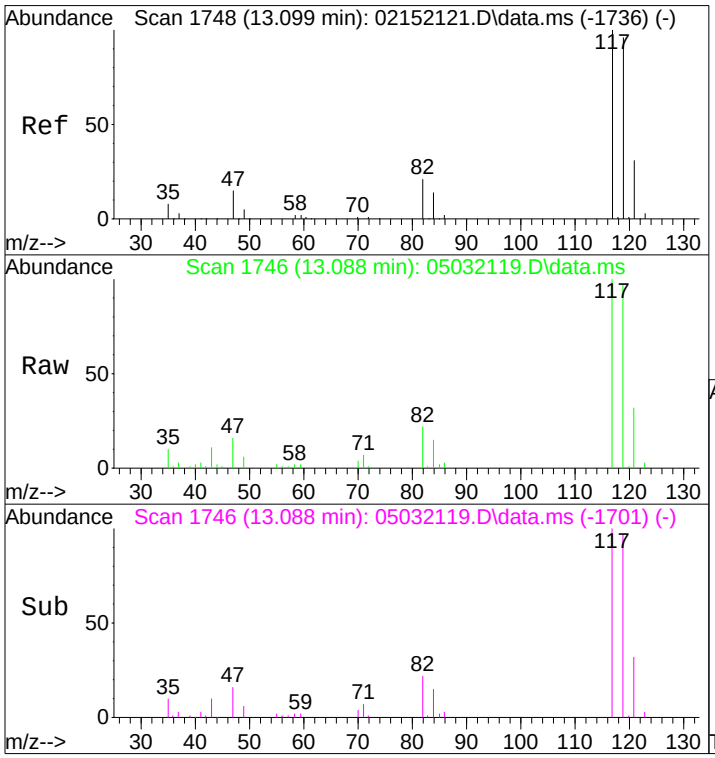


#41
Benzene
Concen: 2.74 ng
RT: 12.93 min Scan# 1718
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 78 Resp: 250672

Ion	Ratio	Lower	Upper
78	100		
77	22.8	3.0	43.0

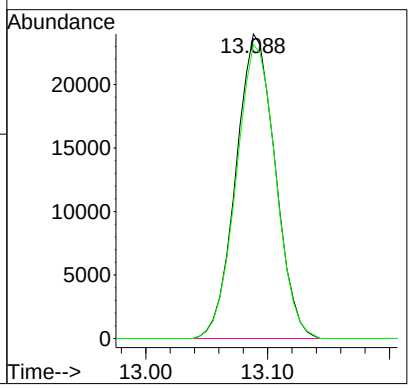


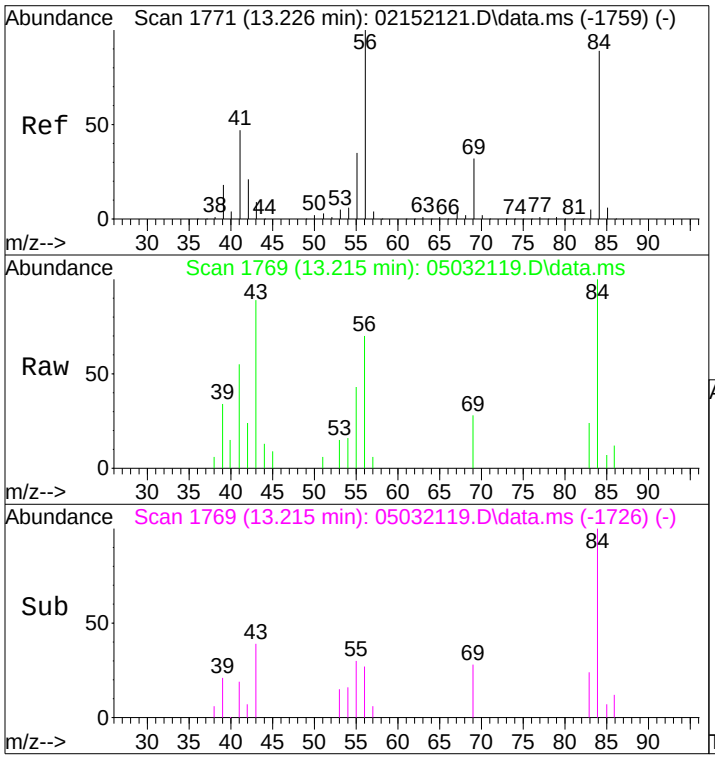


#42
Carbon Tetrachloride
Concen: 2.04 ng
RT: 13.09 min Scan# 1746
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion:117 Resp: 53713

Ion	Ratio	Lower	Upper
117	100		
119	97.1	76.8	116.8

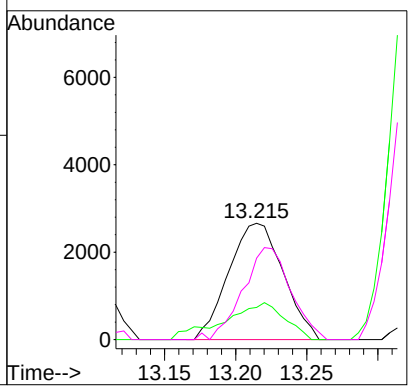


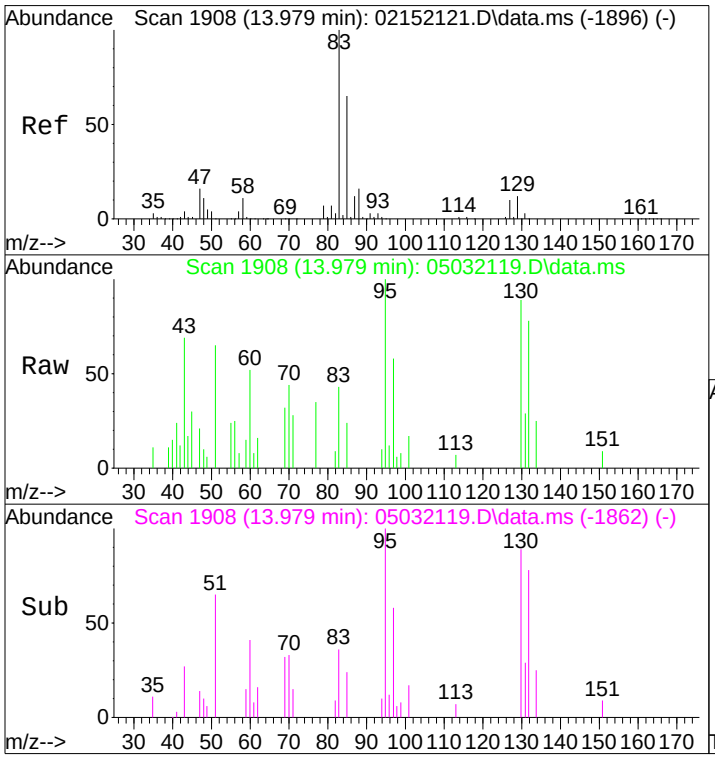


#43
Cyclohexane
Concen: 0.21 ng
RT: 13.21 min Scan# 1769
Delta R.T. -0.011 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 84 Resp: 7098

Ion	Ratio	Lower	Upper
84	100		
69	35.3	15.8	55.8
56	69.1	92.1	132.1#

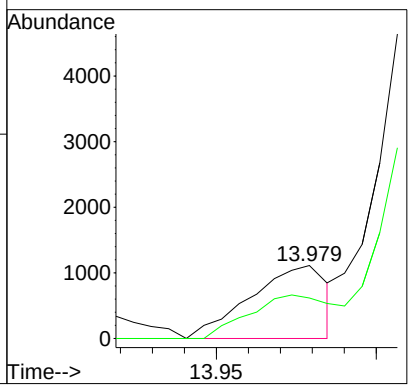


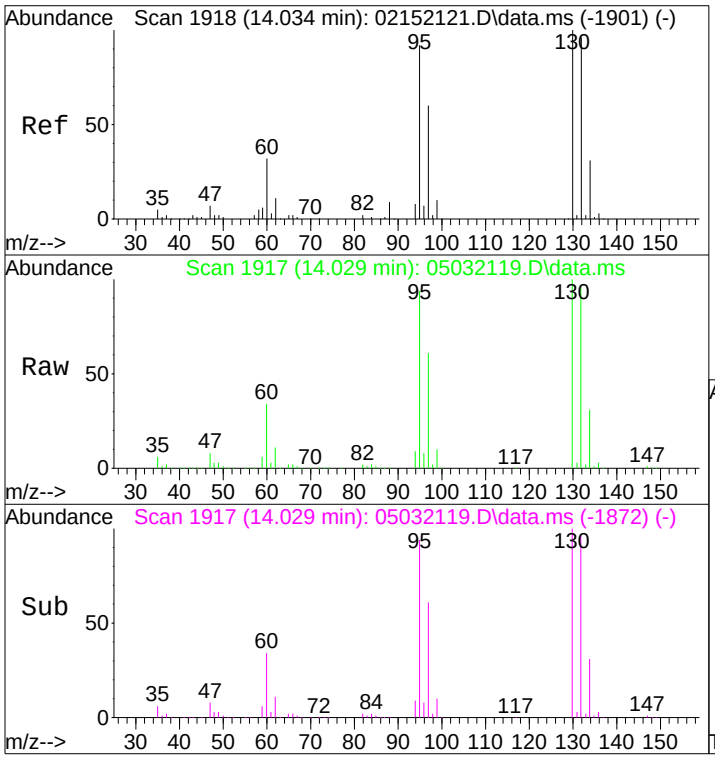


#46
Bromodichloromethane
Concen: 0.07 ng
RT: 13.98 min Scan# 1908
Delta R.T. 0.006 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 83 Resp: 1851

Ion	Ratio	Lower	Upper
83	100		
85	68.2	44.7	84.7

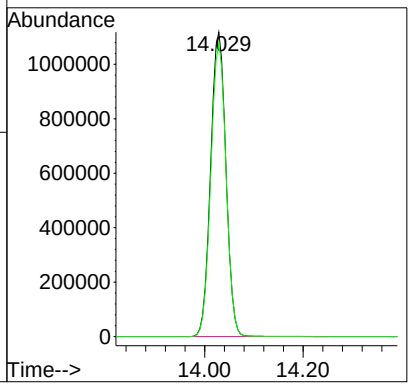


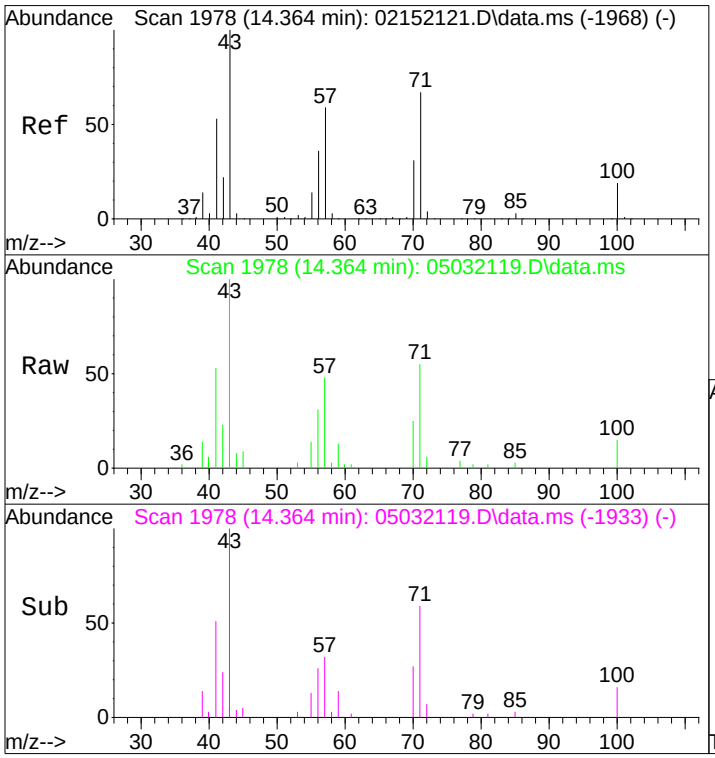


#47
Trichloroethene
Concen: 94.14 ng
RT: 14.03 min Scan# 1917
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion:130 Resp: 2410848

Ion	Ratio	Lower	Upper
130	100		
132	96.3	75.5	115.5

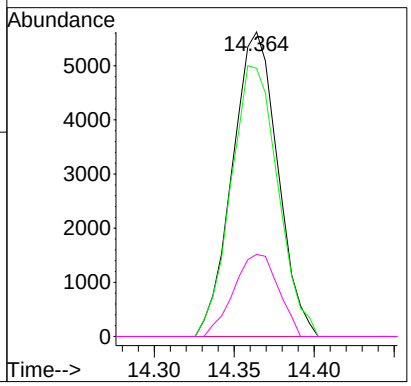


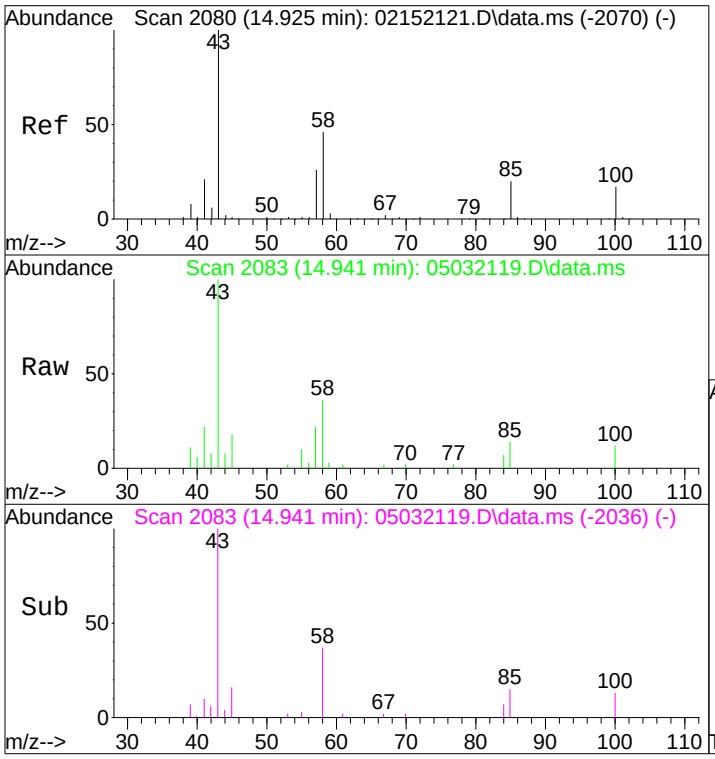


#51
n-Heptane
Concen: 0.49 ng
RT: 14.36 min Scan# 1978
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 71 Resp: 11104

Ion	Ratio	Lower	Upper
71	100		
57	92.0	68.1	108.1
100	26.5	8.7	48.7

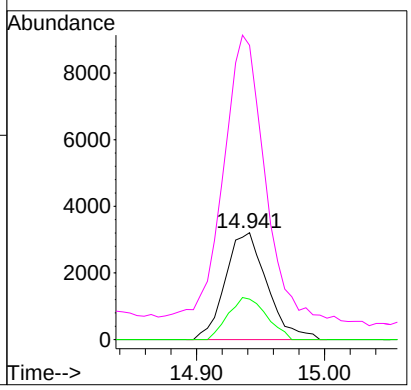


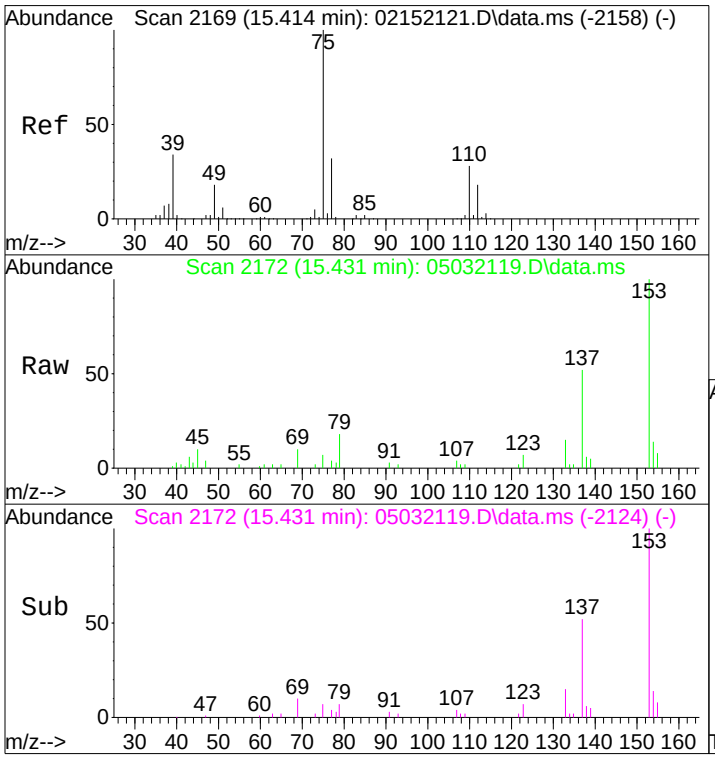


#53
4-Methyl-2-pentanone
Concen: 0.39 ng
RT: 14.94 min Scan# 2083
Delta R.T. 0.011 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 58 Resp: 7293

Ion	Ratio	Lower	Upper
58	100		
85	36.2	35.8	53.6
43	283.2	174.6	262.0#

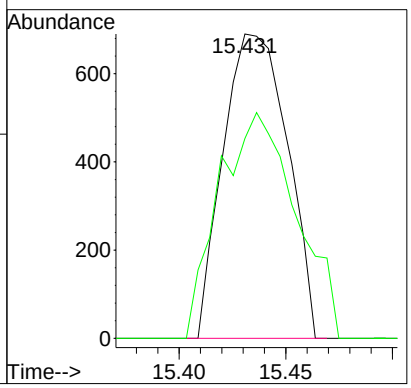


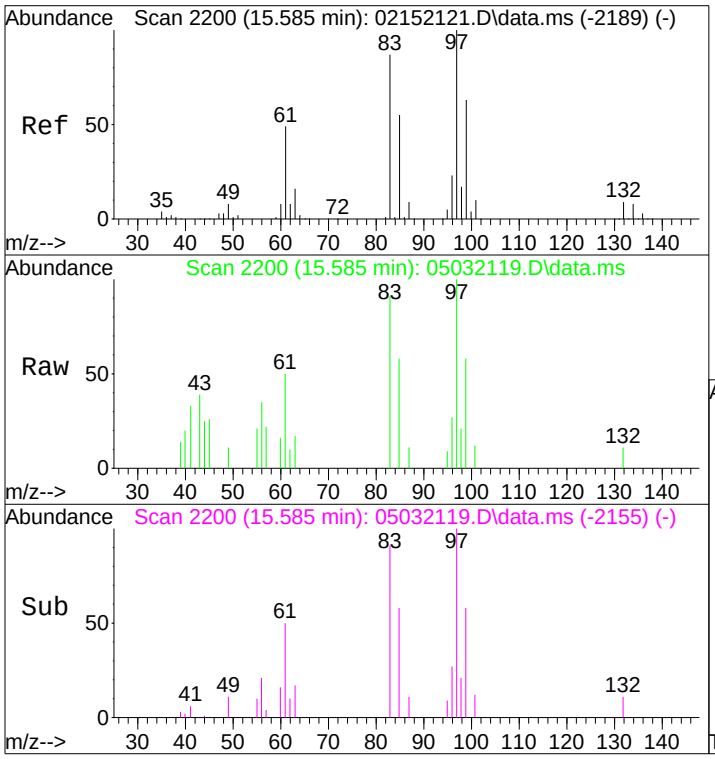


#54
trans-1,3-Dichloropropene
Concen: 0.05 ng
RT: 15.43 min Scan# 2172
Delta R.T. 0.017 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 75 Resp: 1444

Ion	Ratio	Lower	Upper
75	100		
77	89.3	11.8	51.8#

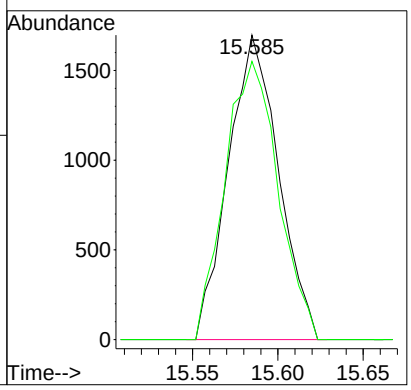


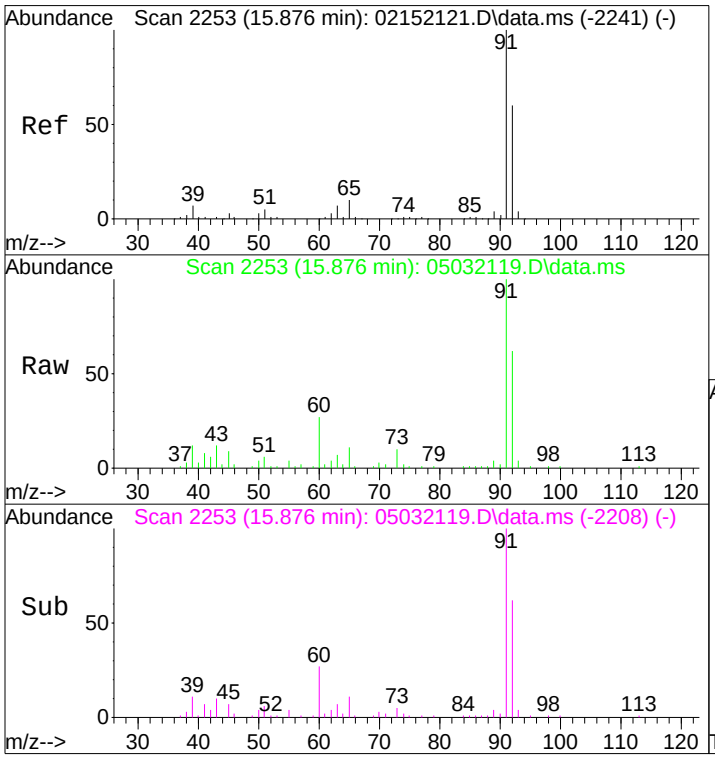


#55
1,1,2-Trichloroethane
Concen: 0.16 ng
RT: 15.58 min Scan# 2200
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 97 Resp: 3467

Ion	Ratio	Lower	Upper
97	100		
83	96.6	66.4	106.4

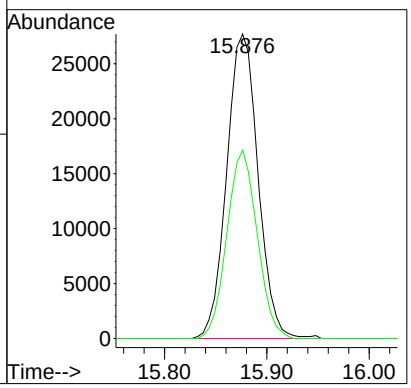


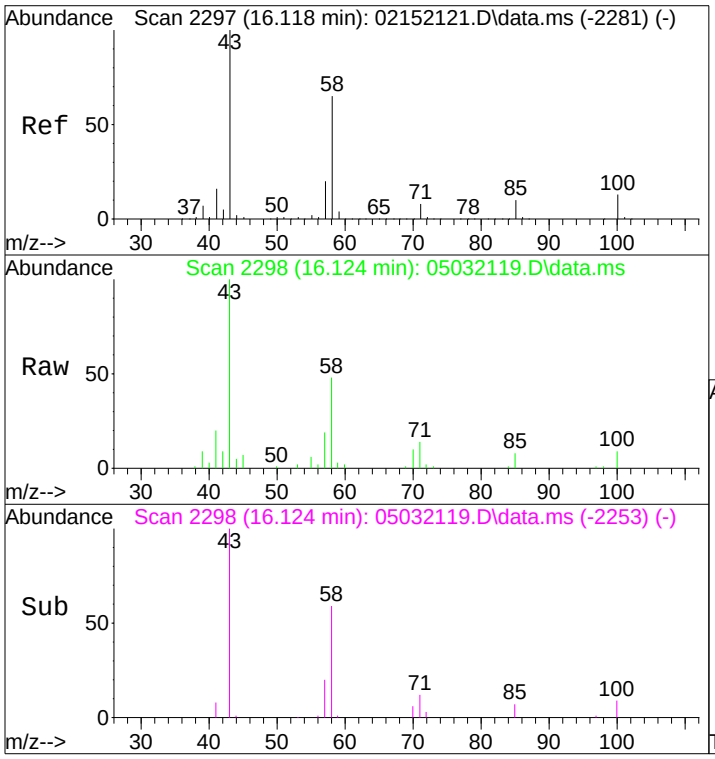


#58
Toluene
Concen: 0.56 ng
RT: 15.88 min Scan# 2253
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 91 Resp: 59079

Ion	Ratio	Lower	Upper
91	100		
92	59.7	39.8	79.8

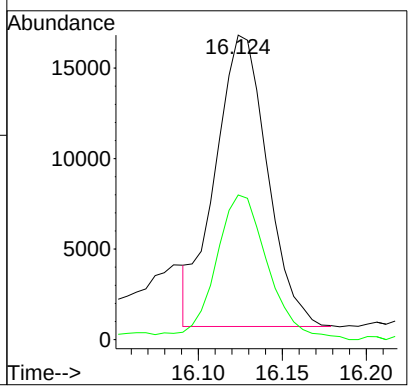


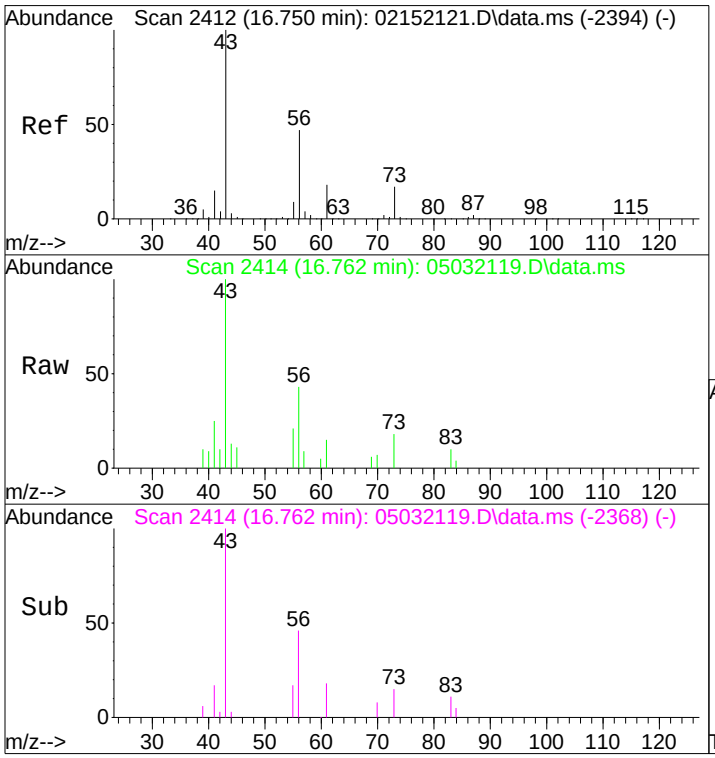


#59
2-Hexanone
Concen: 0.75 ng m
RT: 16.12 min Scan# 2298
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 43 Resp: 34733

Ion	Ratio	Lower	Upper
43	100		
58	49.2	44.4	84.4

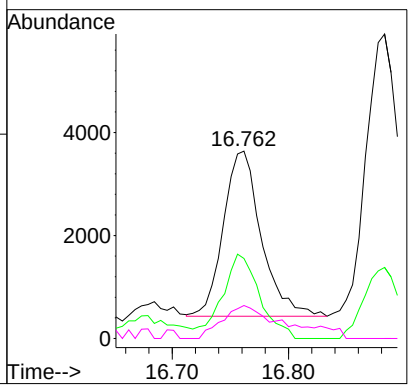


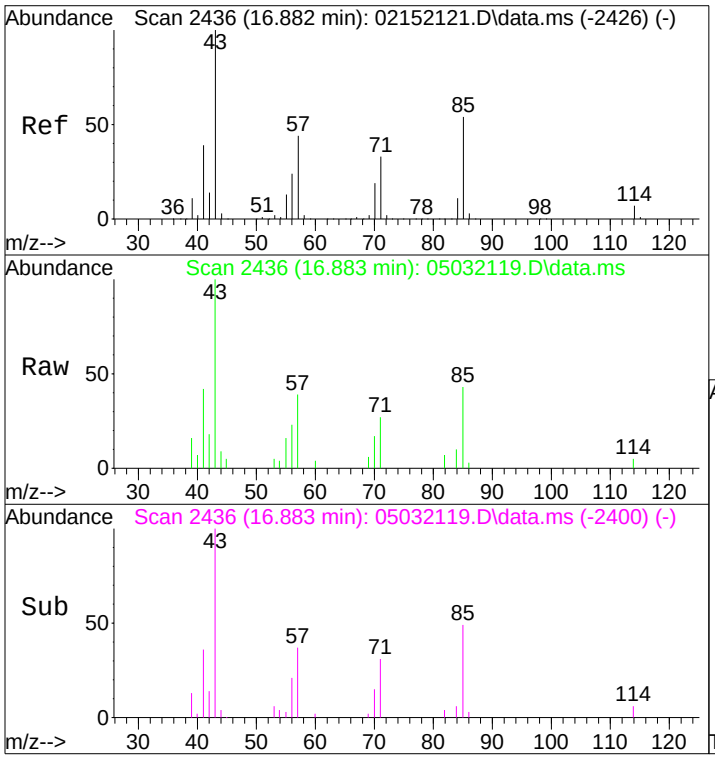


#62
n-Butyl Acetate
Concen: 0.14 ng
RT: 16.76 min Scan# 2414
Delta R.T. 0.006 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 43 Resp: 7300

Ion	Ratio	Lower	Upper
43	100		
56	50.2	26.7	66.7
73	32.9	0.0	37.4

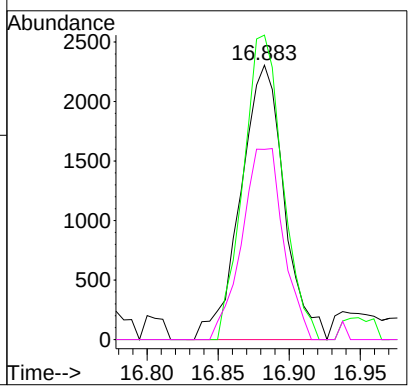


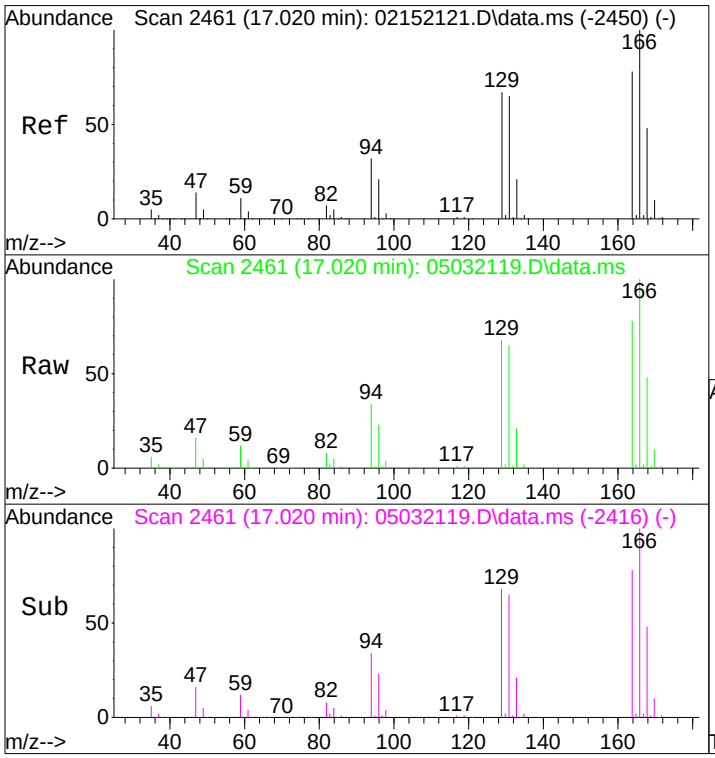


#63
n-Octane
Concen: 0.23 ng
RT: 16.88 min Scan# 2436
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 57 Resp: 4890

Ion	Ratio	Lower	Upper
57	100		
85	100.8	95.7	143.5
71	66.7	58.3	87.5

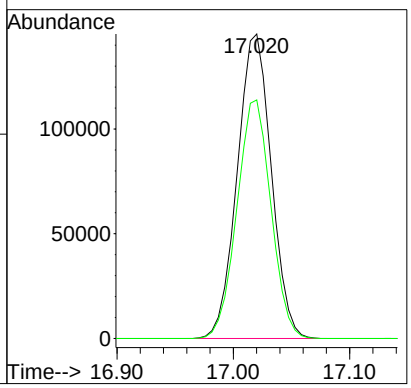


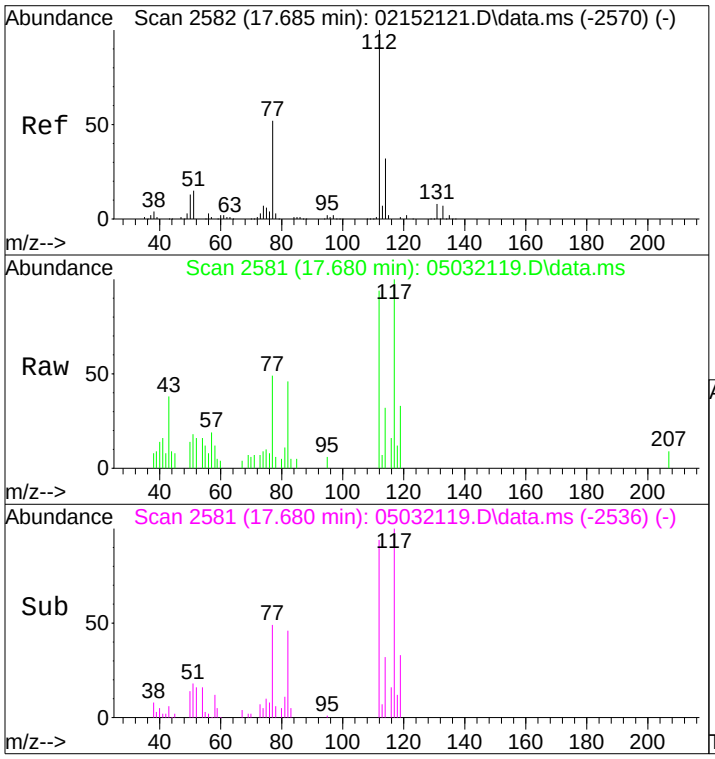


#64
Tetrachloroethene
Concen: 9.49 ng
RT: 17.02 min Scan# 2461
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion:166 Resp: 296486

Ion	Ratio	Lower	Upper
166	100		
164	78.2	58.3	98.3

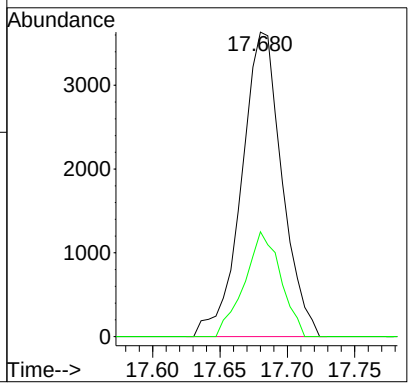


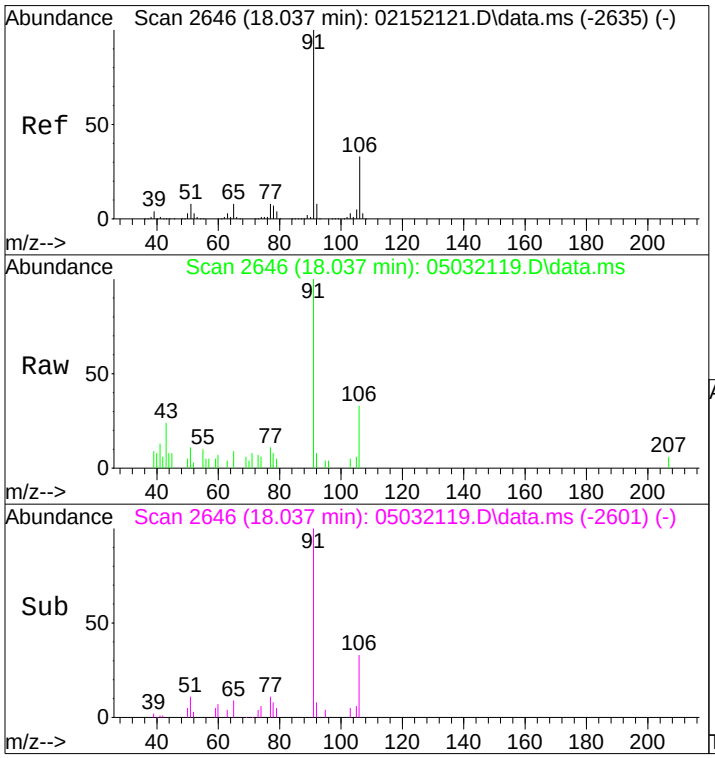


#65
Chlorobenzene
Concen: 0.11 ng
RT: 17.68 min Scan# 2581
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion:112 Resp: 7606

Ion	Ratio	Lower	Upper
112	100		
114	30.8	12.3	52.3

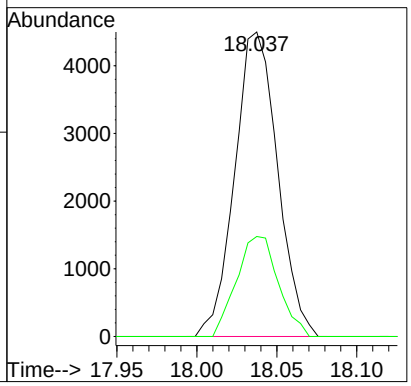


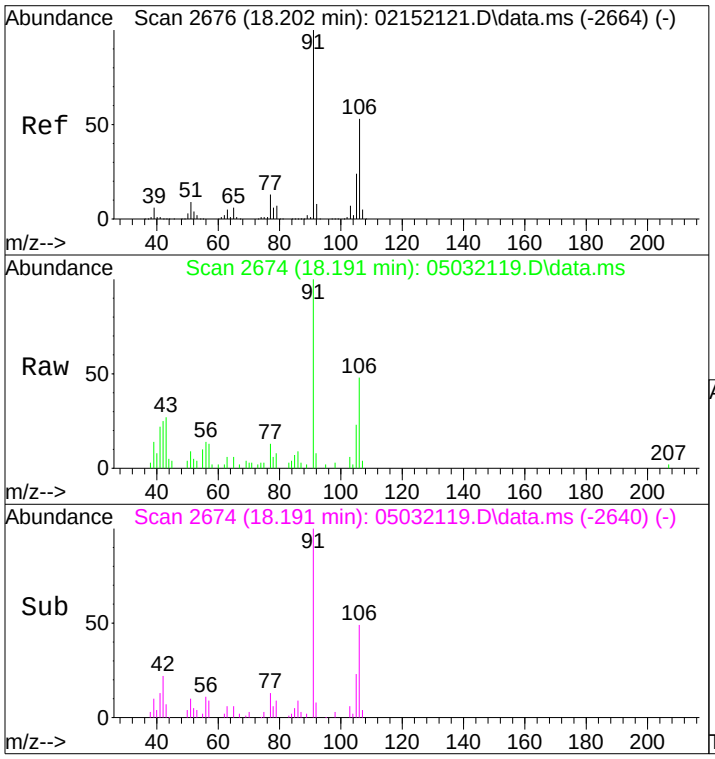


#66
Ethylbenzene
Concen: 0.07 ng
RT: 18.04 min Scan# 2646
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 91 Resp: 8399

Ion	Ratio	Lower	Upper
91	100		
106	32.1	13.0	53.0

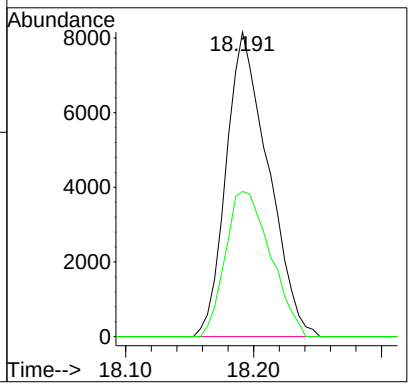


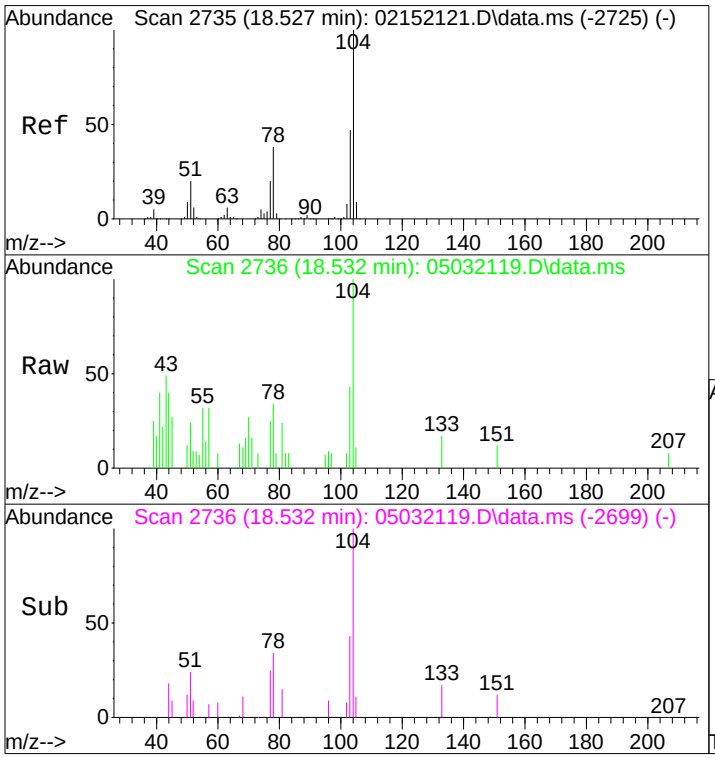


#67
m- & p-Xylenes
Concen: 0.21 ng
RT: 18.19 min Scan# 2674
Delta R.T. -0.011 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 91 Resp: 18647

Ion	Ratio	Lower	Upper
91	100		
106	51.3	33.0	73.0

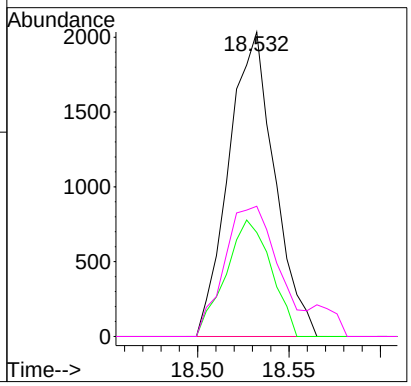


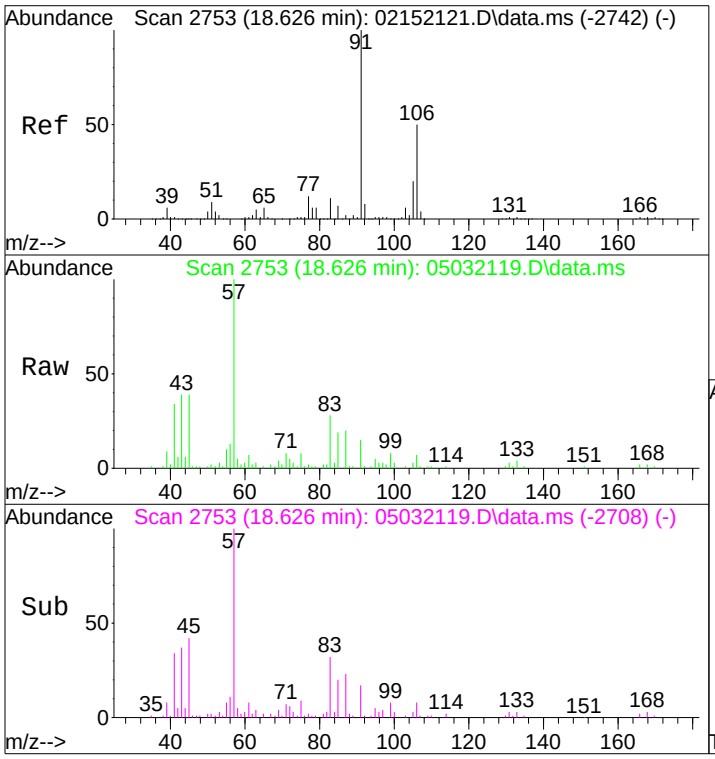


#69
Styrene
Concen: 0.05 ng
RT: 18.53 min Scan# 2736
Delta R.T. 0.006 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion:104 Resp: 3538

Ion	Ratio	Lower	Upper
104	100		
78	38.0	17.6	57.6
103	55.9	26.9	66.9

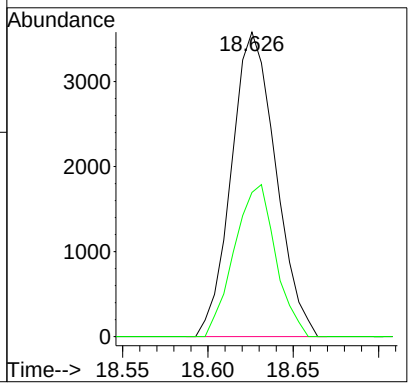


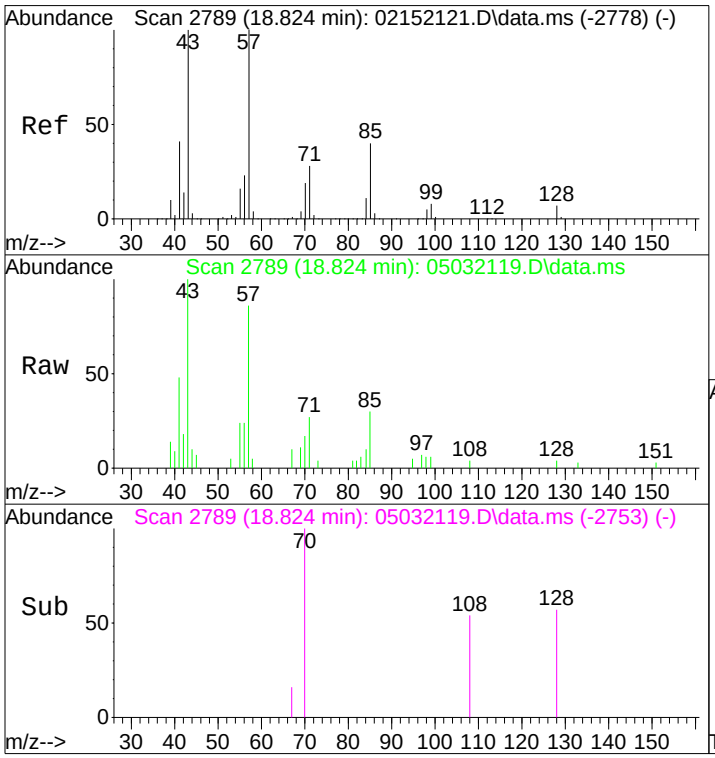


#70
o-Xylene
Concen: 0.07 ng
RT: 18.63 min Scan# 2753
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 91 Resp: 6468

Ion	Ratio	Lower	Upper
91	100		
106	46.4	30.6	70.6

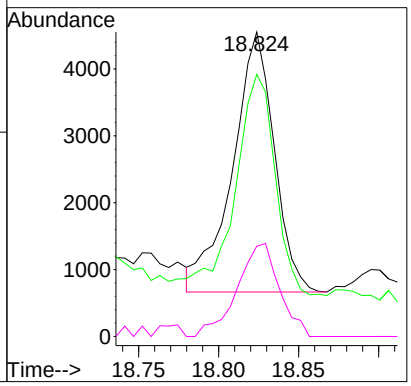


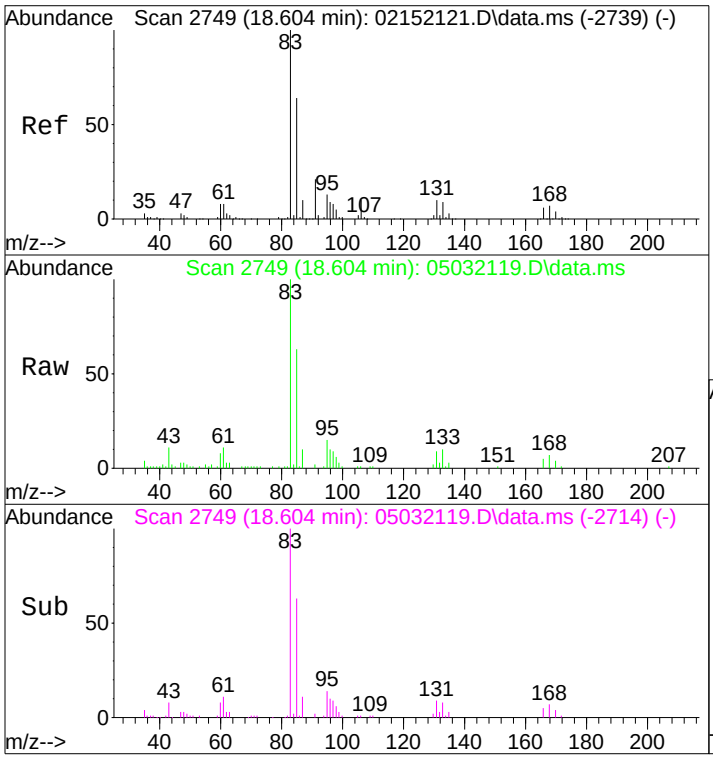


#71
n-Nonane
Concen: 0.16 ng
RT: 18.82 min Scan# 2789
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 43 Resp: 7057

Ion	Ratio	Lower	Upper
43	100		
57	85.9	79.0	119.0
85	36.1	19.9	59.9

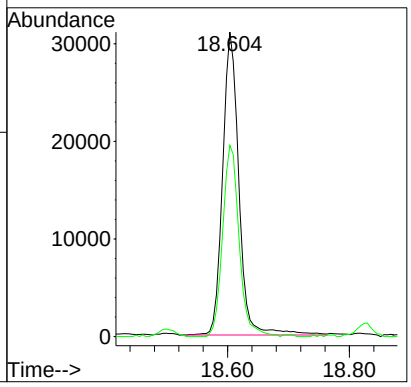


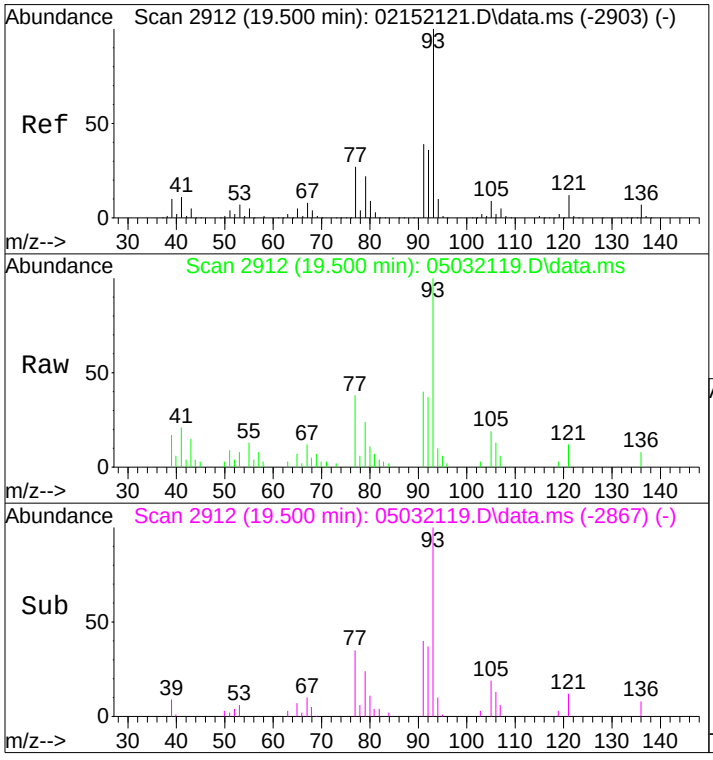


#72
1,1,2,2-Tetrachloroethane
Concen: 1.33 ng
RT: 18.60 min Scan# 2749
Delta R.T. -0.005 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 83 Resp: 57564

Ion	Ratio	Lower	Upper
83	100		
85	63.9	44.7	84.7

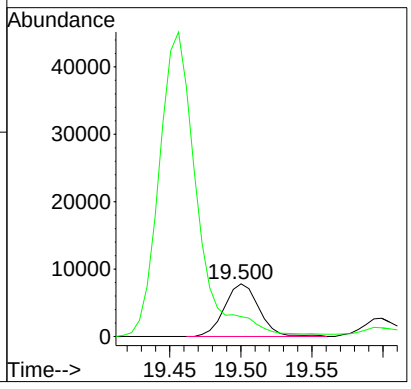


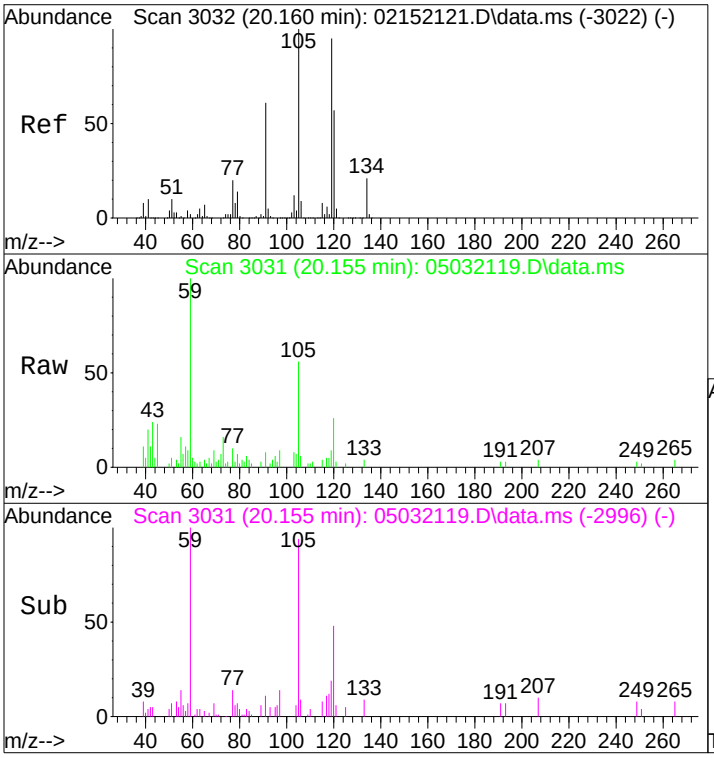


#75
alpha-Pinene
Concen: 0.23 ng
RT: 19.50 min Scan# 2912
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 93 Resp: 13171

Ion	Ratio	Lower	Upper
93	100		
77	634.5	8.2	48.2#

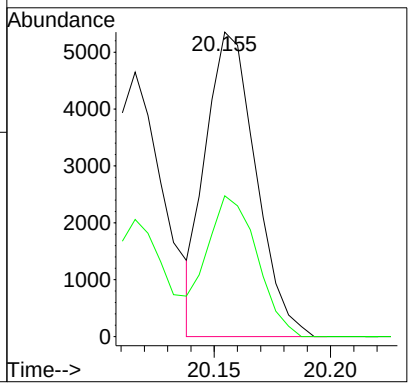


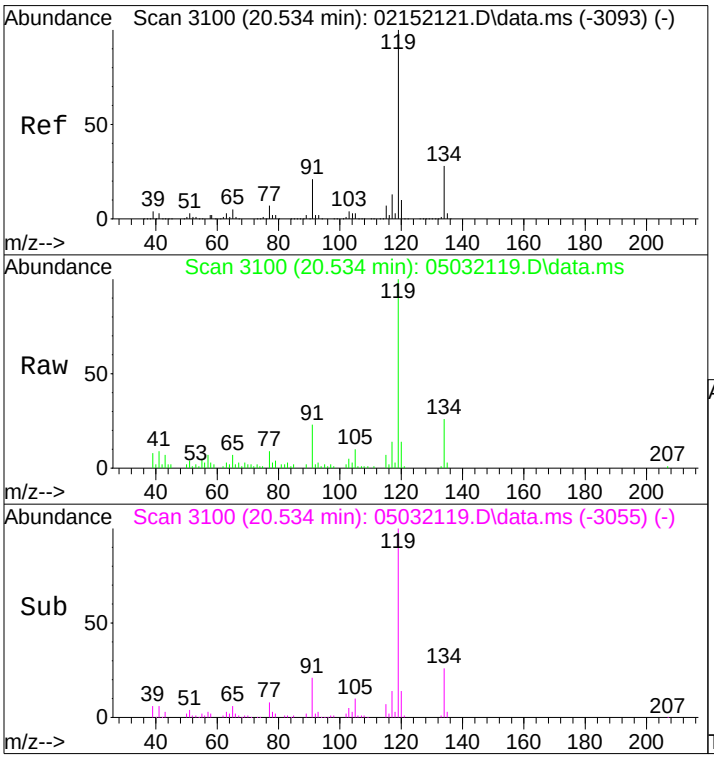


#82
1,2,4-Trimethylbenzene
Concen: 0.09 ng
RT: 20.15 min Scan# 3031
Delta R.T. -0.005 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion:105 Resp: 8006

Ion	Ratio	Lower	Upper
105	100		
120	46.2	37.3	77.3

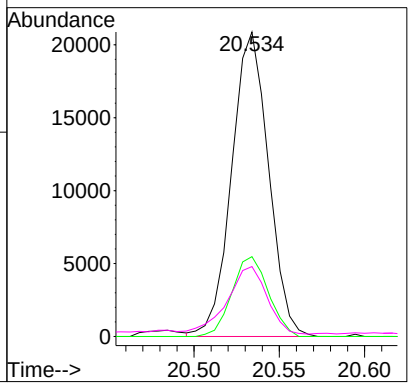


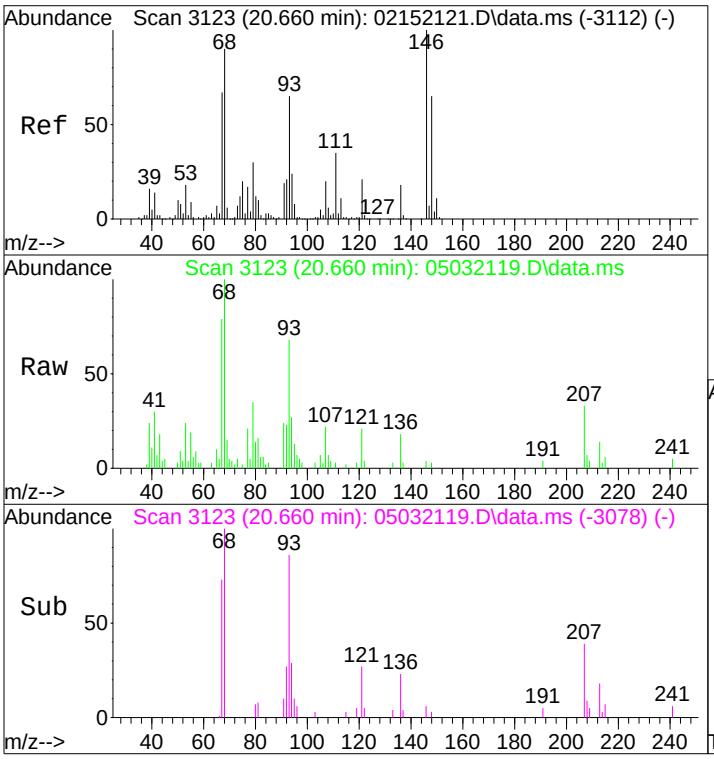


#88
4-Isopropyltoluene (p-Cymene)
Concen: 0.29 ng
RT: 20.53 min Scan# 3100
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion:119 Resp: 31372

Ion	Ratio	Lower	Upper
119	100		
134	25.9	7.6	47.6
91	24.0	0.3	40.3

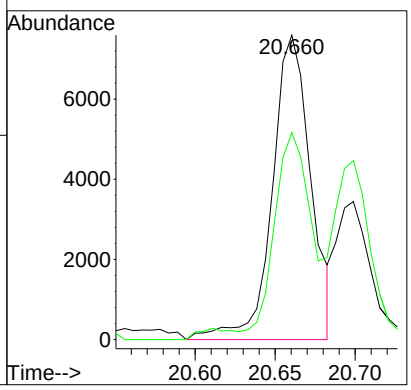


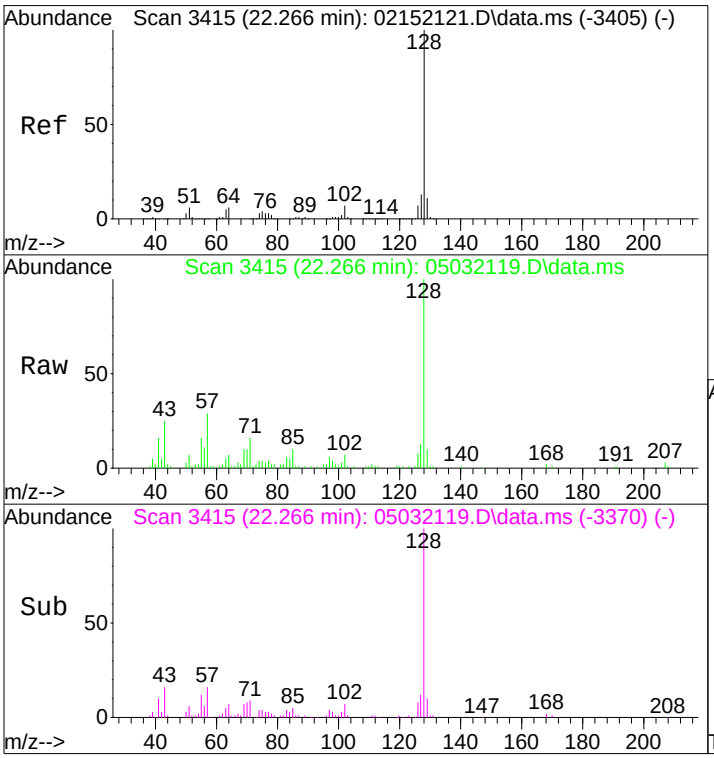


#91
d-Limonene
Concen: 0.38 ng
RT: 20.66 min Scan# 3123
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion: 68 Resp: 12705

Ion	Ratio	Lower	Upper
68	100		
93	62.9	52.0	92.0

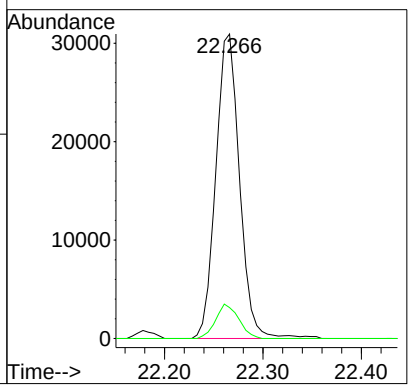




#95
Naphthalene
Concen: 0.47 ng
RT: 22.27 min Scan# 3415
Delta R.T. 0.000 min
Lab File: 05032119.D
Acq: 3 May 2021 19:44

Tgt Ion:128 Resp: 51861

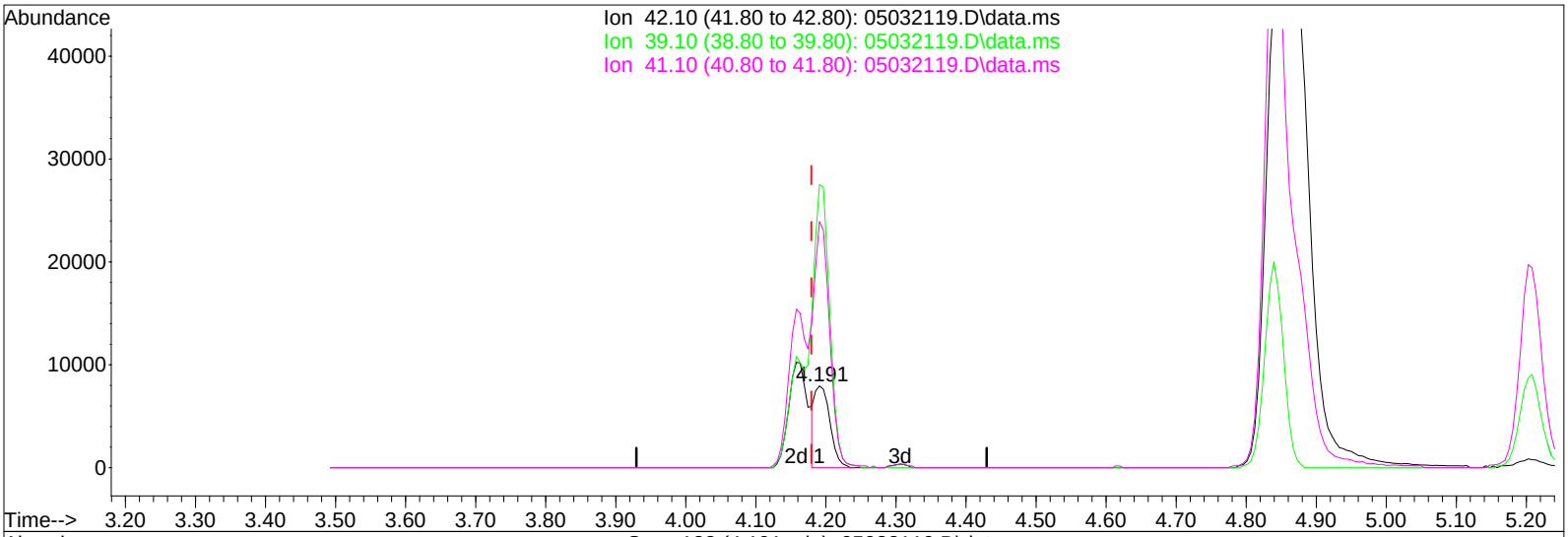
Ion	Ratio	Lower	Upper
128	100		
129	11.0	0.0	31.0

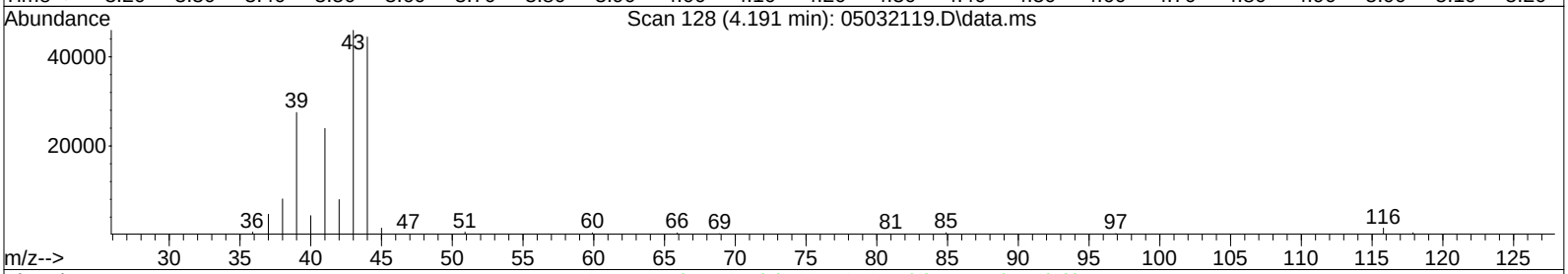


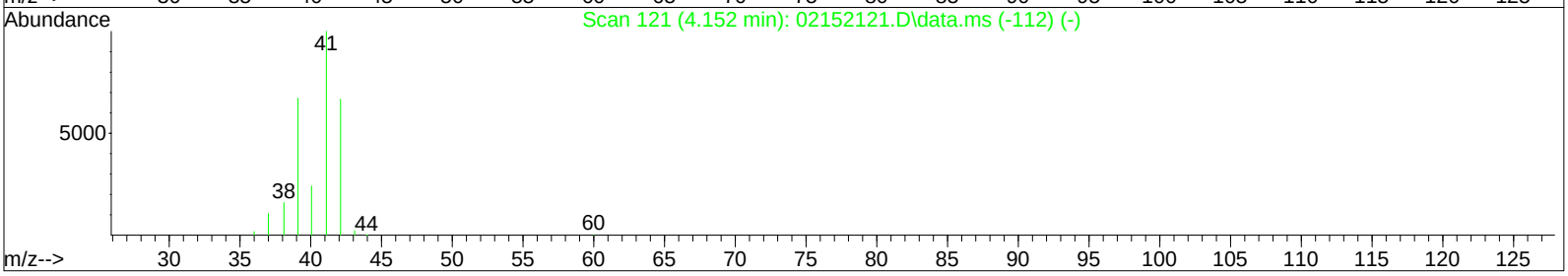
Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2021_05\03\05032119.D Vial: 7
Acq On : 3 May 2021 19:44 Operator: LH
Sample : P2101963-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: May 04 06:47:11 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 05032119.D\data.ms

(2) Propene (T)

4.191min (+0.011) 0.47ng

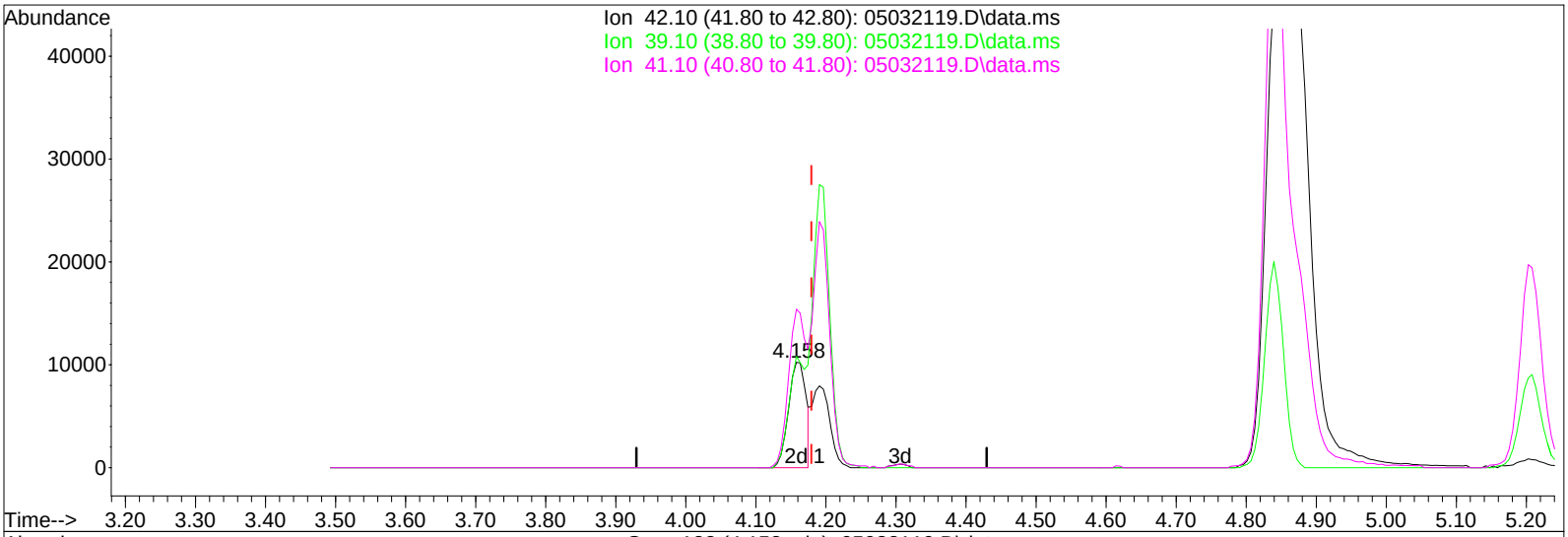
response 12001

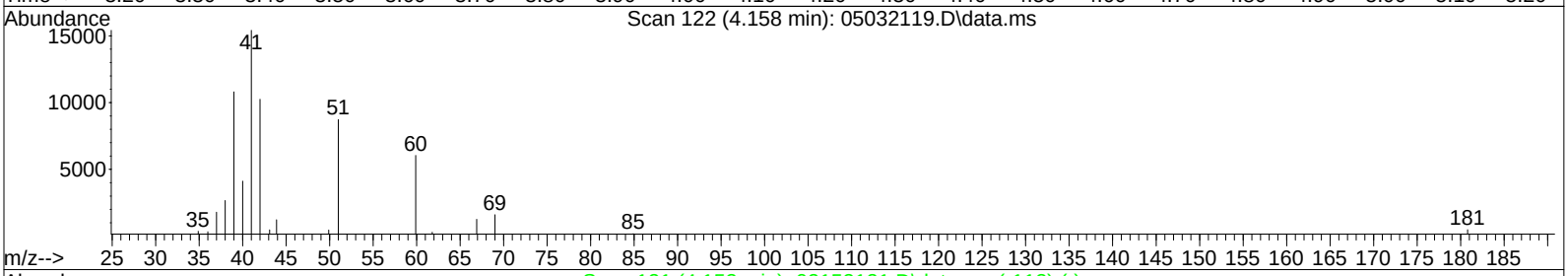
Ion	Exp%	Act%
42.10	100	100
39.10	100.40	400.19#
41.10	149.30	327.81#
0.00	0.00	0.00

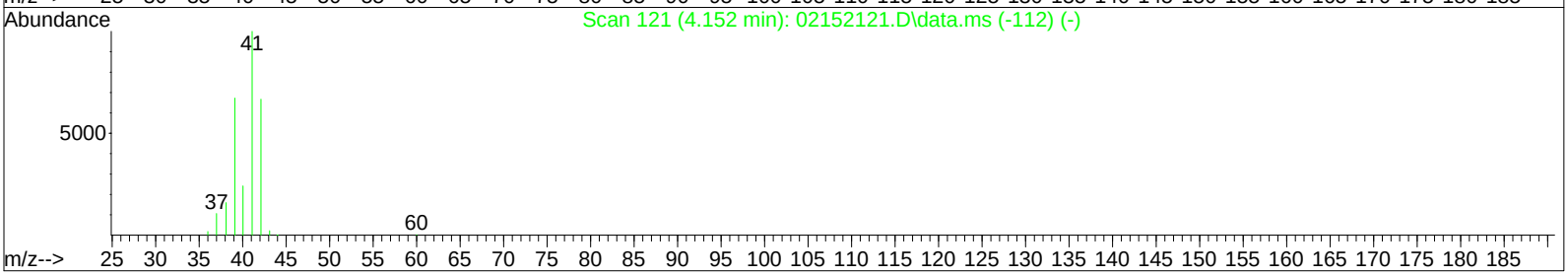
Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2021_05\03\05032119.D Vial: 7
Acq On : 3 May 2021 19:44 Operator: LH
Sample : P2101963-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: May 04 06:47:11 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 05032119.D\data.ms

(2) Propene (T)

4.158min (-0.022) 0.70ng m

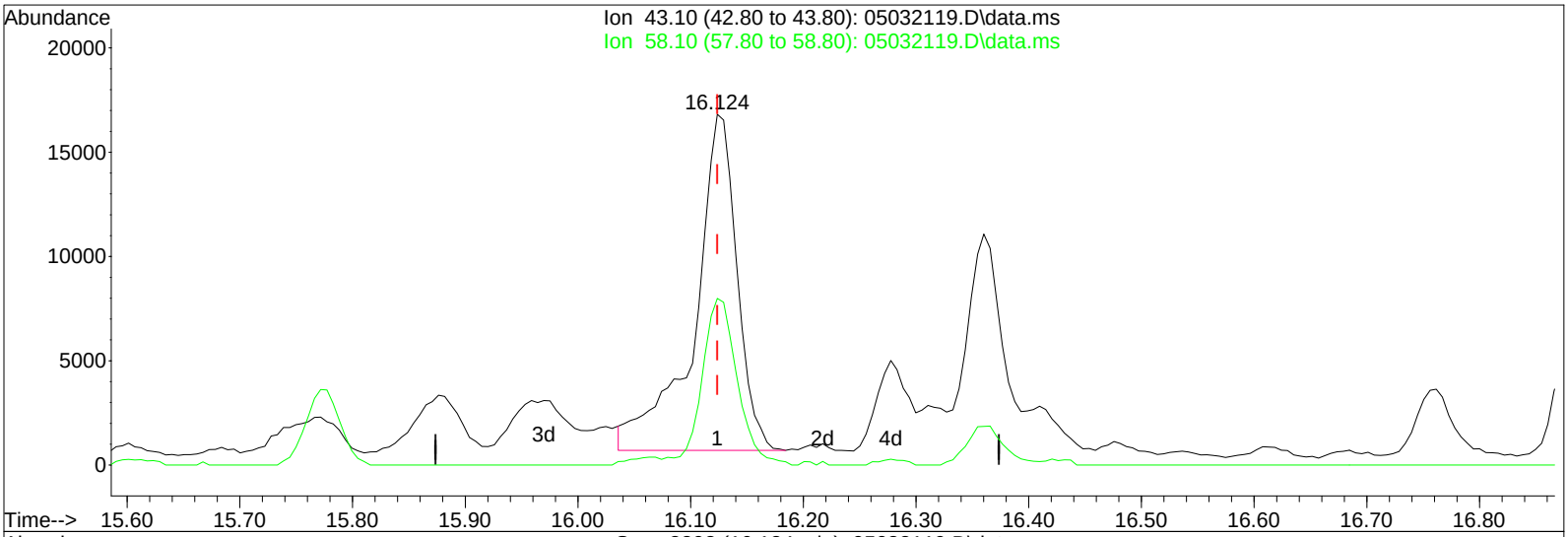
response 17735

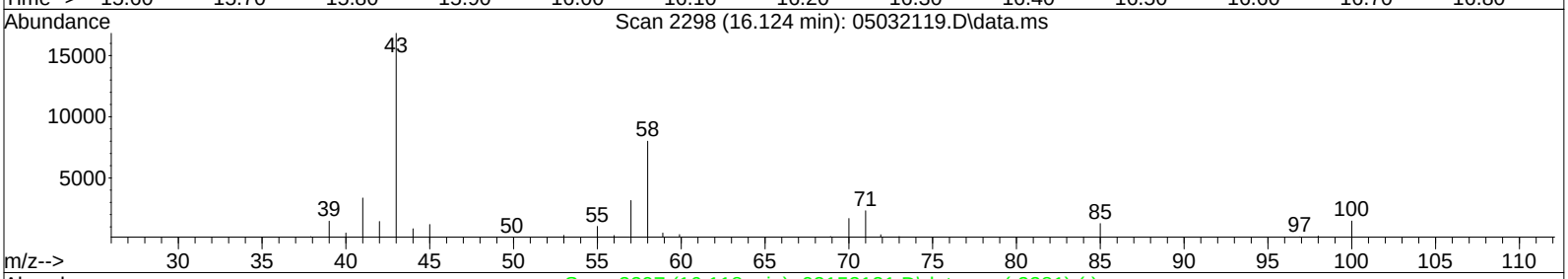
Ion	Exp%	Act%
42.10	100	100
39.10	100.40	270.80#
41.10	149.30	221.83#
0.00	0.00	0.00

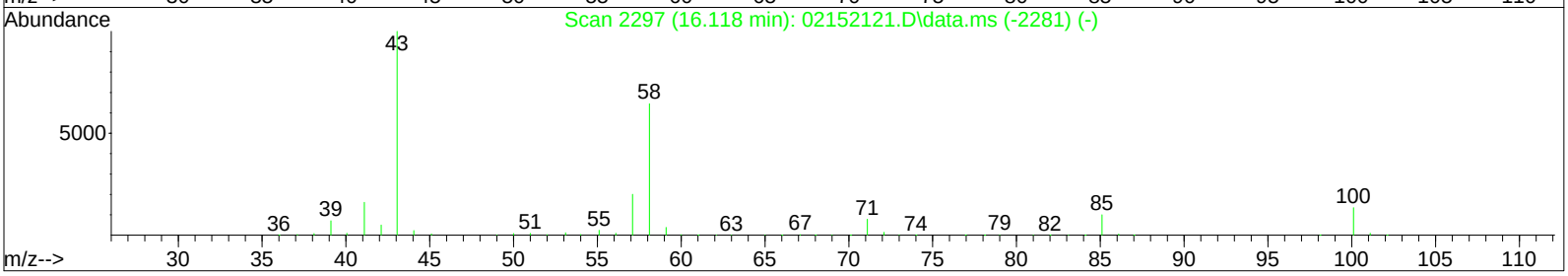
Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2021_05\03\05032119.D Vial: 7
Acq On : 3 May 2021 19:44 Operator: LH
Sample : P2101963-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: May 04 06:47:11 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 05032119.D\data.ms

(59) 2-Hexanone (T)

16.124min (+0.000) 0.92ng

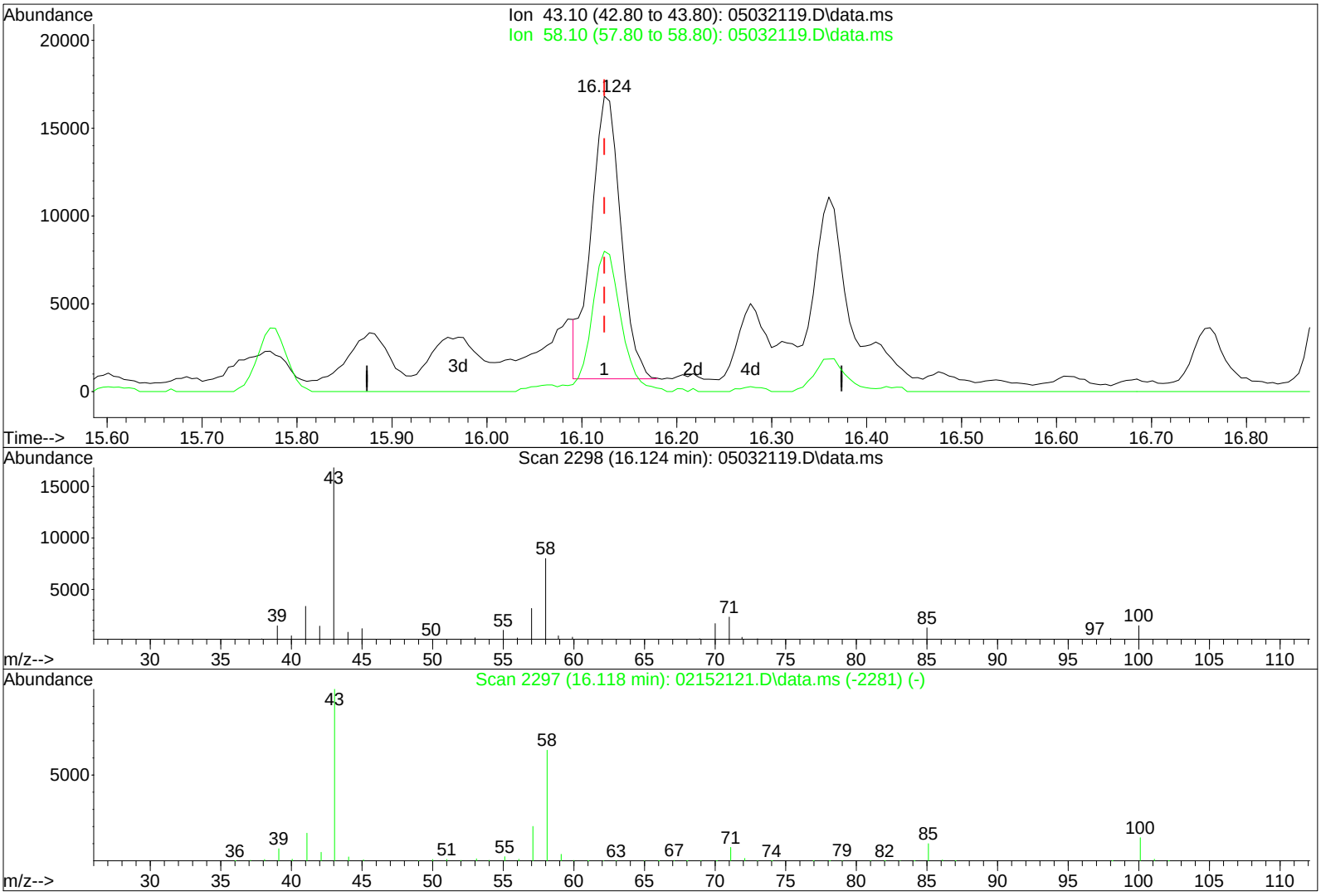
response 42318

Ion	Exp%	Act%
43.10	100	100
58.10	64.40	40.42#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2021_05\03\05032119.D Vial: 7
Acq On : 3 May 2021 19:44 Operator: LH
Sample : P2101963-001 (1000mL) Inst : GCMS-16
Misc : S34-12182001

Quant Time: May 04 06:47:11 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 05032119.D\data.ms

(59) 2-Hexanone (T)

16.124min (+0.000) 0.75ng m

response 34733

Ion	Exp%	Act%
43.10	100	100
58.10	64.40	49.24
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032104.D Vial: 2
Acq On : 3 May 2021 10:44 Operator: TZ
Sample : MB R16050321_1000mL Inst : GCMS-16
Misc : S34-12182001/AS01319

Quant Time: May 03 17:53:50 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	231184	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.32	114	1021014	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	149109	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	288854	12.781	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.24%				
57) Toluene-d8 (SS2)	15.77	98	1043859	11.723	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.76%				
73) Bromofluorobenzene (SS3)	19.03	174	379822	11.713	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.68%				
Target Compounds							Qvalue
2) Propene	4.21	42	343	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	6.47	45	3308	0.220	ng		74
11) Acetonitrile	6.76	41	681	N.D.			
12) Acrolein	0.00	56	0	N.D.			
13) Acetone	7.16	58	2143	0.129	ng	#	68
14) Trichlorofluoromethane	0.00	101	0	N.D.			
15) 2-Propanol (Isopropanol)	7.70	45	164	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	8.78	76	3083	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	0.00	56	0	N.D.			
41) Benzene	12.93	78	1666	N.D.			
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	13.31	84	493	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.			

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032104.D Vial: 2
Acq On : 3 May 2021 10:44 Operator: TZ
Sample : MB R16050321_1000mL Inst : GCMS-16
Misc : S34-12182001/AS01319

Quant Time: May 03 17:53:50 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

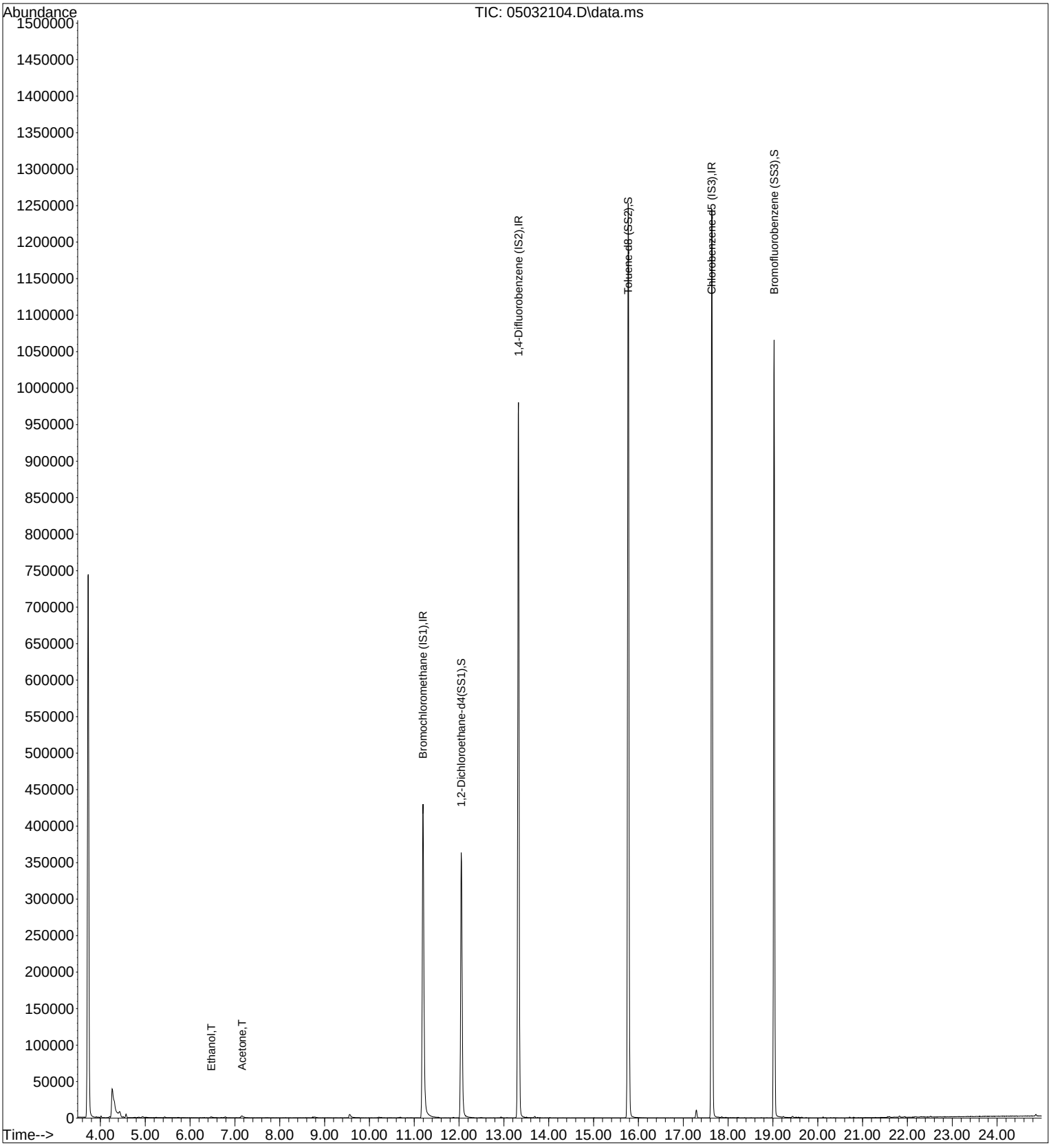
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.88	91	611	N.D.		
59) 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	17.87	91	103	N.D.		
67) m- & p-Xylenes	18.21	91	645	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	19.03	105	561	N.D.		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	19.57	91	865	N.D.		
77) 3-Ethyltoluene	19.73	105	113	No Calib		#
78) 4-Ethyltoluene	19.73	105	113	N.D.		
79) 1,3,5-Trimethylbenzene	19.75	105	164	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	19.75	105	164	No Calib		#
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.		
83) n-Decane	0.00	58	0	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	20.30	146	101	N.D.		
86) 1,4-Dichlorobenzene	20.36	146	257	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	22.18	180	758	N.D.		
95) Naphthalene	22.29	128	1846	N.D.		
96) n-Dodecane	0.00	57	0	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.		
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032104.D Vial: 2
Acq On : 3 May 2021 10:44 Operator: TZ
Sample : MB R16050321_1000mL Inst : GCMS-16
Misc : S34-12182001/AS01319

Quant Time: May 03 17:53:50 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032105.D Vial: 2
Acq On : 3 May 2021 11:18 Operator: TZ
Sample : LCS R16050321_25ng Inst : GCMS-16
Misc : S34-12182001/S34-04272101 (5/27)

Quant Time: May 03 12:35:28 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	241737	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	13.33	114	1035763	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	153271	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.07	65	298691	12.639	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.12%				
57) Toluene-d8 (SS2)	15.78	98	1069776	11.687	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.52%				
73) Bromofluorobenzene (SS3)	19.03	174	401675	12.050	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.40%				
Target Compounds							Qvalue
2) Propene	4.15	42	800512	28.997	ng		99
3) Dichlorodifluoromethan...	4.31	85	1070203	25.019	ng		100
4) Chloromethane	4.59	50	815566	24.201	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	614378	24.513	ng		100
6) Vinyl Chloride	5.01	62	872215	26.106	ng		100
7) 1,3-Butadiene	5.27	54	698231	29.453	ng		98
8) Bromomethane	5.71	94	525062	24.533	ng		100
9) Chloroethane	6.04	64	430151	25.277	ng		100
10) Ethanol	6.44	45	1823643	116.106	ng		100
11) Acetonitrile	6.69	41	1138440	28.290	ng		100
12) Acrolein	6.86	56	813204	55.522	ng		100
13) Acetone	7.08	58	2175126	125.621	ng		97
14) Trichlorofluoromethane	7.31	101	906820	24.121	ng		100
15) 2-Propanol (Isopropanol)	7.57	45	2560505	50.652	ng		100
16) Acrylonitrile	7.84	53	1639591	54.930	ng		100
17) 1,1-Dichloroethene	8.27	96	609251	25.257	ng		97
18) 2-Methyl-2-Propanol (t...	8.44	59	2126657	47.996	ng		99
19) Methylene Chloride	8.50	84	622410	25.335	ng		97
20) 3-Chloro-1-propene (Al...	8.66	41	876354	29.086	ng		96
21) Trichlorotrifluoroethane	8.91	151	548538	24.821	ng		99
22) Carbon Disulfide	8.75	76	4451430	53.743	ng		100
23) trans-1,2-Dichloroethene	9.77	61	844085	27.203	ng		99
24) 1,1-Dichloroethane	10.02	63	1024321	25.712	ng		100
25) Methyl tert-Butyl Ether	10.11	73	1299942	21.576	ng		99
26) Vinyl Acetate	10.28	86	503105	124.189	ng	#	81
27) 2-Butanone (MEK)	10.51	72	845667	56.033	ng		92
28) cis-1,2-Dichloroethene	11.04	61	794947	25.985	ng		98
29) Diisopropyl Ether	11.33	87	945011	48.589	ng	#	64
30) Ethyl Acetate	11.34	61	779712	75.798	ng		97
31) n-Hexane	11.31	57	924714	24.613	ng		100
32) Chloroform	11.38	83	961006	25.463	ng		99
34) Tetrahydrofuran (THF)	11.78	72	762139	48.980	ng		95
35) Ethyl tert-Butyl Ether	11.92	87	1389972	52.357	ng		98
36) 1,2-Dichloroethane	12.18	62	638779	25.395	ng		100
38) 1,1,1-Trichloroethane	12.46	97	803498	25.339	ng		100
39) Isopropyl Acetate	12.90	61	50016	No Calib	#		
40) 1-Butanol	12.92	56	22095	No Calib	#		
41) Benzene	12.94	78	2411618	24.790	ng		100
42) Carbon Tetrachloride	13.09	117	736112	26.362	ng		100
43) Cyclohexane	13.23	84	1838957	51.617	ng		98
44) tert-Amyl Methyl Ether	13.57	73	3244497	53.790	ng		99
45) 1,2-Dichloropropane	13.79	63	612042	25.724	ng		100
46) Bromodichloromethane	13.97	83	775906	27.042	ng		100
47) Trichloroethene	14.03	130	676252	24.857	ng		100
48) 1,4-Dioxane	14.00	88	527401	27.590	ng		99
49) 2,2,4-Trimethylpentane...	14.10	57	2561132	26.831	ng		99
50) Methyl Methacrylate	14.24	100	528333	57.443	ng		97

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032105.D Vial: 2
Acq On : 3 May 2021 11:18 Operator: TZ
Sample : LCS R16050321_25ng Inst : GCMS-16
Misc : S34-12182001/S34-04272101 (5/27)

Quant Time: May 03 12:35:28 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

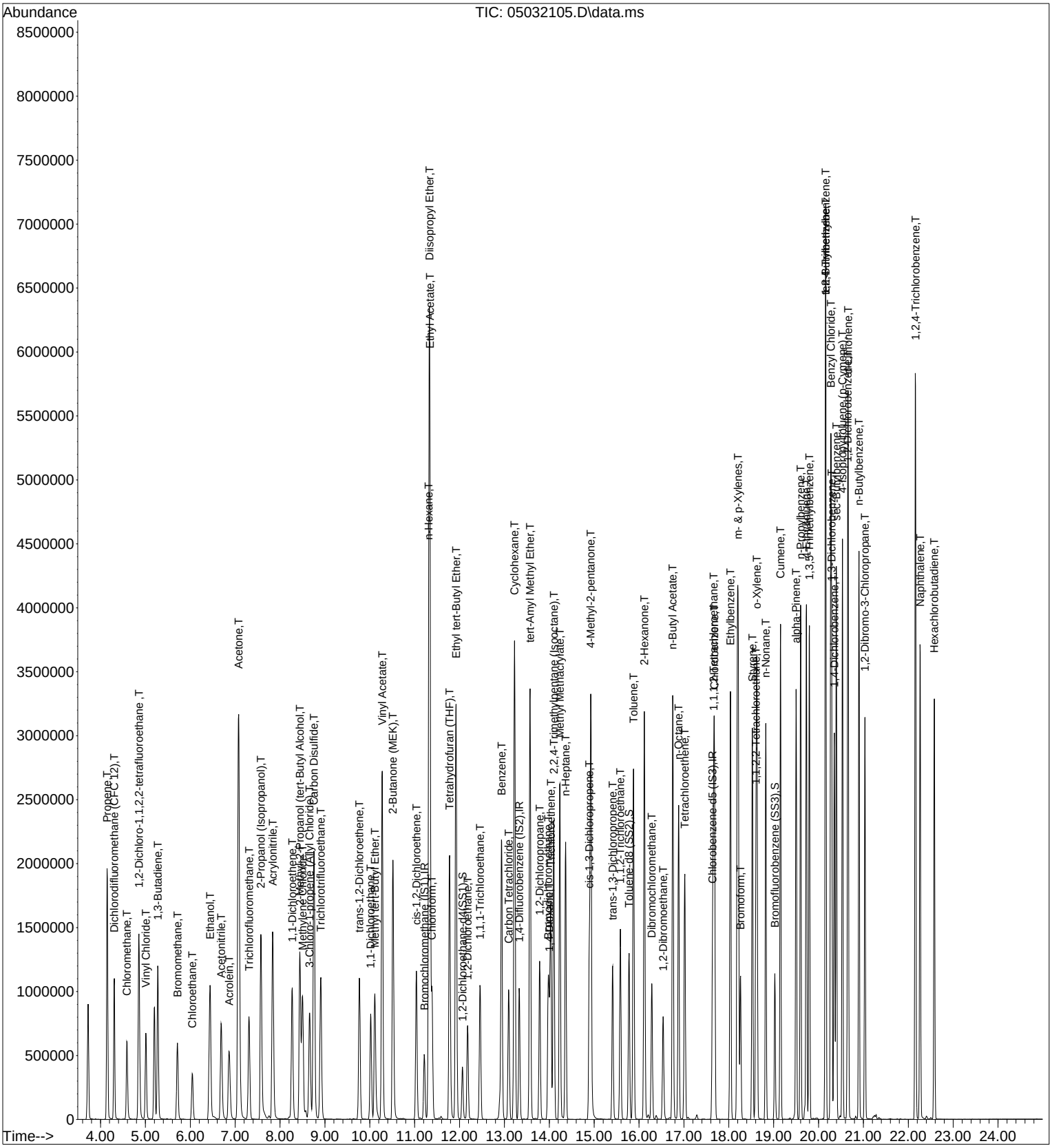
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	627318	26.244	ng		99
52) cis-1,3-Dichloropropene	14.89	75	967537	28.295	ng		100
53) 4-Methyl-2-pentanone	14.92	58	1152916	58.146	ng		96
54) trans-1,3-Dichloropropene	15.41	75	838938	28.986	ng		100
55) 1,1,2-Trichloroethane	15.58	97	608734	26.324	ng		100
58) Toluene	15.88	91	2457915	23.327	ng		100
59) 2-Hexanone	16.12	43	2486935	53.645	ng		97
60) Dibromochloromethane	16.28	129	723565	26.091	ng		100
61) 1,2-Dibromoethane	16.54	107	697404	24.985	ng		100
62) n-Butyl Acetate	16.75	43	2820826	53.811	ng		97
63) n-Octane	16.88	57	529441	24.772	ng		98
64) Tetrachloroethene	17.02	166	757093	24.050	ng		100
65) Chlorobenzene	17.68	112	1676697	23.521	ng		100
66) Ethylbenzene	18.04	91	2785515	23.957	ng		99
67) m- & p-Xylenes	18.20	91	4239873	47.712	ng		98
68) Bromoform	18.26	173	635243	26.733	ng		100
69) Styrene	18.53	104	1785629	25.343	ng		100
70) o-Xylene	18.63	91	2115214	23.740	ng		100
71) n-Nonane	18.82	43	1122432	25.649	ng		97
72) 1,1,2,2-Tetrachloroethane	18.60	83	1072136	24.651	ng		99
74) Cumene	19.15	105	2795133	24.066	ng		100
75) alpha-Pinene	19.50	93	1466332	25.767	ng		100
76) n-Propylbenzene	19.60	91	3369783	24.135	ng		100
77) 3-Ethyltoluene	19.73	105	2804409	No Calib			
78) 4-Ethyltoluene	19.73	105	2804409	24.926	ng		100
79) 1,3,5-Trimethylbenzene	19.80	105	2229897	24.247	ng		100
80) alpha-Methylstyrene	19.79	118	16001	No Calib			
81) 2-Ethyltoluene	19.97	105	7394	No Calib			
82) 1,2,4-Trimethylbenzene	20.16	105	2227454	24.479	ng		100
83) n-Decane	20.15	58	114746	No Calib		#	
84) Benzyl Chloride	20.28	91	3480346	52.588	ng		99
85) 1,3-Dichlorobenzene	20.29	146	1397321	25.027	ng		100
86) 1,4-Dichlorobenzene	20.35	146	1391190	24.144	ng		100
87) sec-Butylbenzene	20.40	105	3084984	23.904	ng		100
88) 4-Isopropyltoluene (p-...	20.53	119	2686767	24.363	ng		100
89) 1,2,3-Trimethylbenzene	20.53	105	90243	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	1360888	24.322	ng		100
91) d-Limonene	20.66	68	876124	26.220	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.03	157	1064673	49.483	ng		98
93) n-Undecane	21.24	57	686	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.16	180	2149455	51.226	ng		100
95) Naphthalene	22.27	128	3147785	28.446	ng		100
96) n-Dodecane	22.25	57	9330	No Calib		#	
97) Hexachlorobutadiene	22.58	225	700728	22.646	ng		100
98) Cyclohexanone	18.35	55	1212	No Calib			
99) tert-Butylbenzene	20.16	119	2196686	24.059	ng		100
100) n-Butylbenzene	20.90	91	2467449	24.849	ng		100
101) 1,1,1,2-Tetrachloroethane	17.66	131	593855	24.646	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032105.D Vial: 2
Acq On : 3 May 2021 11:18 Operator: TZ
Sample : LCS R16050321_25ng Inst : GCMS-16
Misc : S34-12182001/S34-04272101 (5/27)

Quant Time: May 03 12:35:28 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032106.D Vial: 2
Acq On : 3 May 2021 11:52 Operator: TZ
Sample : LCSD R16050321_25ng Inst : GCMS-16
Misc : S34-12182001/S34-04272101 (5/27)

Quant Time: May 03 12:36:07 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	245605	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	13.34	114	1060676	12.500	ng		0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	154936	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.07	65	301140	12.542	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.32%				
57) Toluene-d8 (SS2)	15.78	98	1086272	11.740	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.92%				
73) Bromofluorobenzene (SS3)	19.03	174	406497	12.064	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.48%				
Target Compounds							Qvalue
2) Propene	4.16	42	816204	29.100	ng		100
3) Dichlorodifluoromethan...	4.32	85	1065388	24.515	ng		100
4) Chloromethane	4.60	50	815597	23.821	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	621543	24.408	ng		100
6) Vinyl Chloride	5.02	62	866730	25.533	ng		100
7) 1,3-Butadiene	5.29	54	695730	28.885	ng		98
8) Bromomethane	5.72	94	531391	24.437	ng		100
9) Chloroethane	6.05	64	434414	25.126	ng		100
10) Ethanol	6.46	45	1839725	115.285	ng		100
11) Acetonitrile	6.70	41	1141617	27.922	ng		100
12) Acrolein	6.87	56	818595	55.010	ng		100
13) Acetone	7.09	58	2180388	123.941	ng		97
14) Trichlorofluoromethane	7.32	101	917250	24.014	ng		100
15) 2-Propanol (Isopropanol)	7.58	45	2492875	48.537	ng		99
16) Acrylonitrile	7.85	53	1651624	54.462	ng		100
17) 1,1-Dichloroethene	8.28	96	621114	25.343	ng		98
18) 2-Methyl-2-Propanol (t...	8.45	59	1959170	43.520	ng		99
19) Methylene Chloride	8.51	84	628576	25.183	ng		98
20) 3-Chloro-1-propene (Al...	8.67	41	887026	28.976	ng		95
21) Trichlorotrifluoroethane	8.91	151	558441	24.871	ng		100
22) Carbon Disulfide	8.77	76	4510846	53.602	ng		100
23) trans-1,2-Dichloroethene	9.77	61	849243	26.938	ng		100
24) 1,1-Dichloroethane	10.03	63	1033174	25.526	ng		100
25) Methyl tert-Butyl Ether	10.12	73	1277133	20.863	ng		99
26) Vinyl Acetate	10.28	86	509013	123.668	ng	#	83
27) 2-Butanone (MEK)	10.52	72	853765	55.679	ng		93
28) cis-1,2-Dichloroethene	11.04	61	802947	25.833	ng		98
29) Diisopropyl Ether	11.33	87	957818	48.472	ng	#	66
30) Ethyl Acetate	11.34	61	782880	74.907	ng		98
31) n-Hexane	11.32	57	933691	24.461	ng		100
32) Chloroform	11.39	83	968195	25.249	ng		100
34) Tetrahydrofuran (THF)	11.78	72	766624	48.492	ng		96
35) Ethyl tert-Butyl Ether	11.92	87	1408775	52.230	ng		98
36) 1,2-Dichloroethane	12.18	62	643108	25.165	ng		99
38) 1,1,1-Trichloroethane	12.46	97	809098	24.917	ng		100
39) Isopropyl Acetate	12.90	61	50707	No Calib	#		
40) 1-Butanol	12.92	56	22716	No Calib	#		
41) Benzene	12.94	78	2432612	24.418	ng		100
42) Carbon Tetrachloride	13.10	117	746936	26.121	ng		100
43) Cyclohexane	13.23	84	1861621	51.026	ng		98
44) tert-Amyl Methyl Ether	13.57	73	3293678	53.323	ng		99
45) 1,2-Dichloropropane	13.79	63	619889	25.442	ng		100
46) Bromodichloromethane	13.98	83	787598	26.805	ng		99
47) Trichloroethene	14.03	130	687241	24.668	ng		100
48) 1,4-Dioxane	14.00	88	532657	27.210	ng		99
49) 2,2,4-Trimethylpentane...	14.10	57	2585977	26.455	ng		99
50) Methyl Methacrylate	14.24	100	534812	56.782	ng		98

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032106.D Vial: 2
Acq On : 3 May 2021 11:52 Operator: TZ
Sample : LCSD R16050321_25ng Inst : GCMS-16
Misc : S34-12182001/S34-04272101 (5/27)

Quant Time: May 03 12:36:07 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

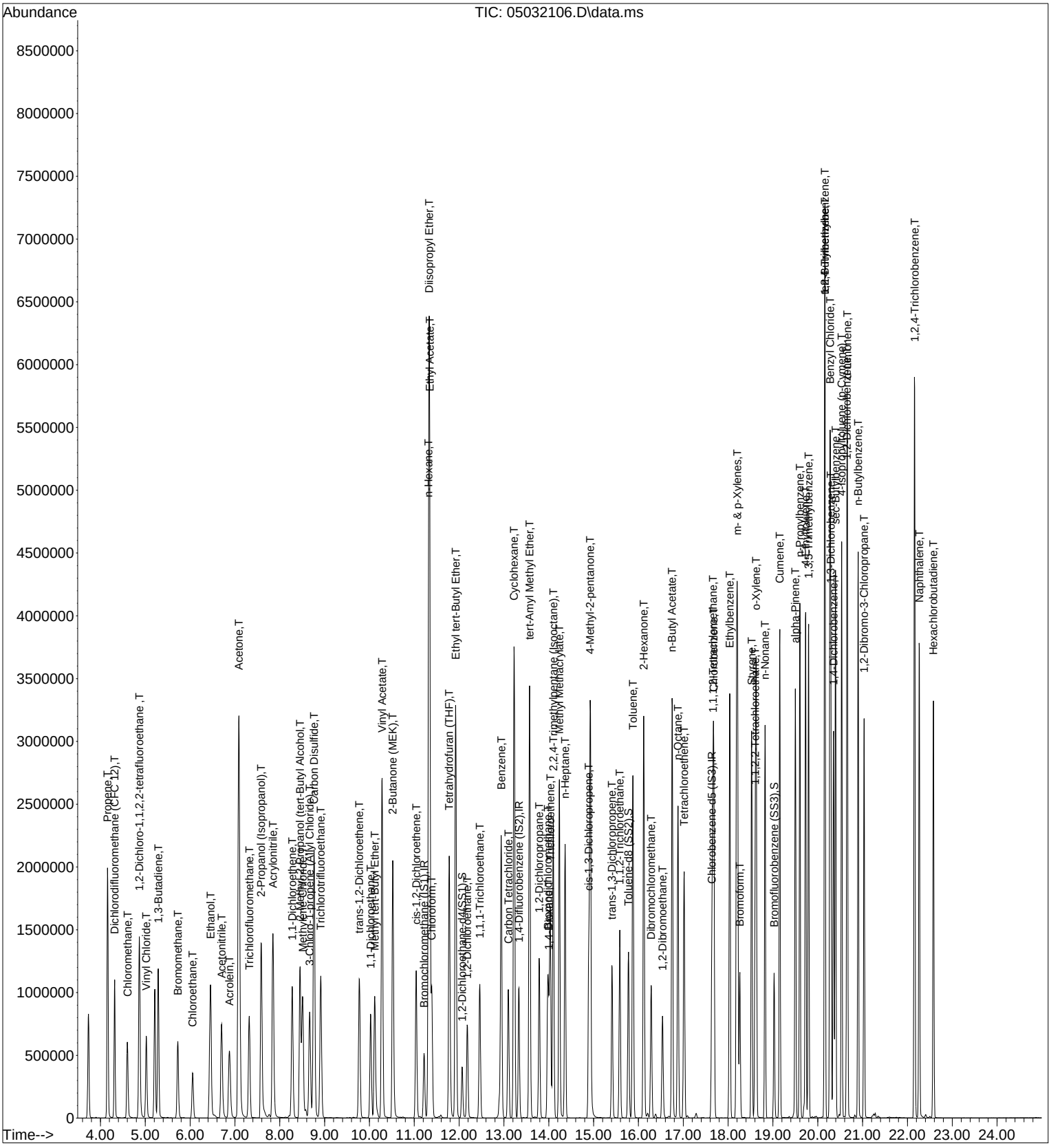
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	633696	25.888	ng		98
52) cis-1,3-Dichloropropene	14.89	75	980468	28.000	ng		99
53) 4-Methyl-2-pentanone	14.92	58	1161904	57.223	ng		97
54) trans-1,3-Dichloropropene	15.41	75	854726	28.838	ng		99
55) 1,1,2-Trichloroethane	15.58	97	612938	25.883	ng		100
58) Toluene	15.88	91	2484505	23.326	ng		100
59) 2-Hexanone	16.12	43	2495215	53.245	ng		98
60) Dibromochloromethane	16.28	129	731899	26.108	ng		100
61) 1,2-Dibromoethane	16.54	107	703987	24.950	ng		100
62) n-Butyl Acetate	16.75	43	2842138	53.635	ng		98
63) n-Octane	16.88	57	534806	24.754	ng		98
64) Tetrachloroethene	17.02	166	767799	24.128	ng		100
65) Chlorobenzene	17.68	112	1697182	23.553	ng		100
66) Ethylbenzene	18.04	91	2804687	23.863	ng		100
67) m- & p-Xylenes	18.20	91	4274791	47.588	ng		98
68) Bromoform	18.26	173	647173	26.942	ng		100
69) Styrene	18.53	104	1809096	25.400	ng		100
70) o-Xylene	18.63	91	2133635	23.689	ng		100
71) n-Nonane	18.82	43	1125592	25.445	ng		97
72) 1,1,2,2-Tetrachloroethane	18.60	83	1082001	24.610	ng		100
74) Cumene	19.15	105	2823889	24.052	ng		100
75) alpha-Pinene	19.50	93	1482966	25.779	ng		100
76) n-Propylbenzene	19.60	91	3395845	24.060	ng		100
77) 3-Ethyltoluene	19.73	105	2835310	No Calib			
78) 4-Ethyltoluene	19.73	105	2835310	24.930	ng		100
79) 1,3,5-Trimethylbenzene	19.80	105	2253957	24.245	ng		100
80) alpha-Methylstyrene	19.80	118	16332	No Calib			
81) 2-Ethyltoluene	19.97	105	7749	No Calib			
82) 1,2,4-Trimethylbenzene	20.16	105	2249704	24.458	ng		100
83) n-Decane	20.15	58	115730	No Calib		#	
84) Benzyl Chloride	20.28	91	3583503	53.565	ng		99
85) 1,3-Dichlorobenzene	20.29	146	1417902	25.123	ng		100
86) 1,4-Dichlorobenzene	20.35	146	1409326	24.196	ng		100
87) sec-Butylbenzene	20.40	105	3121216	23.925	ng		100
88) 4-Isopropyltoluene (p-...	20.53	119	2712031	24.328	ng		100
89) 1,2,3-Trimethylbenzene	20.53	105	90959	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	1377720	24.359	ng		100
91) d-Limonene	20.66	68	886508	26.246	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.03	157	1082701	49.781	ng		99
93) n-Undecane	21.23	57	523	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.16	180	2201019	51.891	ng		100
95) Naphthalene	22.27	128	3235214	28.922	ng		100
96) n-Dodecane	22.25	57	9543	No Calib		#	
97) Hexachlorobutadiene	22.58	225	718965	22.986	ng		100
98) Cyclohexanone	18.35	55	1260	No Calib			
99) tert-Butylbenzene	20.16	119	2224121	24.097	ng		100
100) n-Butylbenzene	20.90	91	2495723	24.864	ng		100
101) 1,1,1,2-Tetrachloroethane	17.66	131	602067	24.718	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032106.D Vial: 2
Acq On : 3 May 2021 11:52 Operator: TZ
Sample : LCSD R16050321_25ng Inst : GCMS-16
Misc : S34-12182001/S34-04272101 (5/27)

Quant Time: May 03 12:36:07 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\
Method File : R16021521.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Feb 16 10:04:55 2021
Response Via : Initial Calibration

Calibration Files
0.1 =02152116.D 0.2 =02152117.D 0.5 =02152118.D 1.0 =02152126.D 5.0 =02152120.D 25 =02152
100 =02152123.D

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	ISTD	----------							
2)	T	Propene	1.610	1.373	1.622	1.140	1.316	1.547	1.507	1.305	1.428	11.99
3)	T	Dichlorodifluo...	2.671	2.449	2.418	1.985	2.237	2.138	1.979	1.816	2.212	12.99
4)	T	Chloromethane	2.063	1.956	1.843	1.562	1.864	1.659	1.250		1.743	15.80
5)	T	1,2-Dichloro-1...	1.526	1.386	1.388	1.175	1.298	1.258	1.203	1.133	1.296	10.13
6)	T	Vinyl Chloride	2.020	1.841	1.828	1.538	1.781	1.702	1.611	1.501	1.728	10.09
7)	T	1,3-Butadiene	1.377	1.225	1.219	1.090	1.318	1.285	1.208	1.085	1.226	8.35
8)	T	Bromomethane	1.288	1.143	1.163	0.991	1.138	1.098	1.046	0.986	1.107	9.06
9)	T	Chloroethane	0.995	0.918	0.940	0.786	0.911	0.881	0.830	0.779	0.880	8.66
10)	T	Ethanol	1.119	0.896	0.852	0.721	0.833	0.768	0.697	0.613	0.812	18.98
11)	T	Acetonitrile	2.496	2.270	2.190	1.810	2.122	2.043	1.922	1.794	2.081	11.55
12)	T	Acrolein	0.809	0.795	0.809	0.694	0.803	0.772	0.713	0.665	0.757	7.67
13)	T	Acetone	1.184	1.031	1.020	0.830	0.936	0.832	0.729	0.601	0.895	20.74
14)	T	Trichlorofluor...	2.290	2.105	2.091	1.740	1.974	1.878	1.782	1.691	1.944	10.72
15)	T	2-Propanol (Is...	3.483	3.103	2.678	2.621	3.158	2.377	1.913	1.577	2.614	24.70
16)	T	Acrylonitrile	1.700	1.577	1.660	1.403	1.657	1.569	1.451	1.330	1.543	8.71
17)	T	1,1-Dichloroet...	1.452	1.321	1.293	1.118	1.257	1.221	1.180	1.136	1.247	8.78
18)	T	2-Methyl-2-Pro...			2.649	2.443	2.843	2.130	1.390		2.291	24.82
19)	T	Methylene Chlo...	1.437	1.380	1.370	1.141	1.286	1.242	1.179	1.129	1.270	9.21
20)	T	3-Chloro-1-pro...	1.778	1.584	1.626	1.381	1.624	1.574	1.496	1.400	1.558	8.35
21)	T	Trichlorotrifl...	1.278	1.212	1.204	1.063	1.140	1.116	1.084	1.044	1.143	7.19
22)	T	Carbon Disulfide		4.789	4.803	4.044	4.558	4.285	3.998	3.506	4.283	11.05
23)	T	trans-1,2-Dich...	1.674	1.615	1.691	1.449	1.685	1.649	1.580	1.492	1.604	5.69
24)	T	1,1-Dichloroet...	2.382	2.188	2.181	1.841	2.107	2.023	1.938	1.819	2.060	9.35
25)	T	Methyl tert-Bu...	3.954	3.618	3.552	3.114	3.495	3.281	2.615	1.295	3.116	26.81
26)	T	Vinyl Acetate	0.177	0.180	0.202	0.207	0.253	0.250	0.227	0.181	0.209	14.66
27)	T	2-Butanone (MEK)	0.794	0.794	0.846	0.749	0.854	0.822	0.766	0.618	0.780	9.62
28)	T	cis-1,2-Dichlo...	1.791	1.665	1.685	1.411	1.628	1.571	1.499	1.405	1.582	8.65
29)	T	Diisopropyl Ether	1.265	1.161	1.159	1.012	1.120	0.928	0.785	0.615	1.006	21.78
30)	T	Ethyl Acetate	0.606	0.598	0.626	0.541	0.607	0.524	0.424	0.330	0.532	19.72
31)	T	n-Hexane	2.471	2.296	2.256	1.870	2.100	1.816	1.523	1.209	1.943	21.87
32)	T	Chloroform	2.287	2.123	2.102	1.780	1.991	1.888	1.778	1.665	1.952	10.82
33)	S	1,2-Dichloroet...	1.255	1.259	1.250	1.212	1.237	1.213	1.182	1.167	1.222	2.80
34)	T	Tetrahydrofura...	0.967	0.886	0.859	0.736	0.824	0.789	0.734	0.641	0.805	12.71
35)	T	Ethyl tert-But...	1.612	1.452	1.478	1.284	1.430	1.370	1.264	1.091	1.373	11.59
36)	T	1,2-Dichloroet...	1.515	1.377	1.360	1.174	1.335	1.282	1.215	1.148	1.301	9.33
37)	IR	1,4-Difluorobenzen...	----------	ISTD	----------							
38)	T	1,1,1-Trichlor...	0.448	0.407	0.401	0.350	0.389	0.375	0.357	0.334	0.383	9.61
39)	T	Isopropyl Acetate									0.000	-1.00
40)	T	1-Butanol									0.000	-1.00
41)	T	Benzene	1.510	1.310	1.247	1.060	1.163	1.103	1.045	0.954	1.174	15.09
42)	T	Carbon Tetrach...	0.355	0.326	0.338	0.295	0.334	0.332	0.405	0.310	0.337	9.83
43)	T	Cyclohexane	0.530	0.469	0.465	0.402	0.446	0.421	0.386	0.321	0.430	14.61
44)	T	tert-Amyl Meth...	0.870	0.771	0.781	0.674	0.761	0.731	0.671	0.565	0.728	12.56
45)	T	1,2-Dichloropr...	0.341	0.313	0.307	0.256	0.290	0.279	0.265	0.245	0.287	11.28
46)	T	Bromodichlorom...	0.381	0.348	0.356	0.311	0.360	0.353	0.341	0.319	0.346	6.54
47)	T	Trichloroethene	0.399	0.345	0.336	0.293	0.327	0.323	0.313	0.290	0.328	10.45
48)	T	1,4-Dioxane	0.247	0.229	0.239	0.211	0.244	0.239	0.229	0.208	0.231	6.22
49)	T	2,2,4-Trimethy...	1.442	1.260	1.261	1.057	1.184	1.109	1.023	0.880	1.152	15.04
50)	T	Methyl Methacr...	0.108	0.107	0.114	0.105	0.122	0.119	0.113	0.100	0.111	6.54
51)	T	n-Heptane	0.339	0.318	0.308	0.270	0.295	0.281	0.263	0.233	0.288	11.65
52)	T	cis-1,3-Dichlo...	0.426	0.391	0.419	0.375	0.441	0.437	0.420	0.392	0.413	5.75
53)	T	4-Methyl-2-pen...	0.265	0.251	0.260	0.246	0.253	0.244	0.221	0.183	0.239	11.67
54)	T	trans-1,3-Dich...	0.307	0.303	0.345	0.314	0.385	0.393	0.383	0.365	0.349	10.71

