

Evaluation of Subslab Hydrogen Sulfide and Methane Concentrations at the Former Hampshire Chemical Corp. Facility, Waterloo, New York

PREPARED FOR: Former Hampshire Chemical Corp.
PREPARED BY: CH2M HILL, Inc.
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1.0 Introduction

This technical memorandum summarizes the methods, analytical results, and findings of a subslab vapor investigation in Area of Concern B (AOC B) (Building 4), AOC D (Building 3), and adjacent spaces at the former Hampshire Chemical Corp. (HCC), Waterloo, New York facility (site) conducted during April and May 2017. The subslab vapor investigation described in this memorandum was conducted to evaluate the extent of subslab soil vapors that were detected during routine groundwater monitoring events at monitoring wells in and around Building 4.

2.0 Background

The site is located at 228 East Main Street in the village of Waterloo, Seneca County, New York (Figure 2-1), and is bordered to the north by East Main Street, to the east by Gorham Street, to the west by East Water Street, and to the south by the Cayuga-Seneca Canal. Evans Chemetics LP currently operates a specialty sulfur compound manufacturing facility at the site. The property contains several interconnected buildings that house chemical manufacturing facilities, offices, a quality control laboratory, maintenance, and shipping/receiving operations, as well as an industrial wastewater treatment plant. The site also includes outside drum storage areas and several tank farms.

The site is regulated under the Resource Conservation and Recovery Act (RCRA) with the New York State Department of Environmental Conservation (NYSDEC) as the lead agency regarding environmental releases. RCRA facility investigation efforts have been performed at the site since 1993 to evaluate the nature and extent of releases. The ongoing manufacturing operations by Evans Chemetics at the site are regulated by U.S. Department of Labor Occupational Safety and Health Administration Region 2, the New York Department of Labor Division of Safety and Health Public Employee Safety and Health Bureau, among others. Air emissions from the site's ongoing operations, including hydrogen sulfide from multiple emissions points, are governed by a permit from NYSDEC. As a safety precaution, Evans Chemetics operates several hydrogen sulfide monitors within its operating facilities.

The potential for vapor intrusion of volatile organic compounds (VOCs) in specific buildings at the site has been previously evaluated in a series of reports. No further sampling was recommended for Building 4 and the adjacent tank storage area (CH2M HILL, Inc. [CH2M] 2013a), Building 1 (CH2M 2011), Buildings 2A, 2B, 2, and 3 (CH2M 2010a), and in Building 13 (the main office) (CH2M 2007).

During a long-term groundwater monitoring sampling event at AOCs B and D in November 2015, field instrument readings detected elevated hydrogen sulfide and methane concentrations in the headspaces of several monitoring wells. Ten vapor samples collected from two existing subslab sampling ports and

eight monitoring well headspaces in April and August 2016 suggested hydrogen sulfide and methane are present in the subsurface (CH2M 2016). Figure 2-2 shows the 2016 sample locations. In August 2016, CH2M completed a historical data review and field infrastructure assessment (building survey) for Buildings 3 and 4 with the objectives to make observations and collect data to support a limited subslab vapor investigation.

NYSDEC and the New York State Department of Health (NYSDOH) were notified of the subslab soil vapor conditions and consulted before conducting further investigations. The scope of work for the subslab soil vapor evaluation summarized in this memorandum was submitted to and approved by NYSDEC in April 2017 (CH2M 2017a; NYSDEC 2017). Subsequent correspondence from NYSDEC stated, "HCC also consider adjusting the heating, ventilation and air conditioning systems by creating positive pressure conditions in the buildings and/or implementing any additional actions to assist with ventilating the air spaces of the affected areas." (Dieter 2017). Therefore, a building survey was undertaken to gather information useful for assessing such interim actions.

3.0 Historical Information

Known historical uses of Buildings 3 and 4 include storage of raw materials used in the woolen mill process to dye wool and later, the manufacturing of divalent organic sulfur intermediates used for the cosmetic, pharmaceutical, and plastics industries. The site was first owned and operated by the Waterloo Woolen Manufacturing Company, which operated a woolen textile mill from before 1839 until approximately 1936, when the mill was closed. Evans Chemetics reopened the facility in 1943 and produced divalent organic sulfur chemical intermediates that are still manufactured at the facility. The facility was acquired by the W.R. Grace Company in 1979 and remained a part of Grace's Organic Chemical Division until 1992, when HCC completed a management buyout of the Organic Chemical Division. Evans Chemetics was part of the management buyout, and the facility became an operating unit of HCC. In 1995, HCC was purchased by and became a wholly owned subsidiary of Sentrachem, Ltd., a South African chemical company. In 1997, Sentrachem was acquired as a wholly owned subsidiary of The Dow Chemical Company. In 2005, the site (as well as other assets of Evans Chemetics) was sold to Bruno Bock. Evans Chemetics LP, now a wholly owned subsidiary of Bruno Bock, currently operates the site.

Small canals leading from the site to the Seneca-Cayuga Canal (raceways) were present at the site during the woolen mill operations to transport goods and materials. These raceways were generally filled in after the cessation of wool mill operations and are partially located under the existing structures.

The primary chemicals manufactured at the facility after the cessation of woolen operations were (and still are) thioglycolic acid, mercaptopropionic acid, and thiodipropionate esters for use in various industrial applications. (manufacturing thioglycolic acid stopped in 2014) Manufacturing still occurs in Building 4, and caustic chemicals are stored in Building 3 (Figure 2-2). Process-related equipment also is present in Buildings 9, 10 and 11A. Buildings 14 and 16 are used for chemical storage. Chemical raw materials used at the site include acids, caustics (sodium hydroxide and sodium hydrosulfide), acrylonitrile, alcohols, alkalis, ammonia, and metals (iron and zinc) (zinc use stopped around 1995, and stopped using iron around 2007).

4.0 Field Methods

During April and May 2017, a field investigation to study the nature and extent of subslab soil vapors in and around AOCs B and D, in particular hydrogen sulfide and methane, was performed. Work associated with this investigation included conducting a geophysical survey, installing 15 subslab vapor sampling probes, collecting soil vapor samples at 13 new vapor probes, and conducting a building

survey. Figure 4-1 shows where the 15 subslab sampling probes are located. This section discusses the investigative methods used during this effort, and Section 5 discusses the investigation results.

4.1 Geophysics

On April 3-6 and April 12, 2017, a geophysical investigation was performed onsite within an area measuring approximately 210 feet northwesterly-southeasterly and 120 feet northeasterly-southwesterly (Figure 4-2) and included all or portions of the ground levels in Buildings 3, 4, 9, 11, 11A, and 13A. The geophysical investigation was conducted to identify subsurface voids and zones of low-density soils, which could act as soil vapor reservoirs, or potential soil vapor migration pathways. The geophysical methods included a microgravity survey over the entire study area and a limited ground-penetrating radar (GPR) survey over most of Buildings 3 and 4. The microgravity and GPR data were taken into consideration during the final placement of the subslab soil vapor sampling probes. In addition, a reconnaissance-level thermal imaging survey of floors in Buildings 3 and 4 was performed to look for heat signatures characteristic of subsurface biological activity.

4.1.1 Microgravity

Between April 3 and April 6, 2017, gravity measurements were collected at 250 stations on an approximately 10-foot by 10-foot grid across the study area (Figures 4-2 and 4-3). Enviroscan, Inc. of Lancaster, Pennsylvania, conducted the microgravity survey with CH2M providing field assistance and oversight. The horizontal and vertical positions of each station were recorded using a global positioning system and Zipline Pro. Gravity readings were collected using a Scintrex CG-5 microgravity meter. The infield gravity, elevations, and time data were processed to produce a residual gravity contour map showing the relative density of materials beneath the survey area (Figure 4-3). Attachment 1 contains further information regarding the geophysical techniques and methods.

4.1.2 Ground Penetrating Radar

On April 12, 2017, GPR profiles were collected in areas of the microgravity grid where space allowed for continuous profile collection, including most of Buildings 3 and 4. GPR profiles were collected using a GSSI SIR-400 controller and 400-megahertz antenna. The GPR data were examined in real time, and anomalies were plotted on the residual gravity contour map (Figure 4-1). Attachment 1 contains additional technical information regarding the GPR survey.

4.1.3 Thermal Imaging

On April 4, 2017, CH2M performed a preliminary thermal survey of the interior floor in Building 4 using a Fluke Ti55 thermal imaging camera. The purpose of the thermal imaging was to identify areas with anomalously high heat signatures, possibly indicative of subslab exothermic biological processes. Digital images containing fused infrared and visible light images were captured and are discussed in Section 5.1.

4.2 Soil Vapor Probe Installation

During April and May 2017, 15 subslab soil vapor sampling probes (SV-01 through SV-15) were installed at the site. The probe locations were chosen primarily to delineate hydrogen sulfide and methane in the subsurface. Information that was taken into consideration during probe placement included geophysical data (mass deficiency and mass excess area identification), proximity to known “hot spots” and former excavations, and spatial distribution. Figure 4-1 shows the newly installed subslab vapor probe locations.

4.2.1 Underground Utility Clearance

Dig Safely New York was notified of the forthcoming intrusive activities associated with subslab sampling port installation at least 2 business days before commencing work. A third-party utility locating service

verified the absence of underground utilities at each proposed boring location, and Evans Chemetics staff reviewed facility plans as well. Technicians from Enviroscan Inc. inspected the intended work area at and near SV-01, SV-03 to SV-11, and SV-13 to SV-14 for surficial evidence of buried facilities followed by a survey with electromagnetic locating equipment and GPR on April 12, 2017. On May 3, 2017, New York Leak Detection of Jamesville, New York performed additional underground utility clearance for SV-02, SV-12, and SV-15. Permanent or semi-permanent means were used to mark an area free of underground obstructions for the soil borings. Attachment 1 contains additional technical information regarding the underground utility clearance methods and techniques.

4.2.2 Drilling and Sampling Port Installation

From April 26 to April 29, and May 1 to May 4, 2017, 15 subslab soil vapor sampling probes (Vapor Pins from Cox-Colvin & Associates, Inc.) were installed using standard Vapor Pin installation procedures adapted to the need for ventilating potentially hazardous gases and suppressing sparks. Vapor Pins were placed with respect to known historical and geophysical features, and at least 5 feet away from exterior walls and penetrations in the slab (e.g., large cracks, sumps, drains, and utilities) to avoid short-circuiting of ambient air. Figure 4-1 shows the locations of the subslab soil vapor sampling probes.

Drilling was conducted using advanced health and safety measures, including multiple layers of engineering and institutional controls, redundant ventilation, and Level B personal protective equipment with supplied-air respiratory protection. A nitrogen-filled glovebox was placed over the borehole to dilute/inert potentially explosive gases at ground level and limit vapors entering the work zone during drilling and installation (Photo 1). The glovebox atmosphere was exhausted through a port fed into the ventilation ducting.

Real-time air monitoring was conducted continuously before, during, and after Vapor Pin installation to ensure a hazardous atmosphere did not exist. Air quality parameters (hydrogen sulfide, methane, sulfur dioxide, carbon dioxide, carbon monoxide, oxygen, total VOCs, and lower explosive limit [LEL]) were measured within and surrounding the work zone and inside the glovebox.

The stepwise Vapor Pin installation procedure was as follows:

1. A 2-inch-diameter hole was advanced approximately 0.2 to 0.5 inch into the slab using a solid drill bit, or a combination of a core and solid bit. The 2-inch-diameter hole allowed the top of the flush-mount cover to be installed flush with the slab surface.
2. A 1.5-inch-diameter hole was then drilled to a depth of 1.75 inches using the drilling guide to measure the hole depth and allow room for installing the Vapor Pin. At no time was there a compromise to the integrity of the slab during drilling (e.g., cracking).
3. Cuttings were removed from the borehole using a wet/dry vacuum. The hole was filled with water to implement a wet drilling technique and suppress sparking.
4. A 0.625-inch ($\frac{5}{16}$ -inch)-diameter hole was drilled through the concrete slab.
5. The Vapor Pin assembly was then set into the drilled hole using a dead-blow hammer. The vapor probe silicon sleeve formed a tight seal between the slab and the Vapor Pin shoulder.
6. A stainless-steel cover was secured onto the Vapor Pin.

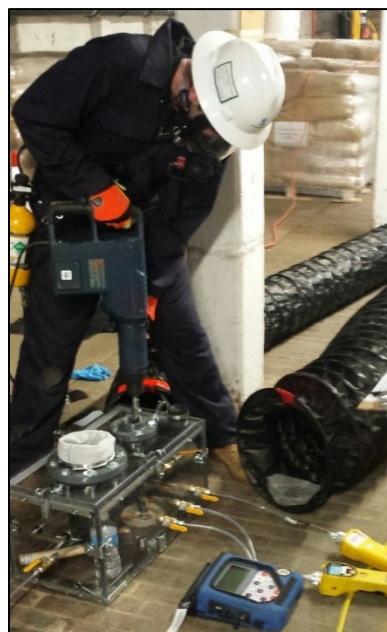


Photo 1. Level B drilling with glovebox

7. A water dam test was performed to ensure a tight seal exists between the slab and the Vapor Pin shoulder.

Because of field conditions, the following deviations from the work plan (CH2M 2017a) were made during the Vapor Pin installation phase:

- A Vapor Pin was not installed in Building 9 because the location selected during the underground utility clearance was drilled to more than 20 inches below grade without penetrating the floor and suspected to be within the interior support column spread footing. Furthermore, a suitable secondary drilling location was not available due to multiple subslab anomalies (possibly representing areas of dense rebar or buried pipes) detected in the remainder of Building 9 during the GPR survey.
- A Vapor Pin was not installed in Building 10 because of the poor condition of the concrete floor, making achieving a seal between the floor and glovebox difficult.
- A Vapor Pin was not installed in the outdoor area near the northeastern corner of Building 4 because the area was paved in asphalt and not suitable for the selected soil vapor sampling probe technology.

4.3 Soil Vapor Screening

Following Vapor Pin installation and before soil vapor sampling, the concentrations of subslab soil vapors at Vapor Pins installed between April 26 and May 2, 2017 (SV-01, SV-03 to SV-11, and SV-13 to SV-14) were measured following an equilibration period of 3 to 5 days using a MiniRAE 3000 photoionization detector equipped with a 11.7 electron volt lamp for total VOCs, VRAE multigas meter for sulfur dioxide, and GEM 2000+ soil gas meter for carbon monoxide, carbon dioxide, oxygen, methane, and hydrogen sulfide. This screening was conducted to gauge the magnitude of hydrogen sulfide and methane concentrations before sample collection. The results of the May 2017 soil vapor screening are discussed in Section 5.2.

A complete and/or stabilized set of soil vapor screening parameters were not collected at two locations because of the following reasons:

- Field instrument sampling pump failure at SV-06 (note: a complete set of data at this point was later obtained on May 9, 2017).
- Groundwater was drawn into the sample tubing at SV-05.

4.4 Vapor Sampling

Fourteen vapor samples (including one field duplicate sample) were collected for laboratory analysis on May 8 and May 9, 2017. Vapor sampling procedures are discussed below and analytical results are reviewed in Section 5.3.

Before collecting the subslab vapor samples, differential pressures were measured using a micro manometer, the sampling train was tested for leaks, and a leak check of the sampling port and adjacent concrete slab were performed using the water dam method. The vapor sampling train was constructed of inert stainless steel and Teflon tubing joined with stainless steel compression fittings.

Following connection and testing of the sampling manifold, approximately 1 liter of soil vapor was purged at a rate of 200 milliliters per minute (mL/min) from the subslab sampling port into a Tedlar bag over about a 5-minute period using a portable vacuum pump or lung box. Next, the Tedlar bag was removed and a 1-liter laboratory-supplied Silonite-lined stainless steel sample canister was attached to the sampling valve. Finally, the sampling valve was opened and soil vapor was collected under a

beginning canister gage vacuum of approximately -30 inches of mercury and proceeded until an ending vacuum of approximately -4 inches of mercury was attained.

The contents of the Tedlar bag were analyzed for methane, hydrogen sulfide, carbon monoxide, oxygen, sulfur dioxide, and total VOCs using field instruments. Results of the subslab soil vapor screening are discussed in Section 5.2

Subslab vapor samples were packaged and shipped under chain-of-custody procedures by road freight as flammable and poisonous gases (per U.S. Department of Transportation regulations) to Centek Laboratories LLC in Syracuse, New York for analysis. These vapor samples were analyzed for low-level sulfur compounds and VOCs by U.S. Environmental Protection Agency (USEPA) Method TO-15, and fixed gases by USEPA Method 3C.

Samples were not collected at SV-05 and SV-12 because of high groundwater conditions. Approximately 1 minute into the soil vapor purge cycle at SV-05, groundwater began aspirating from the Vapor Pin in intermittent spurts. Due to the intermittent flow of water, it was suspected that the Vapor Pin inlet may be within the partially saturated capillary fringe, and that collecting soil vapor from the unsaturated portion of the capillary fringe may be possible. Therefore, the sampling equipment was elevated several feet off the floor to avoid water damage and purging was continued. Approximately 2 minutes into the soil vapor purge cycle at SV-05, the flow of water from the Vapor Pin became continuous and purging was discontinued. Water began flowing in a steady, continuous stream immediately after beginning the purge cycle at SV-12, hence a sample could not be collected.

4.5 Building Survey

A building survey was conducted to define the conditions for potential vapor entry into the structures and air exchange through the structures primarily based on visual observations supported by photography. Dimensions were collected with a Bosch GLM 35 laser measuring device. The accuracy of this device was checked against an object of known length. Information was gathered using the NYSDOH "Indoor Air Quality Questionnaire and Building Inventory" to the extent feasible in areas of the building where the survey had not previously been employed. The primary focus of the building survey was to evaluate the conditions of the building envelope and ventilation. These factors are relevant in determining exposure scenarios and perspective interim remedies. Since a chemical inventory had been previously prepared for the facility, that work was not repeated at this time.

5.0 Results

Field investigations conducted at the site during April and May 2017 included conducting a geophysical survey, soil vapor field screening during vapor probe installation and sampling, collecting soil vapor samples for laboratory analysis, and conducting a building survey.

5.1 Geophysics

Between April 3 and April 12, 2017, Enviroscan conducted a microgravity survey of all or portions of the ground levels in Buildings 3, 4, 9, 11, 11A, and 13A (Figure 4-2) and GPR survey of Buildings 3 and 4. A discussion of the geophysical field methods is provided in Section 4.1. Enviroscan's complete report is included in Attachment 1. Notable findings include the following:

- The highest amplitude mass deficiencies based on the gravity data are located beneath the western portion of Building 4 (depicted by the north-south oriented orange and red area on Figure 4-2) and in the Building 11A basement area (former generator room). In these areas, the magnitude of the gradients from mass excess to mass deficiency may indicate possible subsurface utilities, voids caused by human activities, or low-density geologic features.

- Spectral analysis of the microgravity data for Building 4 indicates a majority of the mass deficiency anomalies in Building 4 average between 2 and 5 feet below ground surface (bgs), with the deepest anomalies located at 12 to 15 feet bgs.
- While collecting GPR data was inhibited by the presence of reinforced concrete, two significant anomalies were described in Building 4 (outlined in purple dashes on Figure 4-2). An anomaly in the northwestern quadrant of Building 4 is indicative of a high-density reflector such as a buried metallic plate. SV-05 was installed approximately 2 feet west of the anomaly. The anomaly in the southeastern quadrant of Building 4 is characteristic of a buried reinforced concrete structure. Neither of the GPR anomalies in Building 4 is coincident with areas of mass deficiencies.
- The high-amplitude mass deficiency along the entire northern wall of Building 3 is most likely the result of a terrain effect. This terrain effect is interpreted to be caused by the 12-foot elevation difference in grade between Building 3 and the outdoor area to the north of Building 3. Thus, the horizontal influence of the open space contained within Building 3 may have influenced the gravity measurements at those stations located in the outdoor area north of Building 3.
- No anomalous heat signatures were identified during thermal imaging of the floor in Building 4 for indications of subsurface exothermic biological activity. However, the upper surface of the concrete and acid brick floor inside Building 4 is heated by process waste heat. If heat-generating biological activity is occurring, the heat signature may be masked by the building's ambient heat. Therefore, this application of thermal imaging is unsuitable for areas of active chemical production at the site.

5.2 Soil Vapor Field Measurements

On May 1 and May 3, 2017, field measurements of soil vapor concentrations were collected from the newly installed Vapor Pins. Post-installation concentrations of methane, hydrogen sulfide, carbon monoxide, carbon dioxide, LEL, oxygen, sulfur dioxide, and total VOCs are presented in Table 5-1. The following significant field measurements were recorded:

- Methane concentrations in excess of 100 percent of the LEL were measured at SV-05 (greater than 26.4 percent methane by volume [Vol%]), SV-06 (greater than 28.4 Vol%), and SV-15 (greater than 55 Vol%).
- Hydrogen sulfide concentrations in excess of 80 parts per million (ppm) were measured at SV-05 (greater than 80 ppm) and SV-15 (greater than 500 ppm).

As part of the vapor sampling procedure, subsurface soil vapors were purged into a Tedlar bag for a second round of vapor concentration screening. The pre-sampling soil vapor screening results for methane, hydrogen sulfide, carbon monoxide, oxygen, sulfur dioxide, total VOCs, and differential pressure are presented in Table 5-2. The following significant field measurements were recorded:

- Methane concentrations in excess of 100 percent of the LEL were measured at SV-06 (33.9 Vol%) and SV-15 (greater than 5 Vol%).
- Hydrogen sulfide at a concentration in excess of 500 ppm was measured at SV-15.
- Total VOCs at a concentration of 247 ppm was measured at SV-15.
- Differential pressures ranged from zero inches of water column (inch WC) (SV-01, SV-02, SV-08, and SV-09) to 2.1 inch WC at SV-05. However, the highest differential pressures were measured at SV-05 (2.1 inch WC) and SV-12 (0.790 inch WC) where groundwater entered the sample tubing during soil vapor purging, and may not be representative of stabilized gas phase differential pressure in those areas.

5.3 Soil Vapor Samples

On May 8 and May 9, 2017, 14 subslab soil vapor samples (including one field duplicate sample) were collected from 13 subslab sampling ports (SV-01 to SV-04, SV-06 to SV-11, and SV-13 to SV-15). Samples were not collected at SV-05 and SV-12 because of high groundwater conditions that appear to be associated with wet spring weather in the area. A summary of the soil vapor sampling information is presented in Table 5-3. The soil vapor samples were analyzed for VOCs, low-level sulfur compounds, and fixed gases. Analytical results are presented in Table 5-4. Methane and hydrogen sulfide concentrations are shown spatially on Figure 5-1. Attachment 2 contains a complete analytical data package provided by the laboratory.

The analytical results for the subslab soil vapor samples were compared to the following criteria intended to evaluate potential risks during site investigation activities and operations by onsite facility workers (Table 5-4):

- Subslab screening concentrations of sulfur compounds likely to be present during current facility operations (carbon disulfide, ethyl mercaptan, hydrogen sulfide, and methyl mercaptan) were calculated from the American Conference of Governmental Industrial Hygienists (2016) threshold limit values (TLVs) using an attenuation factor of 0.03 for indoor air.
- A methane screening concentration of 4 percent by volume (80 percent of the LEL).
- VOC screening concentrations for a commercial exposure scenario were calculated using the Vapor Intrusion Screening Level (VISL) Calculator Version 3.5.1 (USEPA 2016) (May 2016 regional screening levels) for subslab concentrations with a 10^{-5} target cancer risk, a hazard quotient of 1, and the default 0.03 attenuation factor.

The following subsections summarize the subslab vapor results for those analytes detected at concentrations above the selected criteria.

5.4 Hydrogen Sulfide and other Sulfur Compounds

Hydrogen sulfide was detected in soil vapor samples from 11 of the 13 subslab sampling locations (Table 5-4 and Figure 5-1) at concentrations ranging from 12 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) (SV-07) to 150,000,000 $\mu\text{g}/\text{m}^3$ (SV-15). Hydrogen sulfide concentrations exceeded the screening criteria at one location (SV-15) during the May 2017 sampling event. At SV-15 (where hydrogen sulfide is at the highest concentration), other sulfur-containing compounds were present in substantial concentration, and methyl mercaptan exceeded a screening level for soil gas derived from the TLV with a default 0.03 attenuation factor.

5.5 Methane

Methane was detected in laboratory soil vapor samples from 2 of the 13 subslab sampling locations (Table 5-4 and Figure 5-1) at concentrations of 33.9 Vol% (SV-06) and 38.6 Vol% (SV-15). Methane concentrations exceeded the screening criteria at SV-06 and SV-15 during the May 2017 sampling event. Field methane concentrations in excess of the screening value were also observed at SV-05 and SV-12, locations where laboratory samples could not be obtained because of high groundwater conditions.

5.6 VOCs

One or more of 22 VOCs were detected in soil vapor samples from all of the 13 subslab sampling locations (Table 5-4 and Figure 5-1). Four VOCs (chloroform, ethylbenzene, trichloroethene [TCE], and

meta- and para-xylenes [m,p-xylenes]) were detected at concentrations exceeding the screening criteria as follows:

- Chloroform at SV-02, SV-04, SV-06, SV-14, and SV-15 with a maximum concentration of 7300 $\mu\text{g}/\text{m}^3$ at SV-04.
- Ethylbenzene at SV-15 (3,500 $\mu\text{g}/\text{m}^3$).
- TCE at SV-11 (located well outside the area of other impacts) (420 $\mu\text{g}/\text{m}^3$).
- m,p-Xylenes at SV-15 (47,000 $\mu\text{g}/\text{m}^3$). Note that 14,000 $\mu\text{g}/\text{m}^3$ o-xylene also was observed, slightly below the calculated screening level of 14,600 $\mu\text{g}/\text{m}^3$.

6.0 Building Survey

The building survey was conducted to define the conditions for potential vapor entry into the structures, and opportunities and driving forces for air exchange through the structures. The primary focus was placed on evaluating the conditions of the building envelope and ventilation that would be relevant to a perspective interim remedy.

6.1 HVAC Facilities

The site buildings do not have centralized heating, ventilation, and air conditioning (HVAC) facilities. The main process spaces, including Buildings 3 and 4 are primarily heated with waste heat from the centralized plant steam boiler that is used for various process purposes. A few localized steam radiant unit heaters have been observed in the industrial spaces. Room ventilation is primarily provided by natural air flow through open doorways, windows etc. and cooling is not provided in the process spaces. Chemical process vessels are primarily sealed systems connected to the plants air pollution control system. A few belt-driven exterior vent fans are present in the process spaces but are not extensively used or regularly maintained. One such fan on the second floor of Building 3, east façade was observed to be in service. Small in-window style air conditioners or heat pumps are present in office portions of the facility. Exhaust ventilation is provided in the welding shop (Building 13A) and in the laboratory spaces (upper stories of Building 13), but these are distant from and not expected to influence the Building 3 and 4 area that is the focus of this study.



Photo 2. Exterior view showing high bay additions to Building 4, photo taken from southwest of Building 4 looking northeast.

6.2 Building Layout

As shown on Figure 4-1, the “buildings” onsite generally share common walls (Figure 6-1). In many cases, they are connected by doorways that are either normally open, or not equipped with doors. Building 4 has process equipment both on the ground floor and on a series of offset mezzanines at various levels constructed of metal grating materials and connected with open stairways. The metal grating materials are generally open but are decked in a few areas with plywood or other materials. Those mezzanines rise highest within a series of modern “high bay” additions to the structure (shown with white siding in Photo 2).

6.3 Building Air Flow

Indoor air is able to freely move vertically and has a substantial volume for dilution in Buildings 3 and 4. The high ceilings would be expected to enhance potential stack effect ventilation. Ceiling heights in Building 4 are highly variable with areas having ceiling heights ranging from approximately 22 to 71 feet. Ceiling height on the ground floor of Building 3 is approximately 12 feet. Another significant potential for vertical flow is provided by the open historical style elevator which is on the eastern wall of Building 14.



Photo 3. West facade of Building 4 showing garage door and some windows



Photo 4. Detail Windows on West Facade of Building 4, Showing Mix of Conditions

Opportunities for horizontal air cross ventilation in Buildings 3 and 4 also are extensive:

- A roll-up door and a series of windows, some broken, some boarded up, and some intact are present on the western facade of Building 4 (Photos 3 and 4).
- On the northern wall of Building 4, a heavily used doorway is generally open and leads to Buildings 10 and 11A.
- On the eastern wall of Building 4, a doorway (without a door) leads to Building 3. A second doorway that cannot be closed is approximately 11 feet above grade on the eastern facade of Building 4 leading to the second floor of Building 3.
- Open wall penetrations showing daylight or very poor sealing are present on the southern, western, and northern walls of Building 4.
- Vents and doorways are observable in the walls of some of the modern high bay additions (Photo 1).
- Clerestory windows (windows above eyelevel) facing north are setback from the northern edge of Building 4 at the height of the lower part of the ceiling. Windows also line the northern facade of Building 3 on both the first floor and second floor.
- On the southern wall of Building 4 is an 8-foot wide and 8-foot 8-inch tall doorway leading into Building 4A that is not capable of being closed (no door present with pipes running through the

doorway would prevent installation of a door). That doorway lines up with an even larger roll-up door on the southern wall of Building 4A, which leads directly to the exterior and is frequently open.

- The second floor of Building 3 is primarily used for the storage of equipment such as valves and piping in an open area with racks. A few small offices have been subdivided within the second floor of Building 3 and a control room is subdivided on the interior ground level of Building 3.

The ability to compartmentalize, or for zoned airflow, within the adjoining buildings is frequently limited by piping runs for process purposes that pass through the doorways or walls (example in Photo 5). In other cases, doorways are equipped with safety handrails running through the doorway in a fashion that would prevent easy installation of a door (example in Photo 6). Significant chemical engineering, safety engineering, and architectural work would be needed, and substantial process disruption would result, from any attempt to isolate and pressurize these spaces. Therefore, it is likely to be more feasible to enhance the ventilation of these spaces than to pressurize or depressurize them.



Photo 5. Example doorway between buildings, showing the difficulty of airsealing



Photo 6. Doorway on west facade of Building 4, showing presence of handrail that would make installation of a door and sealing difficult.

7.0 Discussion of Findings

7.1 Methane, Hydrogen Sulfide and Pressure

The analytical and field data set suggests that a strongly anaerobic zone is present under Building 4, generating high concentrations of methane and hydrogen sulfide. This is indicated by the low subsurface oxygen concentrations at SV-05 and SV-06; the substantial methane concentrations observed at SV-05, SV-06, SV-12 and SV-15; and the hydrogen sulfide concentrations observed at SV-05 and SV-15.

Field conditions, including high groundwater and elevated hydrogen sulfide concentrations, limited the ability to observe differential pressures during sampling. However, the available data from this (Table 5-2) and previous soil vapor sampling events (CH2M 2016) suggests positive differential pressures are present beneath Building 4 that could provide a driving force for vapor intrusion. These pressures may be due to a combination of biological generation of gases, variations in the water table at this site (especially during very wet years such as 2017) and/or the stack effect.

Due to heavy precipitation at the site during the winter of 2016 and spring of 2017, the water table in the northern portion of Building 4 is apparently higher than or immediately below the concrete and acid brick floor. An elevated water table is evidenced by two observations made during May and April 2017:

water was drawn from SV-05 and SV-12 during sampling, and water was seen seeping from the foundation wall north of SV-15 from a height of approximately 1 feet above the floor (Photo 7). The elevation of the floor in Building 4 is approximately 5 feet lower than the floors of adjoining buildings to the north (Buildings 9, 10, 11 [basement], and 11A) (Figure 6-1). During previous depth-to-water gauging events at MW-03, MW-33, and PZ-01, groundwater was measured at 1 to 3 feet bgs. The high levels of methane and hydrogen sulfide present in the riser pipe precluded gauging groundwater elevations at those locations.



Photo 7. Water seeping from the northern wall of Building 4 near SV-12 during spring of 2017.

Building 4 has been used since 1943 as a chemical manufacturing plant producing divalent organic sulfur intermediates used for the cosmetic and pharmaceutical industries, and production of these compounds continues in Building 4. The RCRA facility investigation report for this facility indicates that at Building 4:

- VOCs and SVOCs above applicable screening criteria had been observed in soil and pit water (Section 3.6.1 [CH2M 2015]).
- Evidence of pulsed concentrations suggests the possibility of releases of methyl isobutyl ketone between 1995 and 2013 (Section 4.4.2 [CH2M 2015]).
- Sulfate concentrations are depleted in groundwater relative to the wells closer to the canal (Section 4.4.2 [CH2M 2015]).

Multiple releases have been documented at the former dye pit and transfer pump housing locations throughout Building 4 (CH2M 2017b). An extensive geochemical evaluation performed for AOCs B and D concludes that groundwater at AOC B exhibits mostly mixed oxic-anoxic chemistry with nitrate, ferric iron and sulfate reduction constituting the primary redox processes (CH2M 2017b). The observations of methane and hydrogen sulfide production are thus broadly consistent with the presence of biodegradable organic compounds, multiple sources of sulfur, and areas of anaerobic conditions.

The transport of that hydrogen sulfide and methane is apparently limited beyond the northern boundary of Building 4 (as indicated by comparison to the measurements at SV-02, SV-03 and SV-04, which are located just beyond Building 4). The limitation in transport could be a function of shallow groundwater, damp soils, an aerobic capillary fringe conditions in which the hydrogen sulfide and methane are being consumed biologically, and/or building foundation features. It should be noted that buildings north of Building 4 are elevated above the grade of Building 4 (Figure 6-1). The leaky condition of the building envelope and the many open doors in this facility likely provide a substantial air exchange rate. The doorways connecting Building 4 to Buildings 3, 4, 4A, 9, 10, and 11A are equipped with fire doors but have generally been observed to be left open during many previous site visits.

7.2 Volatile Organic Compounds

Because of the changed condition evidenced by the methane and hydrogen sulfide concentrations in groundwater monitoring well headspaces and existing subslab sampling ports, additional soil vapor evaluation, including sampling for VOCs in soil vapor, was performed in 2017. No further VOC vapor intrusion sampling was previously recommended for these buildings, as discussed above. However, in this section the multiple-lines-of-evidence evaluation, per vapor intrusion technical guidance (USEPA 2015), presented in previous reports will be updated.

Among the VOCs, chloroform exceeds a screening level derived using the VISL calculator commercial exposure assumptions, 10^{-5} target cancer risk, a hazard quotient of 1, and the default 0.03 attenuation factor. The chloroform concentrations appear to be highest along an axis trending from SV-04 south to SV-15. The potential for TCE and chloroform vapor intrusion has been previously evaluated at this facility in a series of reports (CH2M 2007, 2010a, 2010b, 2011, 2013a). Similar concentrations of chloroform were previously detected in subslab soil gas at Building 4, and concentrations above subslab screening levels have been detected previously in the tank storage area (Table 7-1). The November 2012 investigation report (CH2M 2013a) evaluates those concentrations in light of indoor air data and concluded that exposure was below regional screening levels and only slightly above upwind ambient air concentrations in both Building 4 and the tank storage area.

The reported concentration of chloroform in the subslab soil vapor sample from SV-04 in Building 11A during 2017 was $7,300 \mu\text{g}/\text{m}^3$, above the USEPA VISL of $180 \mu\text{g}/\text{m}^3$ (Table 5-4). Indoor air sampling has not been conducted in Building 11A.

Vapor Pin locations along an axis oriented north-northwest to south-southeast through Buildings 4 and 11A (SV-04, SV-07 and SV-15) also have detections of TCE, although at concentrations below the screening level. The only concentrations of TCE currently above the screening level is at SV-11 in the plumbing shop (Building 12) on the eastern edge of the study area. TCE concentrations of a similar magnitude in subslab soil gas were previously observed in the Tank Storage Area during 2008 (Table 7-1). Indoor TCE concentrations in the Tank Storage Area and Building 4 were well below screening levels in multiple sampling events conducted in 2012 (CH2M 2013a, 2013b).

Ethylbenzene and m,p-xylene exceed the VISL calculator commercial exposure assumptions (based on 10^{-5} target cancer risk, a hazard quotient of 1, and the default 0.03 attenuation factor) only at SV-15 and are largely below laboratory detection limits elsewhere. Since these exceedances are less than five times the screening levels, it is likely that hydrogen sulfide poses the greatest risk in the SV-15 area. All other VOCs are below applicable screening levels for subslab soil gas.

8.0 Conclusions and Recommendations

The following is a generalized summary of conclusions based on the results of this investigation:

- Groundwater monitoring well headspace results indicate hydrogen sulfide and methane are present in the subsurface (CH2M, 2016)
- Subslab soil vapor sample results indicate hydrogen sulfide and methane exist underneath the Building 4 floor.
- Shallow groundwater levels beneath Building 4 may at times constrain the ability to sample or mitigate subslab gasses.
- The primary soil gas/vapor intrusion concerns appear to be related to hydrogen sulfide and methane rather than VOCs

Recommendations include:

- Continue using engineering controls during regular site activities such as groundwater monitoring to protect site workers.
- Conduct a feasibility study for long term mitigation/remediation alternatives for hydrogen sulfide and methane
- Engage NYSDEC regarding cessation of sampling at select AOC B source zone monitoring wells until they can be safely monitored.

- Evaluate options for additional building ventilation. The condition of the building envelope and design of the interconnections between adjoining buildings likely precludes the pressurization of Building 4; however, some form of enhanced ventilation and other mitigation options may be possible.
- Further evaluation of the spatial and temporal variability of groundwater levels beneath the facility. This evaluation should also consider the possible role of stormwater drainage and canal stage in controlling the water level beneath the facility.
- Monitor changes in subsurface hydrogen sulfide and methane concentrations in subsurface soil gas at the site coupled with monitoring of differential pressure.
- Further investigation of building air exchange and the flux of soil gas into Building 4. This investigation may include radon or other tracer testing to establish whether the potential for hydrogen sulfide vapor intrusion is significant as compared to applicable industrial screening levels.
- Evaluate institutional controls that may be appropriate given the concentrations of methane observed in soil gas. These could include precautions during subsurface construction activities and the avoidance of small enclosed spaces above grade where methane and hydrogen sulfide could accumulate.

9.0 References

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Figures

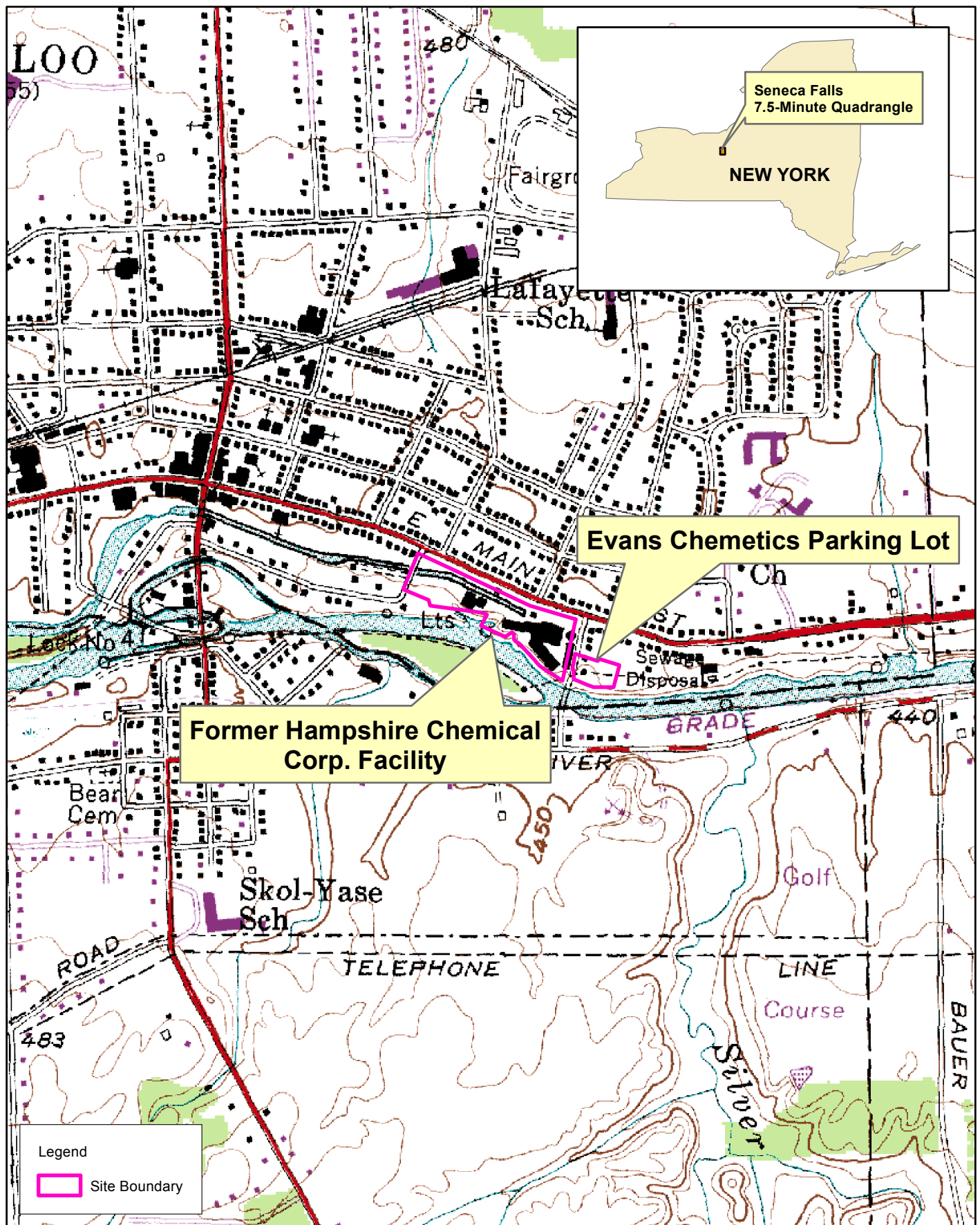


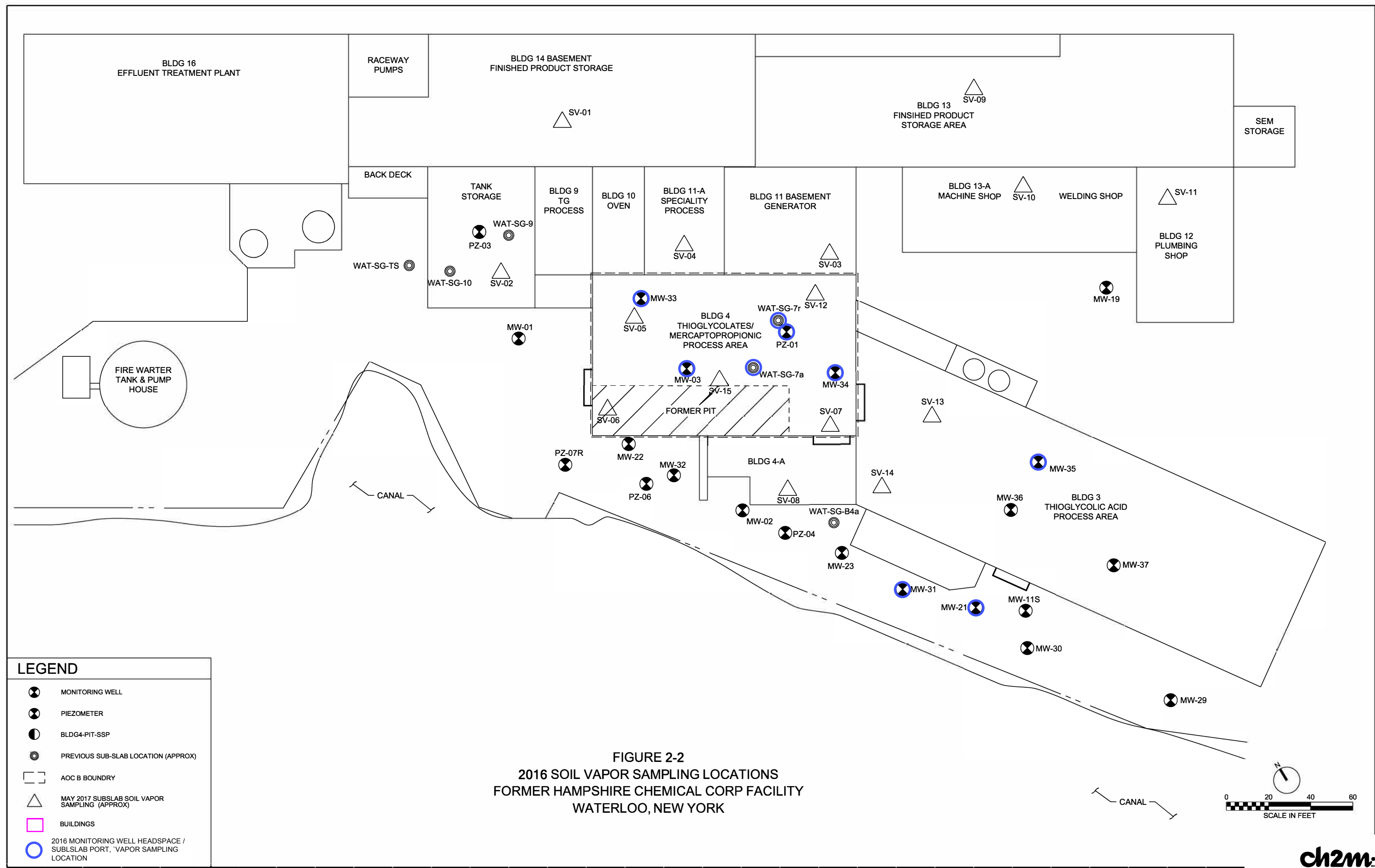
Figure 2-1

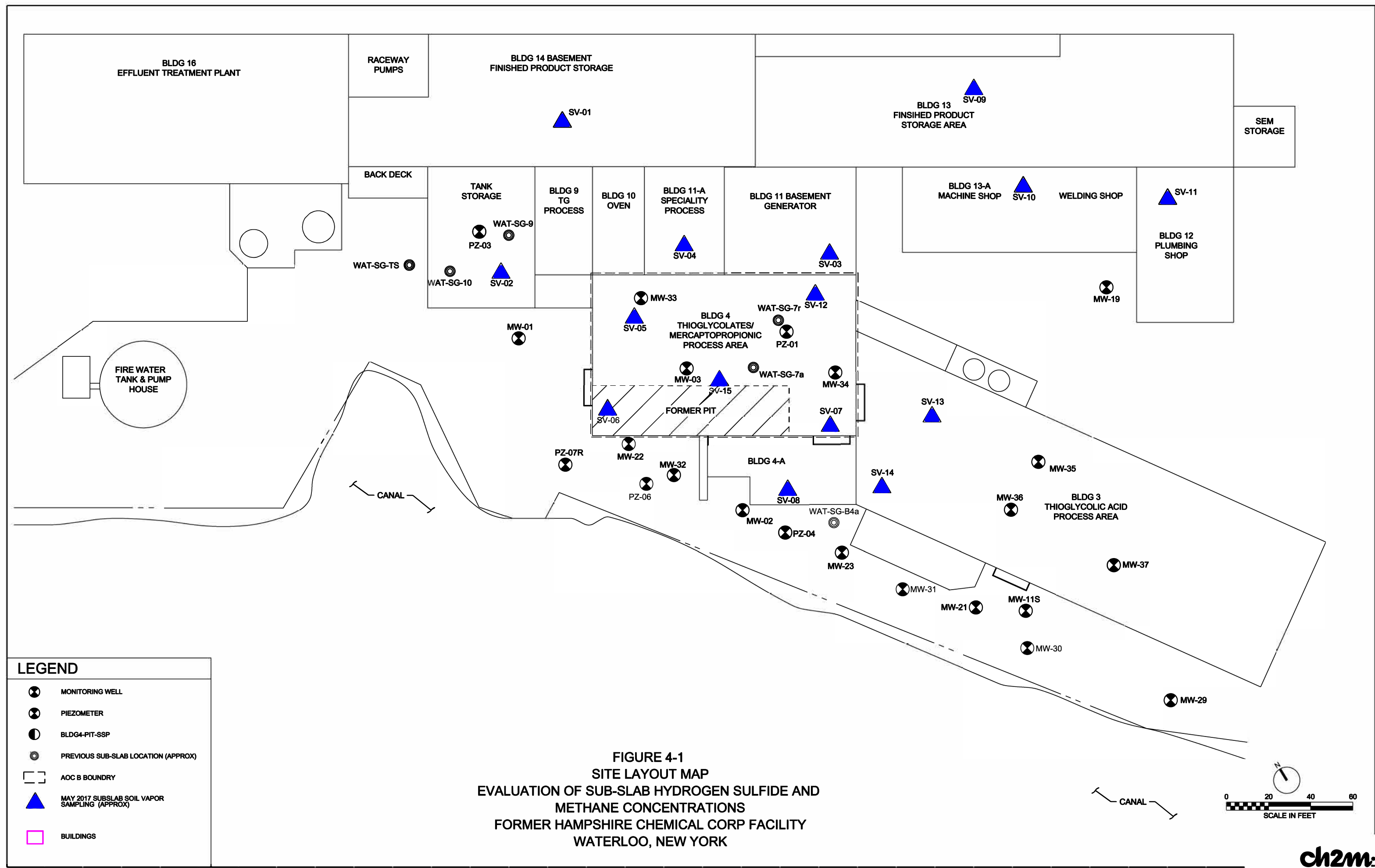
Facility Location Map

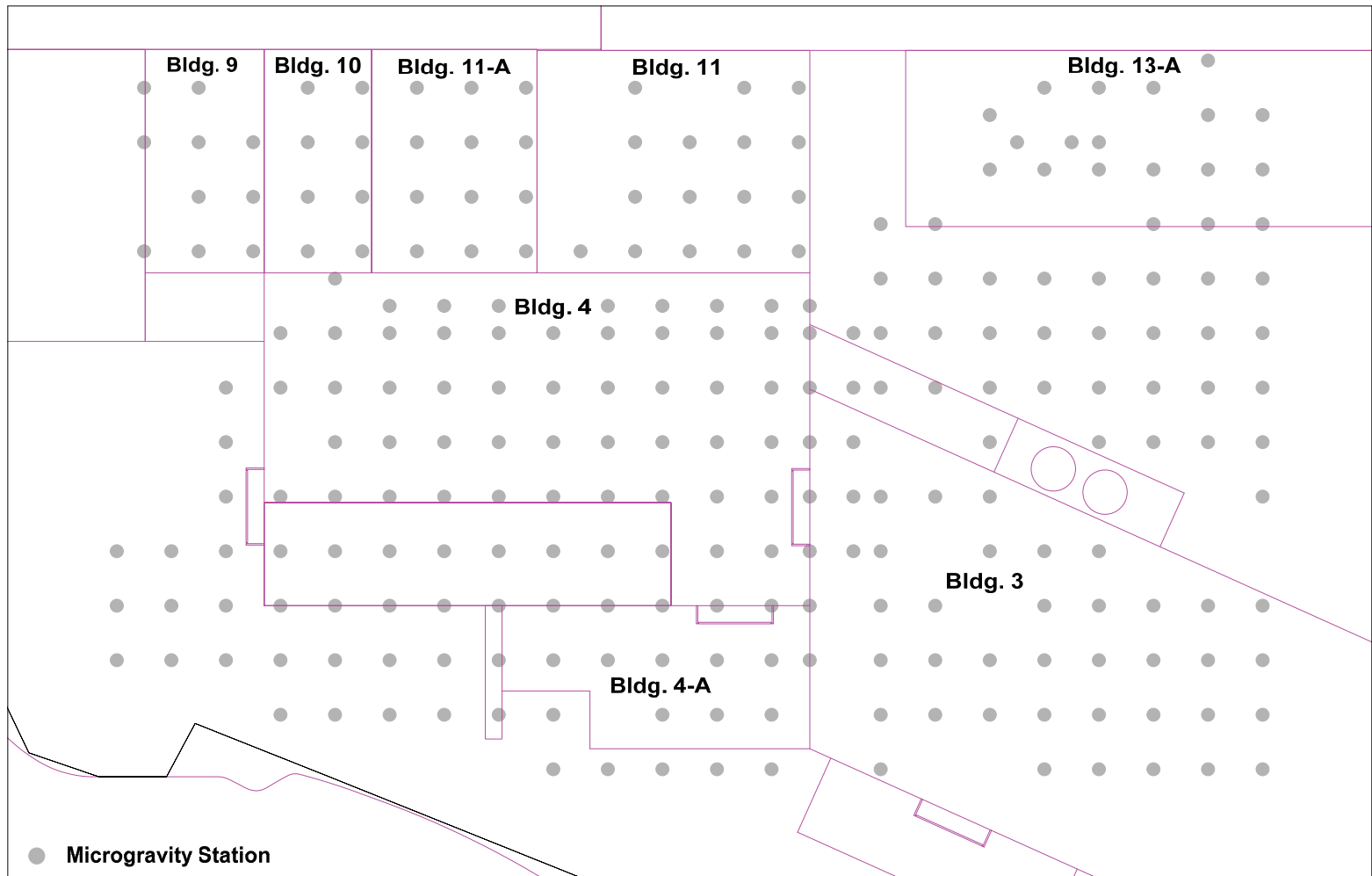
Evaluation of Subslab Hydrogen Sulfide and Methane Concentrations

Former Hampshire Chemical Corporation

Watertown, New York

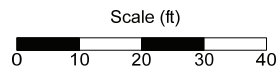





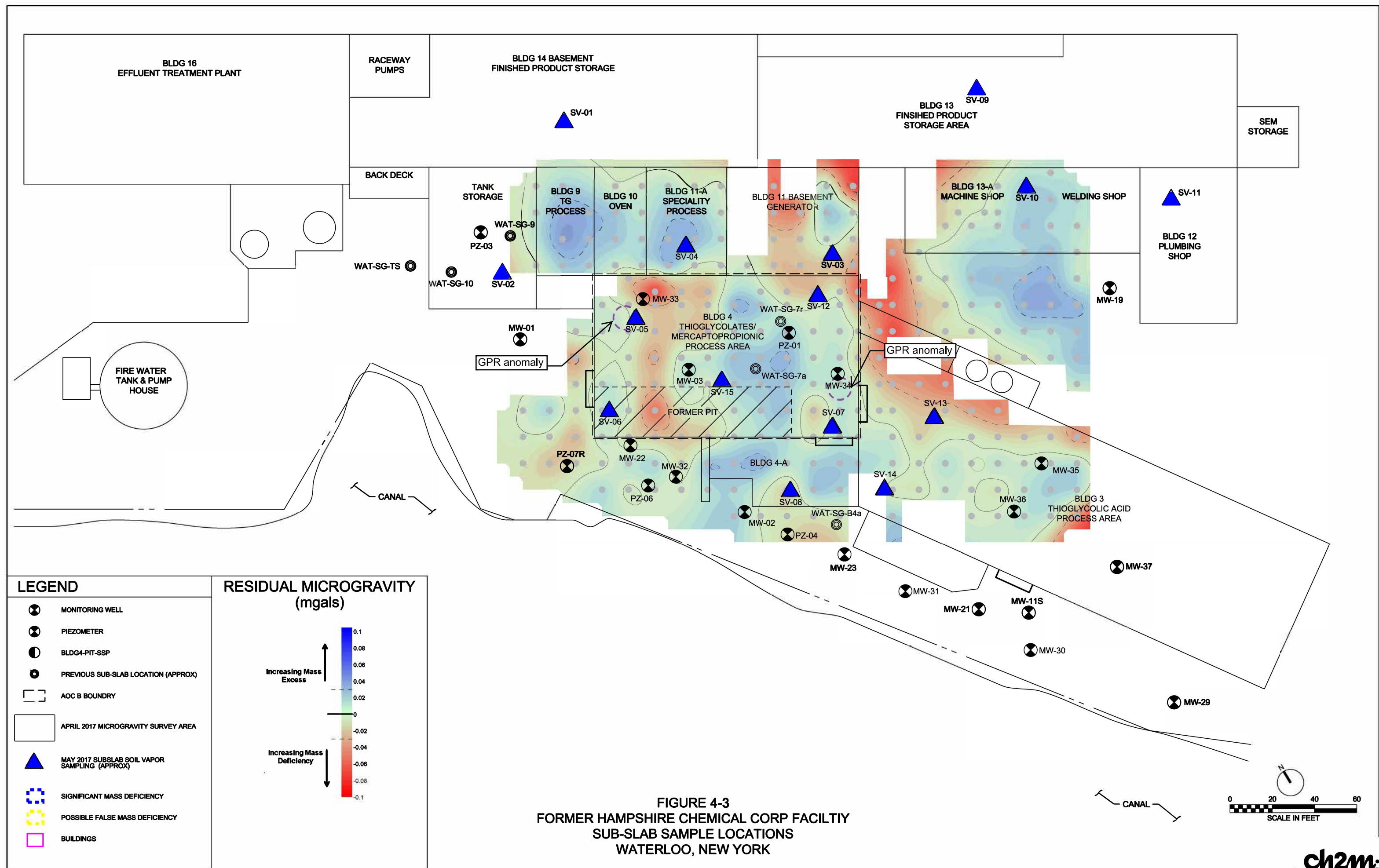


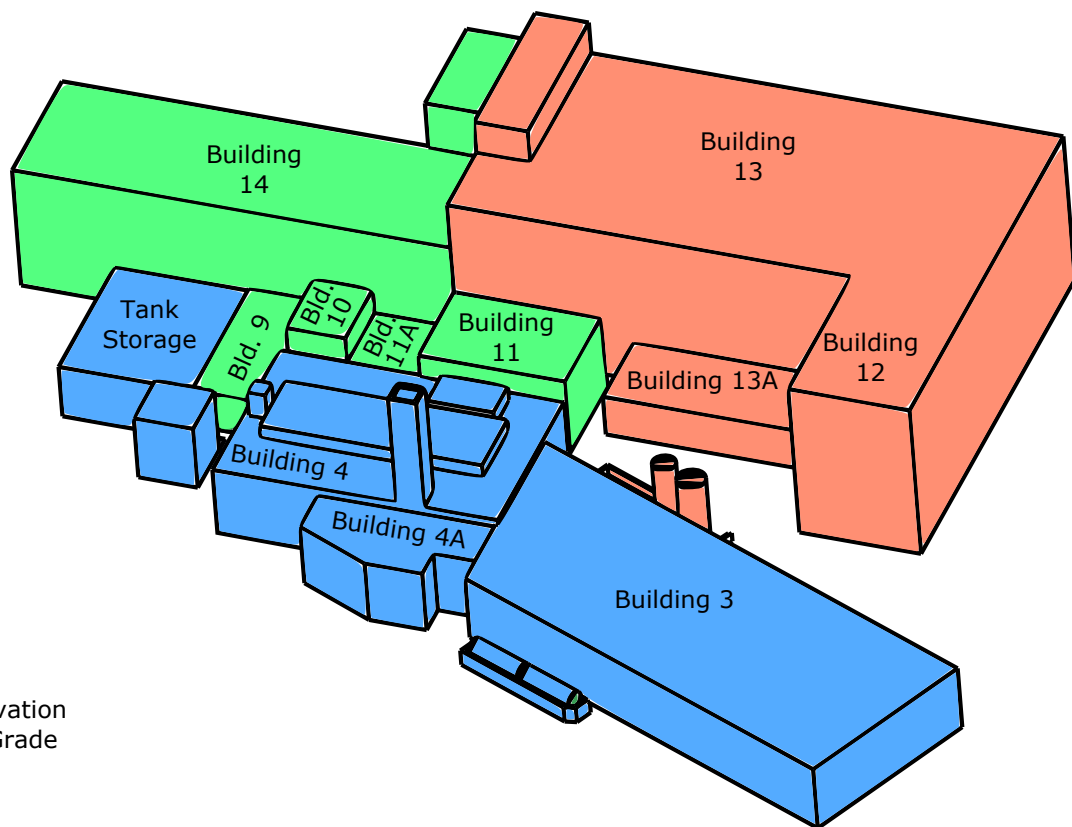
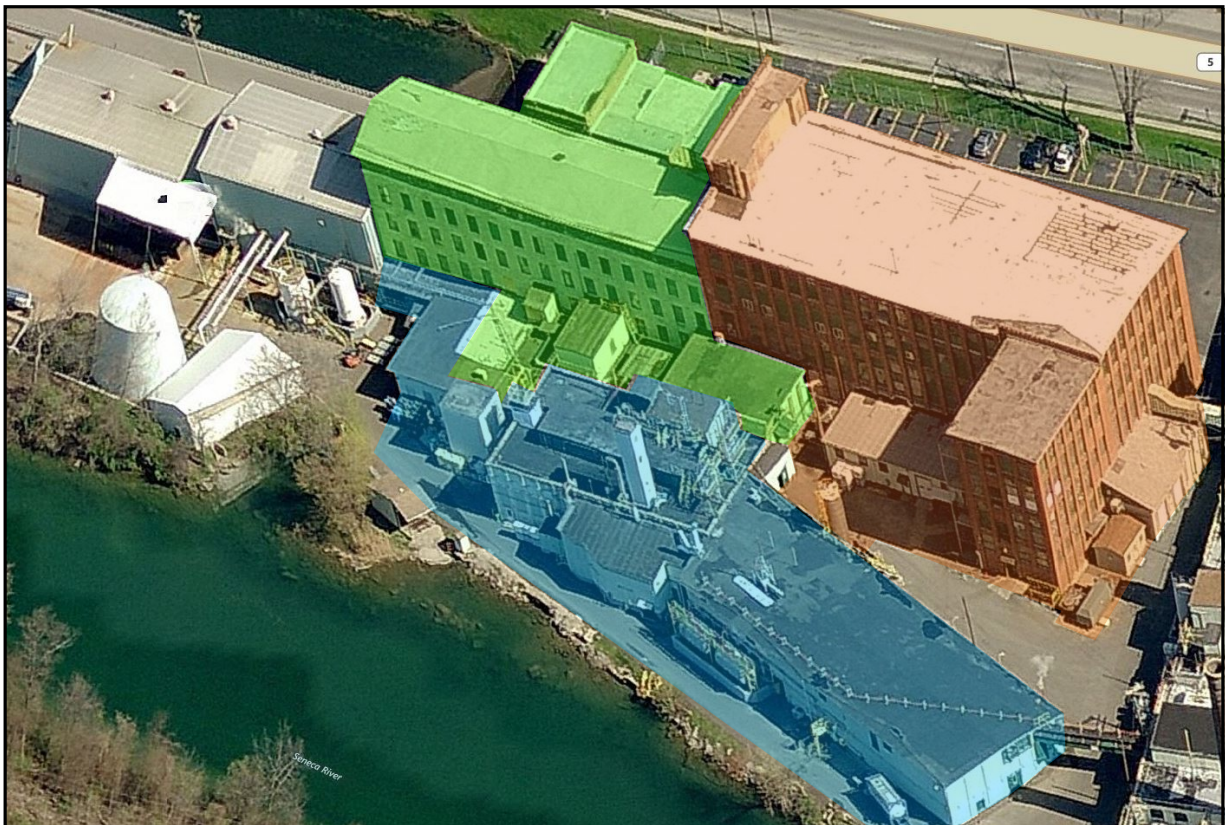
Notes:

Basemap derived from Enviroscan Inc. DGPS survey, and client-provided AutoCAD drawing.



Prepared by:		Title:		Project Location:		Figure	
 <div>Enviroscan, Inc. 1051 Columbia Ave. Lancaster PA 17603 717-396-8922 www.enviroscan.com</div>		Microgravity Survey Data Coverage Map		Former Hampshire Chemical Corporation Waterloo, NY		4-2	
				Project Number 011737d	Revision/Issue 6/14/2017		
				Original Scale 1" = 20'	Survey Ending Date 4/06/2017	Drawn by: MEG	Approved by: FKB





Approximate Elevation
of Buildings at Grade
(ft amsl.)

	447
	440
	435

Notes:
- Building elevations estimated
from microgravity survey data.

Bld. = building



50 feet

FIGURE 6-1

General Building Elevations

Evaluation of Subslab Hydrogen Sulfide and
Methane Concentrations
Former Hampshire Chemical Corp.
Waterloo, New York

Tables

Table 5-1. Soil Vapor Screening Measurements Following Subslab Sampling Port Installation*Evaluation of Subslab Hydrogen Sulfide and Methane Concentrations**Former Hampshire Chemical Corp. Facility, Waterloo, New York*

Location	Building	Date	PID (ppm)	Hydrogen Sulfide (ppm)	Methane (% volume)	LEL (%)	Carbon Monoxide (ppm)	Carbon Dioxide (% volume)	Oxygen (% volume)	Sulfur Dioxide (ppm)
SV-01	14 Basement	5/1/2017	0.0	0.0	0.0	0.0	0.0	0.0	20.2	0.0
SV-02 ^d	Tank Storage	--	--	--	--	--	--	--	--	--
SV-03	11 Basement	5/1/2017	0.0	0.0	0.0	1.0	0.0	0.0	20.9	0.0
SV-04	11-A	5/1/2017	0.0	0.0	0.0	0.0	0.0	0.4	19.6	0.0
SV-05 ^b	4	5/1/2017	>2	>80	>26	>100	5.0	13.2	7.4	0.0
SV-06 ^a	4	5/1/2017	0.6	0	>28	>100	10.0	--	19	0.0
SV-07	4	5/3/2017	5.0	0.0	0.0	1.0	0.0	0.1	19.7	0.2
SV-08	4-A	5/3/2017	8.0	0.0	0.1	3.0	6.0	0.0	18.9	0.1
SV-09	13	5/1/2017	4.8	0.0	0.0	0.0	0.0	0.9	19.1	0.0
SV-10	13-A	5/1/2017	0.0	0.0	0.0	0.0	0.0	0.3	19.8	0.0
SV-11	12	5/3/2017	2.2	0.0	0.0	0.0	0.0	0.0	19.9	0.0
SV-12 ^d	4	--	--	--	--	--	--	--	--	--
SV-13	3	5/3/2017	4.0	0.0	0.0	0.0	0.0	3.4	15.7	0.0
SV-14	3	5/3/2017	3.5	0.0	0.0	0.0	0.0	0.0	20.6	0.0
SV-15 ^c	4	5/3/2017	--	>500	>55	>100	--	--	--	--

Notes^a = Measurement discontinued due to field instrument pump failure. Methane was still climbing when reading discontinued^b = Measurement discontinued due to water being drawn into the instrument's intake tubing. PID, methane, and hydrogen sulfide readings were climbing when measurement discontinued.^c = discontinued screening when hydrogen sulfide concentration exceeded 500ppm.^d = Vapor screening was not conducted prior to soil vapor sampling.

-- = not measured

PID = photoionization detector

ppm = parts per million

Table 5-2. Soil Vapor Sampling Screening Measurements
Evaluation of Subslab Hydrogen Sulfide and Methane Concentrations
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Location	Building Number	Date	Time	Differential Pressure Across Slab (in. WC)	Screening Measurements					
					PID (ppm)	Hydrogen Sulfide (ppm)	Methane (% vol)	Carbon Monoxide (ppm)	Oxygen (%vol)	Sulfur Dioxide (ppm)
SV-01	14 Base.	5/8/2017	10:34	0.000	0.8	0.0	0.0	0.0	20.4	0.1
SV-02	Tank Storage	5/8/2017	13:17	0.000	0.5	0.0	0.0	0.0	20.6	0.0
SV-03	11 Basement	5/8/2017	11:23	0.010	1.1	0.0	0.0	0.0	20.1	0.0
SV-04	11-A	5/8/2017	9:57	--	1.0	0.0	0.0	0.0	19.9	0.0
SV-05 ^a	4	--	--	2.100	--	--	--	--	--	--
SV-06	4	5/9/2017	15:00	0.020	2.4	1.0	33.9	0.0	2.2	--
SV-07	4	5/9/2017	9:42	0.004	0.8	0.0	0.0	0.0	20.3	0.0
SV-08	4-A	5/9/2017	10:08	0.000	1.5	0.0	0.0	4.0	19.7	0.0
SV-09	13	5/8/2017	14:50	0.000	0.5	0.0	0.0	0.0	19.7	0.0
SV-10	13-A	5/8/2017	13:54	0.005	0.5	0.0	0.0	0.0	20.3	0.0
SV-11	12	5/8/2017	15:30	0.002	1.0	0.0	0.0	0.0	20.2	0.0
SV-12 ^a	4	--	--	0.790	--	0.0	>5	0.0	20.0	0.2
SV-13	3	5/8/2017	16:45	0.000	0.0	0.0	0.0	0.0	16.9	0.0
SV-14	3	5/8/2017	16:09	0.003	0.3	0.0	0.0	0.0	20.7	0.0
SV-15	4	5/9/2017	11:14	--	247.0	>500	>5	-- ^b	-- ^b	-- ^b

Notes:

"--" = not sampled/not measured. See footnotes for explanations.

">" = measurements were in excess of 500ppm hydrogen sulfide or 5% methane by volume.

^a = Samples were not collected at SV-05 and SV-12 due to the high groundwater conditions.

^b = Screening at SV-15 was terminated when hydrogen sulfide in excess of 500ppm was encountered.

in. WC = inches of water column.

Positive pressures indicate higher pressure below the slab. Negative pressures indicate lower pressure below the slab.

PID = photoionization detector

ppm = parts per million

Table 5-3. Soil Vapor Sampling Summary

Evaluation of Subslab Hydrogen Sulfide and Methane Concentrations
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Location	Building Number	Sample ID	Sample Date	Sample Times				
				Purge Start Time	Purge End Time	Purge Rate (mL/min)	Sample Start Time	Sample End Time
SV-01	14 Basement	WAT-SV01-050817	5/8/2017	10:34	10:39	200	10:47	11:10
SV-02	Tank Storage	WAT-SV02-050817	5/8/2017	13:17	13:20	200	13:21	13:41
SV-03	11 Basement	WAT-SV03-050817	5/8/2017	11:23	11:28	200	11:29	11:48
SV-04	11-A	WAT-SV04-050817	5/8/2017	9:57	10:02	200	10:05	10:18
SV-05 ^a	4	--	--	--	--	--	--	--
SV-06	4	WAT-SV06-050917	5/9/2017	15:00	15:15	100	15:23	15:46
SV-06	4	Dup-SV-050917	5/9/2017	15:00	15:15	100	15:23	15:46
SV-07	4	WAT-SV07-050917	5/9/2017	9:42	9:47	200	9:50	10:02
SV-08	4-A	WAT-SV08-050917	5/9/2017	10:08	10:11	200	10:12	10:49
SV-09	13	WAT-SV09-050817	5/8/2017	14:50	14:56	200	14:59	15:20
SV-10	13-A	WAT-SV10-050817	5/8/2017	13:54	14:04	200	14:06	14:27
SV-11	12	WAT-SV11-050817	5/8/2017	15:30	15:36	200	15:37	15:57
SV-12 ^a	4	--	--	--	--	--	--	--
SV-13	3	WAT-SV13-050817	5/8/2017	16:45	16:50	200	17:08	17:28
SV-14	3	WAT-SV14-050817	5/8/2017	16:09	16:15	200	16:21	16:41
SV-15	4	WAT-SV15-050917	5/9/2017	11:14	11:20	200	11:33	11:51

Notes:

"--" = not sampled/not measured. See footnotes for explanations.

^a = Samples were not collected at SV-05 and SV-12 due to the high groundwater conditions.

mL/min = milliliters per minute

Table 5-4. Analytical Results for Subslab Soil Gas Samples, May 2017
Evaluation of Subslab Hydrogen Sulfide and Methane Concentrations
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Location Sample ID Sample Date				SV-01 WAT-SV01-050817 05/08/2017 00:00	SV-02 WAT-SV02-050817 05/08/2017 00:00	SV-03 WAT-SV03-050817 05/08/2017 00:00	SV-04 WAT-SV04-050817 05/08/2017 00:00	SV-06 WAT-SV06-050917 05/09/2017 00:00	SV-06 DUP-SV-050917 #####	SV-07 WAT-SV07-050917 05/09/2017 00:00	SV-08 WAT-SV08-050917 05/09/2017 00:00	SV-09 WAT-SV09-050817 05/08/2017 00:00	SV-10 WAT-SV10-050817 05/08/2017 00:00	SV-11 WAT-SV11-050817 05/08/2017 00:00	SV-13 WAT-SV13-050817 05/08/2017 00:00	SV-14 WAT-SV14-050817 05/08/2017 00:00	SV-15 WAT-SV15-050917 05/09/2017 00:00
Analyte	CAS#	Screening Level	Source														
Fixed Gases by EPA Method 3C (%volume)																	
Carbon dioxide	124-38-9	--	--	0.0260 J	0.289 J	0.102 J	0.410 J	0.0520 J	0.0440 J	0.266 J	0.0270 J	0.615 J	0.328 J	0.224 J	2.08	0.158 J	32.1
Carbon Monoxide	630-08-0	--	--	0.880 U	0.880 U	0.880 U	0.880 U	0.880 U	0.880 U	0.880 U	0.880 U	0.880 U	0.880 U	0.880 U	0.880 U	0.880 U	0.880 U
Methane	74-82-8	4	LEL	0.580 U	0.580 U	0.580 U	0.580 U	31.1	33.9	0.580 U	0.580 U	0.580 U	0.580 U	0.580 U	0.580 U	0.580 U	38.6
Nitrogen	7727-37-9	--	--	74.2	76.1	73.6	74.9	60.0	64.0	78.9	79.1	71.8	74.9	77.1	77.8	75.1	18.4
Oxygen	7782-44-7	--	--	20.3	20.6	20.1	20.2	2.87	2.76	21.0	20.4	18.8	20.2	20.6	17.4	20.5	1.94
Low Level Sulfurs by TO-15 (ug/m3)																	
1-Propanethiol	107-03-9	--	--	16 U	16 U	16 U	16 U	160 U	160 U	16 U	16 U	16 U	16 U	16 U	16 U	16 U	12,000
Carbon Disulfide	75-15-0	103,613	ACGIH TLV	16 U	8.7 J	16 U	16 U	160 U	160 U	16 U	28	4.1 J	16 U	16 U	16 U	16 U	9,300
Carbonyl Sulfide	463-58-1	409,000	ACGIH TLV	12 U	12 U	12 U	12 U	120 U	120 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	120 U
Dimethyl Sulfide	624-92-0	--	--	19 U	19 U	19 U	19 U	190 U	190 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	1,100 J
Ethyl Mercaptan	75-08-1	42,263	ACGIH TLV	13 U	13 U	13 U	13 U	130 U	130 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U	18,000
Hydrogen Sulfide	7783-06-4	46,353	ACGIH TLV	110 J	620 J	1,100 J	3,700	2,100 J	5,500 J	12 J	3,300	7.0 U	7.0 U	40 J	28 J	25 J	150,000,000
Isopropyl Mercaptan	75-33-2	--	--	16 U	16 U	16 U	4.8 J	160 U	160 U	16 U	11 J	16 U	16 U	16 U	16 U	16 U	230,000
Methyl Mercaptan	74-93-1	32,720	ACGIH TLV	9.8 U	9.8 U	9.8 U	3.3 J	98 U	98 U	9.8 U	3.0 J	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	110,000
Volatile Organic Compounds by TO-15 (ug/m3)																	
1,1,1-Trichloroethane	71-55-6	730,000	VISL	27 U	27 U	27 U	27 U	270 U	270 U	27 U	27 U	27 U	27 U	27 U	27 U	27 U	270 U
1,1,2,2-Tetrachloroethane	79-34-5	70	VISL	34 U	34 U	34 U	34 U	340 U	340 U	34 U	34 U	34 U	34 U	34 U	34 U	34 U	340 U
1,1,2-Trichloroethane	79-00-5	29	VISL	27 U	27 U	27 U	27 U	270 U	270 U	27 U	27 U	27 U	27 U	27 U	27 U	27 U	270 U
1,1-Dichloroethane	75-34-3	2,555	VISL	20 U	20 U	20 U	20 U	200 U	200 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	160 J
1,1-Dichloroethene	75-35-4	29,200	VISL	20 U	20 U	20 U	25	200 U	200 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	200 U
1,2,4-Trichlorobenzene	120-82-1	292	VISL	37 U	37 U	37 U	37 U	370 U	370 U	37 U	37 U	37 U	37 U	37 U	37 U	37 U	370 U
1,2,4-Trimethylbenzene	95-63-6	1,022	VISL	25 U	25 U	25 U	25 U	250 U	250 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	250 U
1,2-Dibromoethane	106-93-4	7	VISL	38 U	38 U	38 U	38 U	380 U	380 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U	380 U
1,2-Dichlorobenzene	95-50-1	29,200	VISL	30 U	30 U	30 U	30 U	300 U	300 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	300 U
1,2-Dichloroethane	107-06-2	157	VISL	20 U	20 U	20 U	73	200 U	200 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	200 U
1,2-Dichloropropane	78-87-5	409	VISL	23 U	23 U	23 U	61	230 U	230 U	23 U	23 U	23 U	23 U	23 U	23 U	23 U	230 U
1,3,5-Trimethylbenzene	108-67-8	--	--	25 U	25 U	25 U	25 U	250 U	250 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	250 U
1,3-Butadiene	106-99-0	136	VISL	11 U	11 U	11 U	11 U	110 U	110 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	110 U
1,3-Dichlorobenzene	541-73-1	--	--	30 U	30 U	30 U	30 U	300 U	300 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	300 U
1,4-Dichlorobenzene	106-46-7	372	VISL	30 U	30 U	30 U	30 U	300 U	300 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	300 U
1,4-Dioxane	123-91-1	818	VISL	36 U	36 U	36 U	36 U	360 U	360 U	36 U	36 U	36 U	36 U	36 U	36 U	36 U	360 U
2,2,4-Trimethylpentane	540-84-1	--	--	23 U	23 U	23 U	23 U	230 U	230 U	23 U	23 U	23 U	23 U	23 U	23 U	23 U	230 U
4-Ethyltoluene	622-96-8	--	--	25 U	25 U	25 U	25 U	250 U	250 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	250 U
Acetone	67-64-1	4,526,000	VISL	15 J	12 J	13 J	20 J	190 J	160 J	140 J	210	25	7.7 J	8.9 J	6.4 J	12 J	15,000
Allyl Chloride	107-05-1	146	VISL	16 U	16 U	16 U	16 U	160 U	160 U	16 U	16 U	16 U	16 U	16 U	16 U	16 U	160 U
Benzene	71-43-2	524	VISL	16 U	16 U	16 U	16 U	160 U	160 U	16 U	19	14 J	16 U	16 U	16 U	16 U	170
Benzyl Chloride	100-44-7	83	VISL	29 U	29 U	29 U	29 U	290 U	290 U	29 U	29 U	29 U	29 U	29 U	29 U	29 U	290 U
Bromodichloromethane	75-27-4	110	VISL	33 U	33 U	33 U	33 U	330 U	330 U	33 U	33 U	33 U	33 U	33 U	33 U	33 U	330 U
Bromoform	75-25-2	3,716	VISL	52 U	52 U	52 U	52 U	520 U	520 U	52 U	52 U	52 U	52 U	52 U	52 U	52 U	520 U
Bromomethane	74-83-9	730	VISL	19 U	19 U	19 U	19 U	190 U	190 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	190 U
Carbon Tetrachloride	56-23-5	681	VISL	31 U	31 U	31 U	31 U	310 U	310 U	31 U	31 U	31 U	31 U	31 U	31 U	31 U	310 U
Chlorobenzene	108-90-7	7,300	VISL	23 U	23 U	23 U	23 U	230 U	230 U	23 U	23 U	23 U	23 U	23 U	23 U	23 U	130 J
Chloroethane	75-00-3	1,460,000	VISL	13 U	13 U	13 U	13 U	130 U	130 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U	130 U
Chloroform	67-66-3	178	VISL	30	250	72	7300	240 U	240 U	330	94	24 U	24 U	24 U	78	300	7,000
Chloromethane	74-87-3	13,140	VISL	10 U	10 U	10 U	10 U	100 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
cis-1,2-Dichloroethene	156-59-2	--	--	20 U	20 U	20 U	20 U	200 U	200 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	570
cis-1,3-Dichloropropene	10061-01-5	1,022	542-75-6	23 U	23 U	23 U	23 U	230 U	230 U	23 U	23 U	23 U	23 U	23 U	23 U	23 U	230 U
Cyclohexane	110-82-7	876,000	VISL	17 U	17 U	17 U	19	170 U	170 U	17 U	27	17 U	17 U	17 U	17 U	17 U	160 J
Dibromochloromethane	124-48-1	--	--	43 U	43 U	43 U	43 U	430 U	430 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	430 U
Ethyl Acetate	141-78-6	10,220	VISL	36 U	36 U	36 U	36 U	360 U	360 U	36 U	36 U	36 U	36 U	36 U	36 U	36 U	360 U
Ethylbenzene	100-41-4	1,635	VISL	22 U	22 U	22 U	22 U	220 U	220 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U	3,500
Freon 11	75-69-4	--	--	28 U	28 U	28 U	28 U	280 U	280 U	28 U	28 U	28 U	28 U	28 U	28 U	28 U	280 U
Freon 113	76-13-1	4,380,000	VISL	38 U	38 U	38 U	38 U	380 U	380 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U	380 U
Freon 114	76-14-2	--	--	35 U	35 U	35 U	35 U	350 U	350 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	350 U
Freon 12	75-71-8	14,600	VISL	25 U	25 U	25 U	25 U	250 U	250 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	250 U
Heptane	142-82-5	--	--	20 U	20 U	20 U	20 U	200 U	200 U	20 U	40	20 U	20 U	20 U	20 U	20 U	1,200
Hexachloro-1,3-butadiene	87-68-3	186	VISL	53 U	53 U	53 U	53 U	530 U	530 U	53 U	53 U	53 U	53 U	53 U	53 U	53 U	530 U
Hexane	110-54-3	102,200	VISL	18 U	18 U	18 U	18 U	180 U	180 U	18 U	42	18 U	18 U	18 U	18 U	18 U	3,400
Isopropyl Alcohol	67-63-0	29,200	VISL	12 U	12 U	6.4 J	12 U	120 U	120 U	12 U	12 U	12 U	6.1 J	12 U	12 U	12 U	120 U
Methyl Butyl Ketone	591-78-6	4,380	VISL	41 U	41 U	41 U	41 U	410 U	410 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U	410 U
Methyl Ethyl Ketone	78-93-3	730,000	VISL	29 U	29 U	29 U	29 U	290 U	290 U	29 U	27 J	29 U	29 U	29 U	29 U	29 U	290 U
Methyl Isobutyl Ketone	108-10-1	438,000	VISL	41 U	41 U	5.8 J	7.9 J	410 U	410 U	390 J	230	41 U	41 U	10 J	41 U	13 J	130,000
Methyl Tert-butyl Ether	1634-04-4	15,723	VISL	18 U	18 U	18 U	18 U	180 U	180 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U	180 U
Methylene Chloride	75-09-2	87,600	VISL	19	17 U	17 U	16 J	170 U	170 U	24	17 U	17 U	17 U	17 U	17 U	17 U	5,700
Propylene	115-07-1	438,000	VISL	8.6 U	8.6 U	8.6 U	7.5 J	11,000	10,000	8.6 U	89	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	86 U
Styrene	100-42-5	146,000	VISL	21 U	21 U	21 U	21 U	210 U	210 U	21 U	21 U	21 U	21 U	21 U	21 U	21 U	210 U
Tetrachloroethylene	127-18-4	5,840	VISL	34 U	34 U	34 U	63	340 U	340 U	34 U	34 U	34 U	34 U	34 U	34 U	34 U	340 U
Tetrahydrofuran	109-99-9	292,000	VISL	15 U	15 U	15 U	15 U	150 U	150 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	150 U

Table 5-4. Analytical Results for Subslab Soil Gas Samples, May 2017
Evaluation of Subslab Hydrogen Sulfide and Methane Concentrations
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Location Sample ID Sample Date				SV-01 WAT-SV01-050817 05/08/2017 00:00	SV-02 WAT-SV02-050817 05/08/2017 00:00	SV-03 WAT-SV03-050817 05/08/2017 00:00	SV-04 WAT-SV04-050817 05/08/2017 00:00	SV-06 WAT-SV06-050917 05/09/2017 00:00	SV-06 DUP-SV-050917 #####	SV-07 WAT-SV07-050917 05/09/2017 00:00	SV-08 WAT-SV08-050917 05/09/2017 00:00	SV-09 WAT-SV09-050817 05/08/2017 00:00	SV-10 WAT-SV10-050817 05/08/2017 00:00	SV-11 WAT-SV11-050817 05/08/2017 00:00	SV-13 WAT-SV13-050817 05/08/2017 00:00	SV-14 WAT-SV14-050817 05/08/2017 00:00	SV-15 WAT-SV15-050917 05/09/2017 00:00
Analyte	CAS#	Screening Level	Source														
Toluene	108-88-3	730,000	VISL	19 U	19 U	19 U	19 U	190 U	190 U	19 U	43	11 J	19 U	19 U	19 U	19 U	7,800
trans-1,2-Dichloroethene	156-60-5	--	--	20 U	20 U	20 U	20 U	200 U	200 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	200 U
trans-1,3-Dichloropropene	10061-02-6	1,022	542-75-6	23 U	23 U	23 U	23 U	230 U	230 U	23 U	23 U	23 U	23 U	23 U	23 U	23 U	230 U
Trichloroethene	79-01-6	292	VISL	27 U	27 U	27 U	130	270 U	270 U	86	27 U	27 U	27 U	420	27 U	27 U	260 J
Vinyl Acetate	108-05-4	29,200	VISL	18 U	18 U	18 U	18 U	180 U	180 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U	180 U
Vinyl Bromide	593-60-2	128	VISL	22 U	22 U	22 U	22 U	220 U	220 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U	220 U
Vinyl Chloride	75-01-4	929	VISL	13 U	13 U	13 U	13 U	130 U	130 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U	130 U
Xylene, m,p-	179601-23-1	14,600	1330-20-7	43 U	43 U	43 U	43 U	430 U	430 U	43 U	30 J	43 U	43 U	43 U	43 U	43 U	47,000
Xylene, o-	95-47-6	14,600	VISL	22 U	22 U	22 U	22 U	220 U	220 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U	14,000
VOC TICs by TO-15 (ppbV)															--	--	--
1,1'-Oxybispentane	693-65-2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4,600 JN
1-Chloro-1,1-difluoroethane	75-68-3	1,776,156	VISL	--	--	--	--	72 JN	73 JN	--	--	--	--	--	--	--	--
2,3-Dimethylbutane	79-29-8	--	--	--	--	--	--	--	--	--	19 JN	--	--	--	--	--	--
2-Methyl-1-butene	563-46-2	--	--	--	--	--	--	120 JN	--	--	--	--	--	--	--	--	--
2-Methylbutane	78-78-4	--	--	--	--	--	--	140 JN	140 JN	--	24 JN	--	--	--	--	--	--
2-Methylpentane	107-83-5	--	--	--	--	--	--	440 JN	440 JN	--	--	--	--	--	--	--	--
2-Methylpropene	115-11-7	--	--	--	--	--	--	100 JN	100 JN	--	15 JN	--	--	--	--	--	--
2-Propanethiol	75-33-2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16,000 JN
3,5-Dimethylundecane	17312-81-1	--	--	--	--	5.2 JN	--	--	--	--	--	--	--	--	--	--	--
3-Methoxy-1-butanol	2517-43-3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,400 JN
3-Methylpentane	96-14-0	--	--	--	--	--	--	--	--	--	10 JN	--	--	--	--	--	--
3-Penten-2-one	625-33-2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13,000 JN
4-Methyl-1-pentene	691-37-2	--	--	--	--	--	--	240 JN	240 JN	--	--	--	--	--	--	--	--
Butane	106-97-8	--	--	--	--	--	--	180 JN	170 JN	--	28 JN	--	--	--	--	--	--
Butanoic acid, 3-methylbutyl ester	93-18-17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,500 JN
cis-1,2-Dimethylcyclopropane	106-27-4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4,300 JN
Dibutyl acetal	871-22-7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8,300 JN
Ethyl alcohol	64-17-5	--	--	--	--	--	--	--	--	--	--	--	19 JN	--	--	--	--
Hexamethylcyclotrisiloxane	541-05-9	--	--	12 JN	5.9 JN	73 JN	15 JN	--	--	28 JN	--	--	18 JN	6.6 JN	--	--	--
Isobutane	75-28-5	--	--	--	--	--	--	110 JN	110 JN	--	21 JN	--	--	--	--	--	--
Methylcyclohexane	108-87-2	--	--	--	--	--	--	--	--	--	21 JN	--	--	--	--	--	--
Methylcyclopentane	96-37-7	--	--	--	--	--	--	--	--	--	19 JN	--	--	--	--	--	--
n-Heptadecane	629-78-7	--	--	--	--	--	--	--	--	--	--	--	5.8 JN	--	--	--	--
n-Pentane	109-66-0	49,491	VISL	--	--	--	--	--	--	--	33 JN	--	--	--	--	--	--
octahydro-2,2'-Bifuran	1592-33-2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,800 JN
Octamethylcyclotetrasiloxane	556-67-2	--	--	10 JN	--	140 JN	22 JN	--	--	60 JN	--	--	38 JN	34 JN	--	--	--
trans-1,2-Dimethylcyclopropane	20520-64-3	--	--	--	--	--	--	--	120 JN	--	--	--	--	--	--	--	--
Trimethylsilanol	1066-40-6	--	--	--	--	--	--	--	--	6.1 JN	--	--	--	--	--	--	--

Notes:
ACGIH TLV = American Conference of Governmental Industrial Hygienists
Threshold Limit Value
LEL = Screening level based on the LEL (lower explosive limit) of 5% methane by volume.
VISL = VOC criteria for a commercial exposure scenario were calculated using the Vapor Intrusion Screening Level (VISL) Calculator Version 3.5.1 (EPA, 2016) (May 2016 Regional Screening Levels) for subslab concentrations with a 10-5 target cancer risk, a hazard quotient of 1, and the default 0.03 attenuation factor.
Bold indicates the analyte was detected
Shading indicates the result exceeded screening criteria
-- = Not available
J = The analyte was positively identified; the associated numerical value is the approximate concentration.
JN = Non-routine analyte. Quantitation estimated.
ppbV = parts per billion by volume
TIC = tentatively identified compound
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
ug/m³ = micrograms per cubic meter
VOC = volatile organic compound
% = percent

Table 7-1. Results for Subslab Soil Vapor Samples Exceeding Screening Criteria in May 2017 Compared to Selected Previous Results
Evaluation of Subslab Hydrogen Sulfide and Methane Concentrations
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Analyte	Year ^a	Maximum Reported Concentration(s) ($\mu\text{g}/\text{m}^3$) ^b	Sampling Location	Building
Chloroform	2017	7,300	SV-04	Building 11A
	2017	7,000	SV-15	Building 4
	2016	54,000	WAT-SG-7R	Building 4
	2012	18,000	WAT-SG-7R	Building 4
	2012	380	WAT-SG-9	Tank Storage Area
	2008	24,000	WAT-SG-7	Building 4
Ethylbenzene	2017	3,500	SV-15	Building 4
	2012	630	WAT-SG-7R	Building 4
Trichloroethylene	2017	420	SV-11	Building 12
	2017	260 J	SV-15	Building 4
	2016	60	WAT-SG-7R	Building 4
	2012	65	WAT-SG-9	Tank Storage Area
	2008	54	WAT-SG-7	Building 4
	2008	520	WAT-SG-9	Tank Storage Area
Xylene, m,p-	2017	47,000	SV-15	Building 4
	2012	2,600	WAT-SG-7R	Building 4
	2008	4,600	WAT-SG-7	Building 4

Notes:

^a 2008, 2012, and 2016 soil vapor sampling results are presented in CH2M (2010), CH2M (2013b), and CH2M (2016), respectively.

^b Reported concentrations of volatile organic compounds analyzed by Method TO-15.

$\mu\text{g}/\text{m}^3$ = milligrams per cubic meter

Attachment 1

Centek Laboratories TO-15 Package Review CheckList



Client: CH2M-St Louis

Project: Former Hampshire SDG: C1705036

		YES	NO	NA
Analytical Results	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TIC's Present	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Holdin Times Met	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Chain of Custody	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surrogate	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Recoveries within Limits	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Sample(s) reanalyzed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internal Standards	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recovery	Recoveries within Limits	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Sample(s) reanalyzed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: Samples reanalyzed for Internal Standard Recoveries that failed.
2nd analysis passed.

Lab Control Sample (LCS)	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Recoveries within Limits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lab Control Sample Dupe (LCSD)	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Recoveries within Limits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MS/MSD	Present and Complete	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Recoveries within Limits	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments:

Sample Raw Data	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Spectra present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Centek Laboratories TO-15 Package Review Checklist**Client:** CH2M-St Louis**Project:** Former Hampshire **SDG:** C1705036

		<u>YES</u>	<u>NO</u>	<u>NA</u>
<u>Standards Data</u>				
Initial Calibration	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Calibration meets criteria	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Continuing Calibration	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Calibration meets criteria	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standards Raw Data	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Raw Quality Control Data

Tune Criteria Report	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Method Blank Data	MB Results <PQL	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Associated results flagged "B"	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
LCS Sample Data	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LCSD Sample Data	Present and Complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MS/MSD Sample Data	Present and Complete	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments:

Logbooks

Injection Log	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standards Log	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Can Cleaning Log	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calculation Sheet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IDL's	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Canister Order Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Tracking Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Additional Comments:

Section Supervisor:

Will Dahl

Date:

6/22/17

QC Supervisor:

Date:

ASP CAT B DELIVERABLE PACKAGE

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CENTEK LABORATORIES, LLC

143 Midler Park Drive * Syracuse, NY 13206

Phone (315) 431-9730 * Emergency 24/7 (315) 416-2752

NYSDOH ELAP

Certificate No. 11830

Analytical Report

Shane Lowe
CH2M - St Louis
300 Hunter Ave, Suite 305
St. Louis, MO 63124

Monday, May 22, 2017
Order No.: C1705036

TEL: (314) 335-3024

FAX

RE: Former Hampshire

Dear Shane Lowe:

Centek Laboratories, LLC received 14 sample(s) on 5/12/2017 for the analyses presented in the following report.

I certify that this data package is in compliance with the terms and conditions of the Contract, both technically and for completeness. Release of the data contained in this hardcopy data package and/or in the computer readable data submitted has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Centek Laboratories performs all analyses according to EPA, NIOSH or OSHA-approved analytical methods. Centek Laboratories is dedicated to providing quality analyses and exceptional customer service. All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objective except as indicated in the case narrative. All samples were received and analyzed within the EPA recommended holding times. Test results are not Method Blank (MB) corrected for contamination.

We do our best to make our reporting format clear and understandable and hope you are thoroughly satisfied with our services. Please contact your client service representative at (315) 431-9730 or myself, if you would like any additional information regarding this report.

Thank you for using Centek Laboratories. This report can not be reproduced except in its entirety, without prior written authorization.

Sincerely,

William Dobbin
Lead Technical Director

Disclaimer: The test results and procedures utilized, and laboratory interpretations of the data obtained by Centek as contained in this report are believed by Centek to be accurate and reliable

for sample(s) tested. In accepting this report, the customer agrees that the full extent of any and all liability for actual and consequential damages of Centek for the services performed shall be equal to the fee charged to the customer for the services as liquidated damages. ELAP does not offer certification for the following parameters by this method at present time, they are: 4-ethyltoluene, ethyl acetate, propylene, tetrahydrofuran, 4-PCH, sulfur derived and silicon series compounds.

Centek Laboratories, LLC Terms and Conditions

Sample Submission

All samples sent to Centek Laboratories should be accompanied by our Request for Analysis Form or Chain of Custody Form. A Chain of Custody will be provided with each order shipped for all sampling events, or if needed, one is available at our website www.CentekLabs.com. Samples received after 3:00pm are considered to be a part of the next day's business.

Sample Media

Samples can be collected in an canister or a Tedlar bag. Depending on your analytical needs, Centek Laboratories may receive a bulk, liquid, soil or other matrix sample for headspace analysis.

Blanks

Every sample is run with a surrogate or tracer compound at a pre-established concentration. The surrogate compound run with each sample is used as a standard to measure the performance of each run of the instrument. If required, a Minican can be provided containing nitrogen to be run as a trip blank with your samples.

Sampling Equipment

Centek Laboratories will be happy to provide the canisters to carry-out your sampling event at no charge. The necessary accessories, such as regulators, tubing or personal sampling belts, are also provided to meet your sampling needs. The customer is responsible for all shipping charges to the client's destination and return shipping to the laboratory. Client assumes all responsibility for lost, stolen and any damages of equipment.

Turn Around time (TAT)

Centek Laboratories will provide results to its clients in one business-week by 6:00pm EST after receipt of samples. For example, if samples are received on a Monday they are due on the following Monday by 6:00pm EST. Results are faxed or emailed to the requested location indicated on the Chain of Custody. Non-routine analysis may require more than the one business-week turnaround time. Please confirm non-routine sample turnaround times.

Reporting

Results are emailed or faxed at no additional charge. A hard copy of the result report is mailed within 24 hours of the faxing or emailing of your results. Cat "B" like packages are within 3-4 weeks from time of analysis. Standard Electronic Disk Deliverables (EDD) is also available at no additional charge.

Payment Terms

Payment for all purchases shall be due within 30 days from date of invoice. The client agrees to pay a finance charge of 1.5% per month on the overdue balance and cost of collection, including attorney fees, if collection proceedings are necessary. You must have a completed credit

application on file to extend credit. Purchase orders or checks information must be submitted for us to release results

Rush Turnaround Samples

Expedited turn around times is available. Please confirm rush turnaround times with Client Services before submitting samples.

Applicable Surcharges for Rush Turnaround Samples:

Same day TAT = 200%

Next business day TAT by Noon = 150%

Next business day TAT by 6:00pm = 100%

Second business day TAT by 6:00pm = 75%

Third business day TAT by 6:00pm = 50%

Fourth business day TAT by 6:00pm = 35%

Fifth business day = Standard

Statement of Confidentiality

Centek Laboratories, LLC is aware of the importance of the confidentiality of results to many of our clients. Your name and data will be held in the strictest of confidence. We will not accept business that may constitute a conflict of interest. We commonly sign Confidential Nondisclosure Agreements with clients prior to beginning work. All research, results and reports will be kept strictly confidential. Secrecy Agreements and Disclosure Statements will be signed for the client if so specified. Results will be provided only to the addressee specified on the Chain of Custody Form submitted with the samples unless law requires release. Written permission is required from the addressee to release results to any other party.

Limitation on Liability

Centek Laboratories, LLC warrants the test results to be accurate to the methodology and sample type for each sample submitted to Centek Laboratories, LLC. In no event shall Centek Laboratories, LLC be liable for direct, indirect, special, punitive, incidental, exemplary or consequential damages, or any damages whatsoever, even if Centek Laboratories, LLC has been previously advised of the possibility of such damages whether in an action under contract, negligence, or any other theory, arising out of or in connection with the use, inability to use or performance of the information, services, products and materials available from the laboratory or this site. These limitations shall apply notwithstanding any failure of essential purpose of any limited remedy. Because some jurisdictions do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of liability for consequential or incidental damages, the above limitations may not apply to you. This is a comprehensive limitation of liability that applies to all damages of any kind, including (without limitation) compensatory, direct, indirect or consequential damages, loss of data, income or profit and or loss of or damage to property and claims of third parties.



CEN TEK LABORATORIES, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
Project: Former Hampshire
Lab Order: C1705036

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Centek Laboratories, LLC SOP TS-80

Compendium of Methods for the Determination of Toxic Organic Compounds, Compendium Method TO-15, January 1999

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objective except as indicated in the corrective action report(s). All samples were received and analyzed within the EPA recommended holding times. Test results are not Method Blank (MB) corrected for contamination.

NYSDEC ASP samples:

Canisters should be evacuated to a reading of less than or equal to 50 millitorr prior to shipment to sampling personnel. The vacuum in the canister will be field checked prior to sampling, and must read 28" of Hg (± 2 ", vacuum, absolute) before a sample can be collected. After the sample has been collected, the pressure of the canister will be read and recorded again, and must be 5" of Hg (± 1 ", vacuum, absolute) for the sample to be valid. Once received at the laboratory, the canister vacuum should be confirmed to be 5" of Hg, ± 1 ". Please record and report the pressure/vacuum of received canisters on the sample receipt paperwork. A pressure/vacuum reading should also be taken just prior to the withdrawal of sample from the canister, and recorded on the sample preparation log sheet. All regulators are calibrated to meet these requirements before they leave the laboratory. However, due to environmental conditions and use of the equipment Centek can not guarantee that this criteria can always be achieved.

See Corrective Action: [3521] IS did not meet criteria.

See Corrective Action: [3534] Surrogates did not meet criteria.

Centek Laboratories, LLC

Corrective Action Report

Date Initiated: 02-Jun-17

Corrective Action Report ID: 3521

Initiated By: William Dobbin

Department: MSVOA

Corrective Action Description

CAR Summary: IS did not meet criteria.

Description of Nonconformance Root/Cause(s): IS was low and did not meet criteria for samples C1705036-006A,-007A,-008A,-009A,-010A,-011A,-013A and -014A.

Description of Corrective Action w/Proposed C.A.: Samples were reanalyzed with criteria being met. Due to matrix being in a canister it is difficult to see any signs of problems.

Performed By: William Dobbin

Completion Date: 02-Jun-17

Client Notification

Client Notification Required: No

Notified By:

Comment:

Quality Assurance Review

Nonconformance Type: Deficiency

Further Action required by QA: Monitor all quality control for sample matrix interference. At this time no further corrective action taken.

Approval and Closure

Technical Director /
Deputy Tech. Dir.:



William Dobbin

Close Date: 02-Jun-17

QA Officer Approval:

Nick Scala

QA Date: 02-Jun-17

Last Updated BY bill

Updated: 22-Jun-2017 1:28 PM

Reported: 22-Jun-2017 1:28 PM

Centek Laboratories, LLC
Corrective Action Report

Date Initiated: 20-Jun-17

Corrective Action Report ID: 3534

Initiated By: William Dobbin

Department: MSVOA

Corrective Action Description

CAR Summary: Surrogates did not meet criteria.

Description of Nonconformance Root/Cause(s): Surrogate was high and did not meet criteria for samples C1705036-001A,-002A,-003A,-004A,-005A,-006A,-007A,-008A,-009A, -010A, -011A, -012A 10X,128X,1280X,-013A 10X,-014A 10X for the sulfur analysis.

Description of Corrective Action w/Proposed C.A.: Samples C1705036-001A, -011A, -012A were analyzed further as a dilution with criteria being met. Due to matrix being in a canister it is difficult to see any signs of problems.

Performed By: William Dobbin

Completion Date: 20-Jun-17

Client Notification

Client Notification Required: No

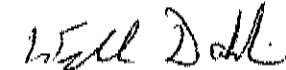
Notified By:

Comment:

Quality Assurance Review

Nonconformance Type: Deficiency

Further Action required by QA: Monitor all quality control for sample matrix interference. At this time no further corrective action taken.