55)	T	1,1,2-Trichlor...	0.322	0.291	0.291	0.255	0.283	0.275	0.265	0.250	0.279	8.37
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------									
57)	S	Toluene-d8 (SS2)	7.313	7.318	7.330	7.570	7.467	7.472	7.620	7.629	7.465	1.79
58)	T	Toluene	1.053	0.924	0.900	0.809	0.859	0.824	0.793	0.713	0.859	E1 11.88
59)	T	2-Hexanone	4.361	4.002	4.018	3.597	4.203	3.811	3.434	2.820	3.781	13.03
60)	T	Dibromochlorom...	2.308	2.128	2.215	2.051	2.355	2.385	2.374	2.277	2.262	5.37
61)	T	1,2-Dibromoethane	2.393	2.187	2.296	2.092	2.361	2.345	2.331	2.206	2.276	4.56
62)	T	n-Butyl Acetate	4.940	4.479	4.497	4.043	4.749	4.375	3.942	3.175	4.275	12.94
63)	T	n-Octane	2.071	1.875	1.848	1.650	1.802	1.708	1.606	1.384	1.743	11.83
64)	T	Tetrachloroethene	2.927	2.638	2.667	2.391	2.577	2.519	2.483	2.337	2.567	7.17
65)	T	Chlorobenzene	6.971	6.148	6.133	5.391	5.838	5.723	5.503	4.801	5.814	11.00
66)	T	Ethylbenzene	1.121	0.995	1.003	0.896	0.979	0.927	0.884	0.781	0.948	E1 10.65
67)	T	m- & p-Xylenes	9.019	7.885	7.809	6.990	7.523	6.914	6.429	5.411	7.247	14.89
68)	T	Bromoform	1.829	1.737	1.839	1.757	2.063	2.149	2.132	1.997	1.938	8.63
69)	T	Styrene	6.250	5.709	5.783	5.359	6.087	5.948	5.726	5.108	5.746	6.48
70)	T	o-Xylene	8.851	7.867	7.833	6.929	7.431	7.014	6.574	5.633	7.267	13.31
71)	T	n-Nonane	4.268	3.849	3.930	3.504	3.878	3.515	3.137	2.471	3.569	15.68
72)	T	1,1,2,2-Tetrac...	4.130	3.709	3.816	3.358	3.686	3.510	3.321	2.846	3.547	10.86
73)	S	Bromofluoroben...	2.661	2.664	2.647	2.848	2.697	2.726	2.775	2.730	2.719	2.49
74)	T	Cumene	1.140	1.018	1.010	0.911	0.967	0.922	0.867	0.742	0.947	E1 12.41
75)	T	alpha-Pinene	5.251	4.788	4.880	4.356	4.796	4.709	4.476	3.874	4.641	8.83
76)	T	n-Propylbenzene	1.397	1.252	1.236	1.093	1.168	1.092	1.017	0.853	1.139	E1 14.49
77)	T	3-Ethyltoluene									0.000	-1.00
78)	T	4-Ethyltoluene	1.087	0.980	0.973	0.887	0.945	0.903	0.844	0.722	0.918	E1 11.73
79)	T	1,3,5-Trimethy...	9.083	7.888	7.804	7.304	7.722	7.362	6.927	5.912	7.500	12.04
80)	T	alpha-Methylst...									0.000	-1.00
81)	T	2-Ethyltoluene									0.000	-1.00
82)	T	1,2,4-Trimethy...	8.752	7.899	7.864	7.543	8.020	7.448	6.592	5.252	7.421	14.37
83)	T	n-Decane									0.000	-1.00
84)	T	Benzyl Chloride			4.599	4.947	5.894	6.049	5.497		5.397	11.43
85)	T	1,3-Dichlorobe...		5.208	5.118	4.524	4.787	4.588	4.216	3.433	4.553	13.22
86)	T	1,4-Dichlorobe...		5.270	5.118	4.546	4.859	4.658	4.494	3.951	4.699	9.33
87)	T	sec-Butylbenzene	1.311	1.174	1.167	1.034	1.073	0.970	0.927	0.764	1.053	E1 16.10
88)	T	4-Isopropyltol...	1.075	0.955	0.969	0.886	0.928	0.883	0.819	0.680	0.899	E1 12.93
89)	T	1,2,3-Trimethy...									0.000	-1.00
90)	T	1,2-Dichlorobe...	5.709	5.046	4.958	4.365	4.642	4.409	4.058	3.318	4.563	15.67
91)	T	d-Limonene	3.160	2.872	2.931	2.640	3.031	2.839	2.473	1.855	2.725	15.12
92)	T	1,2-Dibromo-3-...	1.931	1.735	1.854	1.652	1.812	1.825	1.739	1.490	1.755	7.79
93)	T	n-Undecane									0.000	-1.00
94)	T	1,2,4-Trichlor...			2.662	3.326	3.787	3.811	3.525		3.422	13.73
95)	T	Naphthalene	0.952	0.698	0.652	0.911	1.051	1.058	1.016	0.881	0.902	E1 17.11
96)	T	n-Dodecane									0.000	-1.00
97)	T	Hexachlorobuta...	3.132	2.731	2.661	2.374	2.336	2.397	2.373	2.184	2.523	12.03
98)	T	Cyclohexanone									0.000	-1.00
99)	T	tert-Butylbenzene			8.338	7.532	7.817	7.207	6.338		7.446	10.02
100)	T	n-Butylbenzene	9.593	8.543	8.674	7.981	8.509	7.988	7.389	6.108	8.098	12.71
101)	T	1,1,1,2-Tetrac...	2.144	1.980	1.989	1.823	2.036	2.017	1.967	1.765	1.965	6.12

(#) = Out of Range

R16021521.M Tue Feb 16 17:38:51 2021

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID: | **40ng/L Std. ID:**
4ng/L Std. ID: S34-02152103 | **200ng/L Std. ID:** S34-02102102
20ng/L Std. ID: S34-02152102 | **1000ng/L Std. ID:**

Dilution Factors:		1	5	25	50	250	1000	Working STD Conc.(ng/L):	4	4	4	20	200	200	200	200
	Source Std.		Primary Working Standards					Injection (L):	0.025	0.050	0.1250	0.050	0.025	0.125	0.25	0.50
Compounds	mg/m³	1000ng/L	200ng/L	40ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
Propene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Dichlorodifluoromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chloromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Freon-114	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Vinyl Chloride	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,3-Butadiene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Bromomethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Ethanol	5.28	5280	1056	211.2	105.6	21.12	5.28		0.528	1.056	2.640	5.28	26.40	132.00	264.0	528
Acetonitrile	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
Acrolein	2.18	2180	436	87.2	43.6	8.72	2.18		0.218	0.436	1.090	2.18	10.90	54.50	109.0	218
Acetone	5.16	5160	1032	206.4	103.2	20.64	5.16		0.516	1.032	2.580	5.16	25.80	129.00	258.0	516
Trichlorofluoromethane	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
Isopropanol	2.05	2050	410	82.0	41.0	8.20	2.05		0.205	0.410	1.025	2.05	10.25	51.25	102.5	205
Acrylonitrile	2.05	2050	410	82.0	41.0	8.20	2.05		0.205	0.410	1.025	2.05	10.25	51.25	102.5	205
1,1-Dichloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
tert-Butanol	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
Methylene Chloride	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Allyl Chloride	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Trichlorotrifluoroethane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Carbon Disulfide	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
trans-1,2-Dichloroethene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,1-Dichloroethane	1.07	1070	214	42.8	21.4	4.28	1.07		0.107	0.214	0.535	1.07	5.35	26.75	53.5	107
Methyl tert-Butyl Ether	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Vinyl Acetate	5.49	5490	1098	219.6	109.8	21.96	5.49		0.549	1.098	2.745	5.49	27.45	137.25	274.5	549
2-Butanone	2.06	2060	412	82.4	41.2	8.24	2.06		0.206	0.412	1.030	2.06	10.30	51.50	103.0	206
cis-1,2-Dichloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Diisopropyl Ether	2.09	2090	418	83.6	41.8	8.36	2.09		0.209	0.418	1.045	2.09	10.45	52.25	104.5	209
Ethyl Acetate	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
n-Hexane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chloroform	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Tetrahydrofuran	2.04	2040	408	81.6	40.8	8.16	2.04		0.204	0.408	1.020	2.04	10.20	51.00	102.0	204
Ethyl tert-Butyl Ether	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
1,2-Dichloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,1,1-Trichloroethane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Benzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Carbon Tetrachloride	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
Cyclohexane	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
tert-Amyl Methyl Ether	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
1,2-Dichloropropane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Bromodichloromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Trichloroethene	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
1,4-Dioxane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Isooctane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Methyl Methacrylate	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
n-Heptane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103

Secondary Review

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:		**40ng/L Std. ID:**	
4ng/L Std. ID:	**S34-02152103**	**200ng/L Std. ID:**	**S34-02102102**
20ng/L Std. ID:	**S34-02152102**	**1000ng/L Std. ID:**	

Dilution Factors:		**1**	**5**	**25**	**50**	**250**	**1000**	**Working STD Conc.(ng/L):**	**4**	**4**	**4**	**20**	**200**	**200**	**200**	**200**
	Source Std.			**Primary Working Standards**				**Injection (L):**	**0.025**	**0.050**	**0.1250**	**0.050**	**0.025**	**0.125**	**0.25**	**0.50**
Compounds	**mg/m³**	**1000ng/L**	**200ng/L**	**40ng/L**	**20ng/L**	**4ng/L**	**1ng/L**	**ICAL Points:**	**0.1ng**	**0.2ng**	**0.5ng**	**1ng**	**5ng**	**25ng**	**50ng**	**100ng**
cis-1,3-Dichloropropene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
4-Methyl-2-pentanone	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
trans-1,3-Dichloropropene	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
1,1,2-Trichloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Toluene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
2-Hexanone	2.06	2060	412	82.4	41.2	8.24	2.06		0.206	0.412	1.030	2.06	10.30	51.50	103.0	206
Dibromochloromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,2-Dibromoethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
n-Butyl Acetate	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
n-Octane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Tetrachloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chlorobenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Ethylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
m-&p-Xylene	2.09	2090	418	83.6	41.8	8.36	2.09		0.209	0.418	1.045	2.09	10.45	52.25	104.5	209
Bromoform	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
Styrene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
o-Xylene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
n-Nonane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,1,2,2-Tetrachloroethane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Cumene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
alpha-Pinene	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
n-Propylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
4-Ethyltoluene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,3,5-Trimethylbenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,2,4-Trimethylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Benzyl Chloride	2.10	2100	420	84.0	42.0	8.40	2.10		0.210	0.420	1.050	2.10	10.50	52.50	105.0	210
1,3-Dichlorobenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,4-Dichlorobenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
sec-Butylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
p-Isopropyltoluene	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
1,2-Dichlorobenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
d-Limonene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
1,2-Dibromo-3-chloropropane	2.00	2000	400	80.0	40.0	8.00	2.00		0.200	0.400	1.000	2.00	10.00	50.00	100.0	200
1,2,4-Trichlorobenzene	2.00	2000	400	80.0	40.0	8.00	2.00		0.200	0.400	1.000	2.00	10.00	50.00	100.0	200
Naphthalene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Hexachloro-1,3-butadiene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
tert-Butylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
n-Butylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
1,1,1,2-Tetrachloroethane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103

S1 to 20

Calibration Status Report GCMS-16

Method : I:\MS16\METHODS\R16021521.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS16\DATA\2021_02\15\02152116.D
2	0.2	0	13	I:\MS16\DATA\2021_02\15\02152117.D
3	0.5	1	13	I:\MS16\DATA\2021_02\15\02152118.D
4	1.0	1	13	I:\MS16\DATA\2021_02\15\02152126.D
5	5.0	5	13	I:\MS16\DATA\2021_02\15\02152120.D
6	25	26	13	I:\MS16\DATA\2021_02\15\02152121.D
7	50	52	13	I:\MS16\DATA\2021_02\15\02152122.D
8	100	104	13	I:\MS16\DATA\2021_02\15\02152123.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Feb 16 08:38 2021	Feb 16 08:28 2021	15 Feb 2021 22:15
2	0.2	Feb 16 08:38 2021	Feb 16 08:28 2021	15 Feb 2021 22:49
3	0.5	Feb 16 08:38 2021	Feb 16 08:30 2021	15 Feb 2021 23:22
4	1.0	Feb 16 10:04 2021	Feb 16 10:04 2021	16 Feb 2021 9:38
5	5.0	Feb 16 08:39 2021	Feb 16 08:33 2021	16 Feb 2021 00:29
6	25	Feb 16 08:39 2021	Feb 16 08:36 2021	16 Feb 2021 1:03
7	50	Feb 16 08:43 2021	Feb 16 08:37 2021	16 Feb 2021 1:36
8	100	Feb 16 08:43 2021	Feb 16 08:37 2021	16 Feb 2021 2:10

R16021521.M Tue Feb 16 17:39:48 2021

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152116.D Vial: 5
Acq On : 15 Feb 2021 22:15 Operator: LH
Sample : 0.1ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02152103 (3/12)

Quant Time: Feb 16 08:28:51 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	206644	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.32	114	922323	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	128013	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	259413	10.456	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 83.68%				
57) Toluene-d8 (SS2)	15.77	98	936140	15.236	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 121.92%				
73) Bromofluorobenzene (SS3)	19.03	174	340654	14.417	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 115.36%				
Target Compounds							Qvalue
2) Propene	4.20	42	2768	0.108	ng		99
3) Dichlorodifluoromethan...	4.34	85	4593	0.112	ng	#	95
4) Chloromethane	4.63	50	3547	0.130	ng		96
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	2623	0.107	ng		98
6) Vinyl Chloride	5.04	62	3506	0.110	ng		91
7) 1,3-Butadiene	5.30	54	2367	0.101	ng		96
8) Bromomethane	5.73	94	2215	0.125	ng		95
9) Chloroethane	6.07	64	1710	0.128	ng		89
10) Ethanol	6.42	45	9765	0.702	ng		88
11) Acetonitrile	6.69	41	4374	0.130	ng	#	71
12) Acrolein	6.88	56	2914	0.239	ng		95
13) Acetone	7.09	58	10097	0.687	ng		90
14) Trichlorofluoromethane	7.31	101	3861	0.104	ng		99
15) 2-Propanol (Isopropanol)	7.62	45	11804	0.272	ng		100
16) Acrylonitrile	7.83	53	5762	0.223	ng		96
17) 1,1-Dichloroethene	8.27	96	2497	0.124	ng		99
18) 2-Methyl-2-Propanol (t...	8.51	59	10307	0.239	ng		93
19) Methylene Chloride	8.48	84	2470	0.121	ng		91
20) 3-Chloro-1-propene (Al...	8.66	41	3057	0.117	ng		88
21) Trichlorotrifluoroethane	8.91	151	2219	0.116	ng		95
22) Carbon Disulfide	8.75	76	18532	0.261	ng		96
23) trans-1,2-Dichloroethene	9.76	61	2905	0.108	ng		95
24) 1,1-Dichloroethane	10.00	63	4214	0.124	ng		95
25) Methyl tert-Butyl Ether	10.15	73	6732	0.119	ng		94
26) Vinyl Acetate	10.28	86	1607	0.371	ng	#	17
27) 2-Butanone (MEK)	10.55	72	2705	0.206	ng	#	40
28) cis-1,2-Dichloroethene	11.01	61	3080	0.115	ng		100
29) Diisopropyl Ether	11.34	87	4372	0.248	ng	#	86
30) Ethyl Acetate	11.36	61	2084	0.214	ng		94
31) n-Hexane	11.31	57	4249	0.127	ng	#	97
32) Chloroform	11.36	83	3970	0.114	ng		96
34) Tetrahydrofuran (THF)	11.82	72	3262	0.251	ng		91
35) Ethyl tert-Butyl Ether	11.93	87	5543	0.228	ng		92
36) 1,2-Dichloroethane	12.18	62	2604	0.099	ng		92
38) 1,1,1-Trichloroethane	12.44	97	3407	0.105	ng		97
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	12.93	78	11588	0.137	ng		98
42) Carbon Tetrachloride	13.09	117	2673	0.092	ng		99
43) Cyclohexane	13.21	84	8091	0.250	ng		99
44) tert-Amyl Methyl Ether	13.58	73	13281	0.228	ng		97
45) 1,2-Dichloropropane	13.79	63	2618	0.130	ng		92
46) Bromodichloromethane	13.97	83	2925	0.102	ng		98
47) Trichloroethene	14.03	130	3001	0.122	ng		98
48) 1,4-Dioxane	14.04	88	1874	0.111	ng	#	63
49) 2,2,4-Trimethylpentane...	14.09	57	11171	0.136	ng		99
50) Methyl Methacrylate	14.25	100	1663	0.176	ng	#	79

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152116.D Vial: 5
Acq On : 15 Feb 2021 22:15 Operator: LH
Sample : 0.1ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02152103 (3/12)

Quant Time: Feb 16 08:28:51 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

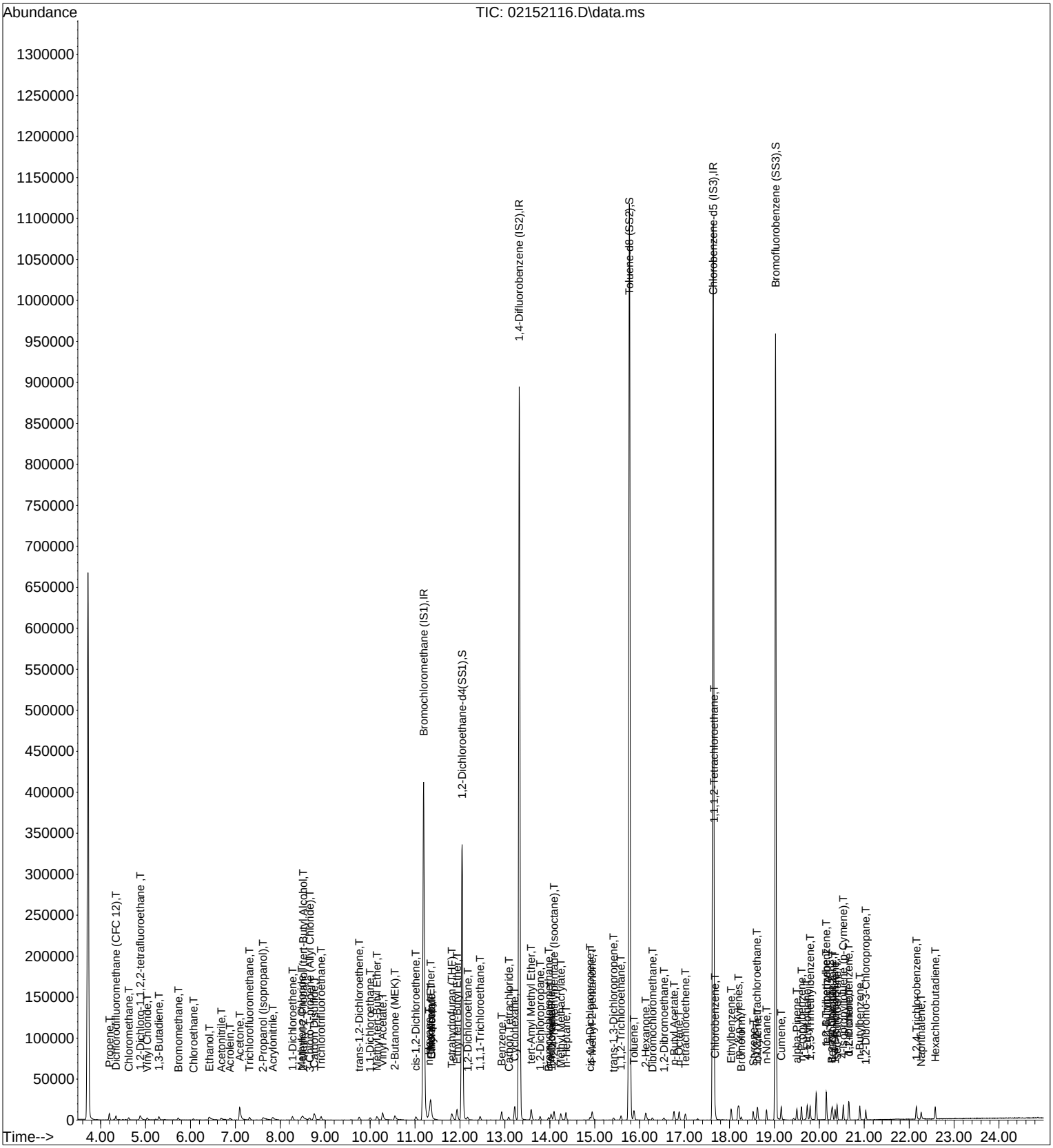
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.36	71	2577	0.122	ng	98
52) cis-1,3-Dichloropropene	14.90	75	3303	0.102	ng	91
53) 4-Methyl-2-pentanone	14.94	58	4069	0.219	ng	85
54) trans-1,3-Dichloropropene	15.42	75	2309	0.074	ng	92
55) 1,1,2-Trichloroethane	15.58	97	2473	0.120	ng	95
58) Toluene	15.88	91	11218	0.160	ng	97
59) 2-Hexanone	16.13	43	9201	0.265	ng	90
60) Dibromochloromethane	16.29	129	2458	0.124	ng	99
61) 1,2-Dibromoethane	16.54	107	2549	0.133	ng	100
62) n-Butyl Acetate	16.77	43	10473	0.267	ng	93
63) n-Octane	16.88	57	2206	0.156	ng	92
64) Tetrachloroethene	17.02	166	3117	0.148	ng	99
65) Chlorobenzene	17.68	112	7353	0.152	ng	99
66) Ethylbenzene	18.04	91	11943	0.151	ng	98
67) m- & p-Xylenes	18.20	91	19303	0.310	ng	94
68) Bromoform	18.26	173	1986	0.109	ng	96
69) Styrene	18.53	104	6593	0.129	ng	99
70) o-Xylene	18.63	91	9518	0.154	ng	96
71) n-Nonane	18.82	43	4589	0.150	ng	94
72) 1,1,2,2-Tetrachloroethane	18.61	83	4441	0.151	ng	97
74) Cumene	19.15	105	12138	0.152	ng	98
75) alpha-Pinene	19.50	93	5700	0.139	ng	71
76) n-Propylbenzene	19.60	91	14883	0.156	ng	97
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.73	105	11684	0.147	ng	97
79) 1,3,5-Trimethylbenzene	19.80	105	9767	0.148	ng	97
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.15	105	9232	0.138	ng	100
83) n-Decane	0.00	58	0	N.D.	d	
84) Benzyl Chloride	20.28	91	9120	0.172	ng	92
85) 1,3-Dichlorobenzene	20.29	146	6554	0.162	ng	100
86) 1,4-Dichlorobenzene	20.35	146	6589	0.157	ng	100
87) sec-Butylbenzene	20.40	105	13826	0.159	ng	96
88) 4-Isopropyltoluene (p-...	20.53	119	11234	0.146	ng	98
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.65	146	6139	0.158	ng	99
91) d-Limonene	20.66	68	3333	0.133	ng	97
92) 1,2-Dibromo-3-Chloropr...	21.03	157	3956	0.244	ng	86
93) n-Undecane	0.00	57	0	N.D.		
94) 1,2,4-Trichlorobenzene	22.16	180	6971	0.216	ng	98
95) Naphthalene	22.27	128	10045	0.108	ng	93
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	22.58	225	3304	0.157	ng	100
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	20.15	119	10322	0.155	ng	98
100) n-Butylbenzene	20.90	91	10119	0.144	ng	96
101) 1,1,1,2-Tetrachloroethane	17.66	131	2262	0.129	ng	96

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152116.D Vial: 5
Acq On : 15 Feb 2021 22:15 Operator: LH
Sample : 0.1ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02152103 (3/12)

Quant Time: Feb 16 08:28:51 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152117.D Vial: 5
Acq On : 15 Feb 2021 22:49 Operator: LH
Sample : 0.2ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02152103 (3/12)

Quant Time: Feb 16 08:28:33 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	207498	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.32	114	921141	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	127330	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	261225	10.486	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 83.92%				
57) Toluene-d8 (SS2)	15.77	98	931798	15.246	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.00%				
73) Bromofluorobenzene (SS3)	19.03	174	339148	14.430	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 115.44%				
Target Compounds							Qvalue
2) Propene	4.19	42	4740	0.184	ng		97
3) Dichlorodifluoromethan...	4.34	85	8456	0.205	ng		97
4) Chloromethane	4.62	50	6754	0.247	ng		96
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	4787	0.194	ng		95
6) Vinyl Chloride	5.04	62	6418	0.201	ng		95
7) 1,3-Butadiene	5.30	54	4231	0.180	ng		99
8) Bromomethane	5.72	94	3946	0.222	ng		98
9) Chloroethane	6.07	64	3169	0.237	ng		93
10) Ethanol	6.41	45	15706	1.124	ng		97
11) Acetonitrile	6.68	41	7989	0.236	ng		86
12) Acrolein	6.87	56	5757	0.470	ng		95
13) Acetone	7.09	58	17664	1.197	ng		91
14) Trichlorofluoromethane	7.32	101	7129	0.191	ng		100
15) 2-Propanol (Isopropanol)	7.60	45	21119	0.484	ng		96
16) Acrylonitrile	7.83	53	10736	0.414	ng		99
17) 1,1-Dichloroethene	8.27	96	4561	0.226	ng		100
18) 2-Methyl-2-Propanol (t...	8.49	59	19213	0.443	ng		96
19) Methylene Chloride	8.47	84	4764	0.232	ng		98
20) 3-Chloro-1-propene (Al...	8.65	41	5468	0.208	ng		95
21) Trichlorotrifluoroethane	8.91	151	4225	0.220	ng		98
22) Carbon Disulfide	8.75	76	33069	0.463	ng		98
23) trans-1,2-Dichloroethene	9.76	61	5630	0.209	ng		97
24) 1,1-Dichloroethane	10.00	63	7774	0.228	ng		98
25) Methyl tert-Butyl Ether	10.14	73	12373	0.219	ng		98
26) Vinyl Acetate	10.27	86	3278	0.753	ng	#	44
27) 2-Butanone (MEK)	10.54	72	5428	0.412	ng	#	66
28) cis-1,2-Dichloroethene	11.02	61	5750	0.214	ng		99
29) Diisopropyl Ether	11.33	87	8058	0.455	ng	#	89
30) Ethyl Acetate	11.35	61	4132	0.423	ng		91
31) n-Hexane	11.31	57	7929	0.236	ng		98
32) Chloroform	11.37	83	7399	0.211	ng		97
34) Tetrahydrofuran (THF)	11.81	72	6001	0.460	ng		96
35) Ethyl tert-Butyl Ether	11.93	87	10029	0.412	ng		92
36) 1,2-Dichloroethane	12.17	62	4753	0.180	ng		96
38) 1,1,1-Trichloroethane	12.45	97	6178	0.191	ng		98
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	12.93	78	20078	0.238	ng		98
42) Carbon Tetrachloride	13.09	117	4905	0.169	ng		100
43) Cyclohexane	13.22	84	14298	0.442	ng		97
44) tert-Amyl Methyl Ether	13.58	73	23510	0.404	ng		97
45) 1,2-Dichloropropane	13.78	63	4803	0.239	ng		94
46) Bromodichloromethane	13.97	83	5334	0.186	ng		100
47) Trichloroethene	14.03	130	5185	0.212	ng		100
48) 1,4-Dioxane	14.03	88	3475	0.206	ng		100
49) 2,2,4-Trimethylpentane...	14.09	57	19503	0.238	ng		99
50) Methyl Methacrylate	14.24	100	3293	0.349	ng		89

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152117.D Vial: 5
Acq On : 15 Feb 2021 22:49 Operator: LH
Sample : 0.2ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02152103 (3/12)

Quant Time: Feb 16 08:28:33 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

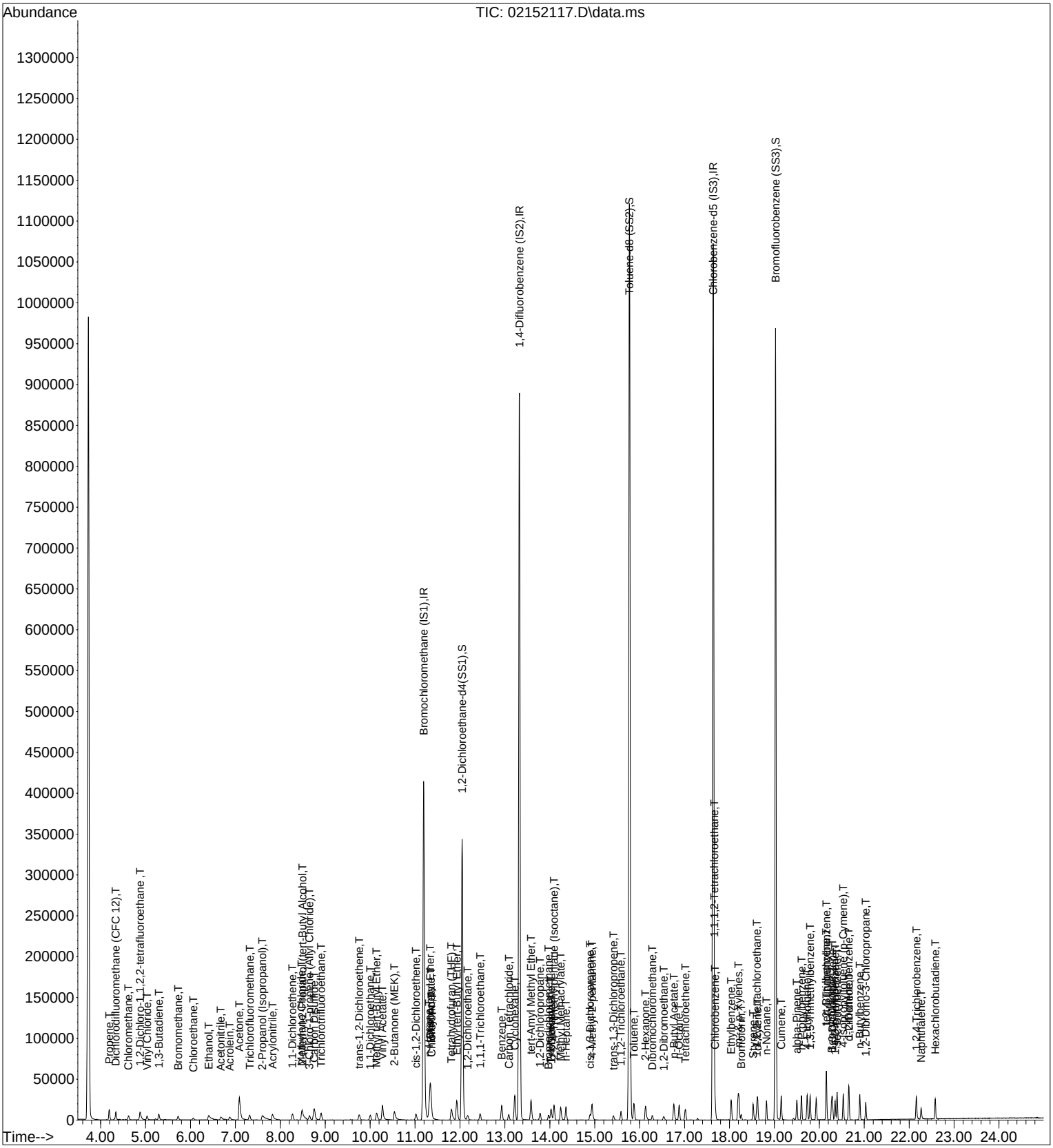
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.36	71	4827	0.229	ng	98
52) cis-1,3-Dichloropropene	14.90	75	6050	0.187	ng	96
53) 4-Methyl-2-pentanone	14.94	58	7692	0.414	ng	90
54) trans-1,3-Dichloropropene	15.42	75	4553	0.146	ng	93
55) 1,1,2-Trichloroethane	15.58	97	4464	0.217	ng	100
58) Toluene	15.88	91	19570	0.281	ng	99
59) 2-Hexanone	16.13	43	16794	0.486	ng	92
60) Dibromochloromethane	16.28	129	4509	0.229	ng	100
61) 1,2-Dibromoethane	16.54	107	4634	0.243	ng	98
62) n-Butyl Acetate	16.76	43	18888	0.485	ng	94
63) n-Octane	16.88	57	3973	0.282	ng	94
64) Tetrachloroethene	17.02	166	5589	0.267	ng	98
65) Chlorobenzene	17.68	112	12901	0.269	ng	98
66) Ethylbenzene	18.04	91	21085	0.268	ng	99
67) m- & p-Xylenes	18.20	91	33573	0.542	ng	97
68) Bromoform	18.26	173	3752	0.206	ng	99
69) Styrene	18.53	104	11979	0.236	ng	97
70) o-Xylene	18.63	91	16828	0.274	ng	98
71) n-Nonane	18.82	43	8233	0.271	ng	96
72) 1,1,2,2-Tetrachloroethane	18.61	83	7935	0.272	ng	100
74) Cumene	19.15	105	21579	0.272	ng	100
75) alpha-Pinene	19.50	93	10339	0.253	ng	83
76) n-Propylbenzene	19.60	91	26528	0.280	ng	98
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.73	105	20959	0.266	ng	99
79) 1,3,5-Trimethylbenzene	19.80	105	16874	0.257	ng	98
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.16	105	16575	0.249	ng	99
83) n-Decane	0.00	58	0	N.D.	d	
84) Benzyl Chloride	20.28	91	16556	0.314	ng	94
85) 1,3-Dichlorobenzene	20.29	146	11140	0.277	ng	99
86) 1,4-Dichlorobenzene	20.35	146	11165	0.268	ng	99
87) sec-Butylbenzene	20.40	105	24630	0.284	ng	97
88) 4-Isopropyltoluene (p-...	20.53	119	19847	0.259	ng	99
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.65	146	10795	0.279	ng	99
91) d-Limonene	20.66	68	6026	0.241	ng	96
92) 1,2-Dibromo-3-Chloropr...	21.03	157	7069	0.438	ng	88
93) n-Undecane	0.00	57	0	N.D.		
94) 1,2,4-Trichlorobenzene	22.16	180	11059	0.344	ng	97
95) Naphthalene	22.27	128	14639	0.159	ng	96
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	22.58	225	5731	0.273	ng	99
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.15	119	17831	0.270	ng	100
100) n-Butylbenzene	20.90	91	17926	0.256	ng	97
101) 1,1,1,2-Tetrachloroethane	17.66	131	4154	0.238	ng	97

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152117.D Vial: 5
Acq On : 15 Feb 2021 22:49 Operator: LH
Sample : 0.2ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02152103 (3/12)

Quant Time: Feb 16 08:28:33 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152118.D Vial: 5
Acq On : 15 Feb 2021 23:22 Operator: LH
Sample : 0.5ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02152103 (3/12)

Quant Time: Feb 16 08:30:03 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	192390	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.32	114	854497	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	118137	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	240440	10.410	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 83.28%				
57) Toluene-d8 (SS2)	15.77	98	865912	15.271	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.16%				
73) Bromofluorobenzene (SS3)	19.03	174	312739	14.342	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 114.72%				
Target Compounds							Qvalue
2) Propene	4.18	42	12984	0.543	ng		98
3) Dichlorodifluoromethan...	4.33	85	19356	0.506	ng		99
4) Chloromethane	4.61	50	14750	0.582	ng		97
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	11110	0.485	ng		98
6) Vinyl Chloride	5.03	62	14769	0.499	ng		99
7) 1,3-Butadiene	5.29	54	9756	0.448	ng		96
8) Bromomethane	5.71	94	9309	0.565	ng		98
9) Chloroethane	6.05	64	7526	0.606	ng		99
10) Ethanol	6.40	45	34607	2.670	ng		100
11) Acetonitrile	6.67	41	17868	0.569	ng		91
12) Acrolein	6.86	56	13567	1.195	ng		99
13) Acetone	7.07	58	40503	2.961	ng		96
14) Trichlorofluoromethane	7.31	101	16413	0.474	ng		100
15) 2-Propanol (Isopropanol)	7.58	45	42251	1.044	ng		95
16) Acrylonitrile	7.81	53	26181	1.089	ng		98
17) 1,1-Dichloroethene	8.27	96	10347	0.552	ng		98
18) 2-Methyl-2-Propanol (t...	8.47	59	42200	1.050	ng		98
19) Methylene Chloride	8.47	84	10965	0.577	ng		97
20) 3-Chloro-1-propene (Al...	8.64	41	13015	0.535	ng		95
21) Trichlorotrifluoroethane	8.91	151	9731	0.545	ng		98
22) Carbon Disulfide	8.75	76	76874	1.162	ng		98
23) trans-1,2-Dichloroethene	9.75	61	13667	0.548	ng		98
24) 1,1-Dichloroethane	10.00	63	17963	0.569	ng		99
25) Methyl tert-Butyl Ether	10.13	73	28155	0.537	ng		99
26) Vinyl Acetate	10.27	86	8526	2.114	ng	#	56
27) 2-Butanone (MEK)	10.53	72	13413	1.097	ng	#	89
28) cis-1,2-Dichloroethene	11.02	61	13488	0.541	ng		98
29) Diisopropyl Ether	11.33	87	18639	1.134	ng	#	89
30) Ethyl Acetate	11.33	61	10021	1.106	ng		94
31) n-Hexane	11.31	57	18057	0.580	ng		99
32) Chloroform	11.36	83	16982	0.522	ng		100
34) Tetrahydrofuran (THF)	11.80	72	13493	1.116	ng		95
35) Ethyl tert-Butyl Ether	11.92	87	23664	1.048	ng		94
36) 1,2-Dichloroethane	12.17	62	10884	0.444	ng		99
38) 1,1,1-Trichloroethane	12.45	97	14126	0.470	ng		100
39) Isopropyl Acetate	0.00	61	0	N.D.	d		
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	12.93	78	44316	0.566	ng		100
42) Carbon Tetrachloride	13.09	117	11791	0.437	ng		99
43) Cyclohexane	13.22	84	32887	1.095	ng		97
44) tert-Amyl Methyl Ether	13.57	73	55280	1.024	ng		98
45) 1,2-Dichloropropane	13.78	63	10927	0.587	ng		98
46) Bromodichloromethane	13.97	83	12661	0.475	ng		99
47) Trichloroethene	14.02	130	11721	0.516	ng		99
48) 1,4-Dioxane	14.02	88	8408	0.537	ng		98
49) 2,2,4-Trimethylpentane...	14.09	57	45251	0.594	ng		100
50) Methyl Methacrylate	14.24	100	8094	0.925	ng		90

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152118.D Vial: 5
Acq On : 15 Feb 2021 23:22 Operator: LH
Sample : 0.5ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02152103 (3/12)

Quant Time: Feb 16 08:30:03 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

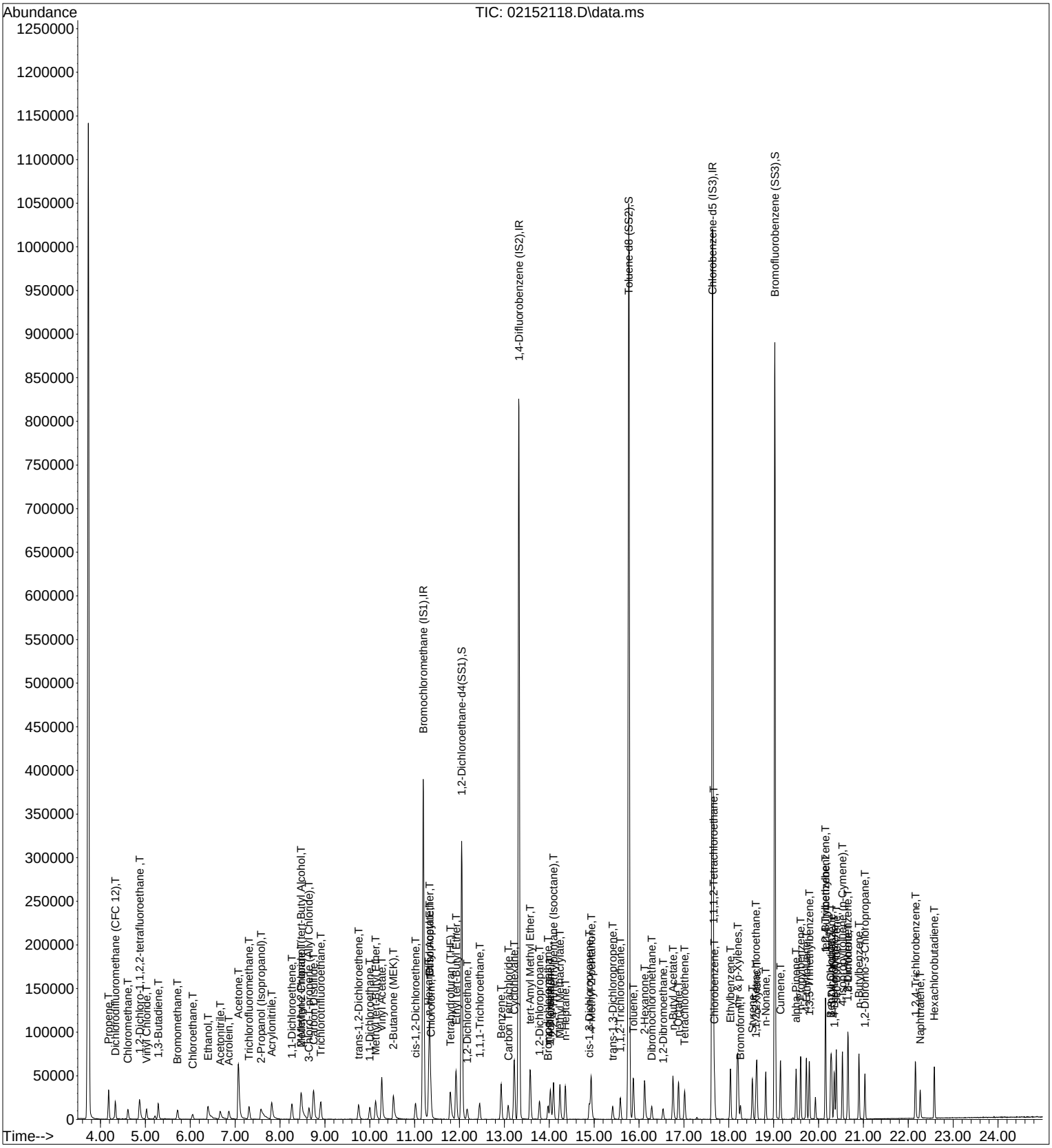
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.36	71	10838	0.553	ng	97
52) cis-1,3-Dichloropropene	14.89	75	15040	0.500	ng	99
53) 4-Methyl-2-pentanone	14.94	58	18491	1.074	ng	93
54) trans-1,3-Dichloropropene	15.41	75	12044	0.415	ng	97
55) 1,1,2-Trichloroethane	15.58	97	10353	0.542	ng	100
58) Toluene	15.88	91	44227	0.685	ng	99
59) 2-Hexanone	16.12	43	39115	1.220	ng	95
60) Dibromochloromethane	16.28	129	10888	0.597	ng	100
61) 1,2-Dibromoethane	16.54	107	11285	0.639	ng	99
62) n-Butyl Acetate	16.76	43	43991	1.217	ng	97
63) n-Octane	16.88	57	9083	0.696	ng	97
64) Tetrachloroethene	17.01	166	13106	0.675	ng	99
65) Chlorobenzene	17.68	112	29853	0.670	ng	99
66) Ethylbenzene	18.04	91	49274	0.675	ng	98
67) m- & p-Xylenes	18.20	91	77122	1.343	ng	96
68) Bromoform	18.26	173	9210	0.545	ng	99
69) Styrene	18.53	104	28145	0.598	ng	99
70) o-Xylene	18.63	91	38866	0.683	ng	97
71) n-Nonane	18.82	43	19498	0.692	ng	95
72) 1,1,2,2-Tetrachloroethane	18.60	83	18935	0.699	ng	98
74) Cumene	19.15	105	49635	0.674	ng	98
75) alpha-Pinene	19.50	93	24444	0.645	ng	91
76) n-Propylbenzene	19.60	91	60743	0.692	ng	98
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.73	105	48273	0.660	ng	100
79) 1,3,5-Trimethylbenzene	19.80	105	38721	0.636	ng	98
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.15	105	38277	0.620	ng	100
83) n-Decane	0.00	58	0	N.D.	d	
84) Benzyl Chloride	20.27	91	45638	0.932	ng	94
85) 1,3-Dichlorobenzene	20.29	146	25394	0.680	ng	100
86) 1,4-Dichlorobenzene	20.35	146	25153	0.651	ng	97
87) sec-Butylbenzene	20.40	105	56823	0.707	ng	98
88) 4-Isopropyltoluene (p-...	20.53	119	46697	0.656	ng	98
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.65	146	24601	0.685	ng	100
91) d-Limonene	20.66	68	14266	0.616	ng	96
92) 1,2-Dibromo-3-Chloropr...	21.03	157	17518	1.169	ng	92
93) n-Undecane	0.00	57	0	N.D.		
94) 1,2,4-Trichlorobenzene	22.16	180	25154	0.844	ng	99
95) Naphthalene	22.27	128	31749	0.371	ng	97
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	22.58	225	12954	0.665	ng	99
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.15	119	40975	0.668	ng	99
100) n-Butylbenzene	20.90	91	42217	0.649	ng	97
101) 1,1,1,2-Tetrachloroethane	17.66	131	9683	0.598	ng	99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152118.D Vial: 5
Acq On : 15 Feb 2021 23:22 Operator: LH
Sample : 0.5ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02152103 (3/12)

Quant Time: Feb 16 08:30:03 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152126.D Vial: 6
Acq On : 16 Feb 2021 9:38 Operator: LH
Sample : 1.0ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02152102 (3/12)

Quant Time: Feb 16 10:04:41 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 08:43:41 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	203820	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	902060	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	120863	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	247063	12.349	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.80%				
57) Toluene-d8 (SS2)	15.78	98	914923	12.721	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.76%				
73) Bromofluorobenzene (SS3)	19.03	174	344223	13.226	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.84%				
Target Compounds							Qvalue
2) Propene	4.18	42	19333	0.789	ng		99
3) Dichlorodifluoromethan...	4.33	85	33665	0.917	ng		99
4) Chloromethane	4.61	50	26486	0.935	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	19932	0.928	ng		100
6) Vinyl Chloride	5.03	62	26326	0.918	ng		98
7) 1,3-Butadiene	5.29	54	18490	0.910	ng		99
8) Bromomethane	5.72	94	16799	0.918	ng		98
9) Chloroethane	6.05	64	13324	0.909	ng		100
10) Ethanol	6.40	45	62110	4.608	ng		100
11) Acetonitrile	6.67	41	31286	0.901	ng		82
12) Acrolein	6.86	56	24658	1.963	ng		99
13) Acetone	7.07	58	69843	4.682	ng		95
14) Trichlorofluoromethane	7.31	101	28945	0.897	ng		99
15) 2-Propanol (Isopropanol)	7.57	45	87626	2.081	ng		96
16) Acrylonitrile	7.82	53	46908	1.825	ng		99
17) 1,1-Dichloroethene	8.27	96	18966	0.919	ng		98
18) 2-Methyl-2-Propanol (t...	8.45	59	82472	2.077	ng		99
19) Methylene Chloride	8.48	84	19342	0.916	ng		99
20) 3-Chloro-1-propene (Al...	8.65	41	23418	0.906	ng		98
21) Trichlorotrifluoroethane	8.91	151	18204	0.966	ng		98
22) Carbon Disulfide	8.75	76	137152	1.873	ng		99
23) trans-1,2-Dichloroethene	9.76	61	24815	0.931	ng		100
24) 1,1-Dichloroethane	10.01	63	32113	0.939	ng		99
25) Methyl tert-Butyl Ether	10.13	73	52301	1.012	ng		99
26) Vinyl Acetate	10.27	86	18525	5.420	ng	#	79
27) 2-Butanone (MEK)	10.53	72	25171	1.944	ng		98
28) cis-1,2-Dichloroethene	11.03	61	23925	0.910	ng		98
29) Diisopropyl Ether	11.33	87	34489	2.070	ng		99
30) Ethyl Acetate	11.34	61	18158	1.939	ng		97
31) n-Hexane	11.32	57	31712	0.980	ng		100
32) Chloroform	11.37	83	30475	0.940	ng		98
34) Tetrahydrofuran (THF)	11.79	72	24476	1.835	ng		100
35) Ethyl tert-Butyl Ether	11.92	87	43554	1.917	ng		97
36) 1,2-Dichloroethane	12.18	62	19912	0.923	ng		100
38) 1,1,1-Trichloroethane	12.46	97	26052	0.931	ng		99
39) Isopropyl Acetate	0.00	61	0	N.D.	d		
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	12.93	78	79545	0.925	ng		100
42) Carbon Tetrachloride	13.09	117	21683	0.883	ng		99
43) Cyclohexane	13.23	84	60044	1.907	ng		99
44) tert-Amyl Methyl Ether	13.58	73	100654	1.887	ng		99
45) 1,2-Dichloropropane	13.79	63	19210	0.912	ng		100
46) Bromodichloromethane	13.97	83	23360	0.919	ng		100
47) Trichloroethene	14.03	130	21597	0.900	ng		99
48) 1,4-Dioxane	14.02	88	15717	0.931	ng		100
49) 2,2,4-Trimethylpentane...	14.10	57	80068	0.946	ng		100
50) Methyl Methacrylate	14.24	100	15747	1.939	ng		96

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152126.D Vial: 6
Acq On : 16 Feb 2021 9:38 Operator: LH
Sample : 1.0ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02152102 (3/12)

Quant Time: Feb 16 10:04:41 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 08:43:41 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

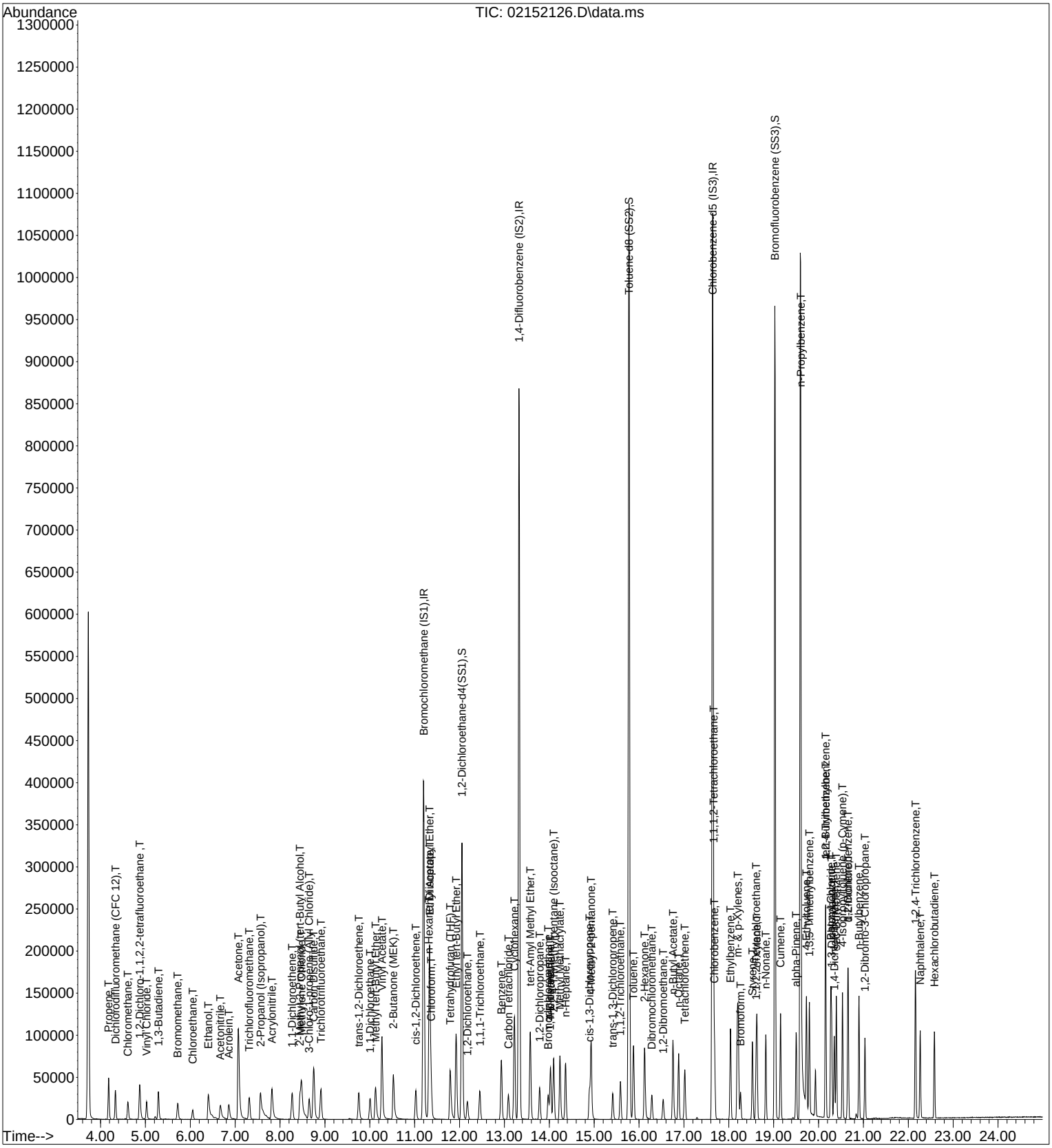
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	20081	0.951	ng		99
52) cis-1,3-Dichloropropene	14.90	75	28424	0.940	ng		100
53) 4-Methyl-2-pentanone	14.93	58	33921	1.934	ng		94
54) trans-1,3-Dichloropropene	15.41	75	23092	0.904	ng		99
55) 1,1,2-Trichloroethane	15.58	97	19122	0.936	ng		100
58) Toluene	15.88	91	81372	0.970	ng		99
59) 2-Hexanone	16.12	43	71642	1.935	ng		96
60) Dibromochloromethane	16.28	129	20624	0.934	ng		100
61) 1,2-Dibromoethane	16.54	107	21039	0.947	ng		99
62) n-Butyl Acetate	16.76	43	80918	1.933	ng		98
63) n-Octane	16.88	57	16593	0.973	ng		99
64) Tetrachloroethene	17.02	166	24047	0.962	ng		100
65) Chlorobenzene	17.68	112	53693	0.944	ng		100
66) Ethylbenzene	18.04	91	90119	0.973	ng		99
67) m- & p-Xylenes	18.20	91	141252	1.998	ng		97
68) Bromoform	18.26	173	18009	0.954	ng		100
69) Styrene	18.53	104	53367	0.950	ng		100
70) o-Xylene	18.63	91	70351	0.991	ng		99
71) n-Nonane	18.82	43	35572	1.021	ng		98
72) 1,1,2,2-Tetrachloroethane	18.61	83	34093	0.981	ng		99
74) Cumene	19.15	105	91628	0.991	ng		99
75) alpha-Pinene	19.50	93	44644	0.981	ng		95
76) n-Propylbenzene	19.60	91	109904	0.986	ng	#	1
77) 3-Ethyltoluene	0.00	105	0	N.D.	d		
78) 4-Ethyltoluene	19.73	105	90044	1.006	ng		99
79) 1,3,5-Trimethylbenzene	19.80	105	74157	1.018	ng		99
80) alpha-Methylstyrene	0.00	118	0	N.D.	d		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d		
82) 1,2,4-Trimethylbenzene	20.16	105	75118	1.045	ng		100
83) n-Decane	0.00	58	0	N.D.	d		
84) Benzyl Chloride	20.28	91	100457	2.072	ng		96
85) 1,3-Dichlorobenzene	20.29	146	45926	0.989	ng		99
86) 1,4-Dichlorobenzene	20.35	146	45712	0.956	ng		99
87) sec-Butylbenzene	20.40	105	103024	1.002	ng		98
88) 4-Isopropyltoluene (p-...	20.53	119	87358	0.997	ng		100
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d		
90) 1,2-Dichlorobenzene	20.65	146	44315	0.991	ng		99
91) d-Limonene	20.66	68	26294	0.985	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.03	157	31947	1.857	ng		96
93) n-Undecane	0.00	57	0	N.D.	d		
94) 1,2,4-Trichlorobenzene	22.16	180	64316	2.092	ng		99
95) Naphthalene	22.27	128	90746	1.080	ng		99
96) n-Dodecane	0.00	57	0	N.D.	d		
97) Hexachlorobutadiene	22.58	225	23642	0.958	ng		99
98) Cyclohexanone	0.00	55	0	N.D.	d		
99) tert-Butylbenzene	20.16	119	75739	0.981	ng		100
100) n-Butylbenzene	20.90	91	79484	1.007	ng		99
101) 1,1,1,2-Tetrachloroethane	17.66	131	18155	0.947	ng		99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152126.D Vial: 6
Acq On : 16 Feb 2021 9:38 Operator: LH
Sample : 1.0ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02152102 (3/12)

Quant Time: Feb 16 10:04:41 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 08:43:41 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152120.D Vial: 2
Acq On : 16 Feb 2021 00:29 Operator: LH
Sample : 5.0ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02102102 (3/12)

Quant Time: Feb 16 08:33:24 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	207216	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	912561	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	123155	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	256288	10.302	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 82.40%				
57) Toluene-d8 (SS2)	15.77	98	919628	15.557	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 124.48%				
73) Bromofluorobenzene (SS3)	19.03	174	332152	14.612	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 116.88%				
Target Compounds							Qvalue
2) Propene	4.15	42	113402	4.404	ng		100
3) Dichlorodifluoromethan...	4.31	85	192857	4.682	ng		100
4) Chloromethane	4.59	50	160694	5.891	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	111918	4.539	ng		99
6) Vinyl Chloride	5.00	62	154979	4.859	ng		99
7) 1,3-Butadiene	5.27	54	113594	4.842	ng		99
8) Bromomethane	5.70	94	98126	5.525	ng		99
9) Chloroethane	6.03	64	78507	5.871	ng		100
10) Ethanol	6.40	45	364382	26.105	ng		100
11) Acetonitrile	6.66	41	186426	5.513	ng		100
12) Acrolein	6.85	56	145104	11.869	ng		100
13) Acetone	7.05	58	400365	27.175	ng		97
14) Trichlorofluoromethane	7.30	101	166898	4.473	ng		99
15) 2-Propanol (Isopropanol)	7.55	45	536643	12.310	ng		98
16) Acrylonitrile	7.81	53	281515	10.868	ng		99
17) 1,1-Dichloroethene	8.26	96	108369	5.366	ng		98
18) 2-Methyl-2-Propanol (t...	8.42	59	487842	11.265	ng		99
19) Methylene Chloride	8.48	84	110834	5.414	ng		97
20) 3-Chloro-1-propene (Al...	8.64	41	140029	5.340	ng		97
21) Trichlorotrifluoroethane	8.90	151	99243	5.164	ng		99
22) Carbon Disulfide	8.74	76	785738	11.025	ng		100
23) trans-1,2-Dichloroethene	9.76	61	146676	5.457	ng		100
24) 1,1-Dichloroethane	10.01	63	186870	5.500	ng		100
25) Methyl tert-Butyl Ether	10.11	73	298405	5.281	ng		100
26) Vinyl Acetate	10.26	86	115038	26.478	ng	#	84
27) 2-Butanone (MEK)	10.51	72	145877	11.077	ng		94
28) cis-1,2-Dichloroethene	11.03	61	140307	5.228	ng		99
29) Diisopropyl Ether	11.32	87	194088	10.964	ng		98
30) Ethyl Acetate	11.33	61	104617	10.718	ng		96
31) n-Hexane	11.31	57	181013	5.398	ng		99
32) Chloroform	11.37	83	173269	4.944	ng		100
34) Tetrahydrofuran (THF)	11.77	72	139345	10.701	ng		96
35) Ethyl tert-Butyl Ether	11.92	87	246604	10.136	ng		96
36) 1,2-Dichloroethane	12.17	62	115079	4.357	ng		99
38) 1,1,1-Trichloroethane	12.45	97	146399	4.561	ng		100
39) Isopropyl Acetate	0.00	61	0	N.D.	d		
40) 1-Butanol	0.00	56	0	N.D.	d		
41) Benzene	12.93	78	441630	5.282	ng		100
42) Carbon Tetrachloride	13.09	117	124517	4.326	ng		100
43) Cyclohexane	13.22	84	337353	10.518	ng		98
44) tert-Amyl Methyl Ether	13.57	73	575300	9.976	ng		99
45) 1,2-Dichloropropane	13.78	63	110133	5.539	ng		100
46) Bromodichloromethane	13.97	83	136830	4.804	ng		100
47) Trichloroethene	14.03	130	121878	5.026	ng		100
48) 1,4-Dioxane	14.00	88	91792	5.491	ng		99
49) 2,2,4-Trimethylpentane...	14.09	57	453904	5.581	ng		100
50) Methyl Methacrylate	14.23	100	92703	9.919	ng		97

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152120.D Vial: 2
Acq On : 16 Feb 2021 00:29 Operator: LH
Sample : 5.0ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02102102 (3/12)

Quant Time: Feb 16 08:33:24 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

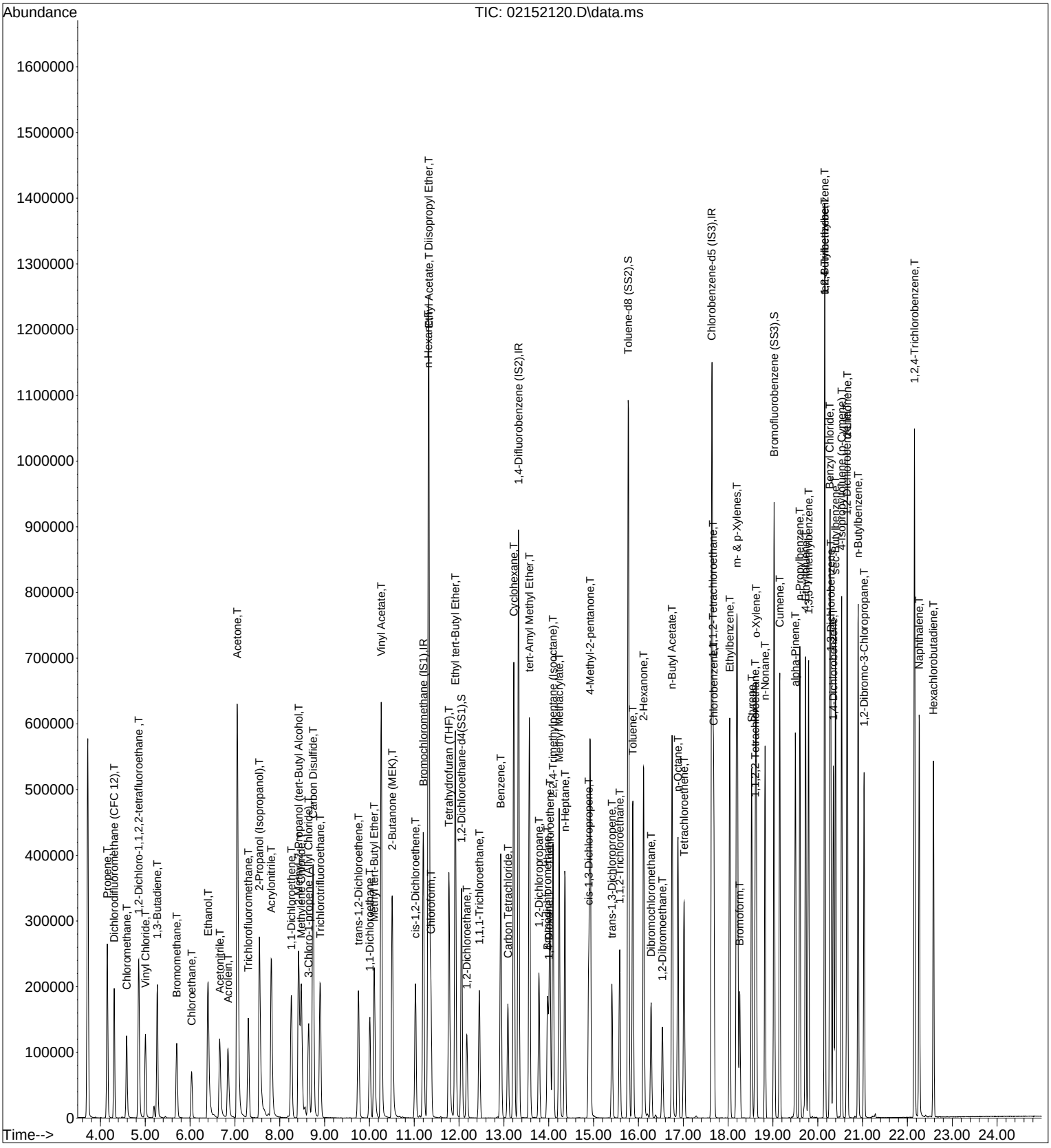
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.36	71	110938	5.302	ng	99
52) cis-1,3-Dichloropropene	14.89	75	168996	5.262	ng	100
53) 4-Methyl-2-pentanone	14.92	58	199986	10.873	ng	96
54) trans-1,3-Dichloropropene	15.41	75	143379	4.625	ng	100
55) 1,1,2-Trichloroethane	15.58	97	107257	5.263	ng	100
58) Toluene	15.88	91	439973	6.539	ng	100
59) 2-Hexanone	16.11	43	426525	12.760	ng	97
60) Dibromochloromethane	16.28	129	120634	6.341	ng	100
61) 1,2-Dibromoethane	16.54	107	120943	6.567	ng	99
62) n-Butyl Acetate	16.75	43	484312	12.857	ng	98
63) n-Octane	16.88	57	92345	6.785	ng	99
64) Tetrachloroethene	17.02	166	132035	6.519	ng	100
65) Chlorobenzene	17.68	112	296214	6.379	ng	100
66) Ethylbenzene	18.04	91	501513	6.588	ng	99
67) m- & p-Xylenes	18.20	91	774504	12.934	ng	97
68) Bromoform	18.26	173	107722	6.120	ng	100
69) Styrene	18.53	104	308852	6.296	ng	100
70) o-Xylene	18.63	91	384368	6.476	ng	98
71) n-Nonane	18.82	43	200599	6.832	ng	97
72) 1,1,2,2-Tetrachloroethane	18.60	83	190683	6.755	ng	100
74) Cumene	19.15	105	495223	6.449	ng	99
75) alpha-Pinene	19.50	93	250427	6.341	ng	99
76) n-Propylbenzene	19.60	91	598582	6.543	ng	98
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.73	105	488694	6.408	ng	99
79) 1,3,5-Trimethylbenzene	19.80	105	399425	6.297	ng	99
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.15	105	406941	6.327	ng	100
83) n-Decane	0.00	58	0	N.D.	d	
84) Benzyl Chloride	20.27	91	609775	11.944	ng	98
85) 1,3-Dichlorobenzene	20.29	146	247632	6.357	ng	99
86) 1,4-Dichlorobenzene	20.35	146	248914	6.179	ng	100
87) sec-Butylbenzene	20.40	105	544322	6.501	ng	99
88) 4-Isopropyltoluene (p-...	20.53	119	466190	6.281	ng	100
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.65	146	240110	6.415	ng	100
91) d-Limonene	20.66	68	153811	6.372	ng	98
92) 1,2-Dibromo-3-Chloropr...	21.03	157	178512	11.425	ng	98
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.16	180	373083	12.009	ng	99
95) Naphthalene	22.26	128	533211	5.971	ng	99
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.58	225	118509	5.838	ng	100
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.15	119	400507	6.265	ng	100
100) n-Butylbenzene	20.90	91	431756	6.368	ng	99
101) 1,1,1,2-Tetrachloroethane	17.66	131	103303	6.115	ng	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152120.D Vial: 2
Acq On : 16 Feb 2021 00:29 Operator: LH
Sample : 5.0ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02102102 (3/12)

Quant Time: Feb 16 08:33:24 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152121.D Vial: 2
Acq On : 16 Feb 2021 1:03 Operator: LH
Sample : 25ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02102102 (3/12)

Quant Time: Feb 16 08:36:17 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	193729	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.33	114	852642	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	114741	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	12.07	65	235028	10.105	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 80.80%			
57) Toluene-d8 (SS2)	15.78	98	857396	15.568	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 124.56%			
73) Bromofluorobenzene (SS3)	19.03	174	312788	14.769	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.16%			
Target Compounds						Qvalue
2) Propene	4.15	42	623451	25.899	ng	100
3) Dichlorodifluoromethan...	4.31	85	861353	22.366	ng	100
4) Chloromethane	4.59	50	668646	26.217	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	507041	21.996	ng	100
6) Vinyl Chloride	5.02	62	692297	23.217	ng	100
7) 1,3-Butadiene	5.28	54	517775	23.607	ng	100
8) Bromomethane	5.72	94	442628	26.657	ng	100
9) Chloroethane	6.05	64	354971	28.395	ng	100
10) Ethanol	6.45	45	1570362	120.336	ng	100
11) Acetonitrile	6.69	41	838935	26.538	ng	100
12) Acrolein	6.87	56	651984	57.042	ng	100
13) Acetone	7.08	58	1662561	120.704	ng	100
14) Trichlorofluoromethane	7.31	101	742347	21.281	ng	100
15) 2-Propanol (Isopropanol)	7.58	45	1888368	46.332	ng	100
16) Acrylonitrile	7.84	53	1246273	51.464	ng	100
17) 1,1-Dichloroethene	8.28	96	491971	26.056	ng	100
18) 2-Methyl-2-Propanol (t...	8.45	59	1708197	42.189	ng	100
19) Methylene Chloride	8.51	84	500435	26.146	ng	100
20) 3-Chloro-1-propene (Al...	8.66	41	634397	25.877	ng	100
21) Trichlorotrifluoroethane	8.91	151	453989	25.269	ng	100
22) Carbon Disulfide	8.76	76	3453043	51.826	ng	100
23) trans-1,2-Dichloroethene	9.77	61	670763	26.692	ng	100
24) 1,1-Dichloroethane	10.03	63	838586	26.399	ng	100
25) Methyl tert-Butyl Ether	10.11	73	1309261	24.785	ng	100
26) Vinyl Acetate	10.28	86	531380	130.821	ng	100
27) 2-Butanone (MEK)	10.52	72	656110	53.292	ng	100
28) cis-1,2-Dichloroethene	11.04	61	632959	25.229	ng	100
29) Diisopropyl Ether	11.33	87	751084	45.382	ng	100
30) Ethyl Acetate	11.34	61	422202	46.266	ng	100
31) n-Hexane	11.32	57	731570	23.334	ng	100
32) Chloroform	11.38	83	768122	23.444	ng	100
34) Tetrahydrofuran (THF)	11.78	72	623757	51.237	ng	100
35) Ethyl tert-Butyl Ether	11.92	87	1104450	48.554	ng	100
36) 1,2-Dichloroethane	12.18	62	516417	20.915	ng	100
38) 1,1,1-Trichloroethane	12.46	97	657961	21.941	ng	100
39) Isopropyl Acetate	0.00	61	0	N.D.	d	
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.94	78	1956936	25.052	ng	100
42) Carbon Tetrachloride	13.10	117	578254	21.501	ng	100
43) Cyclohexane	13.23	84	1486143	49.592	ng	100
44) tert-Amyl Methyl Ether	13.57	73	2578930	47.864	ng	100
45) 1,2-Dichloropropane	13.79	63	495362	26.664	ng	100
46) Bromodichloromethane	13.98	83	626680	23.549	ng	100
47) Trichloroethene	14.03	130	562219	24.812	ng	100
48) 1,4-Dioxane	14.00	88	419257	26.841	ng	100
49) 2,2,4-Trimethylpentane...	14.10	57	1985464	26.126	ng	100
50) Methyl Methacrylate	14.24	100	421040	48.215	ng	100

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152121.D Vial: 2
Acq On : 16 Feb 2021 1:03 Operator: LH
Sample : 25ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02102102 (3/12)

Quant Time: Feb 16 08:36:17 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

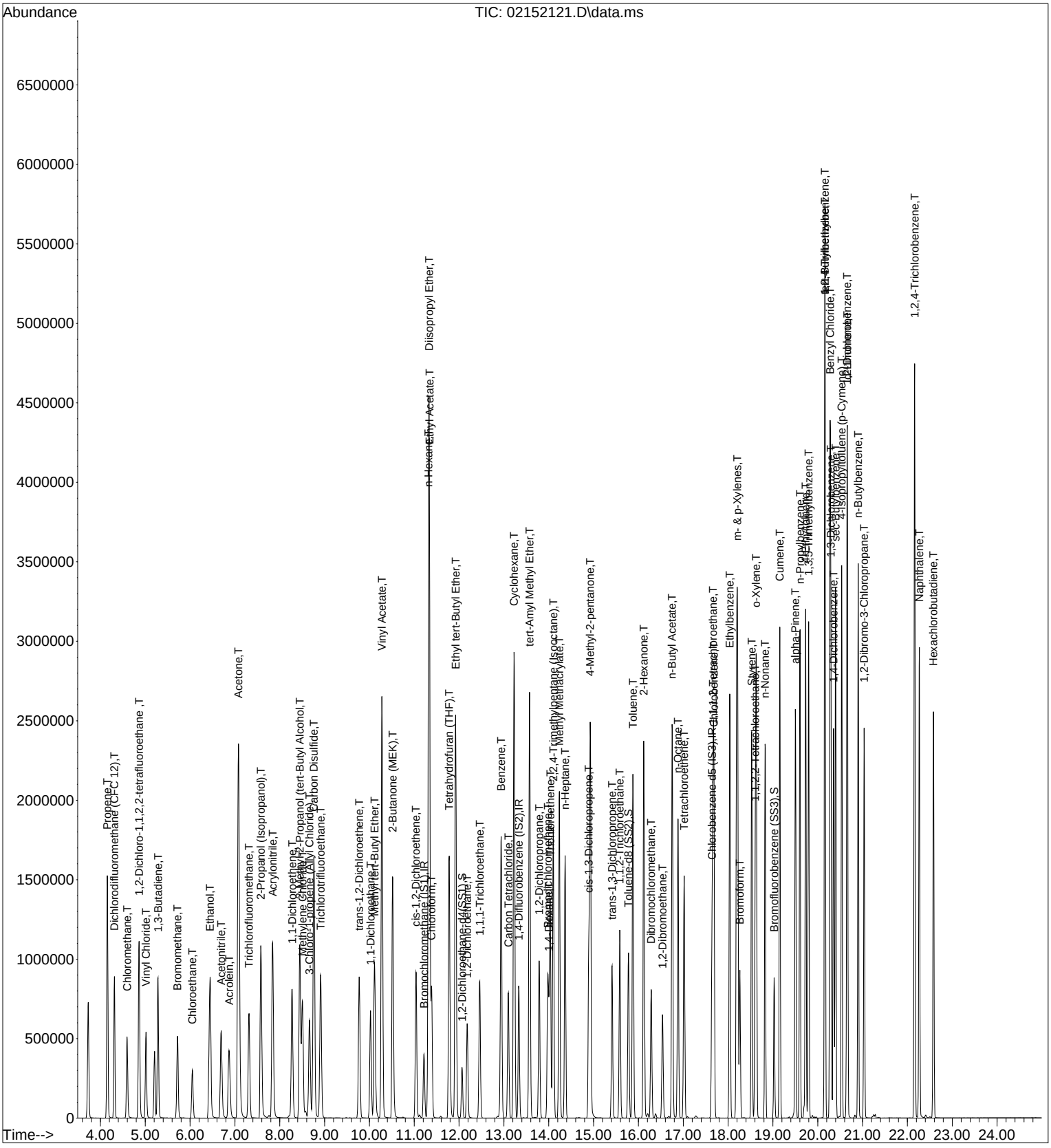
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.36	71	493655	25.252	ng	100
52) cis-1,3-Dichloropropene	14.89	75	781934	26.058	ng	100
53) 4-Methyl-2-pentanone	14.92	58	866167	50.402	ng	100
54) trans-1,3-Dichloropropene	15.41	75	683641	23.603	ng	100
55) 1,1,2-Trichloroethane	15.58	97	488388	25.647	ng	100
58) Toluene	15.88	91	1965693	31.359	ng	100
59) 2-Hexanone	16.12	43	1801562	57.848	ng	100
60) Dibromochloromethane	16.28	129	569248	32.118	ng	100
61) 1,2-Dibromoethane	16.54	107	559587	32.611	ng	100
62) n-Butyl Acetate	16.75	43	2078422	59.222	ng	100
63) n-Octane	16.88	57	407582	32.142	ng	100
64) Tetrachloroethene	17.02	166	601087	31.854	ng	100
65) Chlorobenzene	17.69	112	1352664	31.267	ng	100
66) Ethylbenzene	18.04	91	2212411	31.195	ng	100
67) m- & p-Xylenes	18.20	91	3316018	59.439	ng	100
68) Bromoform	18.26	173	522661	31.873	ng	100
69) Styrene	18.53	104	1405808	30.757	ng	100
70) o-Xylene	18.63	91	1690036	30.563	ng	100
71) n-Nonane	18.82	43	847046	30.965	ng	100
72) 1,1,2,2-Tetrachloroethane	18.60	83	845711	32.156	ng	100
74) Cumene	19.15	105	2201163	30.767	ng	100
75) alpha-Pinene	19.50	93	1145387	31.127	ng	100
76) n-Propylbenzene	19.60	91	2607285	30.587	ng	100
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.73	105	2176551	30.631	ng	100
79) 1,3,5-Trimethylbenzene	19.80	105	1773977	30.017	ng	100
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.16	105	1760357	29.378	ng	100
83) n-Decane	0.00	58	0	N.D.	d	
84) Benzyl Chloride	20.28	91	2915062	61.288	ng	100
85) 1,3-Dichlorobenzene	20.29	146	1105596	30.465	ng	100
86) 1,4-Dichlorobenzene	20.35	146	1111585	29.615	ng	100
87) sec-Butylbenzene	20.40	105	2381706	30.529	ng	100
88) 4-Isopropyltoluene (p-...	20.53	119	2066272	29.883	ng	100
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.65	146	1062399	30.466	ng	100
91) d-Limonene	20.66	68	671030	29.836	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.03	157	837604	57.538	ng	100
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.16	180	1749062	60.426	ng	100
95) Naphthalene	22.27	128	2501320	30.065	ng	100
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.58	225	566542	29.954	ng	100
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.16	119	1720138	28.879	ng	100
100) n-Butylbenzene	20.90	91	1888125	29.891	ng	100
101) 1,1,1,2-Tetrachloroethane	17.66	131	476837	30.295	ng	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152121.D Vial: 2
Acq On : 16 Feb 2021 1:03 Operator: LH
Sample : 25ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02102102 (3/12)

Quant Time: Feb 16 08:36:17 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152127.D Vial: 2
Acq On : 16 Feb 2021 10:30 Operator: LH
Sample : 25ng TO15 ICV STD Inst : GCMS-16
Misc : S34-12182001/S34-01292102 (2/28)

Quant Time: Feb 16 14:19:17 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 14:19:05 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	198256	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	13.34	114	872474	12.500	ng		0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	117660	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.07	65	238515	12.306	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.48%				
57) Toluene-d8 (SS2)	15.78	98	884761	12.592	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.72%				
73) Bromofluorobenzene (SS3)	19.03	174	333226	13.022	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.16%				
Target Compounds							Qvalue
2) Propene	4.15	42	601939	26.586	ng		99
3) Dichlorodifluoromethan...	4.31	85	816557	23.276	ng		100
4) Chloromethane	4.59	50	523444	18.939	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	487913	23.736	ng		100
6) Vinyl Chloride	5.01	62	648520	23.668	ng		100
7) 1,3-Butadiene	5.28	54	483728	24.880	ng		99
8) Bromomethane	5.71	94	411322	23.433	ng		100
9) Chloroethane	6.05	64	326240	23.376	ng		100
10) Ethanol	6.44	45	1316486	102.199	ng		100
11) Acetonitrile	6.69	41	781932	23.693	ng		100
12) Acrolein	6.86	56	596118	49.627	ng		100
13) Acetone	7.08	58	1561116	109.933	ng		99
14) Trichlorofluoromethane	7.31	101	702701	22.791	ng		100
15) 2-Propanol (Isopropanol)	7.58	45	1656077	39.945	ng		100
16) Acrylonitrile	7.84	53	1184797	48.399	ng		100
17) 1,1-Dichloroethene	8.27	96	471632	23.840	ng		99
18) 2-Methyl-2-Propanol (t...	8.45	59	1184587	32.598	ng		99
19) Methylene Chloride	8.50	84	474317	23.542	ng		99
20) 3-Chloro-1-propene (Al...	8.66	41	621721	25.160	ng		100
21) Trichlorotrifluoroethane	8.91	151	437453	24.135	ng		99
22) Carbon Disulfide	8.76	76	3377005	49.713	ng		100
23) trans-1,2-Dichloroethene	9.77	61	638403	25.087	ng		99
24) 1,1-Dichloroethane	10.03	63	775690	23.741	ng		100
25) Methyl tert-Butyl Ether	10.11	73	1112676	22.518	ng		100
26) Vinyl Acetate	10.28	86	402991	121.293	ng		100
27) 2-Butanone (MEK)	10.52	72	627256	50.677	ng		99
28) cis-1,2-Dichloroethene	11.04	61	596211	23.763	ng		99
29) Diisopropyl Ether	11.33	87	708905	44.444	ng	#	79
30) Ethyl Acetate	11.34	61	532987	63.177	ng		100
31) n-Hexane	11.32	57	685022	22.232	ng		100
32) Chloroform	11.39	83	726812	23.481	ng		100
34) Tetrahydrofuran (THF)	11.78	72	561306	43.985	ng		99
35) Ethyl tert-Butyl Ether	11.92	87	1054533	48.434	ng		99
36) 1,2-Dichloroethane	12.18	62	488040	23.658	ng		100
38) 1,1,1-Trichloroethane	12.46	97	616106	23.066	ng		100
39) Isopropyl Acetate	12.90	61	33473	No Calib	#		
40) 1-Butanol	12.92	56	14905	No Calib	#		
41) Benzene	12.94	78	1826496	22.289	ng		100
42) Carbon Tetrachloride	13.10	117	560004	23.808	ng		100
43) Cyclohexane	13.23	84	1402560	46.736	ng		99
44) tert-Amyl Methyl Ether	13.57	73	2463578	48.487	ng		100
45) 1,2-Dichloropropane	13.79	63	461824	23.043	ng		100
46) Bromodichloromethane	13.98	83	593538	24.558	ng		100
47) Trichloroethene	14.03	130	528213	23.049	ng		100
48) 1,4-Dioxane	14.00	88	402580	25.002	ng		99
49) 2,2,4-Trimethylpentane...	14.10	57	1905438	23.698	ng		100
50) Methyl Methacrylate	14.24	100	410095	52.932	ng		98

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152127.D Vial: 2
Acq On : 16 Feb 2021 10:30 Operator: LH
Sample : 25ng TO15 ICV STD Inst : GCMS-16
Misc : S34-12182001/S34-01292102 (2/28)

Quant Time: Feb 16 14:19:17 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 14:19:05 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

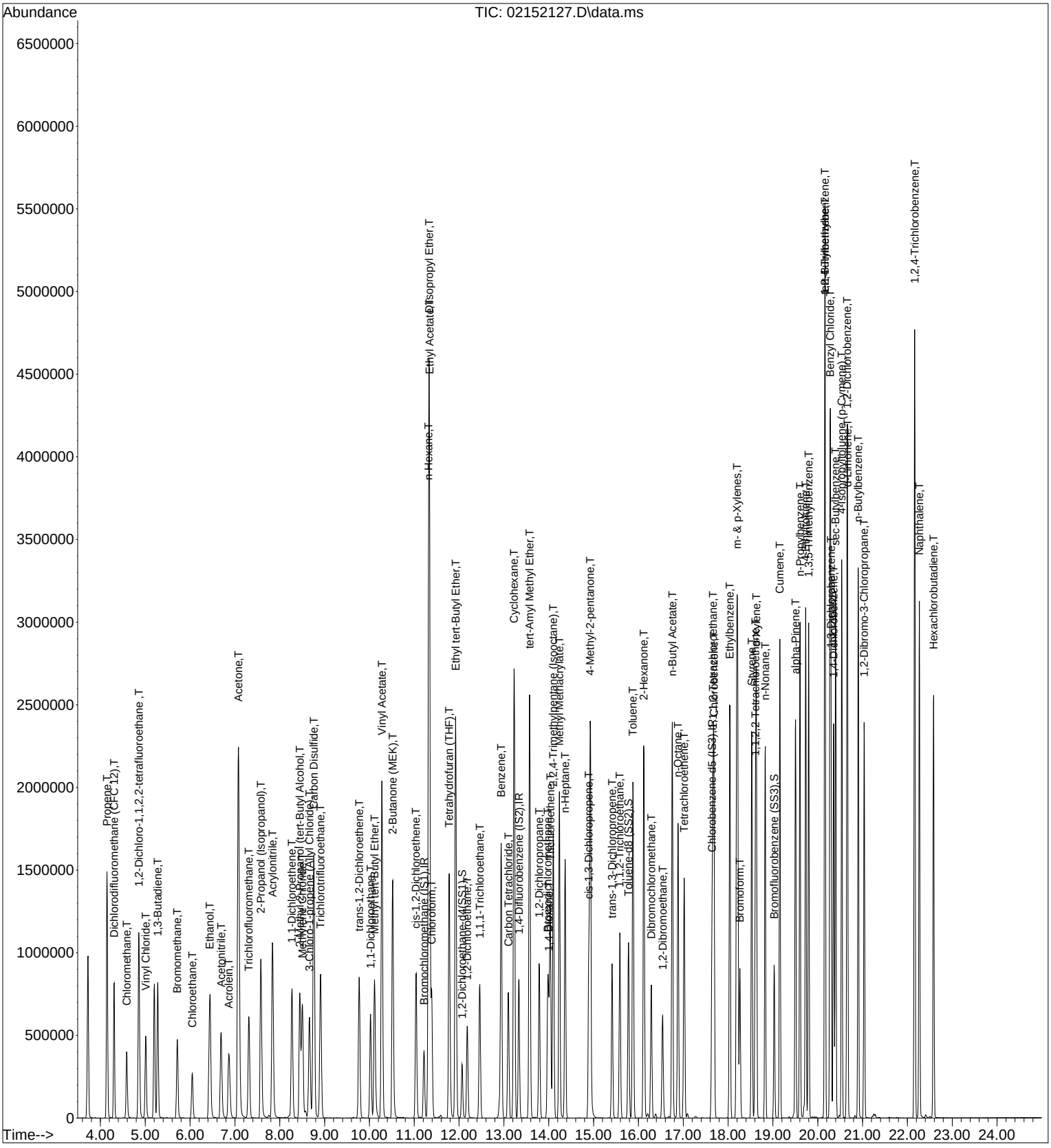
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	471359	23.410	ng		100
52) cis-1,3-Dichloropropene	14.89	75	744057	25.832	ng		100
53) 4-Methyl-2-pentanone	14.92	58	830654	49.734	ng		100
54) trans-1,3-Dichloropropene	15.41	75	658711	27.019	ng		100
55) 1,1,2-Trichloroethane	15.58	97	465616	23.903	ng		99
58) Toluene	15.88	91	1863567	23.039	ng		100
59) 2-Hexanone	16.12	43	1728108	48.559	ng		100
60) Dibromochloromethane	16.29	129	560788	26.342	ng		100
61) 1,2-Dibromoethane	16.54	107	545741	25.469	ng		100
62) n-Butyl Acetate	16.76	43	1957384	48.641	ng		100
63) n-Octane	16.88	57	389763	23.756	ng		99
64) Tetrachloroethene	17.02	166	574301	23.765	ng		100
65) Chlorobenzene	17.69	112	1301613	23.786	ng		100
66) Ethylbenzene	18.04	91	2098794	23.514	ng		100
67) m- & p-Xylenes	18.20	91	3124291	45.800	ng		100
68) Bromoform	18.26	173	510033	27.960	ng		100
69) Styrene	18.53	104	1357072	25.090	ng		100
70) o-Xylene	18.63	91	1595126	23.321	ng		100
71) n-Nonane	18.83	43	794591	23.653	ng		99
72) 1,1,2,2-Tetrachloroethane	18.61	83	806193	24.146	ng		100
74) Cumene	19.15	105	2111044	23.677	ng		100
75) alpha-Pinene	19.51	93	1096258	25.094	ng		100
76) n-Propylbenzene	19.60	91	2515001	23.465	ng		100
77) 3-Ethyltoluene	19.73	105	2108924	No Calib			
78) 4-Ethyltoluene	19.73	105	2108924	24.418	ng		100
79) 1,3,5-Trimethylbenzene	19.80	105	1685809	23.878	ng		100
80) alpha-Methylstyrene	19.80	118	12231	No Calib			
81) 2-Ethyltoluene	19.97	105	5600	No Calib			
82) 1,2,4-Trimethylbenzene	20.16	105	1674142	23.966	ng		100
83) n-Decane	20.16	58	80434	No Calib		#	
84) Benzyl Chloride	20.28	91	2844441	55.988	ng		99
85) 1,3-Dichlorobenzene	20.30	146	1060751	24.749	ng		100
86) 1,4-Dichlorobenzene	20.35	146	1081694	24.455	ng		100
87) sec-Butylbenzene	20.40	105	2315890	23.376	ng		100
88) 4-Isopropyltoluene (p-...	20.53	119	2031457	23.996	ng		100
89) 1,2,3-Trimethylbenzene	20.53	105	65960	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	1037239	24.149	ng		100
91) d-Limonene	20.67	68	624017	24.328	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.03	157	834087	50.499	ng		99
93) n-Undecane	21.23	57	245	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.16	180	1761838	54.696	ng		100
95) Naphthalene	22.27	128	2628115	30.938	ng		100
96) n-Dodecane	22.26	57	2712	No Calib			
97) Hexachlorobutadiene	22.59	225	575666	24.235	ng		100
98) Cyclohexanone	18.35	55	747	No Calib		#	
99) tert-Butylbenzene	20.16	119	1660576	23.691	ng		100
100) n-Butylbenzene	20.90	91	1831713	24.030	ng		100
101) 1,1,1,2-Tetrachloroethane	17.66	131	461577	24.954	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152127.D Vial: 2
Acq On : 16 Feb 2021 10:30 Operator: LH
Sample : 25ng TO15 ICV STD Inst : GCMS-16
Misc : S34-12182001/S34-01292102 (2/28)

Quant Time: Feb 16 14:19:17 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 14:19:05 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152122.D Vial: 2
Acq On : 16 Feb 2021 1:36 Operator: LH
Sample : 50ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02102102 (3/12)

Quant Time: Feb 16 08:37:07 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	195550	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.34	114	852687	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	112920	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.07	65	231233	9.849	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 78.80%				
57) Toluene-d8 (SS2)	15.78	98	860463	15.876	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 127.04%				
73) Bromofluorobenzene (SS3)	19.03	174	313339	15.034	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 120.24%				
Target Compounds							Qvalue
2) Propene	4.15	42	1225945	50.453	ng		99
3) Dichlorodifluoromethan...	4.31	85	1610207	41.422	ng		100
4) Chloromethane	4.59	50	1017228	39.513	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	978942	42.073	ng		100
6) Vinyl Chloride	5.02	62	1323125	43.959	ng		100
7) 1,3-Butadiene	5.29	54	982641	44.385	ng		99
8) Bromomethane	5.72	94	851125	50.782	ng		100
9) Chloroethane	6.05	64	675472	53.530	ng		99
10) Ethanol	6.48	45	2877055	218.414	ng		100
11) Acetonitrile	6.71	41	1593538	49.939	ng		100
12) Acrolein	6.88	56	1215738	105.374	ng		100
13) Acetone	7.09	58	2943918	211.741	ng		100
14) Trichlorofluoromethane	7.32	101	1421753	40.378	ng		100
15) 2-Propanol (Isopropanol)	7.60	45	3067620	74.565	ng		100
16) Acrylonitrile	7.85	53	2326541	95.179	ng		100
17) 1,1-Dichloroethene	8.28	96	959811	50.361	ng		99
18) 2-Methyl-2-Propanol (t...	8.46	59	2250902	55.075	ng		100
19) Methylene Chloride	8.51	84	959291	49.654	ng		98
20) 3-Chloro-1-propene (Al...	8.67	41	1217010	49.179	ng		98
21) Trichlorotrifluoroethane	8.91	151	890417	49.099	ng		99
22) Carbon Disulfide	8.77	76	6504354	96.714	ng		100
23) trans-1,2-Dichloroethene	9.78	61	1298015	51.171	ng		99
24) 1,1-Dichloroethane	10.03	63	1622107	50.590	ng		100
25) Methyl tert-Butyl Ether	10.12	73	2107093	39.517	ng		100
26) Vinyl Acetate	10.29	86	973088	237.335	ng	#	88
27) 2-Butanone (MEK)	10.53	72	1233520	99.258	ng		95
28) cis-1,2-Dichloroethene	11.04	61	1219302	48.147	ng		99
29) Diisopropyl Ether	11.33	87	1283463	76.826	ng	#	88
30) Ethyl Acetate	11.35	61	689119	74.812	ng		95
31) n-Hexane	11.32	57	1238815	39.146	ng		99
32) Chloroform	11.39	83	1460321	44.155	ng		100
34) Tetrahydrofuran (THF)	11.78	72	1170937	95.288	ng		97
35) Ethyl tert-Butyl Ether	11.93	87	2055870	89.539	ng		96
36) 1,2-Dichloroethane	12.19	62	988695	39.670	ng		100
38) 1,1,1-Trichloroethane	12.46	97	1253591	41.801	ng		100
39) Isopropyl Acetate	0.00	61	0	N.D.	d		
40) 1-Butanol	0.00	56	0	N.D.	d		
41) Benzene	12.94	78	3705944	47.439	ng		100
42) Carbon Tetrachloride	13.10	117	1133499	42.144	ng		100
43) Cyclohexane	13.23	84	2725800	90.953	ng		98
44) tert-Amyl Methyl Ether	13.57	73	4738664	87.943	ng		99
45) 1,2-Dichloropropane	13.79	63	940273	50.611	ng		100
46) Bromodichloromethane	13.98	83	1210133	45.471	ng		100
47) Trichloroethene	14.03	130	1087697	48.001	ng		100
48) 1,4-Dioxane	14.01	88	803132	51.414	ng		99
49) 2,2,4-Trimethylpentane...	14.11	57	3663071	48.198	ng		100
50) Methyl Methacrylate	14.24	100	798687	91.455	ng		96

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152122.D Vial: 2
Acq On : 16 Feb 2021 1:36 Operator: LH
Sample : 50ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02102102 (3/12)

Quant Time: Feb 16 08:37:07 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

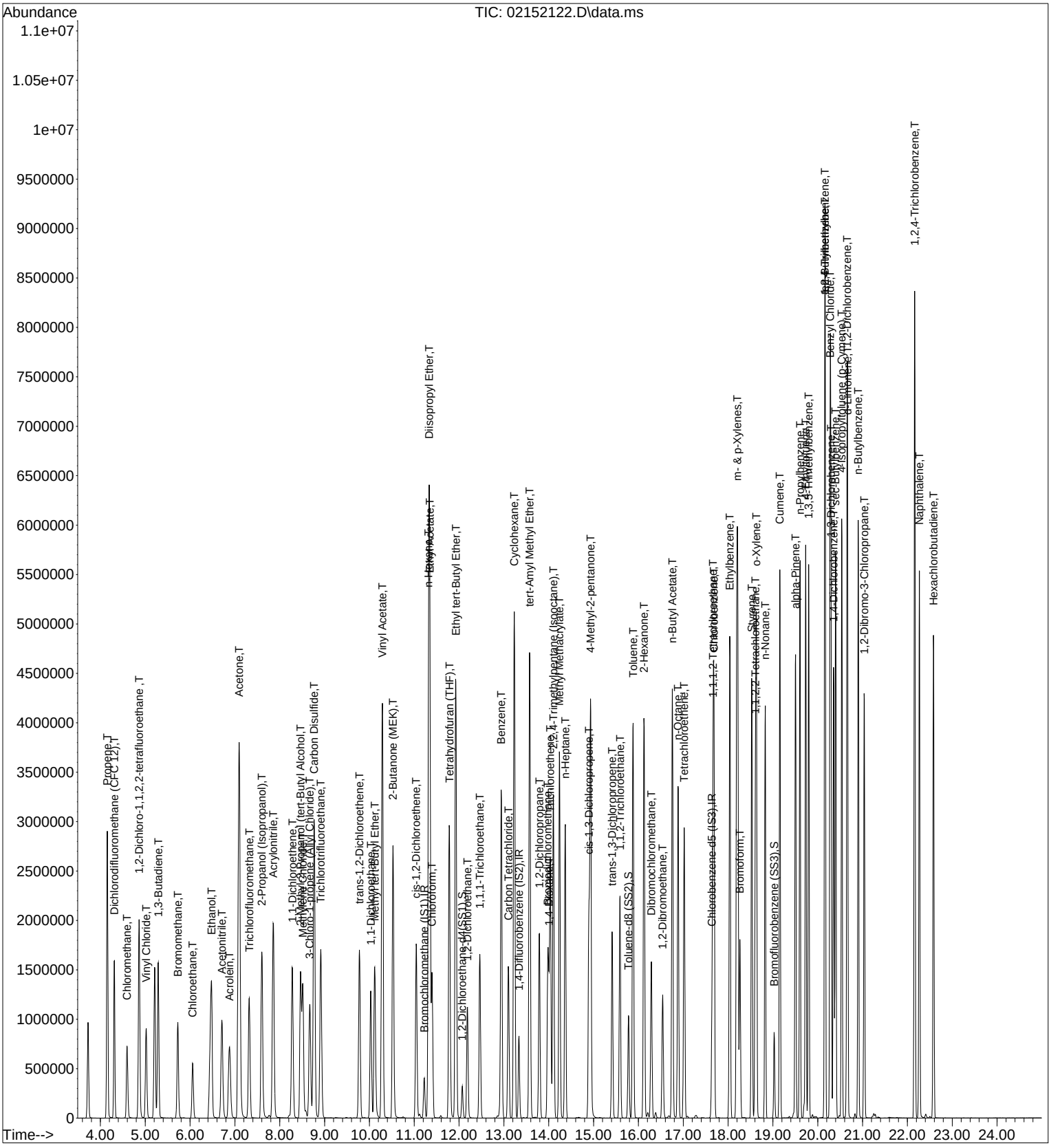
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.37	71	924687	47.298	ng	99
52) cis-1,3-Dichloropropene	14.90	75	1503818	50.112	ng	100
53) 4-Methyl-2-pentanone	14.93	58	1568813	91.285	ng	97
54) trans-1,3-Dichloropropene	15.41	75	1331441	45.966	ng	100
55) 1,1,2-Trichloroethane	15.59	97	940861	49.405	ng	100
58) Toluene	15.88	91	3725977	60.400	ng	100
59) 2-Hexanone	16.12	43	3195500	104.262	ng	98
60) Dibromochloromethane	16.29	129	1115097	63.930	ng	100
61) 1,2-Dibromoethane	16.54	107	1094799	64.831	ng	100
62) n-Butyl Acetate	16.76	43	3685891	106.719	ng	98
63) n-Octane	16.88	57	754203	60.435	ng	98
64) Tetrachloroethene	17.02	166	1166230	62.799	ng	100
65) Chlorobenzene	17.69	112	2560215	60.134	ng	100
66) Ethylbenzene	18.04	91	4153087	59.502	ng	99
67) m- & p-Xylenes	18.21	91	6068891	110.538	ng	100
68) Bromoform	18.26	173	1020938	63.262	ng	100
69) Styrene	18.53	104	2663997	59.224	ng	100
70) o-Xylene	18.63	91	3117889	57.293	ng	100
71) n-Nonane	18.83	43	1487949	55.271	ng	97
72) 1,1,2,2-Tetrachloroethane	18.61	83	1574861	60.846	ng	100
74) Cumene	19.15	105	4073342	57.854	ng	99
75) alpha-Pinene	19.51	93	2143123	59.181	ng	100
76) n-Propylbenzene	19.60	91	4776736	56.942	ng	99
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.73	105	4004610	57.266	ng	99
79) 1,3,5-Trimethylbenzene	19.80	105	3285429	56.489	ng	100
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.16	105	3066773	52.005	ng	99
83) n-Decane	0.00	58	0	N.D.	d	
84) Benzyl Chloride	20.28	91	5214219	111.395	ng	99
85) 1,3-Dichlorobenzene	20.30	146	1999447	55.983	ng	100
86) 1,4-Dichlorobenzene	20.35	146	2110866	57.145	ng	100
87) sec-Butylbenzene	20.40	105	4311886	56.162	ng	99
88) 4-Isopropyltoluene (p-...	20.53	119	3774253	55.464	ng	99
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.65	146	1924345	56.073	ng	100
91) d-Limonene	20.67	68	1150369	51.974	ng	97
92) 1,2-Dibromo-3-Chloropr...	21.04	157	1571214	109.674	ng	99
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.16	180	3184676	111.798	ng	100
95) Naphthalene	22.27	128	4728748	57.754	ng	100
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.58	225	1104049	59.315	ng	100
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.16	119	2977173	50.790	ng	99
100) n-Butylbenzene	20.90	91	3437660	55.299	ng	99
101) 1,1,1,2-Tetrachloroethane	17.66	131	914987	59.070	ng	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152122.D Vial: 2
Acq On : 16 Feb 2021 1:36 Operator: LH
Sample : 50ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02102102 (3/12)

Quant Time: Feb 16 08:37:07 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152123.D Vial: 2
Acq On : 16 Feb 2021 2:10 Operator: LH
Sample : 100ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02102102 (3/12)

Quant Time: Feb 16 08:37:59 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.23	130	195948	12.500	ng		0.01
37) 1,4-Difluorobenzene (IS2)	13.34	114	843970	12.500	ng		0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	112023	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.08	65	228755	9.724	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 77.76%				
57) Toluene-d8 (SS2)	15.78	98	854612	15.894	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 127.12%				
73) Bromofluorobenzene (SS3)	19.03	174	305845	14.791	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.32%				
Target Compounds							Qvalue
2) Propene	4.16	42	2127724	87.387	ng		99
3) Dichlorodifluoromethan...	4.31	85	2961190	76.021	ng		100
4) Chloromethane	4.60	50	1121464	43.474	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	1846450	79.195	ng		99
6) Vinyl Chloride	5.03	62	2470928	81.926	ng		99
7) 1,3-Butadiene	5.30	54	1768374	79.713	ng		98
8) Bromomethane	5.74	94	1606999	95.686	ng		100
9) Chloroethane	6.07	64	1270130	100.450	ng		99
10) Ethanol	6.52	45	5071770	384.246	ng		100
11) Acetonitrile	6.74	41	2980306	93.209	ng		100
12) Acrolein	6.89	56	2270911	196.432	ng		99
13) Acetone	7.12	58	4859806	348.831	ng		98
14) Trichlorofluoromethane	7.33	101	2703783	76.632	ng		100
15) 2-Propanol (Isopropanol)	7.63	45	5068429	122.949	ng		100
16) Acrylonitrile	7.88	53	4274792	174.527	ng		100
17) 1,1-Dichloroethene	8.29	96	1852120	96.983	ng		98
18) 2-Methyl-2-Propanol (t...	8.49	59	1837371	44.866	ng		96
19) Methylene Chloride	8.52	84	1840075	95.050	ng		96
20) 3-Chloro-1-propene (Al...	8.68	41	2282837	92.061	ng		97
21) Trichlorotrifluoroethane	8.92	151	1718228	94.553	ng		98
22) Carbon Disulfide	8.78	76	11430382	169.614	ng		100
23) trans-1,2-Dichloroethene	9.78	61	2455582	96.609	ng		98
24) 1,1-Dichloroethane	10.04	63	3051556	94.977	ng		99
25) Methyl tert-Butyl Ether	10.12	73	2090447	39.125	ng		100
26) Vinyl Acetate	10.31	86	1557418	379.081	ng	#	73
27) 2-Butanone (MEK)	10.54	72	1995375	160.236	ng	#	89
28) cis-1,2-Dichloroethene	11.05	61	2290732	90.272	ng		99
29) Diisopropyl Ether	11.34	87	2014561	120.344	ng	#	80
30) Ethyl Acetate	11.36	61	1076057	116.581	ng		91
31) n-Hexane	11.32	57	1971358	62.167	ng		98
32) Chloroform	11.41	83	2739794	82.673	ng		100
34) Tetrahydrofuran (THF)	11.79	72	2050349	166.513	ng		92
35) Ethyl tert-Butyl Ether	11.93	87	3556693	154.590	ng		91
36) 1,2-Dichloroethane	12.19	62	1871721	74.948	ng		100
38) 1,1,1-Trichloroethane	12.47	97	2320182	78.165	ng		100
39) Isopropyl Acetate	0.00	61	0	N.D.	d		
40) 1-Butanol	0.00	56	0	N.D.	d		
41) Benzene	12.95	78	6701341	86.669	ng		99
42) Carbon Tetrachloride	13.10	117	2131865	80.082	ng		99
43) Cyclohexane	13.24	84	4485394	151.212	ng		95
44) tert-Amyl Methyl Ether	13.58	73	7897901	148.088	ng		99
45) 1,2-Dichloropropane	13.80	63	1718341	93.446	ng		100
46) Bromodichloromethane	13.98	83	2237204	84.932	ng		100
47) Trichloroethene	14.04	130	1998183	89.092	ng		100
48) 1,4-Dioxane	14.01	88	1448874	93.710	ng		97
49) 2,2,4-Trimethylpentane...	14.11	57	6240330	82.957	ng		99
50) Methyl Methacrylate	14.25	100	1405511	162.603	ng		92

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152123.D Vial: 2
Acq On : 16 Feb 2021 2:10 Operator: LH
Sample : 100ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02102102 (3/12)

Quant Time: Feb 16 08:37:59 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

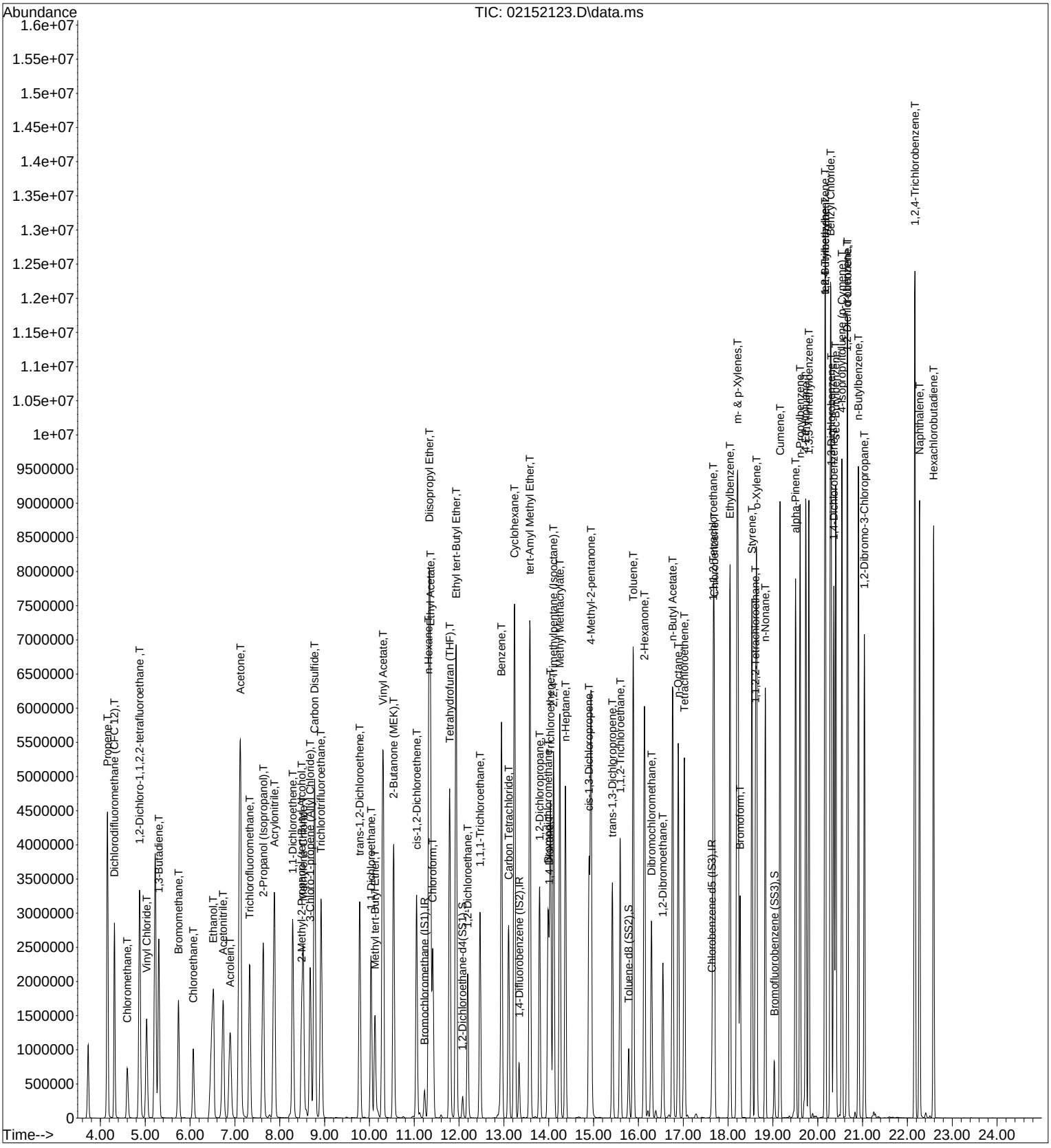
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.38	71	1623204	83.885	ng	98
52) cis-1,3-Dichloropropene	14.90	75	2781927	93.659	ng	99
53) 4-Methyl-2-pentanone	14.94	58	2576572	151.472	ng	93
54) trans-1,3-Dichloropropene	15.42	75	2511177	87.591	ng	99
55) 1,1,2-Trichloroethane	15.60	97	1754945	93.105	ng	99
58) Toluene	15.88	91	6645668	108.591	ng	99
59) 2-Hexanone	16.13	43	5206375	171.232	ng	97
60) Dibromochloromethane	16.29	129	2122636	122.669	ng	100
61) 1,2-Dibromoethane	16.55	107	2056488	122.754	ng	100
62) n-Butyl Acetate	16.76	43	5890133	171.904	ng	97
63) n-Octane	16.89	57	1289682	104.171	ng	95
64) Tetrachloroethene	17.03	166	2178599	118.253	ng	99
65) Chlorobenzene	17.69	112	4431541	104.922	ng	99
66) Ethylbenzene	18.04	91	7276621	105.089	ng	99
67) m- & p-Xylenes	18.21	91	10134029	186.057	ng	99
68) Bromoform	18.27	173	1896978	118.487	ng	100
69) Styrene	18.53	104	4715477	105.670	ng	98
70) o-Xylene	18.64	91	5300911	98.188	ng	100
71) n-Nonane	18.83	43	2325110	87.060	ng	92
72) 1,1,2,2-Tetrachloroethane	18.61	83	2678081	104.299	ng	100
74) Cumene	19.16	105	6919804	99.069	ng	99
75) alpha-Pinene	19.51	93	3680274	102.442	ng	98
76) n-Propylbenzene	19.60	91	7953849	95.575	ng	97
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.73	105	6791754	97.901	ng	99
79) 1,3,5-Trimethylbenzene	19.80	105	5563102	96.417	ng	99
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.17	105	4847565	82.862	ng	98
83) n-Decane	0.00	58	0	N.D.	d	
84) Benzyl Chloride	20.29	91	8147924	175.463	ng	98
85) 1,3-Dichlorobenzene	20.30	146	3230334	91.171	ng	99
86) 1,4-Dichlorobenzene	20.36	146	3682617	100.494	ng	100
87) sec-Butylbenzene	20.40	105	7053317	92.605	ng	97
88) 4-Isopropyltoluene (p-...	20.54	119	6218198	92.110	ng	97
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.65	146	3122333	91.710	ng	100
91) d-Limonene	20.67	68	1712187	77.976	ng	91
92) 1,2-Dibromo-3-Chloropr...	21.04	157	2669909	187.857	ng	99
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.17	180	5204678	184.173	ng	99
95) Naphthalene	22.27	128	8131202	100.105	ng	99
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.59	225	2015584	109.154	ng	100
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.17	119	4708314	80.966	ng	99
100) n-Butylbenzene	20.91	91	5638561	91.429	ng	98
101) 1,1,1,2-Tetrachloroethane	17.67	131	1628806	105.995	ng	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_02\15\02152123.D Vial: 2
Acq On : 16 Feb 2021 2:10 Operator: LH
Sample : 100ng TO15 ICAL STD Inst : GCMS-16
Misc : S34-12182001/S34-02102102 (3/12)

Quant Time: Feb 16 08:37:59 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 07:12:33 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **02152127.D** Acq. Method File: **TO15.M**
Data File Path: **I:\MS16\DATA\2021_02\15** Sample Name: **25ng TO15 ICV STD**
Operator: **LH** Misc Info: **S34-12182001/S34-01292102 (**
Date Acquired: **2/16/2021 10:30** 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**	**4.15**	**26.6**	26.25	101	**51**	**133**	*	*
3)	**Dichlorodifluoromethane (CFC 1**	**4.31**	**23.3**	**26.25**	89	**64**	**115**	*	*
4)	**Chloromethane**	**4.59**	**18.9**	**25.75**	73	**49**	**127**	*	*
5)	**1,2-Dichloro-1,1,2,2-tetrafluoroet**	**4.86**	**23.7**	**27.00**	88	**65**	**114**	*	*
6)	**Vinyl Chloride**	**5.01**	**23.7**	**26.00**	91	**61**	**129**	*	*
7)	**1,3-Butadiene**	**5.28**	**24.9**	**26.25**	95	**54**	**140**	*	*
8)	**Bromomethane**	**5.71**	**23.4**	**25.50**	92	**68**	**120**	*	*
9)	**Chloroethane**	**6.05**	**23.4**	**25.50**	92	**63**	**123**	*	*
10)	**Ethanol**	**6.44**	**102**	**124.75**	82	**49**	**134**	*	*
11)	**Acetonitrile**	**6.69**	**23.7**	**25.25**	94	**50**	**137**	*	*
12)	**Acrolein**	**6.86**	**49.6**	**54.50**	91	**62**	**128**	*	*
13)	**Acetone**	**7.08**	**110**	**129.00**	85	**56**	**125**	*	*
14)	**Trichlorofluoromethane**	**7.31**	**22.8**	**25.50**	89	**64**	**115**	*	*
15)	**2-Propanol (Isopropanol)**	**7.58**	**39.9**	**51.00**	78	**57**	**133**	*	*
16)	**Acrylonitrile**	**7.84**	**48.4**	**51.25**	94	**64**	**136**	*	*
17)	**1,1-Dichloroethene**	**8.27**	**23.8**	**26.50**	90	**68**	**115**	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alc	8.45	32.6	52.25	62	56	132	*	FAIL
19)	**Methylene Chloride**	**8.50**	**23.5**	**26.00**	90	**68**	**114**	*	*
20)	**3-Chloro-1-propene (Allyl Chloric**	**8.66**	**25.2**	**26.25**	96	**55**	**139**	*	*
21)	**Trichlorotrifluoroethane**	**8.91**	**24.1**	**26.75**	90	**65**	**115**	*	*
22)	**Carbon Disulfide**	**8.76**	**49.7**	**53.50**	93	**68**	**113**	*	*
23)	**trans-1,2-Dichloroethene**	**9.77**	**25.1**	**26.50**	95	**65**	**122**	*	*
24)	**1,1-Dichloroethane**	**10.03**	**23.7**	**26.50**	89	**63**	**118**	*	*
25)	**Methyl tert-Butyl Ether**	**10.11**	**22.5**	**26.50**	85	**57**	**131**	*	*
26)	**Vinyl Acetate**	**10.28**	**121**	**137.50**	88	**71**	**128**	*	*
27)	**2-Butanone (MEK)**	**10.52**	**50.7**	**51.50**	98	**67**	**123**	*	*
28)	**cis-1,2-Dichloroethene**	**11.04**	**23.8**	**26.00**	92	**64**	**120**	*	*
29)	Diisopropyl Ether	11.33	44.4	53.00	84	62	121	*	*
30)	**Ethyl Acetate**	**11.34**	**63.2**	**52.75**	120	**64**	**131**	*	*
31)	**n-Hexane**	**11.32**	**22.2**	**26.50**	84	**58**	**125**	*	*
32)	**Chloroform**	**11.39**	**23.5**	**26.75**	88	**65**	**114**	*	*
34)	**Tetrahydrofuran (THF)**	**11.78**	**44.0**	**50.00**	88	**65**	**115**	*	*
35)	Ethyl tert-Butyl Ether	11.92	48.4	52.50	92	61	130	*	*
36)	**1,2-Dichloroethane**	**12.18**	**23.7**	**26.00**	91	**59**	**120**	*	*
38)	**1,1,1-Trichloroethane**	**12.46**	**23.1**	**25.75**	90	**66**	**115**	*	*
41)	**Benzene**	**12.94**	**22.3**	**25.50**	87	**66**	**109**	*	*
42)	**Carbon Tetrachloride**	**13.10**	**23.8**	**26.25**	91	**66**	**119**	*	*
43)	**Cyclohexane**	**13.23**	**46.7**	**52.00**	90	**67**	**117**	*	*
44)	tert-Amyl Methyl Ether	13.57	48.5	**52.25**	93	62	133	*	*
45)	**1,2-Dichloropropane**	**13.79**	**23.0**	**25.75**	89	**66**	**119**	*	*
46)	**Bromodichloromethane**	**13.98**	**24.6**	**26.25**	94	**71**	**119**	*	*
47)	**Trichloroethene**	**14.03**	**23.0**	**25.75**	89	**70**	**114**	*	*
48)	**1,4-Dioxane**	**14.00**	**25.0**	**26.00**	96	**71**	**117**	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	14.10	23.7	26.50	89	61	122	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **02152127.D** **TO15.M**
Data File Path: **I:\MS16\DATA\2021_02\15** Sample Name: **25ng TO15 ICV STD**
Operator: **LH** Misc Info: **S34-12182001/S34-01292102 (**
Date Acquired: **2/16/2021 10:30** 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**	**14.24**	**52.9**	**52.00**	102	**76**	**121**	*	*
51)	**n-Heptane**	**14.36**	**23.4**	**26.25**	89	**66**	**119**	*	*
52)	**cis-1,3-Dichloropropene**	**14.89**	**25.8**	**26.25**	98	**72**	**125**	*	*
53)	**4-Methyl-2-pentanone**	**14.92**	**49.7**	**52.00**	96	**68**	**130**	*	*
54)	**trans-1,3-Dichloropropene**	**15.41**	**27.0**	**25.25**	107	**71**	**132**	*	*
55)	**1,1,2-Trichloroethane**	**15.58**	**23.9**	**25.75**	93	**70**	**117**	*	*
58)	**Toluene**	**15.88**	**23.0**	**25.75**	89	**67**	**113**	*	*
59)	**2-Hexanone**	**16.12**	**48.6**	**50.50**	96	**62**	**135**	*	*
60)	**Dibromochloromethane**	**16.29**	**26.3**	**26.25**	100	**73**	**126**	*	*
61)	**1,2-Dibromoethane**	**16.54**	**25.5**	**26.00**	98	**71**	**122**	*	*
62)	**n-Butyl Acetate**	**16.76**	**48.6**	**50.75**	96	**65**	**134**	*	*
63)	**n-Octane**	**16.88**	**23.8**	**26.25**	91	**63**	**120**	*	*
64)	**Tetrachloroethene**	**17.02**	**23.8**	**25.75**	92	**64**	**120**	*	*
65)	**Chlorobenzene**	**17.69**	**23.8**	**25.75**	92	**65**	**116**	*	*
66)	**Ethylbenzene**	**18.04**	**23.5**	**25.75**	91	**65**	**117**	*	*
67)	**m- & p-Xylenes**	**18.20**	**45.8**	**51.50**	89	**64**	**121**	*	*
68)	**Bromoform**	**18.26**	**28.0**	**26.00**	108	**72**	**130**	*	*
69)	**Styrene**	**18.53**	**25.1**	**25.75**	97	**72**	**126**	*	*
70)	**o-Xylene**	**18.63**	**23.3**	**25.75**	90	**64**	**120**	*	*
71)	**n-Nonane**	**18.83**	**23.7**	**26.00**	91	**56**	**132**	*	*
72)	**1,1,2,2-Tetrachloroethane**	**18.61**	**24.1**	**25.75**	94	**66**	**122**	*	*
74)	**Cumene**	**19.15**	**23.7**	**26.00**	91	**64**	**121**	*	*
75)	**alpha-Pinene**	**19.51**	**25.1**	**26.75**	94	**62**	**136**	*	*
76)	**n-Propylbenzene**	**19.60**	**23.5**	**26.00**	90	**65**	**123**	*	*
78)	**4-Ethyltoluene**	**19.73**	**24.4**	**26.25**	**93**	**71**	**126**	*	*
79)	**1,3,5-Trimethylbenzene**	**19.80**	**23.9**	**25.75**	**93**	**65**	**120**	*	*
82)	**1,2,4-Trimethylbenzene**	**20.16**	**24.0**	**25.50**	**94**	**63**	**129**	*	*
84)	**Benzyl Chloride**	**20.28**	**56.0**	**50.25**	**111**	**66**	**138**	*	*
85)	**1,3-Dichlorobenzene**	**20.30**	**24.7**	**25.75**	**96**	**65**	**127**	*	*
86)	**1,4-Dichlorobenzene**	**20.35**	**24.5**	**25.50**	**96**	**66**	**125**	*	*
87)	sec-Butylbenzene	20.40	23.4	25.75	**91**	68	123	*	*
88)	4-Isopropyltoluene (p-Cymene)	20.53	24.0	25.75	**93**	61	129	*	*
90)	**1,2-Dichlorobenzene**	**20.65**	**24.1**	**25.75**	**94**	**67**	**128**	*	*
91)	**d-Limonene**	**20.67**	**24.3**	**26.00**	**93**	**65**	**136**	*	*
92)	**1,2-Dibromo-3-Chloropropane**	**21.03**	**50.5**	**46.25**	**109**	**73**	**133**	*	*
94)	**1,2,4-Trichlorobenzene**	**22.16**	**54.7**	**48.50**	**113**	**62**	**140**	*	*
95)	**Naphthalene**	**22.27**	**30.9**	**24.75**	**125**	**57**	**149**	*	*
97)	**Hexachlorobutadiene**	**22.59**	**24.2**	**26.25**	**92**	57	129	*	*
99)	tert-Butylbenzene	20.16	23.7	25.75	92	62	130	*	*
100)	n-Butylbenzene	20.90	24.0	25.75	93	67	124	*	*
101)	1,1,1,2-Tetrachloroethane	17.66	25.0	25.75	97	70	130	*	*

Bold = 75 Compound List
*** = Pass**

Evaluate Continuing Calibration Report

Data File : I:\MS16\DATA\2021_05\03\05032101.D Vial: 2
Acq On : 3 May 2021 8:47 Operator: TZ
Sample : CCV R16050321 25ng Inst : GCMS-16
Misc : S34-12182001/S34-04202101 (5/21)

Quant Time: May 03 09:15:36 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
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)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	128	0.02
2	T	Propene	1.428	1.474	-3.2	122	-0.03
3	T	Dichlorodifluoromethane (CF	2.212	1.978	10.6	118	-0.02
4	T	Chloromethane	1.743	1.530	12.2	118	-0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.296	1.161	10.4	118	-0.01
6	T	Vinyl Chloride	1.728	1.652	4.4	124	0.00
7	T	1,3-Butadiene	1.226	1.316	-7.3	131	0.00
8	T	Bromomethane	1.107	1.013	8.5	118	0.00
9	T	Chloroethane	0.880	0.829	5.8	120	0.00
10	T	Ethanol	0.812	0.759	6.5	126	0.05
11	T	Acetonitrile	2.081	2.043	1.8	128	0.03
12	T	Acrolein	0.757	0.754	0.4	125	0.02
13	T	Acetone	0.895	0.823	8.0	126	0.02
14	T	Trichlorofluoromethane	1.944	1.736	10.7	118	0.00
15	T	2-Propanol (Isopropanol)	2.614	2.492	4.7	134	0.02
16	T	Acrylonitrile	1.543	1.535	0.5	125	0.03
17	T	1,1-Dichloroethene	1.247	1.155	7.4	121	0.00
18	T	2-Methyl-2-Propanol (tert-B	2.291	1.777	22.4	107	0.01
19	T	Methylene Chloride	1.270	1.172	7.7	121	0.03
20	T	3-Chloro-1-propene (Allyl C	1.558	1.581	-1.5	128	0.02
21	T	Trichlorotrifluoroethane	1.143	1.024	10.4	117	0.00
22	T	Carbon Disulfide	4.283	4.105	4.2	122	0.02
23	T	trans-1,2-Dichloroethene	1.604	1.552	3.2	120	0.02
24	T	1,1-Dichloroethane	2.060	1.900	7.8	120	0.02
25	T	Methyl tert-Butyl Ether	3.116	2.295	26.3	89	-0.01
26	T	Vinyl Acetate	0.209	0.239	-14.4	122	0.01
27	T	2-Butanone (MEK)	0.780	0.790	-1.3	123	0.00
28	T	cis-1,2-Dichloroethene	1.582	1.484	6.2	121	0.02
29	T	Diisopropyl Ether	1.006	0.888	11.7	122	0.00
30	T	Ethyl Acetate	0.532	0.540	-1.5	132	0.00
31	T	n-Hexane	1.943	1.771	8.9	125	0.00
32	T	Chloroform	1.952	1.790	8.3	121	0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.222	1.222	0.0	129	0.02
34	T	Tetrahydrofuran (THF)	0.805	0.752	6.6	122	0.00
35	T	Ethyl tert-Butyl Ether	1.373	1.290	6.0	120	0.00
36	T	1,2-Dichloroethane	1.301	1.197	8.0	119	0.01
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	125	0.01
38	T	1,1,1-Trichloroethane	0.383	0.355	7.3	118	0.00
39	T	Isopropyl Acetate	0.000	0.000	0.0	0#	0.00
40	T	1-Butanol	0.000	0.000	0.0	0#	0.01
41	T	Benzene	1.174	1.074	8.5	121	0.01
42	T	Carbon Tetrachloride	0.337	0.314	6.8	118	0.01
43	T	Cyclohexane	0.430	0.405	5.8	120	0.00
44	T	tert-Amyl Methyl Ether	0.728	0.700	3.8	119	0.00
45	T	1,2-Dichloropropane	0.287	0.269	6.3	120	0.00
46	T	Bromodichloromethane	0.346	0.341	1.4	120	0.00
47	T	Trichloroethene	0.328	0.307	6.4	118	0.00
48	T	1,4-Dioxane	0.231	0.222	3.9	116	-0.01
49	T	2,2,4-Trimethylpentane (Iso	1.152	1.085	5.8	122	0.00
50	T	Methyl Methacrylate	0.111	0.114	-2.7	120	0.00
51	T	n-Heptane	0.288	0.274	4.9	121	0.00
52	T	cis-1,3-Dichloropropene	0.413	0.420	-1.7	120	0.00
53	T	4-Methyl-2-pentanone	0.239	0.243	-1.7	124	0.00
54	T	trans-1,3-Dichloropropene	0.349	0.378	-8.3	120	0.00
55	T	1,1,2-Trichloroethane	0.279	0.267	4.3	121	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS16\DATA\2021_05\03\05032101.D Vial: 2
Acq On : 3 May 2021 8:47 Operator: TZ
Sample : CCV R16050321 25ng Inst : GCMS-16
Misc : S34-12182001/S34-04202101 (5/21)

Quant Time: May 03 09:15:36 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
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	133	0.00
57	S	Toluene-d8 (SS2)	7.465	7.083	5.1	126	0.00
58	T	Toluene	8.593	7.554	12.1	122	0.00
59	T	2-Hexanone	3.781	3.644	3.6	127	0.00
60	T	Dibromochloromethane	2.262	2.139	5.4	119	0.00
61	T	1,2-Dibromoethane	2.276	2.103	7.6	119	0.00
62	T	n-Butyl Acetate	4.275	4.222	1.2	128	0.00
63	T	n-Octane	1.743	1.590	8.8	124	0.00
64	T	Tetrachloroethene	2.567	2.253	12.2	119	0.00
65	T	Chlorobenzene	5.814	5.158	11.3	120	0.00
66	T	Ethylbenzene	9.483	8.499	10.4	122	0.00
67	T	m- & p-Xylenes	7.247	6.325	12.7	122	0.00
68	T	Bromoform	1.938	1.871	3.5	116	0.00
69	T	Styrene	5.746	5.471	4.8	122	0.00
70	T	o-Xylene	7.267	6.406	11.8	121	0.00
71	T	n-Nonane	3.569	3.343	6.3	126	0.00
72	T	1,1,2,2-Tetrachloroethane	3.547	3.230	8.9	122	0.00
73	S	Bromofluorobenzene (SS3)	2.719	2.578	5.2	126	0.00
74	T	Cumene	9.472	8.433	11.0	122	0.00
75	T	alpha-Pinene	4.641	4.278	7.8	121	0.00
76	T	n-Propylbenzene	11.387	10.092	11.4	123	0.00
77	T	3-Ethyltoluene	0.000	0.000	0.0	0#	0.00
78	T	4-Ethyltoluene	9.176	8.257	10.0	122	0.00
79	T	1,3,5-Trimethylbenzene	7.500	6.705	10.6	121	0.00
80	T	alpha-Methylstyrene	0.000	0.000	0.0	0#	0.00
81	T	2-Ethyltoluene	0.000	0.000	0.0	0#	0.00
82	T	1,2,4-Trimethylbenzene	7.421	6.809	8.2	122	0.00
83	T	n-Decane	0.000	0.000	0.0	0#	0.00
84	T	Benzyl Chloride	5.397	5.459	-1.1	120	0.00
85	T	1,3-Dichlorobenzene	4.553	4.239	6.9	123	0.00
86	T	1,4-Dichlorobenzene	4.699	4.319	8.1	123	0.00
87	T	sec-Butylbenzene	10.525	8.982	14.7	123	0.00
88	T	4-Isopropyltoluene (p-Cymen	8.994	8.135	9.6	123	0.00
89	T	1,2,3-Trimethylbenzene	0.000	0.000	0.0	0#	0.00
90	T	1,2-Dichlorobenzene	4.563	4.039	11.5	122	0.00
91	T	d-Limonene	2.725	2.637	3.2	124	0.00
92	T	1,2-Dibromo-3-Chloropropane	1.755	1.652	5.9	120	0.00
93	T	n-Undecane	0.000	0.000	0.0	0#	0.02
94	T	1,2,4-Trichlorobenzene	3.422	3.299	3.6	115	0.00
95	T	Naphthalene	9.025	9.229	-2.3	116	0.00
96	T	n-Dodecane	0.000	0.000	0.0	0#	0.00
97	T	Hexachlorobutadiene	2.523	2.101	16.7	117	0.00
98	T	Cyclohexanone	0.000	0.000	0.0	0#	0.00
99	T	tert-Butylbenzene	7.446	6.654	10.6	123	0.00
100	T	n-Butylbenzene	8.098	7.462	7.9	124	0.00
101	T	1,1,1,2-Tetrachloroethane	1.965	1.807	8.0	119	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032101.D Vial: 2
Acq On : 3 May 2021 8:47 Operator: TZ
Sample : CCV R16050321 25ng Inst : GCMS-16
Misc : S34-12182001/S34-04202101 (5/21)

Quant Time: May 03 09:15:36 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	247628	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	13.34	114	1063095	12.500	ng		0.01
56) Chlorobenzene-d5 (IS3)	17.64	54	152623	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.07	65	302510	12.496	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.00%				
57) Toluene-d8 (SS2)	15.78	98	1081011	11.860	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.88%				
73) Bromofluorobenzene (SS3)	19.03	174	393538	11.856	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.88%				
Target Compounds							Qvalue
2) Propene	4.15	42	759380	26.853	ng		99
3) Dichlorodifluoromethan...	4.31	85	1018730	23.249	ng		100
4) Chloromethane	4.60	50	788000	22.827	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	597983	23.291	ng		100
6) Vinyl Chloride	5.02	62	859002	25.099	ng		100
7) 1,3-Butadiene	5.28	54	677796	27.911	ng		98
8) Bromomethane	5.72	94	521970	23.808	ng		99
9) Chloroethane	6.05	64	426799	24.484	ng		100
10) Ethanol	6.46	45	1985300	123.391	ng		100
11) Acetonitrile	6.70	41	1072417	26.016	ng		100
12) Acrolein	6.87	56	813710	54.235	ng		100
13) Acetone	7.09	58	2102762	118.552	ng		96
14) Trichlorofluoromethane	7.31	101	877165	22.777	ng		100
15) 2-Propanol (Isopropanol)	7.59	45	2530458	48.866	ng		99
16) Acrylonitrile	7.85	53	1558800	50.981	ng		100
17) 1,1-Dichloroethene	8.28	96	594853	24.074	ng		98
18) 2-Methyl-2-Propanol (t...	8.46	59	1821651	40.135	ng		99
19) Methylene Chloride	8.51	84	603532	23.983	ng		97
20) 3-Chloro-1-propene (Al...	8.67	41	814564	26.392	ng		94
21) Trichlorotrifluoroethane	8.91	151	532425	23.518	ng		100
22) Carbon Disulfide	8.77	76	4229162	49.845	ng		100
23) trans-1,2-Dichloroethene	9.78	61	806962	25.388	ng		100
24) 1,1-Dichloroethane	10.03	63	1006629	24.667	ng		100
25) Methyl tert-Butyl Ether	10.12	73	1170721	18.969	ng		99
26) Vinyl Acetate	10.28	86	649351	156.476	ng	#	87
27) 2-Butanone (MEK)	10.53	72	805734	52.117	ng		92
28) cis-1,2-Dichloroethene	11.04	61	764458	24.394	ng		99
29) Diisopropyl Ether	11.33	87	918997	46.128	ng	#	88
30) Ethyl Acetate	11.34	61	556519	52.814	ng		98
31) n-Hexane	11.32	57	912424	23.709	ng		100
32) Chloroform	11.39	83	930898	24.078	ng		100
34) Tetrahydrofuran (THF)	11.78	72	760174	47.692	ng		96
35) Ethyl tert-Butyl Ether	11.93	87	1329307	48.881	ng		98
36) 1,2-Dichloroethane	12.19	62	616285	23.918	ng		100
38) 1,1,1-Trichloroethane	12.46	97	776609	23.862	ng		100
39) Isopropyl Acetate	12.94	61	22731	No Calib		#	
40) 1-Butanol	12.94	56	9527	No Calib			
41) Benzene	12.94	78	2374064	23.776	ng		100
42) Carbon Tetrachloride	13.10	117	680937	23.759	ng		100
43) Cyclohexane	13.23	84	1782238	48.739	ng		98
44) tert-Amyl Methyl Ether	13.58	73	3080265	49.754	ng		99
45) 1,2-Dichloropropane	13.79	63	595084	24.369	ng		100
46) Bromodichloromethane	13.98	83	754434	25.618	ng		100
47) Trichloroethene	14.03	130	665450	23.831	ng		100
48) 1,4-Dioxane	14.01	88	485551	24.748	ng		98
49) 2,2,4-Trimethylpentane...	14.11	57	2421423	24.715	ng		99
50) Methyl Methacrylate	14.24	100	505719	53.571	ng		97

Quantitation Report (QT Reviewed)

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Acq On : 3 May 2021 8:47 Operator: TZ
Sample : CCV R16050321 25ng Inst : GCMS-16
Misc : S34-12182001/S34-04202101 (5/21)

Quant Time: May 03 09:15:36 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
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DataAcq Meth:TO15.M

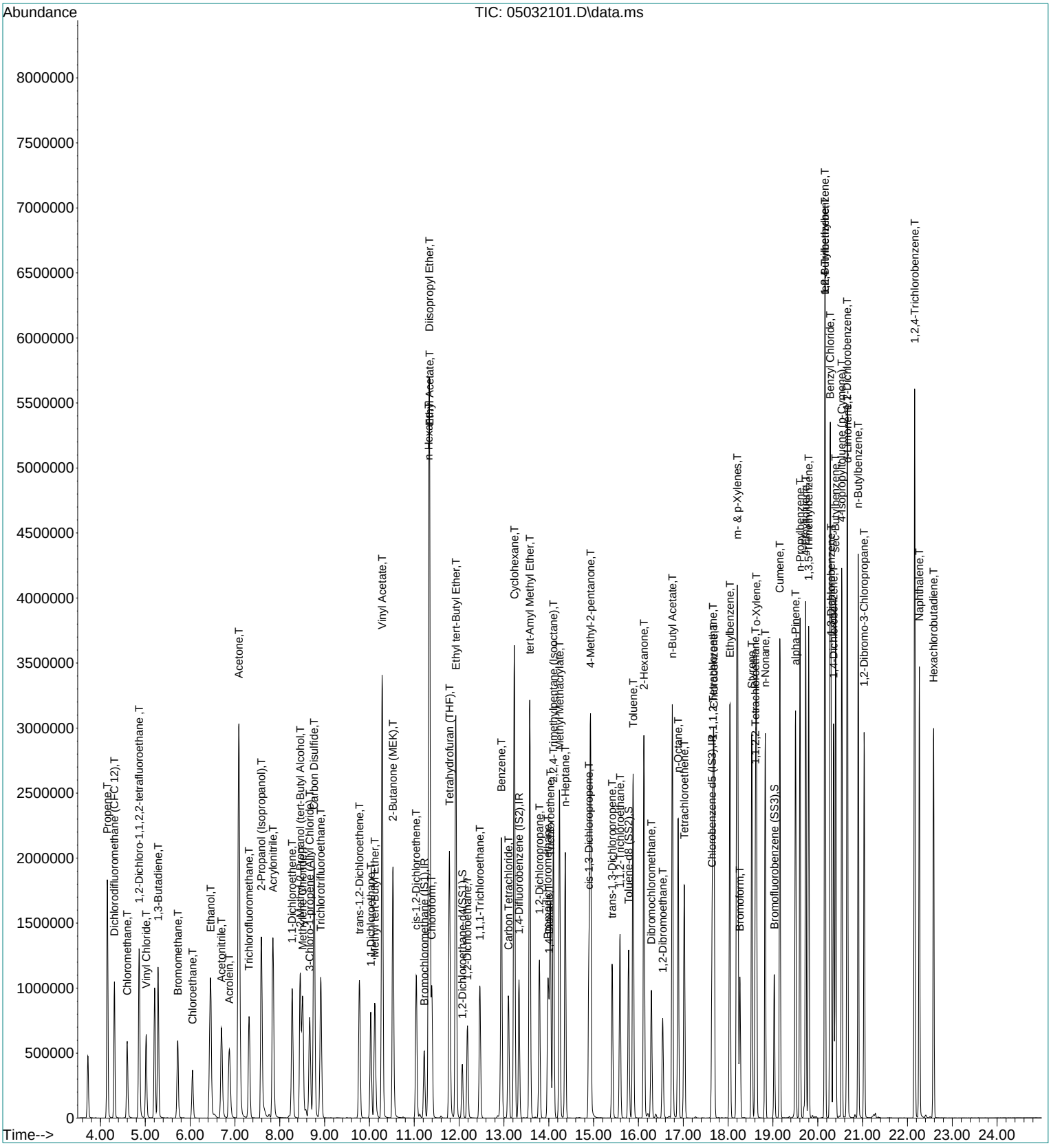
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.37	71	599549	24.437	ng		99
52) cis-1,3-Dichloropropene	14.90	75	937348	26.707	ng		100
53) 4-Methyl-2-pentanone	14.93	58	1075151	52.830	ng		96
54) trans-1,3-Dichloropropene	15.41	75	818787	27.563	ng		100
55) 1,1,2-Trichloroethane	15.59	97	589334	24.830	ng		100
58) Toluene	15.88	91	2397987	22.855	ng		100
59) 2-Hexanone	16.12	43	2291098	49.631	ng		97
60) Dibromochloromethane	16.29	129	679165	24.594	ng		100
61) 1,2-Dibromoethane	16.54	107	667485	24.015	ng		100
62) n-Butyl Acetate	16.76	43	2667716	51.106	ng		97
63) n-Octane	16.89	57	504895	23.724	ng		98
64) Tetrachloroethene	17.03	166	715240	22.817	ng		100
65) Chlorobenzene	17.69	112	1621604	22.845	ng		100
66) Ethylbenzene	18.04	91	2698192	23.304	ng		100
67) m- & p-Xylenes	18.21	91	4034998	45.600	ng		100
68) Bromoform	18.26	173	605250	25.579	ng		100
69) Styrene	18.53	104	1720091	24.517	ng		100
70) o-Xylene	18.63	91	2053274	23.142	ng		100
71) n-Nonane	18.83	43	1071441	24.588	ng		97
72) 1,1,2,2-Tetrachloroethane	18.61	83	1035276	23.904	ng		100
74) Cumene	19.15	105	2676949	23.146	ng		100
75) alpha-Pinene	19.51	93	1384350	24.429	ng		100
76) n-Propylbenzene	19.60	91	3203876	23.044	ng		99
77) 3-Ethyltoluene	19.73	105	2646576	No Calib			
78) 4-Ethyltoluene	19.73	105	2646576	23.623	ng		99
79) 1,3,5-Trimethylbenzene	19.80	105	2149041	23.467	ng		100
80) alpha-Methylstyrene	19.80	118	15776	No Calib			
81) 2-Ethyltoluene	19.97	105	6785	No Calib			
82) 1,2,4-Trimethylbenzene	20.16	105	2140914	23.628	ng		100
83) n-Decane	20.16	58	111531	No Calib		#	
84) Benzyl Chloride	20.28	91	3499187	53.098	ng		99
85) 1,3-Dichlorobenzene	20.30	146	1358499	24.435	ng		100
86) 1,4-Dichlorobenzene	20.35	146	1371203	23.898	ng		100
87) sec-Butylbenzene	20.40	105	2933586	22.828	ng		100
88) 4-Isopropyltoluene (p-...	20.53	119	2532747	23.064	ng		100
89) 1,2,3-Trimethylbenzene	20.53	105	84068	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	1294455	23.233	ng		100
91) d-Limonene	20.67	68	829219	24.922	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.03	157	1008331	47.064	ng		99
93) n-Undecane	21.24	57	427	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.16	180	2013986	48.201	ng		100
95) Naphthalene	22.27	128	2901540	26.332	ng		100
96) n-Dodecane	22.26	57	1542	No Calib		#	
97) Hexachlorobutadiene	22.58	225	660426	21.434	ng		100
98) Cyclohexanone	18.35	55	1409	No Calib		#	
99) tert-Butylbenzene	20.16	119	2112270	23.232	ng		100
100) n-Butylbenzene	20.90	91	2346127	23.728	ng		100
101) 1,1,1,2-Tetrachloroethane	17.66	131	568166	23.680	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032101.D Vial: 2
Acq On : 3 May 2021 8:47 Operator: TZ
Sample : CCV R16050321 25ng Inst : GCMS-16
Misc : S34-12182001/S34-04202101 (5/21)

Quant Time: May 03 09:15:36 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File : I:\MS16\DATA\2021_05\03\05032134.D Vial: 2
Acq On : 4 May 2021 4:23 Operator: LH
Sample : CCVend R16050321_25ng Inst : GCMS-16
Misc : S34-12182001/S34-04202101 (5/21)

Quant Time: May 04 06:47:41 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
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)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	128	0.01
2	T	Propene	1.428	1.480	-3.6	122	-0.04
3	T	Dichlorodifluoromethane (CF	2.212	1.992	9.9	119	-0.03
4	T	Chloromethane	1.743	1.533	12.0	118	-0.03
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.296	1.170	9.7	119	-0.02
6	T	Vinyl Chloride	1.728	1.606	7.1	120	-0.02
7	T	1,3-Butadiene	1.226	1.276	-4.1	127	-0.02
8	T	Bromomethane	1.107	1.014	8.4	118	-0.01
9	T	Chloroethane	0.880	0.817	7.2	118	-0.02
10	T	Ethanol	0.812	0.728	10.3	121	0.04
11	T	Acetonitrile	2.081	1.991	4.3	124	0.01
12	T	Acrolein	0.757	0.743	1.8	123	0.00
13	T	Acetone	0.895	0.803	10.3	123	0.00
14	T	Trichlorofluoromethane	1.944	1.737	10.6	118	-0.01
15	T	2-Propanol (Isopropanol)	2.614	2.389	8.6	128	0.00
16	T	Acrylonitrile	1.543	1.509	2.2	123	0.01
17	T	1,1-Dichloroethene	1.247	1.171	6.1	122	0.00
18	T	2-Methyl-2-Propanol (tert-B	2.291	1.860	18.8	111	0.00
19	T	Methylene Chloride	1.270	1.173	7.6	121	0.02
20	T	3-Chloro-1-propene (Allyl C	1.558	1.537	1.3	125	0.00
21	T	Trichlorotrifluoroethane	1.143	1.040	9.0	119	-0.01
22	T	Carbon Disulfide	4.283	4.084	4.6	122	0.00
23	T	trans-1,2-Dichloroethene	1.604	1.543	3.8	119	0.01
24	T	1,1-Dichloroethane	2.060	1.893	8.1	119	0.01
25	T	Methyl tert-Butyl Ether	3.116	2.360	24.3	92	-0.02
26	T	Vinyl Acetate	0.209	0.236	-12.9	120	0.00
27	T	2-Butanone (MEK)	0.780	0.784	-0.5	122	-0.01
28	T	cis-1,2-Dichloroethene	1.582	1.481	6.4	120	0.01
29	T	Diisopropyl Ether	1.006	0.888	11.7	122	-0.01
30	T	Ethyl Acetate	0.532	0.527	0.9	128	0.00
31	T	n-Hexane	1.943	1.723	11.3	121	0.00
32	T	Chloroform	1.952	1.800	7.8	122	0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.222	1.196	2.1	126	0.01
34	T	Tetrahydrofuran (THF)	0.805	0.751	6.7	121	-0.02
35	T	Ethyl tert-Butyl Ether	1.373	1.299	5.4	121	0.00
36	T	1,2-Dichloroethane	1.301	1.191	8.5	119	0.00
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	125	0.00
38	T	1,1,1-Trichloroethane	0.383	0.353	7.8	118	0.00
39	T	Isopropyl Acetate	0.000	0.000	0.0	0#	0.00
40	T	1-Butanol	0.000	0.000	0.0	0#	0.00
41	T	Benzene	1.174	1.074	8.5	122	0.00
42	T	Carbon Tetrachloride	0.337	0.313	7.1	118	0.00
43	T	Cyclohexane	0.430	0.403	6.3	120	0.00
44	T	tert-Amyl Methyl Ether	0.728	0.701	3.7	120	-0.01
45	T	1,2-Dichloropropane	0.287	0.269	6.3	120	0.00
46	T	Bromodichloromethane	0.346	0.339	2.0	120	0.00
47	T	Trichloroethene	0.328	0.310	5.5	120	0.00
48	T	1,4-Dioxane	0.231	0.222	3.9	116	-0.02
49	T	2,2,4-Trimethylpentane (Iso	1.152	1.074	6.8	121	0.00
50	T	Methyl Methacrylate	0.111	0.115	-3.6	121	0.00
51	T	n-Heptane	0.288	0.273	5.2	122	0.00
52	T	cis-1,3-Dichloropropene	0.413	0.417	-1.0	119	0.00
53	T	4-Methyl-2-pentanone	0.239	0.239	0.0	122	0.00
54	T	trans-1,3-Dichloropropene	0.349	0.373	-6.9	119	0.00
55	T	1,1,2-Trichloroethane	0.279	0.268	3.9	122	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS16\DATA\2021_05\03\05032134.D Vial: 2
Acq On : 4 May 2021 4:23 Operator: LH
Sample : CCVend R16050321_25ng Inst : GCMS-16
Misc : S34-12182001/S34-04202101 (5/21)

Quant Time: May 04 06:47:41 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
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	130	0.00
57	S	Toluene-d8 (SS2)	7.465	7.260	2.7	126	0.00
58	T	Toluene	8.593	7.754	9.8	122	0.00
59	T	2-Hexanone	3.781	3.613	4.4	123	0.00
60	T	Dibromochloromethane	2.262	2.210	2.3	120	0.00
61	T	1,2-Dibromoethane	2.276	2.168	4.7	120	0.00
62	T	n-Butyl Acetate	4.275	4.181	2.2	124	0.00
63	T	n-Octane	1.743	1.612	7.5	123	0.00
64	T	Tetrachloroethene	2.567	2.347	8.6	121	0.00
65	T	Chlorobenzene	5.814	5.281	9.2	120	0.00
66	T	Ethylbenzene	9.483	8.715	8.1	122	0.00
67	T	m- & p-Xylenes	7.247	6.600	8.9	124	0.00
68	T	Bromoform	1.938	1.946	-0.4	118	0.00
69	T	Styrene	5.746	5.633	2.0	123	0.00
70	T	o-Xylene	7.267	6.542	10.0	121	0.00
71	T	n-Nonane	3.569	3.327	6.8	123	0.00
72	T	1,1,2,2-Tetrachloroethane	3.547	3.292	7.2	122	0.00
73	S	Bromofluorobenzene (SS3)	2.719	2.706	0.5	129	0.00
74	T	Cumene	9.472	8.686	8.3	122	0.00
75	T	alpha-Pinene	4.641	4.401	5.2	121	0.00
76	T	n-Propylbenzene	11.387	10.310	9.5	123	0.00
77	T	3-Ethyltoluene	0.000	0.000	0.0	0#	0.00
78	T	4-Ethyltoluene	9.176	8.492	7.5	122	0.00
79	T	1,3,5-Trimethylbenzene	7.500	6.872	8.4	121	0.00
80	T	alpha-Methylstyrene	0.000	0.000	0.0	0#	0.00
81	T	2-Ethyltoluene	0.000	0.000	0.0	0#	0.00
82	T	1,2,4-Trimethylbenzene	7.421	6.926	6.7	121	0.00
83	T	n-Decane	0.000	0.000	0.0	0#	0.00
84	T	Benzyl Chloride	5.397	5.517	-2.2	119	0.00
85	T	1,3-Dichlorobenzene	4.553	4.350	4.5	123	0.00
86	T	1,4-Dichlorobenzene	4.699	4.479	4.7	125	0.00
87	T	sec-Butylbenzene	10.525	9.173	12.8	123	0.00
88	T	4-Isopropyltoluene (p-Cymen	8.994	8.351	7.1	123	0.00
89	T	1,2,3-Trimethylbenzene	0.000	0.000	0.0	0#	0.00
90	T	1,2-Dichlorobenzene	4.563	4.149	9.1	122	0.00
91	T	d-Limonene	2.725	2.655	2.6	122	0.00
92	T	1,2-Dibromo-3-Chloropropane	1.755	1.700	3.1	121	0.00
93	T	n-Undecane	0.000	0.000	0.0	0#	0.02
94	T	1,2,4-Trichlorobenzene	3.422	3.419	0.1	117	0.00
95	T	Naphthalene	9.025	9.581	-6.2	118	0.00
96	T	n-Dodecane	0.000	0.000	0.0	0#	0.00
97	T	Hexachlorobutadiene	2.523	2.197	12.9	119	0.00
98	T	Cyclohexanone	0.000	0.000	0.0	0#	0.00
99	T	tert-Butylbenzene	7.446	6.808	8.6	123	0.00
100	T	n-Butylbenzene	8.098	7.579	6.4	123	0.00
101	T	1,1,1,2-Tetrachloroethane	1.965	1.852	5.8	119	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032134.D Vial: 2
Acq On : 4 May 2021 4:23 Operator: LH
Sample : CCVend R16050321_25ng Inst : GCMS-16
Misc : S34-12182001/S34-04202101 (5/21)

Quant Time: May 04 06:47:41 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	247243	12.500	ng		0.01
37) 1,4-Difluorobenzene (IS2)	13.33	114	1066297	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.64	54	149118	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.07	65	295707	12.234	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.84%				
57) Toluene-d8 (SS2)	15.78	98	1082625	12.157	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.28%				
73) Bromofluorobenzene (SS3)	19.03	174	403531	12.443	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.52%				
Target Compounds							Qvalue
2) Propene	4.14	42	761265	26.962	ng		99
3) Dichlorodifluoromethan...	4.30	85	1024662	23.421	ng		100
4) Chloromethane	4.58	50	788361	22.873	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	601796	23.476	ng		100
6) Vinyl Chloride	5.00	62	833891	24.403	ng		100
7) 1,3-Butadiene	5.27	54	656074	27.058	ng		99
8) Bromomethane	5.71	94	521290	23.814	ng		100
9) Chloroethane	6.04	64	420263	24.146	ng		100
10) Ethanol	6.44	45	1900521	118.306	ng		100
11) Acetonitrile	6.68	41	1043373	25.350	ng		100
12) Acrolein	6.86	56	800446	53.434	ng		100
13) Acetone	7.07	58	2048714	115.685	ng		98
14) Trichlorofluoromethane	7.30	101	876329	22.791	ng		100
15) 2-Propanol (Isopropanol)	7.57	45	2421799	46.841	ng		100
16) Acrylonitrile	7.83	53	1529464	50.100	ng		100
17) 1,1-Dichloroethene	8.27	96	602135	24.406	ng		100
18) 2-Methyl-2-Propanol (t...	8.44	59	1903458	42.002	ng		99
19) Methylene Chloride	8.50	84	603156	24.005	ng		100
20) 3-Chloro-1-propene (Al...	8.66	41	790665	25.657	ng		96
21) Trichlorotrifluoroethane	8.90	151	539750	23.879	ng		99
22) Carbon Disulfide	8.75	76	4200360	49.582	ng		100
23) trans-1,2-Dichloroethene	9.77	61	801333	25.250	ng		99
24) 1,1-Dichloroethane	10.02	63	1001330	24.575	ng		100
25) Methyl tert-Butyl Ether	10.11	73	1201934	19.505	ng		100
26) Vinyl Acetate	10.27	86	639721	154.395	ng	#	93
27) 2-Butanone (MEK)	10.51	72	799058	51.766	ng		96
28) cis-1,2-Dichloroethene	11.04	61	761615	24.341	ng		100
29) Diisopropyl Ether	11.32	87	918149	46.157	ng		96
30) Ethyl Acetate	11.33	61	541925	51.509	ng		99
31) n-Hexane	11.31	57	886141	23.061	ng		100
32) Chloroform	11.38	83	934731	24.215	ng		99
34) Tetrahydrofuran (THF)	11.77	72	757709	47.611	ng		98
35) Ethyl tert-Butyl Ether	11.92	87	1335633	49.190	ng		100
36) 1,2-Dichloroethane	12.18	62	612429	23.805	ng		100
38) 1,1,1-Trichloroethane	12.46	97	776073	23.774	ng		100
39) Isopropyl Acetate	12.93	61	22715	No Calib		#	
40) 1-Butanol	12.93	56	9034	No Calib			
41) Benzene	12.93	78	2382280	23.787	ng		100
42) Carbon Tetrachloride	13.09	117	680774	23.682	ng		100
43) Cyclohexane	13.23	84	1779745	48.525	ng		100
44) tert-Amyl Methyl Ether	13.57	73	3092509	49.802	ng		100
45) 1,2-Dichloropropane	13.78	63	595942	24.330	ng		100
46) Bromodichloromethane	13.97	83	751254	25.433	ng		100
47) Trichloroethene	14.03	130	675109	24.105	ng		100
48) 1,4-Dioxane	14.00	88	486615	24.727	ng		100
49) 2,2,4-Trimethylpentane...	14.09	57	2404641	24.470	ng		100
50) Methyl Methacrylate	14.23	100	508994	53.756	ng		100

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032134.D Vial: 2
Acq On : 4 May 2021 4:23 Operator: LH
Sample : CCVend R16050321_25ng Inst : GCMS-16
Misc : S34-12182001/S34-04202101 (5/21)

Quant Time: May 04 06:47:41 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

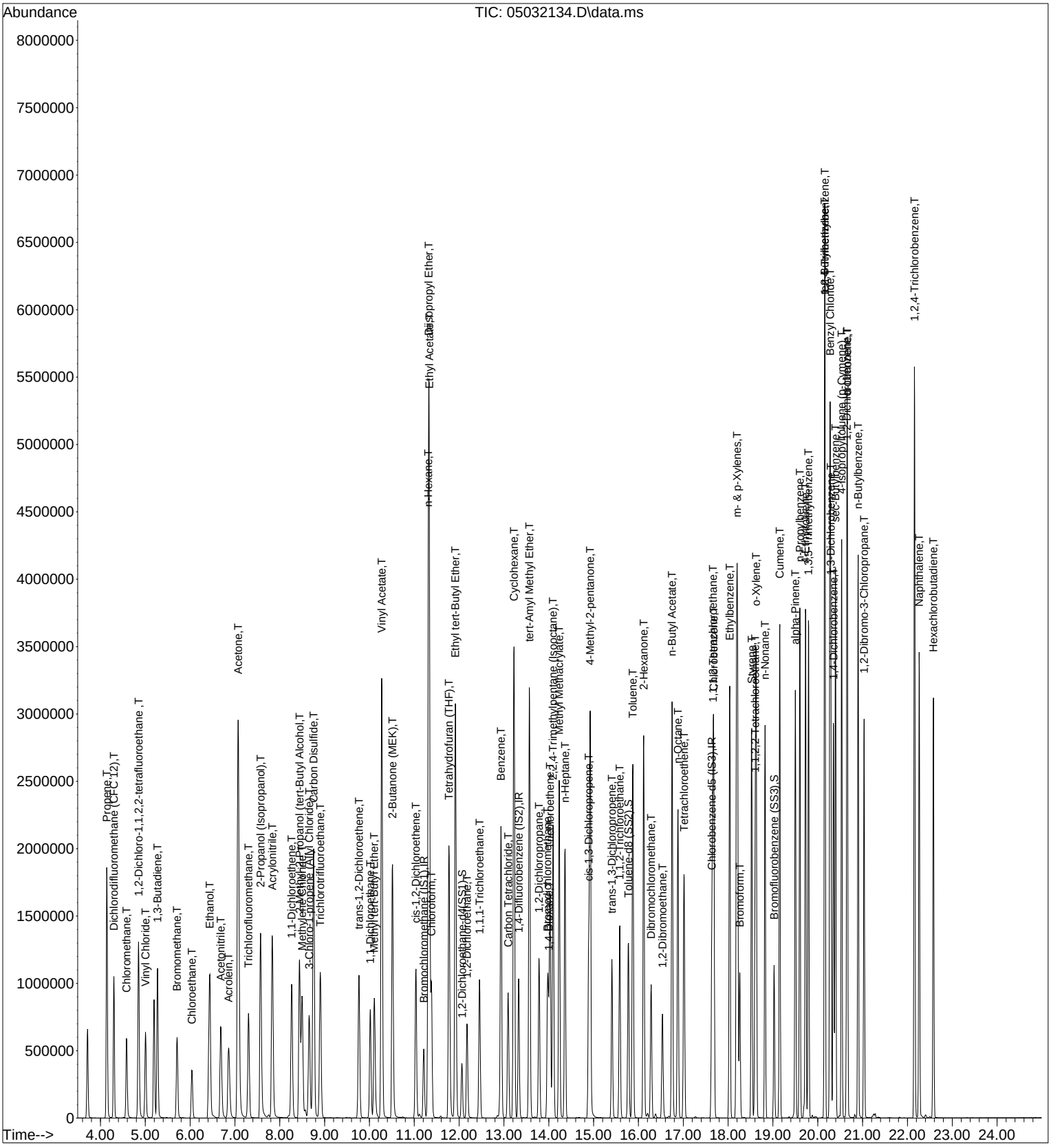
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.36	71	599894	24.378	ng		99
52) cis-1,3-Dichloropropene	14.89	75	932841	26.499	ng		100
53) 4-Methyl-2-pentanone	14.92	58	1058935	51.877	ng		98
54) trans-1,3-Dichloropropene	15.41	75	811742	27.244	ng		99
55) 1,1,2-Trichloroethane	15.58	97	594317	24.965	ng		99
58) Toluene	15.88	91	2404902	23.459	ng		100
59) 2-Hexanone	16.12	43	2219627	49.212	ng		98
60) Dibromochloromethane	16.28	129	685387	25.403	ng		99
61) 1,2-Dibromoethane	16.54	107	672538	24.765	ng		100
62) n-Butyl Acetate	16.75	43	2580943	50.606	ng		98
63) n-Octane	16.88	57	500024	24.047	ng		99
64) Tetrachloroethene	17.02	166	728062	23.772	ng		100
65) Chlorobenzene	17.68	112	1622310	23.392	ng		100
66) Ethylbenzene	18.04	91	2702951	23.894	ng		100
67) m- & p-Xylenes	18.20	91	4113744	47.582	ng		99
68) Bromoform	18.26	173	615263	26.613	ng		100
69) Styrene	18.53	104	1730334	25.242	ng		99
70) o-Xylene	18.63	91	2048482	23.631	ng		100
71) n-Nonane	18.82	43	1041800	24.469	ng		98
72) 1,1,2,2-Tetrachloroethane	18.60	83	1031032	24.366	ng		100
74) Cumene	19.15	105	2694215	23.843	ng		100
75) alpha-Pinene	19.50	93	1391374	25.130	ng		99
76) n-Propylbenzene	19.60	91	3197656	23.540	ng		100
77) 3-Ethyltoluene	19.73	105	2659225	No Calib			
78) 4-Ethyltoluene	19.73	105	2659225	24.294	ng		100
79) 1,3,5-Trimethylbenzene	19.79	105	2152096	24.052	ng		100
80) alpha-Methylstyrene	19.79	118	15730	No Calib			
81) 2-Ethyltoluene	19.97	105	7076	No Calib			
82) 1,2,4-Trimethylbenzene	20.16	105	2127444	24.031	ng		100
83) n-Decane	20.15	58	108225	No Calib		#	
84) Benzyl Chloride	20.28	91	3455125	53.661	ng		99
85) 1,3-Dichlorobenzene	20.29	146	1362115	25.076	ng		100
86) 1,4-Dichlorobenzene	20.35	146	1389364	24.784	ng		100
87) sec-Butylbenzene	20.40	105	2927138	23.313	ng		100
88) 4-Isopropyltoluene (p-...	20.53	119	2540467	23.678	ng		100
89) 1,2,3-Trimethylbenzene	20.53	105	83805	No Calib			
90) 1,2-Dichlorobenzene	20.65	146	1299168	23.866	ng		100
91) d-Limonene	20.66	68	815437	25.084	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.03	157	1013731	48.428	ng		99
93) n-Undecane	21.24	57	363	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.16	180	2039486	49.959	ng		100
95) Naphthalene	22.26	128	2943098	27.337	ng		100
96) n-Dodecane	22.26	57	1525	No Calib		#	
97) Hexachlorobutadiene	22.58	225	674755	22.414	ng		100
98) Cyclohexanone	18.36	55	1190	No Calib			
99) tert-Butylbenzene	20.15	119	2111490	23.770	ng		100
100) n-Butylbenzene	20.90	91	2328169	24.099	ng		100
101) 1,1,1,2-Tetrachloroethane	17.66	131	568930	24.269	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2021_05\03\05032134.D Vial: 2
Acq On : 4 May 2021 4:23 Operator: LH
Sample : CCVend R16050321_25ng Inst : GCMS-16
Misc : S34-12182001/S34-04202101 (5/21)

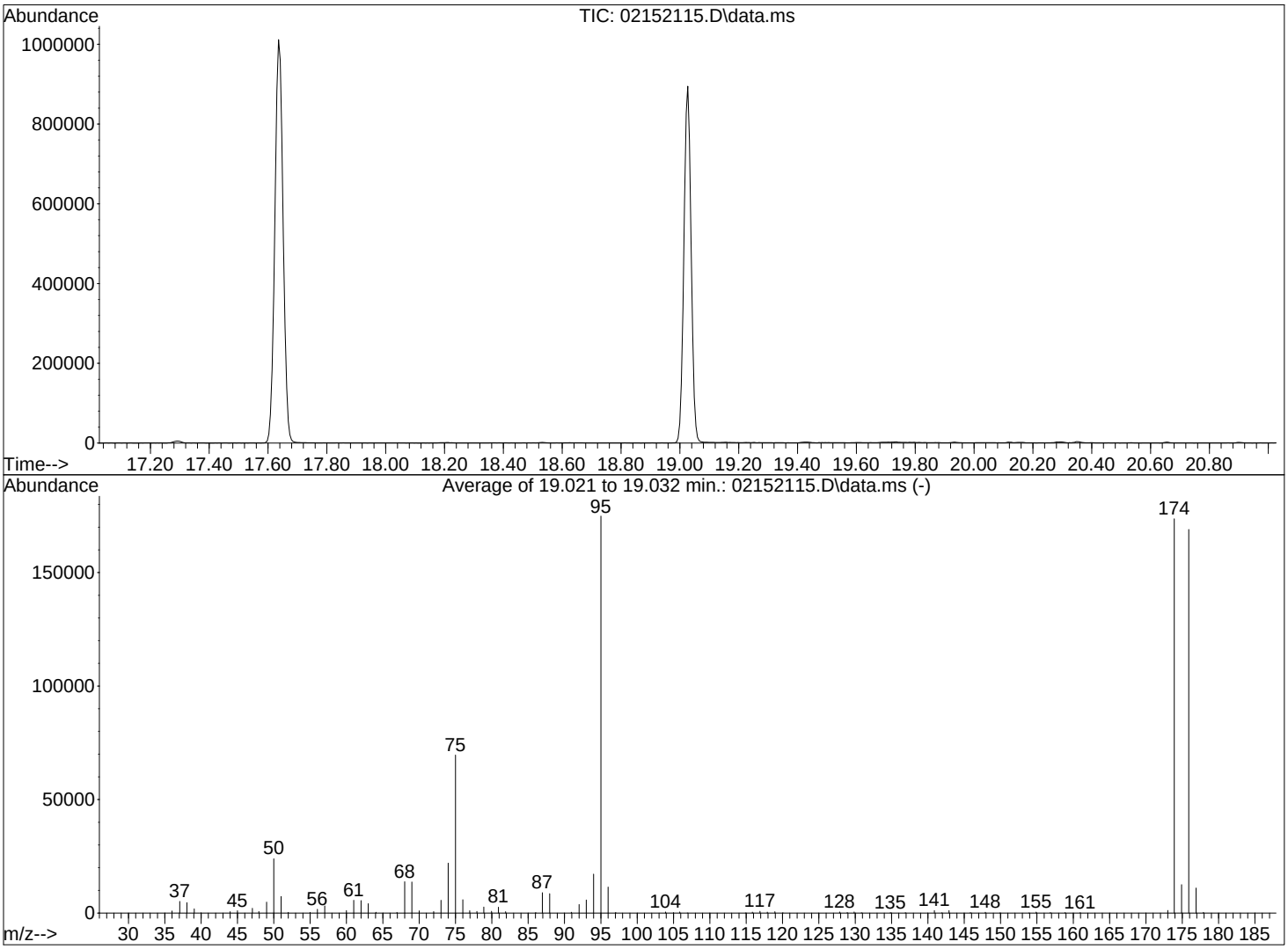
Quant Time: May 04 06:47:41 2021
Quant Method : I:\MS16\METHODS\R16021521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Feb 16 10:04:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data Path : I:\MS16\DATA\2021_02\15\
Data File : 02152115.D
Acq On : 15 Feb 2021 21:42
Operator : LH
Sample : 12.5ng TO15 BFB
Misc : S34-12182001
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16021521.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Feb 16 14:19:05 2021



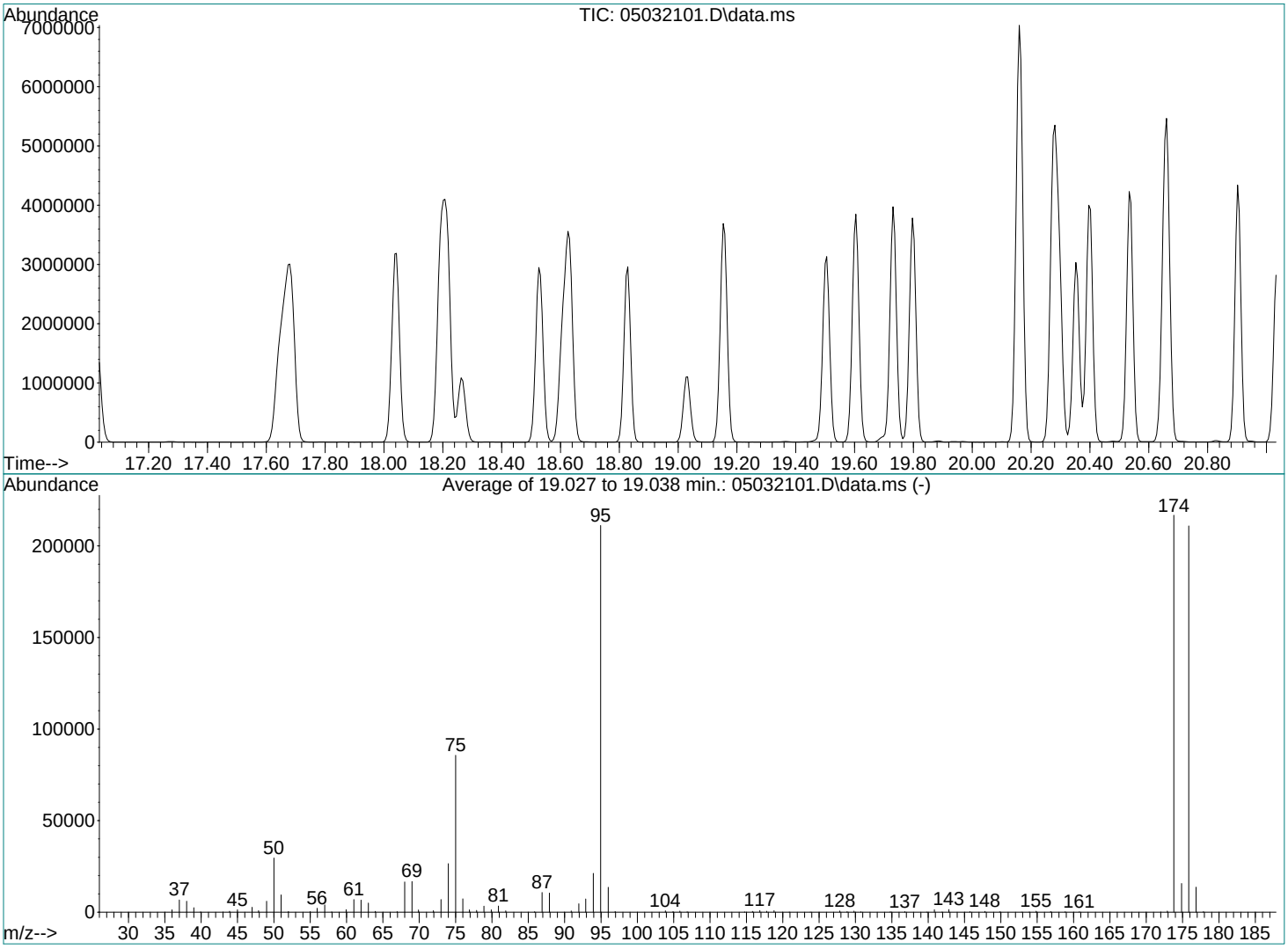
AutoFind: Scans 2825, 2826, 2827; Background Corrected with Scan 2817

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	13.7	23960	PASS
75	95	30	66	39.8	69605	PASS
95	95	100	100	100.0	174869	PASS
96	95	5	9	6.5	11447	PASS
173	174	0.00	2	0.7	1207	PASS
174	95	50	120	99.3	173717	PASS
175	174	4	9	7.2	12557	PASS
176	174	93	101	97.3	169003	PASS
177	176	5	9	6.5	11051	PASS

Data Path : I:\MS16\DATA\2021_05\03\
Data File : 05032101.D
Acq On : 3 May 2021 8:47
Operator : TZ
Sample : CCV R16050321 25ng
Misc : S34-12182001/S34-04202101 (5/21)
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16021521.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Feb 16 10:04:55 2021



AutoFind: Scans 2826, 2827, 2828; Background Corrected with Scan 2818

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	14.0	29619	PASS
75	95	30	66	40.6	85648	PASS
95	95	100	100	100.0	211115	PASS
96	95	5	9	6.4	13606	PASS
173	174	0.00	2	0.3	615	PASS
174	95	50	120	102.7	216747	PASS
175	174	4	9	7.2	15691	PASS
176	174	93	101	97.3	210923	PASS
177	176	5	9	6.5	13709	PASS

Injection Log

Directory: J:\MS16\DATA\2021_02\15\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
15	2/15/21 21:42	02152115.D	12.5ng TO15 BFB	S34-12182001	LH	2	passed
16	2/15/21 22:15	02152116.D	0.1ng TO15 ICAL STD	S34-12182001/S34-02152103 (3/12)	LH	5	
17	2/15/21 22:49	02152117.D	0.2ng TO15 ICAL STD	S34-12182001/S34-02152103 (3/12)	LH	5	
18	2/15/21 23:22	02152118.D	0.5ng TO15 ICAL STD	S34-12182001/S34-02152103 (3/12)	LH	5	
19	2/15/21 23:56	02152119.D	1.0ng TO15 ICAL STD	S34-12182001/S34-02152103 (3/12)	LH	5	not used
20	2/16/21 0:29	02152120.D	5.0ng TO15 ICAL STD	S34-12182001/S34-02102102 (3/12)	LH	2	
21	2/16/21 1:03	02152121.D	25ng TO15 ICAL STD	S34-12182001/S34-02102102 (3/12)	LH	2	
22	2/16/21 1:36	02152122.D	50ng TO15 ICAL STD	S34-12182001/S34-02102102 (3/12)	LH	2	
23	2/16/21 2:10	02152123.D	100ng TO15 ICAL STD	S34-12182001/S34-02102102 (3/12)	LH	2	
24	2/16/21 2:44	02152124.D	25ng TO15 ICV STD	S34-12182001/S34-01292102 (2/28)	LH	2	not used
25	2/16/21 9:04	02152125.D	Blank	S34-12182001	LH	2	
26	2/16/21 9:38	02152126.D	1.0ng TO15 ICAL STD	S34-12182001/S34-02152102 (3/12)	LH	6	not used
27	2/16/21 10:30	02152127.D	25ng TO15 ICV STD	S34-12182001/S34-01292102 (2/28)	LH	2	passed

ICAL R16021521.M passed for all compounds 0.1ng-100ng, except: chloromethane 0.1ng-50ng, tert-butanol, benzyl chloride, 1,2,4-trichlorobenzene 1.0ng-100ng, carbon disulfide 0.4ng-100ng, 1,3-dichlorobenzene, 1,4-dichlorobenzene 0.2ng-100ng, tert-butylbenzene 0.5ng-50ng.

tert-butanol failed in ICV.

Injection Log

Directory: I:\MS16\DATA\2021_05\03\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	5/3/21 8:47	05032101.D	CCV R16050321 25ng	S34-12182001/S34-04202101 (5/21)	TZ	2	Passed
2	5/3/21 9:35	05032102.D	CCV C16050321_25ng	S34-12182001/S34-04062103 (5/6)	TZ	3	Passed
3	5/3/21 10:09	05032103.D	Blank	S34-12182001	TZ	2	
4	5/3/21 10:44	05032104.D	MB R16050321_1000mL	S34-12182001/AS01319	TZ	2	Passed
5	5/3/21 11:18	05032105.D	LCS R16050321_25ng	S34-12182001/S34-04272101 (5/27)	TZ	2	Passed
6	5/3/21 11:52	05032106.D	LCSD R16050321_25ng	S34-12182001/S34-04272101 (5/27)	TZ	2	Passed
7	5/3/21 12:25	05032107.D	Blank	S34-12182001	TZ	2	
8	5/3/21 13:10	05032108.D	P2102229-001 (1000mL)	S34-12182001	TZ	12	
9	5/3/21 13:45	05032109.D	P2102229-002 (1000mL) pf2	S34-12182001	TZ	13	
10	5/3/21 14:20	05032111.D	P2102229-003 (1000mL)	S34-12182001	TZ	14	
11	5/3/21 14:55	05032112.D	P2102229-004 (1000mL)	S34-12182001	TZ	15	
12	5/3/21 15:30	05032113.D	P2102229-005 (1000mL)	S34-12182001	TZ	16	
13	5/3/21 16:04	05032114.D	P2102151-001 (60mL)	S34-12182001	TZ	1	
14	5/3/21 16:39	05032115.D	P2102151-002 (25mL)	S34-12182001	TZ	4	
15	5/3/21 17:13	05032116.D	P2102151-002dup (25mL)	S34-12182001	TZ	4	Passed
16	5/3/21 17:48	05032117.D	P2101998-001 (250mL)	S34-12182001	TZ	5	
17	5/3/21 18:53	05032118.D	P2100641-001 (1000mL)	S34-12182001	LH	6	
18	5/3/21 19:44	05032119.D	P2101963-001 (1000mL)	S34-12182001	LH	7	
19	5/3/21 20:18	05032120.D	P2102197-001 (400mL)	S34-12182001	LH	8	
20	5/3/21 20:53	05032121.D	P2102270-001 (400mL)	S34-12182001	LH	9	
21	5/3/21 21:27	05032122.D	P2102004-001 (400mL)	S34-12182001	LH	10	
22	5/3/21 22:02	05032123.D	P2102016-001 (1000mL)	S34-12182001	LH	11	
23	5/3/21 22:37	05032124.D	P2102016-001dup (1000mL)	S34-12182001	LH	11	
24	5/3/21 23:12	05032125.D	P2102016-002 (1000mL)	S34-12182001	LH	12	
25	5/3/21 23:49	05032126.D	P2102222-001 (1000mL)	S34-12182001	LH	13	
26	5/4/21 0:23	05032127.D	P2102222-003 (200mL)	S34-12182001	LH	14	
27	5/4/21 0:57	05032128.D	P2102222-003dil (20mL)	S34-12182001	LH	14	
28	5/4/21 1:32	05032129.D	P2102222-005 (100mL)	S34-12182001	LH	15	
29	5/4/21 2:06	05032130.D	P2102222-005dil (20mL)	S34-12182001	LH	15	
30	5/4/21 2:40	05032131.D	P2102222-007 (500mL)	S34-12182001	LH	16	
31	5/4/21 3:15	05032132.D	P2102222-007dil (50mL)	S34-12182001	LH	16	
32	5/4/21 3:49	05032133.D	P2102222-009 (35mL)	S34-12182001	LH	1	
33	5/4/21 4:23	05032134.D	CCVend R16050321_25ng	S34-12182001/S34-04202101 (5/21)	LH	2	Passed

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-09
Cycles: 30
Batch: 27403

Batch Started By: ANAKLOWYCZ on 3/31/21 1014
Finished Cleaning By: ANAKLOWYCZ on 3/31/21 1014

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
AS01468	3/31/21	3/31/21	Pass w/ Conditions	-14.3	3/31/21 1014	ANAKLOWYCZ	-14.0	4/2/21 0317		MS21_03/31/21
AS00724	3/31/21	3/31/21	Pass w/ Conditions	-14.3	3/31/21 1014	ANAKLOWYCZ	-14.0	4/8/21 0828		
AC02407	3/31/21	3/31/21	Pass w/ Conditions	-14.3	3/31/21 1014	ANAKLOWYCZ				
AC02101	3/31/21	3/31/21	Pass w/ Conditions	-14.3	3/31/21 1014	ANAKLOWYCZ	-14.0	4/2/21 0828		
AS01394	3/31/21	3/31/21	Pass w/ Conditions	-14.3	3/31/21 1014	ANAKLOWYCZ	-14.0	4/2/21 0828		
AS01177	3/31/21	3/31/21	Pass w/ Conditions	-14.3	3/31/21 1014	ANAKLOWYCZ				
AS01169	3/31/21	3/31/21	Pass w/ Conditions	-14.3	3/31/21 1014	ANAKLOWYCZ				
AS01287	3/31/21	3/31/21	Pass w/ Conditions	-14.3	3/31/21 1014	ANAKLOWYCZ	-14.0	4/2/21 0828		
AS01115	3/31/21	3/31/21	Pass w/ Conditions	-14.3	3/31/21 1014	ANAKLOWYCZ	-14.0	4/5/21 1036		
AC02433	3/31/21	3/31/21	Pass w/ Conditions	-14.3	3/31/21 1014	ANAKLOWYCZ	-14.0	4/5/21 1036		

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

*** QC Canister**

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021_03\31\
Data File : 03312106.D
Acq On : 31 Mar 2021 12:21
Operator : WA\RVT
Sample : 033121_AS01468_27403
Misc : LL+TICS (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Apr 01 06:34:06 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS1)	7.489	130	35856	1000.00	pg	0.00
37) 1,4-Difluorobenzene (IS2)	9.729	114	88654	1000.00	pg	0.00
56) Chlorobenzene-d5 (IS3)	14.667	54	13439	1000.00	pg	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.301	65	50270	874.82	pg	0.00
Spiked Amount 1000.000			Recovery = 87.48%			
57) Toluene-d8 (SS2)	12.577	98	82128	1078.98	pg	0.00
Spiked Amount 1000.000			Recovery = 107.90%			
74) Bromofluorobenzene (SS3)	16.111	174	37943	1000.69	pg	-0.03
Spiked Amount 1000.000			Recovery = 100.07%			
Target Compounds						Qvalue
2] * Propene	3.491	42	261	7.55 pg	#	28
3] * Dichlorodifluoromethane	3.547	85	56	0.50 pg	#	42
4] * Chloromethane	3.672	50	273	5.83 pg		93
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	3.959	54	22	0.63 pg		94
8) * Bromomethane	0.000		0	N.D.		
9] * Chloroethane	4.311	64	67	3.00 pg	#	1
10] * Ethanol	4.404	45	1956	106.58 pg		99
11) * Acetonitrile	0.000		0	N.D.		
12] * Acrolein	4.680	56	99	5.39 pg	#	13
13] * Acetone	4.805	58	1215	49.75 pg	#	42
14) * Trichlorofluoromethane	0.000		0	N.D.		
15] * 2-Propanol (Isopropa...	4.995	45	205	2.95 pg	#	45
16) * Acrylonitrile	0.000		0	N.D.		
17] * 1,1-Dichloroethene	5.396	96	116	2.80 pg	#	7
18) tert-Butanol	0.000		0	N.D.		
19] * Methylene Chloride	5.527	84	81	1.87 pg	#	64
20) * 3-Chloro-1-propene (...	0.000		0	N.D.		
21) * Trichlorotrifluoroet...	0.000		0	N.D.		
22] * Carbon Disulfide	5.789	76	2969	24.03 pg	#	93
23) * trans-1,2-Dichloroet...	0.000		0	N.D.		
24) * 1,1-Dichloroethane	0.000		0	N.D.		
25] * Methyl tert-Butyl Ether	6.549	73	94	1.36 pg	#	56
26) * Vinyl Acetate	0.000		0	N.D.		
27) * 2-Butanone (MEK)	0.000		0	N.D.		
28) * cis-1,2-Dichloroethene	0.000		0	N.D.		
29) DIPE	0.000		0	N.D.		
30) * Ethyl Acetate	0.000		0	N.D.		
31] * n-Hexane	7.573	57	87	1.99 pg	#	57
32) * Chloroform	0.000		0	N.D.		
34) * Tetrahydrofuran	0.000		0	N.D.		
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	9.292	78	561	5.81 pg	#	86
40) Isopropyl Acetate	0.000		0	N.D.		
41] 1-Butanol	9.287	56	84	61.58 pg	#	100
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.		

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021_03\31\
Data File : 03312106.D
Acq On : 31 Mar 2021 12:21
Operator : WA\RVT
Sample : 033121_AS01468_27403
Misc : LL+TICS (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 2 Sample Multiplier: 1

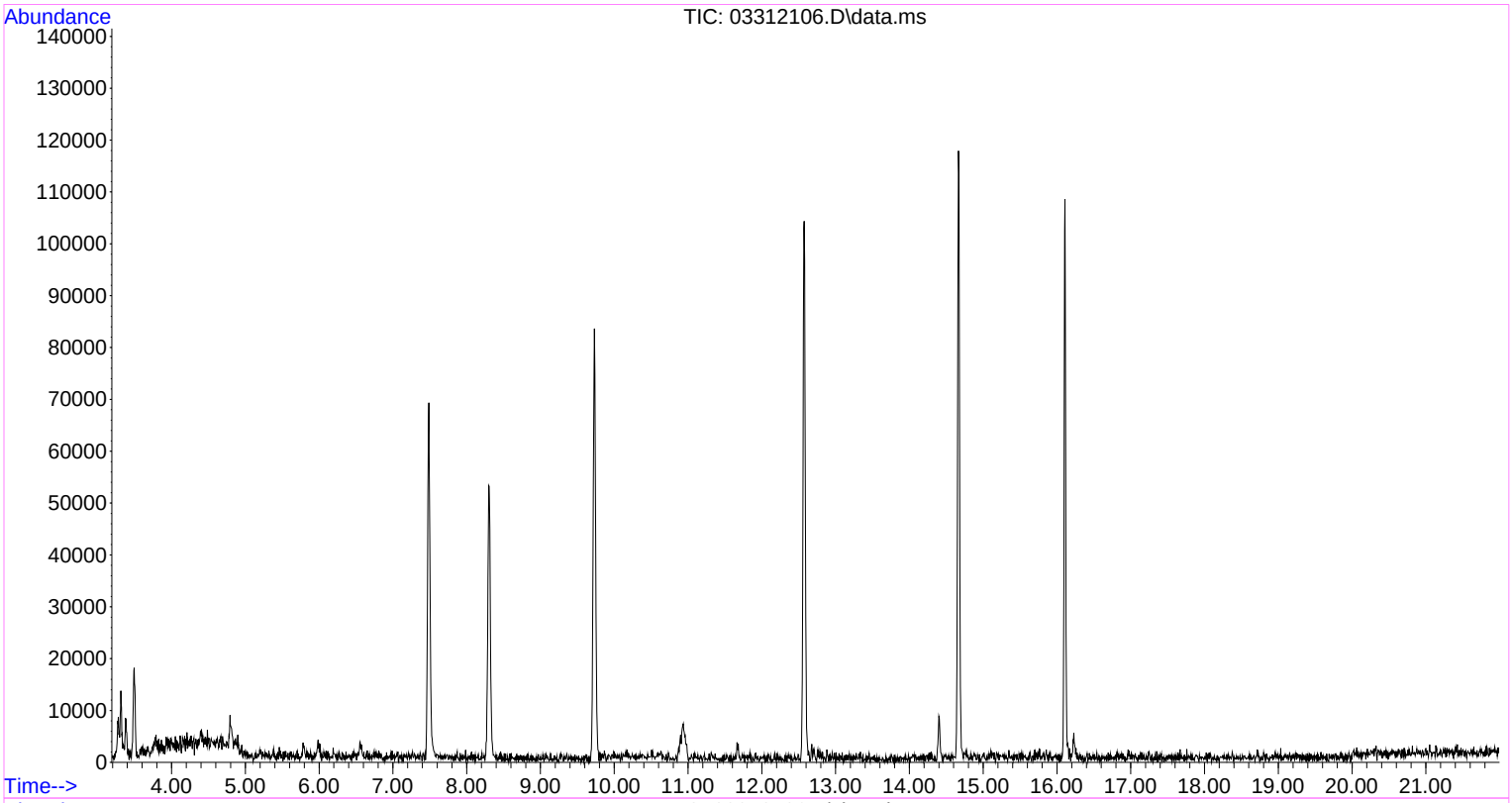
Quant Time: Apr 01 06:34:06 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

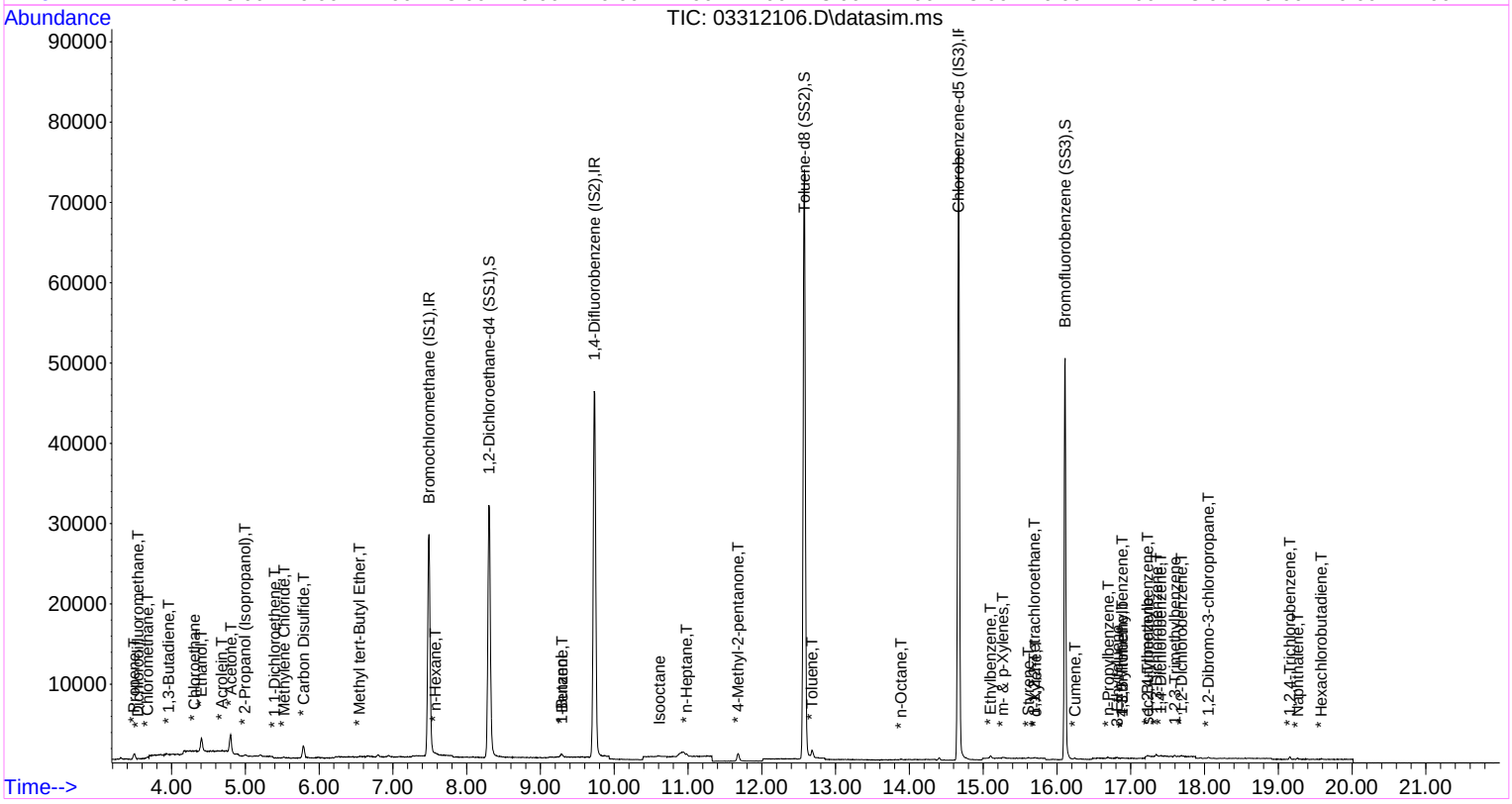
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
48) * 1,4-Dioxane	0.000		0	N.D.			
49] Isooctane	10.613	56	53	1.34	pg	#	1
50) * Methyl Methacrylate	0.000		0	N.D.			
51] * n-Heptane	10.978	71	168	6.16	pg	#	80
52) * cis-1,3-Dichloropropene	0.000		0	N.D.			
53] * 4-Methyl-2-pentanone	11.678	58	554	33.34	pg	#	82
54) * trans-1,3-Dichloropr...	0.000		0	N.D.			
55) * 1,1,2-Trichloroethane	0.000		0	N.D.			
58] * Toluene	12.680	91	982	10.55	pg		96
59) * 2-Hexanone	0.000		0	N.D.			
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	13.886	85	62	3.62	pg	#	8
64) * Tetrachloroethene	0.000		0	N.D.			
65) * Chlorobenzene	0.000		0	N.D.			
66] * Ethylbenzene	15.101	91	328	3.77	pg	#	88
67] * m- & p-Xylenes	15.266	91	236	3.38	pg	#	28
68) * Bromoform	0.000		0	N.D.			
69) Cyclohexanone	0.000		0	N.D.			
70] * Styrene	15.614	104	106	2.11	pg	#	61
71] * o-Xylene	15.711	91	60	0.83	pg	#	29
72) * n-Nonane	0.000		0	N.D.			
73] * 1,1,2,2-Tetrachloroe...	15.694	83	53	1.13	pg	#	17
75] * Cumene	16.246	105	140	1.40	pg	#	48
76) * alpha-Pinene	0.000		0	N.D.			
77] * n-Propylbenzene	16.692	91	185	1.65	pg	#	52
78] 3-Ethyltoluene	16.818	105	81	35.26	pg	#	42
79] * 4-Ethyltoluene	16.881	105	72	0.85	pg	#	44
80] * 1,3,5-Trimethylbenzene	16.881	105	72	0.96	pg	#	27
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	17.229	105	140	1.82	pg	#	24
85) * Benzyl Chloride	0.000		0	N.D.			
86] * 1,3-Dichlorobenzene	17.348	146	140	2.35	pg	#	18
87] * 1,4-Dichlorobenzene	17.407	146	86	1.70	pg	#	65
88) n-Decane	0.000		0	N.D.			
89] sec-Butylbenzene	17.229	105	140	1.82	pg	#	54
90] 1,2,3-Trimethylbenzene	17.602	105	55	9.88	pg	#	1
91) p-Isopropyltoluene	0.000		0	N.D.			
92] * 1,2-Dichlorobenzene	17.688	146	107	1.79	pg	#	71
93) * D-Limonene	0.000		0	N.D.			
94) n-Butylbenzene	0.000		0	N.D.			
95] * 1,2-Dibromo-3-chloro...	18.052	157	138	6.64	pg		90
96) n-Undecane	0.000		0	N.D.			
97] * 1,2,4-Trichlorobenzene	19.154	180	254	8.43	pg		100
98] * Naphthalene	19.262	128	199	2.79	pg	#	68
99) n-Dodecane	0.000		0	N.D.			
100] * Hexachlorobutadiene	19.582	225	81	2.21	pg	#	41

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

Data Path : I:\MS21\DATA\2021_03\31\
Data File : 03312106.D
Acq On : 31 Mar 2021 12:21
Operator : WA\RVT
Sample : 033121_AS01468_27403
Misc : LL+TICS (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Apr 01 06:34:06 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration





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LABORATORY REPORT

July 7, 2021

Larry Pannell, PG, PMP
KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100
Marlborough, MA 01752

RE: DDMT

Dear Larry:

Enclosed are the results of the sample submitted to our laboratory on June 10, 2021. For your reference, this analysis has been assigned our service request number P2103157.

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

Sue Anderson
Project Manager

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

Client: KOMAN Government Solutions, LLC
Project: DDMT

Service Request No: P2103157

CASE NARRATIVE

The sample was received intact under chain of custody on June 10, 2021 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 upper control criterion was exceeded for ethyl acetate in the Laboratory / Duplicate Laboratory Control Sample (LCS/DLCS). Therefore, a potential for a high bias exists for those associated sample concentrations reported with positive results. The data has been qualified accordingly.

The container was cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.3 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	4068-008
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: KOMAN Government Solutions, LLC Service Request: P2103157

Project ID: DDMT

Date Received: 6/10/2021

Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pfl (psig)	TO-15 - VOC Cans
ODSVE-EFF-Y10Q4	P2103157-001	Air	6/7/2021	08:24	AS00327	-0.13	3.66	X

Air - Chain of Custody Record & Analytical Service Request

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

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. R2103157

Company Name & Address (Reporting Information): Trinity ADL

Project Name: DPHT

Project Number:

Project Manager: Larry Parnell

P.O. # / Billing Information: 8975

Phone: 850 613 6800

Fax:

Email Address for Result Reporting: LParnell@konangs.com

Sampler (Print & Sign): Cody Miller

ALS Contact:

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	Analysis Method: TO-15		Comments e.g. Actual Preservative or specific instructions
ODSVE-EFF-410924	1	6/7/2021	0824	AS0037	—	-30	-2	6L	X		

Report Tier Levels - please select

Tier I - Results (Default if not specified) ____ Tier III (Results + QC & Calibration Summaries) ____

Tier II (Results + QC Summaries) ____ Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / No

Type: _____ Units: _____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Cody Miller	6/7/2021	1000			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
				6-10-21	0950

Cooler / Blank Temperature ____ °C

5 of 133

ALS Environmental

Sample Acceptance Check Form

Client: Trinity Analysis & Development Corp. Work order: P2103157

Project: DDMT

Sample(s) received on: 6/10/21 Date opened: 6/10/21 by: ADAVID

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.

		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 if necessary 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
P2103157-001	1.0 Silonite					
P2103157-002	1.0 Silonite					
P2103157-003	1.0 Silonite					

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

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **ODSVE-EFF-Y10Q4** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P2103157-001

Test Code: EPA TO-15 Date Collected: 6/7/21
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 6/10/21
Analyst: Wida Ang Date Analyzed: 6/24 - 6/25/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.20 Liter(s)
Container ID: AS00327

Initial Pressure (psig): -0.13 Final Pressure (psig): 3.66

Container Dilution Factor: 1.26

CAS #	Compound	Result ppbV		LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**0.13**		0.38	0.23	0.095	**J**
75-71-8	Dichlorodifluoromethane (CFC 12)	**0.73**		0.13	0.082	0.022	
74-87-3	Chloromethane		0.20	0.32	0.20	0.052	**U**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)		0.058	0.094	0.058	0.015	**U**
75-01-4	Vinyl Chloride	**0.072**		0.26	0.084	0.028	**J**
106-99-0	1,3-Butadiene		0.18	0.30	0.18	0.050	**U**
74-83-9	Bromomethane		0.055	0.17	0.055	0.024	**U**
75-00-3	Chloroethane		0.15	0.25	0.15	0.032	**U**
64-17-5	Ethanol	**29**		3.5	0.56	0.25	
75-05-8	Acetonitrile	**0.90**		0.40	0.24	0.098	
107-02-8	Acrolein	**0.18**		0.60	0.17	0.082	**J**
67-64-1	Acetone	**3.0**		2.8	1.4	0.64	
75-69-4	Trichlorofluoromethane	**0.28**		0.11	0.072	0.018	
67-63-0	2-Propanol (Isopropyl Alcohol)		0.32	0.51	0.32	0.11	**U**
107-13-1	Acrylonitrile		0.19	0.58	0.19	0.064	**U**
75-35-4	1,1-Dichloroethene	**0.54**		0.17	0.054	0.024	
75-09-2	Methylene Chloride		0.12	0.19	0.12	0.054	**U**
107-05-1	3-Chloro-1-propene (Allyl Chloride)		0.068	0.21	0.068	0.029	**U**
76-13-1	Trichlorotrifluoroethane	**5.2**		0.087	0.028	0.013	
75-15-0	Carbon Disulfide	**0.23**		0.40	0.22	0.065	**J**
156-60-5	trans-1,2-Dichloroethene	**0.52**		0.17	0.054	0.024	
75-34-3	1,1-Dichloroethane	**0.29**		0.17	0.10	0.024	
1634-04-4	Methyl tert-Butyl Ether		0.059	0.18	0.059	0.022	**U**
108-05-4	Vinyl Acetate		0.97	2.0	0.97	0.43	**U**
78-93-3	2-Butanone (MEK)	**0.49**		0.43	0.14	0.047	

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.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **ODSVE-EFF-Y10Q4** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P2103157-001

Test Code: EPA TO-15 Date Collected: 6/7/21
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 6/10/21
Analyst: Wida Ang Date Analyzed: 6/24 - 6/25/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.20 Liter(s)
Container ID: AS00327

Initial Pressure (psig): -0.13 Final Pressure (psig): 3.66

Container Dilution Factor: 1.26

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**24**	0.17	0.054	0.024	
141-78-6	Ethyl Acetate	0.23	0.35	0.23	0.098	**U**
110-54-3	n-Hexane	0.11	0.19	0.11	0.039	**U**
67-66-3	Chloroform	**5.8**	0.14	0.044	0.018	
109-99-9	Tetrahydrofuran (THF)	0.073	0.43	0.073	0.029	**U**
107-06-2	1,2-Dichloroethane	0.053	0.16	0.053	0.018	**U**
71-55-6	1,1,1-Trichloroethane	**0.23**	0.12	0.039	0.015	
71-43-2	Benzene	**0.041**	0.21	0.067	0.030	**J**
56-23-5	Carbon Tetrachloride	**0.51**	0.10	0.034	0.015	
110-82-7	Cyclohexane	0.12	0.37	0.12	0.055	**U**
78-87-5	1,2-Dichloropropane	0.046	0.14	0.046	0.018	**U**
75-27-4	Bromodichloromethane	0.032	0.098	0.032	0.014	**U**
79-01-6	Trichloroethene	**26**	0.60	0.20	0.084	**D**
123-91-1	1,4-Dioxane	0.059	0.18	0.059	0.022	**U**
80-62-6	Methyl Methacrylate	0.20	0.31	0.20	0.058	**U**
142-82-5	n-Heptane	0.098	0.16	0.098	0.026	**U**
10061-01-5	cis-1,3-Dichloropropene	0.047	0.15	0.047	0.023	**U**
108-10-1	4-Methyl-2-pentanone	0.052	0.31	0.052	0.022	**U**
10061-02-6	trans-1,3-Dichloropropene	0.089	0.14	0.089	0.031	**U**
79-00-5	1,1,2-Trichloroethane	0.039	0.12	0.039	0.012	**U**
108-88-3	Toluene	**0.19**	0.17	0.057	0.022	
591-78-6	2-Hexanone	0.052	0.31	0.052	0.020	**U**
124-48-1	Dibromochloromethane	0.025	0.077	0.025	0.010	**U**
106-93-4	1,2-Dibromoethane	0.028	0.085	0.028	0.010	**U**
123-86-4	n-Butyl Acetate	0.045	0.27	0.045	0.019	**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.
D = The reported result is from a dilution.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **ODSVE-EFF-Y10Q4** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P2103157-001

Test Code: EPA TO-15 Date Collected: 6/7/21
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 6/10/21
Analyst: Wida Ang Date Analyzed: 6/24 - 6/25/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.20 Liter(s)
Container ID: AS00327

Initial Pressure (psig): -0.13 Final Pressure (psig): 3.66

Container Dilution Factor: 1.26

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.086	0.14	0.086	0.032	**U**
127-18-4	Tetrachloroethene	**2.7**	0.097	0.032	0.013	
108-90-7	Chlorobenzene	0.047	0.14	0.047	0.019	**U**
100-41-4	Ethylbenzene	**0.056**	0.15	0.049	0.022	**J**
179601-23-1	m,p-Xylenes	**0.054**	0.29	0.099	0.041	**J**
75-25-2	Bromoform	0.039	0.065	0.039	0.013	**U**
100-42-5	Styrene	**0.066**	0.15	0.095	0.025	**J**
95-47-6	o-Xylene	0.049	0.15	0.049	0.022	**U**
111-84-2	n-Nonane	0.077	0.13	0.077	0.021	**U**
79-34-5	1,1,2,2-Tetrachloroethane	**0.19**	0.097	0.031	0.014	
98-82-8	Cumene	0.044	0.13	0.044	0.020	**U**
80-56-8	alpha-Pinene	0.072	0.12	0.072	0.019	**U**
103-65-1	n-Propylbenzene	0.044	0.13	0.044	0.020	**U**
622-96-8	4-Ethyltoluene	0.082	0.14	0.082	0.022	**U**
108-67-8	1,3,5-Trimethylbenzene	0.044	0.14	0.044	0.020	**U**
95-63-6	1,2,4-Trimethylbenzene	0.044	0.13	0.044	0.019	**U**
100-44-7	Benzyl Chloride	0.078	0.26	0.078	0.029	**U**
541-73-1	1,3-Dichlorobenzene	0.036	0.11	0.036	0.017	**U**
106-46-7	1,4-Dichlorobenzene	0.067	0.11	0.067	0.017	**U**
95-50-1	1,2-Dichlorobenzene	0.036	0.11	0.036	0.017	**U**
5989-27-5	d-Limonene	0.072	0.12	0.072	0.025	**U**
96-12-8	1,2-Dibromo-3-chloropropane	0.042	0.13	0.042	0.013	**U**
120-82-1	1,2,4-Trichlorobenzene	0.054	0.17	0.054	0.022	**U**
91-20-3	Naphthalene	0.075	0.13	0.075	0.031	**U**
87-68-3	Hexachlorobutadiene	0.038	0.061	0.038	0.013	**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

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Method Blank** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P210624-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/24/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.19	0.30	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	0.25	0.16	0.042	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.046	0.074	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	0.13	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	0.48	0.14	0.065	U
67-64-1	Acetone	1.1	2.2	1.1	0.51	U
75-69-4	Trichlorofluoromethane	0.057	0.091	0.057	0.014	U
67-63-0	2-Propanol (Isopropyl Alcohol)	0.26	0.41	0.26	0.090	U
107-13-1	Acrylonitrile	0.15	0.46	0.15	0.051	U
75-35-4	1,1-Dichloroethene	0.043	0.13	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	0.069	0.022	0.0099	U
75-15-0	Carbon Disulfide	0.17	0.32	0.17	0.051	U
156-60-5	trans-1,2-Dichloroethene	0.043	0.13	0.043	0.019	U
75-34-3	1,1-Dichloroethane	0.082	0.13	0.082	0.019	U
1634-04-4	Methyl tert-Butyl Ether	0.047	0.14	0.047	0.017	U
108-05-4	Vinyl Acetate	0.77	1.6	0.77	0.34	U
78-93-3	2-Butanone (MEK)	0.11	0.34	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.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Method Blank** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P210624-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/24/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

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	0.28	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	0.34	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	0.095	0.031	0.012	**U**
71-43-2	Benzene	0.053	0.16	0.053	0.024	**U**
56-23-5	Carbon Tetrachloride	0.027	0.081	0.027	0.012	**U**
110-82-7	Cyclohexane	0.099	0.29	0.099	0.044	**U**
78-87-5	1,2-Dichloropropane	0.037	0.11	0.037	0.014	**U**
75-27-4	Bromodichloromethane	0.025	0.078	0.025	0.011	**U**
79-01-6	Trichloroethene	0.032	0.095	0.032	0.013	**U**
123-91-1	1,4-Dioxane	0.047	0.14	0.047	0.017	**U**
80-62-6	Methyl Methacrylate	0.16	0.24	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	0.12	0.037	0.018	**U**
108-10-1	4-Methyl-2-pentanone	0.041	0.24	0.041	0.018	**U**
10061-02-6	trans-1,3-Dichloropropene	0.071	0.11	0.071	0.024	**U**
79-00-5	1,1,2-Trichloroethane	0.031	0.095	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	0.24	0.042	0.016	**U**
124-48-1	Dibromochloromethane	0.020	0.061	0.020	0.0082	**U**
106-93-4	1,2-Dibromoethane	0.022	0.068	0.022	0.0081	**U**
123-86-4	n-Butyl Acetate	0.036	0.21	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.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Method Blank** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P210624-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/24/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.069	0.11	0.069	0.026	**U**
127-18-4	Tetrachloroethene	0.025	0.077	0.025	0.010	**U**
108-90-7	Chlorobenzene	0.037	0.11	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	0.23	0.078	0.032	**U**
75-25-2	Bromoform	0.031	0.051	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	0.077	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	0.095	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	0.20	0.062	0.023	**U**
541-73-1	1,3-Dichlorobenzene	0.028	0.088	0.028	0.013	**U**
106-46-7	1,4-Dichlorobenzene	0.053	0.087	0.053	0.014	**U**
95-50-1	1,2-Dichlorobenzene	0.028	0.088	0.028	0.013	**U**
5989-27-5	d-Limonene	0.057	0.093	0.057	0.020	**U**
96-12-8	1,2-Dibromo-3-chloropropane	0.033	0.10	0.033	0.010	**U**
120-82-1	1,2,4-Trichlorobenzene	0.043	0.13	0.043	0.018	**U**
91-20-3	Naphthalene	0.059	0.099	0.059	0.025	**U**
87-68-3	Hexachlorobutadiene	0.030	0.049	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

RESULTS OF ANALYSIS

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Method Blank** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P210625-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/25/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.19	0.30	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	0.25	0.16	0.042	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.046	0.074	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	0.13	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	0.48	0.14	0.065	U
67-64-1	Acetone	1.1	2.2	1.1	0.51	U
75-69-4	Trichlorofluoromethane	0.057	0.091	0.057	0.014	U
67-63-0	2-Propanol (Isopropyl Alcohol)	0.26	0.41	0.26	0.090	U
107-13-1	Acrylonitrile	0.15	0.46	0.15	0.051	U
75-35-4	1,1-Dichloroethene	0.043	0.13	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	0.069	0.022	0.0099	U
75-15-0	Carbon Disulfide	0.17	0.32	0.17	0.051	U
156-60-5	trans-1,2-Dichloroethene	0.043	0.13	0.043	0.019	U
75-34-3	1,1-Dichloroethane	0.082	0.13	0.082	0.019	U
1634-04-4	Methyl tert-Butyl Ether	0.047	0.14	0.047	0.017	U
108-05-4	Vinyl Acetate	0.77	1.6	0.77	0.34	U
78-93-3	2-Butanone (MEK)	0.11	0.34	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.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Method Blank** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P210625-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/25/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

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	0.28	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	0.34	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	0.095	0.031	0.012	**U**
71-43-2	Benzene	0.053	0.16	0.053	0.024	**U**
56-23-5	Carbon Tetrachloride	0.027	0.081	0.027	0.012	**U**
110-82-7	Cyclohexane	0.099	0.29	0.099	0.044	**U**
78-87-5	1,2-Dichloropropane	0.037	0.11	0.037	0.014	**U**
75-27-4	Bromodichloromethane	0.025	0.078	0.025	0.011	**U**
79-01-6	Trichloroethene	0.032	0.095	0.032	0.013	**U**
123-91-1	1,4-Dioxane	0.047	0.14	0.047	0.017	**U**
80-62-6	Methyl Methacrylate	0.16	0.24	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	0.12	0.037	0.018	**U**
108-10-1	4-Methyl-2-pentanone	0.041	0.24	0.041	0.018	**U**
10061-02-6	trans-1,3-Dichloropropene	0.071	0.11	0.071	0.024	**U**
79-00-5	1,1,2-Trichloroethane	0.031	0.095	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	0.24	0.042	0.016	**U**
124-48-1	Dibromochloromethane	0.020	0.061	0.020	0.0082	**U**
106-93-4	1,2-Dibromoethane	0.022	0.068	0.022	0.0081	**U**
123-86-4	n-Butyl Acetate	0.036	0.21	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.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Method Blank** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P210625-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/25/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.069	0.11	0.069	0.026	**U**
127-18-4	Tetrachloroethene	0.025	0.077	0.025	0.010	**U**
108-90-7	Chlorobenzene	0.037	0.11	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	0.23	0.078	0.032	**U**
75-25-2	Bromoform	0.031	0.051	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	0.077	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	0.095	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	0.20	0.062	0.023	**U**
541-73-1	1,3-Dichlorobenzene	0.028	0.088	0.028	0.013	**U**
106-46-7	1,4-Dichlorobenzene	0.053	0.087	0.053	0.014	**U**
95-50-1	1,2-Dichlorobenzene	0.028	0.088	0.028	0.013	**U**
5989-27-5	d-Limonene	0.057	0.093	0.057	0.020	**U**
96-12-8	1,2-Dibromo-3-chloropropane	0.033	0.10	0.033	0.010	**U**
120-82-1	1,2,4-Trichlorobenzene	0.043	0.13	0.043	0.018	**U**
91-20-3	Naphthalene	0.059	0.099	0.059	0.025	**U**
87-68-3	Hexachlorobutadiene	0.030	0.049	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

Client: **KOMAN Government Solutions, LLC**
Client Project ID: **DDMT** ALS Project ID: P2103157

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date(s) Collected: 6/7/21
Analyst: Wida Ang Date(s) Received: 6/10/21
Sampling Media: 6.0 L Silonite Canister(s) Date(s) Analyzed: 6/24 - 6/25/21
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P210624-MB	**88**	**104**	**106**	70-130	
Method Blank	P210625-MB	**96**	**103**	**102**	70-130	
Lab Control Sample	P210624-LCS	**97**	**98**	**110**	70-130	
Lab Control Sample	P210625-LCS	**98**	**98**	**107**	70-130	
Duplicate Lab Control Sample	P210624-DLCS	**95**	**98**	**112**	70-130	
Duplicate Lab Control Sample	P210625-DLCS	**97**	**98**	**109**	70-130	
ODSVE-EFF-Y10Q4	P2103157-001	**87**	**104**	**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 / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P210624-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/24/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ppbV	Result LCS ppbV	Result DLCS ppbV	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	122	94.4	94.2	**77**	**77**	57-136	0	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	42.5	36.9	37.6	**87**	**88**	59-128	1	25	
74-87-3	Chloromethane	99.8	73.1	69.2	**73**	**69**	59-132	6	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	30.9	27.8	28.7	**90**	**93**	63-121	3	25	
75-01-4	Vinyl Chloride	81.4	73.6	75.0	**90**	**92**	64-127	2	25	
106-99-0	1,3-Butadiene	95.0	86.8	88.6	**91**	**93**	66-134	2	25	
74-83-9	Bromomethane	54.6	47.1	48.9	**86**	**90**	63-134	5	25	
75-00-3	Chloroethane	77.3	67.3	68.9	**87**	**89**	63-127	2	25	
64-17-5	Ethanol	530	418	424	**79**	**80**	59-125	1	25	
75-05-8	Acetonitrile	120	104	108	**87**	**90**	63-132	3	25	
107-02-8	Acrolein	190	172	174	**91**	**92**	62-126	1	25	
67-64-1	Acetone	435	410	411	**94**	**94**	58-128	0	25	
75-69-4	Trichlorofluoromethane	36.3	32.0	32.6	**88**	**90**	62-126	2	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	166	164	165	**99**	**99**	52-125	0	25	
107-13-1	Acrylonitrile	189	184	185	**97**	**98**	71-137	1	25	
75-35-4	1,1-Dichloroethene	53.5	48.5	49.6	**91**	**93**	61-133	2	25	
75-09-2	Methylene Chloride	59.9	54.7	55.1	**91**	**92**	62-115	1	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	67.1	54.4	55.1	**81**	**82**	71-131	1	25	
76-13-1	Trichlorotrifluoroethane	27.9	25.1	26.1	**90**	**94**	66-126	4	25	
75-15-0	Carbon Disulfide	137	119	120	**87**	**88**	57-134	1	25	
156-60-5	trans-1,2-Dichloroethene	53.5	50.7	51.2	**95**	**96**	67-124	1	25	
75-34-3	1,1-Dichloroethane	52.4	46.6	46.5	**89**	**89**	68-126	0	25	
1634-04-4	Methyl tert-Butyl Ether	58.8	43.5	40.2	**74**	**68**	66-126	8	25	
108-05-4	Vinyl Acetate	313	213	214	**68**	**68**	56-139	0	25	
78-93-3	2-Butanone (MEK)	140	138	138	**99**	**99**	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.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P210624-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/24/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ppbV	Result LCS ppbV	Result DLCS ppbV	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	52.5	48.4	48.4	**92**	**92**	70-121	0	25	
141-78-6	Ethyl Acetate	117	174	173	**149**	**148**	65-128	0.7	25	**L**
110-54-3	n-Hexane	60.2	61.0	60.9	**101**	**101**	63-120	0	25	
67-66-3	Chloroform	43.8	40.5	40.5	**92**	**92**	68-123	0	25	
109-99-9	Tetrahydrofuran (THF)	136	122	123	**90**	**90**	64-123	0	25	
107-06-2	1,2-Dichloroethane	51.4	48.1	48.3	**94**	**94**	65-128	0	25	
71-55-6	1,1,1-Trichloroethane	37.8	34.3	34.2	**91**	**90**	68-125	1	25	
71-43-2	Benzene	63.9	60.1	60.3	**94**	**94**	69-119	0	25	
56-23-5	Carbon Tetrachloride	33.4	30.8	30.8	**92**	**92**	68-132	0	25	
110-82-7	Cyclohexane	121	112	111	**93**	**92**	70-117	1	25	
78-87-5	1,2-Dichloropropane	44.6	40.9	41.0	**92**	**92**	69-123	0	25	
75-27-4	Bromodichloromethane	31.4	30.2	30.4	**96**	**97**	72-128	1	25	
79-01-6	Trichloroethene	38.3	37.4	37.8	**98**	**99**	71-123	1	25	
123-91-1	1,4-Dioxane	57.7	56.1	56.1	**97**	**97**	71-122	0	25	
80-62-6	Methyl Methacrylate	102	116	117	**114**	**115**	70-128	0.9	25	
142-82-5	n-Heptane	51.3	48.2	48.3	**94**	**94**	69-123	0	25	
10061-01-5	cis-1,3-Dichloropropene	46.3	48.6	48.4	**105**	**105**	70-128	0	25	
108-10-1	4-Methyl-2-pentanone	102	100	100	**98**	**98**	67-130	0	25	
10061-02-6	trans-1,3-Dichloropropene	44.5	45.9	46.0	**103**	**103**	75-133	0	25	
79-00-5	1,1,2-Trichloroethane	37.8	37.3	37.7	**99**	**100**	73-119	1	25	
108-88-3	Toluene	54.7	50.6	51.7	**93**	**95**	66-119	2	25	
591-78-6	2-Hexanone	98.7	101	102	**102**	**103**	62-128	1	25	
124-48-1	Dibromochloromethane	24.7	25.2	25.8	**102**	**104**	70-130	2	25	
106-93-4	1,2-Dibromoethane	27.1	28.4	29.0	**105**	**107**	74-122	2	25	
123-86-4	n-Butyl Acetate	85.5	90.0	91.0	**105**	**106**	65-134	0.9	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.
L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P210624-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/24/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ppbV	Result LCS ppbV	Result DLCS ppbV	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
111-65-9	n-Octane	45.0	40.7	41.3	**90**	**92**	69-121	2	25	
127-18-4	Tetrachloroethene	30.4	29.8	30.4	**98**	**100**	66-124	2	25	
108-90-7	Chlorobenzene	44.7	41.7	42.6	**93**	**95**	70-119	2	25	
100-41-4	Ethylbenzene	47.4	47.2	48.2	**100**	**102**	70-124	2	25	
179601-23-1	m,p-Xylenes	94.9	96.6	98.5	**102**	**104**	61-134	2	25	
75-25-2	Bromoform	20.1	22.5	23.3	**112**	**116**	66-139	4	25	
100-42-5	Styrene	48.4	50.4	51.5	**104**	**106**	73-127	2	25	
95-47-6	o-Xylene	47.4	47.6	49.3	**100**	**104**	67-125	4	25	
111-84-2	n-Nonane	39.7	36.4	37.1	**92**	**93**	63-128	1	25	
79-34-5	1,1,2,2-Tetrachloroethane	30.0	29.9	30.5	**100**	**102**	65-127	2	25	
98-82-8	Cumene	42.3	42.7	43.6	**101**	**103**	68-124	2	25	
80-56-8	alpha-Pinene	38.4	38.8	39.9	**101**	**104**	62-136	3	25	
103-65-1	n-Propylbenzene	42.3	44.5	45.4	**105**	**107**	69-123	2	25	
622-96-8	4-Ethyltoluene	42.7	47.6	48.5	**111**	**114**	67-129	3	25	
108-67-8	1,3,5-Trimethylbenzene	41.9	42.5	43.2	**101**	**103**	67-130	2	25	
95-63-6	1,2,4-Trimethylbenzene	41.5	48.6	49.4	**117**	**119**	66-132	2	25	
100-44-7	Benzyl Chloride	77.7	95.0	96.8	**122**	**125**	50-147	2	25	
541-73-1	1,3-Dichlorobenzene	34.3	36.3	36.5	**106**	**106**	65-130	0	25	
106-46-7	1,4-Dichlorobenzene	33.9	35.6	36.7	**105**	**108**	60-131	3	25	
95-50-1	1,2-Dichlorobenzene	34.3	39.2	39.9	**114**	**116**	63-129	2	25	
5989-27-5	d-Limonene	37.3	38.2	38.8	**102**	**104**	65-136	2	25	
96-12-8	1,2-Dibromo-3-chloropropane	38.3	43.8	44.3	**114**	**116**	73-133	2	25	
120-82-1	1,2,4-Trichlorobenzene	52.3	53.1	54.2	**102**	**104**	55-142	2	25	
91-20-3	Naphthalene	37.8	35.7	36.5	**94**	**97**	57-138	3	25	
87-68-3	Hexachlorobutadiene	19.7	20.4	20.9	**104**	**106**	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

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P210625-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/25/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ppbV	Result LCS ppbV	Result DLCS ppbV	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	122	94.9	95.6	**78**	**78**	57-136	0	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	42.5	36.1	37.1	**85**	**87**	59-128	2	25	
74-87-3	Chloromethane	99.8	70.3	70.4	**70**	**71**	59-132	1	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	30.9	27.3	28.0	**88**	**91**	63-121	3	25	
75-01-4	Vinyl Chloride	81.4	74.1	73.8	**91**	**91**	64-127	0	25	
106-99-0	1,3-Butadiene	95.0	87.4	88.0	**92**	**93**	66-134	1	25	
74-83-9	Bromomethane	54.6	46.0	47.7	**84**	**87**	63-134	4	25	
75-00-3	Chloroethane	77.3	67.1	68.3	**87**	**88**	63-127	1	25	
64-17-5	Ethanol	530	419	422	**79**	**80**	59-125	1	25	
75-05-8	Acetonitrile	120	108	106	**90**	**88**	63-132	2	25	
107-02-8	Acrolein	190	172	173	**91**	**91**	62-126	0	25	
67-64-1	Acetone	435	412	412	**95**	**95**	58-128	0	25	
75-69-4	Trichlorofluoromethane	36.3	31.5	31.7	**87**	**87**	62-126	0	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	166	165	166	**99**	**100**	52-125	1	25	
107-13-1	Acrylonitrile	189	186	185	**98**	**98**	71-137	0	25	
75-35-4	1,1-Dichloroethene	53.5	47.8	48.2	**89**	**90**	61-133	1	25	
75-09-2	Methylene Chloride	59.9	54.0	54.1	**90**	**90**	62-115	0	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	67.1	55.1	55.0	**82**	**82**	71-131	0	25	
76-13-1	Trichlorotrifluoroethane	27.9	24.6	25.1	**88**	**90**	66-126	2	25	
75-15-0	Carbon Disulfide	137	118	118	**86**	**86**	57-134	0	25	
156-60-5	trans-1,2-Dichloroethene	53.5	50.5	50.9	**94**	**95**	67-124	1	25	
75-34-3	1,1-Dichloroethane	52.4	46.3	46.3	**88**	**88**	68-126	0	25	
1634-04-4	Methyl tert-Butyl Ether	58.8	46.2	46.5	**79**	**79**	66-126	0	25	
108-05-4	Vinyl Acetate	313	211	209	**67**	**67**	56-139	0	25	
78-93-3	2-Butanone (MEK)	140	135	134	**96**	**96**	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.

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P210625-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/25/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ppbV	Result LCS ppbV	Result DLCS ppbV	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	52.5	48.1	48.4	**92**	**92**	70-121	0	25	
141-78-6	Ethyl Acetate	117	176	172	**150**	**147**	65-128	2	25	**L**
110-54-3	n-Hexane	60.2	61.6	61.0	**102**	**101**	63-120	1	25	
67-66-3	Chloroform	43.8	39.8	39.7	**91**	**91**	68-123	0	25	
109-99-9	Tetrahydrofuran (THF)	136	121	120	**89**	**88**	64-123	1	25	
107-06-2	1,2-Dichloroethane	51.4	47.3	46.9	**92**	**91**	65-128	1	25	
71-55-6	1,1,1-Trichloroethane	37.8	33.6	34.1	**89**	**90**	68-125	1	25	
71-43-2	Benzene	63.9	59.2	59.5	**93**	**93**	69-119	0	25	
56-23-5	Carbon Tetrachloride	33.4	30.4	30.5	**91**	**91**	68-132	0	25	
110-82-7	Cyclohexane	121	111	112	**92**	**93**	70-117	1	25	
78-87-5	1,2-Dichloropropane	44.6	40.5	40.6	**91**	**91**	69-123	0	25	
75-27-4	Bromodichloromethane	31.4	29.6	29.7	**94**	**95**	72-128	1	25	
79-01-6	Trichloroethene	38.3	36.3	36.7	**95**	**96**	71-123	1	25	
123-91-1	1,4-Dioxane	57.7	54.4	54.6	**94**	**95**	71-122	1	25	
80-62-6	Methyl Methacrylate	102	113	114	**111**	**112**	70-128	0.9	25	
142-82-5	n-Heptane	51.3	47.7	47.6	**93**	**93**	69-123	0	25	
10061-01-5	cis-1,3-Dichloropropene	46.3	47.4	47.8	**102**	**103**	70-128	1	25	
108-10-1	4-Methyl-2-pentanone	102	99.6	99.7	**98**	**98**	67-130	0	25	
10061-02-6	trans-1,3-Dichloropropene	44.5	44.9	45.2	**101**	**102**	75-133	1	25	
79-00-5	1,1,2-Trichloroethane	37.8	36.6	36.8	**97**	**97**	73-119	0	25	
108-88-3	Toluene	54.7	49.2	50.1	**90**	**92**	66-119	2	25	
591-78-6	2-Hexanone	98.7	100	101	**101**	**102**	62-128	1	25	
124-48-1	Dibromochloromethane	24.7	24.4	24.9	**99**	**101**	70-130	2	25	
106-93-4	1,2-Dibromoethane	27.1	27.4	28.1	**101**	**104**	74-122	3	25	
123-86-4	n-Butyl Acetate	85.5	89.7	90.6	**105**	**106**	65-134	0.9	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.
L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **KOMAN Government Solutions, LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103157
Client Project ID: **DDMT** ALS Sample ID: P210625-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/25/21
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ppbV	Result LCS ppbV	Result DLCS ppbV	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
111-65-9	n-Octane	45.0	40.0	40.4	**89**	**90**	69-121	1	25	
127-18-4	Tetrachloroethene	30.4	28.5	29.1	**94**	**96**	66-124	2	25	
108-90-7	Chlorobenzene	44.7	40.4	41.3	**90**	**92**	70-119	2	25	
100-41-4	Ethylbenzene	47.4	46.1	46.8	**97**	**99**	70-124	2	25	
179601-23-1	m,p-Xylenes	94.9	94.4	95.4	**99**	**101**	61-134	2	25	
75-25-2	Bromoform	20.1	21.8	22.3	**108**	**111**	66-139	3	25	
100-42-5	Styrene	48.4	49.0	49.6	**101**	**102**	73-127	1	25	
95-47-6	o-Xylene	47.4	47.2	47.7	**100**	**101**	67-125	1	25	
111-84-2	n-Nonane	39.7	36.4	36.8	**92**	**93**	63-128	1	25	
79-34-5	1,1,2,2-Tetrachloroethane	30.0	29.2	29.5	**97**	**98**	65-127	1	25	
98-82-8	Cumene	42.3	41.6	42.2	**98**	**100**	68-124	2	25	
80-56-8	alpha-Pinene	38.4	38.0	38.7	**99**	**101**	62-136	2	25	
103-65-1	n-Propylbenzene	42.3	43.5	44.0	**103**	**104**	69-123	1	25	
622-96-8	4-Ethyltoluene	42.7	46.4	47.1	**109**	**110**	67-129	0.9	25	
108-67-8	1,3,5-Trimethylbenzene	41.9	41.4	42.0	**99**	**100**	67-130	1	25	
95-63-6	1,2,4-Trimethylbenzene	41.5	47.9	48.2	**115**	**116**	66-132	0.9	25	
100-44-7	Benzyl Chloride	77.7	93.7	95.0	**121**	**122**	50-147	0.8	25	
541-73-1	1,3-Dichlorobenzene	34.3	35.1	35.4	**102**	**103**	65-130	1	25	
106-46-7	1,4-Dichlorobenzene	33.9	34.6	35.4	**102**	**104**	60-131	2	25	
95-50-1	1,2-Dichlorobenzene	34.3	38.2	38.5	**111**	**112**	63-129	0.9	25	
5989-27-5	d-Limonene	37.3	37.5	38.0	**101**	**102**	65-136	1	25	
96-12-8	1,2-Dibromo-3-chloropropane	38.3	42.2	42.7	**110**	**111**	73-133	0.9	25	
120-82-1	1,2,4-Trichlorobenzene	52.3	50.9	51.9	**97**	**99**	55-142	2	25	
91-20-3	Naphthalene	37.8	34.5	35.0	**91**	**93**	57-138	2	25	
87-68-3	Hexachlorobutadiene	19.7	19.5	19.7	**99**	**100**	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.

Client: **KOMAN Government Solutions, LLC** ALS Project ID: P2103157
Client Project ID: **DDMT**

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Lab File ID: 06242103.D
Analyst: Wida Ang Date Analyzed: 6/24/21
Sampling Media: 6.0 L Silonite Canister(s) Time Analyzed: 02:14
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P210624-LCS	06242104.D	02:48
Duplicate Lab Control Sample	P210624-DLCS	06242105.D	03:22
ODSVE-EFF-Y10Q4	P2103157-001	06242128.D	20:00

Client: **KOMAN Government Solutions, LLC** ALS Project ID: P2103157
Client Project ID: **DDMT**

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Lab File ID: 06252103.D
Analyst: Wida Ang Date Analyzed: 6/25/21
Sampling Media: 6.0 L Silonite Canister(s) Time Analyzed: 02:45
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P210625-LCS	06252104.D	03:19
Duplicate Lab Control Sample	P210625-DLCS	06252105.D	03:52
ODSVE-EFF-Y10Q4 (Dilution)	P2103157-001	06252112.D	07:57

Client: **KOMAN Government Solutions, LLC** ALS Project ID: P2103157
Client Project ID: **DDMT**

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Lab File ID: 06242102.D
Analyst: Wida Ang Date Analyzed: 6/24/21
Sampling Media: 6.0 L Silonite Canister(s) Time Analyzed: 01:40
Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	139432		11.17	632013		13.29		164154		17.61	
	Upper Limit	195205		11.50	884818		13.62		229816		17.94	
	Lower Limit	83659		10.84	379208		12.96		98492		17.28	
	Client Sample ID											
01	Method Blank	126032		11.16	593089		13.29		151614		17.61	
02	Lab Control Sample	139646		11.18	648987		13.30		174571		17.61	
03	Duplicate Lab Control Sample	141887		11.18	661423		13.30		174309		17.61	
04	ODSVE-EFF-Y10Q4	108723		11.17	539632		13.30		140293		17.61	
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.

Client: **KOMAN Government Solutions, LLC** ALS Project ID: P2103157
Client Project ID: **DDMT**

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Lab File ID: 06252102.D
Analyst: Wida Ang Date Analyzed: 6/25/21
Sampling Media: 6.0 L Silonite Canister(s) Time Analyzed: 02:11
Test Notes:

		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 Hour Standard	128994	11.17	596589	13.29	154350	17.61
	Upper Limit	180592	11.50	835225	13.62	216090	17.94
	Lower Limit	77396	10.84	357953	12.96	92610	17.28
	Client Sample ID						
01	Method Blank	115426	11.16	548858	13.29	141169	17.61
02	Lab Control Sample	129570	11.18	606408	13.30	164338	17.61
03	Duplicate Lab Control Sample	134952	11.18	625721	13.30	167143	17.61
04	ODSVE-EFF-Y10Q4 (Dilution)	109444	11.17	527846	13.29	138460	17.61
05							
06							
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12							
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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.

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242128.D Vial: 7
Acq On : 24 Jun 2021 20:00 Operator: WA
Sample : P2103157-001 (1000mL) Inst : MS13
Misc : S34-06112101

Quant Time: Jun 27 19:24:18 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	108723	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.30	114	539632	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.61	54	140293	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.02	65	196441	10.922	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 87.36%				
57) Toluene-d8 (SS2)	15.74	98	654190	12.969	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.76%				
73) Bromofluorobenzene (SS3)	19.00	174	177655	12.378	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.04%				
Target Compounds							Qvalue
2) Propene	4.17	42	3654	0.181	ng		94
3) Dichlorodifluoromethan...	4.31	85	73192	2.866	ng		99
4) Chloromethane	4.59	50	917	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	1042	0.082	ng		68
6) Vinyl Chloride	5.02	62	3393	0.146	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.			
10) Ethanol	6.39	45	533702	43.470	ng		100
11) Acetonitrile	6.67	41	37246	1.205	ng		95
12) Acrolein	6.89	56	2935	0.325	ng		93
13) Acetone	7.08	58	63596	5.645	ng	#	82
14) Trichlorofluoromethane	7.28	101	28982	1.264	ng		100
15) 2-Propanol (Isopropanol)	7.49	45	1818	N.D.			
16) Acrylonitrile	7.87	53	122	N.D.			
17) 1,1-Dichloroethene	8.24	96	18723	1.699	ng		99
18) 2-Methyl-2-Propanol (t...	8.24	59	1150	N.D.			
19) Methylene Chloride	8.45	84	714	0.060	ng		89
20) 3-Chloro-1-propene (Al...	8.63	41	404	N.D.			
21) Trichlorotrifluoroethane	8.87	151	280601	31.741	ng		98
22) Carbon Disulfide	8.72	76	25760	0.567	ng		98
23) trans-1,2-Dichloroethene	9.73	61	29318	1.627	ng		99
24) 1,1-Dichloroethane	9.97	63	21399	0.937	ng		100
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	10.24	86	2021	0.725	ng	#	95
27) 2-Butanone (MEK)	10.54	72	9415	1.152	ng		94
28) cis-1,2-Dichloroethene	10.98	61	1379536	75.605	ng		99
29) Diisopropyl Ether	0.00	87	0	N.D. d			
30) Ethyl Acetate	0.00	61	0	N.D. d			
31) n-Hexane	0.00	57	0	N.D. d			
32) Chloroform	11.33	83	494318	22.607	ng		99
34) Tetrahydrofuran (THF)	11.90	72	184	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.15	62	748	N.D.			
38) 1,1,1-Trichloroethane	12.42	97	20563	0.981	ng	#	87
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	12.96	56	3536	No Calib			
41) Benzene	12.91	78	5263	0.104	ng		98
42) Carbon Tetrachloride	13.06	117	47656	2.540	ng		100
43) Cyclohexane	13.19	84	834	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	13.74	63	257	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D. d			
47) Trichloroethene	14.00	130	1878591	145.187	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D. d			
50) Methyl Methacrylate	0.00	100	0	N.D. d			

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242128.D Vial: 7
Acq On : 24 Jun 2021 20:00 Operator: WA
Sample : P2103157-001 (1000mL) Inst : MS13
Misc : S34-06112101

Quant Time: Jun 27 19:24:18 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

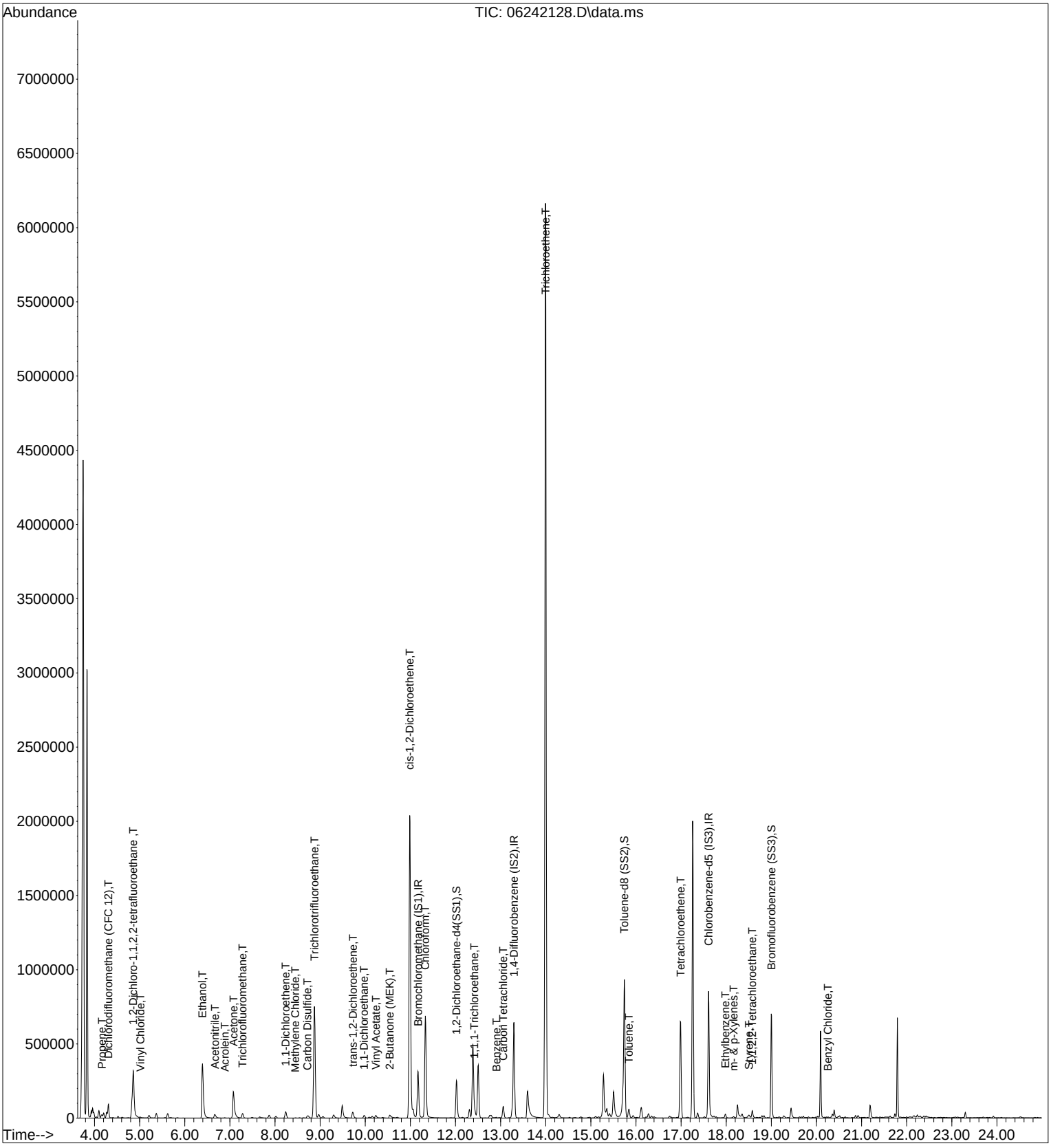
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	14.33	71	180	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	14.92	58	425	N.D.	
54) trans-1,3-Dichloropropene	15.42	75	246	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D. d	
58) Toluene	15.84	91	29044	0.567 ng	89
59) 2-Hexanone	16.13	43	1263	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	807	N.D.	
63) n-Octane	16.82	57	430	N.D.	
64) Tetrachloroethene	16.99	166	192431	14.706 ng	100
65) Chlorobenzene	17.65	112	198	N.D.	
66) Ethylbenzene	17.98	91	10831	0.193 ng	73
67) m- & p-Xylenes	18.17	91	8432	0.186 ng	78
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	18.50	104	7262	0.224 ng	95
70) o-Xylene	0.00	91	0	N.D. d	
71) n-Nonane	18.80	43	805	N.D.	
72) 1,1,2,2-Tetrachloroethane	18.58	83	23387	1.041 ng	98
74) Cumene	19.12	105	258	N.D.	
75) alpha-Pinene	19.46	93	663	N.D.	
76) n-Propylbenzene	19.58	91	886	N.D.	
77) 3-Ethyltoluene	19.71	105	1143	No Calib #	
78) 4-Ethyltoluene	19.71	105	1143	N.D.	
79) 1,3,5-Trimethylbenzene	19.77	105	1246	N.D.	
80) alpha-Methylstyrene	19.91	118	1236	No Calib #	
81) 2-Ethyltoluene	19.77	105	1246	No Calib #	
82) 1,2,4-Trimethylbenzene	20.14	105	1902	N.D.	
83) n-Decane	20.08	58	815	No Calib #	
84) Benzyl Chloride	20.26	91	4142	0.100 ng	83
85) 1,3-Dichlorobenzene	20.33	146	194	N.D.	
86) 1,4-Dichlorobenzene	20.33	146	194	N.D.	
87) sec-Butylbenzene	20.39	105	1123	N.D.	
88) 4-Isopropyltoluene (p-...	20.51	119	689	N.D.	
89) 1,2,3-Trimethylbenzene	20.39	105	1123	No Calib #	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D. d	
92) 1,2-Dibromo-3-Chloropr...	20.94	157	153	N.D.	
93) n-Undecane	21.32	57	1379	No Calib #	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	22.25	128	1658	N.D.	
96) n-Dodecane	22.24	57	4155	No Calib #	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	18.23	55	643	No Calib #	
99) tert-Butylbenzene	0.00	119	0	N.D. d	
100) n-Butylbenzene	20.86	91	832	N.D.	
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.	