Approval and ClosureTechnical Director /
Deputy Tech. Dir.:

William Dobbin

Close Date: 20-Jun-17

QA Officer Approval:

Nick Scala

QA Date: 20-Jun-17

Last Updated BY bill

Updated: 22-Jun-2017 10:53 AM

Reported: 22-Jun-2017 10:53 A

Centek Labs - Chain of Custody

143 Midler Park Drive
Syracuse, NY 13206
315-431-9730
www.CentekLabs.com

Site Name: FORNER HAMPshireProject: CH2M-WARRENO NY

PO#:

Vapor Intrusion & IAQ

Quote # Q-2125/306781

Canister Order #:

Company: CH2M - ST. LOUIS

Check Here If Same:

Invoice to: CH2M HILL AP INVOICESAddress: PO Box 241329City, State, Zip DENVER, CO 80224Email: DAVID-NEWMAN@CH2M.COMFax: 720-280-9547Phone: 973-862-0644

Turnaround Time: Check Rush TAT Due Date:
One ☒ 0%
Two ☐ 25%
Three ☐ 50%
Four ☐ 75%
Five ☐ 100%
Six ☐ 150%
Seven ☐ 200%

*Business Days

*Next Day by 5pm

*Next Day by Noon

*Same Day

*For Same and Next Day TAT Please Notify Lab

Sample ID

Date Sampled

Canister Number

Regulator Number

Analysis Request

Field Vacuum Start/Stop

Labs Vacuum** RecV/Analysis

Comments

Report Level

Level I

Level II

Cat "B" Like

5ppbv

1ug/M3

1ug/M3 + TCE, 25%

USE EXTRACTOR!!

POSSIBLY HIGH H2S

VOC + CH4

USE EXTRACTOR!!

POSSIBLY HIGH H2S

VOC + CH4

USE EXTRACTOR!!

POSSIBLY HIGH H2S

VOC + CH4

USE EXTRACTOR!!

POSSIBLY HIGH H2S

VOC + CH4

USE EXTRACTOR!!

POSSIBLY HIGH H2S

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VOC + CH4

USE EXTRACTOR!!

POSSIBLY HIGH H2S

VOC + CH4

USE EXTRACTOR!!

POSSIBLY HIGH H2S

VOC + CH4

Chain of Custody

Sampled by:

Relinquished by:

Received at Lab by:

Print Name

TAYLOR SALSBUUGH

TAYLOR SALSBUUGH

NICK MANDARINO

Signature

Taylor Salsbuugh

Taylor Salsbuugh

Nick Mandarino

Date/Time

5/19/17 17:00

5/19/17 09:00

5-12-17

Courier: CIRCLE ONE

FedEx UPS

Pickup/Dropoff

C1705036

Work Order #

C1705036

***By signing Centek Labs Chain of Custody, you are accepting Centek Labs Terms and Conditions listed on the reverse side.



CENTEK LABORATORIES, LLC

Sample Receipt Checklist

Client Name CH2M - ST LOUIS

Date and Time Receive

5/12/2017

Work Order Number C1705036

Received by NM

Checklist completed by

Signature

Date

Reviewed by

Initials

Date

Matrix:

Carrier name: R and L Carriers

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Water - VOA vials have zero headspace?	No VOA vials submitted <input checked="" type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section below

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Date: 22-Jun-17

**CEN TEK LABORATORIES, LLC**

CLIENT: CH2M - St Louis
Project: Former Hampshire
Lab Order: C1705036

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
C1705036-001A	WAT-SV04-050817	646.80	5/8/2017	5/12/2017
C1705036-002A	WAT-SV01-050817	573.48	5/8/2017	5/12/2017
C1705036-003A	WAT-SV03-050817	431.65	5/8/2017	5/12/2017
C1705036-004A	WAT-SV02-050817	549.144	5/8/2017	5/12/2017
C1705036-005A	WAT-SV10-050817	595.54	5/8/2017	5/12/2017
C1705036-006A	WAT-SV09-050817	1017.121	5/8/2017	5/12/2017
C1705036-007A	WAT-SV11-050817	494.58	5/8/2017	5/12/2017

CLIENT: CH2M - St Louis
Project: Former Hampshire
Lab Order: C1705036

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
C1705036-008A	WAT-SV14-050817	600.63	5/8/2017	5/12/2017
C1705036-009A	WAT-SV13-050817	474.309	5/8/2017	5/12/2017
C1705036-010A	WAT-SV07-050917	478.306	5/9/2017	5/12/2017
C1705036-011A	WAT-SV08-050917	427.79	5/9/2017	5/12/2017
C1705036-012A	WAT-SV15-050917	1019.403	5/9/2017	5/12/2017
C1705036-013A	WAT-SV06-050917	1018.56	5/9/2017	5/12/2017
C1705036-014A	DUP-SV-050917	614	5/9/2017	5/12/2017

Lab Order: C1705036
 Client: CH2M - St Louis
 Project: Former Hampshire

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
C1705036-001A	WAT-SV04-050817	5/8/2017	Air	5ppb by Method TO15			5/17/2017
				5ppb by Method TO15			5/17/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/16/2017
				Low Level Sulfurs by TO-15			5/16/2017
C1705036-002A	WAT-SV01-050817			5ppb by Method TO15			5/17/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/16/2017
C1705036-003A	WAT-SV03-050817			5ppb by Method TO15			5/15/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/16/2017
C1705036-004A	WAT-SV02-050817			5ppb by Method TO15			5/15/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/16/2017
C1705036-005A	WAT-SV10-050817			5ppb by Method TO15			5/15/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/16/2017
C1705036-006A	WAT-SV09-050817			5ppb by Method TO15			5/17/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/16/2017
C1705036-007A	WAT-SV11-050817			5ppb by Method TO15			5/15/2017
				5ppb by Method TO15			5/15/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/16/2017
C1705036-008A	WAT-SV14-050817			5ppb by Method TO15			5/17/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/16/2017
C1705036-009A	WAT-SV13-050817			5ppb by Method TO15			5/17/2017

DATES REPORT

Lab Order: C1705036
 Client: CH2M - St Louis
 Project: Former Hampshire

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
C1705036-009A	WAT-SV13-050817	5/8/2017	Air	Fixed Gas Series			5/15/2017
C1705036-010A	WAT-SV07-050917	5/9/2017		Low Level Sulfurs by TO-15			5/16/2017
				5ppb by Method TO15			5/17/2017
				5ppb by Method TO15			5/17/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/16/2017
C1705036-011A	WAT-SV08-050917			5ppb by Method TO15			5/17/2017
				5ppb by Method TO15			5/17/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/16/2017
				Low Level Sulfurs by TO-15			5/16/2017
				5ppb by Method TO15			5/15/2017
				5ppb by Method TO15			5/17/2017
				5ppb by Method TO15			5/17/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/19/2017
				Low Level Sulfurs by TO-15			5/16/2017
				Low Level Sulfurs by TO-15			5/18/2017
				Low Level Sulfurs by TO-15			5/18/2017
				5ppb by Method TO15			5/18/2017
				5ppb by Method TO15			5/17/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/16/2017
C1705036-013A	WAT-SV06-050917			5ppb by Method TO15			5/17/2017
				5ppb by Method TO15			5/15/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/16/2017
				5ppb by Method TO15			5/17/2017
				5ppb by Method TO15			5/18/2017
				Fixed Gas Series			5/15/2017
				Low Level Sulfurs by TO-15			5/16/2017

CANISTER ORDER



CENTEK LABORATORIES, LLC

Air Quality Testing...It's a Vibe

143 Midler Park Drive * Syracuse, NY 13206

TEL: 315-431-9730 * FAX: 315-431-9731

6481

01-Jun-17

SHIPPED TO:

Company: CH2M - St Louis
 Contact: Shane Lowe
 Address: 300 Hunter Ave, Suite 305
 St. Louis, MO 63124
 Phone: (314) 335-3024
 Quote ID: 2125
 Project:
 PO:

Submitted By:

MadeBy: NM

Ship Date: 4/28/2017

VIA: FedEx Ground

Due Date: 5/1/2017

Bottle Code	Bottle Type	TEST(s)	QTY
MC1000CC	1L Mini-Can	5ppb by Method TO15	20

Can / Reg ID Description

48	Time-Set Reg - 545 VI
54	Time-Set Reg - 535 VI
56	Time-Set Reg - 537 VI
58	Time-Set Reg - 539 VI
62	Time-Set Reg - 543 VI
63	Time-Set Reg - 839R VI
551	1L Mini-Can - 119 IAQ
309	Time-Set Reg - 732 VI
403	Time-Set Reg - 782 VI
125	Time-Set Reg - 629 VI
143	Time-Set Reg - 638 VI
144	Time-Set Reg - 639 VI
146	Time-Set Reg - 641 VI
235	1L Mini-Can - 1166 IAQ
306	Time-Set Reg - 729 VI
65	Time-Set Reg - 530 VI
68	Time-Set Reg - 547 VI
78	Time-Set Reg VI
79	Time-Set Reg VI
80	Time-Set Reg VI
121	Time-Set Reg - 669 VI
1026	1L Mini-Can - 8258 IAQ
1027	1L Mini-Can - 8259 IAQ
1018	1L Mini-Can - 8250 IAQ
431	1L Mini-Can - 1358 IAQ
474	1L Mini-Can - 1376 IAQ
478	1L Mini-Can - 1380 IAQ
494	1L Mini-Can - 1386 IAQ
595	1L Mini-Can - 1226 IAQ
600	1L Mini-Can - 1231 IAQ
646	1L Mini-Can - 277 IAQ
1017	1L Mini-Can - 8249 IAQ
549	1L Mini-Can - 117 IAQ

SHIPPED TO:

Company: CH2M - St Louis
 Contact: Shane Lowe
 Address: 300 Hunter Ave, Suite 305
 St. Louis, MO 63124
 Phone: (314) 335-3024
 Quote ID: 2125
 Project:
 PO:

Submitted By:
 MadeBy: NM
 Ship Date: 4/28/2017
 VIA: FedEx Ground
 Due Date: 5/1/2017

Bottle Code	Bottle Type	TEST(s)	QTY
-------------	-------------	---------	-----

Comments: (20) 1L W/ 20min Reg's With "T" for dupe SHIP TO: Evans Chemetics, Attn: Taylor Salsburg/CH2M, 228 E Main St, Waterloo, NY 13165 585-880-5157 WAC 042817 A-W 100%

GC/MS VOLATILES-WHOLE AIR

METHOD TO-15

ANALYTICAL RESULTS

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-001A

Client Sample ID: WAT-SV04-050817
 Tag Number: 646.80
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD			Analyst:	
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES		EPA METHOD 3C			Analyst: WD	
Carbon dioxide	0.410	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	74.9	8.30		%	1	5/15/2017
Oxygen	20.2	0.880		%	1	5/15/2017
5PPB BY METHOD TO15		TO-15			Analyst: WD	
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,1-Dichloroethene	6.3	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,2-Dichloroethane	18	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,2-Dichloropropane	13	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,4-Dioxane	< 10	10		ppbV	1	5/17/2017 11:58:00 AM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Acetone	8.6	10	J	ppbV	1	5/17/2017 11:58:00 AM
Allyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Benzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Bromoform	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Bromomethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Chloroethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Chloroform	1500	200		ppbV	40	5/17/2017 6:11:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 1 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-001A

Client Sample ID: WAT-SV04-050817
 Tag Number: 646.80
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Cyclohexane	5.6	5.0		ppbV	1	5/17/2017 11:58:00 AM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 11:58:00 AM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Heptane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Hexane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
m&p-Xylene	< 10	10		ppbV	1	5/17/2017 11:58:00 AM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 11:58:00 AM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/17/2017 11:58:00 AM
Methyl Isobutyl Ketone	1.9	10	J	ppbV	1	5/17/2017 11:58:00 AM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Methylene chloride	4.6	5.0	J	ppbV	1	5/17/2017 11:58:00 AM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Propylene	4.3	5.0	J	ppbV	1	5/17/2017 11:58:00 AM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Tetrachloroethylene	9.3	5.0		ppbV	1	5/17/2017 11:58:00 AM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Toluene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Trichloroethene	24	5.0		ppbV	1	5/17/2017 11:58:00 AM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Surr: Bromofluorobenzene	89.4	73.7-124		%REC	1	5/17/2017 11:58:00 AM
TIC: Cyclotetrasiloxane, octamethyl-	22	0	JN	ppbV	1	5/17/2017 11:58:00 AM
TIC: Cyclotrisiloxane, hexamethyl	15	0	JN	ppbV	1	5/17/2017 11:58:00 AM
TIC: Hydrogen sulfide	680	0	JN	ppbV	1	5/17/2017 11:58:00 AM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 12:19:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-001A

Client Sample ID: WAT-SV04-050817
 Tag Number: 646.80
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15				TO-15	Analyst: WD	
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 12:19:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 12:19:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 12:19:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 12:19:00 PM
Hydrogen Sulfide	2700	50		ppbV	10	5/16/2017 9:38:00 PM
Isopropyl mercaptan	1.5	5.0	J	ppbV	1	5/16/2017 12:19:00 PM
Methyl mercaptan	1.7	5.0	J	ppbV	1	5/16/2017 12:19:00 PM
Surr: Bromofluorobenzene	155	70-130	S	%REC	1	5/16/2017 12:19:00 PM
Surr: Bromofluorobenzene	111	70-130		%REC	10	5/16/2017 9:38:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 3 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-001A

Client Sample ID: WAT-SV04-050817
 Tag Number: 646.80
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15			TO-15		Analyst: WD	
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 11:58:00 AM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 11:58:00 AM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 11:58:00 AM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 11:58:00 AM
1,1-Dichloroethene	25	20		ug/m3	1	5/17/2017 11:58:00 AM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 11:58:00 AM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 11:58:00 AM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 11:58:00 AM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 11:58:00 AM
1,2-Dichloroethane	73	20		ug/m3	1	5/17/2017 11:58:00 AM
1,2-Dichloropropane	61	23		ug/m3	1	5/17/2017 11:58:00 AM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 11:58:00 AM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 11:58:00 AM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 11:58:00 AM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 11:58:00 AM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 11:58:00 AM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 11:58:00 AM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 11:58:00 AM
Acetone	20	24	J	ug/m3	1	5/17/2017 11:58:00 AM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 11:58:00 AM
Benzene	< 16	16		ug/m3	1	5/17/2017 11:58:00 AM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 11:58:00 AM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 11:58:00 AM
Bromoform	< 52	52		ug/m3	1	5/17/2017 11:58:00 AM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 11:58:00 AM
Carbon disulfide	< 16	16		ug/m3	1	5/17/2017 11:58:00 AM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 11:58:00 AM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 11:58:00 AM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 11:58:00 AM
Chloroform	7300	980		ug/m3	40	5/17/2017 6:11:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 11:58:00 AM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 11:58:00 AM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 11:58:00 AM
Cyclohexane	19	17		ug/m3	1	5/17/2017 11:58:00 AM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 11:58:00 AM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 11:58:00 AM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 11:58:00 AM
Freon 11	< 28	28		ug/m3	1	5/17/2017 11:58:00 AM
Freon 113	< 38	38		ug/m3	1	5/17/2017 11:58:00 AM
Freon 114	< 35	35		ug/m3	1	5/17/2017 11:58:00 AM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 1 of 28

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-001A

Client Sample ID: WAT-SV04-050817
 Tag Number: 646.80
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 11:58:00 AM
Heptane	< 20	20		ug/m3	1	5/17/2017 11:58:00 AM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 11:58:00 AM
Hexane	< 18	18		ug/m3	1	5/17/2017 11:58:00 AM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 11:58:00 AM
m&p-Xylene	< 43	43		ug/m3	1	5/17/2017 11:58:00 AM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 11:58:00 AM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/17/2017 11:58:00 AM
Methyl Isobutyl Ketone	7.9	41	J	ug/m3	1	5/17/2017 11:58:00 AM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 11:58:00 AM
Methylene chloride	16	17	J	ug/m3	1	5/17/2017 11:58:00 AM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 11:58:00 AM
Propylene	7.5	8.6	J	ug/m3	1	5/17/2017 11:58:00 AM
Styrene	< 21	21		ug/m3	1	5/17/2017 11:58:00 AM
Tetrachloroethylene	63	34		ug/m3	1	5/17/2017 11:58:00 AM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 11:58:00 AM
Toluene	< 19	19		ug/m3	1	5/17/2017 11:58:00 AM
trans-1,2-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 11:58:00 AM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 11:58:00 AM
Trichloroethene	130	27		ug/m3	1	5/17/2017 11:58:00 AM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 11:58:00 AM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 11:58:00 AM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 11:58:00 AM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 12:19:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 12:19:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 12:19:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 12:19:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 12:19:00 PM
Hydrogen Sulfide	3700	70		ug/m3	10	5/16/2017 9:38:00 PM
Isopropyl mercaptan	4.8	16	J	ug/m3	1	5/16/2017 12:19:00 PM
Methyl mercaptan	3.3	9.8	J	ug/m3	1	5/16/2017 12:19:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-002A

Client Sample ID: WAT-SV01-050817
 Tag Number: 573.48
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD		Analyst:		
Lab Vacuum In	-5			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES		EPA METHOD 3C		Analyst: WD		
Carbon dioxide	0.0260	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	74.2	8.30		%	1	5/15/2017
Oxygen	20.3	0.880		%	1	5/15/2017
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/17/2017 12:34:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Acetone	6.4	10	J	ppbV	1	5/17/2017 12:34:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Chloroform	6.1	5.0		ppbV	1	5/17/2017 12:34:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Date: 22-Jun-17

Centek Laboratories, LLC

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-002A

Client Sample ID: WAT-SV01-050817
 Tag Number: 573.48
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 12:34:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/17/2017 12:34:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 12:34:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/17/2017 12:34:00 PM
Methyl Isobutyl Ketone	< 10	10		ppbV	1	5/17/2017 12:34:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Methylene chloride	5.4	5.0		ppbV	1	5/17/2017 12:34:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Surr: Bromofluorobenzene	80.7	73.7-124		%REC	1	5/17/2017 12:34:00 PM
TIC: Cyclotetrasiloxane,	10	0	JN	ppbV	1	5/17/2017 12:34:00 PM
octamethyl- \$\$ Octam						
TIC: Cyclotrisiloxane, hexamethyl	12	0	JN	ppbV	1	5/17/2017 12:34:00 PM
TIC: Hydrogen sulfide \$\$	26	0	JN	ppbV	1	5/17/2017 12:34:00 PM
Dihydrogen monosulf						

LOW LEVEL SULFURS BY TO-15

TO-15

Analyst: WD

Qualifiers:	** Quantitation Limit	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E Estimated Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limit
JN	Non-routine analyte. Quantitation estimated.	ND Not Detected at the Limit of Detection
S	Spike Recovery outside accepted recovery limits	

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-002A

Client Sample ID: WAT-SV01-050817
 Tag Number: 573.48
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Hydrogen Sulfide	76	5.0		ppbV	1	5/16/2017 12:54:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Surr: Bromofluorobenzene	147	70-130	S	%REC	1	5/16/2017 12:54:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-002A

Client Sample ID: WAT-SV01-050817
 Tag Number: 573.48
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 12:34:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 12:34:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 12:34:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 12:34:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 12:34:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 12:34:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 12:34:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 12:34:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 12:34:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 12:34:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/17/2017 12:34:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 12:34:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 12:34:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 12:34:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 12:34:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 12:34:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 12:34:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 12:34:00 PM
Acetone	15	24	J	ug/m3	1	5/17/2017 12:34:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 12:34:00 PM
Benzene	< 16	16		ug/m3	1	5/17/2017 12:34:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 12:34:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 12:34:00 PM
Bromoform	< 52	52		ug/m3	1	5/17/2017 12:34:00 PM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 12:34:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/17/2017 12:34:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 12:34:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 12:34:00 PM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 12:34:00 PM
Chloroform	30	24		ug/m3	1	5/17/2017 12:34:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 12:34:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 12:34:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 12:34:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/17/2017 12:34:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 12:34:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 12:34:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 12:34:00 PM
Freon 11	< 28	28		ug/m3	1	5/17/2017 12:34:00 PM
Freon 113	< 38	38		ug/m3	1	5/17/2017 12:34:00 PM
Freon 114	< 35	35		ug/m3	1	5/17/2017 12:34:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-002A

Client Sample ID: WAT-SV01-050817
 Tag Number: 573.48
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 12:34:00 PM
Heptane	< 20	20		ug/m3	1	5/17/2017 12:34:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 12:34:00 PM
Hexane	< 18	18		ug/m3	1	5/17/2017 12:34:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 12:34:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/17/2017 12:34:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 12:34:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/17/2017 12:34:00 PM
Methyl Isobutyl Ketone	< 41	41		ug/m3	1	5/17/2017 12:34:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 12:34:00 PM
Methylene chloride	19	17		ug/m3	1	5/17/2017 12:34:00 PM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 12:34:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/17/2017 12:34:00 PM
Styrene	< 21	21		ug/m3	1	5/17/2017 12:34:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/17/2017 12:34:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 12:34:00 PM
Toluene	< 19	19		ug/m3	1	5/17/2017 12:34:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 12:34:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 12:34:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/17/2017 12:34:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 12:34:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 12:34:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 12:34:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 12:54:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 12:54:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 12:54:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 12:54:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 12:54:00 PM
Hydrogen Sulfide	110	7.0		ug/m3	1	5/16/2017 12:54:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 12:54:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 12:54:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 4 of 28

Date: 22-Jun-17

Centek Laboratories, LLC

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-003A

Client Sample ID: WAT-SV03-050817
 Tag Number: 431.65
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
				FLD		Analyst:
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
				EPA METHOD 3C		Analyst: WD
Carbon dioxide	0.102	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	73.6	8.30		%	1	5/15/2017
Oxygen	20.1	0.880		%	1	5/15/2017
5PPB BY METHOD TO15						
				TO-15		Analyst: WD
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/15/2017 2:59:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Acetone	5.6	10	J	ppbV	1	5/15/2017 2:59:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Chloroform	15	5.0		ppbV	1	5/15/2017 2:59:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Date: 22-Jun-17

Centek Laboratories, LLC

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-003A

Client Sample ID: WAT-SV03-050817
 Tag Number: 431.65
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15			Analyst: WD	
Chloromethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/15/2017 2:59:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Isopropyl alcohol	2.6	5.0	J	ppbV	1	5/15/2017 2:59:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/15/2017 2:59:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/15/2017 2:59:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/15/2017 2:59:00 PM
Methyl Isobutyl Ketone	1.4	10	J	ppbV	1	5/15/2017 2:59:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Surr: Bromofluorobenzene	85.8	73.7-124		%REC	1	5/15/2017 2:59:00 PM
TIC: Cyclotetrasiloxane,	140	0	JN	ppbV	1	5/15/2017 2:59:00 PM
octamethyl- \$\$ Octam						
TIC: Cyclotrisiloxane, hexamethyl	73	0	JN	ppbV	1	5/15/2017 2:59:00 PM
\$\$ Dimethyl						
TIC: Undecane, 3,5-dimethyl-	5.2	0	JN	ppbV	1	5/15/2017 2:59:00 PM

LOW LEVEL SULFURS BY TO-15

TO-15

Analyst: WD

Qualifiers:	**	Quantitation Limit	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-003A

Client Sample ID: WAT-SV03-050817
 Tag Number: 431.65
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Hydrogen Sulfide	770	5.0		ppbV	1	5/16/2017 1:30:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Surr: Bromofluorobenzene	153	70-130	S	%REC	1	5/16/2017 1:30:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 9 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis

Client Sample ID: WAT-SV03-050817

Lab Order: C1705036

Tag Number: 431.65

Project: Former Hampshire

Collection Date: 5/8/2017

Lab ID: C1705036-003A

Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 2:59:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/15/2017 2:59:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 2:59:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 2:59:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 2:59:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/15/2017 2:59:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 2:59:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/15/2017 2:59:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 2:59:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 2:59:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/15/2017 2:59:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 2:59:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/15/2017 2:59:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 2:59:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 2:59:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/15/2017 2:59:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/15/2017 2:59:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/15/2017 2:59:00 PM
Acetone	13	24	J	ug/m3	1	5/15/2017 2:59:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/15/2017 2:59:00 PM
Benzene	< 16	16		ug/m3	1	5/15/2017 2:59:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/15/2017 2:59:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/15/2017 2:59:00 PM
Bromoform	< 52	52		ug/m3	1	5/15/2017 2:59:00 PM
Bromomethane	< 19	19		ug/m3	1	5/15/2017 2:59:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/15/2017 2:59:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/15/2017 2:59:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/15/2017 2:59:00 PM
Chloroethane	< 13	13		ug/m3	1	5/15/2017 2:59:00 PM
Chloroform	72	24		ug/m3	1	5/15/2017 2:59:00 PM
Chloromethane	< 10	10		ug/m3	1	5/15/2017 2:59:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 2:59:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 2:59:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/15/2017 2:59:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/15/2017 2:59:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/15/2017 2:59:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/15/2017 2:59:00 PM
Freon 11	< 28	28		ug/m3	1	5/15/2017 2:59:00 PM
Freon 113	< 38	38		ug/m3	1	5/15/2017 2:59:00 PM
Freon 114	< 35	35		ug/m3	1	5/15/2017 2:59:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 5 of 28

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-003A

Client Sample ID: WAT-SV03-050817

Tag Number: 431.65

Collection Date: 5/8/2017

Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/15/2017 2:59:00 PM
Heptane	< 20	20		ug/m3	1	5/15/2017 2:59:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/15/2017 2:59:00 PM
Hexane	< 18	18		ug/m3	1	5/15/2017 2:59:00 PM
Isopropyl alcohol	6.4	12	J	ug/m3	1	5/15/2017 2:59:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/15/2017 2:59:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/15/2017 2:59:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/15/2017 2:59:00 PM
Methyl Isobutyl Ketone	5.8	41	J	ug/m3	1	5/15/2017 2:59:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/15/2017 2:59:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/15/2017 2:59:00 PM
o-Xylene	< 22	22		ug/m3	1	5/15/2017 2:59:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/15/2017 2:59:00 PM
Styrene	< 21	21		ug/m3	1	5/15/2017 2:59:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/15/2017 2:59:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/15/2017 2:59:00 PM
Toluene	< 19	19		ug/m3	1	5/15/2017 2:59:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 2:59:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 2:59:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/15/2017 2:59:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/15/2017 2:59:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/15/2017 2:59:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/15/2017 2:59:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 1:30:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 1:30:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 1:30:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 1:30:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 1:30:00 PM
Hydrogen Sulfide	1100	7.0		ug/m3	1	5/16/2017 1:30:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 1:30:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 1:30:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-004A

Client Sample ID: WAT-SV02-050817
 Tag Number: 549.144
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD			Analyst:	
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES		EPA METHOD 3C			Analyst: WD	
Carbon dioxide	0.289	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	76.1	8.30		%	1	5/15/2017
Oxygen	20.6	0.880		%	1	5/15/2017
5PPB BY METHOD TO15		TO-15			Analyst: WD	
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/15/2017 3:34:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Acetone	5.0	10	J	ppbV	1	5/15/2017 3:34:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Chloroform	51	5.0		ppbV	1	5/15/2017 3:34:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-004A

Client Sample ID: WAT-SV02-050817
 Tag Number: 549.144
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
cis-1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/15/2017 3:34:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/15/2017 3:34:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/15/2017 3:34:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/15/2017 3:34:00 PM
Methyl Isobutyl Ketone	< 10	10		ppbV	1	5/15/2017 3:34:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
trans-1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Surr: Bromofluorobenzene	81.1	73.7-124		%REC	1	5/15/2017 3:34:00 PM
TIC: Cyclotrisiloxane, hexamethyl	5.9	0	JN	ppbV	1	5/15/2017 3:34:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 2:05:00 PM
Carbon disulfide	2.8	5.0	J	ppbV	1	5/16/2017 2:05:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 2:05:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 , Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-004A

Client Sample ID: WAT-SV02-050817
 Tag Number: 549.144
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 2:05:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 2:05:00 PM
Hydrogen Sulfide	440	5.0		ppbV	1	5/16/2017 2:05:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 2:05:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 2:05:00 PM
Sum: Bromofluorobenzene	149	70-130	S	%REC	1	5/16/2017 2:05:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 / Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-004A

Client Sample ID: WAT-SV02-050817
 Tag Number: 549.144
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15			TO-15		Analyst: WD	
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 3:34:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/15/2017 3:34:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 3:34:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 3:34:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 3:34:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/15/2017 3:34:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 3:34:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/15/2017 3:34:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 3:34:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 3:34:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/15/2017 3:34:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 3:34:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/15/2017 3:34:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 3:34:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 3:34:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/15/2017 3:34:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/15/2017 3:34:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/15/2017 3:34:00 PM
Acetone	12	24	J	ug/m3	1	5/15/2017 3:34:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/15/2017 3:34:00 PM
Benzene	< 16	16		ug/m3	1	5/15/2017 3:34:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/15/2017 3:34:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/15/2017 3:34:00 PM
Bromoform	< 52	52		ug/m3	1	5/15/2017 3:34:00 PM
Bromomethane	< 19	19		ug/m3	1	5/15/2017 3:34:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/15/2017 3:34:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/15/2017 3:34:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/15/2017 3:34:00 PM
Chloroethane	< 13	13		ug/m3	1	5/15/2017 3:34:00 PM
Chloroform	250	24		ug/m3	1	5/15/2017 3:34:00 PM
Chloromethane	< 10	10		ug/m3	1	5/15/2017 3:34:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 3:34:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 3:34:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/15/2017 3:34:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/15/2017 3:34:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/15/2017 3:34:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/15/2017 3:34:00 PM
Freon 11	< 28	28		ug/m3	1	5/15/2017 3:34:00 PM
Freon 113	< 38	38		ug/m3	1	5/15/2017 3:34:00 PM
Freon 114	< 35	35		ug/m3	1	5/15/2017 3:34:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-004A

Client Sample ID: WAT-SV02-050817
 Tag Number: 549.144
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15				Analyst: WD
Freon 12	< 25	25		ug/m3	1	5/15/2017 3:34:00 PM
Heptane	< 20	20		ug/m3	1	5/15/2017 3:34:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/15/2017 3:34:00 PM
Hexane	< 18	18		ug/m3	1	5/15/2017 3:34:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/15/2017 3:34:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/15/2017 3:34:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/15/2017 3:34:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/15/2017 3:34:00 PM
Methyl Isobutyl Ketone	< 41	41		ug/m3	1	5/15/2017 3:34:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/15/2017 3:34:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/15/2017 3:34:00 PM
o-Xylene	< 22	22		ug/m3	1	5/15/2017 3:34:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/15/2017 3:34:00 PM
Styrene	< 21	21		ug/m3	1	5/15/2017 3:34:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/15/2017 3:34:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/15/2017 3:34:00 PM
Toluene	< 19	19		ug/m3	1	5/15/2017 3:34:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 3:34:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 3:34:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/15/2017 3:34:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/15/2017 3:34:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/15/2017 3:34:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/15/2017 3:34:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15				Analyst: WD
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 2:05:00 PM
Carbon disulfide	8.7	16	J	ug/m3	1	5/16/2017 2:05:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 2:05:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 2:05:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 2:05:00 PM
Hydrogen Sulfide	620	7.0		ug/m3	1	5/16/2017 2:05:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 2:05:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 2:05:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-005A

Client Sample ID: WAT-SV10-050817
 Tag Number: 595.54
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
				FLD		Analyst:
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
				EPA METHOD 3C		Analyst: WD
Carbon dioxide	0.328	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	74.9	8.30		%	1	5/15/2017
Oxygen	20.2	0.880		%	1	5/15/2017
SPPB BY METHOD TO15						
				TO-15		Analyst: WD
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/15/2017 4:09:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Acetone	3.3	10	J	ppbV	1	5/15/2017 4:09:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Chloroform	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-005A

Client Sample ID: WAT-SV10-050817
 Tag Number: 595.54
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/15/2017 4:09:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Isopropyl alcohol	2.5	5.0	J	ppbV	1	5/15/2017 4:09:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/15/2017 4:09:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/15/2017 4:09:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/15/2017 4:09:00 PM
Methyl Isobutyl Ketone	< 10	10		ppbV	1	5/15/2017 4:09:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Surr: Bromofluorobenzene	82.6	73.7-124		%REC	1	5/15/2017 4:09:00 PM
TIC: Cyclotetrasiloxane, octamethyl-	38	0	JN	ppbV	1	5/15/2017 4:09:00 PM
TIC: Cyclotrisiloxane, hexamethyl	18	0	JN	ppbV	1	5/15/2017 4:09:00 PM
\$\$ Dimethy						
TIC: Ethanol \$\$ Ethyl alcohol \$\$ Alcohol \$\$ A	19	0	JN	ppbV	1	5/15/2017 4:09:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-005A

Client Sample ID: WAT-SV10-050817
 Tag Number: 595.54
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15						
TIC: Heptadecane \$\$ n-	5.8	0	JN	ppbV	1	Analyst: WD 5/16/2017 4:09:00 PM
Heptadecane \$\$ Normal-h						
LOW LEVEL SULFURS BY TO-15						
1-Propanethiol	< 5.0	5.0		ppbV	1	Analyst: WD 5/16/2017 2:40:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Hydrogen Sulfide	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Surr: Bromofluorobenzene	151	70-130	S	%REC	1	5/16/2017 2:40:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 , Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 15 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-005A

Client Sample ID: WAT-SV10-050817
 Tag Number: 595.54
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15				Analyst: WD
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 4:09:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/15/2017 4:09:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 4:09:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 4:09:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 4:09:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/15/2017 4:09:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 4:09:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/15/2017 4:09:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 4:09:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 4:09:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/15/2017 4:09:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 4:09:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/15/2017 4:09:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 4:09:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 4:09:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/15/2017 4:09:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/15/2017 4:09:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/15/2017 4:09:00 PM
Acetone	7.7	24	J	ug/m3	1	5/15/2017 4:09:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/15/2017 4:09:00 PM
Benzene	< 16	16		ug/m3	1	5/15/2017 4:09:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/15/2017 4:09:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/15/2017 4:09:00 PM
Bromoform	< 52	52		ug/m3	1	5/15/2017 4:09:00 PM
Bromomethane	< 19	19		ug/m3	1	5/15/2017 4:09:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/15/2017 4:09:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/15/2017 4:09:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/15/2017 4:09:00 PM
Chloroethane	< 13	13		ug/m3	1	5/15/2017 4:09:00 PM
Chloroform	< 24	24		ug/m3	1	5/15/2017 4:09:00 PM
Chloromethane	< 10	10		ug/m3	1	5/15/2017 4:09:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 4:09:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 4:09:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/15/2017 4:09:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/15/2017 4:09:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/15/2017 4:09:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/15/2017 4:09:00 PM
Freon 11	< 28	28		ug/m3	1	5/15/2017 4:09:00 PM
Freon 113	< 38	38		ug/m3	1	5/15/2017 4:09:00 PM
Freon 114	< 35	35		ug/m3	1	5/15/2017 4:09:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-005A

Client Sample ID: WAT-SV10-050817
 Tag Number: 595.54
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15				Analyst: WD
Freon 12	< 25	25		ug/m3	1	5/15/2017 4:09:00 PM
Heptane	< 20	20		ug/m3	1	5/15/2017 4:09:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/15/2017 4:09:00 PM
Hexane	< 18	18		ug/m3	1	5/15/2017 4:09:00 PM
Isopropyl alcohol	6.1	12	J	ug/m3	1	5/15/2017 4:09:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/15/2017 4:09:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/15/2017 4:09:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/15/2017 4:09:00 PM
Methyl Isobutyl Ketone	< 41	41		ug/m3	1	5/15/2017 4:09:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/15/2017 4:09:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/15/2017 4:09:00 PM
o-Xylene	< 22	22		ug/m3	1	5/15/2017 4:09:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/15/2017 4:09:00 PM
Styrene	< 21	21		ug/m3	1	5/15/2017 4:09:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/15/2017 4:09:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/15/2017 4:09:00 PM
Toluene	< 19	19		ug/m3	1	5/15/2017 4:09:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 4:09:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 4:09:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/15/2017 4:09:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/15/2017 4:09:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/15/2017 4:09:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/15/2017 4:09:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15				Analyst: WD
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 2:40:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 2:40:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 2:40:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 2:40:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 2:40:00 PM
Hydrogen Sulfide	< 7.0	7.0		ug/m3	1	5/16/2017 2:40:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 2:40:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 2:40:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-006A

Client Sample ID: WAT-SV09-050817
 Tag Number: 1017.121
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD			Analyst:	
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES		EPA METHOD 3C			Analyst: WD	
Carbon dioxide	0.615	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	71.8	8.30		%	1	5/15/2017
Oxygen	18.8	0.880		%	1	5/15/2017
5PPB BY METHOD TO15		TO-15			Analyst: WD	
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/17/2017 1:11:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Acetone	10	10		ppbV	1	5/17/2017 1:11:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Benzene	4.5	5.0	J	ppbV	1	5/17/2017 1:11:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Chloroform	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 , Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 16 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-006A

Client Sample ID: WAT-SV09-050817
 Tag Number: 1017.121
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 1:11:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/17/2017 1:11:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 1:11:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/17/2017 1:11:00 PM
Methyl Isobutyl Ketone	< 10	10		ppbV	1	5/17/2017 1:11:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Toluene	3.0	5.0	J	ppbV	1	5/17/2017 1:11:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Surr: Bromofluorobenzene	83.8	73.7-124		%REC	1	5/17/2017 1:11:00 PM

NOTES:

No Tic's found.

LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Carbon disulfide	1.3	5.0	J	ppbV	1	5/16/2017 3:15:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-006A

Client Sample ID: WAT-SV09-050817
 Tag Number: 1017.121
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Hydrogen Sulfide	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Surr: Bromofluorobenzene	153	70-130	S	%REC	1	5/16/2017 3:15:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-006A

Client Sample ID: WAT-SV09-050817
 Tag Number: 1017.121
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15				TO-15	Analyst: WD	
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 1:11:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 1:11:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 1:11:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 1:11:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 1:11:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 1:11:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 1:11:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 1:11:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 1:11:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 1:11:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/17/2017 1:11:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 1:11:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 1:11:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 1:11:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 1:11:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 1:11:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 1:11:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 1:11:00 PM
Acetone	25	24		ug/m3	1	5/17/2017 1:11:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 1:11:00 PM
Benzene	14	16	J	ug/m3	1	5/17/2017 1:11:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 1:11:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 1:11:00 PM
Bromoform	< 52	52		ug/m3	1	5/17/2017 1:11:00 PM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 1:11:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/17/2017 1:11:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 1:11:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 1:11:00 PM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 1:11:00 PM
Chloroform	< 24	24		ug/m3	1	5/17/2017 1:11:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 1:11:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 1:11:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 1:11:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/17/2017 1:11:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 1:11:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 1:11:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 1:11:00 PM
Freon 11	< 28	28		ug/m3	1	5/17/2017 1:11:00 PM
Freon 113	< 38	38		ug/m3	1	5/17/2017 1:11:00 PM
Freon 114	< 35	35		ug/m3	1	5/17/2017 1:11:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-006A

Client Sample ID: WAT-SV09-050817
 Tag Number: 1017.121
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 1:11:00 PM
Heptane	< 20	20		ug/m3	1	5/17/2017 1:11:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 1:11:00 PM
Hexane	< 18	18		ug/m3	1	5/17/2017 1:11:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 1:11:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/17/2017 1:11:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 1:11:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/17/2017 1:11:00 PM
Methyl Isobutyl Ketone	< 41	41		ug/m3	1	5/17/2017 1:11:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 1:11:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/17/2017 1:11:00 PM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 1:11:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/17/2017 1:11:00 PM
Styrene	< 21	21		ug/m3	1	5/17/2017 1:11:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/17/2017 1:11:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 1:11:00 PM
Toluene	11	19	J	ug/m3	1	5/17/2017 1:11:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 1:11:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 1:11:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/17/2017 1:11:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 1:11:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 1:11:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 1:11:00 PM
NOTES:						
No Tic's found.						
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 3:15:00 PM
Carbon disulfide	4.1	16	J	ug/m3	1	5/16/2017 3:15:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 3:15:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 3:15:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 3:15:00 PM
Hydrogen Sulfide	< 7.0	7.0		ug/m3	1	5/16/2017 3:15:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 3:15:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 3:15:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-007A

Client Sample ID: WAT-SV11-050817
 Tag Number: 494.58
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD		Analyst:		
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES		EPA METHOD 3C		Analyst: WD		
Carbon dioxide	0.224	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	77.1	8.30		%	1	5/15/2017
Oxygen	20.6	0.880		%	1	5/15/2017
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/15/2017 10:39:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Acetone	3.8	10	J	ppbV	1	5/15/2017 10:39:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Chloroform	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM

Qualifiers:	**	Quantitation Limit	,	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-007A

Client Sample ID: WAT-SV11-050817
 Tag Number: 494.58
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/15/2017 10:39:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/15/2017 10:39:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/15/2017 10:39:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/15/2017 10:39:00 PM
Methyl Isobutyl Ketone	2.5	10	J	ppbV	1	5/15/2017 10:39:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Trichloroethene	77	50		ppbV	10	5/15/2017 11:14:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Surr: Bromofluorobenzene	77.0	73.7-124		%REC	1	5/15/2017 10:39:00 PM
TIC: Cyclotetrasiloxane, octamethyl- \$\$ Octam	34	0	JN	ppbV	1	5/15/2017 10:39:00 PM
TIC: Cyclotrisiloxane, hexamethyl \$ \$ Dimethy	6.6	0	JN	ppbV	1	5/15/2017 10:39:00 PM
TIC: Hydrogen sulfide \$ \$ Dihydrogen monosulf	160	0	JN	ppbV	1	5/15/2017 10:39:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-007A

Client Sample ID: WAT-SV11-050817
 Tag Number: 494.58
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Hydrogen Sulfide	29	5.0		ppbV	1	5/16/2017 3:50:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Surr: Bromofluorobenzene	154	70-130	S	%REC	1	5/16/2017 3:50:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 , Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-007A

Client Sample ID: WAT-SV11-050817
 Tag Number: 494.58
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 10:39:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/15/2017 10:39:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 10:39:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 10:39:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 10:39:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/15/2017 10:39:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 10:39:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/15/2017 10:39:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 10:39:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 10:39:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/15/2017 10:39:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 10:39:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/15/2017 10:39:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 10:39:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 10:39:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/15/2017 10:39:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/15/2017 10:39:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/15/2017 10:39:00 PM
Acetone	8.9	24	J	ug/m3	1	5/15/2017 10:39:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/15/2017 10:39:00 PM
Benzene	< 16	16		ug/m3	1	5/15/2017 10:39:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/15/2017 10:39:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/15/2017 10:39:00 PM
Bromoform	< 52	52		ug/m3	1	5/15/2017 10:39:00 PM
Bromomethane	< 19	19		ug/m3	1	5/15/2017 10:39:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/15/2017 10:39:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/15/2017 10:39:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/15/2017 10:39:00 PM
Chloroethane	< 13	13		ug/m3	1	5/15/2017 10:39:00 PM
Chloroform	< 24	24		ug/m3	1	5/15/2017 10:39:00 PM
Chloromethane	< 10	10		ug/m3	1	5/15/2017 10:39:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 10:39:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 10:39:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/15/2017 10:39:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/15/2017 10:39:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/15/2017 10:39:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/15/2017 10:39:00 PM
Freon 11	< 28	28		ug/m3	1	5/15/2017 10:39:00 PM
Freon 113	< 38	38		ug/m3	1	5/15/2017 10:39:00 PM
Freon 114	< 35	35		ug/m3	1	5/15/2017 10:39:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-007A

Client Sample ID: WAT-SV11-050817
 Tag Number: 494.58
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/15/2017 10:39:00 PM
Heptane	< 20	20		ug/m3	1	5/15/2017 10:39:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/15/2017 10:39:00 PM
Hexane	< 18	18		ug/m3	1	5/15/2017 10:39:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/15/2017 10:39:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/15/2017 10:39:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/15/2017 10:39:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/15/2017 10:39:00 PM
Methyl Isobutyl Ketone	10	41	J	ug/m3	1	5/15/2017 10:39:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/15/2017 10:39:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/15/2017 10:39:00 PM
o-Xylene	< 22	22		ug/m3	1	5/15/2017 10:39:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/15/2017 10:39:00 PM
Styrene	< 21	21		ug/m3	1	5/15/2017 10:39:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/15/2017 10:39:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/15/2017 10:39:00 PM
Toluene	< 19	19		ug/m3	1	5/15/2017 10:39:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 10:39:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 10:39:00 PM
Trichloroethene	420	270		ug/m3	10	5/15/2017 11:14:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/15/2017 10:39:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/15/2017 10:39:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/15/2017 10:39:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 3:50:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 3:50:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 3:50:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 3:50:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 3:50:00 PM
Hydrogen Sulfide	40	7.0		ug/m3	1	5/16/2017 3:50:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 3:50:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 3:50:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Date: 22-Jun-17

Centek Laboratories, LLC

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-008A

Client Sample ID: WAT-SV14-050817
 Tag Number: 600.63
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD			Analyst:	
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES		EPA METHOD 3C			Analyst: WD	
Carbon dioxide	0.158	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	75.1	8.30		%	1	5/15/2017
Oxygen	20.5	0.880		%	1	5/15/2017
5PPB BY METHOD TO15		TO-15			Analyst: WD	
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/17/2017 2:23:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Acetone	5.0	10	J	ppbV	1	5/17/2017 2:23:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Chloroform	62	5.0		ppbV	1	5/17/2017 2:23:00 PM

Qualifiers:	**	Quantitation Limit		Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank		E Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded		J Analyte detected below quantitation limit
	JN	Non-routine analyte, Quantitation estimated.		ND Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-008A

Client Sample ID: WAT-SV14-050817
 Tag Number: 600.63
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 2:23:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/17/2017 2:23:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 2:23:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/17/2017 2:23:00 PM
Methyl Isobutyl Ketone	3.1	10	J	ppbV	1	5/17/2017 2:23:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Surr: Bromofluorobenzene	84.3	73.7-124		%REC	1	5/17/2017 2:23:00 PM

NOTES:

No Tic's found.

LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM

Qualifiers:	** Quantitation Limit	.	Results reported are not blank corrected
	B Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-008A

Client Sample ID: WAT-SV14-050817
 Tag Number: 600.63
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM
Hydrogen Sulfide	18	5.0		ppbV	1	5/16/2017 4:25:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM
Surr: Bromofluorobenzene	148	70-130	S	%REC	1	5/16/2017 4:25:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-008A

Client Sample ID: WAT-SV14-050817
 Tag Number: 600.63
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 2:23:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 2:23:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 2:23:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 2:23:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 2:23:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 2:23:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 2:23:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 2:23:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 2:23:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 2:23:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/17/2017 2:23:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 2:23:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 2:23:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 2:23:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 2:23:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 2:23:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 2:23:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 2:23:00 PM
Acetone	12	24	J	ug/m3	1	5/17/2017 2:23:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 2:23:00 PM
Benzene	< 16	16		ug/m3	1	5/17/2017 2:23:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 2:23:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 2:23:00 PM
Bromoform	< 52	52		ug/m3	1	5/17/2017 2:23:00 PM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 2:23:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/17/2017 2:23:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 2:23:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 2:23:00 PM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 2:23:00 PM
Chloroform	300	24		ug/m3	1	5/17/2017 2:23:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 2:23:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 2:23:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 2:23:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/17/2017 2:23:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 2:23:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 2:23:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 2:23:00 PM
Freon 11	< 28	28		ug/m3	1	5/17/2017 2:23:00 PM
Freon 113	< 38	38		ug/m3	1	5/17/2017 2:23:00 PM
Freon 114	< 35	35		ug/m3	1	5/17/2017 2:23:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-008A

Client Sample ID: WAT-SV14-050817
 Tag Number: 600.63
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 2:23:00 PM
Heptane	< 20	20		ug/m3	1	5/17/2017 2:23:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 2:23:00 PM
Hexane	< 18	18		ug/m3	1	5/17/2017 2:23:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 2:23:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/17/2017 2:23:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 2:23:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/17/2017 2:23:00 PM
Methyl Isobutyl Ketone	13	41	J	ug/m3	1	5/17/2017 2:23:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 2:23:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/17/2017 2:23:00 PM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 2:23:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/17/2017 2:23:00 PM
Styrene	< 21	21		ug/m3	1	5/17/2017 2:23:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/17/2017 2:23:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 2:23:00 PM
Toluene	< 19	19		ug/m3	1	5/17/2017 2:23:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 2:23:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 2:23:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/17/2017 2:23:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 2:23:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 2:23:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 2:23:00 PM
NOTES:						
No Tic's found.						
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 4:25:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 4:25:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 4:25:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 4:25:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 4:25:00 PM
Hydrogen Sulfide	25	7.0		ug/m3	1	5/16/2017 4:25:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 4:25:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 4:25:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-009A

Client Sample ID: WAT-SV13-050817
 Tag Number: 474.309
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD		Analyst:		
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES		EPA METHOD 3C		Analyst: WD		
Carbon dioxide	2.08	1.90	%	1		5/15/2017
Carbon Monoxide	ND	0.880	%	1		5/15/2017
Methane	ND	0.580	%	1		5/15/2017
Nitrogen	77.8	8.30	%	1		5/15/2017
Oxygen	17.4	0.880	%	1		5/15/2017
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,1,2-Trichloroethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,1-Dichloroethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,1-Dichloroethene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,2-Dibromoethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,2-Dichlorobenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,2-Dichloroethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,2-Dichloropropane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,3-butadiene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,3-Dichlorobenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,4-Dichlorobenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,4-Dioxane	< 10	10	ppbV	1		5/17/2017 3:00:00 PM
2,2,4-trimethylpentane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
4-ethyltoluene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Acetone	2.7	10	ppbV	1		5/17/2017 3:00:00 PM
Allyl chloride	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Benzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Benzyl chloride	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Bromodichloromethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Bromoform	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Bromomethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Carbon disulfide	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Carbon tetrachloride	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Chlorobenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Chloroethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Chloroform	16	5.0	ppbV	1		5/17/2017 3:00:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 / Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-009A

Client Sample ID: WAT-SV13-050817
 Tag Number: 474.309
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 3:00:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/17/2017 3:00:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 3:00:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/17/2017 3:00:00 PM
Methyl Isobutyl Ketone	< 10	10		ppbV	1	5/17/2017 3:00:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Surr: Bromofluorobenzene	80.9	73.7-124		%REC	1	5/17/2017 3:00:00 PM

NOTES:

No Tic's found.

LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM

Qualifiers:	**	Quantitation Limit	,	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-009A

Client Sample ID: WAT-SV13-050817
 Tag Number: 474,309
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15			TO-15		Analyst: WD	
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM
Hydrogen Sulfide	20	5.0		ppbV	1	5/16/2017 5:00:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM
Surr: Bromofluorobenzene	148	70-130	S	%REC	1	5/16/2017 5:00:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-009A

Client Sample ID: WAT-SV13-050817
 Tag Number: 474.309
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 3:00:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 3:00:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 3:00:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 3:00:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 3:00:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 3:00:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 3:00:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 3:00:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 3:00:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 3:00:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/17/2017 3:00:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 3:00:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 3:00:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 3:00:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 3:00:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 3:00:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 3:00:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 3:00:00 PM
Acetone	6.4	24	J	ug/m3	1	5/17/2017 3:00:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 3:00:00 PM
Benzene	< 16	16		ug/m3	1	5/17/2017 3:00:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 3:00:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 3:00:00 PM
Bromoform	< 52	52		ug/m3	1	5/17/2017 3:00:00 PM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 3:00:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/17/2017 3:00:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 3:00:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 3:00:00 PM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 3:00:00 PM
Chloroform	78	24		ug/m3	1	5/17/2017 3:00:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 3:00:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 3:00:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 3:00:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/17/2017 3:00:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 3:00:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 3:00:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 3:00:00 PM
Freon 11	< 28	28		ug/m3	1	5/17/2017 3:00:00 PM
Freon 113	< 38	38		ug/m3	1	5/17/2017 3:00:00 PM
Freon 114	< 35	35		ug/m3	1	5/17/2017 3:00:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-009A

Client Sample ID: WAT-SV13-050817
 Tag Number: 474.309
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 3:00:00 PM
Heptane	< 20	20		ug/m3	1	5/17/2017 3:00:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 3:00:00 PM
Hexane	< 18	18		ug/m3	1	5/17/2017 3:00:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 3:00:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/17/2017 3:00:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 3:00:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/17/2017 3:00:00 PM
Methyl Isobutyl Ketone	< 41	41		ug/m3	1	5/17/2017 3:00:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 3:00:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/17/2017 3:00:00 PM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 3:00:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/17/2017 3:00:00 PM
Styrene	< 21	21		ug/m3	1	5/17/2017 3:00:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/17/2017 3:00:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 3:00:00 PM
Toluene	< 19	19		ug/m3	1	5/17/2017 3:00:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 3:00:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 3:00:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/17/2017 3:00:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 3:00:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 3:00:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 3:00:00 PM
NOTES:						
No Tic's found.						
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 5:00:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 5:00:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 5:00:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 5:00:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 5:00:00 PM
Hydrogen Sulfide	28	7.0		ug/m3	1	5/16/2017 5:00:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 5:00:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 5:00:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-010A

Client Sample ID: WAT-SV07-050917
 Tag Number: 478.306
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD		Analyst:		
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES		EPA METHOD 3C		Analyst: WD		
Carbon dioxide	0.266	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	78.9	8.30		%	1	5/15/2017
Oxygen	21.0	0.880		%	1	5/15/2017
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/17/2017 3:49:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Acetone	58	100	J	ppbV	10	5/17/2017 4:24:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Chloroform	67	50		ppbV	10	5/17/2017 4:24:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-010A

Client Sample ID: WAT-SV07-050917
 Tag Number: 478.306
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 3:49:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/17/2017 3:49:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 3:49:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/17/2017 3:49:00 PM
Methyl Isobutyl Ketone	95	100	J	ppbV	10	5/17/2017 4:24:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Methylene chloride	7.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Trichloroethene	16	5.0		ppbV	1	5/17/2017 3:49:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Surr: Bromofluorobenzene	86.8	73.7-124		%REC	1	5/17/2017 3:49:00 PM
TIC: Cyclotetrasiloxane, octamethyl- \$\$ Octam	60	0	JN	ppbV	1	5/17/2017 3:49:00 PM
TIC: Cyclotrisiloxane, hexamethyl	28	0	JN	ppbV	1	5/17/2017 3:49:00 PM
TIC: Silanol, trimethyl- \$\$ Hydroxytrimethyls	6.1	0	JN	ppbV	1	5/17/2017 3:49:00 PM

LOW LEVEL SULFURS BY TO-15

TO-15

Analyst: WD

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-010A

Client Sample ID: WAT-SV07-050917
 Tag Number: 478.306
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Hydrogen Sulfide	8.7	5.0		ppbV	1	5/16/2017 5:35:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Surr: Bromofluorobenzene	145	70-130	S	%REC	1	5/16/2017 5:35:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 , Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-010A

Client Sample ID: WAT-SV07-050917
 Tag Number: 478.306
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 3:49:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 3:49:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 3:49:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 3:49:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 3:49:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 3:49:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 3:49:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 3:49:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 3:49:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 3:49:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/17/2017 3:49:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 3:49:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 3:49:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 3:49:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 3:49:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 3:49:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 3:49:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 3:49:00 PM
Acetone	140	240	J	ug/m3	10	5/17/2017 4:24:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 3:49:00 PM
Benzene	< 16	16		ug/m3	1	5/17/2017 3:49:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 3:49:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 3:49:00 PM
Bromoform	< 52	52		ug/m3	1	5/17/2017 3:49:00 PM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 3:49:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/17/2017 3:49:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 3:49:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 3:49:00 PM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 3:49:00 PM
Chloroform	330	240		ug/m3	10	5/17/2017 4:24:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 3:49:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 3:49:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 3:49:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/17/2017 3:49:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 3:49:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 3:49:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 3:49:00 PM
Freon 11	< 28	28		ug/m3	1	5/17/2017 3:49:00 PM
Freon 113	< 38	38		ug/m3	1	5/17/2017 3:49:00 PM
Freon 114	< 35	35		ug/m3	1	5/17/2017 3:49:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-010A

Client Sample ID: WAT-SV07-050917
 Tag Number: 478.306
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 3:49:00 PM
Heptane	< 20	20		ug/m3	1	5/17/2017 3:49:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 3:49:00 PM
Hexane	< 18	18		ug/m3	1	5/17/2017 3:49:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 3:49:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/17/2017 3:49:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 3:49:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/17/2017 3:49:00 PM
Methyl Isobutyl Ketone	390	410	J	ug/m3	10	5/17/2017 4:24:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 3:49:00 PM
Methylene chloride	24	17		ug/m3	1	5/17/2017 3:49:00 PM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 3:49:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/17/2017 3:49:00 PM
Styrene	< 21	21		ug/m3	1	5/17/2017 3:49:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/17/2017 3:49:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 3:49:00 PM
Toluene	< 19	19		ug/m3	1	5/17/2017 3:49:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 3:49:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 3:49:00 PM
Trichloroethene	86	27		ug/m3	1	5/17/2017 3:49:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 3:49:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 3:49:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 3:49:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 5:35:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 5:35:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 5:35:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 5:35:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 5:35:00 PM
Hydrogen Sulfide	12	7.0		ug/m3	1	5/16/2017 5:35:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 5:35:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 5:35:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

, Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-011A

Client Sample ID: WAT-SV08-050917
 Tag Number: 427.79
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-6			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	0.0270	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	79.1	8.30		%	1	5/15/2017
Oxygen	20.4	0.880		%	1	5/15/2017
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/17/2017 5:01:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Acetone	88	50		ppbV	5	5/17/2017 5:36:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Benzene	6.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Carbon disulfide	8.9	5.0		ppbV	1	5/17/2017 5:01:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Chloroform	19	5.0		ppbV	1	5/17/2017 5:01:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-011A

Client Sample ID: WAT-SV08-050917
 Tag Number: 427.79
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Cyclohexane	8.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 5:01:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Heptane	9.8	5.0		ppbV	1	5/17/2017 5:01:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Hexane	12	5.0		ppbV	1	5/17/2017 5:01:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
m&p-Xylene	6.9	10	J	ppbV	1	5/17/2017 5:01:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 5:01:00 PM
Methyl Ethyl Ketone	9.0	10	J	ppbV	1	5/17/2017 5:01:00 PM
Methyl isobutyl Ketone	56	10		ppbV	1	5/17/2017 5:01:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Propylene	52	5.0		ppbV	1	5/17/2017 5:01:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Toluene	11	5.0		ppbV	1	5/17/2017 5:01:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Surr: Bromofluorobenzene	91.8	73.7-124		%REC	1	5/17/2017 5:01:00 PM
TIC: 1-Propene, 2-methyl-	15	0	JN	ppbV	1	5/17/2017 5:01:00 PM
TIC: Butane	28	0	JN	ppbV	1	5/17/2017 5:01:00 PM
TIC: Butane, 2,3-dimethyl- \$\$	19	0	JN	ppbV	1	5/17/2017 5:01:00 PM
Biisopropyl \$\$						
TIC: Butane, 2-methyl-	24	0	JN	ppbV	1	5/17/2017 5:01:00 PM
TIC: Cyclohexane, methyl-	21	0	JN	ppbV	1	5/17/2017 5:01:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-011A

Client Sample ID: WAT-SV08-050917
 Tag Number: 427.79
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
TIC: Cyclopentane, methyl-	19	0	JN	ppbV	1	5/17/2017 5:01:00 PM
TIC: Hydrogen sulfide \$\$ Dihydrogen monosulfide	980	0	JN	ppbV	1	5/17/2017 5:01:00 PM
TIC: Isobutane	21	0	JN	ppbV	1	5/17/2017 5:01:00 PM
TIC: Pentane \$\$ n-Pentane \$\$ Skellysolve A \$\$	33	0	JN	ppbV	1	5/17/2017 5:01:00 PM
TIC: Pentane, 3-methyl-	10	0	JN	ppbV	1	5/17/2017 5:01:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 6:10:00 PM
Carbon disulfide	13	5.0		ppbV	1	5/16/2017 6:10:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 6:10:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 6:10:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 6:10:00 PM
Hydrogen Sulfide	2300	50		ppbV	10	5/16/2017 9:03:00 PM
Isopropyl mercaptan	3.5	5.0	J	ppbV	1	5/16/2017 6:10:00 PM
Methyl mercaptan	1.5	5.0	J	ppbV	1	5/16/2017 6:10:00 PM
Surr: Bromofluorobenzene	153	70-130	S	%REC	1	5/16/2017 6:10:00 PM
Surr: Bromofluorobenzene	102	70-130		%REC	10	5/16/2017 9:03:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 33 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-011A

Client Sample ID: WAT-SV08-050917
 Tag Number: 427.79
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 5:01:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 5:01:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 5:01:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 5:01:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 5:01:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 5:01:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 5:01:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 5:01:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 5:01:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 5:01:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/17/2017 5:01:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 5:01:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 5:01:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 5:01:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 5:01:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 5:01:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 5:01:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 5:01:00 PM
Acetone	210	120		ug/m3	5	5/17/2017 5:36:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 5:01:00 PM
Benzene	19	16		ug/m3	1	5/17/2017 5:01:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 5:01:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 5:01:00 PM
Bromoform	< 52	52		ug/m3	1	5/17/2017 5:01:00 PM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 5:01:00 PM
Carbon disulfide	28	16		ug/m3	1	5/17/2017 5:01:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 5:01:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 5:01:00 PM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 5:01:00 PM
Chloroform	94	24		ug/m3	1	5/17/2017 5:01:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 5:01:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 5:01:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 5:01:00 PM
Cyclohexane	27	17		ug/m3	1	5/17/2017 5:01:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 5:01:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 5:01:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 5:01:00 PM
Freon 11	< 28	28		ug/m3	1	5/17/2017 5:01:00 PM
Freon 113	< 38	38		ug/m3	1	5/17/2017 5:01:00 PM
Freon 114	< 35	35		ug/m3	1	5/17/2017 5:01:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-011A

Client Sample ID: WAT-SV08-050917
 Tag Number: 427.79
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 5:01:00 PM
Heptane	40	20		ug/m3	1	5/17/2017 5:01:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 5:01:00 PM
Hexane	42	18		ug/m3	1	5/17/2017 5:01:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 5:01:00 PM
m&p-Xylene	30	43	J	ug/m3	1	5/17/2017 5:01:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 5:01:00 PM
Methyl Ethyl Ketone	27	29	J	ug/m3	1	5/17/2017 5:01:00 PM
Methyl Isobutyl Ketone	230	41		ug/m3	1	5/17/2017 5:01:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 5:01:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/17/2017 5:01:00 PM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 5:01:00 PM
Propylene	89	8.6		ug/m3	1	5/17/2017 5:01:00 PM
Styrene	< 21	21		ug/m3	1	5/17/2017 5:01:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/17/2017 5:01:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 5:01:00 PM
Toluene	43	19		ug/m3	1	5/17/2017 5:01:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 5:01:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 5:01:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/17/2017 5:01:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 5:01:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 5:01:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 5:01:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 6:10:00 PM
Carbon disulfide	39	16		ug/m3	1	5/16/2017 6:10:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 6:10:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 6:10:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 6:10:00 PM
Hydrogen Sulfide	3300	70		ug/m3	10	5/16/2017 9:03:00 PM
Isopropyl mercaptan	11	16	J	ug/m3	1	5/16/2017 6:10:00 PM
Methyl mercaptan	3.0	9.8	J	ug/m3	1	5/16/2017 6:10:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 , Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-012A

Client Sample ID: WAT-SV15-050917
 Tag Number: 1019.403
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD		Analyst:		
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES		EPA METHOD 3C		Analyst: WD		
Carbon dioxide	32.1	1.90	%		1	5/15/2017
Carbon Monoxide	ND	0.880	%		1	5/15/2017
Methane	38.6	0.580	%		1	5/15/2017
Nitrogen	18.4	8.30	%		1	5/15/2017
Oxygen	1.94	0.880	%		1	5/15/2017
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,1,2,2-Tetrachloroethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,1,2-Trichloroethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,1-Dichloroethane	39	50	J	ppbV	10	5/15/2017 9:29:00 PM
1,1-Dichloroethene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,2,4-Trichlorobenzene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,2,4-Trimethylbenzene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,2-Dibromoethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,2-Dichlorobenzene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,2-Dichloroethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,2-Dichloropropane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,3,5-Trimethylbenzene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,3-butadiene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,3-Dichlorobenzene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,4-Dichlorobenzene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,4-Dioxane	< 100	100		ppbV	10	5/15/2017 9:29:00 PM
2,2,4-trimethylpentane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
4-ethyltoluene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Acetone	6200	1300		ppbV	128	5/17/2017 1:46:00 PM
Allyl chloride	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Benzene	54	50		ppbV	10	5/15/2017 9:29:00 PM
Benzyl chloride	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Bromodichloromethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Bromoform	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Bromomethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Carbon disulfide	3000	640		ppbV	128	5/17/2017 1:46:00 PM
Carbon tetrachloride	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Chlorobenzene	28	50	J	ppbV	10	5/15/2017 9:29:00 PM
Chloroethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Chloroform	1400	640		ppbV	128	5/17/2017 1:46:00 PM

Qualifiers:	**	Quantitation Limit	,	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-012A

Client Sample ID: WAT-SV15-050917
 Tag Number: 1019.403
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
cis-1,2-Dichloroethene	140	50		ppbV	10	5/15/2017 9:29:00 PM
cis-1,3-Dichloropropene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Cyclohexane	45	50	J	ppbV	10	5/15/2017 9:29:00 PM
Dibromochloromethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Ethyl acetate	< 100	100		ppbV	10	5/15/2017 9:29:00 PM
Ethylbenzene	800	50		ppbV	10	5/15/2017 9:29:00 PM
Freon 11	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Freon 113	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Freon 114	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Freon 12	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Heptane	300	50		ppbV	10	5/15/2017 9:29:00 PM
Hexachloro-1,3-butadiene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Hexane	970	50		ppbV	10	5/15/2017 9:29:00 PM
Isopropyl alcohol	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
m&p-Xylene	11000	1300		ppbV	128	5/17/2017 1:46:00 PM
Methyl Butyl Ketone	< 100	100		ppbV	10	5/15/2017 9:29:00 PM
Methyl Ethyl Ketone	< 100	100		ppbV	10	5/15/2017 9:29:00 PM
Methyl Isobutyl Ketone	32000	6400		ppbV	640	5/17/2017 6:46:00 PM
Methyl tert-butyl ether	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Methylene chloride	1700	640		ppbV	128	5/17/2017 1:46:00 PM
o-Xylene	3200	640		ppbV	128	5/17/2017 1:46:00 PM
Propylene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Styrene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Tetrachloroethylene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Tetrahydrofuran	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Toluene	2100	640		ppbV	128	5/17/2017 1:46:00 PM
trans-1,2-Dichloroethene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
trans-1,3-Dichloropropene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Trichloroethene	48	50	J	ppbV	10	5/15/2017 9:29:00 PM
Vinyl acetate	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Vinyl Bromide	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Vinyl chloride	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Surr: Bromofluorobenzene	120	73.7-124		%REC	10	5/15/2017 9:29:00 PM
TIC: 1-Butanol, 3-methoxy-	5400	0	JN	ppbV	10	5/15/2017 9:29:00 PM
TIC: 2,2'-Bifuran, octahydro-	3800	0	JN	ppbV	10	5/15/2017 9:29:00 PM
TIC: 2-Propanethiol \$S	16000	0	EJN	ppbV	10	5/15/2017 9:29:00 PM
Isopropanethiol \$S Iso						
TIC: 3-Penten-2-one	13000	0	EJN	ppbV	10	5/15/2017 9:29:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte, Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-012A

Client Sample ID: WAT-SV15-050917
 Tag Number: 1019.403
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
TIC: Butane, 1,1'-[ethylidenebis(oxy)]bis[2-methyl-2-butenoic acid, 3-methylbutyl ester]	8300	0	JN	ppbV	10	5/15/2017 9:29:00 PM
TIC: Butanoic acid, 3-methylbutyl ester	4300	0	JN	ppbV	10	5/15/2017 9:29:00 PM
TIC: Cyclopropane, 1,2-dimethyl-, cis-	3500	0	JN	ppbV	10	5/15/2017 9:29:00 PM
TIC: Pentane, 1,1'-oxybis- (19.16)	4600	0	JN	ppbV	10	5/15/2017 9:29:00 PM
TIC: Pentane, 1,1'-oxybis- (19.63)	4000	0	JN	ppbV	10	5/15/2017 9:29:00 PM

NOTES:

* The reporting limits were raised due to the high concentration of methane in the sample.

LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	4000	640		ppbV	128	5/18/2017 4:25:00 PM
Carbon disulfide	2900	640		ppbV	128	5/18/2017 4:25:00 PM
Carbonyl sulfide	< 50	50		ppbV	10	5/16/2017 7:54:00 PM
Dimethyl sulfide	270	50		ppbV	10	5/16/2017 7:54:00 PM
Ethyl mercaptan	7100	640		ppbV	128	5/18/2017 4:25:00 PM
Hydrogen Sulfide	110000000	410000		ppbV	81920	5/19/2017 7:44:00 AM
Isopropyl mercaptan	73000	6400		ppbV	1280	5/18/2017 5:01:00 PM
Methyl mercaptan	54000	6400		ppbV	1280	5/18/2017 5:01:00 PM
Surr: Bromofluorobenzene	155	70-130	S	%REC	10	5/16/2017 7:54:00 PM
Surr: Bromofluorobenzene	145	70-130	S	%REC	1280	5/18/2017 5:01:00 PM
Surr: Bromofluorobenzene	130	70-130		%REC	81920	5/19/2017 7:44:00 AM
Surr: Bromofluorobenzene	158	70-130	S	%REC	128	5/18/2017 4:25:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-012A

Client Sample ID: WAT-SV15-050917
 Tag Number: 1019.403
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 270	270		ug/m3	10	5/15/2017 9:29:00 PM
1,1,2,2-Tetrachloroethane	< 340	340		ug/m3	10	5/15/2017 9:29:00 PM
1,1,2-Trichloroethane	< 270	270		ug/m3	10	5/15/2017 9:29:00 PM
1,1-Dichloroethane	160	200	J	ug/m3	10	5/15/2017 9:29:00 PM
1,1-Dichloroethene	< 200	200		ug/m3	10	5/15/2017 9:29:00 PM
1,2,4-Trichlorobenzene	< 370	370		ug/m3	10	5/15/2017 9:29:00 PM
1,2,4-Trimethylbenzene	< 250	250		ug/m3	10	5/15/2017 9:29:00 PM
1,2-Dibromoethane	< 380	380		ug/m3	10	5/15/2017 9:29:00 PM
1,2-Dichlorobenzene	< 300	300		ug/m3	10	5/15/2017 9:29:00 PM
1,2-Dichloroethane	< 200	200		ug/m3	10	5/15/2017 9:29:00 PM
1,2-Dichloropropane	< 230	230		ug/m3	10	5/15/2017 9:29:00 PM
1,3,5-Trimethylbenzene	< 250	250		ug/m3	10	5/15/2017 9:29:00 PM
1,3-butadiene	< 110	110		ug/m3	10	5/15/2017 9:29:00 PM
1,3-Dichlorobenzene	< 300	300		ug/m3	10	5/15/2017 9:29:00 PM
1,4-Dichlorobenzene	< 300	300		ug/m3	10	5/15/2017 9:29:00 PM
1,4-Dioxane	< 360	360		ug/m3	10	5/15/2017 9:29:00 PM
2,2,4-trimethylpentane	< 230	230		ug/m3	10	5/15/2017 9:29:00 PM
4-ethyltoluene	< 250	250		ug/m3	10	5/15/2017 9:29:00 PM
Acetone	15000	3100		ug/m3	128	5/17/2017 1:46:00 PM
Allyl chloride	< 160	160		ug/m3	10	5/15/2017 9:29:00 PM
Benzene	170	160		ug/m3	10	5/15/2017 9:29:00 PM
Benzyl chloride	< 290	290		ug/m3	10	5/15/2017 9:29:00 PM
Bromodichloromethane	< 330	330		ug/m3	10	5/15/2017 9:29:00 PM
Bromoform	< 520	520		ug/m3	10	5/15/2017 9:29:00 PM
Bromomethane	< 190	190		ug/m3	10	5/15/2017 9:29:00 PM
Carbon disulfide	9300	2000		ug/m3	128	5/17/2017 1:46:00 PM
Carbon tetrachloride	< 310	310		ug/m3	10	5/15/2017 9:29:00 PM
Chlorobenzene	130	230	J	ug/m3	10	5/15/2017 9:29:00 PM
Chloroethane	< 130	130		ug/m3	10	5/15/2017 9:29:00 PM
Chloroform	7000	3100		ug/m3	128	5/17/2017 1:46:00 PM
Chloromethane	< 100	100		ug/m3	10	5/15/2017 9:29:00 PM
cis-1,2-Dichloroethene	570	200		ug/m3	10	5/15/2017 9:29:00 PM
cis-1,3-Dichloropropene	< 230	230		ug/m3	10	5/15/2017 9:29:00 PM
Cyclohexane	160	170	J	ug/m3	10	5/15/2017 9:29:00 PM
Dibromochloromethane	< 430	430		ug/m3	10	5/15/2017 9:29:00 PM
Ethyl acetate	< 360	360		ug/m3	10	5/15/2017 9:29:00 PM
Ethylbenzene	3500	220		ug/m3	10	5/15/2017 9:29:00 PM
Freon 11	< 280	280		ug/m3	10	5/15/2017 9:29:00 PM
Freon 113	< 380	380		ug/m3	10	5/15/2017 9:29:00 PM
Freon 114	< 350	350		ug/m3	10	5/15/2017 9:29:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-012A

Client Sample ID: WAT-SV15-050917
 Tag Number: 1019.403
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 250	250		ug/m3	10	5/15/2017 9:29:00 PM
Heptane	1200	200		ug/m3	10	5/15/2017 9:29:00 PM
Hexachloro-1,3-butadiene	< 530	530		ug/m3	10	5/15/2017 9:29:00 PM
Hexane	3400	180		ug/m3	10	5/15/2017 9:29:00 PM
Isopropyl alcohol	< 120	120		ug/m3	10	5/15/2017 9:29:00 PM
m&p-Xylene	47000	5600		ug/m3	128	5/17/2017 1:46:00 PM
Methyl Butyl Ketone	< 410	410		ug/m3	10	5/15/2017 9:29:00 PM
Methyl Ethyl Ketone	< 290	290		ug/m3	10	5/15/2017 9:29:00 PM
Methyl Isobutyl Ketone	130000	26000		ug/m3	640	5/17/2017 6:46:00 PM
Methyl tert-butyl ether	< 180	180		ug/m3	10	5/15/2017 9:29:00 PM
Methylene chloride	5700	2200		ug/m3	128	5/17/2017 1:46:00 PM
o-Xylene	14000	2800		ug/m3	128	5/17/2017 1:46:00 PM
Propylene	< 86	86		ug/m3	10	5/15/2017 9:29:00 PM
Styrene	< 210	210		ug/m3	10	5/15/2017 9:29:00 PM
Tetrachloroethylene	< 340	340		ug/m3	10	5/15/2017 9:29:00 PM
Tetrahydrofuran	< 150	150		ug/m3	10	5/15/2017 9:29:00 PM
Toluene	7800	2400		ug/m3	128	5/17/2017 1:46:00 PM
trans-1,2-Dichloroethene	< 200	200		ug/m3	10	5/15/2017 9:29:00 PM
trans-1,3-Dichloropropene	< 230	230		ug/m3	10	5/15/2017 9:29:00 PM
Trichloroethene	260	270	J	ug/m3	10	5/15/2017 9:29:00 PM
Vinyl acetate	< 180	180		ug/m3	10	5/15/2017 9:29:00 PM
Vinyl Bromide	< 220	220		ug/m3	10	5/15/2017 9:29:00 PM
Vinyl chloride	< 130	130		ug/m3	10	5/15/2017 9:29:00 PM

NOTES:

* The reporting limits were raised due to the high concentration of methane in the sample.

LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	12000	2000		ug/m3	128	5/18/2017 4:25:00 PM
Carbon disulfide	9000	2000		ug/m3	128	5/18/2017 4:25:00 PM
Carbonyl sulfide	< 120	120		ug/m3	10	5/16/2017 7:54:00 PM
Dimethyl sulfide	1100	190		ug/m3	10	5/16/2017 7:54:00 PM
Ethyl mercaptan	18000	1600		ug/m3	128	5/18/2017 4:25:00 PM
Hydrogen Sulfide	150000000	570000		ug/m3	81920	5/19/2017 7:44:00 AM
Isopropyl mercaptan	230000	20000		ug/m3	1280	5/18/2017 5:01:00 PM
Methyl mercaptan	110000	13000		ug/m3	1280	5/18/2017 5:01:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-013A

Client Sample ID: WAT-SV06-050917
 Tag Number: 1018.56
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	0.0520	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	31.1	0.580		%	1	5/15/2017
Nitrogen	60.0	8.30		%	1	5/15/2017
Oxygen	2.87	0.880		%	1	5/15/2017
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,1,2,2-Tetrachloroethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,1,2-Trichloroethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,1-Dichloroethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,1-Dichloroethene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,2,4-Trichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,2,4-Trimethylbenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,2-Dibromoethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,2-Dichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,2-Dichloroethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,2-Dichloropropane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,3,5-Trimethylbenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,3-butadiene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,3-Dichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,4-Dichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,4-Dioxane	< 100	100		ppbV	10	5/17/2017 7:21:00 PM
2,2,4-trimethylpentane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
4-ethyltoluene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Acetone	80	100	J	ppbV	10	5/17/2017 7:21:00 PM
Allyl chloride	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Benzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Benzyl chloride	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Bromodichloromethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Bromoform	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Bromomethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Carbon disulfide	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Carbon tetrachloride	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Chlorobenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Chloroethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Chloroform	< 50	50		ppbV	10	5/17/2017 7:21:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 , Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-013A

Client Sample ID: WAT-SV06-050917
 Tag Number: 1018.56
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
cis-1,2-Dichloroethene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
cis-1,3-Dichloropropene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Cyclohexane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Dibromochloromethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Ethyl acetate	< 100	100		ppbV	10	5/17/2017 7:21:00 PM
Ethylbenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Freon 11	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Freon 113	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Freon 114	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Freon 12	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Heptane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Hexachloro-1,3-butadiene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Hexane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Isopropyl alcohol	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
m&p-Xylene	< 100	100		ppbV	10	5/17/2017 7:21:00 PM
Methyl Butyl Ketone	< 100	100		ppbV	10	5/17/2017 7:21:00 PM
Methyl Ethyl Ketone	< 100	100		ppbV	10	5/17/2017 7:21:00 PM
Methyl Isobutyl Ketone	< 100	100		ppbV	10	5/17/2017 7:21:00 PM
Methyl tert-butyl ether	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Methylene chloride	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
o-Xylene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Propylene	6300	400		ppbV	80	5/18/2017 3:15:00 PM
Styrene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Tetrachloroethylene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Tetrahydrofuran	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Toluene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
trans-1,2-Dichloroethene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
trans-1,3-Dichloropropene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Trichloroethene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Vinyl acetate	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Vinyl Bromide	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Vinyl chloride	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Surr: Bromofluorobenzene	76.0	73.7-124		%REC	10	5/17/2017 7:21:00 PM
TIC: 1-Butene, 2-methyl-	120	0	JN	ppbV	10	5/17/2017 7:21:00 PM
TIC: 1-Pentene, 4-methyl-	240	0	JN	ppbV	10	5/17/2017 7:21:00 PM
TIC: 1-Propene, 2-methyl-	100	0	JN	ppbV	10	5/17/2017 7:21:00 PM
TIC: Butane	180	0	JN	ppbV	10	5/17/2017 7:21:00 PM
TIC: Butane, 2-methyl-	140	0	JN	ppbV	10	5/17/2017 7:21:00 PM
TIC: Ethane, 1-chloro-1,1-difluoro	72	0	JN	ppbV	10	5/17/2017 7:21:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-013A

Client Sample ID: WAT-SV06-050917
 Tag Number: 1018.56
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
TIC: Hydrogen sulfide \$\$	270	0	JN	ppbV	10	5/17/2017 7:21:00 PM
Dihydrogen monosulfide						
TIC: Isobutane	110	0	JN	ppbV	10	5/17/2017 7:21:00 PM
TIC: Pentane, 2-methyl- \$\$	440	0	JN	ppbV	10	5/17/2017 7:21:00 PM
Isohexane \$\$ 2-Met						
NOTES:						
* The reporting limits were raised due to the high concentration of methane in the sample.						
LOW LEVEL SULFURS BY TO-15						
			TO-15			Analyst: WD
1-Propanethiol	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Carbon disulfide	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Carbonyl sulfide	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Dimethyl sulfide	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Ethyl mercaptan	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Hydrogen Sulfide	1500	50		ppbV	10	5/16/2017 6:45:00 PM
Isopropyl mercaptan	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Methyl mercaptan	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Surr: Bromofluorobenzene	133	70-130	S	%REC	10	5/16/2017 6:45:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte, Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-013A

Client Sample ID: WAT-SV06-050917
 Tag Number: 1018.56
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15			TO-15		Analyst: WD	
1,1,1-Trichloroethane	< 270	270		ug/m3	10	5/17/2017 7:21:00 PM
1,1,2,2-Tetrachloroethane	< 340	340		ug/m3	10	5/17/2017 7:21:00 PM
1,1,2-Trichloroethane	< 270	270		ug/m3	10	5/17/2017 7:21:00 PM
1,1-Dichloroethane	< 200	200		ug/m3	10	5/17/2017 7:21:00 PM
1,1-Dichloroethene	< 200	200		ug/m3	10	5/17/2017 7:21:00 PM
1,2,4-Trichlorobenzene	< 370	370		ug/m3	10	5/17/2017 7:21:00 PM
1,2,4-Trimethylbenzene	< 250	250		ug/m3	10	5/17/2017 7:21:00 PM
1,2-Dibromoethane	< 380	380		ug/m3	10	5/17/2017 7:21:00 PM
1,2-Dichlorobenzene	< 300	300		ug/m3	10	5/17/2017 7:21:00 PM
1,2-Dichloroethane	< 200	200		ug/m3	10	5/17/2017 7:21:00 PM
1,2-Dichloropropane	< 230	230		ug/m3	10	5/17/2017 7:21:00 PM
1,3,5-Trimethylbenzene	< 250	250		ug/m3	10	5/17/2017 7:21:00 PM
1,3-butadiene	< 110	110		ug/m3	10	5/17/2017 7:21:00 PM
1,3-Dichlorobenzene	< 300	300		ug/m3	10	5/17/2017 7:21:00 PM
1,4-Dichlorobenzene	< 300	300		ug/m3	10	5/17/2017 7:21:00 PM
1,4-Dioxane	< 360	360		ug/m3	10	5/17/2017 7:21:00 PM
2,2,4-trimethylpentane	< 230	230		ug/m3	10	5/17/2017 7:21:00 PM
4-ethyltoluene	< 250	250		ug/m3	10	5/17/2017 7:21:00 PM
Acetone	190	240	J	ug/m3	10	5/17/2017 7:21:00 PM
Allyl chloride	< 160	160		ug/m3	10	5/17/2017 7:21:00 PM
Benzene	< 160	160		ug/m3	10	5/17/2017 7:21:00 PM
Benzyl chloride	< 290	290		ug/m3	10	5/17/2017 7:21:00 PM
Bromodichloromethane	< 330	330		ug/m3	10	5/17/2017 7:21:00 PM
Bromoform	< 520	520		ug/m3	10	5/17/2017 7:21:00 PM
Bromomethane	< 190	190		ug/m3	10	5/17/2017 7:21:00 PM
Carbon disulfide	< 160	160		ug/m3	10	5/17/2017 7:21:00 PM
Carbon tetrachloride	< 310	310		ug/m3	10	5/17/2017 7:21:00 PM
Chlorobenzene	< 230	230		ug/m3	10	5/17/2017 7:21:00 PM
Chloroethane	< 130	130		ug/m3	10	5/17/2017 7:21:00 PM
Chloroform	< 240	240		ug/m3	10	5/17/2017 7:21:00 PM
Chloromethane	< 100	100		ug/m3	10	5/17/2017 7:21:00 PM
cis-1,2-Dichloroethene	< 200	200		ug/m3	10	5/17/2017 7:21:00 PM
cis-1,3-Dichloropropene	< 230	230		ug/m3	10	5/17/2017 7:21:00 PM
Cyclohexane	< 170	170		ug/m3	10	5/17/2017 7:21:00 PM
Dibromochloromethane	< 430	430		ug/m3	10	5/17/2017 7:21:00 PM
Ethyl acetate	< 360	360		ug/m3	10	5/17/2017 7:21:00 PM
Ethylbenzene	< 220	220		ug/m3	10	5/17/2017 7:21:00 PM
Freon 11	< 280	280		ug/m3	10	5/17/2017 7:21:00 PM
Freon 113	< 380	380		ug/m3	10	5/17/2017 7:21:00 PM
Freon 114	< 350	350		ug/m3	10	5/17/2017 7:21:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-013A

Client Sample ID: WAT-SV06-050917
 Tag Number: 1018.56
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 250	250		ug/m3	10	5/17/2017 7:21:00 PM
Heptane	< 200	200		ug/m3	10	5/17/2017 7:21:00 PM
Hexachloro-1,3-butadiene	< 530	530		ug/m3	10	5/17/2017 7:21:00 PM
Hexane	< 180	180		ug/m3	10	5/17/2017 7:21:00 PM
Isopropyl alcohol	< 120	120		ug/m3	10	5/17/2017 7:21:00 PM
m&p-Xylene	< 430	430		ug/m3	10	5/17/2017 7:21:00 PM
Methyl Butyl Ketone	< 410	410		ug/m3	10	5/17/2017 7:21:00 PM
Methyl Ethyl Ketone	< 290	290		ug/m3	10	5/17/2017 7:21:00 PM
Methyl Isobutyl Ketone	< 410	410		ug/m3	10	5/17/2017 7:21:00 PM
Methyl tert-butyl ether	< 180	180		ug/m3	10	5/17/2017 7:21:00 PM
Methylene chloride	< 170	170		ug/m3	10	5/17/2017 7:21:00 PM
o-Xylene	< 220	220		ug/m3	10	5/17/2017 7:21:00 PM
Propylene	11000	690		ug/m3	80	5/18/2017 3:15:00 PM
Styrene	< 210	210		ug/m3	10	5/17/2017 7:21:00 PM
Tetrachloroethylene	< 340	340		ug/m3	10	5/17/2017 7:21:00 PM
Tetrahydrofuran	< 150	150		ug/m3	10	5/17/2017 7:21:00 PM
Toluene	< 190	190		ug/m3	10	5/17/2017 7:21:00 PM
trans-1,2-Dichloroethene	< 200	200		ug/m3	10	5/17/2017 7:21:00 PM
trans-1,3-Dichloropropene	< 230	230		ug/m3	10	5/17/2017 7:21:00 PM
Trichloroethene	< 270	270		ug/m3	10	5/17/2017 7:21:00 PM
Vinyl acetate	< 180	180		ug/m3	10	5/17/2017 7:21:00 PM
Vinyl Bromide	< 220	220		ug/m3	10	5/17/2017 7:21:00 PM
Vinyl chloride	< 130	130		ug/m3	10	5/17/2017 7:21:00 PM

NOTES:

* The reporting limits were raised due to the high concentration of methane in the sample.

LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 160	160		ug/m3	10	5/16/2017 6:45:00 PM
Carbon disulfide	< 160	160		ug/m3	10	5/16/2017 6:45:00 PM
Carbonyl sulfide	< 120	120		ug/m3	10	5/16/2017 6:45:00 PM
Dimethyl sulfide	< 190	190		ug/m3	10	5/16/2017 6:45:00 PM
Ethyl mercaptan	< 130	130		ug/m3	10	5/16/2017 6:45:00 PM
Hydrogen Sulfide	2100	70		ug/m3	10	5/16/2017 6:45:00 PM
Isopropyl mercaptan	< 160	160		ug/m3	10	5/16/2017 6:45:00 PM
Methyl mercaptan	< 98	98		ug/m3	10	5/16/2017 6:45:00 PM

Qualifiers:	** Quantitation Limit	.	Results reported are not blank corrected
	B Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-014A

Client Sample ID: DUP-SV-050917
 Tag Number: 614
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD		Analyst:		
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES		EPA METHOD 3C		Analyst: WD		
Carbon dioxide	0.0440	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	33.9	0.580		%	1	5/15/2017
Nitrogen	64.0	8.30		%	1	5/15/2017
Oxygen	2.76	0.880		%	1	5/15/2017
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,1,2,2-Tetrachloroethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,1,2-Trichloroethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,1-Dichloroethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,1-Dichloroethene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,2,4-Trichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,2,4-Trimethylbenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,2-Dibromoethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,2-Dichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,2-Dichloroethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,2-Dichloropropane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,3,5-Trimethylbenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,3-butadiene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,3-Dichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,4-Dichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,4-Dioxane	< 100	100		ppbV	10	5/17/2017 7:56:00 PM
2,2,4-trimethylpentane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
4-ethyltoluene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Acetone	68	100	J	ppbV	10	5/17/2017 7:56:00 PM
Allyl chloride	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Benzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Benzyl chloride	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Bromodichloromethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Bromoform	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Bromomethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Carbon disulfide	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Carbon tetrachloride	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Chlorobenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Chloroethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Chloroform	< 50	50		ppbV	10	5/17/2017 7:56:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-014A

Client Sample ID: DUP-SV-050917
 Tag Number: 614
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
cis-1,2-Dichloroethene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
cis-1,3-Dichloropropene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Cyclohexane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Dibromochloromethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Ethyl acetate	< 100	100		ppbV	10	5/17/2017 7:56:00 PM
Ethylbenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Freon 11	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Freon 113	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Freon 114	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Freon 12	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Heptane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Hexachloro-1,3-butadiene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Hexane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Isopropyl alcohol	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
m&p-Xylene	< 100	100		ppbV	10	5/17/2017 7:56:00 PM
Methyl Butyl Ketone	< 100	100		ppbV	10	5/17/2017 7:56:00 PM
Methyl Ethyl Ketone	< 100	100		ppbV	10	5/17/2017 7:56:00 PM
Methyl Isobutyl Ketone	< 100	100		ppbV	10	5/17/2017 7:56:00 PM
Methyl tert-butyl ether	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Methylene chloride	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
o-Xylene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Propylene	6100	400		ppbV	20	5/18/2017 3:50:00 PM
Styrene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Tetrachloroethylene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Tetrahydrofuran	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Toluene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
trans-1,2-Dichloroethene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
trans-1,3-Dichloropropene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Trichloroethene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Vinyl acetate	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Vinyl Bromide	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Vinyl chloride	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Surr: Bromofluorobenzene	76.9	73.7-124		%REC	10	5/17/2017 7:56:00 PM
TIC: 1-Pentene, 4-methyl-	240	0	JN	ppbV	10	5/17/2017 7:56:00 PM
TIC: 1-Propene, 2-methyl-	100	0	JN	ppbV	10	5/17/2017 7:56:00 PM
TIC: Butane	170	0	JN	ppbV	10	5/17/2017 7:56:00 PM
TIC: Butane, 2-methyl-	140	0	JN	ppbV	10	5/17/2017 7:56:00 PM
TIC: Cyclopropane, 1,2-dimethyl-, trans-	120	0	JN	ppbV	10	5/17/2017 7:56:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte, Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-014A

Client Sample ID: DUP-SV-050917
 Tag Number: 614
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
TIC: Ethane, 1-chloro-1,1-difluoro	73	0	JN	ppbV	10	5/17/2017 7:56:00 PM
SS .alpha						
TIC: Hydrogen sulfide	940	0	JN	ppbV	10	5/17/2017 7:56:00 PM
Dihydrogen monosulfide						
TIC: Isobutane	110	0	JN	ppbV	10	5/17/2017 7:56:00 PM
TIC: Pentane, 2-methyl-	440	0	JN	ppbV	10	5/17/2017 7:56:00 PM
NOTES:						
* The reporting limits were raised due to the high concentration of methane in the sample.						
LOW LEVEL SULFURS BY TO-15						
			TO-15			Analyst: WD
1-Propanethiol	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Carbon disulfide	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Carbonyl sulfide	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Dimethyl sulfide	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Ethyl mercaptan	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Hydrogen Sulfide	3900	50		ppbV	10	5/16/2017 7:19:00 PM
Isopropyl mercaptan	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Methyl mercaptan	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Surr: Bromofluorobenzene	140	70-130	S	%REC	10	5/16/2017 7:19:00 PM

Qualifiers:	**	Quantitation Limit	,	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: CI705036
 Project: Fonner Hampshire
 Lab ID: CI705036-014A

Client Sample ID: DUP-SV-050917
 Tag Number: 614
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15				Analyst: WD
1,1,1-Trichloroethane	< 270	270		ug/m3	10	5/17/2017 7:56:00 PM
1,1,2,2-Tetrachloroethane	< 340	340		ug/m3	10	5/17/2017 7:56:00 PM
1,1,2-Trichloroethane	< 270	270		ug/m3	10	5/17/2017 7:56:00 PM
1,1-Dichloroethane	< 200	200		ug/m3	10	5/17/2017 7:56:00 PM
1,1-Dichloroethene	< 200	200		ug/m3	10	5/17/2017 7:56:00 PM
1,2,4-Trichlorobenzene	< 370	370		ug/m3	10	5/17/2017 7:56:00 PM
1,2,4-Trimethylbenzene	< 250	250		ug/m3	10	5/17/2017 7:56:00 PM
1,2-Dibromoethane	< 380	380		ug/m3	10	5/17/2017 7:56:00 PM
1,2-Dichlorobenzene	< 300	300		ug/m3	10	5/17/2017 7:56:00 PM
1,2-Dichloroethane	< 200	200		ug/m3	10	5/17/2017 7:56:00 PM
1,2-Dichloropropane	< 230	230		ug/m3	10	5/17/2017 7:56:00 PM
1,3,5-Trimethylbenzene	< 250	250		ug/m3	10	5/17/2017 7:56:00 PM
1,3-butadiene	< 110	110		ug/m3	10	5/17/2017 7:56:00 PM
1,3-Dichlorobenzene	< 300	300		ug/m3	10	5/17/2017 7:56:00 PM
1,4-Dichlorobenzene	< 300	300		ug/m3	10	5/17/2017 7:56:00 PM
1,4-Dioxane	< 360	360		ug/m3	10	5/17/2017 7:56:00 PM
2,2,4-trimethylpentane	< 230	230		ug/m3	10	5/17/2017 7:56:00 PM
4-ethyltoluene	< 250	250		ug/m3	10	5/17/2017 7:56:00 PM
Acetone	160	240	J	ug/m3	10	5/17/2017 7:56:00 PM
Allyl chloride	< 160	160		ug/m3	10	5/17/2017 7:56:00 PM
Benzene	< 160	160		ug/m3	10	5/17/2017 7:56:00 PM
Benzyl chloride	< 290	290		ug/m3	10	5/17/2017 7:56:00 PM
Bromodichloromethane	< 330	330		ug/m3	10	5/17/2017 7:56:00 PM
Bromoform	< 520	520		ug/m3	10	5/17/2017 7:56:00 PM
Bromomethane	< 190	190		ug/m3	10	5/17/2017 7:56:00 PM
Carbon disulfide	< 160	160		ug/m3	10	5/17/2017 7:56:00 PM
Carbon tetrachloride	< 310	310		ug/m3	10	5/17/2017 7:56:00 PM
Chlorobenzene	< 230	230		ug/m3	10	5/17/2017 7:56:00 PM
Chloroethane	< 130	130		ug/m3	10	5/17/2017 7:56:00 PM
Chloroform	< 240	240		ug/m3	10	5/17/2017 7:56:00 PM
Chloromethane	< 100	100		ug/m3	10	5/17/2017 7:56:00 PM
cis-1,2-Dichloroethene	< 200	200		ug/m3	10	5/17/2017 7:56:00 PM
cis-1,3-Dichloropropene	< 230	230		ug/m3	10	5/17/2017 7:56:00 PM
Cyclohexane	< 170	170		ug/m3	10	5/17/2017 7:56:00 PM
Dibromochloromethane	< 430	430		ug/m3	10	5/17/2017 7:56:00 PM
Ethyl acetate	< 360	360		ug/m3	10	5/17/2017 7:56:00 PM
Ethylbenzene	< 220	220		ug/m3	10	5/17/2017 7:56:00 PM
Freon 11	< 280	280		ug/m3	10	5/17/2017 7:56:00 PM
Freon 113	< 380	380		ug/m3	10	5/17/2017 7:56:00 PM
Freon 114	< 350	350		ug/m3	10	5/17/2017 7:56:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-014A

Client Sample ID: DUP-SV-050917
 Tag Number: 614
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 250	250		ug/m3	10	5/17/2017 7:56:00 PM
Heptane	< 200	200		ug/m3	10	5/17/2017 7:56:00 PM
Hexachloro-1,3-butadiene	< 530	530		ug/m3	10	5/17/2017 7:56:00 PM
Hexane	< 180	180		ug/m3	10	5/17/2017 7:56:00 PM
Isopropyl alcohol	< 120	120		ug/m3	10	5/17/2017 7:56:00 PM
m&p-Xylene	< 430	430		ug/m3	10	5/17/2017 7:56:00 PM
Methyl Butyl Ketone	< 410	410		ug/m3	10	5/17/2017 7:56:00 PM
Methyl Ethyl Ketone	< 290	290		ug/m3	10	5/17/2017 7:56:00 PM
Methyl Isobutyl Ketone	< 410	410		ug/m3	10	5/17/2017 7:56:00 PM
Methyl tert-butyl ether	< 180	180		ug/m3	10	5/17/2017 7:56:00 PM
Methylene chloride	< 170	170		ug/m3	10	5/17/2017 7:56:00 PM
o-Xylene	< 220	220		ug/m3	10	5/17/2017 7:56:00 PM
Propylene	10000	690		ug/m3	80	5/18/2017 3:50:00 PM
Styrene	< 210	210		ug/m3	10	5/17/2017 7:56:00 PM
Tetrachloroethylene	< 340	340		ug/m3	10	5/17/2017 7:56:00 PM
Tetrahydrofuran	< 150	150		ug/m3	10	5/17/2017 7:56:00 PM
Toluene	< 190	190		ug/m3	10	5/17/2017 7:56:00 PM
trans-1,2-Dichloroethene	< 200	200		ug/m3	10	5/17/2017 7:56:00 PM
trans-1,3-Dichloropropene	< 230	230		ug/m3	10	5/17/2017 7:56:00 PM
Trichloroethene	< 270	270		ug/m3	10	5/17/2017 7:56:00 PM
Vinyl acetate	< 180	180		ug/m3	10	5/17/2017 7:56:00 PM
Vinyl Bromide	< 220	220		ug/m3	10	5/17/2017 7:56:00 PM
Vinyl chloride	< 130	130		ug/m3	10	5/17/2017 7:56:00 PM

NOTES:

* The reporting limits were raised due to the high concentration of methane in the sample.

LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 160	160		ug/m3	10	5/16/2017 7:19:00 PM
Carbon disulfide	< 160	160		ug/m3	10	5/16/2017 7:19:00 PM
Carbonyl sulfide	< 120	120		ug/m3	10	5/16/2017 7:19:00 PM
Dimethyl sulfide	< 190	190		ug/m3	10	5/16/2017 7:19:00 PM
Ethyl mercaptan	< 130	130		ug/m3	10	5/16/2017 7:19:00 PM
Hydrogen Sulfide	5500	70		ug/m3	10	5/16/2017 7:19:00 PM
Isopropyl mercaptan	< 160	160		ug/m3	10	5/16/2017 7:19:00 PM
Methyl mercaptan	< 98	98		ug/m3	10	5/16/2017 7:19:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte, Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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GC/MS VOLATILES-WHOLE AIR

METHOD TO-15

QUALITY CONTROL SUMMARY

QC SUMMARY REPORT SURROGATE RECOVERIES

Matrix: A

Acronym	Surrogate	QC Limits
BR4FBZ	= Bromofluorobenzene	73.7-124
BR4FBZ	= Bromofluorobenzene	70-130

1

CLIENT: CH2M - St Louis

Work Order: C1705036

Project: Former Hampshire

Test No: TO-15

Matrix: A

Sample ID		BR4FBZ					
DLCSD_TO15-051817	110						
DMB_SLXSF-051617	96.3						
DMB_SLXSF-051817	109						
DMB_TO15-051517	72.1						
DMB_TO15-051717	74.0						
DMB_TO15-051817	70.5						

Acronym	Surrogate	QC Limits
BR4FBZ	= Bromofluorobenzene	73.7-124
BR4FBZ	= Bromofluorobenzene	70-130

* Surrogate recovery outside acceptance limits

Tune File : C:\HPCHEM\1\DATA\DH051501.D
Tune Time : 15 May 2017 8:24 am

Daily Calibration File : C:\HPCHEM\1\DATA\DH051504.D

		132275		800659		708648	
File	Sample	Surrogate	Recovery %	Internal Standard Responses			
DH051505.D	DLC5_TO15-051517	99		149458	867691	727533	
DH051506.D	DLCSD_TO15-051517	103		147271	799073	699699	
DH051508.D	DMB_TO15-051517	72		129471	783626	601561	
DH051511.D	C1705036-003A	86		94990	573748	462025	
DH051512.D	C1705036-004A	81		92308	550342	439260	
DH051513.D	C1705036-005A	83		88239	532758	426765	
DH051514.D	C1705036-006A	75		81071	492123	421449*	
DH051515.D	C1705036-007A	76		86633	481778	397661*	
DH051516.D	C1705036-008A	78		69654*	436461*	342380*	
DH051517.D	C1705036-009A	78		67799*	425150*	334542*	
DH051518.D	C1705036-010A	86		68609*	425364*	351813*	
DH051519.D	C1705036-011A	91		68492*	415560*	355844*	
DH051520.D	C1705036-013A 10X	74		59559*	405732*	326118*	
DH051521.D	C1705036-014A 10X	81		64515*	389448*	311523*	
DH051522.D	C1705036-012A 10X	119		97735	546927	596752	
DH051524.D	C1705036-007A	77		108852	644816	509696	
DH051525.D	C1705036-007A 10X	78		93477	565358	435066	
DH051526.D	C1705036-008A	70		80266	484822	399644*	
DH051527.D	C1705036-009A	74		73034*	443506*	340779*	
DH051528.D	C1705036-010A	85		67787*	416890*	348444*	
DH051529.D	C1705036-010A 10X	74		60651*	377167*	299522*	
DH051530.D	C1705036-011A	91		60958*	387929*	333888*	
DH051531.D	C1705036-011A 10X	77		65971*	368359*	284484*	
DH051532.D	C1705036-013A 10X	72		64187*	350757*	277557*	
DH051533.D	C1705036-014A 10X	76		65698*	359752*	287963*	

t - fails 24hr time check * - fails criteria

Created: Thu Jun 01 11:01:14 2017 GCMS3

Tune File : C:\HPCHEM\1\DATA\DH051701.D
Tune Time : 17 May 2017 8:17 am

Daily Calibration File : C:\HPCHEM\1\DATA\DH051703.D

				88790	492391	457206
File	Sample	Surrogate	Recovery %	Internal Standard Responses		
DH051704.D	DLCS_TO15-051717	107		104225	596368	529494
DH051705.D	DLCSD_TO15-051717	110		112827	636022	565460
DH051706.D	DMB_TO15-051717	74		106084	645962	515205
DH051707.D	C1705036-001A	89		97071	575312	434670
DH051708.D	C1705036-002A	81		85915	457645	359412
DH051709.D	C1705036-006A	84		82085	416832	325907
DH051710.D	C1705036-012A 128X	103		101650	603882	500734
DH051711.D	C1705036-008A	84		84884	433003	356447
DH051712.D	C1705036-009A	81		80354	413454	314936
DH051713.D	C1705036-010A	87		82314	437234	357549
DH051714.D	C1705036-010A 10X	73		75812	383303	301386
DH051715.D	C1705036-011A	92		70577	361915	302363
DH051716.D	C1705036-011A 5X	82		70443	352890	273927*
DH051717.D	C1705036-001A 40X	67*		75310	393431	307268
DH051718.D	C1705036-012A 640X	90		76075	417803	337962
DH051719.D	C1705036-013A 10X	76		75747	393455	324264
DH051720.D	C1705036-014A 10X	77		74464	390360	321457

t - fails 24hr time check * - fails criteria

Created: Thu Jun 01 11:56:27 2017 GCMS3

Tune File : C:\HPCHEM\1\DATA\DH051801.D

Tune Time : 18 May 2017 8:21 am

Daily Calibration File : C:\HPCHEM\1\DATA\DH051807.D

File	Sample	Surrogate Recovery %	70916	408744	384998
=====	=====	=====	=====	=====	=====
DH051808.D	DLCS_TO15-051817	115	74179	463540	400893
-----	-----	-----	-----	-----	-----
DH051809.D	DLCSO_TO15-051817	110	83236	499565	427123
-----	-----	-----	-----	-----	-----
DH051811.D	DMB_TO15-051817	71	77664	476928	367493
-----	-----	-----	-----	-----	-----
DH051812.D	C1705036-013A 80X	84	70538	432921	337259
-----	-----	-----	-----	-----	-----
DH051813.D	C1705036-014A 80X	77	65439	396415	313648
-----	-----	-----	-----	-----	-----

t - fails 24hr time check * - fails criteria

Created: Thu Jun 01 09:56:15 2017 GCMS3

Tune File : C:\HPCHEM\1\DATA2\DH051602.D
Tune Time : 16 May 2017 8:40 am

Daily Calibration File : C:\HPCHEM\1\DATA2\DH051605.D

				80731	462494	367490
File	Sample	Surrogate	Recovery %	Internal Standard Responses		
DH051606.D	DLC5_H2S-051617	96		75063	439218	352624
DH051607.D	DMB_SLXSF-051617	96		73305	441067	360474
DH051608.D	C1705036-001A	125		79516	447017	365116
DH051609.D	C1705036-002A	118		73386	403377	343055
DH051610.D	C1705036-003A	124		77597	409190	357062
DH051611.D	C1705036-004A	121		74317	404127	347871
DH051612.D	C1705036-005A	122		78157	409445	359151
DH051613.D	C1705036-006A	122		76733	408942	348095
DH051614.D	C1705036-007A	124		75624	405832	339426
DH051615.D	C1705036-008A	120		69485	382753	323639
DH051616.D	C1705036-009A	120		73182	393733	327594
DH051617.D	C1705036-010A	117		74924	397678	353306
DH051618.D	C1705036-011A	124		72694	390009	356590
DH051619.D	C1705036-013A 10X	108		71456	384685	329542
DH051620.D	C1705036-014A 10X	113		69893	383821	333829
DH051621.D	C1705036-012A 10X	124		93219	478324	560269*
DH051623.D	C1705036-011A 10X	102		103887	571597	443628
DH051624.D	C1705036-001A 10X	111		81255	433199	365328

t - fails 24hr time check * - fails criteria

Created: Mon Jun 19 11:50:03 2017 GCMS3

Tune File : C:\HPCHEM\1\DATA2\DH051801.D
Tune Time : 18 May 2017 8:21 am

Daily Calibration File : C:\HPCHEM\1\DATA2\DH051805.D

File	Sample	Surrogate Recovery %	68151	406304	330401
=====					
DH051806.D	DLCS_H2S-051817	103	64233	382591	309388

DH051810.D	DMB_SLXSF-051817	109	81407	470410	387223

DH051831.D	C1705036-012A 81920X	130	109879*	636737*	54656

t - fails 24hr time check * - fails criteria					

Created: Mon Jun 19 13:26:09 2017 GCMS3

Tune File : C:\HPCHEM\1\DATA2\DH051602.D

Tune Time : 16 May 2017 8:40 am

Daily Calibration File : C:\HPCHEM\1\DATA2\DH051603.D

		88975	523590	685906
File	Sample	Surrogate Recovery %	Internal Standard Responses	
DH051604.D	DLCS_SLXSF-051617	84	84833	518263 678824
DH051607.D	DMB_SLXSF-051617	119	71464	441067 360474*
DH051608.D	C1705036-001A	155*	78775	447017 365116*
DH051609.D	C1705036-002A	147*	73386	404469 343055*
DH051610.D	C1705036-003A	153*	75827	409190 357062*
DH051611.D	C1705036-004A	149*	74317	406403 347871*
DH051612.D	C1705036-005A	151*	75481	409445 359151*
DH051613.D	C1705036-006A	153*	74296	409824 343975*
DH051614.D	C1705036-007A	154*	72018	406711 339426*
DH051615.D	C1705036-008A	148*	64474	383756 323639*
DH051616.D	C1705036-009A	148*	73026	394464 327594*
DH051617.D	C1705036-010A	145*	75179	399121 353306*
DH051618.D	C1705036-011A	153*	71431	390773 356590*
DH051619.D	C1705036-013A 10X	133*	74119	384685 329542*
DH051620.D	C1705036-014A 10X	140*	68076	383821 333829*
DH051621.D	C1705036-012A 10X	155*	90703	478324 555871

t - fails 24hr time check * - fails criteria

Created: Mon Jun 19 11:56:03 2017 GCMS3

Tune File : C:\HPCHEM\1\DATA2\DH051801.D
Tune Time : 18 May 2017 8:21 am

Daily Calibration File : C:\HPCHEM\1\DATA2\DH051803.D

File	Sample	Surrogate	Recovery %	87900	558867	607767
=====						
DH051804.D	DLCS_SLXSF-051817	97		77727	488618	558927

DH051810.D	DMB_SLXSF-051817	128		80805	471570	382822

DH051814.D	C1705036-012A 128X	158*		80475	486077	410941

DH051815.D	C1705036-012A 1280X	145*		71302	420141	34356

b - fails 24hr time check * - fails criteria						

Created: Mon Jun 19 13:24:07 2017 GCMS3

Date: 01-Jun-17

CENTEK LABORATORIES, LLC

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-051517	SampleType: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12257						
Client ID: ZZZZZ	Batch ID: R12257	TestNo: TO-15		Analysis Date: 5/15/2017	SeqNo: 143176						
Analyte	Result	POL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	5.0										

1,1,1-Trichloroethane	< 5.0	5.0									
1,1,2,2-Tetrachloroethane	< 5.0	5.0									
1,1,2-Trichloroethane	< 5.0	5.0									
1,1-Dichloroethane	< 5.0	5.0									
1,1-Dichloroethene	< 5.0	5.0									
1,2,4-Trichlorobenzene	< 5.0	5.0									
1,2,4-Trimethylbenzene	< 5.0	5.0									
1,2-Dibromoethane	< 5.0	5.0									
1,2-Dichlorobenzene	< 5.0	5.0									
1,2-Dichloroethane	< 5.0	5.0									
1,2-Dichloropropane	< 5.0	5.0									
1,3,5-Trimethylbenzene	< 5.0	5.0									
1,3-butadiene	< 5.0	5.0									
1,3-Dichlorobenzene	< 5.0	5.0									
1,4-Dichlorobenzene	< 5.0	5.0									
1,4-Dioxane	< 10	10									
2,2,4-trimethylpentane	< 5.0	5.0									
4-ethyltoluene	< 5.0	5.0									
Acetone	< 10	10									
Allyl chloride	< 5.0	5.0									
Benzene	< 5.0	5.0									
Benzyl chloride	< 5.0	5.0									
Bromodichloromethane	< 5.0	5.0									
Bromoform	< 5.0	5.0									
Bromomethane	< 5.0	5.0									

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-051517		SampType: MBLK		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12257	
Client ID: ZZZZZ		Batch ID: R12257		TestNo: TO-15				Analysis Date: 5/15/2017		SeqNo: 143176	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon disulfide	< 5.0	5.0									
Carbon tetrachloride	< 5.0	5.0									
Chlorobenzene	< 5.0	5.0									
Chloroethane	< 5.0	5.0									
Chloroform	< 5.0	5.0									
Chloromethane	< 5.0	5.0									
cis-1,2-Dichloroethene	< 5.0	5.0									
cis-1,3-Dichloropropene	< 5.0	5.0									
Cyclohexane	< 5.0	5.0									
Dibromochloromethane	< 5.0	5.0									
Ethyl acetate	< 10	10									
Ethylbenzene	< 5.0	5.0									
Freon 11	< 5.0	5.0									
Freon 113	< 5.0	5.0									
Freon 114	< 5.0	5.0									
Freon 12	< 5.0	5.0									
Heptane	< 5.0	5.0									
Hexachloro-1,3-butadiene	< 5.0	5.0									
Hexane	< 5.0	5.0									
Isopropyl alcohol	< 5.0	5.0									
m&p-Xylene	< 10	10									
Methyl Butyl Ketone	< 10	10									
Methyl Ethyl Ketone	< 10	10									
Methyl Isobutyl Ketone	< 10	10									
Methyl tert-butyl ether	< 5.0	5.0									
Methylene chloride	< 5.0	5.0									
o-Xylene	< 5.0	5.0									
Propylene	< 5.0	5.0									
Styrene	< 5.0	5.0									
Tetrachloroethylene	< 5.0	5.0									
Tetrahydrofuran	< 5.0	5.0									

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-051517	Sample Type: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12257						
Client ID: ZZZZZ	Batch ID: R12257	TestNo: TO-15		Analysis Date: 5/15/2017	SeqNo: 143176						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Toluene	< 5.0	5.0									
trans-1,2-Dichloroethene	< 5.0	5.0									
trans-1,3-Dichloropropene	< 5.0	5.0									
Trichloroethene	< 5.0	5.0									
Vinyl acetate	< 5.0	5.0									
Vinyl Bromide	< 5.0	5.0									
Vinyl chloride	< 5.0	5.0									
Surr: Bromofluorobenzene	36.06	0	50	0	72.1	55.8	141				

Sample ID: DMB_TO15-051717	Sample Type: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12258						
Client ID: ZZZZZ	Batch ID: R12258	TestNo: TO-15		Analysis Date: 5/17/2017	SeqNo: 143185						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,1,1-Trichloroethane	< 5.0	5.0									
1,1,2,2-Tetrachloroethane	< 5.0	5.0									
1,1,2-Trichloroethane	< 5.0	5.0									
1,1-Dichloroethane	< 5.0	5.0									
1,1-Dichloroethene	< 5.0	5.0									
1,2,4-Trichlorobenzene	< 5.0	5.0									
1,2,4-Trimethylbenzene	< 5.0	5.0									
1,2-Dibromoethane	< 5.0	5.0									
1,2-Dichlorobenzene	< 5.0	5.0									
1,2-Dichloroethane	< 5.0	5.0									
1,2-Dichloropropane	< 5.0	5.0									
1,3,5-Trimethylbenzene	< 5.0	5.0									
1,3-butadiene	< 5.0	5.0									
1,3-Dichlorobenzene	< 5.0	5.0									
1,4-Dichlorobenzene	< 5.0	5.0									
1,4-Dioxane	< 10	10									
2,2,4-trimethylpentane	< 5.0	5.0									

Qualifiers: Results reported are not blank corrected
 J Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-051717	Sample Type: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12258						
Client ID: ZZZZZ	Batch ID: R12258	TestNo: TO-15		Analysis Date: 5/17/2017	SeqNo: 143185						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-ethyltoluene	< 5.0	5.0									
Acetone	< 10	10									
Allyl chloride	< 5.0	5.0									
Benzene	< 5.0	5.0									
Benzyl chloride	< 5.0	5.0									
Bromodichloromethane	< 5.0	5.0									
Bromoform	< 5.0	5.0									
Bromomethane	< 5.0	5.0									
Carbon disulfide	< 5.0	5.0									
Carbon tetrachloride	< 5.0	5.0									
Chlorobenzene	< 5.0	5.0									
Chloroethane	< 5.0	5.0									
Chloroform	< 5.0	5.0									
Chloromethane	< 5.0	5.0									
cis-1,2-Dichloroethene	< 5.0	5.0									
cis-1,3-Dichloropropene	< 5.0	5.0									
Cyclohexane	< 5.0	5.0									
Dibromochloromethane	< 5.0	5.0									
Ethyl acetate	< 10	10									
Ethylbenzene	< 5.0	5.0									
Freon 11	< 5.0	5.0									
Freon 113	< 5.0	5.0									
Freon 114	< 5.0	5.0									
Freon 12	< 5.0	5.0									
Heptane	< 5.0	5.0									
Hexachloro-1,3-butadiene	< 5.0	5.0									
Hexane	< 5.0	5.0									
Isopropyl alcohol	< 5.0	5.0									
m&p-Xylene	< 10	10									
Methyl Butyl Ketone	< 10	10									
Methyl Ethyl Ketone	< 10	10									

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-051717	Sample Type: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12258						
Client ID: ZZZZZ	Batch ID: R12258	TestNo: TO-15		Analysis Date: 5/17/2017	SeqNo: 143185						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Methyl Isobutyl Ketone	< 10	10									
Methyl tert-butyl ether	< 5.0	5.0									
Methylene chloride	< 5.0	5.0									
o-Xylene	< 5.0	5.0									
Propylene	< 5.0	5.0									
Styrene	< 5.0	5.0									
Tetrachloroethylene	< 5.0	5.0									
Tetrahydrofuran	< 5.0	5.0									
Toluene	< 5.0	5.0									
trans-1,2-Dichloroethene	< 5.0	5.0									
trans-1,3-Dichloropropene	< 5.0	5.0									
Trichloroethene	< 5.0	5.0									
Vinyl acetate	< 5.0	5.0									
Vinyl Bromide	< 5.0	5.0									
Vinyl chloride	< 5.0	5.0									
Surr: Bromofluorobenzene	37.00	0	50	0	74.0	55.8	141				

Sample ID: DMB_TO15-051817	Sample Type: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12259						
Client ID: ZZZZZ	Batch ID: R12259	TestNo: TO-15		Analysis Date: 5/18/2017	SeqNo: 143202						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,1,1-Trichloroethane	< 5.0	5.0									
1,1,2,2-Tetrachloroethane	< 5.0	5.0									
1,1,2-Trichloroethane	< 5.0	5.0									
1,1-Dichloroethane	< 5.0	5.0									
1,1-Dichloroethene	< 5.0	5.0									
1,2,4-Trichlorobenzene	< 5.0	5.0									
1,2,4-Trimethylbenzene	< 5.0	5.0									
1,2-Dibromoethane	< 5.0	5.0									
1,2-Dichlorobenzene	< 5.0	5.0									

Qualifiers: - Results reported are not blank corrected
 J Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-051817	SampleType: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12259						
Client ID: ZZZZZ	Batch ID: R12259	TestNo: TO-15		Analysis Date: 5/18/2017	SeqNo: 143202						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,2-Dichloroethane	< 5.0	5.0									
1,2-Dichloropropane	< 5.0	5.0									
1,3,5-Trimethylbenzene	< 5.0	5.0									
1,3-butadiene	< 5.0	5.0									
1,3-Dichlorobenzene	< 5.0	5.0									
1,4-Dichlorobenzene	< 5.0	5.0									
1,4-Dioxane	< 10	10									
2,2,4-trimethylpentane	< 5.0	5.0									
4-ethyltoluene	< 5.0	5.0									
Acetone	< 10	10									
Allyl chloride	< 5.0	5.0									
Benzene	< 5.0	5.0									
Benzyl chloride	< 5.0	5.0									
Bromodichloromethane	< 5.0	5.0									
Bromoform	< 5.0	5.0									
Bromomethane	< 5.0	5.0									
Carbon disulfide	< 5.0	5.0									
Carbon tetrachloride	< 5.0	5.0									
Chlorobenzene	< 5.0	5.0									
Chloroethane	< 5.0	5.0									
Chloroform	< 5.0	5.0									
Chloromethane	< 5.0	5.0									
cis-1,2-Dichloroethene	< 5.0	5.0									
cis-1,3-Dichloropropene	< 5.0	5.0									
Cyclohexane	< 5.0	5.0									
Dibromochloromethane	< 5.0	5.0									
Ethyl acetate	< 10	10									
Ethylbenzene	< 5.0	5.0									
Freon 11	< 5.0	5.0									
Freon 113	< 5.0	5.0									
Freon 114	< 5.0	5.0									

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-051817	SampleType: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12259						
Client ID: ZZZZZ	Batch ID: R12259	TestNo: TO-15		Analysis Date: 5/18/2017	SeqNo: 143202						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Freon 12	< 5.0	5.0									
Heptane	< 5.0	5.0									
Hexachloro-1,3-butadiene	< 5.0	5.0									
Hexane	< 5.0	5.0									
Isopropyl alcohol	< 5.0	5.0									
m&p-Xylene	< 10	10									
Methyl Butyl Ketone	< 10	10									
Methyl Ethyl Ketone	< 10	10									
Methyl Isobutyl Ketone	< 10	10									
Methyl tert-butyl ether	< 5.0	5.0									
Methylene chloride	< 5.0	5.0									
o-Xylene	< 5.0	5.0									
Propylene	< 5.0	5.0									
Styrene	< 5.0	5.0									
Tetrachloroethylene	< 5.0	5.0									
Tetrahydrofuran	< 5.0	5.0									
Toluene	< 5.0	5.0									
trans-1,2-Dichloroethene	< 5.0	5.0									
trans-1,3-Dichloropropene	< 5.0	5.0									
Trichloroethene	< 5.0	5.0									
Vinyl acetate	< 5.0	5.0									
Vinyl Bromide	< 5.0	5.0									
Vinyl chloride	< 5.0	5.0									
Surr: Bromofluorobenzene	35.27	0	50	0	70.5	55.8				141	

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

Date: 19-Jun-17

CENTEK LABORATORIES, LLC

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15_SULF

Sample ID: DMB_SLXSF-05161	SampleType: MBLK	TestCode: TO15_SULF	Units: ppbv	Prep Date:	RunNo: 12249						
Client ID: ZZZZZ	Batch ID: R12249	TestNo: TO-15		Analysis Date: 5/16/2017	SeqNo: 143127						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Propanethiol	< 5.0										

1-Propanethiol
 Carbon disulfide
 Carbonyl sulfide
 Dimethyl sulfide
 Ethyl mercaptan
 Hydrogen Sulfide
 Isopropyl mercaptan
 Methyl mercaptan
 Surr: Bromofluorobenzene

130

Sample ID: DMB_SLXSF-05181	SampleType: MBLK	TestCode: TO15_SULF	Units: ppbv	Prep Date:	RunNo: 12259						
Client ID: ZZZZZ	Batch ID: R12259	TestNo: TO-15		Analysis Date: 5/18/2017	SeqNo: 143207						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Propanethiol	15.0										

1-Propanethiol
 Carbon disulfide
 Carbonyl sulfide
 Dimethyl sulfide
 Ethyl mercaptan
 Hydrogen Sulfide
 Isopropyl mercaptan
 Methyl mercaptan
 Surr: Bromofluorobenzene

130

Qualifiers:	Results reported are not blank corrected	E	Estimated Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit	ND	Not Detected at the Limit of Detection	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits				

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15_SULF

Qualifiers:		Results reported are not blank corrected	E	Estimated Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit	ND	Not Detected at the Limit of Detection	R	RPD outside accepted recovery limits	
S	Spike Recovery outside accepted recovery limits					

Date: 19-Jun-17

CENTEK LABORATORIES, LLC

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: LFG FG

Sample ID: MB-R12246	SampType: MBLK	TestCode: LFG FG	Units: %	Prep Date:	RunNo: 12246						
Client ID: ZZZZZ	Batch ID: R12246	TestNo: EPA Method		Analysis Date: 5/15/2017	SeqNo: 143099						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon dioxide	ND	1.90									
Carbon Monoxide	ND	0.880									
Methane	ND	0.580									
Nitrogen	ND	8.30									
Oxygen	0.04300	0.880									

J

Qualifiers: - Results reported are not blank corrected
 J Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

Page 1 of 1

Date: 01-Jun-17

CENTEK LABORATORIES, LLC

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051517	SampType: LCS	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12257						
Client ID: ZZZZZ	Batch ID: R12257	TestNo: TO-15		Analysis Date: 5/15/2017	SeqNo: 143177						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	41.20	5.0	50	0	82.4	76.6	124				
1,1,2,2-Tetrachloroethane	44.93	5.0	50	0	89.9	47.3	139				
1,1,2-Trichloroethane	44.81	5.0	50	0	89.6	59.9	149				
1,1-Dichloroethane	45.84	5.0	50	0	91.7	56.9	146				
1,1-Dichloroethene	51.97	5.0	50	0	104	50.2	131				
1,2,4-Trichlorobenzene	43.64	5.0	50	0	87.3	27	127				
1,2,4-Trimethylbenzene	45.18	5.0	50	0	90.4	49	138				
1,2-Dibromoethane	45.37	5.0	50	0	90.7	59	145				
1,2-Dichlorobenzene	44.88	5.0	50	0	89.8	36.5	138				
1,2-Dichloroethane	43.02	5.0	50	0	86.0	71.6	126				
1,2-Dichloropropane	44.01	5.0	50	0	88.0	62.9	156				
1,3,5-Trimethylbenzene	44.44	5.0	50	0	88.9	48.2	136				
1,3-butadiene	36.96	5.0	50	0	73.9	17.2	190				
1,3-Dichlorobenzene	47.47	5.0	50	0	94.9	35.9	141				
1,4-Dichlorobenzene	43.31	5.0	50	0	86.6	41.5	136				
1,4-Dioxane	47.08	10	50	0	94.2	52.4	150				
2,2,4-trimethylpentane	43.77	5.0	50	0	87.5	60.6	159				
4-ethyltoluene	43.42	5.0	50	0	86.8	52.2	129				
Acetone	48.04	10	50	0	96.1	65.4	142				
Allyl chloride	42.66	5.0	50	0	85.3	52	176				
Benzene	46.15	5.0	50	0	92.3	58.6	151				
Benzyl chloride	49.24	5.0	50	0	98.5	36.5	106				
Bromodichloromethane	42.24	5.0	50	0	84.5	73.9	129				
Bromoform	41.95	5.0	50	0	83.9	15.5	180				
Bromomethane	40.30	5.0	50	0	80.6	51.5	126				

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051517		Sample Type: LCS		Batch ID: R12257		TestCode: TO15		Units: ppbv		Prep Date:		RunNo: 12257	
Client ID: ZZZZZ						TestNo: TO-15				Analysis Date: 5/15/2017		SeqNo: 143177	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Carbon disulfide	47.58	5.0	50	0	95.2	56	144						
Carbon tetrachloride	39.23	5.0	50	0	78.5	70	122						
Chlorobenzene	44.83	5.0	50	0	89.7	49.7	142						
Chloroethane	43.35	5.0	50	0	86.7	58	138						
Chloroform	44.50	5.0	50	0	89.0	64.8	130						
Chloromethane	35.12	5.0	50	0	70.2	57	153						
cis-1,2-Dichloroethene	49.77	5.0	50	0	99.5	53.2	146						
cis-1,3-Dichloropropene	45.84	5.0	50	0	91.7	70.4	129						
Cyclohexane	44.47	5.0	50	0	88.9	57.4	162						
Dibromochloromethane	39.87	5.0	50	0	79.7	52.5	145						
Ethyl acetate	43.92	10	50	0	87.8	61.5	147						
Ethylbenzene	45.32	5.0	50	0	90.6	54.8	138						
Freon 11	37.46	5.0	50	0	74.9	69.2	125						
Freon 113	49.17	5.0	50	0	98.3	55.5	122						
Freon 114	35.22	5.0	50	0	70.4	62.6	166						
Freon 12	38.24	5.0	50	0	76.5	79.1	129						
Heptane	41.11	5.0	50	0	82.2	65.2	158						
Hexachloro-1,3-butadiene	38.64	5.0	50	0	77.3	35.9	124						
Hexane	40.87	5.0	50	0	81.7	61.6	151						
Isopropyl alcohol	44.42	5.0	50	0	88.8	53.4	147						
m&p-Xylene	88.69	10	100	0	89.7	64.6	141						
Methyl Butyl Ketone	44.05	10	50	0	88.1	74.5	117						
Methyl Ethyl Ketone	49.89	10	50	0	99.8	57.2	142						
Methyl Isobutyl Ketone	41.48	10	50	0	83.0	73	122						
Methyl tert-butyl ether	44.01	5.0	50	0	88.0	67.4	134						
Methylene chloride	50.04	5.0	50	0	100	48.6	142						
o-Xylene	43.36	5.0	50	0	86.7	62.4	140						
Propylene	36.37	5.0	50	0	72.7	51.7	165						
Styrene	46.45	5.0	50	0	92.9	49.4	147						
Tetrachloroethylene	42.68	5.0	50	0	85.4	45.5	149						
Tetrahydrofuran	43.24	5.0	50	0	86.5	58.6	149						

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051517	Sample Type: LCS	TestCode: TO15	Units: ppbv	Prep Date:	RunNo: 12257						
Client ID: ZZZZZ	Batch ID: R12257	TestNo: TO-15		Analysis Date: 5/15/2017	SeqNo: 143177						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Coliene											

Toluene	44.33	5.0	50	0	88.7	80.3	147				
trans-1,2-Dichloroethene	48.28	5.0	50	0	96.6	66.9	152				
trans-1,3-Dichloropropene	45.83	5.0	50	0	91.7	79.5	136				
Trichloroethene	45.22	5.0	50	0	90.4	57.4	144				
Vinyl acetate	48.11	5.0	50	0	96.2	64.9	157				
Vinyl Bromide	46.15	5.0	50	0	92.3	69.1	134				
Vinyl chloride	35.82	5.0	50	0	71.6	59.9	147				
Surr: Bromofluorobenzene	49.69	0	50	0	99.4	70.6	129				

Sample ID: DLCS_TO15-051717	SampleType: LCS	TestCode: TO15	Units: ppbv	Prep Date:	RunNo: 12258						
Client ID: ZZZZZ	Batch ID: R12258	TestNo: TO-15		Analysis Date: 5/17/2017	SeqNo: 143186						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,1,1-Trichloroethane	49.01	5.0	50	0	98.0	76.6	124				
1,1,2,2-Tetrachloroethane	46.52	5.0	50	0	93.0	47.3	139				
1,1,2-Trichloroethane	46.58	5.0	50	0	93.2	59.9	149				
1,1-Dichloroethane	49.13	5.0	50	0	98.3	56.9	146				
1,1-Dichloroethene	50.08	5.0	50	0	100	50.2	131				
1,2,4-Trichlorobenzene	46.60	5.0	50	0	93.2	27	127				
1,2,4-Trimethylbenzene	49.46	5.0	50	0	98.9	49	138				
1,2-Dibromoethane	48.64	5.0	50	0	97.3	59	145				
1,2-Dichlorobenzene	49.15	5.0	50	0	98.3	36.5	138				
1,2-Dichloroethane	52.42	5.0	50	0	105	71.6	126				
1,2-Dichloropropane	45.88	5.0	50	0	91.8	62.9	156				
1,3,5-Trimethylbenzene	49.00	5.0	50	0	98.0	48.2	136				
1,3-butadiene	57.77	5.0	50	0	116	17.2	190				
1,3-Dichlorobenzene	52.06	5.0	50	0	104	35.9	141				
1,4-Dichlorobenzene	47.53	5.0	50	0	95.1	41.5	136				
1,4-Dioxane	46.72	10	50	0	93.4	52.4	150				
2,2,4-trimethylpentane	47.20	5.0	50	0	94.4	60.6	159				

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 NID Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051717		Samp Type: LCS		TestCode: TO15		Units: ppbv		Prep Date:		RunNo: 12258	
Client ID: ZZZZZ		Batch ID: R12258		TestNo: TO-15				Analysis Date: 5/17/2017		SeqNo: 143186	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-ethyltoluene	47.89	5.0	50	0	95.8	52.2	129				
Acetone	57.83	10	50	0	116	65.4	142				
Allyl chloride	48.96	5.0	50	0	97.9	52	176				
Benzene	45.60	5.0	50	0	91.2	58.6	151				
Benzyl chloride	48.89	5.0	50	0	97.8	36.5	106				
Bromodichloromethane	48.70	5.0	50	0	97.4	73.9	129				
Bromoform	50.28	5.0	50	0	101	15.5	180				
Bromomethane	40.53	5.0	50	0	81.1	51.5	126				
Carbon disulfide	47.46	5.0	50	0	94.9	55	144				
Carbon tetrachloride	50.36	5.0	50	0	101	70	122				
Chlorobenzene	44.76	5.0	50	0	89.5	49.7	142				
Chloroethane	43.14	5.0	50	0	86.3	58	138				
Chloroform	48.87	5.0	50	0	97.7	64.8	130				
Chloromethane	58.64	5.0	50	0	117	57	153				
cis-1,2-Dichloroethene	47.26	5.0	50	0	94.5	53.2	146				
cis-1,3-Dichloropropene	48.18	5.0	50	0	96.4	70.4	129				
Cyclohexane	45.86	5.0	50	0	91.7	57.4	162				
Dibromochloromethane	49.98	5.0	50	0	100	52.5	145				
Ethyl acetate	50.13	10	50	0	100	61.5	147				
Ethylbenzene	44.53	5.0	50	0	89.1	54.8	138				
Freon 11	46.68	5.0	50	0	93.4	69.2	125				
Freon 113	51.67	5.0	50	0	103	55.5	122				
Freon 114	56.84	5.0	50	0	114	62.6	166				
Freon 12	47.52	5.0	50	0	95.0	79.1	129				
Heptane	48.56	5.0	50	0	97.1	65.2	158				
Hexachloro-1,3-butadiene	52.17	5.0	50	0	104	35.9	124				
Hexane	49.68	5.0	50	0	99.4	61.6	151				
Isopropyl alcohol	52.28	5.0	50	0	105	53.4	147				
m&p-Xylene	91.63	10	100	0	91.6	64.6	141				
Methyl Butyl Ketone	54.20	10	50	0	108	74.5	117				
Methyl Ethyl Ketone	48.68	10	50	0	97.4	57.2	142				

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Fomner Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051717	Sample Type: LCS	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12258						
Client ID: ZZZZZ	Batch ID: R12258	TestNo: TO-15		Analysis Date: 5/17/2017	SeqNo: 143186						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Methyl Isobutyl Ketone	51.53	10	50	0	103	73	122				
Methyl tert-butyl ether	47.12	5.0	50	0	94.2	67.4	134				
Methylene chloride	48.34	5.0	50	0	96.7	48.6	142				
o-Xylene	46.75	5.0	50	0	93.5	62.4	140				
Propylene	45.57	5.0	50	0	91.1	51.7	165				
Styrene	47.30	5.0	50	0	94.6	49.4	147				
Tetrachloroethylene	47.28	5.0	50	0	94.6	45.5	149				
Tetrahydrofuran	49.24	5.0	50	0	98.5	58.6	149				
Toluene	45.07	5.0	50	0	90.1	60.3	147				
trans-1,2-Dichloroethene	51.14	5.0	50	0	102	66.9	152				
trans-1,3-Dichloropropene	50.41	5.0	50	0	101	79.5	136				
Trichloroethene	46.45	5.0	50	0	92.9	57.4	144				
Vinyl acetate	55.07	5.0	50	0	110	64.9	157				
Vinyl Bromide	45.22	5.0	50	0	90.4	69.1	134				
Vinyl chloride	59.07	5.0	50	0	118	59.9	147				
Surr. Bromofluorobenzene	53.61	0	50	0	107	70.6	129				

Sample ID: DLCS_TO15-051817	Sample Type: LCS	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12259						
Client ID: ZZZZZ	Batch ID: R12259	TestNo: TO-15		Analysis Date: 5/18/2017	SeqNo: 143203						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,1,1-Trichloroethane	54.99	5.0	50	0	110	76.6	124				
1,1,2,2-Tetrachloroethane	57.51	5.0	50	0	115	47.3	139				
1,1,2-Trichloroethane	51.58	5.0	50	0	103	59.9	149				
1,1-Dichloroethane	65.91	5.0	50	0	132	56.9	146				
1,1-Trichloroethene	62.22	5.0	50	0	124	50.2	131				
1,2,4-Trichlorobenzene	40.73	5.0	50	0	81.5	27	127				
1,2,4-Trimethylbenzene	54.93	5.0	50	0	110	49	138				
1,2-Dibromoethane	51.76	5.0	50	0	104	59	145				
1,2-Dichlorobenzene	49.62	5.0	50	0	99.2	36.5	138				

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051817		SampType: LCS		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12259	
Client ID: ZZZZZ		Batch ID: R12259		TestNo: TO-15				Analysis Date: 5/18/2017		SeqNo: 143203	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane	67.35	5.0	50	0	135	71.6	126				S
1,2-Dichloropropane	56.98	5.0	50	0	114	62.9	156				
1,3,5-Trimethylbenzene	52.87	5.0	50	0	106	48.2	136				
1,3-butadiene	60.49	5.0	50	0	121	17.2	190				
1,3-Dichlorobenzene	54.67	5.0	50	0	109	35.9	141				
1,4-Dichlorobenzene	52.08	5.0	50	0	104	41.5	136				
1,4-Dioxane	54.85	10	50	0	110	52.4	150				
2,2,4-trimethylpentane	59.62	5.0	50	0	119	60.6	159				
4-ethyltoluene	55.37	5.0	50	0	111	52.2	129				
Acetone	79.25	10	50	0	158	65.4	142				S
Allyl chloride	69.04	5.0	50	0	138	52	176				
Benzene	59.71	5.0	50	0	119	58.6	151				
Benzyl chloride	60.28	5.0	50	0	121	36.5	106				S
Bromodichloromethane	54.16	5.0	50	0	108	73.9	129				
Bromoform	44.29	5.0	50	0	88.6	15.5	180				
Bromomethane	57.08	5.0	50	0	114	51.5	126				
Carbon disulfide	61.63	5.0	50	0	123	55	144				
Carbon tetrachloride	50.72	5.0	50	0	101	70	122				
Chlorobenzene	48.25	5.0	50	0	96.5	49.7	142				
Chloroethane	62.07	5.0	50	0	124	58	138				
Chloroform	60.13	5.0	50	0	120	64.8	130				
Chloromethane	64.54	5.0	50	0	129	57	153				
cis-1,2-Dichloroethane	56.33	5.0	50	0	113	53.2	146				
cis-1,3-Dichloropropene	57.74	5.0	50	0	115	70.4	129				
Cyclohexane	64.63	5.0	50	0	129	57.4	162				
Dibromochloromethane	45.73	5.0	50	0	91.5	52.5	145				
Ethyl acetate	66.41	10	50	0	133	61.5	147				
Ethylbenzene	49.70	5.0	50	0	99.4	54.8	138				
Freon 11	51.89	5.0	50	0	104	69.2	125				
Freon 113	60.77	5.0	50	0	122	55.5	122				
Freon 114	57.11	5.0	50	0	114	62.6	166				

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

HI Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051817		Sample Type: LCS	TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12259	
Client ID: ZZZZZ		Batch ID: R12259	TestNo: TO-15		Analysis Date: 5/18/2017		SeqNo: 143203			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPD Limit
Freon 12	56.15	5.0	50	0	112	79.1	129			
Heptane	62.63	5.0	50	0	125	65.2	158			
Hexachloro-1,3-butadiene	39.72	5.0	50	0	79.4	35.9	124			
Hexane	69.14	5.0	50	0	138	61.6	151			
Isopropyl alcohol	73.00	5.0	50	0	146	53.4	147			
m&p-Xylene	101.2	10	100	0	101	64.6	141			
Methyl Butyl Ketone	67.28	10	50	0	135	74.5	117			
Methyl Ethyl Ketone	64.98	10	50	0	130	57.2	142			
Methyl Isobutyl Ketone	64.57	10	50	0	129	73	122			S
Methyl tert-butyl ether	60.80	5.0	50	0	122	67.4	134			
Methylene chloride	62.51	5.0	50	0	125	48.6	142			
o-Xylene	53.85	5.0	50	0	108	62.4	140			
Propylene	62.69	5.0	50	0	125	51.7	165			
Styrene	53.53	5.0	50	0	107	49.4	147			
Tetrachloroethylene	43.93	5.0	50	0	87.9	45.5	149			
Tetrahydrofuran	69.17	5.0	50	0	138	58.6	149			
Toluene	51.93	5.0	50	0	104	60.3	147			
trans-1,2-Dichloroethene	65.25	5.0	50	0	130	66.9	152			
trans-1,3-Dichloropropene	60.05	5.0	50	0	120	79.5	136			
Trichloroethene	46.19	5.0	50	0	92.4	57.4	144			
Vinyl acetate	76.13	5.0	50	0	152	64.9	157			
Vinyl Bromide	55.42	5.0	50	0	111	69.1	134			
Vinyl chloride	62.19	5.0	50	0	124	59.9	147			
Surr: Bromofluorobenzene	57.74	0	50	0	115	70.6	129			

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

Date: 19-Jan-17

CENTEK LABORATORIES, LLC

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15_SULF

Sample ID: DLCS_H2S-051617	Sample Type: LCS	TestCode: TO15_SULF	Units: ppbv	Prep Date:	RunNo: 12249						
Client ID: ZZZZZ	Batch ID: R12249	TestNo: TO-15		Analysis Date: 5/16/2017	SeqNo: 143128						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hydrogen Sulfide	466.2	5.0	500	0	93.2	70	130				
Surr: Bromofluorobenzene	47.85	0	50	0	95.7	70	130				

Sample ID: DLCS_SLXSF-05161	Sample Type: LCS	TestCode: TO15_SULF	Units: ppbV	Prep Date:	RunNo: 12249						
Client ID: ZZZZZ	Batch ID: R12249	TestNo: TO-15		Analysis Date: 5/16/2017	SeqNo: 143129						
Analyte	Result	PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD RefVal	%RPD	RPDLimit	Qual
1-Propanethiol	46.99	5.0	50	0	94.0	70	130				
Carbon disulfide	46.05	5.0	50	0	92.1	70	130				
Carbonyl sulfide	43.13	5.0	50	0	86.3	70	130				
Dimethyl sulfide	45.48	5.0	50	0	91.0	70	130				
Ethyl mercaptan	41.31	5.0	50	0	82.6	70	130				
Isopropyl mercaptan	36.23	5.0	50	0	72.5	70	130				
Methyl mercaptan	39.57	5.0	50	0	79.1	70	130				
Surr: Bromofluorobenzene	41.99	0	50	0	84.0	70	130				

Sample ID: DLCS_H2S-051817	SampleType: LCS	TestCode: TO15_SULF	Units: ppbV	Prep Date:	RunNo: 12259						
Client ID: ZZZZZ	Batch ID: R12259	TestNo: TO-15		Analysis Date: 5/18/2017	SeqNo: 143208						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hydrogen Sulfide	485.9	5.0	500	0	97.2	70	130				
Surr: Bromofluorobenzene	51.41	0	50	0	103	70	130				

Qualifiers: - Results reported are not blank corrected
 J Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15_SULF

Sample ID: DLCS_SLXSF-05181		SampType: LCS		TestCode: TO15_SULF		Units: ppbv		Prep Date:		RunNo: 12259	
Client ID: ZZZZZ		Batch ID: R12259		TestNo: TO-15				Analysis Date: 5/18/2017		SeqNo: 143209	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Propanethiol	49.35	5.0	50	0	98.7	70	130				
Carbon disulfide	46.29	5.0	50	0	92.6	70	130				
Carbonyl sulfide	45.44	5.0	50	0	90.9	70	130				
Dimethyl sulfide	48.07	5.0	50	0	96.1	70	130				
Ethyl mercaptan	46.54	5.0	50	0	93.1	70	130				
Isopropyl mercaptan	38.74	5.0	50	0	77.5	70	130				
Methyl mercaptan	44.65	5.0	50	0	89.3	70	130				
Surr: Bromofluorobenzene	48.48	0	50	0	97.0	70	130				

Qualifiers: Results reported are not blank corrected
 J Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

Date: 19-Jun-17

CENTEK LABORATORIES, LLC

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: LFG FG

Sample ID: LCS-R12246		SampleType: LCS	TestCode: LFG FG		Units: %	Prep Date:		RunNo: 12246			
Client ID: ZZZZZ		Batch ID: R12246	TestNo: EPA Method		Analysis Date: 5/15/2017		SeqNo: 143100				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon dioxide	11.07	1.90	15	0	73.8	70	130				
Carbon Monoxide	7.333	0.880	7	0	105	70	130				
Methane	4.205	0.580	4.5	0	93.4	70	130				
Nitrogen	68.38	8.30	68.5	0	99.8	70	130				
Oxygen	4.919	0.880	5	0.043	97.5	70	130				

Qualifiers:

- Results reported are not blank corrected
 J Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

Date: 01-Jun-17

CENTEK LABORATORIES, LLC

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCDSD_TO15-05151			SampType: LCSD		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12257		
Client ID: ZZZZZ		Batch ID: R12257		TestNo: TO-15		Analysis Date: 5/15/2017						SeqNo: 143178	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
1,1,1-Trichloroethane	44.06	5.0	50	0	88.1	64.6	141	41.2	6.71	0	0		
1,1,2,2-Tetrachloroethane	49.56	5.0	50	0	99.1	62.1	130	44.93	9.80	0	0		
1,1,2-Trichloroethane	50.76	5.0	50	0	102	63.1	147	44.81	12.5	0	0		
1,1-Dichloroethane	48.63	5.0	50	0	97.3	62.4	134	45.84	5.91	0	0		
1,1-Dichloroethene	55.75	5.0	50	0	112	54.5	125	51.97	7.02	0	0		
1,2,4-Trichlorobenzene	47.54	5.0	50	0	95.1	25.1	129	43.64	8.55	0	0		
1,2,4-Trimethylbenzene	49.74	5.0	50	0	99.5	60.4	139	45.18	9.61	0	0		
1,2-Dibromoethane	52.04	5.0	50	0	104	63.6	140	45.37	13.7	0	0		
1,2-Dichlorobenzene	48.96	5.0	50	0	97.9	52.7	128	44.88	8.70	0	0		
1,2-Dichloroethane	45.95	5.0	50	0	91.9	63.7	139	43.02	6.59	0	0		
1,2-Dichloropropane	50.32	5.0	50	0	101	67.3	144	44.01	13.4	0	0		
1,3,5-Trimethylbenzene	48.69	5.0	50	0	97.4	56	136	44.44	9.13	0	0		
1,3-butadiene	39.16	5.0	50	0	78.3	21.8	166	36.96	5.78	0	0		
1,3-Dichlorobenzene	51.38	5.0	50	0	103	52.6	134	47.47	7.91	0	0		
1,4-Dichlorobenzene	47.54	5.0	50	0	95.1	54.6	131	43.31	9.31	0	0		
1,4-Dioxane	52.64	10	50	0	105	56.8	141	47.08	11.2	0	0		
2,2,4-trimethylpentane	50.14	5.0	50	0	100	71.8	138	43.77	13.6	0	0		
4-ethyltoluene	48.83	5.0	50	0	97.7	60.6	130	43.42	11.7	0	0		
Acetone	53.19	10	50	0	106	49.5	149	48.04	10.2	0	0		
Allyl chloride	45.21	5.0	50	0	90.4	55.5	156	42.66	5.80	0	0		
Benzene	49.06	5.0	50	0	98.1	62	140	46.15	6.11	0	0		
Benzyl chloride	52.61	5.0	50	0	105	42.5	106	49.24	6.62	0	0		
Bromodichloromethane	48.16	5.0	50	0	96.3	63.6	144	42.24	13.1	0	0		
Bromoform	46.50	5.0	50	0	93.0	43.9	148	41.95	10.3	0	0		
Bromomethane	42.39	5.0	50	0	84.8	42.6	139	40.3	5.06	0	0		

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCSO_TO15-05151		Sample Type: LCSD		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12257	
Client ID: ZZZZZ		Batch ID: R12257		TestNo: TO-15				Analysis Date: 5/15/2017		SeqNo: 143178	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon disulfide	52.44	5.0	50	0	105	59.9	133	47.58	9.72	0	0
Carbon tetrachloride	41.98	5.0	50	0	84.0	63.2	139	39.23	6.77	0	0
Chlorobenzene	49.29	5.0	50	0	98.6	58.9	136	44.83	9.48	0	0
Chloroethane	45.91	5.0	50	0	91.8	56.1	134	43.35	5.74	0	0
Chloroform	47.56	5.0	50	0	95.1	62.4	135	44.5	6.65	0	0
Chloromethane	34.03	5.0	50	0	68.1	58.5	150	35.12	3.15	0	0
cis-1,2-Dichloroethene	52.96	5.0	50	0	106	61.7	135	49.77	6.21	0	0
cis-1,3-Dichloropropene	52.90	5.0	50	0	106	63.1	134	45.84	14.3	0	0
Cyclohexane	47.24	5.0	50	0	94.5	65.5	142	44.47	6.04	0	0
Dibromochloromethane	46.47	5.0	50	0	92.9	61.5	137	39.87	15.3	0	0
Ethyl acetate	47.00	10	50	0	94.0	46.6	140	43.92	6.78	0	0
Ethylbenzene	49.60	5.0	50	0	99.2	62.4	140	45.32	9.02	0	0
Freon 11	39.65	5.0	50	0	79.3	44.7	165	37.46	5.68	0	0
Freon 113	52.62	5.0	50	0	105	58	124	49.17	6.78	0	0
Freon 114	35.65	5.0	50	0	71.3	62	176	35.22	1.21	0	0
Freon 12	41.33	5.0	50	0	82.7	52.5	163	38.24	7.77	0	0
Heptane	46.74	5.0	50	0	93.5	65.5	144	41.11	12.8	0	0
Hexachloro-1,3-butadiene	42.39	5.0	50	0	84.8	32.9	129	38.64	9.26	0	0
Hexane	43.00	5.0	50	0	86.0	59.1	148	40.87	5.08	0	0
Isopropyl alcohol	45.38	5.0	50	0	90.8	50.5	142	44.42	2.14	0	0
m&p-Xylene	98.35	10	100	0	98.4	69.7	137	89.69	9.21	0	0
Methyl Butyl Ketone	49.46	10	50	0	98.9	59.1	125	44.05	11.6	0	0
Methyl Ethyl Ketone	54.31	10	50	0	109	51.3	137	49.89	8.48	0	0
Methyl Isobutyl Ketone	47.37	10	50	0	94.7	58.3	127	41.48	13.3	0	0
Methyl tert-butyl ether	47.09	5.0	50	0	94.2	62.9	134	44.01	6.76	0	0
Methylene chloride	53.67	5.0	50	0	107	57.4	131	50.04	7.00	0	0
o-Xylene	47.30	5.0	50	0	94.6	68	142	43.36	8.69	0	0
Propylene	39.09	5.0	50	0	78.2	45.4	150	36.37	7.21	0	0
Styrene	50.77	5.0	50	0	102	60.4	135	46.45	8.89	0	0
Tetrachloroethylene	49.24	5.0	50	0	98.5	59.1	138	42.68	14.3	0	0
Tetrahydrofuran	46.10	5.0	50	0	92.2	57.3	136	43.24	6.40	0	0

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 NID Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCSO_TO15-05151		SampType: LCSD		TestCode: TO15		Units: ppbv		Prep Date:		RunNo: 12257			
Client ID: ZZZZZ		Batch ID: R12257		TestNo: TO-15		Analysis Date: 5/15/2017						SeqNo: 143178	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Toluene	51.40	5.0	50	0	103	63.9	142	44.33	14.8	0	0		
trans-1,2-Dichloroethene	51.54	5.0	50	0	103	70.2	142	48.28	6.53	0	0		
trans-1,3-Dichloropropene	52.11	5.0	50	0	104	71.5	145	45.83	12.8	0	0		
Trichloroethene	52.14	5.0	50	0	104	64.5	135	45.22	14.2	0	0		
Vinyl acetate	51.56	5.0	50	0	103	55.9	150	48.11	6.92	0	0		
Vinyl Bromide	49.45	5.0	50	0	98.9	54.7	150	46.15	6.90	0	0		
Vinyl chloride	35.44	5.0	50	0	70.9	59.9	151	35.82	1.07	0	0		
Surr: Bromofluorobenzene	51.70	0	50	0	103	71.1	142	0	0	0	0		

Sample ID: DLCSO_TO15-05171		SampType: LCSD		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12258			
Client ID: ZZZZZ		Batch ID: R12258		TestNo: TO-15		Analysis Date: 5/17/2017						SeqNo: 143187	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
1,1,1-Trichloroethane		47.63	5.0	50	0	95.3	64.6	141	49.01	2.86	0	0	
1,1,2,2-Tetrachloroethane		46.83	5.0	50	0	93.7	62.1	130	46.52	0.664	0	0	
1,1,2-Trichloroethane		46.49	5.0	50	0	93.0	63.1	147	46.58	0.193	0	0	
1,1-Dichloroethane		47.56	5.0	50	0	95.1	62.4	134	49.13	3.25	0	0	
1,1-Dichloroethene		49.29	5.0	50	0	98.6	54.5	125	50.08	1.59	0	0	
1,2,4-Trichlorobenzene		51.28	5.0	50	0	103	25.1	129	46.6	9.56	0	0	
1,2,4-Trimethylbenzene		49.10	5.0	50	0	98.2	60.4	139	49.46	0.731	0	0	
1,2-Dibromoethane		48.77	5.0	50	0	97.5	63.6	140	48.64	0.267	0	0	
1,2-Dichlorobenzene		49.88	5.0	50	0	99.8	52.7	128	49.15	1.47	0	0	
1,2-Dichloroethane		50.73	5.0	50	0	101	63.7	139	52.42	3.28	0	0	
1,2-Dichloropropane		45.23	5.0	50	0	90.5	67.3	144	45.88	1.43	0	0	
1,3,5-Trimethylbenzene		48.60	5.0	50	0	97.2	56	136	49	0.820	0	0	
1,3-butadiene		53.90	5.0	50	0	108	21.8	166	57.77	6.93	0	0	
1,3-Dichlorobenzene		51.51	5.0	50	0	103	52.6	134	52.06	1.06	0	0	
1,4-Dichlorobenzene		47.82	5.0	50	0	95.6	54.6	131	47.53	0.608	0	0	
1,4-Dioxane		46.16	10	50	0	92.3	56.8	141	46.72	1.21	0	0	
2,2,4-trimethylpentane		46.89	5.0	50	0	93.8	71.8	138	47.2	0.659	0	0	

Qualifiers: J Results reported are not blank corrected E Estimated Value above quantitation range H Holding times for preparation or analysis exceeded
 S Analyte detected below quantitation limit ND Not Detected at the Limit of Detection R RPD outside accepted recovery limits
 S Spike Recovery outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCSO_TO15-05171		Samp Type: LCSD		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12258	
Client ID: ZZZZZ		Batch ID: R12258		TestNo: TO-15		Analysis Date: 5/17/2017		SeqNo: 143187			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-ethyltoluene	47.63	5.0	50	0	95.3	60.6	130	47.89	0.544	0	0
Acetone	59.46	10	50	0	119	49.5	149	57.83	2.78	0	0
Allyl chloride	47.36	5.0	50	0	94.7	55.5	156	48.96	3.32	0	0
Benzene	44.93	5.0	50	0	89.9	62	140	45.6	1.48	0	0
Benzyl chloride	48.59	5.0	50	0	97.2	42.5	106	48.89	0.616	0	0
Bromodichloromethane	48.61	5.0	50	0	97.2	63.6	144	48.7	0.185	0	0
Bromoform	49.92	5.0	50	0	99.8	43.9	148	50.28	0.719	0	0
Bromomethane	40.76	5.0	50	0	81.5	42.6	139	40.53	0.566	0	0
Carbon disulfide	47.51	5.0	50	0	95.0	59.9	133	47.46	0.105	0	0
Carbon tetrachloride	49.05	5.0	50	0	98.1	63.2	139	50.36	2.64	0	0
Chlorobenzene	44.46	5.0	50	0	88.9	58.9	136	44.76	0.672	0	0
Chloroethane	42.02	5.0	50	0	84.0	56.1	134	43.14	2.63	0	0
Chloroform	47.66	5.0	50	0	95.3	62.4	135	48.87	2.51	0	0
Chloromethane	53.94	5.0	50	0	108	58.5	150	58.64	8.35	0	0
cis-1,2-Dichloroethene	47.06	5.0	50	0	94.1	61.7	135	47.26	0.424	0	0
cis-1,3-Dichloropropene	48.58	5.0	50	0	97.2	63.1	134	48.18	0.827	0	0
Cyclohexane	44.69	5.0	50	0	89.4	65.5	142	45.86	2.58	0	0
Dibromochloromethane	50.14	5.0	50	0	100	61.5	137	49.98	0.320	0	0
Ethyl acetate	48.26	10	50	0	96.5	46.6	140	50.13	3.80	0	0
Ethylbenzene	44.90	5.0	50	0	89.8	62.4	140	44.53	0.827	0	0
Freon 11	44.78	5.0	50	0	89.6	44.7	165	46.68	4.15	0	0
Freon 113	50.74	5.0	50	0	101	58	124	51.67	1.82	0	0
Freon 114	52.87	5.0	50	0	106	62	176	56.84	7.24	0	0
Freon 12	46.71	5.0	50	0	93.4	52.5	163	47.52	1.72	0	0
Heptane	47.77	5.0	50	0	95.5	65.5	144	48.56	1.64	0	0
Hexachloro-1,3-butadiene	55.72	5.0	50	0	111	32.9	129	52.17	6.58	0	0
Hexane	48.56	5.0	50	0	97.1	59.1	148	49.68	2.28	0	0
Isopropyl alcohol	50.51	5.0	50	0	101	50.5	142	52.28	3.44	0	0
m&p-Xylene	90.15	10	100	0	90.2	69.7	137	91.63	1.63	0	0
Methyl Butyl Ketone	52.53	10	50	0	105	59.1	125	54.2	3.13	0	0
Methyl Ethyl Ketone	48.69	10	50	0	97.4	51.3	137	48.68	0.0205	0	0

Qualifiers: F Results reported are not blank corrected
 S Analyte detected below quantitation limit
 ND Estimated Value above quantitation range
 E Not Detected at the Limit of Detection
 H Holding times for preparation or analysts exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCSO_TO15-05171		Sample Type: LCSO		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12258	
Client ID: ZZZZZ		Batch ID: R12258		TestNo: TO-15				Analysis Date: 5/17/2017		SeqNo: 143187	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl Isobutyl Ketone	50.06	10	50	0	100	58.3	127	51.53	2.89	0	0
Methyl tert-butyl ether	45.96	5.0	50	0	91.9	62.9	134	47.12	2.49	0	0
Methylene chloride	48.45	5.0	50	0	96.9	57.4	131	48.34	0.227	0	0
o-Xylene	46.17	5.0	50	0	92.3	68	142	46.75	1.25	0	0
Propylene	43.92	5.0	50	0	87.8	45.4	150	45.57	3.69	0	0
Styrene	47.29	5.0	50	0	94.6	60.4	135	47.3	0.0211	0	0
Tetrachloroethylene	46.99	5.0	50	0	94.0	59.1	138	47.28	0.615	0	0
Tetrahydrofuran	48.35	5.0	50	0	96.7	57.3	136	49.24	1.82	0	0
Toluene	45.48	5.0	50	0	91.0	63.9	142	45.07	0.906	0	0
trans-1,2-Dichloroethene	50.93	5.0	50	0	102	70.2	142	51.14	0.411	0	0
trans-1,3-Dichloropropene	50.49	5.0	50	0	101	71.5	145	50.41	0.159	0	0
Trichloroethene	46.72	5.0	50	0	93.4	64.5	135	46.45	0.580	0	0
Vinyl acetate	55.51	5.0	50	0	111	55.9	150	55.07	0.796	0	0
Vinyl Bromide	44.36	5.0	50	0	88.7	54.7	150	45.22	1.92	0	0
Vinyl chloride	56.03	5.0	50	0	112	59.9	151	59.07	5.28	0	0
Surr: Bromofluorobenzene	54.78	0	50	0	110	71.1	142	0	0	0	0

Sample ID: DLCSO_TO15-05181		Sample Type: LCSO		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12259	
Client ID: ZZZZZ		Batch ID: R12259		TestNo: TO-15				Analysis Date: 5/18/2017		SeqNo: 143204	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	53.60	5.0	50	0	107	64.6	141	54.99	2.56	0	0
1,1,2,2-Tetrachloroethane	56.34	5.0	50	0	113	62.1	130	57.51	2.06	0	0
1,1,2-Trichloroethane	52.56	5.0	50	0	105	63.1	147	51.58	1.88	0	0
1,1-Dichloroethane	62.98	5.0	50	0	126	62.4	134	65.91	4.55	0	0
1,1-Dichloroethene	61.61	5.0	50	0	123	54.5	125	62.22	0.985	0	0
1,2,4-Trichlorobenzene	43.35	5.0	50	0	86.7	25.1	129	40.73	6.23	0	0
1,2,4-Trimethylbenzene	54.12	5.0	50	0	108	60.4	139	54.93	1.49	0	0
1,2-Dibromoethane	52.13	5.0	50	0	104	63.6	140	51.76	0.712	0	0
1,2-Dichlorobenzene	47.80	5.0	50	0	95.6	52.7	128	49.62	3.74	0	0

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 NID Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCSD_TO15-05181		Sample Type: LCSD		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12259	
Client ID: ZZZZZ		Batch ID: R12259		TestNo: TO-15				Analysis Date: 5/18/2017		SeqNo: 143204	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane	64.30	5.0	50	0	129	63.7	139	67.35	4.63	0	
1,2-Dichloropropane	57.74	5.0	50	0	115	67.3	144	56.98	1.32	0	
1,3,5-Trimethylbenzene	51.30	5.0	50	0	103	56	136	52.87	3.01	0	
1,3-butadiene	50.98	5.0	50	0	102	21.8	166	60.49	17.1	0	
1,3-Dichlorobenzene	50.65	5.0	50	0	101	52.6	134	54.67	7.63	0	
1,4-Dichlorobenzene	47.30	5.0	50	0	94.6	54.6	131	52.08	9.62	0	
1,4-Dioxane	55.84	10	50	0	112	56.8	141	54.85	1.79	0	
2,2,4-trimethylpentane	59.44	5.0	50	0	119	71.8	138	59.62	0.302	0	
4-ethyltoluene	54.52	5.0	50	0	109	60.6	130	55.37	1.55	0	
Acetone	76.31	10	50	0	153	49.5	149	79.25	3.78	0	S
Allyl chloride	65.54	5.0	50	0	131	55.5	156	69.04	5.20	0	
Benzene	58.59	5.0	50	0	117	62	140	59.71	1.89	0	
Benzyl chloride	57.90	5.0	50	0	116	42.5	106	60.28	4.03	0	S
Bromodichloromethane	53.91	5.0	50	0	108	63.6	144	54.16	0.463	0	
Bromoform	44.00	5.0	50	0	88.0	43.9	148	44.29	0.657	0	
Bromomethane	49.16	5.0	50	0	98.3	42.6	139	57.08	14.9	0	
Carbon disulfide	62.74	5.0	50	0	125	59.9	133	61.63	1.78	0	
Carbon tetrachloride	49.29	5.0	50	0	98.6	63.2	139	50.72	2.86	0	
Chlorobenzene	49.47	5.0	50	0	98.9	58.9	136	48.25	2.50	0	
Chloroethane	57.10	5.0	50	0	114	56.1	134	62.07	8.34	0	
Chloroform	57.74	5.0	50	0	115	62.4	135	60.13	4.06	0	
Chloromethane	51.89	5.0	50	0	104	58.5	150	64.54	21.7	0	
cis-1,2-Dichloroethene	57.42	5.0	50	0	115	61.7	135	56.33	1.92	0	
cis-1,3-Dichloropropene	58.88	5.0	50	0	118	63.1	134	57.74	1.96	0	
Cyclohexane	62.30	5.0	50	0	125	65.5	142	64.63	3.67	0	
Dibromochloromethane	47.25	5.0	50	0	94.5	61.5	137	45.73	3.27	0	
Ethyl acetate	65.40	10	50	0	131	46.6	140	66.41	1.53	0	
Ethylbenzene	50.20	5.0	50	0	100	62.4	140	49.7	1.00	0	
Freon 11	48.35	5.0	50	0	96.7	44.7	165	51.89	7.06	0	
Freon 113	58.64	5.0	50	0	118	58	124	60.77	3.23	0	
Freon 114	48.98	5.0	50	0	98.0	62	176	57.11	15.3	0	

Qualifiers:	Results reported are not blank corrected		E	Estimated Value above quantitation range		H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limit		ND	Not Detected at the Limit of Detection		R	RPD outside accepted recovery limits
S		Spike Recovery outside accepted recovery limits						

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCSO_TO15-05181		Sample Type: LCSO	TestCode: TO15		Units: ppbV	Prep Date:		RunNo: 12259			
Client ID: ZZZZZ		Batch ID: R12259	TestNo: TO-15			Analysis Date: 5/18/2017		SeqNo: 143204			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Freon 12	52.85	5.0	50	0	106	52.5	163	56.15	6.06	0	
Heptane	61.43	5.0	50	0	123	65.5	144	62.63	1.93	0	
Hexachloro-1,3-butadiene	41.06	5.0	50	0	82.1	32.9	129	39.72	3.32	0	
Hexane	64.34	5.0	50	0	129	59.1	148	69.14	7.19	0	
Isopropyl alcohol	67.01	5.0	50	0	134	50.5	142	73	8.56	0	
m&p-Xylene	102.5	10	100	0	103	69.7	137	101.2	1.28	0	
Methyl Butyl Ketone	65.88	10	50	0	132	59.1	125	67.28	2.10	0	S
Methyl Ethyl Ketone	64.50	10	50	0	129	51.3	137	64.98	0.741	0	
Methyl Isobutyl Ketone	63.73	10	50	0	127	58.3	127	64.57	1.31	0	S
Methyl tert-butyl ether	59.43	5.0	50	0	119	62.9	134	60.8	2.28	0	
Methylene chloride	61.57	5.0	50	0	123	57.4	131	62.51	1.52	0	
o-Xylene	53.30	5.0	50	0	107	68	142	53.85	1.03	0	
Propylene	57.06	5.0	50	0	114	45.4	150	62.69	9.40	0	
Styrene	53.66	5.0	50	0	107	60.4	135	53.53	0.243	0	
Tetrachloroethylene	43.62	5.0	50	0	87.2	59.1	138	43.93	0.708	0	
Tetrahydrofuran	65.37	5.0	50	0	131	57.3	136	69.17	5.65	0	
Toluene	52.50	5.0	50	0	105	63.9	142	51.93	1.09	0	
trans-1,2-Dichloroethene	68.85	5.0	50	0	138	70.2	142	65.25	5.37	0	
trans-1,3-Dichloropropene	59.62	5.0	50	0	119	71.5	145	60.05	0.719	0	
Trichloroethene	48.23	5.0	50	0	96.5	64.5	135	46.19	4.32	0	
Vinyl acetate	75.60	5.0	50	0	151	55.9	150	76.13	0.699	0	S
Vinyl Bromide	53.04	5.0	50	0	106	54.7	150	55.42	4.39	0	
Vinyl chloride	52.90	5.0	50	0	106	59.9	151	62.19	16.1	0	
Surr: Bromofluorobenzene	54.96	0	50	0	110	71.1	142	0	0	0	

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

Centek Laboratories
IDL Study5ppb Detection Limit
January 2017Method TO-15A
Units=ppb
5973MS

Name	Amount	IDL#1	IDL#2	IDL#3	IDL#4	IDL#5	IDL#6	IDL#7	Average	StdDev	%Rec	IDL
Propylene	10	9.69	9.56	10.08	10.09	9.33	9.38	10.71	9.83	0.491	98.3	1.545
Freon 12	10	9.65	9.59	9.72	9.66	9.03	9.19	10.28	9.59	0.403	95.9	1.267
Chloromethane	10	9.7	9.34	9.89	9.84	8.84	9.44	10.36	9.63	0.482	96.3	1.515
Freon 114	10	9.95	9.56	9.97	9.62	9.29	9.27	10.87	9.79	0.552	97.9	1.734
Vinyl Chloride	10	9.12	9.92	9.68	9.92	9.58	9.99	10	9.74	0.318	97.4	1.001
Butane	10	9.51	9.91	9.95	10.15	9.21	9.9	10.24	9.84	0.361	98.4	1.135
1,3-butadiene	10	10.16	9.91	9.74	9.68	9.22	9.22	10.49	9.77	0.466	97.7	1.465
Acetaldehyde	10	10.8	10.15	8.99	9.05	9.29	8.38	11.21	9.70	1.043	97.0	3.279
Bromomethane	10	9.72	9.78	9.1	9.1	8.86	7.8	9.13	9.07	0.657	90.7	2.065
Chloroethane	10	9.88	9.92	9.64	9.91	9.44	9.06	10	9.69	0.340	96.9	1.070
Vinyl Bromide	10	9.96	10.12	10.23	9.93	9.65	9.74	11.06	10.10	0.469	101.0	1.474
Freon 11	10	9.68	9.77	10.1	9.74	9.23	9.41	10.58	9.79	0.446	97.9	1.402
Pentane	10	9.86	9.83	10.28	9.82	9.77	9.5	10.81	9.98	0.431	99.8	1.355
Ethanol	10	9.57	10.24	11.11	10.78	9.35	9.55	11.45	10.29	0.838	102.9	2.633
Acrolein	10	10.53	9.63	9.76	9.72	9.27	9.42	10.93	9.89	0.607	98.9	1.907
1,1-Dichloroethene	10	10.25	10.2	10.3	9.91	9.36	9.7	11.43	10.16	0.653	101.6	2.051
Carbon disulfide	10	9.67	9.94	9.95	9.53	8.98	8.83	10.67	9.65	0.626	96.5	1.967
Acetone	10	9.54	9.6	9.44	9.3	8.82	8.63	10.4	9.39	0.577	93.9	1.815
Isopropyl alcohol	10	9.21	9.63	9.7	9.35	8.69	8.93	9.6	9.30	0.383	93.0	1.203
Freon 113	10	9.83	9.74	9.73	9.67	9.21	9.34	10.74	9.75	0.492	97.5	1.547
Methylene Chloride	10	10.22	10.22	10.23	9.2	9.45	9.15	11.53	10.00	0.832	100.0	2.616
t-butyl alcohol	10	9.43	9.79	9.55	9.55	8.4	8.88	10	9.37	0.551	93.7	1.732
Allyl chloride	10	9.81	9.53	10.08	9.2	9.3	9.21	10.67	9.69	0.544	96.9	1.709
trans-1,2-dichloroethene	10	9.93	9.97	10.01	9.52	9.49	9.16	10.9	9.85	0.557	98.5	1.752
methyl tert-butyl ether	10	10.04	10.28	9.65	10.03	8.92	9.1	10.25	9.75	0.550	97.5	1.729
1,1-Dichloroethane	10	9.62	10.76	10.38	10.15	9.63	9.77	11.36	10.24	0.649	102.4	2.041
Vinyl acetate	10	10.47	10.76	10.78	11.15	9.64	9.45	11.46	10.53	0.745	105.3	2.340
Methyl Ethyl Ketone	10	9.65	11.43	10.64	10.88	9.75	9.7	11.46	10.50	0.804	105.0	2.526
cis-1,2-dichloroethene	10	9.98	9.09	9.91	9.9	8.92	9.26	9.73	9.54	0.440	95.4	1.383
Hexane	10	10.23	10.69	10.42	10.41	9.61	9.78	11.3	10.35	0.565	103.5	1.775
Ethyl acetate	10	9.92	9.37	9.47	9.66	8.53	9.06	9	9.29	0.463	92.9	1.456
Chloroform	10	9.92	9.84	9.42	9.36	8.62	9.15	10.48	9.54	0.600	95.4	1.887
Tetrahydrofuran	10	9.96	9.74	9.65	9.33	8.84	9.15	10.52	9.60	0.555	96.0	1.746
1,2-Dichloroethane	10	9.47	9.41	9.63	9.82	8.59	8.76	9.94	9.37	0.514	93.7	1.616
Benzene	10	10.4	10.63	9.39	9.41	9.24	9.49	11.25	9.97	0.782	99.7	2.459
Methyl methacrylate	10	8.61	9.3	9.09	9.56	8.97	9.1	10.83	9.35	0.714	93.5	2.244
1,4-dioxane	10	10.74	9.79	9.74	9.75	9.02	9.64	11.26	9.99	0.753	99.9	2.366
1,1,1-Trichloroethane	10	10.5	10.57	9.3	9.42	9.08	9.59	11.39	9.98	0.851	99.8	2.675
Cyclohexane	10	10.29	10.3	9.1	9.36	9.04	9.29	11.27	9.81	0.834	98.1	2.621

Confidential

1/18/2017

Centek Laboratories IDL Study	Name	Amount	5ppb Detection Limit January 2017					Method TO-15A Units=ppb					
			IDL#1	IDL#2	IDL#3	IDL#4	IDL#5	IDL#6	IDL#7	Average	StdDev	%Rec	IDL
Carbon Tetrachloride 2,2,4-trimethylpentane Heptane Trichloroethene 1,2-Dichloropropane Bromodichloromethane cis-1,3-Dichloropropene trans-1,3-Dichloropropene 1,1,2-Trichloroethane Toluene Methyl Isobutyl Ketone Dibromochloromethane Methyl Butyl Ketone 1,2-dibromoethane Tetrachloroethylene Chlorobenzene Ethylbenzene Nonane m&p-Xylene Styrene Bromoform o-xylene Cumene Bromofluorobenzene 1,1,2,2-Tetrachloroethane Propylbenzene 2-Chlorotoluene 4-ethyltoluene 1,3,5-trimethylbenzene 1,2,4-trimethylbenzene 1,3-dichlorobenzene benzyl chloride 1,2,3-Trimethylbenzene 1,4-dichlorobenzene 1,2-dichlorobenzene 1,2,4-trichlorobenzene Hexachloro-1,3-butadiene Naphthalene	Carbon Tetrachloride	10	10.37	10.46	9.15	9.18	9.19	9.42	11.21	9.85	0.822	98.5	2.583
	2,2,4-trimethylpentane	10	10.43	10.68	9.19	9.18	9.12	9.6	11.11	9.90	0.824	99.0	2.590
	Heptane	10	10.7	10.71	8.87	9.39	9.11	9.41	10.86	9.86	0.856	98.6	2.690
	Trichloroethene	10	10.82	10.37	9.17	9.17	9.03	9.62	10.97	9.88	0.828	98.8	2.601
	1,2-Dichloropropane	10	10.51	10.55	9.02	9.33	9.08	9.35	11.65	9.93	0.994	99.3	3.124
	Bromodichloromethane	10	10.51	10.56	9.37	9.34	8.84	9.54	11.41	9.94	0.906	99.4	2.848
	cis-1,3-Dichloropropene	10	10.42	10.53	9.12	8.83	9.08	9.42	11.16	9.79	0.897	97.9	2.821
	trans-1,3-Dichloropropene	10	10.64	10.83	9.48	9.39	9.05	9.46	11.82	10.10	1.015	101.0	3.191
	1,1,2-Trichloroethane	10	10.93	10.92	9.14	9.71	8.94	9.49	11.14	10.04	0.932	100.4	2.928
	Toluene	10	10.15	10.59	9.4	9.6	9.2	10.04	11.01	10.00	0.652	100.0	2.050
	Methyl Isobutyl Ketone	10	10	10.43	9.36	9.78	8.92	9.46	10.71	9.81	0.626	98.1	1.966
	Dibromochloromethane	10	10.43	10.49	9.24	9.6	9.11	9.61	10.8	9.90	0.667	99.0	2.098
	Methyl Butyl Ketone	10	10.09	10.23	9.28	9.59	9.02	9.73	10.8	9.82	0.605	98.2	1.901
	1,2-dibromoethane	10	10.04	10.4	9.08	9.12	8.97	9.69	11.12	9.77	0.800	97.7	2.513
	Tetrachloroethylene	10	10.24	10.65	9.57	9.68	9.11	9.99	11.09	10.05	0.675	100.5	2.121
	Chlorobenzene	10	10.34	10.72	9.25	9.63	9.23	9.54	11.11	9.97	0.749	99.7	2.354
	Ethylbenzene	10	9.9	10.45	9.05	9.28	8.94	9.54	10.66	9.69	0.674	96.9	2.118
	Nonane	10	9.93	9.94	9.07	9.57	9.16	9.28	10.95	9.70	0.653	97.0	2.051
	m&p-Xylene	20	20.51	20.84	18.02	18.93	17.84	19.07	21.43	19.52	1.414	97.6	4.444
	Styrene	10	9.94	10.48	8.69	9.42	8.95	9.19	10.79	9.64	0.790	96.4	2.484
	Bromoform	10	10.08	10.66	9.03	9.39	9.11	9.24	10.81	9.76	0.750	97.6	2.358
	o-xylene	10	10.01	10.49	8.94	9.51	9.25	9.46	10.8	9.78	0.678	97.8	2.131
	Cumene	10	10.27	10.75	9.51	9.67	9.28	10.05	11.16	10.10	0.681	101.0	2.141
	Bromofluorobenzene	50	49.2	51.66	50.49	50.25	50.28	51.7	51.3	50.70	0.909	101.4	2.856
	1,1,2,2-Tetrachloroethane	10	10.25	10.54	9.44	9.63	9.35	9.79	11.27	10.04	0.692	100.4	2.175
	Propylbenzene	10	10.16	10.52	9.15	9.63	8.94	9.82	11.06	9.90	0.748	99.0	2.352
	2-Chlorotoluene	10	9.85	10.09	8.97	9.48	8.99	9.7	10.73	9.69	0.622	96.9	1.954
	4-ethyltoluene	10	10.22	10.49	9.19	9.63	8.84	9.64	11.17	9.88	0.799	98.8	2.511
1,3,5-trimethylbenzene	10	9.66	9.72	9.51	9.31	9.05	9.74	10.64	9.66	0.498	96.6	1.565	
1,2,4-trimethylbenzene	10	10.48	10.28	9.18	9.98	9.32	9.8	11.69	10.10	0.843	101.0	2.650	
1,3-dichlorobenzene	10	10.28	10.68	9.44	9.82	8.8	9.6	12.68	10.19	1.254	101.9	3.940	
benzyl chloride	10	9.28	10.63	9.25	9.36	8.15	9.27	12.03	9.71	1.250	97.1	3.929	
1,2,3-Trimethylbenzene	10	10.02	10.23	9.19	10.03	8.87	9.85	11.56	9.96	0.860	99.6	2.702	
1,4-dichlorobenzene	10	9.95	11.82	9.84	10.08	9.16	9.77	13.04	10.52	1.380	105.2	4.339	
1,2-dichlorobenzene	10	9.76	10.39	8.79	9.69	9.23	9.6	12.7	10.02	1.279	100.2	4.019	
1,2,4-trichlorobenzene	10	10.69	10.79	11.52	10.86	10.33	11.07	12.16	11.06	0.606	110.6	1.905	
Hexachloro-1,3-butadiene	10	9.76	10.31	9.54	9.81	9.02	9.78	11.14	9.91	0.665	99.1	2.089	
Naphthalene	10	10.35	10.1	10.22	10.19	9.17	11.32	13.14	10.64	1.267	106.4	3.981	

Compound	Amt	IDL #1	IDL #2	IDL #3	IDL #4	IDL #5	IDL #6	IDL #7	AVG	StdDev	%Rec	IDL
Carbonyl Sulfide	20	18.64	19.98	21.97	18.76	20.46	20.19	19.43	19.92	1.14	99.6%	3.582
Methyl Mercaptan	20	17.98	19.86	20.9	18.9	19.34	18.96	18.06	19.14	1.02	95.7%	3.210
Ethyl Mercaptan	20	17.93	19.49	19.91	18.19	18.68	18.45	17.19	18.55	0.92	92.7%	2.904
Dimethyl Sulfide	20	18.13	20.16	21.57	20.02	20.54	19.98	18.36	19.82	1.21	99.1%	3.795
Carbon Disulfide	20	19.04	20.71	22.08	20.4	20.95	20.35	19.56	20.44	0.98	102.2%	3.081
Isopropyl Mercaptan	20	17.12	18.5	19.05	18.28	18.58	17.48	18.11	18.16	0.66	90.8%	2.087
Trimethyl silanol	20	21.43	22.81	22.12	22.91	22.75	22.04	20.92	22.14	0.75	110.7%	2.372
1-Propanethiol	20	16.12	17.33	18.92	16.46	17.64	16.1	16.38	16.99	1.04	85.0%	3.263
Hexamethyldisiloxane-L2	20	20.3	21.62	19.64	20.29	21.79	20.16	18.92	20.39	1.02	101.9%	3.212
Hexamethylcyclotrisiloxane-D3	20	22.32	22.26	20.51	21.7	22.8	20.96	20.81	21.62	0.88	108.1%	2.759
Octamethyltrisiloxane-L3	20	20.33	21.64	20.03	20.18	22.29	20.4	19.33	20.60	1.01	103.0%	3.166
Octamethylcyclotetrasiloxane-D4	20	20.34	20.47	18.68	19.6	21.88	18.95	19.13	19.86	1.12	99.3%	3.515
Decamethyltetrasiloxane-L4	20	19.39	20.86	19.02	19.16	21.67	19.15	18.31	19.65	1.18	98.3%	3.695
Decamethylcyclopentasiloxane-D5	20	20.1	21.41	20.03	20.49	22.53	19.95	19.86	20.62	0.99	103.1%	3.126
Dodecamethylpentasiloxane-L5	20	20.77	19.59	19.2	20.16	19.92	18.78	18.89	19.62	0.72	98.1%	2.266
Dodecamethylcyclohexasiloxane-D6	20	18.33	20.89	18.29	20.65	22.81	18.16	19.43	19.79	1.74	99.0%	5.480

Centek Laboratories
IDL Study

5ppb Detection Limit
January 12 2017
MSD#4- 5973

Method TO-15
Units=ppb

Compound	Amt	IDL #1	IDL #2	IDL #3	IDL #4	IDL #5	IDL #6	IDL #7	AVG	StdDev	%Rec	IDL
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Hydrogen Sulfide	15	15.33	14.8	14.75	13.58	13.9	13.17	14.05	14.23	0.76	94.8%	2.398
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Confidential

GC/MS-Whole Air Calculations

Relative Response Factor (RRF)

$$RRF = \frac{A_x * C_{is}}{A_{is} * C_x}$$

where: A_x = area of the characteristic ion for the compound being measured
 A_{is} = area of the characteristic ion for the specific internal standard of the compound being measured
 C_x = concentration of the compound being measured (ppbv)
 C_{is} = concentration of the internal standard (ppbv)

Percent Relative Standard Deviation (%RSD)

$$\% RSD = \frac{\text{Standard deviation of RRF values} * 100}{\text{mean RRF}}$$

Percent Difference (%D)

$$\% D = \frac{(RRF_c - \text{mean } RRF_i) * 100}{\text{mean } RRF_i}$$

where: RRF_c = relative response factor from the continuing calibration
 $\text{mean } RRF_i$ = mean relative response factor from the initial calibration

Sample Calculations

$$ppbv = \frac{A_x * I_s * D_f}{A_{is} * RRF}$$

where: A_x = area of the characteristic ion for the compound being measured
 A_{is} = area of the characteristic ion for the specific internal standard of the compound being measured
 I_s = Concentration of the internal standard injected (ppbv)
 RRF = relative response factor for the compound being measured
 D_f = Dilution factor

GC/MS VOLATILES-WHOLE AIR

METHOD TO-15

SAMPLE DATA

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-001A

Client Sample ID: WAT-SV04-050817
 Tag Number: 646.80
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	0.410	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	74.9	8.30		%	1	5/15/2017
Oxygen	20.2	0.880		%	1	5/15/2017
SPPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,1-Dichloroethene	6.3	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,2-Dichloroethane	18	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,2-Dichloropropane	13	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
1,4-Dioxane	< 10	10		ppbV	1	5/17/2017 11:58:00 AM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Acetone	8.6	10	J	ppbV	1	5/17/2017 11:58:00 AM
Allyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Benzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Bromoform	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Bromomethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Chloroethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Chloroform	1500	200		ppbV	40	5/17/2017 6:11:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-001A

Client Sample ID: WAT-SV04-050817
 Tag Number: 646.80
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15				TO-15		Analyst: WD
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Cyclohexane	5.6	5.0		ppbV	1	5/17/2017 11:58:00 AM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 11:58:00 AM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Heptane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Hexane	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
m&p-Xylene	< 10	10		ppbV	1	5/17/2017 11:58:00 AM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 11:58:00 AM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/17/2017 11:58:00 AM
Methyl Isobutyl Ketone	1.9	10	J	ppbV	1	5/17/2017 11:58:00 AM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Methylene chloride	4.6	5.0	J	ppbV	1	5/17/2017 11:58:00 AM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Propylene	4.3	5.0	J	ppbV	1	5/17/2017 11:58:00 AM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Tetrachloroethylene	9.3	5.0		ppbV	1	5/17/2017 11:58:00 AM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Toluene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Trichloroethene	24	5.0		ppbV	1	5/17/2017 11:58:00 AM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 11:58:00 AM
Surr: Bromofluorobenzene	89.4	73.7-124		%REC	1	5/17/2017 11:58:00 AM
TIC: Cyclotetrasiloxane, octamethyl-	22	0	JN	ppbV	1	5/17/2017 11:58:00 AM
TIC: Cyclotrisiloxane, hexamethyl	15	0	JN	ppbV	1	5/17/2017 11:58:00 AM
TIC: Hydrogen sulfide	680	0	JN	ppbV	1	5/17/2017 11:58:00 AM
LOW LEVEL SULFURS BY TO-15				TO-15		Analyst: WD
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 12:19:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-001A

Client Sample ID: WAT-SV04-050817
 Tag Number: 646.80
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15				TO-15		Analyst: WD
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 12:19:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 12:19:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 12:19:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 12:19:00 PM
Hydrogen Sulfide	2700	50		ppbV	10	5/16/2017 9:38:00 PM
Isopropyl mercaptan	1.5	5.0	J	ppbV	1	5/16/2017 12:19:00 PM
Methyl mercaptan	1.7	5.0	J	ppbV	1	5/16/2017 12:19:00 PM
Surr: Bromofluorobenzene	155	70-130	S	%REC	1	5/16/2017 12:19:00 PM
Surr: Bromofluorobenzene	111	70-130		%REC	10	5/16/2017 9:38:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 3 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT:	CH2M - St Louis	Client Sample ID:	WAT-SV04-050817
Lab Order:	C1705036	Tag Number:	646.80
Project:	Former Hampshire	Collection Date:	5/8/2017
Lab ID:	C1705036-001A	Matrix:	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 11:58:00 AM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 11:58:00 AM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 11:58:00 AM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 11:58:00 AM
1,1-Dichloroethene	25	20		ug/m3	1	5/17/2017 11:58:00 AM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 11:58:00 AM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 11:58:00 AM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 11:58:00 AM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 11:58:00 AM
1,2-Dichloroethane	73	20		ug/m3	1	5/17/2017 11:58:00 AM
1,2-Dichloropropane	61	23		ug/m3	1	5/17/2017 11:58:00 AM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 11:58:00 AM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 11:58:00 AM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 11:58:00 AM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 11:58:00 AM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 11:58:00 AM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 11:58:00 AM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 11:58:00 AM
Acetone	20	24	J	ug/m3	1	5/17/2017 11:58:00 AM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 11:58:00 AM
Benzene	< 16	16		ug/m3	1	5/17/2017 11:58:00 AM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 11:58:00 AM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 11:58:00 AM
Bromoform	< 52	52		ug/m3	1	5/17/2017 11:58:00 AM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 11:58:00 AM
Carbon disulfide	< 16	16		ug/m3	1	5/17/2017 11:58:00 AM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 11:58:00 AM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 11:58:00 AM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 11:58:00 AM
Chloroform	7300	980		ug/m3	40	5/17/2017 6:11:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 11:58:00 AM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 11:58:00 AM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 11:58:00 AM
Cyclohexane	19	17		ug/m3	1	5/17/2017 11:58:00 AM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 11:58:00 AM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 11:58:00 AM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 11:58:00 AM
Freon 11	< 28	28		ug/m3	1	5/17/2017 11:58:00 AM
Freon 113	< 38	38		ug/m3	1	5/17/2017 11:58:00 AM
Freon 114	< 35	35		ug/m3	1	5/17/2017 11:58:00 AM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT:	CH2M - St Louis	Client Sample ID:	WAT-SV04-050817
Lab Order:	C1705036	Tag Number:	646.80
Project:	Fonner Hampshire	Collection Date:	5/8/2017
Lab ID:	C1705036-001A	Matrix:	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
SPPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 11:58:00 AM
Heptane	< 20	20		ug/m3	1	5/17/2017 11:58:00 AM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 11:58:00 AM
Hexane	< 18	18		ug/m3	1	5/17/2017 11:58:00 AM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 11:58:00 AM
m&p-Xylene	< 43	43		ug/m3	1	5/17/2017 11:58:00 AM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 11:58:00 AM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/17/2017 11:58:00 AM
Methyl Isobutyl Ketone	7.9	41	J	ug/m3	1	5/17/2017 11:58:00 AM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 11:58:00 AM
Methylene chloride	16	17	J	ug/m3	1	5/17/2017 11:58:00 AM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 11:58:00 AM
Propylene	7.5	8.6	J	ug/m3	1	5/17/2017 11:58:00 AM
Styrene	< 21	21		ug/m3	1	5/17/2017 11:58:00 AM
Tetrachloroethylene	63	34		ug/m3	1	5/17/2017 11:58:00 AM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 11:58:00 AM
Toluene	< 19	19		ug/m3	1	5/17/2017 11:58:00 AM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 11:58:00 AM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 11:58:00 AM
Trichloroethene	130	27		ug/m3	1	5/17/2017 11:58:00 AM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 11:58:00 AM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 11:58:00 AM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 11:58:00 AM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 12:19:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 12:19:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 12:19:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 12:19:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 12:19:00 PM
Hydrogen Sulfide	3700	70		ug/m3	10	5/16/2017 9:38:00 PM
Isopropyl mercaptan	4.8	16	J	ug/m3	1	5/16/2017 12:19:00 PM
Methyl mercaptan	3.3	9.8	J	ug/m3	1	5/16/2017 12:19:00 PM

Qualifiers:	** Quantitation Limit	.	Results reported are not blank corrected
	B Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S Spike Recovery outside accepted recovery limits		

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Data File : C:\HPCHEM\1\DATA\DH051707.D
 Acq On : 17 May 2017 11:58 am
 Sample : C1705036-001A
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: Jun 1 11:08 2017

Vial: 3
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.94	128	97071	50.00	ppb	-0.02
40) 1,4-difluorobenzene	12.17	114	575312	50.00	ppb	-0.01
57) Chlorobenzene-d5	16.48	117	434670	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	275589	44.70	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	89.40%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.16	41	13625	4.34	ppb	82
16) Acetone	6.11	43	31231	8.56	ppb	95
19) 1,1-Dichloroethene	6.67	96	17019m 43	6.34	ppb	
23) Methylene Chloride	7.14	84	11615m	4.65	ppb	
24) Carbon disulfide	7.34	76	8111m	1.11	ppb	
33) Chloroform	10.09	83	17878895	2572.84	ppb	98
36) 1,2-Dichloroethane	11.22	62	78829	17.95	ppb	99
38) Carbon Tetrachloride	11.54	117	14712	1.93	ppb	99
39) Cyclohexane	11.58	56	34741	5.65	ppb	97
43) Trichloroethene	12.78	130	108967	24.17	ppb	99
44) 1,2-Dichloropropane	12.89	63	62210	13.22	ppb	99
48) Methyl Isobutyl Ketone	13.88	43	18645	1.92	ppb	93
55) Tetrachloroethylene	15.63	164	48600	9.29	ppb	99
60) m&p-Xylene	16.92	106	9341m 43	1.43	ppb	

(#) = qualifier out of range (m) = manual integration

DH051707.D I0511T15.M Thu Jun 01 11:50:33 2017

Page 1

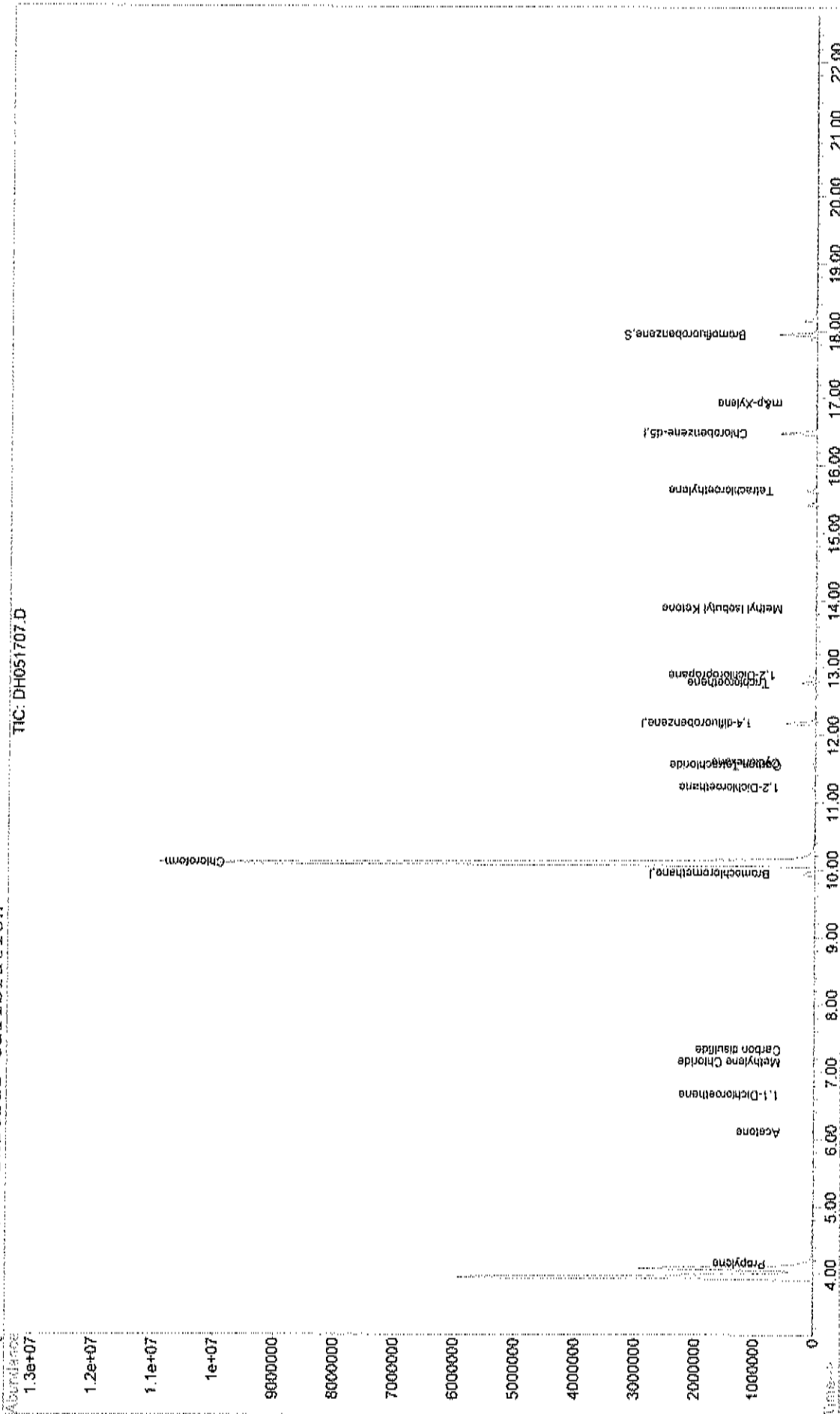
Quantitation Report

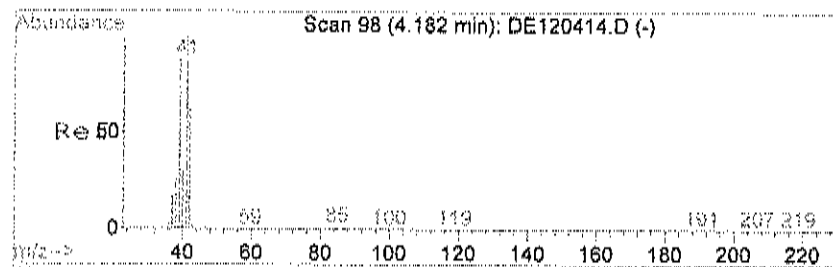
Data File : C:\HPCHEM\1\DATA\DH051707.D
 Acq On : 17 May 2017 11:58 am
 Sample : C1705036-001A
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: Jun 1 11:08 2017

Vial: 3
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

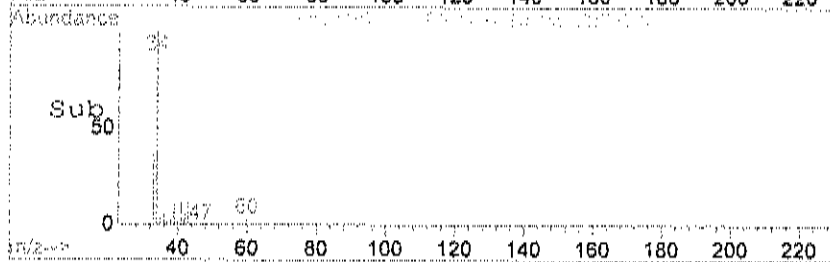
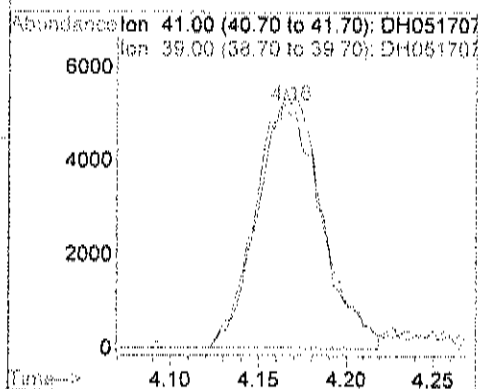
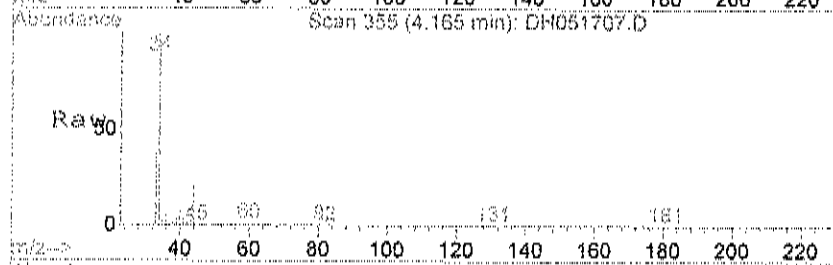
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration





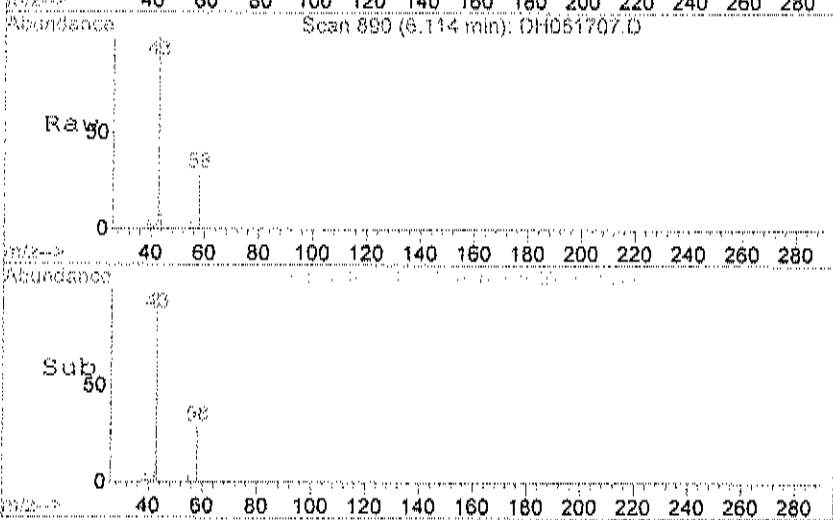
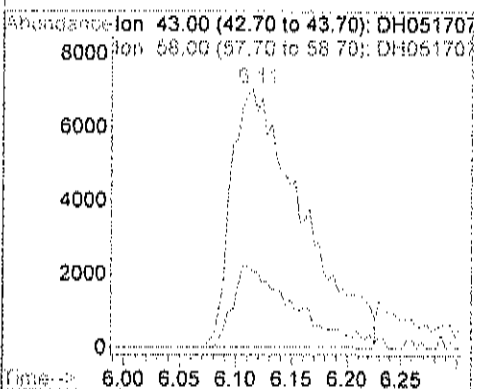
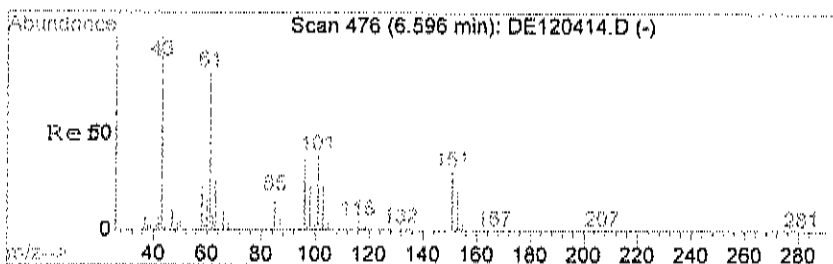
#2
Propylene
Concen: 4.34 ppb
RT: 4.16 min Scan# 355
Delta R.T. -0.02 min
Lab File: DH051707.D
Acq: 17 May 2017 11:58 am

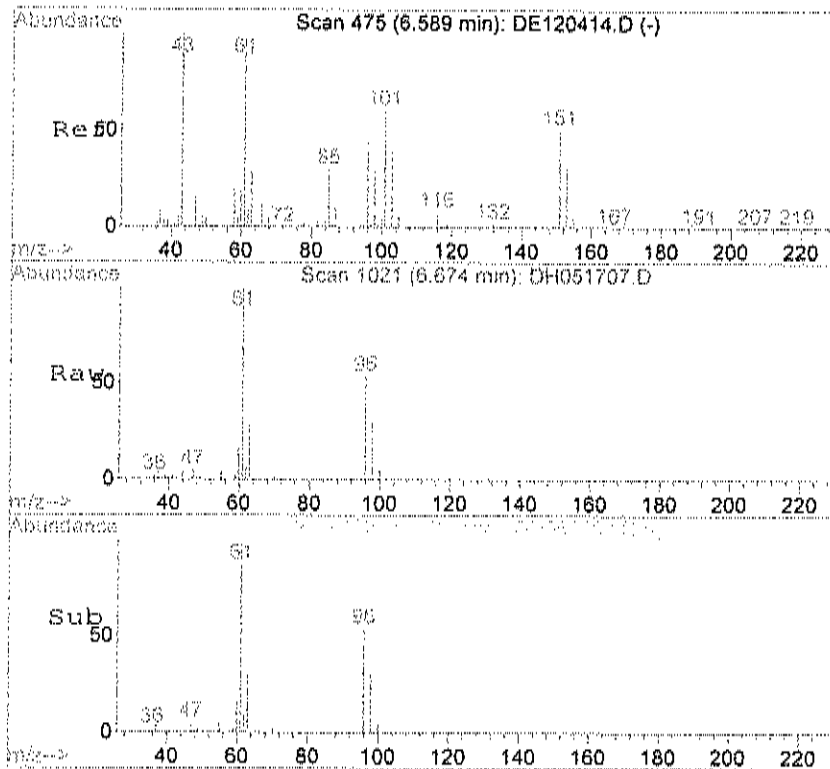
Tgt Ion: 41 Resp: 13625
Ion Ratio Lower Upper
41 100
39 101.3 42.4 127.1



#16
Acetone
Concen: 8.56 ppb
RT: 6.11 min Scan# 890
Delta R.T. 0.00 min
Lab File: DH051707.D
Acq: 17 May 2017 11:58 am

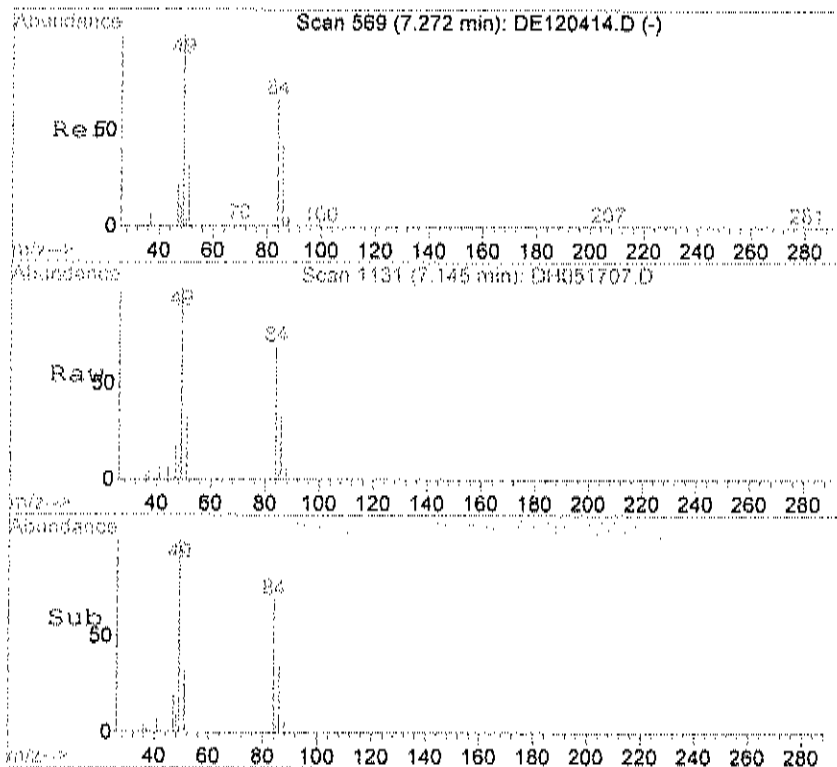
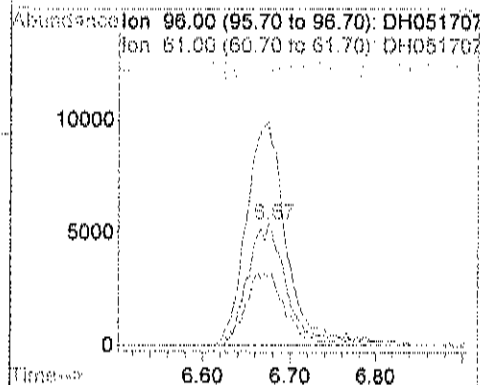
Tgt Ion: 43 Resp: 31231
Ion Ratio Lower Upper
43 100
58 26.0 3.7 43.7





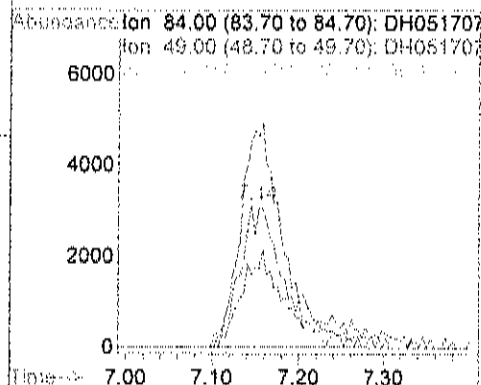
#19
1,1-Dichloroethene
Concen: 6.34 ppb m
RT: 6.67 min Scan# 1021
Delta R.T. -0.03 min
Lab File: DH051707.D
Acq: 17 May 2017 11:58 am