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242128.D Vial: 7
Acq On : 24 Jun 2021 20:00 Operator: WA
Sample : P2103157-001 (1000mL) Inst : MS13
Misc : S34-06112101

Quant Time: Jun 27 19:24:18 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242128.D Vial: 7
Acq On : 24 Jun 2021 20:00 Operator: WA
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DataAcq Meth:TO15.M

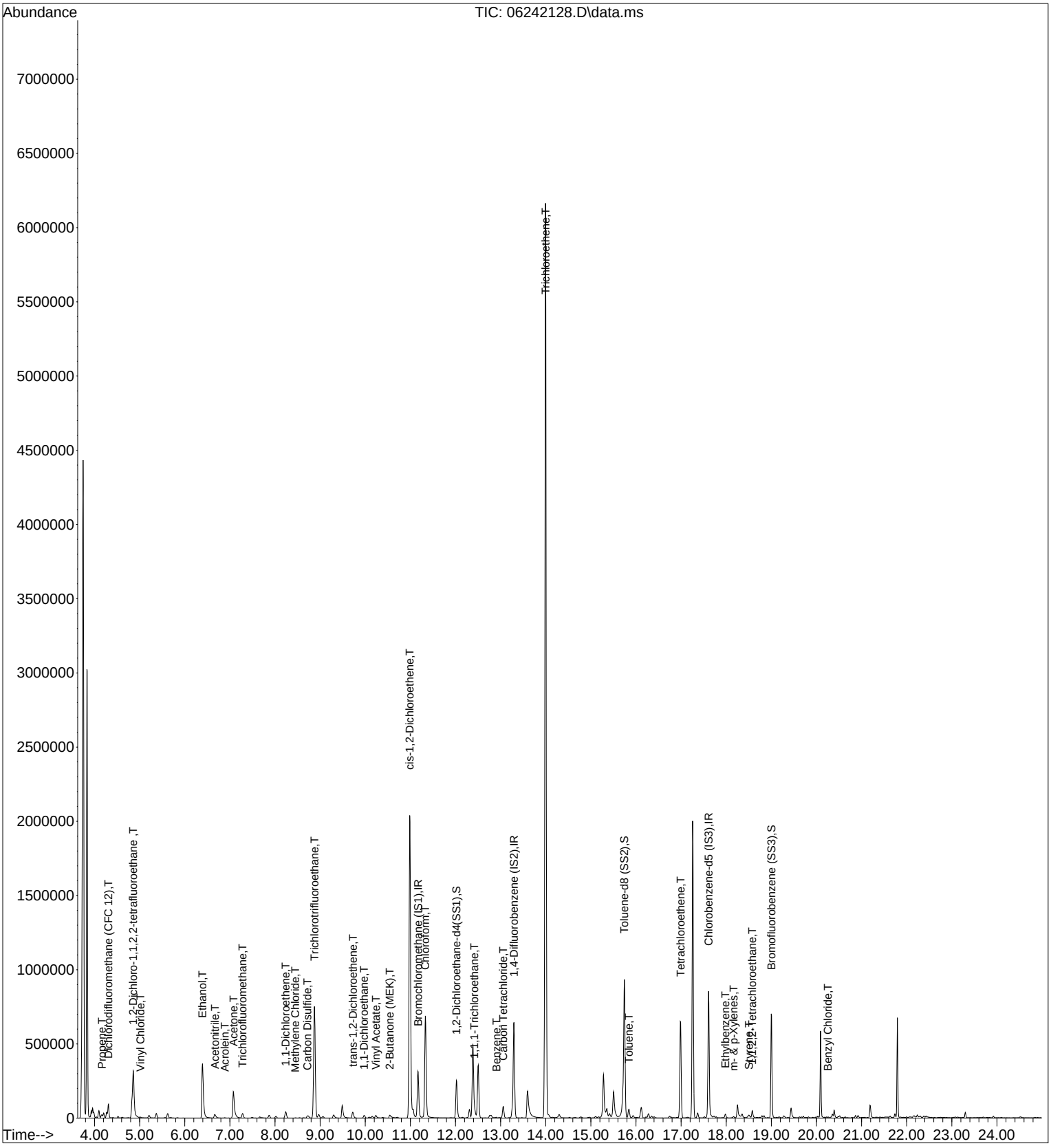
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	108723	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.30	114	539632	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.61	54	140293	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.02	65	196441	10.922	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 87.36%				
57) Toluene-d8 (SS2)	15.74	98	654190	12.969	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.76%				
73) Bromofluorobenzene (SS3)	19.00	174	177655	12.378	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.04%				
Target Compounds							Qvalue
2) Propene	4.17	42	3654	0.181	ng		94
3) Dichlorodifluoromethan...	4.31	85	73192	2.866	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	1042	0.082	ng		68
6) Vinyl Chloride	5.02	62	3393	0.146	ng		99
10) Ethanol	6.39	45	533702	43.470	ng		100
11) Acetonitrile	6.67	41	37246	1.205	ng		95
12) Acrolein	6.89	56	2935	0.325	ng		93
13) Acetone	7.08	58	63596	5.645	ng	#	82
14) Trichlorofluoromethane	7.28	101	28982	1.264	ng		100
17) 1,1-Dichloroethene	8.24	96	18723	1.699	ng		99
19) Methylene Chloride	8.45	84	714	0.060	ng		89
21) Trichlorotrifluoroethane	8.87	151	280601	31.741	ng		98
22) Carbon Disulfide	8.72	76	25760	0.567	ng		98
23) trans-1,2-Dichloroethene	9.73	61	29318	1.627	ng		99
24) 1,1-Dichloroethane	9.97	63	21399	0.937	ng		100
26) Vinyl Acetate	10.24	86	2021	0.725	ng	#	95
27) 2-Butanone (MEK)	10.54	72	9415	1.152	ng		94
28) cis-1,2-Dichloroethene	10.98	61	1379536	75.605	ng		99
32) Chloroform	11.33	83	494318	22.607	ng		99
38) 1,1,1-Trichloroethane	12.42	97	20563	0.981	ng	#	87
41) Benzene	12.91	78	5263	0.104	ng		98
42) Carbon Tetrachloride	13.06	117	47656	2.540	ng		100
47) Trichloroethene	14.00	130	1878591	145.187	ng		99
58) Toluene	15.84	91	29044	0.567	ng		89
64) Tetrachloroethene	16.99	166	192431	14.706	ng		100
66) Ethylbenzene	17.98	91	10831	0.193	ng		73
67) m- & p-Xylenes	18.17	91	8432	0.186	ng		78
69) Styrene	18.50	104	7262	0.224	ng		95
72) 1,1,2,2-Tetrachloroethane	18.58	83	23387	1.041	ng		98
84) Benzyl Chloride	20.26	91	4142	0.100	ng		83

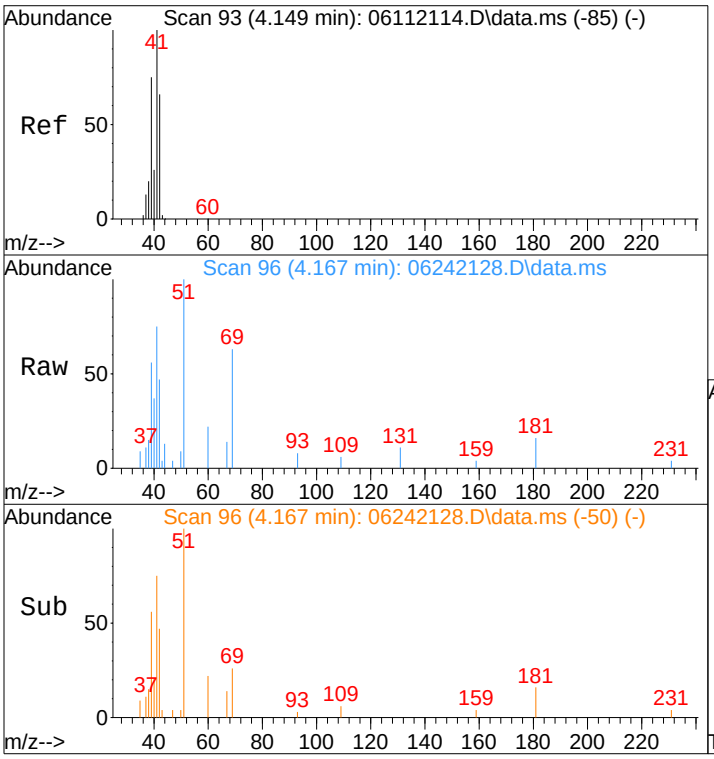
(#) = qualifier out of range (m) = manual integration (+) = signals summed

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Data File : I:\MS13\DATA\2021_06\24\06242128.D Vial: 7
Acq On : 24 Jun 2021 20:00 Operator: WA
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Misc : S34-06112101

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Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

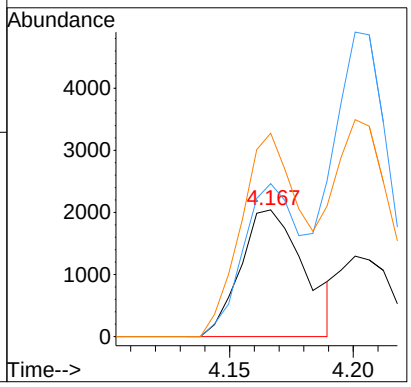


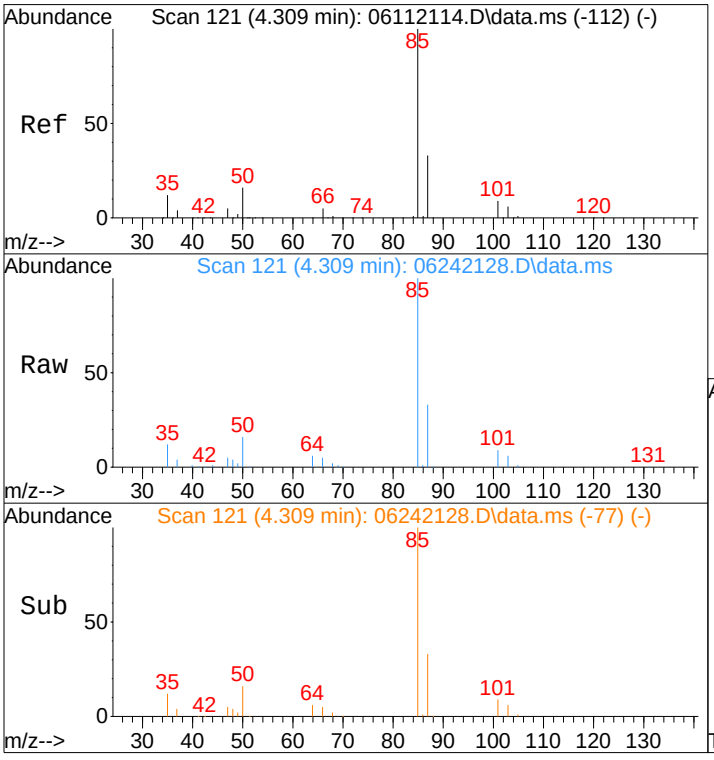


#2
Propene
Concen: 0.18 ng
RT: 4.17 min Scan# 96
Delta R.T. 0.012 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 42 Resp: 3654

Ion	Ratio	Lower	Upper
42	100		
39	99.3	93.1	133.1
41	149.5	131.3	171.3

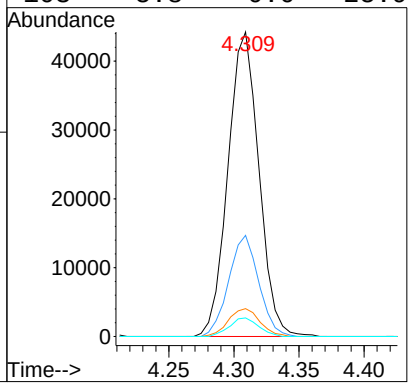


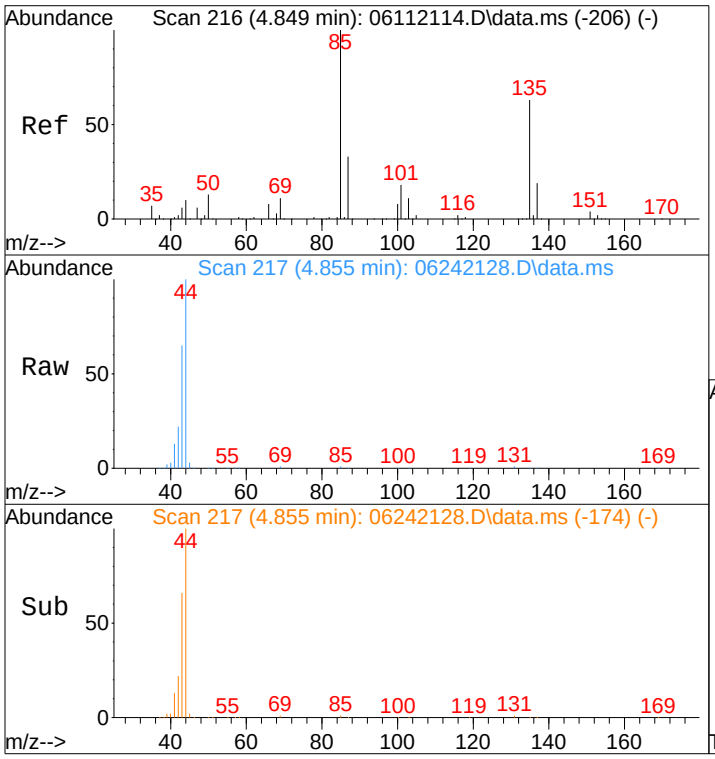


#3
Dichlorodifluoromethane (CFC 12)
Concen: 2.87 ng
RT: 4.31 min Scan# 121
Delta R.T. 0.000 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 85 Resp: 73192

Ion	Ratio	Lower	Upper
85	100		
87	32.2	13.2	53.2
101	9.3	0.0	29.2
103	5.8	0.0	25.9

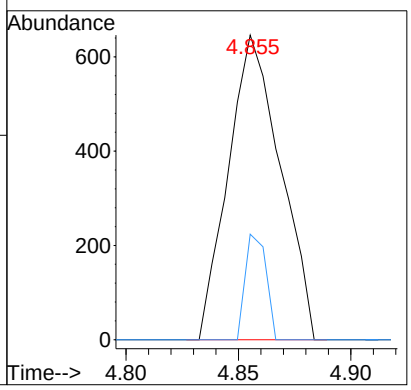


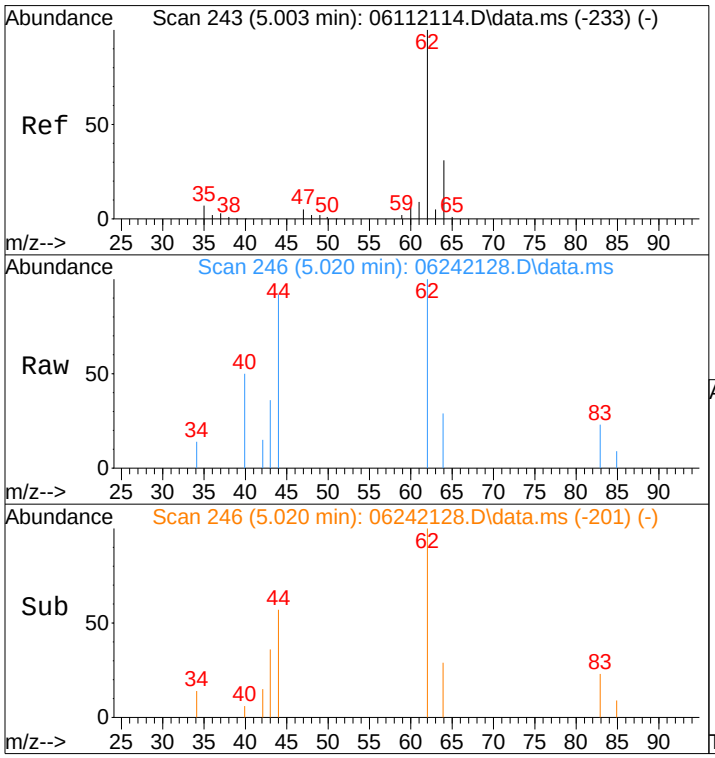


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.08 ng
RT: 4.86 min Scan# 217
Delta R.T. -0.005 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion:135 Resp: 1042

Ion	Ratio	Lower	Upper
135	100		
137	13.8	11.7	51.7

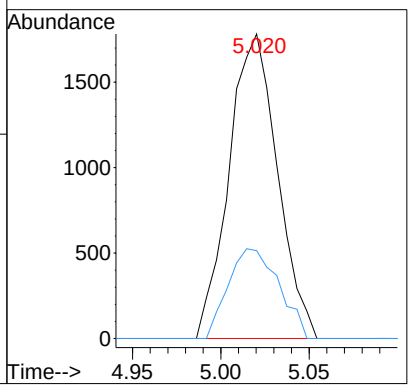


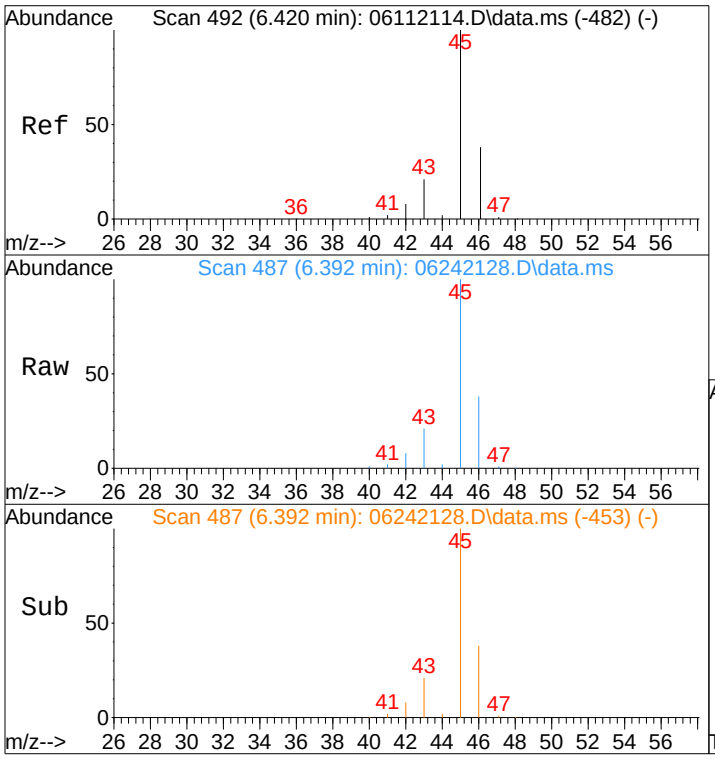


#6
Vinyl Chloride
Concen: 0.15 ng
RT: 5.02 min Scan# 246
Delta R.T. 0.006 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 62 Resp: 3393

Ion	Ratio	Lower	Upper
62	100		
64	30.9	11.2	51.2

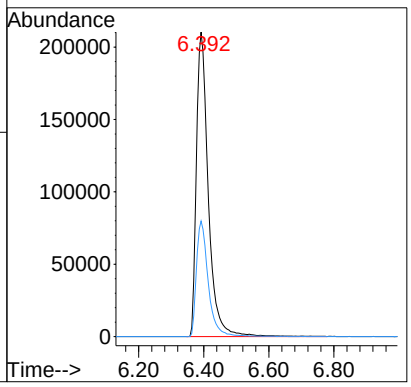


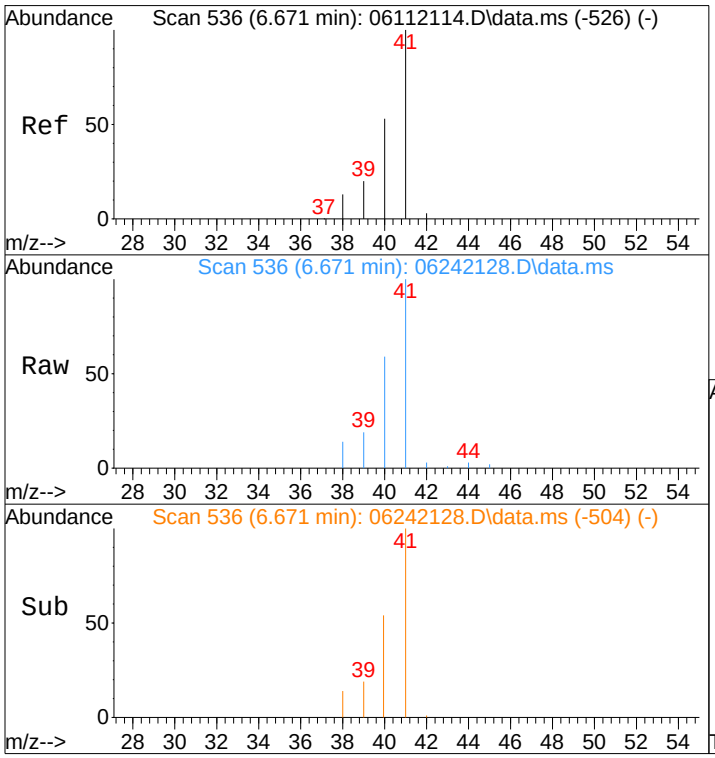


#10
Ethanol
Concen: 43.47 ng
RT: 6.39 min Scan# 487
Delta R.T. -0.057 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 45 Resp: 533702

Ion	Ratio	Lower	Upper
45	100		
46	37.7	17.8	57.8

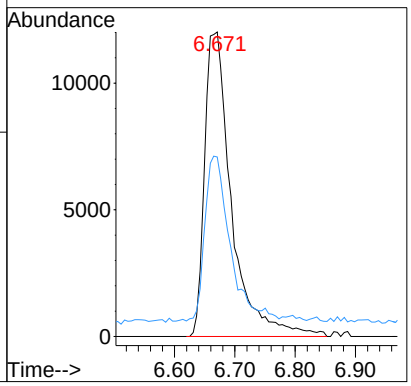


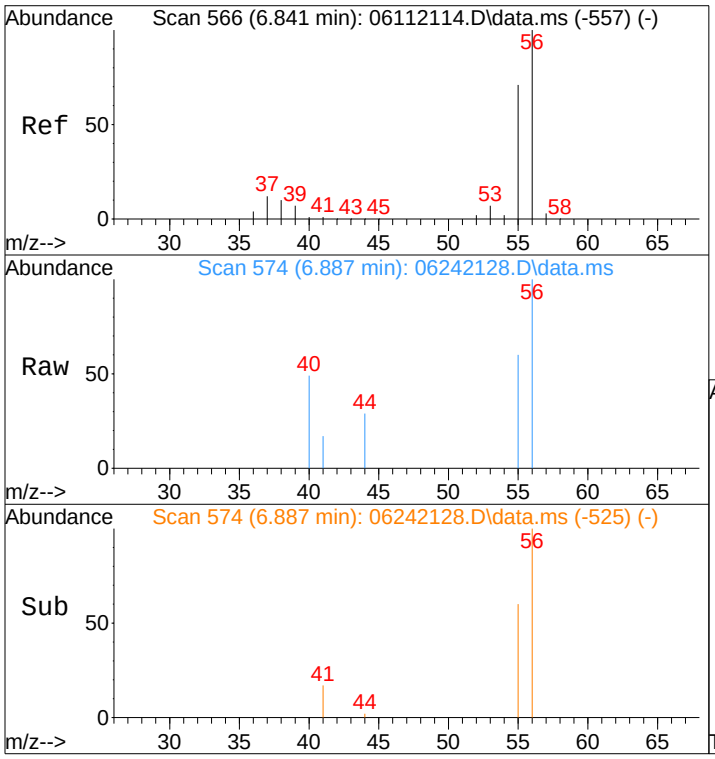


#11
Acetonitrile
Concen: 1.21 ng
RT: 6.67 min Scan# 536
Delta R.T. -0.017 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 41 Resp: 37246

Ion	Ratio	Lower	Upper
41	100		
40	57.2	33.9	73.9

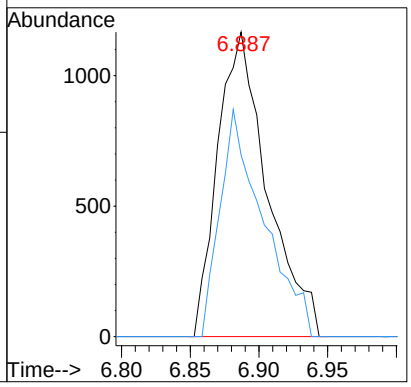


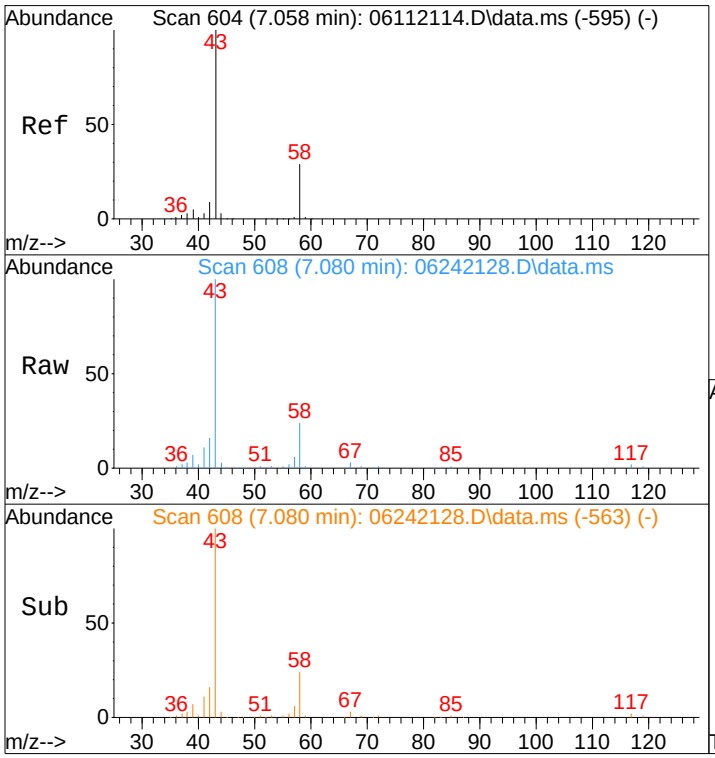


#12
Acrolein
Concen: 0.33 ng
RT: 6.89 min Scan# 574
Delta R.T. 0.029 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 56 Resp: 2935

Ion	Ratio	Lower	Upper
56	100		
55	65.1	50.5	90.5

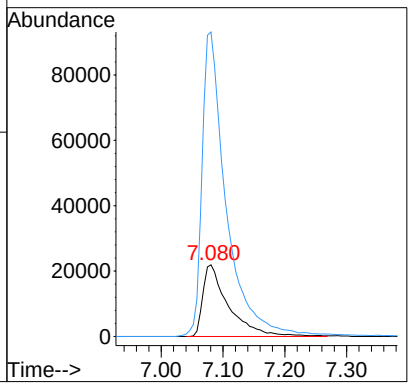


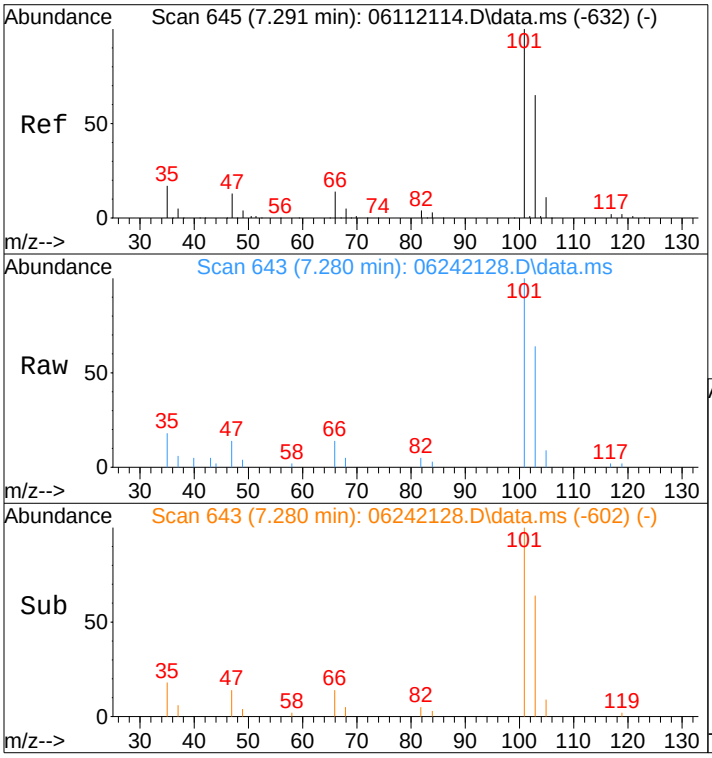


#13
Acetone
Concen: 5.64 ng
RT: 7.08 min Scan# 608
Delta R.T. 0.006 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 58 Resp: 63596

Ion	Ratio	Lower	Upper
58	100		
43	399.0	330.0	390.0#

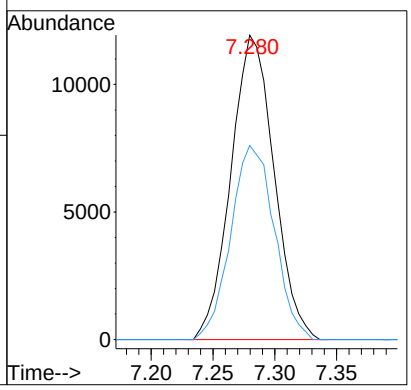


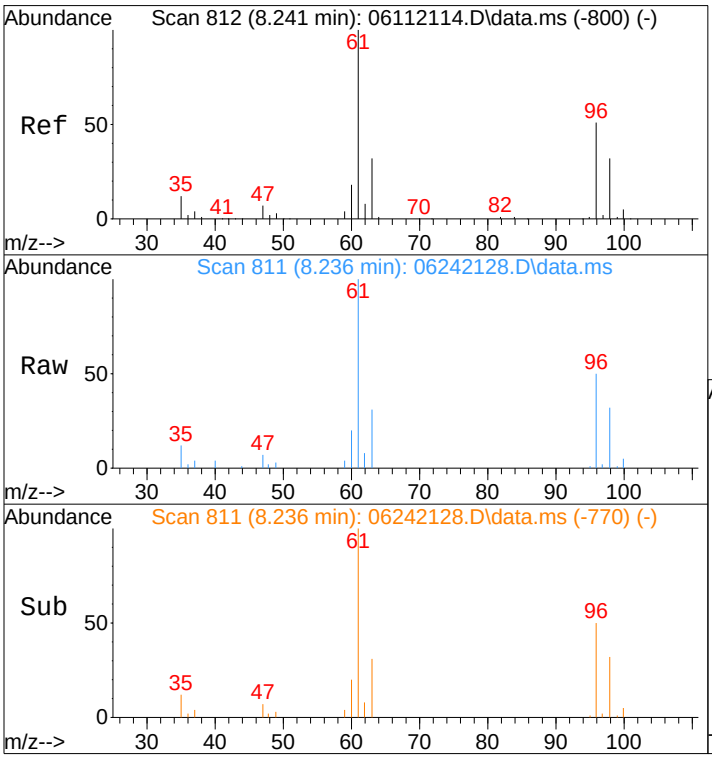


#14
Trichlorofluoromethane
Concen: 1.26 ng
RT: 7.28 min Scan# 643
Delta R.T. -0.017 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion:101 Resp: 28982

Ion	Ratio	Lower	Upper
101	100		
103	64.3	44.2	84.2

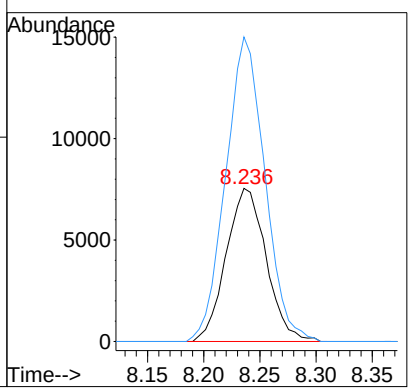


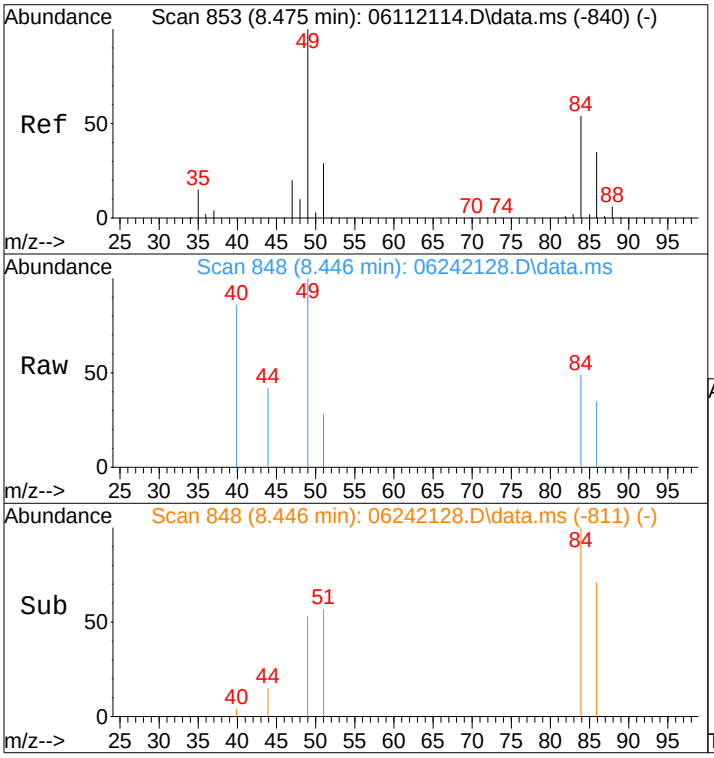


#17
1,1-Dichloroethene
Concen: 1.70 ng
RT: 8.24 min Scan# 811
Delta R.T. -0.017 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 96 Resp: 18723

Ion	Ratio	Lower	Upper
96	100		
61	194.6	176.4	216.4

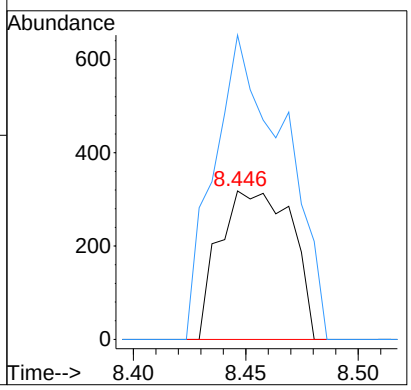


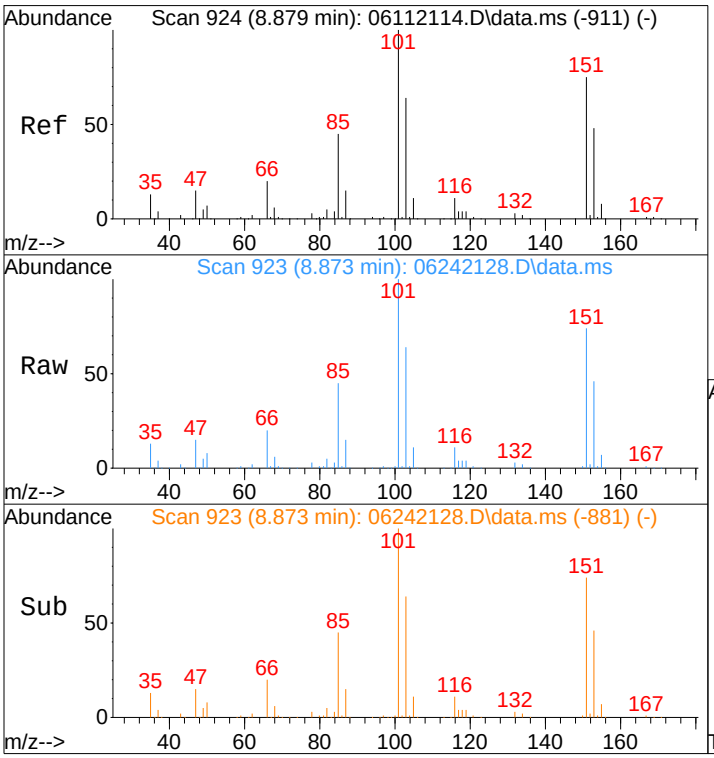


#19
Methylene Chloride
Concen: 0.06 ng
RT: 8.45 min Scan# 848
Delta R.T. -0.040 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 84 Resp: 714

Ion	Ratio	Lower	Upper
84	100		
49	200.0	159.5	209.5

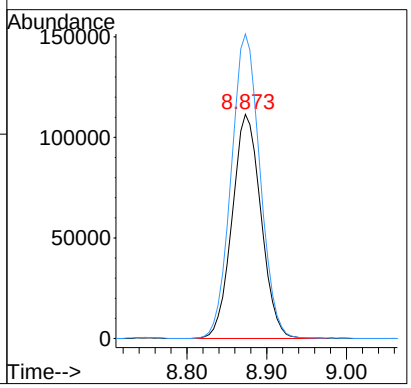


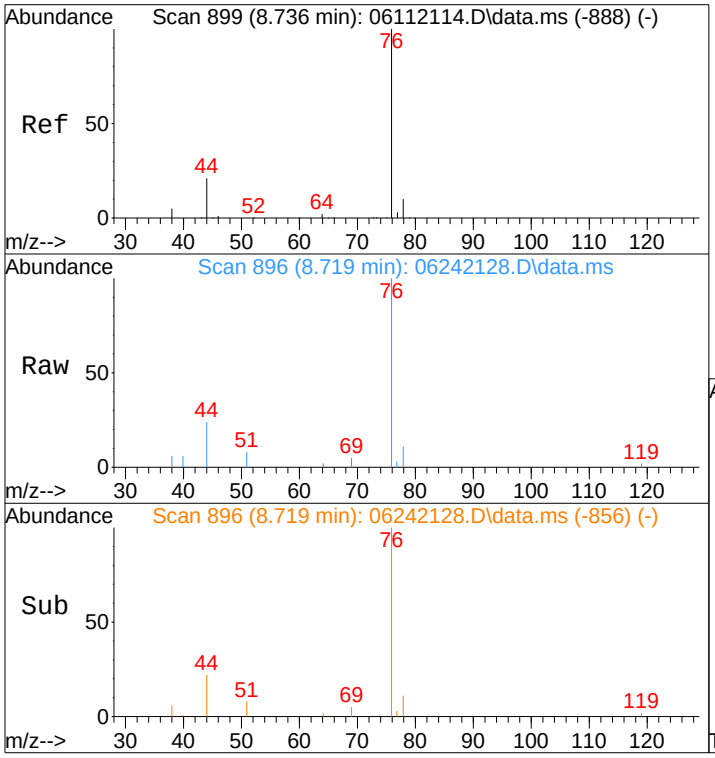


#21
Trichlorotrifluoroethane
Concen: 31.74 ng
RT: 8.87 min Scan# 923
Delta R.T. -0.011 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion:151 Resp: 280601

Ion	Ratio	Lower	Upper
151	100		
101	135.8	113.0	153.0

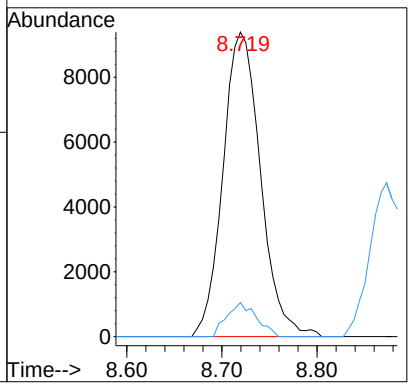


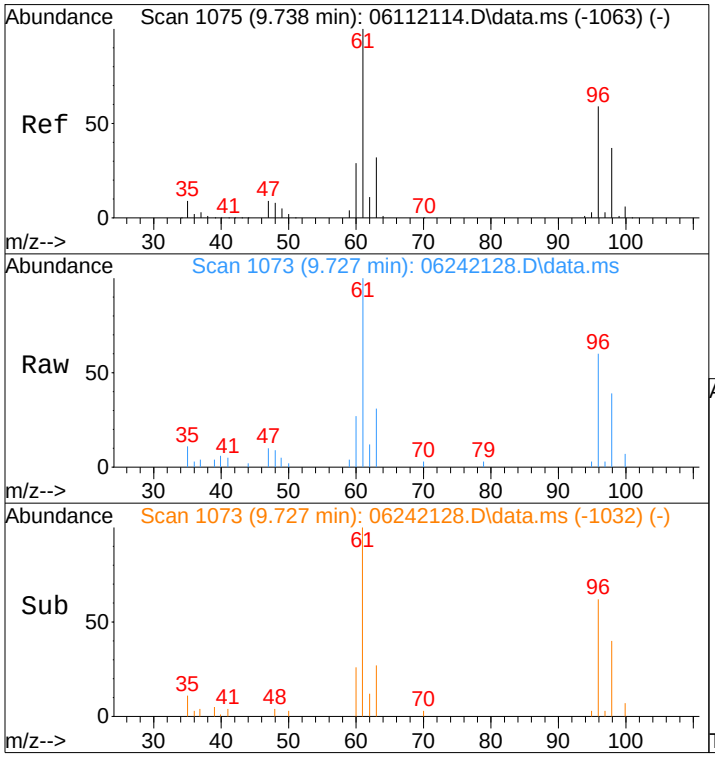


#22
Carbon Disulfide
Concen: 0.57 ng
RT: 8.72 min Scan# 896
Delta R.T. -0.023 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 76 Resp: 25760

Ion	Ratio	Lower	Upper
76	100		
78	8.8	0.0	29.5

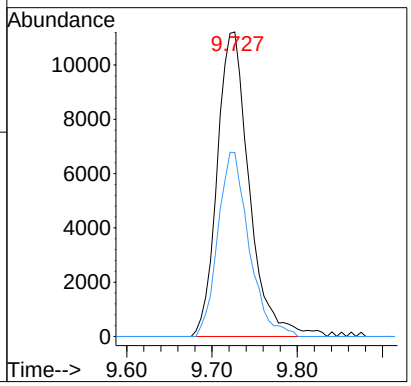


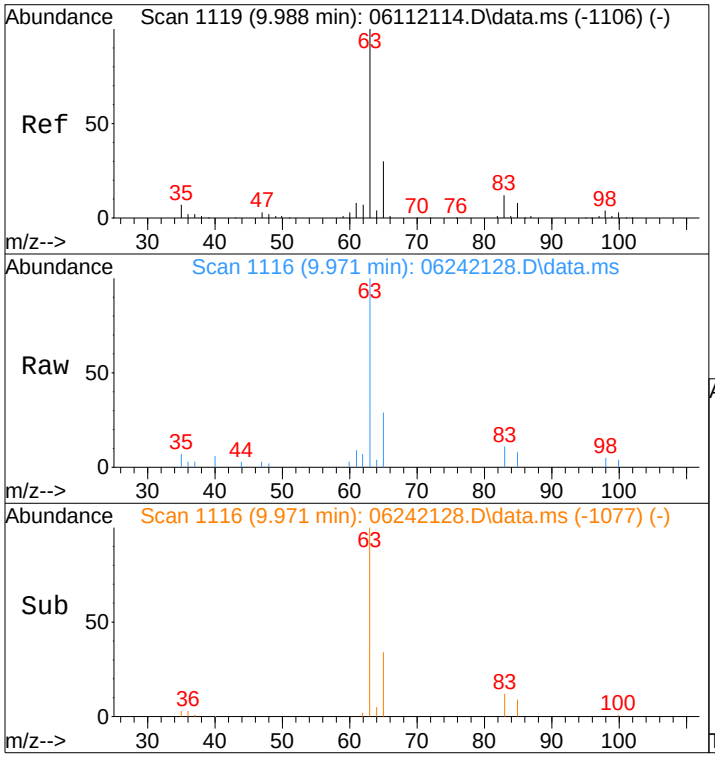


#23
trans-1,2-Dichloroethene
Concen: 1.63 ng
RT: 9.73 min Scan# 1073
Delta R.T. -0.017 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 61 Resp: 29318

Ion	Ratio	Lower	Upper
61	100		
96	58.6	39.5	79.5

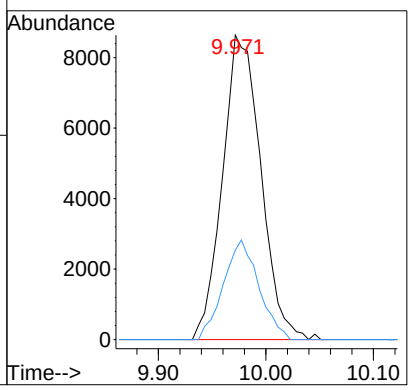


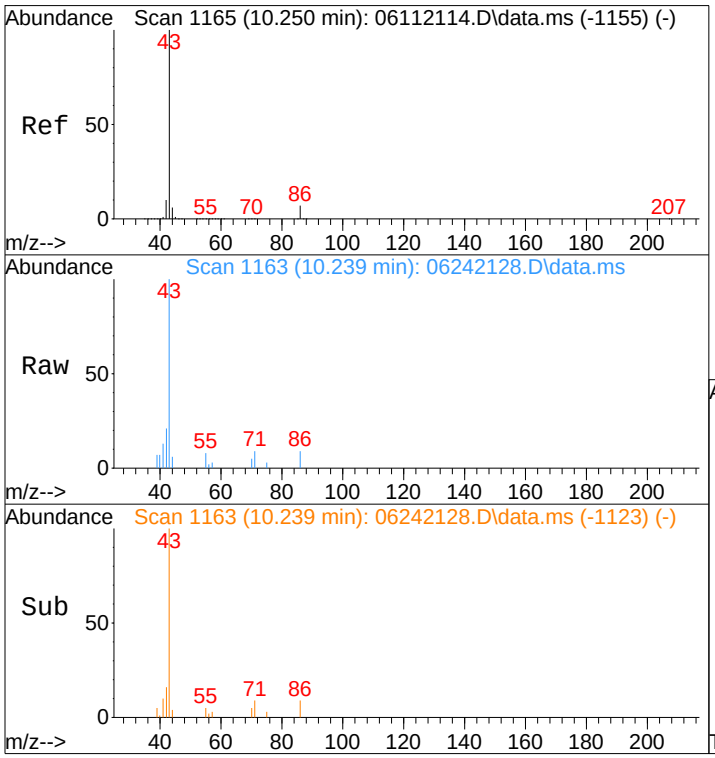


#24
1,1-Dichloroethane
Concen: 0.94 ng
RT: 9.97 min Scan# 1116
Delta R.T. -0.028 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 63 Resp: 21399

Ion	Ratio	Lower	Upper
63	100		
65	30.2	10.4	50.4

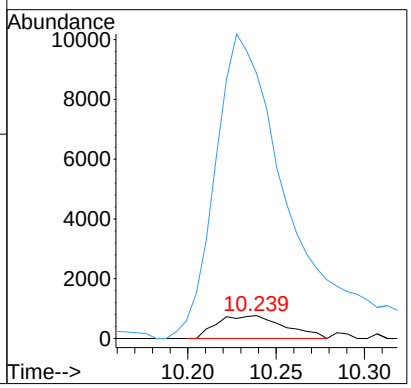


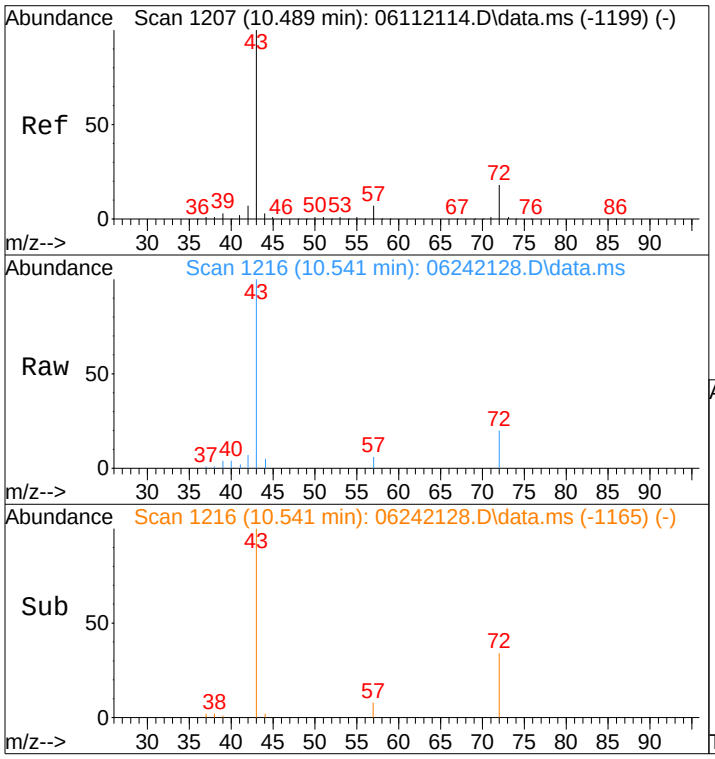


#26
Vinyl Acetate
Concen: 0.72 ng
RT: 10.24 min Scan# 1163
Delta R.T. -0.022 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 86 Resp: 2021

Ion	Ratio	Lower	Upper
86	100		
43	1537.0	1549.6	1589.6#

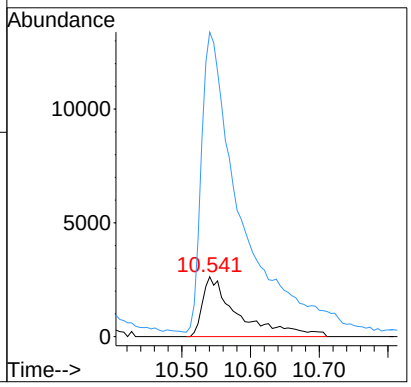


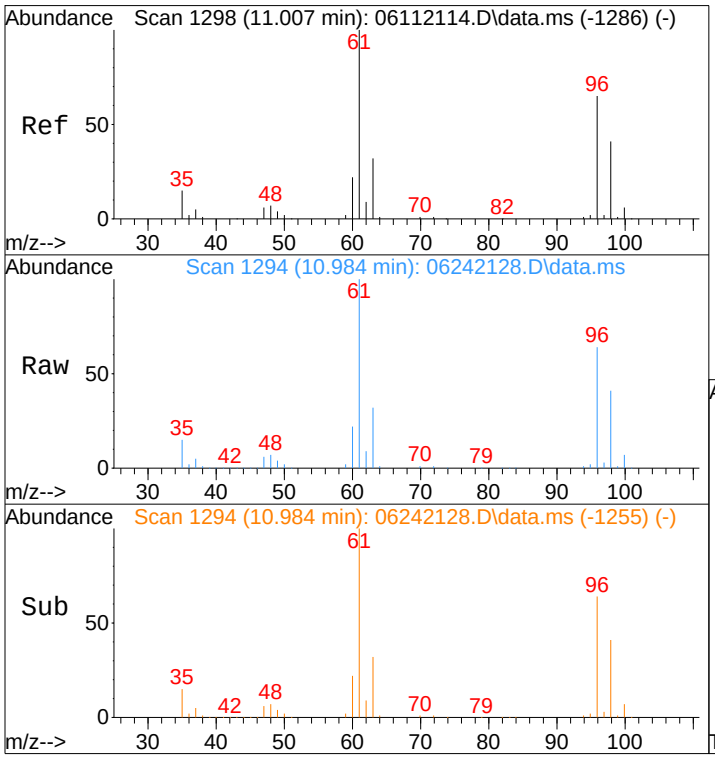


#27
2-Butanone (MEK)
Concen: 1.15 ng
RT: 10.54 min Scan# 1216
Delta R.T. 0.040 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 72 Resp: 9415

Ion	Ratio	Lower	Upper
72	100		
43	545.8	542.9	582.9

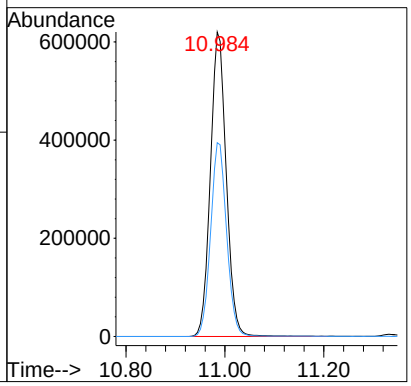


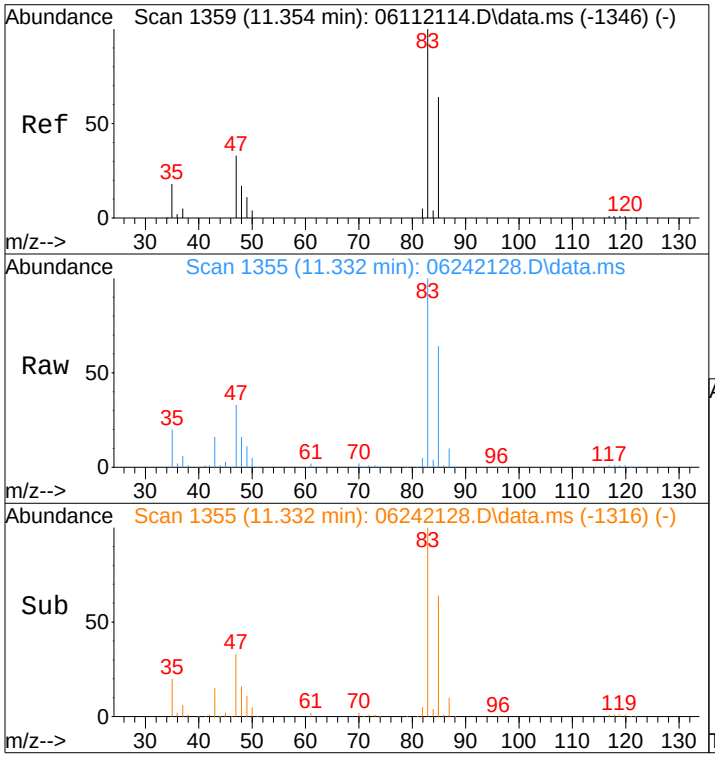


#28
cis-1,2-Dichloroethene
Concen: 75.60 ng
RT: 10.98 min Scan# 1294
Delta R.T. -0.028 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 61 Resp: 1379536

Ion	Ratio	Lower	Upper
61	100		
96	64.4	45.0	85.0

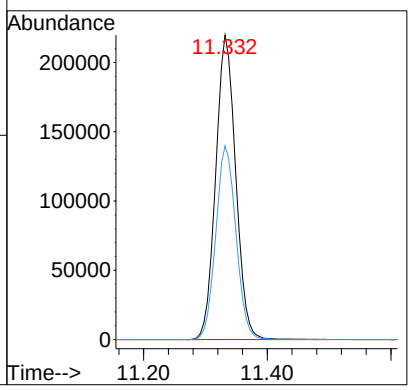


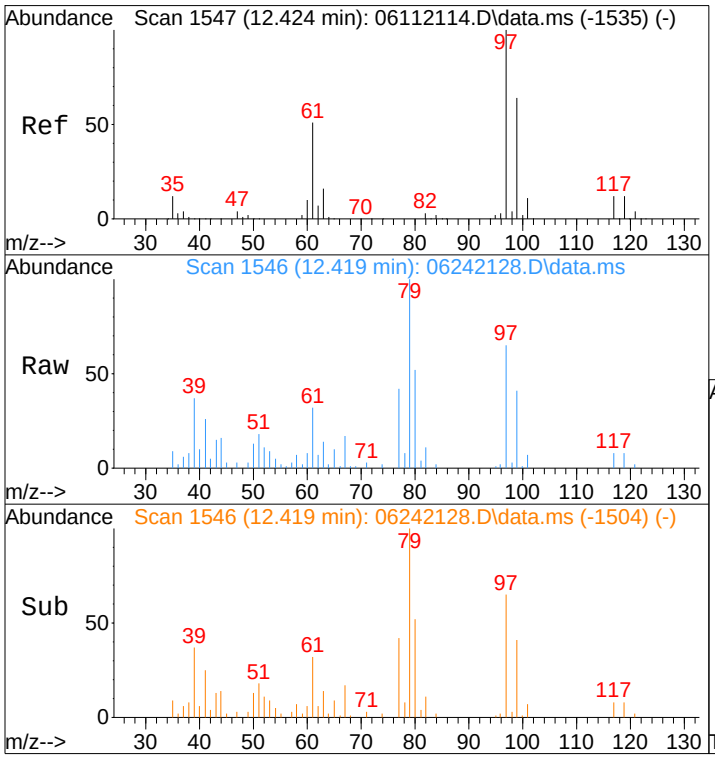


#32
Chloroform
Concen: 22.61 ng
RT: 11.33 min Scan# 1355
Delta R.T. -0.028 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 83 Resp: 494318

Ion	Ratio	Lower	Upper
83	100		
85	64.3	44.8	84.8

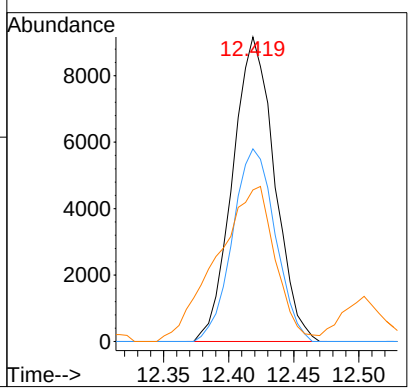


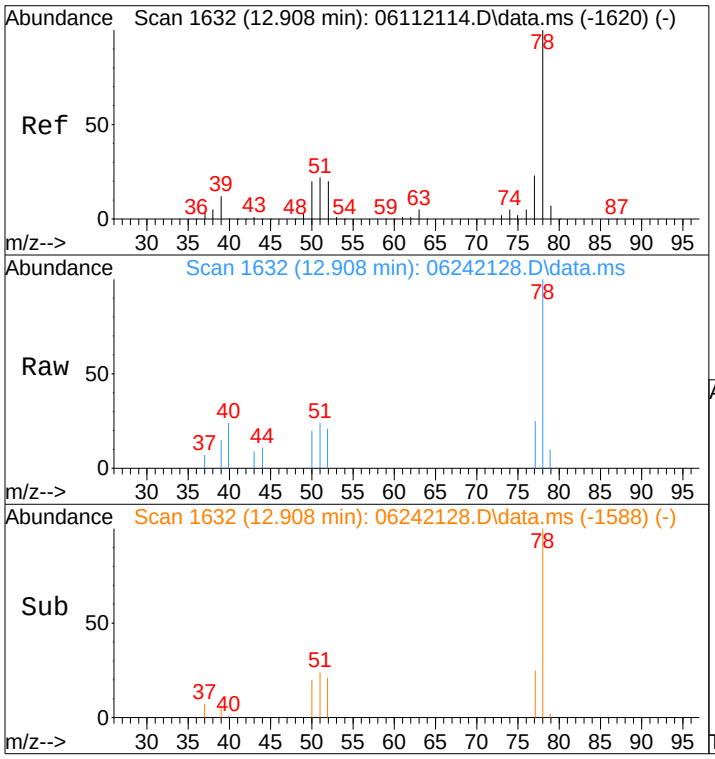


#38
1,1,1-Trichloroethane
Concen: 0.98 ng
RT: 12.42 min Scan# 1546
Delta R.T. -0.011 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 97 Resp: 20563

Ion	Ratio	Lower	Upper
97	100		
99	64.5	44.4	84.4
61	71.0	30.9	70.9#

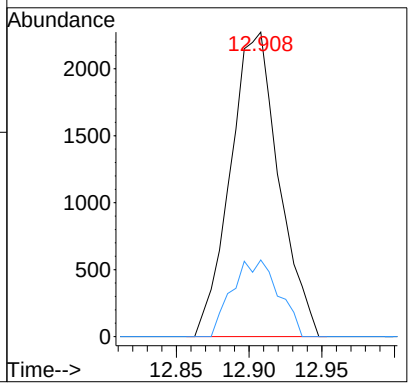


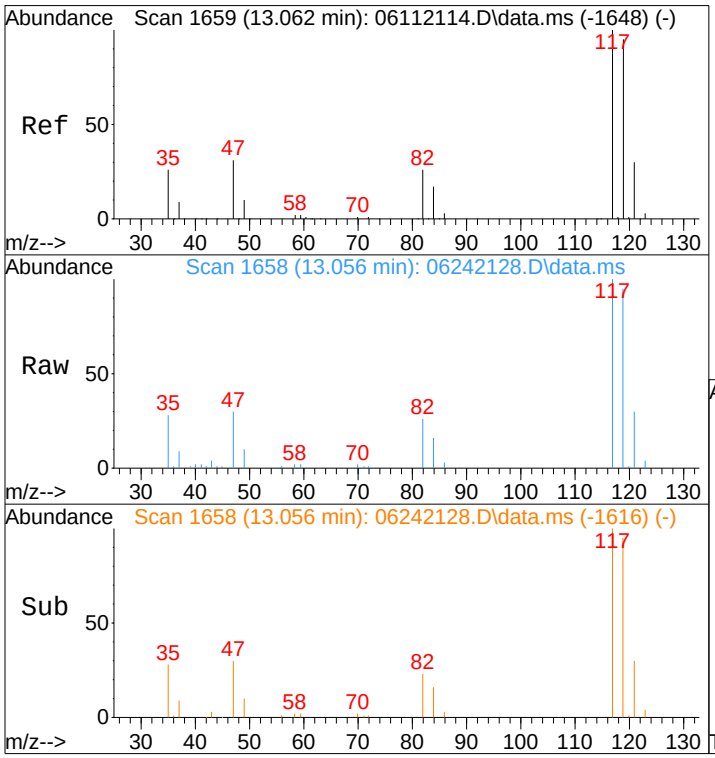


#41
Benzene
Concen: 0.10 ng
RT: 12.91 min Scan# 1632
Delta R.T. 0.000 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 78 Resp: 5263

Ion	Ratio	Lower	Upper
78	100		
77	24.1	3.3	43.3

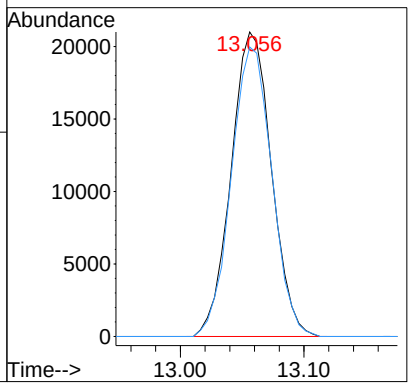


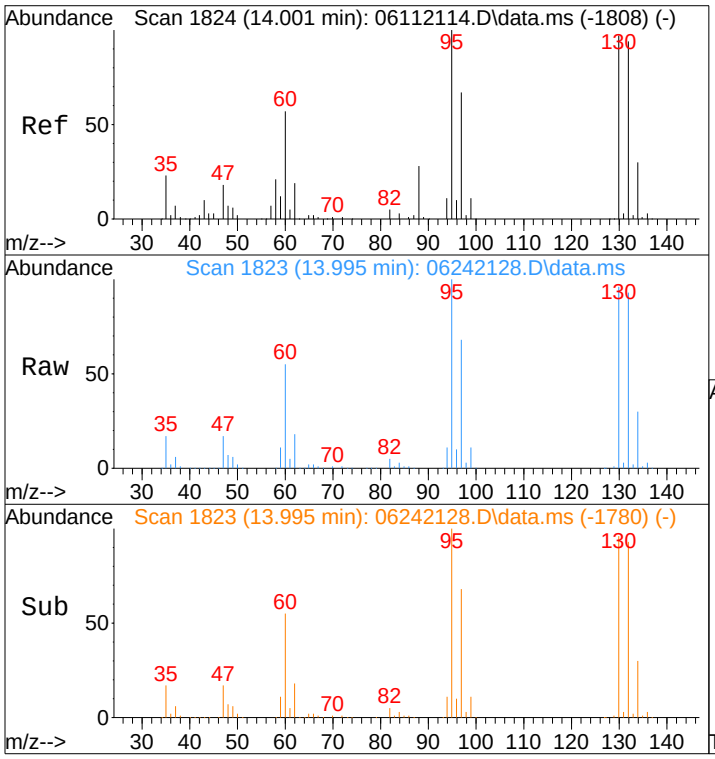


#42
Carbon Tetrachloride
Concen: 2.54 ng
RT: 13.06 min Scan# 1658
Delta R.T. -0.011 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion:117 Resp: 47656

Ion	Ratio	Lower	Upper
117	100		
119	95.4	75.4	115.4

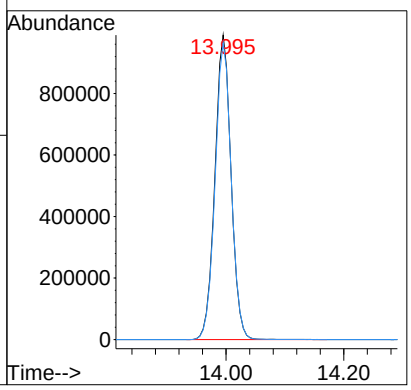


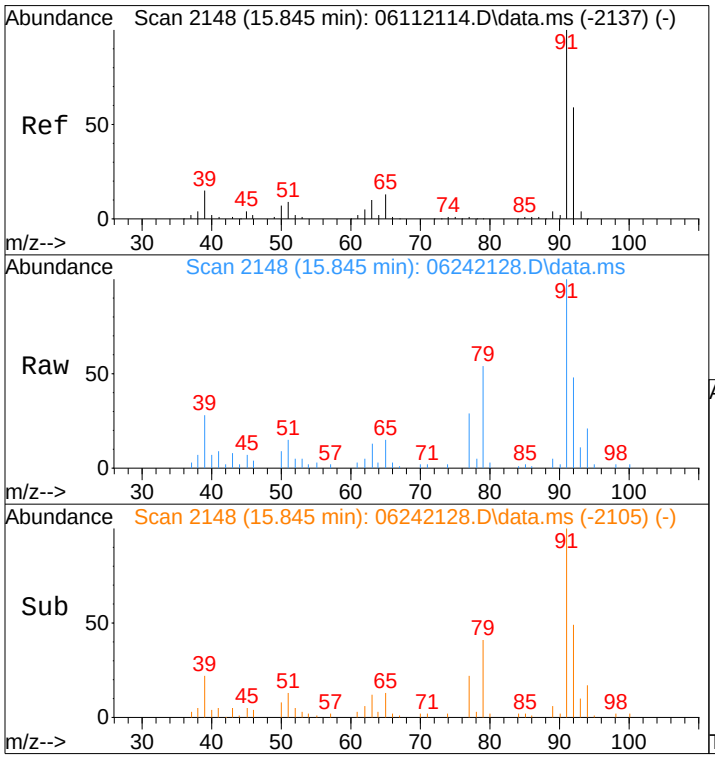


#47
Trichloroethene
Concen: 145.19 ng
RT: 14.00 min Scan# 1823
Delta R.T. -0.005 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion:130 Resp: 1878591

Ion	Ratio	Lower	Upper
130	100		
132	97.7	77.1	117.1

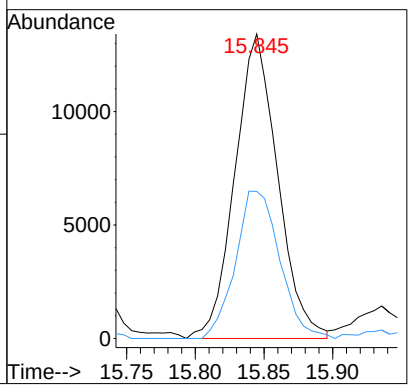


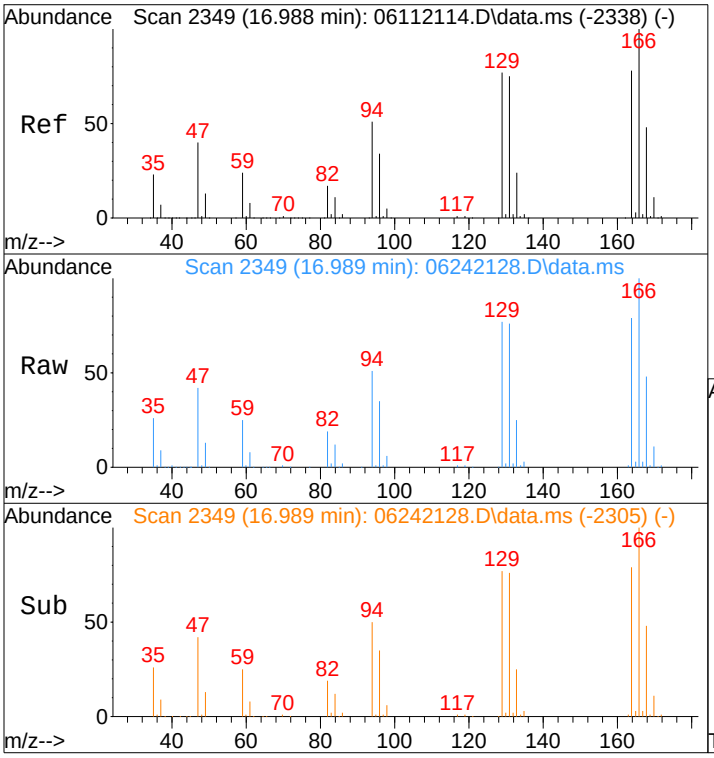


#58
Toluene
Concen: 0.57 ng
RT: 15.84 min Scan# 2148
Delta R.T. -0.005 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 91 Resp: 29044

Ion	Ratio	Lower	Upper
91	100		
92	50.0	38.3	78.3

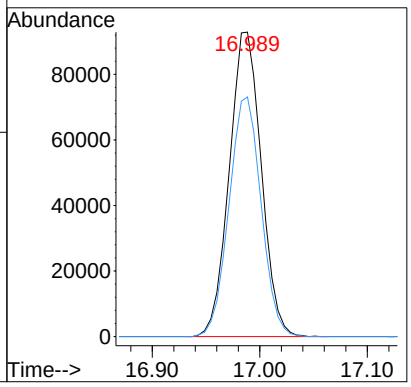


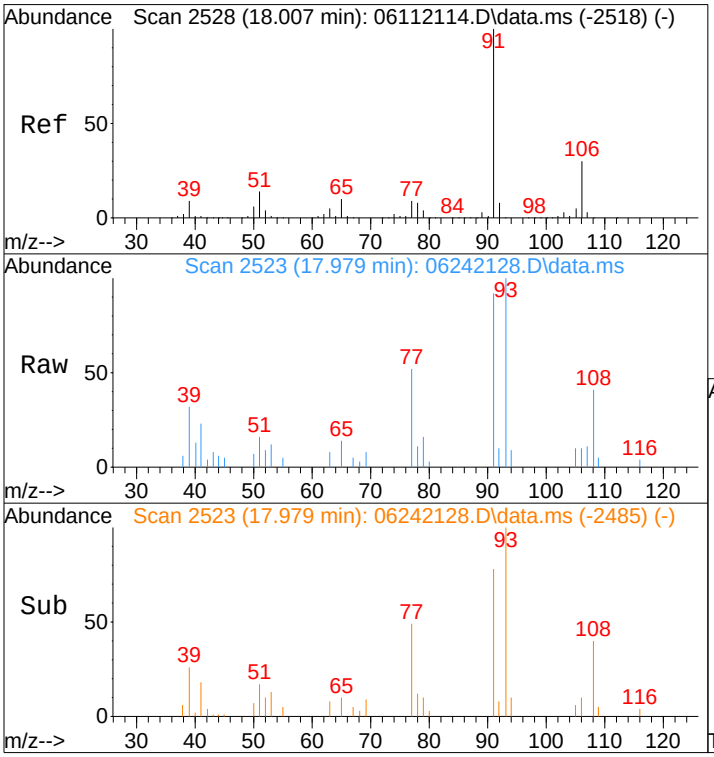


#64
Tetrachloroethene
Concen: 14.71 ng
RT: 16.99 min Scan# 2349
Delta R.T. 0.000 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion:166 Resp: 192431

Ion	Ratio	Lower	Upper
166	100		
164	78.8	58.6	98.6

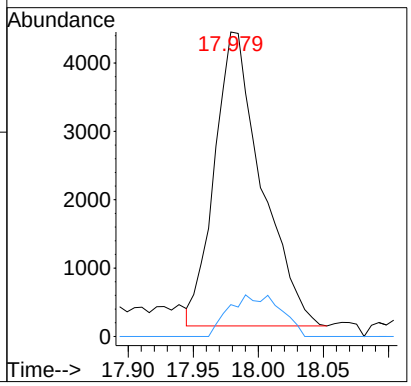


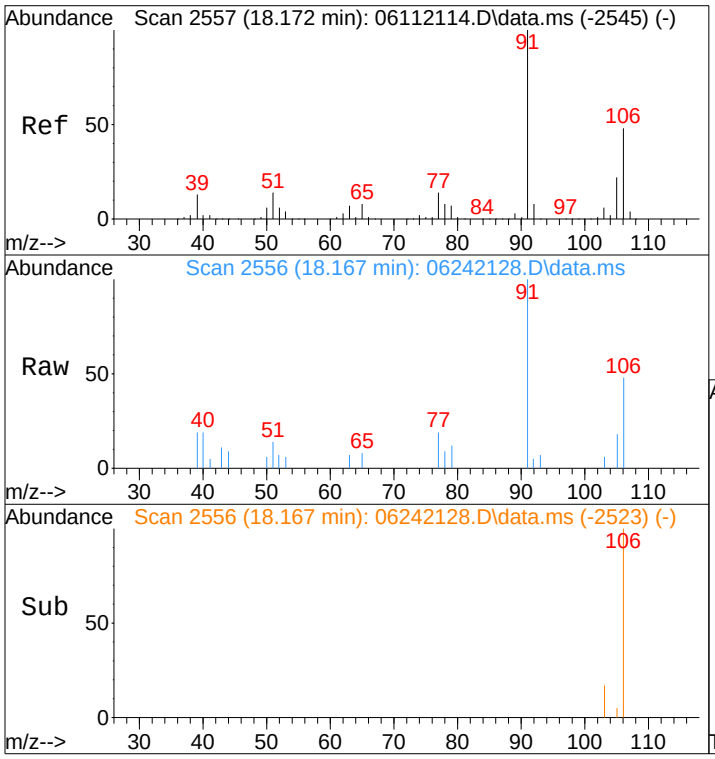


#66
Ethylbenzene
Concen: 0.19 ng
RT: 17.98 min Scan# 2523
Delta R.T. -0.034 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 91 Resp: 10831

Ion	Ratio	Lower	Upper
91	100		
106	15.5	10.5	50.5

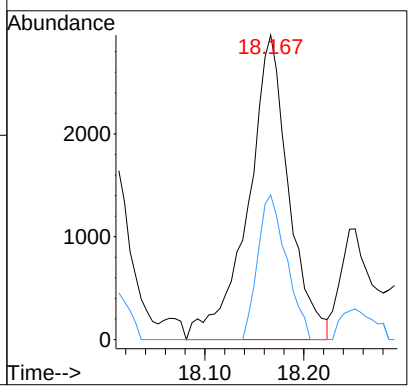


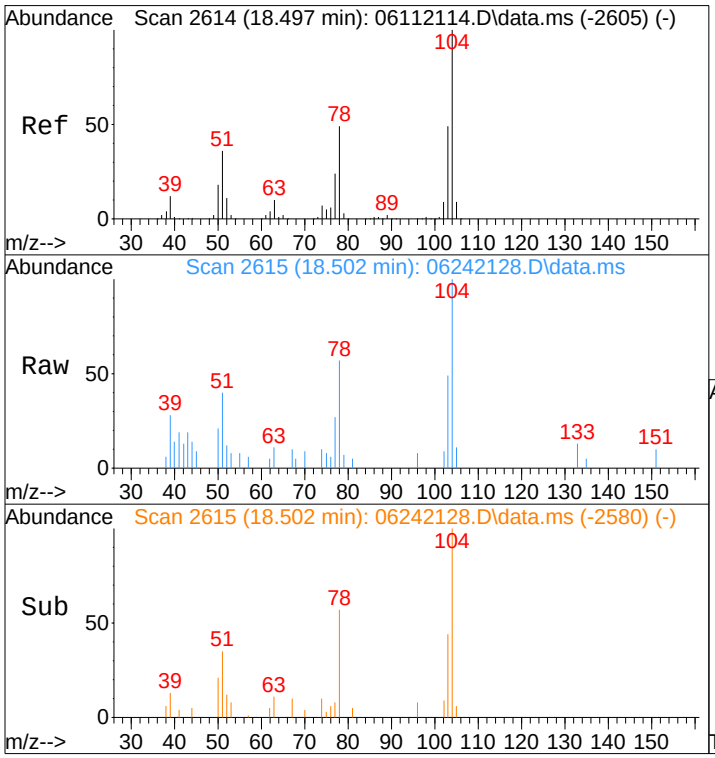


#67
m- & p-Xylenes
Concen: 0.19 ng
RT: 18.17 min Scan# 2556
Delta R.T. -0.011 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 91 Resp: 8432

Ion	Ratio	Lower	Upper
91	100		
106	33.6	28.4	68.4

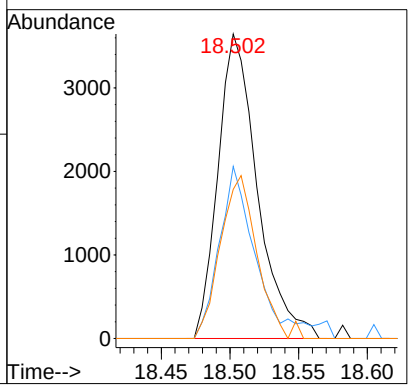


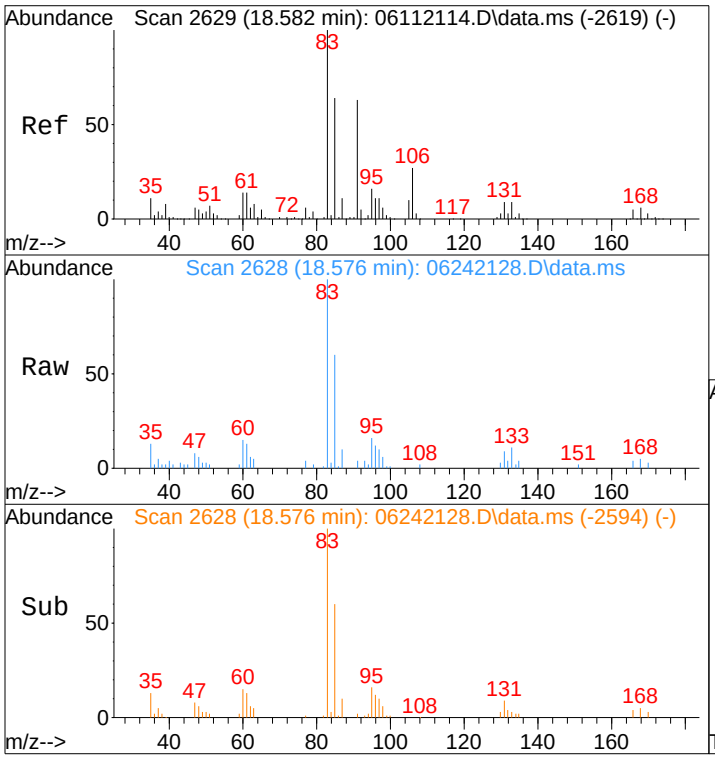


#69
Styrene
Concen: 0.22 ng
RT: 18.50 min Scan# 2615
Delta R.T. 0.000 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion:104 Resp: 7262

Ion	Ratio	Lower	Upper
104	100		
78	53.9	27.5	67.5
103	49.2	28.4	68.4

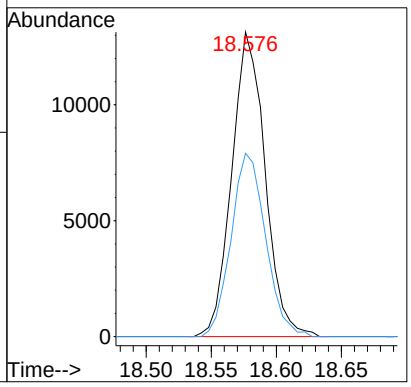


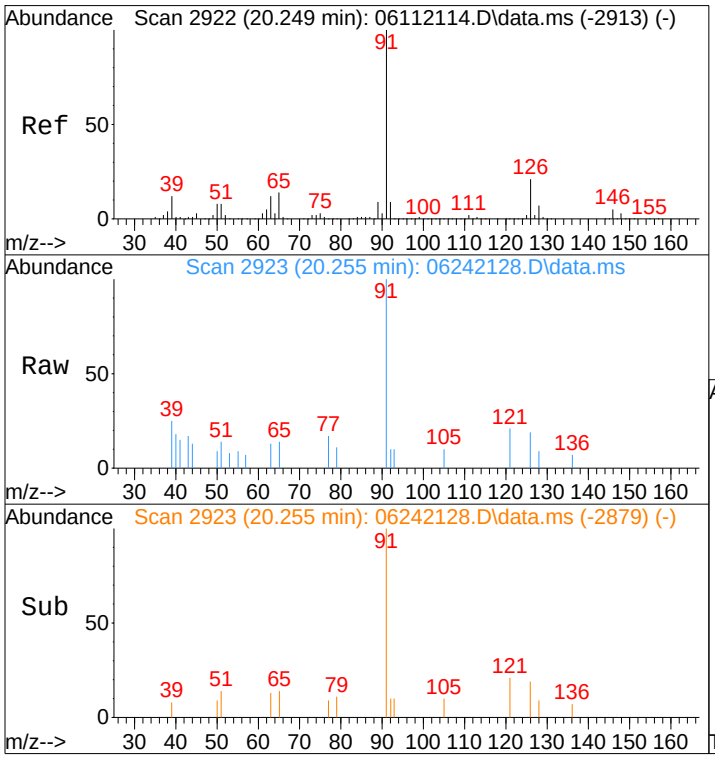


#72
1,1,2,2-Tetrachloroethane
Concen: 1.04 ng
RT: 18.58 min Scan# 2628
Delta R.T. -0.005 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 83 Resp: 23387

Ion	Ratio	Lower	Upper
83	100		
85	62.4	44.0	84.0

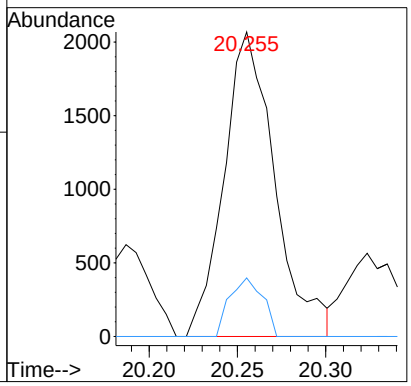




#84
Benzyl Chloride
Concen: 0.10 ng
RT: 20.26 min Scan# 2923
Delta R.T. 0.000 min
Lab File: 06242128.D
Acq: 24 Jun 2021 20:00

Tgt Ion: 91 Resp: 4142

Ion	Ratio	Lower	Upper
91	100		
126	12.6	0.6	40.6



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252112.D Vial: 7
Acq On : 25 Jun 2021 7:57 Operator: WA
Sample : P2103157-001dil (200mL) Inst : MS13
Misc : S34-06112101

Quant Time: Jun 27 19:32:15 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	109444	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	527846	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.61	54	138460	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.02	65	227317	12.555	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.48%				
57) Toluene-d8 (SS2)	15.74	98	638366	12.823	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.56%				
73) Bromofluorobenzene (SS3)	19.00	174	177430	12.526	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.24%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D.	d		
3) Dichlorodifluoromethan...	4.31	85	21324	0.829	ng		99
4) Chloromethane	4.62	50	709	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	5.03	62	683	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	6.39	45	101683	8.228	ng		99
11) Acetonitrile	6.68	41	7839	0.252	ng	#	71
12) Acrolein	6.92	56	111	N.D.			
13) Acetone	7.12	58	12906	1.138	ng	#	85
14) Trichlorofluoromethane	7.29	101	5809	0.252	ng		97
15) 2-Propanol (Isopropanol)	7.49	45	188	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.	d		
17) 1,1-Dichloroethene	8.25	96	3614	0.326	ng		98
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	8.87	151	56747	6.377	ng		97
22) Carbon Disulfide	8.72	76	7310	0.160	ng		91
23) trans-1,2-Dichloroethene	9.73	61	5353	0.295	ng		97
24) 1,1-Dichloroethane	9.97	63	4467	0.194	ng		93
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.	d		
28) cis-1,2-Dichloroethene	10.98	61	258585	14.078	ng		100
29) Diisopropyl Ether	0.00	87	0	N.D.	d		
30) Ethyl Acetate	11.26	61	180	N.D.			
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	11.33	83	100845	4.582	ng		99
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	12.41	97	4415	0.215	ng	#	84
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.19	56	132	No Calib		#	
41) Benzene	12.91	78	1054	N.D.			
42) Carbon Tetrachloride	13.05	117	10110	0.551	ng		97
43) Cyclohexane	13.28	84	501	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.	d		
47) Trichloroethene	13.99	130	281478	22.240	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	14.06	57	2269	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252112.D Vial: 7
Acq On : 25 Jun 2021 7:57 Operator: WA
Sample : P2103157-001dil (200mL) Inst : MS13
Misc : S34-06112101

Quant Time: Jun 27 19:32:15 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

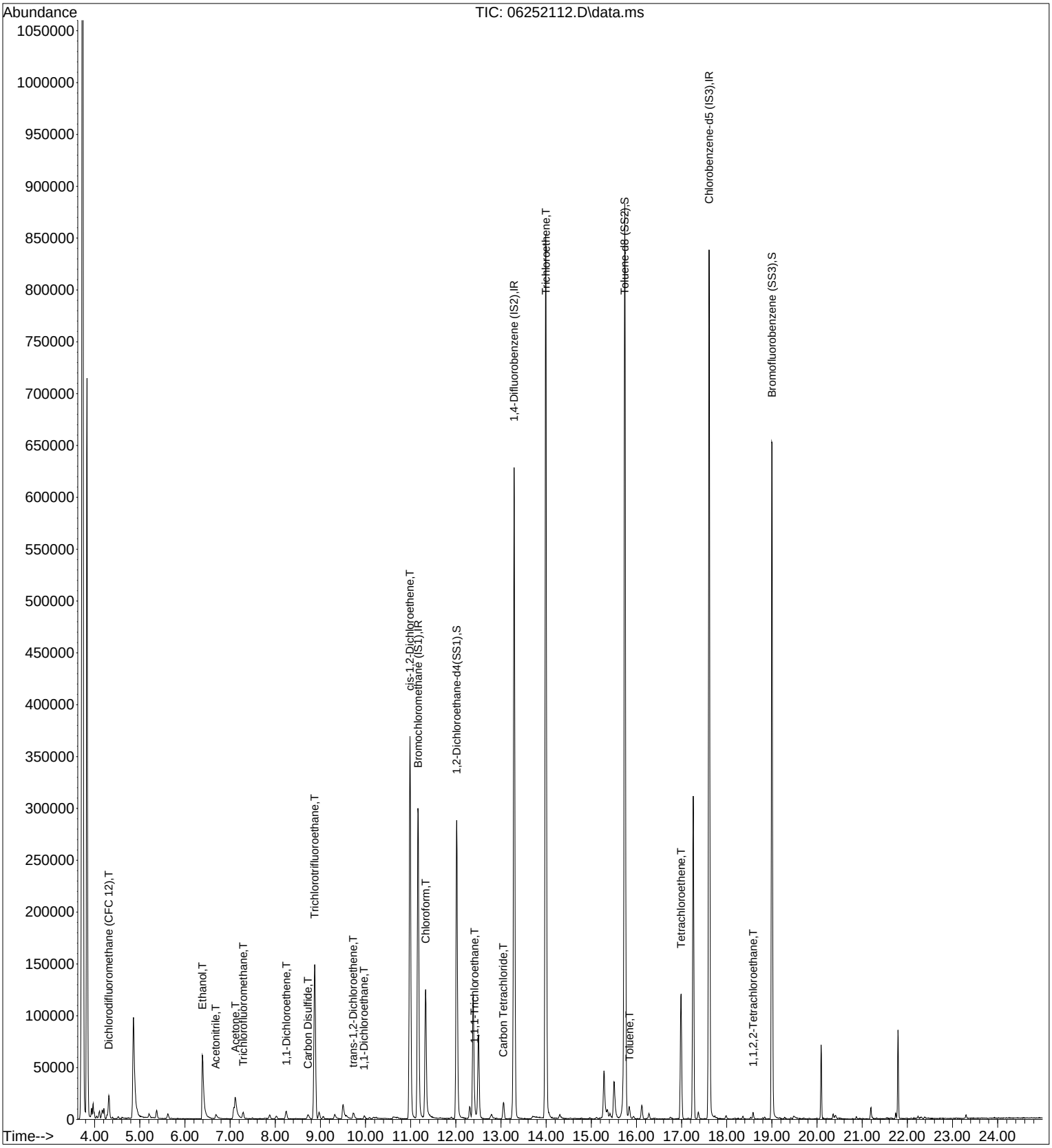
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	15.84	91	6065	0.120 ng	81
59) 2-Hexanone	16.10	43	166	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	16.57	43	105	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	16.99	166	36972	2.863 ng	100
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	17.98	91	2172	N.D.	
67) m- & p-Xylenes	18.18	91	1507	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	18.54	104	720	N.D.	
70) o-Xylene	18.61	91	343	N.D.	
71) n-Nonane	18.62	43	235	N.D.	
72) 1,1,2,2-Tetrachloroethane	18.58	83	4106	0.185 ng	96
74) Cumene	19.00	105	205	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D.	
77) 3-Ethyltoluene	19.71	105	365	No Calib #	
78) 4-Ethyltoluene	19.71	105	365	N.D.	
79) 1,3,5-Trimethylbenzene	19.78	105	227	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	19.78	105	227	No Calib #	
82) 1,2,4-Trimethylbenzene	20.15	105	436	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	20.27	91	673	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	20.15	105	377	N.D.	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	
89) 1,2,3-Trimethylbenzene	20.15	105	436	No Calib #	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	20.64	68	107	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	21.32	57	128	No Calib #	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	22.29	128	377	N.D.	
96) n-Dodecane	22.24	57	687	No Calib #	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	20.09	119	1356	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.	

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252112.D Vial: 7
Acq On : 25 Jun 2021 7:57 Operator: WA
Sample : P2103157-001dil (200mL) Inst : MS13
Misc : S34-06112101

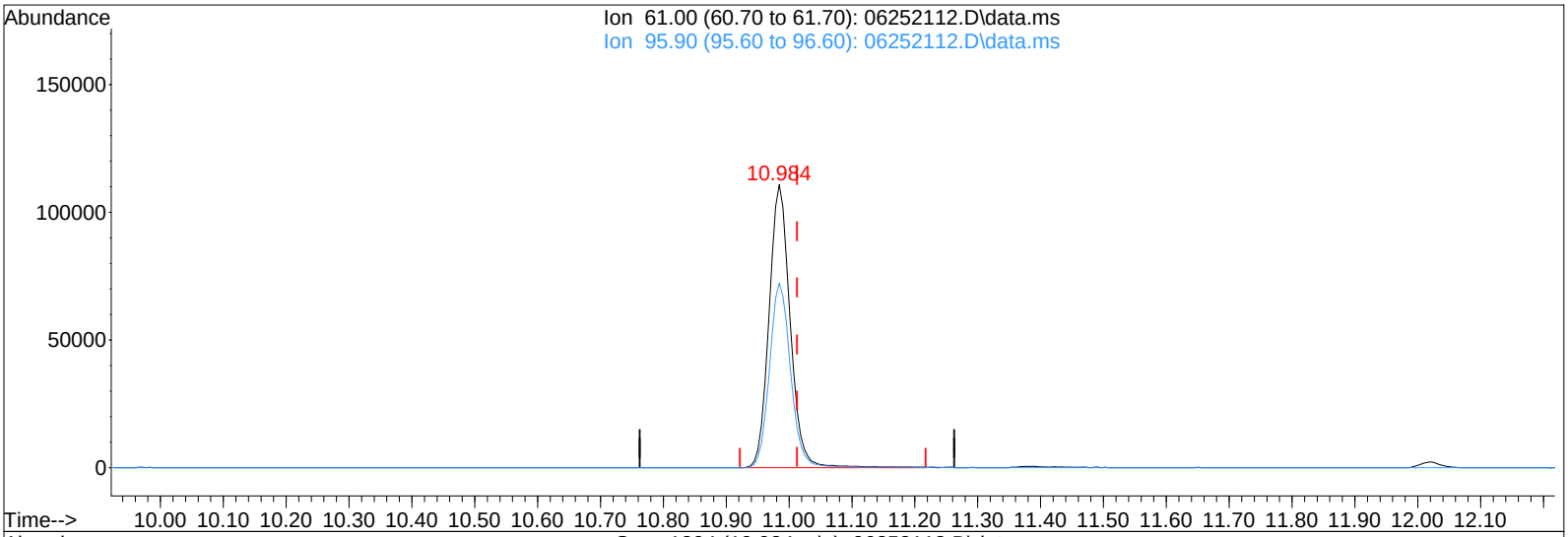
Quant Time: Jun 27 19:32:15 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

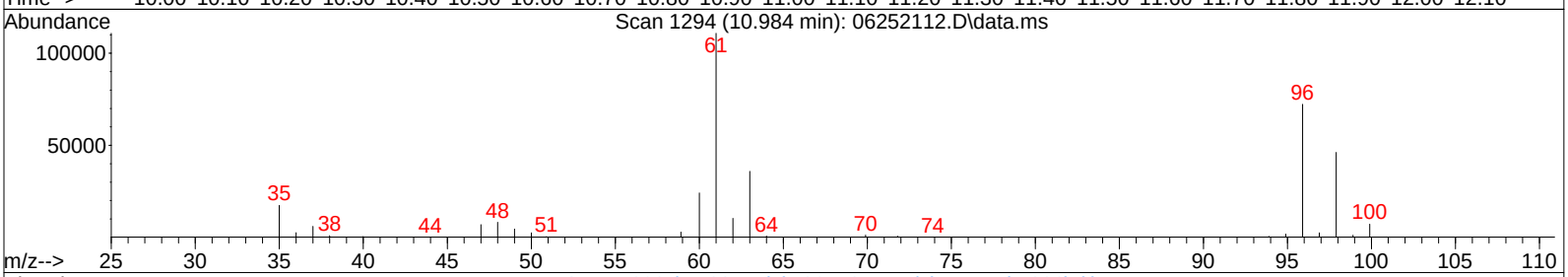


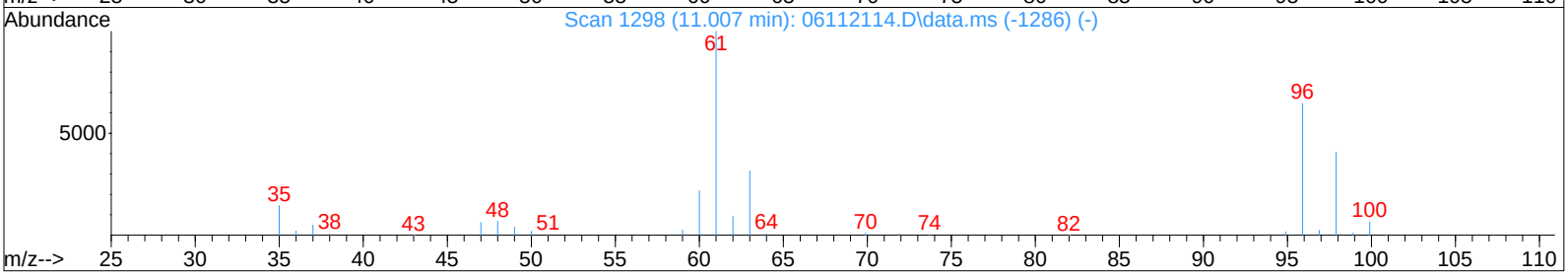
Quantitation Report (Qedit)

Data File : I:\MS13\DATA\2021_06\25\06252112.D Vial: 7
Acq On : 25 Jun 2021 7:57 Operator: WA
Sample : P2103157-001dil (200mL) Inst : MS13
Misc : S34-06112101

Quant Time: Jun 25 08:51:38 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 06252112.D\data.ms

(28) cis-1,2-Dichloroethene (T)

10.984min (-0.028) 14.08ng

response 258585

Ion	Exp%	Act%
61.00	100	100
95.90	65.00	65.25
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242103.D Vial: 2
Acq On : 24 Jun 2021 2:14 Operator: WA
Sample : MB R130624321_1000mL Inst : MS13
Misc : S34-06112101/AC01837

Quant Time: Jun 24 06:13:33 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	126032	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.29	114	593089	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.61	54	151614	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	12.01	65	230458	11.053	ng	-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.40%			
57) Toluene-d8 (SS2)	15.74	98	709064	13.007	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.08%			
73) Bromofluorobenzene (SS3)	19.00	174	205460	13.247	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 106.00%			
Target Compounds						Qvalue
2) Propene	4.20	42	537	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	6.79	41	122	N.D.		
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	7.25	58	1216	0.093	ng	93
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	8.75	76	4446	0.084	ng	85
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	0.00	78	0	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.29	84	472	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.		

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242103.D Vial: 2
Acq On : 24 Jun 2021 2:14 Operator: WA
Sample : MB R130624321_1000mL Inst : MS13
Misc : S34-06112101/AC01837

Quant Time: Jun 24 06:13:33 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

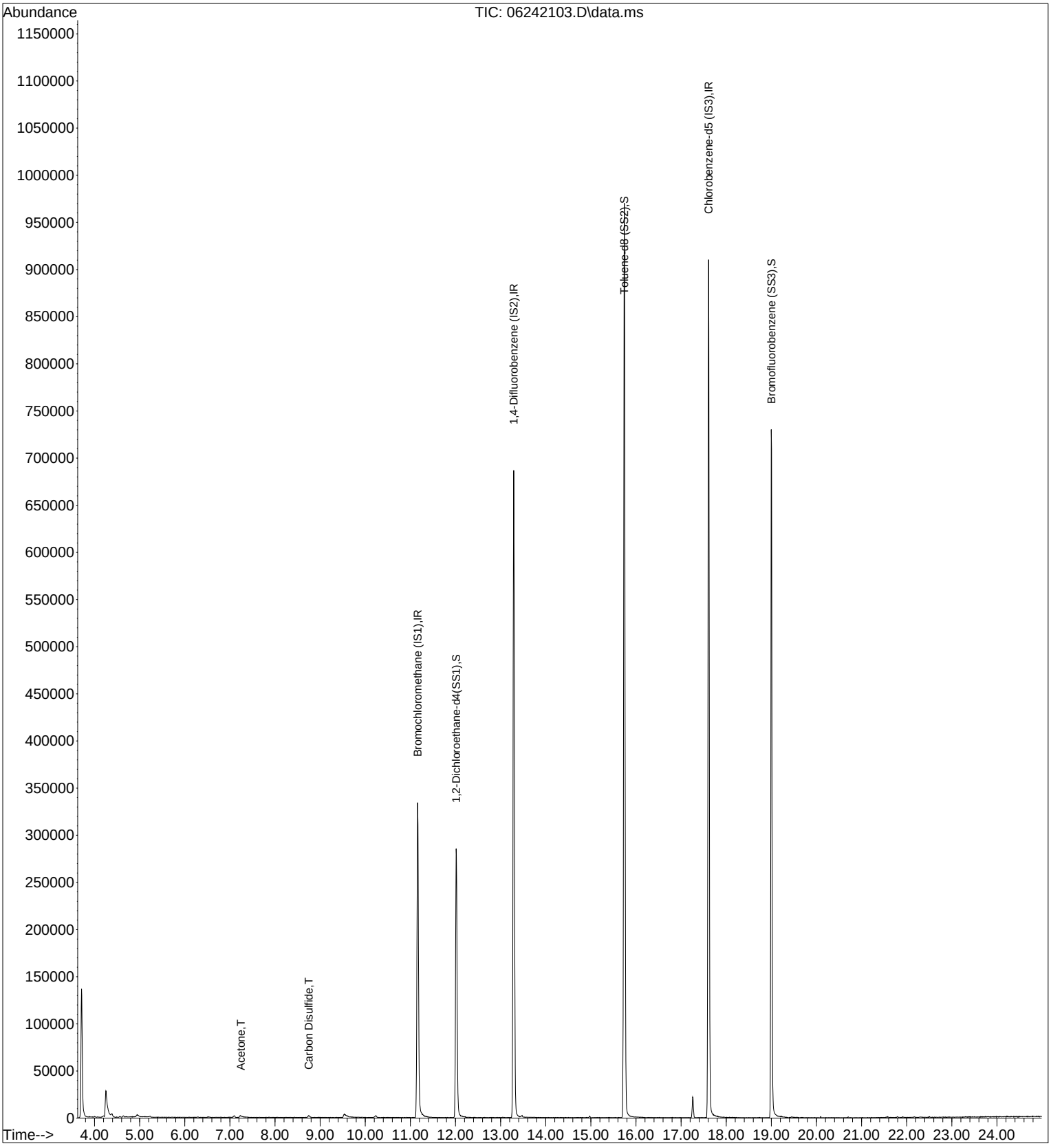
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	0.00	91	0	N.D.	
59) 2-Hexanone	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	0.00	91	0	N.D.	
67) m- & p-Xylenes	0.00	91	0	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	19.00	105	375	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	19.57	91	871	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	0.00	105	0	N.D.	
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.	
83) n-Decane	0.00	58	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	448	N.D.	
95) Naphthalene	22.29	128	1121	N.D.	
96) n-Dodecane	0.00	57	0	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.	
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.	

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242103.D Vial: 2
Acq On : 24 Jun 2021 2:14 Operator: WA
Sample : MB R130624321_1000mL Inst : MS13
Misc : S34-06112101/AC01837

Quant Time: Jun 24 06:13:33 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252103.D Vial: 2
Acq On : 25 Jun 2021 2:45 Operator: WA
Sample : MB R13062521_1000mL Inst : MS13
Misc : S34-06112101/AC01837

Quant Time: Jun 25 06:08:55 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	115426	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.29	114	548858	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.61	54	141169	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.01	65	228837	11.984	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.84%				
57) Toluene-d8 (SS2)	15.74	98	656070	12.926	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.44%				
73) Bromofluorobenzene (SS3)	19.00	174	184552	12.779	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.24%				
Target Compounds							Qvalue
2) Propene	4.20	42	357	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	6.78	41	177	N.D.			
12) Acrolein	0.00	56	0	N.D.			
13) Acetone	7.22	58	1295	0.108	ng	#	62
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	0.00	76	0	N.D. 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	0.00	56	0	N.D.			
41) Benzene	0.00	78	0	N.D.			
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	13.30	84	554	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.			

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252103.D Vial: 2
Acq On : 25 Jun 2021 2:45 Operator: WA
Sample : MB R13062521_1000mL Inst : MS13
Misc : S34-06112101/AC01837

Quant Time: Jun 25 06:08:55 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

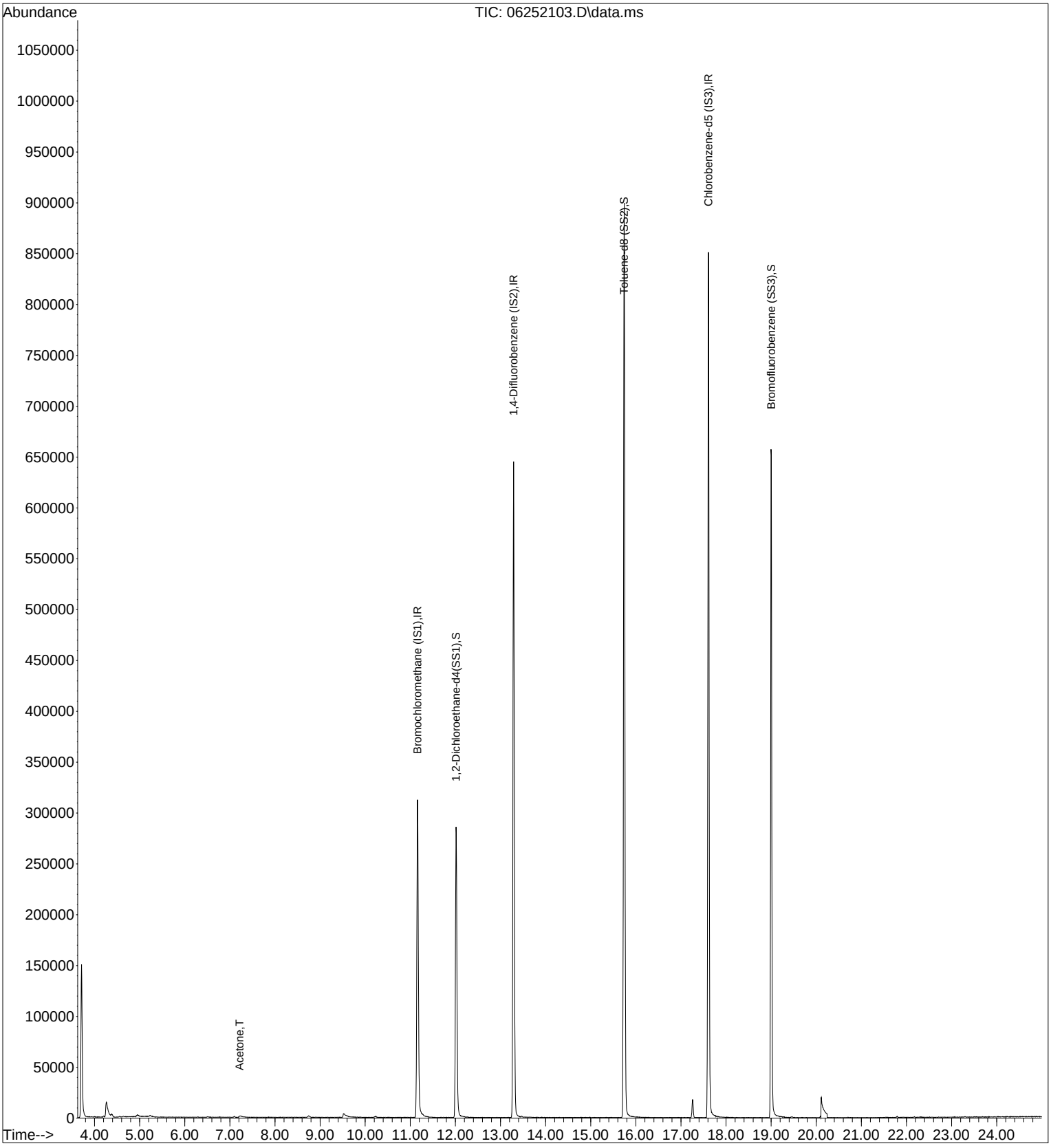
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	0.00	91	0	N.D.	
59) 2-Hexanone	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	0.00	91	0	N.D.	
67) m- & p-Xylenes	0.00	91	0	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	19.00	105	314	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	19.57	91	230	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	0.00	105	0	N.D.	
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.	
83) n-Decane	0.00	58	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	249	N.D.	
95) Naphthalene	22.31	128	756	N.D.	
96) n-Dodecane	0.00	57	0	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.	
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.	