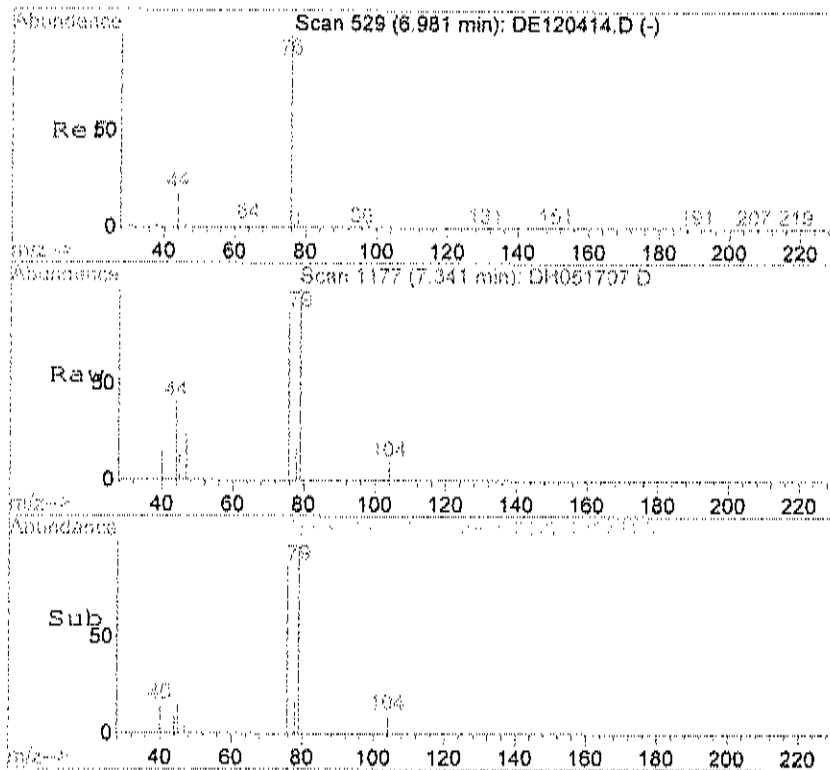
Tgt Ion	96	Resp	17019
Ion	Ratio	Lower	Upper
96	100		
61	182.3	179.9	219.9
98	24.6	43.7	83.7#



#23
Methylene Chloride
Concen: 4.65 ppb m
RT: 7.14 min Scan# 1131
Delta R.T. -0.03 min
Lab File: DH051707.D
Acq: 17 May 2017 11:58 am

Tgt Ion	84	Resp	11615
Ion	Ratio	Lower	Upper
84	100		
49	143.9	124.3	164.3
86	60.1	43.0	83.0





#24

Carbon disulfide

Concen: 1.11 ppb m

RT: 7.34 min Scan# 1177

Delta R.T. -0.00 min

Lab File: DH051707.D

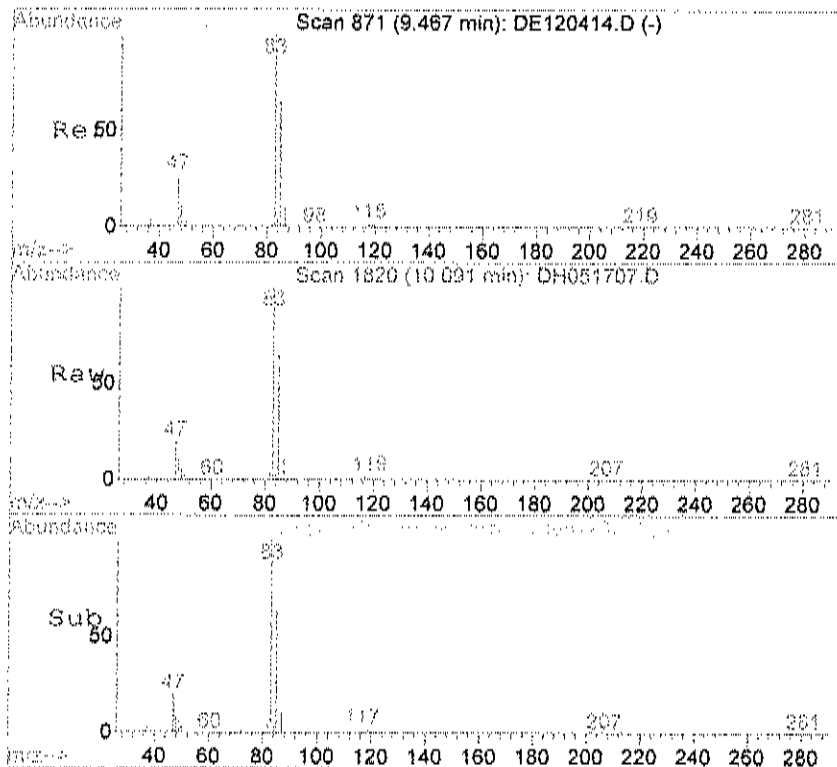
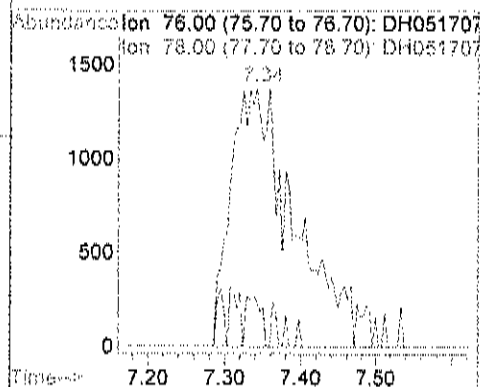
Acq: 17 May 2017 11:58 am

Tgt Ion: 76 Resp: 8111

Ion Ratio Lower Upper

76 100

78 4.5 0.0 29.3



#33

Chloroform

Concen: 2572.84 ppb

RT: 10.09 min Scan# 1820

Delta R.T. -0.02 min

Lab File: DH051707.D

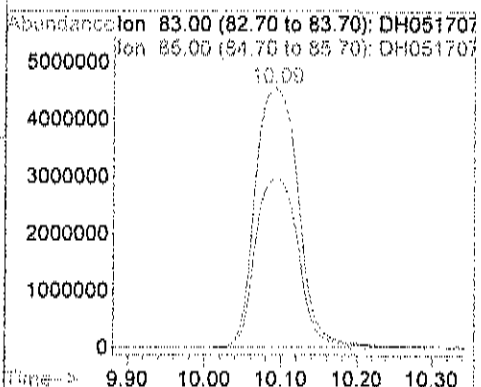
Acq: 17 May 2017 11:58 am

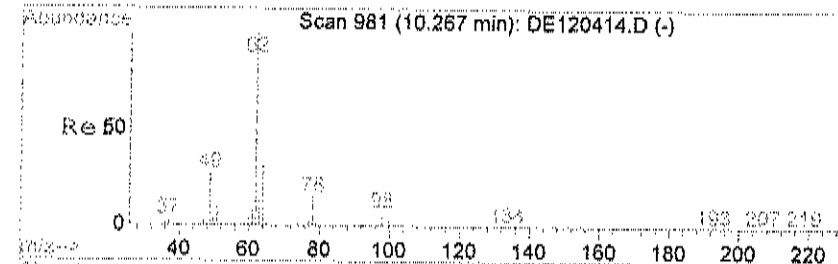
Tgt Ion: 83 Resp: 17878895

Ion Ratio Lower Upper

83 100

85 64.9 43.5 83.5





#36

1,2-Dichloroethane

Concen: 17.95 ppb

RT: 11.22 min Scan# 2085

Delta R.T. -0.01 min

Lab File: DH051707.D

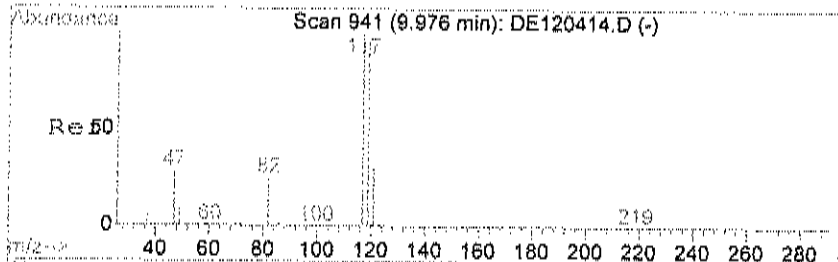
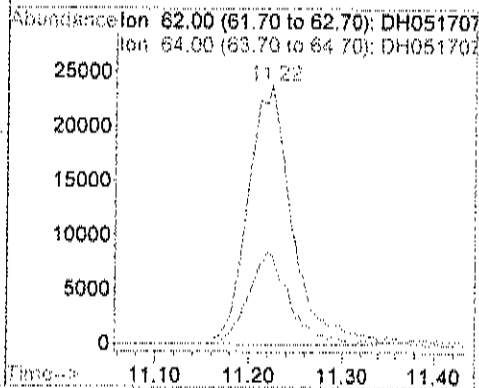
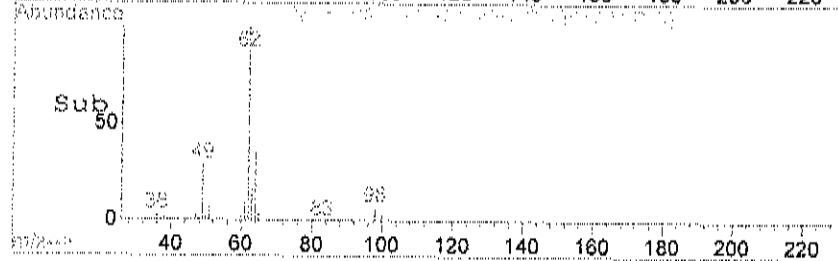
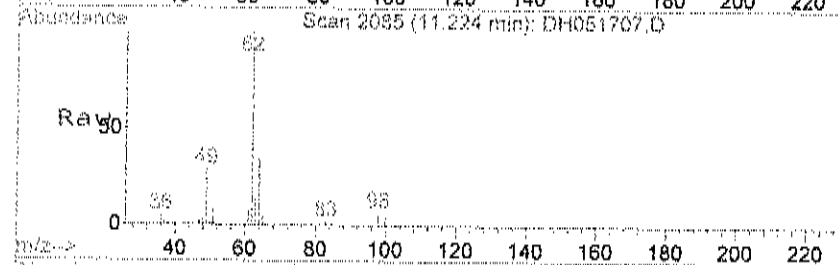
Acq: 17 May 2017 11:58 am

Tgt Ion: 62 Resp: 78829

Ion Ratio Lower Upper

62 100

64 33.1 12.8 52.8



#38

Carbon Tetrachloride

Concen: 1.93 ppb

RT: 11.54 min Scan# 2160

Delta R.T. ~0.00 min

Lab File: DH051707.D

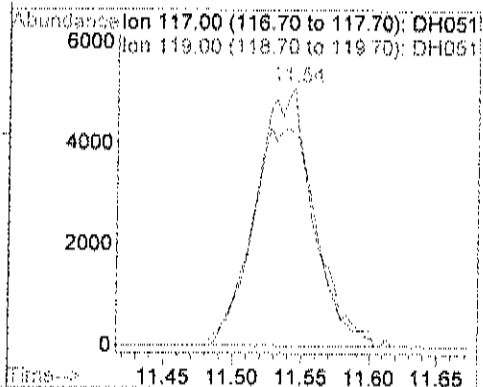
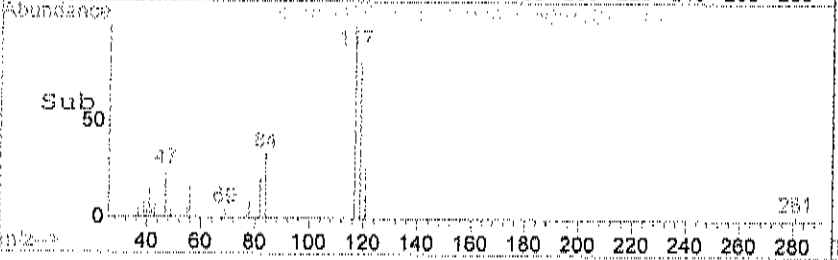
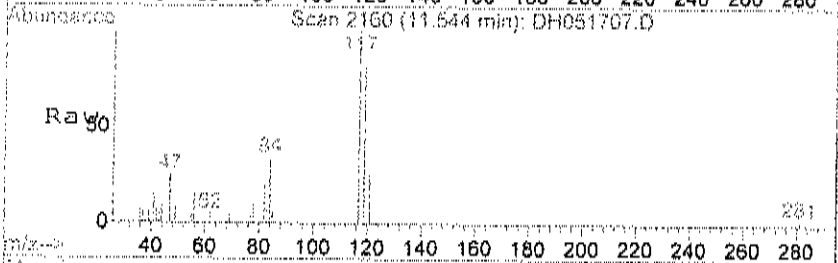
Acq: 17 May 2017 11:58 am

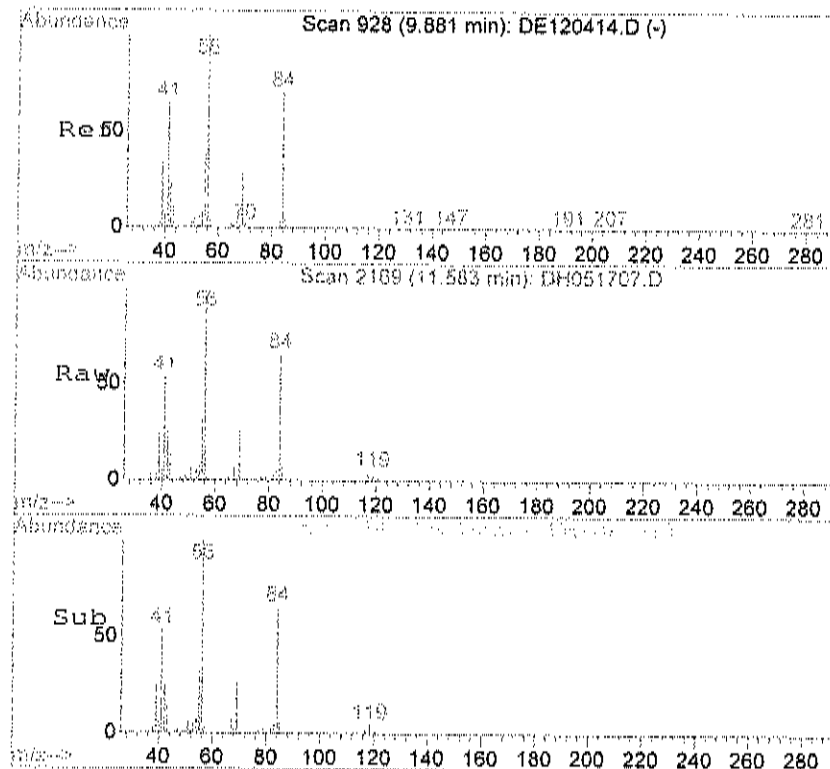
Tgt Ion: 117 Resp: 14712

Ion Ratio Lower Upper

117 100

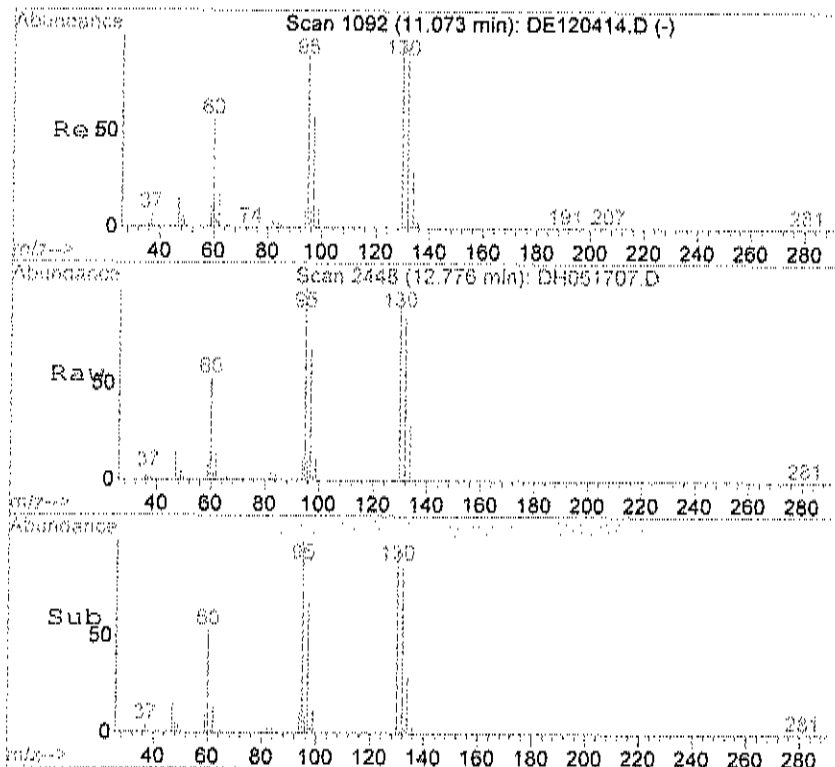
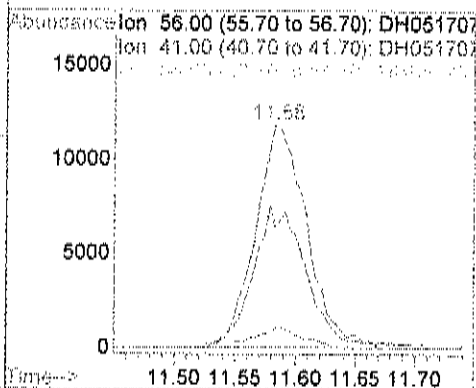
119 94.8 74.2 114.2





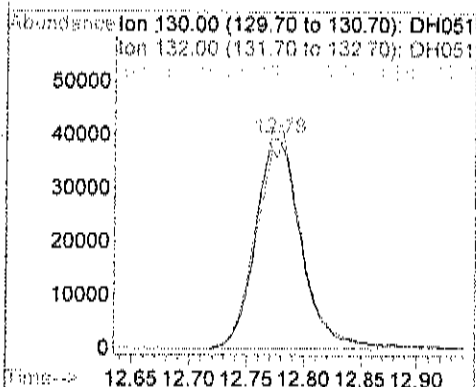
#39
Cyclohexane
Concen: 5.65 ppb
RT: 11.58 min Scan# 2169
Delta R.T. -0.02 min
Lab File: DH051707.D
Acq: 17 May 2017 11:58 am

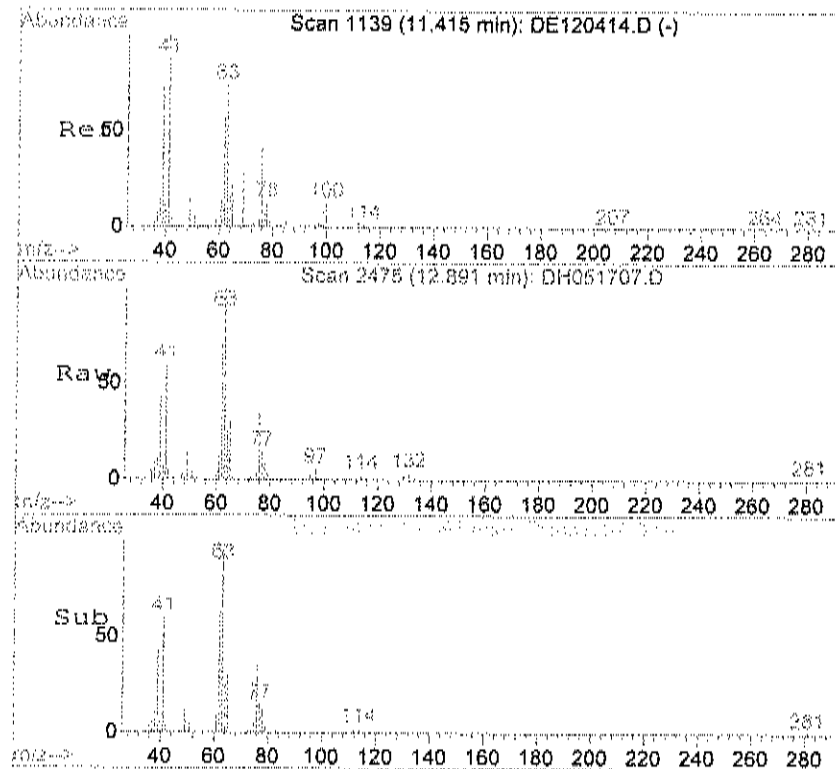
Tgt Ion:	56	Resp:	34741
Ion	Ratio	Lower	Upper
56	100		
41	64.9	47.0	87.0
54	8.1	0.0	27.5



#43
Trichloroethene
Concen: 24.17 ppb
RT: 12.78 min Scan# 2448
Delta R.T. -0.01 min
Lab File: DH051707.D
Acq: 17 May 2017 11:58 am

Tgt Ion:	130	Resp:	108967
Ion	Ratio	Lower	Upper
130	100		
132	96.1	77.9	117.9
95	106.0	85.8	125.8





#44

1,2-Dichloropropane

Concen: 13.22 ppb

RT: 12.89 min Scan# 2475

Delta R.T. -0.01 min

Lab File: DH051707.D

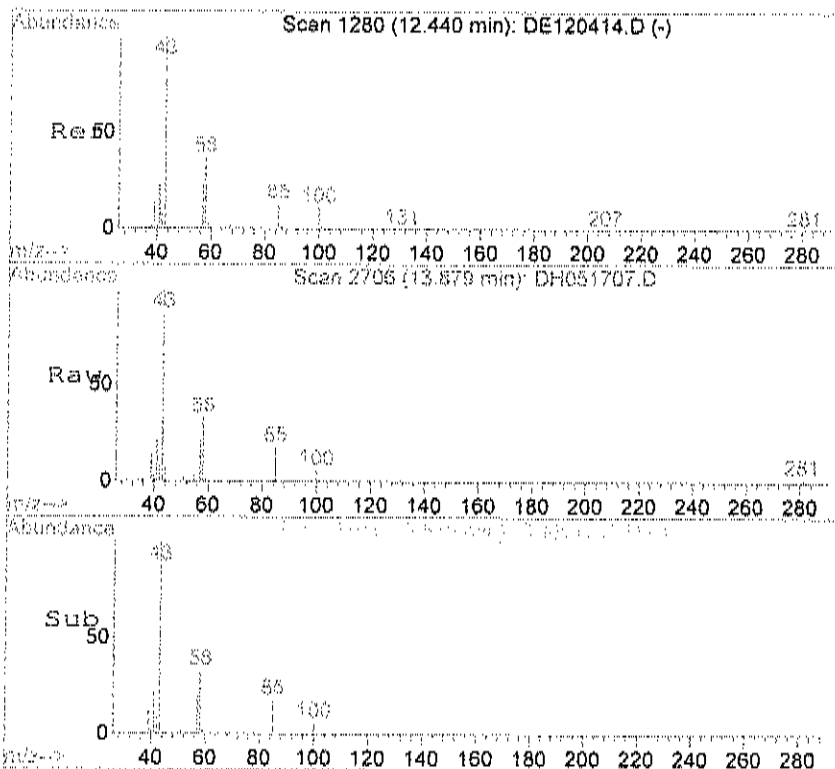
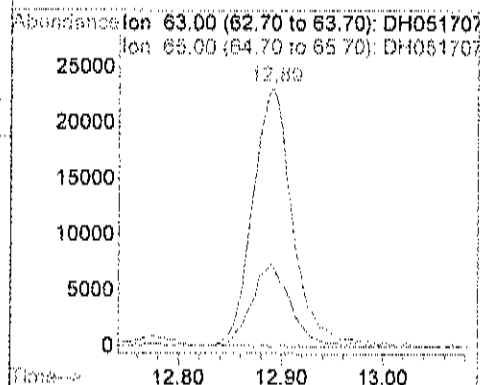
Acq: 17 May 2017 11:58 am

Tgt Ion: 63 Resp: 62210

Ion Ratio Lower Upper

63 100

65 30.6 11.1 51.1



#48

Methyl Isobutyl Ketone

Concen: 1.92 ppb

RT: 13.88 min Scan# 2706

Delta R.T. 0.00 min

Lab File: DH051707.D

Acq: 17 May 2017 11:58 am

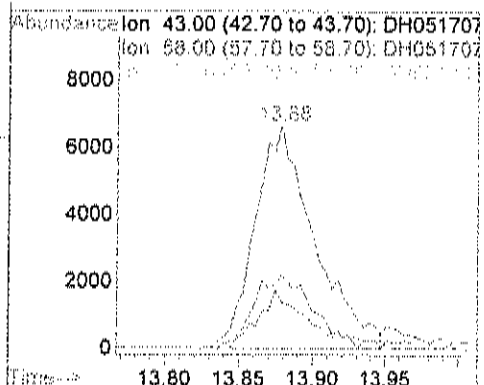
Tgt Ion: 43 Resp: 18645

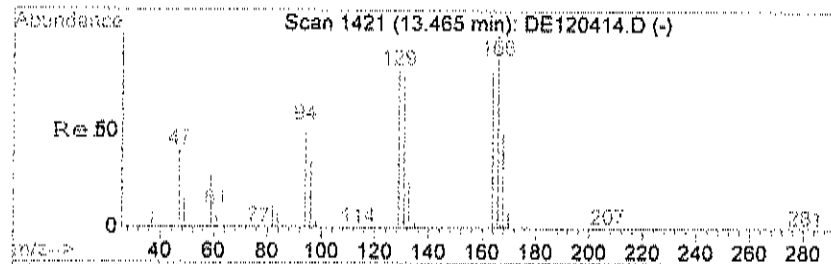
Ion Ratio Lower Upper

43 100

58 33.7 15.8 55.8

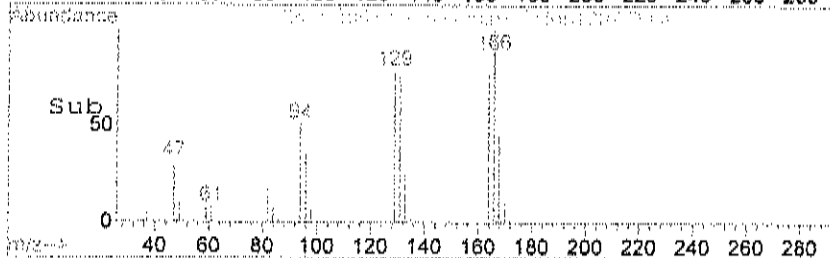
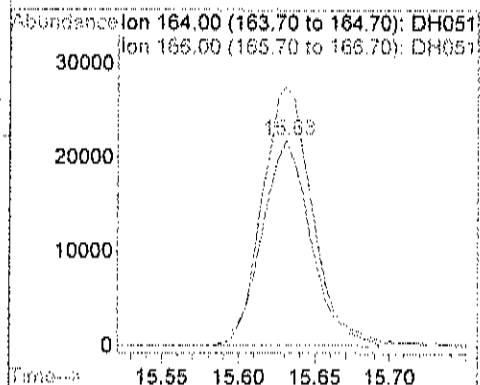
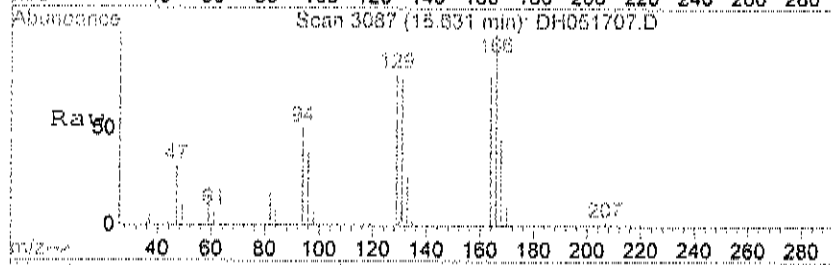
57 21.1 6.8 46.8





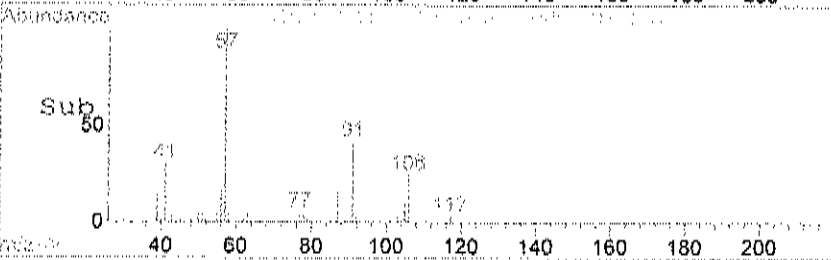
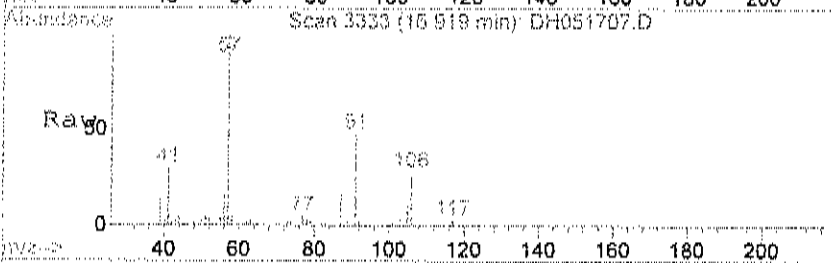
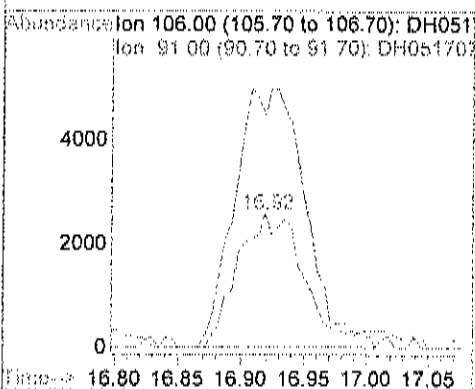
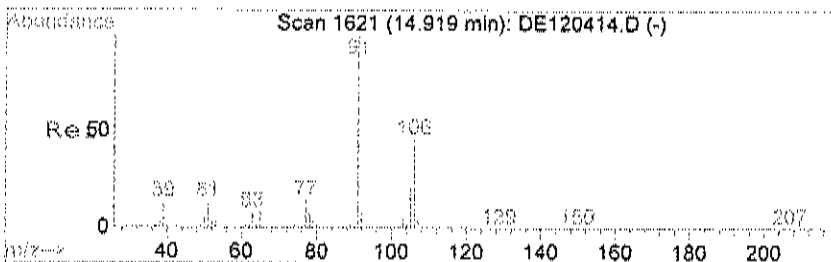
#55
Tetrachloroethylene
Concen: 9.29 ppb
RT: 15.63 min Scan# 3087
Delta R.T. ~0.01 min
Lab File: DH051707.D
Acq: 17 May 2017 11:58 am

Tgt Ion:164 Resp: 48600
Ion Ratio Lower Upper
164 100
166 130.3 110.9 150.9



#60
m&p-Xylene
Concen: 1.43 ppb m
RT: 16.92 min Scan# 3333
Delta R.T. -0.02 min
Lab File: DH051707.D
Acq: 17 May 2017 11:58 am

Tgt Ion:106 Resp: 9341
Ion Ratio Lower Upper
106 100
91 95.9 202.1 242.1#



Data File : C:\HPCHEM\1\DATA2\DH051707.D
Acq On : 17 May 2017 11:58 am
Sample : C1705036-001A
Misc : T015
MS Integration Params: LSCINT.P

Vial: 3
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 3 % of largest Peak
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

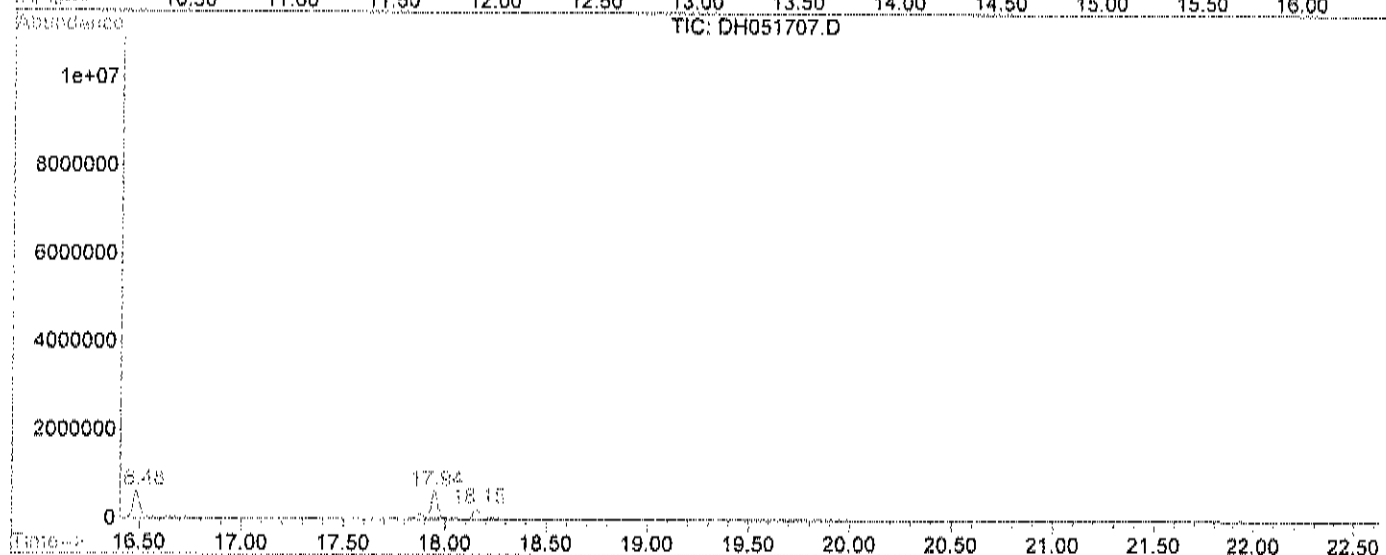
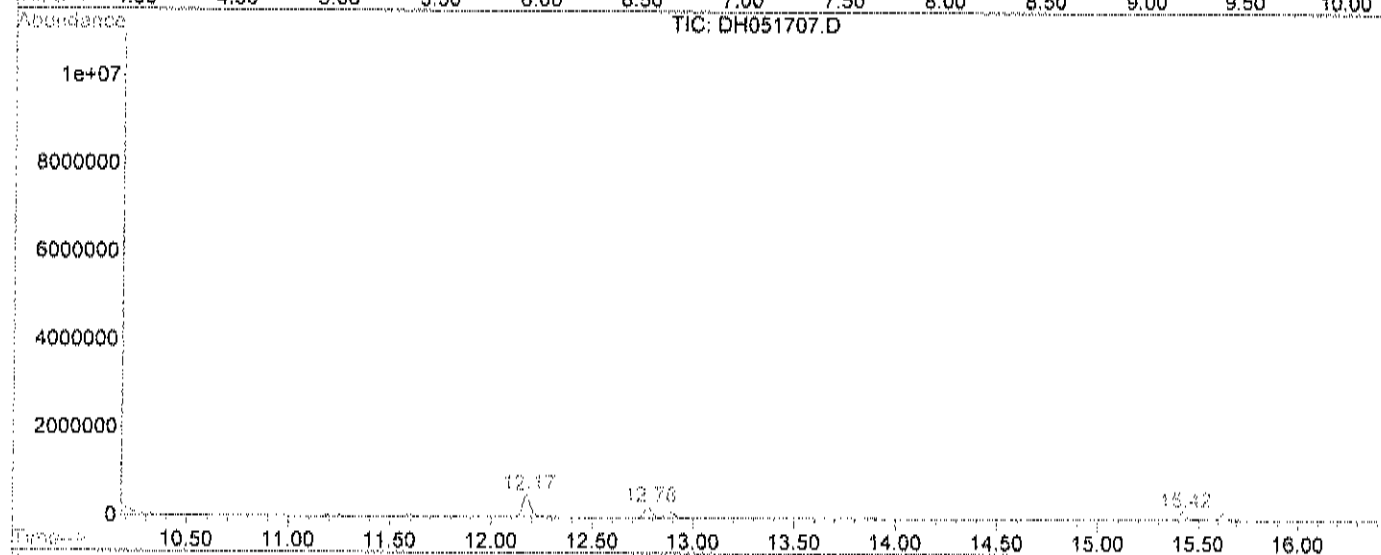
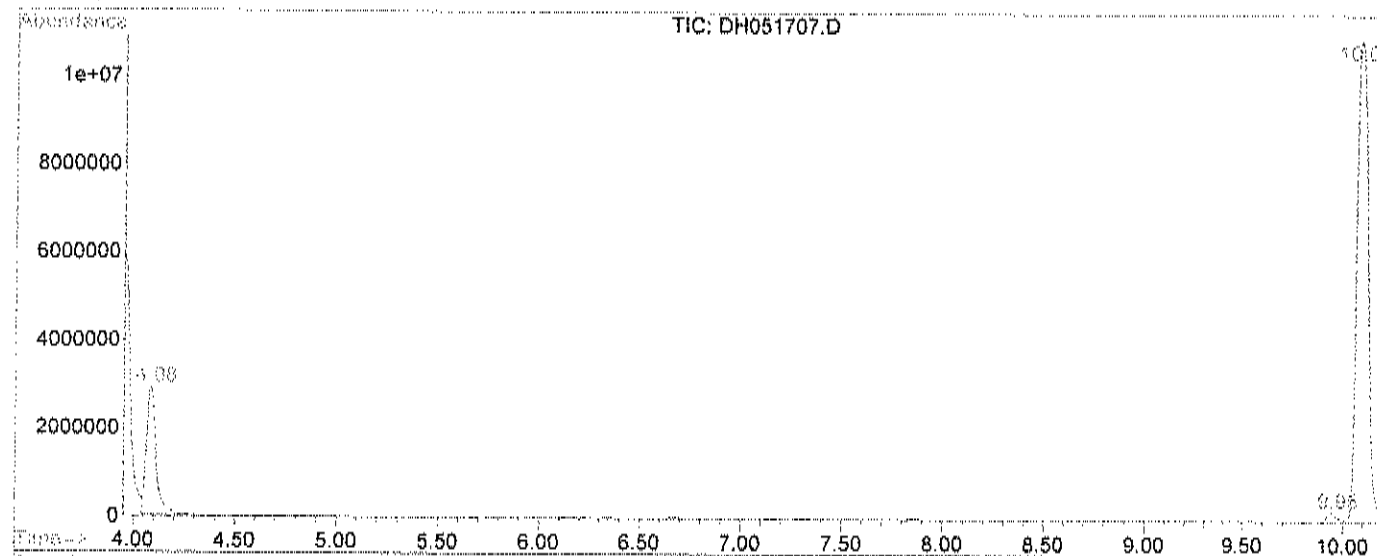
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	4.080	314	327	397	rVB	2911056	9839000	22.94%	16.590%
2	9.945	1767	1786	1801	rBV2	202878	725394	1.69%	1.223%
3	10.091	1802	1820	1864	rVV2	10916487	42885063	100.00%	72.309%
4	12.173	2292	2307	2334	rBV	511006	1405990	3.28%	2.371%
5	12.776	2434	2448	2462	rBV2	231235	621133	1.45%	1.047%
6	15.421	3038	3047	3066	rBV	168559	448401	1.05%	0.756%
7	16.479	3239	3249	3267	rBV	615663	1463014	3.41%	2.467%
8	17.945	3522	3529	3543	rVB	632763	1276669	2.98%	2.153%
9	18.154	3560	3569	3593	rBV	239541	643764	1.50%	1.085%

Sum of corrected areas: 59308428

DH051707.D I0511T15.M Mon Jun 19 13:51:36 2017

LSC Report - Integrated Chromatogram

File : C:\HPCHEM\1\DATA2\DH051707.D
Operator : WD
Acquired : 17 May 2017 11:58 am using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-001A
Misc Info : T015
Vial Number: 3
Quant File : I0511T15.RES (RTE Integrator)



DH051707.D I0511T15.M Mon Jun 19 13:51:38 2017

Data File : C:\HPCHEM\1\DATA2\DH051707.D
Acq On : 17 May 2017 11:58 am
Sample : C1705036-001A
Misc : TO15
MS Integration Params: LSCINT.P

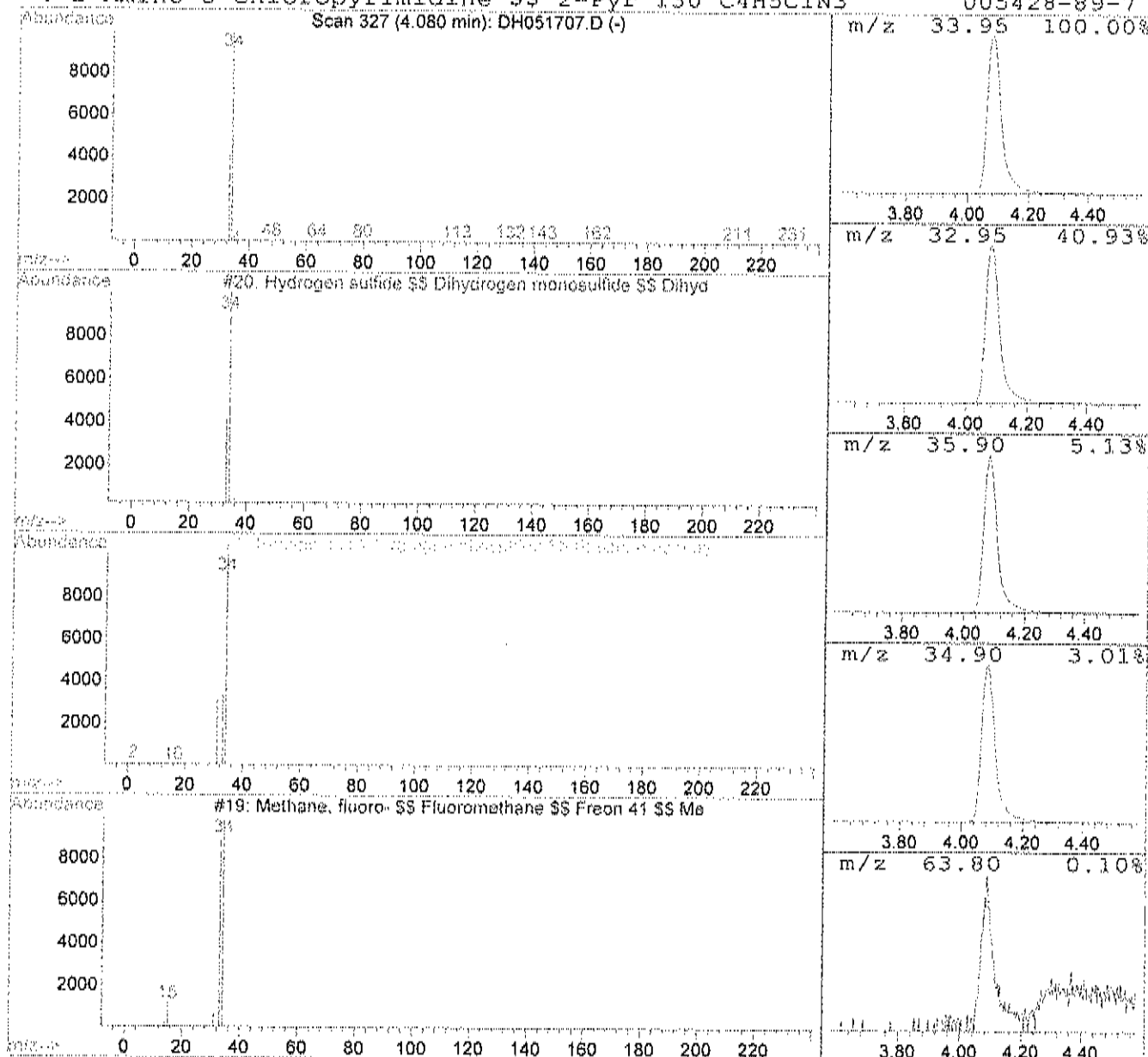
Vial: 3
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 1 Hydrogen sulfide Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.08	678.18 ppb	9839000	Bromochloromethane	9.94

Hit# of	S	Tentative ID	MW	MolForm	CAS#	Qual
1		Hydrogen sulfide \$\$ Dihydrogen mono	34	H2S	007783-06-4	78
2		Phosphine \$\$ Hydrogen phosphide \$\$	34	H3P	007803-51-2	7
3		Methane, fluoro- \$\$ Fluoromethane \$	34	CH3F	000593-53-3	3
4		2-Amino-5-chloropyrimidine \$\$ 2-Pyr	130	C4H5ClN3	005428-89-7	1



Data File : C:\HPCHEM\1\DATA2\DH051707.D
Acq On : 17 May 2017 11:58 am
Sample : C1705036-001A
Misc : T015
MS Integration Params: LSCINT.P

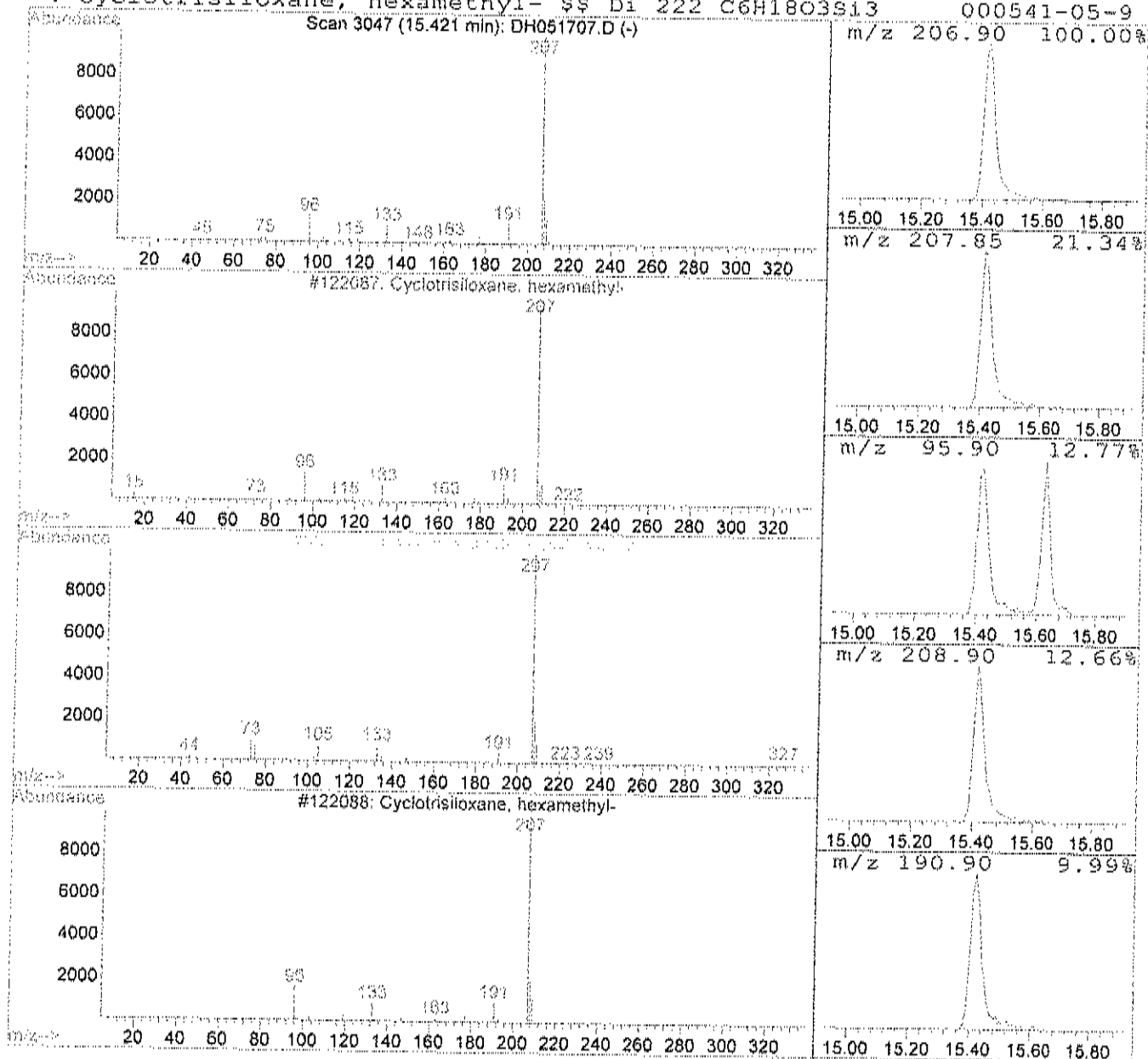
Vial: 3
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 2 Cyclotrisiloxane, hexamethyl- Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
15.42	15.32 ppb	448401	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	80
2			Arsenous acid, tris(trimethylsilyl)	342	C9H27AsO3Si3	055429-29-3	56
3			Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	52
4			Cyclotrisiloxane, hexamethyl- \$\$ Di	222	C6H18O3Si3	000541-05-9	52



Data File : C:\HPCHEM\1\DATA2\DH051707.D
 Acq On : 17 May 2017 11:58 am
 Sample : C1705036-001A
 Misc : T015
 MS Integration Params: LSCINT.P

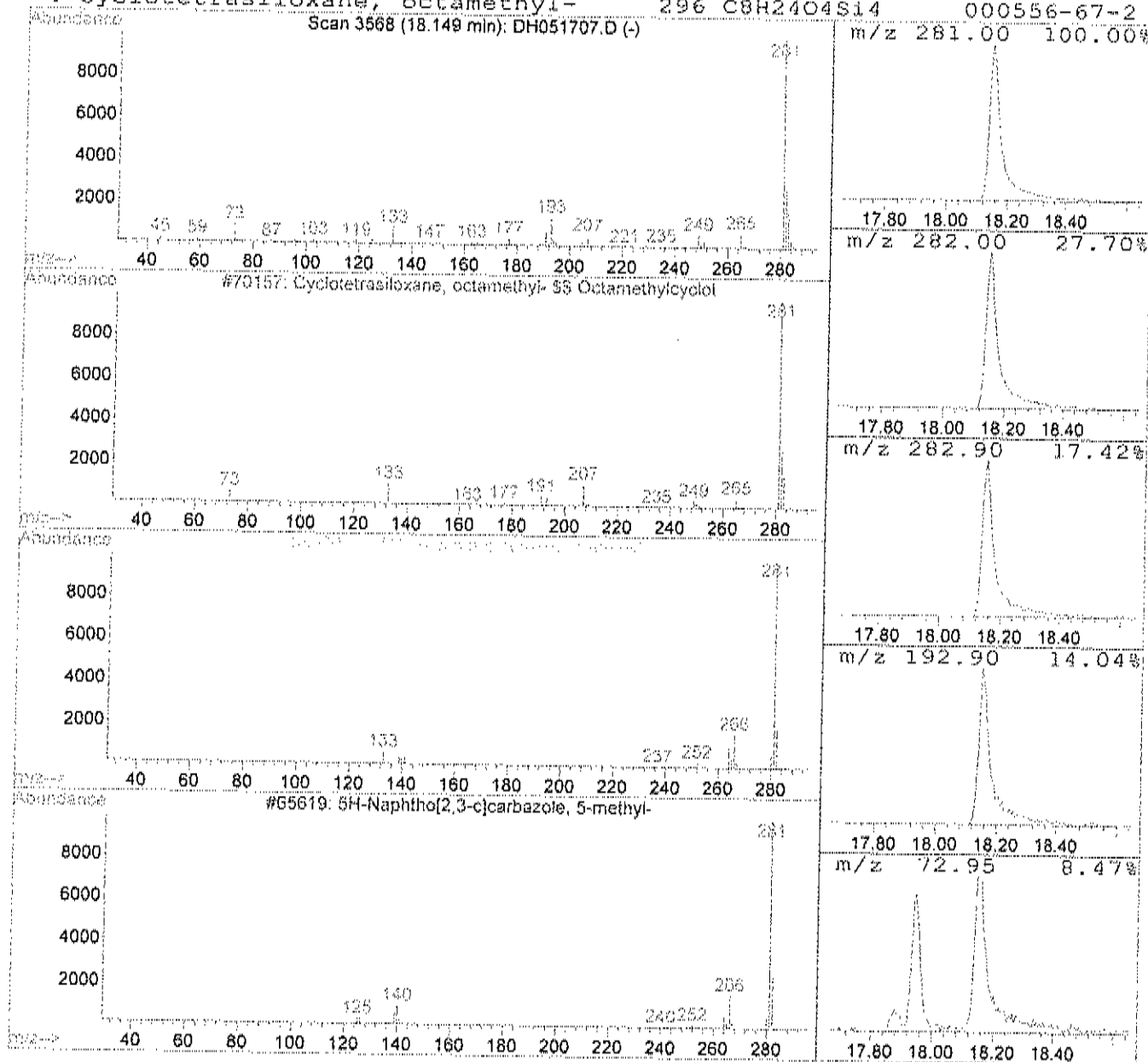
Vial: 3
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Library : C:\DATABASE\NIST129.L

 Peak Number 3 Cyclotetrasiloxane, octamethyl Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
18.15	22.00 ppb	643764	Chlorobenzene-d5	16.48

Hit#	of 5	Tentative ID	MW	MolForm	CAS#	Qual
1		Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	86
2		7H-Dibenzo[b,g]carbazole, 7-methyl-	281	C21H15N	003557-49-1	59
3		5H-Naphtho[2,3-c]carbazole, 5-methyl-	281	C21H15N	100025-44-3	45
4		Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	43



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 17 May 2017 11:58 am
Data File: C:\HPCHEM\1\DATA2\DH051707.D
Name: C1705036-001A
Misc: T015
Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title: VOA Standards for 5 point calibration
Library Searched: C:\DATABASE\NIST129.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc
Hydrogen sulfide	4.08	678.2	ppb	9839000	ISTD01	9.94	725394	50.0
Cyclotrisiloxane, he	15.42	15.3	ppb	448401	ISTD03	16.48	1463010	50.0
Cyclotetrasiloxane,	18.15	22.0	ppb	643764	ISTD03	16.48	1463010	50.0

DH051707.D I0511T15.M Mon Jun 19 13:51:44 2017

Data File : C:\HPCHEM\1\DATA\DH051717.D
Acq On : 17 May 2017 6:11 pm
Sample : C1705036-001A 40X
Misc : TO15
MS Integration Params: rteint.p
Quant Time: Jun 1 11:42 2017

Vial: 3
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration
DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	9.95	128	75310m ^w)	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.19	114	393431	50.00	ppb	0.00
57) Chlorobenzene-d5	16.49	117	307268	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	146241	33.55	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	67.10%#

Target Compounds

33) Chloroform	10.10	83	201508	37.38	ppb	Qvalue 96
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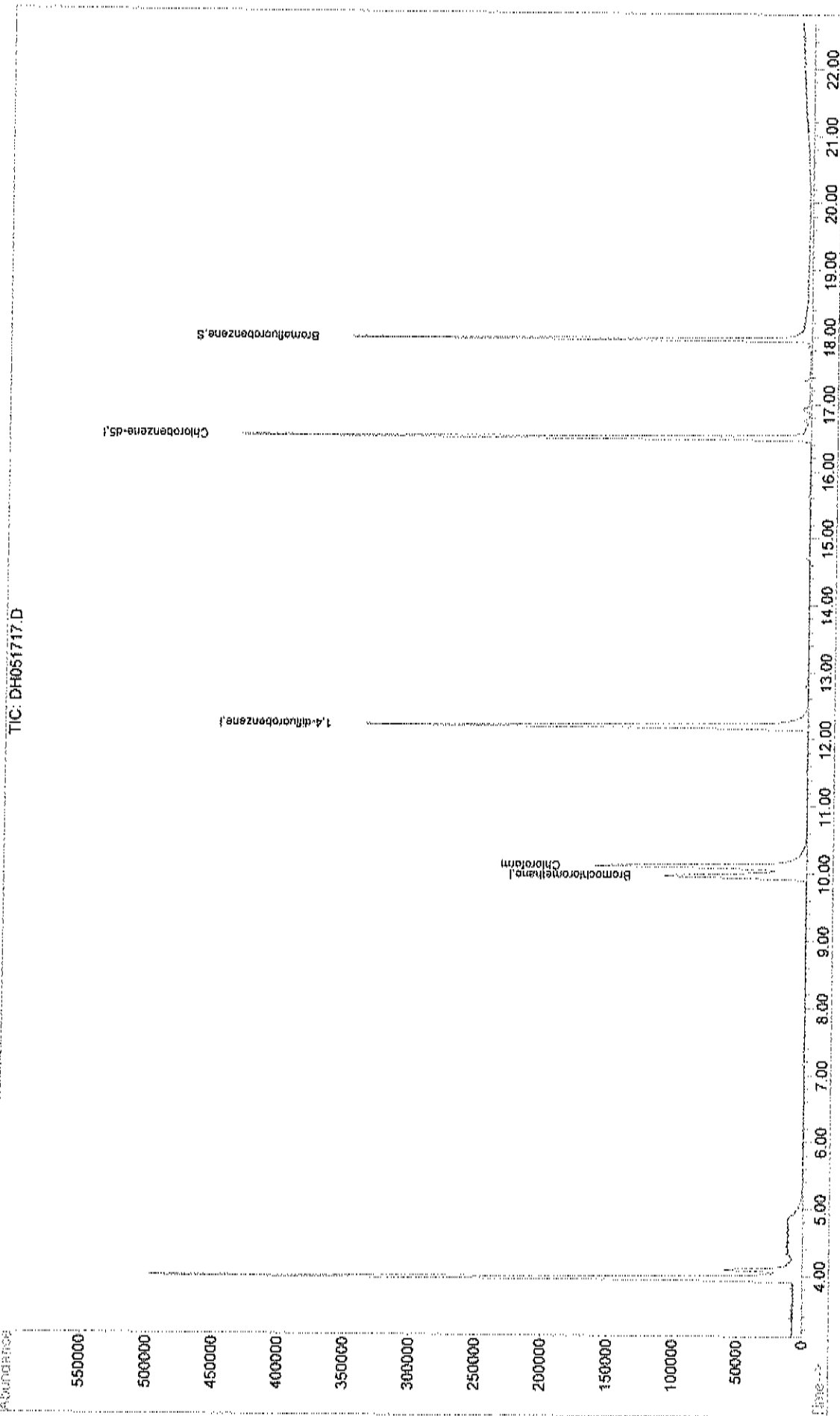
Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051717.D
Acq On : 17 May 2017 6:11 pm
Sample : C1705036-001A 40X
Misc : T015
MS Integration Params: rteint.p
Quant Time: Jun 1 11:42 2017

Vial: 3
Operator: WD
Inst : GCMS3
Multiplr: 1.00

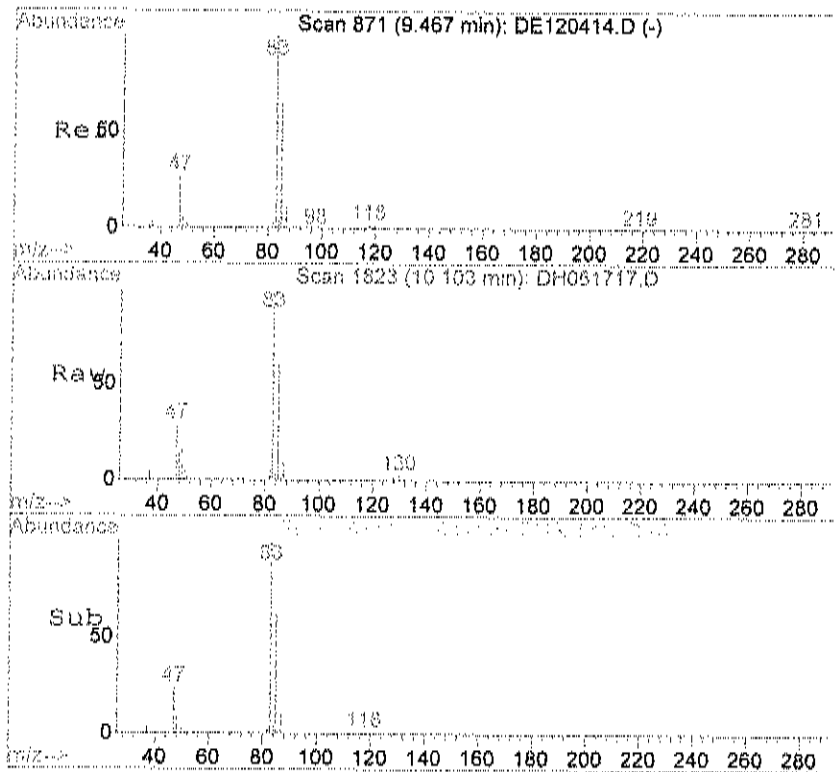
Quant Results File: I0511T15.RES

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration



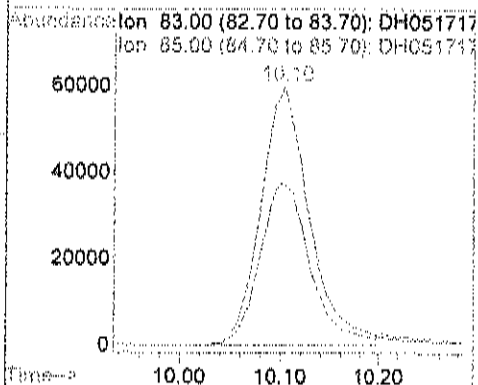
DH051717.D I0511T15.M

Thu Jun 01 11:52:09 2017



#33
 Chloroform
 Concen: 37.38 ppb
 RT: 10.10 min Scan# 1823
 Delta R.T. -0.01 min
 Lab File: DH051717.D
 Acq: 17 May 2017 6:11 pm

Tgt Ion	83	Resp	201508
Ion Ratio	100	Lower	Upper
85	66.7	43.5	83.5



Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT:	CH2M - St Louis	Client Sample ID:	WAT-SV01-050817
Lab Order:	C1705036	Tag Number:	573.48
Project:	Former Hampshire	Collection Date:	5/8/2017
Lab ID:	C1705036-002A	Matrix:	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-5			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	0.0260	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	74.2	8.30		%	1	5/15/2017
Oxygen	20.3	0.880		%	1	5/15/2017
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/17/2017 12:34:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Acetone	6.4	10	J	ppbV	1	5/17/2017 12:34:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Chloroform	6.1	5.0		ppbV	1	5/17/2017 12:34:00 PM

Qualifiers:	** Quantitation Limit	.	Results reported are not blank corrected
	B Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-002A

Client Sample ID: WAT-SV01-050817
 Tag Number: 573.48
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 12:34:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/17/2017 12:34:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 12:34:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/17/2017 12:34:00 PM
Methyl Isobutyl Ketone	< 10	10		ppbV	1	5/17/2017 12:34:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Methylene chloride	5.4	5.0		ppbV	1	5/17/2017 12:34:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 12:34:00 PM
Surr: Bromofluorobenzene	80.7	73.7-124		%REC	1	5/17/2017 12:34:00 PM
TIC: Cyclotetrasiloxane, octamethyl- \$\$ Octam	10	0	JN	ppbV	1	5/17/2017 12:34:00 PM
TIC: Cyclotrisiloxane, hexamethyl	12	0	JN	ppbV	1	5/17/2017 12:34:00 PM
TIC: Hydrogen sulfide \$\$ Dihydrogen monosulfide	26	0	JN	ppbV	1	5/17/2017 12:34:00 PM

LOW LEVEL SULFURS BY TO-15

TO-15

Analyst: WD

Qualifiers:	** Quantitation Limit	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E Estimated Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limit
JN	Non-routine analyte, Quantitation estimated.	ND Not Detected at the Limit of Detection
S	Spike Recovery outside accepted recovery limits	

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis

Client Sample ID: WAT-SV01-050817

Lab Order: C1705036

Tag Number: 573.48

Project: Former Hampshire

Collection Date: 5/8/2017

Lab ID: C1705036-002A

Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Hydrogen Sulfide	76	5.0		ppbV	1	5/16/2017 12:54:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 12:54:00 PM
Surr: Bromofluorobenzene	147	70-130	S	%REC	1	5/16/2017 12:54:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis

Client Sample ID: WAT-SV01-050817

Lab Order: C1705036

Tag Number: 573.48

Project: Former Hampshire

Collection Date: 5/8/2017

Lab ID: C1705036-002A

Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 12:34:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 12:34:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 12:34:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 12:34:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 12:34:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 12:34:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 12:34:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 12:34:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 12:34:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 12:34:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/17/2017 12:34:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 12:34:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 12:34:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 12:34:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 12:34:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 12:34:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 12:34:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 12:34:00 PM
Acetone	15	24	J	ug/m3	1	5/17/2017 12:34:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 12:34:00 PM
Benzene	< 16	16		ug/m3	1	5/17/2017 12:34:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 12:34:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 12:34:00 PM
Bromoform	< 52	52		ug/m3	1	5/17/2017 12:34:00 PM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 12:34:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/17/2017 12:34:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 12:34:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 12:34:00 PM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 12:34:00 PM
Chloroform	30	24		ug/m3	1	5/17/2017 12:34:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 12:34:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 12:34:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 12:34:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/17/2017 12:34:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 12:34:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 12:34:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 12:34:00 PM
Freon 11	< 28	28		ug/m3	1	5/17/2017 12:34:00 PM
Freon 113	< 38	38		ug/m3	1	5/17/2017 12:34:00 PM
Freon 114	< 35	35		ug/m3	1	5/17/2017 12:34:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 3 of 28

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis

Client Sample ID: WAT-SV01-050817

Lab Order: C1705036

Tag Number: 573.48

Project: Former Hampshire

Collection Date: 5/8/2017

Lab ID: C1705036-002A

Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 12:34:00 PM
Heptane	< 20	20		ug/m3	1	5/17/2017 12:34:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 12:34:00 PM
Hexane	< 18	18		ug/m3	1	5/17/2017 12:34:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 12:34:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/17/2017 12:34:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 12:34:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/17/2017 12:34:00 PM
Methyl Isobutyl Ketone	< 41	41		ug/m3	1	5/17/2017 12:34:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 12:34:00 PM
Methylene chloride	19	17		ug/m3	1	5/17/2017 12:34:00 PM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 12:34:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/17/2017 12:34:00 PM
Styrene	< 21	21		ug/m3	1	5/17/2017 12:34:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/17/2017 12:34:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 12:34:00 PM
Toluene	< 19	19		ug/m3	1	5/17/2017 12:34:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 12:34:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 12:34:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/17/2017 12:34:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 12:34:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 12:34:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 12:34:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 12:54:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 12:54:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 12:54:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 12:54:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 12:54:00 PM
Hydrogen Sulfide	110	7.0		ug/m3	1	5/16/2017 12:54:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 12:54:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 12:54:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 4 of 28

Data File : C:\HPCHEM\1\DATA\DH051708.D
 Acq On : 17 May 2017 12:34 pm
 Sample : C1705036-002A
 Misc : T015
 MS Integration Params: rteint.p
 Quant Time: Jun 1 11:11 2017

Vial: 4
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.96	128	85915m ω	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	457645	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	359412	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	205757	40.36	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	80.72%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
16) Acetone	6.18	43	20601m ω	6.38	ppb	
23) Methylene Chloride	7.18	84	11846	5.35	ppb	# 83
33) Chloroform	10.11	83	37758	6.14	ppb	97
55) Tetrachloroethylene	15.63	164	6928	1.67	ppb	96
60) m&p-Xylene	16.93	106	6924m ω	1.28	ppb	

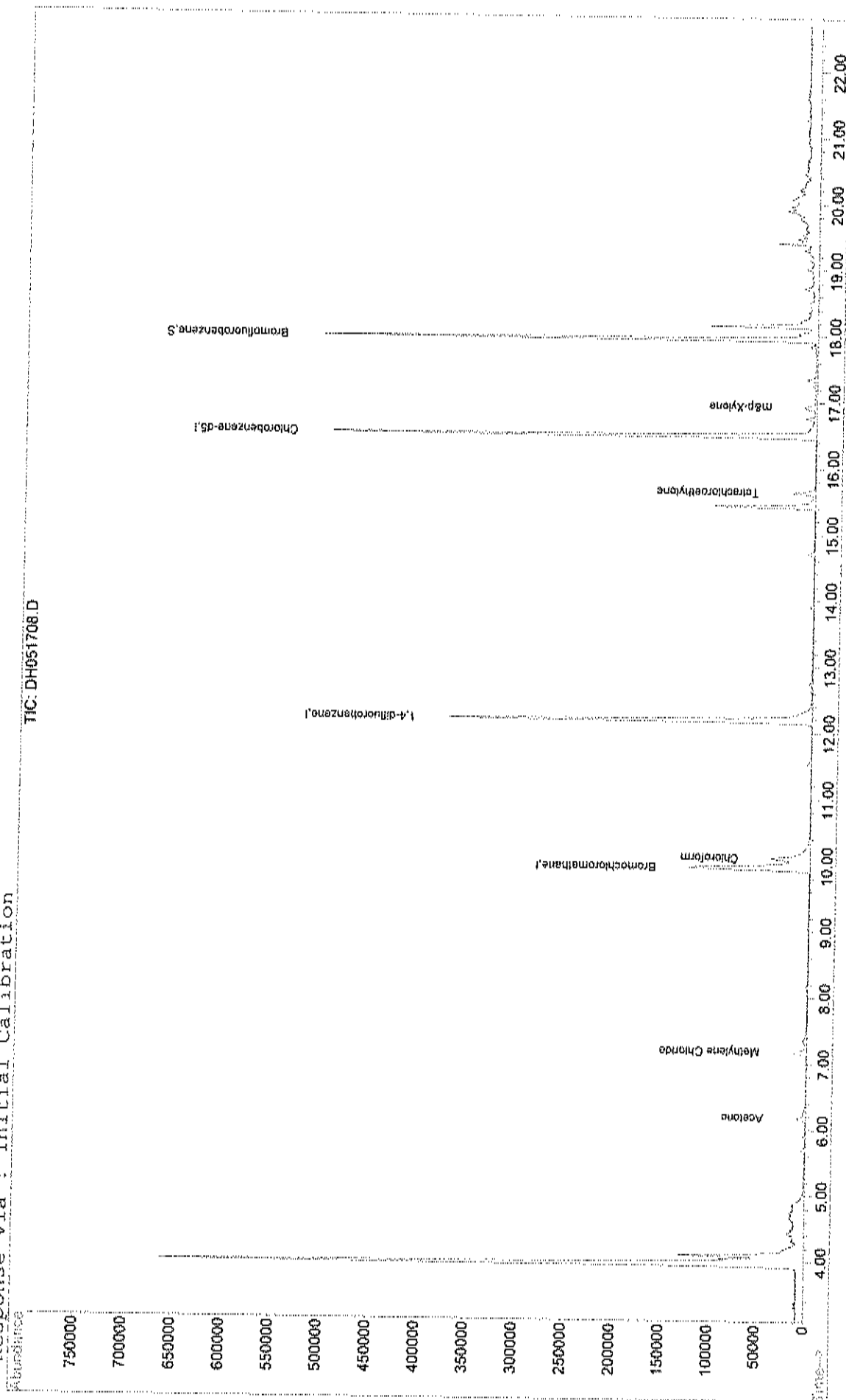
Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051708.D
Acq On : 17 May 2017 12:34 pm
Sample : C1705036-002A
Misc : T015
MS Integration Params: rteint.p
Quant Time: Jun 1 11:11 2017

Vial: 4
Operator: WD
Inst : GCMS3
Multiplr: 1.00

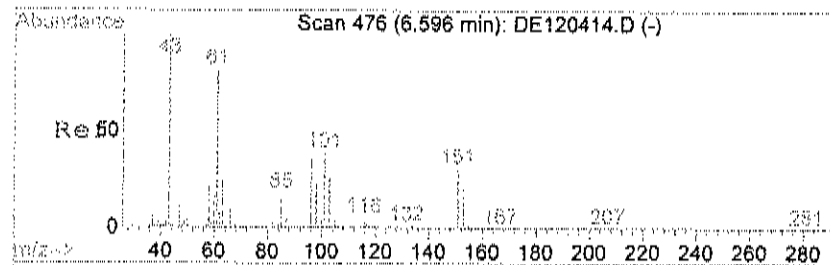
Quant Results File: I0511T15.RES

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration



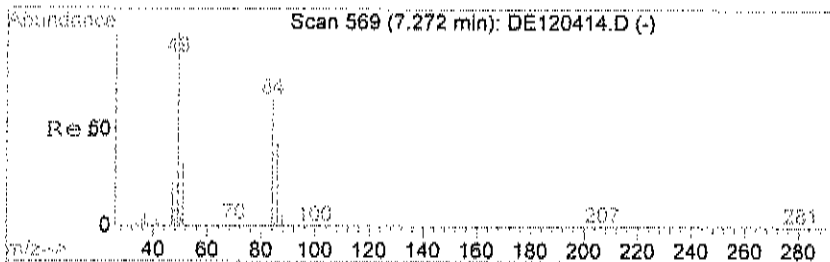
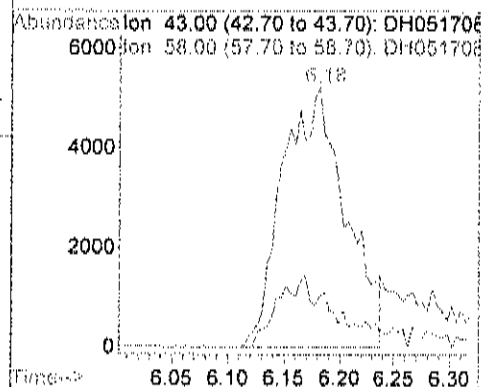
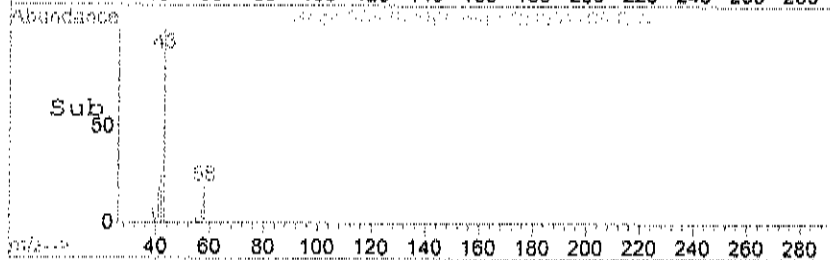
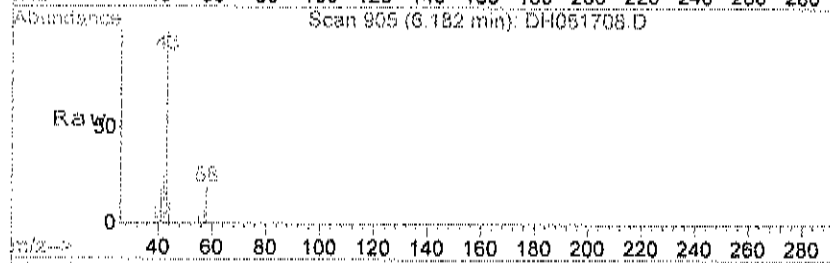
DH051708.D I0511T15.M

Thu Jun 01 11:50:43 2017



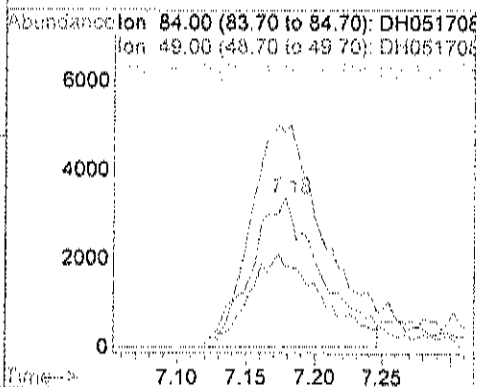
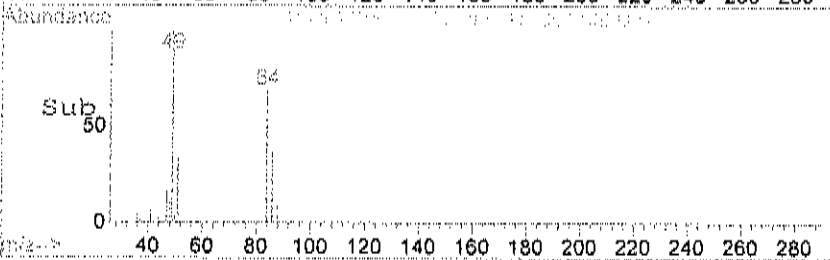
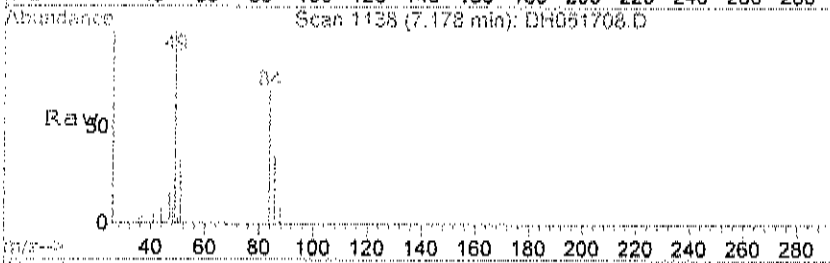
#16
Acetone
Concen: 6.38 ppb m
RT: 6.18 min Scan# 905
Delta R.T. 0.07 min
Lab File: DH051708.D
Acq: 17 May 2017 12:34 pm

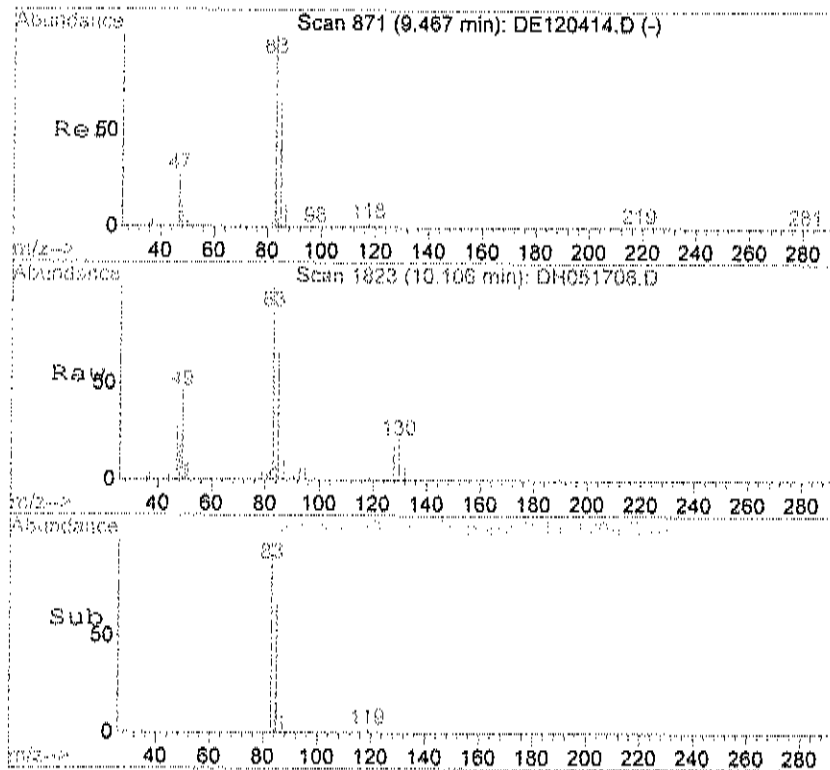
Tgt Ion: 43 Resp: 20601
Ion Ratio Lower Upper
43 100
58 2.1 3.7 43.7#



#23
Methylene Chloride
Concen: 5.35 ppb
RT: 7.18 min Scan# 1138
Delta R.T. 0.00 min
Lab File: DH051708.D
Acq: 17 May 2017 12:34 pm

Tgt Ion: 84 Resp: 11846
Ion Ratio Lower Upper
84 100
49 169.7 124.3 164.3#
86 69.1 43.0 83.0





#33

Chloroform

Concen: 6.14 ppb

RT: 10.11 min Scan# 1823

Delta R.T. -0.01 min

Lab File: DH051708.D

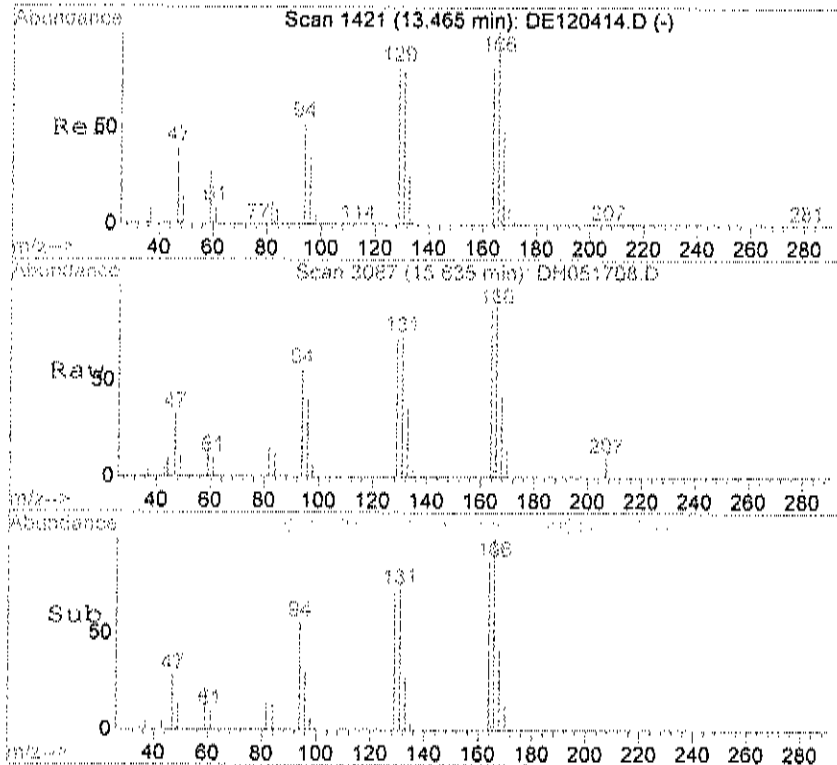
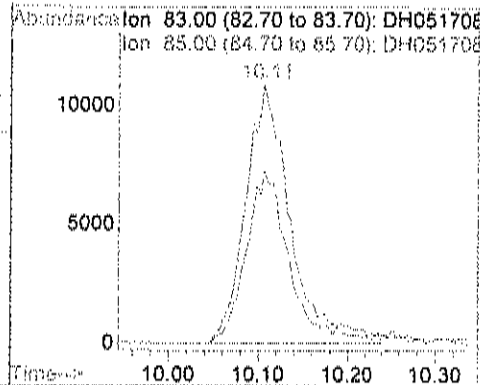
Acq: 17 May 2017 12:34 pm

Tgt Ion: 83 Resp: 37758

Ion Ratio Lower Upper

83 100

85 61.5 43.5 83.5



#55

Tetrachloroethylene

Concen: 1.67 ppb

RT: 15.63 min Scan# 3087

Delta R.T. -0.00 min

Lab File: DH051708.D

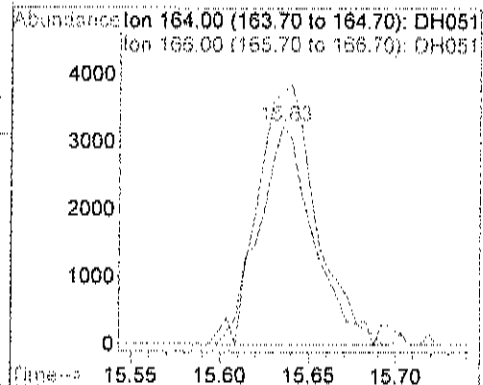
Acq: 17 May 2017 12:34 pm

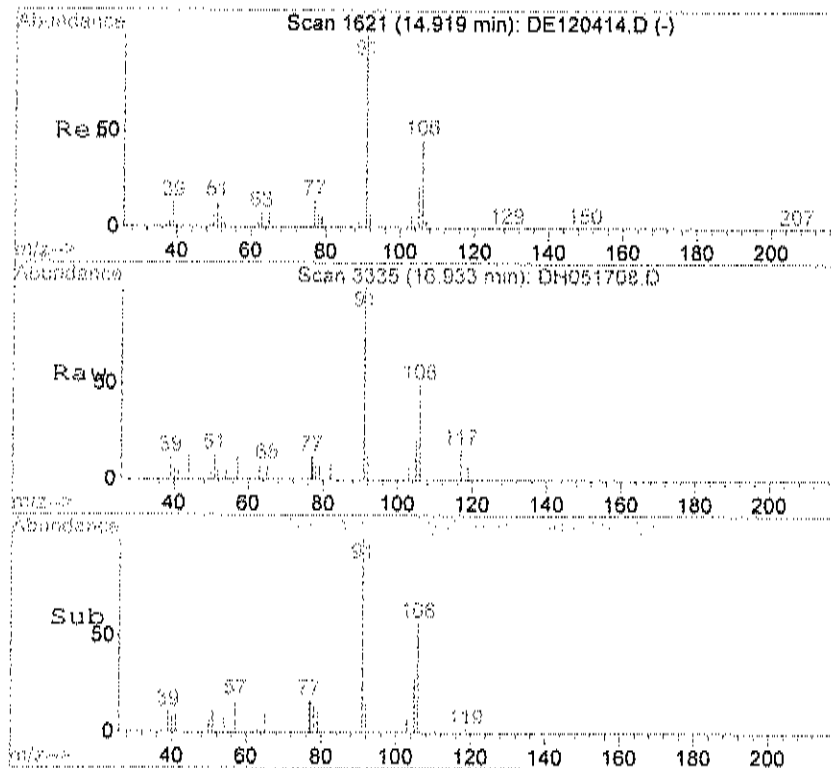
Tgt Ion: 164 Resp: 6928

Ion Ratio Lower Upper

164 100

166 126.7 110.9 150.9





#60

m&p-Xylene

Concen: 1.28 ppb m

RT: 16.93 min Scan# 3335

Delta R.T. -0.00 min

Lab File: DH051708.D

Acq: 17 May 2017 12:34 pm

Tgt Ion: 106 Resp: 6924

Ion Ratio Lower Upper

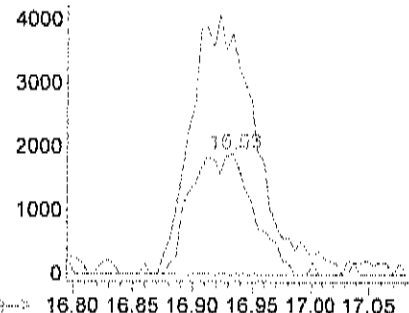
106 100

91 89.9 202.1 242.1#

Abundance

Ion 106.00 (105.70 to 106.70): DH051

Ion 91.00 (90.70 to 91.70): DH051708



Data File : C:\HPCHEM\1\DATA2\DH051708.D
 Acq On : 17 May 2017 12:34 pm
 Sample : C1705036-002A
 Misc : TO15
 MS Integration Params: LSCINT.P

Vial: 4
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Smoothing : ON Filtering: 5
 Sampling : 1 Min Area: 3 % of largest Peak
 Start Thrs: 0.2 Max Peaks: 100
 Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

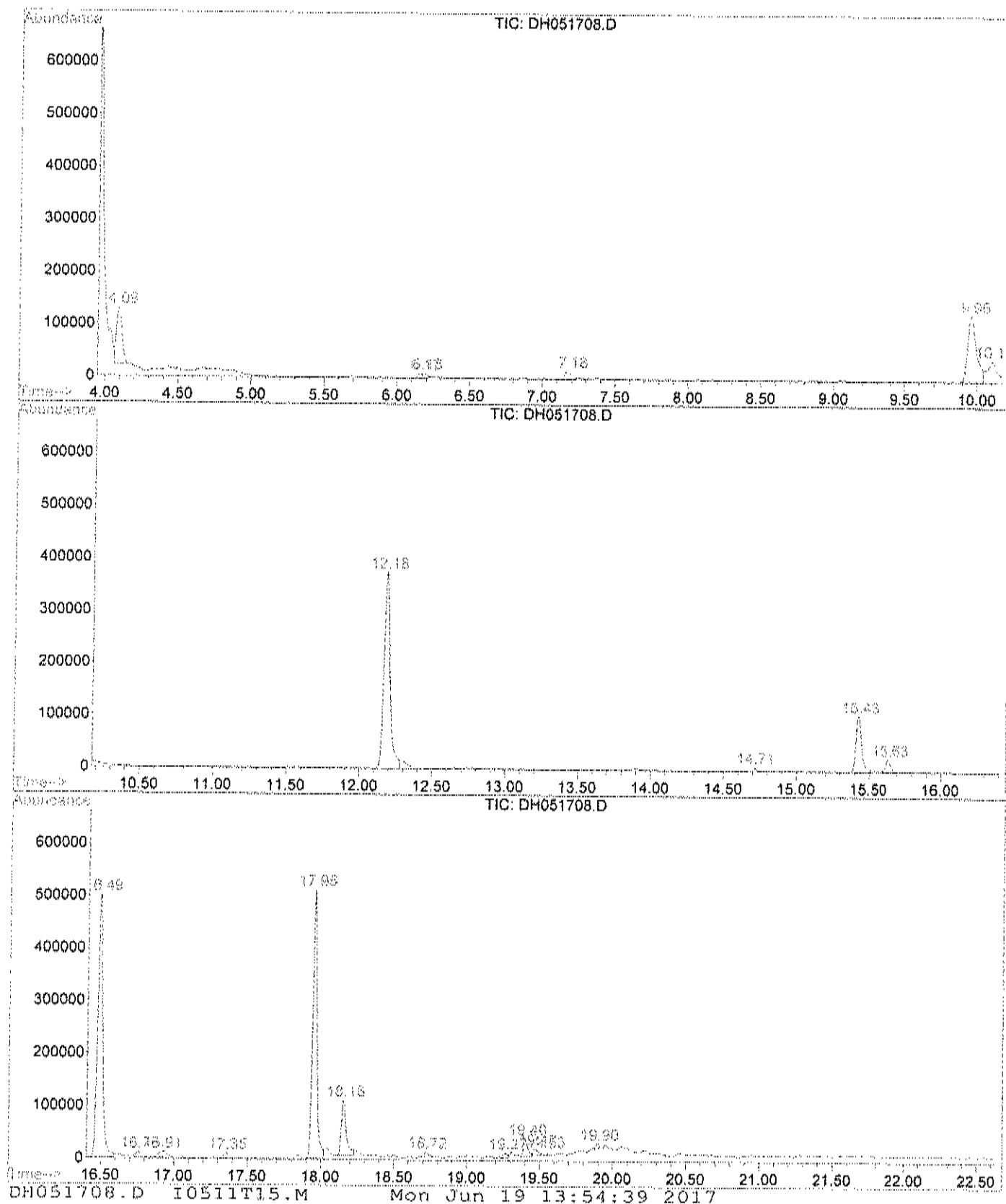
Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	4.093	321	331	351	rVB2	107948	282407	23.30%	5.411%
2	6.169	887	902	903	rBV2	8583	16769	1.38%	0.321%
3	6.182	903	905	920	rVB2	8074	15174	1.25%	0.291%
4	7.182	1123	1139	1151	rBV3	14550	51317	4.23%	0.983%
5	9.961	1772	1789	1808	rBV5	126374	536990	44.30%	10.290%
6	10.106	1818	1823	1842	rVB4	32104	89287	7.37%	1.711%
7	12.184	2291	2309	2331	rBV	375556	1107357	91.35%	21.219%
8	14.707	2884	2899	2908	rBV3	7680	19381	1.60%	0.371%
9	15.425	3036	3047	3063	rBV	106055	288630	23.81%	5.531%
10	15.635	3079	3087	3102	rVB3	24329	59473	4.91%	1.140%
11	16.488	3239	3250	3270	rBV	501755	1212272	100.00%	23.230%
12	16.755	3296	3301	3308	rVB4	10008	20133	1.66%	0.386%
13	16.912	3320	3331	3334	rBV5	11229	24528	2.02%	0.470%
14	17.352	3408	3415	3424	rBV4	9820	21033	1.74%	0.403%
15	17.949	3520	3529	3542	rBV	511416	1048345	86.48%	20.088%
16	18.153	3561	3568	3582	rBV2	105402	250789	20.69%	4.806%
17	18.719	3669	3676	3685	rBV3	10538	24047	1.98%	0.461%
18	19.268	3768	3781	3785	rBV7	8947	23451	1.93%	0.449%
19	19.404	3801	3807	3815	rBV3	33533	66018	5.45%	1.265%
20	19.472	3816	3820	3827	rVV5	13433	27134	2.24%	0.520%
21	19.530	3827	3831	3840	rVB7	7724	19885	1.64%	0.381%
22	19.897	3897	3901	3904	rVV5	7968	14252	1.18%	0.273%

Sum of corrected areas: 5218672

DH051708.D I0511T15.M Mon Jun 19 13:54:37 2017

File : C:\HPCHEM\1\DATA2\DH051708.D
Operator : WD
Acquired : 17 May 2017 12:34 pm using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-002A
Misc Info : TO15
Vial Number: 4
Quant File : I0511T15.RES (RTE Integrator)



Data File : C:\HPCHEM\1\DATA2\DH051708.D
Acq On : 17 May 2017 12:34 pm
Sample : C1705036-002A
Misc : TO15
MS Integration Params: LSCINT.P

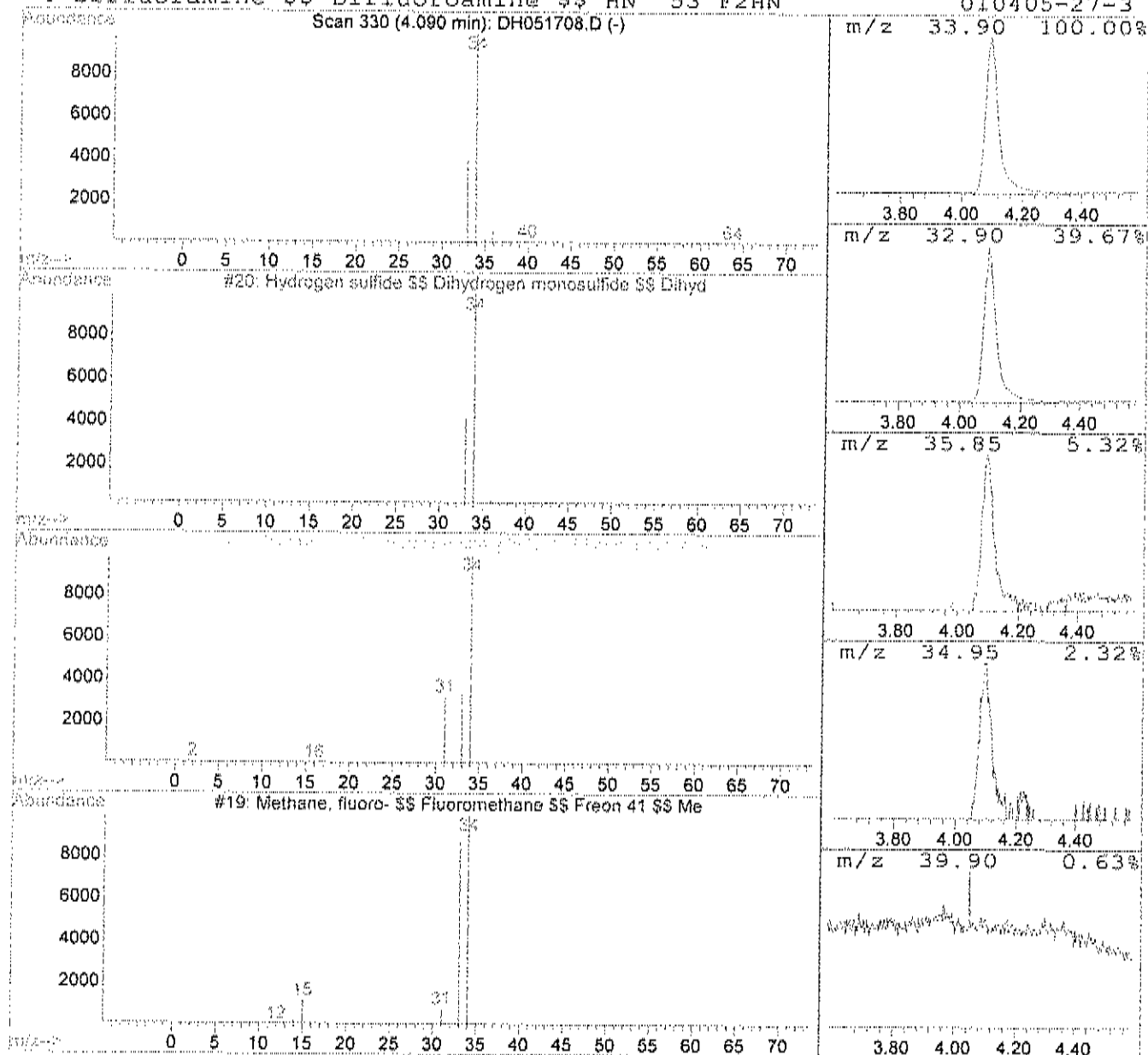
Vial: 4
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 1 Hydrogen sulfide \$\$ Dihydrogen Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.09	26.30 ppb	282407	Bromochloromethane	9.96

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Hydrogen sulfide \$\$ Dihydrogen mono	34	H2S	007783-06-4	83
2	Phosphine \$\$ Hydrogen phosphide \$\$	34	H3P	007803-51-2	7
3	Methane, fluoro- \$\$ Fluoromethane \$	34	CH3F	000593-53-3	3
4	Difluoramine \$\$ Difluoroamine \$\$ HN	53	F2HN	010405-27-3	2



Data File : C:\HPCHEM\1\DATA2\DH051708.D
 Acq On : 17 May 2017 12:34 pm
 Sample : C1705036-002A
 Misc : TO15
 MS Integration Params: LSCINT.P

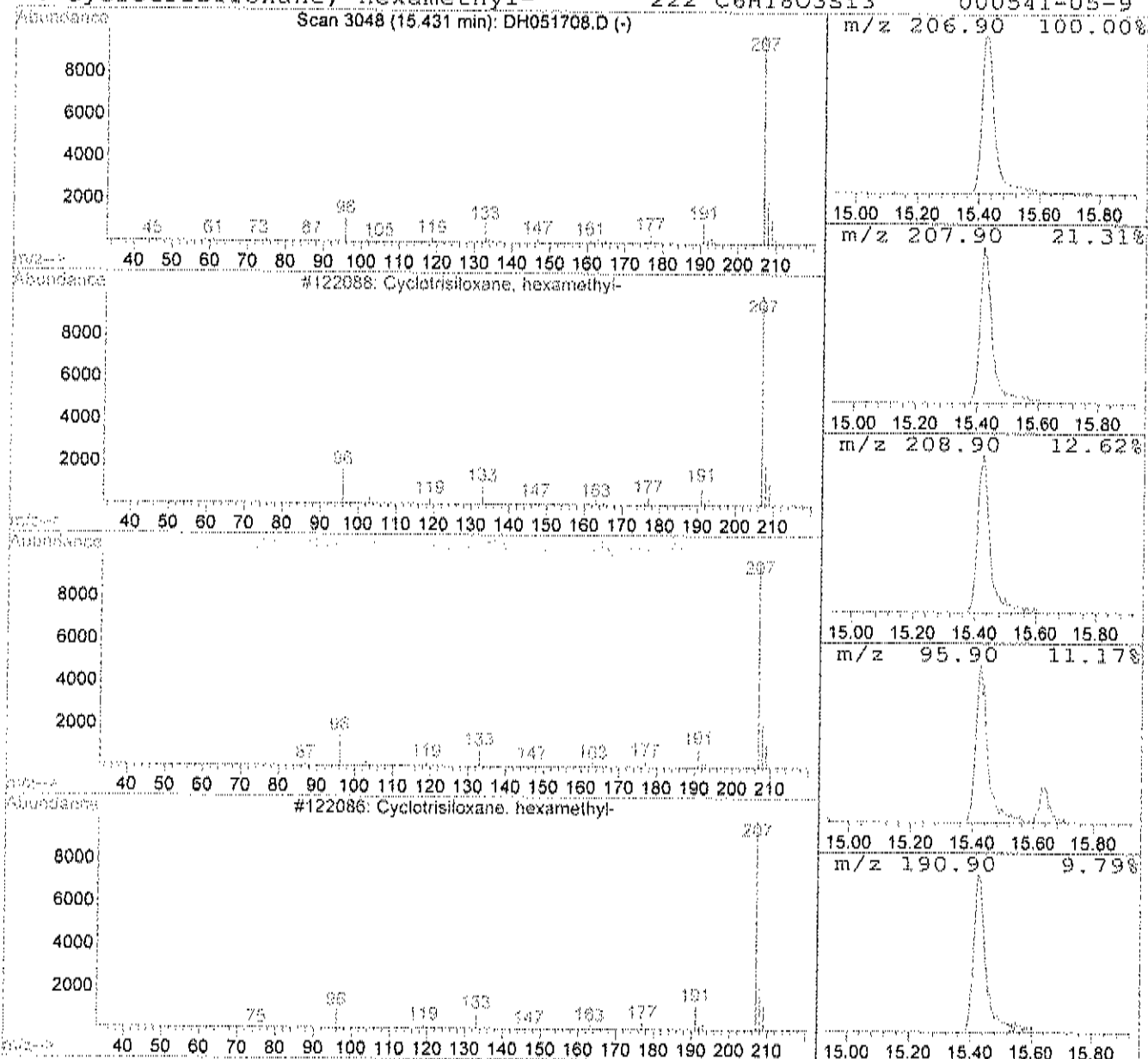
Vial: 4
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Library : C:\DATABASE\NIST129.L

 Peak Number 2 Cyclotrisiloxane, hexamethyl- Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
15.43	11.90 ppb	288630	Chlorobenzene-d5	16.48

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	91
2	Cyclotrisiloxane, hexamethyl- \$\$ Di	222	C6H18O3Si3	000541-05-9	91
3	Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	90
4	Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	80



Data File : C:\HPCHEM\1\DATA2\DH051708.D
 Acq On : 17 May 2017 12:34 pm
 Sample : C1705036-002A
 Misc : T015
 MS Integration Params: LSCINT.P

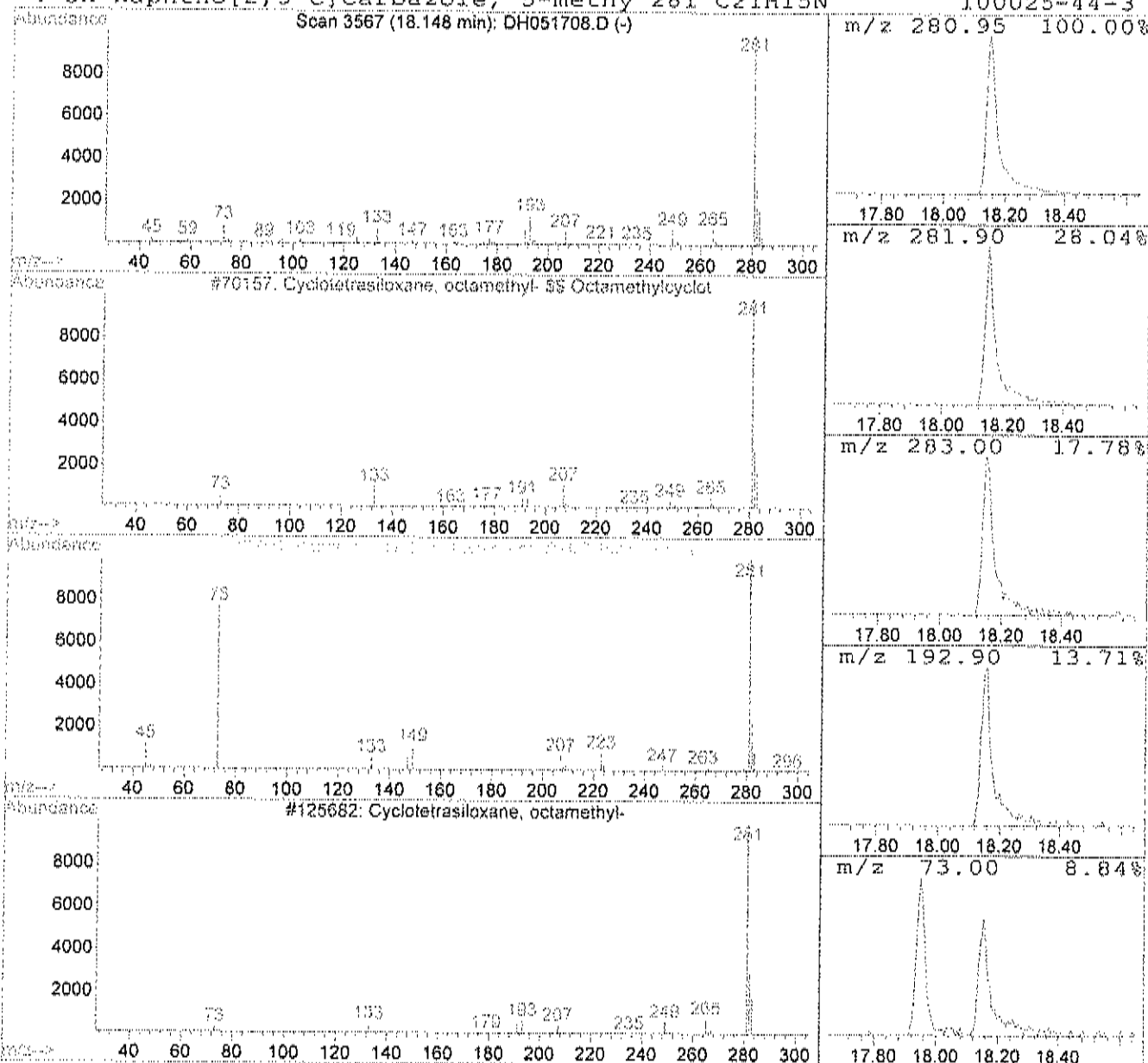
Vial: 4
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Library : C:\DATABASE\NIST129.L

 Peak Number 3 Cyclotetrasiloxane, octamethyl Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
18.15	10.34 ppb	250789	Chlorobenzene-d5	16.48

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclotetrasiloxane, octamethyl- \$\$	296	C8H24O4Si4	000556-67-2	86
2	Benzoic acid, 3-methyl-2-trimethyls	296	C14H24O3Si2	000000-00-0	50
3	Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	43
4	5H-Naphtho[2,3-c]carbazole, 5-methy	281	C21H15N	100025-44-3	42



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 17 May 2017 12:34 pm
Data File: C:\HPCHEM\1\DATA2\DH051708.D
Name: C1705036-002A
Misc: TO15
Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title: VOA Standards for 5 point calibration
Library Searched: C:\DATABASE\NIST129.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc
Hydrogen sulfide \$\$	4.09	26.3	ppb	282407	ISTD01	9.96	536990	50.0
Cyclotrisiloxane, he	15.43	11.9	ppb	288630	ISTD03	16.48	1212270	50.0
Cyclotetrasiloxane,	18.15	10.3	ppb	250789	ISTD03	16.48	1212270	50.0

DH051708.D I0511T15.M Mon Jun 19 13:54:46 2017

Date: 22-Jun-17

Centek Laboratories, LLC

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-003A

Client Sample ID: WAT-SV03-050817
 Tag Number: 431.65
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	0.102	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	73.6	8.30		%	1	5/15/2017
Oxygen	20.1	0.880		%	1	5/15/2017
SPPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/15/2017 2:59:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Acetone	5.6	10	J	ppbV	1	5/15/2017 2:59:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Chloroform	15	5.0		ppbV	1	5/15/2017 2:59:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-003A

Client Sample ID: WAT-SV03-050817
 Tag Number: 431.65
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
SPPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/15/2017 2:59:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Isopropyl alcohol	2.6	5.0	J	ppbV	1	5/15/2017 2:59:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/15/2017 2:59:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/15/2017 2:59:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/15/2017 2:59:00 PM
Methyl Isobutyl Ketone	1.4	10	J	ppbV	1	5/15/2017 2:59:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 2:59:00 PM
Surr: Bromofluorobenzene	85.8	73.7-124		%REC	1	5/15/2017 2:59:00 PM
TIC: Cyclotetrasiloxane, octamethyl- \$S\$ Octam	140	0	JN	ppbV	1	5/15/2017 2:59:00 PM
TIC: Cyclotrisiloxane, hexamethyl \$S\$ Dimethy	73	0	JN	ppbV	1	5/15/2017 2:59:00 PM
TIC: Undecane, 3,5-dimethyl-	5.2	0	JN	ppbV	1	5/15/2017 2:59:00 PM

LOW LEVEL SULFURS BY TO-15

TO-15

Analyst: WD

Qualifiers:	** Quantitation Limit	.	Results reported are not blank corrected
	B Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis

Client Sample ID: WAT-SV03-050817

Lab Order: C1705036

Tag Number: 431.65

Project: Former Hampshire

Collection Date: 5/8/2017

Lab ID: C1705036-003A

Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Hydrogen Sulfide	770	5.0		ppbV	1	5/16/2017 1:30:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 1:30:00 PM
Surr: Bromofluorobenzene	153	70-130	S	%REC	1	5/16/2017 1:30:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-003A

Client Sample ID: WAT-SV03-050817
 Tag Number: 431.65
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 2:59:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/15/2017 2:59:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 2:59:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 2:59:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 2:59:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/15/2017 2:59:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 2:59:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/15/2017 2:59:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 2:59:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 2:59:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/15/2017 2:59:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 2:59:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/15/2017 2:59:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 2:59:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 2:59:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/15/2017 2:59:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/15/2017 2:59:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/15/2017 2:59:00 PM
Acetone	13	24	J	ug/m3	1	5/15/2017 2:59:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/15/2017 2:59:00 PM
Benzene	< 16	16		ug/m3	1	5/15/2017 2:59:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/15/2017 2:59:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/15/2017 2:59:00 PM
Bromoform	< 52	52		ug/m3	1	5/15/2017 2:59:00 PM
Bromomethane	< 19	19		ug/m3	1	5/15/2017 2:59:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/15/2017 2:59:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/15/2017 2:59:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/15/2017 2:59:00 PM
Chloroethane	< 13	13		ug/m3	1	5/15/2017 2:59:00 PM
Chloroform	72	24		ug/m3	1	5/15/2017 2:59:00 PM
Chloromethane	< 10	10		ug/m3	1	5/15/2017 2:59:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 2:59:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 2:59:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/15/2017 2:59:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/15/2017 2:59:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/15/2017 2:59:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/15/2017 2:59:00 PM
Freon 11	< 28	28		ug/m3	1	5/15/2017 2:59:00 PM
Freon 113	< 38	38		ug/m3	1	5/15/2017 2:59:00 PM
Freon 114	< 35	35		ug/m3	1	5/15/2017 2:59:00 PM

Qualifiers:	** Quantitation Limit	.	Results reported are not blank corrected
	B Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT:	CH2M - St Louis	Client Sample ID:	WAT-SV03-050817
Lab Order:	C1705036	Tag Number:	431.65
Project:	Former Hampshire	Collection Date:	5/8/2017
Lab ID:	C1705036-003A	Matrix:	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/15/2017 2:59:00 PM
Heptane	< 20	20		ug/m3	1	5/15/2017 2:59:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/15/2017 2:59:00 PM
Hexane	< 18	18		ug/m3	1	5/15/2017 2:59:00 PM
Isopropyl alcohol	6.4	12	J	ug/m3	1	5/15/2017 2:59:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/15/2017 2:59:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/15/2017 2:59:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/15/2017 2:59:00 PM
Methyl Isobutyl Ketone	5.8	41	J	ug/m3	1	5/15/2017 2:59:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/15/2017 2:59:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/15/2017 2:59:00 PM
o-Xylene	< 22	22		ug/m3	1	5/15/2017 2:59:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/15/2017 2:59:00 PM
Styrene	< 21	21		ug/m3	1	5/15/2017 2:59:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/15/2017 2:59:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/15/2017 2:59:00 PM
Toluene	< 19	19		ug/m3	1	5/15/2017 2:59:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 2:59:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 2:59:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/15/2017 2:59:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/15/2017 2:59:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/15/2017 2:59:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/15/2017 2:59:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 1:30:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 1:30:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 1:30:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 1:30:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 1:30:00 PM
Hydrogen Sulfide	1100	7.0		ug/m3	1	5/16/2017 1:30:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 1:30:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 1:30:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

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Data File : C:\HPCHEM\1\DATA\DH051511.D

Acq On : 15 May 2017 2:59 pm

Sample : C1705036-003A

Misc : T015

MS Integration Params: rteint.p

Quant Time: Jun 1 10:28 2017

Vial: 5

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Results File: T0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\T0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.96	128	94990	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	573748	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	462025	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	281045	42.88	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	85.76%

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
16) Acetone	6.14	43	19898m ^w	5.57	ppb	
18) Isopropyl alcohol	6.23	45	15782m ^d	2.59	ppb	
33) Chloroform	10.10	83	99835	14.68	ppb	99
48) Methyl Isobutyl Ketone	13.88	43	13612	1.41	ppb	87
60) m&p-Xylene	16.91	106	11860m ^w	1.71	ppb	

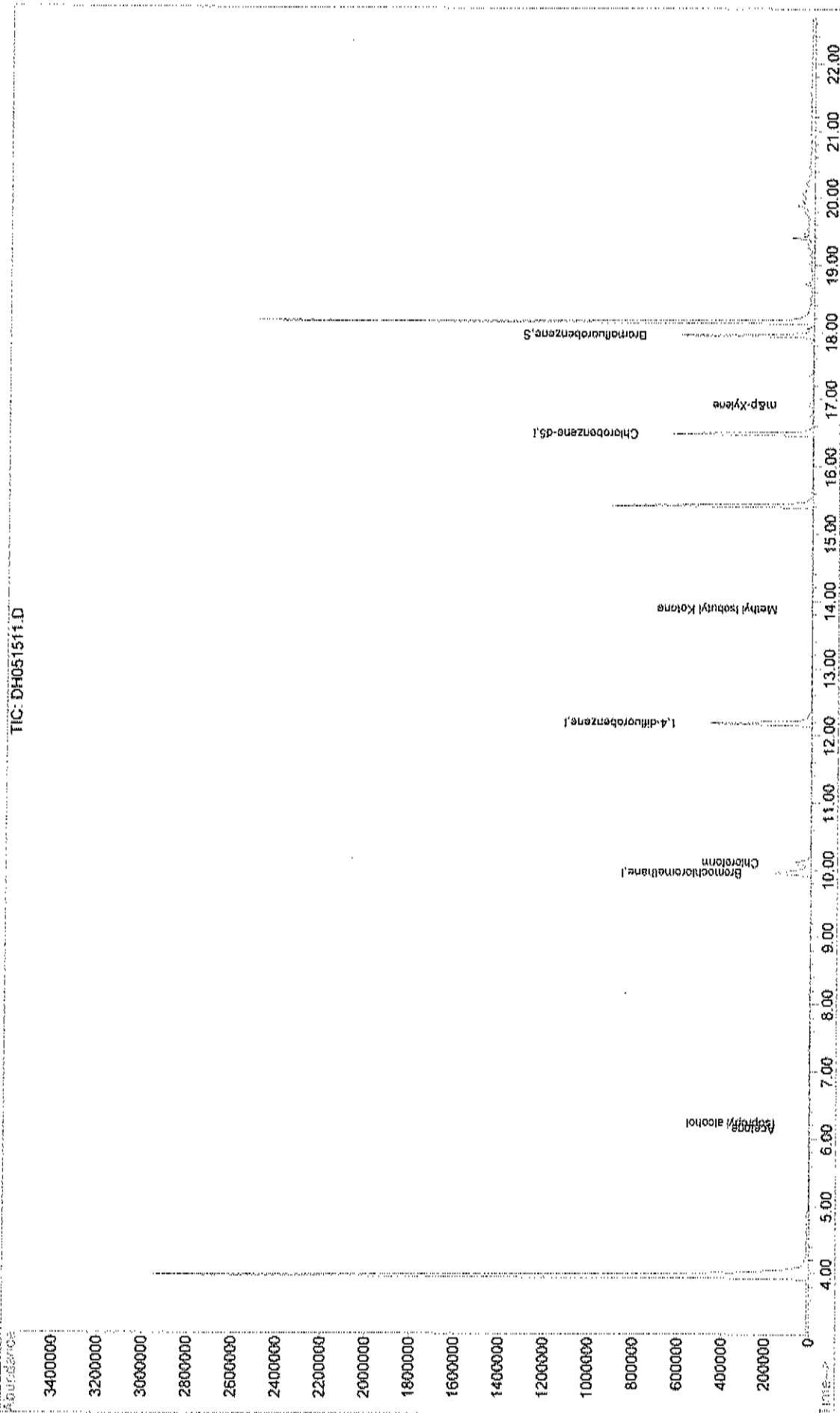
Quantitation Report

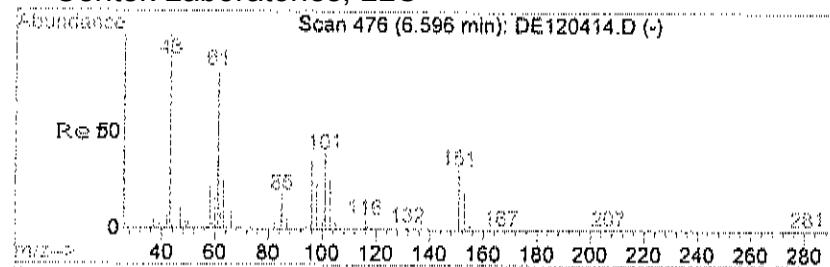
Data File : C:\HPCHEM\1\DATA\DH051511.D
Acq On : 15 May 2017 2:59 pm
Sample : C1705036-003A
Misc : TO15
MS Integration Params: rteint.p
Quant Time: Jun 1 10:28 2017

Vial: 5
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

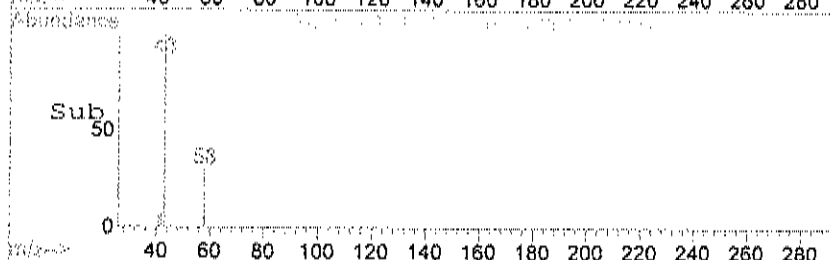
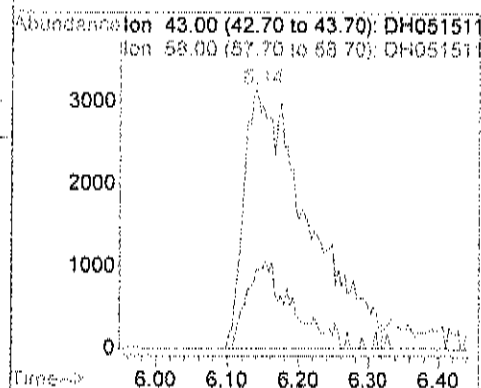
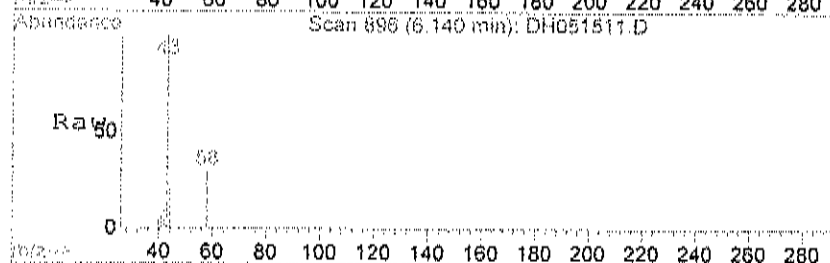
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





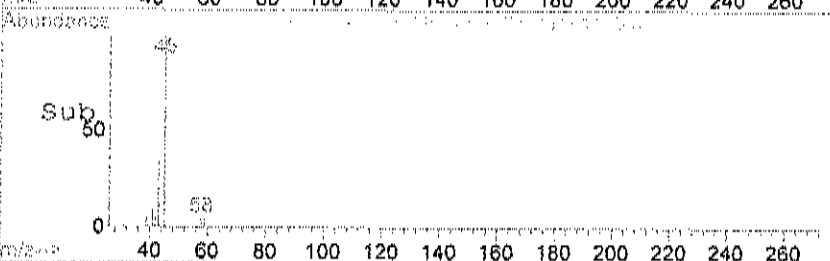
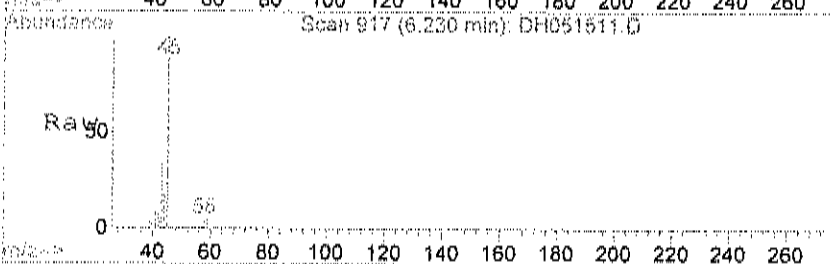
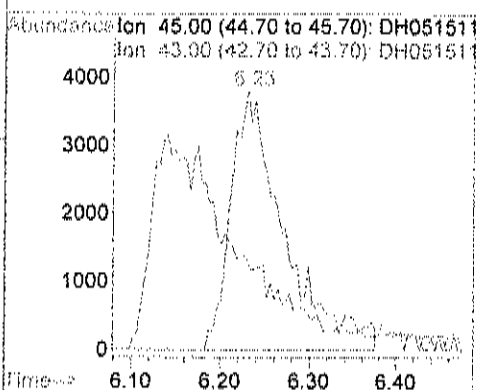
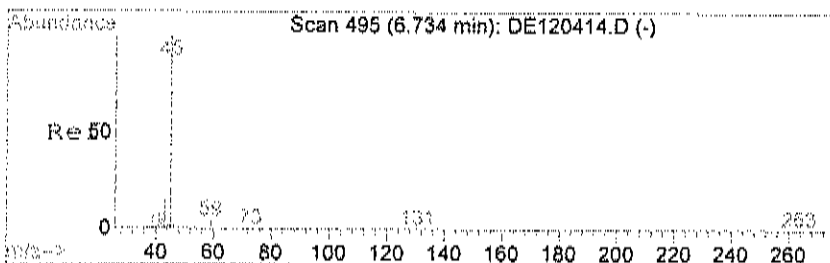
#16
Acetone
Concen: 5.57 ppb m
RT: 6.14 min Scan# 896
Delta R.T. 0.03 min
Lab File: DH051511.D
Acq: 15 May 2017 2:59 pm

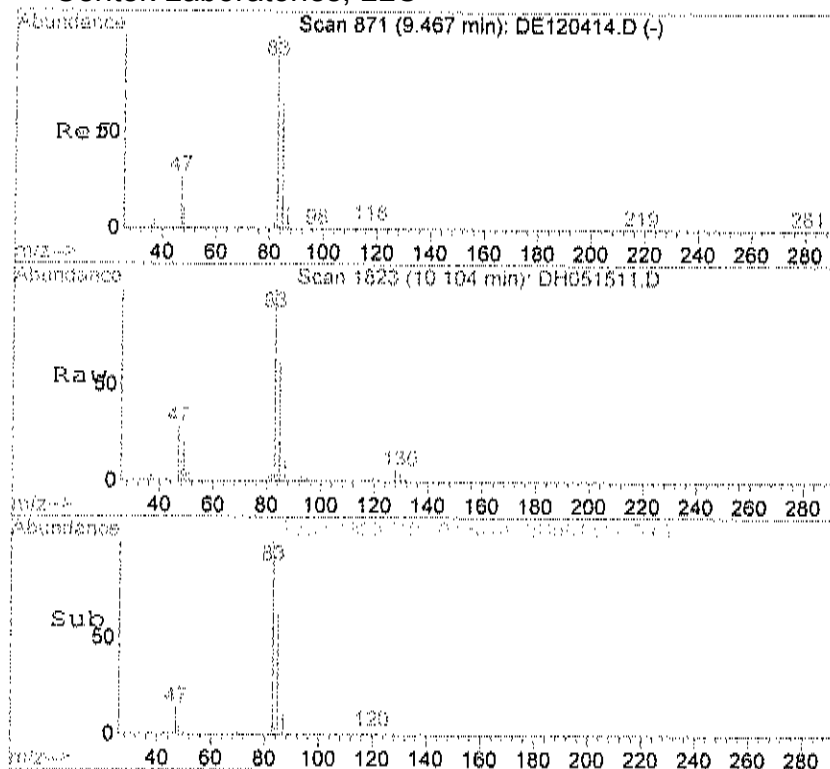
Tgt Ion: 43 Resp: 19898
Ion Ratio Lower Upper
43 100
58 14.0 3.7 43.7



#18
Isopropyl alcohol
Concen: 2.59 ppb m
RT: 6.23 min Scan# 917
Delta R.T. 0.02 min
Lab File: DH051511.D
Acq: 15 May 2017 2:59 pm

Tgt Ion: 45 Resp: 15782
Ion Ratio Lower Upper
45 100
43 0.0 87.2 127.2#





#33

Chloroform

Concen: 14.68 ppb

RT: 10.10 min Scan# 1823

Delta R.T. -0.01 min

Lab File: DH051511.D

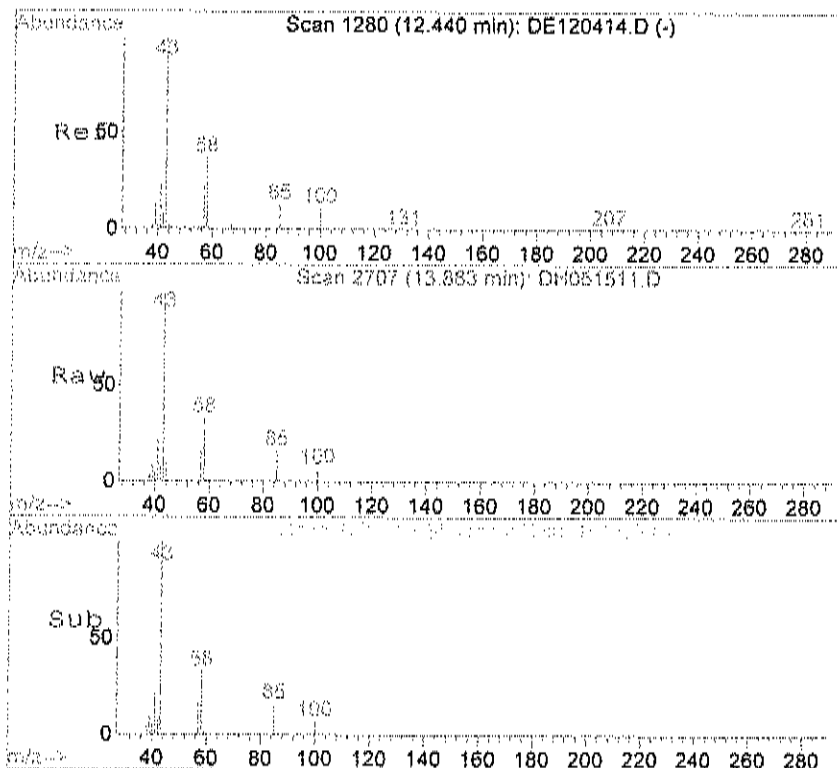
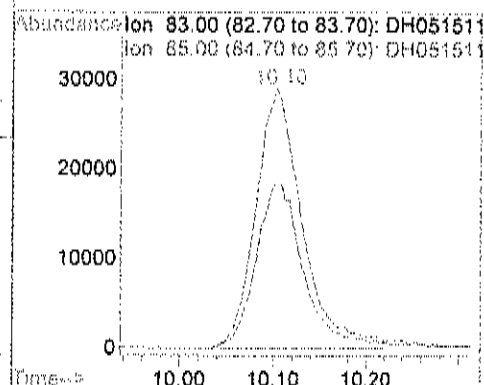
Acq: 15 May 2017 2:59 pm

Tgt Ion: 83 Resp: 99835

Ion Ratio Lower Upper

83 100

85 64.3 43.5 83.5



#48

Methyl Isobutyl Ketone

Concen: 1.41 ppb

RT: 13.88 min Scan# 2707

Delta R.T. 0.01 min

Lab File: DH051511.D

Acq: 15 May 2017 2:59 pm

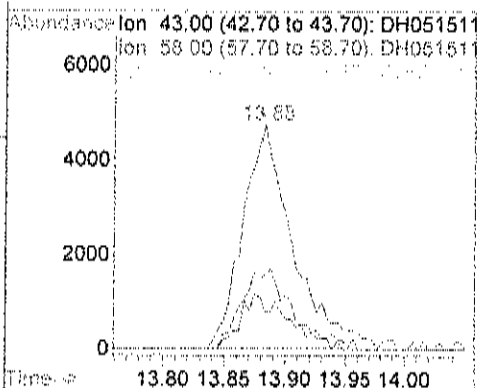
Tgt Ion: 43 Resp: 13612

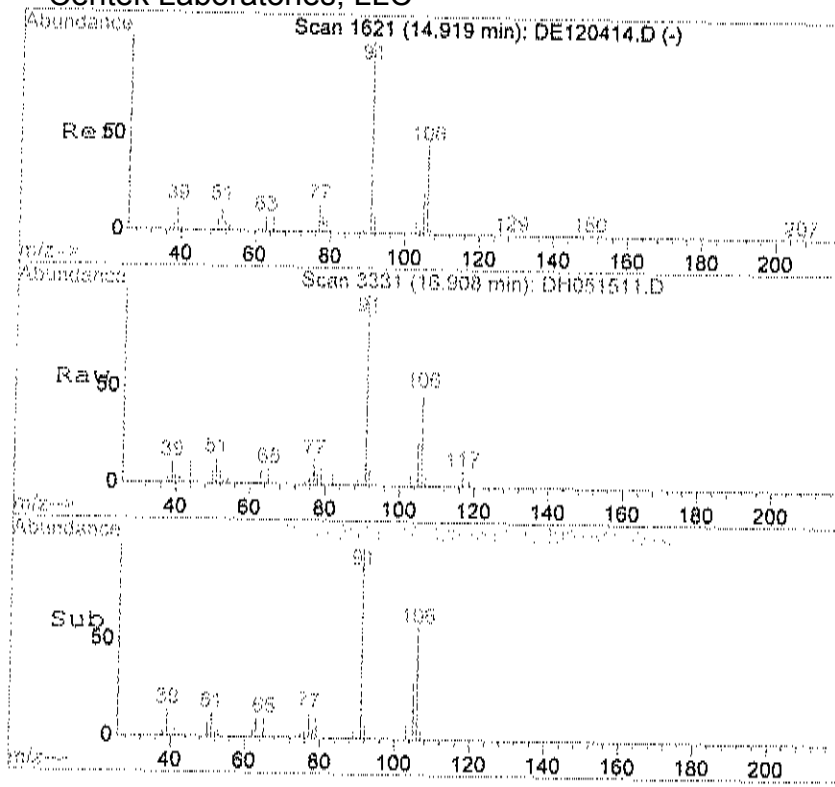
Ion Ratio Lower Upper

43 100

58 34.4 15.8 55.8

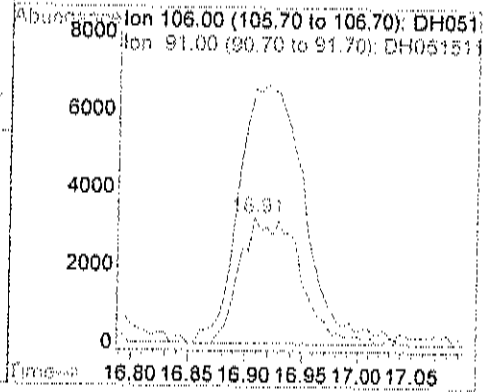
57 12.8 6.8 46.8





#60
 m&p-Xylene
 Concen: 1.71 ppb m
 RT: 16.91 min Scan# 3331
 Delta R.T. -0.03 min
 Lab File: DH051511.D
 Acq: 15 May 2017 2:59 pm

Tgt Ion: 106 Resp: 11860
 Ion Ratio Lower Upper
 106 100
 91 225.4 202.1 242.1



Data File : C:\HPCHEM\1\DATA2\DH051511.D
 Acq On : 15 May 2017 2:59 pm
 Sample : C1705036-003A
 Misc : T015
 MS Integration Params: LSCINT.P

Vial: 5
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Smoothing : ON Filtering: 5
 Sampling : 1 Min Area: 3 % of largest Peak
 Start Thrs: 0.2 Max Peaks: 100
 Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Signal : TIC

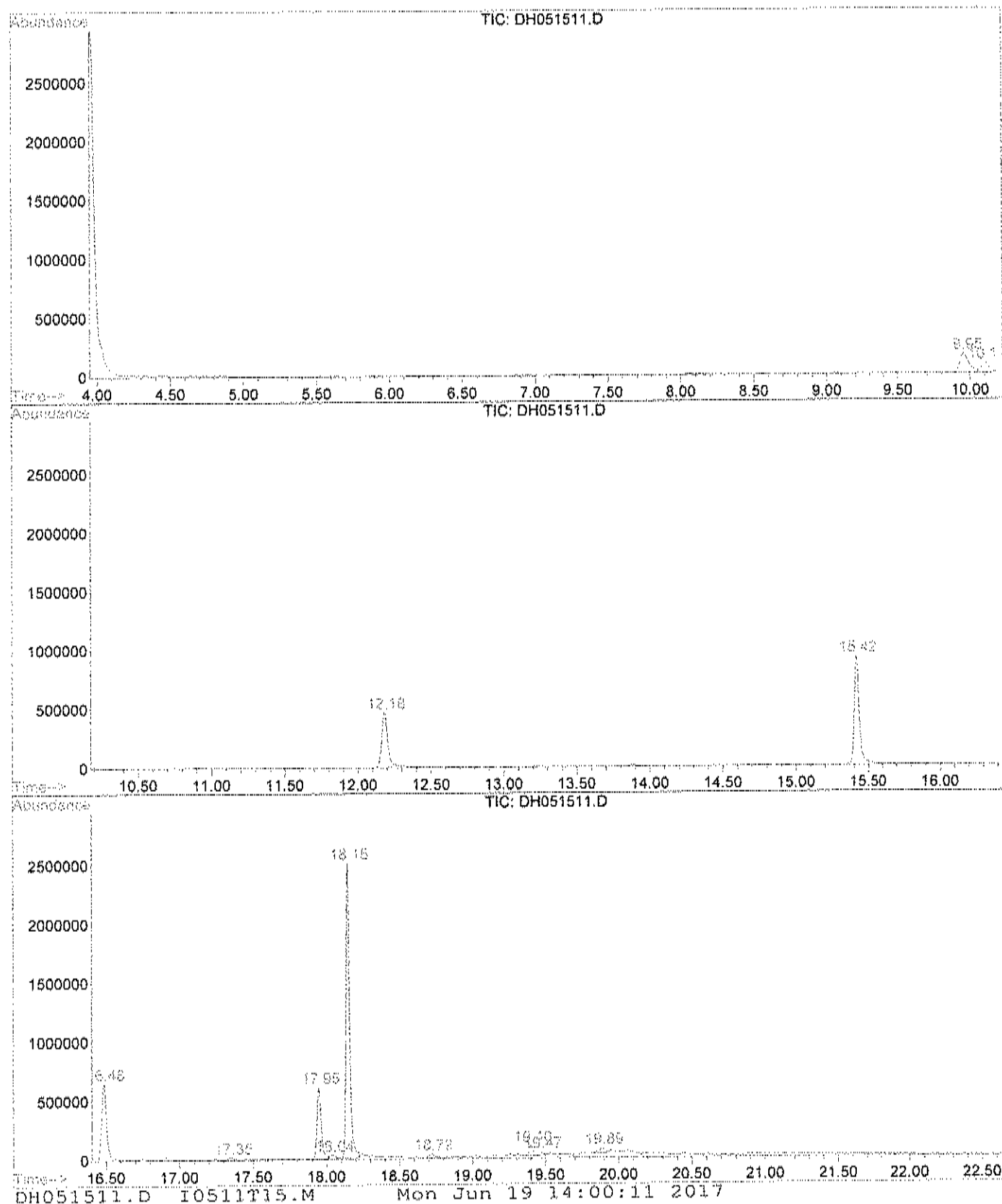
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	9.954	1770	1788	1811	rBV3	164740	707483	16.66%	5.849%
2	10.104	1813	1823	1842	rVB2	75610	256876	6.05%	2.124%
3	12.182	2293	2309	2335	rBV2	467956	1382840	32.56%	11.432%
4	15.415	3033	3046	3075	rBV	920485	2201853	51.85%	18.203%
5	16.483	3240	3250	3270	rBV	649209	1518484	35.75%	12.553%
6	17.353	3406	3416	3426	rVB5	18832	44854	1.06%	0.371%
7	17.949	3520	3530	3542	rBV	613062	1266274	29.82%	10.468%
8	18.044	3543	3548	3558	rVB4	27480	61613	1.45%	0.509%
9	18.148	3559	3568	3582	rBV	2504890	4246984	100.00%	35.110%
10	18.719	3670	3677	3690	rVB2	32192	78675	1.85%	0.650%
11	19.400	3801	3807	3815	rBV2	87504	156769	3.69%	1.296%
12	19.468	3815	3820	3827	rVV3	28775	52053	1.23%	0.430%
13	19.887	3888	3900	3906	rBV2	45701	121596	2.86%	1.005%

Sum of corrected areas: 12096354

DH051511.D I0511T15.M Mon Jun 19 14:00:09 2017

LSC Report - Integrated Chromatogram

File : C:\HPCHEM\1\DATA2\DH051511.D
Operator : WD
Acquired : 15 May 2017 2:59 pm using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-003A
Misc Info : T015
Vial Number: 5
Quant File : I0511T15.RES (RTE Integrator)



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051511.D
Acq On : 15 May 2017 2:59 pm
Sample : C1705036-003A
Misc : TO15
MS Integration Params: LSCINT.P

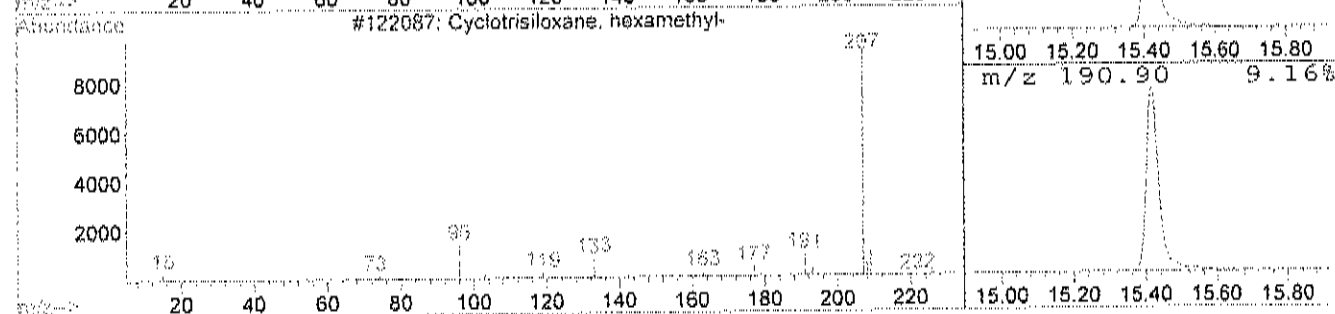
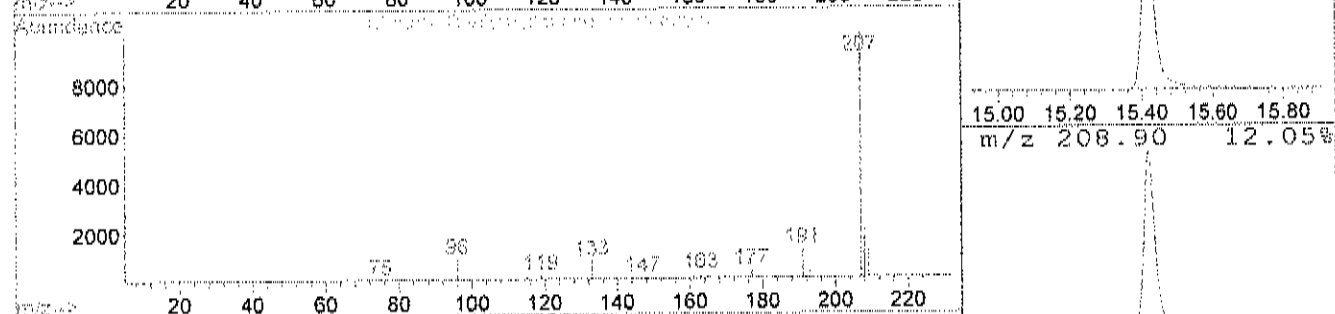
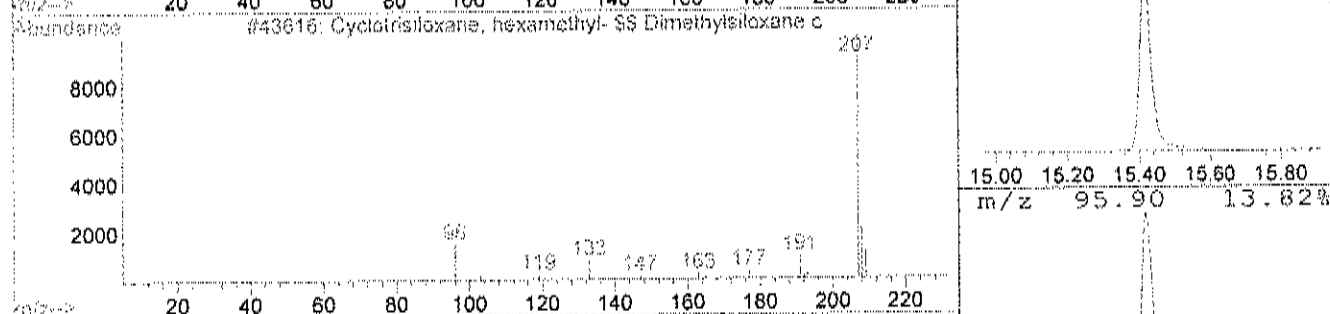
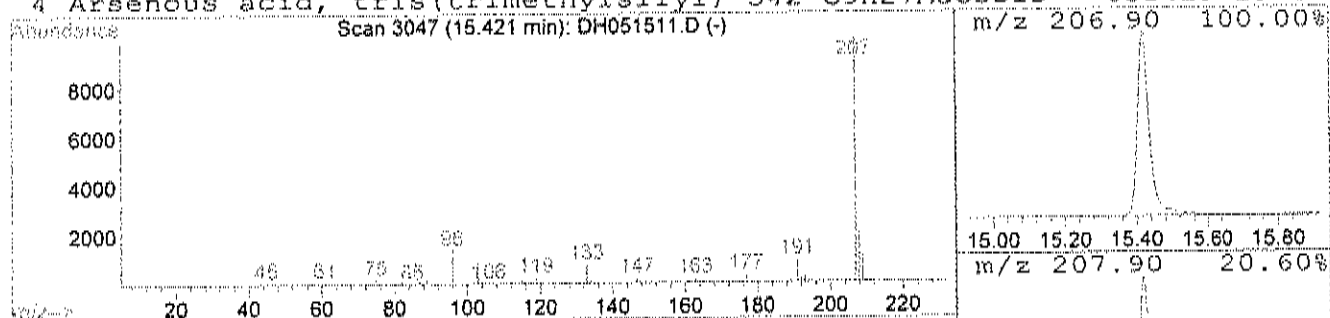
Vial: 5
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 1 Cyclotrisiloxane, hexamethyl- Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
15.42	72.50 ppb	2201850	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Cyclotrisiloxane, hexamethyl- \$\$ Di	222	C6H18O3Si3	000541-05-9	91
2			Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	91
3			Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	80
4			Arsenous acid, tris(trimethylsilyl)	342	C9H27AsO3Si3	055429-29-3	56



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051511.D
Acq On : 15 May 2017 2:59 pm
Sample : C1705036-003A
Misc : TO15
MS Integration Params: LSCINT.P

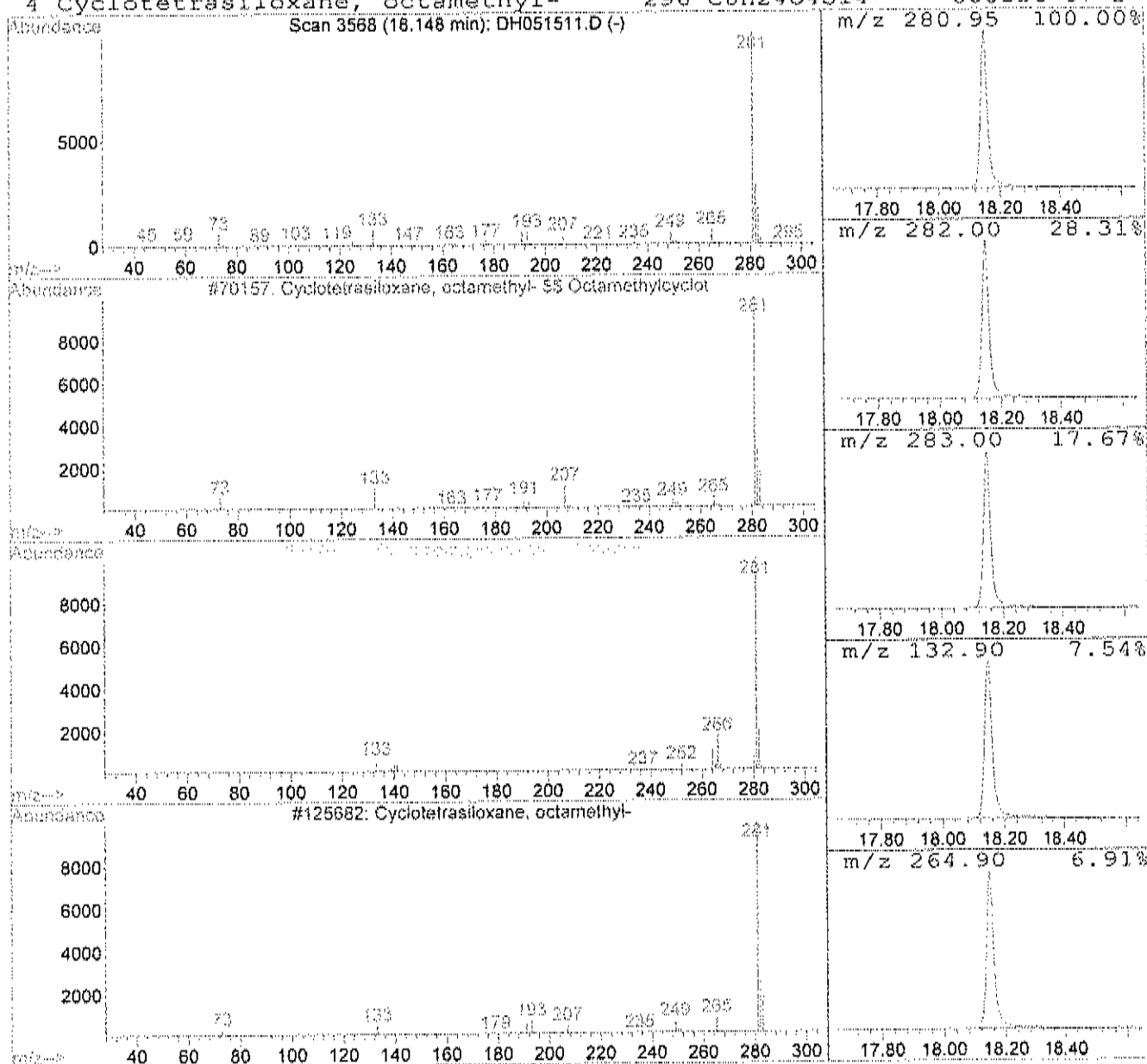
Vial: 5
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 2 Cyclotetrasiloxane, octamethyl Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
18.15	139.84 ppb	4246980	Chlorobenzene-d5	16.48

Hit#	of 5	Tentative ID	MW	MolForm	CAS#	Qual
1		Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	78
2		7H-Dibenzo[b,g]carbazole, 7-methyl-	281	C21H15N	003557-49-1	59
3		Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	47
4		Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	43



Data File : C:\HPCHEM\1\DATA2\DH051511.D
Acq On : 15 May 2017 2:59 pm
Sample : C1705036-003A
Misc : T015
MS Integration Params: LSCINT.P

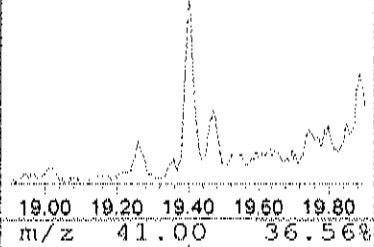
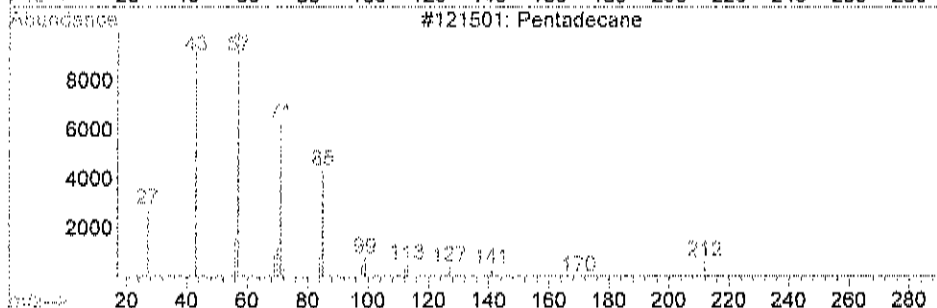
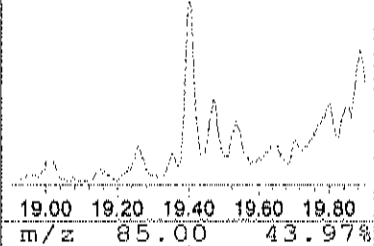
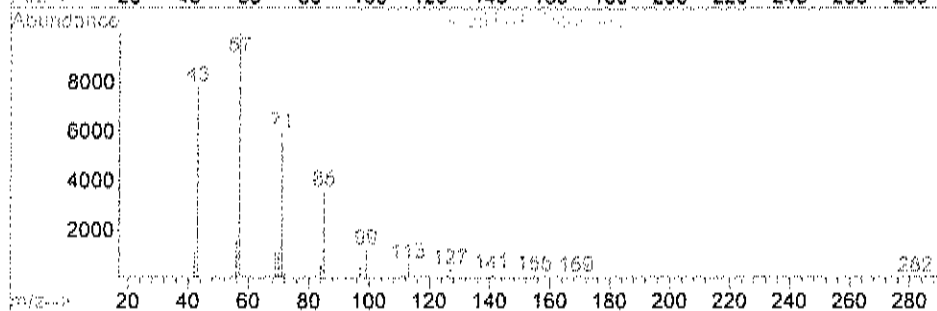
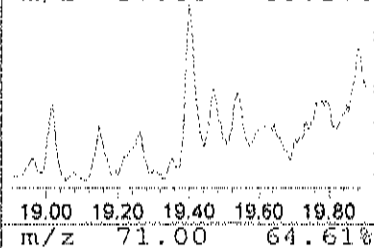
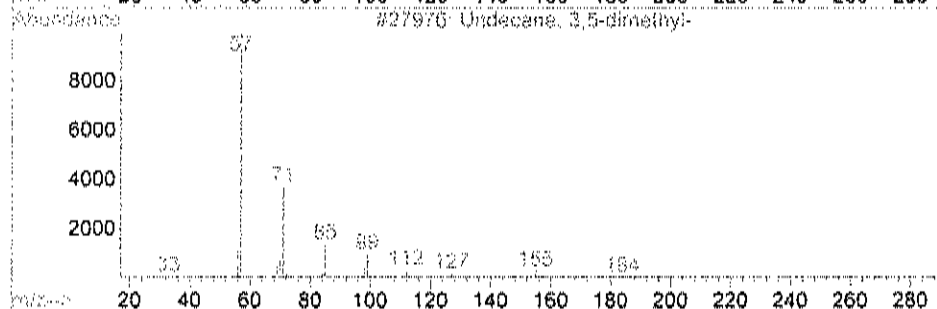
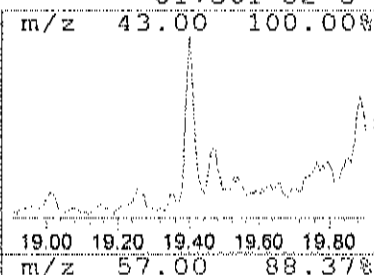
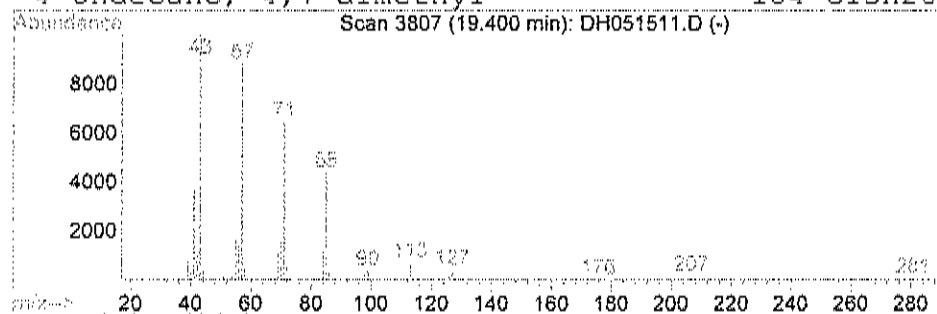
Vial: 5
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 3 Undecane, 3,5-dimethyl- Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
19.40	5.16 ppb	156769	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Undecane, 3,5-dimethyl-			184	C13H28	017312-81-1	90
2	Eicosane			282	C20H42	000112-95-8	86
3	Pentadecane			212	C15H32	000629-62-9	83
4	Undecane, 4,7-dimethyl-			184	C13H28	017301-32-5	80



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 15 May 2017 2:59 pm
Data File: C:\HPCHEM\1\DATA2\DH051511.D
Name: C1705036-003A
Misc: T015
Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title: VOA Standards for 5 point calibration
Library Searched: C:\DATABASE\NIST129.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc
Cyclotrisiloxane, he	15.42	72.5	ppb	2201850	ISTD03	16.48	1518480	50.0
Cyclotetrasiloxane,	18.15	139.8	ppb	4246980	ISTD03	16.48	1518480	50.0
Undecane, 3,5-dimeth	19.40	5.2	ppb	156769	ISTD03	16.48	1518480	50.0

DH051511.D I0511T15.M Mon Jun 19 14:00:17 2017

Date: 22-Jun-17

Centek Laboratories, LLC

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-004A

Client Sample ID: WAT-SV02-050817
 Tag Number: 549,144
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	0.289	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	76.1	8.30		%	1	5/15/2017
Oxygen	20.6	0.880		%	1	5/15/2017
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/15/2017 3:34:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Acetone	5.0	10	J	ppbV	1	5/15/2017 3:34:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Chloroform	51	5.0		ppbV	1	5/15/2017 3:34:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

- Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-004A

Client Sample ID: WAT-SV02-050817
 Tag Number: 549.144
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/15/2017 3:34:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/15/2017 3:34:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/15/2017 3:34:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/15/2017 3:34:00 PM
Methyl Isobutyl Ketone	< 10	10		ppbV	1	5/15/2017 3:34:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 3:34:00 PM
Surr: Bromofluorobenzene	81.1	73.7-124		%REC	1	5/15/2017 3:34:00 PM
TIC: Cyclotrisiloxane, hexamethyl	5.9	0	JN	ppbV	1	5/15/2017 3:34:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 2:05:00 PM
Carbon disulfide	2.8	5.0	J	ppbV	1	5/16/2017 2:05:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 2:05:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Date: 22-Jun-17

Centek Laboratories, LLC

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-004A

Client Sample ID: WAT-SV02-050817
 Tag Number: 549.144
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15				TO-15		Analyst: WD
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 2:05:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 2:05:00 PM
Hydrogen Sulfide	440	5.0		ppbV	1	5/16/2017 2:05:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 2:05:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 2:05:00 PM
Surr: Bromofluorobenzene	149	70-130	S	%REC	1	5/16/2017 2:05:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 12 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-004A

Client Sample ID: WAT-SV02-050817
 Tag Number: 549.144
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 3:34:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/15/2017 3:34:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 3:34:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 3:34:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 3:34:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/15/2017 3:34:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 3:34:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/15/2017 3:34:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 3:34:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 3:34:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/15/2017 3:34:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 3:34:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/15/2017 3:34:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 3:34:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 3:34:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/15/2017 3:34:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/15/2017 3:34:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/15/2017 3:34:00 PM
Acetone	12	24	J	ug/m3	1	5/15/2017 3:34:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/15/2017 3:34:00 PM
Benzene	< 16	16		ug/m3	1	5/15/2017 3:34:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/15/2017 3:34:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/15/2017 3:34:00 PM
Bromoform	< 52	52		ug/m3	1	5/15/2017 3:34:00 PM
Bromomethane	< 19	19		ug/m3	1	5/15/2017 3:34:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/15/2017 3:34:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/15/2017 3:34:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/15/2017 3:34:00 PM
Chloroethane	< 13	13		ug/m3	1	5/15/2017 3:34:00 PM
Chloroform	250	24		ug/m3	1	5/15/2017 3:34:00 PM
Chloromethane	< 10	10		ug/m3	1	5/15/2017 3:34:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 3:34:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 3:34:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/15/2017 3:34:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/15/2017 3:34:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/15/2017 3:34:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/15/2017 3:34:00 PM
Freon 11	< 28	28		ug/m3	1	5/15/2017 3:34:00 PM
Freon 113	< 38	38		ug/m3	1	5/15/2017 3:34:00 PM
Freon 114	< 35	35		ug/m3	1	5/15/2017 3:34:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

- Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Date: 22-Jun-17

Centek Laboratories, LLC

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-004A

Client Sample ID: WAT-SV02-050817
 Tag Number: 549.144
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/15/2017 3:34:00 PM
Heptane	< 20	20		ug/m3	1	5/15/2017 3:34:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/15/2017 3:34:00 PM
Hexane	< 18	18		ug/m3	1	5/15/2017 3:34:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/15/2017 3:34:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/15/2017 3:34:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/15/2017 3:34:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/15/2017 3:34:00 PM
Methyl Isobutyl Ketone	< 41	41		ug/m3	1	5/15/2017 3:34:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/15/2017 3:34:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/15/2017 3:34:00 PM
o-Xylene	< 22	22		ug/m3	1	5/15/2017 3:34:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/15/2017 3:34:00 PM
Styrene	< 21	21		ug/m3	1	5/15/2017 3:34:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/15/2017 3:34:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/15/2017 3:34:00 PM
Toluene	< 19	19		ug/m3	1	5/15/2017 3:34:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 3:34:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 3:34:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/15/2017 3:34:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/15/2017 3:34:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/15/2017 3:34:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/15/2017 3:34:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 2:05:00 PM
Carbon disulfide	8.7	16	J	ug/m3	1	5/16/2017 2:05:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 2:05:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 2:05:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 2:05:00 PM
Hydrogen Sulfide	620	7.0		ug/m3	1	5/16/2017 2:05:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 2:05:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 2:05:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Data File : C:\HPCHEM\1\DATA\DH051512.D

Vial: 6

Acq On : 15 May 2017 3:34 pm

Operator: WD

Sample : C1705036-004A

Inst : GCMS3

Misc : T015

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: Jun 1 10:29 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	9.95	128	92308	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	550342	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	439260	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	252652	40.55	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	%	81.10%

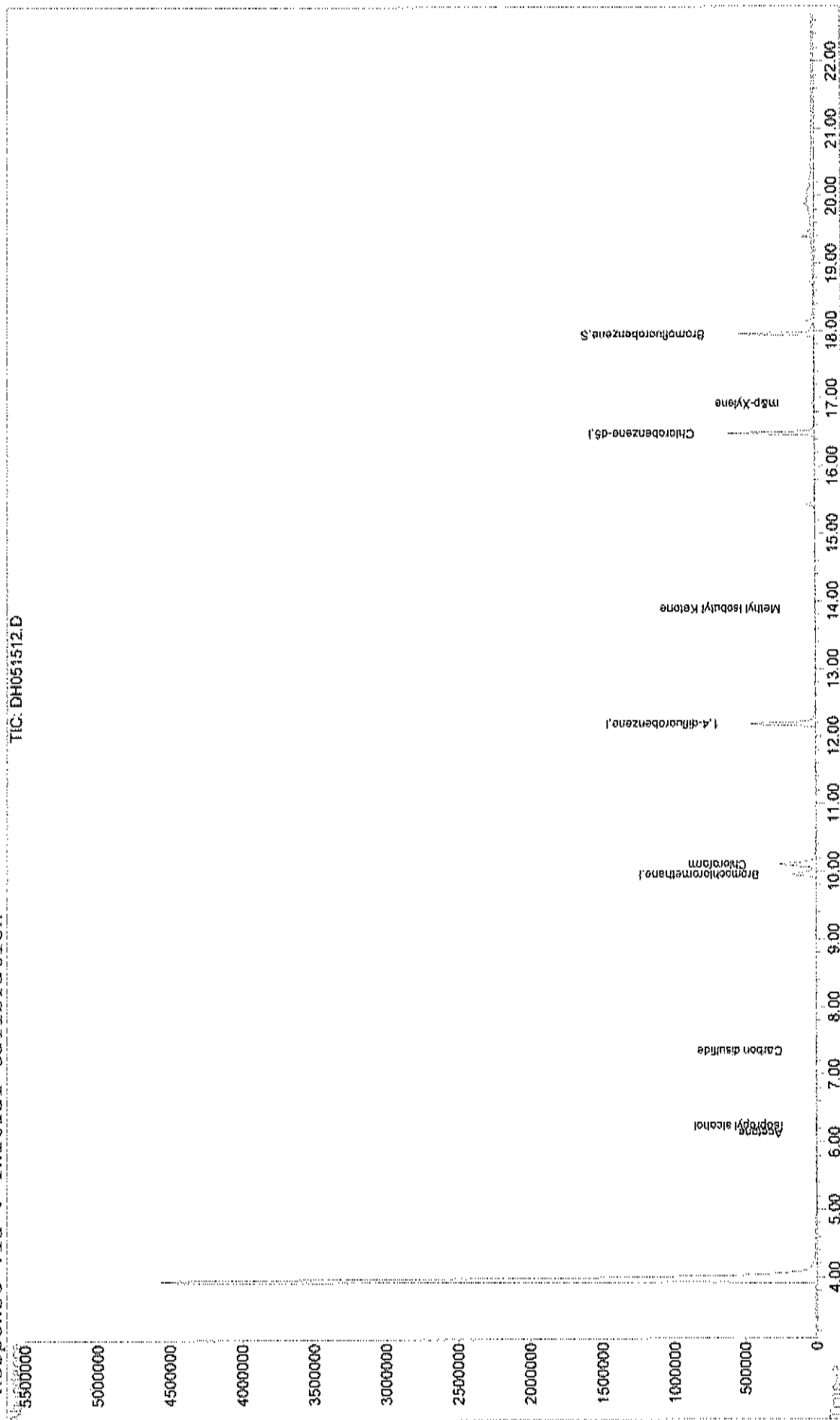
Target Compounds

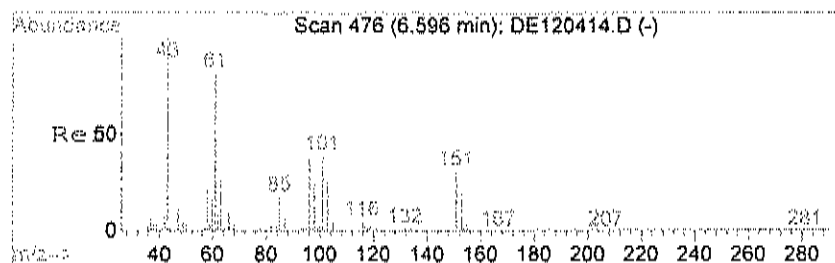
	R.T.	QIon	Response	Conc	Units	Qvalue
16) Acetone	6.13	43	17360	5.00	ppb	94
18) Isopropyl alcohol	6.24	45	6267	1.06	ppb	# 1
24) Carbon disulfide	7.35	76	17363m ⁴⁵	2.51	ppb	
33) Chloroform	10.10	83	336734	50.96	ppb	99
48) Methyl Isobutyl Ketone	13.89	43	10677	1.15	ppb	95
60) m&p-Xylene	16.92	106	7726m ⁴⁵	1.17	ppb	

Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051512.D
Acq On : 15 May 2017 3:34 pm
Sample : C1705036-004A
Misc : T015
MS Integration Params: rteint.p
Quant Time: Jun 1 10:29 2017
Quant Results File: I0511T15.RES

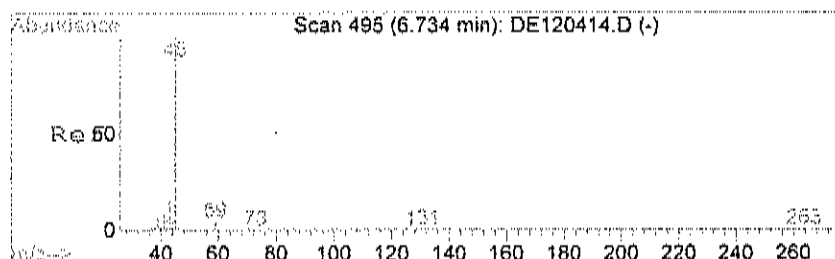
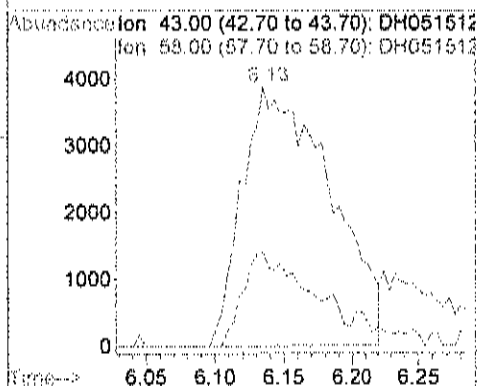
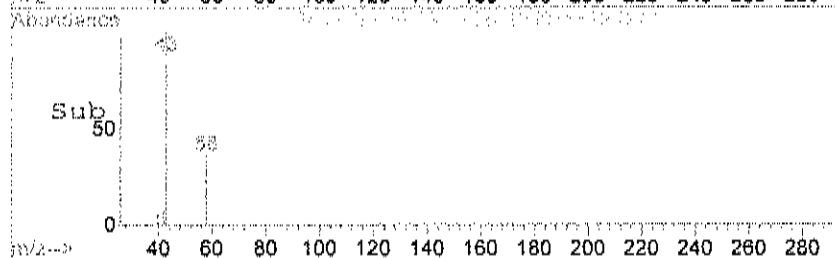
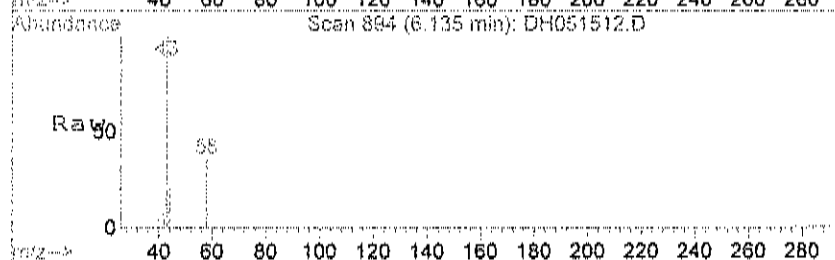
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





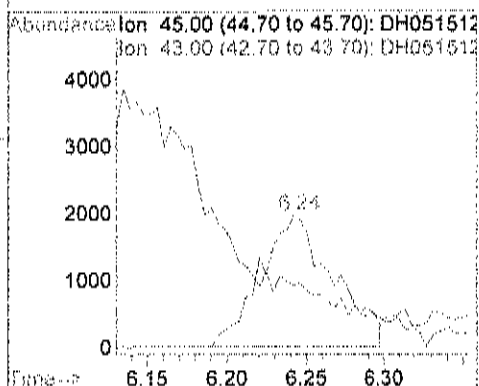
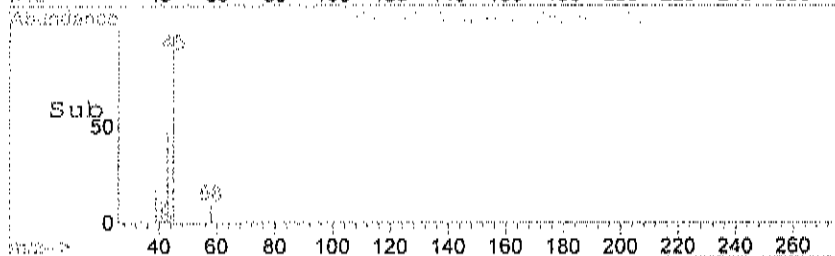
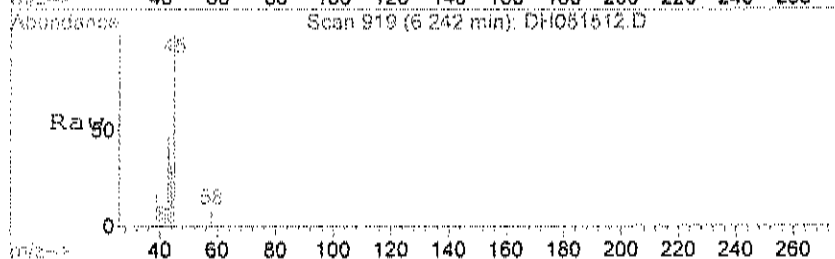
#16
Acetone
Concen: 5.00 ppb
RT: 6.13 min Scan# 894
Delta R.T. 0.02 min
Lab File: DH051512.D
Acq: 15 May 2017 3:34 pm

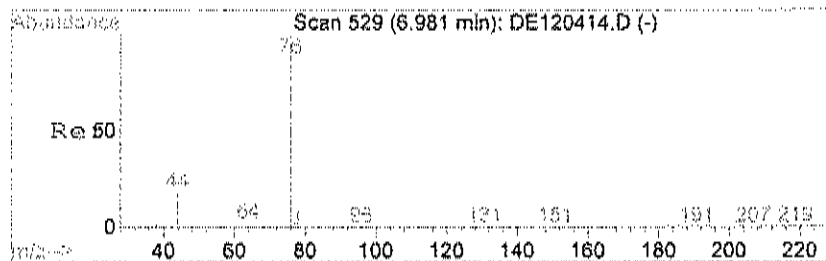
Tgt Ion: 43 Resp: 17360
Ion Ratio Lower Upper
43 100
58 26.6 3.7 43.7



#18
Isopropyl alcohol
Concen: 1.06 ppb
RT: 6.24 min Scan# 919
Delta R.T. 0.03 min
Lab File: DH051512.D
Acq: 15 May 2017 3:34 pm

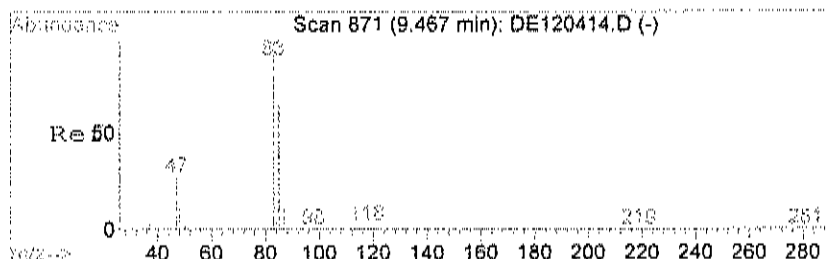
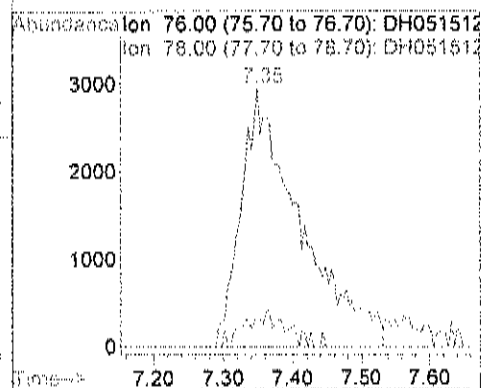
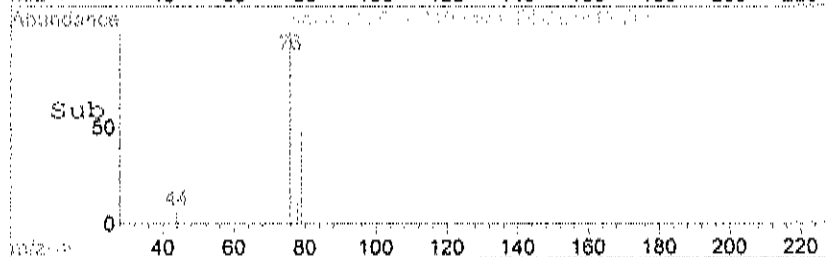
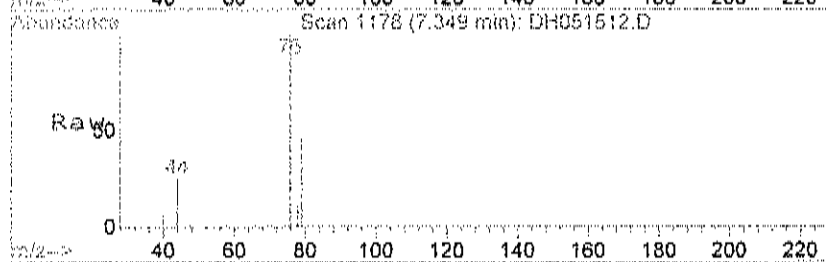
Tgt Ion: 45 Resp: 6267
Ion Ratio Lower Upper
45 100
43 0.0 87.2 127.2#





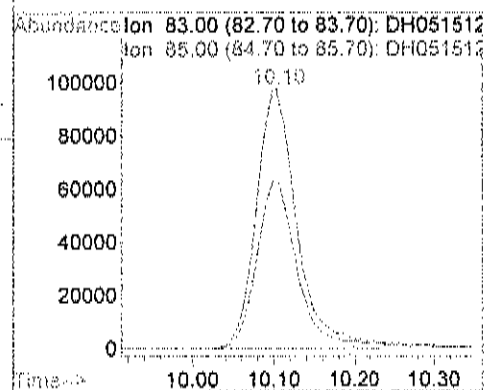
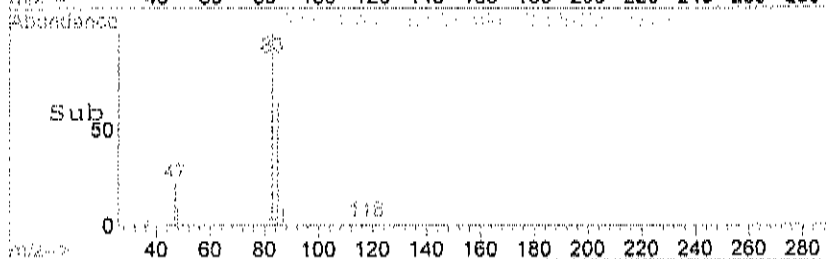
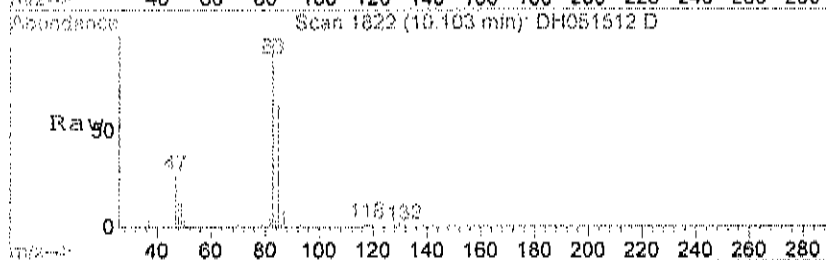
#24
Carbon disulfide
Concen: 2.51 ppb m
RT: 7.35 min Scan# 1178
Delta R.T. 0.00 min
Lab File: DH051512.D
Acq: 15 May 2017 3:34 pm

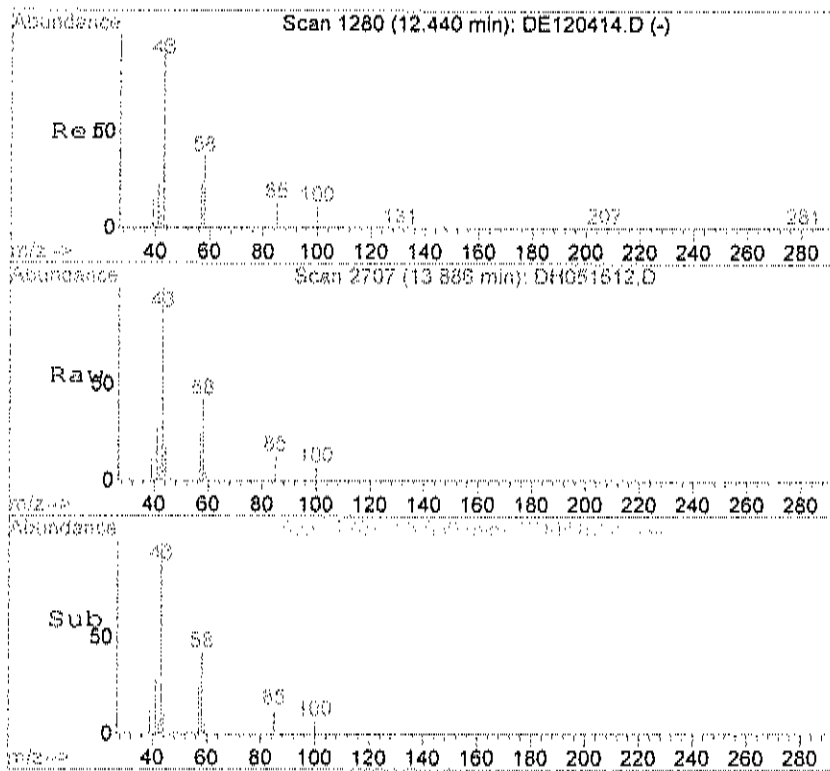
Tgt Ion	Ratio	Lower	Upper
76	100		
78	2.4	0.0	29.3



#33
Chloroform
Concen: 50.96 ppb
RT: 10.10 min Scan# 1822
Delta R.T. -0.01 min
Lab File: DH051512.D
Acq: 15 May 2017 3:34 pm

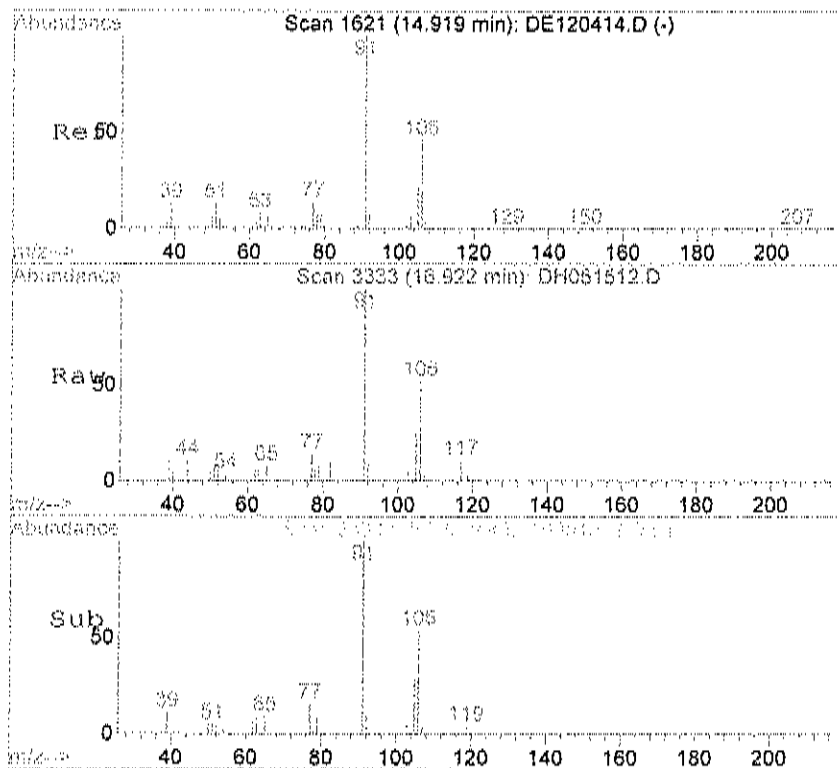
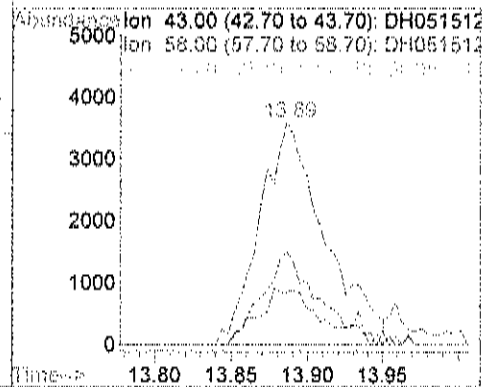
Tgt Ion	Ratio	Lower	Upper
83	100		
85	64.5	43.5	83.5





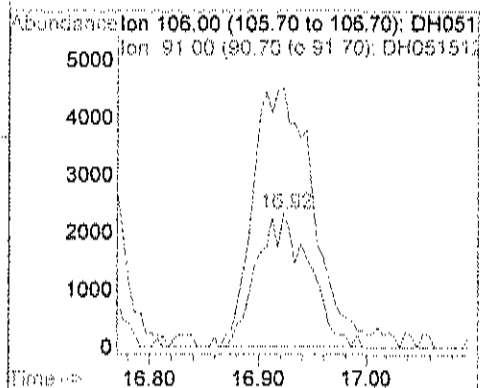
#48
Methyl Isobutyl Ketone
Concen: 1.15 ppb
RT: 13.89 min Scan# 2707
Delta R.T. 0.01 min
Lab File: DH051512.D
Acq: 15 May 2017 3:34 pm

Tgt Ion	Ratio	Lower	Upper
43	100		
58	34.4	15.8	55.8
57	22.6	6.8	46.8



#60
m,p-Xylene
Concen: 1.17 ppb m
RT: 16.92 min Scan# 3333
Delta R.T. -0.01 min
Lab File: DH051512.D
Acq: 15 May 2017 3:34 pm

Tgt Ion	Ratio	Lower	Upper
106	100		
91	223.8	202.1	242.1



LSC Area Percent Report

Data File : C:\HPCHEM\1\DATA2\DH051512.D
 Acq On : 15 May 2017 3:34 pm
 Sample : C1705036-004A
 Misc : TO15
 MS Integration Params: LSCINT.P

Vial: 6
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Smoothing : ON Filtering: 5
 Sampling : 1 Min Area: 3 % of largest Peak
 Start Thrs: 0.2 Max Peaks: 100
 Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Signal : TIC

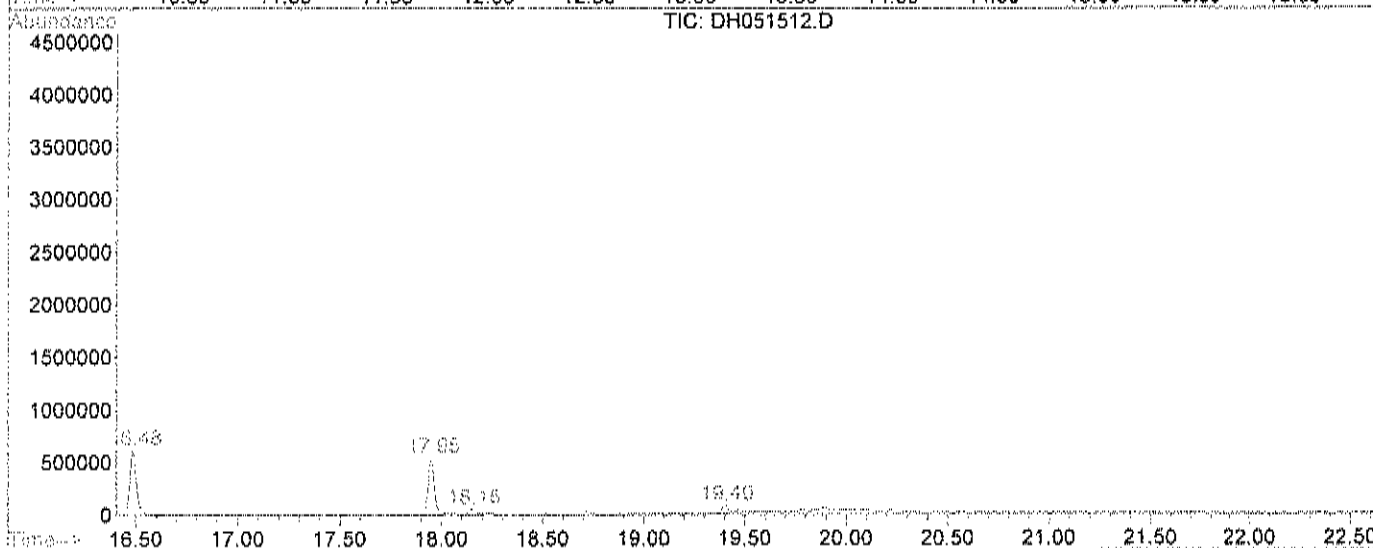
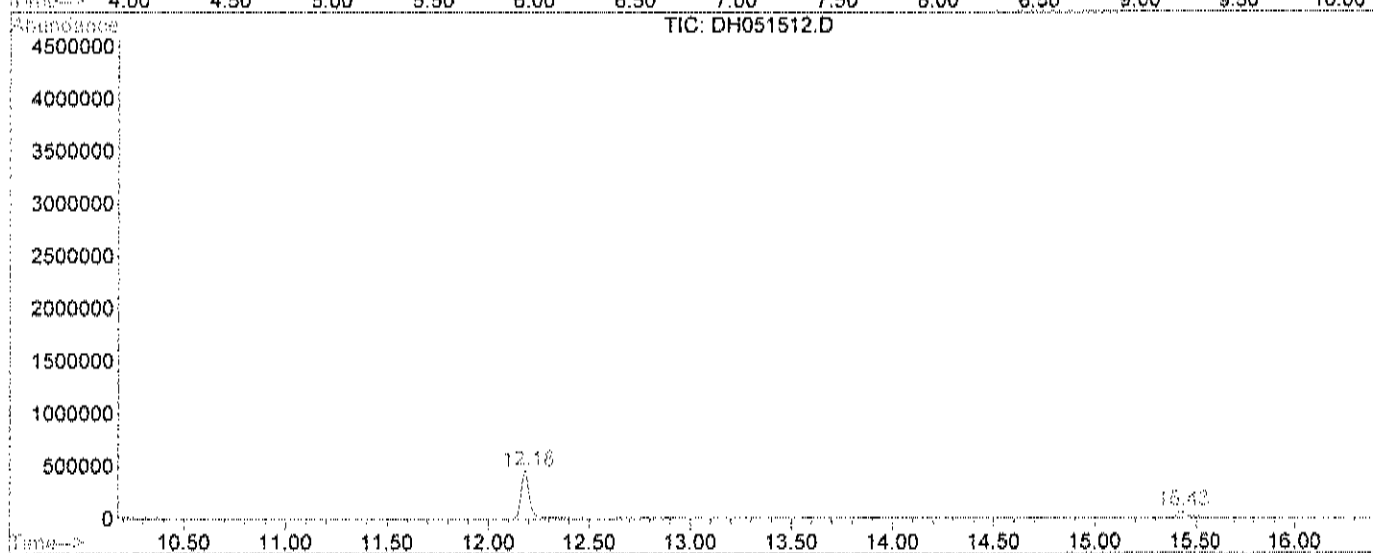
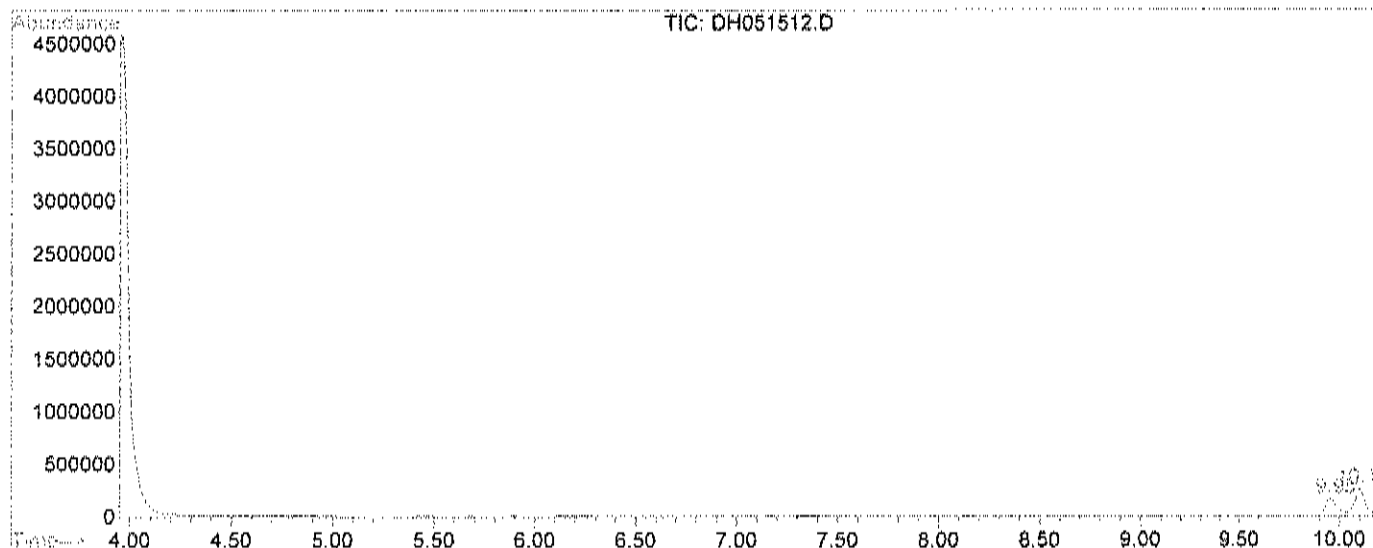
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	9.953	1769	1787	1808	rBV2	164259	689120	47.42%	11.611%
2	10.103	1808	1822	1852	rVB	247941	872208	60.02%	14.696%
3	12.185	2292	2309	2336	rBV	455741	1351407	92.99%	22.770%
4	15.425	3034	3047	3064	rBV	61155	170847	11.76%	2.879%
5	16.483	3239	3249	3273	rBV	619215	1453280	100.00%	24.487%
6	17.949	3519	3529	3542	rBV	544105	1148230	79.01%	19.347%
7	18.148	3561	3567	3579	rBV	50681	111483	7.67%	1.878%
8	19.399	3800	3806	3814	rBV	73861	138434	9.53%	2.332%

Sum of corrected areas: 5935009

DH051512.D I0511T15.M Mon Jun 19 14:02:43 2017

LSC Report ~ Integrated Chromatogram

File : C:\HPCHEM\1\DATA2\DH051512.D
Operator : WD
Acquired : 15 May 2017 3:34 pm using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-004A
Misc Info : TO15
Vial Number: 6
Quant File : I0511T15.RES (RTE Integrator)



DH051512.D I0511T15.M Mon Jun 19 14:02:44 2017

Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051512.D
Acq On : 15 May 2017 3:34 pm
Sample : C1705036-004A
Misc : TO15
MS Integration Params: LSCINT.P

Vial: 6
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

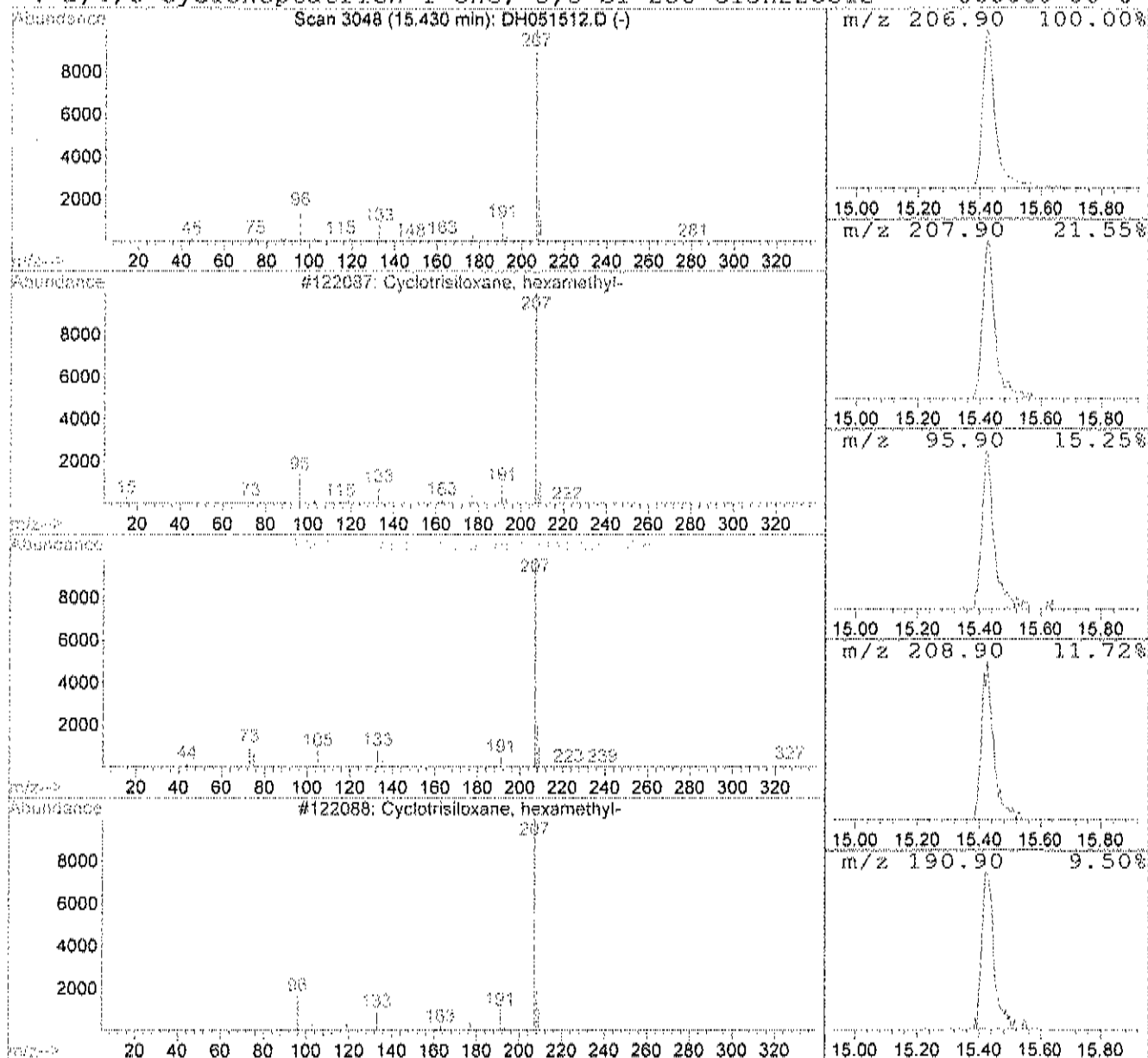
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 1 Cyclotrisiloxane, hexamethyl- Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
15.43	5.88 ppb	170847	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	59
2			Arsenous acid, tris(trimethylsilyl)	342	C9H27AsO3Si3	055429-29-3	50
3			Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	46
4			2,4,6-Cycloheptatrien-1-one, 3,5-bi	250	C13H22O3Si2	000000-00-0	39



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 15 May 2017 3:34 pm
Data File: C:\HPCHEM\1\DATA2\DM051512.D
Name: C1705036-004A
Misc: T015
Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title: VOA Standards for 5 point calibration
Library Searched: C:\DATABASE\NIST129.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc
Cyclotrisiloxane, he	15.43	5.9	ppb	170847	ISTD03	16.48	1453280	50.0
DM051512.D I0511T15.M			Mon Jun 19 14:02:46 2017					

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-005A

Client Sample ID: WAT-SV10-050817
 Tag Number: 595.54
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	0.328	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	74.9	8.30		%	1	5/15/2017
Oxygen	20.2	0.880		%	1	5/15/2017
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/15/2017 4:09:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Acetone	3.3	10	J	ppbV	1	5/15/2017 4:09:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Chloroform	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Date: 22-Jun-17

Centek Laboratories, LLC

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-005A

Client Sample ID: WAT-SV10-050817
 Tag Number: 595.54
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15				TO-15		Analyst: WD
Chloromethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/15/2017 4:09:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Isopropyl alcohol	2.5	5.0	J	ppbV	1	5/15/2017 4:09:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/15/2017 4:09:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/15/2017 4:09:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/15/2017 4:09:00 PM
Methyl Isobutyl Ketone	< 10	10		ppbV	1	5/15/2017 4:09:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 4:09:00 PM
Surr: Bromofluorobenzene	82.6	73.7-124		%REC	1	5/15/2017 4:09:00 PM
TIC: Cyclotetrasiloxane, octamethyl-	38	0	JN	ppbV	1	5/15/2017 4:09:00 PM
TIC: Cyclotrisiloxane, hexamethyl \$S\$ Dimethyl	18	0	JN	ppbV	1	5/15/2017 4:09:00 PM
TIC: Ethanol \$S\$ Ethyl alcohol \$S\$ Alcohol \$S\$ A	19	0	JN	ppbV	1	5/15/2017 4:09:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-005A

Client Sample ID: WAT-SV10-050817
 Tag Number: 595.54
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15						
TIC: Heptadecane \$\$ n- Heptadecane \$\$ Normal-h	5.8	0	JN	ppbV	1	Analyst: WD 5/15/2017 4:09:00 PM
LOW LEVEL SULFURS BY TO-15						
1-Propanethiol	< 5.0	5.0		ppbV	1	Analyst: WD 5/16/2017 2:40:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Hydrogen Sulfide	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 2:40:00 PM
Surr: Bromofluorobenzene	151	70-130	S	%REC	1	5/16/2017 2:40:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 15 of 42

Date: 22-Jun-17

Centek Laboratories, LLC

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-005A

Client Sample ID: WAT-SV10-050817
 Tag Number: 595.54
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15				TO-15		Analyst: WD
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 4:09:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/15/2017 4:09:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 4:09:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 4:09:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 4:09:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/15/2017 4:09:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 4:09:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/15/2017 4:09:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 4:09:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 4:09:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/15/2017 4:09:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 4:09:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/15/2017 4:09:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 4:09:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 4:09:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/15/2017 4:09:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/15/2017 4:09:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/15/2017 4:09:00 PM
Acetone	7.7	24	J	ug/m3	1	5/15/2017 4:09:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/15/2017 4:09:00 PM
Benzene	< 16	16		ug/m3	1	5/15/2017 4:09:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/15/2017 4:09:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/15/2017 4:09:00 PM
Bromoform	< 52	52		ug/m3	1	5/15/2017 4:09:00 PM
Bromomethane	< 19	19		ug/m3	1	5/15/2017 4:09:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/15/2017 4:09:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/15/2017 4:09:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/15/2017 4:09:00 PM
Chloroethane	< 13	13		ug/m3	1	5/15/2017 4:09:00 PM
Chloroform	< 24	24		ug/m3	1	5/15/2017 4:09:00 PM
Chloromethane	< 10	10		ug/m3	1	5/15/2017 4:09:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 4:09:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 4:09:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/15/2017 4:09:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/15/2017 4:09:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/15/2017 4:09:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/15/2017 4:09:00 PM
Freon 11	< 28	28		ug/m3	1	5/15/2017 4:09:00 PM
Freon 113	< 38	38		ug/m3	1	5/15/2017 4:09:00 PM
Freon 114	< 35	35		ug/m3	1	5/15/2017 4:09:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Date: 22-Jun-17

Centek Laboratories, LLC

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-005A

Client Sample ID: WAT-SV10-050817
 Tag Number: 595.54
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/15/2017 4:09:00 PM
Heptane	< 20	20		ug/m3	1	5/15/2017 4:09:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/15/2017 4:09:00 PM
Hexane	< 18	18		ug/m3	1	5/15/2017 4:09:00 PM
Isopropyl alcohol	6.1	12	J	ug/m3	1	5/15/2017 4:09:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/15/2017 4:09:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/15/2017 4:09:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/15/2017 4:09:00 PM
Methyl Isobutyl Ketone	< 41	41		ug/m3	1	5/15/2017 4:09:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/15/2017 4:09:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/15/2017 4:09:00 PM
o-Xylene	< 22	22		ug/m3	1	5/15/2017 4:09:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/15/2017 4:09:00 PM
Styrene	< 21	21		ug/m3	1	5/15/2017 4:09:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/15/2017 4:09:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/15/2017 4:09:00 PM
Toluene	< 19	19		ug/m3	1	5/15/2017 4:09:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 4:09:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 4:09:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/15/2017 4:09:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/15/2017 4:09:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/15/2017 4:09:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/15/2017 4:09:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 2:40:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 2:40:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 2:40:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 2:40:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 2:40:00 PM
Hydrogen Sulfide	< 7.0	7.0		ug/m3	1	5/16/2017 2:40:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 2:40:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 2:40:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Data File : C:\HPCHEM\1\DATA\DH051513.D

Vial: 7

Acq On : 15 May 2017 4:09 pm

Operator: WD

Sample : C1705036-005A

Inst : GCMS3

Misc : T015

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: Jun 1 10:31 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	88239	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	532758	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	426765	50.00	ppb	0.00

System Monitoring Compounds

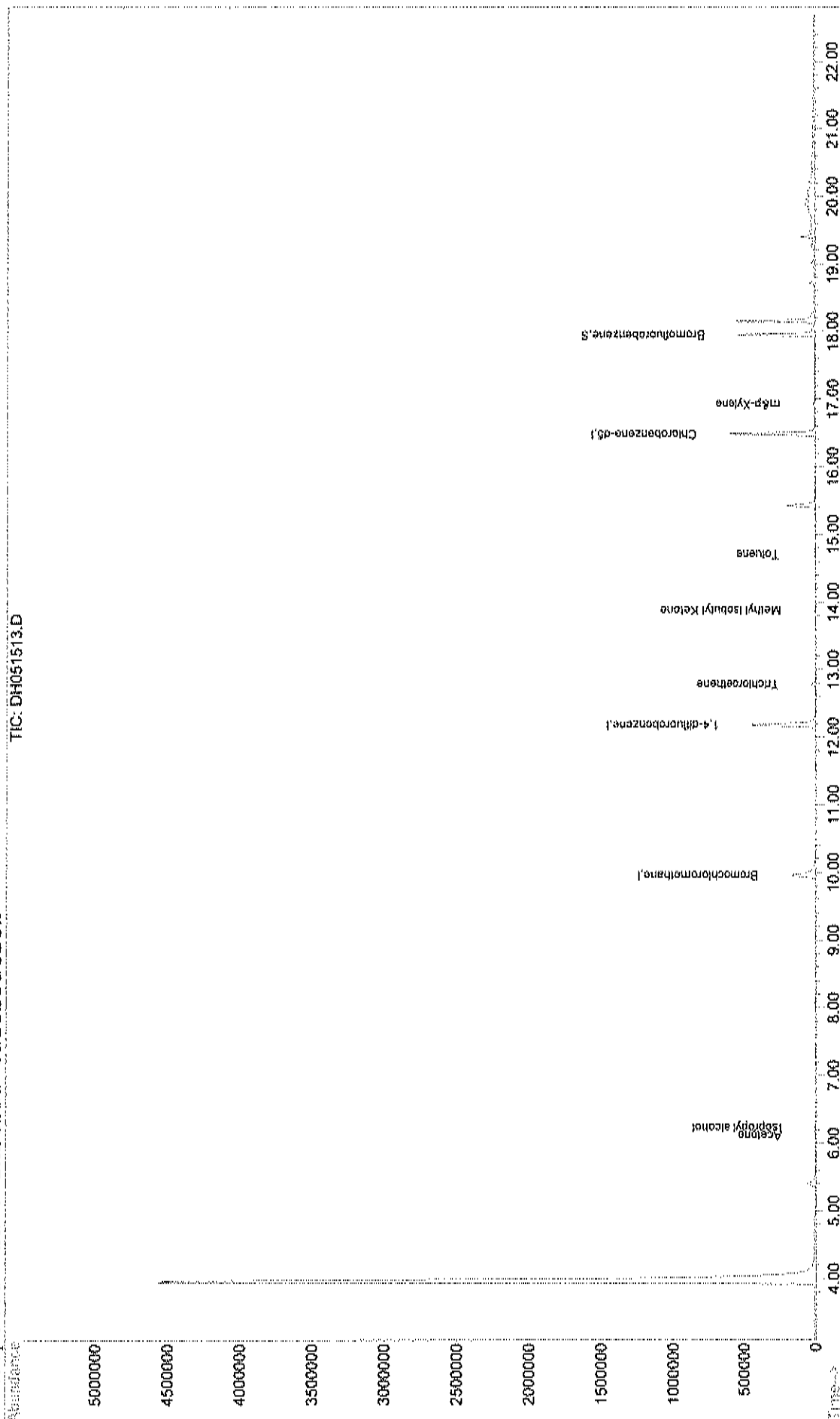
67) Bromofluorobenzene	17.95	95	250057	41.31	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	82.62%

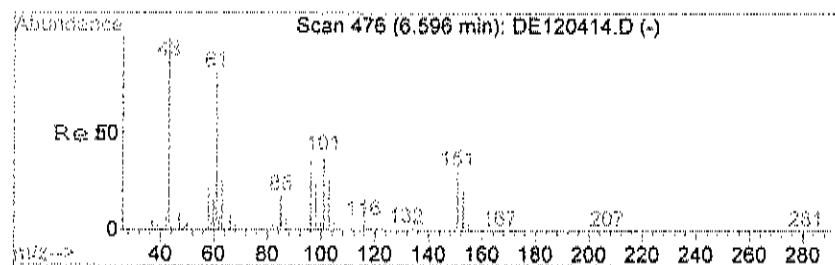
Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
16) Acetone	6.11	43	10812	3.26	ppb	91
18) Isopropyl alcohol	6.23	45	14004	2.48	ppb	# 1
43) Trichloroethene	12.79	130	14343	3.44	ppb	96
48) Methyl Isobutyl Ketone	13.88	43	9925	1.11	ppb	83
52) Toluene	14.70	92	12461	1.61	ppb	92
60) m&p-Xylene	16.92	106	7819m (m)	1.22	ppb	