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252103.D Vial: 2
Acq On : 25 Jun 2021 2:45 Operator: WA
Sample : MB R13062521_1000mL Inst : MS13
Misc : S34-06112101/AC01837

Quant Time: Jun 25 06:08:55 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242104.D Vial: 1
Acq On : 24 Jun 2021 2:48 Operator: WA
Sample : LCS R13062421_25ng Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 24 03:12:20 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	139646	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.30	114	648987	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.61	54	174571	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.03	65	283082	12.254	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.00%				
57) Toluene-d8 (SS2)	15.75	98	765757	12.200	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.60%				
73) Bromofluorobenzene (SS3)	19.00	174	246626	13.810	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.48%				
Target Compounds							Qvalue
2) Propene	4.14	42	527657	20.293	ng		99
3) Dichlorodifluoromethan...	4.30	85	748818	22.829	ng		100
4) Chloromethane	4.58	50	542536	18.866	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.84	135	396093	24.288	ng		99
6) Vinyl Chloride	5.00	62	703535	23.520	ng		100
7) 1,3-Butadiene	5.26	54	570839	23.982	ng		98
8) Bromomethane	5.70	94	298047	22.839	ng		100
9) Chloroethane	6.03	64	268684	22.205	ng		100
10) Ethanol	6.41	45	1552188	98.430	ng		100
11) Acetonitrile	6.66	41	869567	21.906	ng		99
12) Acrolein	6.84	56	571879	49.311	ng		99
13) Acetone	7.05	58	1761830	121.747	ng		98
14) Trichlorofluoromethane	7.29	101	662213	22.490	ng		100
15) 2-Propanol (Isopropanol)	7.55	45	2657151	50.517	ng		100
16) Acrylonitrile	7.80	53	1206708	49.834	ng		99
17) 1,1-Dichloroethene	8.24	96	340229	24.042	ng		95
18) 2-Methyl-2-Propanol (t...	8.41	59	1935746	55.189	ng		98
19) Methylene Chloride	8.47	84	365109	23.764	ng		92
20) 3-Chloro-1-propene (Al...	8.62	41	736006	21.267	ng		96
21) Trichlorotrifluoroethane	8.87	151	273150	24.056	ng		98
22) Carbon Disulfide	8.73	76	2712046	46.462	ng		100
23) trans-1,2-Dichloroethene	9.73	61	581292	25.116	ng		97
24) 1,1-Dichloroethane	9.99	63	690806	23.548	ng		100
25) Methyl tert-Butyl Ether	10.09	73	757930	19.574	ng		98
26) Vinyl Acetate	10.24	86	335029	93.544	ng	#	91
27) 2-Butanone (MEK)	10.48	72	533239	50.800	ng	#	87
28) cis-1,2-Dichloroethene	11.00	61	561958	23.978	ng		97
29) Diisopropyl Ether	11.30	87	864980	60.036	ng	#	82
30) Ethyl Acetate	11.30	61	798560	78.188	ng		97
31) n-Hexane	11.29	57	908794	26.864	ng		99
32) Chloroform	11.35	83	693746	24.702	ng		100
34) Tetrahydrofuran (THF)	11.75	72	465844	44.955	ng	#	90
35) Ethyl tert-Butyl Ether	11.89	87	1006001	52.771	ng		95
36) 1,2-Dichloroethane	12.15	62	583439	24.311	ng		100
38) 1,1,1-Trichloroethane	12.42	97	589000	23.368	ng		99
39) Isopropyl Acetate	12.88	61	36302	No Calib		#	
40) 1-Butanol	12.95	56	11957	No Calib		#	
41) Benzene	12.90	78	1465320	23.991	ng		100
42) Carbon Tetrachloride	13.06	117	545799	24.192	ng		100
43) Cyclohexane	13.19	84	1098991	48.217	ng		95
44) tert-Amyl Methyl Ether	13.54	73	2428228	53.838	ng		98
45) 1,2-Dichloropropane	13.75	63	407747	23.630	ng		100
46) Bromodichloromethane	13.94	83	551794	25.274	ng		100
47) Trichloroethene	14.00	130	390525	25.096	ng		100
48) 1,4-Dioxane	13.98	88	312511	25.276	ng		96
49) 2,2,4-Trimethylpentane...	14.06	57	1900391	24.423	ng		99
50) Methyl Methacrylate	14.21	100	314993	59.566	ng		96

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242104.D Vial: 1
Acq On : 24 Jun 2021 2:48 Operator: WA
Sample : LCS R13062421_25ng Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 24 03:12:20 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

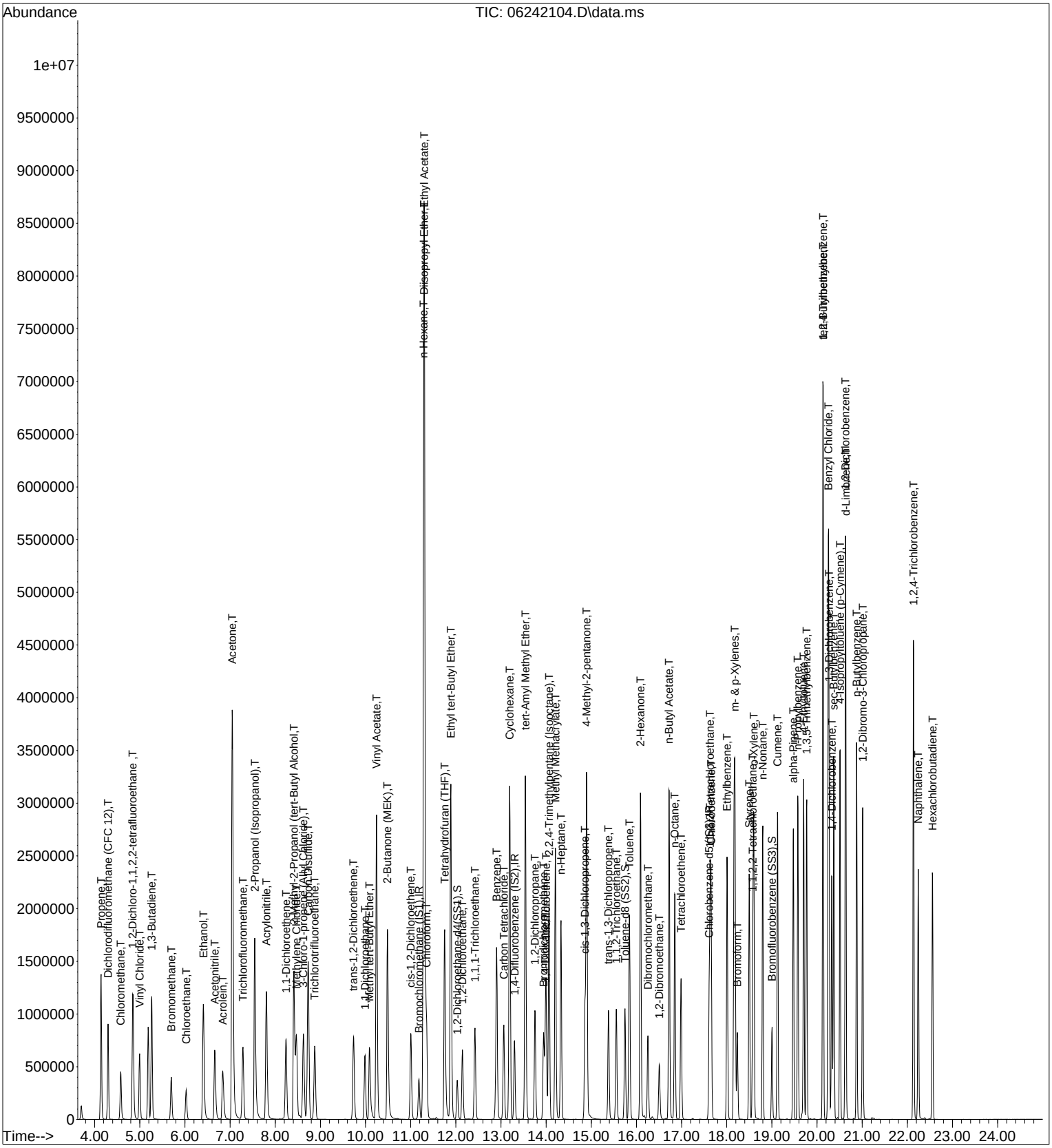
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.33	71	404461	24.706	ng		97
52) cis-1,3-Dichloropropene	14.86	75	638039	27.541	ng		100
53) 4-Methyl-2-pentanone	14.89	58	906583	51.367	ng		96
54) trans-1,3-Dichloropropene	15.38	75	586792	26.016	ng		99
55) 1,1,2-Trichloroethane	15.55	97	358882	25.455	ng		99
58) Toluene	15.84	91	1516864	23.803	ng		99
59) 2-Hexanone	16.09	43	2463031	51.510	ng		98
60) Dibromochloromethane	16.25	129	466366	26.857	ng		100
61) 1,2-Dibromoethane	16.50	107	421480	27.245	ng		100
62) n-Butyl Acetate	16.72	43	2714337	53.451	ng		98
63) n-Octane	16.85	57	406292	23.764	ng		96
64) Tetrachloroethene	16.99	166	410692	25.223	ng		100
65) Chlorobenzene	17.65	112	1032373	23.974	ng		100
66) Ethylbenzene	18.01	91	1792017	25.618	ng		99
67) m- & p-Xylenes	18.18	91	2965437	52.440	ng		99
68) Bromoform	18.23	173	404970	29.099	ng		100
69) Styrene	18.50	104	1082728	26.804	ng		99
70) o-Xylene	18.60	91	1483166	25.833	ng		100
71) n-Nonane	18.80	43	1061539	23.830	ng		96
72) 1,1,2,2-Tetrachloroethane	18.58	83	717752	25.684	ng		100
74) Cumene	19.12	105	1842751	26.246	ng		99
75) alpha-Pinene	19.48	93	968591	26.986	ng		99
76) n-Propylbenzene	19.57	91	2273418	27.321	ng		99
77) 3-Ethyltoluene	19.70	105	1860872	No Calib			
78) 4-Ethyltoluene	19.70	105	1860872	29.247	ng		99
79) 1,3,5-Trimethylbenzene	19.77	105	1546781	26.111	ng		100
80) alpha-Methylstyrene	19.70	118	10798	No Calib		#	
81) 2-Ethyltoluene	19.77	105	1546781	No Calib			
82) 1,2,4-Trimethylbenzene	20.14	105	1788215	29.865	ng		99
83) n-Decane	20.13	58	100598	No Calib		#	
84) Benzyl Chloride	20.25	91	3183009	61.463	ng		99
85) 1,3-Dichlorobenzene	20.27	146	957106	27.261	ng		100
86) 1,4-Dichlorobenzene	20.33	146	876588	26.725	ng		99
87) sec-Butylbenzene	20.37	105	2126427	27.591	ng		99
88) 4-Isopropyltoluene (p-...	20.51	119	1797193	28.649	ng		100
89) 1,2,3-Trimethylbenzene	20.37	105	2126008	No Calib			
90) 1,2-Dichlorobenzene	20.63	146	928462	29.415	ng		100
91) d-Limonene	20.64	68	718641	26.581	ng		96
92) 1,2-Dibromo-3-Chloropr...	21.01	157	709218	52.879	ng		92
93) n-Undecane	21.32	57	477	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.14	180	1268640	49.215	ng		100
95) Naphthalene	22.24	128	1749201	23.416	ng		100
96) n-Dodecane	22.24	57	111	No Calib		#	
97) Hexachlorobutadiene	22.56	225	417914	27.129	ng		100
98) Cyclohexanone	18.17	55	2977	No Calib			
99) tert-Butylbenzene	20.14	119	1685953	29.562	ng		99
100) n-Butylbenzene	20.88	91	1721193	28.374	ng		99
101) 1,1,1,2-Tetrachloroethane	17.63	131	414889	25.696	ng		99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242104.D Vial: 1
Acq On : 24 Jun 2021 2:48 Operator: WA
Sample : LCS R13062421_25ng Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 24 03:12:20 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242105.D Vial: 1
Acq On : 24 Jun 2021 3:22 Operator: WA
Sample : LCSD R13062421_25ng Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 24 06:15:06 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	141887	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.30	114	661423	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.61	54	174309	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.03	65	280320	11.942	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.52%				
57) Toluene-d8 (SS2)	15.75	98	768822	12.267	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.16%				
73) Bromofluorobenzene (SS3)	19.00	174	249279	13.980	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.84%				
Target Compounds							Qvalue
2) Propene	4.15	42	535026	20.252	ng		99
3) Dichlorodifluoromethan...	4.30	85	774249	23.231	ng		100
4) Chloromethane	4.58	50	521759	17.857	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	415592	25.081	ng		99
6) Vinyl Chloride	5.00	62	728081	23.956	ng		100
7) 1,3-Butadiene	5.27	54	592225	24.488	ng		98
8) Bromomethane	5.70	94	314886	23.748	ng		100
9) Chloroethane	6.03	64	279494	22.734	ng		100
10) Ethanol	6.41	45	1600232	99.874	ng		100
11) Acetonitrile	6.66	41	912004	22.612	ng		98
12) Acrolein	6.84	56	586022	49.732	ng		100
13) Acetone	7.05	58	1794605	122.053	ng		98
14) Trichlorofluoromethane	7.29	101	683832	22.858	ng		100
15) 2-Propanol (Isopropanol)	7.55	45	2700400	50.529	ng		100
16) Acrylonitrile	7.80	53	1236696	50.265	ng		100
17) 1,1-Dichloroethene	8.24	96	352997	24.550	ng		94
18) 2-Methyl-2-Propanol (t...	8.41	59	1807516	50.719	ng		98
19) Methylene Chloride	8.47	84	373323	23.915	ng		91
20) 3-Chloro-1-propene (Al...	8.63	41	757141	21.532	ng		96
21) Trichlorotrifluoroethane	8.88	151	288866	25.039	ng		95
22) Carbon Disulfide	8.73	76	2779499	46.866	ng		100
23) trans-1,2-Dichloroethene	9.74	61	596328	25.359	ng		97
24) 1,1-Dichloroethane	9.99	63	700873	23.513	ng		99
25) Methyl tert-Butyl Ether	10.09	73	711696	18.090	ng		99
26) Vinyl Acetate	10.24	86	342129	94.017	ng	#	89
27) 2-Butanone (MEK)	10.49	72	541960	50.816	ng	#	87
28) cis-1,2-Dichloroethene	11.00	61	571156	23.986	ng		97
29) Diisopropyl Ether	11.30	87	873567	59.674	ng	#	82
30) Ethyl Acetate	11.30	61	809755	78.032	ng		97
31) n-Hexane	11.29	57	922480	26.838	ng		99
32) Chloroform	11.35	83	704426	24.686	ng		100
34) Tetrahydrofuran (THF)	11.75	72	476613	45.268	ng	#	90
35) Ethyl tert-Butyl Ether	11.89	87	1029920	53.172	ng		95
36) 1,2-Dichloroethane	12.15	62	595356	24.416	ng		100
38) 1,1,1-Trichloroethane	12.42	97	598222	23.288	ng		99
39) Isopropyl Acetate	12.88	61	36904	No Calib	#		
40) 1-Butanol	12.95	56	12090	No Calib	#		
41) Benzene	12.90	78	1497911	24.063	ng		100
42) Carbon Tetrachloride	13.06	117	557369	24.240	ng		100
43) Cyclohexane	13.19	84	1106422	47.630	ng		95
44) tert-Amyl Methyl Ether	13.54	73	2491995	54.213	ng		97
45) 1,2-Dichloropropane	13.76	63	416480	23.683	ng		100
46) Bromodichloromethane	13.94	83	566644	25.467	ng		100
47) Trichloroethene	13.99	130	403028	25.413	ng		100
48) 1,4-Dioxane	13.98	88	318136	25.247	ng		97
49) 2,2,4-Trimethylpentane...	14.06	57	1941265	24.479	ng		99
50) Methyl Methacrylate	14.21	100	322262	59.795	ng		95

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242105.D Vial: 1
Acq On : 24 Jun 2021 3:22 Operator: WA
Sample : LCSD R13062421_25ng Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 24 06:15:06 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

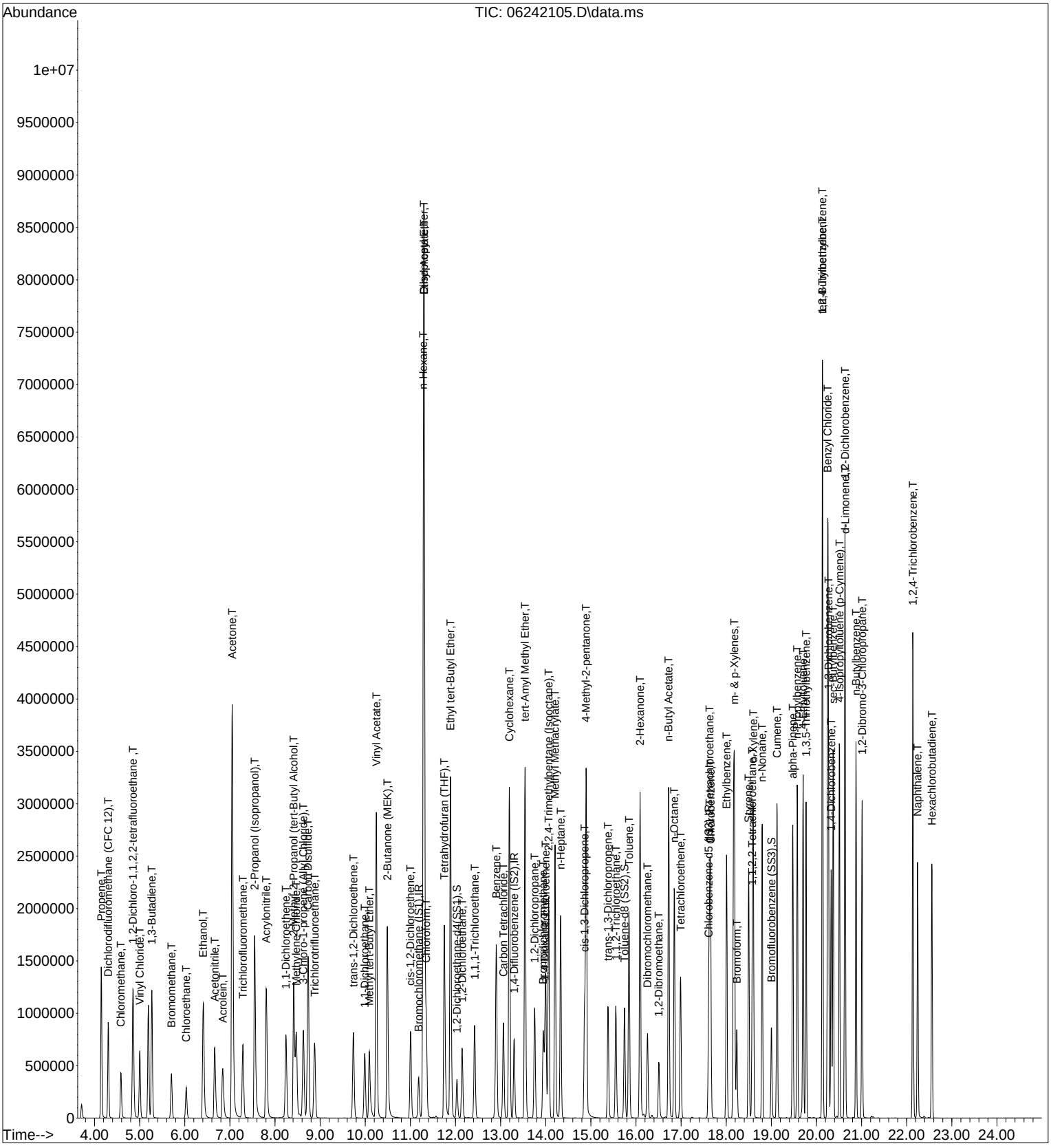
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.33	71	412935	24.749	ng		97
52) cis-1,3-Dichloropropene	14.86	75	648567	27.469	ng		99
53) 4-Methyl-2-pentanone	14.89	58	921967	51.257	ng		95
54) trans-1,3-Dichloropropene	15.38	75	599790	26.092	ng		100
55) 1,1,2-Trichloroethane	15.55	97	368956	25.678	ng		98
58) Toluene	15.84	91	1548172	24.331	ng		100
59) 2-Hexanone	16.09	43	2498769	52.336	ng		98
60) Dibromochloromethane	16.25	129	475336	27.414	ng		100
61) 1,2-Dibromoethane	16.50	107	430189	27.850	ng		100
62) n-Butyl Acetate	16.72	43	2740153	54.041	ng		98
63) n-Octane	16.85	57	411734	24.118	ng		96
64) Tetrachloroethene	16.99	166	419426	25.799	ng		99
65) Chlorobenzene	17.65	112	1053950	24.512	ng		100
66) Ethylbenzene	18.01	91	1827338	26.162	ng		99
67) m- & p-Xylenes	18.18	91	3019367	53.474	ng		99
68) Bromoform	18.23	173	417479	30.043	ng		100
69) Styrene	18.50	104	1104469	27.384	ng		99
70) o-Xylene	18.60	91	1533107	26.743	ng		99
71) n-Nonane	18.79	43	1081510	24.315	ng		96
72) 1,1,2,2-Tetrachloroethane	18.58	83	729562	26.145	ng		100
74) Cumene	19.12	105	1876477	26.767	ng		99
75) alpha-Pinene	19.48	93	996278	27.799	ng		99
76) n-Propylbenzene	19.57	91	2317335	27.891	ng		99
77) 3-Ethyltoluene	19.70	105	1892134	No Calib			
78) 4-Ethyltoluene	19.70	105	1892134	29.783	ng		99
79) 1,3,5-Trimethylbenzene	19.77	105	1567953	26.508	ng		99
80) alpha-Methylstyrene	19.70	118	11108	No Calib			
81) 2-Ethyltoluene	19.77	105	1567953	No Calib			
82) 1,2,4-Trimethylbenzene	20.13	105	1812458	30.316	ng		99
83) n-Decane	20.13	58	100272	No Calib		#	
84) Benzyl Chloride	20.25	91	3237688	62.613	ng		99
85) 1,3-Dichlorobenzene	20.27	146	962062	27.443	ng		99
86) 1,4-Dichlorobenzene	20.33	146	903187	27.577	ng		99
87) sec-Butylbenzene	20.37	105	2166059	28.147	ng		99
88) 4-Isopropyltoluene (p-...	20.51	119	1829837	29.213	ng		100
89) 1,2,3-Trimethylbenzene	20.37	105	2166059	No Calib			
90) 1,2-Dichlorobenzene	20.63	146	944128	29.957	ng		100
91) d-Limonene	20.64	68	728488	26.986	ng		96
92) 1,2-Dibromo-3-Chloropr...	21.01	157	716588	53.509	ng		92
93) n-Undecane	21.32	57	342	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.14	180	1294346	50.288	ng		100
95) Naphthalene	22.24	128	1781169	23.880	ng		100
96) n-Dodecane	22.24	57	277	No Calib		#	
97) Hexachlorobutadiene	22.56	225	428518	27.859	ng		100
98) Cyclohexanone	18.17	55	2895	No Calib			
99) tert-Butylbenzene	20.13	119	1712756	30.077	ng		99
100) n-Butylbenzene	20.88	91	1741231	28.747	ng		99
101) 1,1,1,2-Tetrachloroethane	17.63	131	422720	26.220	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242105.D Vial: 1
Acq On : 24 Jun 2021 3:22 Operator: WA
Sample : LCSD R13062421_25ng Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 24 06:15:06 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252104.D Vial: 1
Acq On : 25 Jun 2021 3:19 Operator: WA
Sample : LCS R13062521_25ng Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 25 04:19:33 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	129570	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.30	114	606408	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.61	54	164338	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.03	65	263112	12.275	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.16%				
57) Toluene-d8 (SS2)	15.75	98	718703	12.163	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.28%				
73) Bromofluorobenzene (SS3)	19.00	174	225783	13.430	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.44%				
Target Compounds							Qvalue
2) Propene	4.16	42	492599	20.418	ng		99
3) Dichlorodifluoromethan...	4.31	85	678342	22.288	ng		100
4) Chloromethane	4.59	50	484033	18.140	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	360668	23.836	ng		100
6) Vinyl Chloride	5.00	62	656679	23.661	ng		100
7) 1,3-Butadiene	5.27	54	533686	24.165	ng		98
8) Bromomethane	5.71	94	270289	22.322	ng		100
9) Chloroethane	6.03	64	248424	22.128	ng		100
10) Ethanol	6.41	45	1444804	98.745	ng		100
11) Acetonitrile	6.66	41	834957	22.669	ng		99
12) Acrolein	6.84	56	530910	49.338	ng		100
13) Acetone	7.05	58	1640368	122.169	ng		100
14) Trichlorofluoromethane	7.29	101	604211	22.116	ng		100
15) 2-Propanol (Isopropanol)	7.55	45	2473995	50.693	ng		100
16) Acrylonitrile	7.81	53	1132466	50.405	ng		100
17) 1,1-Dichloroethene	8.25	96	310717	23.664	ng		96
18) 2-Methyl-2-Propanol (t...	8.42	59	1756762	53.981	ng		98
19) Methylene Chloride	8.47	84	334396	23.457	ng		95
20) 3-Chloro-1-propene (Al...	8.63	41	692308	21.560	ng		97
21) Trichlorotrifluoroethane	8.88	151	247988	23.539	ng		98
22) Carbon Disulfide	8.74	76	2491266	45.999	ng		100
23) trans-1,2-Dichloroethene	9.74	61	537718	25.040	ng		98
24) 1,1-Dichloroethane	9.99	63	637692	23.427	ng		100
25) Methyl tert-Butyl Ether	10.09	73	747578	20.808	ng		99
26) Vinyl Acetate	10.24	86	307870	92.645	ng	#	97
27) 2-Butanone (MEK)	10.49	72	485083	49.806	ng	#	92
28) cis-1,2-Dichloroethene	11.01	61	518522	23.845	ng		98
29) Diisopropyl Ether	11.30	87	798407	59.724	ng	#	80
30) Ethyl Acetate	11.31	61	750992	79.249	ng		98
31) n-Hexane	11.29	57	852060	27.145	ng		99
32) Chloroform	11.35	83	633133	24.297	ng		100
34) Tetrahydrofuran (THF)	11.75	72	427480	44.461	ng		93
35) Ethyl tert-Butyl Ether	11.89	87	918170	51.909	ng		97
36) 1,2-Dichloroethane	12.15	62	532972	23.935	ng		99
38) 1,1,1-Trichloroethane	12.42	97	540044	22.930	ng		99
39) Isopropyl Acetate	12.88	61	33265	No Calib		#	
40) 1-Butanol	12.95	56	10437	No Calib		#	
41) Benzene	12.90	78	1349198	23.640	ng		100
42) Carbon Tetrachloride	13.06	117	503982	23.907	ng		99
43) Cyclohexane	13.19	84	1016767	47.742	ng		97
44) tert-Amyl Methyl Ether	13.54	73	2237058	53.082	ng		98
45) 1,2-Dichloropropane	13.76	63	377074	23.387	ng		99
46) Bromodichloromethane	13.94	83	505029	24.757	ng		100
47) Trichloroethene	14.00	130	354253	24.364	ng		100
48) 1,4-Dioxane	13.98	88	283035	24.499	ng		99
49) 2,2,4-Trimethylpentane...	14.06	57	1762282	24.238	ng		99
50) Methyl Methacrylate	14.21	100	285759	57.832	ng		98

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252104.D Vial: 1
Acq On : 25 Jun 2021 3:19 Operator: WA
Sample : LCS R13062521_25ng Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 25 04:19:33 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

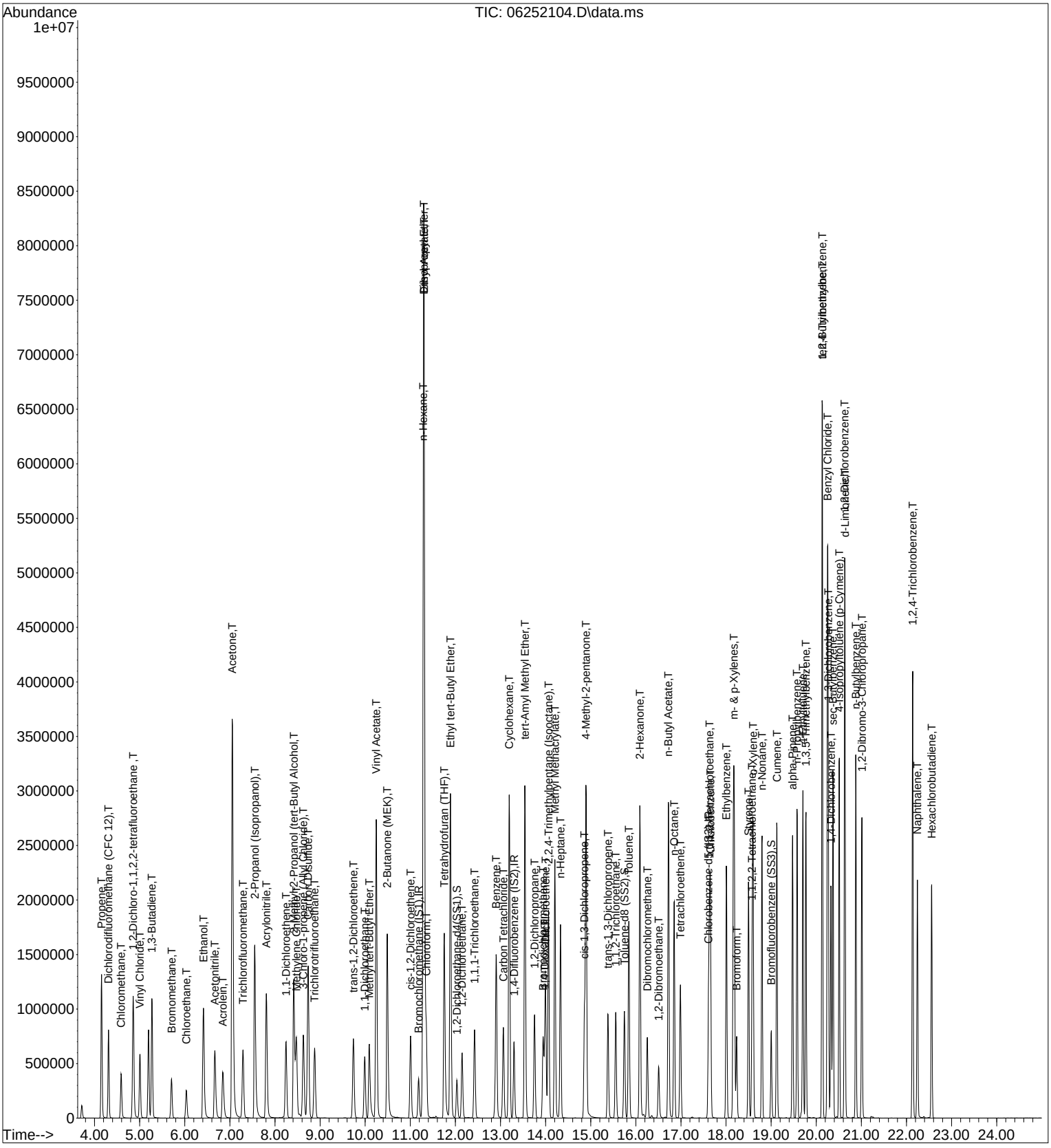
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.33	71	373364	24.408	ng		98
52) cis-1,3-Dichloropropene	14.86	75	582482	26.908	ng		100
53) 4-Methyl-2-pentanone	14.89	58	840906	50.992	ng		97
54) trans-1,3-Dichloropropene	15.38	75	536296	25.447	ng		99
55) 1,1,2-Trichloroethane	15.55	97	328904	24.967	ng		99
58) Toluene	15.84	91	1388755	23.150	ng		99
59) 2-Hexanone	16.09	43	2305068	51.208	ng		99
60) Dibromochloromethane	16.25	129	425127	26.006	ng		100
61) 1,2-Dibromoethane	16.50	107	382533	26.267	ng		100
62) n-Butyl Acetate	16.72	43	2545668	53.251	ng		99
63) n-Octane	16.85	57	375932	23.357	ng		97
64) Tetrachloroethene	16.99	166	370031	24.141	ng		100
65) Chlorobenzene	17.65	112	941616	23.228	ng		100
66) Ethylbenzene	18.01	91	1648270	25.030	ng		99
67) m- & p-Xylenes	18.17	91	2728687	51.258	ng		99
68) Bromoform	18.23	173	368265	28.109	ng		100
69) Styrene	18.50	104	991265	26.068	ng		99
70) o-Xylene	18.60	91	1385837	25.641	ng		100
71) n-Nonane	18.80	43	1000234	23.852	ng		97
72) 1,1,2,2-Tetrachloroethane	18.58	83	659147	25.055	ng		99
74) Cumene	19.13	105	1689335	25.559	ng		100
75) alpha-Pinene	19.48	93	893986	26.458	ng		99
76) n-Propylbenzene	19.57	91	2092044	26.707	ng		99
77) 3-Ethyltoluene	19.70	105	1707359	No Calib			
78) 4-Ethyltoluene	19.70	105	1707359	28.505	ng		100
79) 1,3,5-Trimethylbenzene	19.77	105	1416740	25.405	ng		99
80) alpha-Methylstyrene	19.70	118	9917	No Calib		#	
81) 2-Ethyltoluene	19.77	105	1416740	No Calib			
82) 1,2,4-Trimethylbenzene	20.14	105	1659822	29.447	ng		99
83) n-Decane	20.13	58	93802	No Calib		#	
84) Benzyl Chloride	20.25	91	2955717	60.628	ng		99
85) 1,3-Dichlorobenzene	20.27	146	872050	26.385	ng		100
86) 1,4-Dichlorobenzene	20.33	146	802002	25.973	ng		99
87) sec-Butylbenzene	20.37	105	1956853	26.971	ng		99
88) 4-Isopropyltoluene (p-...	20.51	119	1649443	27.931	ng		100
89) 1,2,3-Trimethylbenzene	20.37	105	1956804	No Calib			
90) 1,2-Dichlorobenzene	20.63	146	852538	28.692	ng		100
91) d-Limonene	20.64	68	664864	26.123	ng		97
92) 1,2-Dibromo-3-Chloropr...	21.01	157	644048	51.010	ng		94
93) n-Undecane	21.33	57	326	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.14	180	1144852	47.178	ng		99
95) Naphthalene	22.24	128	1586833	22.566	ng		100
96) n-Dodecane	22.25	57	129	No Calib		#	
97) Hexachlorobutadiene	22.56	225	377092	26.003	ng		100
98) Cyclohexanone	18.18	55	2740	No Calib			
99) tert-Butylbenzene	20.14	119	1569335	29.230	ng		99
100) n-Butylbenzene	20.88	91	1592789	27.892	ng		100
101) 1,1,1,2-Tetrachloroethane	17.63	131	376423	24.765	ng		100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252104.D Vial: 1
Acq On : 25 Jun 2021 3:19 Operator: WA
Sample : LCS R13062521_25ng Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 25 04:19:33 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252105.D Vial: 1
Acq On : 25 Jun 2021 3:52 Operator: WA
Sample : LCSD R13062521_25ng Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 25 04:19:36 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	134952	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.30	114	625721	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.61	54	167143	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.03	65	270332	12.109	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.88%				
57) Toluene-d8 (SS2)	15.75	98	735027	12.231	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.84%				
73) Bromofluorobenzene (SS3)	19.00	174	232565	13.601	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 108.80%				
Target Compounds							Qvalue
2) Propene	4.16	42	516323	20.548	ng		99
3) Dichlorodifluoromethan...	4.31	85	727107	22.938	ng		100
4) Chloromethane	4.59	50	505116	18.175	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	384893	24.422	ng		100
6) Vinyl Chloride	5.01	62	681379	23.571	ng		100
7) 1,3-Butadiene	5.27	54	559602	24.328	ng		98
8) Bromomethane	5.71	94	291874	23.143	ng		100
9) Chloroethane	6.04	64	263158	22.505	ng		100
10) Ethanol	6.41	45	1514134	99.357	ng		100
11) Acetonitrile	6.66	41	853078	22.238	ng		99
12) Acrolein	6.85	56	554149	49.444	ng		100
13) Acetone	7.06	58	1708591	122.175	ng		99
14) Trichlorofluoromethane	7.29	101	632461	22.227	ng		99
15) 2-Propanol (Isopropanol)	7.55	45	2588657	50.927	ng		100
16) Acrylonitrile	7.81	53	1171732	50.072	ng		100
17) 1,1-Dichloroethene	8.25	96	326474	23.873	ng		96
18) 2-Methyl-2-Propanol (t...	8.42	59	1855709	54.748	ng		98
19) Methylene Chloride	8.47	84	348865	23.496	ng		94
20) 3-Chloro-1-propene (Al...	8.63	41	719880	21.524	ng		97
21) Trichlorotrifluoroethane	8.88	151	263602	24.023	ng		97
22) Carbon Disulfide	8.74	76	2599498	46.083	ng		100
23) trans-1,2-Dichloroethene	9.74	61	563514	25.195	ng		98
24) 1,1-Dichloroethane	9.99	63	664398	23.435	ng		99
25) Methyl tert-Butyl Ether	10.09	73	784386	20.962	ng		99
26) Vinyl Acetate	10.24	86	318654	92.066	ng	#	95
27) 2-Butanone (MEK)	10.49	72	501621	49.450	ng	#	91
28) cis-1,2-Dichloroethene	11.01	61	542636	23.959	ng		98
29) Diisopropyl Ether	11.30	87	821010	58.966	ng	#	81
30) Ethyl Acetate	11.31	61	765535	77.562	ng		98
31) n-Hexane	11.29	57	878893	26.884	ng		99
32) Chloroform	11.35	83	657969	24.243	ng		99
34) Tetrahydrofuran (THF)	11.75	72	444283	44.365	ng	#	92
35) Ethyl tert-Butyl Ether	11.89	87	955982	51.891	ng		97
36) 1,2-Dichloroethane	12.15	62	550306	23.728	ng		100
38) 1,1,1-Trichloroethane	12.42	97	565055	23.252	ng		99
39) Isopropyl Acetate	12.87	61	34770	No Calib	#		
40) 1-Butanol	12.95	56	11296	No Calib	#		
41) Benzene	12.90	78	1398509	23.748	ng		100
42) Carbon Tetrachloride	13.06	117	522141	24.004	ng		100
43) Cyclohexane	13.19	84	1058535	48.169	ng		96
44) tert-Amyl Methyl Ether	13.54	73	2310484	53.132	ng		98
45) 1,2-Dichloropropane	13.76	63	389787	23.430	ng		100
46) Bromodichloromethane	13.94	83	523233	24.857	ng		99
47) Trichloroethene	14.00	130	369848	24.651	ng		100
48) 1,4-Dioxane	13.98	88	293274	24.602	ng		99
49) 2,2,4-Trimethylpentane...	14.06	57	1820329	24.264	ng		99
50) Methyl Methacrylate	14.21	100	298574	58.560	ng		96

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252105.D Vial: 1
Acq On : 25 Jun 2021 3:52 Operator: WA
Sample : LCSD R13062521_25ng Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 25 04:19:36 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

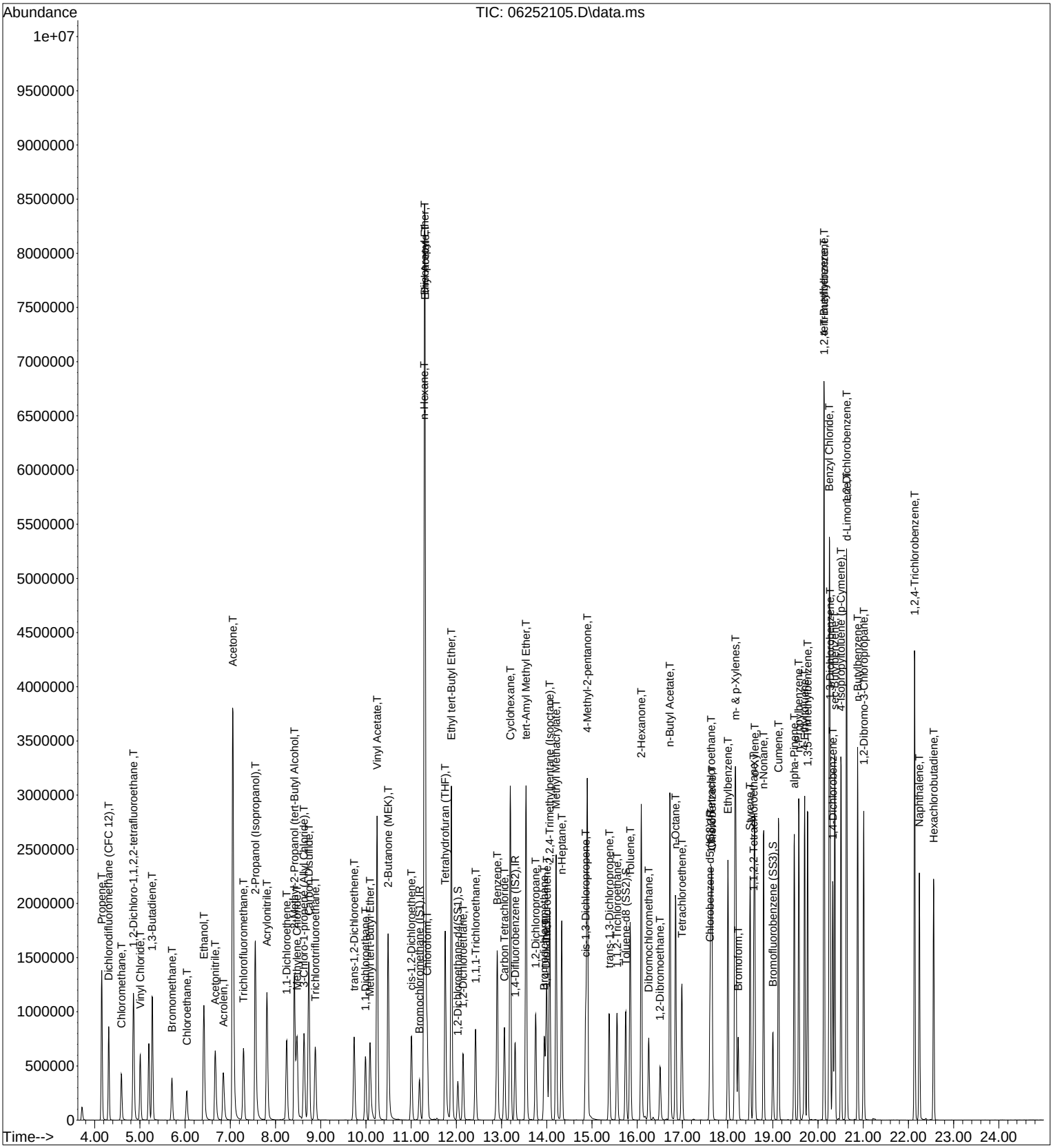
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.33	71	384334	24.350	ng		98
52) cis-1,3-Dichloropropene	14.86	75	605314	27.100	ng		100
53) 4-Methyl-2-pentanone	14.89	58	869118	51.076	ng		97
54) trans-1,3-Dichloropropene	15.38	75	557863	25.653	ng		99
55) 1,1,2-Trichloroethane	15.55	97	340979	25.085	ng		99
58) Toluene	15.84	91	1440418	23.608	ng		100
59) 2-Hexanone	16.09	43	2368103	51.725	ng		98
60) Dibromochloromethane	16.25	129	440248	26.479	ng		100
61) 1,2-Dibromoethane	16.50	107	400314	27.027	ng		100
62) n-Butyl Acetate	16.72	43	2616163	53.807	ng		99
63) n-Octane	16.85	57	386410	23.605	ng		97
64) Tetrachloroethene	16.99	166	385030	24.698	ng		100
65) Chlorobenzene	17.65	112	978948	23.744	ng		100
66) Ethylbenzene	18.01	91	1701582	25.406	ng		99
67) m- & p-Xylenes	18.17	91	2804143	51.791	ng		99
68) Bromoform	18.23	173	383914	28.812	ng		100
69) Styrene	18.50	104	1021431	26.411	ng		99
70) o-Xylene	18.60	91	1422062	25.870	ng		99
71) n-Nonane	18.79	43	1027738	24.096	ng		97
72) 1,1,2,2-Tetrachloroethane	18.58	83	677855	25.334	ng		99
74) Cumene	19.12	105	1743068	25.930	ng		100
75) alpha-Pinene	19.48	93	926854	26.971	ng		99
76) n-Propylbenzene	19.57	91	2154661	27.045	ng		99
77) 3-Ethyltoluene	19.70	105	1763628	No Calib			
78) 4-Ethyltoluene	19.70	105	1763628	28.950	ng		100
79) 1,3,5-Trimethylbenzene	19.77	105	1462992	25.794	ng		100
80) alpha-Methylstyrene	19.70	118	10228	No Calib		#	
81) 2-Ethyltoluene	19.77	105	1462992	No Calib			
82) 1,2,4-Trimethylbenzene	20.14	105	1697191	29.605	ng		99
83) n-Decane	20.13	58	97446	No Calib		#	
84) Benzyl Chloride	20.25	91	3045756	61.427	ng		99
85) 1,3-Dichlorobenzene	20.27	146	894522	26.611	ng		100
86) 1,4-Dichlorobenzene	20.33	146	834677	26.578	ng		99
87) sec-Butylbenzene	20.37	105	2022528	27.409	ng		99
88) 4-Isopropyltoluene (p-...	20.51	119	1690161	28.140	ng		99
89) 1,2,3-Trimethylbenzene	20.37	105	2022395	No Calib			
90) 1,2-Dichlorobenzene	20.63	146	873426	28.902	ng		100
91) d-Limonene	20.64	68	684739	26.453	ng		97
92) 1,2-Dibromo-3-Chloropr...	21.01	157	661941	51.548	ng		94
93) n-Undecane	21.33	57	264	No Calib		#	
94) 1,2,4-Trichlorobenzene	22.14	180	1186992	48.094	ng		100
95) Naphthalene	22.24	128	1641796	22.955	ng		100
96) n-Dodecane	22.24	57	164	No Calib		#	
97) Hexachlorobutadiene	22.56	225	387929	26.301	ng		100
98) Cyclohexanone	18.18	55	2783	No Calib			
99) tert-Butylbenzene	20.13	119	1608246	29.452	ng		99
100) n-Butylbenzene	20.88	91	1630981	28.082	ng		99
101) 1,1,1,2-Tetrachloroethane	17.63	131	390492	25.259	ng		99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252105.D Vial: 1
Acq On : 25 Jun 2021 3:52 Operator: WA
Sample : LCSD R13062521_25ng Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 25 04:19:36 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Response Factor Report MS13

Method Path : J:\MS13\METHODS\
Method File : R13061121.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Jun 12 10:33:40 2021
Response Via : Initial Calibration

Calibration Files
0.1 =06112109.D 0.2 =06112110.D 0.5 =06112118.D 1.0 =06112112.D 5.0 =06112113.D 25 =06112114.D 50 =06112115.D
100 =06112116.D

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	----------	----------	ISTD	----------	----------	----------	----------		
2)	T	Propene	2.867	2.403	2.019	2.209	2.293	2.178	2.297	2.353	2.327	10.66
3)	T	Dichlorodifluo...	3.304	3.213	2.753	2.963	2.841	2.773	2.843	2.800	2.936	7.16
4)	T	Chloromethane		3.032	2.806	2.897	2.141	2.514	2.056		2.574	15.80
5)	T	1,2-Dichloro-1...	1.636	1.480	1.404	1.427	1.410	1.372	1.452	1.496	1.460	5.63
6)	T	Vinyl Chloride	2.869	2.796	2.312	2.668	2.716	2.622	2.712	2.726	2.678	6.19
7)	T	1,3-Butadiene	2.153	1.911	1.809	2.005	2.173	2.154	2.305	2.536	2.131	10.72
8)	T	Bromomethane	1.234	1.266	1.097	1.151	1.134	1.111	1.152	1.200	1.168	5.11
9)	T	Chloroethane	1.160	1.127	1.018	1.061	1.081	1.029	1.063	1.125	1.083	4.64
10)	T	Ethanol	1.605	1.359	1.221	1.270	1.338	1.388	1.529	1.583	1.412	10.22
11)	T	Acetonitrile	3.830	3.640	3.198	3.460	3.649	3.457	3.537	3.655	3.553	5.29
12)	T	Acrolein	0.907	0.985	0.906	0.965	1.071	1.076	1.147	1.247	1.038	11.55
13)	T	Acetone	1.255	1.232	1.084	1.176	1.251	1.340	1.518	1.508	1.295	11.79
14)	T	Trichlorofluor...	3.019	2.860	2.363	2.528	2.540	2.485	2.570	2.718	2.636	8.19
15)	T	2-Propanol (Is...	3.710	3.995	4.192	4.670	4.950	5.339	5.554	5.256	4.708	14.46
16)	T	Acrylonitrile	1.671	1.823	1.877	2.081	2.345	2.351	2.532	2.659	2.168	16.52
17)	T	1,1-Dichloroet...	1.331	1.173	1.207	1.215	1.263	1.247	1.305	1.393	1.267	5.74
18)	T	2-Methyl-2-Pro...	2.395	2.769	3.313	3.601	2.890	3.912	3.097		3.140	16.42
19)	T	Methylene Chlo...	1.563	1.359	1.187	1.297	1.347	1.325	1.404	1.520	1.375	8.78
20)	T	3-Chloro-1-pro...	4.277	3.188	2.824	2.920	2.760	2.770	2.942	3.103	3.098	16.15
21)	T	Trichlorotrifl...	1.087	0.995	0.966	0.988	1.014	0.988	1.024	1.070	1.016	4.16
22)	T	Carbon Disulfide	7.198	5.623	4.548	4.720	4.835	4.857	5.107	4.911	5.225	16.44
23)	T	trans-1,2-Dich...	1.865	1.888	1.822	2.062	2.118	2.161	2.257	2.401	2.072	9.86
24)	T	1,1-Dichloroet...	2.675	2.719	2.424	2.612	2.649	2.597	2.656	2.676	2.626	3.43
25)	T	Methyl tert-Bu...	3.817	3.729	3.682	3.803	3.554	3.933	3.209	2.002	3.466	18.21
26)	T	Vinyl Acetate				0.245	0.287	0.322	0.370	0.379	0.321	17.59
27)	T	2-Butanone (MEK)			0.657	0.810	0.923	0.974	1.088	1.186	0.940	20.26
28)	T	cis-1,2-Dichlo...	2.044	2.076	1.897	2.000	2.107	2.118	2.228	2.313	2.098	6.16
29)	T	Diisopropyl Ether	1.215	1.090	1.049	1.152	1.254	1.490	1.578	1.488	1.290	15.67
30)	T	Ethyl Acetate			0.630	0.720	0.832	1.035	1.177	1.092	0.914	23.97
31)	T	n-Hexane	2.778	2.798	2.471	2.640	2.889	3.402	3.778	3.468	3.028	15.24
32)	T	Chloroform	2.620	2.508	2.215	2.411	2.479	2.508	2.657	2.713	2.514	6.25
33)	S	1,2-Dichloroet...	2.034	2.079	2.048	2.142	1.992	2.098	2.098	2.052	2.068	2.23
34)	T	Tetrahydrofura...	0.978	0.858	0.805	0.862	0.902	0.909	1.008	1.098	0.928	10.26
35)	T	Ethyl tert-But...	1.551	1.473	1.453	1.543	1.637	1.788	2.051	2.156	1.706	15.70
36)	T	1,2-Dichloroet...	2.056	2.100	1.861	2.122	2.193	2.175	2.283	2.396	2.148	7.39
37)	IR	1,4-Difluorobenzen...	----------	----------	----------	ISTD	----------	----------	----------	----------		
38)	T	1,1,1-Trichlor...	0.557	0.503	0.446	0.455	0.469	0.475	0.488	0.492	0.485	7.09
39)	T	Isopropyl Acetate									0.000	-1.00
40)	T	1-Butanol									0.000	-1.00
41)	T	Benzene	1.313	1.140	1.069	1.115	1.144	1.153	1.224	1.252	1.176	6.80
42)	T	Carbon Tetrach...	0.436	0.441	0.382	0.399	0.411	0.417	0.542	0.449	0.435	11.24

Method Path : J:\MS13\METHODS\
Method File : R13061121.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

43)	T	Cyclohexane	0.451	0.407	0.388	0.402	0.420	0.454	0.502	0.489	0.439	9.50
44)	T	tert-Amyl Meth...	0.875	0.806	0.749	0.783	0.840	0.927	1.032	0.938	0.869	10.79
45)	T	1,2-Dichloropr...	0.352	0.331	0.295	0.309	0.324	0.327	0.346	0.374	0.332	7.45
46)	T	Bromodichlorom...	0.394	0.406	0.369	0.400	0.420	0.427	0.456	0.491	0.421	9.07
47)	T	Trichloroethene	0.283	0.280	0.269	0.268	0.293	0.304	0.334	0.368	0.300	11.59
48)	T	1,4-Dioxane			0.200	0.190	0.226	0.242	0.268	0.303	0.238	17.76
49)	T	2,2,4-Trimethy...	1.614	1.483	1.369	1.468	1.470	1.474	1.569	1.543	1.499	5.01
50)	T	Methyl Methacr...			0.070	0.081	0.105	0.119	0.134		0.102	25.62
51)	T	n-Heptane	0.307	0.290	0.281	0.293	0.305	0.314	0.348	0.385	0.315	11.01
52)	T	cis-1,3-Dichlo...		0.341	0.356	0.380	0.459	0.490	0.530	0.567	0.446	19.90
53)	T	4-Methyl-2-pen...			0.248	0.274	0.320	0.361	0.411	0.424	0.340	21.09
54)	T	trans-1,3-Dich...			0.323	0.351	0.435	0.464	0.498	0.535	0.434	19.06
55)	T	1,1,2-Trichlor...	0.264	0.243	0.247	0.261	0.272	0.275	0.293	0.318	0.272	8.98
56)	IR	Chlorobenzene-d5 (...	----------	ISTD	----------							
57)	S	Toluene-d8 (SS2)	4.666	4.645	4.712	4.664	4.590	4.410	4.178	4.090	4.494	5.37
58)	T	Toluene	5.255	4.693	4.376	4.365	4.520	4.416	4.489	4.389	4.563	6.57
59)	T	2-Hexanone			2.598	3.074	3.682	3.890	3.963	3.337	3.424	15.37
60)	T	Dibromochlorom...	1.258	1.174	1.148	1.168	1.274	1.274	1.297	1.355	1.243	5.87
61)	T	1,2-Dibromoethane	0.891	0.940	1.081	1.103	1.211	1.192	1.198	1.244	1.108	11.85
62)	T	n-Butyl Acetate			2.570	3.131	3.993	4.323	4.325	3.475	3.636	19.41
63)	T	n-Octane	1.287	1.146	1.101	1.164	1.203	1.212	1.298	1.383	1.224	7.58
64)	T	Tetrachloroethene	1.212	1.122	1.157	1.126	1.130	1.143	1.184	1.254	1.166	4.06
65)	T	Chlorobenzene	3.585	2.981	2.904	2.968	2.906	2.951	3.157	3.215	3.083	7.55
66)	T	Ethylbenzene	5.308	4.702	4.651	4.750	5.137	5.216	5.355	4.952	5.009	5.65
67)	T	m- & p-Xylenes	4.231	3.820	3.719	3.797	4.018	4.311	4.551	3.946	4.049	7.17
68)	T	Bromoform	0.846	0.871	0.859	0.909	1.045	1.084	1.140	1.218	0.997	14.44
69)	T	Styrene			2.249	2.457	2.906	3.135	3.302	3.304	2.892	15.46
70)	T	o-Xylene	3.994	3.707	3.871	3.809	4.133	4.360	4.637	4.376	4.111	7.88
71)	T	n-Nonane	3.006	2.884	2.848	3.065	3.263	3.408	3.642	3.402	3.190	8.88
72)	T	1,1,2,2-Tetrac...	1.921	1.748	1.772	1.926	2.003	2.103	2.255	2.279	2.001	10.01
73)	S	Bromofluoroben...	1.259	1.267	1.341	1.289	1.322	1.282	1.238	1.232	1.279	3.00
74)	T	Cumene	5.201	4.719	4.807	4.846	5.088	5.283	5.445	4.831	5.027	5.26
75)	T	alpha-Pinene	2.591	2.323	2.169	2.278	2.539	2.759	2.980	2.922	2.570	11.73
76)	T	n-Propylbenzene	5.646	5.307	5.727	5.844	6.348	6.599	6.678	5.518	5.958	8.66
77)	T	3-Ethyltoluene									0.000	-1.00
78)	T	4-Ethyltoluene	3.568	3.641	4.275	4.346	4.986	5.305	5.508	4.819	4.556	15.87
79)	T	1,3,5-Trimethy...	4.044	3.804	4.171	4.001	4.250	4.539	4.807	4.317	4.242	7.50
80)	T	alpha-Methylst...									0.000	-1.00
81)	T	2-Ethyltoluene									0.000	-1.00
82)	T	1,2,4-Trimethy...	3.433	3.188	3.871	3.902	4.436	5.441	5.624	4.404	4.287	20.51
83)	T	n-Decane									0.000	-1.00
84)	T	Benzyl Chloride			2.789	3.026	3.844	4.699	4.642	3.250	3.708	22.22
85)	T	1,3-Dichlorobe...			2.136	2.125	2.399	2.747	2.932	2.745	2.514	13.67
86)	T	1,4-Dichlorobe...	2.068	1.711	2.269	2.263	2.437	2.571	2.745	2.725	2.349	14.88
87)	T	sec-Butylbenzene	5.093	4.967	5.218	5.322	5.856	5.997	6.401	5.293	5.519	9.15
88)	T	4-Isopropyltol...	3.769	3.493	4.179	4.279	4.769	5.270	5.495	4.680	4.492	15.49
89)	T	1,2,3-Trimethy...									0.000	-1.00
90)	T	1,2-Dichlorobe...	1.781	1.658	2.218	2.110	2.357	2.611	2.778	2.568	2.260	17.64
91)	T	d-Limonene			1.308	1.465	1.745	2.307	2.555	2.236	1.936	25.96
92)	T	1,2-Dibromo-3-...			0.806	0.798	0.940	1.025	1.104	1.090	0.960	14.16
93)	T	n-Undecane									0.000	-1.00
94)	T	1,2,4-Trichlor...			1.700	1.349	1.639	2.178	2.363		1.846	22.47

Method Path : J:\MS13\METHODS\
Method File : R13061121.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

95)	T	Naphthalene			5.117	4.038	4.964	6.130	6.363	5.480	5.349	15.81
96)	T	n-Dodecane									0.000	-1.00
97)	T	Hexachlorobuta...	0.995	0.905	1.037	0.973	1.069	1.155	1.291	1.400	1.103	15.30
98)	T	Cyclohexanone									0.000	-1.00
99)	T	tert-Butylbenzene	3.654	3.509	3.700	3.714	4.156	4.901	5.019	4.017	4.084	14.19
100)	T	n-Butylbenzene	3.216	2.995	4.123	4.276	4.845	5.307	5.423	4.565	4.344	20.47
101)	T	1,1,1,2-Tetrac...	1.316	1.154	0.987	1.052	1.112	1.139	1.219	1.270	1.156	9.49

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID: | 40ng/L Std. ID:
4ng/L Std. ID: S34-06072107 | 200ng/L Std. ID: S34-06072102
20ng/L Std. ID: S34-06072104 | 1000ng/L Std. ID:

Dilution Factors:		1	5	25	50	250	1000	Working STD Conc.(ng/L):	4	4	20	20	20	200	200	200
	Source Std.		Primary Working Standards					Injection (L):	0.025	0.050	0.0250	0.050	0.25	0.125	0.25	0.50
Compounds	mg/m^3	1000ng/L	200ng/L	40ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
Propene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Dichlorodifluoromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chloromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Freon-114	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Vinyl Chloride	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,3-Butadiene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Bromomethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Ethanol	5.28	5280	1056	211.2	105.6	21.12	5.28		0.528	1.056	2.640	5.28	26.40	132.00	264.0	528
Acetonitrile	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
Acrolein	2.18	2180	436	87.2	43.6	8.72	2.18		0.218	0.436	1.090	2.18	10.90	54.50	109.0	218
Acetone	5.16	5160	1032	206.4	103.2	20.64	5.16		0.516	1.032	2.580	5.16	25.80	129.00	258.0	516
Trichlorofluoromethane	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
Isopropanol	2.05	2050	410	82.0	41.0	8.20	2.05		0.205	0.410	1.025	2.05	10.25	51.25	102.5	205
Acrylonitrile	2.05	2050	410	82.0	41.0	8.20	2.05		0.205	0.410	1.025	2.05	10.25	51.25	102.5	205
1,1-Dichloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
tert-Butanol	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
Methylene Chloride	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Allyl Chloride	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Trichlorotrifluoroethane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Carbon Disulfide	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
trans-1,2-Dichloroethene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,1-Dichloroethane	1.07	1070	214	42.8	21.4	4.28	1.07		0.107	0.214	0.535	1.07	5.35	26.75	53.5	107
Methyl tert-Butyl Ether	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Vinyl Acetate	5.49	5490	1098	219.6	109.8	21.96	5.49		0.549	1.098	2.745	5.49	27.45	137.25	274.5	549
2-Butanone	2.06	2060	412	82.4	41.2	8.24	2.06		0.206	0.412	1.030	2.06	10.30	51.50	103.0	206
cis-1,2-Dichloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Diisopropyl Ether	2.09	2090	418	83.6	41.8	8.36	2.09		0.209	0.418	1.045	2.09	10.45	52.25	104.5	209
Ethyl Acetate	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
n-Hexane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chloroform	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Tetrahydrofuran	2.04	2040	408	81.6	40.8	8.16	2.04		0.204	0.408	1.020	2.04	10.20	51.00	102.0	204
Ethyl tert-Butyl Ether	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
1,2-Dichloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,1,1-Trichloroethane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Benzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Carbon Tetrachloride	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
Cyclohexane	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
tert-Amyl Methyl Ether	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
1,2-Dichloropropane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Bromodichloromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Trichloroethene	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
1,4-Dioxane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Isooctane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Methyl Methacrylate	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
n-Heptane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:		**40ng/L Std. ID:**	
4ng/L Std. ID:	**S34-06072107**	**200ng/L Std. ID:**	**S34-06072102**
20ng/L Std. ID:	**S34-06072104**	**1000ng/L Std. ID:**	

Dilution Factors:		**1**	**5**	**25**	**50**	**250**	**1000**	**Working STD Conc.(ng/L):**	**4**	**4**	**20**	**20**	**20**	**200**	**200**	**200**
	Source Std.			**Primary Working Standards**				**Injection (L):**	**0.025**	**0.050**	**0.0250**	**0.050**	**0.25**	**0.125**	**0.25**	**0.50**
Compounds	**mg/m³**	**1000ng/L**	**200ng/L**	**40ng/L**	**20ng/L**	**4ng/L**	**1ng/L**	**ICAL Points:**	**0.1ng**	**0.2ng**	**0.5ng**	**1ng**	**5ng**	**25ng**	**50ng**	**100ng**
cis-1,3-Dichloropropene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
4-Methyl-2-pentanone	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
trans-1,3-Dichloropropene	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
1,1,2-Trichloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Toluene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
2-Hexanone	2.06	2060	412	82.4	41.2	8.24	2.06		0.206	0.412	1.030	2.06	10.30	51.50	103.0	206
Dibromochloromethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,2-Dibromoethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
n-Butyl Acetate	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
n-Octane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Tetrachloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chlorobenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Ethylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
m-&p-Xylene	2.09	2090	418	83.6	41.8	8.36	2.09		0.209	0.418	1.045	2.09	10.45	52.25	104.5	209
Bromoform	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
Styrene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
o-Xylene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
n-Nonane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,1,2,2-Tetrachloroethane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Cumene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
alpha-Pinene	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
n-Propylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
4-Ethyltoluene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,3,5-Trimethylbenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,2,4-Trimethylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Benzyl Chloride	2.10	2100	420	84.0	42.0	8.40	2.10		0.210	0.420	1.050	2.10	10.50	52.50	105.0	210
1,3-Dichlorobenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,4-Dichlorobenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
sec-Butylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
p-Isopropyltoluene	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
1,2-Dichlorobenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
d-Limonene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
1,2-Dibromo-3-chloropropane	2.00	2000	400	80.0	40.0	8.00	2.00		0.200	0.400	1.000	2.00	10.00	50.00	100.0	200
1,2,4-Trichlorobenzene	2.00	2000	400	80.0	40.0	8.00	2.00		0.200	0.400	1.000	2.00	10.00	50.00	100.0	200
Naphthalene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Hexachloro-1,3-butadiene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
tert-Butylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
n-Butylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
1,1,1,2-Tetrachloroethane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103

Calibration Status Report MS13

Method : J:\MS13\METHODS\R13061121.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS13\DATA\2021_06\11\06112109.D
2	0.2	0	13	I:\MS13\DATA\2021_06\11\06112110.D
3	0.5	1	13	I:\MS13\DATA\2021_06\11\06112118.D
4	1.0	1	13	I:\MS13\DATA\2021_06\11\06112112.D
5	5.0	5	13	I:\MS13\DATA\2021_06\11\06112113.D
6	25	26	13	I:\MS13\DATA\2021_06\11\06112114.D
7	50	52	13	I:\MS13\DATA\2021_06\11\06112115.D
8	100	104	13	I:\MS13\DATA\2021_06\11\06112116.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Jun 11 14:51 2021	Jun 11 14:47 2021	11 Jun 2021 10:47
2	0.2	Jun 11 14:51 2021	Jun 11 14:47 2021	11 Jun 2021 11:21
3	0.5	Jun 12 10:33 2021	Jun 12 10:31 2021	11 Jun 2021 16:04
4	1.0	Jun 11 14:51 2021	Jun 11 14:49 2021	11 Jun 2021 12:40
5	5.0	Jun 11 14:51 2021	Jun 11 14:49 2021	11 Jun 2021 13:14
6	25	Jun 11 14:51 2021	Jun 11 14:50 2021	11 Jun 2021 13:48
7	50	Jun 11 14:52 2021	Jun 11 14:50 2021	11 Jun 2021 14:22
8	100	Jun 12 10:30 2021	Jun 12 10:30 2021	11 Jun 2021 14:56

R13061121.M Sat Jun 12 11:13:51 2021

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112109.D Vial: 9
Acq On : 11 Jun 2021 10:47 Operator: WA
Sample : 0.1ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072107 (7/6)

Quant Time: Jun 11 14:47:18 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	153745	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	701849	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.61	54	177380	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.02	65	312691	14.374	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 114.96%				
57) Toluene-d8 (SS2)	15.74	98	827661	11.242	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.92%				
73) Bromofluorobenzene (SS3)	19.00	174	223258	10.377	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 83.04%				
Target Compounds							Qvalue
2) Propene	4.20	42	3667	0.202	ng		95
3) Dichlorodifluoromethan...	4.35	85	4226	0.134	ng	#	94
4) Chloromethane	4.63	50	4335	0.179	ng		94
5) 1,2-Dichloro-1,1,2,2-t...	4.89	135	2093	0.103	ng		96
6) Vinyl Chloride	5.04	62	3705	0.123	ng		93
7) 1,3-Butadiene	5.30	54	2754	0.129	ng		99
8) Bromomethane	5.73	94	1579	0.122	ng		94
9) Chloroethane	6.07	64	1484	0.143	ng		85
10) Ethanol	6.47	45	10421	0.937	ng		93
11) Acetonitrile	6.73	41	4993	0.193	ng	#	65
12) Acrolein	6.93	56	2433	0.249	ng		84
13) Acetone	7.17	58	7963	0.595	ng		98
14) Trichlorofluoromethane	7.30	101	3788	0.141	ng		93
15) 2-Propanol (Isopropanol)	7.72	45	9355	0.221	ng		76
16) Acrylonitrile	7.88	53	4214	0.218	ng		83
17) 1,1-Dichloroethene	8.26	96	1703	0.115	ng		96
18) 2-Methyl-2-Propanol (t...	8.59	59	6098	0.162	ng	#	41
19) Methylene Chloride	8.46	84	1999	0.126	ng		100
20) 3-Chloro-1-propene (Al...	8.64	41	5471	0.246	ng		73
21) Trichlorotrifluoroethane	8.88	151	1404	0.113	ng		84
22) Carbon Disulfide	8.74	76	18416	0.328	ng		97
23) trans-1,2-Dichloroethene	9.75	61	2408	0.114	ng		90
24) 1,1-Dichloroethane	9.98	63	3520	0.133	ng		91
25) Methyl tert-Butyl Ether	10.20	73	4835	0.108	ng		95
26) Vinyl Acetate	0.00	86	0	N.D.	d		
27) 2-Butanone (MEK)	10.64	72	487	0.043	ng	#	1
28) cis-1,2-Dichloroethene	11.00	61	2614	0.124	ng		96
29) Diisopropyl Ether	11.35	87	3124	0.188	ng	#	3
30) Ethyl Acetate	11.41	61	1206	0.119	ng	#	72
31) n-Hexane	11.29	57	3554	0.114	ng	#	93
32) Chloroform	11.34	83	3384	0.121	ng		96
34) Tetrahydrofuran (THF)	11.87	72	2454	0.223	ng	#	82
35) Ethyl tert-Butyl Ether	11.93	87	3968	0.193	ng	#	80
36) 1,2-Dichloroethane	12.16	62	2630	0.121	ng		95
38) 1,1,1-Trichloroethane	12.42	97	3219	0.130	ng		94
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.	d		
41) Benzene	12.91	78	7665	0.123	ng		92
42) Carbon Tetrachloride	13.06	117	2499	0.114	ng		90
43) Cyclohexane	13.19	84	5245	0.199	ng		99
44) tert-Amyl Methyl Ether	13.59	73	10164	0.213	ng		96
45) 1,2-Dichloropropane	13.76	63	2056	0.129	ng		91
46) Bromodichloromethane	13.95	83	2303	0.102	ng		98
47) Trichloroethene	14.01	130	1621	0.090	ng		95
48) 1,4-Dioxane	14.10	88	610	0.047	ng		82
49) 2,2,4-Trimethylpentane...	14.07	57	9513	0.143	ng		95
50) Methyl Methacrylate	14.33	100	625	0.096	ng	#	32

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112109.D Vial: 9
Acq On : 11 Jun 2021 10:47 Operator: WA
Sample : 0.1ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072107 (7/6)

Quant Time: Jun 11 14:47:18 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

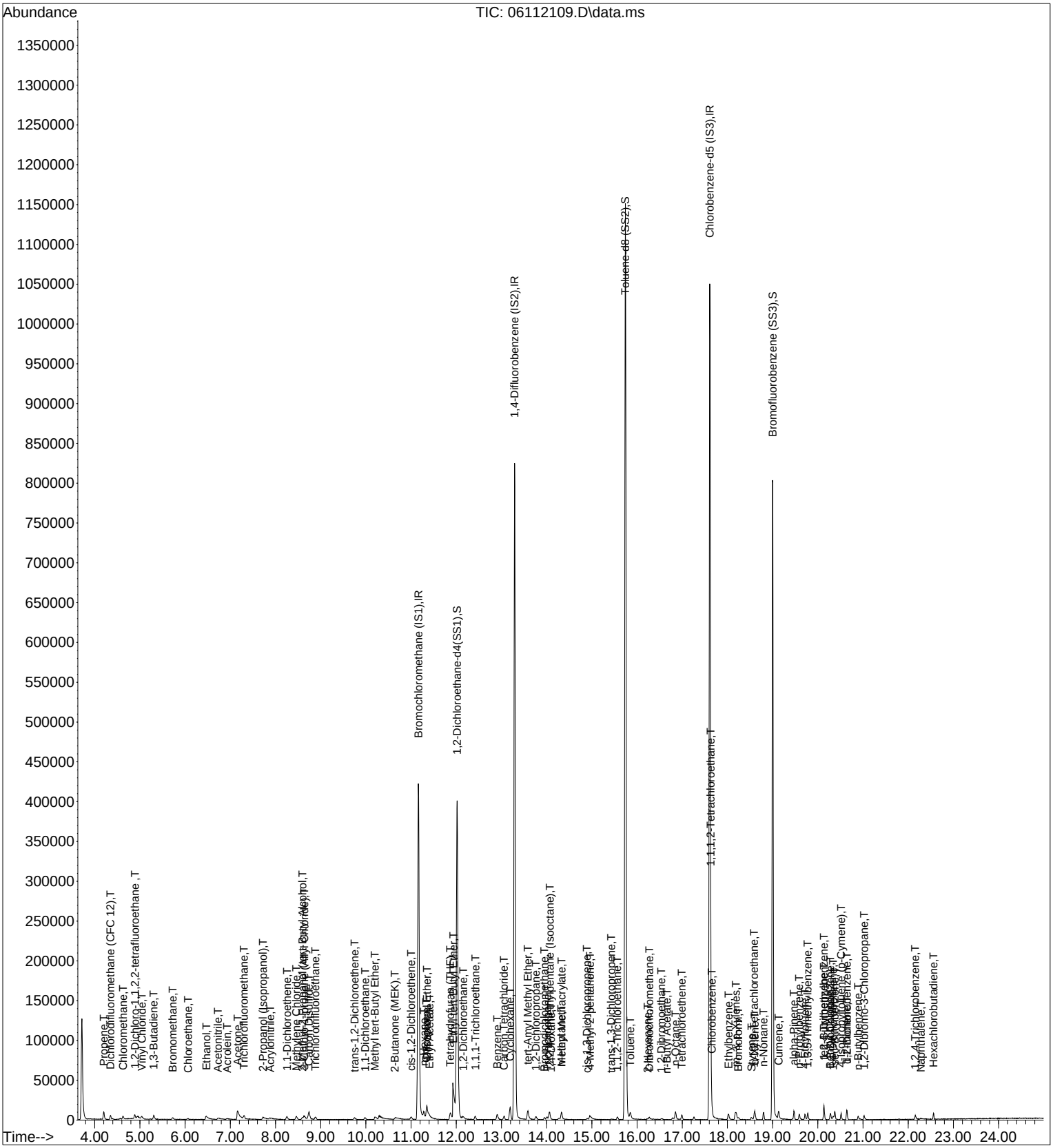
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.32	71	1773	0.104	ng		96
52) cis-1,3-Dichloropropene	14.89	75	1709	0.069	ng		69
53) 4-Methyl-2-pentanone	14.96	58	1931	0.119	ng	#	18
54) trans-1,3-Dichloropropene	15.43	75	916	0.042	ng	#	43
55) 1,1,2-Trichloroethane	15.56	97	1541	0.101	ng		92
58) Toluene	15.85	91	7756	0.107	ng		96
59) 2-Hexanone	16.24	43	1663	0.042	ng	#	67
60) Dibromochloromethane	16.27	129	1857	0.098	ng		90
61) 1,2-Dibromoethane	16.54	107	1315	0.075	ng		87
62) n-Butyl Acetate	16.66	43	129	0.003	ng	#	47
63) n-Octane	16.85	57	1899	0.119	ng		89
64) Tetrachloroethene	16.99	166	1788	0.083	ng		95
65) Chlorobenzene	17.65	112	5240	0.105	ng		93
66) Ethylbenzene	18.02	91	7834	0.098	ng		93
67) m- & p-Xylenes	18.19	91	12547	0.192	ng		88
68) Bromoform	18.24	173	1272	0.080	ng		92
69) Styrene	18.54	104	2700	0.056	ng		95
70) o-Xylene	18.60	91	5951	0.089	ng		96
71) n-Nonane	18.80	43	4479	0.121	ng		94
72) 1,1,2,2-Tetrachloroethane	18.59	83	2863	0.089	ng		98
74) Cumene	19.13	105	7675	0.096	ng		94
75) alpha-Pinene	19.47	93	3897	0.094	ng		97
76) n-Propylbenzene	19.59	91	8332	0.087	ng		95
77) 3-Ethyltoluene	0.00	105	0	N.D.	d		
78) 4-Ethyltoluene	19.71	105	5317	0.069	ng		98
79) 1,3,5-Trimethylbenzene	19.78	105	6026	0.090	ng		98
80) alpha-Methylstyrene	0.00	118	0	N.D.			
81) 2-Ethyltoluene	0.00	105	0	N.D.	d		
82) 1,2,4-Trimethylbenzene	20.14	105	5017	0.069	ng		97
83) n-Decane	0.00	58	0	N.D.	d		
84) Benzyl Chloride	20.27	91	4834	0.078	ng		89
85) 1,3-Dichlorobenzene	20.28	146	2517	0.062	ng		91
86) 1,4-Dichlorobenzene	20.34	146	3052	0.077	ng		92
87) sec-Butylbenzene	20.37	105	7444	0.083	ng		85
88) 4-Isopropyltoluene (p-...	20.52	119	5456	0.071	ng		94
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d		
90) 1,2-Dichlorobenzene	20.64	146	2653	0.066	ng		97
91) d-Limonene	20.64	68	1974	0.068	ng		98
92) 1,2-Dibromo-3-Chloropr...	21.02	157	1562	0.106	ng	#	68
93) n-Undecane	0.00	57	0	N.D.			
94) 1,2,4-Trichlorobenzene	22.16	180	2586	0.084	ng		97
95) Naphthalene	22.28	128	3404	0.048	ng	#	71
96) n-Dodecane	0.00	57	0	N.D.			
97) Hexachlorobutadiene	22.56	225	1454	0.081	ng		98
98) Cyclohexanone	0.00	55	0	N.D.			
99) tert-Butylbenzene	20.14	119	5393	0.076	ng		96
100) n-Butylbenzene	20.89	91	4700	0.065	ng	#	89
101) 1,1,1,2-Tetrachloroethane	17.63	131	1924	0.100	ng	#	90

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112109.D Vial: 9
Acq On : 11 Jun 2021 10:47 Operator: WA
Sample : 0.1ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072107 (7/6)

Quant Time: Jun 11 14:47:18 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112110.D Vial: 9
Acq On : 11 Jun 2021 11:21 Operator: WA
Sample : 0.2ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072107 (7/6)

Quant Time: Jun 11 14:47:53 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	151708	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	703705	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.61	54	178427	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.01	65	315397	14.693	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 117.52%				
57) Toluene-d8 (SS2)	15.74	98	828853	11.192	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.52%				
73) Bromofluorobenzene (SS3)	19.00	174	226076	10.446	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 83.60%				
Target Compounds							Qvalue
2) Propene	4.18	42	6067	0.339	ng		96
3) Dichlorodifluoromethan...	4.34	85	8112	0.261	ng		97
4) Chloromethane	4.62	50	7653	0.321	ng		98
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	3737	0.187	ng		98
6) Vinyl Chloride	5.03	62	7126	0.240	ng		99
7) 1,3-Butadiene	5.29	54	4824	0.229	ng		94
8) Bromomethane	5.71	94	3195	0.250	ng		95
9) Chloroethane	6.04	64	2845	0.279	ng		92
10) Ethanol	6.43	45	17413	1.586	ng		93
11) Acetonitrile	6.70	41	9366	0.367	ng	#	62
12) Acrolein	6.90	56	5213	0.540	ng		86
13) Acetone	7.12	58	15434	1.169	ng		94
14) Trichlorofluoromethane	7.30	101	7082	0.267	ng		96
15) 2-Propanol (Isopropanol)	7.68	45	19878	0.477	ng		82
16) Acrylonitrile	7.84	53	9071	0.475	ng		100
17) 1,1-Dichloroethene	8.25	96	2961	0.202	ng		87
18) 2-Methyl-2-Propanol (t...	8.55	59	13914	0.376	ng		92
19) Methylene Chloride	8.45	84	3431	0.219	ng		98
20) 3-Chloro-1-propene (Al...	8.63	41	8047	0.367	ng		88
21) Trichlorotrifluoroethane	8.88	151	2536	0.207	ng		93
22) Carbon Disulfide	8.73	76	28389	0.513	ng		98
23) trans-1,2-Dichloroethene	9.74	61	4812	0.230	ng		100
24) 1,1-Dichloroethane	9.98	63	7061	0.271	ng		99
25) Methyl tert-Butyl Ether	10.17	73	9323	0.212	ng		96
26) Vinyl Acetate	10.27	86	2038	0.460	ng	#	13
27) 2-Butanone (MEK)	10.60	72	887	0.080	ng	#	1
28) cis-1,2-Dichloroethene	11.00	61	5241	0.253	ng		100
29) Diisopropyl Ether	11.33	87	5531	0.338	ng	#	68
30) Ethyl Acetate	11.36	61	2414	0.242	ng		84
31) n-Hexane	11.28	57	7063	0.230	ng		98
32) Chloroform	11.33	83	6393	0.233	ng		95
34) Tetrahydrofuran (THF)	11.84	72	4248	0.392	ng	#	86
35) Ethyl tert-Butyl Ether	11.92	87	7435	0.366	ng	#	92
36) 1,2-Dichloroethane	12.15	62	5302	0.246	ng		99
38) 1,1,1-Trichloroethane	12.42	97	5828	0.234	ng		100
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.	d		
41) Benzene	12.90	78	13353	0.214	ng		99
42) Carbon Tetrachloride	13.05	117	5061	0.230	ng		99
43) Cyclohexane	13.19	84	9483	0.358	ng		97
44) tert-Amyl Methyl Ether	13.57	73	18780	0.392	ng		93
45) 1,2-Dichloropropane	13.77	63	3873	0.242	ng		93
46) Bromodichloromethane	13.94	83	4752	0.209	ng		99
47) Trichloroethene	14.00	130	3218	0.178	ng		94
48) 1,4-Dioxane	14.06	88	1751	0.134	ng	#	56
49) 2,2,4-Trimethylpentane...	14.06	57	17536	0.264	ng		99
50) Methyl Methacrylate	14.24	100	754	0.116	ng	#	1

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112110.D Vial: 9
Acq On : 11 Jun 2021 11:21 Operator: WA
Sample : 0.2ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072107 (7/6)

Quant Time: Jun 11 14:47:53 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

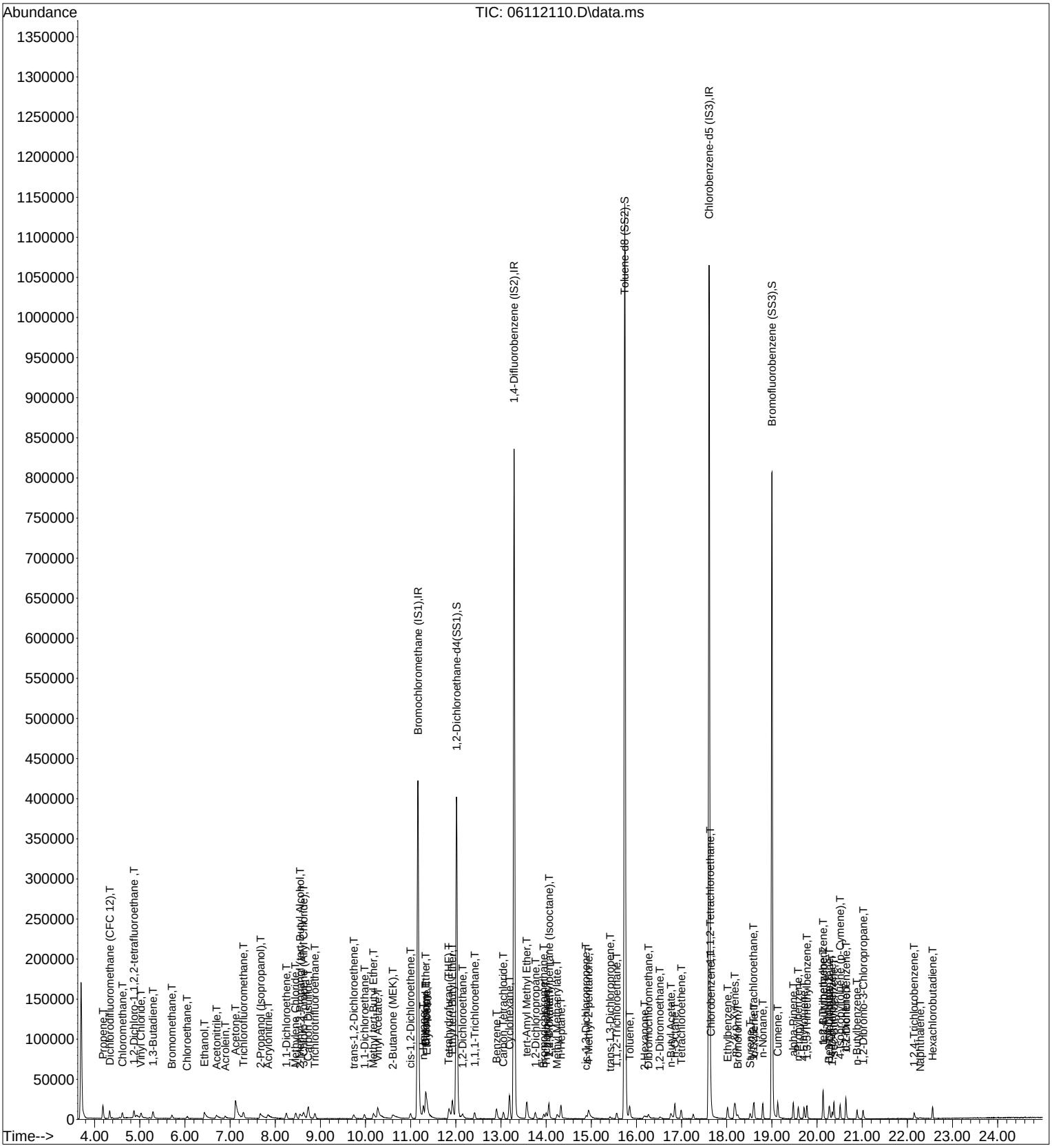
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.33	71	3364	0.196	ng		93
52) cis-1,3-Dichloropropene	14.88	75	4030	0.161	ng		90
53) 4-Methyl-2-pentanone	14.94	58	5127	0.315	ng		87
54) trans-1,3-Dichloropropene	15.42	75	2481	0.114	ng		78
55) 1,1,2-Trichloroethane	15.56	97	2850	0.186	ng		96
58) Toluene	15.85	91	13935	0.191	ng		99
59) 2-Hexanone	16.18	43	11455	0.284	ng		75
60) Dibromochloromethane	16.27	129	3485	0.182	ng		98
61) 1,2-Dibromoethane	16.52	107	2790	0.158	ng		99
62) n-Butyl Acetate	16.77	43	10073	0.226	ng		95
63) n-Octane	16.85	57	3403	0.211	ng		93
64) Tetrachloroethene	16.99	166	3330	0.154	ng		93
65) Chlorobenzene	17.65	112	8765	0.174	ng		95
66) Ethylbenzene	18.02	91	13960	0.174	ng		97
67) m- & p-Xylenes	18.18	91	22792	0.347	ng		91
68) Bromoform	18.25	173	2637	0.165	ng		95
69) Styrene	18.52	104	5021	0.104	ng		97
70) o-Xylene	18.60	91	11111	0.166	ng		97
71) n-Nonane	18.80	43	8645	0.233	ng		93
72) 1,1,2,2-Tetrachloroethane	18.59	83	5239	0.162	ng		98
74) Cumene	19.13	105	14010	0.175	ng		98
75) alpha-Pinene	19.48	93	7029	0.169	ng		98
76) n-Propylbenzene	19.58	91	15756	0.164	ng		95
77) 3-Ethyltoluene	0.00	105	0	N.D.	d		
78) 4-Ethyltoluene	19.71	105	10913	0.140	ng		99
79) 1,3,5-Trimethylbenzene	19.78	105	11402	0.169	ng		92
80) alpha-Methylstyrene	0.00	118	0	N.D.			
81) 2-Ethyltoluene	0.00	105	0	N.D.	d		
82) 1,2,4-Trimethylbenzene	20.14	105	9375	0.127	ng		99
83) n-Decane	0.00	58	0	N.D.	d		
84) Benzyl Chloride	20.26	91	9929	0.160	ng		92
85) 1,3-Dichlorobenzene	20.27	146	4662	0.113	ng		99
86) 1,4-Dichlorobenzene	20.33	146	5080	0.128	ng		98
87) sec-Butylbenzene	20.37	105	14606	0.162	ng		93
88) 4-Isopropyltoluene (p-...	20.51	119	10171	0.131	ng		95
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d		
90) 1,2-Dichlorobenzene	20.64	146	4969	0.124	ng		99
91) d-Limonene	20.64	68	3783	0.129	ng		95
92) 1,2-Dibromo-3-Chloropr...	21.02	157	3131	0.211	ng	#	77
93) n-Undecane	0.00	57	0	N.D.			
94) 1,2,4-Trichlorobenzene	22.15	180	3762	0.122	ng	#	90
95) Naphthalene	22.29	128	3389	0.048	ng	#	71
96) n-Dodecane	0.00	57	0	N.D.			
97) Hexachlorobutadiene	22.56	225	2662	0.148	ng		97
98) Cyclohexanone	0.00	55	0	N.D.			
99) tert-Butylbenzene	20.14	119	10417	0.146	ng		99
100) n-Butylbenzene	20.88	91	8808	0.120	ng		90
101) 1,1,1,2-Tetrachloroethane	17.64	131	3392	0.176	ng		94

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112110.D Vial: 9
Acq On : 11 Jun 2021 11:21 Operator: WA
Sample : 0.2ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072107 (7/6)

Quant Time: Jun 11 14:47:53 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112118.D Vial: 13
Acq On : 11 Jun 2021 16:04 Operator: WA
Sample : 0.5ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072104 (7/6)

Quant Time: Jun 12 10:31:37 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:30:17 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	172459	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	792788	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.61	54	196469	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.02	65	353253	12.366	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.96%				
57) Toluene-d8 (SS2)	15.74	98	925772	13.111	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.88%				
73) Bromofluorobenzene (SS3)	19.00	174	263456	13.193	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.52%				
Target Compounds							Qvalue
2) Propene	4.19	42	14487	0.448	ng		98
3) Dichlorodifluoromethan...	4.34	85	19752	0.485	ng		99
4) Chloromethane	4.62	50	20128	0.541	ng		98
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	10076	0.501	ng		100
6) Vinyl Chloride	5.03	62	16746	0.449	ng		98
7) 1,3-Butadiene	5.29	54	12975	0.439	ng		97
8) Bromomethane	5.72	94	7869	0.489	ng		97
9) Chloroethane	6.05	64	7302	0.489	ng		97
10) Ethanol	6.42	45	44465	2.290	ng		97
11) Acetonitrile	6.69	41	23387	0.478	ng		93
12) Acrolein	6.88	56	13630	0.953	ng		95
13) Acetone	7.09	58	38575	2.154	ng		95
14) Trichlorofluoromethane	7.30	101	16629	0.455	ng		100
15) 2-Propanol (Isopropanol)	7.63	45	59277	0.914	ng		88
16) Acrylonitrile	7.81	53	26541	0.885	ng		100
17) 1,1-Dichloroethene	8.25	96	8657	0.500	ng		92
18) 2-Methyl-2-Propanol (t...	8.50	59	47307	1.096	ng		96
19) Methylene Chloride	8.45	84	8518	0.449	ng		97
20) 3-Chloro-1-propene (Al...	8.63	41	20261	0.473	ng		90
21) Trichlorotrifluoroethane	8.88	151	6997	0.499	ng		99
22) Carbon Disulfide	8.73	76	65264	0.900	ng		98
23) trans-1,2-Dichloroethene	9.73	61	13197	0.460	ng		99
24) 1,1-Dichloroethane	9.98	63	17893	0.493	ng		99
25) Methyl tert-Butyl Ether	10.15	73	26163	0.549	ng		99
26) Vinyl Acetate	10.26	86	7830	2.048	ng	#	72
27) 2-Butanone (MEK)	10.55	72	9332	0.901	ng	#	93
28) cis-1,2-Dichloroethene	11.00	61	13612	0.467	ng		95
29) Diisopropyl Ether	11.32	87	15127	0.848	ng	#	80
30) Ethyl Acetate	11.34	61	9043	0.819	ng		96
31) n-Hexane	11.29	57	17728	0.422	ng		100
32) Chloroform	11.34	83	16041	0.459	ng		99
34) Tetrahydrofuran (THF)	11.82	72	11326	0.883	ng		98
35) Ethyl tert-Butyl Ether	11.91	87	20842	0.888	ng		97
36) 1,2-Dichloroethane	12.15	62	13350	0.449	ng		100
38) 1,1,1-Trichloroethane	12.42	97	14560	0.471	ng		100
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.19	56	24664	No Calib			
41) Benzene	12.90	78	35257	0.471	ng		99
42) Carbon Tetrachloride	13.06	117	12352	0.446	ng		98
43) Cyclohexane	13.19	84	25482	0.914	ng		98
44) tert-Amyl Methyl Ether	13.56	73	49151	0.893	ng		98
45) 1,2-Dichloropropane	13.76	63	9745	0.460	ng		100
46) Bromodichloromethane	13.95	83	12185	0.455	ng		97
47) Trichloroethene	14.00	130	8687	0.455	ng		97
48) 1,4-Dioxane	14.04	88	6528	0.490	ng	#	63
49) 2,2,4-Trimethylpentane...	14.06	57	45574	0.478	ng		99
50) Methyl Methacrylate	14.23	100	4631	0.865	ng	#	71

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112118.D Vial: 13
Acq On : 11 Jun 2021 16:04 Operator: WA
Sample : 0.5ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072104 (7/6)

Quant Time: Jun 12 10:31:37 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:30:17 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

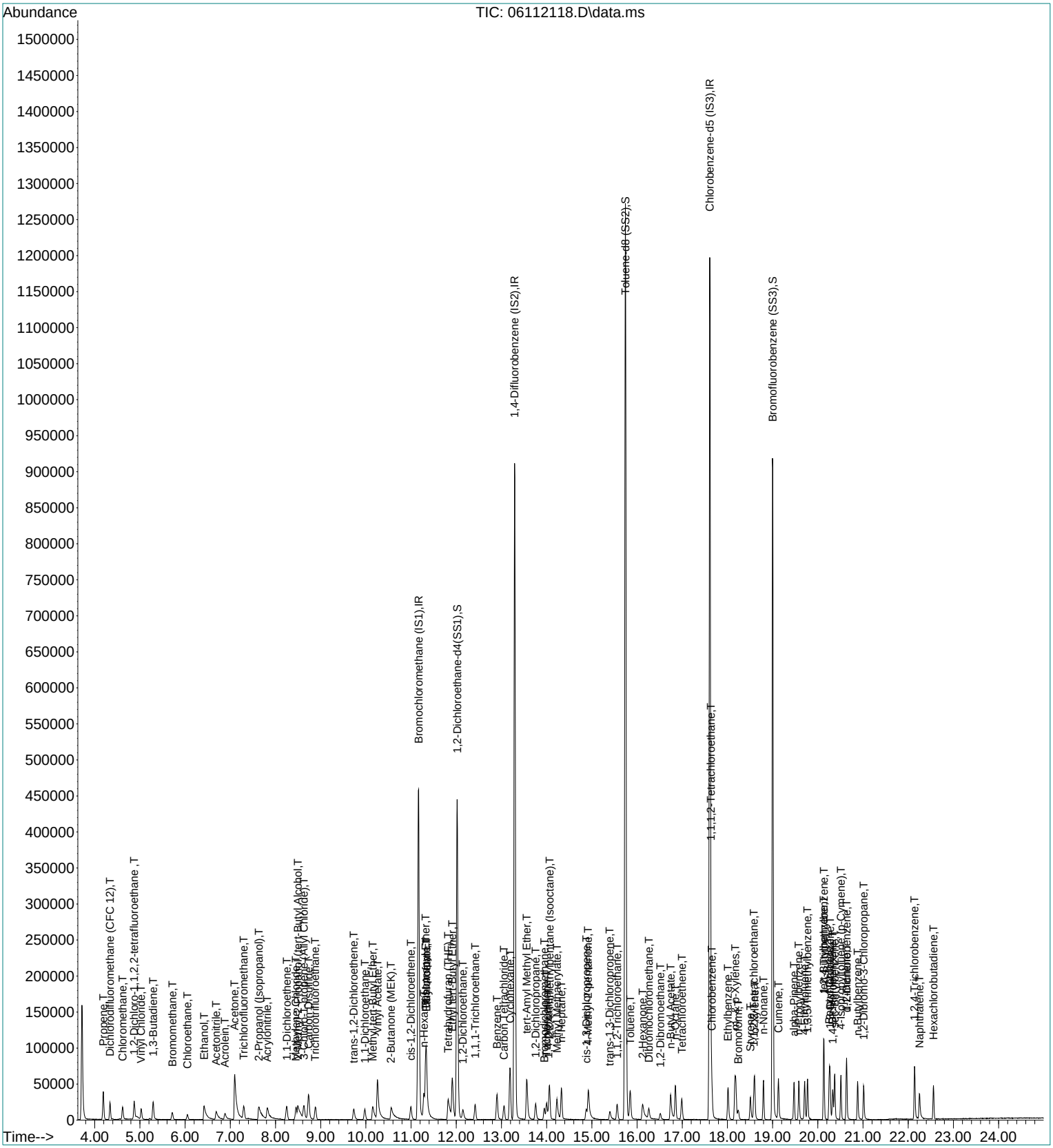
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.32	71	9179	0.459	ng		96
52) cis-1,3-Dichloropropene	14.88	75	11863	0.439	ng		96
53) 4-Methyl-2-pentanone	14.92	58	16384	0.859	ng		86
54) trans-1,3-Dichloropropene	15.39	75	10463	0.448	ng		92
55) 1,1,2-Trichloroethane	15.56	97	8154	0.471	ng		96
58) Toluene	15.85	91	35766	0.499	ng		97
59) 2-Hexanone	16.12	43	42066	0.935	ng		100
60) Dibromochloromethane	16.26	129	9380	0.481	ng		98
61) 1,2-Dibromoethane	16.52	107	8839	0.511	ng		92
62) n-Butyl Acetate	16.74	43	41812	0.904	ng		100
63) n-Octane	16.85	57	8996	0.465	ng		99
64) Tetrachloroethene	16.99	166	9458	0.513	ng		96
65) Chlorobenzene	17.65	112	23507	0.476	ng		98
66) Ethylbenzene	18.01	91	38012	0.483	ng		99
67) m- & p-Xylenes	18.17	91	61080	0.963	ng		99
68) Bromoform	18.24	173	7155	0.457	ng		96
69) Styrene	18.51	104	18207	0.445	ng		98
70) o-Xylene	18.60	91	31945	0.498	ng		99
71) n-Nonane	18.80	43	23500	0.469	ng		97
72) 1,1,2,2-Tetrachloroethane	18.58	83	14626	0.464	ng		99
74) Cumene	19.13	105	39285	0.499	ng		98
75) alpha-Pinene	19.48	93	18071	0.447	ng		97
76) n-Propylbenzene	19.58	91	46809	0.502	ng		99
77) 3-Ethyltoluene	19.71	105	35273	No Calib			
78) 4-Ethyltoluene	19.71	105	35273	0.496	ng		99
79) 1,3,5-Trimethylbenzene	19.77	105	34414	0.521	ng		98
80) alpha-Methylstyrene	19.70	118	187	No Calib		#	
81) 2-Ethyltoluene	19.77	105	34414	No Calib			
82) 1,2,4-Trimethylbenzene	20.14	105	31334	0.469	ng		98
83) n-Decane	20.13	58	2071	No Calib		#	
84) Benzyl Chloride	20.25	91	46022	0.928	ng		97
85) 1,3-Dichlorobenzene	20.27	146	17623	0.495	ng		97
86) 1,4-Dichlorobenzene	20.33	146	18547	0.505	ng		96
87) sec-Butylbenzene	20.37	105	42240	0.488	ng		96
88) 4-Isopropyltoluene (p-...	20.51	119	33501	0.476	ng		100
89) 1,2,3-Trimethylbenzene	20.37	105	42240	No Calib		#	
90) 1,2-Dichlorobenzene	20.64	146	18301	0.521	ng		99
91) d-Limonene	20.64	68	10589	0.377	ng		96
92) 1,2-Dibromo-3-Chloropr...	21.01	157	12665	0.953	ng		94
93) n-Undecane	0.00	57	0	N.D.			
94) 1,2,4-Trichlorobenzene	22.14	180	26718	1.161	ng		97
95) Naphthalene	22.25	128	41422	0.628	ng		95
96) n-Dodecane	0.00	57	0	N.D.			
97) Hexachlorobutadiene	22.56	225	8390	0.488	ng		98
98) Cyclohexanone	0.00	55	0	N.D.			
99) tert-Butylbenzene	20.13	119	30238	0.474	ng		99
100) n-Butylbenzene	20.88	91	33371	0.493	ng		97
101) 1,1,1,2-Tetrachloroethane	17.63	131	7991	0.437	ng		98

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112118.D Vial: 13
Acq On : 11 Jun 2021 16:04 Operator: WA
Sample : 0.5ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072104 (7/6)

Quant Time: Jun 12 10:31:37 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:30:17 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112112.D Vial: 13
Acq On : 11 Jun 2021 12:40 Operator: WA
Sample : 1.0ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072104 (7/6)

Quant Time: Jun 11 14:49:00 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	146591	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	686954	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.61	54	174778	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.02	65	313990	15.138	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 121.12%				
57) Toluene-d8 (SS2)	15.74	98	815095	11.236	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.92%				
73) Bromofluorobenzene (SS3)	19.00	174	225280	10.627	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 85.04%				
Target Compounds							Qvalue
2) Propene	4.17	42	26943	1.556	ng		99
3) Dichlorodifluoromethan...	4.33	85	36136	1.204	ng		98
4) Chloromethane	4.60	50	35330	1.532	ng		98
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	17408	0.901	ng		99
6) Vinyl Chloride	5.01	62	32847	1.143	ng		100
7) 1,3-Butadiene	5.28	54	24451	1.202	ng		99
8) Bromomethane	5.70	94	14042	1.138	ng		99
9) Chloroethane	6.04	64	12946	1.313	ng		98
10) Ethanol	6.40	45	78615	7.410	ng		99
11) Acetonitrile	6.66	41	43010	1.746	ng		96
12) Acrolein	6.85	56	24666	2.645	ng		98
13) Acetone	7.06	58	71159	5.578	ng		89
14) Trichlorofluoromethane	7.29	101	30245	1.179	ng		100
15) 2-Propanol (Isopropanol)	7.58	45	112273	2.788	ng		97
16) Acrylonitrile	7.80	53	50028	2.712	ng		99
17) 1,1-Dichloroethene	8.24	96	14823	1.045	ng		99
18) 2-Methyl-2-Propanol (t...	8.45	59	87413	2.442	ng		96
19) Methylene Chloride	8.45	84	15818	1.047	ng		98
20) 3-Chloro-1-propene (Al...	8.62	41	35609	1.681	ng		92
21) Trichlorotrifluoroethane	8.88	151	12160	1.027	ng		100
22) Carbon Disulfide	8.72	76	115145	2.152	ng		100
23) trans-1,2-Dichloroethene	9.73	61	25389	1.258	ng		95
24) 1,1-Dichloroethane	9.98	63	32779	1.301	ng		99
25) Methyl tert-Butyl Ether	10.13	73	45942	1.080	ng		99
26) Vinyl Acetate	10.25	86	15748	3.677	ng	#	72
27) 2-Butanone (MEK)	10.53	72	19570	1.827	ng		94
28) cis-1,2-Dichloroethene	10.99	61	24388	1.216	ng		99
29) Diisopropyl Ether	11.31	87	28242	1.786	ng	#	93
30) Ethyl Acetate	11.33	61	17562	1.821	ng		100
31) n-Hexane	11.28	57	32204	1.084	ng		98
32) Chloroform	11.33	83	29694	1.118	ng		98
34) Tetrahydrofuran (THF)	11.80	72	20620	1.968	ng		92
35) Ethyl tert-Butyl Ether	11.90	87	37648	1.916	ng		99
36) 1,2-Dichloroethane	12.15	62	25880	1.244	ng		98
38) 1,1,1-Trichloroethane	12.42	97	25734	1.059	ng		98
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	63748	1.046	ng		99
42) Carbon Tetrachloride	13.06	117	22358	1.040	ng		99
43) Cyclohexane	13.19	84	45704	1.770	ng		100
44) tert-Amyl Methyl Ether	13.55	73	89099	1.907	ng		97
45) 1,2-Dichloropropane	13.75	63	17664	1.128	ng		100
46) Bromodichloromethane	13.94	83	22864	1.031	ng		100
47) Trichloroethene	14.00	130	15034	0.850	ng		96
48) 1,4-Dioxane	14.02	88	10772	0.847	ng	#	49
49) 2,2,4-Trimethylpentane...	14.06	57	84737	1.305	ng		100
50) Methyl Methacrylate	14.22	100	9301	1.467	ng	#	78

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112112.D Vial: 13
Acq On : 11 Jun 2021 12:40 Operator: WA
Sample : 1.0ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072104 (7/6)

Quant Time: Jun 11 14:49:00 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

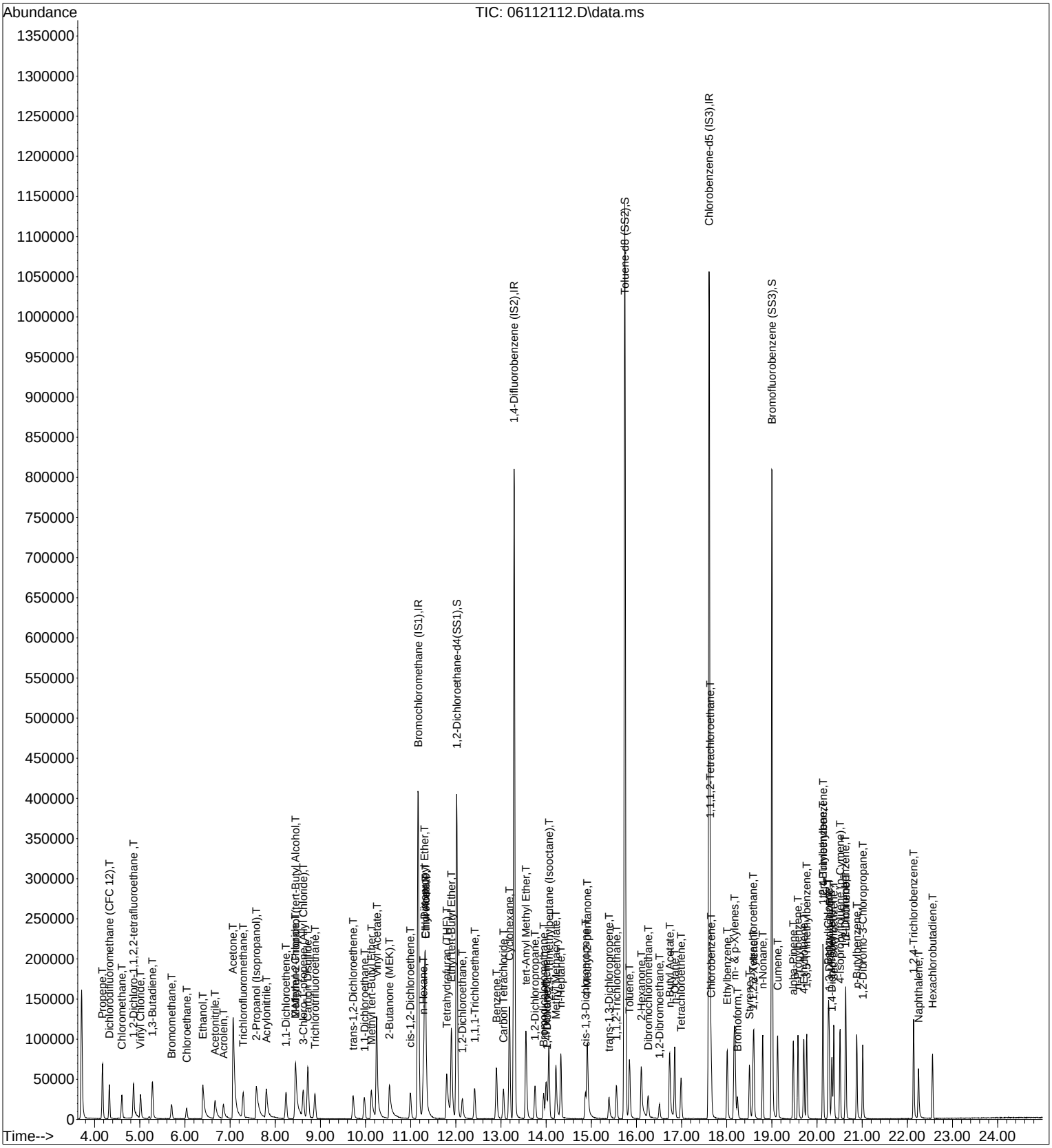
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.32	71	16586	0.992	ng	96
52) cis-1,3-Dichloropropene	14.87	75	21918	0.899	ng	100
53) 4-Methyl-2-pentanone	14.91	58	31335	1.975	ng	85
54) trans-1,3-Dichloropropene	15.39	75	19692	0.924	ng	96
55) 1,1,2-Trichloroethane	15.56	97	14900	0.994	ng	100
58) Toluene	15.84	91	63477	0.888	ng	100
59) 2-Hexanone	16.11	43	88531	2.243	ng	93
60) Dibromochloromethane	16.26	129	16978	0.906	ng	96
61) 1,2-Dibromoethane	16.51	107	16044	0.929	ng	97
62) n-Butyl Acetate	16.74	43	90629	2.075	ng	99
63) n-Octane	16.85	57	16924	1.074	ng	97
64) Tetrachloroethene	16.99	166	16375	0.773	ng	99
65) Chlorobenzene	17.65	112	42744	0.869	ng	99
66) Ethylbenzene	18.01	91	69067	0.879	ng	100
67) m- & p-Xylenes	18.17	91	110973	1.726	ng	99
68) Bromoform	18.24	173	13466	0.861	ng	99
69) Styrene	18.50	104	35389	0.750	ng	99
70) o-Xylene	18.60	91	55925	0.852	ng	100
71) n-Nonane	18.80	43	45005	1.238	ng	95
72) 1,1,2,2-Tetrachloroethane	18.58	83	28273	0.892	ng	98
74) Cumene	19.13	105	70464	0.898	ng	98
75) alpha-Pinene	19.48	93	33759	0.828	ng	99
76) n-Propylbenzene	19.58	91	84974	0.901	ng	99
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.71	105	63806	0.836	ng	100
79) 1,3,5-Trimethylbenzene	19.77	105	58739	0.888	ng	98
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.14	105	56197	0.779	ng	99
83) n-Decane	0.00	58	0	N.D.	d	
84) Benzyl Chloride	20.25	91	88837	1.463	ng	98
85) 1,3-Dichlorobenzene	20.27	146	31195	0.775	ng	98
86) 1,4-Dichlorobenzene	20.33	146	32910	0.845	ng	95
87) sec-Butylbenzene	20.37	105	76645	0.870	ng	97
88) 4-Isopropyltoluene (p-...	20.51	119	61033	0.801	ng	99
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.63	146	30984	0.787	ng	98
91) d-Limonene	20.64	68	21092	0.734	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.01	157	22307	1.536	ng	94
93) n-Undecane	0.00	57	0	N.D.		
94) 1,2,4-Trichlorobenzene	22.14	180	37734	1.249	ng	98
95) Naphthalene	22.25	128	58155	0.833	ng	97
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	22.56	225	14013	0.796	ng	98
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	20.13	119	54014	0.774	ng	100
100) n-Butylbenzene	20.88	91	61576	0.858	ng	97
101) 1,1,1,2-Tetrachloroethane	17.63	131	15147	0.801	ng	99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112112.D Vial: 13
Acq On : 11 Jun 2021 12:40 Operator: WA
Sample : 1.0ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072104 (7/6)

Quant Time: Jun 11 14:49:00 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112113.D Vial: 13
Acq On : 11 Jun 2021 13:14 Operator: WA
Sample : 5.0ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072104 (7/6)

Quant Time: Jun 11 14:49:33 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	148002	12.500	ng		-0.01
37) 1,4-Difluorobenzene (IS2)	13.29	114	700401	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.61	54	179788	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.03	65	294888	14.082	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 112.64%				
57) Toluene-d8 (SS2)	15.74	98	825181	11.058	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.48%				
73) Bromofluorobenzene (SS3)	19.00	174	237767	10.903	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 87.20%				
Target Compounds							Qvalue
2) Propene	4.16	42	141171	8.075	ng		99
3) Dichlorodifluoromethan...	4.31	85	174890	5.770	ng		99
4) Chloromethane	4.59	50	131796	5.662	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	86820	4.450	ng		100
6) Vinyl Chloride	5.00	62	168830	5.820	ng		100
7) 1,3-Butadiene	5.26	54	133790	6.514	ng		99
8) Bromomethane	5.70	94	69836	5.605	ng		99
9) Chloroethane	6.03	64	66552	6.685	ng		100
10) Ethanol	6.39	45	418357	39.058	ng		99
11) Acetonitrile	6.65	41	228983	9.208	ng		100
12) Acrolein	6.84	56	138198	14.681	ng		100
13) Acetone	7.04	58	382083	29.664	ng		90
14) Trichlorofluoromethane	7.29	101	153396	5.922	ng		99
15) 2-Propanol (Isopropanol)	7.55	45	600702	14.774	ng		99
16) Acrylonitrile	7.79	53	284636	15.282	ng		99
17) 1,1-Dichloroethene	8.24	96	77758	5.431	ng		99
18) 2-Methyl-2-Propanol (t...	8.42	59	354122	9.801	ng		97
19) Methylene Chloride	8.46	84	82922	5.434	ng		99
20) 3-Chloro-1-propene (Al...	8.62	41	169921	7.945	ng		99
21) Trichlorotrifluoroethane	8.87	151	63014	5.273	ng		98
22) Carbon Disulfide	8.72	76	595359	11.021	ng		100
23) trans-1,2-Dichloroethene	9.73	61	131652	6.463	ng		100
24) 1,1-Dichloroethane	9.98	63	167810	6.597	ng		99
25) Methyl tert-Butyl Ether	10.10	73	216697	5.047	ng		99
26) Vinyl Acetate	10.24	86	93386	21.597	ng	#	78
27) 2-Butanone (MEK)	10.49	72	112562	10.408	ng		97
28) cis-1,2-Dichloroethene	11.00	61	129731	6.408	ng		99
29) Diisopropyl Ether	11.30	87	155206	9.719	ng	#	92
30) Ethyl Acetate	11.31	61	102454	10.521	ng		98
31) n-Hexane	11.28	57	177880	5.930	ng		99
32) Chloroform	11.34	83	154089	5.745	ng		100
34) Tetrahydrofuran (THF)	11.76	72	108990	10.302	ng		95
35) Ethyl tert-Butyl Ether	11.89	87	201519	10.160	ng		98
36) 1,2-Dichloroethane	12.15	62	135006	6.428	ng		100
38) 1,1,1-Trichloroethane	12.42	97	135444	5.467	ng		100
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	333328	5.366	ng		100
42) Carbon Tetrachloride	13.06	117	117505	5.361	ng		99
43) Cyclohexane	13.19	84	243389	9.242	ng		99
44) tert-Amyl Methyl Ether	13.54	73	487092	10.228	ng		99
45) 1,2-Dichloropropane	13.75	63	94513	5.922	ng		99
46) Bromodichloromethane	13.94	83	122506	5.419	ng		100
47) Trichloroethene	13.99	130	83633	4.639	ng		99
48) 1,4-Dioxane	13.99	88	65313	5.038	ng		93
49) 2,2,4-Trimethylpentane...	14.06	57	432448	6.534	ng		99
50) Methyl Methacrylate	14.21	100	61377	9.493	ng		98

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112113.D Vial: 13
Acq On : 11 Jun 2021 13:14 Operator: WA
Sample : 5.0ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072104 (7/6)

Quant Time: Jun 11 14:49:33 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

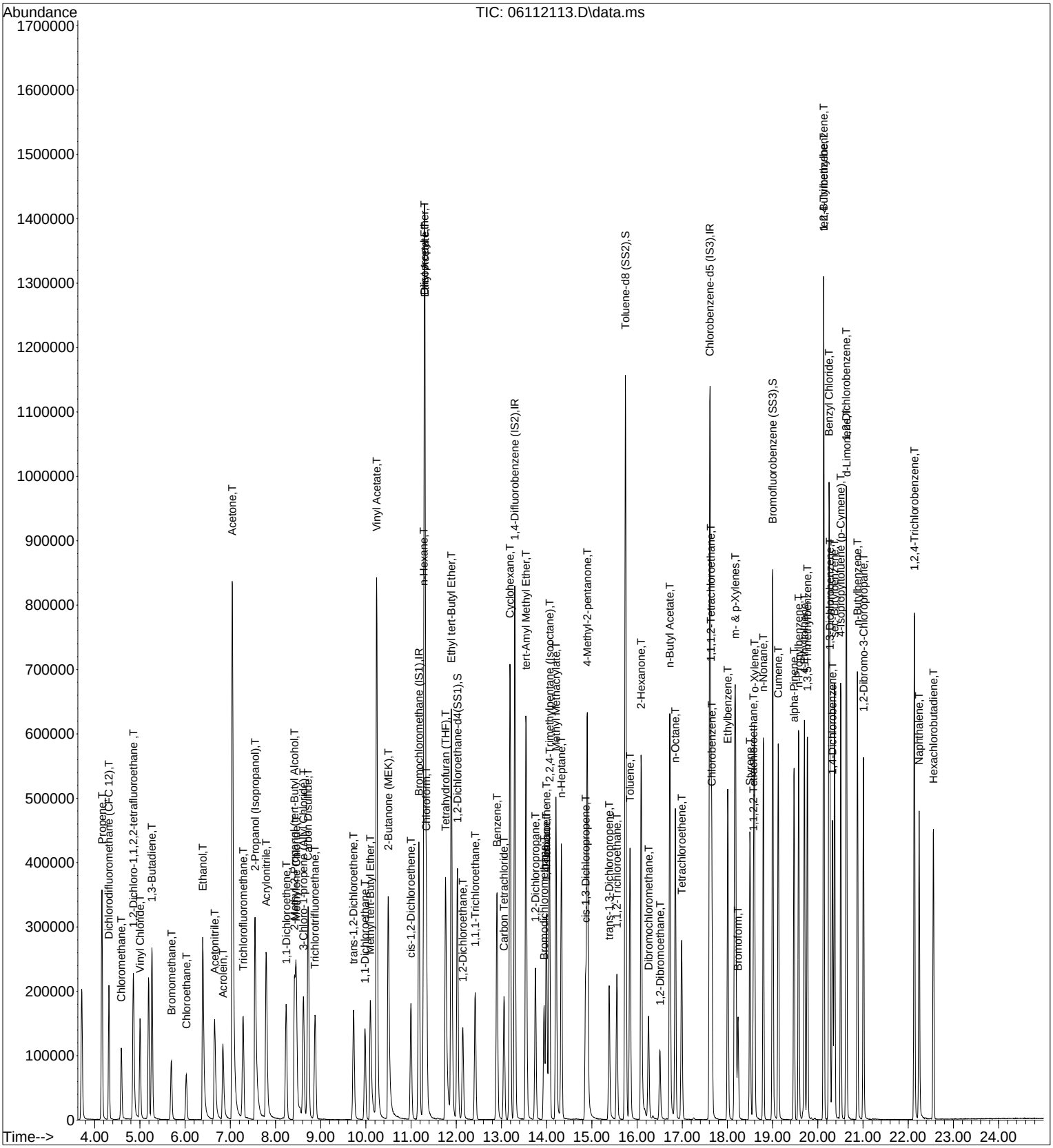
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.33	71	88012	5.165	ng	99
52) cis-1,3-Dichloropropene	14.87	75	135130	5.436	ng	100
53) 4-Methyl-2-pentanone	14.90	58	186744	11.544	ng	94
54) trans-1,3-Dichloropropene	15.38	75	124227	5.720	ng	99
55) 1,1,2-Trichloroethane	15.55	97	79226	5.182	ng	100
58) Toluene	15.84	91	338094	4.600	ng	99
59) 2-Hexanone	16.09	43	545405	13.432	ng	96
60) Dibromochloromethane	16.25	129	95251	4.943	ng	100
61) 1,2-Dibromoethane	16.51	107	90583	5.097	ng	99
62) n-Butyl Acetate	16.73	43	594384	13.226	ng	98
63) n-Octane	16.85	57	89979	5.550	ng	99
64) Tetrachloroethene	16.99	166	84483	3.877	ng	100
65) Chlorobenzene	17.65	112	215274	4.253	ng	100
66) Ethylbenzene	18.01	91	384220	4.752	ng	100
67) m- & p-Xylenes	18.17	91	603954	9.132	ng	100
68) Bromoform	18.23	173	79637	4.948	ng	99
69) Styrene	18.50	104	215237	4.433	ng	99
70) o-Xylene	18.60	91	312082	4.625	ng	100
71) n-Nonane	18.79	43	246367	6.590	ng	98
72) 1,1,2,2-Tetrachloroethane	18.58	83	151237	4.638	ng	99
74) Cumene	19.12	105	380518	4.715	ng	99
75) alpha-Pinene	19.48	93	193568	4.616	ng	99
76) n-Propylbenzene	19.58	91	474770	4.891	ng	99
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.70	105	376471	4.793	ng	99
79) 1,3,5-Trimethylbenzene	19.77	105	320954	4.715	ng	100
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.13	105	328576	4.430	ng	100
83) n-Decane	0.00	58	0	N.D.	d	
84) Benzyl Chloride	20.25	91	580465	9.295	ng	99
85) 1,3-Dichlorobenzene	20.27	146	181157	4.377	ng	100
86) 1,4-Dichlorobenzene	20.32	146	182262	4.549	ng	100
87) sec-Butylbenzene	20.37	105	433793	4.789	ng	99
88) 4-Isopropyltoluene (p-...	20.51	119	349832	4.464	ng	99
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.63	146	177968	4.396	ng	99
91) d-Limonene	20.64	68	129283	4.376	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.01	157	135166	9.049	ng	96
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.14	180	235730	7.587	ng	99
95) Naphthalene	22.24	128	367721	5.118	ng	99
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.56	225	79173	4.374	ng	100
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.13	119	310811	4.329	ng	100
100) n-Butylbenzene	20.88	91	358860	4.861	ng	99
101) 1,1,1,2-Tetrachloroethane	17.63	131	82337	4.234	ng	99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112113.D Vial: 13
Acq On : 11 Jun 2021 13:14 Operator: WA
Sample : 5.0ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072104 (7/6)

Quant Time: Jun 11 14:49:33 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112114.D Vial: 1
Acq On : 11 Jun 2021 13:48 Operator: WA
Sample : 25ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 11 14:50:07 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	165084	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.30	114	779085	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	54	206884	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	12.03	65	346328	14.827	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.64%			
57) Toluene-d8 (SS2)	15.75	98	912389	10.625	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 85.04%			
73) Bromofluorobenzene (SS3)	19.00	174	265306	10.573	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 84.56%			
Target Compounds						Qvalue
2) Propene	4.15	42	747891	38.352	ng	100
3) Dichlorodifluoromethan...	4.31	85	952190	28.164	ng	100
4) Chloromethane	4.59	50	863359	33.249	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	470943	21.642	ng	100
6) Vinyl Chloride	5.00	62	908990	28.092	ng	100
7) 1,3-Butadiene	5.27	54	739734	32.290	ng	100
8) Bromomethane	5.70	94	381429	27.445	ng	100
9) Chloroethane	6.03	64	353282	31.814	ng	100
10) Ethanol	6.42	45	2419720	202.529	ng	100
11) Acetonitrile	6.67	41	1209947	43.621	ng	100
12) Acrolein	6.84	56	774766	73.787	ng	100
13) Acetone	7.06	58	2282191	158.848	ng	100
14) Trichlorofluoromethane	7.29	101	837043	28.971	ng	100
15) 2-Propanol (Isopropanol)	7.55	45	3613531	79.675	ng	100
16) Acrylonitrile	7.81	53	1591330	76.598	ng	100
17) 1,1-Dichloroethene	8.24	96	428204	26.814	ng	100
18) 2-Methyl-2-Propanol (t...	8.42	59	2673825	66.343	ng	100
19) Methylene Chloride	8.47	84	454854	26.723	ng	100
20) 3-Chloro-1-propene (Al...	8.63	41	951024	39.866	ng	100
21) Trichlorotrifluoroethane	8.88	151	342579	25.700	ng	100
22) Carbon Disulfide	8.74	76	3335350	55.354	ng	100
23) trans-1,2-Dichloroethene	9.74	61	749069	32.970	ng	100
24) 1,1-Dichloroethane	9.99	63	917508	32.338	ng	100
25) Methyl tert-Butyl Ether	10.09	73	1337358	27.924	ng	100
26) Vinyl Acetate	10.25	86	584005	121.085	ng	100
27) 2-Butanone (MEK)	10.49	72	662129	54.889	ng	100
28) cis-1,2-Dichloroethene	11.01	61	727423	32.211	ng	100
29) Diisopropyl Ether	11.30	87	1027967	57.713	ng	100
30) Ethyl Acetate	11.31	61	710499	65.410	ng	100
31) n-Hexane	11.29	57	1168048	34.913	ng	100
32) Chloroform	11.35	83	869481	29.063	ng	100
34) Tetrahydrofuran (THF)	11.75	72	612272	51.886	ng	100
35) Ethyl tert-Butyl Ether	11.89	87	1227775	55.497	ng	100
36) 1,2-Dichloroethane	12.15	62	746911	31.881	ng	100
38) 1,1,1-Trichloroethane	12.42	97	762502	27.670	ng	100
39) Isopropyl Acetate	0.00	61	0	N.D.	d	
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.91	78	1869115	27.053	ng	100
42) Carbon Tetrachloride	13.06	117	662404	27.171	ng	100
43) Cyclohexane	13.19	84	1462753	49.937	ng	100
44) tert-Amyl Methyl Ether	13.54	73	2990431	56.450	ng	100
45) 1,2-Dichloropropane	13.76	63	530192	29.865	ng	100
46) Bromodichloromethane	13.94	83	691789	27.509	ng	100
47) Trichloroethene	14.00	130	482960	24.086	ng	100
48) 1,4-Dioxane	13.98	88	388282	26.927	ng	100
49) 2,2,4-Trimethylpentane...	14.06	57	2412066	32.766	ng	100
50) Methyl Methacrylate	14.21	100	385185	53.556	ng	100

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112114.D Vial: 1
Acq On : 11 Jun 2021 13:48 Operator: WA
Sample : 25ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 11 14:50:07 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

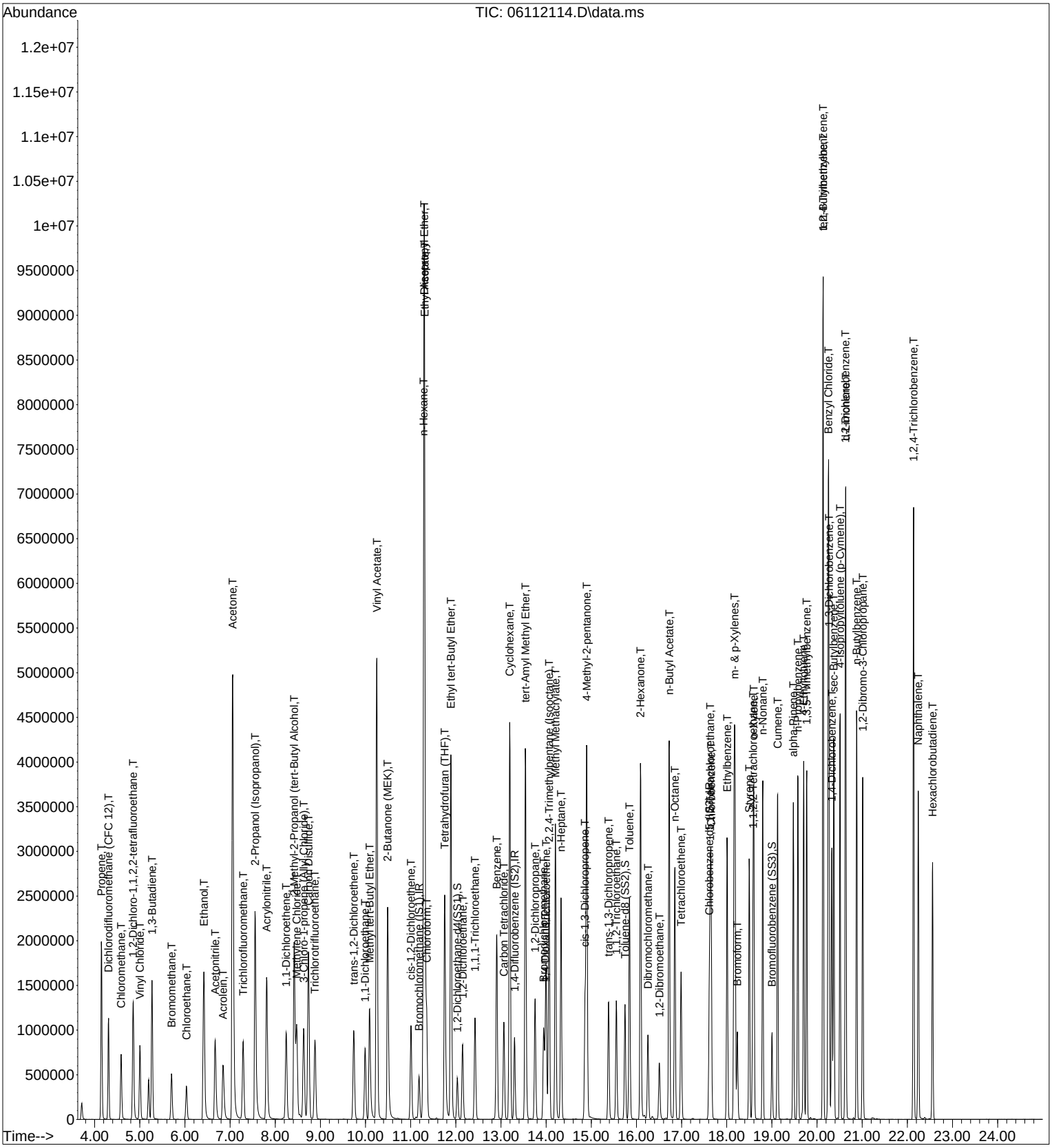
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.33	71	503878	26.585	ng	100
52) cis-1,3-Dichloropropene	14.86	75	801508	28.988	ng	100
53) 4-Methyl-2-pentanone	14.90	58	1171497	65.102	ng	100
54) trans-1,3-Dichloropropene	15.38	75	737431	30.523	ng	100
55) 1,1,2-Trichloroethane	15.55	97	444861	26.157	ng	100
58) Toluene	15.84	91	1900083	22.466	ng	100
59) 2-Hexanone	16.09	43	3315474	70.960	ng	100
60) Dibromochloromethane	16.25	129	548155	24.723	ng	100
61) 1,2-Dibromoethane	16.51	107	513071	25.091	ng	100
62) n-Butyl Acetate	16.73	43	3702614	71.601	ng	100
63) n-Octane	16.85	57	521538	27.955	ng	100
64) Tetrachloroethene	16.99	166	491834	19.613	ng	100
65) Chlorobenzene	17.65	112	1257851	21.596	ng	100
66) Ethylbenzene	18.01	91	2244414	24.121	ng	100
67) m- & p-Xylenes	18.17	91	3728433	48.994	ng	100
68) Bromoform	18.23	173	475542	25.678	ng	100
69) Styrene	18.50	104	1336031	23.913	ng	100
70) o-Xylene	18.60	91	1894361	24.395	ng	100
71) n-Nonane	18.80	43	1480439	34.413	ng	100
72) 1,1,2,2-Tetrachloroethane	18.58	83	913876	24.357	ng	100
74) Cumene	19.13	105	2273321	24.480	ng	100
75) alpha-Pinene	19.48	93	1210167	25.079	ng	100
76) n-Propylbenzene	19.58	91	2839727	25.425	ng	100
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.70	105	2304691	25.499	ng	100
79) 1,3,5-Trimethylbenzene	19.77	105	1972158	25.180	ng	100
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.14	105	2319062	27.169	ng	100
83) n-Decane	0.00	58	0	N.D.	d	
84) Benzyl Chloride	20.25	91	4082949	56.818	ng	100
85) 1,3-Dichlorobenzene	20.27	146	1193559	25.061	ng	100
86) 1,4-Dichlorobenzene	20.33	146	1106332	23.997	ng	100
87) sec-Butylbenzene	20.37	105	2655251	25.473	ng	100
88) 4-Isopropyltoluene (p-...	20.51	119	2224159	24.665	ng	100
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.63	146	1134473	24.355	ng	100
91) d-Limonene	20.64	68	983135	28.918	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.01	157	847950	49.334	ng	100
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.14	180	1802507	50.417	ng	100
95) Naphthalene	22.24	128	2612417	31.598	ng	100
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.56	225	492363	23.638	ng	100
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.14	119	2108882	25.524	ng	100
100) n-Butylbenzene	20.88	91	2261580	26.620	ng	100
101) 1,1,1,2-Tetrachloroethane	17.63	131	485612	21.699	ng	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112114.D Vial: 1
Acq On : 11 Jun 2021 13:48 Operator: WA
Sample : 25ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 11 14:50:07 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112115.D Vial: 1
Acq On : 11 Jun 2021 14:22 Operator: WA
Sample : 50ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 11 14:50:43 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	175466	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.31	114	828242	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.61	54	231546	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.04	65	368058	14.825	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.56%				
57) Toluene-d8 (SS2)	15.75	98	967293	10.065	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 80.48%				
73) Bromofluorobenzene (SS3)	19.00	174	286608	10.205	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 81.60%				
Target Compounds							Qvalue
2) Propene	4.15	42	1676638	80.890	ng		99
3) Dichlorodifluoromethan...	4.31	85	2074885	57.741	ng		99
4) Chloromethane	4.59	50	1500858	54.381	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	1059879	45.824	ng		100
6) Vinyl Chloride	5.01	62	1998710	58.114	ng		99
7) 1,3-Butadiene	5.28	54	1682254	69.086	ng		100
8) Bromomethane	5.72	94	841072	56.937	ng		100
9) Chloroethane	6.04	64	776160	65.760	ng		100
10) Ethanol	6.45	45	5666603	446.227	ng		99
11) Acetonitrile	6.69	41	2631471	89.257	ng		99
12) Acrolein	6.86	56	1754679	157.224	ng		100
13) Acetone	7.07	58	5498270	360.054	ng	#	75
14) Trichlorofluoromethane	7.30	101	1839757	59.908	ng		99
15) 2-Propanol (Isopropanol)	7.58	45	7991376	165.777	ng		98
16) Acrylonitrile	7.83	53	3643339	164.993	ng		100
17) 1,1-Dichloroethene	8.25	96	952291	56.104	ng		99
18) 2-Methyl-2-Propanol (t...	8.43	59	4499826	105.043	ng		100
19) Methylene Chloride	8.49	84	1024975	56.655	ng		99
20) 3-Chloro-1-propene (Al...	8.64	41	2147611	84.699	ng		100
21) Trichlorotrifluoroethane	8.88	151	754470	53.251	ng		100
22) Carbon Disulfide	8.74	76	7454967	116.404	ng		98
23) trans-1,2-Dichloroethene	9.74	61	1663551	68.889	ng		99
24) 1,1-Dichloroethane	10.00	63	1994673	66.143	ng		99
25) Methyl tert-Butyl Ether	10.09	73	2319939	45.574	ng		100
26) Vinyl Acetate	10.26	86	1425532	278.075	ng	#	44
27) 2-Butanone (MEK)	10.50	72	1573051	122.686	ng	#	90
28) cis-1,2-Dichloroethene	11.01	61	1626067	67.744	ng		99
29) Diisopropyl Ether	11.30	87	2314697	122.265	ng	#	79
30) Ethyl Acetate	11.31	61	1717987	148.802	ng		97
31) n-Hexane	11.29	57	2757990	77.558	ng		99
32) Chloroform	11.36	83	1958083	61.577	ng		100
34) Tetrahydrofuran (THF)	11.75	72	1443157	115.062	ng		97
35) Ethyl tert-Butyl Ether	11.89	87	2994647	127.353	ng		95
36) 1,2-Dichloroethane	12.15	62	1666375	66.918	ng		100
38) 1,1,1-Trichloroethane	12.43	97	1664057	56.802	ng		100
39) Isopropyl Acetate	0.00	61	0	N.D.	d		
40) 1-Butanol	0.00	56	0	N.D.	d		
41) Benzene	12.91	78	4217769	57.423	ng		99
42) Carbon Tetrachloride	13.07	117	1472352	56.810	ng		100
43) Cyclohexane	13.20	84	3441717	110.522	ng		99
44) tert-Amyl Methyl Ether	13.55	73	7079531	125.708	ng		99
45) 1,2-Dichloropropane	13.76	63	1192362	63.177	ng		100
46) Bromodichloromethane	13.95	83	1571392	58.777	ng		100
47) Trichloroethene	14.00	130	1127366	52.887	ng		100
48) 1,4-Dioxane	13.98	88	913676	59.603	ng		98
49) 2,2,4-Trimethylpentane...	14.07	57	5457043	69.730	ng		99
50) Methyl Methacrylate	14.21	100	920082	120.335	ng		99

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112115.D Vial: 1
Acq On : 11 Jun 2021 14:22 Operator: WA
Sample : 50ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 11 14:50:43 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