Quantitation Report

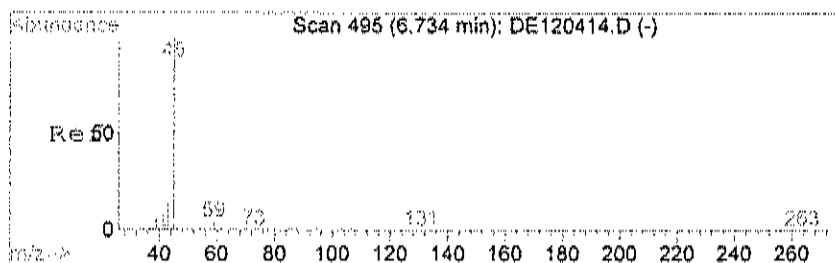
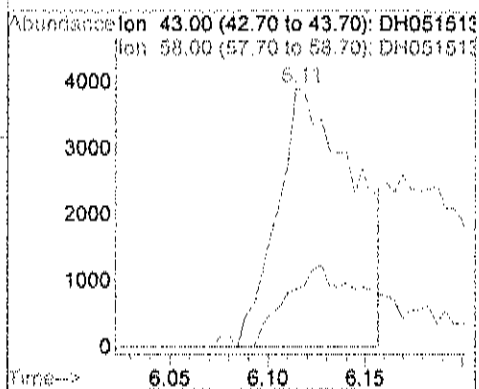
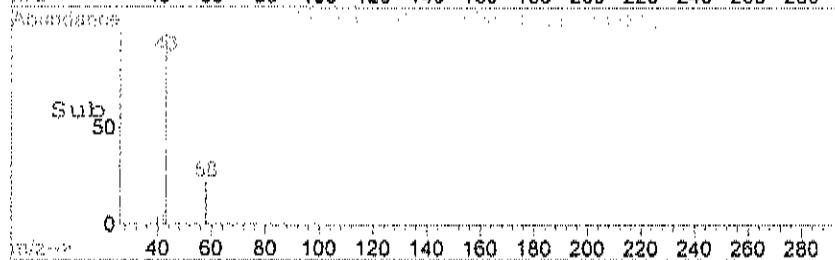
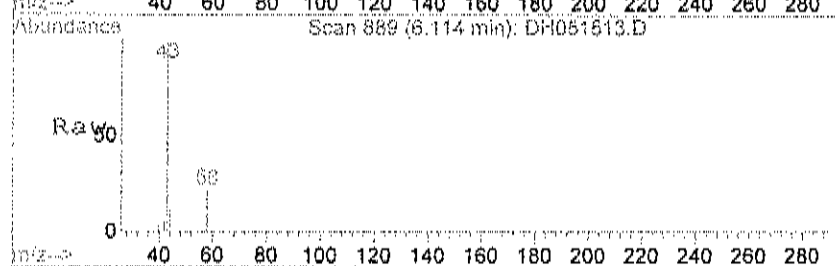
Data File : C:\HPCHEM\1\DATA\DH051513.D
Acq On : 15 May 2017 4:09 pm
Sample : C1705036-005A
Misc : TO15
MS Integration Params: rteint.p
Quant Time: Jun 1 10:31 2017
Quant Results File: I0511T15.RES
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





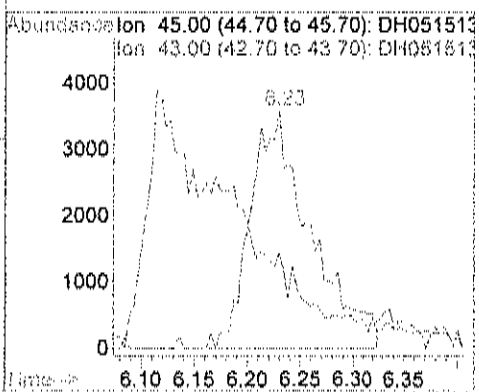
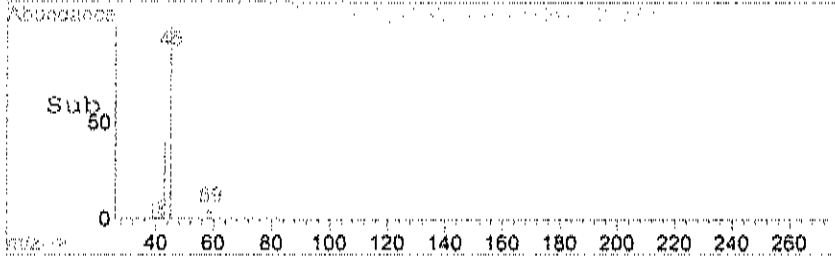
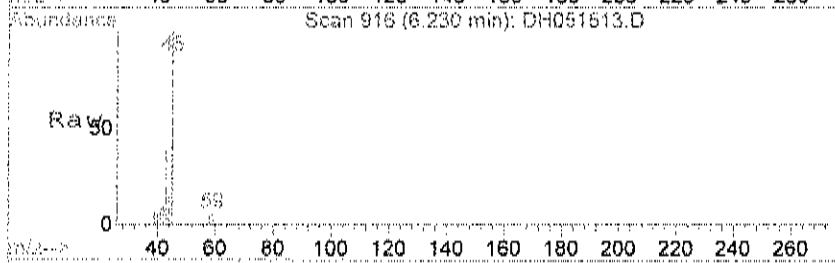
#16
Acetone
Concen: 3.26 ppb
RT: 6.11 min Scan# 889
Delta R.T. 0.00 min
Lab File: DH051513.D
Acq: 15 May 2017 4:09 pm

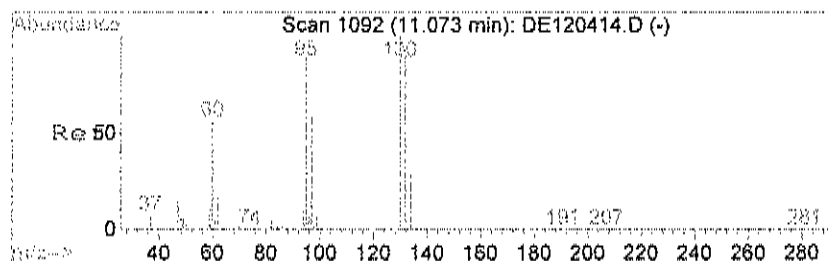
Tgt Ion	Ratio	Lower	Upper
43	100		
58	19.5	3.7	43.7



#18
Isopropyl alcohol
Concen: 2.48 ppb
RT: 6.23 min Scan# 916
Delta R.T. 0.02 min
Lab File: DH051513.D
Acq: 15 May 2017 4:09 pm

Tgt Ion	Ratio	Lower	Upper
45	100		
43	0.0	87.2	127.2#





#43

Trichloroethene

Concen: 3.44 ppb

RT: 12.79 min Scan# 2450

Delta R.T. 0.00 min

Lab File: DH051513.D

Acq: 15 May 2017 4:09 pm

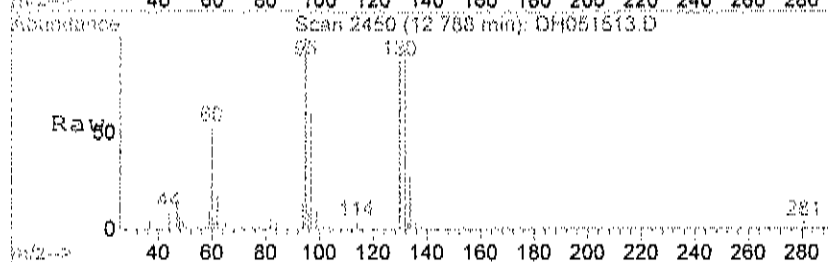
Tgt Ion: 130 Resp: 14343

Ion Ratio Lower Upper

130 100

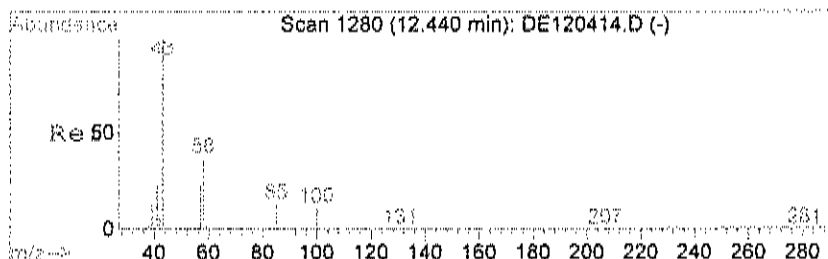
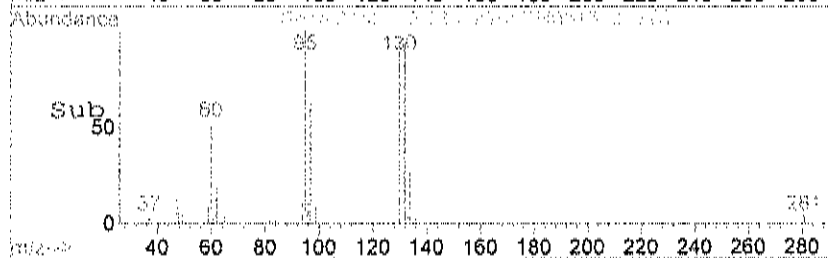
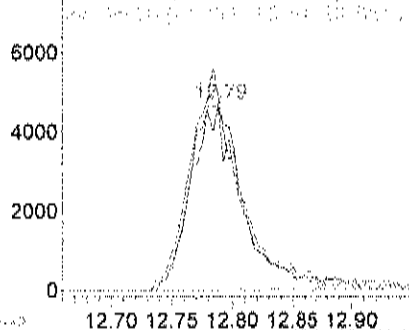
132 93.5 77.9 117.9

95 109.4 85.8 125.8



Abundance Ion 130.00 (129.70 to 130.70): DH051

Ion 132.00 (131.70 to 132.70): DH051



#48

Methyl Isobutyl Ketone

Concen: 1.11 ppb

RT: 13.88 min Scan# 2705

Delta R.T. 0.00 min

Lab File: DH051513.D

Acq: 15 May 2017 4:09 pm

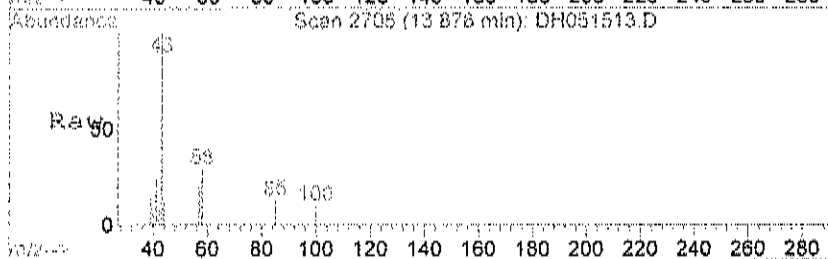
Tgt Ion: 43 Resp: 9925

Ion Ratio Lower Upper

43 100

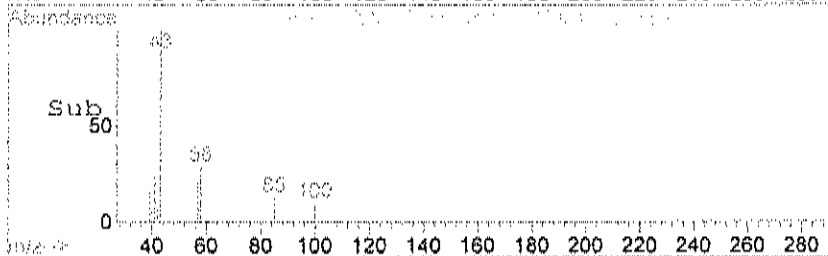
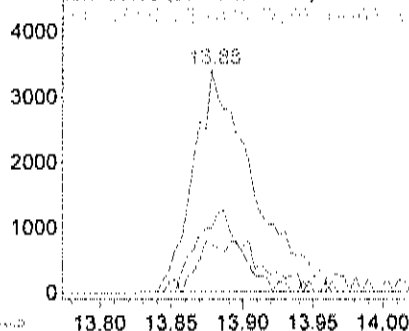
58 32.6 15.8 55.8

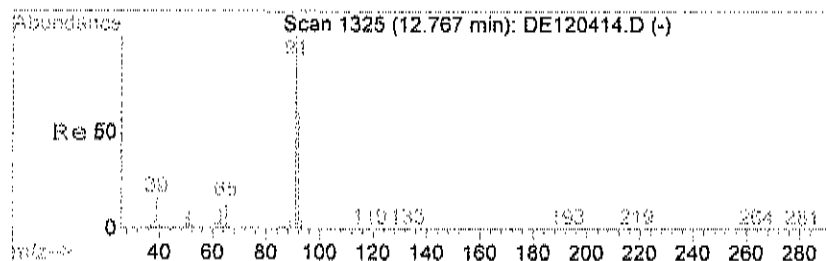
57 10.0 6.8 46.8



Abundance Ion 43.00 (42.70 to 43.70): DH051513

Ion 58.00 (57.70 to 58.70): DH051513





#52

Toluene

Concen: 1.61 ppb

RT: 14.70 min Scan# 2898

Delta R.T. 0.00 min

Lab File: DH051513.D

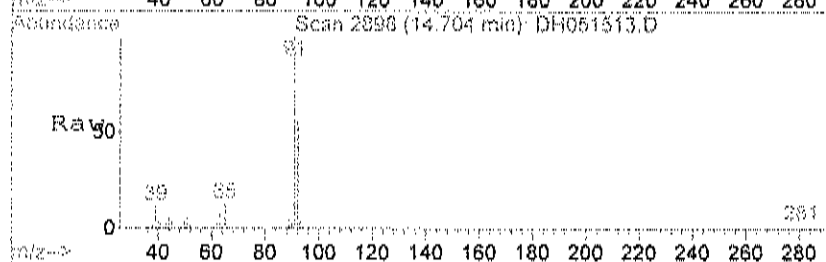
Acq: 15 May 2017 4:09 pm

Tgt Ion: 92 Resp: 12461

Ion Ratio Lower Upper

92 100

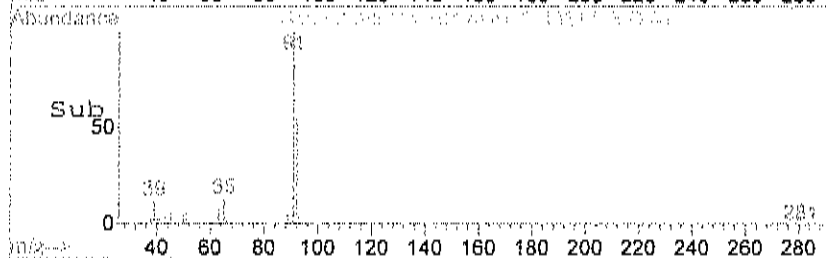
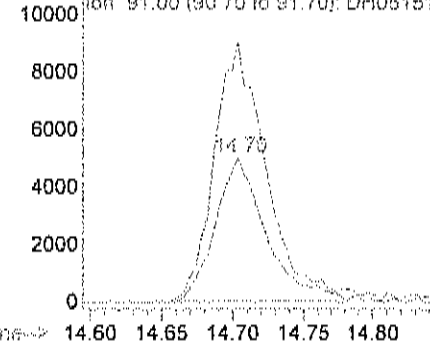
91 183.0 151.4 191.4



Abundance

Ion 92.00 (91.70 to 92.70): DH051513

Ion 91.00 (90.70 to 91.70): DH051513



#60

m,p-Xylene

Concen: 1.22 ppb m

RT: 16.92 min Scan# 3333

Delta R.T. -0.01 min

Lab File: DH051513.D

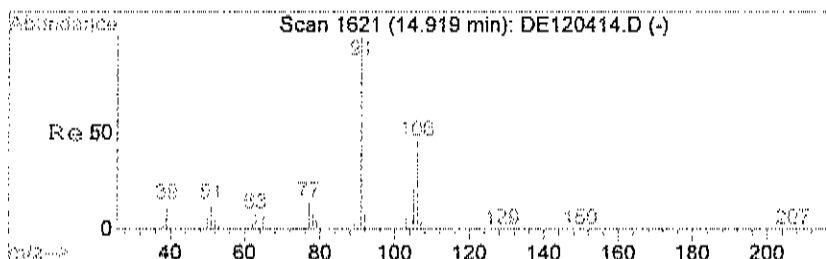
Acq: 15 May 2017 4:09 pm

Tgt Ion: 106 Resp: 7819

Ion Ratio Lower Upper

106 100

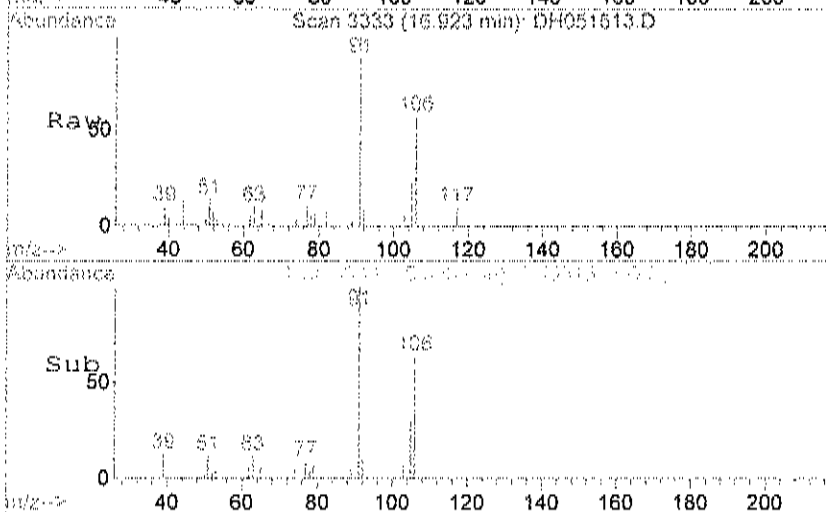
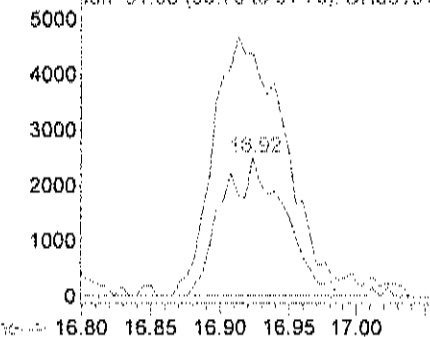
91 220.3 202.1 242.1



Abundance

Ion 106.00 (105.70 to 106.70): DH051513

Ion 91.00 (90.70 to 91.70): DH051513



LSC Area Percent Report

Data File : C:\HPCHEM\1\DATA2\DH051513.D
 Acq On : 15 May 2017 4:09 pm
 Sample : C1705036-005A
 Misc : T015
 MS Integration Params: LSCINT.P

Vial: 7
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Smoothing : ON Filtering: 5
 Sampling : 1 Min Area: 3 % of largest Peak
 Start Thrs: 0.2 Max Peaks: 100
 Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Signal : TIC

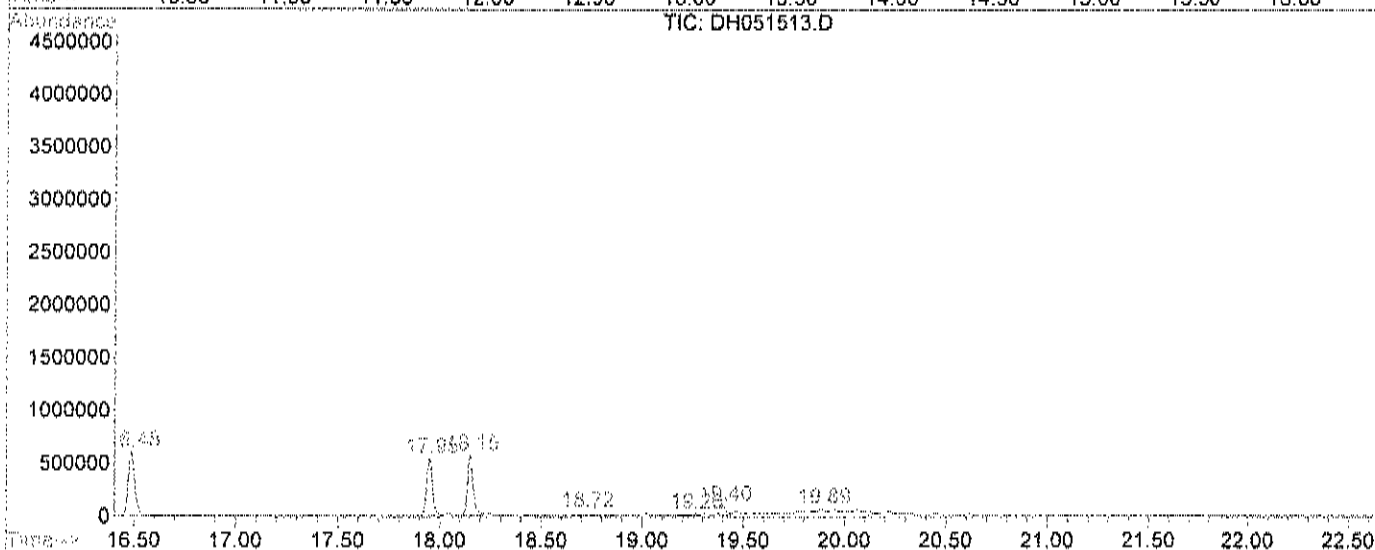
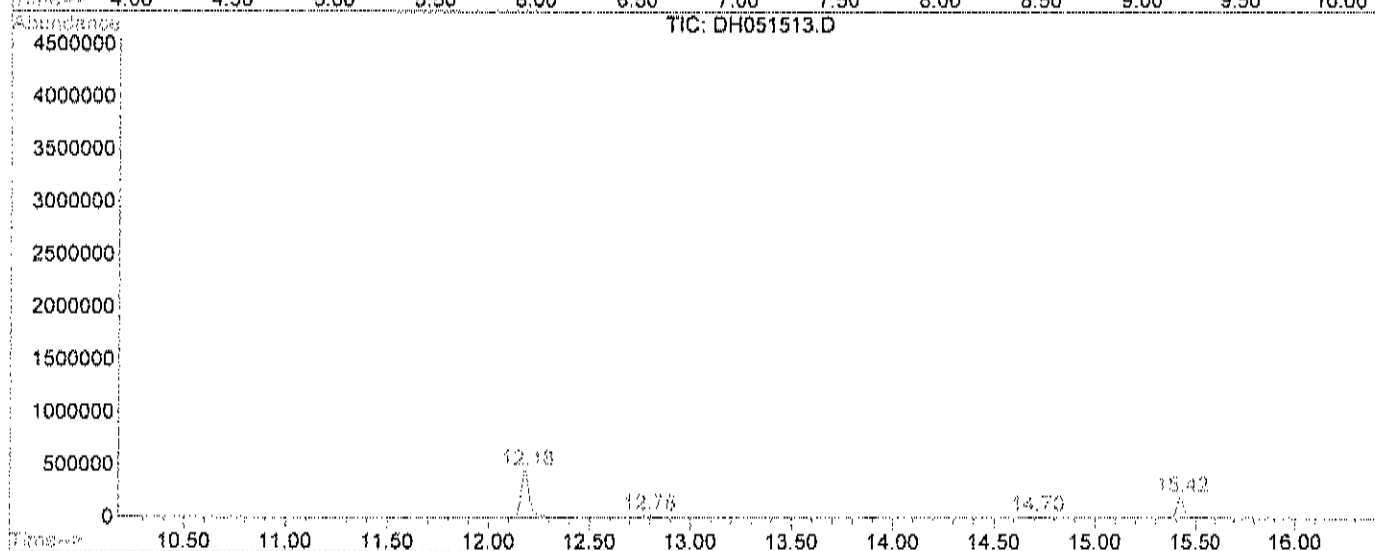
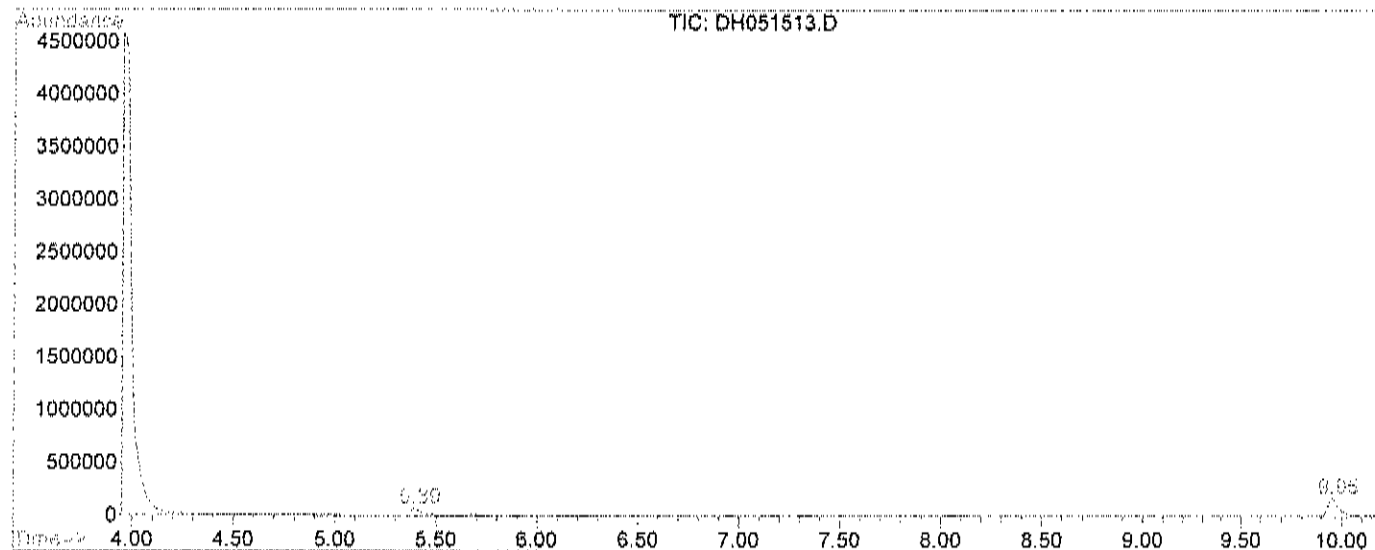
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	5.392	708	720	750	rBV2	67228	272630	19.24%	3.932%
2	9.954	1768	1787	1816	rBV2	168626	710083	50.11%	10.240%
3	12.181	2292	2308	2334	rBV	449455	1304413	92.06%	18.811%
4	12.784	2436	2449	2466	rBV2	27057	78078	5.51%	1.126%
5	14.704	2886	2898	2913	rBV2	21899	53287	3.76%	0.768%
6	15.421	3033	3046	3069	rBV	201387	507833	35.84%	7.323%
7	16.483	3239	3249	3273	rBV	605357	1416993	100.00%	20.434%
8	17.949	3517	3529	3541	rBV	547221	1129989	79.75%	16.295%
9	18.148	3559	3567	3579	rBV	572258	1075481	75.90%	15.509%
10	18.719	3669	3676	3687	rBV2	31755	68542	4.84%	0.988%
11	19.258	3765	3779	3784	rBV5	20369	56165	3.96%	0.810%
12	19.400	3800	3806	3814	rBV	86909	165460	11.68%	2.386%
13	19.886	3888	3899	3906	rBV4	35998	95509	6.74%	1.377%

Sum of corrected areas: 6934463

DH051513.D I0511T15.M Mon Jun 19 14:03:45 2017

LSC Report - Integrated Chromatogram

File : C:\HPCHEM\1\DATA2\DH051513.D
Operator : WD
Acquired : 15 May 2017 4:09 pm using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-005A
Misc Info : TO15
Vial Number: 7
Quant File : I0511T15.RES (RTE Integrator)



DH051513.D I0511T15.M Mon Jun 19 14:03:46 2017

Data File : C:\HPCHEM\1\DATA2\DH051513.D

Acq On : 15 May 2017 4:09 pm

Sample : C1705036-005A

Misc : TO15

MS Integration Params: LSCINT.P

Vial: 7

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

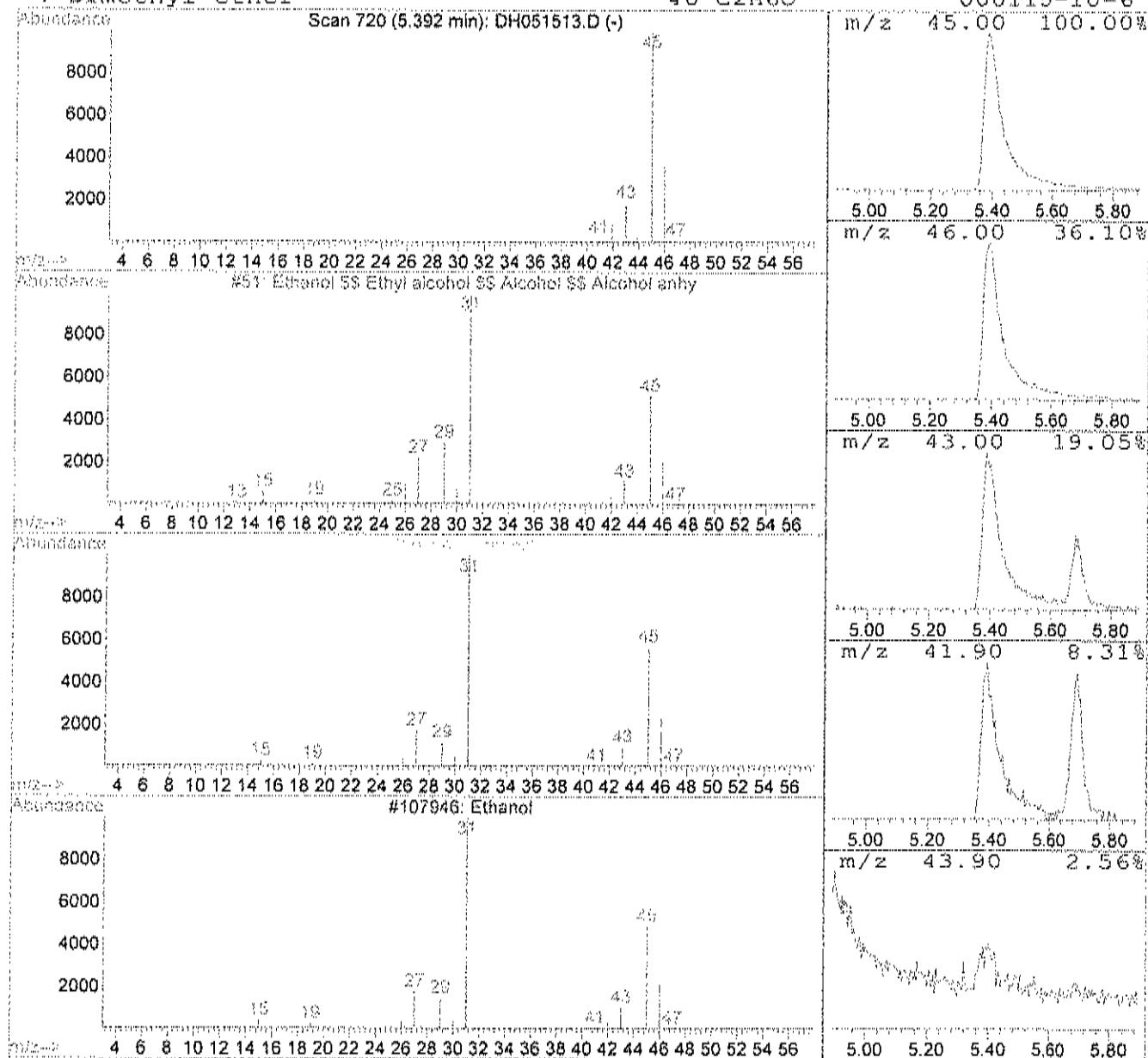
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 1 Ethanol \$\$ Ethyl alcohol \$\$ Al Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
5.39	19.20 ppb	272630	Bromochloromethane	9.95

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Ethanol	\$\$	Ethyl alcohol	46	C2H6O	000064-17-5	90
2	Ethanol			46	C2H6O	000064-17-5	83
3	Ethanol			46	C2H6O	000064-17-5	64
4	Dimethyl ether			46	C2H6O	000115-10-6	9



Data File : C:\HPCHEM\1\DATA2\DH051513.D
Acq On : 15 May 2017 4:09 pm
Sample : C1705036-005A
Misc : T015
MS Integration Params: LSCINT.P

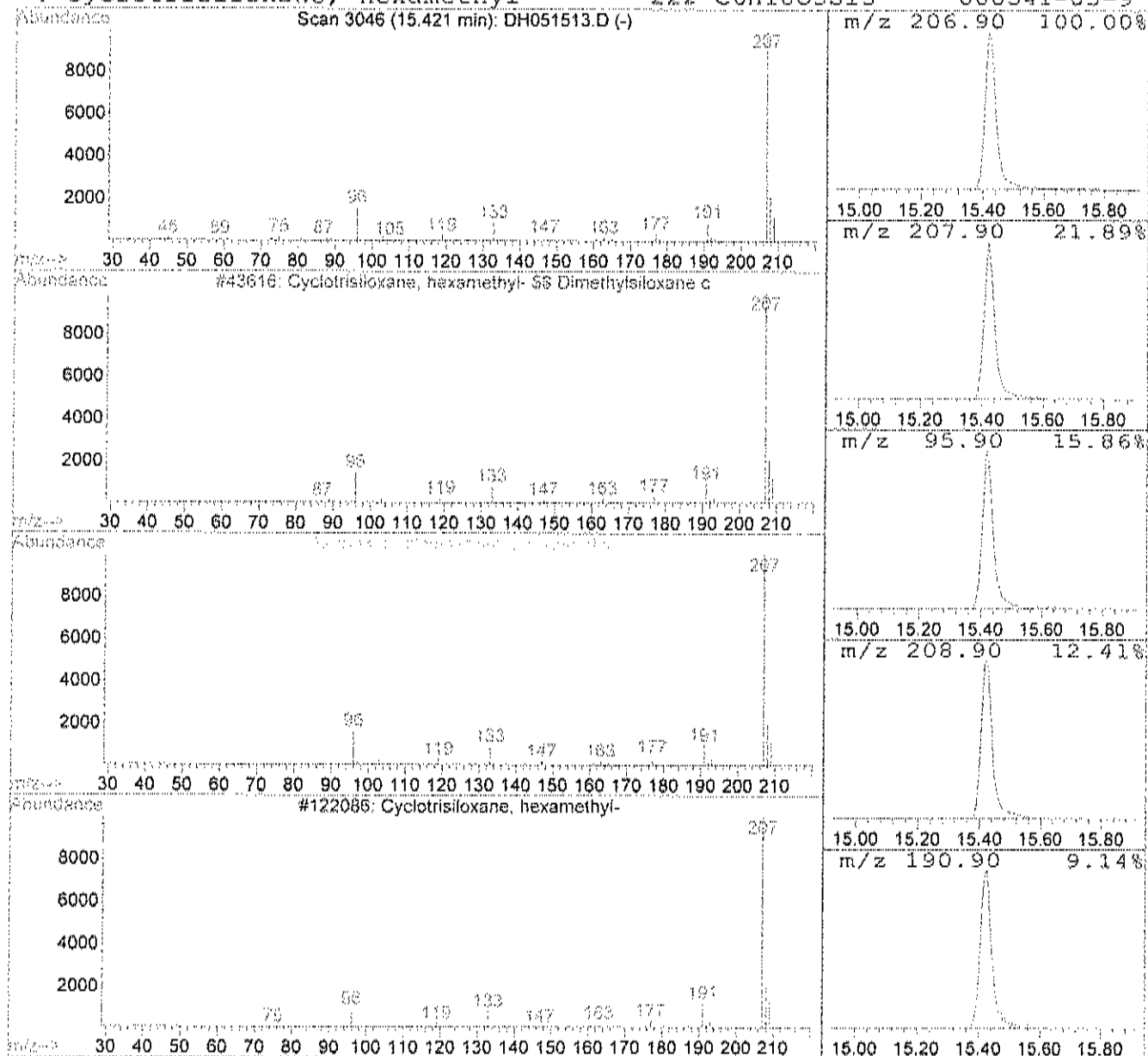
Vial: 7
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 2 Cyclotrisiloxane, hexamethyl- Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
15.42	17.92 ppb	507833	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Cyclotrisiloxane, hexamethyl- \$\$ Di	222	C6H18O3Si3	000541-05-9	91
2			Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	87
3			Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	86
4			Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	80



Data File : C:\HPCHEM\1\DATA2\DH051513.D

Acq On : 15 May 2017 4:09 pm

Sample : C1705036-005A

Misc : T015

MS Integration Params: LSCINT.P

Vial: 7

Operator: WD

Inst : GCMS3

Multiplier: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

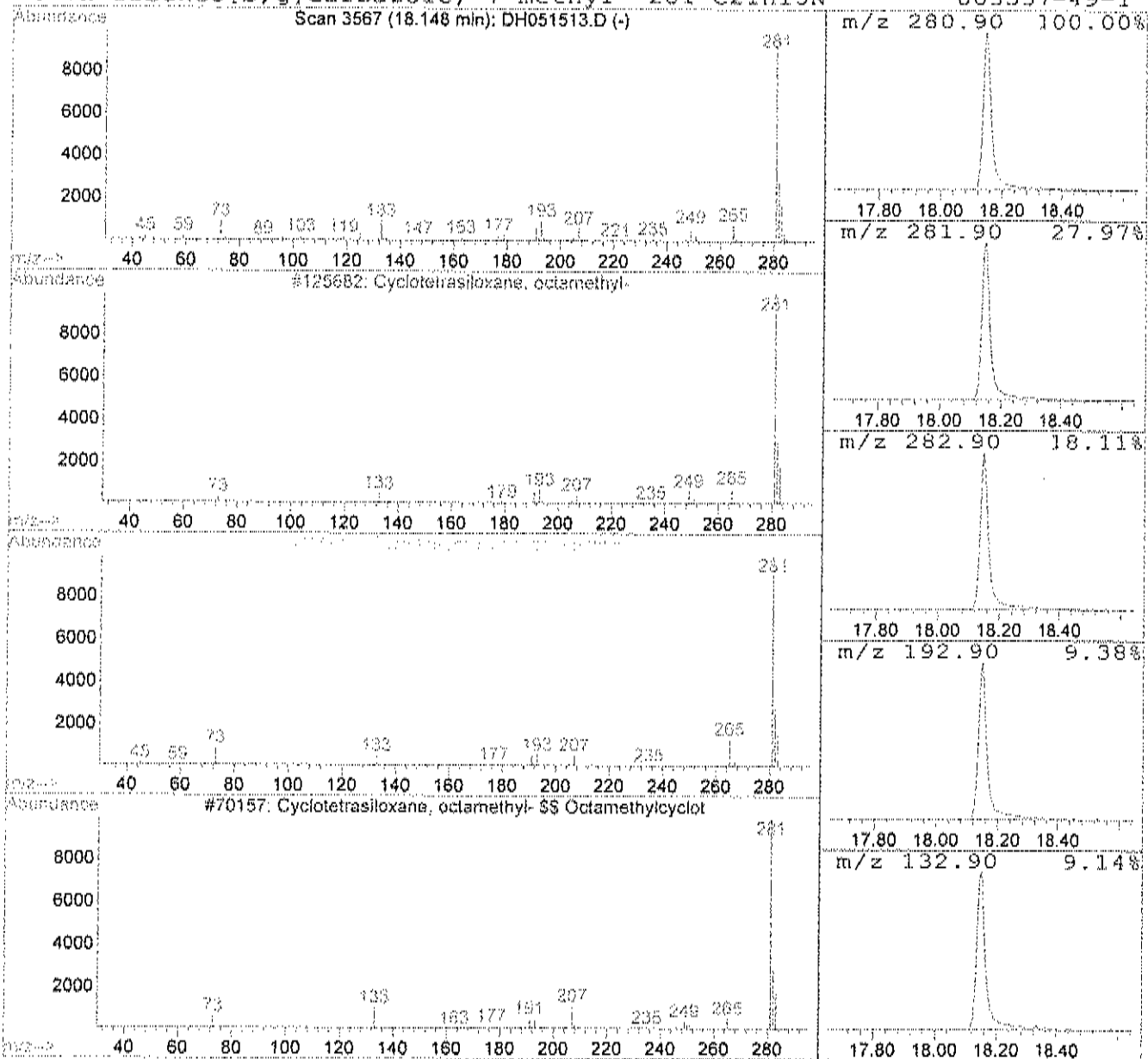
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 3 Cyclotetrasiloxane, octamethyl Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
18.15	37.95 ppb	1075480	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	83
2			Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	83
3			Cyclotetrasiloxane, octamethyl- SS	296	C8H24O4Si4	000556-67-2	78
4			7H-Dibenzo[b,g]carbazole, 7-methyl-	281	C21H15N	003557-49-1	42



Data File : C:\HPCHEM\1\DATA2\DH051513.D

Acq On : 15 May 2017 4:09 pm

Sample : C1705036-005A

Misc : TO15

MS Integration Params: LSCINT.P

Vial: 7

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

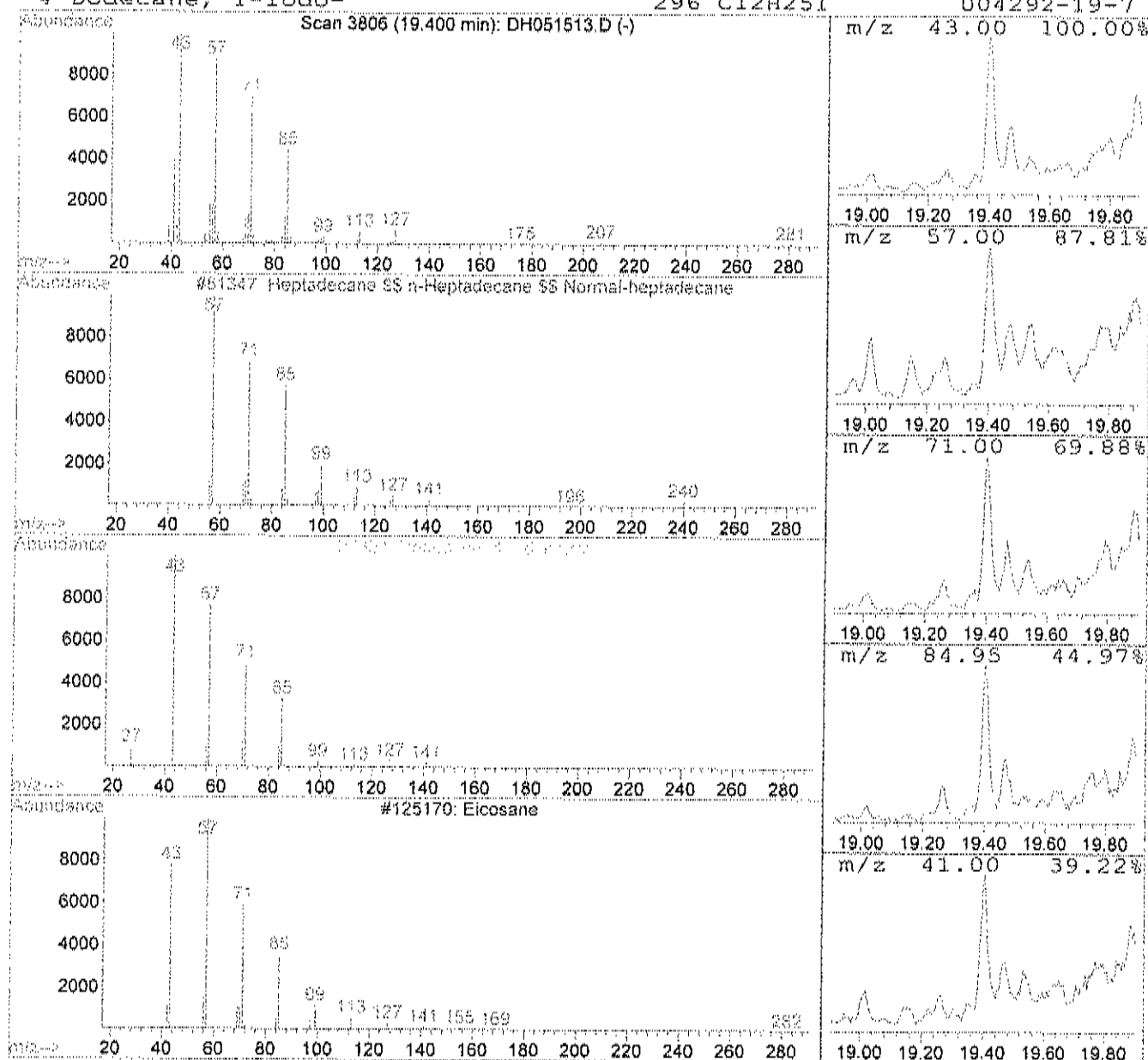
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 4 Heptadecane \$\$ n-Heptadecane \$ Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
19.40	5.84 ppb	165460	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Heptadecane \$\$ n-Heptadecane \$\$ Nor	240	C17H36	000629-78-7	83
2			Undecane, 4,7-dimethyl-	184	C13H28	017301-32-5	80
3			Eicosane	282	C20H42	000112-95-8	78
4			Dodecane, 1-iodo-	296	C12H25I	004292-19-7	72



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 15 May 2017 4:09 pm
Data File: C:\HPCHEM\1\DATA2\DH051513.D
Name: C1705036-005A
Misc: TO15
Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title: VOA Standards for 5 point calibration
Library Searched: C:\DATABASE\NIST129.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc
Ethanol \$\$ Ethyl alc	5.39	19.2	ppb	272630	ISTD01	9.95	710083	50.0
Cyclotrisiloxane, he	15.42	17.9	ppb	507833	ISTD03	16.48	1416990	50.0
Cyclotetrasiloxane,	18.15	37.9	ppb	1075480	ISTD03	16.48	1416990	50.0
Heptadecane \$\$ n-Hep	19.40	5.8	ppb	165460	ISTD03	16.48	1416990	50.0

DH051513.D I0511T15.M Mon Jun 19 14:03:55 2017

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-006A

Client Sample ID: WAT-SV09-050817
 Tag Number: 1017.121
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
				FLD	Analyst:	
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
				EPA METHOD 3C	Analyst: WD	
Carbon dioxide	0.615	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	71.8	8.30		%	1	5/15/2017
Oxygen	18.8	0.880		%	1	5/15/2017
SPPB BY METHOD TO15						
				TO-15	Analyst: WD	
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/17/2017 1:11:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Acetone	10	10		ppbV	1	5/17/2017 1:11:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Benzene	4.5	5.0	J	ppbV	1	5/17/2017 1:11:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Chloroform	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-006A

Client Sample ID: WAT-SV09-050817
 Tag Number: 1017.121
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 1:11:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/17/2017 1:11:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 1:11:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/17/2017 1:11:00 PM
Methyl Isobutyl Ketone	< 10	10		ppbV	1	5/17/2017 1:11:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Toluene	3.0	5.0	J	ppbV	1	5/17/2017 1:11:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 1:11:00 PM
Surr: Bromofluorobenzene	83.8	73.7-124		%REC	1	5/17/2017 1:11:00 PM

NOTES:

No TIC's found.

LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Carbon disulfide	1.3	5.0	J	ppbV	1	5/16/2017 3:15:00 PM

Qualifiers:	** Quantitation Limit	.	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-006A

Client Sample ID: WAT-SV09-050817
 Tag Number: 1017.121
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Hydrogen Sulfide	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 3:15:00 PM
Surr: Bromofluorobenzene	153	70-130	S	%REC	1	5/16/2017 3:15:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-006A

Client Sample ID: WAT-SV09-050817
 Tag Number: 1017.121
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15				TO-15		Analyst: WD
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 1:11:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 1:11:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 1:11:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 1:11:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 1:11:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 1:11:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 1:11:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 1:11:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 1:11:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 1:11:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/17/2017 1:11:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 1:11:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 1:11:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 1:11:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 1:11:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 1:11:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 1:11:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 1:11:00 PM
Acetone	25	24		ug/m3	1	5/17/2017 1:11:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 1:11:00 PM
Benzene	14	16	J	ug/m3	1	5/17/2017 1:11:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 1:11:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 1:11:00 PM
Bromoform	< 52	52		ug/m3	1	5/17/2017 1:11:00 PM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 1:11:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/17/2017 1:11:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 1:11:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 1:11:00 PM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 1:11:00 PM
Chloroform	< 24	24		ug/m3	1	5/17/2017 1:11:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 1:11:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 1:11:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 1:11:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/17/2017 1:11:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 1:11:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 1:11:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 1:11:00 PM
Freon 11	< 28	28		ug/m3	1	5/17/2017 1:11:00 PM
Freon 113	< 38	38		ug/m3	1	5/17/2017 1:11:00 PM
Freon 114	< 35	35		ug/m3	1	5/17/2017 1:11:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Date: 22-Jun-17

Centek Laboratories, LLC

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-006A

Client Sample ID: WAT-SV09-050817
 Tag Number: 1017.121
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 1:11:00 PM
Heptane	< 20	20		ug/m3	1	5/17/2017 1:11:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 1:11:00 PM
Hexane	< 18	18		ug/m3	1	5/17/2017 1:11:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 1:11:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/17/2017 1:11:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 1:11:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/17/2017 1:11:00 PM
Methyl Isobutyl Ketone	< 41	41		ug/m3	1	5/17/2017 1:11:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 1:11:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/17/2017 1:11:00 PM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 1:11:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/17/2017 1:11:00 PM
Styrene	< 21	21		ug/m3	1	5/17/2017 1:11:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/17/2017 1:11:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 1:11:00 PM
Toluene	11	19	J	ug/m3	1	5/17/2017 1:11:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 1:11:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 1:11:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/17/2017 1:11:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 1:11:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 1:11:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 1:11:00 PM
NOTES:						
No Tic's found.						
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 3:15:00 PM
Carbon disulfide	4.1	16	J	ug/m3	1	5/16/2017 3:15:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 3:15:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 3:15:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 3:15:00 PM
Hydrogen Sulfide	< 7.0	7.0		ug/m3	1	5/16/2017 3:15:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 3:15:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 3:15:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Data File : C:\HPCHEM\1\DATA\DH051709.D
 Acq On : 17 May 2017 1:11 pm
 Sample : C1705036-006A
 Misc : T015

Vial: 8
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: Jun 1 11:14 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.96	128	82085m ^u	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	416832	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	325907	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	193680	41.89	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	83.78%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.17	41	5423	2.04	ppb	67
16) Acetone	6.14	43	32380	10.49	ppb	98
24) Carbon disulfide	7.37	76	6677m ^u	1.08	ppb	
37) Benzene	11.51	78	42641	4.47	ppb	98
48) Methyl Isobutyl Ketone	13.89	43	7951	1.13	ppb	91
52) Toluene	14.70	92	17855	2.95	ppb	92
59) Ethylbenzene	16.75	106	4894	1.23	ppb	99
60) m&p-Xylene	16.91	106	16935	3.45	ppb	95
63) o-xylene	17.35	91	10581	1.01	ppb	99

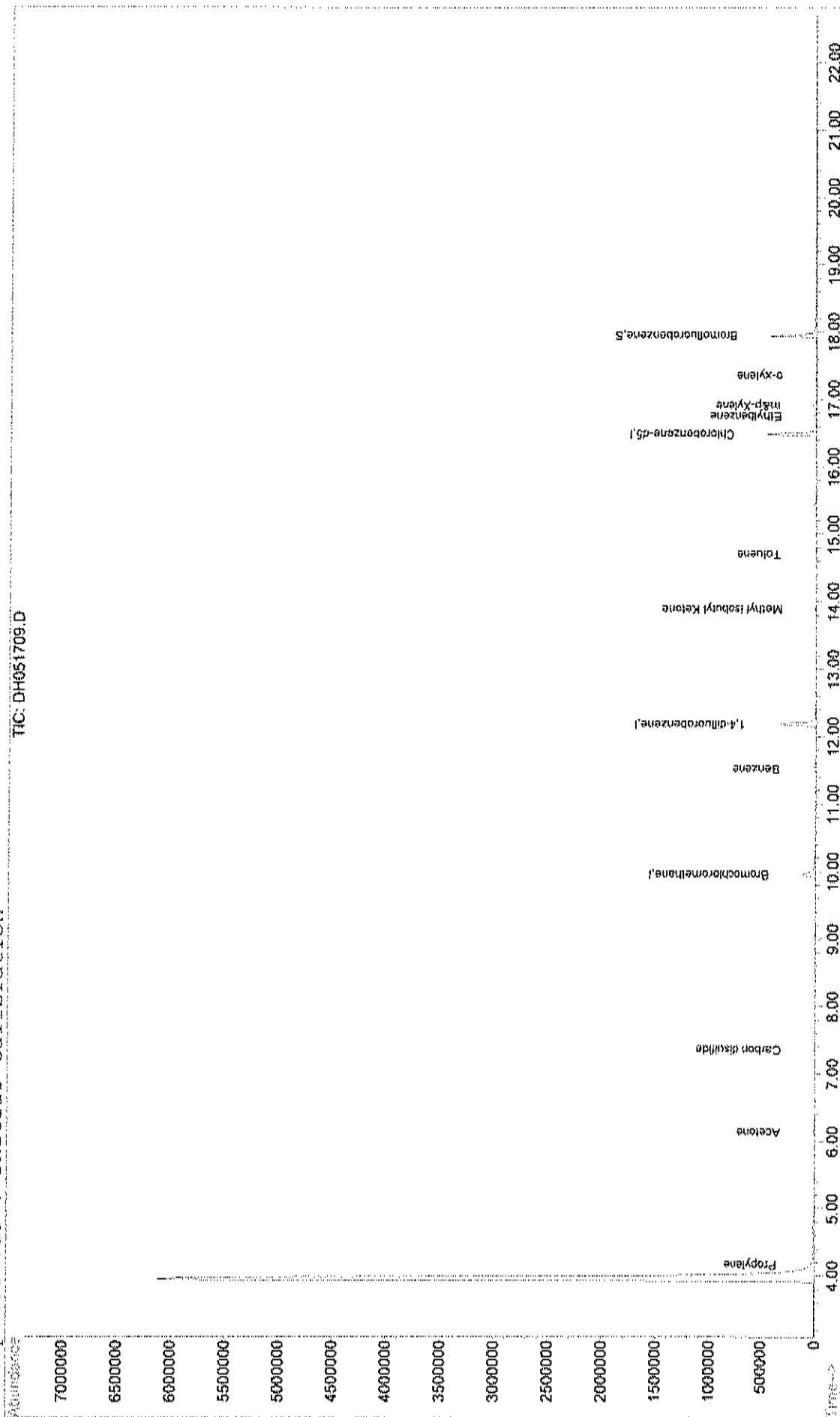
Quantitation Report

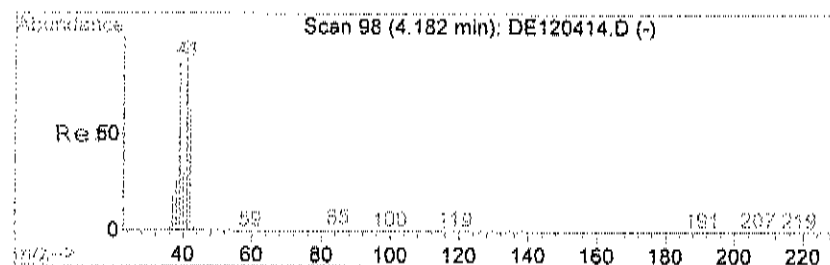
Data File : C:\HPCHEM\1\DATA\DH051709.D
Acq On : 17 May 2017 1:11 pm
Sample : C1705036-006A
Misc : T015
MS Integration Params: rteint.p
Quant Time: Jun 1 11:14 2017

Vial: 8
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

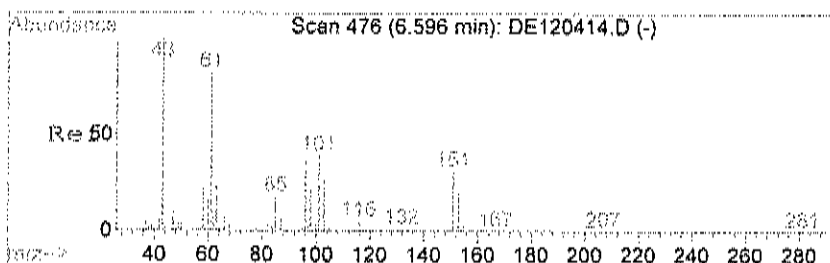
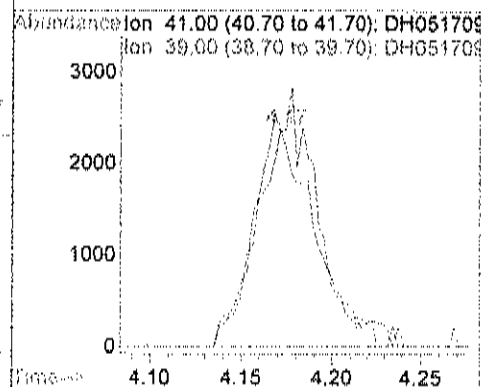
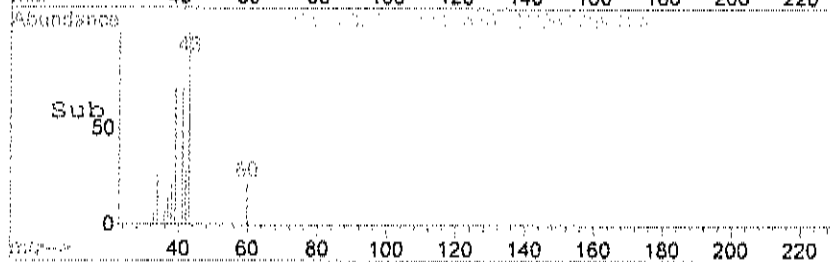
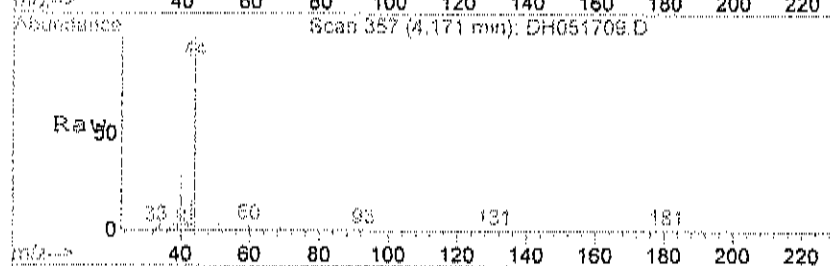
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





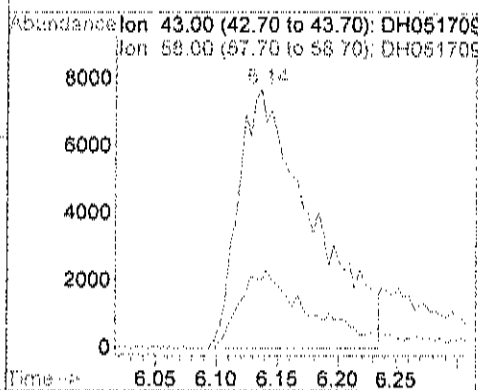
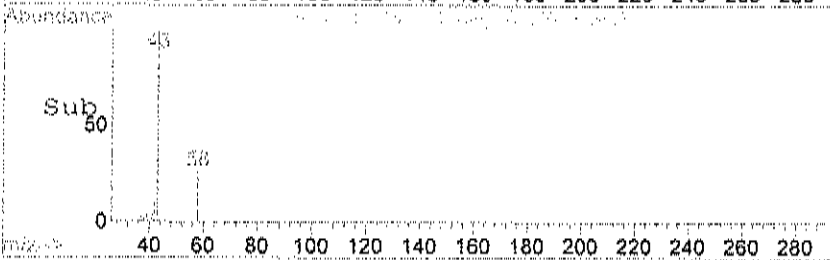
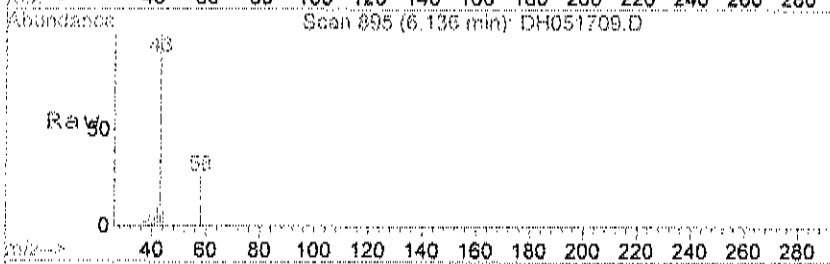
#2
 Propylene
 Concen: 2.04 ppb
 RT: 4.17 min Scan# 357
 Delta R.T. -0.02 min
 Lab File: DH051709.D
 Acq: 17 May 2017 1:11 pm

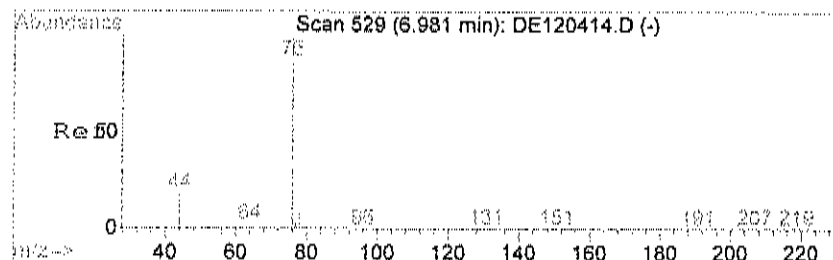
Tgt Ion: 41 Resp: 5423
 Ion Ratio Lower Upper
 41 100
 39 115.1 42.4 127.1



#16
 Acetone
 Concen: 10.49 ppb
 RT: 6.14 min Scan# 895
 Delta R.T. 0.03 min
 Lab File: DH051709.D
 Acq: 17 May 2017 1:11 pm

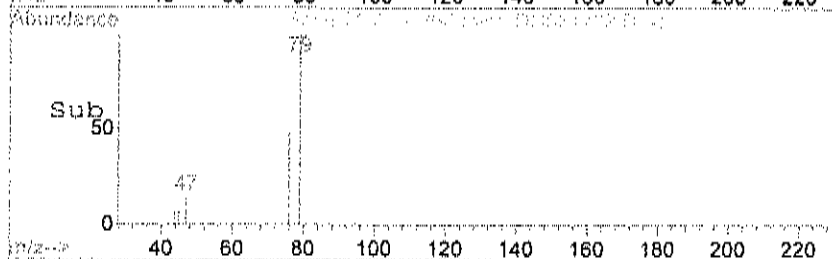
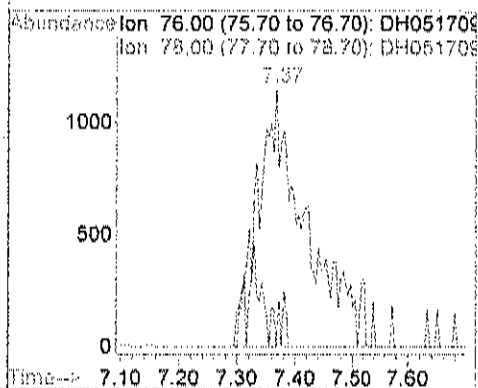
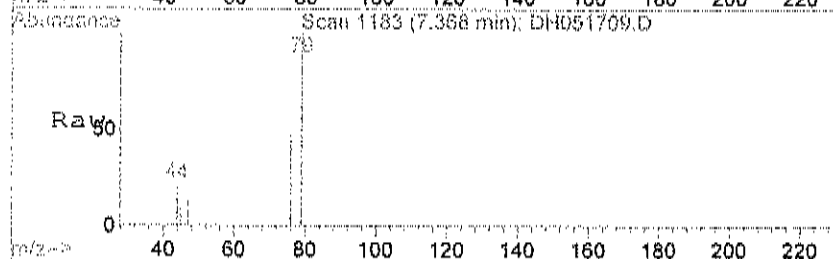
Tgt Ion: 43 Resp: 32380
 Ion Ratio Lower Upper
 43 100
 58 22.5 3.7 43.7





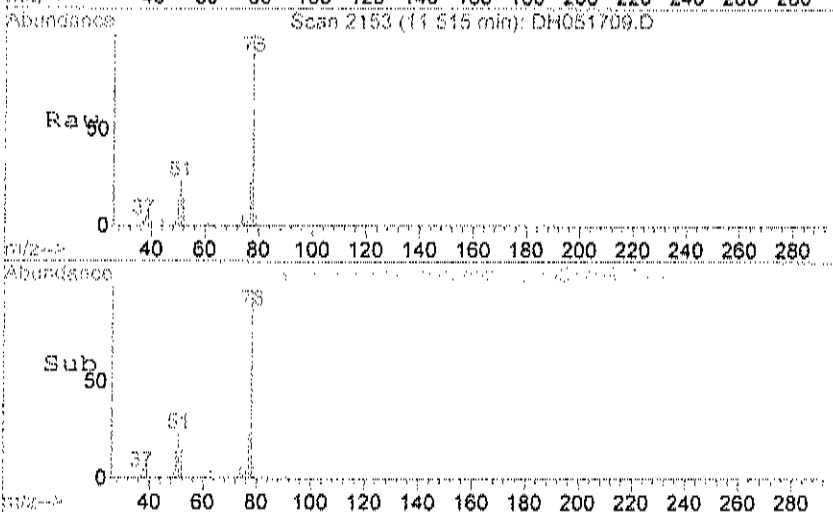
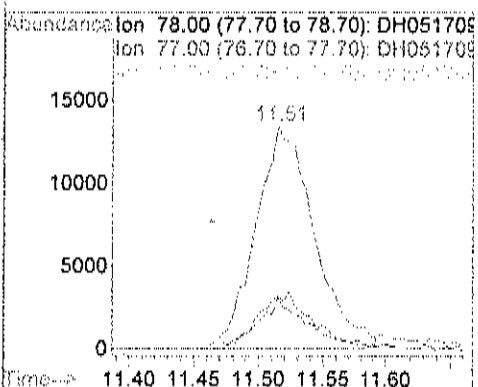
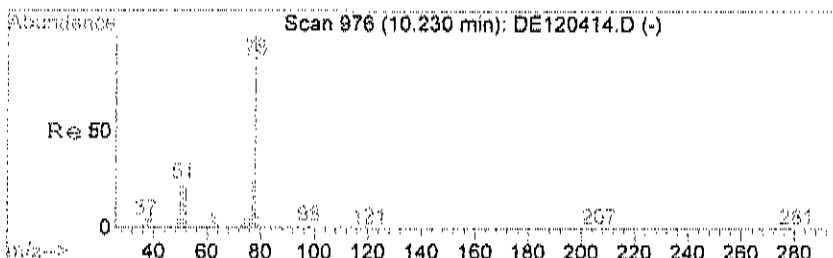
#24
Carbon disulfide
Concen: 1.08 ppb m
RT: 7.37 min Scan# 1183
Delta R.T. 0.02 min
Lab File: DH051709.D
Acq: 17 May 2017 1:11 pm

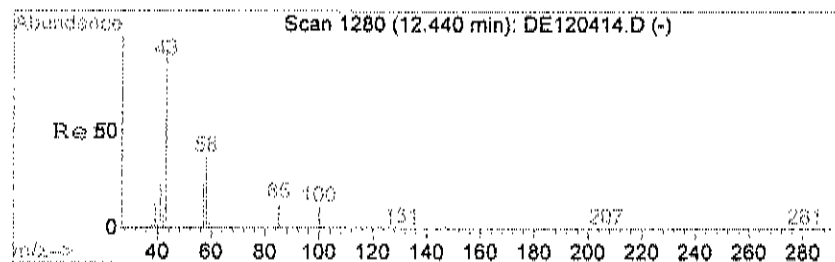
Tgt Ion	Ratio	Lower	Upper
76	100		
78	1.3	0.0	29.3



#37
Benzene
Concen: 4.47 ppb
RT: 11.51 min Scan# 2153
Delta R.T. -0.01 min
Lab File: DH051709.D
Acq: 17 May 2017 1:11 pm

Tgt Ion	Ratio	Lower	Upper
78	100		
77	22.6	3.1	43.1
51	18.7	0.0	39.8





#48

Methyl Isobutyl Ketone

Concen: 1.13 ppb

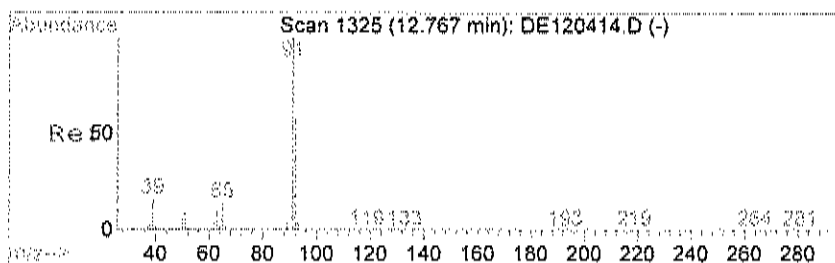
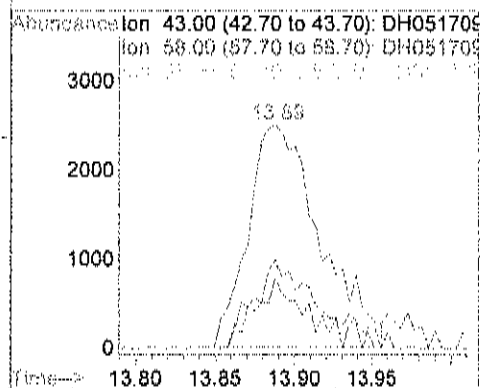
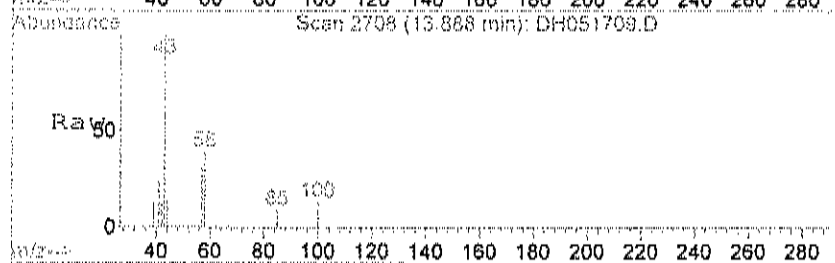
RT: 13.89 min Scan# 2708

Delta R.T. 0.01 min

Lab File: DH051709.D

Acq: 17 May 2017 1:11 pm

Tgt Ion: 43	Resp: 7951
Ion Ratio	Lower Upper
43 100	
58 31.0	15.8 55.8
57 21.5	6.8 46.8



#52

Toluene

Concen: 2.95 ppb

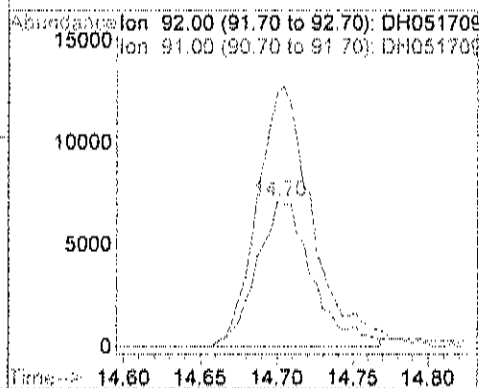
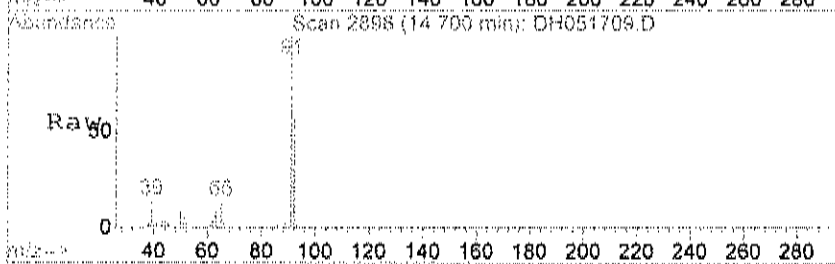
RT: 14.70 min Scan# 2898

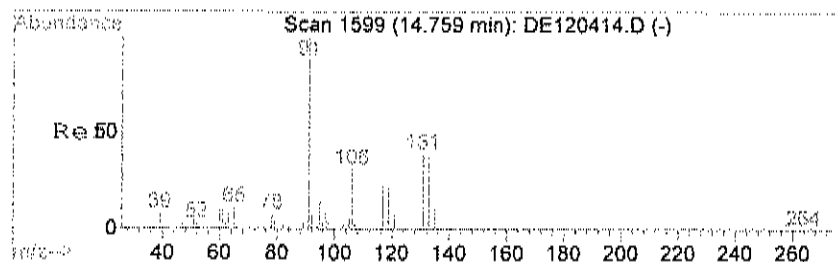
Delta R.T. 0.00 min

Lab File: DH051709.D

Acq: 17 May 2017 1:11 pm

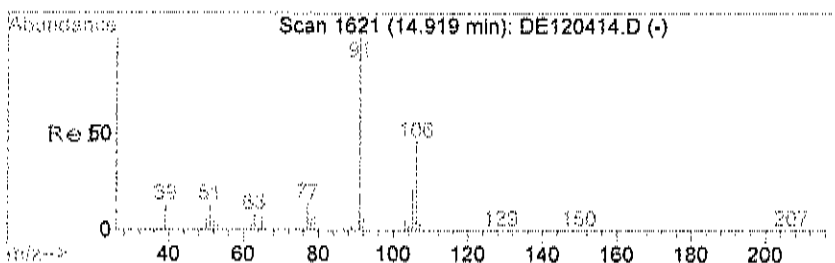
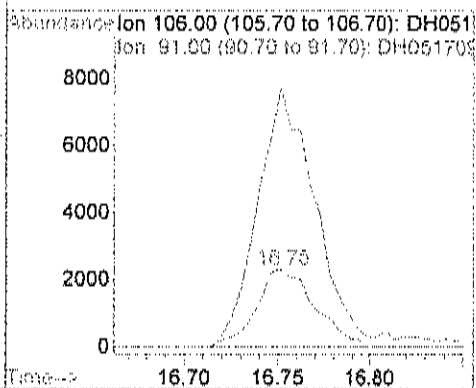
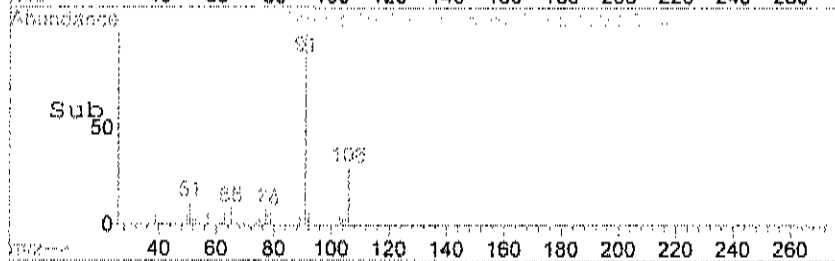
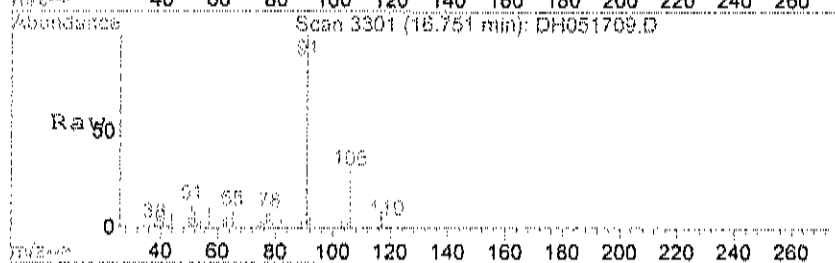
Tgt Ion: 92	Resp: 17855
Ion Ratio	Lower Upper
92 100	
91 182.8	151.4 191.4





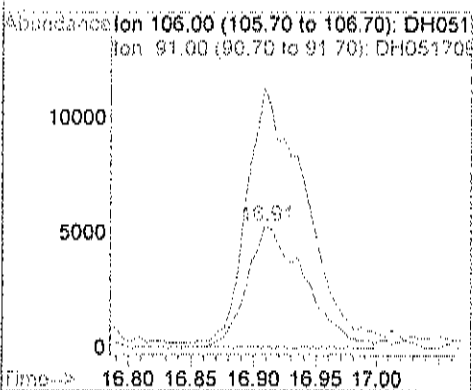
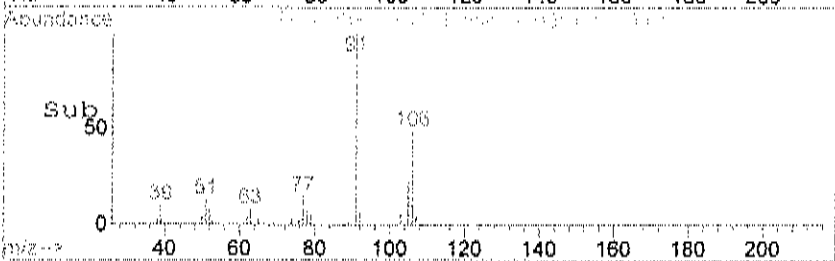
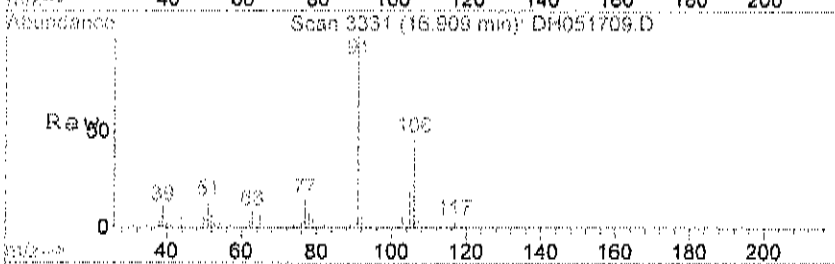
#59
Ethylbenzene
Concen: 1.23 ppb
RT: 16.75 min Scan# 3301
Delta R.T. 0.00 min
Lab File: DH051709.D
Acq: 17 May 2017 1:11 pm

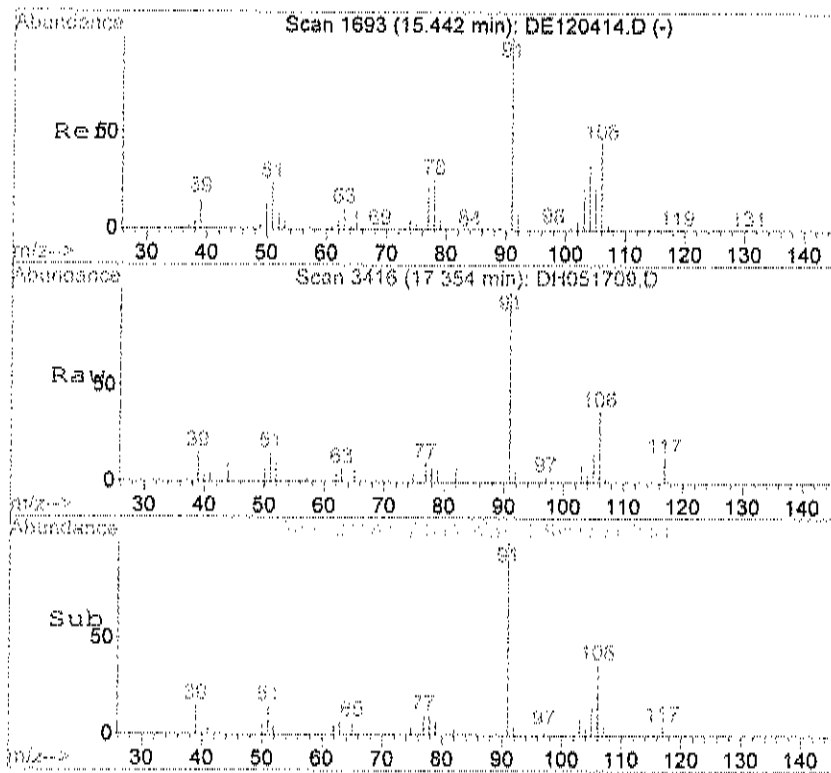
Tgt Ion:106 Resp: 4894
Ion Ratio Lower Upper
106 100
91 336.2 319.2 359.2



#60
m&p-Xylene
Concen: 3.45 ppb
RT: 16.91 min Scan# 3331
Delta R.T. -0.03 min
Lab File: DH051709.D
Acq: 17 May 2017 1:11 pm

Tgt Ion:106 Resp: 16935
Ion Ratio Lower Upper
106 100
91 214.1 202.1 242.1





#63

o-xylene

Concen: 1.01 ppb

RT: 17.35 min Scan# 3416

Delta R.T. 0.01 min

Lab File: DH051709.D

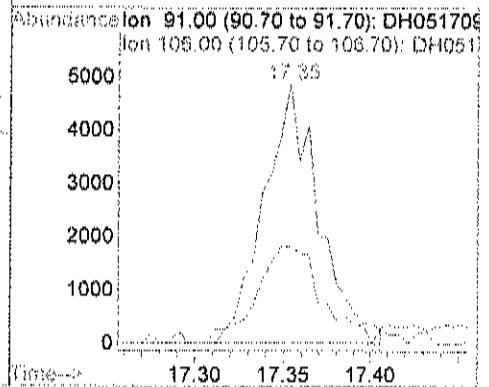
Acq: 17 May 2017 1:11 pm

Tgt Ion: 91 Resp: 10581

Ion Ratio Lower Upper

91 100

106 43.1 22.6 62.6



LSC Area Percent Report

Data File : C:\HPCHEM\1\DATA2\DH051709.D
Acq On : 17 May 2017 1:11 pm
Sample : C1705036-006A
Misc : TO15
MS Integration Params: LSCINT.P

Vial: 8
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 3 % of largest Peak
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

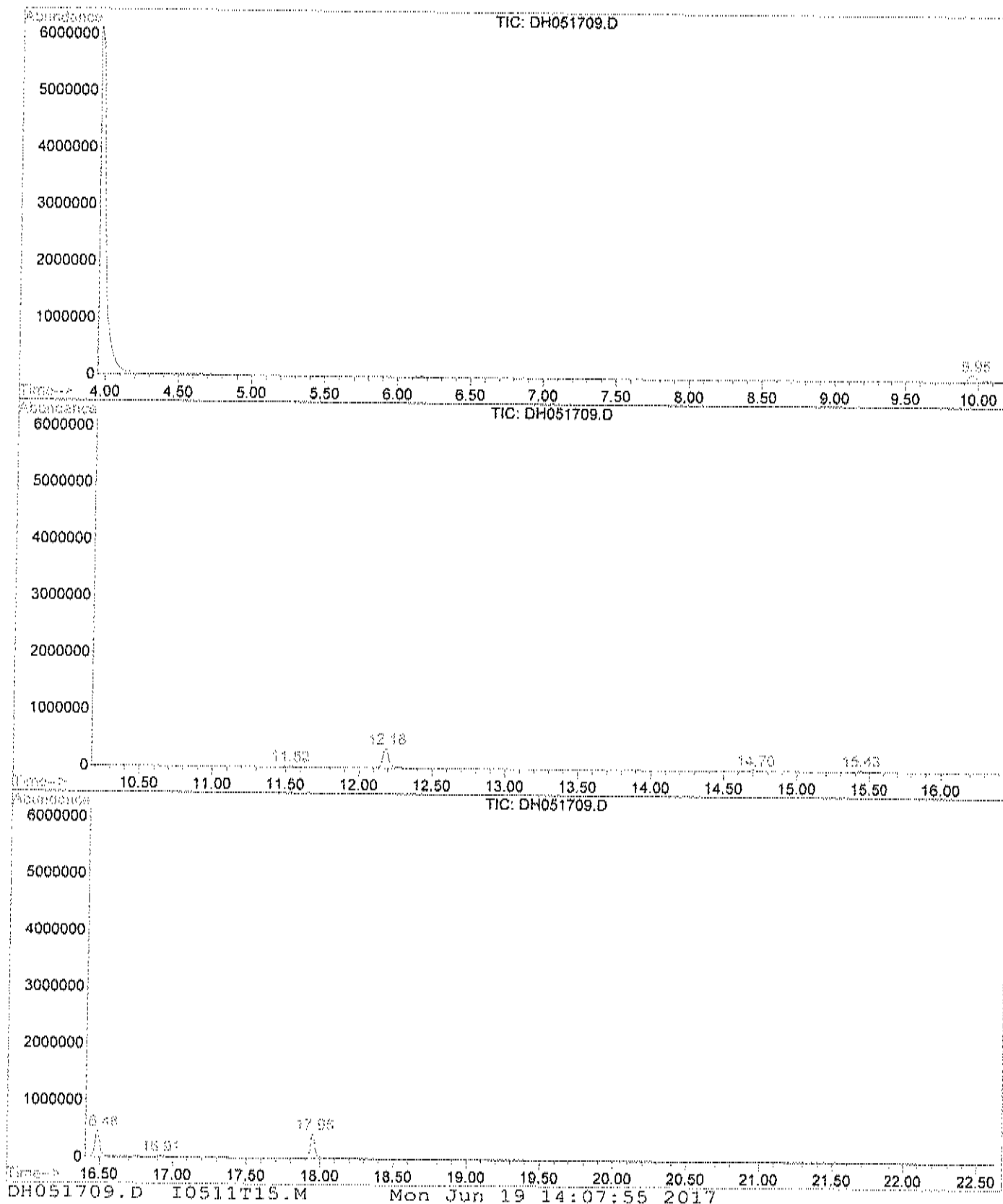
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	9.954	1770	1788	1815	rBV2	125960	562732	51.54%	13.988%
2	11.519	2140	2154	2168	rBV2	30725	98884	9.06%	2.458%
3	12.178	2293	2308	2335	rBV2	350019	1046674	95.87%	26.017%
4	14.704	2887	2899	2911	rBV	31236	76664	7.02%	1.906%
5	15.427	3034	3048	3060	rBV2	32769	93415	8.56%	2.322%
6	16.484	3237	3250	3265	rBV	469464	1091812	100.00%	27.139%
7	16.909	3323	3331	3345	rBV2	32290	104208	9.54%	2.590%
8	17.950	3520	3530	3545	rBV	437824	948712	86.89%	23.582%

Sum of corrected areas: 4023101

DH051709.D I0511T15.M Mon Jun 19 14:07:54 2017

LSC Report - Integrated Chromatogram

File : C:\HPCHEM\1\DATA2\DH051709.D
Operator : WD
Acquired : 17 May 2017 1:11 pm using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-006A
Misc Info : T015
Vial Number: 8
Quant File : I0511T15.RES (RTE Integrator)



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 17 May 2017 1:11 pm
Data File: C:\HPCHEM\1\DATA2\DH051709.D
Name: C1705036-006A
Misc: T015
Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title: VOA Standards for 5 point calibration
Library Searched: C:\DATABASE\NIST129.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc

DH051709.D I0511T15.M			Mon Jun 19 14:07:55 2017					

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-007A

Client Sample ID: WAT-SV11-050817
 Tag Number: 494.58
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	0.224	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	77.1	8.30		%	1	5/15/2017
Oxygen	20.6	0.880		%	1	5/15/2017
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/15/2017 10:39:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Acetone	3.8	10	J	ppbV	1	5/15/2017 10:39:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Chloroform	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-007A

Client Sample ID: WAT-SV11-050817
 Tag Number: 494.58
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/15/2017 10:39:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/15/2017 10:39:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/15/2017 10:39:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/15/2017 10:39:00 PM
Methyl Isobutyl Ketone	2.5	10	J	ppbV	1	5/15/2017 10:39:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Trichloroethene	77	50		ppbV	10	5/15/2017 11:14:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/15/2017 10:39:00 PM
Surr: Bromofluorobenzene	77.0	73.7-124		%REC	1	5/15/2017 10:39:00 PM
TIC: Cyclotetrasiloxane, octamethyl- \$\$ Octam	34	0	JN	ppbV	1	5/15/2017 10:39:00 PM
TIC: Cyclotrisiloxane, hexamethyl \$ \$ Dimethy	6.6	0	JN	ppbV	1	5/15/2017 10:39:00 PM
TIC: Hydrogen sulfide \$ \$ Dihydrogen monosulf	160	0	JN	ppbV	1	5/15/2017 10:39:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-007A

Client Sample ID: WAT-SV11-050817
 Tag Number: 494.58
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Hydrogen Sulfide	29	5.0		ppbV	1	5/16/2017 3:50:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 3:50:00 PM
Surr: Bromofluorobenzene	154	70-130	S	%REC	1	5/16/2017 3:50:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 21 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-007A

Client Sample ID: WAT-SV11-050817
 Tag Number: 494.58
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
SPPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 10:39:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/15/2017 10:39:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/15/2017 10:39:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 10:39:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 10:39:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/15/2017 10:39:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 10:39:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/15/2017 10:39:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 10:39:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/15/2017 10:39:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/15/2017 10:39:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/15/2017 10:39:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/15/2017 10:39:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 10:39:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/15/2017 10:39:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/15/2017 10:39:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/15/2017 10:39:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/15/2017 10:39:00 PM
Acetone	8.9	24	J	ug/m3	1	5/15/2017 10:39:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/15/2017 10:39:00 PM
Benzene	< 16	16		ug/m3	1	5/15/2017 10:39:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/15/2017 10:39:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/15/2017 10:39:00 PM
Bromoform	< 52	52		ug/m3	1	5/15/2017 10:39:00 PM
Bromomethane	< 19	19		ug/m3	1	5/15/2017 10:39:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/15/2017 10:39:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/15/2017 10:39:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/15/2017 10:39:00 PM
Chloroethane	< 13	13		ug/m3	1	5/15/2017 10:39:00 PM
Chloroform	< 24	24		ug/m3	1	5/15/2017 10:39:00 PM
Chloromethane	< 10	10		ug/m3	1	5/15/2017 10:39:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 10:39:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 10:39:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/15/2017 10:39:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/15/2017 10:39:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/15/2017 10:39:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/15/2017 10:39:00 PM
Freon 11	< 28	28		ug/m3	1	5/15/2017 10:39:00 PM
Freon 113	< 38	38		ug/m3	1	5/15/2017 10:39:00 PM
Freon 114	< 35	35		ug/m3	1	5/15/2017 10:39:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-007A

Client Sample ID: WAT-SV11-050817
 Tag Number: 494.58
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/15/2017 10:39:00 PM
Heptane	< 20	20		ug/m3	1	5/15/2017 10:39:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/15/2017 10:39:00 PM
Hexane	< 18	18		ug/m3	1	5/15/2017 10:39:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/15/2017 10:39:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/15/2017 10:39:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/15/2017 10:39:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/15/2017 10:39:00 PM
Methyl Isobutyl Ketone	10	41	J	ug/m3	1	5/15/2017 10:39:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/15/2017 10:39:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/15/2017 10:39:00 PM
o-Xylene	< 22	22		ug/m3	1	5/15/2017 10:39:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/15/2017 10:39:00 PM
Styrene	< 21	21		ug/m3	1	5/15/2017 10:39:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/15/2017 10:39:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/15/2017 10:39:00 PM
Toluene	< 19	19		ug/m3	1	5/15/2017 10:39:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/15/2017 10:39:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/15/2017 10:39:00 PM
Trichloroethene	420	270		ug/m3	10	5/15/2017 11:14:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/15/2017 10:39:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/15/2017 10:39:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/15/2017 10:39:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 3:50:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 3:50:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 3:50:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 3:50:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 3:50:00 PM
Hydrogen Sulfide	40	7.0		ug/m3	1	5/16/2017 3:50:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 3:50:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 3:50:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Data File : C:\HPCHEM\1\DATA\DH051524.D
Acq On : 15 May 2017 10:39 pm
Sample : C1705036-007A
Misc : T015
MS Integration Params: rteint.p
Quant Time: Jun 1 10:37 2017

Vial: 9
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration
DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	108852	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	644816	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	509696	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	278341	38.50	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	77.00%

Target Compounds

						Qvalue
16) Acetone	6.15	43	15403	3.76	ppb	84
33) Chloroform	10.10	83	10114	1.30	ppb	98
43) Trichloroethene	12.78	130	875075	173.16	ppb	98
48) Methyl Isobutyl Ketone	13.88	43	27632	2.54	ppb	97
60) m&p-Xylene	16.91	106	12072	1.57	ppb	99

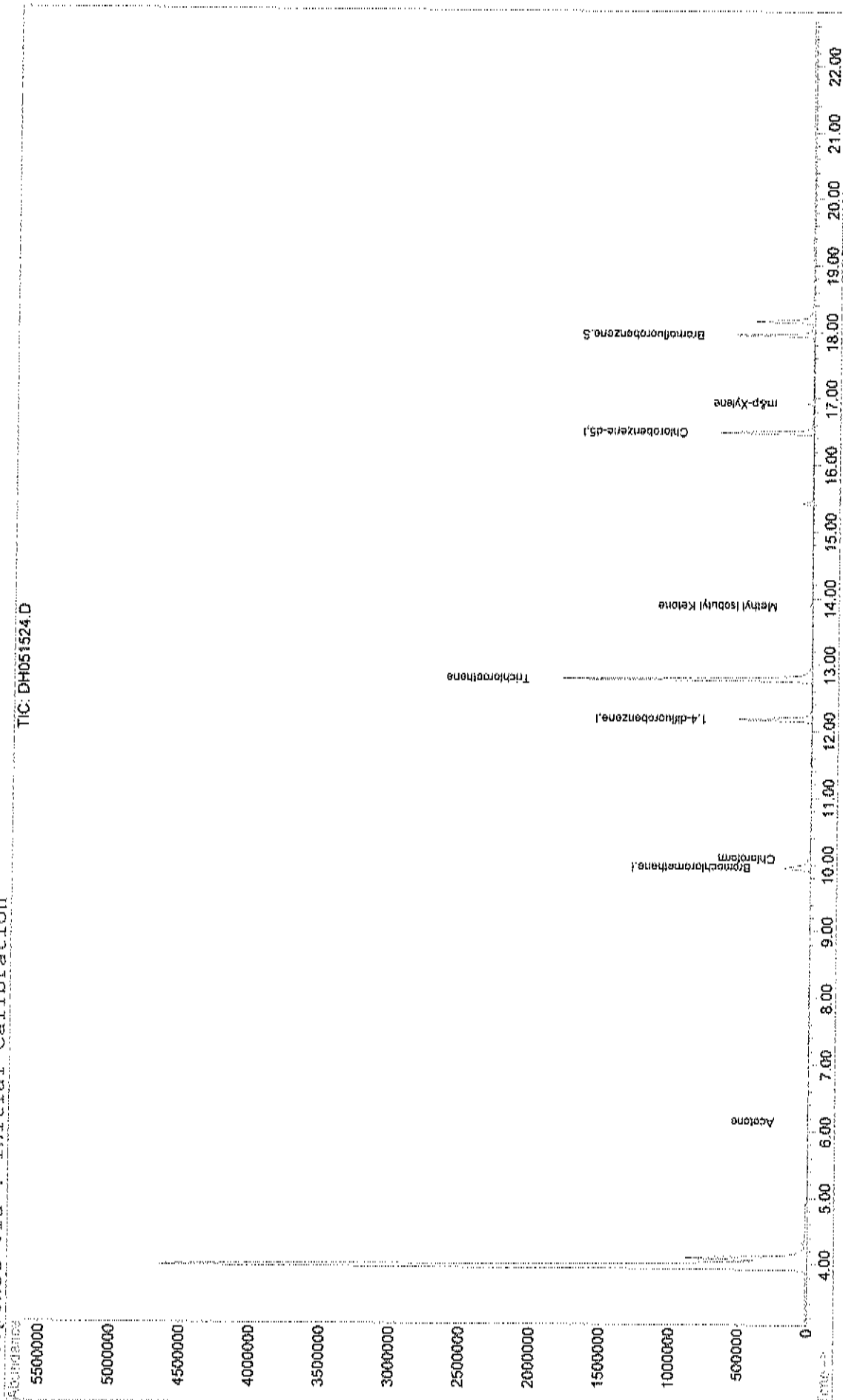
Quantitation Report

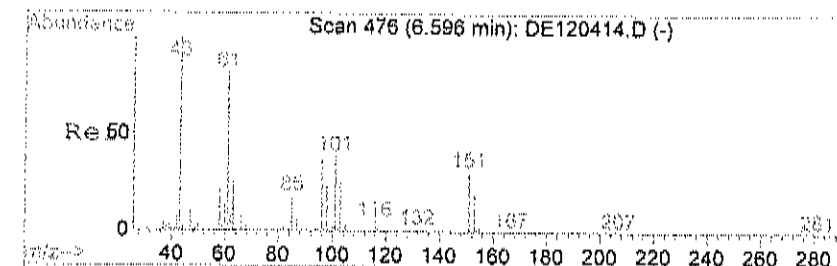
Data File : C:\HPCHEM\1\DATA\DH051524.D
Acq On : 15 May 2017 10:39 pm
Sample : C1705036-007A
Misc : T015
MS Integration Params: rteint.p
Quant Time: Jun 1 10:37 2017

Vial: 9
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





#16

Acetone

Concen: 3.76 ppb

RT: 6.15 min Scan# 898

Delta R.T. 0.04 min

Lab File: DH051524.D

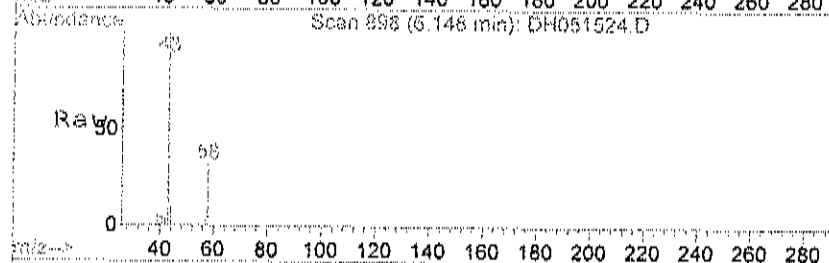
Acq: 15 May 2017 10:39 pm

Tgt Ion: 43 Resp: 15403

Ion Ratio Lower Upper

43 100

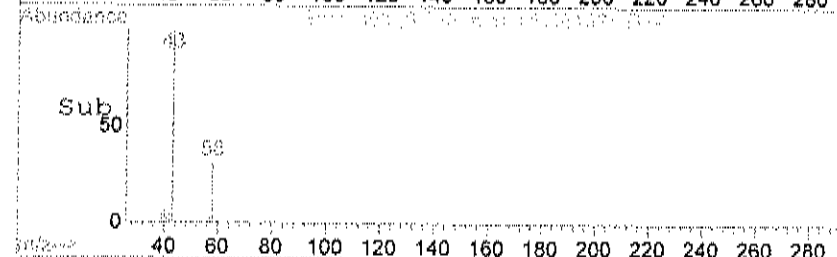
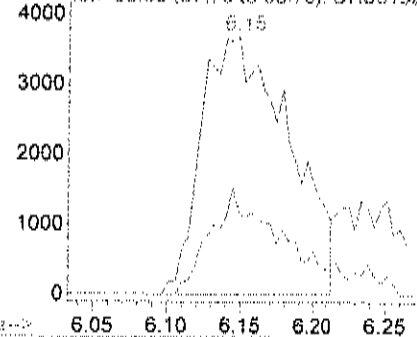
58 31.4 3.7 43.7



Abundance

Ion 43.00 (42.70 to 43.70): DH051524.D

Ion 58.00 (57.70 to 58.70): DH051524.D



#33

Chloroform

Concen: 1.30 ppb

RT: 10.10 min Scan# 1822

Delta R.T. -0.01 min

Lab File: DH051524.D

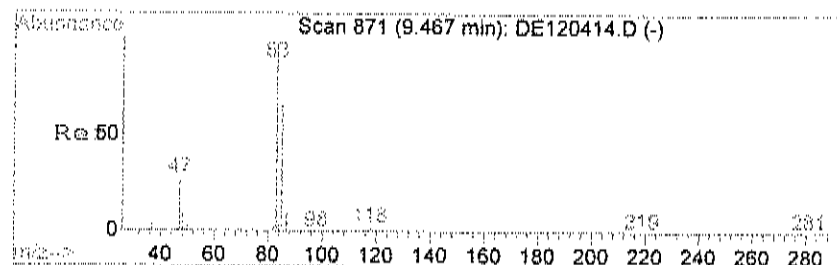
Acq: 15 May 2017 10:39 pm

Tgt Ion: 83 Resp: 10114

Ion Ratio Lower Upper

83 100

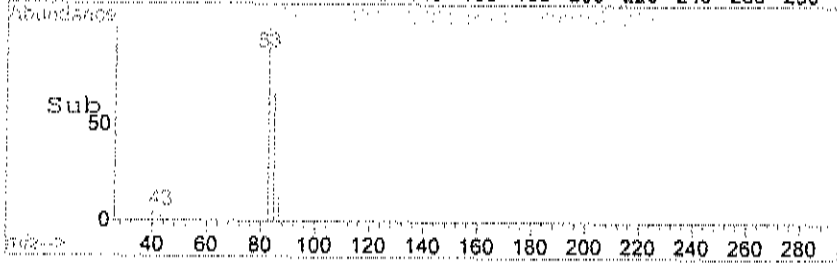
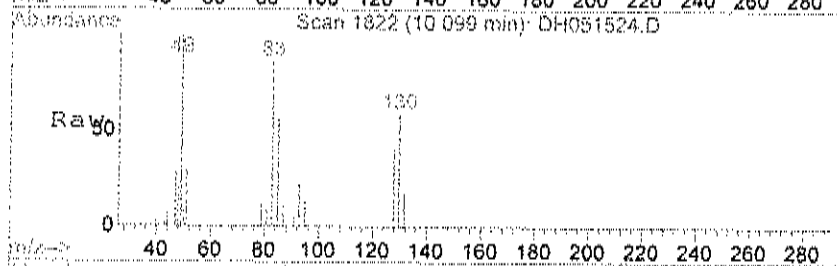
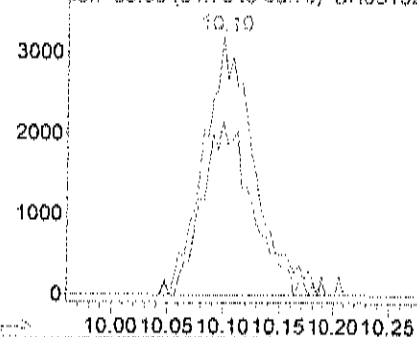
85 65.3 43.5 83.5

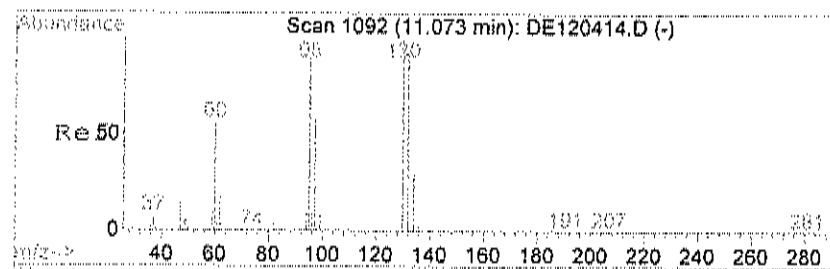


Abundance

Ion 83.00 (82.70 to 83.70): DH051524.D

Ion 85.00 (84.70 to 85.70): DH051524.D





#43

Trichloroethene

Concen: 173.16 ppb

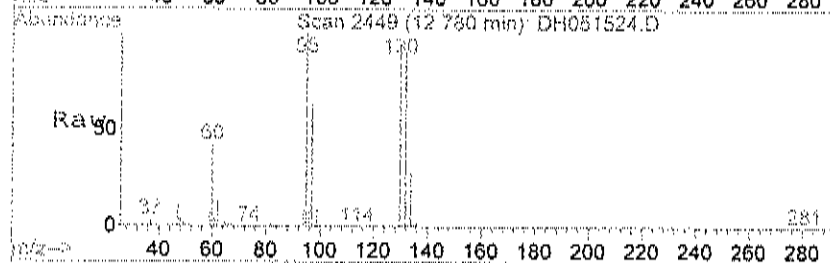
RT: 12.78 min Scan# 2449

Delta R.T. -0.00 min

Lab File: DH051524.D

Acq: 15 May 2017 10:39 pm

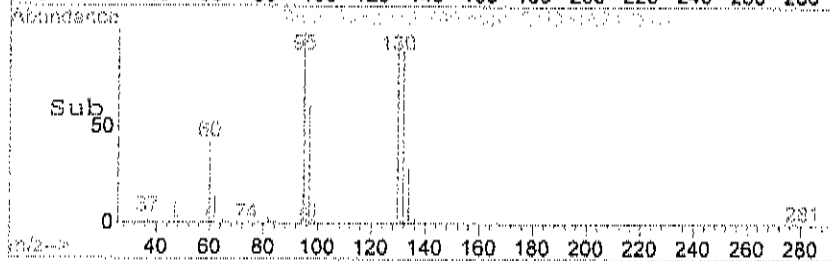
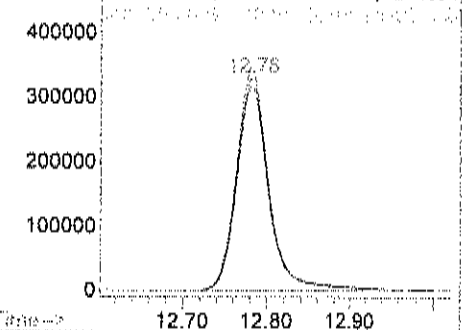
Tgt Ion:	130	Resp:	875075
Ion Ratio	Lower	Upper	
130	100		
132	95.7	77.9	117.9
95	106.8	85.8	125.8



Abundance

Ion 130.00 (129.70 to 130.70): DH051

Ion 132.00 (131.70 to 132.70): DH051



#48

Methyl Isobutyl Ketone

Concen: 2.54 ppb

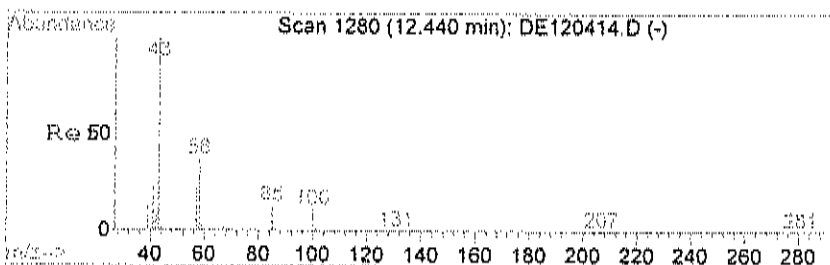
RT: 13.88 min Scan# 2706

Delta R.T. 0.00 min

Lab File: DH051524.D

Acq: 15 May 2017 10:39 pm

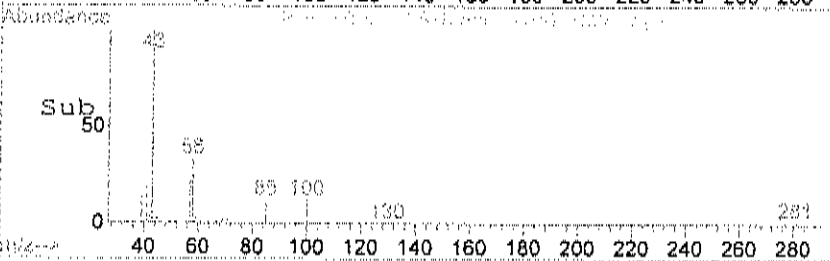
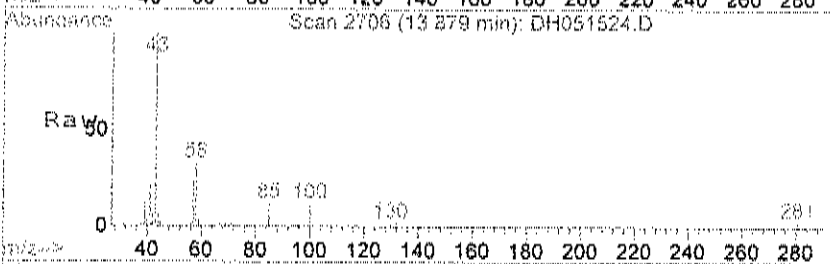
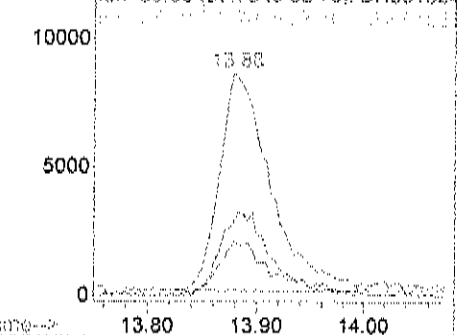
Tgt Ion:	43	Resp:	27632
Ion Ratio	Lower	Upper	
43	100		
58	35.3	15.8	55.8
57	24.2	6.8	46.8

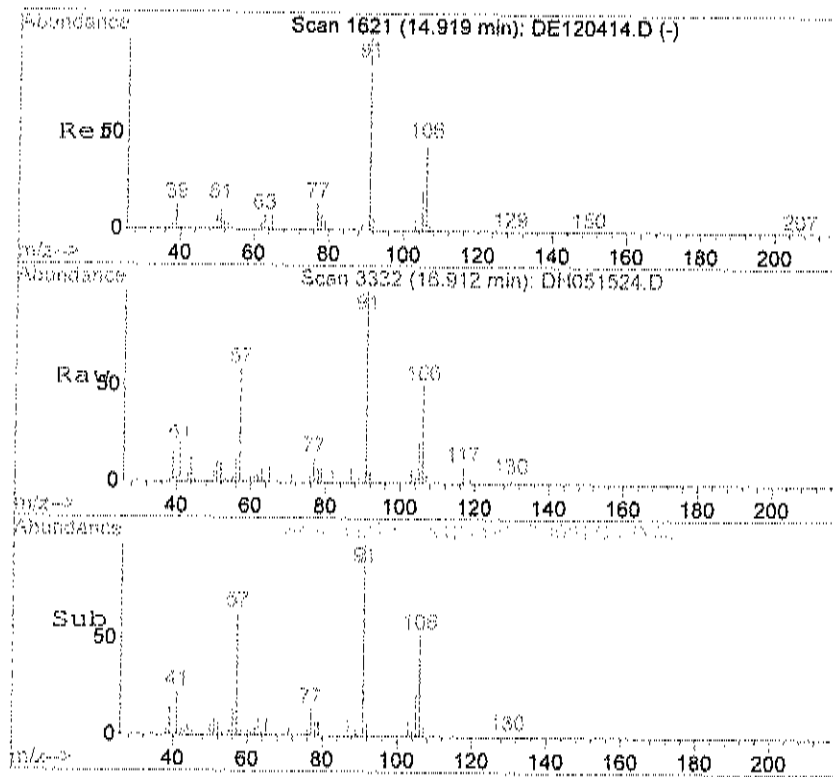


Abundance

Ion 43.00 (42.70 to 43.70): DH051524

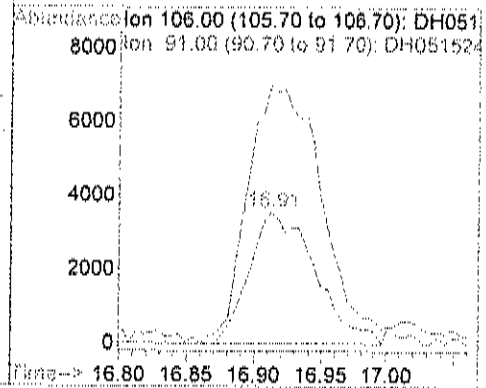
Ion 58.00 (57.70 to 58.70): DH051524





#60
 m&p-Xylene
 Concen: 1.57 ppb
 RT: 16.91 min Scan# 3332
 Delta R.T. -0.02 min
 Lab File: DH051524.D
 Acq: 15 May 2017 10:39 pm

Tgt Ion: 106 Resp: 12072
 Ion Ratio Lower Upper
 106 100
 91 220.7 202.1 242.1



Data File : C:\HPCHEM\1\DATA2\DH051524.D
Acq On : 15 May 2017 10:39 pm
Sample : C1705036-007A
Misc : TO15
MS Integration Params: LSCINT.P

Vial: 9
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Smoothing : ON
Sampling : 1
Start Thrs: 0.2
Stop Thrs : 0
Filtering: 5
Min Area: 3 % of largest Peak
Max Peaks: 100
Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

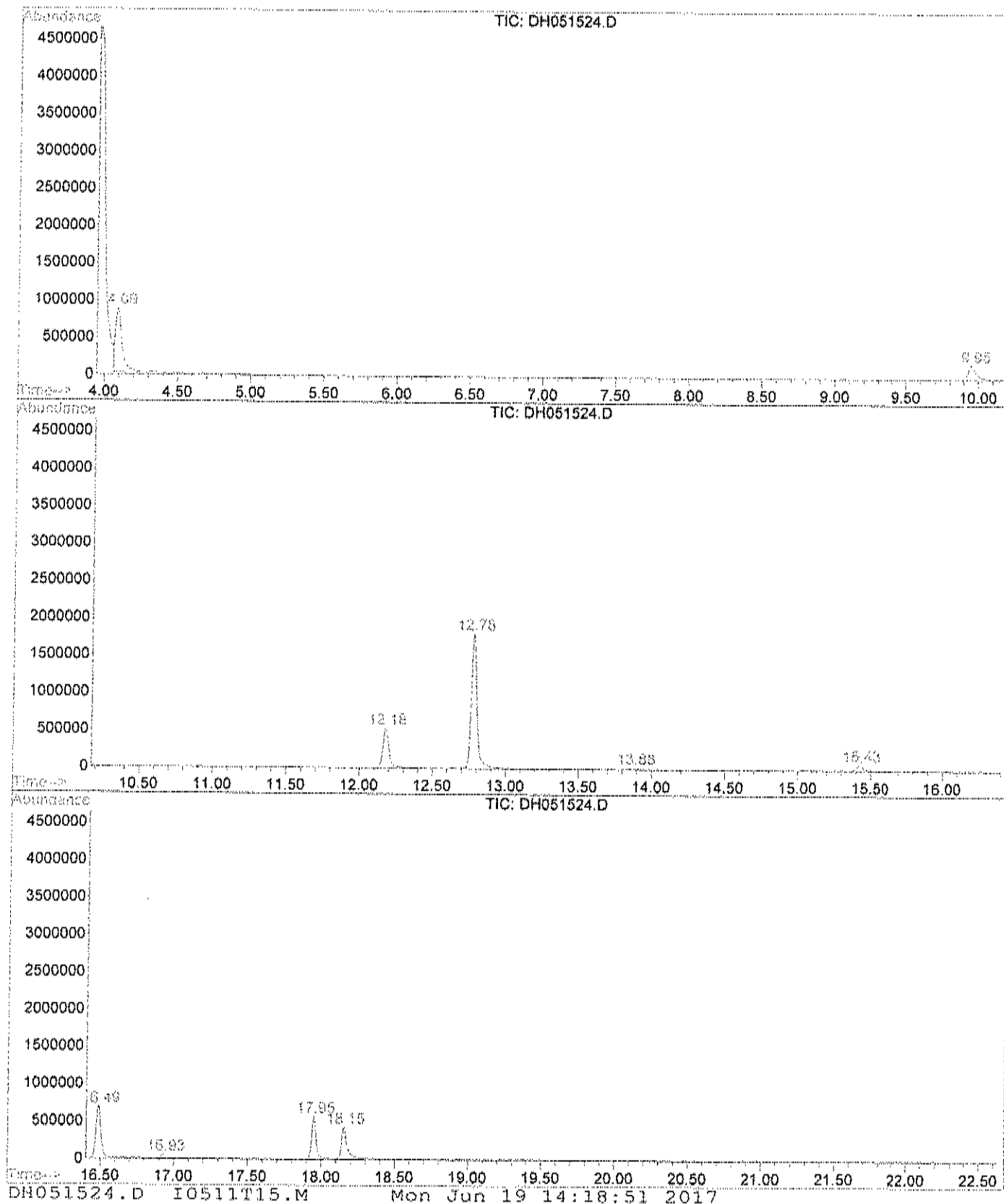
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	4.092	322	331	385	rVB	860487	2685087	54.23%	18.610%
2	9.954	1771	1788	1816	rBV3	195098	823139	16.62%	5.705%
3	12.177	2293	2308	2338	rBV2	530942	1557542	31.46%	10.795%
4	12.780	2433	2449	2496	rBV	1807124	4951453	100.00%	34.317%
5	13.883	2694	2707	2724	rBV2	20951	69410	1.40%	0.481%
6	15.425	3034	3048	3063	rBV2	78564	219673	4.44%	1.523%
7	16.488	3239	3251	3275	rBV	686179	1653708	33.40%	11.461%
8	16.933	3324	3336	3350	rBV2	52704	149888	3.03%	1.039%
9	17.949	3521	3530	3543	rBV	569315	1207172	24.38%	8.367%
10	18.153	3560	3569	3595	rBV	420604	1111368	22.45%	7.703%

Sum of corrected areas: 14428440

DH051524.D I0511T15.M Mon Jun 19 14:18:50 2017

LSC Report - Integrated Chromatogram

File : C:\HPCHEM\1\DATA2\DH051524.D
Operator : WD
Acquired : 15 May 2017 10:39 pm using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-007A
Misc Info : TO15
Vial Number: 9
Quant File : I0511T15.RES (RTE Integrator)



Data File : C:\HPCHEM\1\DATA2\DH051524.D

Acq On : 15 May 2017 10:39 pm

Sample : C1705036-007A

Misc : T015

MS Integration Params: LSCINT.P

Vial: 9

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

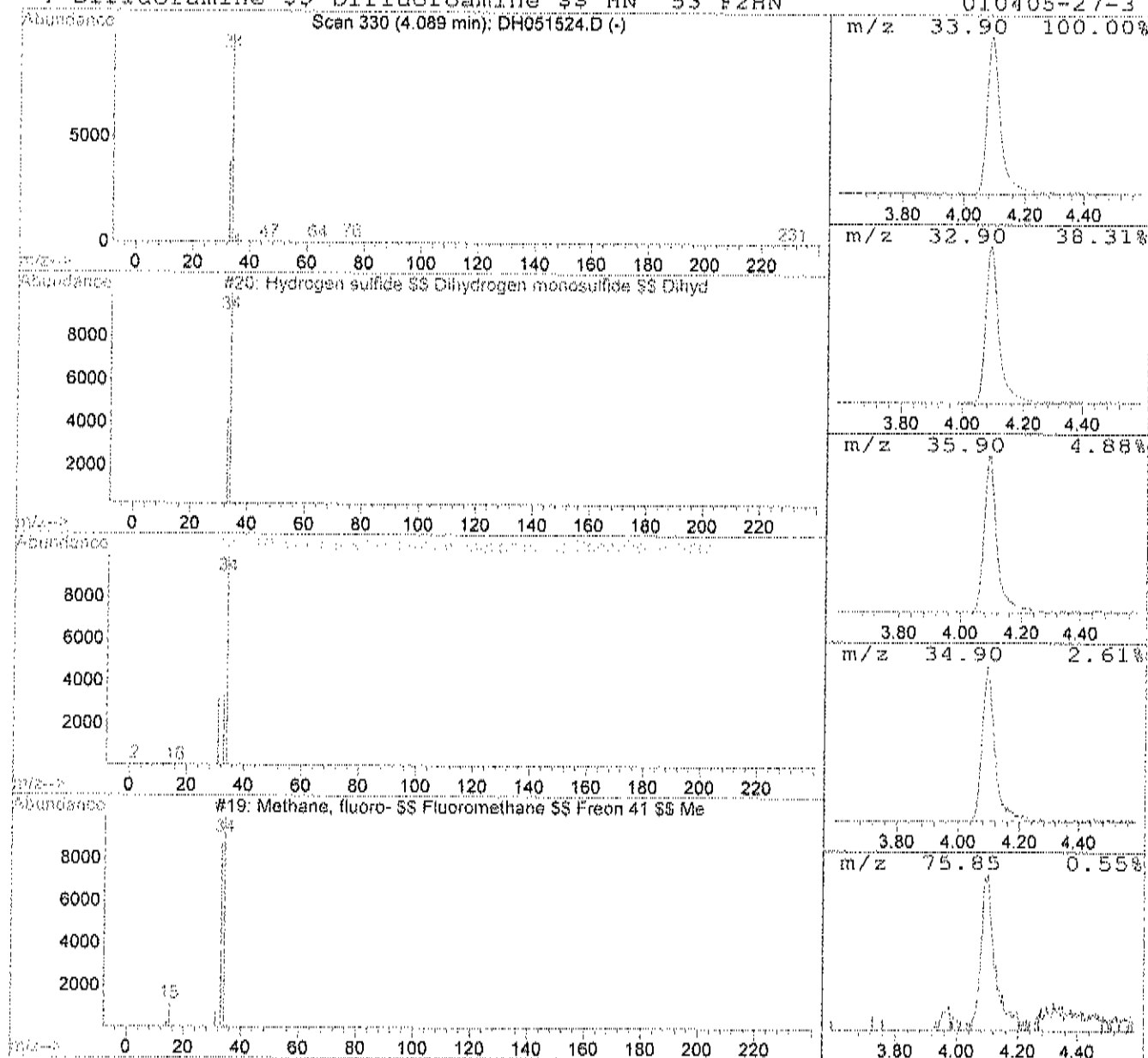
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 1 Hydrogen sulfide \$\$ Dihydrogen Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.09	163.10 ppb	2685090	Bromochloromethane	9.95

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Hydrogen sulfide \$\$ Dihydrogen mono	34	H2S	007783-06-4	78
2			Phosphine \$\$ Hydrogen phosphide \$\$	34	H3P	007803-51-2	7
3			Methane, fluoro- \$\$ Fluoromethane \$	34	CH3F	000593-53-3	3
4			Diffuoramine \$\$ Difluoroamine \$\$ HN	53	F2HN	010405-27-3	2



Data File : C:\HPCHEM\1\DATA2\DH051524.D
Acq On : 15 May 2017 10:39 pm
Sample : C1705036-007A
Misc : TO15
MS Integration Params: LSCINT.P

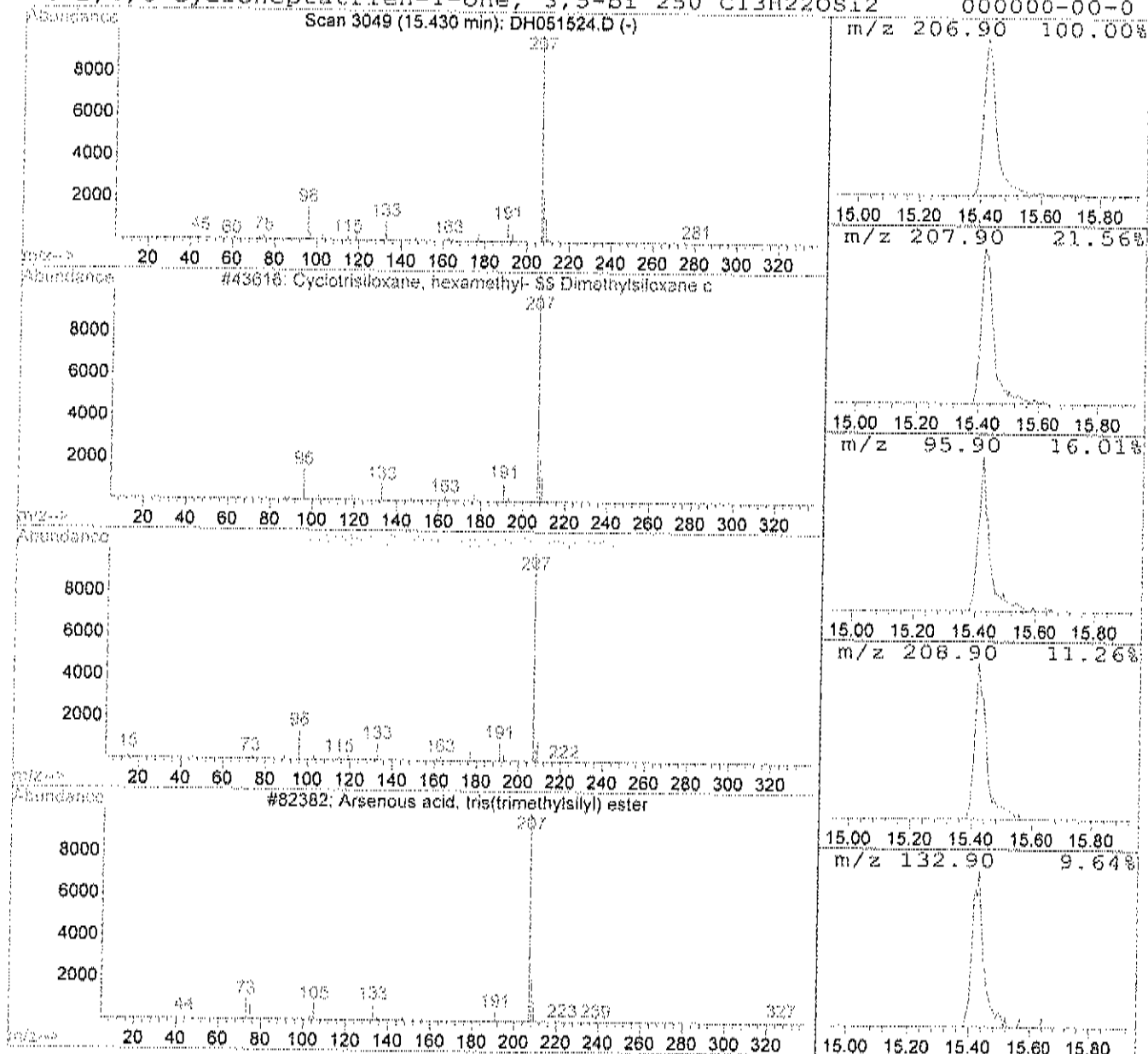
Vial: 9
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 2 Cyclotrisiloxane, hexamethyl- Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
15.43	6.64 ppb	219673	Chlorobenzene-d5	16.48

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclotrisiloxane, hexamethyl- \$\$ D1	222	C6H18O3Si3	000541-05-9	90
2	Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	80
3	Arsenous acid, tris(trimethylsilyl)	342	C9H27AsO3Si3	055429-29-3	56
4	2,4,6-Cycloheptatrien-1-one, 3,5-bi	250	C13H22OSi2	000000-00-0	56



Data File : C:\HPCHEM\1\DATA2\DH051524.D

Acq On : 15 May 2017 10:39 pm

Sample : C1705036-007A

Misc : TO15

MS Integration Params: LSCINT.P

Vial: 9

Operator: WD

Inst : GCMS3

Multiplr: 1.00

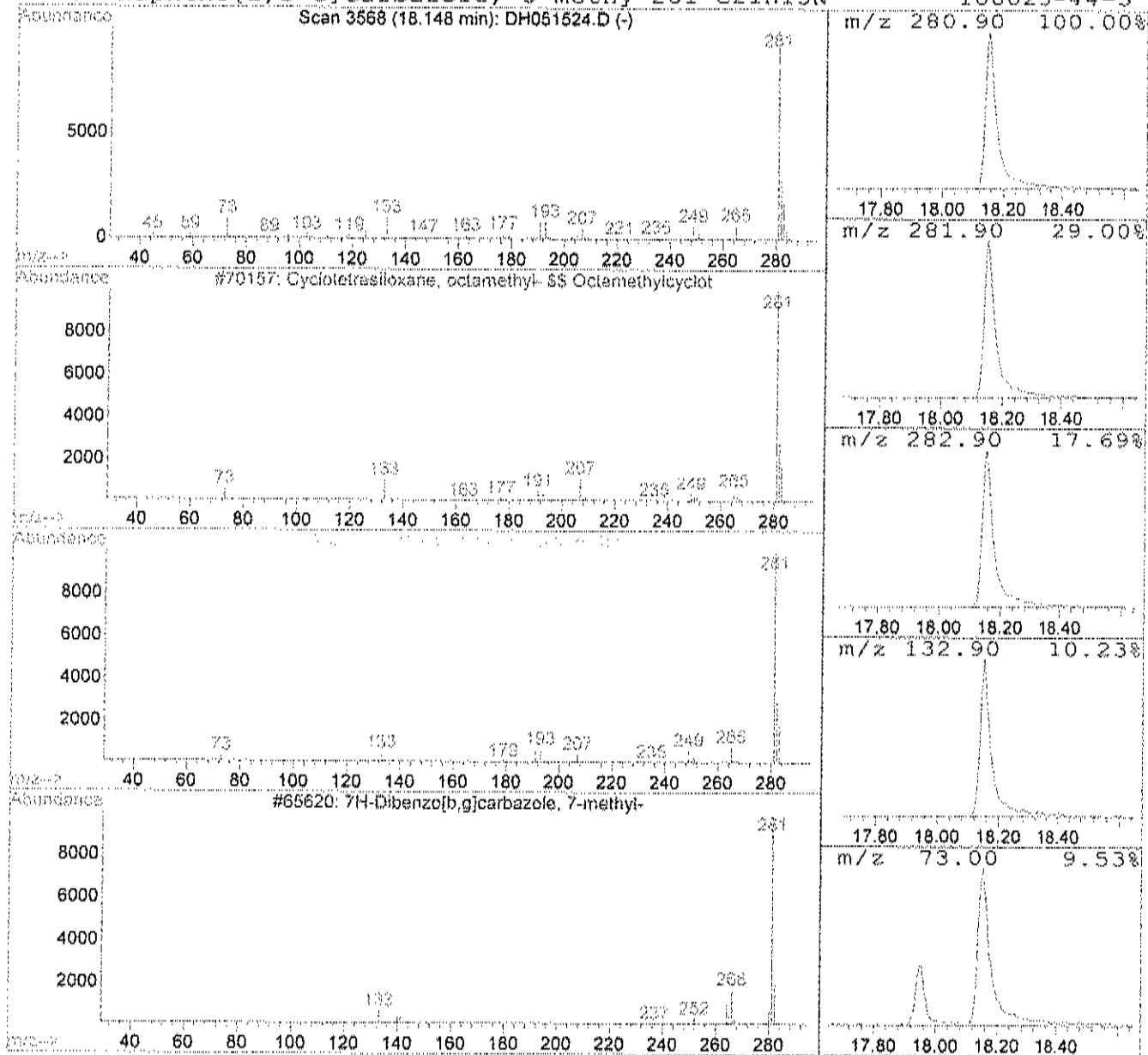
Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 3 Cyclotetrasiloxane, octamethyl Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.	
18.15	33.60 ppb	1111370	Chlorobenzene-d5	16.48	
Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	90
2	Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	87
3	7H-Dibenzo[b,g]carbazole, 7-methyl-	281	C21H15N	003557-49-1	64
4	5H-Naphtho[2,3-c]carbazole, 5-methy	281	C21H15N	100025-44-3	50



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 15 May 2017 10:39 pm
Data File: C:\HPCHEM\1\DATA2\DH051524.D
Name: C1705036-007A
Misc: TO15
Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title: VOA Standards for 5 point calibration
Library Searched: C:\DATABASE\NIST129.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc
Hydrogen sulfide \$\$	4.09	163.1	ppb	2685090	ISTD01	9.95	823139	50.0
Cyclotrisiloxane, he	15.43	6.6	ppb	219673	ISTD03	16.48	1653710	50.0
Cyclotetrasiloxane,	18.15	33.6	ppb	1111370	ISTD03	16.48	1653710	50.0

DH051524.D I0511T15.M Mon Jun 19 14:18:58 2017

Data File : C:\HPCHEM\1\DATA\DH051525.D
Acq On : 15 May 2017 11:14 pm
Sample : C1705036-007A 10X
Misc : T015
MS Integration Params: rteint.p
Quant Time: Jun 1 10:39 2017

Vial: 9
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration
DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	9.96	128	93477	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	565358	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	435066	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	240717m	39.00	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	78.00%

Target Compounds

43) Trichloroethene	12.79	130	34316	7.74	ppb	Qvalue 96
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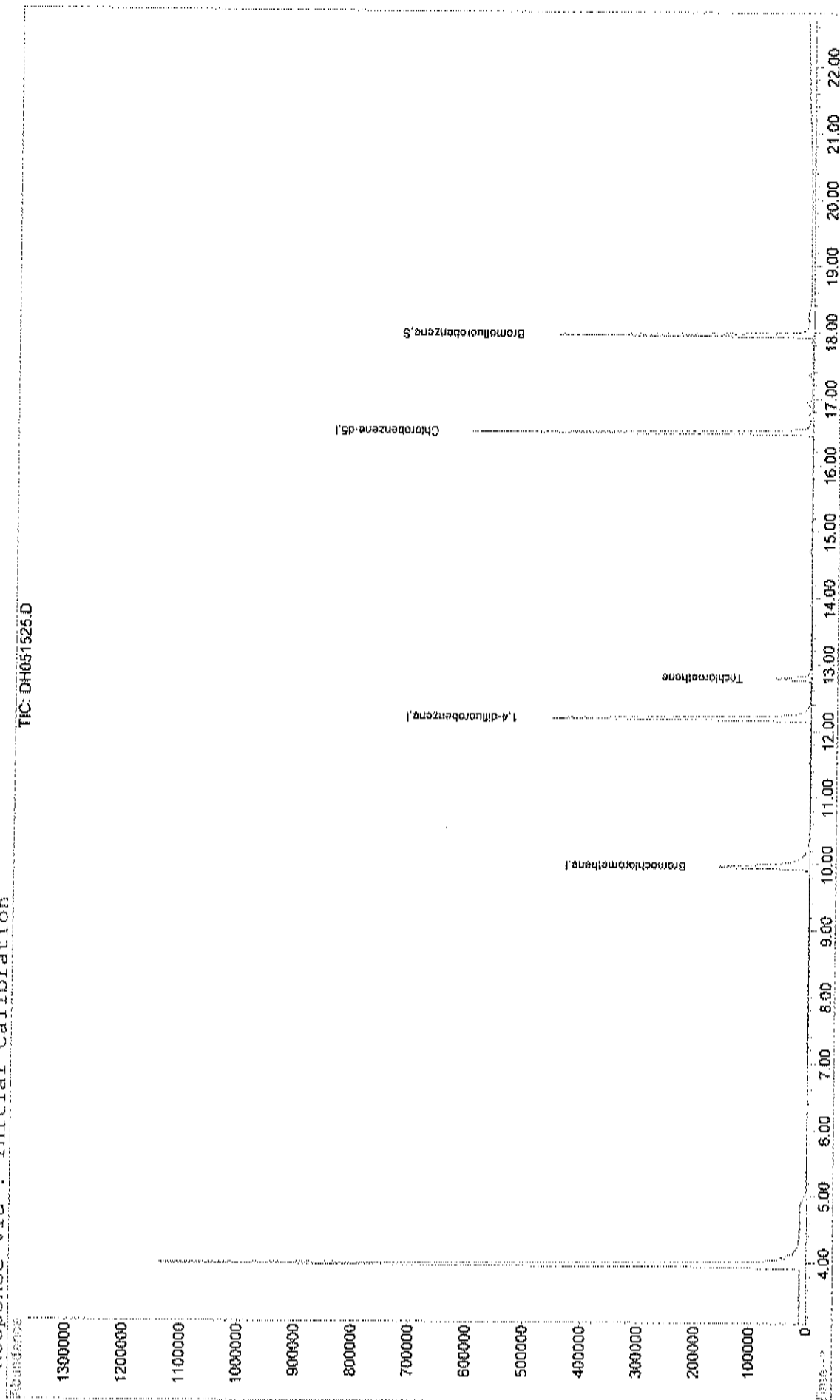
Quantitation Report

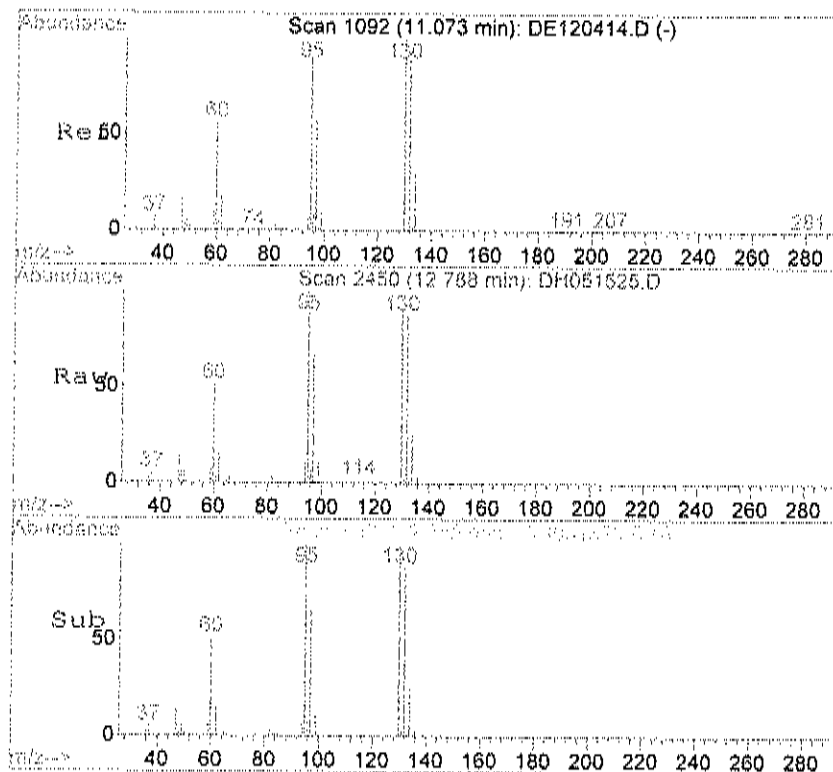
Data File : C:\RPCHEM\1\DATA\DH051525.D
Acq On : 15 May 2017 11:14 pm
Sample : C1705036-007A 10X
Misc : T015
MS Integration Params: rteint.p
Quant Time: Jun 1 10:39 2017

Vial: 9
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

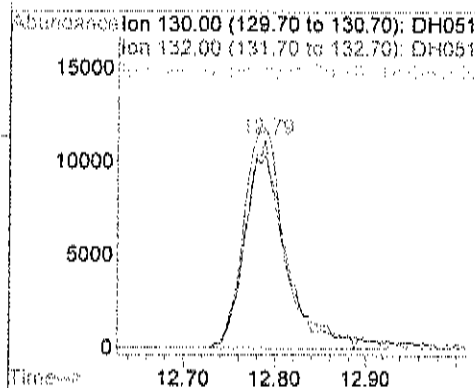
Method : C:\RPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





#43
 Trichloroethene
 Concen: 7.74 ppb
 RT: 12.79 min Scan# 2450
 Delta R.T. 0.00 min
 Lab File: DH051525.D
 Acq: 15 May 2017 11:14 pm

Tgt Ion:130	Resp:	34316
Ion Ratio	Lower	Upper
130	100	
132	94.5	77.9 117.9
95	110.2	85.8 125.8



Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-008A

Client Sample ID: WAT-SV14-050817
 Tag Number: 600.63
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	0.158	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	75.1	8.30		%	1	5/15/2017
Oxygen	20.5	0.880		%	1	5/15/2017
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/17/2017 2:23:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Acetone	5.0	10	J	ppbV	1	5/17/2017 2:23:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Chloroform	62	5.0		ppbV	1	5/17/2017 2:23:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 22 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-008A

Client Sample ID: WAT-SV14-050817
 Tag Number: 600.63
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 2:23:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/17/2017 2:23:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 2:23:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/17/2017 2:23:00 PM
Methyl Isobutyl Ketone	3.1	10	J	ppbV	1	5/17/2017 2:23:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 2:23:00 PM
Surr: Bromofluorobenzene	84.3	73.7-124		%REC	1	5/17/2017 2:23:00 PM
NOTES:						
No Tic's found.						
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-008A

Client Sample ID: WAT-SV14-050817
 Tag Number: 600.63
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM
Hydrogen Sulfide	18	5.0		ppbV	1	5/16/2017 4:25:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 4:25:00 PM
Surr: Bromofluorobenzene	148	70-130	S	%REC	1	5/16/2017 4:25:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 24 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-008A

Client Sample ID: WAT-SV14-050817
 Tag Number: 600.63
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
SPPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 2:23:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 2:23:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 2:23:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 2:23:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 2:23:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 2:23:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 2:23:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 2:23:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 2:23:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 2:23:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/17/2017 2:23:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 2:23:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 2:23:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 2:23:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 2:23:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 2:23:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 2:23:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 2:23:00 PM
Acetone	12	24	J	ug/m3	1	5/17/2017 2:23:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 2:23:00 PM
Benzene	< 16	16		ug/m3	1	5/17/2017 2:23:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 2:23:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 2:23:00 PM
Bromoform	< 52	52		ug/m3	1	5/17/2017 2:23:00 PM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 2:23:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/17/2017 2:23:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 2:23:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 2:23:00 PM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 2:23:00 PM
Chloroform	300	24		ug/m3	1	5/17/2017 2:23:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 2:23:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 2:23:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 2:23:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/17/2017 2:23:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 2:23:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 2:23:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 2:23:00 PM
Freon 11	< 28	28		ug/m3	1	5/17/2017 2:23:00 PM
Freon 113	< 38	38		ug/m3	1	5/17/2017 2:23:00 PM
Freon 114	< 35	35		ug/m3	1	5/17/2017 2:23:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-008A

Client Sample ID: WAT-SV14-050817
 Tag Number: 600.63
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 2:23:00 PM
Heptane	< 20	20		ug/m3	1	5/17/2017 2:23:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 2:23:00 PM
Hexane	< 18	18		ug/m3	1	5/17/2017 2:23:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 2:23:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/17/2017 2:23:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 2:23:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/17/2017 2:23:00 PM
Methyl Isobutyl Ketone	13	41	J	ug/m3	1	5/17/2017 2:23:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 2:23:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/17/2017 2:23:00 PM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 2:23:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/17/2017 2:23:00 PM
Styrene	< 21	21		ug/m3	1	5/17/2017 2:23:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/17/2017 2:23:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 2:23:00 PM
Toluene	< 19	19		ug/m3	1	5/17/2017 2:23:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 2:23:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 2:23:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/17/2017 2:23:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 2:23:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 2:23:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 2:23:00 PM
NOTES:						
No Tic's found.						

LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 4:25:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 4:25:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 4:25:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 4:25:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 4:25:00 PM
Hydrogen Sulfide	25	7.0		ug/m3	1	5/16/2017 4:25:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 4:25:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 4:25:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

Data File : C:\HPCHEM\1\DATA\DH051711.D

Acq On : 17 May 2017 2:23 pm

Sample : C1705036-008A

Misc : TO15

MS Integration Params: rteint.p

Quant Time: Jun 1 11:18 2017

Vial: 10

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	9.95	128	84884m ^(m)	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	433003	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	356447	50.00	ppb	0.00

System Monitoring Compounds

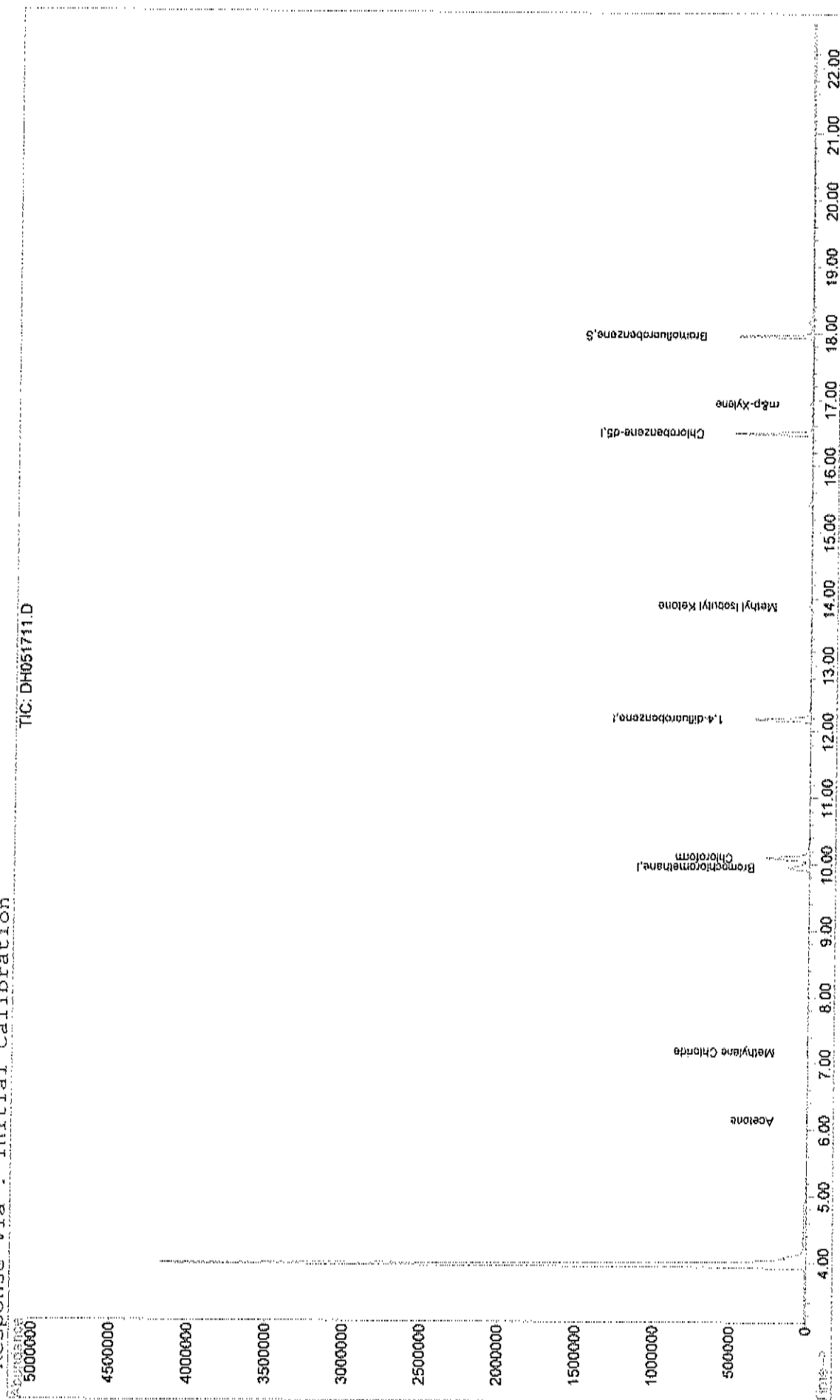
67) Bromofluorobenzene	17.95	95	213165	42.16	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	84.32%

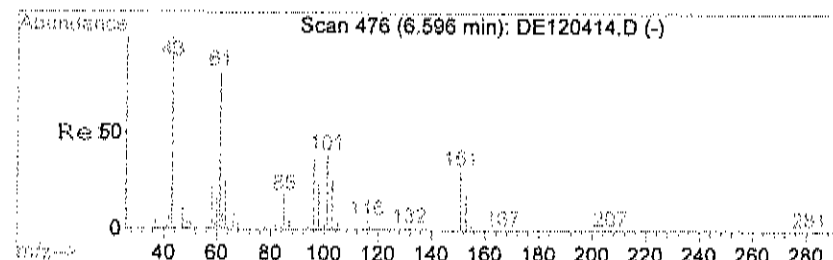
Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
16) Acetone	6.14	43	16127m ^(m)	5.05	ppb	
23) Methylene Chloride	7.16	84	3390	1.55	ppb	# 74
33) Chloroform	10.10	83	378982	62.37	ppb	99
48) Methyl Isobutyl Ketone	13.89	43	22335	3.06	ppb	90
60) m&p-Xylene	16.91	106	6720	1.25	ppb	# 27

Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051711.D
Acq On : 17 May 2017 2:23 pm
Sample : C1705036-008A
Misc : TO15
MS Integration Params: rteint.p
Quant Time: Jun 1 11:18 2017
Quant Results File: I0511T15.RES
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





#16

Acetone

Concen: 5.05 ppb m

RT: 6.14 min Scan# 896

Delta R.T. 0.03 min

Lab File: DH051711.D

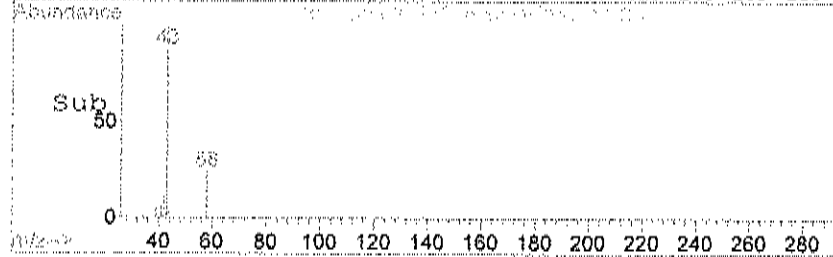
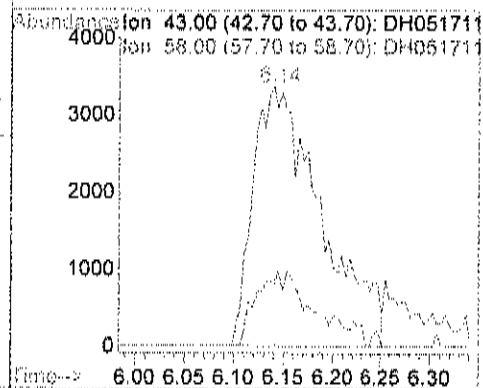
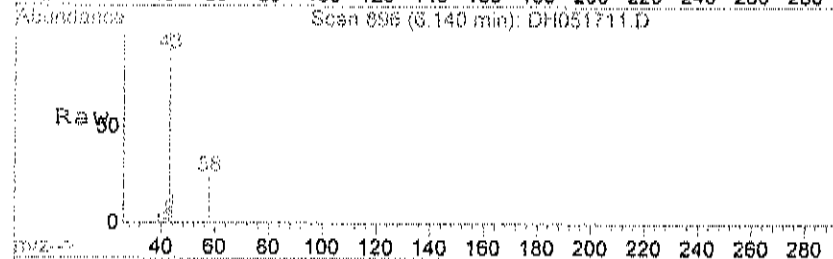
Acq: 17 May 2017 2:23 pm

Tgt Ion: 43 Resp: 16127

Ion Ratio Lower Upper

43 100

58 10.9 3.7 43.7



#23

Methylene Chloride

Concen: 1.55 ppb

RT: 7.16 min Scan# 1135

Delta R.T. -0.01 min

Lab File: DH051711.D

Acq: 17 May 2017 2:23 pm

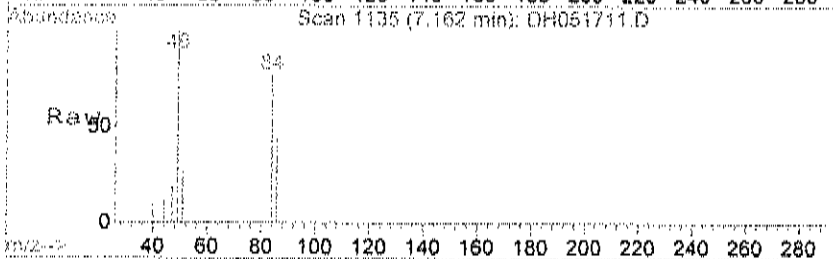
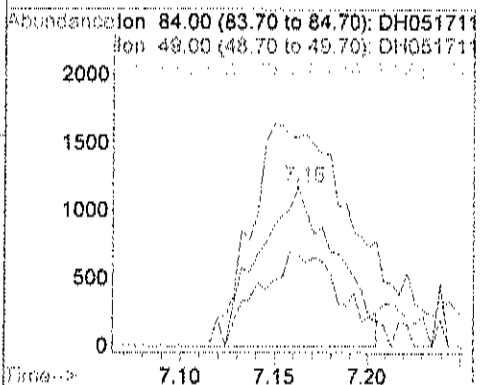
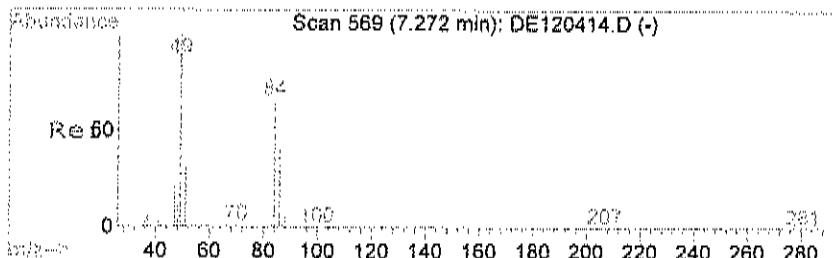
Tgt Ion: 84 Resp: 3390

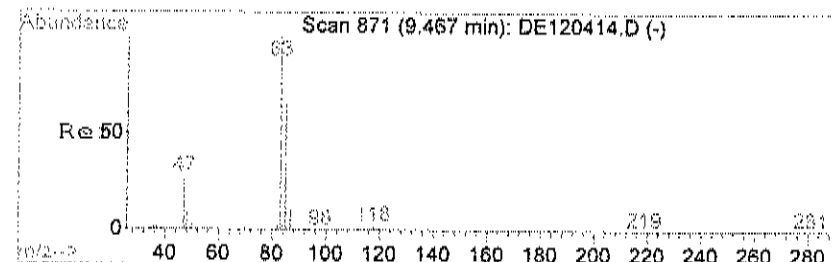
Ion Ratio Lower Upper

84 100

49 189.7 124.3 164.3#

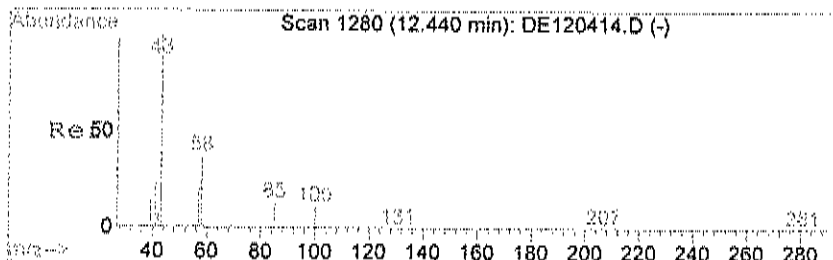
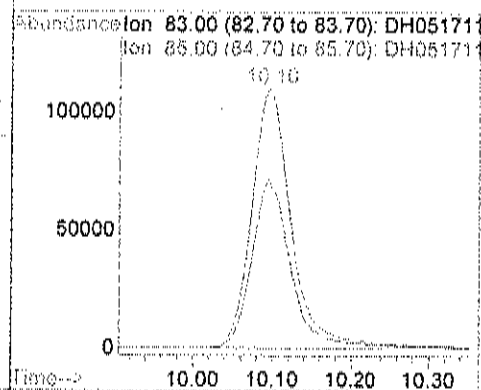
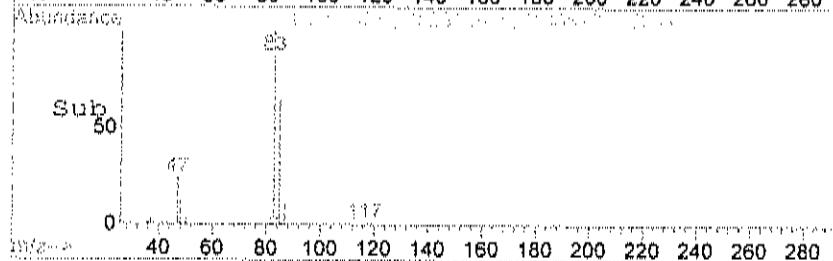
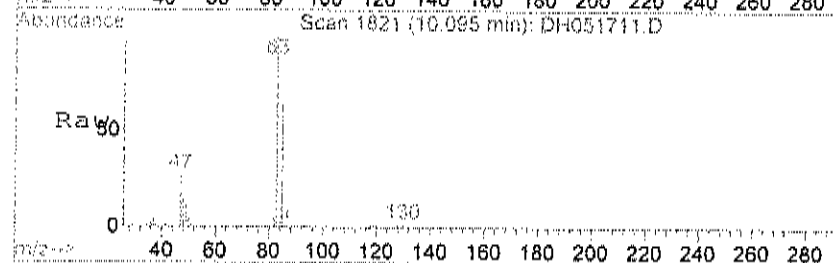
86 62.7 43.0 83.0





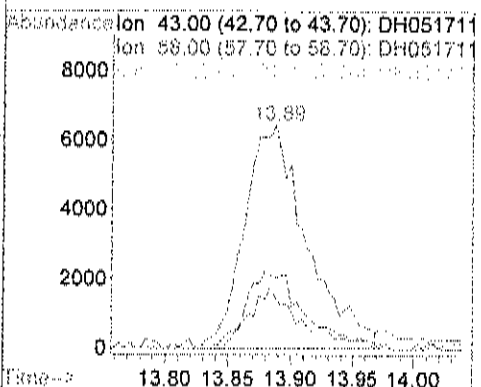
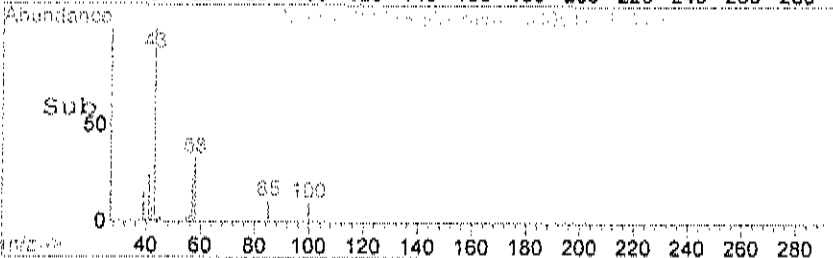
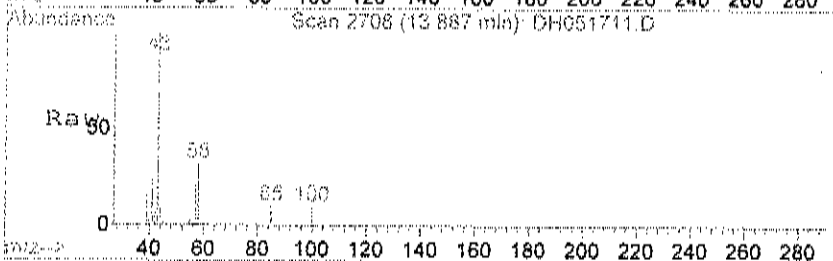
#33
Chloroform
Concen: 62.37 ppb
RT: 10.10 min Scan# 1821
Delta R.T. -0.02 min
Lab File: DH051711.D
Acq: 17 May 2017 2:23 pm

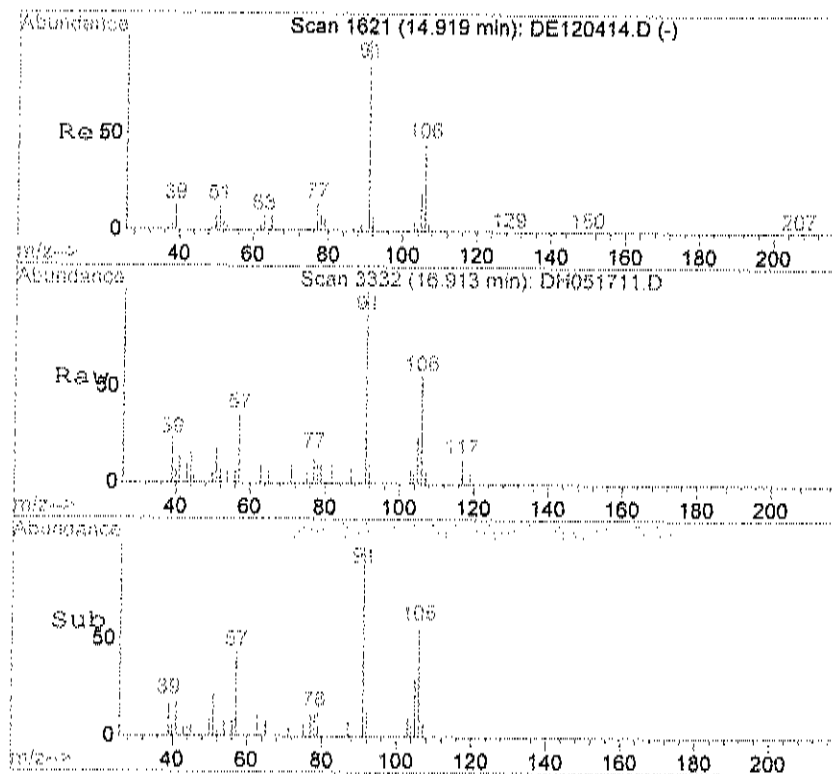
Tgt Ion: 83 Resp: 378982
Ion Ratio Lower Upper
83 100
85 64.1 43.5 83.5



#48
Methyl Isobutyl Ketone
Concen: 3.06 ppb
RT: 13.89 min Scan# 2708
Delta R.T. 0.01 min
Lab File: DH051711.D
Acq: 17 May 2017 2:23 pm

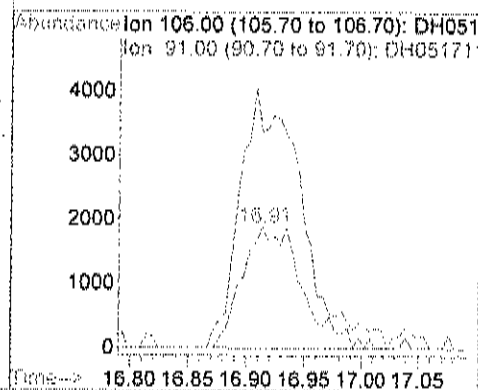
Tgt Ion: 43 Resp: 22335
Ion Ratio Lower Upper
43 100
58 31.6 15.8 55.8
57 19.3 6.8 46.8





#60
m&p-Xylene
Concen: 1.25 ppb
RT: 16.91 min Scan# 3332
Delta R.T. -0.02 min
Lab File: DH051711.D
Acq: 17 May 2017 2:23 pm

Tgt Ion	Ratio	Lower	Upper
106	100		
91	103.5	202.1	242.1#



Data File : C:\HPCHEM\1\DATA2\DH051711.D
 Acq On : 17 May 2017 2:23 pm
 Sample : C1705036-008A
 Misc : TO15
 MS Integration Params: LSCINT.P

Vial: 10
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Method : G:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Smoothing : ON
 Sampling : 1
 Start Thrs: 0.2
 Stop Thrs : 0

Filtering: 5
 Min Area: 3 % of largest Peak
 Max Peaks: 100
 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Signal : TIC

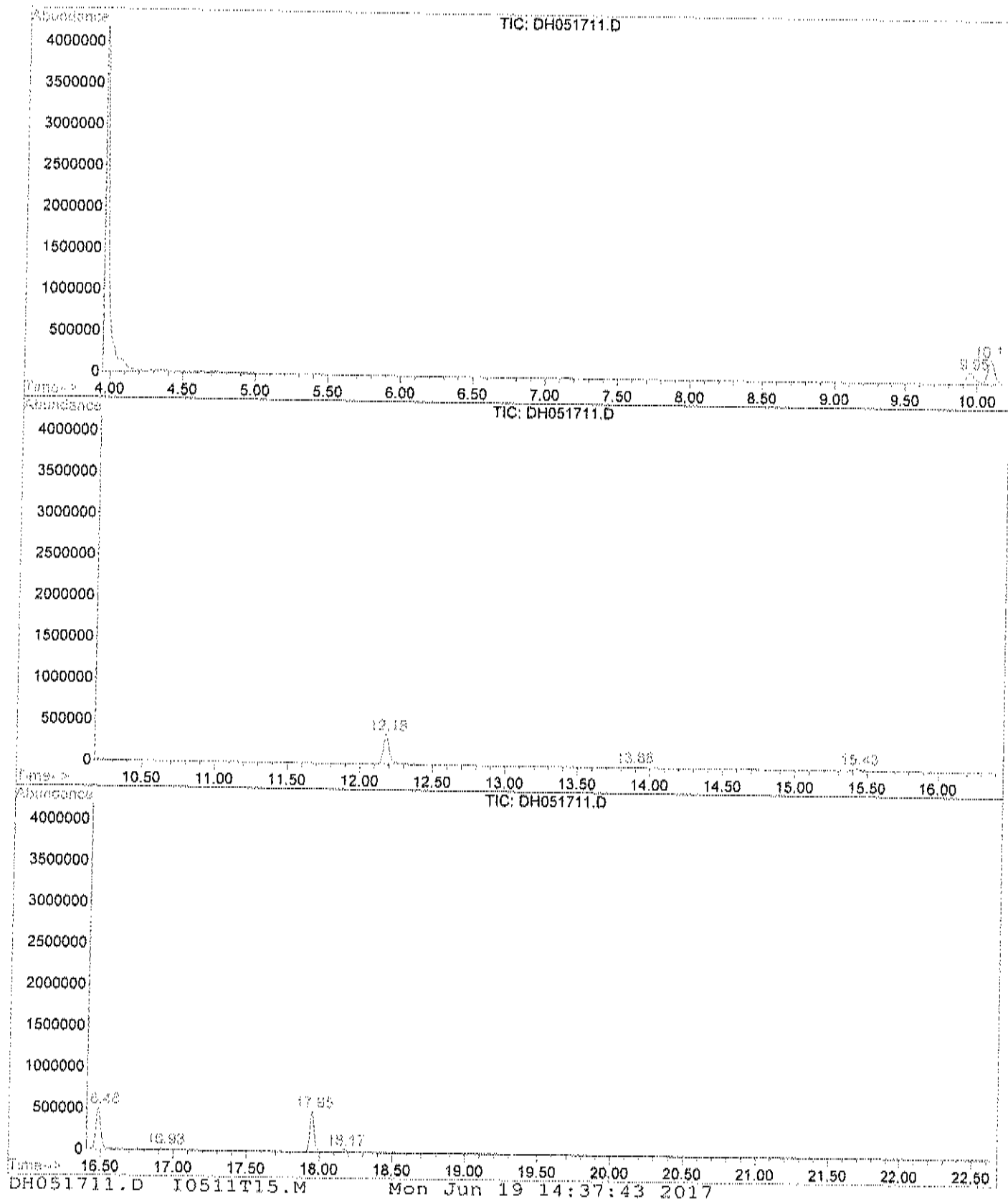
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	9.950	1769	1787	1806	rBV4	140843	588604	50.04%	11.331%
2	10.095	1808	1821	1852	rVB	283244	968674	82.36%	18.648%
3	12.177	2292	2308	2334	rBV2	364584	1071687	91.12%	20.631%
4	13.883	2697	2707	2720	rBV2	14615	46038	3.91%	0.886%
5	15.432	3033	3049	3061	rBV3	30492	94916	8.07%	1.827%
6	16.484	3239	3250	3266	rBV	506774	1176182	100.00%	22.643%
7	16.934	3326	3336	3344	rBV7	22584	60839	5.17%	1.171%
8	17.950	3520	3530	3553	rBV	492111	1086605	92.38%	20.918%
9	18.170	3564	3572	3586	rBV2	31168	101008	8.59%	1.944%

Sum of corrected areas: 5194553

DH051711.D I0511T15.M Mon Jun 19 14:37:41 2017

LSC Report - Integrated Chromatogram

File : C:\HPCHEM\1\DATA2\DH051711.D
Operator : WD
Acquired : 17 May 2017 2:23 pm using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-008A
Misc Info : T015
Vial Number: 10
Quant File : I0511T15.RES (RTE Integrator)



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 17 May 2017 2:23 pm
Data File: C:\HPCHEM\1\DATA2\DH051711.D
Name: C1705036-008A
Misc: TO15
Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title: VOA Standards for 5 point calibration
Library Searched: C:\DATABASE\NIST129.L

TIC	Top	Hit	name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc

DH051711.D		I0511T15.M			Mon Jun 19 14:37:43 2017						

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-009A

Client Sample ID: WAT-SV13-050817
 Tag Number: 474.309
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	2.08	1.90	%	1		5/15/2017
Carbon Monoxide	ND	0.880	%	1		5/15/2017
Methane	ND	0.580	%	1		5/15/2017
Nitrogen	77.8	8.30	%	1		5/15/2017
Oxygen	17.4	0.880	%	1		5/15/2017
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,1,2-Trichloroethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,1-Dichloroethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,1-Dichloroethene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,2-Dibromoethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,2-Dichlorobenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,2-Dichloroethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,2-Dichloropropane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,3-butadiene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,3-Dichlorobenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,4-Dichlorobenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
1,4-Dioxane	< 10	10	ppbV	1		5/17/2017 3:00:00 PM
2,2,4-trimethylpentane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
4-ethyltoluene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Acetone	2.7	10	J ppbV	1		5/17/2017 3:00:00 PM
Allyl chloride	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Benzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Benzyl chloride	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Bromodichloromethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Bromoform	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Bromomethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Carbon disulfide	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Carbon tetrachloride	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Chlorobenzene	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Chloroethane	< 5.0	5.0	ppbV	1		5/17/2017 3:00:00 PM
Chloroform	16	5.0	ppbV	1		5/17/2017 3:00:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

, Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-009A

Client Sample ID: WAT-SV13-050817
 Tag Number: 474.309
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 3:00:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/17/2017 3:00:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 3:00:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/17/2017 3:00:00 PM
Methyl Isobutyl Ketone	< 10	10		ppbV	1	5/17/2017 3:00:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 3:00:00 PM
Surr: Bromofluorobenzene	80.9	73.7-124		%REC	1	5/17/2017 3:00:00 PM

NOTES:

No Tic's found.

LOW LEVEL SULFURS BY TO-15

		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 26 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-009A

Client Sample ID: WAT-SV13-050817
 Tag Number: 474.309
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM
Hydrogen Sulfide	20	5.0		ppbV	1	5/16/2017 5:00:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 5:00:00 PM
Surr: Bromofluorobenzene	148	70-130	S	%REC	1	5/16/2017 5:00:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 27 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-009A

Client Sample ID: WAT-SV13-050817
 Tag Number: 474.309
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 3:00:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 3:00:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 3:00:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 3:00:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 3:00:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 3:00:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 3:00:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 3:00:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 3:00:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 3:00:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/17/2017 3:00:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 3:00:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 3:00:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 3:00:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 3:00:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 3:00:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 3:00:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 3:00:00 PM
Acetone	6.4	24	J	ug/m3	1	5/17/2017 3:00:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 3:00:00 PM
Benzene	< 16	16		ug/m3	1	5/17/2017 3:00:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 3:00:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 3:00:00 PM
Bromoform	< 52	52		ug/m3	1	5/17/2017 3:00:00 PM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 3:00:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/17/2017 3:00:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 3:00:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 3:00:00 PM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 3:00:00 PM
Chloroform	78	24		ug/m3	1	5/17/2017 3:00:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 3:00:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 3:00:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 3:00:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/17/2017 3:00:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 3:00:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 3:00:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 3:00:00 PM
Freon 11	< 28	28		ug/m3	1	5/17/2017 3:00:00 PM
Freon 113	< 38	38		ug/m3	1	5/17/2017 3:00:00 PM
Freon 114	< 35	35		ug/m3	1	5/17/2017 3:00:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

- Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 17 of 28

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-009A

Client Sample ID: WAT-SV13-050817
 Tag Number: 474.309
 Collection Date: 5/8/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
SPPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 3:00:00 PM
Heptane	< 20	20		ug/m3	1	5/17/2017 3:00:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 3:00:00 PM
Hexane	< 18	18		ug/m3	1	5/17/2017 3:00:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 3:00:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/17/2017 3:00:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 3:00:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/17/2017 3:00:00 PM
Methyl Isobutyl Ketone	< 41	41		ug/m3	1	5/17/2017 3:00:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 3:00:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/17/2017 3:00:00 PM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 3:00:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/17/2017 3:00:00 PM
Styrene	< 21	21		ug/m3	1	5/17/2017 3:00:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/17/2017 3:00:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 3:00:00 PM
Toluene	< 19	19		ug/m3	1	5/17/2017 3:00:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 3:00:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 3:00:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/17/2017 3:00:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 3:00:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 3:00:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 3:00:00 PM
NOTES:						
No Tic's found.						
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 5:00:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 5:00:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 5:00:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 5:00:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 5:00:00 PM
Hydrogen Sulfide	28	7.0		ug/m3	1	5/16/2017 5:00:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 5:00:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 5:00:00 PM

Qualifiers:	** Quantitation Limit	.	Results reported are not blank corrected
	B Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S Spike Recovery outside accepted recovery limits		

Data File : C:\HPCHEM\1\DATA\DH051712.D

Vial: 11

Acq On : 17 May 2017 3:00 pm

Operator: WD

Sample : C1705036-009A

Inst : GCMS3

Misc : T015

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: Jun 1 11:20 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	80354m ^(m)	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	413454	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	314936	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	180664	40.44	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	80.88%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
16) Acetone	6.15	43	8163m ^(m)	2.70	ppb	
23) Methylene Chloride	7.18	84	2730m ^(m)	1.32	ppb	
33) Chloroform	10.10	83	91518	15.91	ppb	96
60) m&p-Xylene	16.91	106	4892	1.03	ppb	# 37

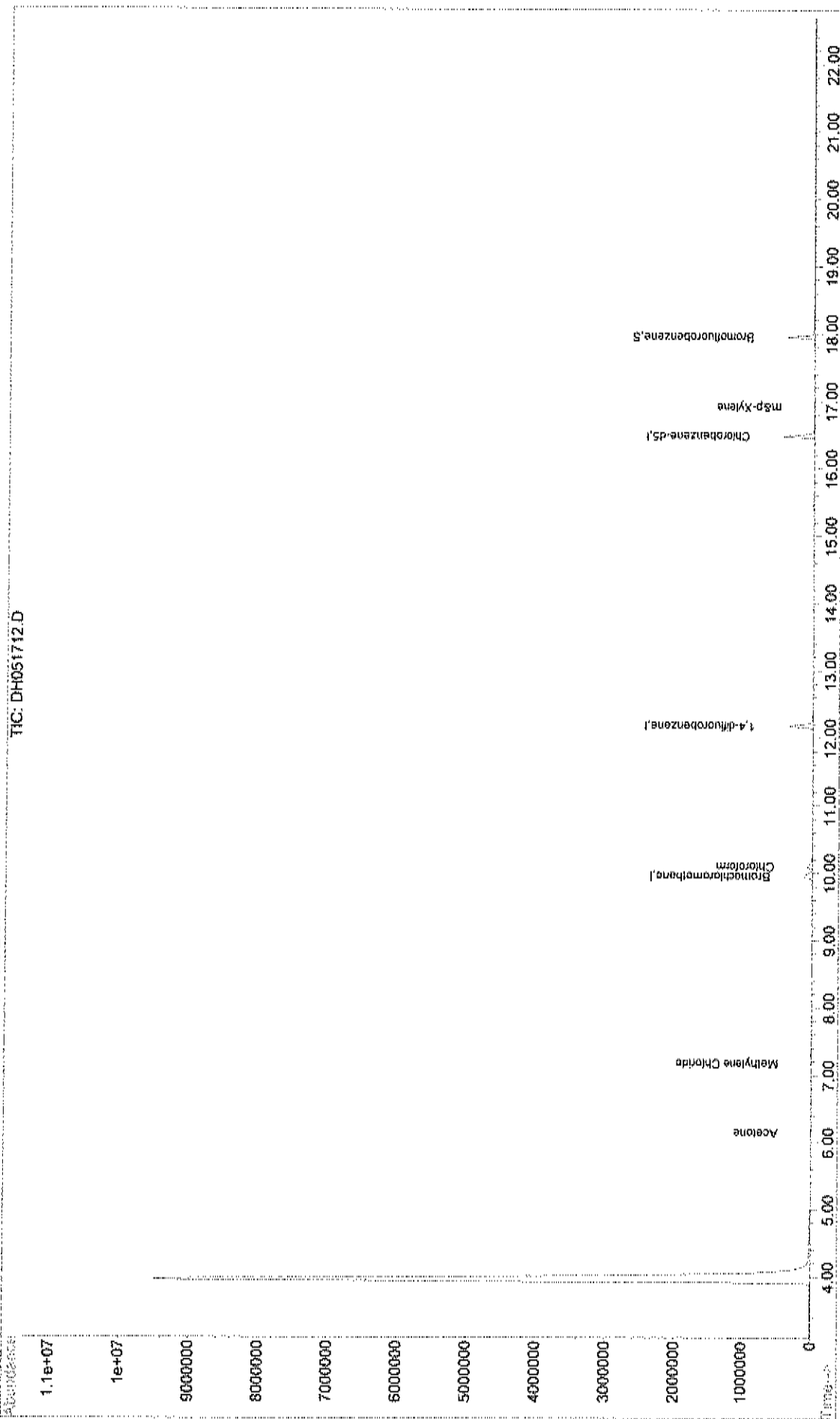
(#) = qualifier out of range (m) = manual integration

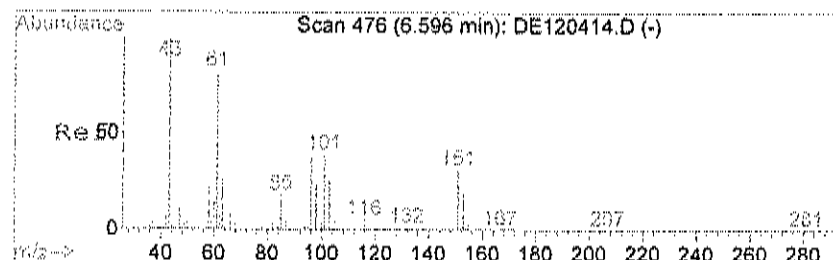
DH051712.D I0511T15.M Thu Jun 01 11:51:20 2017

Page 1

Quantitation Report

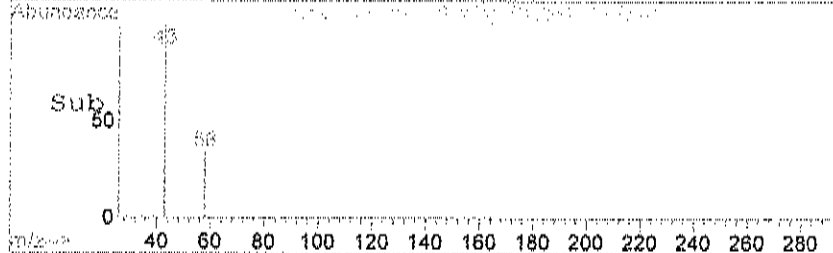
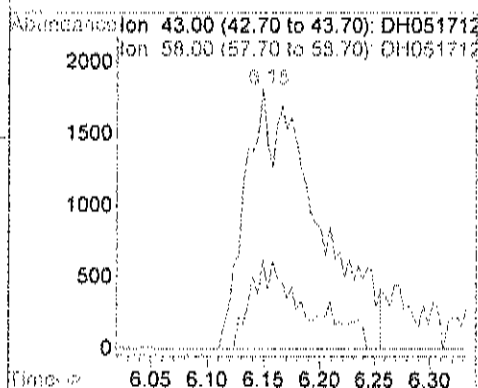
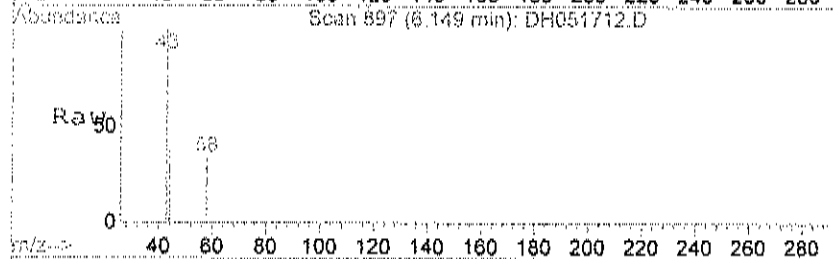
Data File : C:\HPCHEM\1\DATA\DH051712.D
 Acq On : 17 May 2017 3:00 pm
 Sample : C1705036-009A
 Misc : T015
 MS Integration Params: rteint.p
 Quant Time: Jun 1 11:20 2017
 Quant Results File: I0511T15.RES
 Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration





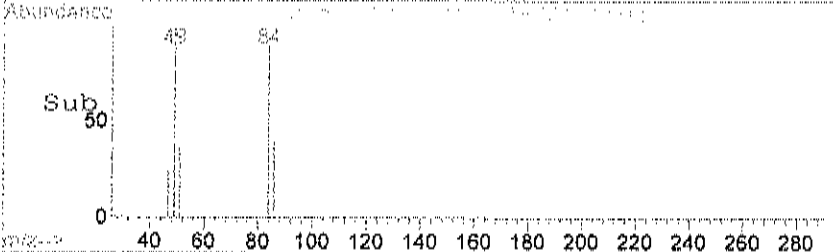
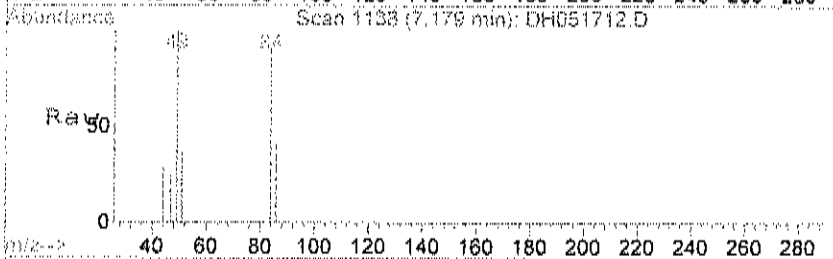
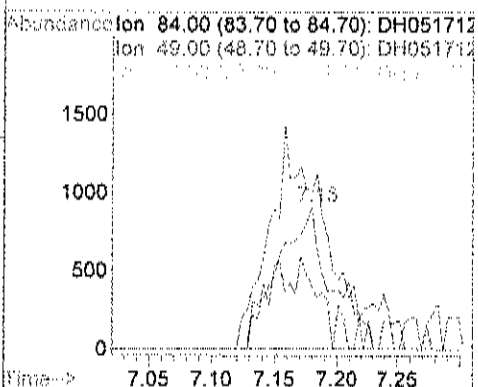
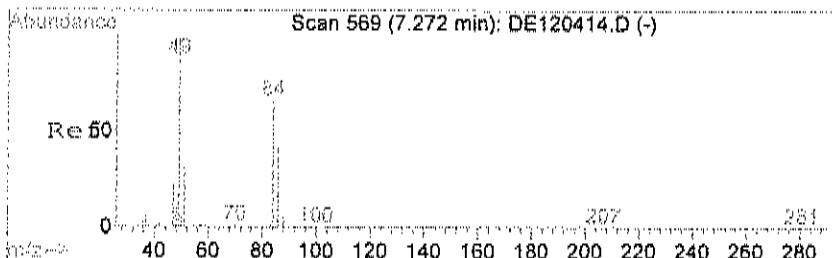
#16
Acetone
Concen: 2.70 ppb m
RT: 6.15 min Scan# 897
Delta R.T. 0.04 min
Lab File: DH051712.D
Acq: 17 May 2017 3:00 pm

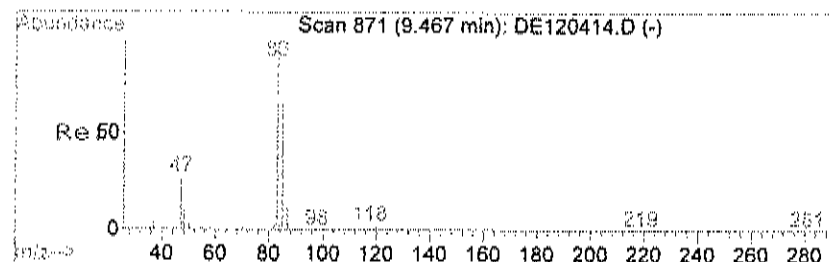
Tgt Ion: 43 Resp: 8163
Ion Ratio Lower Upper
43 100
58 8.2 3.7 43.7



#23
Methylene Chloride
Concen: 1.32 ppb m
RT: 7.18 min Scan# 1138
Delta R.T. 0.00 min
Lab File: DH051712.D
Acq: 17 May 2017 3:00 pm

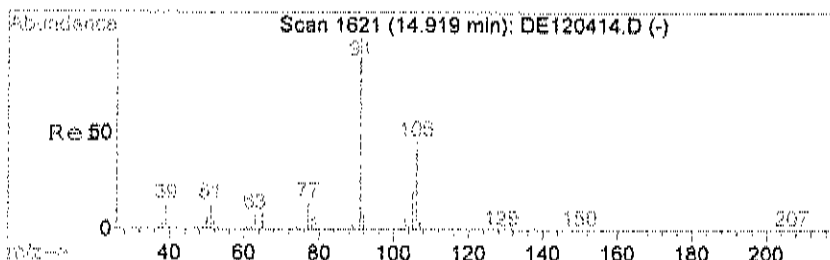
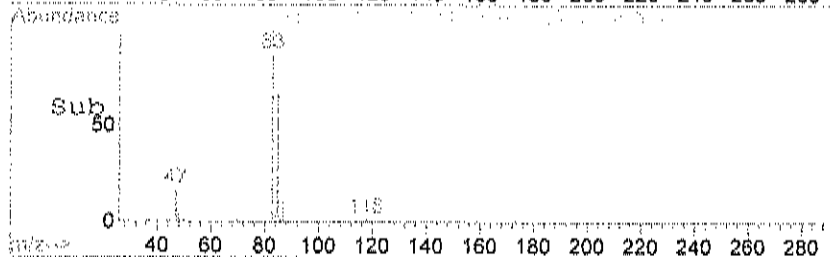
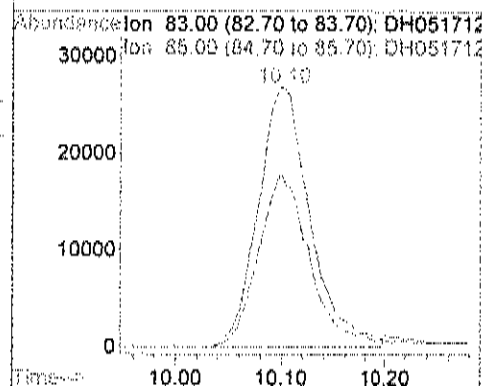
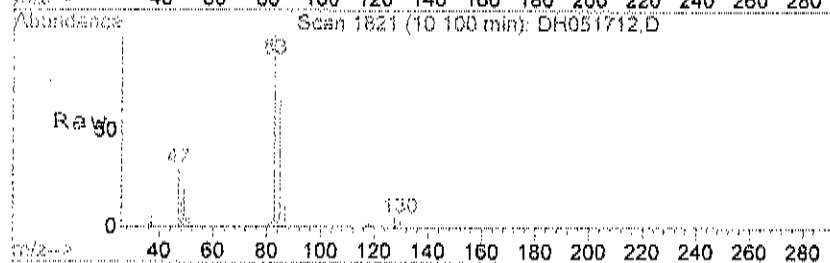
Tgt Ion: 84 Resp: 2730
Ion Ratio Lower Upper
84 100
49 0.0 124.3 164.3#
86 23.3 43.0 83.0#





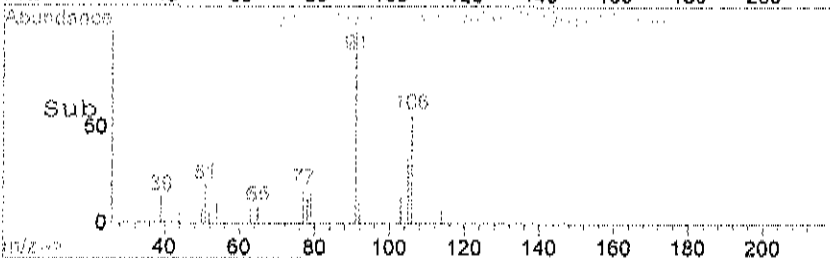
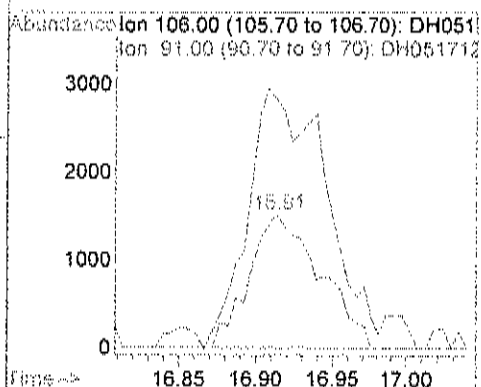
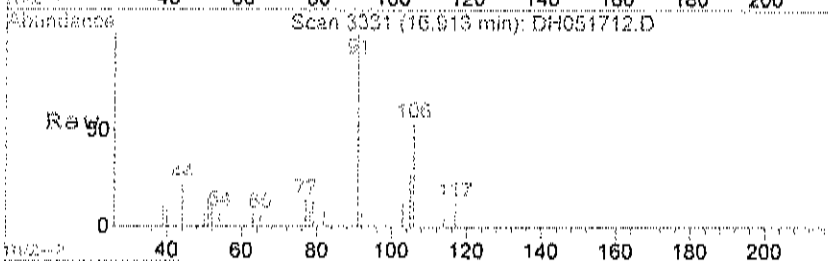
#33
Chloroform
Concen: 15.91 ppb
RT: 10.10 min Scan# 1821
Delta R.T. -0.01 min
Lab File: DH051712.D
Acq: 17 May 2017 3:00 pm

Tgt Ion: 83 Resp: 91518
Ion Ratio Lower Upper
83 100
85 66.2 43.5 83.5



#60
m&p-Xylene
Concen: 1.03 ppb
RT: 16.91 min Scan# 3331
Delta R.T. -0.02 min
Lab File: DH051712.D
Acq: 17 May 2017 3:00 pm

Tgt Ion: 106 Resp: 4892
Ion Ratio Lower Upper
106 100
91 119.6 202.1 242.1#



Data File : C:\HPCHEM\1\DATA2\DH051712.D

Acq On : 17 May 2017 3:00 pm

Sample : C1705036-009A

Misc : T015

MS Integration Params: LSCINT.P

Vial: 11

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Smoothing : ON

Filtering: 5

Sampling : 1

Min Area: 3 % of largest Peak

Start Thrs: 0.2

Max Peaks: 100

Stop Thrs : 0

Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >

Peak separation: 5

Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	9.950	1769	1786	1808	rBV3	136723	568264	53.16%	15.053%
2	10.100	1811	1821	1838	rVB2	70439	231502	21.65%	6.132%
3	12.177	2292	2307	2330	rBV	359933	1040056	97.29%	27.551%
4	16.484	3239	3249	3272	rBV	459093	1069063	100.00%	28.319%
5	17.950	3519	3529	3541	rBV	405749	866192	81.02%	22.945%

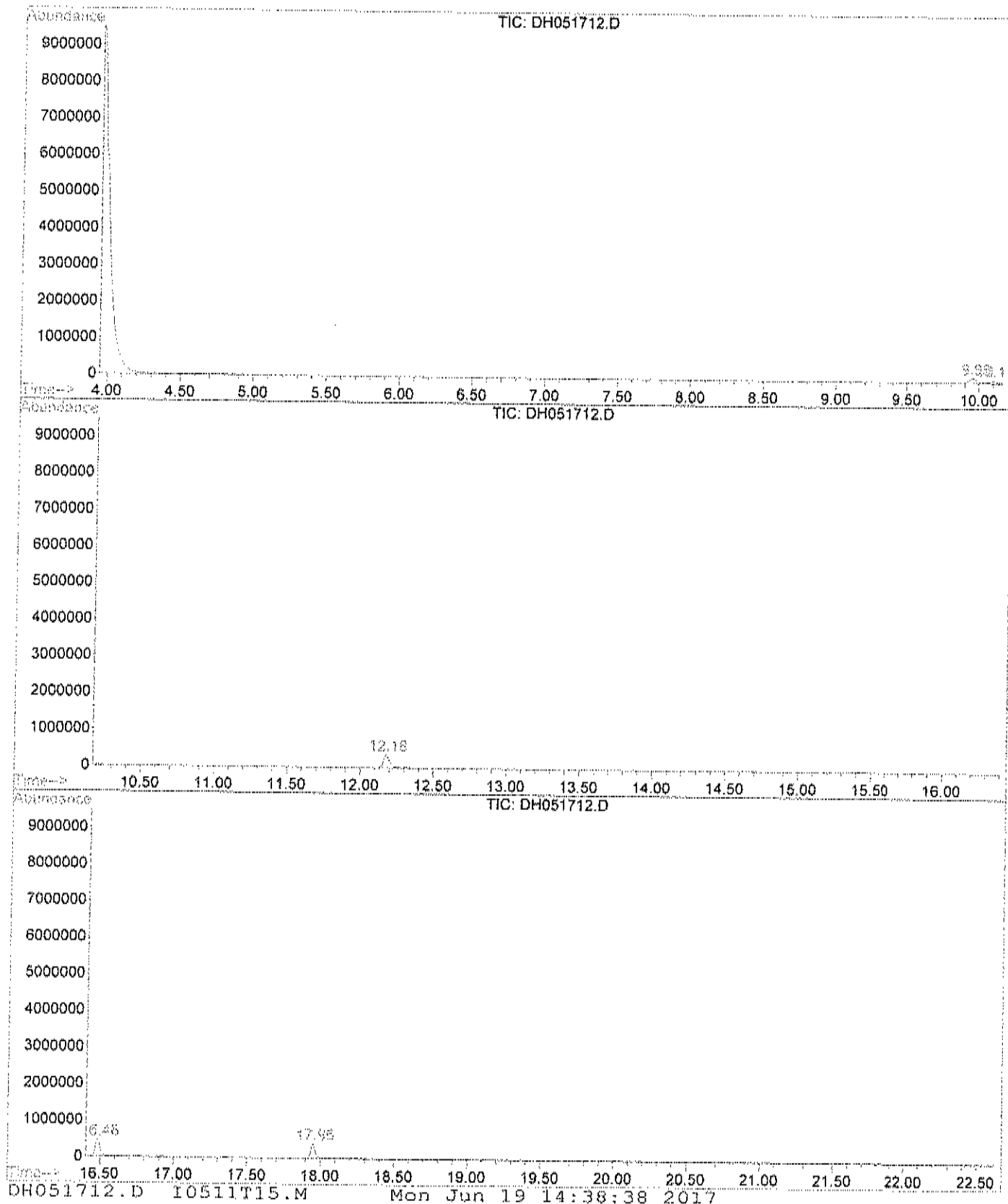
Sum of corrected areas: 3775077

DH051712.D I0511T15.M

Mon Jun 19 14:38:37 2017

LSC Report - Integrated Chromatogram

File : C:\HPCHEM\1\DATA2\DH051712.D
Operator : WD
Acquired : 17 May 2017 3:00 pm using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-009A
Misc Info : TO15
Vial Number: 11
Quant File : I0511T15.RES (RTE Integrator)



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 17 May 2017 3:00 pm
Data File: C:\HPCHEM\1\DATA2\DH051712.D
Name: C1705036-009A
Misc: TO1S
Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title: VOA Standards for 5 point calibration
Library Searched: C:\DATABASE\NIST129.L

TIC	Top	Hit	name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc

DH051712.D	I0511T15.M				Mon Jun 19 14:38:38 2017						

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-010A

Client Sample ID: WAT-SV07-050917
 Tag Number: 478.306
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	0.266	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	78.9	8.30		%	1	5/15/2017
Oxygen	21.0	0.880		%	1	5/15/2017
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/17/2017 3:49:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Acetone	58	100	J	ppbV	10	5/17/2017 4:24:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Benzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Chloroform	67	50		ppbV	10	5/17/2017 4:24:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-010A

Client Sample ID: WAT-SV07-050917
 Tag Number: 478.306
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Cyclohexane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 3:49:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Heptane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Hexane	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
m&p-Xylene	< 10	10		ppbV	1	5/17/2017 3:49:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 3:49:00 PM
Methyl Ethyl Ketone	< 10	10		ppbV	1	5/17/2017 3:49:00 PM
Methyl Isobutyl Ketone	95	100	J	ppbV	10	5/17/2017 4:24:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Methylene chloride	7.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Propylene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Toluene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Trichloroethene	16	5.0		ppbV	1	5/17/2017 3:49:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 3:49:00 PM
Surr: Bromofluorobenzene	86.8	73.7-124		%REC	1	5/17/2017 3:49:00 PM
TIC: Cyclotrisiloxane, octamethyl- \$S\$ Octam	60	0	JN	ppbV	1	5/17/2017 3:49:00 PM
TIC: Cyclotrisiloxane, hexamethyl	28	0	JN	ppbV	1	5/17/2017 3:49:00 PM
TIC: Silanol, trimethyl- \$S\$ Hydroxytrimethyls	6.1	0	JN	ppbV	1	5/17/2017 3:49:00 PM

LOW LEVEL SULFURS BY TO-15

TO-15

Analyst: WD

Qualifiers:	** Quantitation Limit	.	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
S	Spike Recovery outside accepted recovery limits		

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-010A

Client Sample ID: WAT-SV07-050917
 Tag Number: 478.306
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Carbon disulfide	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Hydrogen Sulfide	8.7	5.0		ppbV	1	5/16/2017 5:35:00 PM
Isopropyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Methyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 5:35:00 PM
Surr: Bromofluorobenzene	145	70-130	S	%REC	1	5/16/2017 5:35:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-010A

Client Sample ID: WAT-SV07-050917
 Tag Number: 478.306
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
SPPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 3:49:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 3:49:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 3:49:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 3:49:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 3:49:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 3:49:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 3:49:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 3:49:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 3:49:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 3:49:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/17/2017 3:49:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 3:49:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 3:49:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 3:49:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 3:49:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 3:49:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 3:49:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 3:49:00 PM
Acetone	140	240	J	ug/m3	10	5/17/2017 4:24:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 3:49:00 PM
Benzene	< 16	16		ug/m3	1	5/17/2017 3:49:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 3:49:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 3:49:00 PM
Bromoform	< 52	52		ug/m3	1	5/17/2017 3:49:00 PM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 3:49:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/17/2017 3:49:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 3:49:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 3:49:00 PM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 3:49:00 PM
Chloroform	330	240		ug/m3	10	5/17/2017 4:24:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 3:49:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 3:49:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 3:49:00 PM
Cyclohexane	< 17	17		ug/m3	1	5/17/2017 3:49:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 3:49:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 3:49:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 3:49:00 PM
Freon 11	< 28	28		ug/m3	1	5/17/2017 3:49:00 PM
Freon 113	< 38	38		ug/m3	1	5/17/2017 3:49:00 PM
Freon 114	< 35	35		ug/m3	1	5/17/2017 3:49:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-010A

Client Sample ID: WAT-SV07-050917
 Tag Number: 478.306
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 3:49:00 PM
Heptane	< 20	20		ug/m3	1	5/17/2017 3:49:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 3:49:00 PM
Hexane	< 18	18		ug/m3	1	5/17/2017 3:49:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 3:49:00 PM
m&p-Xylene	< 43	43		ug/m3	1	5/17/2017 3:49:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 3:49:00 PM
Methyl Ethyl Ketone	< 29	29		ug/m3	1	5/17/2017 3:49:00 PM
Methyl Isobutyl Ketone	390	410	J	ug/m3	10	5/17/2017 4:24:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 3:49:00 PM
Methylene chloride	24	17		ug/m3	1	5/17/2017 3:49:00 PM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 3:49:00 PM
Propylene	< 8.6	8.6		ug/m3	1	5/17/2017 3:49:00 PM
Styrene	< 21	21		ug/m3	1	5/17/2017 3:49:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/17/2017 3:49:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 3:49:00 PM
Toluene	< 19	19		ug/m3	1	5/17/2017 3:49:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 3:49:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 3:49:00 PM
Trichloroethene	86	27		ug/m3	1	5/17/2017 3:49:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 3:49:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 3:49:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 3:49:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 5:35:00 PM
Carbon disulfide	< 16	16		ug/m3	1	5/16/2017 5:35:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 5:35:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 5:35:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 5:35:00 PM
Hydrogen Sulfide	12	7.0		ug/m3	1	5/16/2017 5:35:00 PM
Isopropyl mercaptan	< 16	16		ug/m3	1	5/16/2017 5:35:00 PM
Methyl mercaptan	< 9.8	9.8		ug/m3	1	5/16/2017 5:35:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte, Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Data File : C:\HPCHEM\1\DATA\DH051713.D

Vial: 12

Acq On : 17 May 2017 3:49 pm

Operator: WD

Sample : C1705036-010A

Inst : GCMS3

Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: Jun 1 11:33 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.94	128	82314m	50.00	ppb	-0.02
40) 1,4-difluorobenzene	12.17	114	437234	50.00	ppb	-0.01
57) Chlorobenzene-d5	16.48	117	357549	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	220179	43.41	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	86.82%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
16) Acetone	6.08	43	555630	179.52	ppb	91
23) Methylene Chloride	7.16	84	14922	7.04	ppb	# 87
33) Chloroform	10.09	83	1582707	268.59	ppb	99
43) Trichloroethene	12.77	130	55105	16.08	ppb	96
48) Methyl Isobutyl Ketone	13.86	43	2708108	367.48	ppb	96
60) m&p-Xylene	16.91	106	7874	1.46	ppb	97

 (#) = qualifier out of range (m) = manual integration

DH051713.D I0511T15.M Thu Jun 01 11:51:27 2017

Page 1

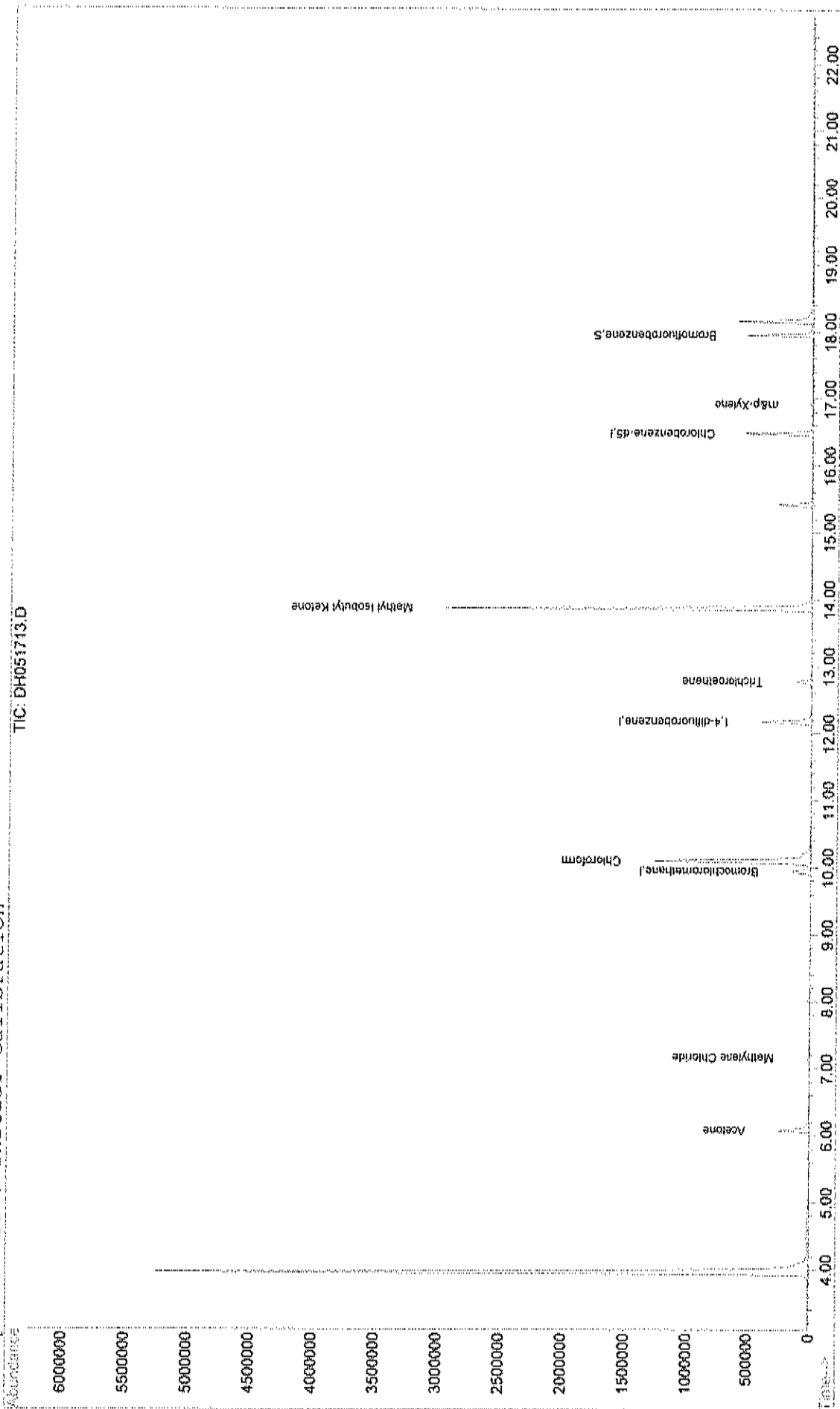
Quantitation Report

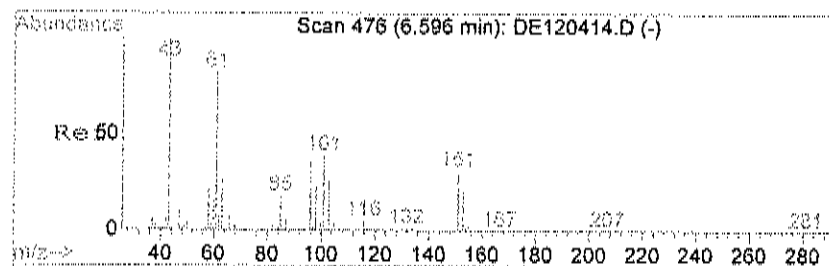
Data File : C:\HPCHEM\1\DATA\DH051713.D
Acq On : 17 May 2017 3:49 pm
Sample : C1705036-010A
Misc : TO15
MS Integration Params: rteint.p
Quant Time: Jun 1 11:33 2017

Vial: 12
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

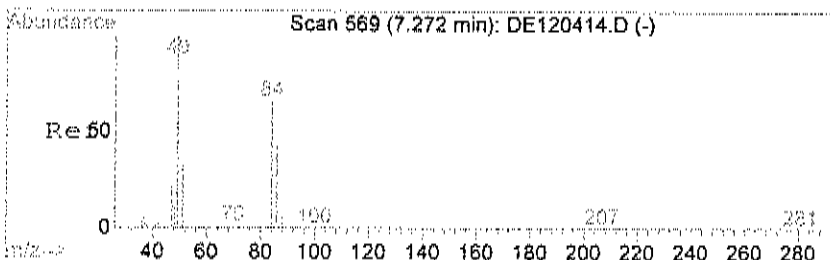
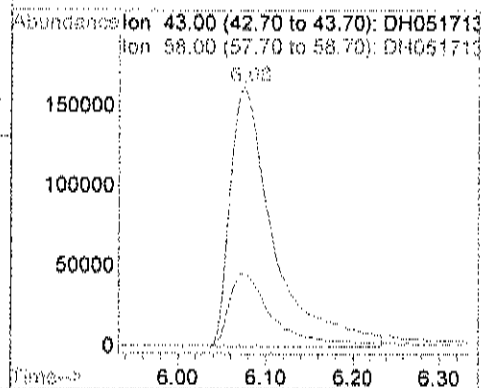
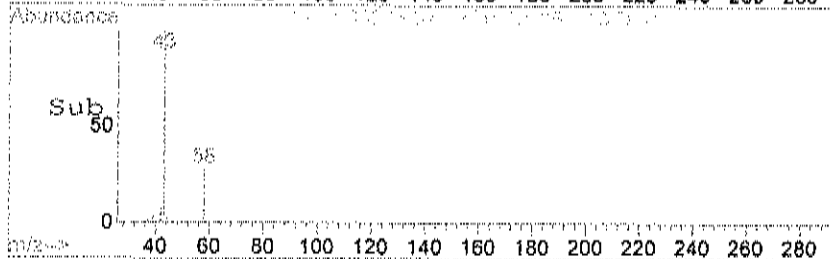
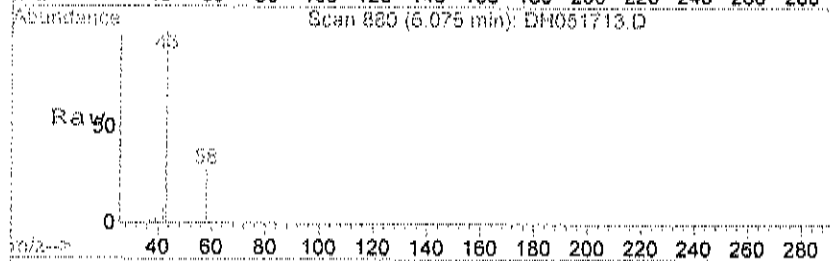
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