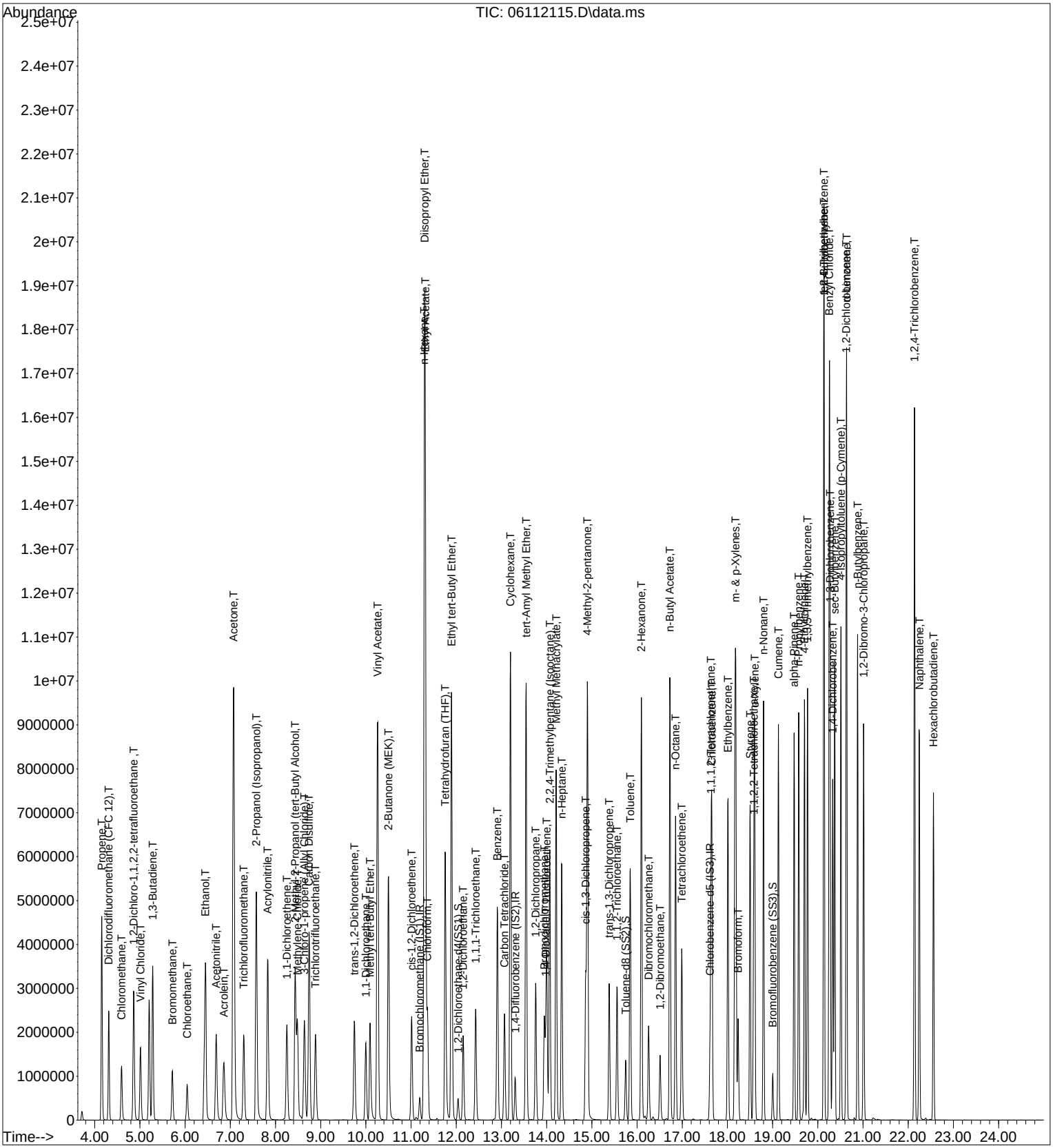
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.34	71	1186260	58.873	ng	99
52) cis-1,3-Dichloropropene	14.87	75	1844100	62.737	ng	99
53) 4-Methyl-2-pentanone	14.90	58	2833208	148.102	ng	92
54) trans-1,3-Dichloropropene	15.38	75	1682778	65.519	ng	100
55) 1,1,2-Trichloroethane	15.55	97	1009353	55.827	ng	100
58) Toluene	15.85	91	4323721	45.678	ng	98
59) 2-Hexanone	16.09	43	7560624	144.581	ng	96
60) Dibromochloromethane	16.25	129	1249496	50.352	ng	100
61) 1,2-Dibromoethane	16.51	107	1154200	50.433	ng	100
62) n-Butyl Acetate	16.73	43	8291700	143.265	ng	95
63) n-Octane	16.85	57	1250635	59.895	ng	99
64) Tetrachloroethene	16.99	166	1139998	40.617	ng	99
65) Chlorobenzene	17.65	112	3011664	46.200	ng	100
66) Ethylbenzene	18.01	91	5157865	49.529	ng	98
67) m- & p-Xylenes	18.18	91	8808740	103.424	ng	98
68) Bromoform	18.23	173	1119539	54.013	ng	100
69) Styrene	18.50	104	3150366	50.380	ng	99
70) o-Xylene	18.60	91	4509579	51.887	ng	99
71) n-Nonane	18.80	43	3542058	73.566	ng	98
72) 1,1,2,2-Tetrachloroethane	18.58	83	2193240	52.229	ng	99
74) Cumene	19.13	105	5245016	50.464	ng	98
75) alpha-Pinene	19.48	93	2925174	54.162	ng	100
76) n-Propylbenzene	19.58	91	6432049	51.454	ng	97
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.70	105	5356689	52.955	ng	97
79) 1,3,5-Trimethylbenzene	19.77	105	4675071	53.332	ng	98
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.14	105	5364866	56.157	ng	98
83) n-Decane	0.00	58	0	N.D.	d	
84) Benzyl Chloride	20.25	91	9029346	112.269	ng	94
85) 1,3-Dichlorobenzene	20.27	146	2851449	53.495	ng	99
86) 1,4-Dichlorobenzene	20.33	146	2644267	51.247	ng	99
87) sec-Butylbenzene	20.37	105	6106429	52.341	ng	97
88) 4-Isopropyltoluene (p-...	20.51	119	5191291	51.437	ng	97
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.63	146	2701574	51.820	ng	99
91) d-Limonene	20.64	68	2437057	64.048	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.01	157	2045835	106.349	ng	96
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.14	180	4376286	109.368	ng	99
95) Naphthalene	22.25	128	6070257	65.602	ng	97
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.56	225	1231390	52.822	ng	99
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.14	119	4834214	52.277	ng	98
100) n-Butylbenzene	20.88	91	5173535	54.409	ng	97
101) 1,1,1,2-Tetrachloroethane	17.64	131	1163149	46.438	ng	99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112115.D Vial: 1
Acq On : 11 Jun 2021 14:22 Operator: WA
Sample : 50ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 11 14:50:43 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:45:47 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112116.D Vial: 1
Acq On : 11 Jun 2021 14:56 Operator: WA
Sample : 100ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 12 10:30:00 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:52:14 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	191076	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.31	114	907181	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.61	54	260320	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.05	65	392117	12.575	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.56%				
57) Toluene-d8 (SS2)	15.75	98	1064728	11.349	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 90.80%				
73) Bromofluorobenzene (SS3)	19.00	174	320632	12.095	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.72%				
Target Compounds							Qvalue
2) Propene	4.16	42	3740912	107.376	ng		97
3) Dichlorodifluoromethan...	4.31	85	4451158	99.030	ng		98
4) Chloromethane	4.59	50	1923263	46.662	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	2378637	103.065	ng		99
6) Vinyl Chloride	5.02	62	4374954	106.582	ng		98
7) 1,3-Butadiene	5.29	54	4031364	127.071	ng		99
8) Bromomethane	5.73	94	1907111	107.336	ng		100
9) Chloroethane	6.06	64	1788784	110.637	ng		100
10) Ethanol	6.49	45	12778065	618.117	ng		96
11) Acetonitrile	6.71	41	5922110	115.424	ng		99
12) Acrolein	6.87	56	4155776	271.114	ng		99
13) Acetone	7.10	58	11891958	604.172	ng	#	41
14) Trichlorofluoromethane	7.30	101	4237638	105.617	ng		98
15) 2-Propanol (Isopropanol)	7.61	45	16471915	238.572	ng		94
16) Acrylonitrile	7.85	53	8333815	259.240	ng		100
17) 1,1-Dichloroethene	8.26	96	2214204	115.353	ng		100
18) 2-Methyl-2-Propanol (t...	8.46	59	6345940	132.725	ng		98
19) Methylene Chloride	8.49	84	2417095	114.921	ng		97
20) 3-Chloro-1-propene (Al...	8.65	41	4932540	108.320	ng		100
21) Trichlorotrifluoroethane	8.89	151	1716809	109.302	ng		100
22) Carbon Disulfide	8.75	76	15613844	195.814	ng		94
23) trans-1,2-Dichloroethene	9.75	61	3853911	123.672	ng		99
24) 1,1-Dichloroethane	10.00	63	4376720	110.487	ng		98
25) Methyl tert-Butyl Ether	10.10	73	3151512	56.781	ng		100
26) Vinyl Acetate	10.27	86	3179498	706.174	ng	#	1
27) 2-Butanone (MEK)	10.51	72	3735433	317.229	ng	#	57
28) cis-1,2-Dichloroethene	11.02	61	3676944	115.519	ng		99
29) Diisopropyl Ether	11.31	87	4754826	236.176	ng	#	38
30) Ethyl Acetate	11.33	61	3470919	287.344	ng		92
31) n-Hexane	11.29	57	5513844	120.519	ng		97
32) Chloroform	11.38	83	4354100	112.438	ng		99
34) Tetrahydrofuran (THF)	11.76	72	3425459	236.426	ng	#	87
35) Ethyl tert-Butyl Ether	11.90	87	6855597	256.607	ng	#	76
36) 1,2-Dichloroethane	12.16	62	3808695	117.189	ng		99
38) 1,1,1-Trichloroethane	12.44	97	3678603	102.758	ng		99
39) Isopropyl Acetate	12.91	61	129749	No Calib			
40) 1-Butanol	12.93	56	39811	No Calib			
41) Benzene	12.91	78	9453287	109.924	ng		97
42) Carbon Tetrachloride	13.07	117	3321109	103.933	ng		100
43) Cyclohexane	13.20	84	7344189	221.612	ng		94
44) tert-Amyl Methyl Ether	13.55	73	14091771	224.055	ng		92
45) 1,2-Dichloropropane	13.76	63	2821180	117.452	ng		99
46) Bromodichloromethane	13.95	83	3705218	119.228	ng		99
47) Trichloroethene	14.01	130	2721235	119.292	ng		100
48) 1,4-Dioxane	13.98	88	2262396	144.461	ng		97
49) 2,2,4-Trimethylpentane...	14.07	57	11754886	109.607	ng		96
50) Methyl Methacrylate	14.22	100	2207569	360.315	ng		95

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112116.D Vial: 1
Acq On : 11 Jun 2021 14:56 Operator: WA
Sample : 100ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 12 10:30:00 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:52:14 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

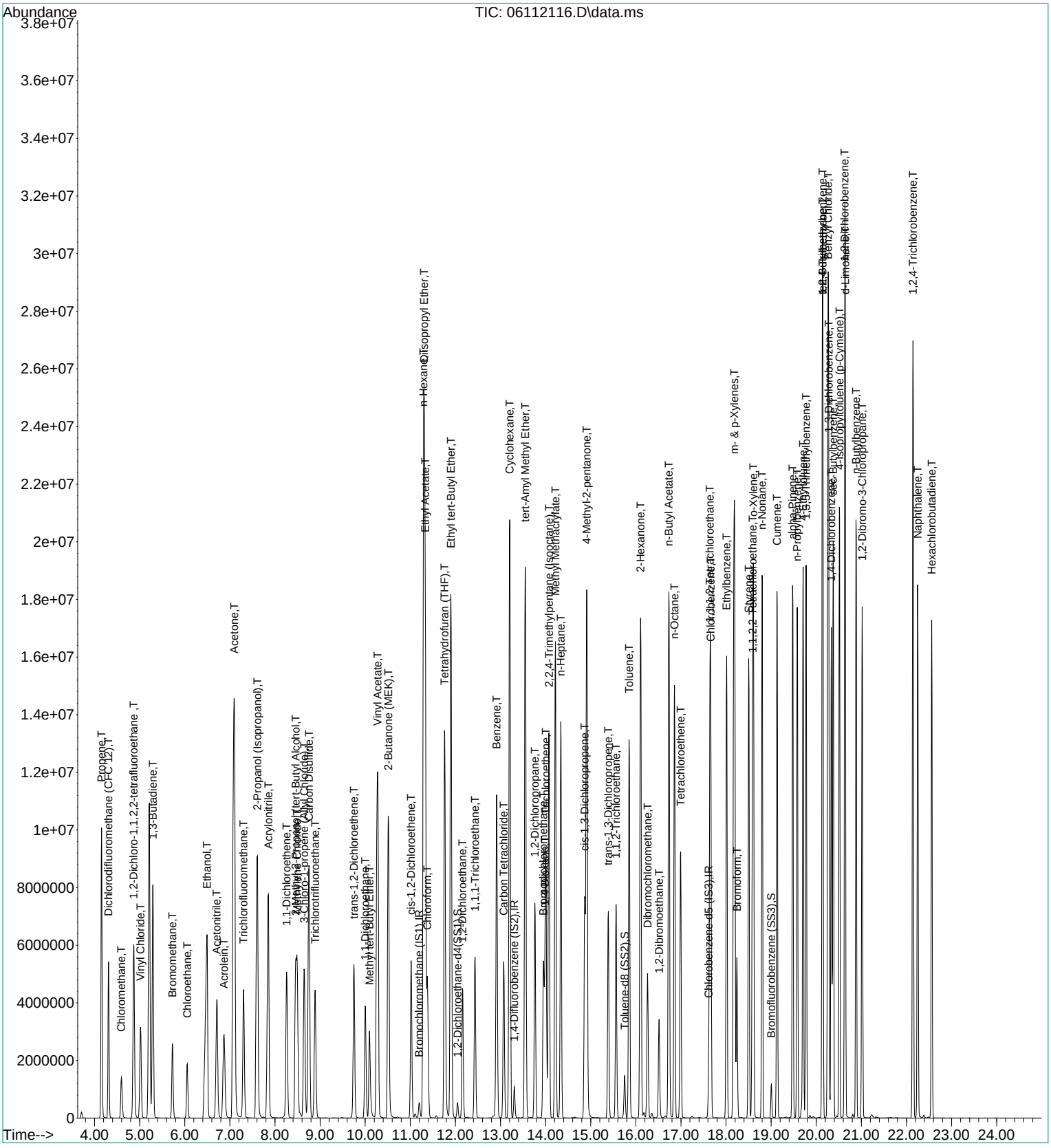
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.34	71	2879813	123.128	ng		100
52) cis-1,3-Dichloropropene	14.87	75	4321676	137.923	ng		98
53) 4-Methyl-2-pentanone	14.91	58	6400679	294.577	ng	#	72
54) trans-1,3-Dichloropropene	15.39	75	3961399	147.419	ng		99
55) 1,1,2-Trichloroethane	15.56	97	2398443	119.093	ng		99
58) Toluene	15.85	91	9505085	99.243	ng		93
59) 2-Hexanone	16.11	43	14317053	247.279	ng		85
60) Dibromochloromethane	16.26	129	2935618	111.963	ng		99
61) 1,2-Dibromoethane	16.52	107	2695415	116.524	ng		100
62) n-Butyl Acetate	16.73	43	14979834	252.187	ng		82
63) n-Octane	16.86	57	2995414	117.391	ng		100
64) Tetrachloroethene	16.99	166	2717039	106.620	ng		99
65) Chlorobenzene	17.66	112	6896125	102.579	ng		97
66) Ethylbenzene	18.01	91	10725879	102.608	ng		90
67) m- & p-Xylenes	18.18	91	17175818	204.185	ng		89
68) Bromoform	18.24	173	2689357	125.588	ng		99
69) Styrene	18.50	104	7088261	127.413	ng		96
70) o-Xylene	18.60	91	9569608	111.020	ng		93
71) n-Nonane	18.80	43	7438915	115.074	ng		93
72) 1,1,2,2-Tetrachloroethane	18.59	83	4984061	116.474	ng		98
74) Cumene	19.13	105	10464282	100.139	ng		89
75) alpha-Pinene	19.48	93	6449911	118.171	ng		97
76) n-Propylbenzene	19.58	91	11950913	97.200	ng		87
77) 3-Ethyltoluene	19.71	105	10537367	No Calib			
78) 4-Ethyltoluene	19.71	105	10537367	111.802	ng		89
79) 1,3,5-Trimethylbenzene	19.78	105	9440459	107.305	ng		91
80) alpha-Methylstyrene	19.71	118	71807	No Calib		#	
81) 2-Ethyltoluene	19.78	105	9440459	No Calib			
82) 1,2,4-Trimethylbenzene	20.14	105	9446937	106.384	ng		93
83) n-Decane	20.14	58	611400	No Calib		#	
84) Benzyl Chloride	20.26	91	14213665	217.372	ng		80
85) 1,3-Dichlorobenzene	20.28	146	6002124	124.913	ng		97
86) 1,4-Dichlorobenzene	20.33	146	5901338	117.972	ng		97
87) sec-Butylbenzene	20.37	105	11354643	99.272	ng		87
88) 4-Isopropyltoluene (p-...	20.52	119	9940286	106.426	ng		88
89) 1,2,3-Trimethylbenzene	20.37	105	11354309	No Calib			
90) 1,2-Dichlorobenzene	20.63	146	5615757	117.894	ng		97
91) d-Limonene	20.64	68	4795578	129.581	ng		97
92) 1,2-Dibromo-3-Chloropr...	21.02	157	4539047	248.987	ng		91
93) n-Undecane	21.32	57	9730	No Calib			
94) 1,2,4-Trichlorobenzene	22.14	180	8574815	281.177	ng		98
95) Naphthalene	22.25	128	11755092	136.631	ng		90
96) n-Dodecane	22.24	57	27736	No Calib			
97) Hexachlorobutadiene	22.56	225	3002689	125.316	ng		99
98) Cyclohexanone	18.18	55	19900	No Calib			
99) tert-Butylbenzene	20.14	119	8701269	102.205	ng		93
100) n-Butylbenzene	20.88	91	9791621	109.556	ng	#	87
101) 1,1,1,2-Tetrachloroethane	17.64	131	2724101	107.176	ng		99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112116.D Vial: 1
Acq On : 11 Jun 2021 14:56 Operator: WA
Sample : 100ng R13061121 ICAL Std Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 12 10:30:00 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Jun 11 14:52:14 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112120.D Vial: 1
Acq On : 11 Jun 2021 17:13 Operator: WA
Sample : 25ng R13061121 ICV Std Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 12 11:02:06 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	186668	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.30	114	865409	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.61	54	225292	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.03	65	386129	12.504	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.00%				
57) Toluene-d8 (SS2)	15.74	98	1010817	12.479	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.84%				
73) Bromofluorobenzene (SS3)	19.00	174	297396	12.904	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.20%				
Target Compounds							Qvalue
2) Propene	4.14	42	713552	20.530	ng		99
3) Dichlorodifluoromethan...	4.30	85	965121	22.011	ng		100
4) Chloromethane	4.58	50	913287	22.730	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.84	135	494585	22.688	ng		100
6) Vinyl Chloride	5.00	62	764160	19.111	ng		99
7) 1,3-Butadiene	5.26	54	728716	22.903	ng		99
8) Bromomethane	5.70	94	382106	21.904	ng		100
9) Chloroethane	6.03	64	350343	21.661	ng		100
10) Ethanol	6.41	45	1934714	91.782	ng		100
11) Acetonitrile	6.66	41	1169483	22.040	ng		99
12) Acrolein	6.84	56	750805	48.431	ng		100
13) Acetone	7.05	58	2243137	115.960	ng		100
14) Trichlorofluoromethane	7.29	101	843969	21.443	ng		100
15) 2-Propanol (Isopropanol)	7.55	45	3486203	49.583	ng		100
16) Acrylonitrile	7.80	53	1595237	49.284	ng		100
17) 1,1-Dichloroethene	8.24	96	431893	22.832	ng		99
18) 2-Methyl-2-Propanol (t...	8.41	59	3102841	66.180	ng		99
19) Methylene Chloride	8.47	84	460027	22.399	ng		97
20) 3-Chloro-1-propene (Al...	8.63	41	1007524	21.779	ng		99
21) Trichlorotrifluoroethane	8.88	151	355964	23.453	ng		99
22) Carbon Disulfide	8.73	76	3431334	43.977	ng		100
23) trans-1,2-Dichloroethene	9.74	61	759297	24.543	ng		99
24) 1,1-Dichloroethane	9.99	63	897790	22.894	ng		100
25) Methyl tert-Butyl Ether	10.09	73	1463173	28.269	ng		99
26) Vinyl Acetate	10.24	86	419254	87.573	ng		99
27) 2-Butanone (MEK)	10.49	72	673467	47.998	ng		94
28) cis-1,2-Dichloroethene	11.00	61	733438	23.412	ng		100
29) Diisopropyl Ether	11.30	87	1038368	53.915	ng	#	81
30) Ethyl Acetate	11.30	61	979343	71.734	ng		99
31) n-Hexane	11.29	57	1135571	25.112	ng		100
32) Chloroform	11.35	83	872198	23.233	ng		100
34) Tetrahydrofuran (THF)	11.75	72	586911	42.371	ng		95
35) Ethyl tert-Butyl Ether	11.89	87	1232958	48.384	ng		99
36) 1,2-Dichloroethane	12.15	62	746656	23.275	ng		100
38) 1,1,1-Trichloroethane	12.42	97	762598	22.689	ng		100
39) Isopropyl Acetate	12.88	61	48109	No Calib	#		
40) 1-Butanol	12.90	56	113328	No Calib	#		
41) Benzene	12.90	78	1856934	22.799	ng		100
42) Carbon Tetrachloride	13.06	117	678406	22.550	ng		100
43) Cyclohexane	13.19	84	1470782	48.391	ng		98
44) tert-Amyl Methyl Ether	13.54	73	3001916	49.913	ng		99
45) 1,2-Dichloropropane	13.76	63	517722	22.501	ng		100
46) Bromodichloromethane	13.94	83	688121	23.636	ng		100
47) Trichloroethene	14.00	130	479558	23.111	ng		100
48) 1,4-Dioxane	13.98	88	391566	23.750	ng		100
49) 2,2,4-Trimethylpentane...	14.06	57	2421987	23.342	ng		100
50) Methyl Methacrylate	14.21	100	390240	55.340	ng		98

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112120.D Vial: 1
Acq On : 11 Jun 2021 17:13 Operator: WA
Sample : 25ng R13061121 ICV Std Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 12 11:02:06 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

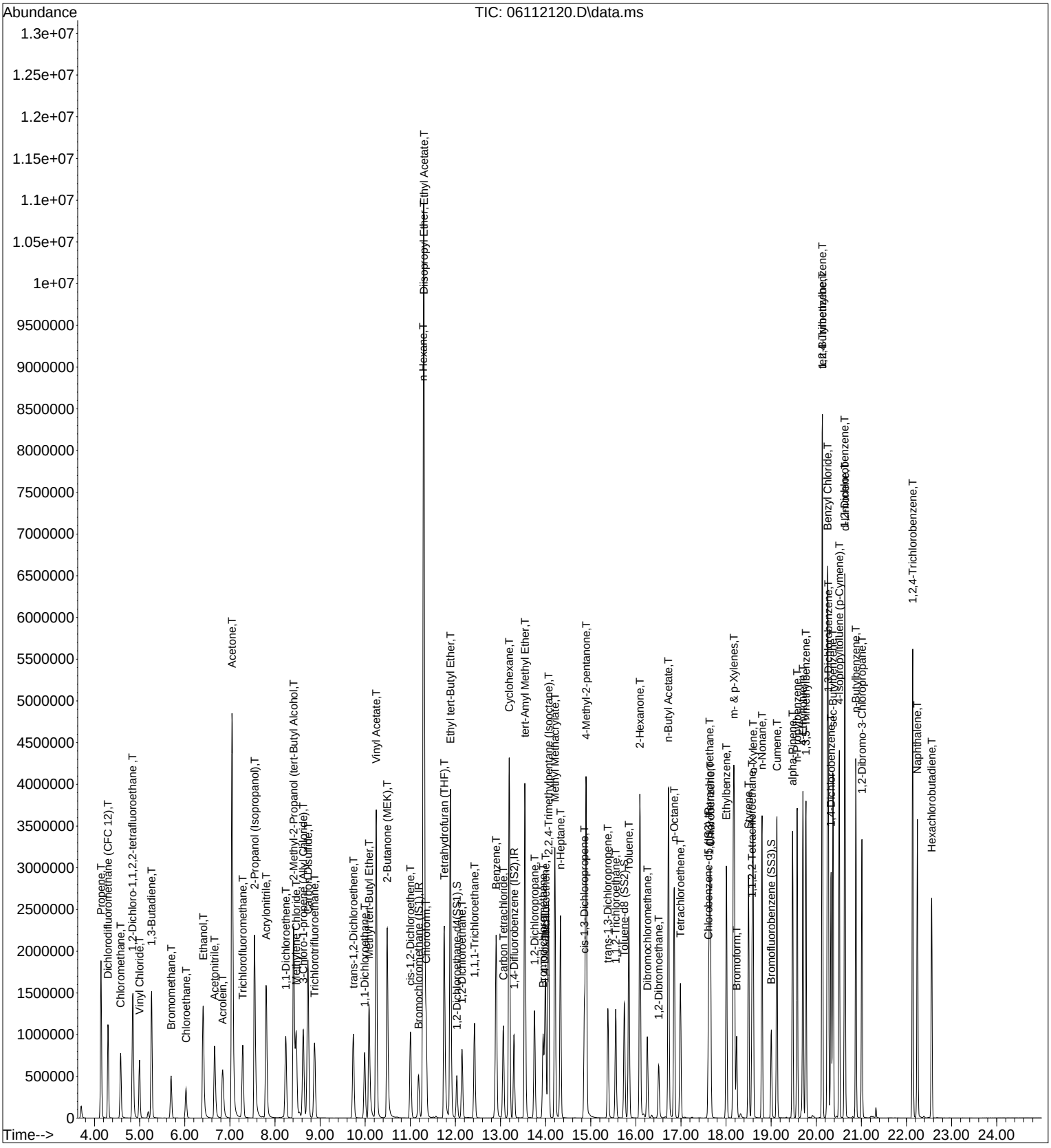
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.33	71	510912	23.404	ng		99
52) cis-1,3-Dichloropropene	14.86	75	800402	25.909	ng		100
53) 4-Methyl-2-pentanone	14.90	58	1148680	48.808	ng		98
54) trans-1,3-Dichloropropene	15.38	75	746489	24.819	ng		100
55) 1,1,2-Trichloroethane	15.55	97	443615	23.597	ng		99
58) Toluene	15.84	91	1891681	23.002	ng		100
59) 2-Hexanone	16.09	43	3239553	52.496	ng		99
60) Dibromochloromethane	16.25	129	567455	25.321	ng		100
61) 1,2-Dibromoethane	16.50	107	521736	26.133	ng		100
62) n-Butyl Acetate	16.72	43	3519692	53.706	ng		99
63) n-Octane	16.85	57	523074	23.706	ng		99
64) Tetrachloroethene	16.99	166	492871	23.456	ng		100
65) Chlorobenzene	17.65	112	1260795	22.687	ng		100
66) Ethylbenzene	18.01	91	2215567	24.542	ng		100
67) m- & p-Xylenes	18.17	91	3657992	50.124	ng		100
68) Bromoform	18.23	173	482504	26.865	ng		100
69) Styrene	18.50	104	1340132	25.708	ng		100
70) o-Xylene	18.60	91	1842837	24.872	ng		100
71) n-Nonane	18.80	43	1423145	24.755	ng		99
72) 1,1,2,2-Tetrachloroethane	18.58	83	872314	24.187	ng		99
74) Cumene	19.13	105	2254754	24.884	ng		100
75) alpha-Pinene	19.48	93	1193306	25.762	ng		100
76) n-Propylbenzene	19.58	91	2823144	26.289	ng		100
77) 3-Ethyltoluene	19.70	105	2310843	No Calib			
78) 4-Ethyltoluene	19.70	105	2310843	28.142	ng		100
79) 1,3,5-Trimethylbenzene	19.77	105	1926580	25.200	ng		100
80) alpha-Methylstyrene	19.70	118	13442	No Calib		#	
81) 2-Ethyltoluene	19.77	105	1926580	No Calib			
82) 1,2,4-Trimethylbenzene	20.14	105	2155308	27.892	ng		100
83) n-Decane	20.13	58	126987	No Calib		#	
84) Benzyl Chloride	20.25	91	3771417	56.430	ng		100
85) 1,3-Dichlorobenzene	20.27	146	1143368	25.234	ng		100
86) 1,4-Dichlorobenzene	20.33	146	1097317	25.922	ng		100
87) sec-Butylbenzene	20.37	105	2618599	26.327	ng		100
88) 4-Isopropyltoluene (p-...	20.51	119	2206204	27.251	ng		100
89) 1,2,3-Trimethylbenzene	20.37	105	2618403	No Calib			
90) 1,2-Dichlorobenzene	20.63	146	1089202	26.739	ng		100
91) d-Limonene	20.64	68	917230	26.289	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.01	157	776680	44.872	ng		97
93) n-Undecane	21.33	57	36870	No Calib			
94) 1,2,4-Trichlorobenzene	22.14	180	1555860	46.769	ng		100
95) Naphthalene	22.24	128	2391347	24.806	ng		100
96) n-Dodecane	22.24	57	104460	No Calib		#	
97) Hexachlorobutadiene	22.56	225	466507	23.465	ng		100
98) Cyclohexanone	18.17	55	3708	No Calib			
99) tert-Butylbenzene	20.14	119	1991143	27.053	ng		100
100) n-Butylbenzene	20.88	91	2154370	27.519	ng		100
101) 1,1,1,2-Tetrachloroethane	17.63	131	495192	23.764	ng		99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\11\06112120.D Vial: 1
Acq On : 11 Jun 2021 17:13 Operator: WA
Sample : 25ng R13061121 ICV Std Inst : MS13
Misc : S34-06112101/S34-06042101 (7/3)

Quant Time: Jun 12 11:02:06 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **06112119.D** Acq. Method File: **TO15.M**

Data File Path: **I:\MS13\DATA\2021_06\11** Sample Name: **25ng R13061121 ICV Std**

Operator: **WA** Misc Info: **S34-06112101/S34-05192101 (**

Date Acquired: **6/11/2021 16:38** 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**	**4.15**	**23.4**	26.25	89	**56**	**128**	*	*
3)	**Dichlorodifluoromethane (CFC 1**	**4.31**	**24.5**	**26.25**	93	**71**	**112**	*****	*
4)	**Chloromethane**	**4.59**	**23.4**	**26.50**	88	**53**	**126**	*****	*
5)	**1,2-Dichloro-1,1,2,2-tetrafluoroet**	**4.86**	**25.3**	**27.00**	94	**62**	**121**	*****	*
6)	**Vinyl Chloride**	**5.00**	**25.5**	**26.00**	98	**63**	**123**	*****	*
7)	**1,3-Butadiene**	**5.27**	**25.7**	**26.25**	98	**63**	**135**	*****	*
8)	**Bromomethane**	**5.70**	**24.4**	**26.50**	92	**71**	**112**	*****	*
9)	**Chloroethane**	**6.03**	**24.3**	**25.50**	95	**66**	**117**	*****	*
10)	**Ethanol**	**6.41**	**109**	**124.75**	87	**57**	**117**	*****	*
11)	**Acetonitrile**	**6.66**	**25.0**	**25.25**	99	**59**	**131**	*****	*
12)	**Acrolein**	**6.85**	**53.8**	**54.50**	99	**71**	**123**	*****	*
13)	**Acetone**	**7.06**	**131**	**129.00**	102	**60**	**117**	*****	*
14)	**Trichlorofluoromethane**	**7.29**	**23.9**	**25.50**	94	**71**	**114**	*****	*
15)	**2-Propanol (Isopropanol)**	**7.55**	**55.8**	**51.00**	109	**61**	**124**	*****	*
16)	**Acrylonitrile**	**7.81**	**55.1**	**51.25**	108	**65**	**130**	*****	*
17)	**1,1-Dichloroethene**	**8.25**	**25.6**	**26.50**	97	**74**	**114**	*****	*
18)	2-Methyl-2-Propanol (tert-Butyl Alc	8.42	63.6	52.25	122	56	135	*	*
19)	**Methylene Chloride**	**8.47**	**25.3**	**26.00**	97	**75**	**112**	*****	*
20)	**3-Chloro-1-propene (Allyl Chloric**	**8.63**	**24.4**	**26.25**	93	**57**	**127**	*****	*
21)	**Trichlorotrifluoroethane**	**8.88**	**25.7**	**26.75**	96	**73**	**114**	*****	*
22)	**Carbon Disulfide**	**8.74**	**49.4**	**53.50**	92	**70**	**113**	*****	*
23)	**trans-1,2-Dichloroethene**	**9.74**	**27.5**	**26.50**	104	**76**	**119**	*****	*
24)	**1,1-Dichloroethane**	**9.99**	**25.7**	**26.50**	97	**70**	**114**	*****	*
25)	**Methyl tert-Butyl Ether**	**10.09**	**29.0**	**26.50**	109	**72**	**118**	*****	*
26)	**Vinyl Acetate**	**10.25**	**100**	**137.50**	73	**56**	**137**	*****	*
27)	**2-Butanone (MEK)**	**10.49**	**54.1**	**51.50**	105	**74**	**121**	*****	*
28)	**cis-1,2-Dichloroethene**	**11.01**	**26.4**	**26.00**	102	**73**	**117**	*****	*
29)	Diisopropyl Ether	11.30	62.1	53.00	117	58	124	*	*
30)	**Ethyl Acetate**	**11.31**	**82.6**	**52.75**	157	**59**	**161**	*	FAIL
31)	**n-Hexane**	**11.29**	**29.1**	**26.50**	110	**55**	**130**	*****	*
32)	**Chloroform**	**11.35**	**26.3**	**26.75**	98	**71**	**114**	*****	*
34)	**Tetrahydrofuran (THF)**	**11.75**	**48.3**	**50.00**	97	**73**	**114**	*	*
35)	Ethyl tert-Butyl Ether	11.89	55.3	52.50	105	76	119	*	*
36)	**1,2-Dichloroethane**	**12.15**	**26.4**	**26.00**	102	**71**	**119**	*****	*
38)	**1,1,1-Trichloroethane**	**12.42**	**24.9**	**25.75**	97	**73**	**119**	*****	*
41)	**Benzene**	**12.91**	**25.0**	**25.50**	98	**72**	**113**	*****	*
42)	**Carbon Tetrachloride**	**13.06**	**25.1**	**26.25**	96	**67**	**123**	*****	*
43)	**Cyclohexane**	**13.19**	**53.1**	**52.00**	102	**70**	**119**	*	*
44)	tert-Amyl Methyl Ether	13.54	55.3	**52.25**	106	74	120	*****	*
45)	**1,2-Dichloropropane**	**13.76**	**25.0**	**25.75**	97	**70**	**118**	*****	*
46)	**Bromodichloromethane**	**13.94**	**25.9**	**26.25**	99	**74**	**119**	*****	*
47)	**Trichloroethene**	**14.00**	**25.4**	**25.75**	99	**74**	**115**	*****	*
48)	**1,4-Dioxane**	**13.98**	**25.5**	**26.00**	98	**77**	**124**	*****	*
49)	2,2,4-Trimethylpentane (Isooctane)	14.06	25.8	26.50	97	65	120	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **06112119.D** **TO15.M**
Data File Path: **I:\MS13\DATA\2021_06\11** Sample Name: **25ng R13061121 ICV Std**
Operator: **WA** Misc Info: **S34-06112101/S34-05192101 (**
Date Acquired: **6/11/2021 16:38** 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**	**14.21**	**60.8**	**52.00**	117	**78**	**126**	*	*
51)	**n-Heptane**	**14.33**	**25.9**	**26.25**	99	**70**	**119**	*	*
52)	**cis-1,3-Dichloropropene**	**14.86**	**28.5**	**26.25**	109	**81**	**126**	*	*
53)	**4-Methyl-2-pentanone**	**14.90**	**53.9**	**52.00**	104	**73**	**129**	*	*
54)	**trans-1,3-Dichloropropene**	**15.38**	**27.1**	**25.25**	107	**80**	**127**	*	*
55)	**1,1,2-Trichloroethane**	**15.55**	**26.1**	**25.75**	101	**78**	**117**	*	*
58)	**Toluene**	**15.84**	**25.3**	**25.75**	98	**70**	**118**	*	*
59)	**2-Hexanone**	**16.09**	**57.4**	**50.50**	114	**74**	**132**	*	*
60)	**Dibromochloromethane**	**16.25**	**28.0**	**26.25**	107	**69**	**137**	*	*
61)	**1,2-Dibromoethane**	**16.51**	**28.8**	**26.00**	111	**76**	**128**	*	*
62)	**n-Butyl Acetate**	**16.73**	**59.2**	**50.75**	117	**75**	**134**	*	*
63)	**n-Octane**	**16.85**	**26.1**	**26.25**	99	**68**	**120**	*	*
64)	**Tetrachloroethene**	**16.99**	**25.9**	**25.75**	101	**63**	**130**	*	*
65)	**Chlorobenzene**	**17.65**	**25.1**	**25.75**	97	**70**	**118**	*	*
66)	**Ethylbenzene**	**18.01**	**27.2**	**25.75**	106	**71**	**123**	*	*
67)	**m- & p-Xylenes**	**18.17**	**55.9**	**51.50**	109	**67**	**127**	*	*
68)	**Bromoform**	**18.23**	**29.9**	**26.00**	115	**65**	**149**	*	*
69)	**Styrene**	**18.50**	**28.6**	**25.75**	111	**76**	**132**	*	*
70)	**o-Xylene**	**18.60**	**27.9**	**25.75**	108	**69**	**124**	*	*
71)	**n-Nonane**	**18.80**	**27.7**	**26.00**	107	**64**	**127**	*	*
72)	**1,1,2,2-Tetrachloroethane**	**18.58**	**27.5**	**25.75**	107	**69**	**128**	*	*
74)	**Cumene**	**19.13**	**27.8**	**26.00**	107	**69**	**125**	*	*
75)	**alpha-Pinene**	**19.48**	**29.2**	**26.75**	109	**68**	**129**	*	*
76)	**n-Propylbenzene**	**19.58**	**29.4**	**26.00**	113	**70**	**127**	*	*
78)	**4-Ethyltoluene**	**19.70**	**31.3**	**26.25**	**119**	**69**	**127**	*	*
79)	**1,3,5-Trimethylbenzene**	**19.77**	**28.1**	**25.75**	**109**	**66**	**129**	*	*
82)	**1,2,4-Trimethylbenzene**	**20.14**	**31.7**	**25.50**	**124**	**63**	**142**	*	*
84)	**Benzyl Chloride**	**20.25**	**64.6**	**50.25**	**129**	**73**	**145**	*	*
85)	**1,3-Dichlorobenzene**	**20.27**	**28.2**	**25.75**	**110**	**67**	**136**	*	*
86)	**1,4-Dichlorobenzene**	**20.33**	**28.4**	**25.50**	**111**	**63**	**134**	*	*
87)	sec-Butylbenzene	20.37	29.9	25.75	**116**	68	130	*	*
88)	4-Isopropyltoluene (p-Cymene)	20.51	30.8	25.75	**120**	60	139	*	*
90)	**1,2-Dichlorobenzene**	**20.63**	**30.4**	**25.75**	**118**	**64**	**139**	*	*
91)	**d-Limonene**	**20.64**	**29.9**	**26.00**	**115**	**63**	**137**	*	*
92)	**1,2-Dibromo-3-Chloropropane**	**21.01**	**54.1**	**46.25**	**117**	**72**	**145**	*	*
94)	**1,2,4-Trichlorobenzene**	**22.14**	**53.0**	**48.50**	**109**	**62**	**154**	*	*
95)	**Naphthalene**	**22.24**	**26.6**	**24.75**	**107**	**62**	**156**	*	*
97)	**Hexachlorobutadiene**	**22.56**	**28.2**	**26.25**	**107**	55	142	*	*
99)	tert-Butylbenzene	20.14	30.9	25.75	120	61	140	*	*
100)	n-Butylbenzene	20.88	31.2	25.75	121	70	131	*	*
101)	1,1,1,2-Tetrachloroethane	17.63	26.3	25.75	102	70	130	*	*

Bold = 75 Compound List
*** = Pass**

Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2021_06\24\06242102.D Vial: 1
Acq On : 24 Jun 2021 1:40 Operator: WA
Sample : CCV R13062421_5ng Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 24 03:10:08 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
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)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	94	-0.02
2	T	Propene	2.327	1.924	17.3	79	0.00
3	T	Dichlorodifluoromethane (CF	2.936	2.707	7.8	90	0.00
4	T	Chloromethane	2.574	2.460	4.4	108	0.00
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.460	1.389	4.9	93	0.00
6	T	Vinyl Chloride	2.678	2.549	4.8	88	-0.01
7	T	1,3-Butadiene	2.131	1.948	8.6	84	-0.01
8	T	Bromomethane	1.168	1.083	7.3	90	-0.02
9	T	Chloroethane	1.083	0.993	8.3	87	-0.02
10	T	Ethanol	1.412	1.179	16.5	83	-0.06
11	T	Acetonitrile	3.553	3.065	13.7	79	-0.03
12	T	Acrolein	1.038	0.956	7.9	84	-0.02
13	T	Acetone	1.295	1.137	12.2	86	-0.03
14	T	Trichlorofluoromethane	2.636	2.366	10.2	88	-0.01
15	T	2-Propanol (Isopropanol)	4.708	4.694	0.3	89	-0.03
16	T	Acrylonitrile	2.168	2.040	5.9	82	-0.03
17	T	1,1-Dichloroethene	1.267	1.182	6.7	88	-0.02
18	T	2-Methyl-2-Propanol (tert-B	3.140	3.958	-26.1	129	-0.02
19	T	Methylene Chloride	1.375	1.246	9.4	87	-0.03
20	T	3-Chloro-1-propene (Allyl C	3.098	2.428	21.6	83	-0.02
21	T	Trichlorotrifluoroethane	1.016	0.936	7.9	87	-0.01
22	T	Carbon Disulfide	5.225	4.444	14.9	87	-0.02
23	T	trans-1,2-Dichloroethene	2.072	1.933	6.7	86	-0.02
24	T	1,1-Dichloroethane	2.626	2.394	8.8	85	-0.02
25	T	Methyl tert-Butyl Ether	3.466	3.821	-10.2	101	0.00
26	T	Vinyl Acetate	0.321	0.268	16.5	88	-0.02
27	T	2-Butanone (MEK)	0.940	0.855	9.0	87	0.00
28	T	cis-1,2-Dichloroethene	2.098	1.930	8.0	86	-0.02
29	T	Diisopropyl Ether	1.290	1.173	9.1	88	0.00
30	T	Ethyl Acetate	0.914	0.747	18.3	85	0.00
31	T	n-Hexane	3.028	2.595	14.3	85	-0.01
32	T	Chloroform	2.514	2.320	7.7	88	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	2.068	1.988	3.9	94	-0.02
34	T	Tetrahydrofuran (THF)	0.928	0.798	14.0	83	0.01
35	T	Ethyl tert-Butyl Ether	1.706	1.549	9.2	89	0.00
36	T	1,2-Dichloroethane	2.148	1.967	8.4	85	0.00
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	90	-0.01
38	T	1,1,1-Trichloroethane	0.485	0.458	5.6	88	-0.01
39	T	Isopropyl Acetate	0.000	0.000	0.0	0#	0.00
40	T	1-Butanol	0.000	0.000	0.0	0#	0.20
41	T	Benzene	1.176	1.114	5.3	88	0.00
42	T	Carbon Tetrachloride	0.435	0.405	6.9	89	-0.01
43	T	Cyclohexane	0.439	0.405	7.7	87	0.00
44	T	tert-Amyl Methyl Ether	0.869	0.828	4.7	89	0.00
45	T	1,2-Dichloropropane	0.332	0.308	7.2	86	0.00
46	T	Bromodichloromethane	0.421	0.399	5.2	86	0.00
47	T	Trichloroethene	0.300	0.288	4.0	89	0.00
48	T	1,4-Dioxane	0.238	0.221	7.1	88	0.01
49	T	2,2,4-Trimethylpentane (Iso	1.499	1.358	9.4	83	0.00
50	T	Methyl Methacrylate	0.102	0.104	-2.0	89	0.00
51	T	n-Heptane	0.315	0.289	8.3	86	-0.01
52	T	cis-1,3-Dichloropropene	0.446	0.443	0.7	87	0.00
53	T	4-Methyl-2-pentanone	0.340	0.302	11.2	85	0.00
54	T	trans-1,3-Dichloropropene	0.434	0.418	3.7	87	0.00
55	T	1,1,2-Trichloroethane	0.272	0.264	2.9	87	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2021_06\24\06242102.D Vial: 1
Acq On : 24 Jun 2021 1:40 Operator: WA
Sample : CCV R13062421_5ng Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 24 03:10:08 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
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	91	0.00
57	S	Toluene-d8 (SS2)	4.494	4.555	-1.4	91	0.00
58	T	Toluene	4.563	4.286	6.1	87	0.00
59	T	2-Hexanone	3.424	3.246	5.2	81	0.00
60	T	Dibromochloromethane	1.243	1.219	1.9	87	0.00
61	T	1,2-Dibromoethane	1.108	1.154	-4.2	87	0.00
62	T	n-Butyl Acetate	3.636	3.614	0.6	83	0.00
63	T	n-Octane	1.224	1.102	10.0	84	0.00
64	T	Tetrachloroethene	1.166	1.121	3.9	91	0.00
65	T	Chlorobenzene	3.083	2.770	10.2	87	0.00
66	T	Ethylbenzene	5.009	4.910	2.0	87	0.00
67	T	m- & p-Xylenes	4.049	3.962	2.1	90	-0.01
68	T	Bromoform	0.997	1.022	-2.5	89	0.00
69	T	Styrene	2.892	2.804	3.0	88	0.00
70	T	o-Xylene	4.111	3.954	3.8	87	0.00
71	T	n-Nonane	3.190	2.893	9.3	81	0.00
72	T	1,1,2,2-Tetrachloroethane	2.001	1.865	6.8	85	0.00
73	S	Bromofluorobenzene (SS3)	1.279	1.422	-11.2	98	0.00
74	T	Cumene	5.027	4.901	2.5	88	0.00
75	T	alpha-Pinene	2.570	2.379	7.4	86	0.00
76	T	n-Propylbenzene	5.958	6.018	-1.0	87	0.00
77	T	3-Ethyltoluene	0.000	0.000	0.0	0#	0.00
78	T	4-Ethyltoluene	4.556	4.780	-4.9	88	0.00
79	T	1,3,5-Trimethylbenzene	4.242	4.104	3.3	88	0.00
80	T	alpha-Methylstyrene	0.000	0.000	0.0	0#	0.00
81	T	2-Ethyltoluene	0.000	0.000	0.0	0#	0.00
82	T	1,2,4-Trimethylbenzene	4.287	4.340	-1.2	89	0.00
83	T	n-Decane	0.000	0.000	0.0	0#	0.00
84	T	Benzyl Chloride	3.708	3.659	1.3	87	0.00
85	T	1,3-Dichlorobenzene	2.514	2.322	7.6	88	0.00
86	T	1,4-Dichlorobenzene	2.349	2.388	-1.7	89	0.00
87	T	sec-Butylbenzene	5.519	5.577	-1.1	87	0.00
88	T	4-Isopropyltoluene (p-Cymen	4.492	4.641	-3.3	89	0.00
89	T	1,2,3-Trimethylbenzene	0.000	0.000	0.0	0#	0.00
90	T	1,2-Dichlorobenzene	2.260	2.268	-0.4	88	0.00
91	T	d-Limonene	1.936	1.641	15.2	86	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.960	0.896	6.7	87	0.00
93	T	n-Undecane	0.000	0.000	0.0	0#	-21.33#
94	T	1,2,4-Trichlorobenzene	1.846	1.717	7.0	96	0.00
95	T	Naphthalene	5.349	5.217	2.5	96	0.00
96	T	n-Dodecane	0.000	0.000	0.0	0#	0.00
97	T	Hexachlorobutadiene	1.103	1.022	7.3	87	0.00
98	T	Cyclohexanone	0.000	0.000	0.0	0#	0.00
99	T	tert-Butylbenzene	4.084	3.990	2.3	88	0.00
100	T	n-Butylbenzene	4.344	4.611	-6.1	87	0.00
101	T	1,1,1,2-Tetrachloroethane	1.156	1.098	5.0	90	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242102.D Vial: 1
Acq On : 24 Jun 2021 1:40 Operator: WA
Sample : CCV R13062421_5ng Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 24 03:10:08 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	139432	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	632013	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.61	54	164154	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.03	65	277258	12.020	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.16%				
57) Toluene-d8 (SS2)	15.74	98	747800	12.670	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.36%				
73) Bromofluorobenzene (SS3)	19.00	174	233375	13.897	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.20%				
Target Compounds							Qvalue
2) Propene	4.16	42	111626	4.300	ng		99
3) Dichlorodifluoromethan...	4.31	85	157036	4.795	ng		100
4) Chloromethane	4.59	50	142687	4.969	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	80561	4.947	ng		99
6) Vinyl Chloride	5.00	62	149244	4.997	ng		99
7) 1,3-Butadiene	5.27	54	112985	4.754	ng		98
8) Bromomethane	5.70	94	62840	4.823	ng		100
9) Chloroethane	6.03	64	57616	4.769	ng		98
10) Ethanol	6.39	45	347119	22.046	ng		99
11) Acetonitrile	6.65	41	181199	4.572	ng		100
12) Acrolein	6.84	56	116295	10.043	ng		99
13) Acetone	7.04	58	327287	22.651	ng		95
14) Trichlorofluoromethane	7.29	101	134589	4.578	ng		99
15) 2-Propanol (Isopropanol)	7.54	45	536629	10.218	ng		100
16) Acrylonitrile	7.79	53	233201	9.645	ng		100
17) 1,1-Dichloroethene	8.24	96	68552	4.852	ng		96
18) 2-Methyl-2-Propanol (t...	8.41	59	456925	13.047	ng		98
19) Methylene Chloride	8.46	84	72289	4.712	ng		94
20) 3-Chloro-1-propene (Al...	8.62	41	140860	4.076	ng		98
21) Trichlorotrifluoroethane	8.87	151	54810	4.835	ng		100
22) Carbon Disulfide	8.72	76	515547	8.846	ng		100
23) trans-1,2-Dichloroethene	9.73	61	113218	4.899	ng		99
24) 1,1-Dichloroethane	9.98	63	142847	4.877	ng		100
25) Methyl tert-Butyl Ether	10.10	73	219485	5.677	ng		99
26) Vinyl Acetate	10.24	86	81949	22.916	ng	#	96
27) 2-Butanone (MEK)	10.49	72	98267	9.376	ng	#	89
28) cis-1,2-Dichloroethene	11.00	61	111973	4.785	ng		97
29) Diisopropyl Ether	11.30	87	136714	9.503	ng	#	93
30) Ethyl Acetate	11.31	61	86647	8.497	ng		97
31) n-Hexane	11.28	57	150493	4.455	ng		99
32) Chloroform	11.34	83	135860	4.845	ng		99
34) Tetrahydrofuran (THF)	11.76	72	90775	8.773	ng	#	92
35) Ethyl tert-Butyl Ether	11.89	87	179742	9.443	ng		97
36) 1,2-Dichloroethane	12.15	62	114083	4.761	ng		99
38) 1,1,1-Trichloroethane	12.42	97	119283	4.860	ng		99
39) Isopropyl Acetate	12.91	61	3393	No Calib		#	
40) 1-Butanol	13.19	56	239926	No Calib			
41) Benzene	12.90	78	292951	4.925	ng		100
42) Carbon Tetrachloride	13.06	117	104367	4.750	ng		100
43) Cyclohexane	13.19	84	212017	9.552	ng		95
44) tert-Amyl Methyl Ether	13.54	73	433327	9.866	ng		98
45) 1,2-Dichloropropane	13.75	63	80981	4.819	ng		100
46) Bromodichloromethane	13.94	83	105017	4.939	ng		100
47) Trichloroethene	13.99	130	74384	4.908	ng		99
48) 1,4-Dioxane	13.99	88	57675	4.790	ng		90
49) 2,2,4-Trimethylpentane...	14.06	57	360393	4.756	ng		99
50) Methyl Methacrylate	14.21	100	54921	10.665	ng		96

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242102.D Vial: 1
Acq On : 24 Jun 2021 1:40 Operator: WA
Sample : CCV R13062421_5ng Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 24 03:10:08 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

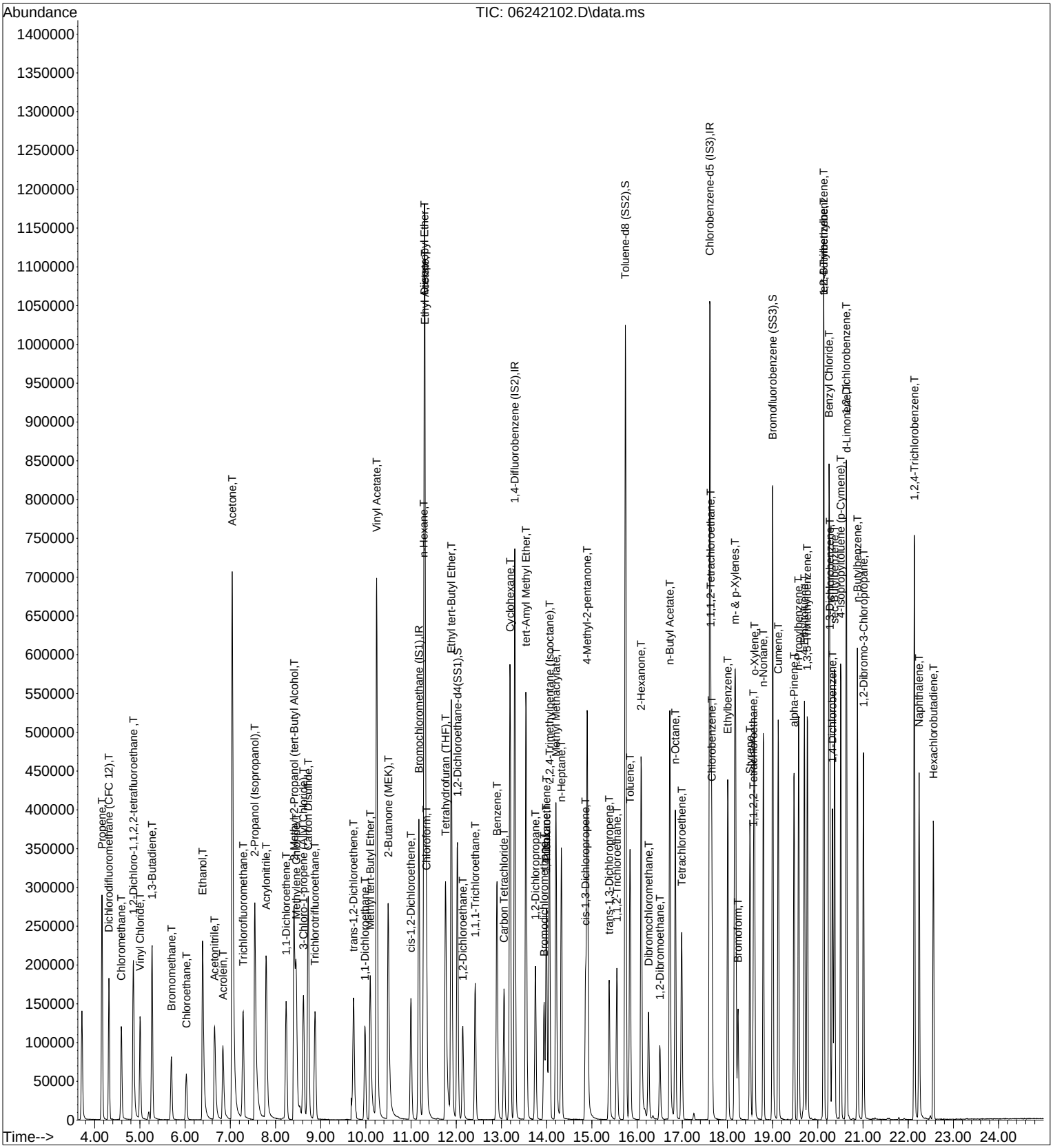
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.32	71	75319	4.724	ng		97
52) cis-1,3-Dichloropropene	14.86	75	117599	5.212	ng		99
53) 4-Methyl-2-pentanone	14.89	58	158876	9.244	ng		98
54) trans-1,3-Dichloropropene	15.38	75	107672	4.902	ng		100
55) 1,1,2-Trichloroethane	15.55	97	69297	5.047	ng		98
58) Toluene	15.84	91	292707	4.885	ng		100
59) 2-Hexanone	16.09	43	439112	9.766	ng		100
60) Dibromochloromethane	16.25	129	83268	5.099	ng		99
61) 1,2-Dibromoethane	16.50	107	78789	5.416	ng		100
62) n-Butyl Acetate	16.73	43	491218	10.287	ng		99
63) n-Octane	16.85	57	75282	4.683	ng		97
64) Tetrachloroethene	16.99	166	76540	4.999	ng		100
65) Chlorobenzene	17.65	112	187328	4.626	ng		99
66) Ethylbenzene	18.01	91	335289	5.097	ng		100
67) m- & p-Xylenes	18.17	91	543718	10.225	ng		98
68) Bromoform	18.23	173	71145	5.437	ng		99
69) Styrene	18.50	104	189646	4.993	ng		98
70) o-Xylene	18.60	91	272596	5.049	ng		100
71) n-Nonane	18.79	43	199465	4.762	ng		99
72) 1,1,2,2-Tetrachloroethane	18.58	83	128606	4.894	ng		100
74) Cumene	19.12	105	334675	5.069	ng		100
75) alpha-Pinene	19.48	93	165611	4.907	ng		98
76) n-Propylbenzene	19.57	91	410947	5.252	ng		99
77) 3-Ethyltoluene	19.70	105	329588	No Calib			
78) 4-Ethyltoluene	19.70	105	329588	5.509	ng		99
79) 1,3,5-Trimethylbenzene	19.77	105	282978	5.080	ng		100
80) alpha-Methylstyrene	19.70	118	2086	No Calib		#	
81) 2-Ethyltoluene	19.77	105	282978	No Calib			
82) 1,2,4-Trimethylbenzene	20.13	105	293516	5.213	ng		100
83) n-Decane	20.13	58	16584	No Calib		#	
84) Benzyl Chloride	20.25	91	504507	10.360	ng		100
85) 1,3-Dichlorobenzene	20.27	146	160062	4.848	ng		100
86) 1,4-Dichlorobenzene	20.32	146	163087	5.288	ng		99
87) sec-Butylbenzene	20.37	105	377193	5.205	ng		100
88) 4-Isopropyltoluene (p-...	20.51	119	310858	5.270	ng		99
89) 1,2,3-Trimethylbenzene	20.37	105	377193	No Calib			
90) 1,2-Dichlorobenzene	20.63	146	156397	5.269	ng		99
91) d-Limonene	20.64	68	111014	4.367	ng		96
92) 1,2-Dibromo-3-Chloropr...	21.01	157	117644	9.328	ng		96
93) n-Undecane	0.00	57	0	N.D.			
94) 1,2,4-Trichlorobenzene	22.14	180	225478	9.302	ng		100
95) Naphthalene	22.24	128	352852	5.023	ng		99
96) n-Dodecane	22.24	57	286	No Calib		#	
97) Hexachlorobutadiene	22.56	225	69092	4.770	ng		100
98) Cyclohexanone	18.17	55	369	No Calib		#	
99) tert-Butylbenzene	20.13	119	272456	5.080	ng		99
100) n-Butylbenzene	20.88	91	311868	5.467	ng		98
101) 1,1,1,2-Tetrachloroethane	17.63	131	74281	4.892	ng		99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242102.D Vial: 1
Acq On : 24 Jun 2021 1:40 Operator: WA
Sample : CCV R13062421_5ng Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 24 03:10:08 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2021_06\24\06242129.D Vial: 1
Acq On : 24 Jun 2021 20:34 Operator: WA
Sample : CCV2 R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 25 04:19:15 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
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)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	80	-0.02
2	T	Propene	2.327	2.061	11.4	72	0.00
3	T	Dichlorodifluoromethane (CF	2.936	2.773	5.6	78	0.00
4	T	Chloromethane	2.574	2.409	6.4	90	0.00
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.460	1.393	4.6	79	0.00
6	T	Vinyl Chloride	2.678	2.643	1.3	77	-0.01
7	T	1,3-Butadiene	2.131	2.057	3.5	75	-0.01
8	T	Bromomethane	1.168	1.095	6.2	77	-0.02
9	T	Chloroethane	1.083	1.002	7.5	74	-0.02
10	T	Ethanol	1.412	1.255	11.1	75	-0.06
11	T	Acetonitrile	3.553	3.282	7.6	72	-0.03
12	T	Acrolein	1.038	0.995	4.1	74	-0.02
13	T	Acetone	1.295	1.189	8.2	76	-0.03
14	T	Trichlorofluoromethane	2.636	2.379	9.7	75	-0.01
15	T	2-Propanol (Isopropanol)	4.708	4.947	-5.1	80	-0.03
16	T	Acrylonitrile	2.168	2.139	1.3	73	-0.03
17	T	1,1-Dichloroethene	1.267	1.181	6.8	74	-0.02
18	T	2-Methyl-2-Propanol (tert-B	3.140	4.086	-30.1#	112	-0.02
19	T	Methylene Chloride	1.375	1.273	7.4	75	-0.03
20	T	3-Chloro-1-propene (Allyl C	3.098	2.535	18.2	73	-0.02
21	T	Trichlorotrifluoroethane	1.016	0.921	9.4	72	0.00
22	T	Carbon Disulfide	5.225	4.554	12.8	75	-0.02
23	T	trans-1,2-Dichloroethene	2.072	1.994	3.8	75	-0.02
24	T	1,1-Dichloroethane	2.626	2.471	5.9	74	-0.02
25	T	Methyl tert-Butyl Ether	3.466	3.782	-9.1	85	0.00
26	T	Vinyl Acetate	0.321	0.272	15.3	75	-0.02
27	T	2-Butanone (MEK)	0.940	0.864	8.1	74	0.00
28	T	cis-1,2-Dichloroethene	2.098	1.969	6.1	74	-0.02
29	T	Diisopropyl Ether	1.290	1.191	7.7	76	0.00
30	T	Ethyl Acetate	0.914	0.777	15.0	74	0.00
31	T	n-Hexane	3.028	2.701	10.8	74	-0.01
32	T	Chloroform	2.514	2.365	5.9	76	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	2.068	2.066	0.1	82	-0.02
34	T	Tetrahydrofuran (THF)	0.928	0.858	7.5	76	0.01
35	T	Ethyl tert-Butyl Ether	1.706	1.568	8.1	76	0.00
36	T	1,2-Dichloroethane	2.148	2.004	6.7	73	0.00
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	78	-0.01
38	T	1,1,1-Trichloroethane	0.485	0.449	7.4	75	-0.01
39	T	Isopropyl Acetate	0.000	0.000	0.0	0#	0.00
40	T	1-Butanol	0.000	0.000	0.0	0#	0.21
41	T	Benzene	1.176	1.107	5.9	76	0.00
42	T	Carbon Tetrachloride	0.435	0.397	8.7	75	-0.01
43	T	Cyclohexane	0.439	0.397	9.6	74	0.00
44	T	tert-Amyl Methyl Ether	0.869	0.820	5.6	76	0.00
45	T	1,2-Dichloropropane	0.332	0.311	6.3	75	0.00
46	T	Bromodichloromethane	0.421	0.400	5.0	74	0.00
47	T	Trichloroethene	0.300	0.281	6.3	75	0.00
48	T	1,4-Dioxane	0.238	0.217	8.8	75	0.01
49	T	2,2,4-Trimethylpentane (Iso	1.499	1.378	8.1	73	0.00
50	T	Methyl Methacrylate	0.102	0.103	-1.0	76	0.00
51	T	n-Heptane	0.315	0.289	8.3	74	-0.01
52	T	cis-1,3-Dichloropropene	0.446	0.437	2.0	74	0.00
53	T	4-Methyl-2-pentanone	0.340	0.305	10.3	74	0.00
54	T	trans-1,3-Dichloropropene	0.434	0.415	4.4	74	0.00
55	T	1,1,2-Trichloroethane	0.272	0.259	4.8	74	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2021_06\24\06242129.D Vial: 1
Acq On : 24 Jun 2021 20:34 Operator: WA
Sample : CCV2 R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 25 04:19:15 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
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	79	0.00
57	S	Toluene-d8 (SS2)	4.494	4.616	-2.7	79	0.00
58	T	Toluene	4.563	4.272	6.4	75	0.00
59	T	2-Hexanone	3.424	3.390	1.0	73	0.00
60	T	Dibromochloromethane	1.243	1.206	3.0	75	0.00
61	T	1,2-Dibromoethane	1.108	1.135	-2.4	74	0.00
62	T	n-Butyl Acetate	3.636	3.769	-3.7	74	0.00
63	T	n-Octane	1.224	1.114	9.0	73	0.00
64	T	Tetrachloroethene	1.166	1.066	8.6	74	0.00
65	T	Chlorobenzene	3.083	2.756	10.6	75	0.00
66	T	Ethylbenzene	5.009	4.847	3.2	74	0.00
67	T	m- & p-Xylenes	4.049	3.926	3.0	77	0.00
68	T	Bromoform	0.997	0.973	2.4	73	0.00
69	T	Styrene	2.892	2.754	4.8	75	0.00
70	T	o-Xylene	4.111	3.900	5.1	74	0.00
71	T	n-Nonane	3.190	3.015	5.5	73	0.00
72	T	1,1,2,2-Tetrachloroethane	2.001	1.889	5.6	74	0.00
73	S	Bromofluorobenzene (SS3)	1.279	1.333	-4.2	79	0.00
74	T	Cumene	5.027	4.814	4.2	75	0.00
75	T	alpha-Pinene	2.570	2.353	8.4	73	0.00
76	T	n-Propylbenzene	5.958	5.977	-0.3	74	0.00
77	T	3-Ethyltoluene	0.000	0.000	0.0	0#	0.00
78	T	4-Ethyltoluene	4.556	4.688	-2.9	74	0.00
79	T	1,3,5-Trimethylbenzene	4.242	4.054	4.4	75	0.00
80	T	alpha-Methylstyrene	0.000	0.000	0.0	0#	0.00
81	T	2-Ethyltoluene	0.000	0.000	0.0	0#	0.00
82	T	1,2,4-Trimethylbenzene	4.287	4.257	0.7	76	0.00
83	T	n-Decane	0.000	0.000	0.0	0#	0.00
84	T	Benzyl Chloride	3.708	3.630	2.1	74	0.00
85	T	1,3-Dichlorobenzene	2.514	2.267	9.8	75	0.00
86	T	1,4-Dichlorobenzene	2.349	2.311	1.6	75	0.00
87	T	sec-Butylbenzene	5.519	5.497	0.4	74	0.00
88	T	4-Isopropyltoluene (p-Cymen	4.492	4.585	-2.1	76	0.00
89	T	1,2,3-Trimethylbenzene	0.000	0.000	0.0	0#	0.00
90	T	1,2-Dichlorobenzene	2.260	2.191	3.1	73	0.00
91	T	d-Limonene	1.936	1.648	14.9	74	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.960	0.866	9.8	73	0.00
93	T	n-Undecane	0.000	0.000	0.0	0#	-21.33#
94	T	1,2,4-Trichlorobenzene	1.846	1.627	11.9	78	0.00
95	T	Naphthalene	5.349	5.015	6.2	80	0.00
96	T	n-Dodecane	0.000	0.000	0.0	0#	0.00
97	T	Hexachlorobutadiene	1.103	0.964	12.6	71	0.00
98	T	Cyclohexanone	0.000	0.000	0.0	0#	0.00
99	T	tert-Butylbenzene	4.084	3.941	3.5	75	0.00
100	T	n-Butylbenzene	4.344	4.585	-5.5	75	0.00
101	T	1,1,1,2-Tetrachloroethane	1.156	1.082	6.4	77	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242129.D Vial: 1
Acq On : 24 Jun 2021 20:34 Operator: WA
Sample : CCV2 R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 25 04:19:15 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	117759	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	546863	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.61	54	141801	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.03	65	243267	12.487	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.92%				
57) Toluene-d8 (SS2)	15.74	98	654569	12.839	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.72%				
73) Bromofluorobenzene (SS3)	19.00	174	188993	13.028	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.24%				
Target Compounds							Qvalue
2) Propene	4.16	42	100984	4.606	ng		100
3) Dichlorodifluoromethan...	4.31	85	135847	4.911	ng		99
4) Chloromethane	4.59	50	117996	4.866	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	68223	4.961	ng		99
6) Vinyl Chloride	5.00	62	130696	5.181	ng		99
7) 1,3-Butadiene	5.27	54	100768	5.020	ng		99
8) Bromomethane	5.70	94	53630	4.873	ng		100
9) Chloroethane	6.03	64	49066	4.809	ng		100
10) Ethanol	6.39	45	312048	23.466	ng		99
11) Acetonitrile	6.65	41	163876	4.896	ng		100
12) Acrolein	6.84	56	102124	10.442	ng		100
13) Acetone	7.05	58	289050	23.687	ng		93
14) Trichlorofluoromethane	7.29	101	114324	4.604	ng		99
15) 2-Propanol (Isopropanol)	7.55	45	477704	10.770	ng		100
16) Acrylonitrile	7.80	53	206506	10.113	ng		100
17) 1,1-Dichloroethene	8.24	96	57845	4.847	ng		98
18) 2-Methyl-2-Propanol (t...	8.41	59	398371	13.469	ng		99
19) Methylene Chloride	8.46	84	62362	4.813	ng		99
20) 3-Chloro-1-propene (Al...	8.62	41	124172	4.255	ng		99
21) Trichlorotrifluoroethane	8.88	151	45550	4.757	ng		98
22) Carbon Disulfide	8.73	76	446165	9.064	ng		100
23) trans-1,2-Dichloroethene	9.73	61	98613	5.053	ng		99
24) 1,1-Dichloroethane	9.98	63	124519	5.033	ng		100
25) Methyl tert-Butyl Ether	10.10	73	183501	5.620	ng		100
26) Vinyl Acetate	10.24	86	70252	23.261	ng	#	83
27) 2-Butanone (MEK)	10.49	72	83845	9.472	ng		99
28) cis-1,2-Dichloroethene	11.00	61	96448	4.880	ng		99
29) Diisopropyl Ether	11.30	87	117278	9.653	ng	#	96
30) Ethyl Acetate	11.31	61	76117	8.838	ng		99
31) n-Hexane	11.28	57	132340	4.639	ng		98
32) Chloroform	11.34	83	116977	4.939	ng		99
34) Tetrahydrofuran (THF)	11.76	72	82487	9.440	ng		93
35) Ethyl tert-Butyl Ether	11.89	87	153602	9.555	ng		98
36) 1,2-Dichloroethane	12.15	62	98183	4.851	ng		99
38) 1,1,1-Trichloroethane	12.42	97	101111	4.761	ng		99
39) Isopropyl Acetate	12.90	61	2807	No Calib		#	
40) 1-Butanol	13.19	56	203055	No Calib			
41) Benzene	12.90	78	251897	4.894	ng		99
42) Carbon Tetrachloride	13.06	117	88496	4.655	ng		99
43) Cyclohexane	13.19	84	179842	9.364	ng		97
44) tert-Amyl Methyl Ether	13.54	73	371519	9.775	ng		99
45) 1,2-Dichloropropane	13.76	63	70713	4.863	ng		100
46) Bromodichloromethane	13.94	83	90942	4.943	ng		99
47) Trichloroethene	13.99	130	62699	4.782	ng		100
48) 1,4-Dioxane	13.99	88	48957	4.699	ng		95
49) 2,2,4-Trimethylpentane...	14.06	57	316541	4.828	ng		99
50) Methyl Methacrylate	14.21	100	46691	10.478	ng		98

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242129.D Vial: 1
Acq On : 24 Jun 2021 20:34 Operator: WA
Sample : CCV2 R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 25 04:19:15 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

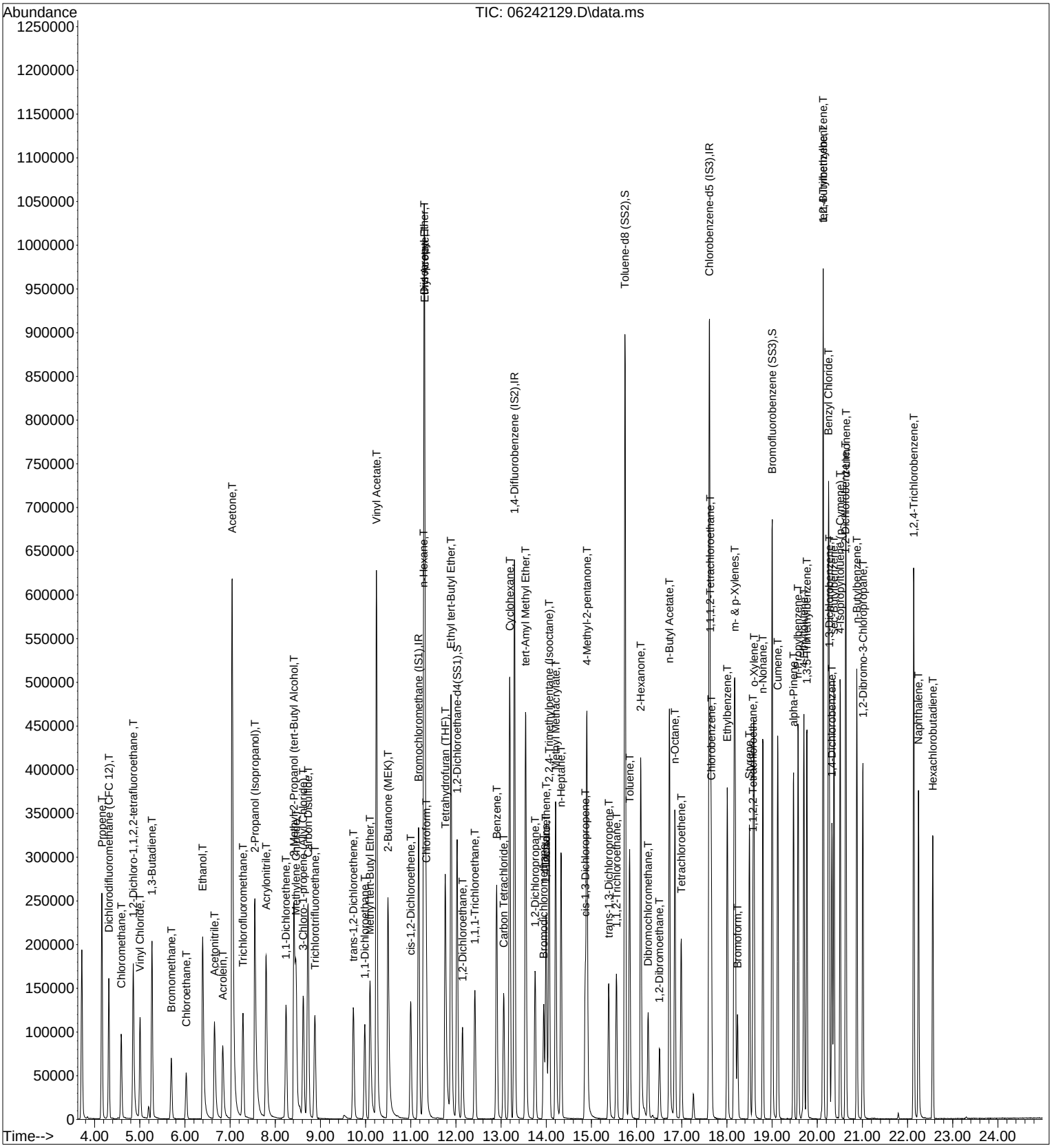
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.32	71	65167	4.724	ng		99
52) cis-1,3-Dichloropropene	14.87	75	100460	5.146	ng		100
53) 4-Methyl-2-pentanone	14.90	58	138941	9.343	ng		96
54) trans-1,3-Dichloropropene	15.38	75	92501	4.867	ng		99
55) 1,1,2-Trichloroethane	15.55	97	58997	4.966	ng		99
58) Toluene	15.84	91	252003	4.868	ng		99
59) 2-Hexanone	16.09	43	396150	10.199	ng		99
60) Dibromochloromethane	16.25	129	71159	5.045	ng		100
61) 1,2-Dibromoethane	16.50	107	66969	5.329	ng		100
62) n-Butyl Acetate	16.73	43	442521	10.728	ng		98
63) n-Octane	16.85	57	65725	4.733	ng		99
64) Tetrachloroethene	16.99	166	62893	4.755	ng		99
65) Chlorobenzene	17.65	112	161006	4.603	ng		99
66) Ethylbenzene	18.01	91	285916	5.032	ng		100
67) m- & p-Xylenes	18.17	91	465414	10.132	ng		98
68) Bromoform	18.23	173	58512	5.176	ng		100
69) Styrene	18.50	104	160893	4.904	ng		99
70) o-Xylene	18.60	91	232254	4.980	ng		100
71) n-Nonane	18.79	43	179547	4.962	ng		99
72) 1,1,2,2-Tetrachloroethane	18.58	83	112493	4.956	ng		99
74) Cumene	19.12	105	283959	4.979	ng		100
75) alpha-Pinene	19.48	93	141461	4.852	ng		100
76) n-Propylbenzene	19.57	91	352553	5.216	ng		99
77) 3-Ethyltoluene	19.70	105	279184	No Calib			
78) 4-Ethyltoluene	19.70	105	279184	5.402	ng		100
79) 1,3,5-Trimethylbenzene	19.77	105	241418	5.017	ng		99
80) alpha-Methylstyrene	19.71	118	1732	No Calib		#	
81) 2-Ethyltoluene	19.77	105	241418	No Calib			
82) 1,2,4-Trimethylbenzene	20.13	105	248690	5.113	ng		100
83) n-Decane	20.13	58	14842	No Calib		#	
84) Benzyl Chloride	20.25	91	432421	10.280	ng		99
85) 1,3-Dichlorobenzene	20.27	146	135021	4.734	ng		100
86) 1,4-Dichlorobenzene	20.32	146	136336	5.117	ng		98
87) sec-Butylbenzene	20.37	105	321163	5.130	ng		100
88) 4-Isopropyltoluene (p-...	20.51	119	265267	5.206	ng		99
89) 1,2,3-Trimethylbenzene	20.37	105	321163	No Calib			
90) 1,2-Dichlorobenzene	20.62	146	130494	5.090	ng		99
91) d-Limonene	20.64	68	96297	4.385	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.01	157	98216	9.015	ng		96
93) n-Undecane	0.00	57	0	N.D.			
94) 1,2,4-Trichlorobenzene	22.14	180	184577	8.815	ng		99
95) Naphthalene	22.24	128	293003	4.829	ng		99
96) n-Dodecane	22.24	57	181	No Calib		#	
97) Hexachlorobutadiene	22.56	225	56332	4.502	ng		99
98) Cyclohexanone	18.17	55	156	No Calib		#	
99) tert-Butylbenzene	20.13	119	232502	5.019	ng		100
100) n-Butylbenzene	20.88	91	267857	5.436	ng		99
101) 1,1,1,2-Tetrachloroethane	17.63	131	63206	4.819	ng		98

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\24\06242129.D Vial: 1
Acq On : 24 Jun 2021 20:34 Operator: WA
Sample : CCV2 R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06072102 (7/6)

Quant Time: Jun 25 04:19:15 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2021_06\25\06252102.D Vial: 1
Acq On : 25 Jun 2021 2:11 Operator: WA
Sample : CCV R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06142101 (7/14)

Quant Time: Jun 25 04:19:30 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
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)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	87	-0.02
2	T	Propene	2.327	1.982	14.8	75	0.00
3	T	Dichlorodifluoromethane (CF	2.936	2.752	6.3	84	0.00
4	T	Chloromethane	2.574	2.499	2.9	102	0.00
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.460	1.427	2.3	88	0.00
6	T	Vinyl Chloride	2.678	2.612	2.5	84	-0.01
7	T	1,3-Butadiene	2.131	2.006	5.9	80	-0.02
8	T	Bromomethane	1.168	1.080	7.5	83	-0.02
9	T	Chloroethane	1.083	1.001	7.6	81	-0.02
10	T	Ethanol	1.412	1.207	14.5	79	-0.06
11	T	Acetonitrile	3.553	3.174	10.7	76	-0.04
12	T	Acrolein	1.038	0.980	5.6	80	-0.02
13	T	Acetone	1.295	1.164	10.1	81	-0.03
14	T	Trichlorofluoromethane	2.636	2.367	10.2	81	-0.02
15	T	2-Propanol (Isopropanol)	4.708	4.817	-2.3	85	-0.03
16	T	Acrylonitrile	2.168	2.090	3.6	78	-0.03
17	T	1,1-Dichloroethene	1.267	1.169	7.7	81	-0.02
18	T	2-Methyl-2-Propanol (tert-B	3.140	4.031	-28.4	122	-0.03
19	T	Methylene Chloride	1.375	1.268	7.8	82	-0.03
20	T	3-Chloro-1-propene (Allyl C	3.098	2.478	20.0	78	-0.02
21	T	Trichlorotrifluoroethane	1.016	0.921	9.4	79	-0.01
22	T	Carbon Disulfide	5.225	4.482	14.2	81	-0.02
23	T	trans-1,2-Dichloroethene	2.072	1.960	5.4	81	-0.02
24	T	1,1-Dichloroethane	2.626	2.430	7.5	80	-0.02
25	T	Methyl tert-Butyl Ether	3.466	3.853	-11.2	94	0.00
26	T	Vinyl Acetate	0.321	0.270	15.9	82	-0.02
27	T	2-Butanone (MEK)	0.940	0.872	7.2	82	-0.01
28	T	cis-1,2-Dichloroethene	2.098	1.953	6.9	81	-0.02
29	T	Diisopropyl Ether	1.290	1.185	8.1	82	0.00
30	T	Ethyl Acetate	0.914	0.773	15.4	81	0.00
31	T	n-Hexane	3.028	2.621	13.4	79	-0.01
32	T	Chloroform	2.514	2.322	7.6	82	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	2.068	2.028	1.9	89	-0.02
34	T	Tetrahydrofuran (THF)	0.928	0.846	8.8	82	0.00
35	T	Ethyl tert-Butyl Ether	1.706	1.568	8.1	83	0.00
36	T	1,2-Dichloroethane	2.148	2.008	6.5	80	0.00
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	85	-0.01
38	T	1,1,1-Trichloroethane	0.485	0.451	7.0	82	-0.01
39	T	Isopropyl Acetate	0.000	0.000	0.0	0#	0.00
40	T	1-Butanol	0.000	0.000	0.0	0#	0.20
41	T	Benzene	1.176	1.093	7.1	81	-0.01
42	T	Carbon Tetrachloride	0.435	0.396	9.0	82	-0.01
43	T	Cyclohexane	0.439	0.400	8.9	81	-0.01
44	T	tert-Amyl Methyl Ether	0.869	0.819	5.8	83	0.00
45	T	1,2-Dichloropropane	0.332	0.304	8.4	80	0.00
46	T	Bromodichloromethane	0.421	0.399	5.2	81	0.00
47	T	Trichloroethene	0.300	0.281	6.3	82	0.00
48	T	1,4-Dioxane	0.238	0.217	8.8	82	0.00
49	T	2,2,4-Trimethylpentane (Iso	1.499	1.363	9.1	79	0.00
50	T	Methyl Methacrylate	0.102	0.102	0.0	82	0.00
51	T	n-Heptane	0.315	0.289	8.3	81	-0.01
52	T	cis-1,3-Dichloropropene	0.446	0.434	2.7	81	0.00
53	T	4-Methyl-2-pentanone	0.340	0.303	10.9	80	0.00
54	T	trans-1,3-Dichloropropene	0.434	0.412	5.1	81	0.00
55	T	1,1,2-Trichloroethane	0.272	0.257	5.5	80	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2021_06\25\06252102.D Vial: 1
Acq On : 25 Jun 2021 2:11 Operator: WA
Sample : CCV R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06142101 (7/14)

Quant Time: Jun 25 04:19:30 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
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	86	0.00
57	S	Toluene-d8 (SS2)	4.494	4.585	-2.0	86	0.00
58	T	Toluene	4.563	4.261	6.6	81	0.00
59	T	2-Hexanone	3.424	3.356	2.0	78	0.00
60	T	Dibromochloromethane	1.243	1.225	1.4	83	0.00
61	T	1,2-Dibromoethane	1.108	1.138	-2.7	81	0.00
62	T	n-Butyl Acetate	3.636	3.658	-0.6	79	0.00
63	T	n-Octane	1.224	1.083	11.5	77	0.00
64	T	Tetrachloroethene	1.166	1.085	6.9	82	0.00
65	T	Chlorobenzene	3.083	2.738	11.2	81	0.00
66	T	Ethylbenzene	5.009	4.853	3.1	81	0.00
67	T	m- & p-Xylenes	4.049	3.912	3.4	84	0.00
68	T	Bromoform	0.997	0.988	0.9	81	0.00
69	T	Styrene	2.892	2.770	4.2	82	0.00
70	T	o-Xylene	4.111	3.868	5.9	80	0.00
71	T	n-Nonane	3.190	2.917	8.6	77	0.00
72	T	1,1,2,2-Tetrachloroethane	2.001	1.852	7.4	79	0.00
73	S	Bromofluorobenzene (SS3)	1.279	1.360	-6.3	88	0.00
74	T	Cumene	5.027	4.792	4.7	81	0.00
75	T	alpha-Pinene	2.570	2.344	8.8	79	0.00
76	T	n-Propylbenzene	5.958	5.920	0.6	80	0.00
77	T	3-Ethyltoluene	0.000	0.000	0.0	0#	0.00
78	T	4-Ethyltoluene	4.556	4.636	-1.8	80	0.00
79	T	1,3,5-Trimethylbenzene	4.242	4.012	5.4	81	0.00
80	T	alpha-Methylstyrene	0.000	0.000	0.0	0#	0.00
81	T	2-Ethyltoluene	0.000	0.000	0.0	0#	0.00
82	T	1,2,4-Trimethylbenzene	4.287	4.235	1.2	82	0.00
83	T	n-Decane	0.000	0.000	0.0	0#	0.00
84	T	Benzyl Chloride	3.708	3.622	2.3	81	0.00
85	T	1,3-Dichlorobenzene	2.514	2.250	10.5	81	0.00
86	T	1,4-Dichlorobenzene	2.349	2.302	2.0	81	0.00
87	T	sec-Butylbenzene	5.519	5.429	1.6	80	0.00
88	T	4-Isopropyltoluene (p-Cymen	4.492	4.522	-0.7	81	0.00
89	T	1,2,3-Trimethylbenzene	0.000	0.000	0.0	0#	0.00
90	T	1,2-Dichlorobenzene	2.260	2.170	4.0	79	0.00
91	T	d-Limonene	1.936	1.658	14.4	82	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.960	0.857	10.7	78	0.00
93	T	n-Undecane	0.000	0.000	0.0	0#	-21.33#
94	T	1,2,4-Trichlorobenzene	1.846	1.628	11.8	85	0.00
95	T	Naphthalene	5.349	5.003	6.5	87	0.00
96	T	n-Dodecane	0.000	0.000	0.0	0#	0.00
97	T	Hexachlorobutadiene	1.103	0.944	14.4	76	0.00
98	T	Cyclohexanone	0.000	0.000	0.0	0#	-0.01
99	T	tert-Butylbenzene	4.084	3.900	4.5	81	0.00
100	T	n-Butylbenzene	4.344	4.496	-3.5	80	0.00
101	T	1,1,1,2-Tetrachloroethane	1.156	1.081	6.5	84	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252102.D Vial: 1
Acq On : 25 Jun 2021 2:11 Operator: WA
Sample : CCV R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06142101 (7/14)

Quant Time: Jun 25 04:19:30 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	128994	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	596589	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.61	54	154350	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.03	65	261559	12.257	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.08%				
57) Toluene-d8 (SS2)	15.74	98	707734	12.753	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.00%				
73) Bromofluorobenzene (SS3)	19.00	174	209931	13.295	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 106.40%				
Target Compounds							Qvalue
2) Propene	4.16	42	106373	4.429	ng		99
3) Dichlorodifluoromethan...	4.31	85	147702	4.875	ng		99
4) Chloromethane	4.59	50	134125	5.049	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	76570	5.083	ng		100
6) Vinyl Chloride	5.00	62	141487	5.121	ng		99
7) 1,3-Butadiene	5.26	54	107638	4.896	ng		99
8) Bromomethane	5.70	94	57938	4.806	ng		99
9) Chloroethane	6.03	64	53709	4.805	ng		100
10) Ethanol	6.39	45	328860	22.576	ng		99
11) Acetonitrile	6.65	41	173583	4.734	ng		100
12) Acrolein	6.84	56	110237	10.290	ng		100
13) Acetone	7.04	58	309798	23.176	ng		94
14) Trichlorofluoromethane	7.28	101	124589	4.581	ng		99
15) 2-Propanol (Isopropanol)	7.54	45	509519	10.487	ng		100
16) Acrylonitrile	7.79	53	221048	9.882	ng		100
17) 1,1-Dichloroethene	8.24	96	62738	4.799	ng		98
18) 2-Methyl-2-Propanol (t...	8.41	59	430508	13.288	ng		98
19) Methylene Chloride	8.46	84	68064	4.796	ng		96
20) 3-Chloro-1-propene (Al...	8.62	41	132981	4.160	ng		98
21) Trichlorotrifluoroethane	8.87	151	49913	4.759	ng		100
22) Carbon Disulfide	8.72	76	480982	8.921	ng		100
23) trans-1,2-Dichloroethene	9.73	61	106198	4.967	ng		99
24) 1,1-Dichloroethane	9.98	63	134145	4.950	ng		99
25) Methyl tert-Butyl Ether	10.10	73	204758	5.725	ng		99
26) Vinyl Acetate	10.24	86	76497	23.123	ng	#	89
27) 2-Butanone (MEK)	10.49	72	92679	9.558	ng	#	91
28) cis-1,2-Dichloroethene	11.00	61	104820	4.842	ng		98
29) Diisopropyl Ether	11.30	87	127786	9.602	ng	#	96
30) Ethyl Acetate	11.31	61	82962	8.794	ng		99
31) n-Hexane	11.28	57	140671	4.502	ng		99
32) Chloroform	11.34	83	125810	4.850	ng		100
34) Tetrahydrofuran (THF)	11.76	72	89008	9.299	ng	#	89
35) Ethyl tert-Butyl Ether	11.89	87	168256	9.555	ng		99
36) 1,2-Dichloroethane	12.15	62	107729	4.860	ng		99
38) 1,1,1-Trichloroethane	12.42	97	110774	4.781	ng		100
39) Isopropyl Acetate	12.90	61	3226	No Calib		#	
40) 1-Butanol	13.19	56	227070	No Calib			
41) Benzene	12.90	78	271369	4.833	ng		99
42) Carbon Tetrachloride	13.06	117	96384	4.647	ng		99
43) Cyclohexane	13.19	84	197492	9.426	ng		96
44) tert-Amyl Methyl Ether	13.54	73	404666	9.760	ng		99
45) 1,2-Dichloropropane	13.75	63	75501	4.760	ng		100
46) Bromodichloromethane	13.94	83	98945	4.930	ng		99
47) Trichloroethene	13.99	130	68448	4.785	ng		100
48) 1,4-Dioxane	13.98	88	53238	4.684	ng		92
49) 2,2,4-Trimethylpentane...	14.06	57	341555	4.775	ng		99
50) Methyl Methacrylate	14.21	100	50626	10.414	ng		99

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252102.D Vial: 1
Acq On : 25 Jun 2021 2:11 Operator: WA
Sample : CCV R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06142101 (7/14)

Quant Time: Jun 25 04:19:30 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

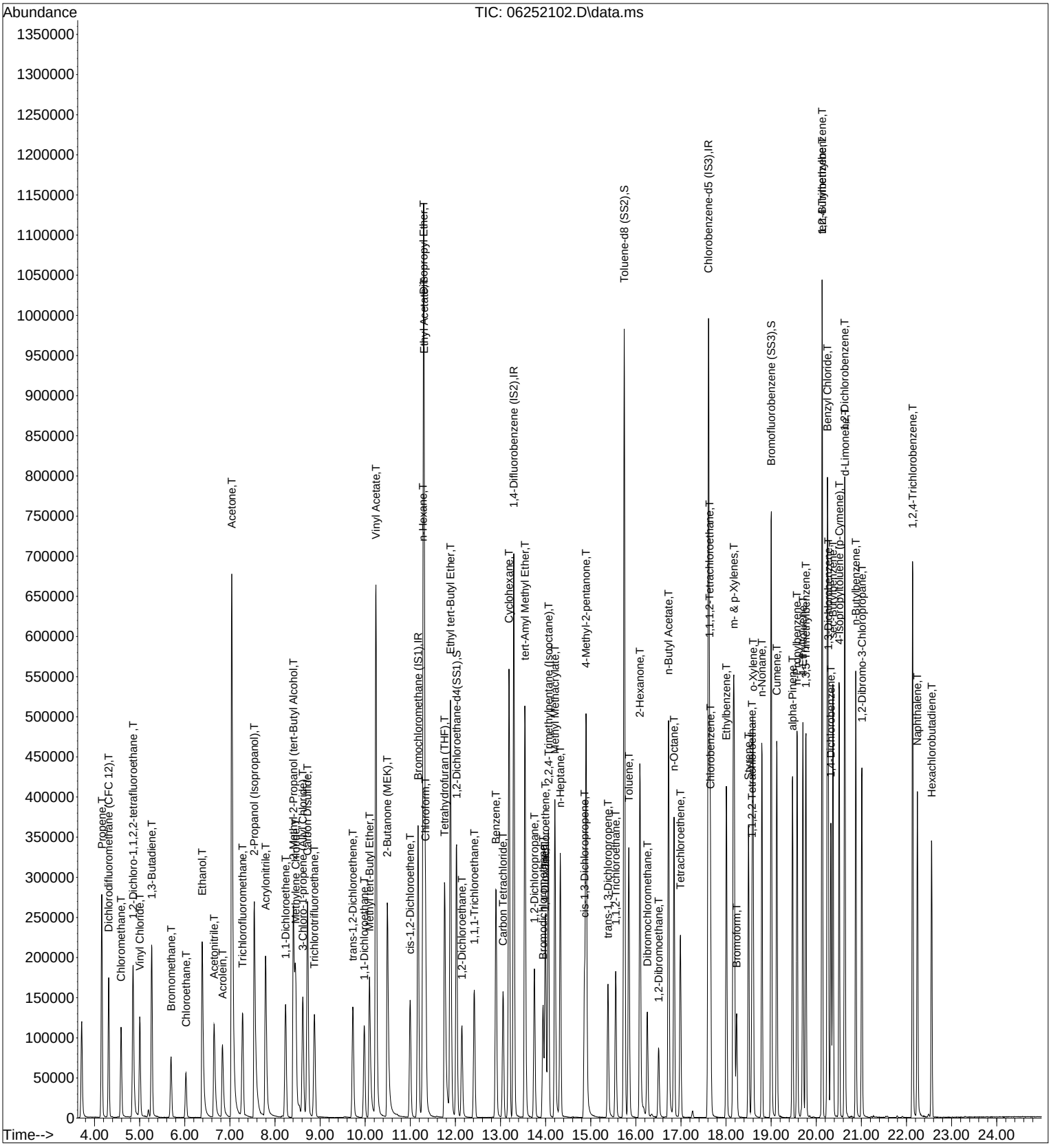
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.32	71	71075	4.723	ng		97
52) cis-1,3-Dichloropropene	14.87	75	108817	5.110	ng		100
53) 4-Methyl-2-pentanone	14.89	58	150265	9.262	ng		98
54) trans-1,3-Dichloropropene	15.38	75	100289	4.837	ng		98
55) 1,1,2-Trichloroethane	15.55	97	63729	4.917	ng		100
58) Toluene	15.84	91	273579	4.856	ng		99
59) 2-Hexanone	16.09	43	426827	10.096	ng		98
60) Dibromochloromethane	16.25	129	78636	5.122	ng		100
61) 1,2-Dibromoethane	16.50	107	73062	5.342	ng		99
62) n-Butyl Acetate	16.73	43	467444	10.411	ng		99
63) n-Octane	16.85	57	69528	4.599	ng		97
64) Tetrachloroethene	16.99	166	69640	4.837	ng		100
65) Chlorobenzene	17.65	112	174127	4.573	ng		99
66) Ethylbenzene	18.01	91	311594	5.038	ng		100
67) m- & p-Xylenes	18.17	91	504734	10.095	ng		98
68) Bromoform	18.23	173	64683	5.257	ng		99
69) Styrene	18.50	104	176160	4.932	ng		98
70) o-Xylene	18.60	91	250740	4.939	ng		100
71) n-Nonane	18.79	43	189068	4.800	ng		99
72) 1,1,2,2-Tetrachloroethane	18.58	83	120074	4.860	ng		100
74) Cumene	19.12	105	307664	4.956	ng		99
75) alpha-Pinene	19.48	93	153369	4.833	ng		99
76) n-Propylbenzene	19.57	91	380115	5.167	ng		99
77) 3-Ethyltoluene	19.70	105	300530	No Calib			
78) 4-Ethyltoluene	19.70	105	300530	5.342	ng		99
79) 1,3,5-Trimethylbenzene	19.77	105	260068	4.965	ng		99
80) alpha-Methylstyrene	19.70	118	1966	No Calib		#	
81) 2-Ethyltoluene	19.77	105	260068	No Calib			
82) 1,2,4-Trimethylbenzene	20.13	105	269316	5.087	ng		100
83) n-Decane	20.13	58	15793	No Calib		#	
84) Benzyl Chloride	20.25	91	469601	10.256	ng		99
85) 1,3-Dichlorobenzene	20.27	146	145846	4.698	ng		99
86) 1,4-Dichlorobenzene	20.32	146	147815	5.097	ng		97
87) sec-Butylbenzene	20.37	105	345243	5.066	ng		99
88) 4-Isopropyltoluene (p-...	20.51	119	284748	5.134	ng		99
89) 1,2,3-Trimethylbenzene	20.37	105	345243	No Calib			
90) 1,2-Dichlorobenzene	20.63	146	140665	5.040	ng		100
91) d-Limonene	20.64	68	105460	4.412	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.01	157	105884	8.929	ng		97
93) n-Undecane	0.00	57	0	N.D.			
94) 1,2,4-Trichlorobenzene	22.14	180	201035	8.821	ng		100
95) Naphthalene	22.24	128	318172	4.817	ng		99
96) n-Dodecane	22.24	57	206	No Calib		#	
97) Hexachlorobutadiene	22.56	225	60038	4.408	ng		100
98) Cyclohexanone	18.16	55	474	No Calib		#	
99) tert-Butylbenzene	20.13	119	250442	4.967	ng		100
100) n-Butylbenzene	20.88	91	285897	5.330	ng		98
101) 1,1,1,2-Tetrachloroethane	17.63	131	68770	4.817	ng		99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252102.D Vial: 1
Acq On : 25 Jun 2021 2:11 Operator: WA
Sample : CCV R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06142101 (7/14)

Quant Time: Jun 25 04:19:30 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2021_06\25\06252129.D Vial: 1
Acq On : 25 Jun 2021 18:27 Operator: WA
Sample : CCVend R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06142101 (7/14)

Quant Time: Jun 25 20:50:08 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
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)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	70	-0.02
2	T	Propene	2.327	2.105	9.5	64	0.00
3	T	Dichlorodifluoromethane (CF	2.936	2.740	6.7	67	0.00
4	T	Chloromethane	2.574	2.634	-2.3	86	-0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.460	1.324	9.3	66	-0.01
6	T	Vinyl Chloride	2.678	2.622	2.1	68	-0.01
7	T	1,3-Butadiene	2.131	2.053	3.7	66	-0.02
8	T	Bromomethane	1.168	1.071	8.3	66	-0.03
9	T	Chloroethane	1.083	1.009	6.8	65	-0.02
10	T	Ethanol	1.412	1.273	9.8	67	-0.06
11	T	Acetonitrile	3.553	3.361	5.4	64	-0.03
12	T	Acrolein	1.038	0.996	4.0	65	-0.02
13	T	Acetone	1.295	1.203	7.1	67	-0.03
14	T	Trichlorofluoromethane	2.636	2.396	9.1	66	-0.02
15	T	2-Propanol (Isopropanol)	4.708	4.966	-5.5	70	-0.03
16	T	Acrylonitrile	2.168	2.179	-0.5	65	-0.03
17	T	1,1-Dichloroethene	1.267	1.168	7.8	65	-0.02
18	T	2-Methyl-2-Propanol (tert-B	3.140	4.045	-28.8	98	-0.03
19	T	Methylene Chloride	1.375	1.272	7.5	66	-0.03
20	T	3-Chloro-1-propene (Allyl C	3.098	2.559	17.4	65	-0.02
21	T	Trichlorotrifluoroethane	1.016	0.911	10.3	63	0.00
22	T	Carbon Disulfide	5.225	4.581	12.3	66	-0.02
23	T	trans-1,2-Dichloroethene	2.072	2.017	2.7	67	-0.02
24	T	1,1-Dichloroethane	2.626	2.510	4.4	66	-0.02
25	T	Methyl tert-Butyl Ether	3.466	3.899	-12.5	77	0.00
26	T	Vinyl Acetate	0.321	0.271	15.6	66	-0.02
27	T	2-Butanone (MEK)	0.940	0.870	7.4	66	0.00
28	T	cis-1,2-Dichloroethene	2.098	1.987	5.3	66	-0.02
29	T	Diisopropyl Ether	1.290	1.198	7.1	67	0.00
30	T	Ethyl Acetate	0.914	0.792	13.3	67	0.00
31	T	n-Hexane	3.028	2.745	9.3	66	-0.01
32	T	Chloroform	2.514	2.381	5.3	67	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	2.068	2.118	-2.4	74	-0.02
34	T	Tetrahydrofuran (THF)	0.928	0.858	7.5	66	0.01
35	T	Ethyl tert-Butyl Ether	1.706	1.569	8.0	67	0.00
36	T	1,2-Dichloroethane	2.148	2.038	5.1	65	0.00
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	69	-0.01
38	T	1,1,1-Trichloroethane	0.485	0.454	6.4	67	-0.01
39	T	Isopropyl Acetate	0.000	0.000	0.0	0#	0.00
40	T	1-Butanol	0.000	0.000	0.0	0#	0.20
41	T	Benzene	1.176	1.098	6.6	67	0.00
42	T	Carbon Tetrachloride	0.435	0.396	9.0	67	-0.01
43	T	Cyclohexane	0.439	0.406	7.5	67	-0.01
44	T	tert-Amyl Methyl Ether	0.869	0.815	6.2	67	0.00
45	T	1,2-Dichloropropane	0.332	0.311	6.3	67	0.00
46	T	Bromodichloromethane	0.421	0.398	5.5	66	0.00
47	T	Trichloroethene	0.300	0.271	9.7	64	0.00
48	T	1,4-Dioxane	0.238	0.211	11.3	65	0.01
49	T	2,2,4-Trimethylpentane (Iso	1.499	1.404	6.3	66	0.00
50	T	Methyl Methacrylate	0.102	0.099	2.9	65	0.00
51	T	n-Heptane	0.315	0.288	8.6	65	-0.01
52	T	cis-1,3-Dichloropropene	0.446	0.433	2.9	65	0.00
53	T	4-Methyl-2-pentanone	0.340	0.308	9.4	67	0.00
54	T	trans-1,3-Dichloropropene	0.434	0.409	5.8	65	0.00
55	T	1,1,2-Trichloroethane	0.272	0.259	4.8	66	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2021_06\25\06252129.D Vial: 1
Acq On : 25 Jun 2021 18:27 Operator: WA
Sample : CCVend R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06142101 (7/14)

Quant Time: Jun 25 20:50:08 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
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	72	0.00
57	S	Toluene-d8 (SS2)	4.494	4.525	-0.7	71	0.00
58	T	Toluene	4.563	4.179	8.4	66	0.00
59	T	2-Hexanone	3.424	3.366	1.7	66	0.00
60	T	Dibromochloromethane	1.243	1.180	5.1	66	0.00
61	T	1,2-Dibromoethane	1.108	1.093	1.4	65	0.00
62	T	n-Butyl Acetate	3.636	3.708	-2.0	67	0.00
63	T	n-Octane	1.224	1.098	10.3	65	0.00
64	T	Tetrachloroethene	1.166	1.022	12.3	65	0.00
65	T	Chlorobenzene	3.083	2.669	13.4	66	0.00
66	T	Ethylbenzene	5.009	4.714	5.9	66	0.00
67	T	m- & p-Xylenes	4.049	3.849	4.9	69	0.00
68	T	Bromoform	0.997	0.941	5.6	65	0.00
69	T	Styrene	2.892	2.636	8.9	65	0.00
70	T	o-Xylene	4.111	3.848	6.4	67	0.00
71	T	n-Nonane	3.190	3.009	5.7	66	0.00
72	T	1,1,2,2-Tetrachloroethane	2.001	1.866	6.7	67	0.00
73	S	Bromofluorobenzene (SS3)	1.279	1.296	-1.3	70	0.00
74	T	Cumene	5.027	4.724	6.0	67	0.00
75	T	alpha-Pinene	2.570	2.291	10.9	65	0.00
76	T	n-Propylbenzene	5.958	5.898	1.0	67	0.00
77	T	3-Ethyltoluene	0.000	0.000	0.0	0#	0.00
78	T	4-Ethyltoluene	4.556	4.582	-0.6	66	0.00
79	T	1,3,5-Trimethylbenzene	4.242	3.963	6.6	67	0.00
80	T	alpha-Methylstyrene	0.000	0.000	0.0	0#	0.00
81	T	2-Ethyltoluene	0.000	0.000	0.0	0#	0.00
82	T	1,2,4-Trimethylbenzene	4.287	4.190	2.3	68	0.00
83	T	n-Decane	0.000	0.000	0.0	0#	0.00
84	T	Benzyl Chloride	3.708	3.583	3.4	67	0.00
85	T	1,3-Dichlorobenzene	2.514	2.234	11.1	67	0.00
86	T	1,4-Dichlorobenzene	2.349	2.262	3.7	67	0.00
87	T	sec-Butylbenzene	5.519	5.390	2.3	66	0.00
88	T	4-Isopropyltoluene (p-Cymen	4.492	4.513	-0.5	68	0.00
89	T	1,2,3-Trimethylbenzene	0.000	0.000	0.0	0#	0.00
90	T	1,2-Dichlorobenzene	2.260	2.151	4.8	65	0.00
91	T	d-Limonene	1.936	1.622	16.2	67	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.960	0.842	12.3	64	0.00
93	T	n-Undecane	0.000	0.000	0.0	0#	-21.33#
94	T	1,2,4-Trichlorobenzene	1.846	1.575	14.7	69	0.00
95	T	Naphthalene	5.349	4.887	8.6	71	0.00
96	T	n-Dodecane	0.000	0.000	0.0	0#	0.01
97	T	Hexachlorobutadiene	1.103	0.913	17.2	61	0.00
98	T	Cyclohexanone	0.000	0.000	0.0	0#	-0.01
99	T	tert-Butylbenzene	4.084	3.840	6.0	66	0.00
100	T	n-Butylbenzene	4.344	4.507	-3.8	67	0.00
101	T	1,1,1,2-Tetrachloroethane	1.156	1.036	10.4	67	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252129.D Vial: 1
Acq On : 25 Jun 2021 18:27 Operator: WA
Sample : CCVend R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06142101 (7/14)

Quant Time: Jun 25 20:50:08 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	103552	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	485420	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.61	54	128918	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.03	65	219351	12.804	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.40%				
57) Toluene-d8 (SS2)	15.74	98	583408	12.587	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.72%				
73) Bromofluorobenzene (SS3)	19.00	174	167105	12.671	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.36%				
Target Compounds							Qvalue
2) Propene	4.16	42	90683	4.703	ng		99
3) Dichlorodifluoromethan...	4.31	85	118013	4.852	ng		100
4) Chloromethane	4.58	50	113488	5.322	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	57048	4.717	ng		100
6) Vinyl Chloride	5.00	62	114049	5.142	ng		100
7) 1,3-Butadiene	5.26	54	88428	5.010	ng		100
8) Bromomethane	5.69	94	46138	4.768	ng		99
9) Chloroethane	6.03	64	43457	4.843	ng		99
10) Ethanol	6.39	45	278438	23.811	ng		99
11) Acetonitrile	6.65	41	147590	5.014	ng		100
12) Acrolein	6.84	56	89958	10.460	ng		99
13) Acetone	7.04	58	257115	23.960	ng		91
14) Trichlorofluoromethane	7.28	101	101218	4.636	ng		99
15) 2-Propanol (Isopropanol)	7.54	45	421700	10.812	ng		99
16) Acrylonitrile	7.79	53	185033	10.305	ng		100
17) 1,1-Dichloroethene	8.24	96	50314	4.795	ng		100
18) 2-Methyl-2-Propanol (t...	8.41	59	346836	13.335	ng		99
19) Methylene Chloride	8.46	84	54793	4.809	ng		99
20) 3-Chloro-1-propene (Al...	8.62	41	110253	4.296	ng		100
21) Trichlorotrifluoroethane	8.88	151	39642	4.708	ng		98
22) Carbon Disulfide	8.72	76	394652	9.118	ng		100
23) trans-1,2-Dichloroethene	9.73	61	87702	5.110	ng		99
24) 1,1-Dichloroethane	9.98	63	111258	5.114	ng		100
25) Methyl tert-Butyl Ether	10.10	73	166332	5.793	ng		100
26) Vinyl Acetate	10.24	86	61680	23.225	ng	#	77
27) 2-Butanone (MEK)	10.49	72	74254	9.540	ng		98
28) cis-1,2-Dichloroethene	11.00	61	85599	4.925	ng		100
29) Diisopropyl Ether	11.30	87	103720	9.708	ng	#	94
30) Ethyl Acetate	11.31	61	68263	9.013	ng		99
31) n-Hexane	11.28	57	118249	4.714	ng		99
32) Chloroform	11.34	83	103538	4.972	ng		100
34) Tetrahydrofuran (THF)	11.76	72	72462	9.430	ng		94
35) Ethyl tert-Butyl Ether	11.89	87	135212	9.565	ng		99
36) 1,2-Dichloroethane	12.15	62	87796	4.933	ng		99
38) 1,1,1-Trichloroethane	12.42	97	90861	4.820	ng		100
39) Isopropyl Acetate	12.90	61	2415	No Calib		#	
40) 1-Butanol	13.19	56	194004	No Calib			
41) Benzene	12.90	78	221686	4.852	ng		99
42) Carbon Tetrachloride	13.06	117	78385	4.645	ng		99
43) Cyclohexane	13.19	84	162983	9.560	ng		99
44) tert-Amyl Methyl Ether	13.54	73	327616	9.711	ng		100
45) 1,2-Dichloropropane	13.75	63	62882	4.872	ng		100
46) Bromodichloromethane	13.94	83	80319	4.919	ng		100
47) Trichloroethene	13.99	130	53644	4.609	ng		99
48) 1,4-Dioxane	13.99	88	42241	4.568	ng		97
49) 2,2,4-Trimethylpentane...	14.06	57	286269	4.919	ng		100
50) Methyl Methacrylate	14.21	100	39822	10.068	ng		94

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252129.D Vial: 1
Acq On : 25 Jun 2021 18:27 Operator: WA
Sample : CCVend R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06142101 (7/14)

Quant Time: Jun 25 20:50:08 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

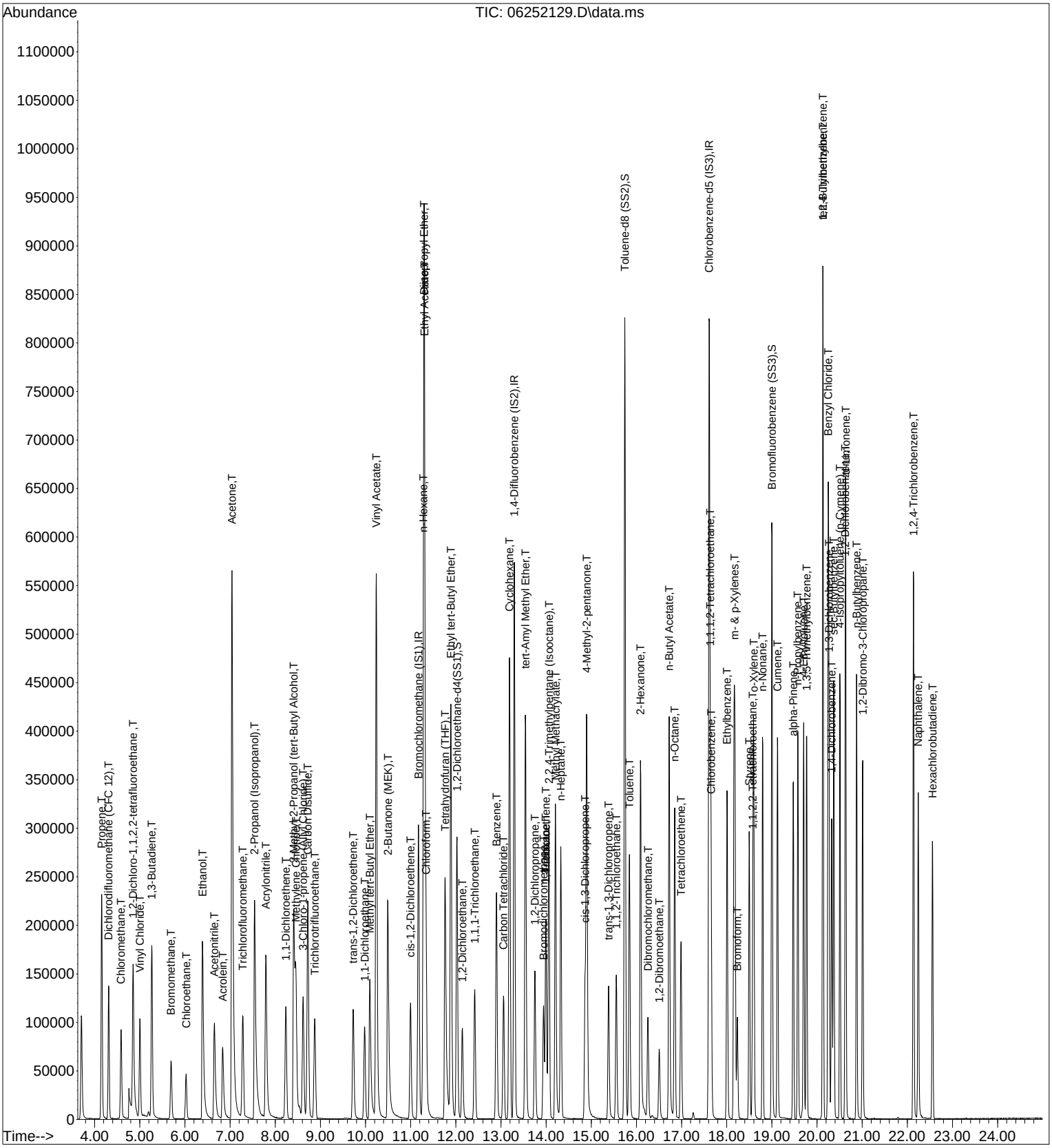
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.32	71	57579	4.702	ng		98
52) cis-1,3-Dichloropropene	14.87	75	88245	5.093	ng		100
53) 4-Methyl-2-pentanone	14.90	58	124574	9.437	ng		94
54) trans-1,3-Dichloropropene	15.38	75	80921	4.797	ng		98
55) 1,1,2-Trichloroethane	15.55	97	52313	4.961	ng		99
58) Toluene	15.84	91	224097	4.762	ng		99
59) 2-Hexanone	16.09	43	357600	10.127	ng		97
60) Dibromochloromethane	16.25	129	63288	4.935	ng		99
61) 1,2-Dibromoethane	16.50	107	58610	5.130	ng		100
62) n-Butyl Acetate	16.73	43	395797	10.554	ng		98
63) n-Octane	16.85	57	58896	4.665	ng		99
64) Tetrachloroethene	16.99	166	54827	4.560	ng		100
65) Chlorobenzene	17.65	112	141743	4.457	ng		99
66) Ethylbenzene	18.01	91	252820	4.894	ng		100
67) m- & p-Xylenes	18.17	91	414797	9.933	ng		98
68) Bromoform	18.23	173	51451	5.006	ng		100
69) Styrene	18.50	104	140023	4.694	ng		100
70) o-Xylene	18.60	91	208375	4.915	ng		100
71) n-Nonane	18.79	43	162946	4.953	ng		98
72) 1,1,2,2-Tetrachloroethane	18.58	83	101027	4.895	ng		100
74) Cumene	19.12	105	253339	4.886	ng		99
75) alpha-Pinene	19.48	93	125219	4.724	ng		99
76) n-Propylbenzene	19.57	91	316290	5.147	ng		99
77) 3-Ethyltoluene	19.70	105	248113	No Calib			
78) 4-Ethyltoluene	19.70	105	248113	5.280	ng		100
79) 1,3,5-Trimethylbenzene	19.77	105	214600	4.905	ng		99
80) alpha-Methylstyrene	19.70	118	1761	No Calib		#	
81) 2-Ethyltoluene	19.77	105	214600	No Calib			
82) 1,2,4-Trimethylbenzene	20.13	105	222547	5.033	ng		100
83) n-Decane	20.13	58	13450	No Calib		#	
84) Benzyl Chloride	20.25	91	387995	10.145	ng		98
85) 1,3-Dichlorobenzene	20.27	146	120944	4.665	ng		98
86) 1,4-Dichlorobenzene	20.32	146	121336	5.009	ng		98
87) sec-Butylbenzene	20.37	105	286298	5.030	ng		99
88) 4-Isopropyltoluene (p-...	20.51	119	237375	5.124	ng		99
89) 1,2,3-Trimethylbenzene	20.37	105	286298	No Calib			
90) 1,2-Dichlorobenzene	20.62	146	116455	4.996	ng		99
91) d-Limonene	20.64	68	86133	4.314	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.01	157	86847	8.768	ng		96
93) n-Undecane	0.00	57	0	N.D.			
94) 1,2,4-Trichlorobenzene	22.14	180	162408	8.531	ng		99
95) Naphthalene	22.24	128	259562	4.705	ng		99
96) n-Dodecane	22.25	57	136	No Calib		#	
97) Hexachlorobutadiene	22.56	225	48510	4.264	ng		100
98) Cyclohexanone	18.16	55	111	No Calib		#	
99) tert-Butylbenzene	20.13	119	205915	4.889	ng		100
100) n-Butylbenzene	20.88	91	239372	5.343	ng		99
101) 1,1,1,2-Tetrachloroethane	17.63	131	55017	4.614	ng		99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS13\DATA\2021_06\25\06252129.D Vial: 1
Acq On : 25 Jun 2021 18:27 Operator: WA
Sample : CCVend R13062521_5ng Inst : MS13
Misc : S34-06112101/S34-06142101 (7/14)

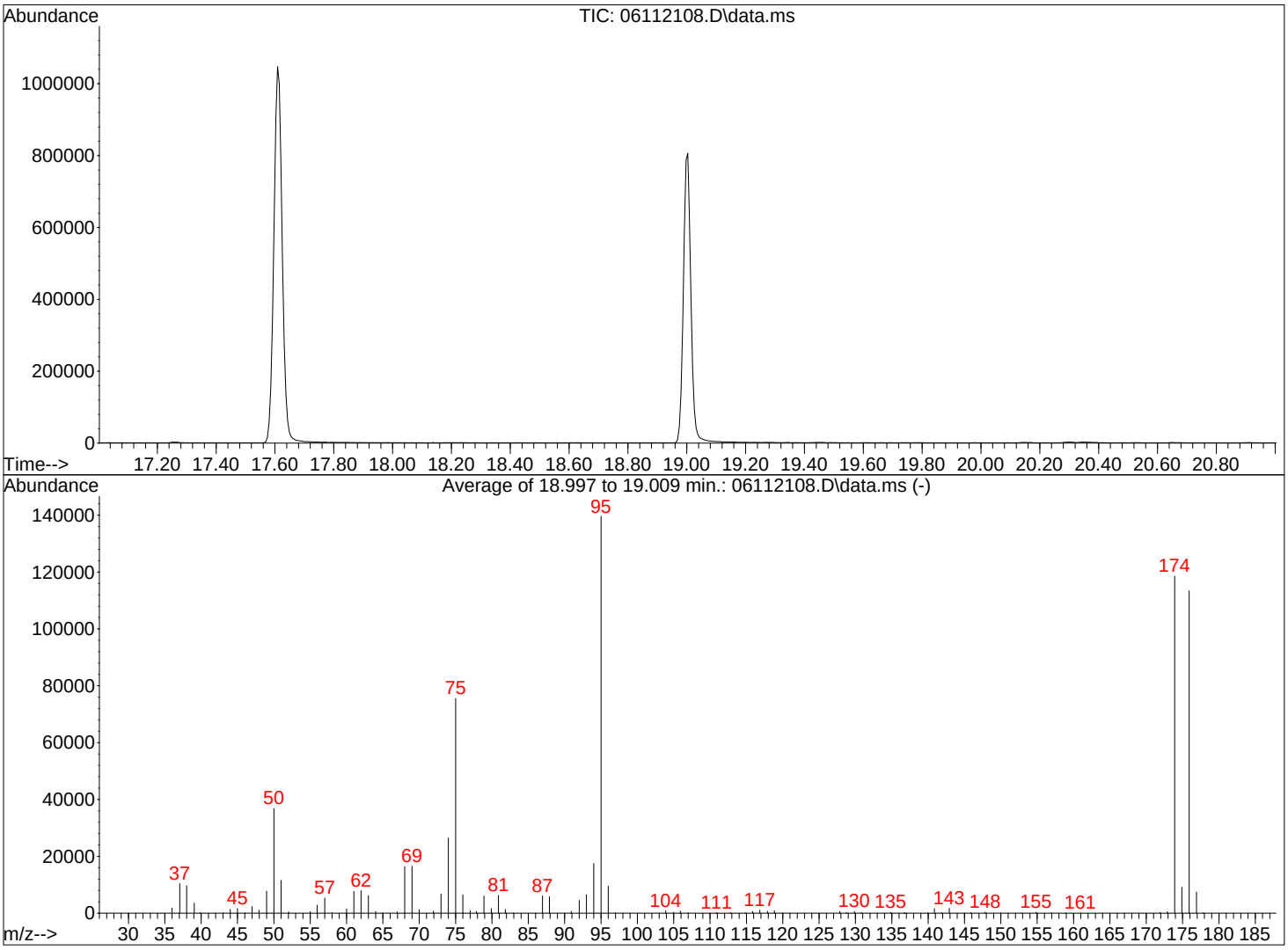
Quant Time: Jun 25 20:50:08 2021
Quant Method : J:\MS13\METHODS\R13061121.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Jun 12 10:33:40 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data Path : I:\MS13\DATA\2021_06\11\
Data File : 06112108.D
Acq On : 11 Jun 2021 10:10
Operator : WA
Sample : BFB Std
Misc : S34-06112101
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : J:\MS13\METHODS\R13061121.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon May 10 20:27:02 2021



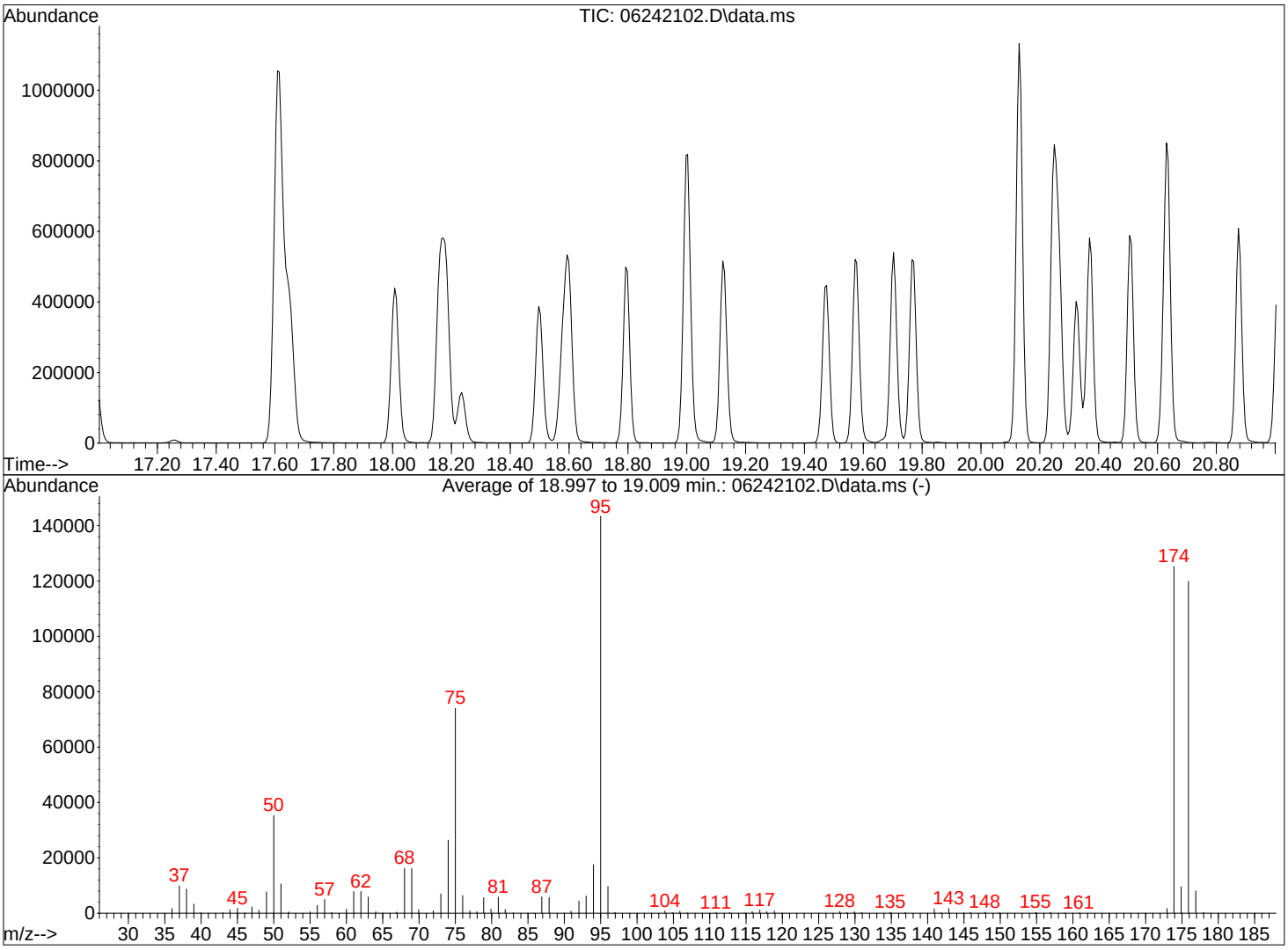
AutoFind: Scans 2702, 2703, 2704; Background Corrected with Scan 2694

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	26.3	36789	PASS
75	95	30	66	54.1	75536	PASS
95	95	100	100	100.0	139661	PASS
96	95	5	9	6.8	9514	PASS
173	174	0.00	2	0.5	535	PASS
174	95	50	120	84.9	118557	PASS
175	174	4	9	7.7	9165	PASS
176	174	93	101	95.7	113429	PASS
177	176	5	9	6.6	7473	PASS

Data Path : I:\MS13\DATA\2021_06\24\
Data File : 06242102.D
Acq On : 24 Jun 2021 1:40
Operator : WA
Sample : CCV R13062421_5ng
Misc : S34-06112101/S34-06072102 (7/6)
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : J:\MS13\METHODS\R13061121.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Jun 12 10:33:40 2021



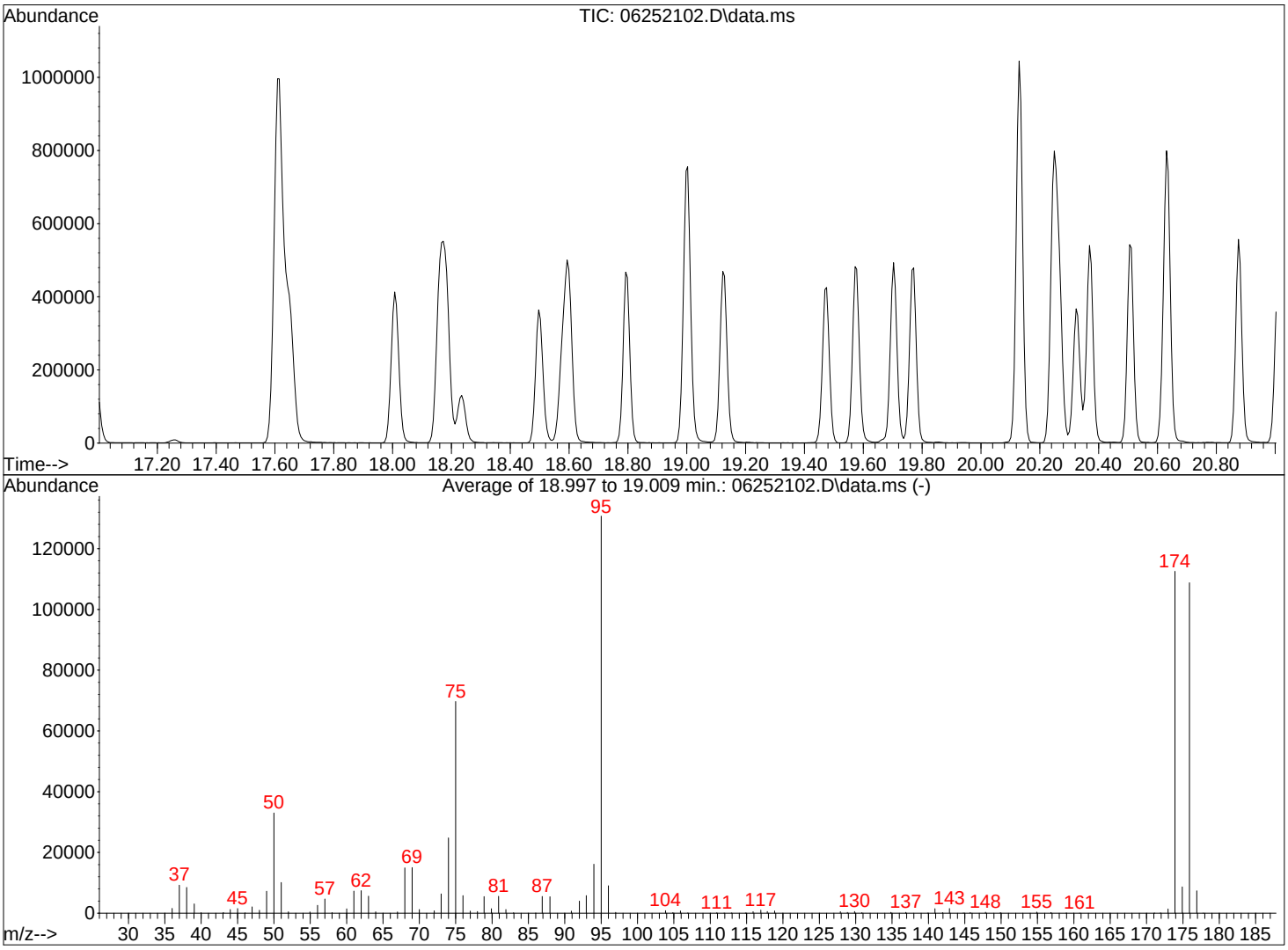
AutoFind: Scans 2702, 2703, 2704; Background Corrected with Scan 2694

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	24.6	35283	PASS
75	95	30	66	51.6	73997	PASS
95	95	100	100	100.0	143419	PASS
96	95	5	9	6.7	9674	PASS
173	174	0.00	2	1.3	1664	PASS
174	95	50	120	87.3	125187	PASS
175	174	4	9	7.7	9587	PASS
176	174	93	101	95.8	119885	PASS
177	176	5	9	6.7	8030	PASS

Data Path : I:\MS13\DATA\2021_06\25\
Data File : 06252102.D
Acq On : 25 Jun 2021 2:11
Operator : WA
Sample : CCV R13062521_5ng
Misc : S34-06112101/S34-06142101 (7/14)
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : J:\MS13\METHODS\R13061121.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Jun 12 10:33:40 2021



AutoFind: Scans 2702, 2703, 2704; Background Corrected with Scan 2694

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	25.3	33011	PASS
75	95	30	66	53.3	69669	PASS
95	95	100	100	100.0	130699	PASS
96	95	5	9	6.9	9059	PASS
173	174	0.00	2	1.3	1414	PASS
174	95	50	120	86.1	112533	PASS
175	174	4	9	7.7	8668	PASS
176	174	93	101	96.7	108776	PASS
177	176	5	9	6.8	7384	PASS

Injection Log

Directory: J:\MS13\DATA\2021_06\11\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
8	6/11/21 10:10	06112108.D	BFB Std	S34-06112101	WA	1	*Pass*
9	6/11/21 10:47	06112109.D	0.1ng R13061121 ICAL Std	S34-06112101/S34-06072107 (7/6)	WA	9	
10	6/11/21 11:21	06112110.D	0.2ng R13061121 ICAL Std	S34-06112101/S34-06072107 (7/6)	WA	9	
11	6/11/21 12:05	06112111.D	0.5ng R13061121 ICAL Std	S34-06112101/S34-06072104 (7/6)	WA	13	wrong volume
12	6/11/21 12:40	06112112.D	1.0ng R13061121 ICAL Std	S34-06112101/S34-06072104 (7/6)	WA	13	
13	6/11/21 13:14	06112113.D	5.0ng R13061121 ICAL Std	S34-06112101/S34-06072104 (7/6)	WA	13	
14	6/11/21 13:48	06112114.D	25ng R13061121 ICAL Std	S34-06112101/S34-06072102 (7/6)	WA	1	
15	6/11/21 14:22	06112115.D	50ng R13061121 ICAL Std	S34-06112101/S34-06072102 (7/6)	WA	1	*R13061121.M*
16	6/11/21 14:56	06112116.D	100ng R13061121 ICAL Std	S34-06112101/S34-06072102 (7/6)	WA	1	
17	6/11/21 15:30	06112117.D	Blank	S34-06112101	WA	1	
18	6/11/21 16:04	06112118.D	0.5ng R13061121 ICAL Std	S34-06112101/S34-06072104 (7/6)	WA	13	
19	6/11/21 16:38	06112119.D	25ng R13061121 ICV Std	S34-06112101/S34-05192101 (6/18)	WA	14	*Pass*
20	6/11/21 17:13	06112120.D	25ng R13061121 ICV Std	S34-06112101/S34-06042101 (7/3)	WA	1	
	R13061121.M: ranges from 0.1ng --> 100ng for all compounds, except: TBA: 0.2ng --> 100ng; Vinyl Ac: 5ng --> 500ng; MEK, Ethyl Ac, MIBK,						
	2-Hexanone, Butyl Ac., Benzyl-Cl: 1ng --> 200ng; 1,4-dioxane, trans-1,3-DCP, Styrene, 1,3-DCB, d-Limonene, 1,2-DB-3CP, Naphthalene: from						
	0.5ng --> 100ng; 1,2,4-TCB from 1ng --> 100ng and chloromethane from 0.2ng --> 50ng						
	ICV for Ethyl Acetate above control criterion but within Lab. Generated control criteria.						

Injection Log

Directory: I:\MS13\DATA\2021_06\24\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	6/24/21 1:06	06242101.D	CCV C13062421_25ng	S34-06112101/S34-06142101 (7/14)	WA	16	*Passed-not used*
2	6/24/21 1:40	06242102.D	CCV R13062421_5ng	S34-06112101/S34-06072102 (7/6)	WA	1	*Passed*
3	6/24/21 2:14	06242103.D	MB R130624321_1000mL	S34-06112101/AC01837	WA	2	*Passed*
4	6/24/21 2:48	06242104.D	LCS R13062421_25ng	S34-06112101/S34-06042101 (7/3)	WA	1	*Passed*
5	6/24/21 3:22	06242105.D	LCSD R13062421_25ng	S34-06112101/S34-06042101 (7/3)	WA	1	*Passed*
6	6/24/21 3:56	06242106.D	Blank	S34-06112101	WA	1	
7	6/24/21 4:30	06242107.D	P2103047-008 (1000mL)	S34-06112101	WA	13	
8	6/24/21 5:04	06242108.D	P2103047-009 (1000mL)	S34-06112101	WA	14	
9	6/24/21 5:38	06242109.D	P2103047-009dil (100mL)	S34-06112101	WA	14	
10	6/24/21 6:49	06242111.D	P2103071-003 (250mL) pf2	S34-06112101	WA	5	
11	6/24/21 7:23	06242112.D	P2103071-005 (250mL)	S34-06112101	WA	7	
12	6/24/21 7:57	06242113.D	P2103156-002dil (40mL)	S34-06112101	WA	9	
13	6/24/21 8:36	06242114.D	P2103047-006 (0.75mL)	S34-06112101	WA	8	
14	6/24/21 10:15	06242115.D	P2103047-007 (2.0mL)	S34-06112101	WA	8	*rerun*
15	6/24/21 11:56	06242116.D	P2103005-007 (10mL)	S34-06112101	WA	8	
16	6/24/21 12:29	06242117.D	P2103191-001 (30mL)	S34-06112101	WA	14	
17	6/24/21 13:03	06242118.D	P2103191-002 (15mL)	S34-06112101	WA	15	
18	6/24/21 13:38	06242119.D	P2103005-007dil (2.0mL)	S34-06112101	WA	8	
19	6/24/21 14:12	06242120.D	P2103110-024dil (25mL)	S34-06112101	WA	3	
20	6/24/21 14:54	06242121.D	P2103005-007 (5.0mL)	S34-06112101	WA	8	
21	6/24/21 16:06	06242122.D	P2103047-007 (1.25mL)	S34-06112101	WA	8	
22	6/24/21 17:11	06242123.D	P2103047-008dil (100mL)	S34-06112101	WA	13	
23	6/24/21 17:45	06242124.D	P2103204-001 (30mL)	S34-06112101	WA	9	*need dil*
24	6/24/21 18:19	06242125.D	P2103204-002 (30mL)	S34-06112101	WA	10	
25	6/24/21 18:52	06242126.D	P2103204-003 (1000mL) pf2	S34-06112101	WA	11	
26	6/24/21 19:26	06242127.D	P2103204-004 (1000mL)	S34-06112101	WA	12	
27	6/24/21 20:00	06242128.D	P2103157-001 (1000mL)	S34-06112101	WA	7	*need dil*
28	6/24/21 20:34	06242129.D	CCV2 R13062521_5ng	S34-06112101/S34-06072102 (7/6)	WA	1	*CCVend for DoD*
29	6/24/21 21:07	06242130.D	P2103047-010 (20mL)	S34-06112101	WA	4	
30	6/24/21 21:41	06242131.D	P2103047-010dup (20mL)	S34-06112101	WA	4	*Passed*
31	6/24/21 22:15	06242132.D	P2103047-011 (100mL)	S34-06112101	WA	2	
32	6/24/21 22:49	06242133.D	P2103047-012 (1000mL)	S34-06112101	WA	3	
33	6/24/21 23:23	06242134.D	P2103047-013 (1000mL)	S34-06112101	WA	5	
34	6/24/21 23:56	06242135.D	P2103047-015 (1000mL)	S34-06112101	WA	6	*need dil*
35	6/25/21 0:30	06242136.D	P2103047-019 (100mL)	S34-06112101	WA	13	
36	6/25/21 1:04	06242137.D	P2103047-019 (100mL)	S34-06112101	WA	13	
	LCSD: MTBE out low (passed in LCS)						

Injection Log

Directory: I:\MS13\DATA\2021_06\25\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	6/25/21 1:37	06252101.D	CCV C13062521_25ng	S34-06112101/S34-06142101 (7/14)	WA	16	*Passed*
2	6/25/21 2:11	06252102.D	CCV R13062521_5ng	S34-06112101/S34-06142101 (7/14)	WA	1	*Passed*
3	6/25/21 2:45	06252103.D	MB R13062521_1000mL	S34-06112101/AC01837	WA	2	*Passed*
4	6/25/21 3:19	06252104.D	LCS R13062521_25ng	S34-06112101/S34-06042101 (7/3)	WA	1	*Passed*
5	6/25/21 3:52	06252105.D	LCSD R13062521_25ng	S34-06112101/S34-06042101 (7/3)	WA	1	*Passed*
6	6/25/21 4:26	06252106.D	Blank	S34-06112101	WA	8	
7	6/25/21 5:00	06252107.D	P2103371-001 (200mL)	S34-06112101	WA	14	
8	6/25/21 5:34	06252108.D	P2103371-001dil (40mL)	S34-06112101	WA	14	
9	6/25/21 6:09	06252109.D	P2103371-002 (1000mL)	S34-06112101	WA	15	
10	6/25/21 6:43	06252110.D	P2103371-002dil (100mL)	S34-06112101	WA	15	
11	6/25/21 7:23	06252111.D	P2103204-001dil (15mL)	S34-06112101	WA	9	
12	6/25/21 7:57	06252112.D	P2103157-001dil (200mL)	S34-06112101	WA	7	
13	6/25/21 8:43	06252113.D	P2103047-010 (15mL)	S34-06112101	WA	4	
14	6/25/21 9:25	06252114.D	P2103371-004dil (5.0mL)	S34-06112101	WA	8	
15	6/25/21 10:22	06252115.D	P2103371-004 (25mL)	S34-06112101	WA	15	
16	6/25/21 10:56	06252116.D	P2103371-003 (75mL)	S34-06112101	WA	14	
17	6/25/21 11:31	06252117.D	P2103371-003dil (15mL)	S34-06112101	WA	14	
18	6/25/21 12:05	06252118.D	P2103047-014 (0.060mL)	S34-06112101	WA	8	
19	6/25/21 12:39	06252119.D	P2103047-016 (7.0mL)	S34-06112101	WA	8	
20	6/25/21 13:14	06252120.D	P2103120-002dil (100mL)	S34-06112101	WA	4	
21	6/25/21 13:48	06252121.D	P2103047-015dil (200mL)	S34-06112101	WA	6	
22	6/25/21 14:22	06252122.D	P2103047-017 (6.0mL)	S34-06112101	WA	8	
23	6/25/21 14:57	06252123.D	P2103047-014 (0.2mL)	S34-06112101	WA	8	
24	6/25/21 15:30	06252124.D	P2103047-024 (7.5mL)	S34-06112101	WA	8	
25	6/25/21 16:04	06252125.D	P2103047-025 (10mL)	S34-06112101	WA	8	
26	6/25/21 16:41	06252126.D	P2103315-001 (0.3mL)	S34-06112101	WA	8	
27	6/25/21 17:20	06252127.D	P2103315-002dil (100mL)	S34-06112101	WA	8	*not needed*
28	6/25/21 17:54	06252128.D	P2103315-002 (1000mL)	S34-06112101	WA	8	
29	6/25/21 18:27	06252129.D	CCVend R13062521_5ng	S34-06112101/S34-06142101 (7/14)	WA	1	*Passed*
30	6/25/21 19:01	06252130.D	P2103047-018 (20mL)	S34-06112101	WA	2	*need dil*
31	6/25/21 19:35	06252131.D	xP2103047-020x (40mL)	S34-06112101	WA	3	*not used*
32	6/25/21 20:08	06252132.D	P2103047-020 (40mL)	S34-06112101	WA	3	*not used*
33	6/25/21 20:42	06252133.D	P2103047-021 (30mL)	S34-06112101	WA	4	
34	6/25/21 21:16	06252134.D	P2103047-022 (1000mL)	S34-06112101	WA	5	
35	6/25/21 21:51	06252135.D	P2103047-023 (1000mL)	S34-06112101	WA	6	
36	6/25/21 22:25	06252136.D	P2103047-026 (100mL)	S34-06112101	WA	7	*need dil*

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-09
Cycles: 30
Batch: 27733

Batch Started By: ANAKLOWYCZ on 5/27/21 1144
Finished Cleaning By: ANAKLOWYCZ on 5/27/21 1147

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
AS00735	5/27/21	5/28/21	Pass w/ Conditions	-14.3	5/27/21 1147	ANAKLOWYCZ	-14.0	6/2/21 0845		
AS01166	5/27/21	5/28/21	Pass w/ Conditions	-14.3	5/27/21 1147	ANAKLOWYCZ	-14.0	6/1/21 1025		
AS01495	5/27/21	5/28/21	Pass w/ Conditions	-14.3	5/27/21 1147	ANAKLOWYCZ	-14.0	6/1/21 1025		
AS01259	5/27/21	5/28/21	Pass w/ Conditions	-14.3	5/27/21 1147	ANAKLOWYCZ	-14.0	6/1/21 0337		
AS00882	5/27/21	5/28/21	Pass w/ Conditions	-14.3	5/27/21 1147	ANAKLOWYCZ	-14.0	6/1/21 1025		
AS01333	5/27/21	5/28/21	Pass w/ Conditions	-14.3	5/27/21 1147	ANAKLOWYCZ	-14.0	6/17/21 0928		MS21_05/27/21
AS00327	5/27/21	5/28/21	Pass w/ Conditions	-14.3	5/27/21 1147	ANAKLOWYCZ	-14.0	6/1/21 0337		
AS01537	5/27/21	5/28/21	Pass w/ Conditions	-14.3	5/27/21 1147	ANAKLOWYCZ	-14.0	6/1/21 1025		
AS00905	5/27/21	5/28/21	Pass w/ Conditions	-14.3	5/27/21 1147	ANAKLOWYCZ	-14.0	6/1/21 1026		
AS00860	5/27/21	5/28/21	Pass w/ Conditions	-14.3	5/27/21 1147	ANAKLOWYCZ	-14.0	6/1/21 0337		

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

*** QC Canister**

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021_05\27\
Data File : 05272123.D
Acq On : 27 May 2021 23:53
Operator : WA\RVT
Sample : 052721_AS01333_27733
Misc : LL+TICS (Sig #1); S34-05052101 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: May 28 06:27:40 2021
Quant Method : I:\MS21\Methods\F21051321.M
Quant Title : EPA TO-15
QLast Update : Fri May 14 07:54:01 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS1)	7.489	130	21629	1000.00	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.656	114	63751	1000.00	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.680	54	10752	1000.00	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.301	65	30578	901.26	pg		0.00
Spiked Amount 1000.000			Recovery = 90.13%				
57) Toluene-d8 (SS2)	12.577	98	52351	963.94	pg		0.00
Spiked Amount 1000.000			Recovery = 96.39%				
74) Bromofluorobenzene (SS3)	16.117	174	18053	843.78	pg		0.00
Spiked Amount 1000.000			Recovery = 84.38%				
Target Compounds							Qvalue
2] * Propene	3.504	42	74	3.31	pg	#	1
3] * Dichlorodifluoromethane	3.556	85	112	1.52	pg	#	42
4] * Chloromethane	3.685	50	176	3.94	pg		99
5] * 1,2-Dichloro-1,1,2,2...	3.556	85	112	1.59	pg	#	42
6) * Vinyl Chloride	0.000		0	N.D.			
7] * 1,3-Butadiene	3.974	54	8	0.29	pg	#	1
8) * Bromomethane	0.000		0	N.D.			
9) * Chloroethane	0.000		0	N.D.			
10] * Ethanol	4.415	45	1691	117.64	pg		99
11) * Acetonitrile	0.000		0	N.D.			
12] * Acrolein	4.691	56	72	4.11	pg	#	80
13] * Acetone	4.805	58	1174	55.86	pg	#	51
14] * Trichlorofluoromethane	4.923	101	183	3.03	pg	#	55
15] * 2-Propanol (Isopropa...	5.013	45	159	2.47	pg	#	63
16) * Acrylonitrile	0.000		0	N.D.			
17] * 1,1-Dichloroethene	5.391	96	66	2.07	pg	#	1
18) tert-Butanol	0.000		0	N.D.			
19] * Methylene Chloride	5.527	84	197	6.59	pg		95
20) * 3-Chloro-1-propene (...	0.000		0	N.D.			
21) * Trichlorotrifluoroet...	0.000		0	N.D.			
22] * Carbon Disulfide	5.794	76	3517	30.24	pg		97
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	0.000		0	N.D.			
27] * 2-Butanone (MEK)	6.961	72	54	2.92	pg		74
28) * cis-1,2-Dichloroethene	0.000		0	N.D.			
29] DIPE	7.593	45	128	1.49	pg	#	44
30] * Ethyl Acetate	7.599	61	142	11.16	pg		95
31) * n-Hexane	0.000		0	N.D.			
32) * Chloroform	0.000		0	N.D.			
34) * Tetrahydrofuran	0.000		0	N.D.			
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	9.234	78	310	4.20	pg		98
40) Isopropyl Acetate	9.188	61	298	No Calib		#	
41) 1-Butanol	9.234	56	145	No Calib		#	
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	10.468	130	443	16.96	pg	#	54

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021_05\27\
Data File : 05272123.D
Acq On : 27 May 2021 23:53
Operator : WA\RVT
Sample : 052721_AS01333_27733
Misc : LL+TICS (Sig #1); S34-05052101 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: May 28 06:27:40 2021
Quant Method : I:\MS21\Methods\F21051321.M
Quant Title : EPA TO-15
QLast Update : Fri May 14 07:54:01 2021
Response via : Initial Calibration

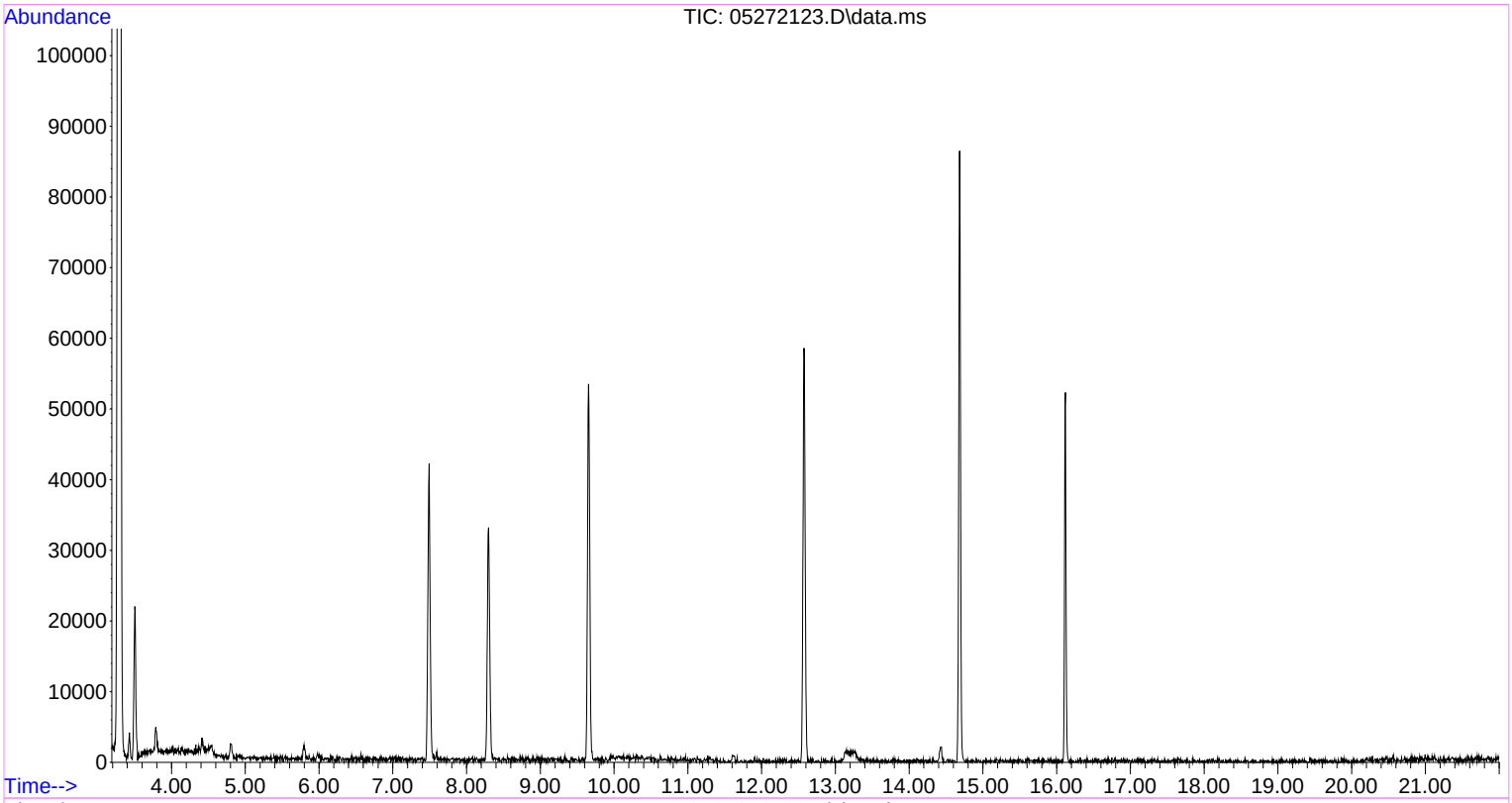
	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
48)	* 1,4-Dioxane	0.000		0	N.D.			
49)	Isooctane	0.000		0	N.D.			
50)	* Methyl Methacrylate	0.000		0	N.D.			
51)	* n-Heptane	0.000		0	N.D.			
52)	* cis-1,3-Dichloropropene	0.000		0	N.D.			
53]	* 4-Methyl-2-pentanone	11.616	58	455	27.61	pg		90
54)	* trans-1,3-Dichloropr...	0.000		0	N.D.			
55)	* 1,1,2-Trichloroethane	0.000		0	N.D.			
58]	* Toluene	12.691	91	335	4.74	pg		92
59)	* 2-Hexanone	0.000		0	N.D.			
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	0.000		0	N.D.			
65)	* Chlorobenzene	0.000		0	N.D.			
66]	* Ethylbenzene	15.118	91	84	0.92	pg	#	43
67]	* m- & p-Xylenes	15.289	91	117	1.62	pg	#	29
68)	* Bromoform	0.000		0	N.D.			
69)	Cyclohexanone	0.000		0	N.D.			
70)	* Styrene	0.000		0	N.D.			
71]	* o-Xylene	15.722	91	58	0.80	pg	#	30
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	0.000		0	N.D.			
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	0.000		0	N.D.			
85)	* Benzyl Chloride	0.000		0	N.D.			
86)	* 1,3-Dichlorobenzene	0.000		0	N.D.			
87)	* 1,4-Dichlorobenzene	0.000		0	N.D.			
88)	n-Decane	0.000		0	N.D.			
89)	sec-Butylbenzene	0.000		0	N.D.			
90)	1,2,3-Trimethylbenzene	0.000		0	N.D.			
91)	p-Isopropyltoluene	0.000		0	N.D.			
92)	* 1,2-Dichlorobenzene	0.000		0	N.D.			
93)	* D-Limonene	0.000		0	N.D.			
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.			

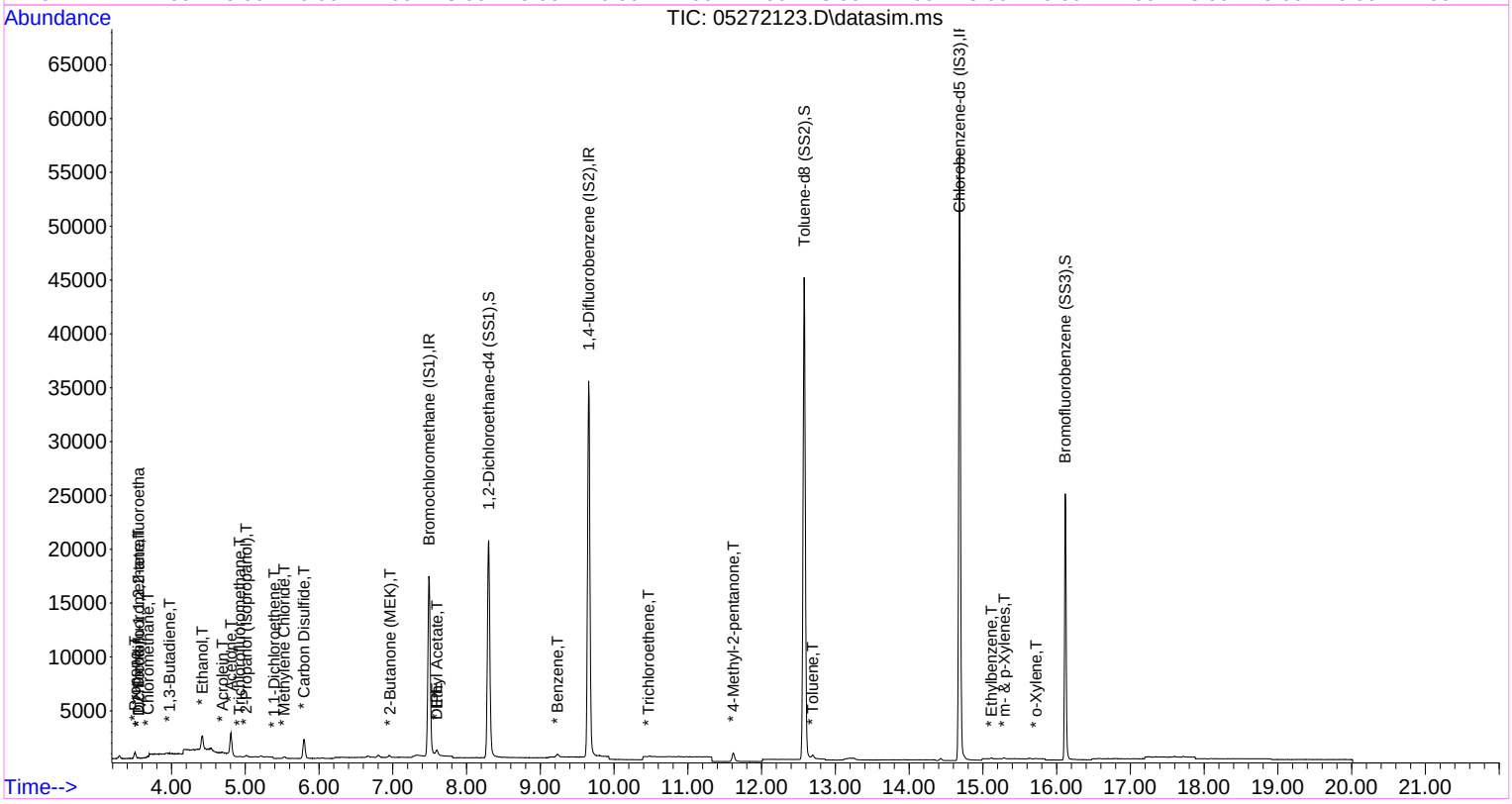
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021_05\27\
Data File : 05272123.D
Acq On : 27 May 2021 23:53
Operator : WA\RVT
Sample : 052721_AS01333_27733
Misc : LL+TICS (Sig #1); S34-05052101 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: May 28 06:27:40 2021
Quant Method : I:\MS21\Methods\F21051321.M
Quant Title : EPA TO-15
QLast Update : Fri May 14 07:54:01 2021
Response via : Initial Calibration





Appendix F Data Quality Evaluation

DATA QUALITY REVIEW REPORT

VOLATILES IN AIR by USEPA Method TO-15

Project:	DDMT Memphis ODSVE – Y10Q1
Project/Task Number:	10233988-2
Sample Data Package:	P2005708
Laboratory:	ALS Environmental, Simi Valley, California
Sample Matrix:	Soil Gas
Sampling Dates:	06 October 2020
Validation Guidelines:	Project Quality Assurance Project Plan (QAPP) (*Remedial Action Operations and Long Term Monitoring Quality Assurance Project Plan, Defense Depot Memphis, Tennessee, Revision 1* [HDR, November 2014]) United States Environmental Protection Agency (USEPA) *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air,* 2nd edition (1999) Method TO-15, and professional judgment
Validation Level:	Stage 2BVM
Data Reviewer:	Lynn K. Lutz, HDR

Sample ID	ALS ID	TO-15 VOCs
ODSVE-EFF-Y10Q1	P2005708-001	X
ODSVE-DUP1-Y10Q1	P2005708-002	X

SUMMARY

All laboratory data were acceptable with qualification.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

The samples were collected in 6-liter Summa canisters. The samples were received in good condition. The canisters' initial field pressures (vacuum) of -32 inches mercury and -30 inches mercury were within the acceptable vacuum of -25 or greater inches mercury. The chain of custody (COC) was filled out and signed. No qualification was required.

II. SAMPLES ANALYZED

All planned samples were collected and analyzed. No qualification was required.

III. HOLDING TIMES

The holding time criterion of 30 days was met. No qualification was required.

IV. GC/MS TUNING

GC/MS BFB tuning criteria were met. Sample analyses were begun within 24 hours of the BFB analysis. No qualification was required.

V. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Initial calibration criterion of relative standard deviation (RSD) less than 30% was met. No qualification was required.

SECOND SOURCE STANDARDS

The LCS and LCSD were appropriately used as the second source standard. All analytes had percent difference (%D) values of less than 35%. No qualification was required.

CONTINUING CALIBRATIONS
All analytes had percent difference (%D) values of less than 35%. No qualification was required.

VI. BLANKS
METHOD BLANKS
Target analytes were not detected in the method blank. No qualification was required.

CANISTER BATCH CERTIFICATION BLANKS
Ethanol, 2-butanone, and acetone were detected in the canister batch blanks at trace levels. These analytes were detected in the samples well above the blank levels and no qualification was required.

VII. LABORATORY CONTROL SAMPLES (LCS) AND LCS DUPLICATE (LCSD)
All recoveries and relative percent differences (RPDs) were within control limits. No qualification was required.

VIII. SURROGATES
Surrogate recoveries were within control limits. No qualification was required.

IX. LABORATORY DUPLICATES
A lab duplicate analysis was not run on these samples. No qualification was required.

X. FIELD DUPLICATES
Sample ODSVE-DUP1-Y10Q1 was collected as a field duplicate of sample ODSVE-EFF-Y10Q1. A number of analytes had results outside control limits and were qualified as noted in the table below.

Analyte	Parent / FD concentrations	RPD	Control Limit	Qualification
1,4-Dioxane	ND / >LOQ	--	--	UJ / J
2-Butanone (MEK)	1.3 / 5.5 ppbv	159%	30%	J / J
2-Hexanone	0.74 / 0.22 J ppbv	>LOQ diff	<LOQ	J / J
4-Methyl-2-pentanone (MIBK)	0.15 J / 0.73 ppbv	>LOQ diff	<LOQ	J / J
Acetone	5.2 / 28 ppbv	137%	30%	J / J
Acetonitrile	ND / >LOQ	--	--	UJ / J
Acrolein	0.54 J / 1.8 ppbv	>LOQ diff	<LOQ	J / J
Carbon disulfide	0.28 J / 3.7 ppbv	>LOQ diff	<LOQ	J / J
Ethyl acetate	ND / >LOQ	--	--	UJ / J
Propene	0.4 / 1.3 ppbv	105%	30%	J / J
Tetrahydrofuran	0.077 J / 0.53 ppbv	>LOQ diff	<LOQ	J / J
Vinyl acetate	ND / >LOQ	--	--	UJ / J
Naphthalene	>LOQ / ND	--	--	J / UJ

XI. INTERNAL STANDARDS (ISTD)
The ISTD criterion of area responses within 40% of the CCV was met for all samples. No qualification was required.

XII. LIMITS OF QUANTITATION (LOQs), LIMITS OF DETECTION (LODs) AND DETECTION LIMITS (DLs)
LOQs, LODs and DLs were appropriate for the project.

XIII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION

Transcription between the data packages and the EDDs was verified. Results between the DL and LOQ have been qualified as estimated (J).

DATA QUALITY REVIEW REPORT

VOLATILES IN AIR by USEPA Method TO-15

Project:	DDMT Memphis ODSVE – Y10Q2
Project/Task Number:	10233988-2
Sample Data Package:	P2006988
Laboratory:	ALS Environmental, Simi Valley, California
Sample Matrix:	Soil Gas
Sampling Dates:	09 December 2020
Validation Guidelines:	Project Quality Assurance Project Plan (QAPP) (*Remedial Action Operations and Long Term Monitoring Quality Assurance Project Plan, Defense Depot Memphis, Tennessee, Revision 1* [HDR, November 2014]) United States Environmental Protection Agency (USEPA) *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air,* 2nd edition (1999) Method TO-15, and professional judgment
Validation Level:	Stage 2BVM
Data Reviewer:	Lynn K. Lutz, HDR

Sample ID	ALS ID	TO-15 VOCs
ODSVE-EFF-Y10Q2	P2006988-001	X

SUMMARY

All laboratory data were acceptable with qualification.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

The sample was collected in a 6-liter Summa canister. The sample was received in good condition. The canister's initial field pressure (vacuum) of -28 inches mercury was within the acceptable vacuum of -25 or greater inches mercury. The chain of custody (COC) was filled out and signed. No qualification was required.

The sample ID was incorrect on the COC as YQ10Q2. The lab was requested to correct the ID to Y10Q2.

II. SAMPLES ANALYZED

All planned samples were collected and analyzed. No qualification was required.

III. HOLDING TIMES

The holding time criterion of 30 days was met. No qualification was required.

IV. GC/MS TUNING

GC/MS BFB tuning criteria were met. Sample analyses were begun within 24 hours of the BFB analysis. No qualification was required.

V. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Initial calibration criterion of relative standard deviation (RSD) less than 30% was met. No qualification was required.

SECOND SOURCE STANDARDS

All analytes had percent difference (%D) values of less than 35%. No qualification was required.

CONTINUING CALIBRATIONS
All analytes had percent difference (%D) values of less than 35%. No qualification was required.

VI. BLANKS
METHOD BLANKS
Target analytes were not detected in the method blank. No qualification was required.

CANISTER BATCH CERTIFICATION BLANKS
Ethanol, 2-butanone, and acetone were detected in the canister batch blank at trace levels. These analytes were detected in the samples well above the blank levels or were not detected in the sample, and no qualification was required.

VII. LABORATORY CONTROL SAMPLES (LCS) AND LCS DUPLICATE (LCSD)
All recoveries and relative percent differences (RPDs) were within control limits. No qualification was required.

VIII. SURROGATES
Surrogate recoveries were within control limits. No qualification was required.

IX. LABORATORY DUPLICATES
A lab duplicate analysis was run on this sample. RPDs were within the control limit. No qualification was required.

X. FIELD DUPLICATES
A field duplicate sample was not collected.

XI. INTERNAL STANDARDS (ISTD)
The ISTD criterion of area responses within 40% of the CCV was met for all samples. No qualification was required.

XII. LIMITS OF QUANTITATION (LOQs), LIMITS OF DETECTION (LODs) AND DETECTION LIMITS (DLs)
LOQs, LODs and DLs were appropriate for the project.

XIII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION
Transcription between the data packages and the EDDs was verified. Results between the DL and LOQ have been qualified as estimated (J).

DATA QUALITY REVIEW REPORT

VOLATILES IN AIR by USEPA Method TO-15

Project:	DDMT Memphis ODSVE – Y10Q3
Project/Task Number:	10233988-2
Sample Data Package:	P2101963
Laboratory:	ALS Environmental, Simi Valley, California
Sample Matrix:	Soil Gas
Sampling Dates:	13 April 2021
Validation Guidelines:	Project Quality Assurance Project Plan (QAPP) (*Remedial Action Operations and Long Term Monitoring Quality Assurance Project Plan, Defense Depot Memphis, Tennessee, Revision 1* [HDR, November 2014]) United States Environmental Protection Agency (USEPA) *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air,* 2nd edition (1999) Method TO-15, and professional judgment
Validation Level:	Stage 2BVM
Data Reviewer:	Lynn K. Lutz, HDR

Sample ID	ALS ID	TO-15 VOCs
ODSVE-EFF-Y10Q3	P2101963-001	X

SUMMARY

All laboratory data were acceptable with qualification.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

The sample was collected in a 6-liter Summa canister. The sample was received in good condition. The canister's initial field pressure (vacuum) of -27.5 inches mercury was within the acceptable vacuum of -25 or greater inches mercury. The chain of custody (COC) was filled out and signed. No qualification was required.

The sample ID was incorrect on the COC as YQ10Q2. The lab was requested to correct the ID to Y10Q2.

II. SAMPLES ANALYZED

All planned samples were collected and analyzed. No qualification was required.

III. HOLDING TIMES

The holding time criterion of 30 days was met. No qualification was required.

IV. GC/MS TUNING

GC/MS BFB tuning criteria were met. Sample analyses were begun within 24 hours of the BFB analysis. No qualification was required.

V. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Initial calibration criterion of relative standard deviation (RSD) less than 30% was met. No qualification was required.

SECOND SOURCE STANDARDS
All analytes had percent difference (%D) values of less than 35%. No qualification was required.

CONTINUING CALIBRATIONS
All analytes had percent difference (%D) values of less than 35%. No qualification was required.

VI. BLANKS
METHOD BLANKS
Target analytes were not detected in the method blank. No qualification was required.

CANISTER BATCH CERTIFICATION BLANKS
Ethanol was detected in the canister batch blank at a trace level. Ethanol in the sample was at a much higher concentration, and no qualification was required.

VII. LABORATORY CONTROL SAMPLES (LCS) AND LCS DUPLICATE (LCSD)
Ethyl acetate had recoveries of 144% and 142%, above the control limits of 65-128%. Ethyl acetate in the sample was qualified as estimated with a possible high bias (J+).

VIII. SURROGATES
Surrogate recoveries were within control limits. No qualification was required.

IX. LABORATORY DUPLICATES
A lab duplicate analysis was not run on this sample. No qualification was required.

X. FIELD DUPLICATES
A field duplicate sample was not collected.

XI. INTERNAL STANDARDS (ISTD)
The ISTD criterion of area responses within 40% of the CCV was met for all samples. No qualification was required.

XII. LIMITS OF QUANTITATION (LOQs), LIMITS OF DETECTION (LODs) AND DETECTION LIMITS (DLs)
LOQs, LODs and DLs were appropriate for the project.

XIII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION
Transcription between the data packages and the EDDs was verified. Results between the DL and LOQ have been qualified as estimated (J).

DATA QUALITY REVIEW REPORT

VOLATILES IN AIR by USEPA Method TO-15

Project:	DDMT Memphis ODSVE – Y10Q4
Project/Task Number:	10233988-2
Sample Data Package:	P2103157
Laboratory:	ALS Environmental, Simi Valley, California
Sample Matrix:	Soil Gas
Sampling Dates:	07 June 2021
Validation Guidelines:	Project Quality Assurance Project Plan (QAPP) (*Remedial Action Operations and Long Term Monitoring Quality Assurance Project Plan, Defense Depot Memphis, Tennessee, Revision 1* [HDR, November 2014]) United States Environmental Protection Agency (USEPA) *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air,* 2nd edition (1999) Method TO-15, and professional judgment
Validation Level:	Stage 2BVM
Data Reviewer:	Lynn K. Lutz, HDR

Sample ID	ALS ID	TO-15 VOCs
ODSVE-EFF-Y10Q4	P2103157-001	X

SUMMARY

All laboratory data were acceptable with qualification.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

The sample was collected in a 6-liter Summa canister. The sample was received in good condition. The canister's initial field pressure (vacuum) of -30 inches mercury was within the acceptable vacuum of -25 or greater inches mercury. The chain of custody (COC) was filled out and signed. No qualification was required.

The COC listed one sample collected in a 6-L canister, but the lab's log-in page listed three samples in 1-L canisters. The lab was requested to correct this discrepancy.

II. SAMPLES ANALYZED

All planned samples were collected and analyzed. No qualification was required.

III. HOLDING TIMES

The holding time criterion of 30 days was met. No qualification was required.

IV. GC/MS TUNING

GC/MS BFB tuning criteria were met. Sample analyses were begun within 24 hours of the BFB analysis. No qualification was required.

V. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Initial calibration criterion of relative standard deviation (RSD) less than 30% was met. No qualification was required.

SECOND SOURCE STANDARDS
Ethyl acetate had a percent difference (%D) of +57%. This analyte was non-detect in the sample and has been qualified as non-detect estimated (UJ).

CONTINUING CALIBRATIONS
All analytes had percent difference (%D) values of less than 35%. No qualification was required.

VI. BLANKS
METHOD BLANKS
Target analytes were not detected in the method blank. No qualification was required.

CANISTER BATCH CERTIFICATION BLANKS
Ethanol was detected in the canister batch blank at a trace level. Ethanol in the sample was at a much higher concentration, and no qualification was required.

VII. LABORATORY CONTROL SAMPLES (LCS) AND LCS DUPLICATE (LCSD)
Ethyl acetate had recoveries of 149% and 148%, above the control limits of 65-128%. Ethyl acetate in the sample was non-detect and no qualification was required.

VIII. SURROGATES
Surrogate recoveries were within control limits. No qualification was required.

IX. LABORATORY DUPLICATES
A lab duplicate analysis was not run on this sample. No qualification was required.

X. FIELD DUPLICATES
A field duplicate sample was not collected.

XI. INTERNAL STANDARDS (ISTD)
The ISTD criterion of area responses within 40% of the CCV was met for all samples. No qualification was required.

XII. LIMITS OF QUANTITATION (LOQs), LIMITS OF DETECTION (LODs) AND DETECTION LIMITS (DLs)
LOQs, LODs and DLs were appropriate for the project.

XIII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION
Transcription between the data packages and the EDDs was verified. Results between the DL and LOQ have been qualified as estimated (J).

Appendix G Off-Depot Air Sparge/Soil Vapor Extraction (AS/SVE) system Optimization Report Defense Depot Memphis, Tennessee

Off-Depot Air Sparge/Soil Vapor Extraction System Optimization Report

Dunn Field - Defense Depot Memphis, Tennessee

Prepared for:



U.S. Army Corps of Engineers
Mobile District
109 St. Joseph Street
Mobile, Alabama 36602

July 2022

Prepared by:

Trinity Analysis & Development Corp.
Contract No. W91278-16-D-0054
Delivery Order No. W9127820F0137

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Appendix E: IDW Laboratory Analytical Reports

Acronyms and Abbreviations

µg/L	micrograms per liter
AS	air sparge
bgs	below ground surface
BRAC	Base Realignment and Closure
CVOC	chlorinated volatile organic compound
DDMT	Defense Depot, Memphis Tennessee
DoD	Department of Defense
HDPE	high density polyethylene
HDR	HDR, Inc.
IDW	investigation derived waste
IRA	interim removal action
KGS/Trinity	KOMAN Government Solutions, LLC
LUC	Land Use Control
PID	photoionization detector
PLC	programmable logic controller
PLS	professional land surveyor
PVC	polyvinyl chloride
RGO	Remedial Goal Objective
RW	recovery well
SVE	soil vapor extraction
TDEC	Tennessee Department of Environment and Conservation
TCLP	Toxicity Characteristic Leaching Procedure
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

1.0 INTRODUCTION

This Off-Depot Air Sparge/Soil Vapor Extraction (AS/SVE) Optimization Report has been prepared by KOMAN Government Solutions, LLC (KGS/Trinity) on behalf of the United States Army Corps of Engineers, Mobile District, under contract No. W91278-16-D-0054, Task Order W9127820F0137. The report describes the work conducted at Defense Depot Memphis Tennessee (DDMT) to install and connect five new air-sparge (AS) wells to the existing Air Sparge/Soil Vapor Extraction (AS/SVE) system to treat isolated detections of chlorinated volatile organic compounds (CVOC) surrounding monitoring well MW-159. Work was completed in accordance with the *Uniform Federal Policy-Quality Assurance Project Plan, Off Depot Air Sparge Well Installation Work Plan, Dunn Field Defense Depot Memphis, Tennessee* (Workplan) prepared by Trinity Analysis & Development Corporation (Trinity) (Trinity 2020).

1.1 Site Location, History, and Physical Setting

A brief summary of the site is provided below. More detailed information is provided in the Workplan (Trinity, 2020).

DDMT is located in southeastern Memphis, Shelby County, Tennessee approximately five miles east of the Mississippi River and two miles north of Memphis International Airport (**Figure 1**). DDMT originated as a military facility in the early 1940s; it received, warehoused, and distributed supplies common to all United States military services and some civil agencies located primarily in the southeastern United States, Puerto Rico, and Panama. In 1995, DDMT was placed on the list of the Department of Defense (DoD) facilities to be closed under the Base Realignment and Closure (BRAC) process. Storage and distribution of material continued until the facility closed in September 1997.

In October 1992, DDMT was added to the National Priorities List (57 Federal Register 47180 No. 199). 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 the United States Environmental Protection Agency (USEPA) Region 4 and Tennessee Department of Environment and Conservation (TDEC).

DDMT is divided into four Operable Units (OUs): Dunn Field, OU 1 (the only area on DDMT where burial of waste is known to have occurred); Southwest Quadrant Main Installation, OU 2; Southeastern Watershed and Golf Course, OU 3; and North-Central Area Main Installation, OU 4. This report addresses work completed at the Off Depot area west of Dunn Field.

Initially, the selected active remedy for Off Depot groundwater was to be installation of a permeable reactive barrier (CH2MHill, 2004); however, upon further studies and data analyses, the selected remedy was modified through Dunn Field Record of Decision Amendment (E^2M, 2009) to be installation of an AS/SVE system with long-term monitoring of groundwater and implementation of Land Use Controls (LUC) to prevent access to contaminated groundwater.

The AS/SVE system with 90 AS points and 12 SVE wells began operation in December 2009. LUCs were implemented through deed restrictions, zoning regulations, and Notice of Land Use Restrictions recorded in June 2009, and annual inspections since 2009. The AS/SVE system was installed to reduce individual CVOC concentrations in the treatment area below 50 micrograms per liter (µg/L) and to continue operation until the upgradient concentrations of individual CVOCs in the Dunn Field plume do not exceed 50 µg/L (E^2M, 2009). AS/SVE in combination with natural attenuation processes is expected to reduce

groundwater concentrations to USEPA maximum contaminant levels in accordance with Remedial Action Objectives in the Dunn Field Record of Decision.

2.0 FIELD ACTIVITIES

2.1 Air Sparge Well Installation

KGS/Trinity, HDR, and Walker-Hill Environmental (drilling subcontractor) mobilized to the Site on 09 through 10 September 2020 to begin the overburden drilling and air sparge well installation activities for five new AS wells to be connected to the current AS/SVE system (**Figure 2**). Drilling commenced on 11 September using a Geoprobe 8150 LS Roto-sonic drilling rig with a 4-inch diameter core barrel within 6-inch diameter temporary casing.

The new well boreholes (ODAS-91 through ODAS-95) were drilled at the locations indicated on **Figure 2**. Borehole depths ranged from 97 feet below ground surface (bgs) at ODAS-91 to 100 feet bgs at ODAS-92 through ODAS-95. Borings were terminated when a dark clay layer described as a bluish-black, competent, stiff clay was observed in the soil cores. The soil cores were continuously screened using a MiniRAE 3000 photoionization detector (PID) and logged using the Unified Soil Classification System and Munsell Color Reference Book for soil description and color. Boring logs with soil descriptions and PID measurements are supplied in **Appendix A**. Photos of the drilling process and soil cores are provided in **Appendix B**.

Once drilling had been completed, a newly assembled air sparge well was constructed at each location using the following materials:

- A 30 inch long, 2.5-inch diameter microbubble steel well screen;
- 2-inch diameter Schedule 40 polyvinyl chloride (PVC) couplers to attach well screen to riser;
- 2-inch diameter Schedule 40 PVC Riser to ground surface;
- 2-inch diameter Schedule 40 PVC couplers to high density polyethylene (HDPE) fittings for connecting to AS manifold.

Total depths for each well ranged from 95.8 to 98.8 feet bgs depending on the depth of the dark clay layer (the bottom of the microbubble screens were placed as close to the top of the identified clay unit as possible). Well construction was completed by slowly lifting the 6-inch diameter temporary casing out of the borehole and allowing the natural formation to collapse around the newly installed well screen. Filter sand was added to the boring such that the sand/natural formation was one foot above the top of the screen. Bentonite pellets were then added in stages and hydrated for a minimum of two hours to create a sufficient seal above the screen and filter pack. The thickness of the bentonite seal ranged from 3 feet (ODAS-91) to 4.5 feet (ODAS-94). Once the bentonite was hydrated, a cement-bentonite grout slurry was pumped via tremie pipe up to three feet bgs. Decontamination of the casing and tooling was completed during removal from the borehole in accordance with the procedures described in the Workplan (Trinity, 2020). Wells were completed by installing flush-mounted well vaults and concrete well pads. The steel lids were labeled for easy identification in the field. Wells were then surveyed by a professional land surveyor (PLS). Well construction logs for each new AS well are provided in **Appendix C**. Photos of the well installation process are provided in **Appendix B**. The survey data are presented in **Appendix D**. In accordance with the Workplan (Trinity, 2020), due to the constructed nature of the AS point, development was not necessary nor performed.

2.2 Air Sparge Lines and Manifold Installation

The air sparge trench was completed using a mini excavator, and hand tools in cases where underground lines were expected. The trench began on the east side of the manifold system where lines enter below ground surface from the Conex box. The trench then crossed the adjacent AS/SVE trench and skirted the construction buffer, generally keeping a minimum distance of 30 feet from the electricity transmission towers (to ensure compliance with the 20-foot construction buffer around each tower). The trench was excavated to a depth of approximately 2.5 to 3 feet bgs and a width of approximately 3 feet. The trench is depicted as a dashed blue line on **Figure 2**.

Once trenching was completed, 0.5-inch inside-diameter HDPE conveyance lines were run from the AS manifold exhaust to each of the five newly installed AS wells and connected via PVC reducing fittings to the well heads. These connections were completed at a depth of two feet bgs, and a two-inch diameter PVC pipe was added for well access inside of the roadway box at 0.5 feet bgs. Connection of the HDPE conveyance line to the AS manifold air supply lines consisted of galvanized steel and brass reducing fittings from the HDPE to a brass crush-fitting at the air line. Individual lines were labeled at the well and manifold ends to be easily identified. Identification tape was placed approximately 0.5-1 ft above the conveyance lines within the trench. All lines were tested for leaks prior to backfilling. The trench was then backfilled using the excavated soil. The trench was surveyed by a PLS. Photos of the trench and AS line installation are provided in **Appendix B**. The survey data are presented in **Appendix D**.

The newly installed AS wells and lines were temporarily connected to the AS/SVE system using the air lines from pre-existing wells AS-66 through AS-70 that were not currently in operation. The temporary connections were necessary because the programmable logic controller (PLC) software would not accept the new wells. The PLC was reprogramed in October 2020 allowing for connection of the new wells, at which time the new wells were disconnected from the AS-66 through AS-70 air lines.

3.0 INVESTIGATION DERIVED WASTE (IDW) ANALYTICAL RESULTS

IDW wastewater and soil was generated during the drilling, well installation, and new AS conveyance line installation processes. IDW wastewater, consisting of equipment decontamination water, was stored in 15 55-gallon steel drums staged at Dunn Field. IDW soil was likewise staged at Dunn Field in a single pile and was overlain and underlain with poly sheets. The IDW soil and wastewater were sampled on 16 September 2020. The soil pile was mixed using a skid-steer loader and a grab sample (DDMT-IDW-01) was collected from the center of the pile. A composite sample of the IDW wastewater (DDMT-IDW-02) was generated by combining aliquots from each of the water drums. The samples were submitted to Pace Analytical for analysis of Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOC), semi-volatile organic compounds, pesticides, herbicides, polychlorinated biphenyls, Resource Conservation Regulatory Act metals, reactivity, pH, and flashpoint. All results for both water and soil were below regulatory criteria (**Table 1)**.

Based on the analytical results, the IDW water was filtered using 5-micron bag filters and transferred to the bulk storage tank at Dunn Field where it was combined with other wastewater generated during environmental restoration activities at DDMT. The combined wastewater was sampled on 15 April 2021 for VOCs, copper, and zinc in accordance with TDEC requirements established for the environmental restoration wastewater (HDR, 2021). There were no detections of VOCs or zinc. Copper was detected at a concentration well below the discharge criteria (HDR, 2021). The wastewater was discharged through a 5-micron bag filter to a grassed swale and the storm sewer on 10 June 2021 (HDR, 2021).

During transfer of the drummed water to the Dunn Field bulk storage tank, it was discovered that the water drums contained varying amounts of sediment that had settled to the bottom of each drum. The sediment from all 15 drums was consolidated into five drums and each drum was sampled separately on

13 April 2021 for select VOCs by USEPA Method 8260B. All results were below the Remedial Goal Objectives (RGO) (site-specific soil screening levels to be protective of groundwater) identified in the Dunn Field Record of Decision (CH2MHill, 2004) (**Table 2**). Based on the analytical results, the soils were spread on the ground surface at Dunn Field on 08 June 2021.

The stockpiled IDW soils were sampled on 02 February 2021 for VOCs by USEPA Method USEPA Method 8260B. All results were below RGOs (**Table 3**). Based on the analytical results, the soils were spread on the ground surface at Dunn Field on 14 April 2021.

The IDW laboratory reports are provided in **Appendix E**.

4.0 AIR SPARGE WELL REPAIRS

Repairs were conducted to existing air sparge wells during the AS well installation field program. Repairs to AS-55 and AS-57 were required as the PVC connections to the airlines below ground surface had exploded in the roadway box. Repairs consisted of removing the existing roadway boxes and trenching to below the AS airline connection. The well connection up from the PVC Tee was rebuilt and the lines reconnected. Once the PVC glue was left to set, the lines were tested for leaks before covered up and new roadway boxes and concrete pads were installed. AS-3 had an unidentified leak near the top of the well cap within the roadway box. The PVC cap and coupling were cut off and replaced with a new cap and coupling assembly. The repair was tested for leaks after the glue had set.

5.0 REFERENCES

CH2MHill, 2004. *Memphis Depot, Dunn Field, Record of Decision, Defense Distribution Center (Memphis), Final*. March.

E^2M, 2009. *Dunn Field Record of Decision Amendment, Defense Depot Memphis, Tennessee*. Rev. 3. January.

HDR, 2021. Wastewater Discharge Report, Defense Depot Memphis, Tennessee. June.

Trinity, 2020. *Uniform Federal Policy-Quality Assurance Project Plan, Off Depot Air Sparge Well Installation Work Plan, Dunn Field, Defense Depot Memphis, Tennessee*. Rev 2. September.

Tables

Table 1
IDW Analytical Results - TCLP (Stockpile Soil and Water)
Defense Depot Memphis, Tennennesse

Soil								
Sample ID	**Collection Date**	**Analytical Method**	**Description**	**Parameter**	**Result**	**Qualifier**	**Unit**	**TCLP Regulatory Level (mg/L)**
DDMT-IDW-01	9/16/2020	EPA 1311/6020B	TCLP Metals/Solid Leachate	Arsenic	0.10	U	mg/L	5
DDMT-IDW-01	9/16/2020	EPA 1311/6020B	TCLP Metals/Solid Leachate	Barium	0.10	U	mg/L	100
DDMT-IDW-01	9/16/2020	EPA 1311/6020B	TCLP Metals/Solid Leachate	Cadmium	0.10	U	mg/L	13
DDMT-IDW-01	9/16/2020	EPA 1311/6020B	TCLP Metals/Solid Leachate	Chromium	0.10	U	mg/L	5
DDMT-IDW-01	9/16/2020	EPA 1311/6020B	TCLP Metals/Solid Leachate	Lead	0.10	U	mg/L	5
DDMT-IDW-01	9/16/2020	EPA 1311/6020B	TCLP Metals/Solid Leachate	Selenium	0.10	U	mg/L	1
DDMT-IDW-01	9/16/2020	EPA 1311/6020B	TCLP Metals/Solid Leachate	Silver	0.10	U	mg/L	5
DDMT-IDW-01	9/16/2020	EPA 1311/7470A	TCLP Metals/Solid Leachate	Mercury	0.002	U	mg/L	0.2
DDMT-IDW-01	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Solid Leachate	Chlordane (Technical)	0.0025	U	mg/L	0.03
DDMT-IDW-01	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Solid Leachate	Endrin	0.001	U	mg/L	0.02
DDMT-IDW-01	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Solid Leachate	Heptachlor	0.0005	U	mg/L	0.008
DDMT-IDW-01	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Solid Leachate	Heptachlor epoxide	0.0005	U	mg/L	0.008
DDMT-IDW-01	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Solid Leachate	Methoxychlor	0.0005	U	mg/L	10
DDMT-IDW-01	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Solid Leachate	Toxaphene	0.0025	U	mg/L	0.5
DDMT-IDW-01	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Solid Leachate	gamma-BHC (Lindane)	0.0005	U	mg/L	0.4
DDMT-IDW-01	9/16/2020	EPA 1311/8151A	TCLP Herbicides/Solid Leachate	2,4'-D	0.005	U	mg/L	10
DDMT-IDW-01	9/16/2020	EPA 1311/8151A	TCLP Herbicides/Solid Leachate	2,4,5-TP (Silvex)	0.005	U	mg/L	1
DDMT-IDW-01	9/16/2020	EPA 1311/8260B	TCLP VOCs/Solid Leachate	1,1-Dichloroethene	0.50	U	mg/L	0.5
DDMT-IDW-01	9/16/2020	EPA 1311/8260B	TCLP VOCs/Solid Leachate	1,2-Dichloroethane	0.25	U	mg/L	0.5
DDMT-IDW-01	9/16/2020	EPA 1311/8260B	TCLP VOCs/Solid Leachate	2-Butanone	0.50	U	mg/L	200
DDMT-IDW-01	9/16/2020	EPA 1311/8260B	TCLP VOCs/Solid Leachate	Benzene	0.25	U	mg/L	0.5
DDMT-IDW-01	9/16/2020	EPA 1311/8260B	TCLP VOCs/Solid Leachate	Carbon tetrachloride	0.25	U	mg/L	0.5
DDMT-IDW-01	9/16/2020	EPA 1311/8260B	TCLP VOCs/Solid Leachate	Chlorobenzene	0.50	U	mg/L	100
DDMT-IDW-01	9/16/2020	EPA 1311/8260B	TCLP VOCs/Solid Leachate	Chloroform	0.50	U	mg/L	6
DDMT-IDW-01	9/16/2020	EPA 1311/8260B	TCLP VOCs/Solid Leachate	Tetrachloroethene	0.50	U	mg/L	0.7
DDMT-IDW-01	9/16/2020	EPA 1311/8260B	TCLP VOCs/Solid Leachate	Trichloroethene	0.25	U	mg/L	0.5
DDMT-IDW-01	9/16/2020	EPA 1311/8260B	TCLP VOCs/Solid Leachate	Vinyl chloride	0.10	U	mg/L	0.2
DDMT-IDW-01	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Solid Leachate	1,4-Dichlorobenzene	0.05	U	mg/L	7.5
DDMT-IDW-01	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Solid Leachate	2,4,5-Trichlorophenol	0.05	U	mg/L	400
DDMT-IDW-01	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Solid Leachate	2,4,6-Trichlorophenol	0.05	U	mg/L	2

Table 1
IDW Analytical Results - TCLP (Stockpile Soil and Water)
Defense Depot Memphis, Tennennesse

Sample ID	Collection Date	Analytical Method	Description	Parameter	Result	Qualifier	Unit	TCLP Regulatory Level (mg/L)
DDMT-IDW-01	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Solid Leachate	2,4-Dinitrotoluene	0.01	U	mg/L	0.13
DDMT-IDW-01	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Solid Leachate	Cresols	0.10	U	mg/L	200
DDMT-IDW-01	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Solid Leachate	Hexachlorobenzene	0.01	U	mg/L	0.13
DDMT-IDW-01	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Solid Leachate	Hexachlorobutadiene	0.05	U	mg/L	0.5
DDMT-IDW-01	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Solid Leachate	Hexachloroethane	0.05	U	mg/L	3
DDMT-IDW-01	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Solid Leachate	Nitrobenzene	0.05	U	mg/L	2
DDMT-IDW-01	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Solid Leachate	Pentachlorophenol	0.05	U	mg/L	100
DDMT-IDW-01	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Solid Leachate	Pyridine	0.05	U	mg/L	5
DDMT-IDW-01	9/16/2020	EPA 9012B	Solid Sample	Reactivity Cyanide	250	U	mg/kg	NA
DDMT-IDW-01	9/16/2020	EPA 9034	Solid Sample	Reactivity Sulfide	250	U	mg/kg	NA
DDMT-IDW-01	9/16/2020	EPA 9045D	Solid Sample	pH	**6.88**		pH unit	NA
DDMT-IDW-01	9/16/2020	EPA 1010A	Solid Sample	Flash point	>170		Deg F	NA
Water								
DDMT-IDW-02	9/16/2020	EPA 1311/6020B	TCLP Metals/Aqueous	Arsenic	0.001	U	mg/L	5
DDMT-IDW-02	9/16/2020	EPA 1311/6020B	TCLP Metals/Aqueous	Barium	**0.044**		mg/L	100
DDMT-IDW-02	9/16/2020	EPA 1311/6020B	TCLP Metals/Aqueous	Cadmium	0.001	U	mg/L	13
DDMT-IDW-02	9/16/2020	EPA 1311/6020B	TCLP Metals/Aqueous	Chromium	**0.018**		mg/L	5
DDMT-IDW-02	9/16/2020	EPA 1311/6020B	TCLP Metals/Aqueous	Lead	0.001	U	mg/L	5
DDMT-IDW-02	9/16/2020	EPA 1311/6020B	TCLP Metals/Aqueous	Selenium	0.001	U	mg/L	1
DDMT-IDW-02	9/16/2020	EPA 1311/6020B	TCLP Metals/Aqueous	Silver	0.001	U	mg/L	5
DDMT-IDW-02	9/16/2020	EPA 1311/7470A	TCLP Metals/Aqueous	Mercury	0.002	U	mg/L	0.2
DDMT-IDW-02	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Aqueous	Chlordane (Technical)	0.0025	U	mg/L	0.03
DDMT-IDW-02	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Aqueous	Endrin	0.001	U	mg/L	0.02
DDMT-IDW-02	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Aqueous	Heptachlor	0.0005	U	mg/L	0.008
DDMT-IDW-02	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Aqueous	Heptachlor epoxide	0.0005	U	mg/L	0.008
DDMT-IDW-02	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Aqueous	Methoxychlor	0.0005	U	mg/L	10
DDMT-IDW-02	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Aqueous	Toxaphene	0.0025	U	mg/L	0.5
DDMT-IDW-02	9/16/2020	EPA 1311/8081B	TCLP Pesticides/Aqueous	gamma-BHC (Lindane)	0.0005	U	mg/L	0.4
DDMT-IDW-02	9/16/2020	EPA 1311/8151A	TCLP Herbicides/Aqueous	2,4'-D	0.005	U	mg/L	10
DDMT-IDW-02	9/16/2020	EPA 1311/8151A	TCLP Herbicides/Aqueous	2,4,5-TP (Silvex)	0.005	U	mg/L	1
DDMT-IDW-02	9/16/2020	EPA 1311/8260B	TCLP VOCs/Aqueous	1,1-Dichloroethene	0.50	U	mg/L	0.5

Table 1
IDW Analytical Results - TCLP (Stockpile Soil and Water)
Defense Depot Memphis, Tennennesse

Sample ID	Collection Date	Analytical Method	Description	Parameter	Result	Qualifier	Unit	TCLP Regulatory Level (mg/L)
DDMT-IDW-02	9/16/2020	EPA 1311/8260B	TCLP VOCs/Aqueous	1,2-Dichloroethane	0.25	U	mg/L	0.5
DDMT-IDW-02	9/16/2020	EPA 1311/8260B	TCLP VOCs/Aqueous	2-Butanone	0.50	U	mg/L	200
DDMT-IDW-02	9/16/2020	EPA 1311/8260B	TCLP VOCs/Aqueous	Benzene	0.25	U	mg/L	0.5
DDMT-IDW-02	9/16/2020	EPA 1311/8260B	TCLP VOCs/Aqueous	Carbon tetrachloride	0.25	U	mg/L	0.5
DDMT-IDW-02	9/16/2020	EPA 1311/8260B	TCLP VOCs/Aqueous	Chlorobenzene	0.50	U	mg/L	100
DDMT-IDW-02	9/16/2020	EPA 1311/8260B	TCLP VOCs/Aqueous	Chloroform	0.50	U	mg/L	6
DDMT-IDW-02	9/16/2020	EPA 1311/8260B	TCLP VOCs/Aqueous	Tetrachloroethene	0.50	U	mg/L	0.7
DDMT-IDW-02	9/16/2020	EPA 1311/8260B	TCLP VOCs/Aqueous	Trichloroethene	0.25	U	mg/L	0.5
DDMT-IDW-02	9/16/2020	EPA 1311/8260B	TCLP VOCs/Aqueous	Vinyl chloride	0.10	U	mg/L	0.2
DDMT-IDW-02	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Aqueous	1,4-Dichlorobenzene	0.05	U	mg/L	7.5
DDMT-IDW-02	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Aqueous	2,4,5-Trichlorophenol	0.05	U	mg/L	400
DDMT-IDW-02	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Aqueous	2,4,6-Trichlorophenol	0.05	U	mg/L	2
DDMT-IDW-02	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Aqueous	2,4-Dinitrotoluene	0.01	U	mg/L	0.13
DDMT-IDW-02	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Aqueous	Cresols	0.10	U	mg/L	200
DDMT-IDW-02	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Aqueous	Hexachlorobenzene	0.01	U	mg/L	0.13
DDMT-IDW-02	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Aqueous	Hexachlorobutadiene	0.05	U	mg/L	0.5
DDMT-IDW-02	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Aqueous	Hexachloroethane	0.05	U	mg/L	3
DDMT-IDW-02	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Aqueous	Nitrobenzene	0.05	U	mg/L	2
DDMT-IDW-02	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Aqueous	Pentachlorophenol	0.05	U	mg/L	100
DDMT-IDW-02	9/16/2020	EPA 1311/8270D	TCLP SVOCs/Aqueous	Pyridine	0.05	U	mg/L	5
DDMT-IDW-02	9/16/2020	EPA 9012B	Aqueous Sample	Reactivity Cyanide	250	U	mg/L	NA
DDMT-IDW-02	9/16/2020	EPA 9034	Aqueous Sample	Reactivity Sulfide	250	U	mg/L	NA
DDMT-IDW-02	9/16/2020	SM 4500-H+ B/EPA 9040C	Aqueous Sample	pH	**12.2**		pH unit	NA
DDMT-IDW-02	9/16/2020	EPA 1010A	Aqueous Sample	Flash point	>170		Deg F	NA

mg/L: microgram per liter
NA: not applicable
U: non-detect
TCLP: Toxicity Characteristic Leaching Procedure

Table 2
IDW Analytical Results- Soils Remaining in Water Drums
Defense Depot Memphis, Tennennesse

Lab ID	Remedial Goal Objectives (RGO) for Dunn Field [1]		22104167401	22104167402	22104167403	22104167404	22104167405
Sample ID			DDMT-IDW-DRUM 1	DDMT-IDW-DRUM 2	DDMT-IDW-DRUM 3	DDMT-IDW-DRUM 4	DDMT-IDW-DRUM 5
Collect Date	Loess Specific Values	Fluvial Deposit Specific Values	04/13/21 15:45	04/13/21 16:00	04/13/21 16:20	04/13/21 16:30	04/13/21 16:45
			Result (µg/Kg)	Result (µg/Kg)	Result (µg/Kg)	Result (µg/Kg)	Result (µg/Kg)
1,1,2,2-Tetrachloroethane	11.2	6.6	5.31 U	3.86 U	4.76 U	5.10 U	4.27 U
1,1,2-Trichloroethane	62.7	35.5	5.31 U	3.86 U	4.76 U	5.10 U	4.27 U
1,1-Dichloroethene	150	76.4	5.31 U	3.86 U	4.76 U	5.10 U	4.27 U
1,2-Dichloroethane	32.9	18.9	5.31 U	3.86 U	4.76 U	5.10 U	4.27 U
Carbon tetrachloride	215.00	108.6	5.31 U	3.86 U	4.76 U	5.10 U	4.27 U
Chloroform	917	486	5.31 U	3.86 U	4.76 U	5.10 U	4.27 U
Methylene chloride	30.5	16.9	**2.07 J**	**1.15 J**	**1.59 J**	**1.63 J**	**1.12 J**
Tetrachloroethene	180.6	92	5.31 U	3.86 U	4.76 U	5.10 U	4.27 U
Trichloroethene	182	93.2	5.31 U	3.86 U	4.76 U	5.10 U	4.27 U
Vinyl chloride	29.4	15	5.31 U	3.86 U	4.76 U	5.10 U	4.27 U
cis-1,2-Dichloroethene	755	404	5.31 U	3.86 U	4.76 U	5.10 U	4.27 U
trans-1,2-Dichloroethene	1520	791	5.31 U	3.86 U	4.76 U	5.10 U	4.27 U

[1] Record of Decision specified, site-specific soil screening levels to be protective of groundwater.

µg/Kg: micrograms per kilogram

U: Non-detect

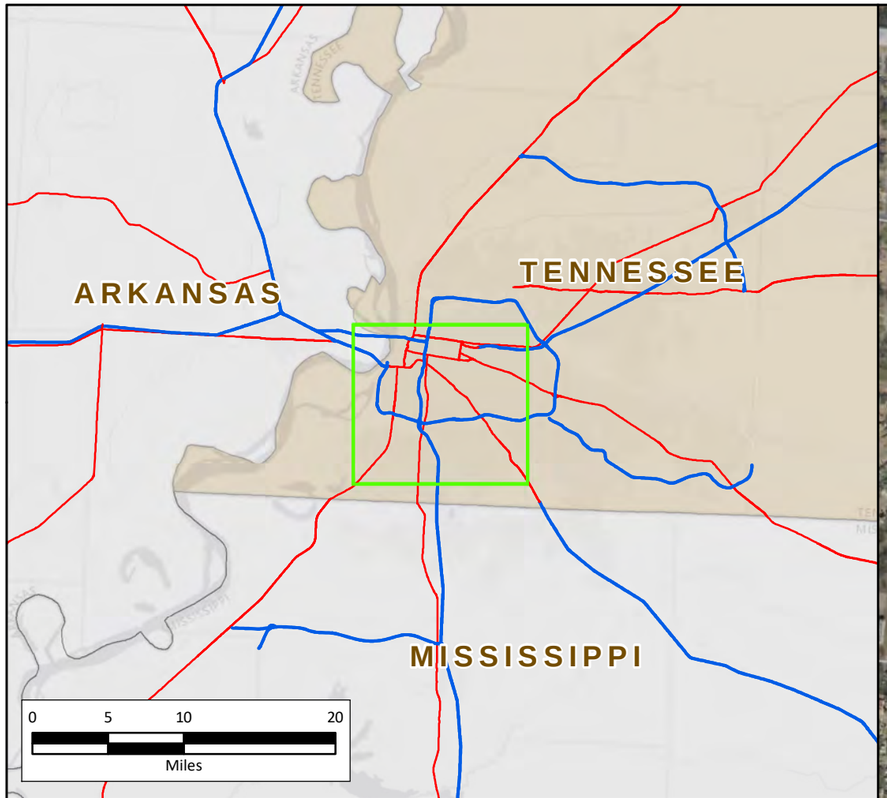
J: Estimated result

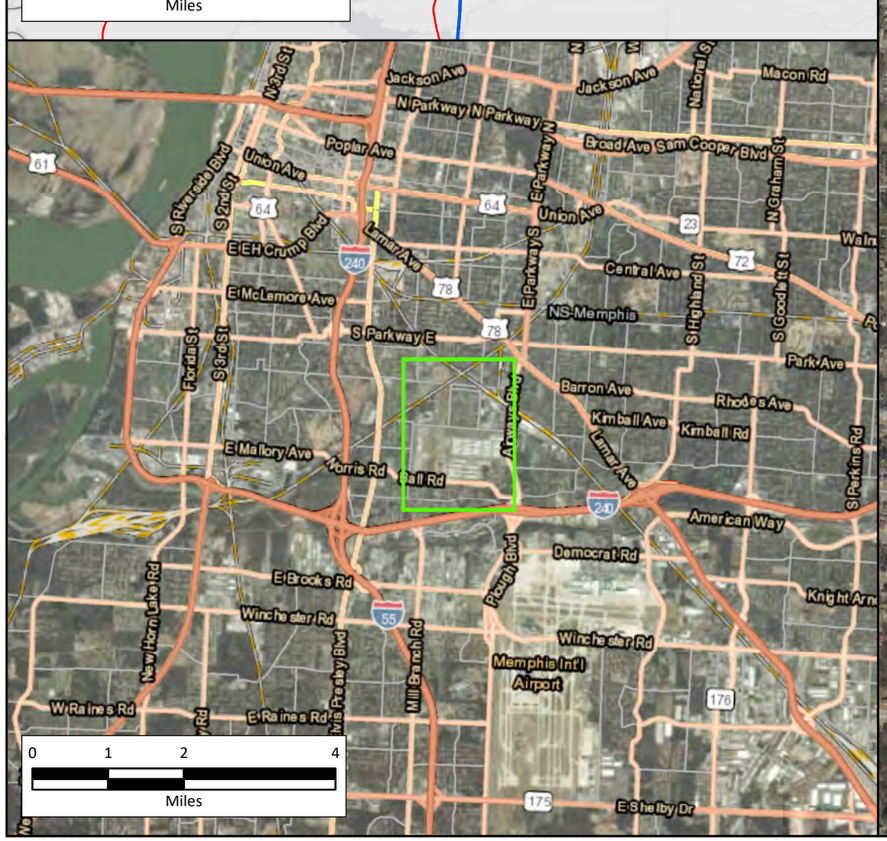
Table 3
IDW Analytical Results - Stockpile Soils
Defense Depot Memphis, Tennennesse

Sample ID	Collection Date	Analytical Method	Parameter	Result (µg/kg)	Qualifier	Remedial Goal Objectives*	
						Loess Specific Values (µg/kg)	Fluvial Deposit Specific Values (µg/kg)
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	1,1,1,2-Tetrachloroethane	5.1	U	NA	NA
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	1,1,1-Trichloroethane	5.1	U	NA	NA
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	1,1,2,2-Tetrachloroethane	5.1	U	11.2	6.6
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	1,1,2-Trichloroethane	5.1	U	62.7	35.5
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	1,1-Dichloroethane	5.1	U	NA	NA
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	1,1-Dichloroethene	5.1	U	150	76.4
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	1,2-Dichloroethane	5.1	U	32.9	18.9
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	1,2-Dichloroethene(Total)	10.2	U	NA	NA
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	Carbon tetrachloride	5.1	U	215	108.6
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	Chloroform	5.1	U	917	486
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	Methylene chloride	**13.1**		30.5	16.9
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	Tetrachloroethene	5.1	U	180.6	92
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	Trichloroethene	5.1	U	182	93.2
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	Vinyl chloride	5.1	U	29.4	15
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	cis-1,2-Dichloroethene	5.1	U	755	404
DDMT-IDW-SO-FEB 21	2/2/2021	EPA 8260B	trans-1,2-Dichloroethene	5.1	U	1520	791

Notes:
* Remedial Goal Objectives (site-specific soil screening levels to be protecitve of groundwater) converted to µg/Kg.
Bold: Analyte Detected
µg/kg: micrograms per kilogram
U: non-detect
NA: not applicable

Figures







Off Depot Study Area
Dunn Field
Main Installation

Notes:

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
TN Department of Transportation
STS GIS
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
TDOT

Prepared by KGS/Trinity

Figure 1
Site Location

Additional Off Depot Air Sparge Well Installation Report
Dunn Field -
Defense Depot Memphis, Tennessee

U.S.ARMY

Contract: W91278-16-D-0054 / W9127820F0137

Scale: AS SHOWN

Date: 7/12/2021



- Air Sparge Location (full-time)
- Air Sparge Location (half-time)
- Air Sparge Location (closed)
- Air Sparge Location (installed 9/2020)
- Soil Vapor Extraction Location
- Vapor Monitoring Point
- Monitoring Well - Fluvial Aquifer
- Monitoring Well - Intermediate Aquifer
- Conveyance Line
- Conveyance Line (installed 9/2020)
- Parcel Boundary
- Railroad
- MLGW Transmission Tower with 20 foot No Construction Buffer
- AS/SVE System Enclosure

Notes:

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

0 25 50 100
Feet

Figure 2
AS/SVE System Layout With New Air Sparge Wells

Off Depot Air Sparge/Soil Vapor Extraction (AS/SVE) System Optimization Report
Defense Depot Memphis, Tennessee

U.S.ARMY

Contract: W91278-16-D-0054 / W9127820F0137

Scale: AS SHOWN

Date: 9/7/2021

X:\Shared\KGS\TRI\Projects\A023-004 - DDMT ERS 2020-2023\4. GIS\Maps\AS-SVE\Figure 1 - Y10 Annual Report\Figure 1 - Y10 Annual Report.aprx

Appendix A

Soil Boring Logs

HTRW DRILLING LOG

For use of this form, see EP 1110-1-27; the proponent agency is CEMP-RA.

1. DISTRICT: Mobile	2. HOLE NUMBER: AS Well: ODAS-91	
3. COMPANY NAME: Koman Government Solutions, LLC	4. DRILLING SUBCONTRACTOR: Walker-Hill Environmental	5. SHEET 1 OF 3 SHEETS
6. PROJECT: DDMT Memphis AS/SVE O&M	7. LOCATION: 1605 Menager Road, in the field by the Air-sparge/SVE system.	
8. NAME OF DRILLER: Trent Herod (Lead Driller), Tim Gonzalez, Christian Shell	9. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe 8150 LS	
10. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: ATV Roto-Sonic (Geoprobe 8150 LS); MiniRae 3000 (S/N: 5920910294)	11. HOLE LOCATION: ODAS-91	
	12. SURFACE ELEVATION: 284.52	
	13. DATE STARTED (YYYYMMDD): 09/11/2020	14. DATE COMPLETED (YYYYMMDD): 09/12/2020
15. OVERBURDEN THICKNESS: Unknown	16. DEPTH GOUNDWATER ENCOUNTERED: Not Measured	
17. DEPTH DRILLED INTO ROCK: NA	18. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: Not Measured	
19. TOTAL DEPTH OF HOLE: 97.0 feet	20. OTHER WATER LEVEL MEASUREMENTS (specify): NA	

21a. GEOTECHNICAL SAMPLES	b. DISTURBED	c. UNDISTURBED	22. TOTAL NUMBER OF CORE BOXES
NA			NA

23a. SAMPLES FOR CHEMICAL ANALYSIS	b. VOC	c. METALS	d. OTHER (specify)	e. OTHER (specify)	f. OTHER (specify)
NA	NA	NA	NA	NA	NA

24. TOTAL CORE RECOVERY %	25a. DISPOSITION OF HOLE	b. BACKFILLED	c. MONITORING WELL	d. OTHER (specify)
88.5%	Installed Air Sparge Well			Air Sparge Well

25a. INSPECTOR NAME (Last, First MI)	b. DATE (YYYYMMDD)	c. INSPECTOR'S SIGNATURE
Anchukaitis, Brett	20200912	Brett Anchukaitis

26. LOCATION SKETCH / COMMENTS	27. DRAWING SCALE
See notes below	NA

28. DRAWING

Notes: Hand-cleared 0-5 ft with hand auger prior to drilling. Drilling comprised of 4" x 6" soil coring Roto-Sonic method. Water was introduced during the 6" casing drive to flush soils from between casings.

29. PROJECT	30. HOLE NUMBER
DDMT Memphis AS/SVE O&M	AS Well: ODAS-91

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER: ODAS - 91

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

INSPECTOR: Brett Anchukaitis

SHEET 2 OF SHEETS 3

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	PID SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	0	Brown - light brown fine sandy SILT to silty CLAY, plastic <5% organics, uniform, 5YR 5/6 reddish brown; moist, dense, minimal variation throughout unit. (ML)	0.0 ppm				7 ft Recovery
	10	Light brown to brown silty CLAY, plastic, uniform, moist, dense, little variation throughout core sample, stiff. 5YR 6/6 (CL)	0.1 ppm				8.5 ft Recovery
	20	20-26 ft bgs: Brown silty sandy CLAY, cohesive, plastic, <2% pebble gravels (CL) 26-27 ft bgs: Brown silty SAND, moist, uniform, 5YR 5/4 (SM) 27-30 ft bgs: Red, clean, medium to fine SAND, noncohesive, 10R 4/6 (SW)	0.0 ppm				10 ft Recovery
	30	30-35 ft bgs: Massive red SAND, uniform, no apparent bedding or sedimentary structures, 10R 4/6. Thin (<1/2" thick) unit of gray SAND at 34 ft bgs, non-plastic, loose, medium dense. Thin ~3-6 inch unit of pebble gravels at base of 35 ft. 36-38 ft bgs: Uniform red SAND, medium grained, noncohesive, 10R 4/6. 38-40 ft bgs: Tan brown sand, medium-fine grained, thin 2-inch pebble gravel at 39 ft bgs. 10YR 7/6	0.1 ppm 0.1 ppm 0.1 ppm				10 ft Recovery
	40	40-45 ft bgs: reddish yellow 10YR 7/6 to yellowish red 10YR4/6 medium-fine SAND, uniform. 45-47 ft bgs: reddish yellow medium SAND, <5% pebble gravels. 47-50 ft bgs: light yellow SAND, medium grained with angular pebble gravels, non-uniform,light red at end of unit. 7.5YR 6/8.	64.7 ppm (47') 27.0 ppm (50')				7 ft Recovery
	50	50-52 ft: Light brown fine-medium SAND, uniform, 10YR7/6. (SW) 52-60 ft: Red-brown medium SAND, non-uniform, moist, white fine silt at 57ft. Fine gravels. (SP-SM)	2.5 ppm (55') 1.5 ppm (57')				8 ft Recovery
	60	Uniform, brownish red/orange SAND, medium to fine grained, moist, non- plastic 7.5YR6/8	0.0 ppm				7 ft Recovery
	70	Light red/yellow massive, uniform, poorly graded SAND, medium grained. 5YR5/8	0.0 ppm				5 ft Recovery
	80						

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

HOLE NO: ODAS-91

ENG FORM 5056A-R, AUG 94

(Proponent: CECW-EG)

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER: ODAS - 91

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

INSPECTOR: Brett Anchukaitis

SHEET 3 OF SHEETS 3

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	80	Yellowish-red massive, uniform, poorly graded SAND, medium-fine grained, wet, some fine pebble gravels, 5YR5/8.	0.0 ppm				5 ft Recovery
	90	90-95 ft: Yellowish red uniform, medium grained SAND, rounded fine pebble gravels, wet, loose, well graded, 5YR 5/8. 95-96.5 ft: Light yellow medium-coarse grained SAND, 10YR 8/6. 96.5-97 ft: Reddish yellow clayey SILT and fine SAND 97 ft: Bluish black CLAY, silty, hard, some fine sand, stiff, GLEY 1 3/5GY **End of boring 97 ft bgs**	0.0 ppm				6 ft Recovery
	100						

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

HOLE NO: ODAS - 91

ENG FORM 5056A-R, AUG 94

(Proponent: CECW-EG)

HTRW DRILLING LOG
For use of this form, see EP 1110-1-27; the proponent agency is CEMP-RA.

1. DISTRICT: Mobile	2. HOLE NUMBER: AS Well: ODAS-92	
3. COMPANY NAME: Koman Government Solutions, LLC	4. DRILLING SUBCONTRACTOR: Walker-Hill Environmental	5. SHEET 1 OF 3 SHEETS
6. PROJECT: DDMT Memphis AS/SVE O&M	7. LOCATION: 1605 Menager Road, in the field by the Air-sparge/SVE system.	
8. NAME OF DRILLER: Trent Herod (Lead Driller), Tim Gonzalez, Christian Shell	9. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe 8150 LS	
10. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: ATV Roto-Sonic (Geoprobe 8150 LS); MiniRae 3000 (S/N: 5920910294)	11. HOLE LOCATION: ODAS-92	
	12. SURFACE ELEVATION: 284.76	
	13. DATE STARTED (YYYYMMDD): 09/12/2020	14. DATE COMPLETED (YYYYMMDD): 09/13/2020
15. OVERBURDEN THICKNESS: Unknown	16. DEPTH GOUNDWATER ENCOUNTERED: Not Measured	
17. DEPTH DRILLED INTO ROCK: NA	18. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: Not Measured	
19. TOTAL DEPTH OF HOLE: 100.0 feet	20. OTHER WATER LEVEL MEASUREMENTS (specify): NA	

21a. GEOTECHNICAL SAMPLES: NA	b. DISTURBED	c. UNDISTURBED	22. TOTAL NUMBER OF CORE BOXES: NA			
23a. SAMPLES FOR CHEMICAL ANALYSIS: NA	b. VOC: NA		c. METALS: NA	d. OTHER (specify): NA	e. OTHER (specify): NA	f. OTHER (specify): NA
24. TOTAL CORE RECOVERY %: 73%	25a. DISPOSITION OF HOLE: Installed Air Sparge Well		b. BACKFILLED	c. MONITORING WELL	d. OTHER (specify): Air Sparge Well	
25a. INSPECTOR NAME (Last, First MI): Anchukaitis, Brett			b. DATE (YYYYMMDD): 20200913	c. INSPECTOR'S SIGNATURE: Brett Anchukaitis		
26. LOCATION SKETCH / COMMENTS: See notes below				27. DRAWING SCALE: NA		

28. DRAWING

Notes: Hand-cleared 0-5 ft with hand auger prior to drilling. Drilling comprised of 4" x 6" soil coring Roto-Sonic method. Water was introduced during the 6" casing drive to flush soils from between casings.

29. PROJECT: DDMT Memphis AS/SVE O&M	30. HOLE NUMBER: AS Well: ODAS-92

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER: ODAS - 92

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

INSPECTOR: Brett Anchukaitis

SHEET 2 OF SHEETS 3

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	PID SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	0	2.5YR 4/4 reddish brown silty CLAY, uniform, cohesive, dense, medium plasticity, Top 6" organics, sandy, dry.	0.0 ppm				8 ft Recovery
	10	5YR 5/6 reddish brown silty CLAY, uniform, cohesive, high plasticity, dense, moist.	0.0 ppm				4 ft Recovery
	20	20-25 ft: Brown silty CLAY with fine gravels, moist, cohesive, medium plasticity, 2.5YR 4/6	0.0 ppm				10 ft Recovery
		25-28 ft: Reddish brown clayey SILT and silty CLAY with fine gravels, cohesive, medium plasticity, 5YR 4/6	0.0 ppm				
		28-30 ft: Brownish red silty SAND, fine-medium grained, uniform, <10% fine-medium gravels, moist, semi-loose, 2.5YR 5/6	2.9 ppm				
	30	30-33 ft: Red/brownish red fine SAND with silt and clay, cohesive, moist, 2.5YR 5/8.	0.4 ppm				8 ft Recovery
		33 ft: Light brown fine SAND with silt.					
		34-37 ft: Reddish brown medium SAND with fine gravels,uniform, 2.5YR 6/4.					
		37-40 ft: Brownish red medium SAND, loose, fine to medium gravels at 40 ft, 2.5YR 4/8					
	40	40-47 ft: Light brownish red SAND, loose, moist, some fine-medium gravels, 2.5YR6/6	1.8 ppm				5 ft Recovery
		47-50 ft: Light reddish brown medium SAND with fine gravels, uniform, poorly graded, loose, noncohesive, 2.5YR 7/4	23.5 ppm (50')				
	50	50-53 ft: Light brownish red fine SAND, uniform, loose, moist, 2.5YR 7/6	2.0 ppm				8 ft Recovery
		53-60 ft: Brownish red medium SAND with fine gravels, loose, uniform, moist, 2.5YR 6/6	7.8 ppm (56') 4.3 ppm (60')				
	60	60-64 ft: Brownish red / reddish brown medium SAND, uniform, loose, 2.5YR 7/6	0.0 ppm				10 ft Recovery
		64-65 ft: Light yellowish brown medium SAND, moist, uniform, loose, 2.5YR 8/4					
		65-70 ft: Brownish red / reddish brown medium SAND, uniform, loose, moist, fine gravels at 70 ft bgs, 2.5YR 7/6.					
	70						

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

HOLE NO: ODAS-92

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER: ODAS - 92

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

INSPECTOR: Brett Anchukaitis

SHEET 3 OF 3 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	70	7.5YR 6/8 Reddish yellow brown medium and coarse SAND with fine to medium gravels throughout, loose, wet, uniform.	0.2 ppm				6 ft Recovery
	80	Alternating units of: 1-2 foot thick medium-coarse SAND, light reddish brown, wet, loose, trace fine gravels, uniform, 5YR 6/6; and 2 units of 4-inch thick light gray CLAY, cohesive, plastic, wet, 10YR 8/4	0.0 ppm				4 ft Recovery
	90	90-94 ft: Light brown coarse-medium SAND with fine gravels, loose, noncohesive, wet, 7.5YR 6/4 94-96 ft: Reddish brown 5YR 6/6 coarse-medium SAND, uniform, wet. 96-97 ft: Light brown 10YR 8/4 medium SAND, uniform, wet. 97-97.5 ft: Bluish black clayey silt, hard, compact, brittle, non-plastic, GLEY 2.5/10BG 97.5-100 ft: Bluish black gray CLAY, GLEY2 2.5/10BG.	0.4 ppm				8 ft Recovery
	100	**End of boring 100 ft bgs**					

PROJECT DDMT Memphis AS/SVE O&M; USACE Mobile

HOLE NO ODAS - 92

ENG FORM 5056A-R, AUG 94

(Proponent: CECW-EG)

HTRW DRILLING LOG

For use of this form, see EP 1110-1-27; the proponent agency is CEMP-RA.

1. DISTRICT: Mobile	2. HOLE NUMBER: AS Well: ODAS-93	
3. COMPANY NAME: Koman Government Solutions, LLC	4. DRILLING SUBCONTRACTOR: Walker-Hill Environmental	5. SHEET 1 OF 3 SHEETS
6. PROJECT: DDMT Memphis AS/SVE O&M	7. LOCATION: 1605 Menager Road, in the field by the Air-sparge/SVE system.	
8. NAME OF DRILLER: Trent Herod (Lead Driller), Tim Gonzalez, Christian Shell	9. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe 8150 LS	
10. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: ATV Roto-Sonic (Geoprobe 8150 LS); MiniRae 3000 (S/N: 5920910294)	11. HOLE LOCATION: ODAS-93	
	12. SURFACE ELEVATION: 284.93	
	13. DATE STARTED *(YYYYMMDD)*: 09/14/2020	14. DATE COMPLETED *(YYYYMMDD)*: 09/14/2020
15. OVERBURDEN THICKNESS: Unknown	16. DEPTH GOUNDWATER ENCOUNTERED: Not Measured	
17. DEPTH DRILLED INTO ROCK: NA	18. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: Not Measured	
19. TOTAL DEPTH OF HOLE: 100.0 feet	20. OTHER WATER LEVEL MEASUREMENTS *(specify)*: NA	

21a. GEOTECHNICAL SAMPLES	b. DISTURBED	c. UNDISTURBED	22. TOTAL NUMBER OF CORE BOXES
NA			NA

23a. SAMPLES FOR CHEMICAL ANALYSIS	b. VOC	c. METALS	d. OTHER *(specify)*	e. OTHER *(specify)*	f. OTHER *(specify)*
NA	NA	NA	NA	NA	NA

24. TOTAL CORE RECOVERY %	25a. DISPOSITION OF HOLE	b. BACKFILLED	c. MONITORING WELL	d. OTHER *(specify)*
85%	Installed Air Sparge Well			Air Sparge Well

25a. INSPECTOR NAME *(Last, First MI)*	b. DATE *(YYYYMMDD)*	c. INSPECTOR'S SIGNATURE
Anchukaitis, Brett	20200914	Brett Anchukaitis

26. LOCATION SKETCH / COMMENTS	27. DRAWING SCALE
See notes below	NA

28. DRAWING

Notes: Hand-cleared 0-5 ft with hand auger prior to drilling. Drilling comprised of 4" x 6" soil coring Roto-Sonic method. Water was introduced during the 6" casing drive to flush soils from between casings.

29. PROJECT	30. HOLE NUMBER
DDMT Memphis AS/SVE O&M	AS Well: ODAS-93

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER: ODAS - 93

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

INSPECTOR: Brett Anchukaitis

SHEET 2 OF 3 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	PID SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	0	7.5YR 5/6 Brown silty CLAY, uniform, low plasticity, cohesive, slight organics.	0.0 ppm				6 ft Recovery
	10	7.5YR 5/4 Brown silty CLAY and silty CLAY, uniform, low to medium plasticity, moist.	0.2 ppm				4 ft Recovery
	20	20-26 ft: 7.5YR 5/6 Brown silty CLAY with fine to medium gravels, uniform, low to medium plasticity, moist 26-30 ft: 2.5YR 4/4 Brownish red SAND, fine to medium grained, 10% fine to medium gravels, semi-cohesive, non-plastic	0.0 ppm				10 ft Recovery
	30	30-32 ft: 2.5YR reddish fine silty SAND, cohesive, non-plastic, moist. 32-33 ft: 5YR 6/8 fine SAND. 33-35 ft: 2.5YR 5/8 Reddish fine silty clayey SAND, cohesive. 35-36 ft: 7.5 YR 6/6 Brownish medium sandy GRAVEL. 36-40 ft: 2.5YR 5/8 reddish medium gravelly SAND, uniform. 6" clean medium SAND at 39ft. 40ft: 7.5YR 6/4 medium sandy GRAVEL, noncohesive	0.0 ppm				10 ft Recovery
	40	40-45 ft: 2.5YR 7/6 Brownish red medium gravelly SAND, noncohesive, moist. 45-46 ft: 2.5YR 7/6 brownish-red medium SAND, noncohesive, uniform. 46-50 ft: 2.5YR 6/6 brownish red SAND, med SAND, medium to large gravels, non-cohesive	0.0 ppm 1.2 ppm 4.6 ppm				10 ft Recovery
	50	50-52 ft: 7.5YR 7/4 Light brown fine SAND with <5% fine gravels, noncohesive, loose, moist 52-56 ft: 2.5YR 6/8 brownish red medium SAND, <5% fine gravels, loose, moist 56-60 ft: 2.5 YR 6/8 brownish red medium SAND with fine to medium gravels, loose, noncohesive, moist.	12.3 ppm 27.4 ppm 85.6 ppm				10 ft Recovery PID 27.4 ppm @ 52-56 ft bgs85.6 ppm @ 56-60 ft bgs
	60	60-61ft: 2.5 YR 6/8 brownish red gravelly SAND, medium SAND 61-65 ft: 2.5YR 6/8 brownish red fine SAND,noncohesive, uniform, loose, moist. 65-70 ft: fine brownish red 2.4YR 6/8 SAND grades gradually to a coarse SAND, well graded, noncohesive, loose, wet	0.0 ppm				10 ft Recovery
	70						

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

HOLE NO: ODAS-93

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER: ODAS - 93

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

INSPECTOR: Brett Anchukaitis

SHEET 3 OF 3 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	70	70-72 ft: 2.5YR 6/6 brownish red coarse SAND, trace medium gravels, noncohesive, loose, wet. 72-80 ft: 7.5YR 6/6 reddish brown SAND, grades gradually from coarse to fine, fine gravels in medium sand at 78 ft, noncohesive, loose.	1.4 ppm				5 ft Recovery
	80	80-82 ft: Brown-light brown medium-coarse SAND, loose, noncohesive, wet, 7.5YR 6/6 82-83 ft: 10YR 7/4 Light yellow-brown CLAY, cohesive, high plasticity, clean. 83-90 ft: 10YR 6/6 Light reddish brown medium to coarse SAND with fine gravels, uniform, loose, wet.	0.0 ppm				10 ft Recovery
	90	90-95 ft: 10YR 5/8 Light brown medium SAND, trace fine gravels, loose, noncohesive, wet. 95-97 ft: 7.5YR 6/8 Light brown/yellow fine Sand with Silt, semi-cohesive, non-plastic, gravels toward 97ft gradedfine to silty with depth, non-uniform, wet. 97ft: GLEY 3/5GY, Bluish/black CLAY, clean, cohesive, plastic, wet. 98ft: GLEY2 4/5PB Sandy, Silty CLAY, light-dark gray, cohesive, plastic. 98-100 ft: GLEY1 3/5GY Bluish-black CLAY, clean, cohesive, plastic, uniform, wet.	0.0 ppm				10 ft Recovery
	100	**End of boring 100 ft bgs**					

PROJECT DDMT Memphis AS/SVE O&M; USACE Mobile

HOLE NO ODAS - 93

ENG FORM 5056A-R, AUG 94

(Proponent: CECW-EG)

HTRW DRILLING LOG

For use of this form, see EP 1110-1-27; the proponent agency is CEMP-RA.

1. DISTRICT: Mobile	2. HOLE NUMBER: AS Well: ODAS-94	
3. COMPANY NAME: Koman Government Solutions, LLC	4. DRILLING SUBCONTRACTOR: Walker-Hill Environmental	5. SHEET 1 OF 3 SHEETS
6. PROJECT: DDMT Memphis AS/SVE O&M	7. LOCATION: 1605 Menager Road, in the field by the Air-sparge/SVE system.	
8. NAME OF DRILLER: Trent Herod (Lead Driller), Tim Gonzalez, Christian Shell	9. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe 8150 LS	
10. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: ATV Roto-Sonic (Geoprobe 8150 LS); MiniRae 3000 (S/N: 5920910294)	11. HOLE LOCATION: ODAS-94	
	12. SURFACE ELEVATION: 285.54	
	13. DATE STARTED (YYYYMMDD): 09/15/2020	14. DATE COMPLETED (YYYYMMDD): 09/15/2020
15. OVERBURDEN THICKNESS: Unknown	16. DEPTH GOUNDWATER ENCOUNTERED: Not Measured	
17. DEPTH DRILLED INTO ROCK: NA	18. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: Not Measured	
19. TOTAL DEPTH OF HOLE: 100.0 feet	20. OTHER WATER LEVEL MEASUREMENTS (specify): NA	

21a. GEOTECHNICAL SAMPLES	b. DISTURBED	c. UNDISTURBED	22. TOTAL NUMBER OF CORE BOXES
NA			NA

23a. SAMPLES FOR CHEMICAL ANALYSIS	b. VOC	c. METALS	d. OTHER (specify)	e. OTHER (specify)	f. OTHER (specify)
NA	NA	NA	NA	NA	NA

24. TOTAL CORE RECOVERY %	25a. DISPOSITION OF HOLE	b. BACKFILLED	c. MONITORING WELL	d. OTHER (specify)
77%	Installed Air Sparge Well			Air Sparge Well

25a. INSPECTOR NAME (Last, First MI)	b. DATE (YYYYMMDD)	c. INSPECTOR'S SIGNATURE
Anchukaitis, Brett	20200915	Brett Anchukaitis

26. LOCATION SKETCH / COMMENTS	27. DRAWING SCALE
See notes below	NA

28. DRAWING

Notes: Hand-cleared 0-5 ft with hand auger prior to drilling. Drilling comprised of 4" x 6" soil coring Roto-Sonic method. Water was introduced during the 6" casing drive to flush soils from between casings.

29. PROJECT	30. HOLE NUMBER
DDMT Memphis AS/SVE O&M	AS Well: ODAS-94

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER: ODAS - 94

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

INSPECTOR: Brett Anchukaitis

SHEET 2 OF 3 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	PID SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	0	10YR 4/6 Brown sandy silty CLAY, uniform, cohesive, low plasticity, moist. Slight organics at top 1ft.	0.0 ppm				6 ft Recovery
	10	10YR 4/4 Brown silty clay, uniform, cohesive, medium plasticity, moist.	0.0 ppm				4.5 ft Recovery
	20	Sandy Silty CLAY with fine gravels, uniform lithology, cohesive, stiff, non-plastic, moist. Alternating color banding of GLEY2 7/5PB gray and 10R 3/6 dark red units ~ 2-3 inches thick.	0.0 ppm				6 ft Recovery
	30	30-36 ft: 2.5YR 4/6 reddish clayey silty fine SAND with bands of GLEY2 7/5PB gray clayey fine sand, cohesive, low plasticity.	0.0 ppm				8 ft Recovery
		36-37 ft: Grey GLEY2 7/5PB sandy gravels, fine, hard, moist.	0.0 ppm				
		37-40 ft: 2.5YR 4/8 reddish fine SAND, loose, noncohesive, non-plastic, uniform.	0.0 ppm				
	40	40-45 ft: 2.5YR 4/6 Brownish red medium SAND with gravels, loose, noncohesive, moist.	0.2 ppm				8 ft Recovery
		45-50 ft: 2.5YR 6/6 brownish red SAND, grades from medium to fine, gravels throughout, loose, noncohesive, non-uniform.	1.4 ppm				
	50	50-53 ft: 10YR 6/6 Light brown medium SAND with fine gravels, loose, noncohesive	62.0 ppm				8 ft Recovery
		53-55 ft: 2.5YR 6/8 light red medium to fine SAND, <5% fine gravels, cohesive, uniform, moist.	58.7 ppm				
		55-56 ft: 10YR 9/1 (white) very light brown, very fine SAND with trace fine gravels, loose, dry.	36.4 - 71 ppm				
		56-58 ft: 2.5YR 5/6 Brownish red medium SAND with fine to medium gravels, odor of VOC's, loose, uniform, moist.	114 ppm				
		58-60 ft: 2.5YR 5/6 Brownish red SAND, grades well from fine to medium sand, trace medium gravels, loose, noncohesive, non-plastic, moist.	68 - 24 ppm				
	60	60-65ft: 2.5 YR 6/8 Brown to red fine SAND, loose, noncohesive, uniform, moist.	0.0 ppm				10 ft Recovery
		65-66 ft: 6" thick light brown 10YR 7/4 CLAY, clean, cohesive, plastic.	0.0 ppm				
		66-70 ft: 2.5YR 6/8 Brown to red fine SAND, loose, noncohesive, uniform, moist.	0.0 ppm				
	70						

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER: ODAS - 94

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

INSPECTOR: Brett Anchukaitis

SHEET 3 OF 3 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	70	70-80 ft: 2.5YR 6/8 Brownish red medium SAND, with trace gravels, uniform, loose, cohesive, grades to fine sand at 78 ft, wet.	0.0 ppm				8.5 ft Recovery
	80	80-90 ft: 10YR 6/8 yellowish light brown medium to coarse sand, some fine SAND, loose, noncohesive. Trace fine gravels at 82 ft and 88 ft.	0.0 ppm				8 ft Recovery
	90	90-95 ft: 7.5YR 6/8 Light brown/yellow medium to coarse sand, loose, noncohesive, wet. Grades gradually into a medium SAND.	0.0 ppm				10 ft Recovery
		95-96 ft: 7.5YR 6/8 Brown/yellowish fine SAND, trace fine gravels, loose, noncohesive, wet.	0.0 ppm				
		96-97ft: 10YR 6/8 Yellowish brown fine SANDY SILT with CLAY, cohesive, non-plastic, fine gravels throughout, wet.	0.0 ppm				
		97ft: GLEY1 3/5GLY bluish/black CLAY, clean, cohesive, hard, wet.	0.0 ppm				
		98ft: GLEY2 4/5PB sandy silty CLAY, light to dark gray, cohesive.					
		98-100 ft: GLEY1 3/5GY bluish black, CLAY, clean, cohesive, plastic, wet.					
	100	**End of boring 100 ft bgs**					

PROJECT DDMT Memphis AS/SVE O&M; USACE Mobile

HOLE NO ODAS - 94

HTRW DRILLING LOG For use of this form, see EP 1110-1-27; the proponent agency is CEMP-RA.	1. DISTRICT Mobile	2. HOLE NUMBER AS Well: ODAS-95
3. COMPANY NAME Koman Government Solutions, LLC	4. DRILLING SUBCONTRACTOR Walker-Hill Environmental	5. SHEET 1 OF 3 SHEETS
6. PROJECT DDMT Memphis AS/SVE O&M	7. LOCATION 1605 Menager Road, in the field by the Air-sparge/SVE system.	
8. NAME OF DRILLER Trent Herod (Lead Driller), Tim Gonzalez, Christian Shell	9. MANUFACTURER'S DESIGNATION OF DRILL Geoprobe 8150 LS	
10. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT ATV Roto-Sonic (Geoprobe 8150 LS) MiniRae 3000 (S/N: 5920910294)	11. HOLE LOCATION ODAS-95	
	12. SURFACE ELEVATION 285.96	
	13. DATE STARTED *(YYYYMMDD)* 09/16/2020	14. DATE COMPLETED *(YYYYMMDD)* 09/16/2020
15. OVERBURDEN THICKNESS Unknown	16. DEPTH GOUNDWATER ENCOUNTERED Not Measured	
17. DEPTH DRILLED INTO ROCK NA	18. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED Not Measured	
19. TOTAL DEPTH OF HOLE 100.0 feet	20. OTHER WATER LEVEL MEASUREMENTS *(specify)* NA	

21a. GEOTECHNICAL SAMPLES	b. DISTURBED	c. UNDISTURBED	22. TOTAL NUMBER OF CORE BOXES
NA			NA

23a. SAMPLES FOR CHEMICAL ANALYSIS	b. VOC	c. METALS	d. OTHER *(specify)*	e. OTHER *(specify)*	f. OTHER *(specify)*
NA	NA	NA	NA	NA	NA

24. TOTAL CORE RECOVERY %	25a. DISPOSITION OF HOLE	b. BACKFILLED	c. MONITORING WELL	d. OTHER *(specify)*
76%	Installed Air Sparge Well			Air Sparge Well

25a. INSPECTOR NAME *(Last, First MI)*	b. DATE *(YYYYMMDD)*	c. INSPECTOR'S SIGNATURE
Anchukaitis, Brett	20200916	Brett Anchukaitis

26. LOCATION SKETCH / COMMENTS See notes below	27. DRAWING SCALE NA

28. DRAWING

Notes: Hand-cleared 0-5 ft with hand auger prior to drilling. Drilling comprised of 4" x 6" soil coring Roto-Sonic method. Water was introduced during the 6" casing drive to flush soils from between casings.

29. PROJECT	30. HOLE NUMBER
DDMT Memphis AS/SVE O&M	AS Well: ODAS-95

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER: ODAS - 95

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

INSPECTOR: Brett Anchukaitis

SHEET 2 OF 3 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	PID SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	0	7.5YR 4/6 Brown silty CLAY/ clayey SILT, uniform, cohesive, low plasticity, moist. Organics at top 1 ft.	0.0 ppm				5 ft Recovery
	10	7.5YR 5/4 Brown silty clay, uniform, cohesive, highly plastic, moist.	0.0 ppm				5 ft Recovery
	20	20-25ft: 7.5YR 5/4 Brown silty clay, cohesive, highly plastic, moist.	0.0 ppm				10 ft Recovery
		25-27ft: Same as 20-25ft interval except very stiff.					
		27-28ft: 7.5YR 5/4 Brown silty CLAY with fine gravels, uniform, very stiff, moist.	0.0 ppm				
		28-30ft: Clayey, silty, SAND with fine to medium gravels, cohesive, stiff, moist. Alternating color bands of 2.5YR 4/6 (reddish) and GLEY2 7/5PB gray.	0.2 ppm				
	30	30-35 ft: 2.5YR 6/8 reddish fine SAND, semi-cohesive, uniform, moist.	0.1 ppm				10 ft Recovery
		35-37 ft: 2.5YR 6/8 reddish fine SAND transition to fine silty SAND, cohesive.,					
		37 ft: 2.5YR 6/8 medium SAND with fine gravels, loose, moist.					
		38-40 ft: 2.5 YR 4/8 reddish fine to medium SAND, trace fine gravels, loose, noncohesive.					
	40	40-44 ft: 2.5 YR 5/6 reddish brown fine to med SAND, some fine to medium gravels, loose, noncohesive, moist.	0.0 ppm				9 ft Recovery
		44-47 ft: 7.5YR 7/6 Light brown medium SAND with fine to medium gravels, noncohesive, moist.	0.0 ppm				
		47-50 ft: 2.5YR 5/8 Light brownish red fine sand, trace fine gravels, loose, noncohesive moist.	0.0 ppm				
	50	50-52 ft: 5YR 6/8 reddish brown fine SAND, loose, noncohesive, trace gravels.	0.0 ppm				9 ft Recovery
		52-54 ft: 10YR 7/4 Light brown fine SAND with trace gravels, loose, noncohesive, moist.	0.0 ppm				
		54-56 ft: 2.5YR 5/8 Reddish fine to medium SAND with fine gravels, noncohesive, moist.	0.6 ppm				
		56-58 ft: 7.5YR 6/8 reddish brown medium SAND with medium gravels, loose, noncohesive, moist.	0.9 ppm				
		58-60 ft: 5YR 6/8 reddish brown fine SAND, loose, noncohesive, moist.	1.8 ppm				
	60	60-70 ft: 7.5YR 5/8 Light reddish brown medium SAND, gradually grades to a fine SAND. Fine gravels at 69-70 ft, loose, non cohesive, moist.	1.1 ppm				6 ft Recovery
	70						

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

HOLE NO: ODAS-95

ENG FORM 5056A-R, AUG 94

(Proponent: CECW-EG)

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER: ODAS - 95

PROJECT: DDMT Memphis AS/SVE O&M; USACE Mobile

INSPECTOR: Brett Anchukaitis

SHEET 3 OF 3 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	70	70-79 ft: 2.5YR 5/8 Brownish red coarse SAND gradually grades to a 7.5YR 7/3 light brown to medium SAND, trace cobbles, noncohesive, loose, moist.	0.0 ppm				8 ft Recovery
		79-80 ft: ~8 inch thick 2.5YR 6/4 light brown red CLAY, cohesive, high plasticity.	0.0 ppm				
	80	10YR 6/6 Light yellowish brown coarse to medium SAND, uniform, loose, noncohesive, wet.	0.0 ppm				4 ft Recovery
	90	90-99 ft: 10YR 7/4 Light brown medium to fine SAND, well graded, loose, noncohesive, wet.	0.0 ppm				10 ft Recovery
		99 ft: GLEY1 3/5GY Bluish black CLAY, clean, cohesive, highly plastic.					
	100	**End of boring 100 ft bgs**					

PROJECT DDMT Memphis AS/SVE O&M; USACE Mobile

HOLE NO ODAS - 95

ENG FORM 5056A-R, AUG 94

(Proponent: CECW-EG)

Appendix B

Photo Log



AS Well Drilling Rig



AS Well Drill Rig Set-up



AS Well Screen (Microbubbler)



Installing AS Well Screen and Riser Pipe



Trenching for AS Well Air Lines



AS Air Lines Laid in Trench



AS Air Lines Run to Connector Box



Finished Concrete Work at Air Line Connector Box



Typical AS Well/Air Line Connection



Typical Well Pad Completion



AS-94 Well Head Completion



ODAS-91 0-10 ft



ODAS-91 10-20 ft


ODAS-91 20-30 ft


ODAS-91 30-40 ft



ODAS-91 40-50 ft



ODAS-91 50-60 ft



ODAS-91 60-70 ft



ODAS-91 70-80 ft



ODAS-91 80-90 ft



ODAS-91 90-95 ft



ODAS-91 95-97 ft



ODAS-92 0-10 ft



ODAS-92 10-20 ft



ODAS-92 20-30 ft



ODAS-92 30-40 ft



ODAS-92 40-50 ft



ODAS-92 50-60 ft



ODAS-92 60-70 ft



ODAS-92 70-80 ft



ODAS-92 80-90 ft



ODAS-92 90-100 ft



ODAS-93 0-10 ft

No Photo Available

ODAS-93 10-20 ft



ODAS-93 20-30 ft



ODAS-93 30-40 ft



ODAS-93 40-50 ft



ODAS-93 50-60 ft



ODAS-93 60-70 ft



ODAS-93 70-80 ft



ODAS-93 80-90 ft



ODAS-93 90-100 ft



ODAS-94 0-10 ft



ODAS-94 10-20 ft


ODAS-94 20-30 ft



ODAS-94 30-40 ft



ODAS-94 40-50 ft



ODAS-94 50-60 ft



ODAS-94 60-70 ft



ODAS-94 70-80 ft



ODAS-94 80-90 ft



ODAS-94 90-100 ft



ODAS-95 0-10 ft



ODAS-95 10-20 ft



ODAS-95 20-30 ft



ODAS-95 30-40 ft



ODAS-95 40-50 ft



ODAS-95 50-60 ft



ODAS-95 60-70 ft



ODAS-95 70-80 ft



ODAS-95 80-90 ft


ODAS-95 90-100 ft

Appendix C

Air-Sparge Well Construction Logs

AIR SPARGE WELL CONSTRUCTION DIAGRAM

Project/Phase:	DDMT Memphis AS/SVE O&M	Well/Boring No.:	ODAS-91
Location:	1605 Menager Rd, in field by the air-sparge/SVE system	Drilling Method:	ATV Roto-Sonic (Geoprobe 8150 LS)
Client:	USACE - Mobile	Date(s):	9/11/20
Drilling Contractor:	Walker-Hill Environmental	Northing:	281275.73
Driller:	Trent Herod (Lead), Tim Gonzalez, Christian Shell	Easting:	800984.10
Inspector:	Brett Anchukaitis	Datum:	NAD27

NOT TO SCALE

Surface Elevation (ft): 284.52

Top of Casing Elevation (ft): 284.35

Top of Annular Fill: 3.0 ft bls / 2.83 ft BTOC

Depth to Water (ft bTOC)

During Drilling: Not Measured

Date:

Post-Install: Not Measured

Date:

Borehole Diameter (in): 6

Top of Seal: 90.5 ft bls / 90.3 ft BTOC

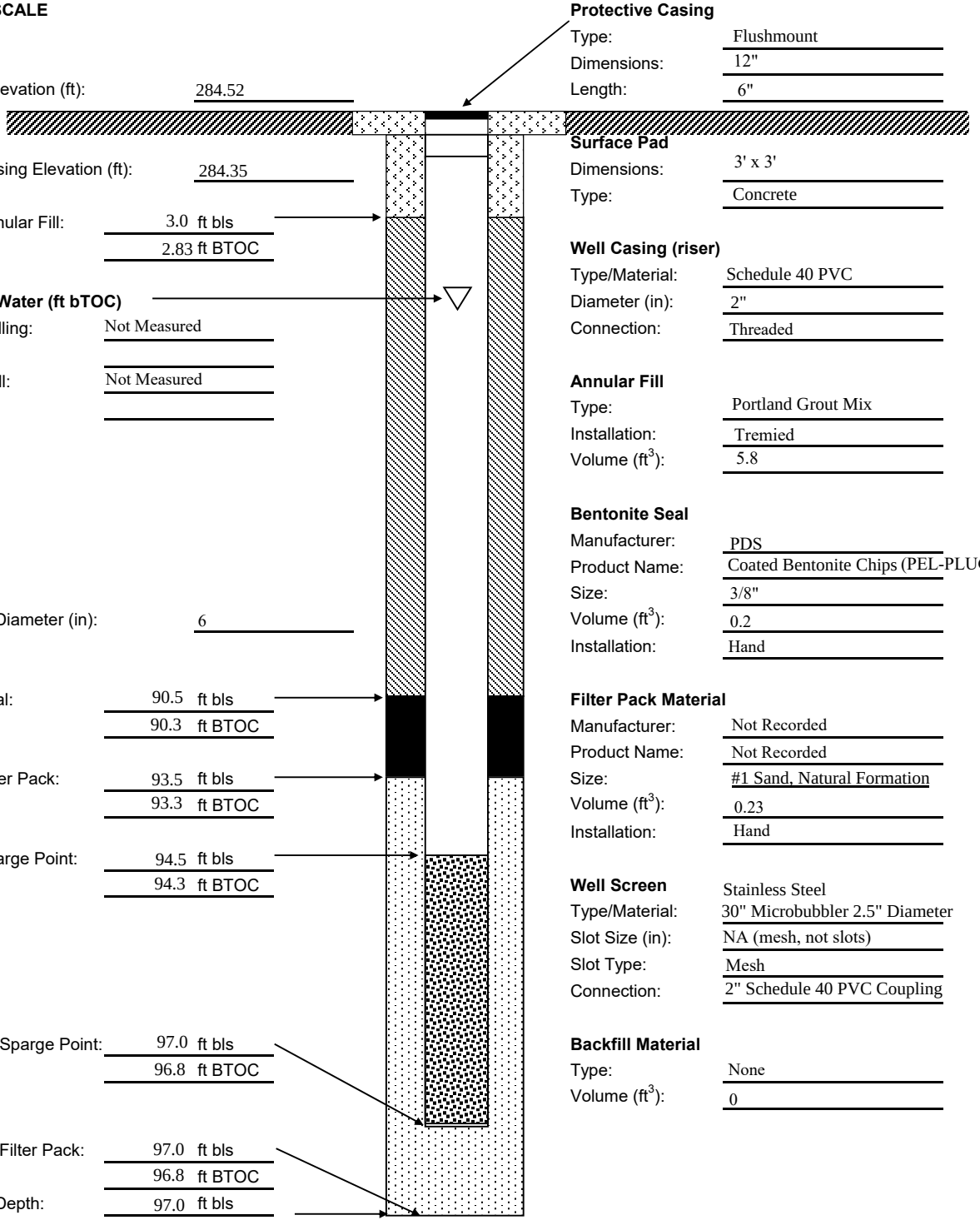
Top of Filter Pack: 93.5 ft bls / 93.3 ft BTOC

Top of Sparge Point: 94.5 ft bls / 94.3 ft BTOC

Bottom of Sparge Point: 97.0 ft bls / 96.8 ft BTOC

Bottom of Filter Pack: 97.0 ft bls / 96.8 ft BTOC

Borehole Depth: 97.0 ft bls



Protective Casing

Type: Flushmount

Dimensions: 12"

Length: 6"

Surface Pad

Dimensions: 3' x 3'

Type: Concrete

Well Casing (riser)

Type/Material: Schedule 40 PVC

Diameter (in): 2"

Connection: Threaded

Annular Fill

Type: Portland Grout Mix

Installation: Tremied

Volume (ft^3): 5.8

Bentonite Seal

Manufacturer: PDS

Product Name: Coated Bentonite Chips (PEL-PLUG)

Size: 3/8"

Volume (ft^3): 0.2

Installation: Hand

Filter Pack Material

Manufacturer: Not Recorded

Product Name: Not Recorded

Size: #1 Sand, Natural Formation

Volume (ft^3): 0.23

Installation: Hand

Well Screen

Type/Material: Stainless Steel 30" Microbubbler 2.5" Diameter

Slot Size (in): NA (mesh, not slots)

Slot Type: Mesh

Connection: 2" Schedule 40 PVC Coupling

Backfill Material

Type: None

Volume (ft^3): 0

Comments: Not to Scale

Notes:

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bls	below land surface
BTOC	below Top of Casing

AIR SPARGE WELL CONSTRUCTION DIAGRAM

Project/Phase:	DDMT Memphis AS/SVE O&M	Well/Boring No.:	ODAS-92
Location:	1605 Menager Rd, infield by the Air-sparge/SVE system	Drilling Method:	ATV Roto-Sonic (Geoprobe 8150 LS)
Client:	USACE - Mobile	Date(s):	9/13/20
Drilling Contractor:	Walker-Hill Environmental	Northing:	281280.68
Driller:	Trent Herod (Lead), Tim Gonzalez, Christian Shell	Easting:	800995.88
Inspector:	Brett Anchukaitis	Datum:	NAD27

NOT TO SCALE

Surface Elevation (ft): 284.76

Top of Casing Elevation (ft): 284.63

Top of Annular Fill: 3.0 ft bls / 2.9 ft BTOC

Depth to Water (ft bTOC)

During Drilling: Not Measured

Date:

Post-Install: Not Measured

Date:

Borehole Diameter (in): 6

Top of Seal: 90.0 ft bls / 89.9 ft BTOC

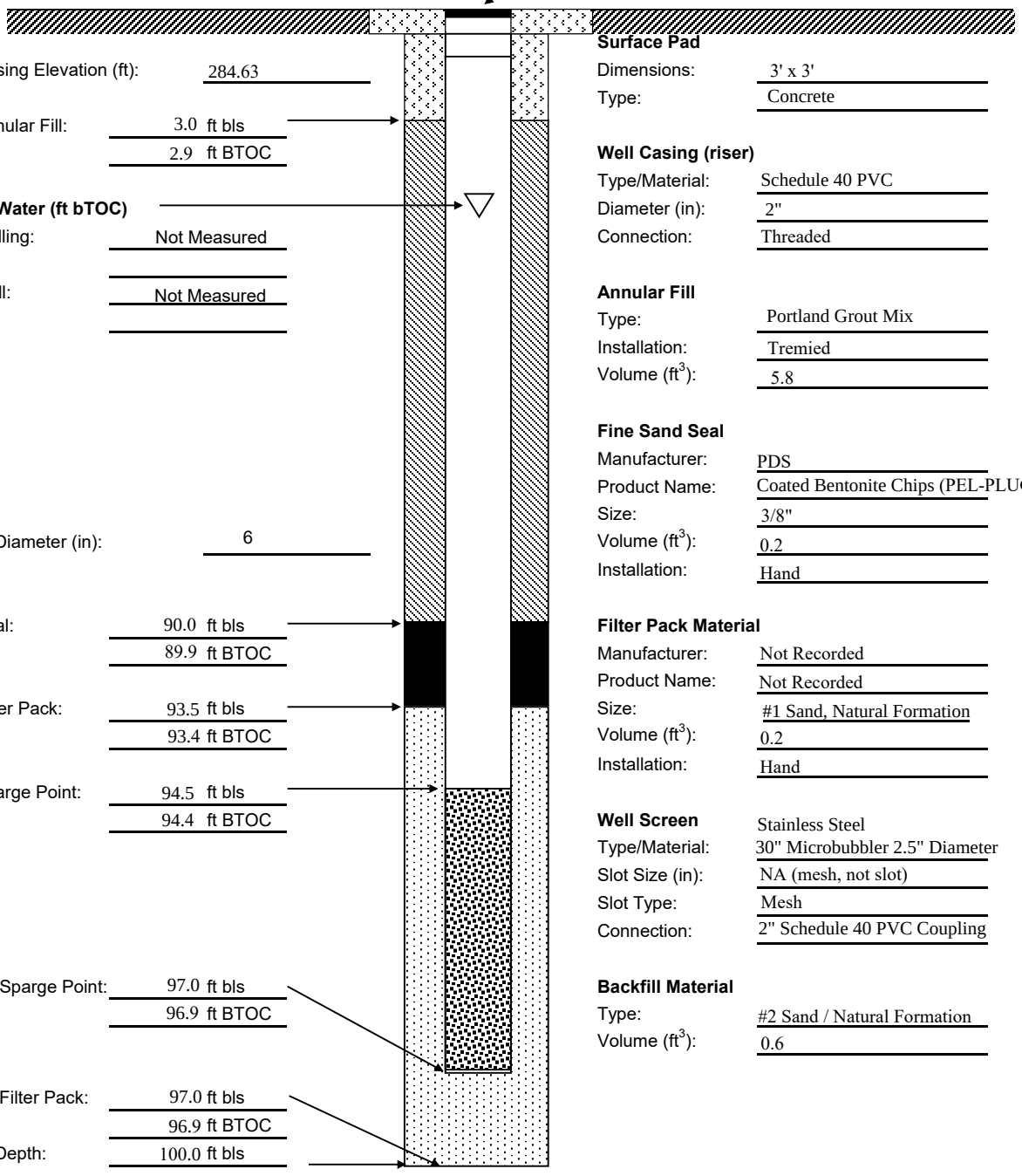
Top of Filter Pack: 93.5 ft bls / 93.4 ft BTOC

Top of Sparge Point: 94.5 ft bls / 94.4 ft BTOC

Bottom of Sparge Point: 97.0 ft bls / 96.9 ft BTOC

Bottom of Filter Pack: 97.0 ft bls / 96.9 ft BTOC

Borehole Depth: 100.0 ft bls



Protective Casing

Type: Flushmount

Dimensions: 12"

Length: 6"

Surface Pad

Dimensions: 3' x 3'

Type: Concrete

Well Casing (riser)

Type/Material: Schedule 40 PVC

Diameter (in): 2"

Connection: Threaded

Annular Fill

Type: Portland Grout Mix

Installation: Tremied

Volume (ft^3): 5.8

Fine Sand Seal

Manufacturer: PDS

Product Name: Coated Bentonite Chips (PEL-PLUG)

Size: 3/8"

Volume (ft^3): 0.2

Installation: Hand

Filter Pack Material

Manufacturer: Not Recorded

Product Name: Not Recorded

Size: #1 Sand, Natural Formation

Volume (ft^3): 0.2

Installation: Hand

Well Screen

Type/Material: Stainless Steel 30" Microbubbler 2.5" Diameter

Slot Size (in): NA (mesh, not slot)

Slot Type: Mesh

Connection: 2" Schedule 40 PVC Coupling

Backfill Material

Type: #2 Sand / Natural Formation

Volume (ft^3): 0.6

Comments: Not to Scale

Notes:

bls	below land surface
BTOC	below Top of Casing

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Environmental & Engineering Services

AIR SPARGE WELL CONSTRUCTION DIAGRAM

Project/Phase:	DDMT Memphis AS/SVE O&M	Well/Boring No.:	ODAS-93
Location:	1605 Menager Rd, infield by the Air-sparge/SVE system	Drilling Method:	ATV Roto-Sonic (Geoprobe 8150 LS)
Client:	USACE - Mobile	Date(s):	9/15/20
Drilling Contractor:	Walker-Hill Environmental	Northing:	281292.23
Driller:	Trent Herod (Lead), Tim Gonzalez, Christian Shell	Easting:	801005.33
Inspector:	Brett Anchukaitis	Datum:	NAD27

NOT TO SCALE

Surface Elevation (ft): 284.93

Top of Casing Elevation (ft): 284.85

Top of Annular Fill: 3.0 ft bls / 2.9 ft BTOC

Depth to Water (ft bTOC)
During Drilling: Not Measured
Date:
Post-Install: Not Measured
Date:

Borehole Diameter (in): 6

Top of Seal: 90.0 ft bls / 89.9 ft BTOC

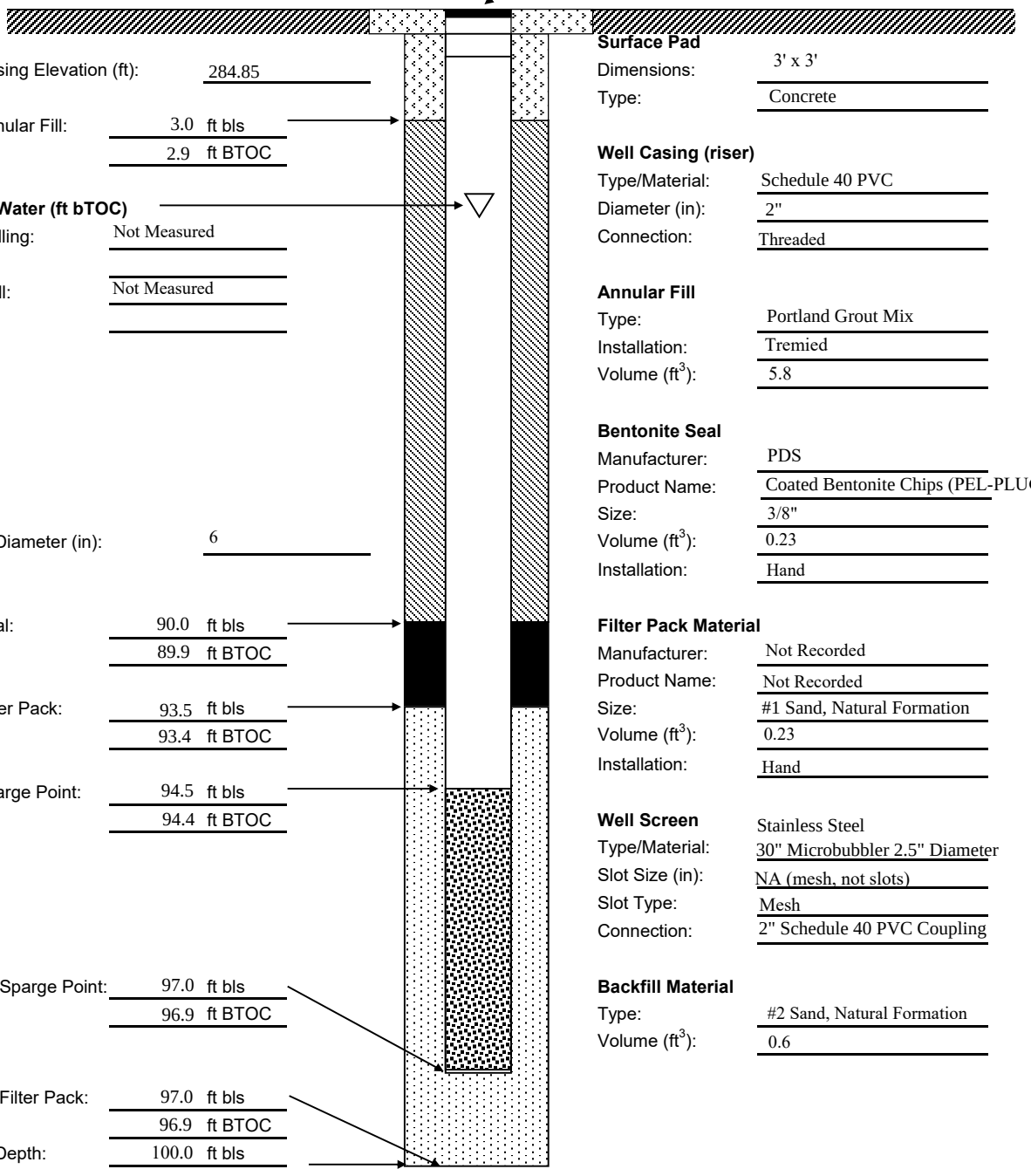
Top of Filter Pack: 93.5 ft bls / 93.4 ft BTOC

Top of Sparge Point: 94.5 ft bls / 94.4 ft BTOC

Bottom of Sparge Point: 97.0 ft bls / 96.9 ft BTOC

Bottom of Filter Pack: 97.0 ft bls / 96.9 ft BTOC

Borehole Depth: 100.0 ft bls



Protective Casing
Type: Flushmount
Dimensions: 12"
Length: 6"

Surface Pad
Dimensions: 3' x 3'
Type: Concrete

Well Casing (riser)
Type/Material: Schedule 40 PVC
Diameter (in): 2"
Connection: Threaded

Annular Fill
Type: Portland Grout Mix
Installation: Tremied
Volume (ft^3): 5.8

Bentonite Seal
Manufacturer: PDS
Product Name: Coated Bentonite Chips (PEL-PLUG)
Size: 3/8"
Volume (ft^3): 0.23
Installation: Hand

Filter Pack Material
Manufacturer: Not Recorded
Product Name: Not Recorded
Size: #1 Sand, Natural Formation
Volume (ft^3): 0.23
Installation: Hand

Well Screen
Type/Material: Stainless Steel 30" Microbubbler 2.5" Diameter
Slot Size (in): NA (mesh, not slots)
Slot Type: Mesh
Connection: 2" Schedule 40 PVC Coupling

Backfill Material
Type: #2 Sand, Natural Formation
Volume (ft^3): 0.6

Comments: Not to Scale

Notes:

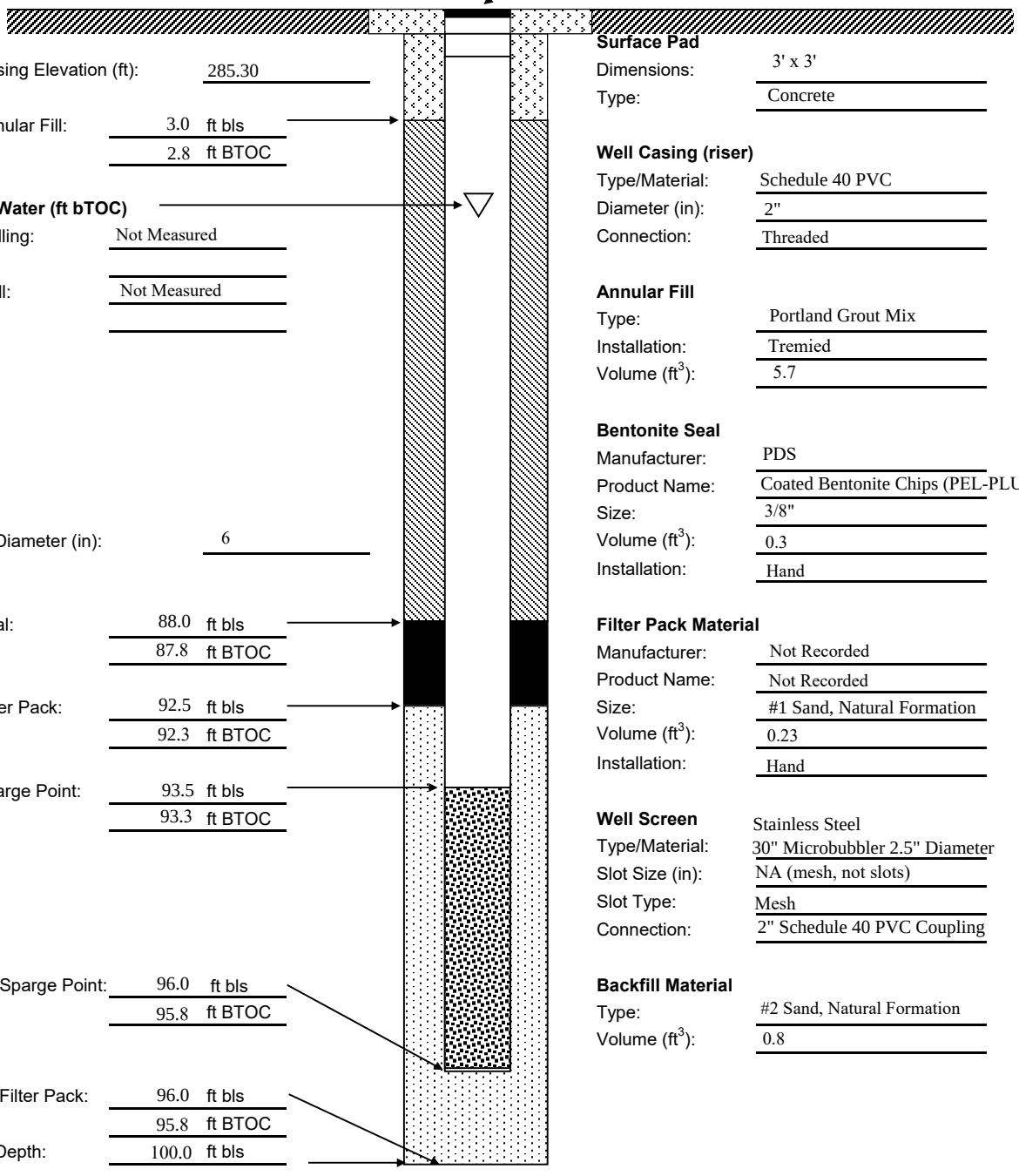
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bls	below land surface
BTOC	below Top of Casing

AIR SPARGE WELL CONSTRUCTION DIAGRAM

Project/Phase:	DDMT Memphis AS/SVE O&M	Well/Boring No.:	ODAS-94
Location:	1605 Menager Rd, infield by the Air-sparge/SVE system	Drilling Method:	ATV Roto-Sonic (Geoprobe 8150 LS)
Client:	USACE - Mobile	Date(s):	9/15/20
Drilling Contractor:	Walker-Hill Environmental	Northing:	281276.58
Driller:	Trent Herod (Lead), Tim Gonzalez, Christian Shell	Easting:	801012.47
Inspector:	Brett Anchukaitis	Datum:	NAD27

NOT TO SCALE



Surface Elevation (ft): 285.54

Top of Casing Elevation (ft): 285.30

Top of Annular Fill: 3.0 ft bls / 2.8 ft BTOC

Depth to Water (ft bTOC)

During Drilling: Not Measured

Date:

Post-Install: Not Measured

Date:

Borehole Diameter (in): 6

Top of Seal: 88.0 ft bls / 87.8 ft BTOC

Top of Filter Pack: 92.5 ft bls / 92.3 ft BTOC

Top of Sparge Point: 93.5 ft bls / 93.3 ft BTOC

Bottom of Sparge Point: 96.0 ft bls / 95.8 ft BTOC

Bottom of Filter Pack: 96.0 ft bls / 95.8 ft BTOC

Borehole Depth: 100.0 ft bls

Protective Casing

Type: Flushmount

Dimensions: 12"

Length: 6"

Surface Pad

Dimensions: 3' x 3'

Type: Concrete

Well Casing (riser)

Type/Material: Schedule 40 PVC

Diameter (in): 2"

Connection: Threaded

Annular Fill

Type: Portland Grout Mix

Installation: Tremied

Volume (ft^3): 5.7

Bentonite Seal

Manufacturer: PDS

Product Name: Coated Bentonite Chips (PEL-PLUG)

Size: 3/8"

Volume (ft^3): 0.3

Installation: Hand

Filter Pack Material

Manufacturer: Not Recorded

Product Name: Not Recorded

Size: #1 Sand, Natural Formation

Volume (ft^3): 0.23

Installation: Hand

Well Screen

Type/Material: Stainless Steel 30" Microbubbler 2.5" Diameter

Slot Size (in): NA (mesh, not slots)

Slot Type: Mesh

Connection: 2" Schedule 40 PVC Coupling

Backfill Material

Type: #2 Sand, Natural Formation

Volume (ft^3): 0.8

Comments: Not to Scale

Notes:

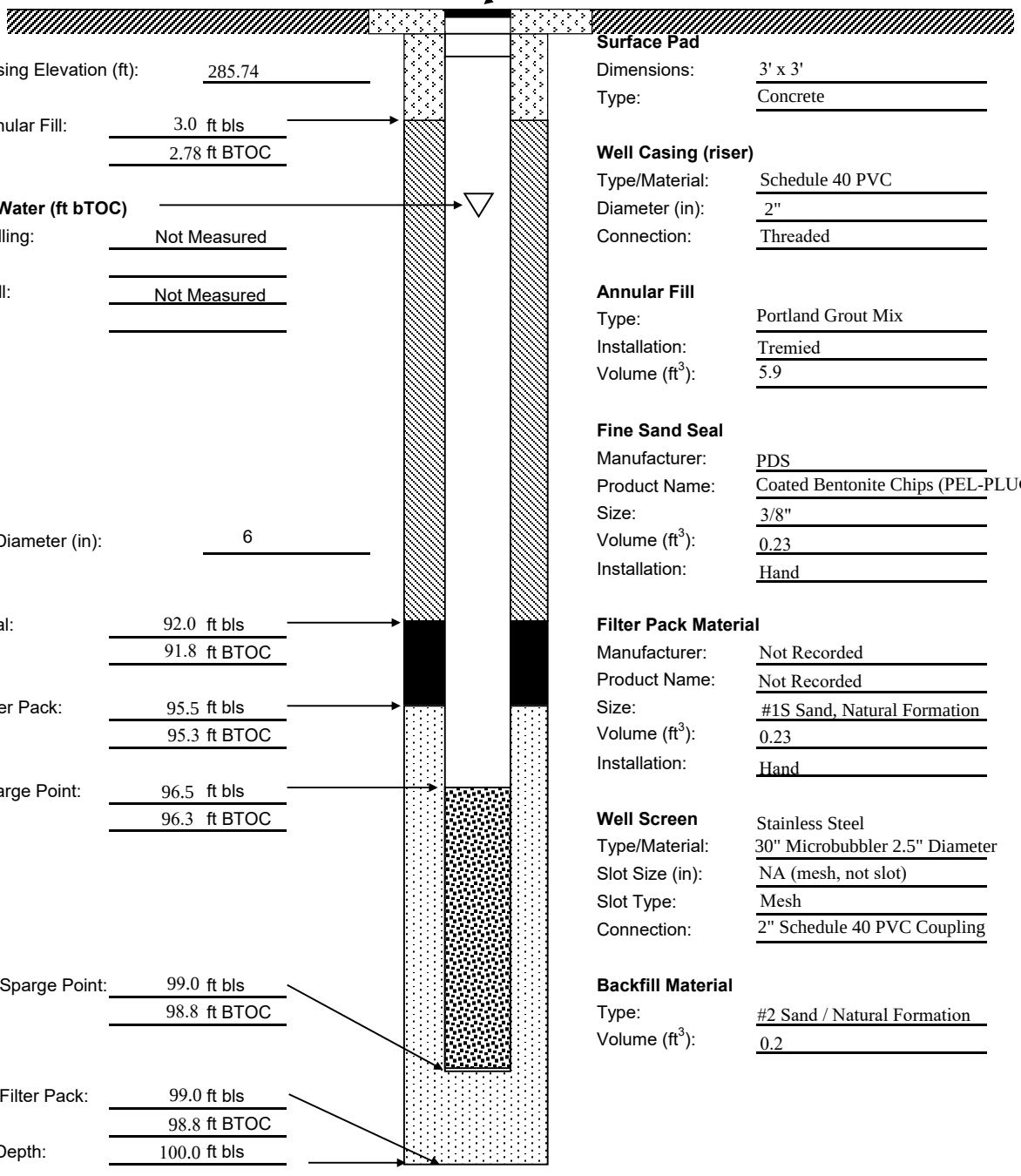
bls	below land surface
BTOC	below Top of Casing

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Environmental & Engineering Services

AIR SPARGE WELL CONSTRUCTION DIAGRAM

Project/Phase:	DDMT Memphis AS/SVE O&M	Well/Boring No.:	ODAS-95
Location:	1605 Menager Rd, infield by the Air-sparge/SVE system	Drilling Method:	ATV Roto-Sonic (Geoprobe 8150 LS)
Client:	USACE - Mobile	Date(s):	9/16/20
Drilling Contractor:	Walker-Hill Environmental	Northing:	281268.74
Driller:	Trent Herod (Lead), Tim Gonzalez, Christian Shell	Easting:	801029.04
Inspector:	Brett Anchukaitis	Datum:	NAD27

NOT TO SCALE



Surface Elevation (ft): 285.96

Top of Casing Elevation (ft): 285.74

Top of Annular Fill: 3.0 ft bls / 2.78 ft BTOC

Depth to Water (ft bTOC)

During Drilling: Not Measured

Date:

Post-Install: Not Measured

Date:

Borehole Diameter (in): 6

Top of Seal: 92.0 ft bls / 91.8 ft BTOC

Top of Filter Pack: 95.5 ft bls / 95.3 ft BTOC

Top of Sparge Point: 96.5 ft bls / 96.3 ft BTOC

Bottom of Sparge Point: 99.0 ft bls / 98.8 ft BTOC

Bottom of Filter Pack: 99.0 ft bls / 98.8 ft BTOC

Borehole Depth: 100.0 ft bls

Protective Casing

Type: Flushmount

Dimensions: 12"

Length: 6"

Surface Pad

Dimensions: 3' x 3'

Type: Concrete

Well Casing (riser)

Type/Material: Schedule 40 PVC

Diameter (in): 2"

Connection: Threaded

Annular Fill

Type: Portland Grout Mix

Installation: Tremied

Volume (ft^3): 5.9

Fine Sand Seal

Manufacturer: PDS

Product Name: Coated Bentonite Chips (PEL-PLUG)

Size: 3/8"

Volume (ft^3): 0.23

Installation: Hand

Filter Pack Material

Manufacturer: Not Recorded

Product Name: Not Recorded

Size: #1S Sand, Natural Formation

Volume (ft^3): 0.23

Installation: Hand

Well Screen

Type/Material: Stainless Steel 30" Microbubbler 2.5" Diameter

Slot Size (in): NA (mesh, not slot)

Slot Type: Mesh

Connection: 2" Schedule 40 PVC Coupling

Backfill Material

Type: #2 Sand / Natural Formation

Volume (ft^3): 0.2

Comments: Not to Scale

Notes:

TRINITY ANALYSIS & DEVELOPMENT CORP.
Environmental & Engineering Services

bls	below land surface
BTOC	below Top of Casing

Appendix D

Survey Data

ODAS-91

Northing	Easting	Elevation	Description
281276.25	800984.24	284.58'	Conc Pad
281275.67	800984.09	284.56'	ODAS-91
281277.70	800984.55	284.52'	Ground Elev
281275.73	800984.10	284.35'	Top PVC

ODAS-92

Northing	Easting	Elevation	Description
281281.30	800995.98	284.86'	Conc Pad
281280.60	800995.96	284.84'	ODAS-92
281282.22	800996.10	284.76'	Ground Elev
281280.68	800995.88	284.63'	Top PVC

ODAS-93

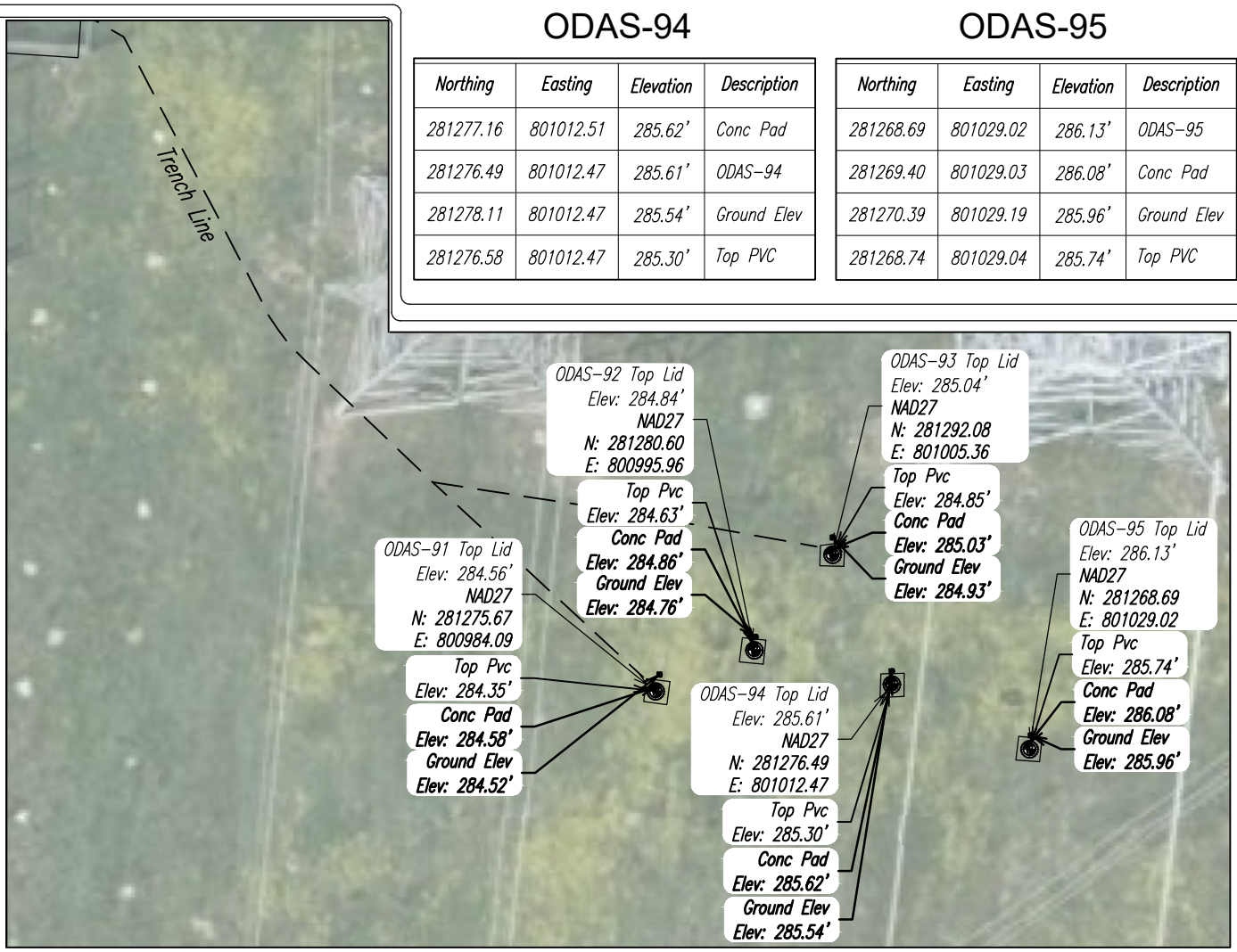
Northing	Easting	Elevation	Description
281292.08	801005.36	285.04'	ODAS-93
281292.78	801005.36	285.03'	Conc Pad
281294.18	801005.39	284.93'	Ground Elev
281292.23	801005.33	284.85'	Top PVC

ODAS-94

Northing	Easting	Elevation	Description
281277.16	801012.51	285.62'	Conc Pad
281276.49	801012.47	285.61'	ODAS-94
281278.11	801012.47	285.54'	Ground Elev
281276.58	801012.47	285.30'	Top PVC

ODAS-95

Northing	Easting	Elevation	Description
281268.69	801029.02	286.13'	ODAS-95
281269.40	801029.03	286.08'	Conc Pad
281270.39	801029.19	285.96'	Ground Elev
281268.74	801029.04	285.74'	Top PVC



ODAS-91, 92, 93, 94, 95
Location Data

Site Location: The Memphis Depot.

Locations shown are dated:
September 24, 2020
Horiz Accuracy: 0.01'
Vert Accuracy: 0.1'

Survey data by: Allen&Hoshall, Inc.
1661 International Drive, #100
Memphis, TN 38120
(901) 820-0820

Date of Survey: 9-24-2020
Proj #: 77475-424
Sheet 1 of 1

JAMES B. CAUGHMAN III
REGISTERED LAND SURVEYOR
AGRICULTURE
COMMERCE
TENNESSEE No. 1818
Sept. 24, 2020

Grid North, NAD27

GRAPHIC SCALE

20 0 10 20

(IN FEET)
1 inch = ###### ft.

Appendix E

IDW Laboratory Analytical Reports

TCLP Analysis – Soil Stockpile and Drummed Water

LELAP CERTIFICATE NUMBER: 01955
DOD-ELAP ACCREDITATION NUMBER: 74960

ANALYTICAL RESULTS

PERFORMED BY

Pace Analytical Gulf Coast
7979 Innovation Park Dr.
Baton Rouge, LA 70820
(225) 769-4900

Report Date 10/01/2020

Report # 220092112

Project Defense Depot Memphis, TN

Deliver To	***Additional Recipients***
Todd Calhoun Trinity Analysis & Developmment 1002 N. Eglin Parkway Shalimar, FL 32579 850-613-6800	NONE

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with Pace Gulf Coast's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
NO	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
CF	HPLC or GC Confirmation
00:01	Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*****	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	Organics - The result is estimated because it exceeded the instrument calibration range
E	Metals - % diference for the serial dilution is > 10%
L	Reporting Limits adjusted to meet risk-based limit.
P	RPD between primary and confirmation result is greater than 40
DL	Diluted analysis – when appended to Client Sample ID

Sample receipt at Pace Gulf Coast is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of Pace Gulf Coast. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.



Authorized Signature
Pace Gulf Coast Report 220092112

Certifications

Certification	Certification Number
DOD ELAP	74960
Alabama	01955
Arkansas	88-0655
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234

Case Narrative

Client: TRINITY Analysis & Development Corp. **Report:** 220092112

Pace Analytical Gulf Coast received and analyzed the sample(s) listed
on the Report Sample Summary page of this report. Receipt of the sample(s) is documented
by the attached chain of custody. This applies only to the sample(s) listed in this report.
No sample integrity or quality control exceptions were identified unless noted below.

GENERAL CHEMISTRY

The Flashpoint analysis for sample 22009211201 (DDMT-IDW-01) was performed by EPA Method 1010; although, solid samples do not fall within the scope of this method. This sample could not be analyzed by EPA Method 1030.

Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
22009211201	DDMT-IDW-01	Solid	09/16/2020 14:00	09/18/2020 15:36
22009211202	DDMT-IDW-02	Water	09/16/2020 14:10	09/18/2020 15:36

Summary of Compounds Detected

DDMT-IDW-01				
	Collect Date	09/16/2020 14:00	LAB ID	22009211201
	Receive Date	09/18/2020 15:36	Matrix	Solid

EPA 9045D

CAS#	Parameter	Result	LOQ	Reg Limit	Units
pH	pH	6.88	1.00		pH unit

DDMT-IDW-02				
	Collect Date	09/16/2020 14:10	LAB ID	22009211202
	Receive Date	09/18/2020 15:36	Matrix	Water

EPA 1311/6020B

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7440-39-3	Barium	0.044	0.0010	100	mg/L
7440-47-3	Chromium	0.018	0.0010	5	mg/L

SM 4500-H+ B/EPA 9040C

CAS#	Parameter	Result	LOQ	Reg Limit	Units
pH	pH	12.2	1.00		pH unit

Sample Results

DDMT-IDW-01	**Collect Date**	09/16/2020 14:00	**LAB ID**	22009211201
	Receive Date	09/18/2020 15:36	**Matrix**	Solid

EPA 1311/8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/22/2020 14:00	692732	EPA 1311(TCLP)	100	09/24/2020 15:16	SMS	692992

CAS#	Parameter	Result	LOQ	Reg Limit	Units
75-35-4	1,1-Dichloroethene	ND	0.500	0.70	mg/L
107-06-2	1,2-Dichloroethane	ND	0.250	0.50	mg/L
78-93-3	2-Butanone	ND	0.500	200	mg/L
71-43-2	Benzene	ND	0.250	0.50	mg/L
56-23-5	Carbon tetrachloride	ND	0.250	0.50	mg/L
108-90-7	Chlorobenzene	ND	0.500	100	mg/L
67-66-3	Chloroform	ND	0.500	6	mg/L
127-18-4	Tetrachloroethene	ND	0.500	0.70	mg/L
79-01-6	Trichloroethene	ND	0.250	0.50	mg/L
75-01-4	Vinyl chloride	ND	0.100	0.20	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	5	5.08	mg/L	102	62 - 130
1868-53-7	Dibromofluoromethane	5	5.24	mg/L	105	65 - 127
2037-26-5	Toluene d8	5	5.03	mg/L	101	71 - 134
17060-07-0	1,2-Dichloroethane-d4	5	5.1	mg/L	102	62 - 127

EPA 1311/8270D

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/28/2020 11:00	693207	EPA 3510C	1	09/29/2020 11:52	DLB	693327

CAS#	Parameter	Result	LOQ	Reg Limit	Units
106-46-7	1,4-Dichlorobenzene	ND	0.0500	7.50	mg/L
95-95-4	2,4,5-Trichlorophenol	ND	0.0500	400	mg/L
88-06-2	2,4,6-Trichlorophenol	ND	0.0500	2	mg/L
121-14-2	2,4-Dinitrotoluene	ND	0.0100	0.13	mg/L
1319-77-3	Cresols	ND	0.1000	200	mg/L
118-74-1	Hexachlorobenzene	ND	0.0100	0.13	mg/L
87-68-3	Hexachlorobutadiene	ND	0.0500	0.50	mg/L
67-72-1	Hexachloroethane	ND	0.0500	3	mg/L
1319-77-3MP	m,p-Cresol	ND	0.0500	200	mg/L
98-95-3	Nitrobenzene	ND	0.0500	2	mg/L
95-48-7	o-Cresol	ND	0.0500	200	mg/L
87-86-5	Pentachlorophenol	ND	0.0500	100	mg/L

Sample Results

DDMT-IDW-01	Collect Date	09/16/2020 14:00	LAB ID	22009211201
	Receive Date	09/18/2020 15:36	Matrix	Solid

EPA 1311/8270D (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/28/2020 11:00	693207	EPA 3510C	1	09/29/2020 11:52	DLB	693327

CAS#	Parameter	Result	LOQ	Reg Limit	Units
110-86-1	Pyridine	ND	0.0500	5	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	0.1250	.0917	mg/L	73	44 - 120
321-60-8	2-Fluorobiphenyl	0.1250	.0947	mg/L	76	44 - 119
1718-51-0	Terphenyl-d14	0.1250	.118	mg/L	94	50 - 134
4165-62-2	Phenol-d5	0.25	.0523	mg/L	21	10 - 123
367-12-4	2-Fluorophenol	0.25	.0877	mg/L	35	19 - 119
118-79-6	2,4,6-Tribromophenol	0.25	.216	mg/L	86	43 - 140

EPA 1311/8081B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/29/2020 06:30	693258	EPA 3510C	1	09/29/2020 18:27	MFS	693543

CAS#	Parameter	Result	LOQ	Reg Limit	Units
57-74-9	Chlordane (Technical)	ND	0.00250	0.03	mg/L
72-20-8	Endrin	ND	0.00100	0.02	mg/L
58-89-9	gamma-BHC (Lindane)	ND	0.000500	0.40	mg/L
76-44-8	Heptachlor	ND	0.000500	0.0080	mg/L
1024-57-3	Heptachlor epoxide	ND	0.000500	0.0080	mg/L
72-43-5	Methoxychlor	ND	0.000500	10	mg/L
8001-35-2	Toxaphene	ND	0.00250	0.50	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
877-09-8	Tetrachloro-m-xylene	0.0050	.00388	mg/L	78	44 - 124
2051-24-3	Decachlorobiphenyl	0.0050	.00335	mg/L	67	30 - 139

EPA 1311/8151A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/23/2020 16:39	692950	EPA 1311/8151A	1	09/26/2020 01:38	MFS	693168

CAS#	Parameter	Result	LOQ	Reg Limit	Units
93-72-1	2,4,5-TP (Silvex)	ND	0.00500	1	mg/L

Sample Results

DDMT-IDW-01	Collect Date	09/16/2020 14:00	LAB ID	22009211201
	Receive Date	09/18/2020 15:36	Matrix	Solid

EPA 1311/8151A (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/23/2020 16:39	692950	EPA 1311/8151A (Continued)	1	09/26/2020 01:38	MFS	693168

CAS#	Parameter	Result	LOQ	Reg Limit	Units
94-75-7	2,4'-D	ND	0.00500	10	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
19719-28-9	DCAA	0.02	.0169	mg/L	85	18 - 136

EPA 1311/6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/24/2020 10:30	692965	EPA 3010A	10	09/26/2020 14:12	LWZ	693156

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7440-38-2	Arsenic	ND	0.10	5	mg/L
7440-39-3	Barium	ND	0.10	100	mg/L
7440-43-9	Cadmium	ND	0.10	1	mg/L
7440-47-3	Chromium	ND	0.10	5	mg/L
7439-92-1	Lead	ND	0.10	5	mg/L
7782-49-2	Selenium	ND	0.10	1	mg/L
7440-22-4	Silver	ND	0.10	5	mg/L

EPA 1311/7470A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/24/2020 12:00	692987	EPA 7470A	1	09/25/2020 16:08	BDP	693082

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7439-97-6	Mercury	ND	0.0020	0.20	mg/L

EPA 1010A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	09/30/2020 09:55	MOS	693520

CAS#	Parameter	Result	LOQ	Reg Limit	Units
000000-01-3	Flash point	>170	50		Deg F

Sample Results

DDMT-IDW-01

Collect Date	09/16/2020 14:00	**LAB ID**	22009211201
Receive Date	09/18/2020 15:36	**Matrix**	Solid

EPA 9012B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/26/2020 12:15	693132	EPA 7.3.3.2 (1997)	1	09/29/2020 11:09	MOS	693333

CAS#	Parameter	Result	LOQ	Reg Limit	Units
57-12-5R	Reactivity Cyanide	ND	250		mg/kg

EPA 9034

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/26/2020 12:15	693133	EPA 7.3.4.2 (1997)	1	09/28/2020 10:30	RYC	693203

CAS#	Parameter	Result	LOQ	Reg Limit	Units
18496-25-8R	Reactivity Sulfide	ND	250		mg/kg

EPA 9045D

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	09/21/2020 15:58	SLL2	692681

CAS#	Parameter	Result	LOQ	Reg Limit	Units
pH	**pH**	**6.88**	**1.00**		**pH unit**

DDMT-IDW-02

Collect Date	09/16/2020 14:10	**LAB ID**	22009211202
Receive Date	09/18/2020 15:36	**Matrix**	Water

EPA 1311/8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/22/2020 13:00	692730	EPA 1311(TCLP)	100	09/24/2020 15:40	SMS	692992

CAS#	Parameter	Result	LOQ	Reg Limit	Units
75-35-4	1,1-Dichloroethene	ND	0.500	0.70	mg/L
107-06-2	1,2-Dichloroethane	ND	0.250	0.50	mg/L
78-93-3	2-Butanone	ND	0.500	200	mg/L
71-43-2	Benzene	ND	0.250	0.50	mg/L
56-23-5	Carbon tetrachloride	ND	0.250	0.50	mg/L
108-90-7	Chlorobenzene	ND	0.500	100	mg/L
67-66-3	Chloroform	ND	0.500	6	mg/L
127-18-4	Tetrachloroethene	ND	0.500	0.70	mg/L
79-01-6	Trichloroethene	ND	0.250	0.50	mg/L

Sample Results

DDMT-IDW-02	**Collect Date**	09/16/2020 14:10	**LAB ID**	22009211202
	Receive Date	09/18/2020 15:36	**Matrix**	Water

EPA 1311/8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/22/2020 13:00	692730	EPA 1311(TCLP)	100	09/24/2020 15:40	SMS	692992

CAS#	Parameter	Result	LOQ	Reg Limit	Units
75-01-4	Vinyl chloride	ND	0.100	0.20	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	5	4.91	mg/L	98	62 - 130
1868-53-7	Dibromofluoromethane	5	5.17	mg/L	103	65 - 127
2037-26-5	Toluene d8	5	4.99	mg/L	100	71 - 134
17060-07-0	1,2-Dichloroethane-d4	5	4.93	mg/L	99	62 - 127

EPA 1311/8270D

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/28/2020 11:00	693207	EPA 3510C	1	09/29/2020 12:08	DLB	693327

CAS#	Parameter	Result	LOQ	Reg Limit	Units
106-46-7	1,4-Dichlorobenzene	ND	0.0500	7.50	mg/L
95-95-4	2,4,5-Trichlorophenol	ND	0.0500	400	mg/L
88-06-2	2,4,6-Trichlorophenol	ND	0.0500	2	mg/L
121-14-2	2,4-Dinitrotoluene	ND	0.0100	0.13	mg/L
1319-77-3	Cresols	ND	0.1000	200	mg/L
118-74-1	Hexachlorobenzene	ND	0.0100	0.13	mg/L
87-68-3	Hexachlorobutadiene	ND	0.0500	0.50	mg/L
67-72-1	Hexachloroethane	ND	0.0500	3	mg/L
1319-77-3MP	m,p-Cresol	ND	0.0500	200	mg/L
98-95-3	Nitrobenzene	ND	0.0500	2	mg/L
95-48-7	o-Cresol	ND	0.0500	200	mg/L
87-86-5	Pentachlorophenol	ND	0.0500	100	mg/L
110-86-1	Pyridine	ND	0.0500	5	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	0.1250	.0971	mg/L	78	44 - 120
321-60-8	2-Fluorobiphenyl	0.1250	.097	mg/L	78	44 - 119
1718-51-0	Terphenyl-d14	0.1250	.125	mg/L	100	50 - 134
4165-62-2	Phenol-d5	0.25	.0676	mg/L	27	10 - 123
367-12-4	2-Fluorophenol	0.25	.106	mg/L	42	19 - 119
118-79-6	2,4,6-Tribromophenol	0.25	.234	mg/L	94	43 - 140

Sample Results

DDMT-IDW-02	Collect Date	09/16/2020 14:10	LAB ID	22009211202
	Receive Date	09/18/2020 15:36	Matrix	Water

EPA 1311/8081B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/24/2020 11:30	692977	EPA 3510C	1	09/25/2020 14:17	TLS	693246

CAS#	Parameter	Result	LOQ	Reg Limit	Units
57-74-9	Chlordane (Technical)	ND	0.00250	0.03	mg/L
72-20-8	Endrin	ND	0.00100	0.02	mg/L
58-89-9	gamma-BHC (Lindane)	ND	0.000500	0.40	mg/L
76-44-8	Heptachlor	ND	0.000500	0.0080	mg/L
1024-57-3	Heptachlor epoxide	ND	0.000500	0.0080	mg/L
72-43-5	Methoxychlor	ND	0.000500	10	mg/L
8001-35-2	Toxaphene	ND	0.00250	0.50	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
877-09-8	Tetrachloro-m-xylene	0.0050	.00322	mg/L	64	44 - 124
2051-24-3	Decachlorobiphenyl	0.0050	.00257	mg/L	51	30 - 139

EPA 1311/8151A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/22/2020 09:15	692727	EPA 1311/8151A	1	09/23/2020 19:08	ARW	692989

CAS#	Parameter	Result	LOQ	Reg Limit	Units
93-72-1	2,4,5-TP (Silvex)	ND	0.00500	1	mg/L
94-75-7	2,4'-D	ND	0.00500	10	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
19719-28-9	DCAA	0.02	.0166	mg/L	83	18 - 136

EPA 1311/6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/22/2020 10:30	692733	EPA 3010A	1	09/22/2020 17:24	LWZ	692791

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7440-38-2	Arsenic	ND	0.0010	5	mg/L
7440-39-3	**Barium**	**0.044**	**0.0010**	**100**	**mg/L**
7440-43-9	Cadmium	ND	0.0010	1	mg/L
7440-47-3	**Chromium**	**0.018**	**0.0010**	**5**	**mg/L**
7439-92-1	Lead	ND	0.0010	5	mg/L
7782-49-2	Selenium	ND	0.0010	1	mg/L
7440-22-4	Silver	ND	0.0010	5	mg/L

Sample Results

DDMT-IDW-02				
	Collect Date	09/16/2020 14:10	LAB ID	22009211202
	Receive Date	09/18/2020 15:36	Matrix	Water

EPA 1311/7470A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/22/2020 11:00	692734	EPA 7470A	1	09/23/2020 11:42	BDP	692884

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7439-97-6	Mercury	ND	0.0020	0.20	mg/L

EPA 1010A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	09/29/2020 08:03	MOS	693367

CAS#	Parameter	Result	LOQ	Reg Limit	Units
000000-01-3	Flash point	>170	50		Deg F

EPA 9012B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/26/2020 12:15	693134	EPA 7.3.3.2 (1997)	1	09/29/2020 11:22	MOS	693334

CAS#	Parameter	Result	LOQ	Reg Limit	Units
57-12-5R	Reactivity Cyanide	ND	250		mg/L

EPA 9034

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
09/26/2020 12:15	693135	EPA 7.3.4.2 (1997)	1	09/28/2020 10:30	RYC	693204

CAS#	Parameter	Result	LOQ	Reg Limit	Units
18496-25-8R	Reactivity Sulfide	ND	250		mg/L

SM 4500-H+ B/EPA 9040C

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	09/21/2020 15:19	SLL2	692682

CAS#	Parameter	Result	LOQ	Reg Limit	Units
pH	pH	12.2	1.00		pH unit

GC/MS Volatiles QC Summary

Analytical Batch 692992	Client ID	MB692992		LCS692992				LCSD692992				
	LAB ID	2087425		2087426				2087427				
	Sample Type	MB		LCS				LCSD				
	Prep Date											
	Analysis Date	09/24/20 11:07		09/24/20 09:39				09/24/20 10:01				
	Matrix	Water		Water				Water				
EPA 1311/8260B		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,1-Dichloroethene	75-35-4	ND	0.00500	0.050	0.051	103	69 - 129	0.050	0.049	99	4	30
1,2-Dichloroethane	107-06-2	ND	0.00250	0.050	0.051	102	71 - 129	0.050	0.052	104	3	30
2-Butanone	78-93-3	ND	0.00500	0.250	0.298	119	58 - 137	0.250	0.314	126	5	30
Benzene	71-43-2	ND	0.00250	0.050	0.054	108	70 - 129	0.050	0.052	104	4	30
Carbon tetrachloride	56-23-5	ND	0.00250	0.050	0.053	107	76 - 128	0.050	0.052	103	3	30
Chlorobenzene	108-90-7	ND	0.00500	0.050	0.050	100	74 - 123	0.050	0.049	99	2	30
Chloroform	67-66-3	ND	0.00500	0.050	0.052	103	75 - 122	0.050	0.051	102	1	30
Tetrachloroethene	127-18-4	ND	0.00500	0.050	0.051	102	68 - 128	0.050	0.050	100	2	30
Trichloroethene	79-01-6	ND	0.00250	0.050	0.054	108	76 - 129	0.050	0.052	103	5	30
Vinyl chloride	75-01-4	ND	0.00100	0.050	0.049	98	68 - 132	0.050	0.049	97	1	30
Surrogate												
1,2-Dichloroethane-d4	17060-07-0	.0506	101	.05	.0513	103	62 - 127	.05	.052	104	NA	NA
4-Bromofluorobenzene	460-00-4	.0516	103	.05	.0513	103	62 - 130	.05	.0524	105	NA	NA
Dibromofluoromethane	1868-53-7	.0513	103	.05	.0501	100	65 - 127	.05	.0507	101	NA	NA
Toluene d8	2037-26-5	.0523	105	.05	.049	98	71 - 134	.05	.049	98	NA	NA

GC/MS Semi-Volatiles QC Summary

Analytical Batch	Client ID	MB693207	LCS693207	LCSD693207
693327	LAB ID	2088941	2088942	2088943
Prep Batch	Sample Type	MB	LCS	LCSD
693207	Prep Date	09/28/20 11:00	09/28/20 11:00	09/28/20 11:00
Prep Method	Analysis Date	09/29/20 09:44	09/29/20 10:00	09/29/20 10:16
EPA 3510C	Matrix	Water	Water	Water

EPA 1311/8270D		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,4-Dichlorobenzene	106-46-7	ND	0.0500	0.050	0.032	64	29 - 112	0.050	0.034	67	6	30
2,4,5-Trichlorophenol	95-95-4	ND	0.0500	0.050	0.041	81	53 - 123	0.050	0.042	84	3	30
2,4,6-Trichlorophenol	88-06-2	ND	0.0500	0.050	0.039	79	50 - 125	0.050	0.041	82	4	30
2,4-Dinitrotoluene	121-14-2	ND	0.0100	0.050	0.045	91	57 - 128	0.050	0.043	86	6	30
Cresols	1319-77-3	ND	0.1000	0.100	0.056	56	24 - 125	0.100	0.058	58	3	30
Hexachlorobenzene	118-74-1	ND	0.0100	0.050	0.039	78	53 - 125	0.050	0.041	83	6	30
Hexachlorobutadiene	87-68-3	ND	0.0500	0.050	0.032	65	22 - 124	0.050	0.035	70	8	30
Hexachloroethane	67-72-1	ND	0.0500	0.050	0.031	62	21 - 115	0.050	0.033	66	7	30
m,p-Cresol	1319-77-3MP	ND	0.0500	0.050	0.027	54	29 - 110	0.050	0.028	55	2	30
Nitrobenzene	98-95-3	ND	0.0500	0.050	0.039	77	45 - 121	0.050	0.041	82	6	30
o-Cresol	95-48-7	ND	0.0500	0.050	0.029	58	30 - 117	0.050	0.030	60	3	30
Pentachlorophenol	87-86-5	ND	0.0500	0.050	0.041	83	35 - 138	0.050	0.042	84	1	30
Pyridine	110-86-1	ND	0.0500	0.050	0.017	34	10 - 120	0.050	0.014	28	19	30
Surrogate												
2,4,6-Tribromophenol	118-79-6	.0429	86	.05	.0468	94	43 - 140	.05	.0436	87	NA	NA
2-Fluorobiphenyl	321-60-8	.0177	71	.025	.0175	70	44 - 119	.025	.018	72	NA	NA
2-Fluorophenol	367-12-4	.0186	37	.05	.0191	38	19 - 119	.05	.0198	40	NA	NA
Nitrobenzene-d5	4165-60-0	.0182	73	.025	.0182	73	44 - 120	.025	.019	76	NA	NA
Phenol-d5	4165-62-2	.0116	23	.05	.012	24	10 - 123	.05	.0128	26	NA	NA
Terphenyl-d14	1718-51-0	.0225	90	.025	.0223	89	50 - 134	.025	.0223	89	NA	NA

Analytical Batch	Client ID	DDMT-IDW-02	2086073MS
693327	LAB ID	22009211202	2088944
Prep Batch	Sample Type	SAMPLE	MS
693207	Prep Date	09/28/2020 11:00	09/28/20 11:00
Prep Method	Analysis Date	09/29/2020 12:08	09/29/20 12:24
EPA 3510C	Matrix	Water	Water

EPA 1311/8270D		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
1,4-Dichlorobenzene	106-46-7	0.00	0.0500	0.250	0.173	69	29 - 112
2,4,5-Trichlorophenol	95-95-4	0.00	0.0500	0.250	0.197	79	53 - 123
2,4,6-Trichlorophenol	88-06-2	0.00	0.0500	0.250	0.194	78	50 - 125
2,4-Dinitrotoluene	121-14-2	0.00	0.0100	0.250	0.226	90	57 - 128
Cresols	1319-77-3	0.00	0.1000	0.500	0.295	59	24 - 125
Hexachlorobenzene	118-74-1	0.00	0.0100	0.250	0.203	81	53 - 125
Hexachlorobutadiene	87-68-3	0.00	0.0500	0.250	0.180	72	22 - 124
Hexachloroethane	67-72-1	0.00	0.0500	0.250	0.168	67	21 - 115
m,p-Cresol	1319-77-3MP	0.00	0.0500	0.250	0.142	57	29 - 110
Nitrobenzene	98-95-3	0.00	0.0500	0.250	0.200	80	45 - 121
o-Cresol	95-48-7	0.00	0.0500	0.250	0.153	61	30 - 117
Pentachlorophenol	87-86-5	0.00	0.0500	0.250	0.201	80	35 - 138
Pyridine	110-86-1	0.00	0.0500	0.250	0.091	36	10 - 120
Surrogate							
2,4,6-Tribromophenol	118-79-6	.234	94	.25	.219	88	43 - 140
2-Fluorobiphenyl	321-60-8	.097	78	.125	.0914	73	44 - 119
2-Fluorophenol	367-12-4	.106	42	.25	.101	40	19 - 119
Nitrobenzene-d5	4165-60-0	.0971	78	.125	.0921	74	44 - 120
Phenol-d5	4165-62-2	.0676	27	.25	.0672	27	10 - 123
Terphenyl-d14	1718-51-0	.125	100	.125	.119	95	50 - 134

GC Semi-Volatiles QC Summary

Analytical Batch	Client ID	MB692977	LCS692977	LCSD692977
693246	LAB ID	2087340	2087341	2087342
Prep Batch	Sample Type	MB	LCS	LCSD
692977	Prep Date	09/24/20 11:30	09/24/20 11:30	09/24/20 11:30
Prep Method	Analysis Date	09/25/20 13:02	09/25/20 13:14	09/25/20 13:27
EPA 3510C	Matrix	Water	Water	Water

EPA 1311/8081B		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Chlordane (Technical)	57-74-9	ND	0.000250									
Endrin	72-20-8	ND	0.000100	0.000500	0.000369	74	60 - 138	0.000500	0.000369	74	0	30
gamma-BHC (Lindane)	58-89-9	ND	0.0000500	0.000500	0.000462	92	59 - 134	0.000500	0.000463	93	0	30
Heptachlor	76-44-8	ND	0.0000500	0.000500	0.000312	62	54 - 130	0.000500	0.000316	63	1	30
Heptachlor epoxide	1024-57-3	ND	0.0000500	0.000500	0.000436	87	61 - 133	0.000500	0.000438	88	1	30
Methoxychlor	72-43-5	ND	0.0000500	0.000500	0.000450	90	54 - 145	0.000500	0.000454	91	1	30
Toxaphene	8001-35-2	ND	0.000250									
Surrogate												
Decachlorobiphenyl	2051-24-3	.000241	48	.0005	.000154	31	30 - 139	.0005	.000154	31	NA	NA
Tetrachloro-m-xylene	877-09-8	.000318	64	.0005	.000317	63	44 - 124	.0005	.000318	64	NA	NA

Analytical Batch	Client ID	MB693258	LCS693258	LCSD693258
693543	LAB ID	2089186	2089187	2089188
Prep Batch	Sample Type	MB	LCS	LCSD
693258	Prep Date	09/29/20 06:30	09/29/20 06:30	09/29/20 06:30
Prep Method	Analysis Date	09/29/20 17:50	09/29/20 18:02	09/29/20 18:15
EPA 3510C	Matrix	Water	Water	Water

EPA 1311/8081B		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Chlordane (Technical)	57-74-9	ND	0.000250									
Endrin	72-20-8	ND	0.000100	0.000500	0.000407	81	60 - 138	0.000500	0.000421	84	3	30
gamma-BHC (Lindane)	58-89-9	ND	0.0000500	0.000500	0.000468	94	59 - 134	0.000500	0.000464	93	1	30
Heptachlor	76-44-8	ND	0.0000500	0.000500	0.000376	75	54 - 130	0.000500	0.000371	74	1	30
Heptachlor epoxide	1024-57-3	ND	0.0000500	0.000500	0.000436	87	61 - 133	0.000500	0.000439	88	1	30
Methoxychlor	72-43-5	ND	0.0000500	0.000500	0.000448	90	54 - 145	0.000500	0.000465	93	4	30
Toxaphene	8001-35-2	ND	0.000250									
Surrogate												
Decachlorobiphenyl	2051-24-3	.000307	61	.0005	.000355	71	30 - 139	.0005	.000364	73	NA	NA
Tetrachloro-m-xylene	877-09-8	.000427	85	.0005	.000367	73	44 - 124	.0005	.000364	73	NA	NA

Analytical Batch	Client ID	MB692727	LCS692727	LCSD692727
692915	LAB ID	2086364	2086365	2086366
Prep Batch	Sample Type	MB	LCS	LCSD
692727	Prep Date	09/22/20 09:15	09/22/20 09:15	09/22/20 09:15
Prep Method	Analysis Date	09/23/20 09:31	09/23/20 09:52	09/23/20 10:12
EPA 8151A	Matrix	Water	Water	Water

EPA 1311/8151A		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
2,4,5-TP (Silvex)	93-72-1	ND	0.00500	0.00100	0.00074	74	51 - 134	0.00100	0.00079	79	7	30
2,4'-D	94-75-7	ND	0.00500	0.00099	0.00075	76	45 - 152	0.00099	0.00084	85	11	30
Surrogate												
DCAA	19719-28-9	.00167	84	.002	.00132	66	18 - 136	.002	.00141	71	NA	NA

Analytical Batch	Client ID	DDMT-IDW-02	2086073MS
692989	LAB ID	22009211202	2086367
Prep Batch	Sample Type	SAMPLE	MS
692727	Prep Date	09/22/2020 09:15	09/22/20 09:15
Prep Method	Analysis Date	09/23/2020 19:08	09/23/20 19:29
EPA 8151A	Matrix	Water	Water

EPA 1311/8151A		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
2,4,5-TP (Silvex)	93-72-1	0.00000	0.00500	0.01000	0.00681	68	51 - 134
2,4'-D	94-75-7	0.00000	0.00500	0.00991	0.00769	78	45 - 152
Surrogate							
DCAA	19719-28-9	.0166	83	.02	.0143	72	18 - 136

GC Semi-Volatiles QC Summary

Analytical Batch	Client ID	MB692950		LCS692950				LCSD692950				
693168	LAB ID	2087281		2087282				2087283				
Prep Batch	Sample Type	MB		LCS				LCSD				
692950	Prep Date	09/23/20 16:39		09/23/20 16:39				09/23/20 16:39				
Prep Method	Analysis Date	09/25/20 11:33		09/25/20 11:53				09/25/20 12:26				
EPA 8151A	Matrix	Water		Water				Water				
EPA 1311/8151A		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
2,4,5-TP (Silvex)	93-72-1	ND	0.00500	0.00100	0.00078	78	51 - 134	0.00100	0.00078	78	0	30
2,4'-D	94-75-7	ND	0.00500	0.00099	0.00079	80	45 - 152	0.00099	0.00079	79	1	30
Surrogate												
DCAA	19719-28-9	.0018	90	.002	.00161	81	18 - 136	.002	.00168	84	NA	NA

Inorganics QC Summary

Analytical Batch	Client ID	MB692734		LCS692734			
692884	LAB ID	2086385		2086386			
Prep Batch	Sample Type	MB		LCS			
692734	Prep Date	09/22/20 11:00		09/22/20 11:00			
Prep Method	Analysis Date	09/23/20 11:12		09/23/20 11:14			
EPA 7470A	Matrix	Water		Water			
EPA 1311/7470A		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
Mercury	7439-97-6	ND	0.0020	0.0050	0.0051	102	80 - 120

Analytical Batch	Client ID	MB692987		LCS692987			
693082	LAB ID	2087411		2087412			
Prep Batch	Sample Type	MB		LCS			
692987	Prep Date	09/24/20 12:00		09/24/20 12:00			
Prep Method	Analysis Date	09/25/20 16:04		09/25/20 16:06			
EPA 7470A	Matrix	Water		Water			
EPA 1311/7470A		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
Mercury	7439-97-6	ND	0.0020	0.0050	0.0050	101	80 - 120

Analytical Batch	Client ID	DDMT-IDW-01		2086072MS				2086072MSD				
693082	LAB ID	22009211201		2087413				2087414				
Prep Batch	Sample Type	SAMPLE		MS				MSD				
692987	Prep Date	09/24/2020 12:00		09/24/20 12:00				09/24/20 12:00				
Prep Method	Analysis Date	09/25/2020 16:08		09/25/20 16:10				09/25/20 16:12				
EPA 7470A	Matrix	Solid		Solid				Solid				
EPA 1311/7470A		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Mercury	7439-97-6	0.0	0.0020	0.0050	0.0059	117	80 - 120	0.0050	0.0052	103	13	20

Analytical Batch	Client ID	MB692733		LCS692733			
692791	LAB ID	2086381		2086382			
Prep Batch	Sample Type	MB		LCS			
692733	Prep Date	09/22/20 10:30		09/22/20 10:30			
Prep Method	Analysis Date	09/22/20 15:11		09/22/20 15:14			
EPA 3010A	Matrix	Water		Water			
EPA 1311/6020B		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
Arsenic	7440-38-2	ND	0.0010	0.050	0.052	105	80 - 120
Barium	7440-39-3	ND	0.0010	0.050	0.052	105	80 - 120
Cadmium	7440-43-9	ND	0.0010	0.050	0.051	103	80 - 120
Chromium	7440-47-3	ND	0.0010	0.050	0.054	109	80 - 120
Lead	7439-92-1	ND	0.0010	0.050	0.052	104	80 - 120
Selenium	7782-49-2	ND	0.0010	0.010	0.010	100	80 - 120
Silver	7440-22-4	ND	0.0010	0.050	0.050	101	80 - 120

Analytical Batch	Client ID	MB692965		LCS692965			
693156	LAB ID	2087303		2087304			
Prep Batch	Sample Type	MB		LCS			
692965	Prep Date	09/24/20 10:30		09/24/20 10:30			
Prep Method	Analysis Date	09/26/20 13:54		09/26/20 13:58			
EPA 3010A	Matrix	Water		Water			
EPA 1311/6020B		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
Arsenic	7440-38-2	ND	0.0010	0.050	0.050	101	80 - 120
Barium	7440-39-3	ND	0.0010	0.050	0.050	99	80 - 120
Cadmium	7440-43-9	ND	0.0010	0.050	0.049	99	80 - 120
Chromium	7440-47-3	ND	0.0010	0.050	0.051	102	80 - 120
Lead	7439-92-1	ND	0.0010	0.050	0.049	98	80 - 120
Selenium	7782-49-2	ND	0.0010	0.010	0.011	106	80 - 120
Silver	7440-22-4	ND	0.0010	0.050	0.049	98	80 - 120

Inorganics QC Summary

Analytical Batch	Client ID	DDMT-IDW-01	2086072MS	2086072MSD
693156	LAB ID	22009211201	2087409	2087410
Prep Batch	Sample Type	SAMPLE	MS	MSD
692965	Prep Date	09/24/2020 10:30	09/24/20 10:30	09/24/20 10:30
Prep Method	Analysis Date	09/26/2020 14:12	09/26/20 14:16	09/26/20 14:21
EPA 3010A	Matrix	Water	Water	Water

EPA 1311/6020B		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Arsenic	7440-38-2	0.0	0.10	0.50	0.49	98	80 - 120	0.50	0.53	106	7	20
Barium	7440-39-3	0.066	0.10	0.50	0.54	95	80 - 120	0.50	0.56	100	4	20
Cadmium	7440-43-9	0.0	0.10	0.50	0.50	100	80 - 120	0.50	0.54	107	7	20
Chromium	7440-47-3	0.0066	0.10	0.50	0.51	101	80 - 120	0.50	0.53	106	4	20
Lead	7439-92-1	0.017	0.10	0.50	0.50	97	80 - 120	0.50	0.53	102	5	20
Selenium	7782-49-2	0.0035	0.10	0.10	0.12	115	80 - 120	0.10	0.11	109	5	20
Silver	7440-22-4	0.000047	0.10	0.50	0.51	101	80 - 120	0.50	0.53	105	4	20

General Chemistry QC Summary

Analytical Batch	Client ID	LCS693520				
693520	LAB ID	2090433				
	Sample Type	LCS				
	Prep Date					
	Analysis Date	09/30/20 09:32				
	Matrix	Solid				
EPA 1010A		Spike Added	Result	%R	Control Limits%R	
Flash point	000000-01-3	90	91	101	97.8 - 102.2	

Analytical Batch	Client ID	LCS693367				
693367	LAB ID	2089548				
	Sample Type	LCS				
	Prep Date					
	Analysis Date	09/29/20 07:46				
	Matrix	Water				
EPA 1010A		Spike Added	Result	%R	Control Limits%R	
Flash point	000000-01-3	90	91	101	97.8 - 102.2	

Analytical Batch	Client ID	MB693133		LCS693133			
693203	LAB ID	2088375		2088376			
Prep Batch	Sample Type	MB		LCS			
693133	Prep Date	09/26/20 12:15		09/26/20 12:15			
Prep Method	Analysis Date	09/28/20 10:30		09/28/20 10:30			
EPA 7.3.4.2 (1997)	Matrix	Solid		Solid			
EPA 9034		Units Result	mg/kg LOQ	Spike Added	Result	%R	Control Limits%R
Reactivity Sulfide	18496-25-8R	ND	250	1000	858	86	47 - 135

Analytical Batch	Client ID	DDMT-IDW-01		2086072DUP		
693203	LAB ID	22009211201		2088377		
Prep Batch	Sample Type	SAMPLE		DUP		
693133	Prep Date	09/26/2020 12:15		09/26/20 12:15		
Prep Method	Analysis Date	09/28/2020 10:30		09/28/20 10:30		
EPA 7.3.4.2 (1997)	Matrix	Solid		Solid		
EPA 9034		Units Result	mg/kg LOQ	Result	RPD	RPD Limit
Reactivity Sulfide	18496-25-8R	0	250	0	0	25

Analytical Batch	Client ID	MB693135		LCS693135			
693204	LAB ID	2088381		2088382			
Prep Batch	Sample Type	MB		LCS			
693135	Prep Date	09/26/20 12:15		09/26/20 12:15			
Prep Method	Analysis Date	09/28/20 10:30		09/28/20 10:30			
EPA 7.3.4.2 (1997)	Matrix	Water		Water			
EPA 9034		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
Reactivity Sulfide	18496-25-8R	ND	250	1000	858	86	47 - 135

Analytical Batch	Client ID	DDMT-IDW-02		2086073DUP		
693204	LAB ID	22009211202		2088383		
Prep Batch	Sample Type	SAMPLE		DUP		
693135	Prep Date	09/26/2020 12:15		09/26/20 12:15		
Prep Method	Analysis Date	09/28/2020 10:30		09/28/20 10:30		
EPA 7.3.4.2 (1997)	Matrix	Water		Water		
EPA 9034		Units Result	mg/L LOQ	Result	RPD	RPD Limit
Reactivity Sulfide	18496-25-8R	0	250	0	0	25

General Chemistry QC Summary

Analytical Batch	Client ID	DDMT-IDW-01		2086072DUP		
692681	LAB ID	22009211201		2086172		
	Sample Type	SAMPLE		DUP		
	Prep Date	NA				
	Analysis Date	09/21/2020 15:58		09/21/20 15:59		
	Matrix	Solid		Solid		
EPA 9045D		Units Result	pH unit LOQ	Result	RPD	RPD Limit
pH	pH	6.88	1.00	6.87	0	6

Analytical Batch	Client ID	DDMT-IDW-02		2086073DUP		
692682	LAB ID	22009211202		2086173		
	Sample Type	SAMPLE		DUP		
	Prep Date	NA				
	Analysis Date	09/21/2020 15:19		09/21/20 15:23		
	Matrix	Water		Water		
SM 4500-H+ B/EPA 9040C		Units Result	pH unit LOQ	Result	RPD	RPD Limit
pH	pH	12.2	1.00	12.2	0	6

Analytical Batch	Client ID	MB693132		LCS693132			
693333	LAB ID	2088372		2088373			
Prep Batch	Sample Type	MB		LCS			
693132	Prep Date	09/26/20 12:15		09/26/20 12:15			
Prep Method	Analysis Date	09/29/20 11:05		09/29/20 11:07			
EPA 7.3.3.2 (1997)	Matrix	Solid		Solid			
EPA 9012B		Units Result	mg/kg LOQ	Spike Added	Result	%R	Control Limits%R
Reactivity Cyanide	57-12-5R	ND	250	250	18.2	7	1 - 25

Analytical Batch	Client ID	DDMT-IDW-01		2086072DUP		
693333	LAB ID	22009211201		2088374		
Prep Batch	Sample Type	SAMPLE		DUP		
693132	Prep Date	09/26/2020 12:15		09/26/20 12:15		
Prep Method	Analysis Date	09/29/2020 11:09		09/29/20 11:12		
EPA 7.3.3.2 (1997)	Matrix	Solid		Solid		
EPA 9012B		Units Result	mg/kg LOQ	Result	RPD	RPD Limit
Reactivity Cyanide	57-12-5R	0.0	250	0.0	0	20

Analytical Batch	Client ID	MB693134		LCS693134			
693334	LAB ID	2088378		2088379			
Prep Batch	Sample Type	MB		LCS			
693134	Prep Date	09/26/20 12:15		09/26/20 12:15			
Prep Method	Analysis Date	09/29/20 11:14		09/29/20 11:20			
EPA 7.3.3.2 (1997)	Matrix	Water		Water			
EPA 9012B		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
Reactivity Cyanide	57-12-5R	ND	250	250	18.1	7	1 - 25

Analytical Batch	Client ID	DDMT-IDW-02		2086073DUP		
693334	LAB ID	22009211202		2088380		
Prep Batch	Sample Type	SAMPLE		DUP		
693134	Prep Date	09/26/2020 12:15		09/26/20 12:15		
Prep Method	Analysis Date	09/29/2020 11:22		09/29/20 11:23		
EPA 7.3.3.2 (1997)	Matrix	Water		Water		
EPA 9012B		Units Result	mg/L LOQ	Result	RPD	RPD Limit
Reactivity Cyanide	57-12-5R	0.0	250	0.0	0	20

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix W

Client ID: 4747 - TRINITY Analysis & Development Corp.
SDG: 220092112
PM: AEC

ALL SHA

Company: Trinity Analysis Development	Billing Information:
Address: 1002 N. Egin Parkway Shalimar, FL 32579	
Report To: Todd Calhoun	Email To: tcalhoun@trinitylabdc.com
Copy To:	Site Collection Info/Address: 1600 Menage Rd, Memphis TN
Customer Project Name/Number: Defense Depot Memphis Tennessee	State: TN / County/City: Memphis / Time Zone Collected: [ ] PT [ ] MT [X] CT [ ] ET
Phone: 270-519-4051 Email:	Site/Facility ID #: / Compliance Monitoring? [ ] Yes [X] No
Collected By (print): Brett Anchukaitis	Purchase Order #: Quote #: / DW PWS ID #: DW Location Code:
Collected By (signature): Brett Anchukaitis	Turnaround Date Required: Standard TAT / Immediately Packed on Ice: [X] Yes [ ] No
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) / Field Filtered (if applicable): [ ] Yes [X] No Analysis:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	~~Composite End~~ N/A Date	~~Composite End~~ N/A Time	Res Cl	# of Ctns	Container Preservative **	Analyses: TCLP / RCI (Soil)	Analyses: TCLP / RCI (Water)	Lab Profile/Line:
DDMT-IDW-01	SL	Comp	9/16/20	1400				2	U	X		-1
DDMT-IDW-02	WW	Comp	9/16/20	1410				4	U		X	-2

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips: _____	
Sample pH Acceptable	Y N NA
pH Strips: _____	
Sulfide Present	Y N NA
Lead Acetate Strips: _____	

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used: 9119 2120 9340

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2541330

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments: 5.4 E26

Relinquished by/Company: (Signature) Brett Anchukaitis	Date/Time: 9/17/20 ~~9/16/20~~ BA	Received by/Company: (Signature) Fedex	Date/Time:
Relinquished by/Company: (Signature) Fedex	Date/Time: 9/18/20 15:30	Received by/Company: (Signature) Rachel Alayyadhi	Date/Time: 9/18/20 15:36
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: 1 of: 1

SAMPLE RECEIVING CHECKLIST

SAMPLE DELIVERY GROUP 220092112	
Client **PM** AEC 4747 - TRINITY Analysis & Development Corp.	**Transport Method** FEDEX
Profile Number 287865	**Received By** Savage, Tiffany R
Line Item(s) 1 - S-IDW 2 - W-IDW	**Receive Date(s)** 09/18/20

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by Pace Gulf Coast?	☑	☐

COOLERS

Airbill	Thermometer ID: E26	Temp °C
9119-2120-9340		5.4

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

VOC Analysis – Soil Stockpile

LELAP CERTIFICATE NUMBER: 01955
DOD-ELAP ACCREDITATION NUMBER: 74960

ANALYTICAL RESULTS

PERFORMED BY

Pace Analytical Gulf Coast
7979 Innovation Park Dr.
Baton Rouge, LA 70820
(225) 769-4900

Report Date 02/23/2021

Report # 221020378

Project Defense Depot Memphis, TN

Deliver To	***Additional Recipients***
Larry Pannell KOMAN Government Solutions, LLC 293 Boston Post Rd. W Suite 100 MA 01752 508-280-9948	NONE

Revision 1

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with Pace Gulf Coast's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
NO	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
CF	HPLC or GC Confirmation
00:01	Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*****	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	Organics - The result is estimated because it exceeded the instrument calibration range
E	Metals - % diference for the serial dilution is > 10%
L	Reporting Limits adjusted to meet risk-based limit.
P	RPD between primary and confirmation result is greater than 40
DL	Diluted analysis – when appended to Client Sample ID

Sample receipt at Pace Gulf Coast is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of Pace Gulf Coast. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.



Authorized Signature
Pace Gulf Coast Report 221020378

Revision 1

Certifications

Certification	Certification Number
DOD ELAP	74960
Alabama	01955
Arkansas	88-0655
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234

Revision 1

Case Narrative

Client: TRINITY Analysis & Development Corp. **Report:** 221020378

Pace Analytical Gulf Coast received and analyzed the sample(s) listed
on the Report Sample Summary page of this report. Receipt of the sample(s) is documented
by the attached chain of custody. This applies only to the sample(s) listed in this report.
No sample integrity or quality control exceptions were identified unless noted below.

This report is revised 02/23/21. The EPA 8260B reportable analyte list is updated to include 1,2-Dichloroethane. All instrument and batch QC is acceptable for this additional analyte.

COC ANOMALIES

Per Larry Pannell's email on 02/04/2021, the lab is to proceed with the analysis for sample 22102037803 (TRIP BLANK). It was not listed on the COC. (Karen Melerine 02/04/2021 10:30)

Revision 1

Sample Summary

LAB ID	Client ID	Matrix	Collect Date	Receive Date
22102037801	DDMT-IDW-SO-FEB 21 (LOW LEVEL)	Solid	02/02/2021 14:30	02/03/2021 10:15
22102037802	DDMT-IDW-SO-FEB 21 (MED LEVEL)	Solid	02/02/2021 14:30	02/03/2021 10:15
22102037803	TRIP BLANK	Water	02/02/2021 14:30	02/03/2021 10:15

Revision 1

Detect Summary

LAB ID	Client ID	Method	Parameter	Result	Units
22102037801	DDMT-IDW-SO-FEB 21 (LOW LEVEL)	EPA 8260B	Methylene chloride	13.1	ug/Kg

Revision 1

Sample Results

DDMT-IDW-SO-FEB 21 (LOW LEVEL)

Collect Date	02/02/2021 14:30	**LAB ID**	22102037801
Receive Date	02/03/2021 10:15	**Matrix**	Solid

EPA 8260B *Results Reported on Dry Weight Basis

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	02/08/2021 16:06	SMR	703571

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.10	ug/Kg
71-55-6	1,1,1-Trichloroethane	ND	5.10	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.10	ug/Kg
79-00-5	1,1,2-Trichloroethane	ND	5.10	ug/Kg
75-34-3	1,1-Dichloroethane	ND	5.10	ug/Kg
75-35-4	1,1-Dichloroethene	ND	5.10	ug/Kg
107-06-2	1,2-Dichloroethane	ND	5.10	ug/Kg
540-59-0	1,2-Dichloroethene(Total)	ND	10.2	ug/Kg
56-23-5	Carbon tetrachloride	ND	5.10	ug/Kg
67-66-3	Chloroform	ND	5.10	ug/Kg
156-59-2	cis-1,2-Dichloroethene	ND	5.10	ug/Kg
75-09-2	**Methylene chloride**	**13.1**	**10.2**	**ug/Kg**
127-18-4	Tetrachloroethene	ND	5.10	ug/Kg
156-60-5	trans-1,2-Dichloroethene	ND	5.10	ug/Kg
79-01-6	Trichloroethene	ND	5.10	ug/Kg
75-01-4	Vinyl chloride	ND	5.10	ug/Kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	46.80	48.6	ug/Kg	104	62 - 127
1868-53-7	Dibromofluoromethane	46.80	50	ug/Kg	107	65 - 130
2037-26-5	Toluene d8	46.80	47.1	ug/Kg	101	71 - 132
17060-07-0	1,2-Dichloroethane-d4	46.80	49.9	ug/Kg	107	62 - 125

DDMT-IDW-SO-FEB 21 (MED LEVEL)

Collect Date	02/02/2021 14:30	**LAB ID**	22102037802
Receive Date	02/03/2021 10:15	**Matrix**	Solid

EPA 8260B *Results Reported on Dry Weight Basis

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	02/12/2021 12:55	SMS	703945

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	ND	314	ug/Kg
71-55-6	1,1,1-Trichloroethane	ND	314	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	ND	314	ug/Kg
79-00-5	1,1,2-Trichloroethane	ND	314	ug/Kg
75-34-3	1,1-Dichloroethane	ND	314	ug/Kg
75-35-4	1,1-Dichloroethene	ND	314	ug/Kg
107-06-2	1,2-Dichloroethane	ND	314	ug/Kg
540-59-0	1,2-Dichloroethene(Total)	ND	629	ug/Kg
56-23-5	Carbon tetrachloride	ND	314	ug/Kg
67-66-3	Chloroform	ND	314	ug/Kg
156-59-2	cis-1,2-Dichloroethene	ND	314	ug/Kg
75-09-2	Methylene chloride	ND	629	ug/Kg
127-18-4	Tetrachloroethene	ND	314	ug/Kg
156-60-5	trans-1,2-Dichloroethene	ND	314	ug/Kg
79-01-6	Trichloroethene	ND	314	ug/Kg

Revision 1

Sample Results

DDMT-IDW-SO-FEB 21 (MED LEVEL)

Collect Date 02/02/2021 14:30 **LAB ID** 22102037802
Receive Date 02/03/2021 10:15 **Matrix** Solid

EPA 8260B (Continued) *Results Reported on Dry Weight Basis

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	02/12/2021 12:55	SMS	703945

CAS#	Parameter	Result	LOQ	Units
75-01-4	Vinyl chloride	ND	314	ug/Kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	2680	2480	ug/Kg	93	62 - 127
1868-53-7	Dibromofluoromethane	2680	2740	ug/Kg	102	65 - 130
2037-26-5	Toluene d8	2680	2860	ug/Kg	107	71 - 132
17060-07-0	1,2-Dichloroethane-d4	2680	2670	ug/Kg	100	62 - 125

TRIP BLANK

Collect Date 02/02/2021 14:30 **LAB ID** 22102037803
Receive Date 02/03/2021 10:15 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	02/08/2021 17:42	RXJ	703548

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.00	ug/L
71-55-6	1,1,1-Trichloroethane	ND	5.00	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.00	ug/L
79-00-5	1,1,2-Trichloroethane	ND	5.00	ug/L
75-34-3	1,1-Dichloroethane	ND	5.00	ug/L
75-35-4	1,1-Dichloroethene	ND	5.00	ug/L
107-06-2	1,2-Dichloroethane	ND	5.00	ug/L
540-59-0	1,2-Dichloroethene(Total)	ND	10.0	ug/L
56-23-5	Carbon tetrachloride	ND	5.00	ug/L
67-66-3	Chloroform	ND	5.00	ug/L
156-59-2	cis-1,2-Dichloroethene	ND	5.00	ug/L
75-09-2	Methylene chloride	ND	5.00	ug/L
127-18-4	Tetrachloroethene	ND	5.00	ug/L
156-60-5	trans-1,2-Dichloroethene	ND	5.00	ug/L
79-01-6	Trichloroethene	ND	5.00	ug/L
75-01-4	Vinyl chloride	ND	2.00	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	53.5	ug/L	107	78 - 130
1868-53-7	Dibromofluoromethane	50	54.3	ug/L	109	77 - 127
2037-26-5	Toluene d8	50	50.7	ug/L	101	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	56.5	ug/L	113	71 - 127

Revision 1

GC/MS Volatiles QC Summary

Analytical Batch 703571	Client ID	MB703571		LCS703571				LCSD703571				
	LAB ID	2143275		2143276				2143277				
	Sample Type	MB		LCS				LCSD				
	Prep Date											
	Analysis Date	02/08/21 13:39		02/08/21 11:42				02/08/21 12:04				
	Matrix	Solid		Solid				Solid				
EPA 8260B		Units Result	ug/Kg LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	630-20-6	ND	5.00	50.0	53.7	107	77 - 122	50.0	52.1	104	3	30
1,1,1-Trichloroethane	71-55-6	ND	5.00	50.0	53.3	107	70 - 130	50.0	47.5	95	12	30
1,1,2,2-Tetrachloroethane	79-34-5	ND	5.00	50.0	44.1	88	66 - 129	50.0	46.0	92	4	30
1,1,2-Trichloroethane	79-00-5	ND	5.00	50.0	47.7	95	74 - 120	50.0	47.6	95	0	30
1,1-Dichloroethane	75-34-3	ND	5.00	50.0	49.5	99	71 - 126	50.0	44.9	90	10	30
1,1-Dichloroethene	75-35-4	ND	5.00	50.0	52.6	105	68 - 129	50.0	45.7	91	14	20
1,2-Dichloroethane	107-06-2	ND	5.00	50.0	44.8	90	68 - 126	50.0	45.5	91	2	30
1,2-Dichloroethene(Total)	540-59-0	ND	10.0	100	98.7	99	72 - 129	100	89.3	89	10	30
Carbon tetrachloride	56-23-5	ND	5.00	50.0	54.8	110	71 - 133	50.0	50.2	100	9	30
Chloroform	67-66-3	ND	5.00	50.0	50.0	100	74 - 124	50.0	47.0	94	6	30
cis-1,2-Dichloroethene	156-59-2	ND	5.00	50.0	48.1	96	72 - 130	50.0	44.3	89	8	30
Methylene chloride	75-09-2	ND	10.0	50.0	42.8	86	66 - 130	50.0	40.2	80	6	30
Tetrachloroethene	127-18-4	ND	5.00	50.0	57.1	114	70 - 127	50.0	56.2	112	2	30
trans-1,2-Dichloroethene	156-60-5	ND	5.00	50.0	50.6	101	67 - 134	50.0	45.0	90	12	30
Trichloroethene	79-01-6	ND	5.00	50.0	53.3	107	78 - 127	50.0	47.9	96	11	20
Vinyl chloride	75-01-4	ND	5.00	50.0	45.8	92	67 - 131	50.0	44.0	88	4	30
Surrogate												
1,2-Dichloroethane-d4	17060-07-0	47.8	96	50	46.9	94	62 - 125	50	48.4	97	NA	NA
4-Bromofluorobenzene	460-00-4	49.1	98	50	51.7	103	62 - 127	50	53	106	NA	NA
Dibromofluoromethane	1868-53-7	50.6	101	50	48.2	96	65 - 130	50	48.2	96	NA	NA
Toluene d8	2037-26-5	51.8	104	50	50	100	71 - 132	50	51.8	104	NA	NA

Analytical Batch 703945	Client ID	MB703945		LCS703945				LCSD703945				
	LAB ID	2144978		2144979				2144980				
	Sample Type	MB		LCS				LCSD				
	Prep Date											
	Analysis Date	02/12/21 12:35		02/12/21 10:38				02/12/21 10:57				
	Matrix	Solid		Solid				Solid				
EPA 8260B		Units Result	ug/Kg LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	630-20-6	ND	250	50.0	48.0	96	77 - 122	50.0	47.6	95	1	30
1,1,1-Trichloroethane	71-55-6	ND	250	50.0	50.1	100	70 - 130	50.0	50.1	100	0	30
1,1,2,2-Tetrachloroethane	79-34-5	ND	250	50.0	47.4	95	66 - 129	50.0	50.2	100	6	30
1,1,2-Trichloroethane	79-00-5	ND	250	50.0	47.9	96	74 - 120	50.0	49.4	99	3	30
1,1-Dichloroethane	75-34-3	ND	250	50.0	52.8	106	71 - 126	50.0	53.5	107	1	30
1,1-Dichloroethene	75-35-4	ND	250	50.0	46.1	92	68 - 129	50.0	47.5	95	3	20
1,2-Dichloroethane	107-06-2	ND	250	50.0	47.1	94	68 - 126	50.0	49.5	99	5	30
1,2-Dichloroethene(Total)	540-59-0	ND	500	100	94.6	95	72 - 129	100	108	108	13	30
Carbon tetrachloride	56-23-5	ND	250	50.0	50.4	101	71 - 133	50.0	51.2	102	2	30
Chloroform	67-66-3	ND	250	50.0	51.1	102	74 - 124	50.0	52.4	105	3	30
cis-1,2-Dichloroethene	156-59-2	ND	250	50.0	49.8	100	72 - 130	50.0	51.7	103	4	30
Methylene chloride	75-09-2	ND	500	50.0	38.7	77	66 - 130	50.0	49.4	99	24	30
Tetrachloroethene	127-18-4	ND	250	50.0	51.4	103	70 - 127	50.0	49.6	99	4	30
trans-1,2-Dichloroethene	156-60-5	ND	250	50.0	44.7	89	67 - 134	50.0	56.7	113	24	30
Trichloroethene	79-01-6	ND	250	50.0	50.4	101	78 - 127	50.0	50.8	102	1	20
Vinyl chloride	75-01-4	ND	250	50.0	41.8	84	67 - 131	50.0	40.3	81	4	30
Surrogate												
1,2-Dichloroethane-d4	17060-07-0	2560	102	50	48.8	98	62 - 125	50	50	100	NA	NA
4-Bromofluorobenzene	460-00-4	2340	94	50	48.3	97	62 - 127	50	48.1	96	NA	NA
Dibromofluoromethane	1868-53-7	2640	106	50	50.4	101	65 - 130	50	50.9	102	NA	NA
Toluene d8	2037-26-5	2610	104	50	49.1	98	71 - 132	50	49.3	99	NA	NA

Revision 1

GC/MS Volatiles QC Summary

Analytical Batch 703548	Client ID	MB703548		LCS703548				LCSD703548				
	LAB ID	2143156		2143157				2143158				
	Sample Type	MB		LCS				LCSD				
	Prep Date											
	Analysis Date	02/08/21 15:17		02/08/21 13:16				02/08/21 13:39				
	Matrix	Water		Water				Water				
EPA 8260B		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	630-20-6	ND	5.00	50.0	51.4	103	75 - 124	50.0	49.1	98	5	30
1,1,1-Trichloroethane	71-55-6	ND	5.00	50.0	54.1	108	76 - 126	50.0	51.4	103	5	30
1,1,2,2-Tetrachloroethane	79-34-5	ND	5.00	50.0	41.2	82	70 - 122	50.0	42.0	84	2	30
1,1,2-Trichloroethane	79-00-5	ND	5.00	50.0	45.3	91	72 - 121	50.0	44.5	89	2	30
1,1-Dichloroethane	75-34-3	ND	5.00	50.0	48.0	96	74 - 127	50.0	45.1	90	6	30
1,1-Dichloroethene	75-35-4	ND	5.00	50.0	49.8	100	69 - 129	50.0	48.2	96	3	20
1,2-Dichloroethane	107-06-2	ND	5.00	50.0	48.1	96	71 - 129	50.0	48.2	96	0	30
1,2-Dichloroethene(Total)	540-59-0	ND	10.0	100	97.8	98	74 - 128	100	96.8	97	1	30
Carbon tetrachloride	56-23-5	ND	5.00	50.0	56.6	113	76 - 128	50.0	52.6	105	7	30
Chloroform	67-66-3	ND	5.00	50.0	47.4	95	75 - 122	50.0	46.9	94	1	30
cis-1,2-Dichloroethene	156-59-2	ND	5.00	50.0	49.5	99	73 - 130	50.0	47.7	95	4	30
Methylene chloride	75-09-2	ND	5.00	50.0	40.0	80	68 - 132	50.0	42.3	85	6	30
Tetrachloroethene	127-18-4	ND	5.00	50.0	51.9	104	68 - 128	50.0	50.2	100	3	30
trans-1,2-Dichloroethene	156-60-5	ND	5.00	50.0	48.3	97	69 - 132	50.0	49.1	98	2	30
Trichloroethene	79-01-6	ND	5.00	50.0	50.8	102	76 - 129	50.0	50.8	102	0	20
Vinyl chloride	75-01-4	ND	2.00	50.0	49.8	100	68 - 132	50.0	45.9	92	8	30
Surrogate												
1,2-Dichloroethane-d4	17060-07-0	53.6	107	50	51	102	71 - 127	50	51.8	104	NA	NA
4-Bromofluorobenzene	460-00-4	54.1	108	50	53.6	107	78 - 130	50	53.6	107	NA	NA
Dibromofluoromethane	1868-53-7	51.7	103	50	51	102	77 - 127	50	50.9	102	NA	NA
Toluene d8	2037-26-5	52.5	105	50	49.2	98	76 - 134	50	49.2	98	NA	NA

Revision 1

Pace Analytical

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Work

Client ID: 4747 - TRINITY Analysis & Development Corp.
SDG: 221020378
PM: KSM

ALL SHADE

Container Preservative Typ

Company: KOMAN Government Solutions, LLC	Billing Information: Larry Pennell / Accounting accounting@trinityadc.com
Address: 213 Boston Post Rd West, Ste 100 marlborough, MA 01752	
Report To: Larry Pennell	Email To: lpennell@komangs.com
Copy To:	Site Collection Info/Address: DDMT Memphis
Customer Project Name/Number:	State: TN / County/City: Memphis Time Zone Collected: [ ] PT [ ] MT [X] CT [ ] ET
Phone: 508-250-9948 Email: lpennell@komangs.com	Site/Facility ID #: DDMT Memphis
Collected By (print): Brett Anchukaitis	Purchase Order #: Quote #:
Collected By (signature): Brett Anchukaitis	Turnaround Date Required: As Quoted
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)

Compliance Monitoring? [ ] Yes [X] No

DW PWS ID #: DW Location Code:

Immediately Packed on Ice: [X] Yes [ ] No

Field Filtered (if applicable): [ ] Yes [X] No Analysis: _____

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses: VOCs (8260) med low level
DDMT-IDW-SO-Feb21	SL	Grab	2/2/21	1430	-	-		4	X

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips: _____			
Sample pH Acceptable	Y	N	NA
pH Strips: _____			
Sulfide Present	Y	N	NA
Lead Acetate Strips: _____			

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used: 951757990901

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y (N) N/A

Lab Tracking #: 2607421

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments: 0.7E2U

Relinquished by/Company: (Signature) Brett Anchukaitis	Date/Time: 2/2/21	Received by/Company: (Signature) FedEx	Date/Time:
Relinquished by/Company: (Signature) FedEX	Date/Time: 2-3-21 1015	Received by/Company: (Signature) LaurenHeller	Date/Time: 2-3-21 1015
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: _____ of: _____

Revision 1

SAMPLE RECEIVING CHECKLIST

SAMPLE DELIVERY GROUP 221020378	
Client **PM** KSM 4747 - TRINITY Analysis & Development Corp.	**Transport Method** FEDEX
Profile Number 287865	**Received By** Jenkins, Mark A.
Line Item(s) 3 - S-VOCs 4 - W-VOCs	**Receive Date(s)** 02/03/21

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☐	☑
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by Pace Gulf Coast?	☑	☐

COOLERS

Airbill	Thermometer ID: E26	Temp °C
9517 5799 0901		0.7

DISCREPANCIES

22102037803 - TRIP BLANK:
Extra Sample - Not Listed on COC

LAB PRESERVATIONS

None

NOTES EXTRA SAMPLE RECEIVED NOT LISTED ON COC-LOGGED PER CONTAINER

VOC Analysis – Soil Residuals from Drummed Water

LELAP CERTIFICATE NUMBER: 01955
DOD-ELAP ACCREDITATION NUMBER: 74960

ANALYTICAL RESULTS

PERFORMED BY

Pace Analytical Gulf Coast
7979 Innovation Park Dr.
Baton Rouge, LA 70820
(225) 769-4900

Report Date 04/28/2021

Report # 221041674

Project Defense Depot Memphis, TN

Deliver To	***Additional Recipients***
Larry Pannell KOMAN Government Solutions, LLC 293 Boston Post Rd. W Suite 100 Marlborough, MA 01752 508-280-9948	Laurie Ekes, KOMAN Government Solutions, LLC

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with Pace Gulf Coast's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
NO	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
CF	HPLC or GC Confirmation
00:01	Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*****	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	Organics - The result is estimated because it exceeded the instrument calibration range
E	Metals - % diference for the serial dilution is > 10%
L	Reporting Limits adjusted to meet risk-based limit.
P	RPD between primary and confirmation result is greater than 40
DL	Diluted analysis – when appended to Client Sample ID

Sample receipt at Pace Gulf Coast is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of Pace Gulf Coast. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.



Authorized Signature
Pace Gulf Coast Report 221041674

Certifications

Certification	Certification Number
DOD ELAP	74960
Alabama	01955
Arkansas	88-0655
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234

Case Narrative

Client: TRINITY Analysis & Development Corp. **Report:** 221041674

Pace Analytical Gulf Coast received and analyzed the sample(s) listed
on the Report Sample Summary page of this report. Receipt of the sample(s) is documented
by the attached chain of custody. This applies only to the sample(s) listed in this report.
No sample integrity or quality control exceptions were identified unless noted below.

No anomalies were found for the analyzed sample(s).

Sample Summary

LAB ID	Client ID	Matrix	Collect Date	Receive Date
22104167401	DDMT-IDW-DRUM 1	Solid	04/13/2021 15:45	04/15/2021 14:00
22104167402	DDMT-IDW-DRUM 2	Solid	04/13/2021 16:00	04/15/2021 14:00
22104167403	DDMT-IDW-DRUM 3	Solid	04/13/2021 16:20	04/15/2021 14:00
22104167404	DDMT-IDW-DRUM 4	Solid	04/13/2021 16:30	04/15/2021 14:00
22104167405	DDMT-IDW-DRUM 5	Solid	04/13/2021 16:45	04/15/2021 14:00
22104167406	TRIP BLANK-041421	Water	04/13/2021 00:01	04/15/2021 14:00

Detect Summary

No analytes were detected for analyses performed by Pace Gulf Coast.

Sample Results

DDMT-IDW-DRUM 1

Collect Date 04/13/2021 15:45 **LAB ID** 22104167401
Receive Date 04/15/2021 14:00 **Matrix** Solid

EPA 8260B *Results Reported on Dry Weight Basis

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	04/27/2021 13:14	SMR	709579

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	ND	14.0	ug/Kg
71-55-6	1,1,1-Trichloroethane	ND	14.0	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	ND	14.0	ug/Kg
79-00-5	1,1,2-Trichloroethane	ND	14.0	ug/Kg
75-34-3	1,1-Dichloroethane	ND	14.0	ug/Kg
75-35-4	1,1-Dichloroethene	ND	14.0	ug/Kg
107-06-2	1,2-Dichloroethane	ND	14.0	ug/Kg
540-59-0	1,2-Dichloroethene(Total)	ND	27.9	ug/Kg
56-23-5	Carbon tetrachloride	ND	14.0	ug/Kg
67-66-3	Chloroform	ND	14.0	ug/Kg
156-59-2	cis-1,2-Dichloroethene	ND	14.0	ug/Kg
75-09-2	Methylene chloride	ND	27.9	ug/Kg
127-18-4	Tetrachloroethene	ND	14.0	ug/Kg
156-60-5	trans-1,2-Dichloroethene	ND	14.0	ug/Kg
79-01-6	Trichloroethene	ND	14.0	ug/Kg
75-01-4	Vinyl chloride	ND	14.0	ug/Kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	53.10	50.1	ug/Kg	94	62 - 127
1868-53-7	Dibromofluoromethane	53.10	56.8	ug/Kg	107	65 - 130
2037-26-5	Toluene d8	53.10	51.7	ug/Kg	97	71 - 132
17060-07-0	1,2-Dichloroethane-d4	53.10	65.1	ug/Kg	123	62 - 125

DDMT-IDW-DRUM 2

Collect Date 04/13/2021 16:00 **LAB ID** 22104167402
Receive Date 04/15/2021 14:00 **Matrix** Solid

EPA 8260B *Results Reported on Dry Weight Basis

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	04/27/2021 13:36	SMR	709579

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.87	ug/Kg
71-55-6	1,1,1-Trichloroethane	ND	5.87	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.87	ug/Kg
79-00-5	1,1,2-Trichloroethane	ND	5.87	ug/Kg
75-34-3	1,1-Dichloroethane	ND	5.87	ug/Kg
75-35-4	1,1-Dichloroethene	ND	5.87	ug/Kg
107-06-2	1,2-Dichloroethane	ND	5.87	ug/Kg
540-59-0	1,2-Dichloroethene(Total)	ND	11.7	ug/Kg
56-23-5	Carbon tetrachloride	ND	5.87	ug/Kg
67-66-3	Chloroform	ND	5.87	ug/Kg
156-59-2	cis-1,2-Dichloroethene	ND	5.87	ug/Kg
75-09-2	Methylene chloride	ND	11.7	ug/Kg
127-18-4	Tetrachloroethene	ND	5.87	ug/Kg
156-60-5	trans-1,2-Dichloroethene	ND	5.87	ug/Kg
79-01-6	Trichloroethene	ND	5.87	ug/Kg

Sample Results

DDMT-IDW-DRUM 2

Collect Date 04/13/2021 16:00 **LAB ID** 22104167402
Receive Date 04/15/2021 14:00 **Matrix** Solid

EPA 8260B (Continued) *Results Reported on Dry Weight Basis

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	04/27/2021 13:36	SMR	709579

CAS#	Parameter	Result	LOQ	Units
75-01-4	Vinyl chloride	ND	5.87	ug/Kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	38.60	35.6	ug/Kg	92	62 - 127
1868-53-7	Dibromofluoromethane	38.60	42.3	ug/Kg	110	65 - 130
2037-26-5	Toluene d8	38.60	35.5	ug/Kg	92	71 - 132
17060-07-0	1,2-Dichloroethane-d4	38.60	48.1	ug/Kg	125	62 - 125

DDMT-IDW-DRUM 3

Collect Date 04/13/2021 16:20 **LAB ID** 22104167403
Receive Date 04/15/2021 14:00 **Matrix** Solid

EPA 8260B *Results Reported on Dry Weight Basis

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	04/27/2021 13:58	SMR	709579

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	ND	11.6	ug/Kg
71-55-6	1,1,1-Trichloroethane	ND	11.6	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	ND	11.6	ug/Kg
79-00-5	1,1,2-Trichloroethane	ND	11.6	ug/Kg
75-34-3	1,1-Dichloroethane	ND	11.6	ug/Kg
75-35-4	1,1-Dichloroethene	ND	11.6	ug/Kg
107-06-2	1,2-Dichloroethane	ND	11.6	ug/Kg
540-59-0	1,2-Dichloroethene(Total)	ND	23.1	ug/Kg
56-23-5	Carbon tetrachloride	ND	11.6	ug/Kg
67-66-3	Chloroform	ND	11.6	ug/Kg
156-59-2	cis-1,2-Dichloroethene	ND	11.6	ug/Kg
75-09-2	Methylene chloride	ND	23.1	ug/Kg
127-18-4	Tetrachloroethene	ND	11.6	ug/Kg
156-60-5	trans-1,2-Dichloroethene	ND	11.6	ug/Kg
79-01-6	Trichloroethene	ND	11.6	ug/Kg
75-01-4	Vinyl chloride	ND	11.6	ug/Kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	47.60	44.1	ug/Kg	93	62 - 127
1868-53-7	Dibromofluoromethane	47.60	50.6	ug/Kg	106	65 - 130
2037-26-5	Toluene d8	47.60	46.1	ug/Kg	97	71 - 132
17060-07-0	1,2-Dichloroethane-d4	47.60	58.5	ug/Kg	123	62 - 125

Sample Results

DDMT-IDW-DRUM 4

Collect Date	04/13/2021 16:30	**LAB ID**	22104167404
Receive Date	04/15/2021 14:00	**Matrix**	Solid

EPA 8260B *Results Reported on Dry Weight Basis

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	04/27/2021 14:20	SMR	709579

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	ND	8.28	ug/Kg
71-55-6	1,1,1-Trichloroethane	ND	8.28	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	ND	8.28	ug/Kg
79-00-5	1,1,2-Trichloroethane	ND	8.28	ug/Kg
75-34-3	1,1-Dichloroethane	ND	8.28	ug/Kg
75-35-4	1,1-Dichloroethene	ND	8.28	ug/Kg
107-06-2	1,2-Dichloroethane	ND	8.28	ug/Kg
540-59-0	1,2-Dichloroethene(Total)	ND	16.6	ug/Kg
56-23-5	Carbon tetrachloride	ND	8.28	ug/Kg
67-66-3	Chloroform	ND	8.28	ug/Kg
156-59-2	cis-1,2-Dichloroethene	ND	8.28	ug/Kg
75-09-2	Methylene chloride	ND	16.6	ug/Kg
127-18-4	Tetrachloroethene	ND	8.28	ug/Kg
156-60-5	trans-1,2-Dichloroethene	ND	8.28	ug/Kg
79-01-6	Trichloroethene	ND	8.28	ug/Kg
75-01-4	Vinyl chloride	ND	8.28	ug/Kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	51	48.1	ug/Kg	94	62 - 127
1868-53-7	Dibromofluoromethane	51	54.9	ug/Kg	108	65 - 130
2037-26-5	Toluene d8	51	47.1	ug/Kg	92	71 - 132
17060-07-0	1,2-Dichloroethane-d4	51	62.7	ug/Kg	123	62 - 125

DDMT-IDW-DRUM 5

Collect Date	04/13/2021 16:45	**LAB ID**	22104167405
Receive Date	04/15/2021 14:00	**Matrix**	Solid

EPA 8260B *Results Reported on Dry Weight Basis

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	04/27/2021 14:42	SMR	709579

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	ND	6.61	ug/Kg
71-55-6	1,1,1-Trichloroethane	ND	6.61	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	ND	6.61	ug/Kg
79-00-5	1,1,2-Trichloroethane	ND	6.61	ug/Kg
75-34-3	1,1-Dichloroethane	ND	6.61	ug/Kg
75-35-4	1,1-Dichloroethene	ND	6.61	ug/Kg
107-06-2	1,2-Dichloroethane	ND	6.61	ug/Kg
540-59-0	1,2-Dichloroethene(Total)	ND	13.2	ug/Kg
56-23-5	Carbon tetrachloride	ND	6.61	ug/Kg
67-66-3	Chloroform	ND	6.61	ug/Kg
156-59-2	cis-1,2-Dichloroethene	ND	6.61	ug/Kg
75-09-2	Methylene chloride	ND	13.2	ug/Kg
127-18-4	Tetrachloroethene	ND	6.61	ug/Kg
156-60-5	trans-1,2-Dichloroethene	ND	6.61	ug/Kg
79-01-6	Trichloroethene	ND	6.61	ug/Kg

Sample Results

DDMT-IDW-DRUM 5

Collect Date 04/13/2021 16:45 **LAB ID** 22104167405
Receive Date 04/15/2021 14:00 **Matrix** Solid

EPA 8260B (Continued) *Results Reported on Dry Weight Basis

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	04/27/2021 14:42	SMR	709579

CAS#	Parameter	Result	LOQ	Units
75-01-4	Vinyl chloride	ND	6.61	ug/Kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	42.70	39.6	ug/Kg	93	62 - 127
1868-53-7	Dibromofluoromethane	42.70	45.2	ug/Kg	106	65 - 130
2037-26-5	Toluene d8	42.70	40.3	ug/Kg	94	71 - 132
17060-07-0	1,2-Dichloroethane-d4	42.70	51.9	ug/Kg	121	62 - 125

TRIP BLANK-041421

Collect Date 04/13/2021 00:01 **LAB ID** 22104167406
Receive Date 04/15/2021 14:00 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	04/27/2021 15:14	SMS	709563

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.00	ug/L
71-55-6	1,1,1-Trichloroethane	ND	5.00	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.00	ug/L
79-00-5	1,1,2-Trichloroethane	ND	5.00	ug/L
75-34-3	1,1-Dichloroethane	ND	5.00	ug/L
75-35-4	1,1-Dichloroethene	ND	5.00	ug/L
107-06-2	1,2-Dichloroethane	ND	5.00	ug/L
540-59-0	1,2-Dichloroethene(Total)	ND	10.0	ug/L
56-23-5	Carbon tetrachloride	ND	5.00	ug/L
67-66-3	Chloroform	ND	5.00	ug/L
156-59-2	cis-1,2-Dichloroethene	ND	5.00	ug/L
75-09-2	Methylene chloride	ND	5.00	ug/L
127-18-4	Tetrachloroethene	ND	5.00	ug/L
156-60-5	trans-1,2-Dichloroethene	ND	5.00	ug/L
79-01-6	Trichloroethene	ND	5.00	ug/L
75-01-4	Vinyl chloride	ND	2.00	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	52.8	ug/L	106	78 - 130
1868-53-7	Dibromofluoromethane	50	51.5	ug/L	103	77 - 127
2037-26-5	Toluene d8	50	52.9	ug/L	106	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	48.7	ug/L	97	71 - 127

GC/MS Volatiles QC Summary

Analytical Batch 709579	Client ID	MB709579		LCS709579				LCSD709579				
	LAB ID	2177311		2177312				2177313				
	Sample Type	MB		LCS				LCSD				
	Prep Date											
	Analysis Date	04/27/21 11:32		04/27/21 09:56				04/27/21 10:18				
	Matrix	Solid		Solid				Solid				
EPA 8260B		Units Result	ug/Kg LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	630-20-6	ND	5.00	50.0	50.4	101	77 - 122	50.0	48.9	98	3	30
1,1,1-Trichloroethane	71-55-6	ND	5.00	50.0	56.1	112	70 - 130	50.0	51.4	103	9	30
1,1,2,2-Tetrachloroethane	79-34-5	ND	5.00	50.0	55.7	111	66 - 129	50.0	55.1	110	1	30
1,1,2-Trichloroethane	79-00-5	ND	5.00	50.0	50.3	101	74 - 120	50.0	49.0	98	3	30
1,1-Dichloroethane	75-34-3	ND	5.00	50.0	57.8	116	71 - 126	50.0	54.4	109	6	30
1,1-Dichloroethene	75-35-4	ND	5.00	50.0	53.8	108	68 - 129	50.0	49.0	98	9	20
1,2-Dichloroethane	107-06-2	ND	5.00	50.0	56.1	112	68 - 126	50.0	54.7	109	3	30
1,2-Dichloroethene(Total)	540-59-0	ND	10.0	100	113	113	72 - 129	100	107	107	5	30
Carbon tetrachloride	56-23-5	ND	5.00	50.0	55.1	110	71 - 133	50.0	51.8	104	6	30
Chloroform	67-66-3	ND	5.00	50.0	54.1	108	74 - 124	50.0	51.6	103	5	30
cis-1,2-Dichloroethene	156-59-2	ND	5.00	50.0	56.1	112	72 - 130	50.0	53.8	108	4	30
Methylene chloride	75-09-2	ND	10.0	50.0	50.6	101	66 - 130	50.0	46.4	93	9	30
Tetrachloroethene	127-18-4	ND	5.00	50.0	50.4	101	70 - 127	50.0	48.7	97	3	30
trans-1,2-Dichloroethene	156-60-5	ND	5.00	50.0	56.9	114	67 - 134	50.0	53.7	107	6	30
Trichloroethene	79-01-6	ND	5.00	50.0	52.6	105	78 - 127	50.0	48.8	98	7	20
Vinyl chloride	75-01-4	ND	5.00	50.0	44.8	90	67 - 131	50.0	40.0	80	11	30
Surrogate												
1,2-Dichloroethane-d4	17060-07-0	50.4	101	50	52.3	105	62 - 125	50	51.3	103	NA	NA
4-Bromofluorobenzene	460-00-4	46.8	94	50	46.6	93	62 - 127	50	47.8	96	NA	NA
Dibromofluoromethane	1868-53-7	49	98	50	47.7	95	65 - 130	50	49.2	98	NA	NA
Toluene d8	2037-26-5	50.8	102	50	47.4	95	71 - 132	50	48.3	97	NA	NA

Analytical Batch 709563	Client ID	MB709563		LCS709563				LCSD709563				
	LAB ID	2177207		2177208				2177209				
	Sample Type	MB		LCS				LCSD				
	Prep Date											
	Analysis Date	04/27/21 12:59		04/27/21 11:02				04/27/21 11:41				
	Matrix	Water		Water				Water				
EPA 8260B		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	630-20-6	ND	5.00	50.0	47.9	96	75 - 124	50.0	50.4	101	5	30
1,1,1-Trichloroethane	71-55-6	ND	5.00	50.0	44.2	88	76 - 126	50.0	47.3	95	7	30
1,1,2,2-Tetrachloroethane	79-34-5	ND	5.00	50.0	50.8	102	70 - 122	50.0	48.1	96	5	30
1,1,2-Trichloroethane	79-00-5	ND	5.00	50.0	45.5	91	72 - 121	50.0	47.0	94	3	30
1,1-Dichloroethane	75-34-3	ND	5.00	50.0	43.6	87	74 - 127	50.0	46.9	94	7	30
1,1-Dichloroethene	75-35-4	ND	5.00	50.0	43.8	88	69 - 129	50.0	46.5	93	6	20
1,2-Dichloroethane	107-06-2	ND	5.00	50.0	44.8	90	71 - 129	50.0	46.7	93	4	30
1,2-Dichloroethene(Total)	540-59-0	ND	10.0	100	89.3	89	74 - 128	100	94.8	95	6	30
Carbon tetrachloride	56-23-5	ND	5.00	50.0	44.0	88	76 - 128	50.0	47.5	95	8	30
Chloroform	67-66-3	ND	5.00	50.0	44.5	89	75 - 122	50.0	47.6	95	7	30
cis-1,2-Dichloroethene	156-59-2	ND	5.00	50.0	44.8	90	73 - 130	50.0	47.3	95	5	30
Methylene chloride	75-09-2	ND	5.00	50.0	44.1	88	68 - 132	50.0	45.9	92	4	30
Tetrachloroethene	127-18-4	ND	5.00	50.0	45.5	91	68 - 128	50.0	49.2	98	8	30
trans-1,2-Dichloroethene	156-60-5	ND	5.00	50.0	44.5	89	69 - 132	50.0	47.5	95	7	30
Trichloroethene	79-01-6	ND	5.00	50.0	43.9	88	76 - 129	50.0	46.2	92	5	20
Vinyl chloride	75-01-4	ND	2.00	50.0	43.4	87	68 - 132	50.0	51.7	103	17	30
Surrogate												
1,2-Dichloroethane-d4	17060-07-0	49.3	99	50	48.8	98	71 - 127	50	48.3	97	NA	NA
4-Bromofluorobenzene	460-00-4	53.4	107	50	50	100	78 - 130	50	50.9	102	NA	NA
Dibromofluoromethane	1868-53-7	51.7	103	50	48.6	97	77 - 127	50	47.8	96	NA	NA
Toluene d8	2037-26-5	54.4	109	50	50.7	101	76 - 134	50	50.1	100	NA	NA

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Wor

ALL SHAD

Client ID: 4747 - TRINITY Analysis & Development Corp

SDG: 221041674

PM: KSM

Company: Trinity Analysis and Development	Billing Information: Trinity Analysis and Development
Address: 1002 Eglin Pkwy, Shalimar FL	
Report To: Larry Pannell (lpennell@komangs.com)	Email To: lpannell@komangs.com
Copy To:	Site Collection Info/Address: DDMT
Customer Project Name/Number: Defense Depot	State: TN / County/City: memphis / Time Zone Collected: [ ]PT [ ]MT [X]CT [ ]ET
Phone: 508-280-9948 Email:	Site/Facility ID #:
Collected By (print): Brett Anchukaitis	Purchase Order #: 9091 Quote #:
Collected By (signature): Brett Anchukaitis	Turnaround Date Required:
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)
Compliance Monitoring? [ ] Yes [X] No	DW PWS ID #: DW Location Code:
Immediately Packed on Ice: [X] Yes [ ] No	Field Filtered (if applicable): [ ] Yes [X] No Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Ty: 6,7 | 3

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses: VOCs (low level)	Analyses: VOCs	Lab Profile/Line:
DDMT-IDW-DRUM 1	SL	Grab	4/13/21	1545	—	—		4	X		1
DDMT-IDW-DRUM 2	SL	Grab	4/13/21	1600	—	—		4	X		2
DDMT-IDW-DRUM 3	SL	Grab	4/13/21	1620	—	—		4	X		3
DDMT-IDW-DRUM 4	SL	Grab	4/13/21	1630	—	—		4	X		4
DDMT-IDW-DRUM 5	SL	Grab	4/13/21	1645	—	—		4	X		5
TripBlank-041421	OT	Grab	—	—	—	—		2		X	6

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips: _____	
Sample pH Acceptable	Y N NA
pH Strips: _____	
Sulfide Present	Y N NA
Lead Acetate Strips: _____	

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used: 991124128898

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y (N) N/A

Lab Tracking #: 2640981

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments:
1.4E34 29cpm

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Relinquished by/Company: (Signature) Brett Anchukaitis	Date/Time: 4/14/21 1100	Received by/Company: (Signature) FedEx	Date/Time: 4/14/21	MTJL LAB USE ONLY
Relinquished by/Company: (Signature) FedEx	Date/Time: 4/15/21 1400	Received by/Company: (Signature) Ulliven Hellen	Date/Time: 4/15/21 1400	Table #: Acctnum: Template: Prelogin: PM: PB:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	

Non Conformance(s): YES / NO

Page: 1 of: 1

SAMPLE RECEIVING CHECKLIST

SAMPLE DELIVERY GROUP 221041674	
Client **PM** KSM 4747 - TRINITY Analysis & Development Corp.	**Transport Method** FEDEX
Profile Number 287865	**Received By** McCune, Dodie N.
Line Item(s) 3 - S-VOCs 4 - W-VOCs	**Receive Date(s)** 04/15/21

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by Pace Gulf Coast?	☑	☐

COOLERS

Airbill	Thermometer ID: E34	Temp °C
991126128898		1.4

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6