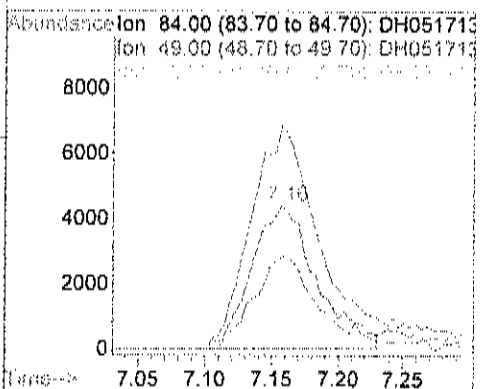
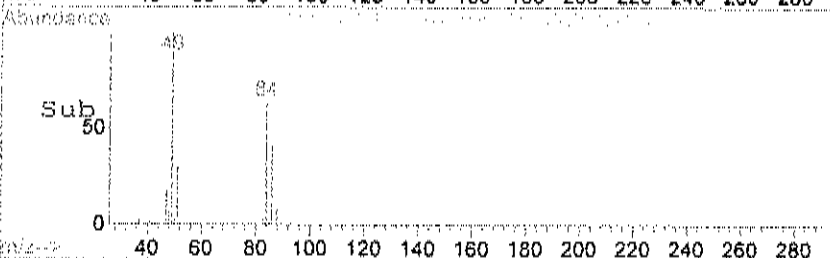
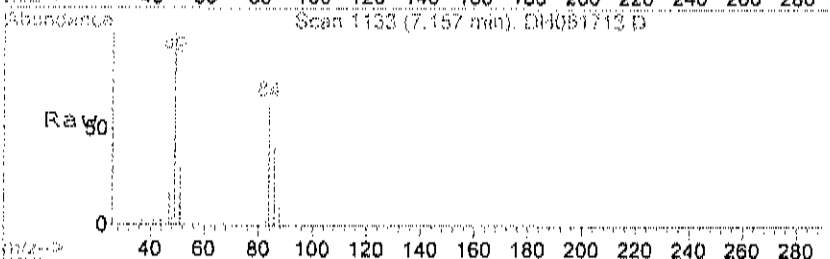
#16
Acetone
Concen: 179.52 ppb
RT: 6.08 min Scan# 880
Delta R.T. -0.04 min
Lab File: DH051713.D
Acq: 17 May 2017 3:49 pm

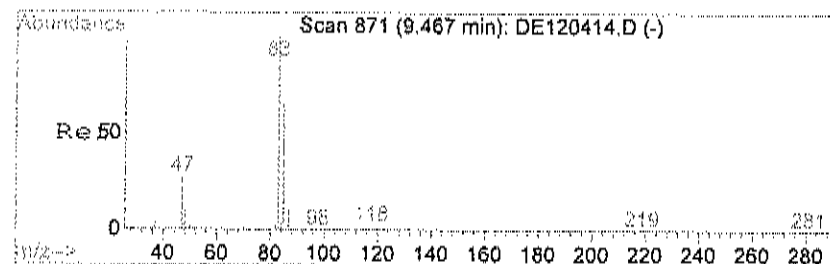
Tgt Ion	Ratio	Lower	Upper
43	100		
58	28.0	3.7	43.7



#23
Methylene Chloride
Concen: 7.04 ppb
RT: 7.16 min Scan# 1133
Delta R.T. -0.02 min
Lab File: DH051713.D
Acq: 17 May 2017 3:49 pm

Tgt Ion	Ratio	Lower	Upper
84	100		
49	165.1	124.3	164.3#
86	59.6	43.0	83.0





#33

Chloroform

Concen: 268.59 ppb

RT: 10.09 min Scan# 1820

Delta R.T. -0.02 min

Lab File: DH051713.D

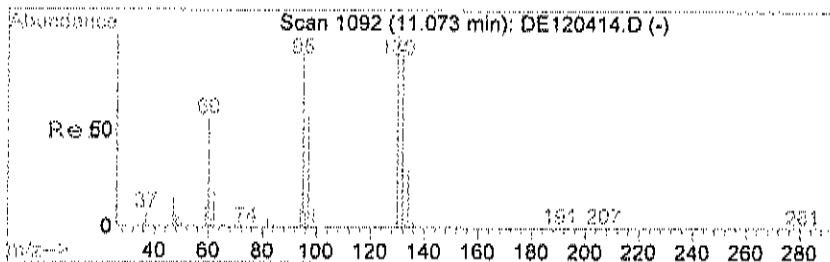
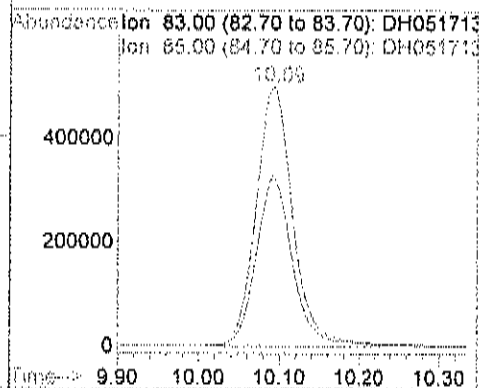
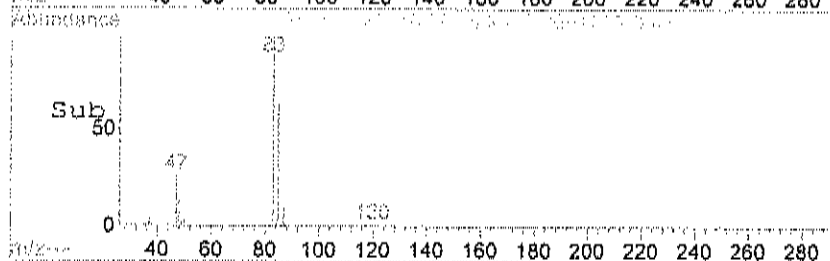
Acq: 17 May 2017 3:49 pm

Tgt Ion: 83 Resp: 1582707

Ion Ratio Lower Upper

83 100

85 64.6 43.5 83.5



#43

Trichloroethene

Concen: 16.08 ppb

RT: 12.77 min Scan# 2446

Delta R.T. -0.01 min

Lab File: DH051713.D

Acq: 17 May 2017 3:49 pm

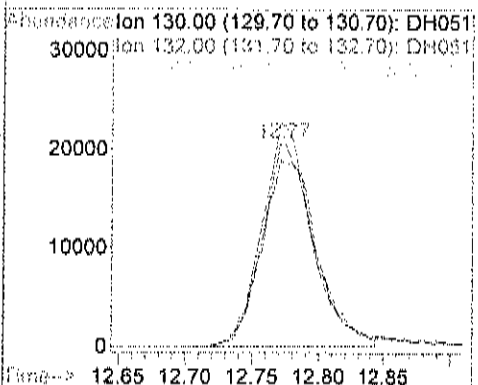
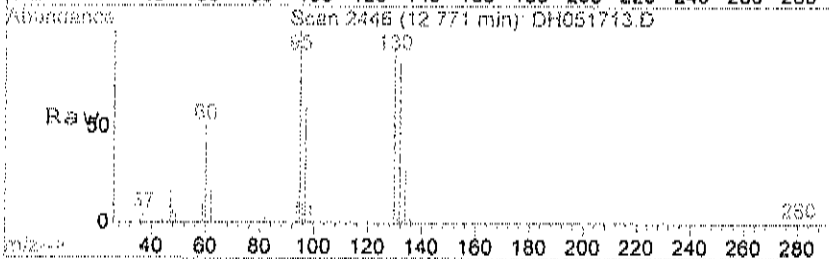
Tgt Ion: 130 Resp: 55105

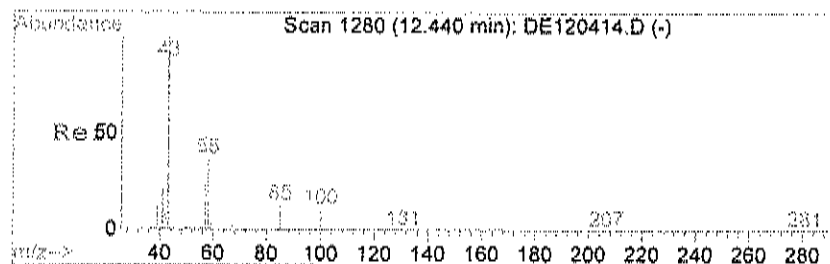
Ion Ratio Lower Upper

130 100

132 99.2 77.9 117.9

95 113.1 85.8 125.8





#48

Methyl Isobutyl Ketone

Concen: 367.48 ppb

RT: 13.86 min Scan# 2701

Delta R.T. -0.01 min

Lab File: DH051713.D

Acq: 17 May 2017 3:49 pm

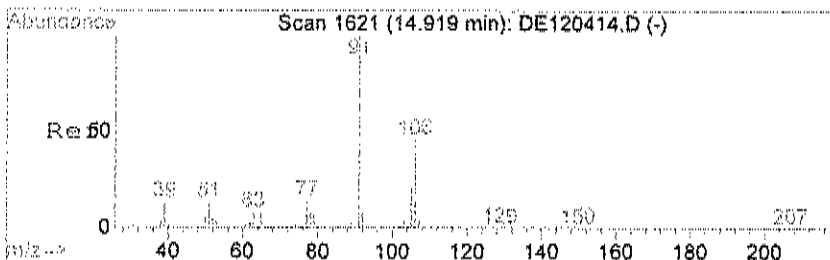
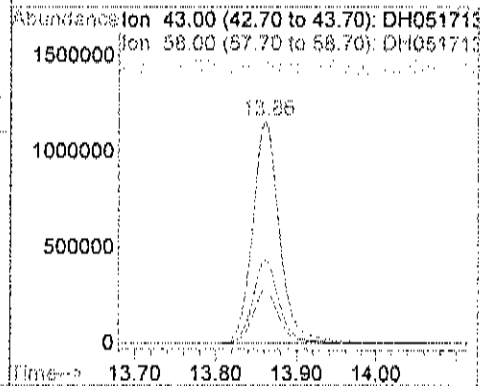
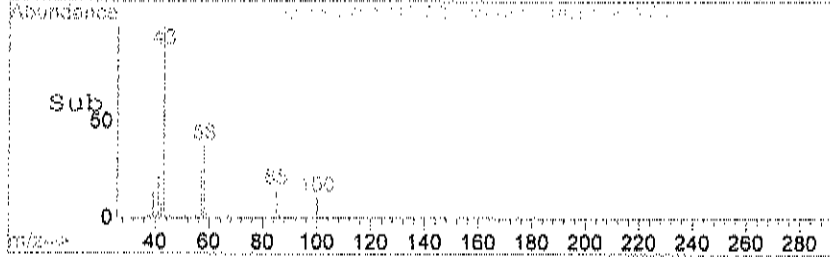
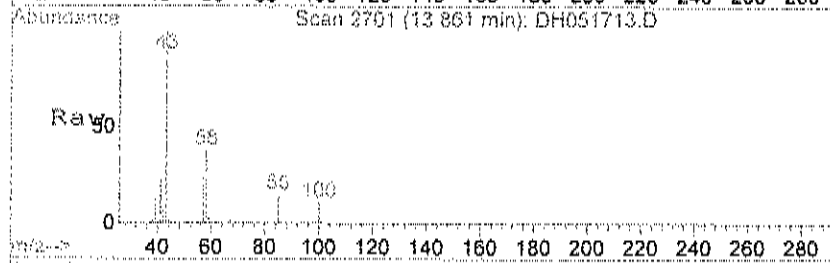
Tgt Ion: 43 Resp: 2708108

Ion Ratio Lower Upper

43 100

58 36.3 15.8 55.8

57 23.0 6.8 46.8



#60

m&p-Xylene

Concen: 1.46 ppb

RT: 16.91 min Scan# 3330

Delta R.T. -0.03 min

Lab File: DH051713.D

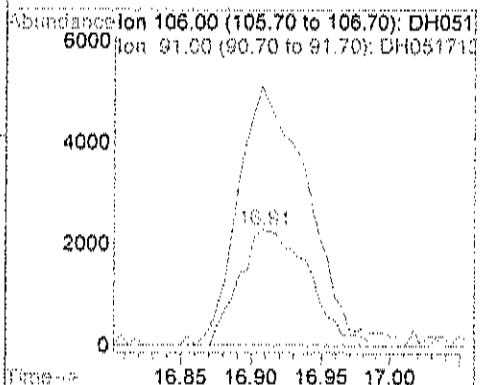
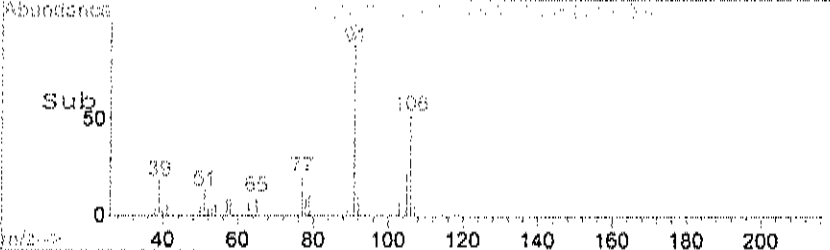
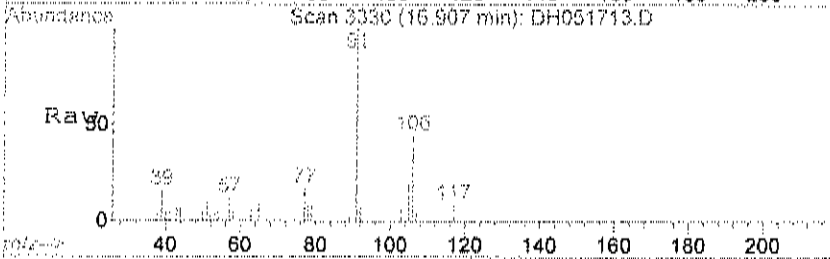
Acq: 17 May 2017 3:49 pm

Tgt Ion: 106 Resp: 7874

Ion Ratio Lower Upper

106 100

91 226.3 202.1 242.1



Data File : C:\HPCHEM\1\DATA2\DH051713.D
Acq On : 17 May 2017 3:49 pm
Sample : C1705036-010A
Misc : T015
MS Integration Params: LSCINT.P

Vial: 12
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 3 % of largest Peak
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

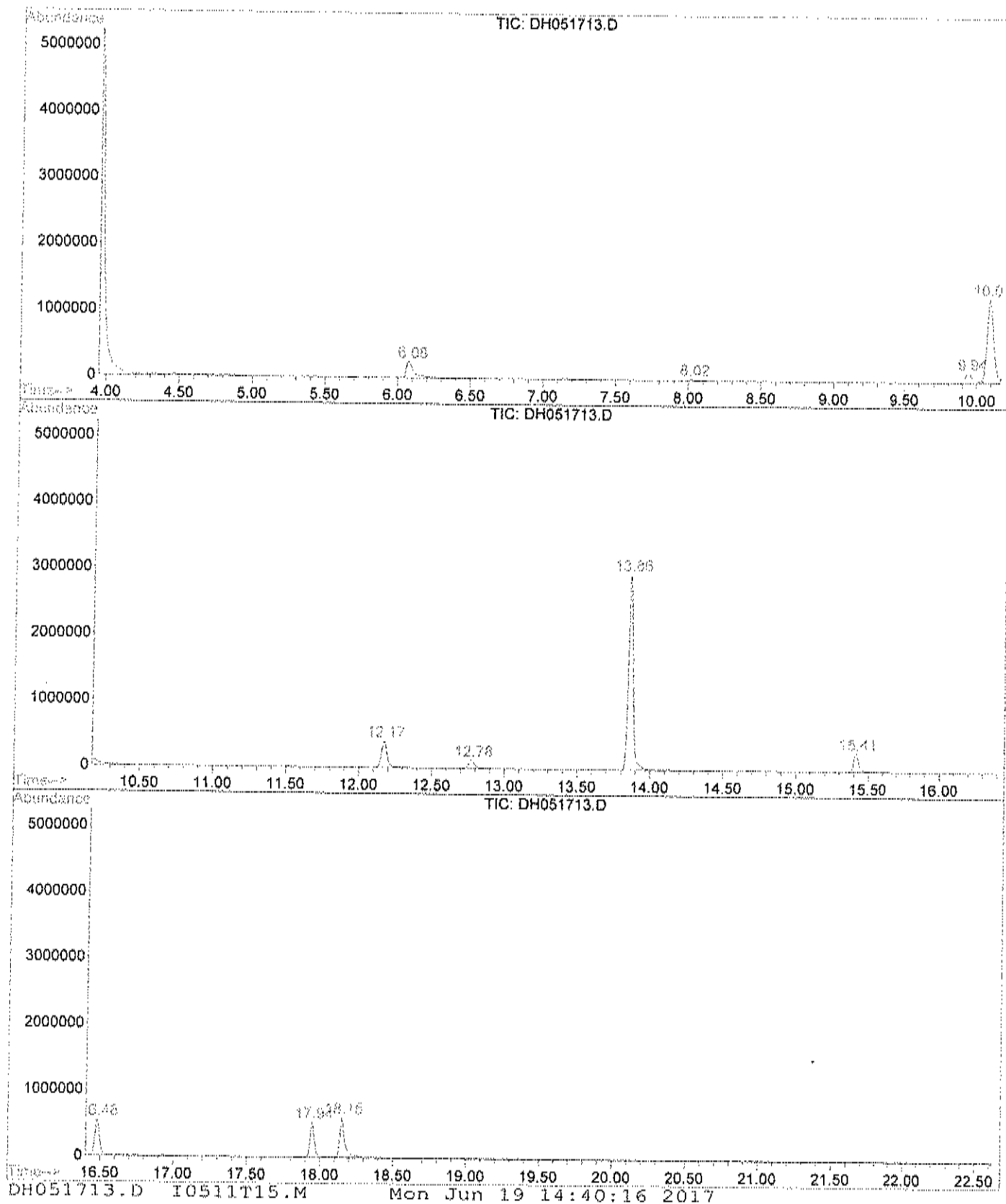
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	6.075	871	880	909	rBV	248542	843786	12.45%	4.694%
2	8.016	1320	1334	1347	rBV	24574	71281	1.05%	0.397%
3	9.940	1766	1784	1803	rBV3	153757	581752	8.58%	3.236%
4	10.090	1803	1819	1836	rBV	1256011	3839996	56.66%	21.362%
5	12.172	2290	2306	2332	rBV	401078	1095976	16.17%	6.097%
6	12.775	2424	2447	2462	rBV	123489	347750	5.13%	1.935%
7	13.861	2685	2701	2735	rBV	2958726	6777709	100.00%	37.704%
8	15.415	3030	3045	3064	rBV	278237	676023	9.97%	3.761%
9	16.478	3239	3248	3265	rBV	541205	1215010	17.93%	6.759%
10	17.944	3519	3528	3542	rBV	530364	1076233	15.88%	5.987%
11	18.148	3559	3567	3593	rBV	600265	1450690	21.40%	8.070%

Sum of corrected areas: 17976206

DH051713.D I0511T15.M Mon Jun 19 14:40:14 2017

LSC Report - Integrated Chromatogram

File : C:\HPCHEM\1\DATA2\DH051713.D
Operator : WD
Acquired : 17 May 2017 3:49 pm using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-010A
Misc Info : TO15
Vial Number: 12
Quant File : I0511T15.RES (RTE Integrator)



Data File : C:\HPCHEM\1\DATA2\DH051713.D
Acq On : 17 May 2017 3:49 pm
Sample : C1705036-010A
Misc : TO15
MS Integration Params: LSCINT.P

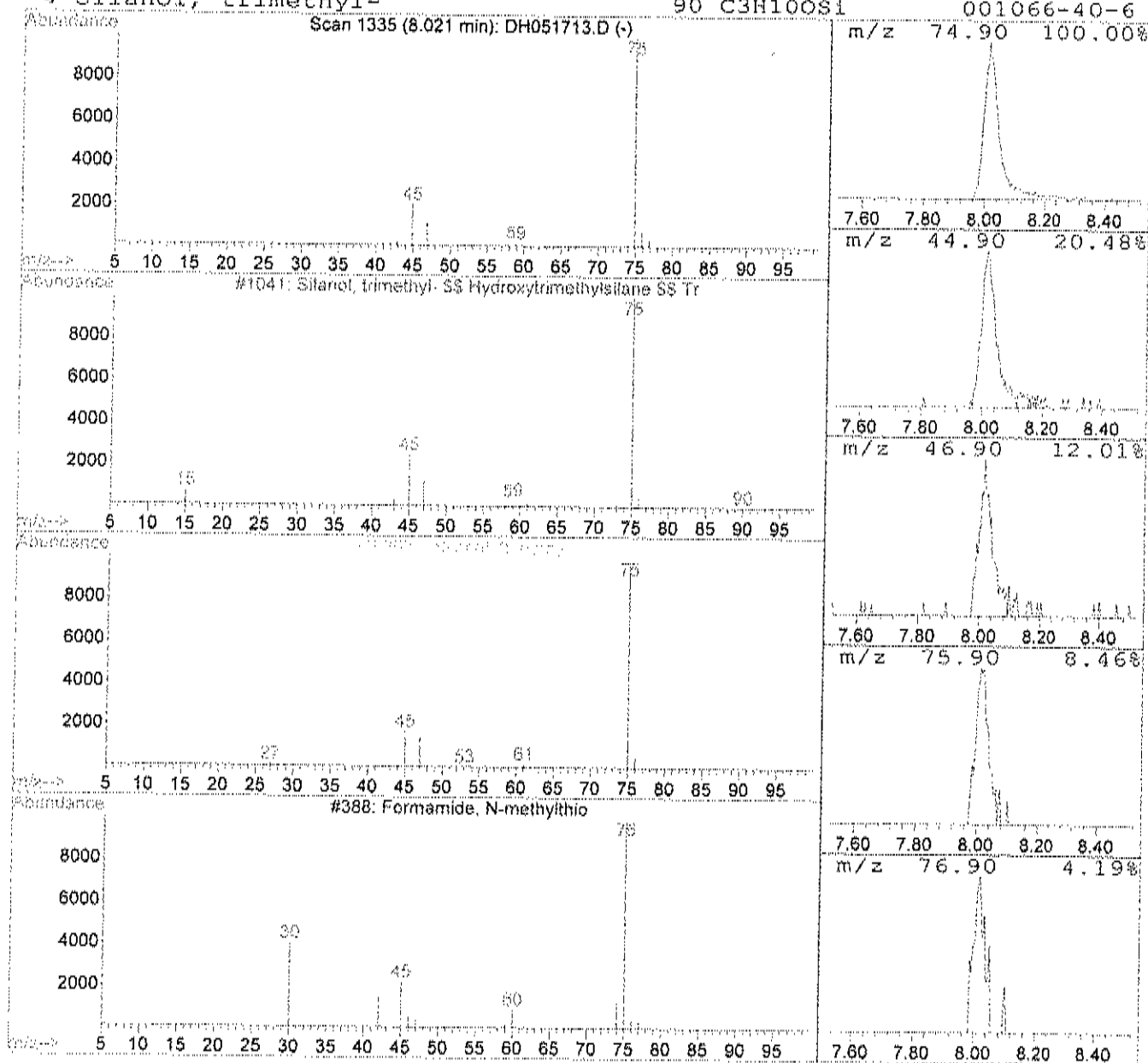
Vial: 12
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 1 Silanol, trimethyl- \$\$ Hydroxy Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
8.02	6.13 ppb	71281	Bromochloromethane	9.94

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Silanol, trimethyl- \$\$ Hydroxytrime	90	C3H10OSi	001066-40-6	83
2	Silanol, trimethyl-	90	C3H10OSi	001066-40-6	83
3	Formamide, N-methylthio	75	C2H5NS	000000-00-0	78
4	Silanol, trimethyl-	90	C3H10OSi	001066-40-6	78



Data File : C:\HPCHEM\1\DATA2\DH051713.D
Acq On : 17 May 2017 3:49 pm
Sample : C1705036-010A
Misc : TO15
MS Integration Params: LSCINT.P

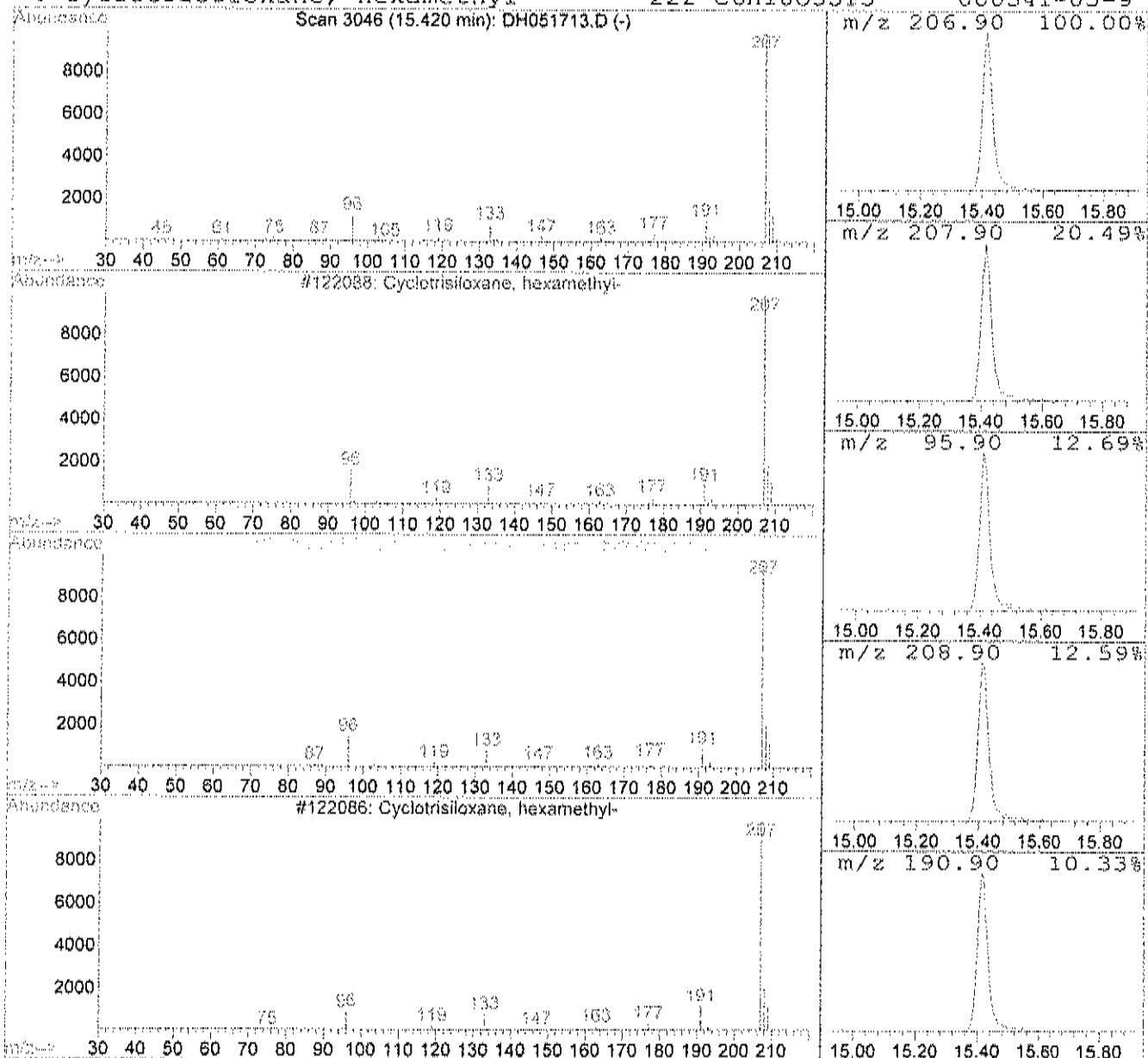
Vial: 12
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 2 Cyclotrisiloxane, hexamethyl- Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
15.42	27.82 ppb	676023	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	91
2			Cyclotrisiloxane, hexamethyl- \$\$ D1	222	C6H18O3Si3	000541-05-9	91
3			Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	91
4			Cyclotrisiloxane, hexamethyl-	222	C6H18O3Si3	000541-05-9	80



Data File : C:\HPCHEM\1\DATA2\DH051713.D
Acq On : 17 May 2017 3:49 pm
Sample : C1705036-010A
Misc : TO15
MS Integration Params: LSCINT.P

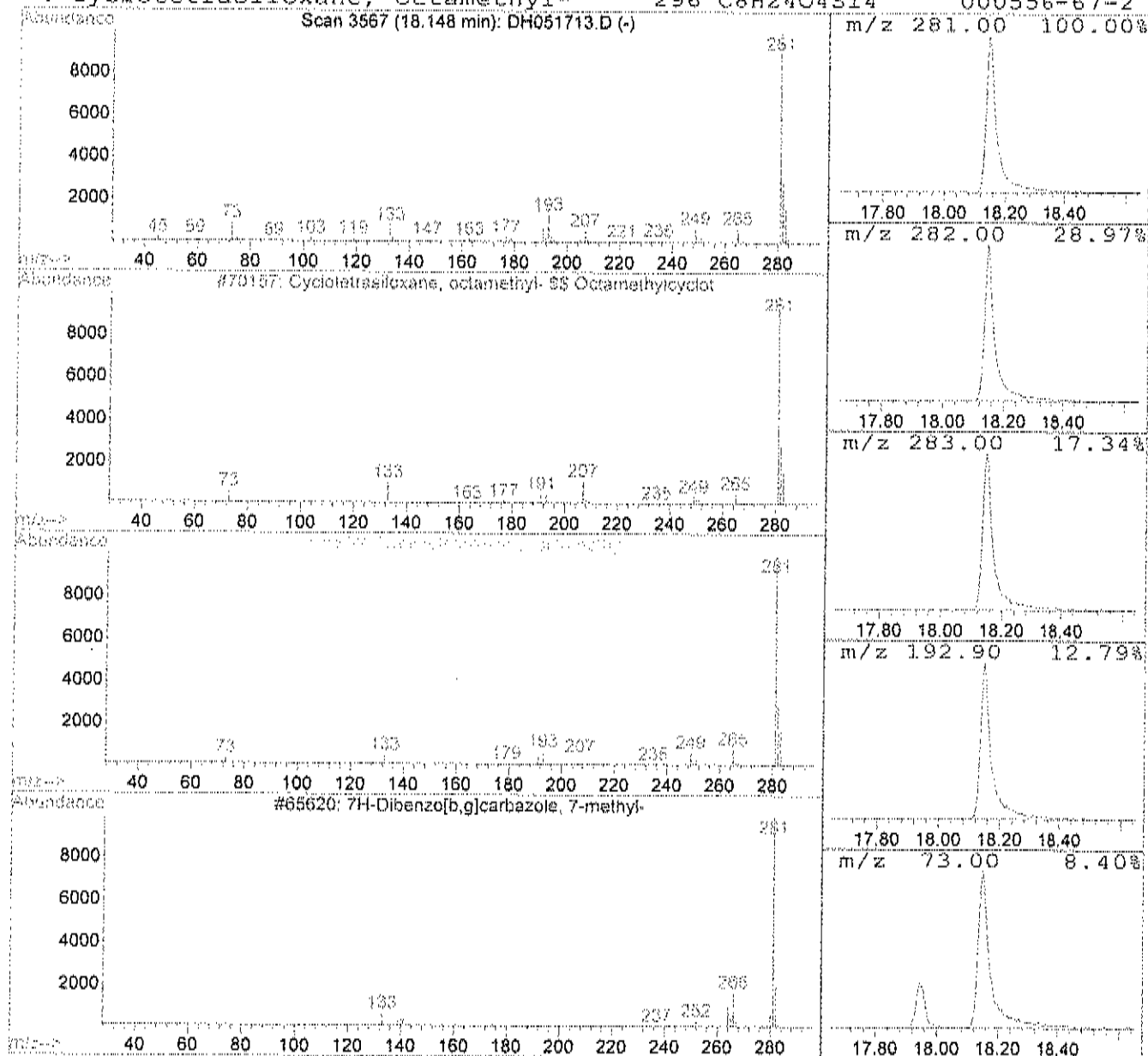
Vial: 12
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 3 Cyclotetrasiloxane, octamethyl Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
18.15	59.70 ppb	1450690	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	86
2			Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	86
3			7H-Dibenzo[b,g]carbazole, 7-methyl-	281	C21H15N	003557-49-1	53
4			Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	38



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 17 May 2017 3:49 pm
Data File: C:\HPCHEM\1\DATA2\DH051713.D
Name: C1705036-010A
Misc: TO15
Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title: VOA Standards for 5 point calibration
Library Searched: C:\DATABASE\NIST129.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc
Silanol, trimethyl-	8.02	6.1	ppb	71281	ISTD01	9.94	581752	50.0
Cyclotrisiloxane, he	15.42	27.8	ppb	676023	ISTD03	16.48	1215010	50.0
Cyclotetrasiloxane,	18.15	59.7	ppb	1450690	ISTD03	16.48	1215010	50.0

DH051713.D I0511T15.M Mon Jun 19 14:40:23 2017

Data File : C:\HPCHEM\1\DATA\DH051714.D

Vial: 12

Acq On : 17 May 2017 4:24 pm

Operator: WD

Sample : C1705036-010A 10X

Inst : GCMS3

Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: Jun 1 11:35 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.96	128	75812m	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	383303	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	301386	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	156758	36.67	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	73.34%

Target Compounds

						Qvalue
16) Acetone	6.14	43	10535	3.70	ppb	83
33) Chloroform	10.11	83	36512	6.73	ppb	98
48) Methyl Isobutyl Ketone	13.87	43	61374	9.50	ppb	93

(#) = qualifier out of range (m) = manual integration

DH051714.D I0511T15.M Thu Jun 01 11:51:35 2017

Page 1

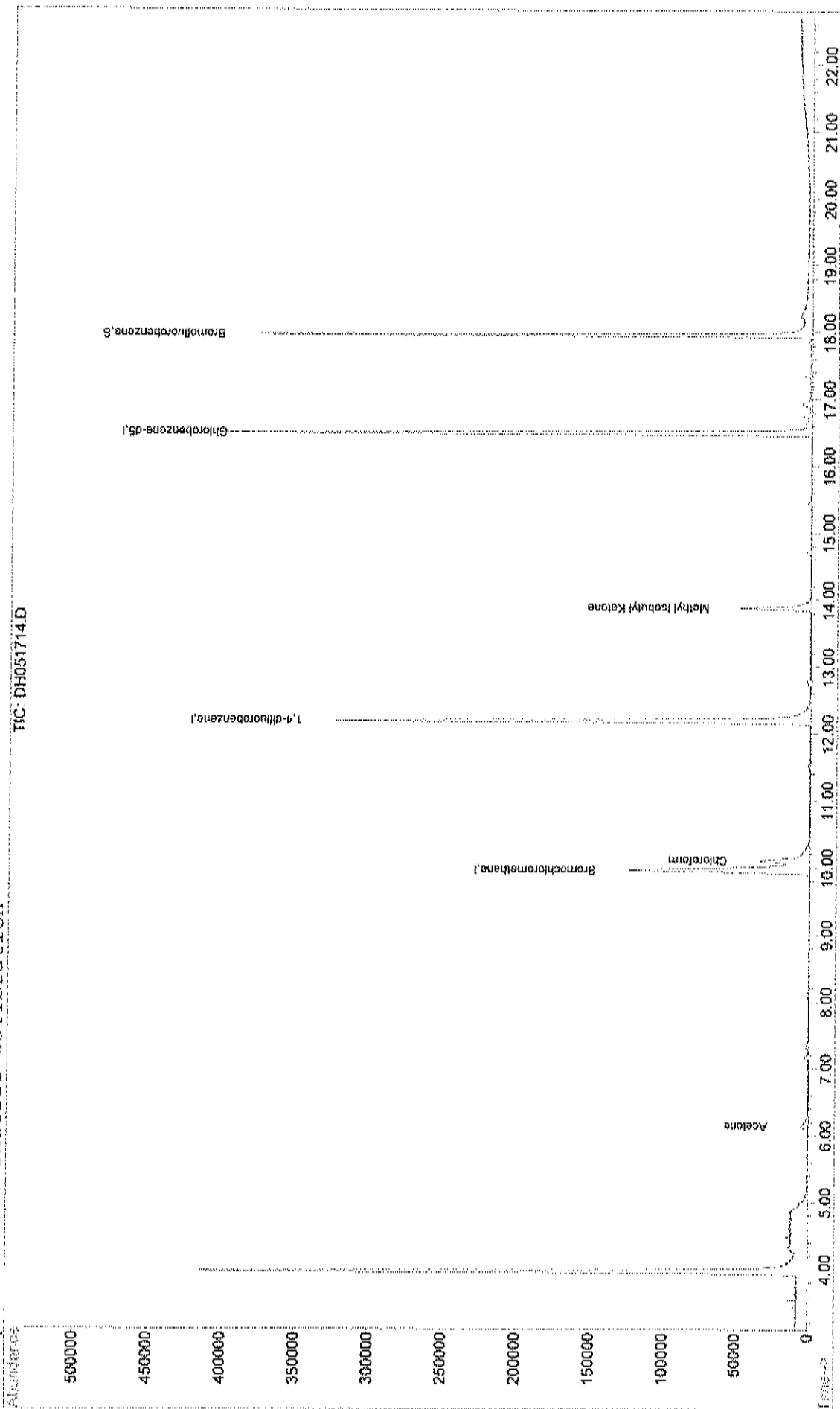
Quantitation Report

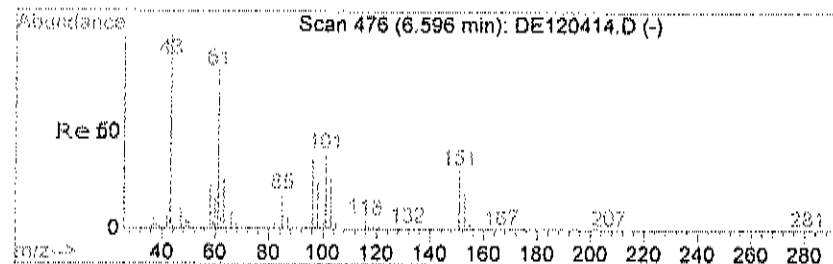
Data File : C:\HPCHEM\1\DATA\DH051714.D
Acq On : 17 May 2017 4:24 pm
Sample : C1705036-010A 10X
Misc : T015
MS Integration Params: rteint.p
Quant Time: Jun 1 11:35 2017

Vial: 12
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

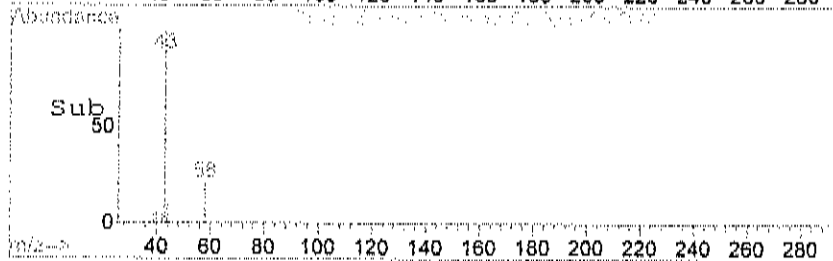
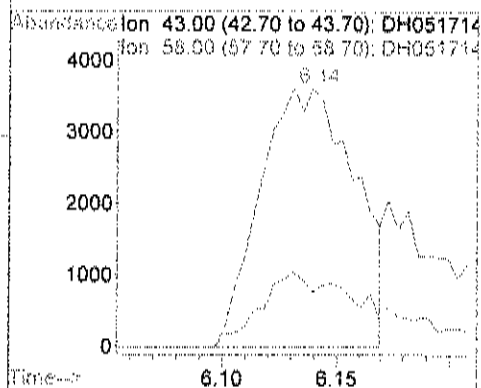
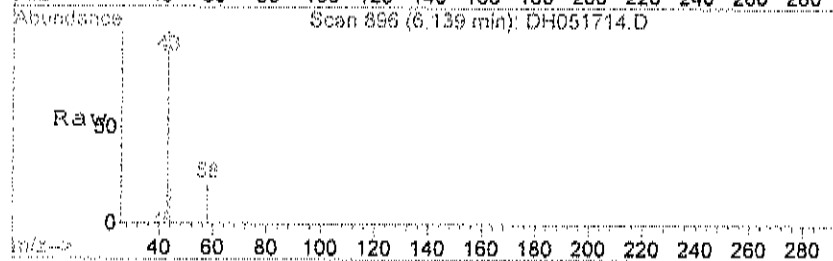
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





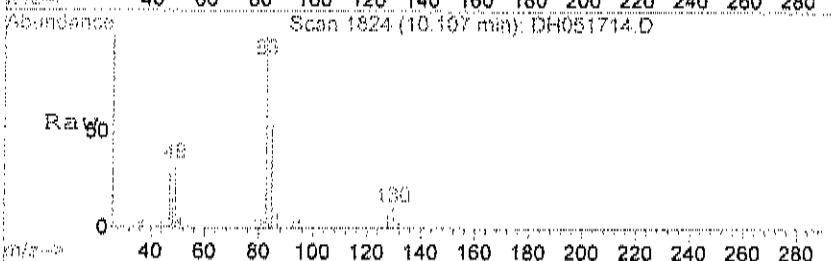
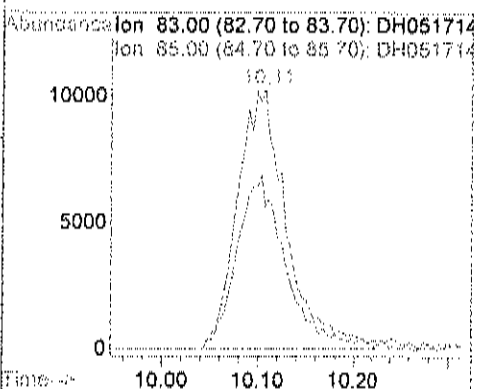
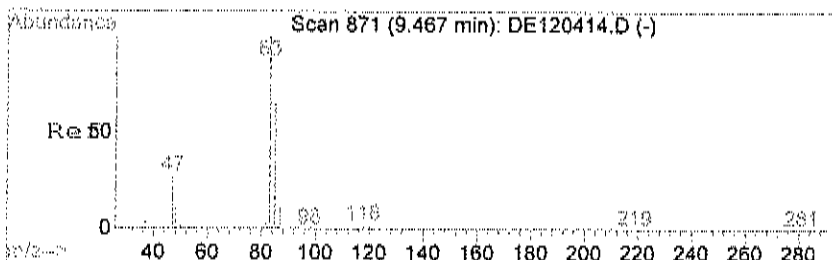
#16
Acetone
Concen: 3.70 ppb
RT: 6.14 min Scan# 896
Delta R.T. 0.03 min
Lab File: DH051714.D
Acq: 17 May 2017 4:24 pm

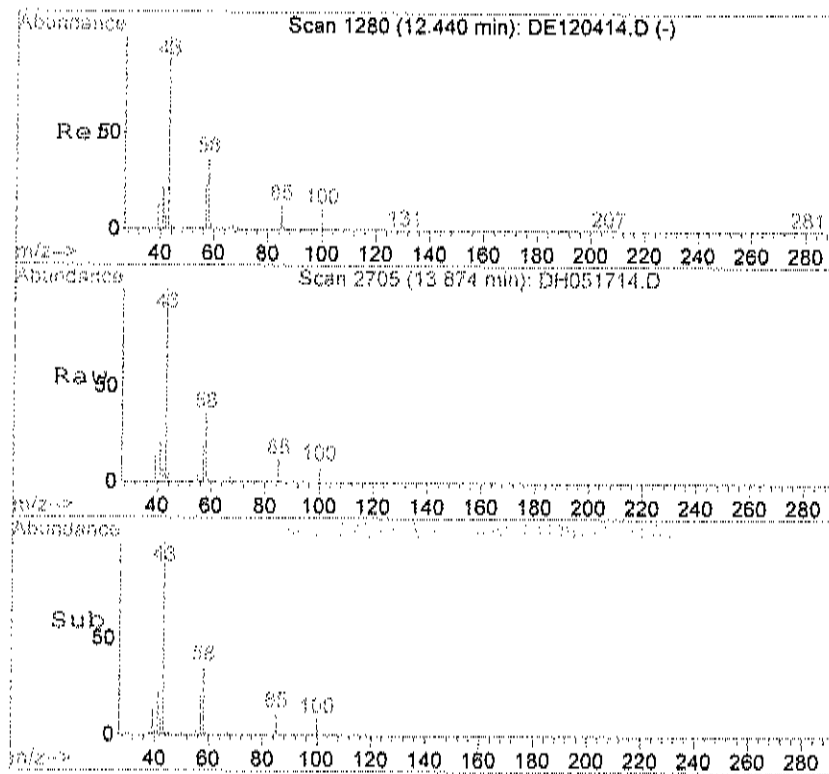
Tgt Ion: 43 Resp: 10535
Ion Ratio Lower Upper
43 100
58 15.2 3.7 43.7



#33
Chloroform
Concen: 6.73 ppb
RT: 10.11 min Scan# 1824
Delta R.T. -0.01 min
Lab File: DH051714.D
Acq: 17 May 2017 4:24 pm

Tgt Ion: 83 Resp: 36512
Ion Ratio Lower Upper
83 100
85 65.2 43.5 83.5





#48

Methyl Isobutyl Ketone

Concen: 9.50 ppb

RT: 13.87 min Scan# 2705

Delta R.T. -0.00 min

Lab File: DH051714.D

Acq: 17 May 2017 4:24 pm

Tgt Ion: 43 Resp: 61374

Ion Ratio Lower Upper

43 100

58 32.7 15.8 55.8

57 21.5 6.8 46.8

Abundance Ion 43.00 (42.70 to 43.70): DH051714

Ion 58.00 (57.70 to 58.70): DH051714

Time-->

13.87

25000

20000

15000

10000

5000

0

13.80 13.90 14.00

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-011A

Client Sample ID: WAT-SV08-050917
 Tag Number: 427.79
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-6			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	0.0270	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	ND	0.580		%	1	5/15/2017
Nitrogen	79.1	8.30		%	1	5/15/2017
Oxygen	20.4	0.880		%	1	5/15/2017
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,1,2,2-Tetrachloroethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,1,2-Trichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,1-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,1-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,2,4-Trichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,2,4-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,2-Dibromoethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,2-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,2-Dichloroethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,2-Dichloropropane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,3,5-Trimethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,3-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,4-Dichlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
1,4-Dioxane	< 10	10		ppbV	1	5/17/2017 5:01:00 PM
2,2,4-trimethylpentane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
4-ethyltoluene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Acetone	88	50		ppbV	5	5/17/2017 5:36:00 PM
Allyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Benzene	6.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Benzyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Bromodichloromethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Bromoform	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Bromomethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Carbon disulfide	8.9	5.0		ppbV	1	5/17/2017 5:01:00 PM
Carbon tetrachloride	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Chlorobenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Chloroethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Chloroform	19	5.0		ppbV	1	5/17/2017 5:01:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-011A

Client Sample ID: WAT-SV08-050917
 Tag Number: 427.79
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
cis-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
cis-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Cyclohexane	8.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Dibromochloromethane	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Ethyl acetate	< 10	10		ppbV	1	5/17/2017 5:01:00 PM
Ethylbenzene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Freon 11	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Freon 113	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Freon 114	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Freon 12	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Heptane	9.8	5.0		ppbV	1	5/17/2017 5:01:00 PM
Hexachloro-1,3-butadiene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Hexane	12	5.0		ppbV	1	5/17/2017 5:01:00 PM
Isopropyl alcohol	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
m&p-Xylene	6.9	10	J	ppbV	1	5/17/2017 5:01:00 PM
Methyl Butyl Ketone	< 10	10		ppbV	1	5/17/2017 5:01:00 PM
Methyl Ethyl Ketone	9.0	10	J	ppbV	1	5/17/2017 5:01:00 PM
Methyl Isobutyl Ketone	56	10		ppbV	1	5/17/2017 5:01:00 PM
Methyl tert-butyl ether	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Methylene chloride	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
o-Xylene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Propylene	52	5.0		ppbV	1	5/17/2017 5:01:00 PM
Styrene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Tetrachloroethylene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Tetrahydrofuran	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Toluene	11	5.0		ppbV	1	5/17/2017 5:01:00 PM
trans-1,2-Dichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
trans-1,3-Dichloropropene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Trichloroethene	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Vinyl acetate	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Vinyl Bromide	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Vinyl chloride	< 5.0	5.0		ppbV	1	5/17/2017 5:01:00 PM
Surr: Bromofluorobenzene	91.8	73.7-124		%REC	1	5/17/2017 5:01:00 PM
TIC: 1-Propene, 2-methyl-	15	0	JN	ppbV	1	5/17/2017 5:01:00 PM
TIC: Butane	28	0	JN	ppbV	1	5/17/2017 5:01:00 PM
TIC: Butane, 2,3-dimethyl- \$\$	19	0	JN	ppbV	1	5/17/2017 5:01:00 PM
Biisopropyl \$\$						
TIC: Butane, 2-methyl-	24	0	JN	ppbV	1	5/17/2017 5:01:00 PM
TIC: Cyclohexane, methyl-	21	0	JN	ppbV	1	5/17/2017 5:01:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 32 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-011A

Client Sample ID: WAT-SV08-050917
 Tag Number: 427.79
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
TIC: Cyclopentane, methyl-	19	0	JN	ppbV	1	5/17/2017 5:01:00 PM
TIC: Hydrogen sulfide \$\$	980	0	JN	ppbV	1	5/17/2017 5:01:00 PM
Dihydrogen monosulfide						
TIC: Isobutane	21	0	JN	ppbV	1	5/17/2017 5:01:00 PM
TIC: Pentane \$\$ n-Pentane \$\$	33	0	JN	ppbV	1	5/17/2017 5:01:00 PM
Skellysolve A \$\$						
TIC: Pentane, 3-methyl-	10	0	JN	ppbV	1	5/17/2017 5:01:00 PM
LOW LEVEL SULFURS BY TO-15						
			TO-15			Analyst: WD
1-Propanethiol	< 5.0	5.0		ppbV	1	5/16/2017 6:10:00 PM
Carbon disulfide	13	5.0		ppbV	1	5/16/2017 6:10:00 PM
Carbonyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 6:10:00 PM
Dimethyl sulfide	< 5.0	5.0		ppbV	1	5/16/2017 6:10:00 PM
Ethyl mercaptan	< 5.0	5.0		ppbV	1	5/16/2017 6:10:00 PM
Hydrogen Sulfide	2300	50		ppbV	10	5/16/2017 9:03:00 PM
Isopropyl mercaptan	3.5	5.0	J	ppbV	1	5/16/2017 6:10:00 PM
Methyl mercaptan	1.5	5.0	J	ppbV	1	5/16/2017 6:10:00 PM
Surr: Bromofluorobenzene	153	70-130	S	%REC	1	5/16/2017 6:10:00 PM
Surr: Bromofluorobenzene	102	70-130		%REC	10	5/16/2017 9:03:00 PM

Qualifiers: ** Quantitation Limit . Results reported are not blank corrected
 B Analyte detected in the associated Method Blank E Estimated Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limit
 JN Non-routine analyte. Quantitation estimated. ND Not Detected at the Limit of Detection
 S Spike Recovery outside accepted recovery limits

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-011A

Client Sample ID: WAT-SV08-050917
 Tag Number: 427.79
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 5:01:00 PM
1,1,2,2-Tetrachloroethane	< 34	34		ug/m3	1	5/17/2017 5:01:00 PM
1,1,2-Trichloroethane	< 27	27		ug/m3	1	5/17/2017 5:01:00 PM
1,1-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 5:01:00 PM
1,1-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 5:01:00 PM
1,2,4-Trichlorobenzene	< 37	37		ug/m3	1	5/17/2017 5:01:00 PM
1,2,4-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 5:01:00 PM
1,2-Dibromoethane	< 38	38		ug/m3	1	5/17/2017 5:01:00 PM
1,2-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 5:01:00 PM
1,2-Dichloroethane	< 20	20		ug/m3	1	5/17/2017 5:01:00 PM
1,2-Dichloropropane	< 23	23		ug/m3	1	5/17/2017 5:01:00 PM
1,3,5-Trimethylbenzene	< 25	25		ug/m3	1	5/17/2017 5:01:00 PM
1,3-butadiene	< 11	11		ug/m3	1	5/17/2017 5:01:00 PM
1,3-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 5:01:00 PM
1,4-Dichlorobenzene	< 30	30		ug/m3	1	5/17/2017 5:01:00 PM
1,4-Dioxane	< 36	36		ug/m3	1	5/17/2017 5:01:00 PM
2,2,4-trimethylpentane	< 23	23		ug/m3	1	5/17/2017 5:01:00 PM
4-ethyltoluene	< 25	25		ug/m3	1	5/17/2017 5:01:00 PM
Acetone	210	120		ug/m3	5	5/17/2017 5:36:00 PM
Allyl chloride	< 16	16		ug/m3	1	5/17/2017 5:01:00 PM
Benzene	19	16		ug/m3	1	5/17/2017 5:01:00 PM
Benzyl chloride	< 29	29		ug/m3	1	5/17/2017 5:01:00 PM
Bromodichloromethane	< 33	33		ug/m3	1	5/17/2017 5:01:00 PM
Bromoform	< 52	52		ug/m3	1	5/17/2017 5:01:00 PM
Bromomethane	< 19	19		ug/m3	1	5/17/2017 5:01:00 PM
Carbon disulfide	28	16		ug/m3	1	5/17/2017 5:01:00 PM
Carbon tetrachloride	< 31	31		ug/m3	1	5/17/2017 5:01:00 PM
Chlorobenzene	< 23	23		ug/m3	1	5/17/2017 5:01:00 PM
Chloroethane	< 13	13		ug/m3	1	5/17/2017 5:01:00 PM
Chloroform	94	24		ug/m3	1	5/17/2017 5:01:00 PM
Chloromethane	< 10	10		ug/m3	1	5/17/2017 5:01:00 PM
cis-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 5:01:00 PM
cis-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 5:01:00 PM
Cyclohexane	27	17		ug/m3	1	5/17/2017 5:01:00 PM
Dibromochloromethane	< 43	43		ug/m3	1	5/17/2017 5:01:00 PM
Ethyl acetate	< 36	36		ug/m3	1	5/17/2017 5:01:00 PM
Ethylbenzene	< 22	22		ug/m3	1	5/17/2017 5:01:00 PM
Freon 11	< 28	28		ug/m3	1	5/17/2017 5:01:00 PM
Freon 113	< 38	38		ug/m3	1	5/17/2017 5:01:00 PM
Freon 114	< 35	35		ug/m3	1	5/17/2017 5:01:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-011A

Client Sample ID: WAT-SV08-050917
 Tag Number: 427.79
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
SPPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 25	25		ug/m3	1	5/17/2017 5:01:00 PM
Heptane	40	20		ug/m3	1	5/17/2017 5:01:00 PM
Hexachloro-1,3-butadiene	< 53	53		ug/m3	1	5/17/2017 5:01:00 PM
Hexane	42	18		ug/m3	1	5/17/2017 5:01:00 PM
Isopropyl alcohol	< 12	12		ug/m3	1	5/17/2017 5:01:00 PM
m&p-Xylene	30	43	J	ug/m3	1	5/17/2017 5:01:00 PM
Methyl Butyl Ketone	< 41	41		ug/m3	1	5/17/2017 5:01:00 PM
Methyl Ethyl Ketone	27	29	J	ug/m3	1	5/17/2017 5:01:00 PM
Methyl Isobutyl Ketone	230	41		ug/m3	1	5/17/2017 5:01:00 PM
Methyl tert-butyl ether	< 18	18		ug/m3	1	5/17/2017 5:01:00 PM
Methylene chloride	< 17	17		ug/m3	1	5/17/2017 5:01:00 PM
o-Xylene	< 22	22		ug/m3	1	5/17/2017 5:01:00 PM
Propylene	89	8.6		ug/m3	1	5/17/2017 5:01:00 PM
Styrene	< 21	21		ug/m3	1	5/17/2017 5:01:00 PM
Tetrachloroethylene	< 34	34		ug/m3	1	5/17/2017 5:01:00 PM
Tetrahydrofuran	< 15	15		ug/m3	1	5/17/2017 5:01:00 PM
Toluene	43	19		ug/m3	1	5/17/2017 5:01:00 PM
trans-1,2-Dichloroethene	< 20	20		ug/m3	1	5/17/2017 5:01:00 PM
trans-1,3-Dichloropropene	< 23	23		ug/m3	1	5/17/2017 5:01:00 PM
Trichloroethene	< 27	27		ug/m3	1	5/17/2017 5:01:00 PM
Vinyl acetate	< 18	18		ug/m3	1	5/17/2017 5:01:00 PM
Vinyl Bromide	< 22	22		ug/m3	1	5/17/2017 5:01:00 PM
Vinyl chloride	< 13	13		ug/m3	1	5/17/2017 5:01:00 PM
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 16	16		ug/m3	1	5/16/2017 6:10:00 PM
Carbon disulfide	39	16		ug/m3	1	5/16/2017 6:10:00 PM
Carbonyl sulfide	< 12	12		ug/m3	1	5/16/2017 6:10:00 PM
Dimethyl sulfide	< 19	19		ug/m3	1	5/16/2017 6:10:00 PM
Ethyl mercaptan	< 13	13		ug/m3	1	5/16/2017 6:10:00 PM
Hydrogen Sulfide	3300	70		ug/m3	10	5/16/2017 9:03:00 PM
Isopropyl mercaptan	11	16	J	ug/m3	1	5/16/2017 6:10:00 PM
Methyl mercaptan	3.0	9.8	J	ug/m3	1	5/16/2017 6:10:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits
 . Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Data File : C:\HPCHEM\1\DATA\DH051715.D

Vial: 13

Acq On : 17 May 2017 5:01 pm

Operator: WD

Sample : C1705036-011A

Inst : GCMS3

Misc : T015

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: Jun 1 11:38 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.94	128	70577m (m)	50.00	ppb	-0.02
40) 1,4-difluorobenzene	12.17	114	361915	50.00	ppb	-0.01
57) Chlorobenzene-d5	16.48	117	302363	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	196894	45.91	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	91.82%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.16	41	118797	51.99	ppb	94
16) Acetone	6.07	43	462326	174.21	ppb	85
23) Methylene Chloride	7.17	84	4395m (m)	2.42	ppb	
24) Carbon disulfide	7.33	76	47080m (m)	8.89	ppb	
29) Methyl Ethyl Ketone	9.05	72	9992	8.99	ppb	# 35
30) Hexane	9.04	41	37826	11.79	ppb	# 81
33) Chloroform	10.10	83	97768	19.35	ppb	97
37) Benzene	11.51	78	48986	5.97	ppb	98
39) Cyclohexane	11.59	56	35688	7.98	ppb	99
42) Heptane	12.63	43	47609	9.82	ppb	92
48) Methyl Isobutyl Ketone	13.87	43	340935	55.89	ppb	94
52) Toluene	14.70	92	59503	11.34	ppb	96
59) Ethylbenzene	16.75	106	4200	1.14	ppb	# 81
60) m&p-Xylene	16.90	106	31238	6.87	ppb	99
63) o-xylene	17.35	91	21651	2.24	ppb	97

(#) = qualifier out of range (m) = manual integration

DH051715.D I0511T15.M

Thu Jun 01 11:51:41 2017

Page 1

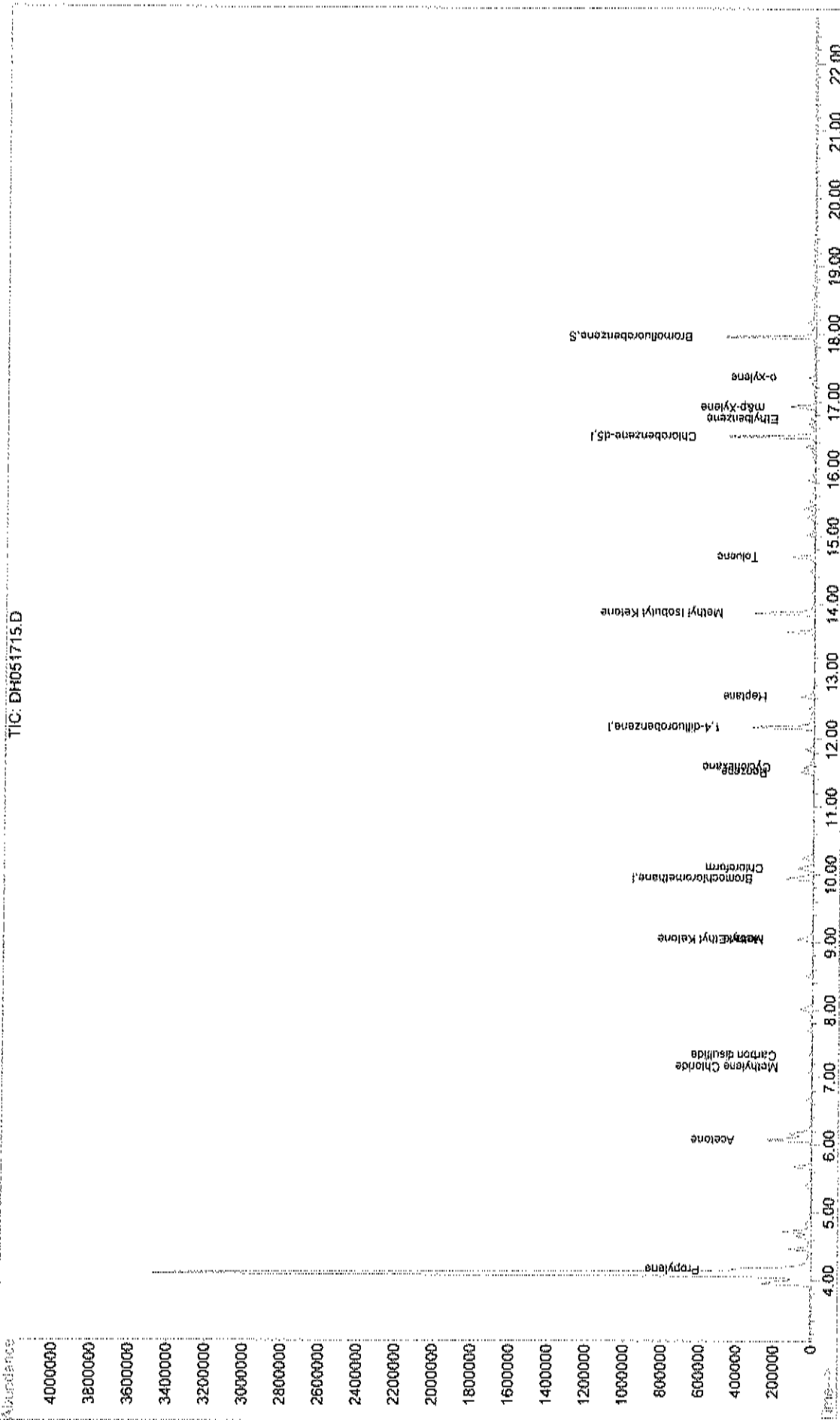
Quantitation Report

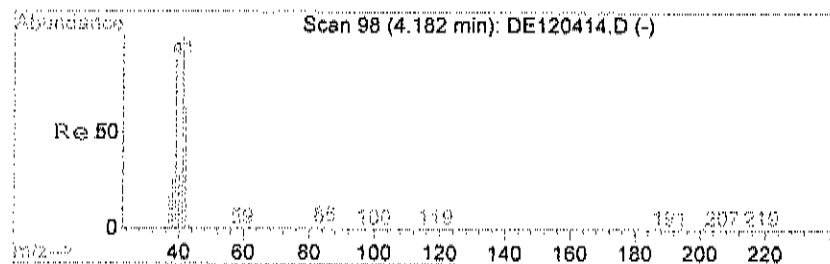
Data File : C:\HPCHEM\1\DATA\DH051715.D
 Acq On : 17 May 2017 5:01 pm
 Sample : C1705036-011A
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: Jun 1 11:38 2017

Vial: 13
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration





#2

Propylene

Concen: 51.99 ppb

RT: 4.16 min Scan# 354

Delta R.T. -0.03 min

Lab File: DH051715.D

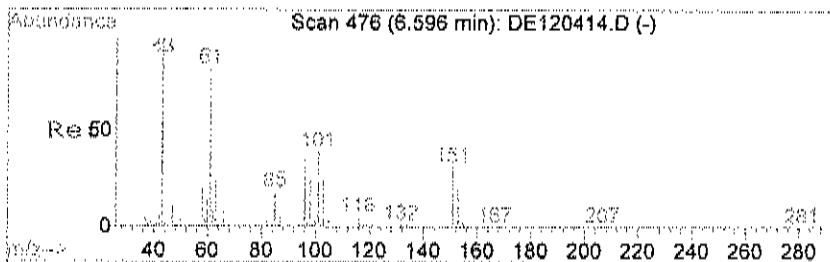
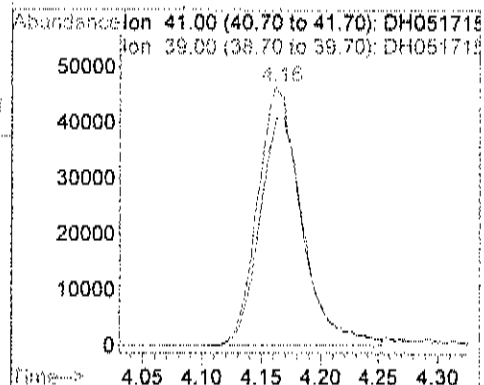
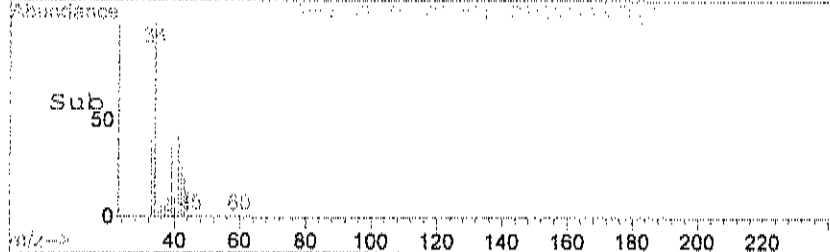
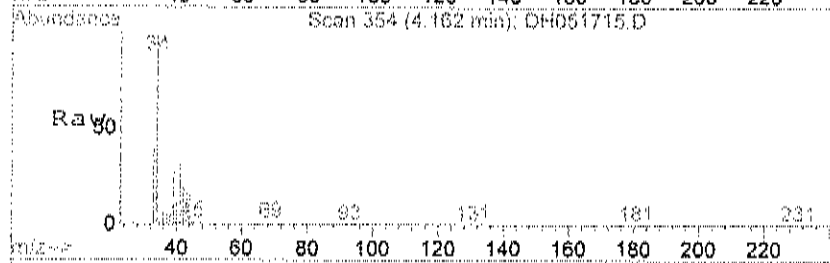
Acq: 17 May 2017 5:01 pm

Tgt Ion: 41 Resp: 118797

Ion Ratio Lower Upper

41 100

39 90.4 42.4 127.1



#16

Acetone

Concen: 174.21 ppb

RT: 6.07 min Scan# 880

Delta R.T. -0.04 min

Lab File: DH051715.D

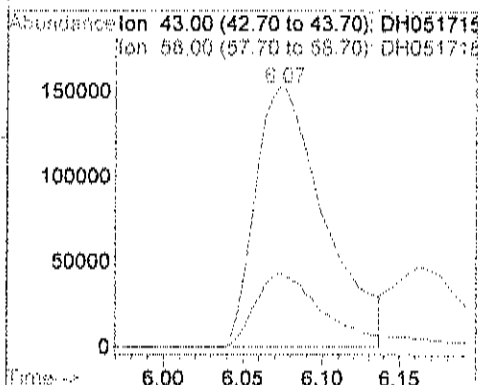
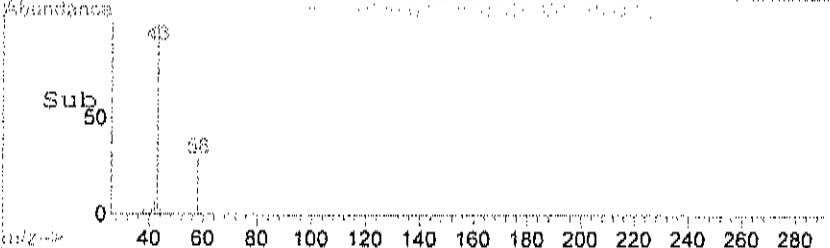
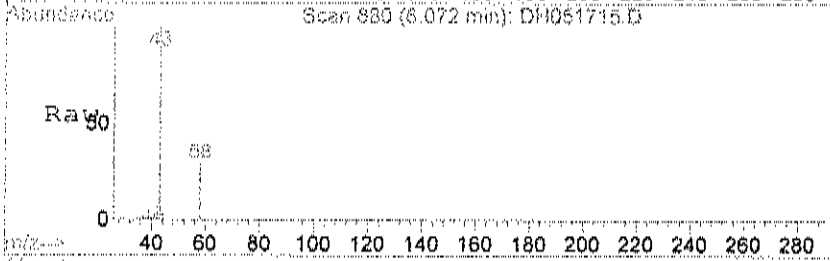
Acq: 17 May 2017 5:01 pm

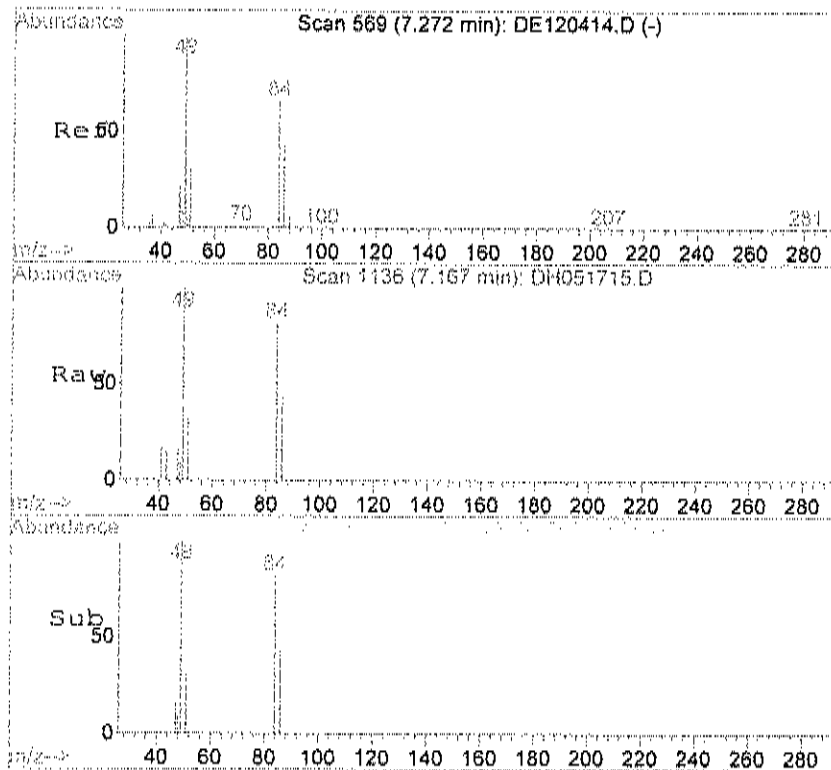
Tgt Ion: 43 Resp: 462326

Ion Ratio Lower Upper

43 100

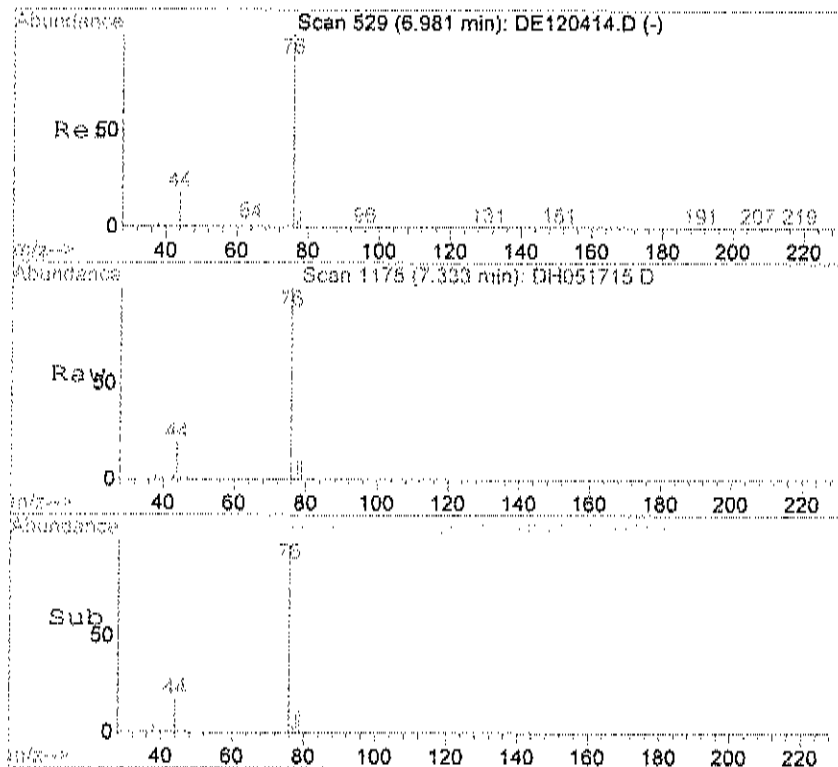
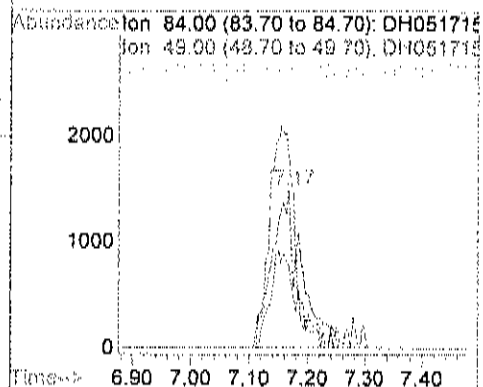
58 31.3 3.7 43.7





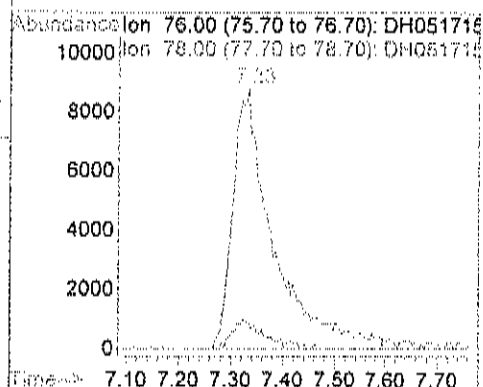
#23
Methylene Chloride
Concen: 2.42 ppb m
RT: 7.17 min Scan# 1136
Delta R.T. -0.01 min
Lab File: DH051715.D
Acq: 17 May 2017 5:01 pm

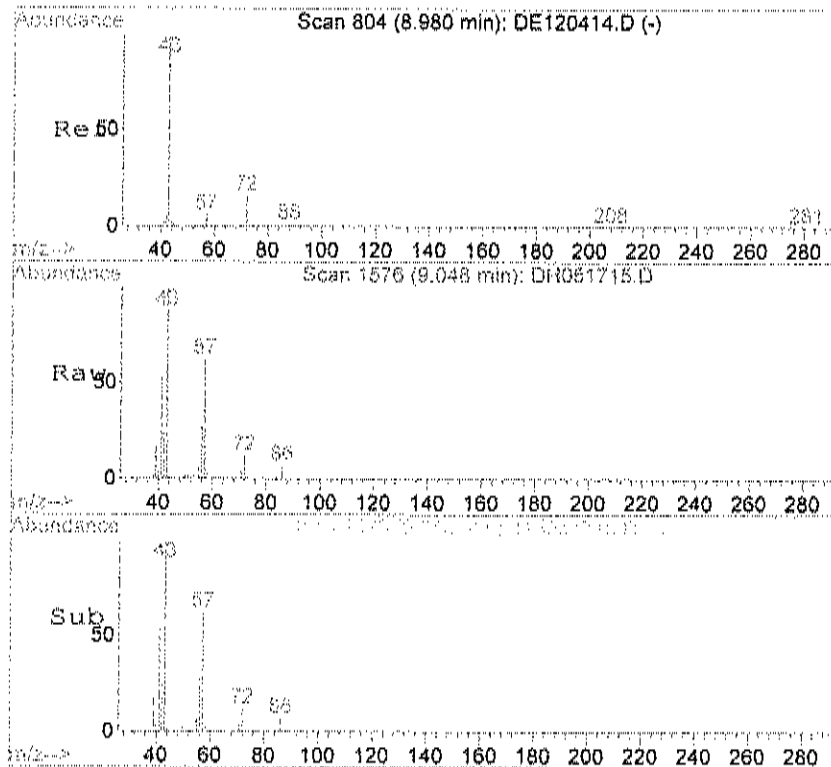
Tgt Ion: 84 Resp: 4395
Ion Ratio Lower Upper
84 100
49 0.0 124.3 164.3#
86 0.0 43.0 83.0#



#24
Carbon disulfide
Concen: 8.89 ppb m
RT: 7.33 min Scan# 1175
Delta R.T. -0.01 min
Lab File: DH051715.D
Acq: 17 May 2017 5:01 pm

Tgt Ion: 76 Resp: 47080
Ion Ratio Lower Upper
76 100
78 5.9 0.0 29.3





#29

Methyl Ethyl Ketone

Concen: 8.99 ppb

RT: 9.05 min Scan# 1576

Delta R.T. -0.00 min

Lab File: DH051715.D

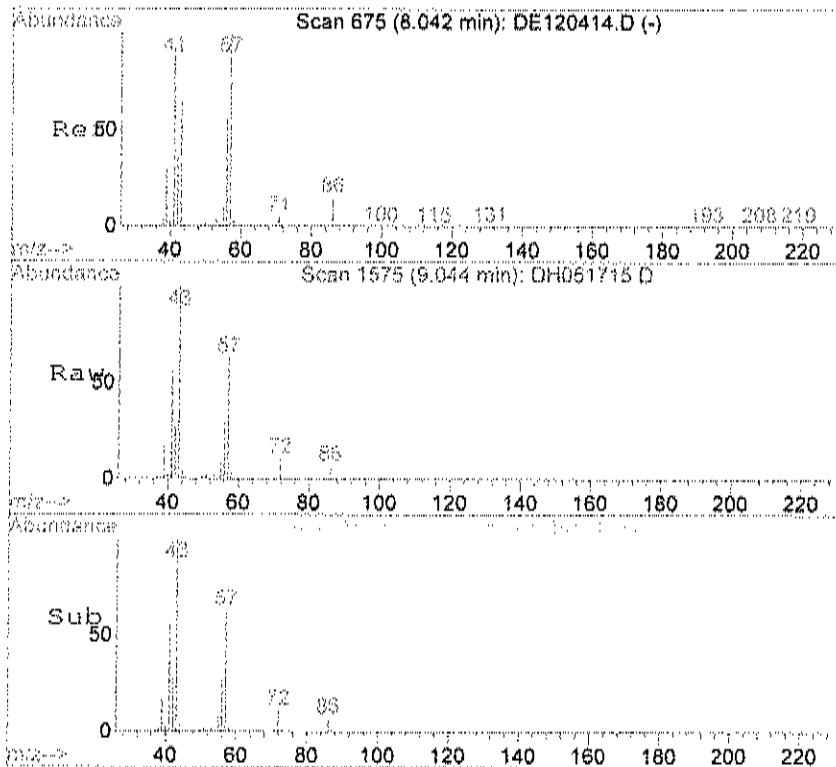
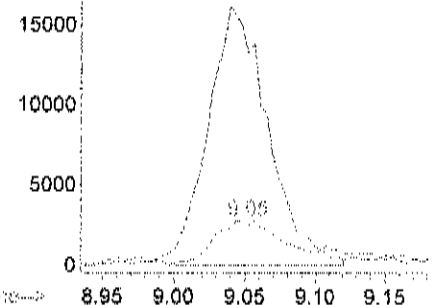
Acq: 17 May 2017 5:01 pm

Tgt Ion: 72 Resp: 9992

Ion Ratio Lower Upper

72 100

57 472.3 315.9 355.9#

Abundance Ion 72.00 (71.70 to 72.70): DH051715.D
Ion 57.00 (56.70 to 57.30): DH051715.D

#30

Hexane

Concen: 11.79 ppb

RT: 9.04 min Scan# 1575

Delta R.T. -0.02 min

Lab File: DH051715.D

Acq: 17 May 2017 5:01 pm

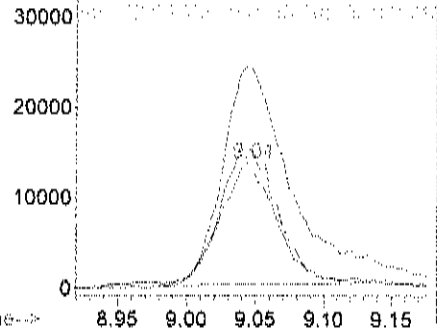
Tgt Ion: 41 Resp: 37826

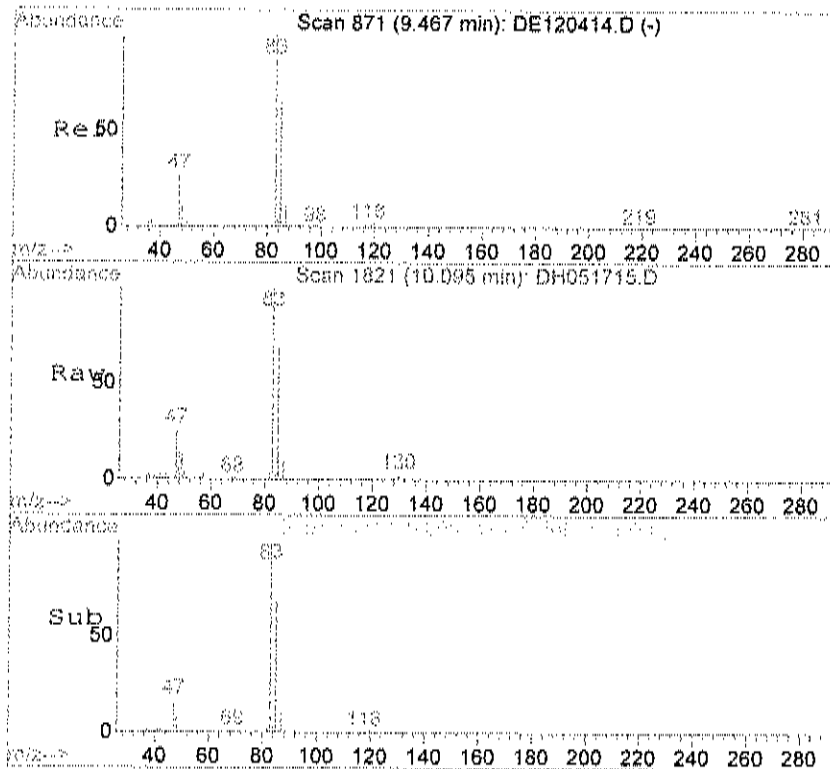
Ion Ratio Lower Upper

41 100

57 124.8 96.5 136.5

43 227.6 168.6 208.6#

Abundance Ion 41.00 (40.70 to 41.30): DH051715.D
Ion 57.00 (56.70 to 57.30): DH051715.D



#33

Chloroform

Concen: 19.35 ppb

RT: 10.10 min Scan# 1821

Delta R.T. -0.02 min

Lab File: DH051715.D

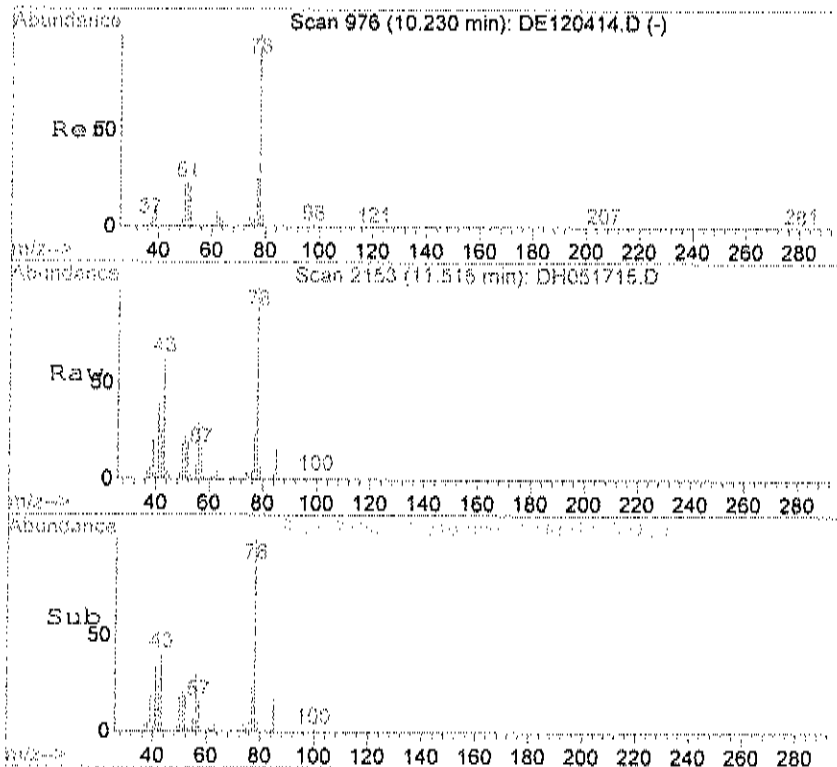
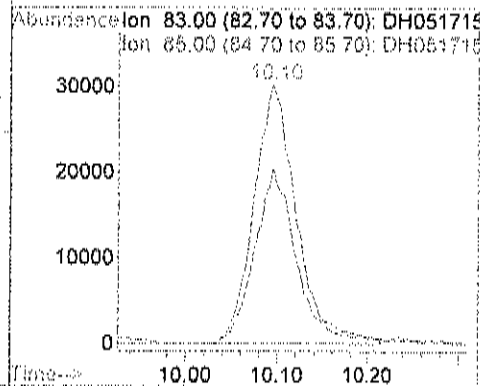
Acq: 17 May 2017 5:01 pm

Tgt Ion: 83 Resp: 97768

Ion Ratio Lower Upper

83 100

85 66.2 43.5 83.5



#37

Benzene

Concen: 5.97 ppb

RT: 11.51 min Scan# 2153

Delta R.T. -0.01 min

Lab File: DH051715.D

Acq: 17 May 2017 5:01 pm

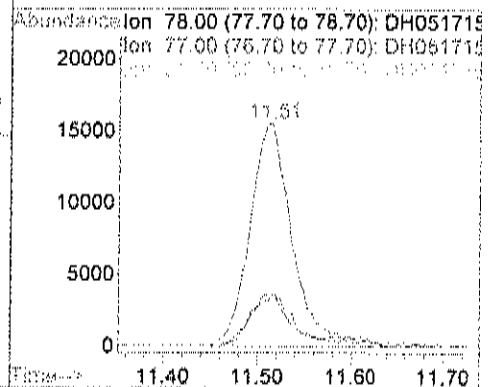
Tgt Ion: 78 Resp: 48986

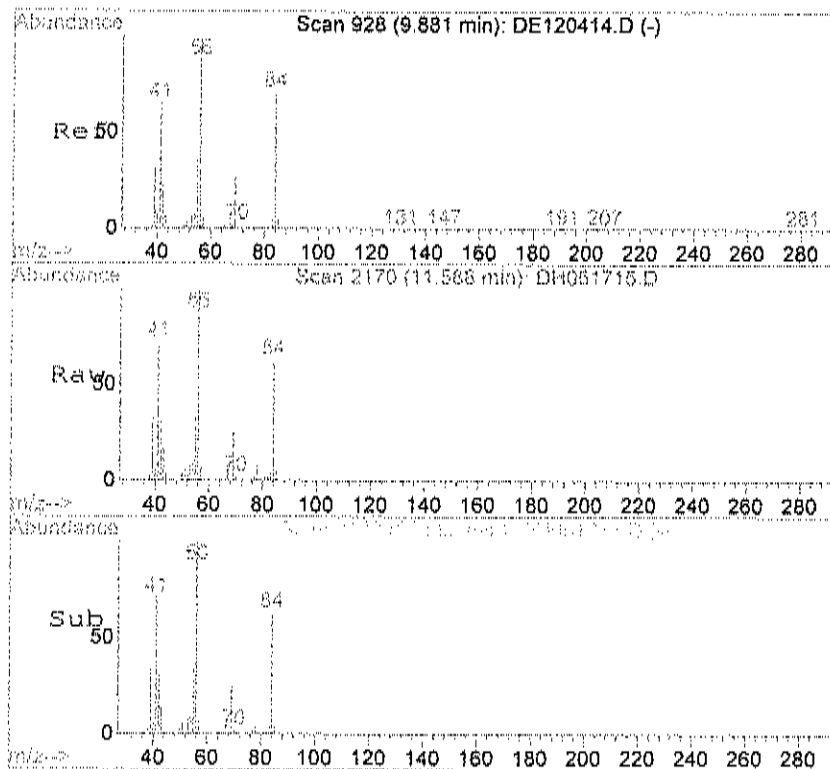
Ion Ratio Lower Upper

78 100

77 23.8 3.1 43.1

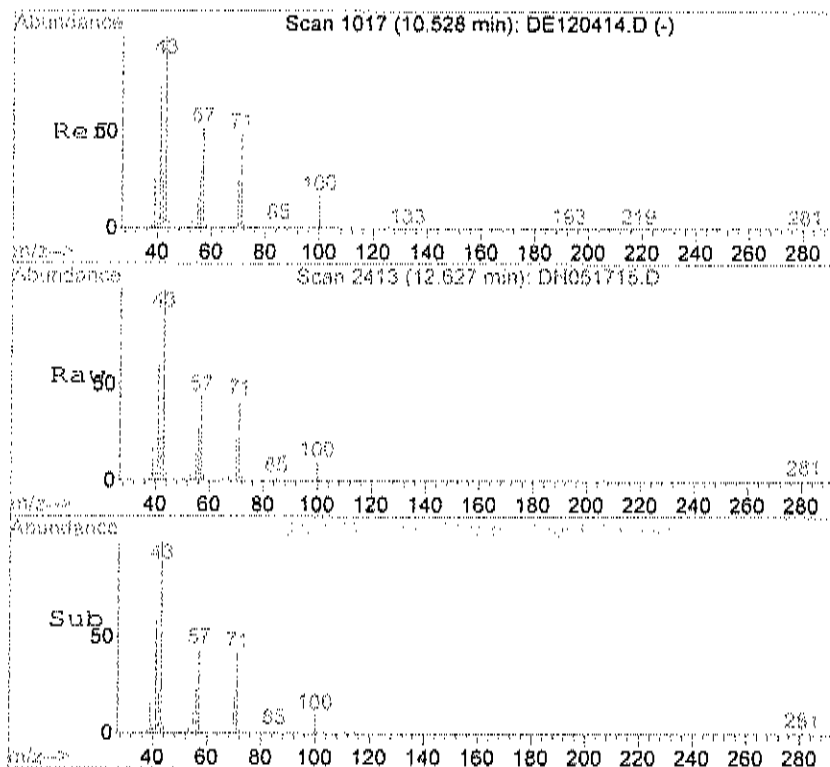
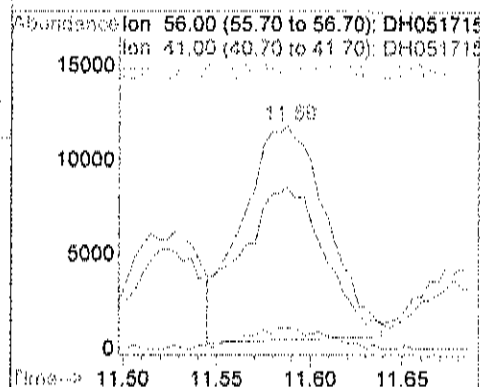
51 21.0 0.0 39.8





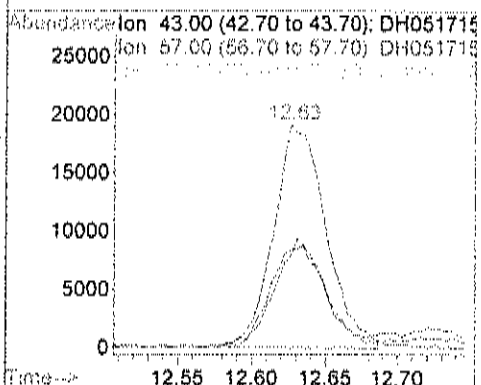
#39
Cyclohexane
Concen: 7.98 ppb
RT: 11.59 min Scan# 2170
Delta R.T. -0.02 min
Lab File: DH051715.D
Acq: 17 May 2017 5:01 pm

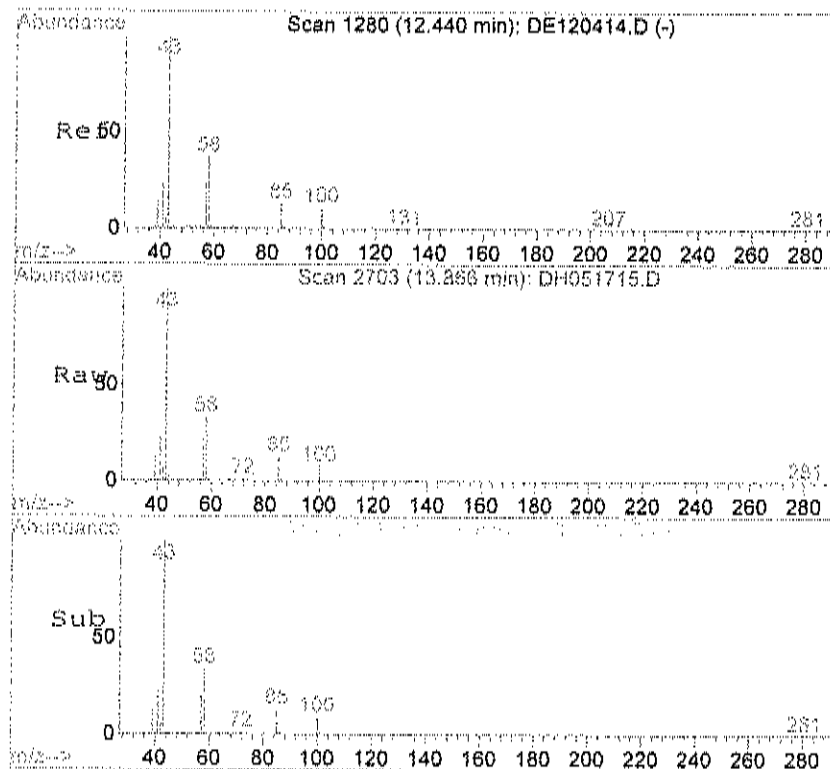
Tgt Ion	56	Resp	35688
Ion Ratio	Lower	Upper	
56	100		
41	67.2	47.0	87.0
54	9.2	0.0	27.5



#42
Heptane
Concen: 9.82 ppb
RT: 12.63 min Scan# 2413
Delta R.T. -0.02 min
Lab File: DH051715.D
Acq: 17 May 2017 5:01 pm

Tgt Ion	43	Resp	47609
Ion Ratio	Lower	Upper	
43	100		
57	50.7	32.3	72.3
71	47.1	37.2	77.2





#48

Methyl Isobutyl Ketone

Concen: 55.89 ppb

RT: 13.87 min Scan# 2703

Delta R.T. -0.01 min

Lab File: DH051715.D

Acq: 17 May 2017 5:01 pm

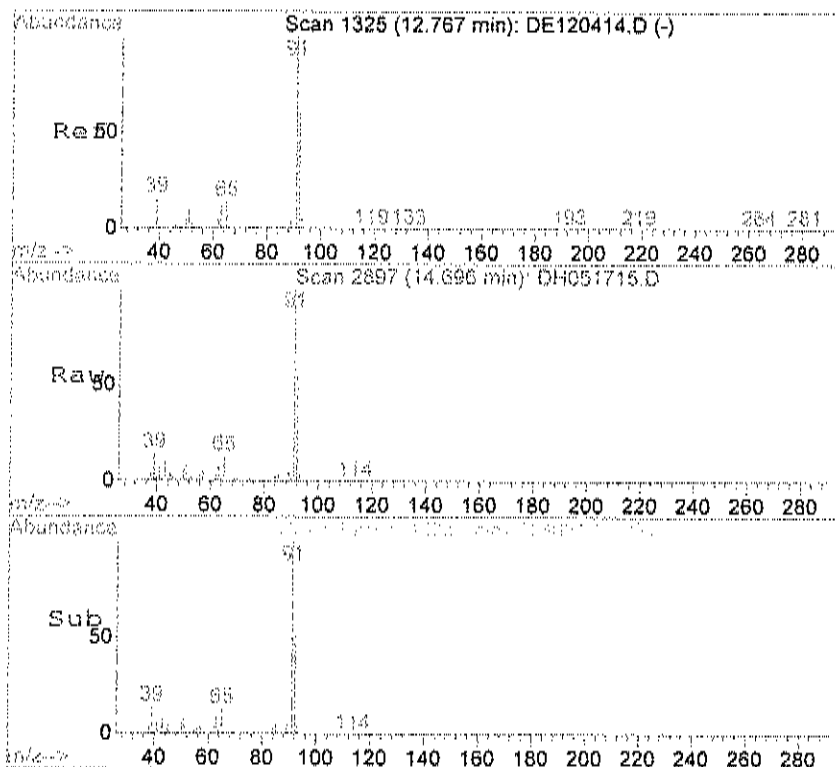
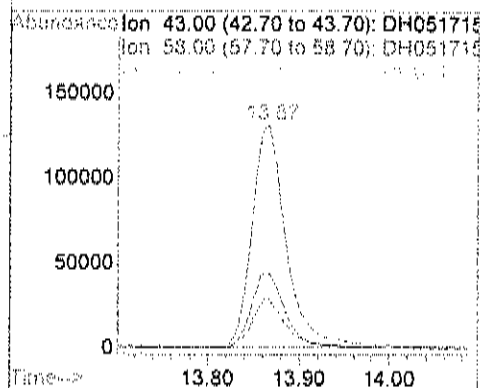
Tgt Ion: 43 Resp: 340935

Ion Ratio Lower Upper

43 100

58 33.8 15.8 55.8

57 22.0 6.8 46.8



#52

Toluene

Concen: 11.34 ppb

RT: 14.70 min Scan# 2897

Delta R.T. -0.00 min

Lab File: DH051715.D

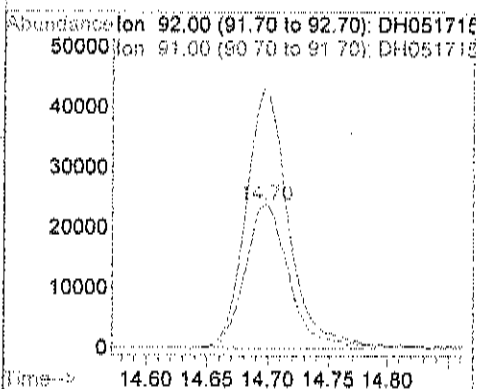
Acq: 17 May 2017 5:01 pm

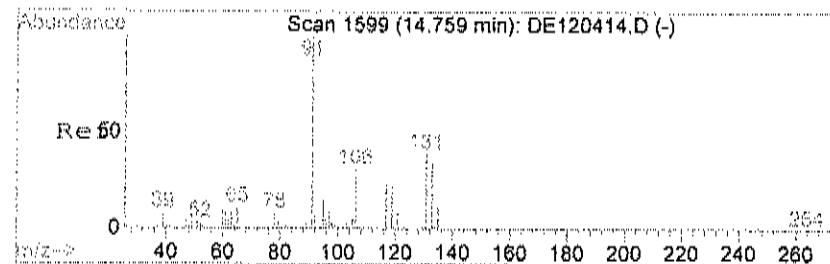
Tgt Ion: 92 Resp: 59503

Ion Ratio Lower Upper

92 100

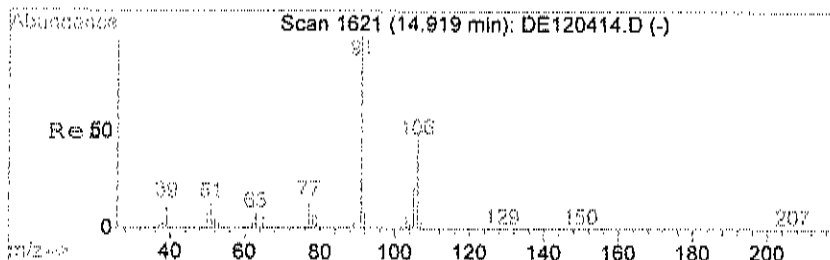
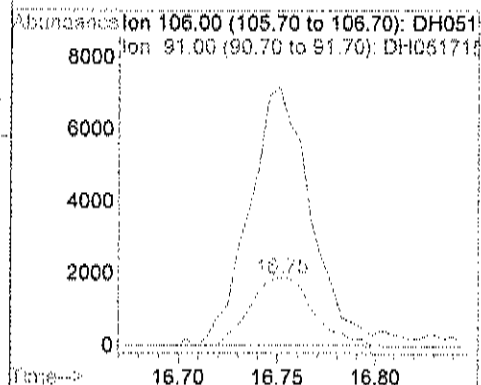
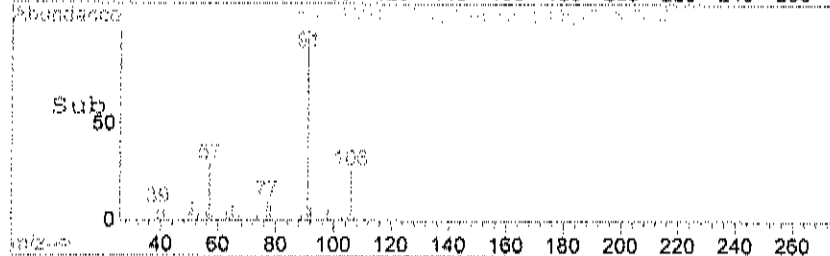
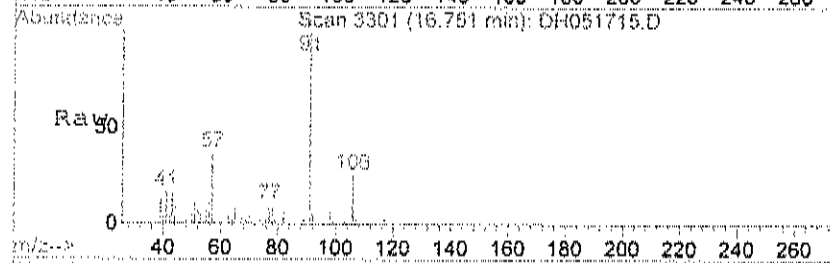
91 176.7 151.4 191.4





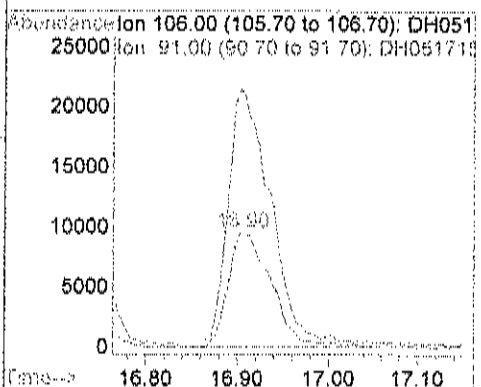
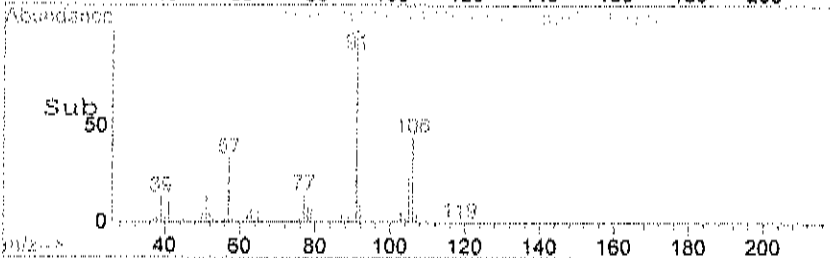
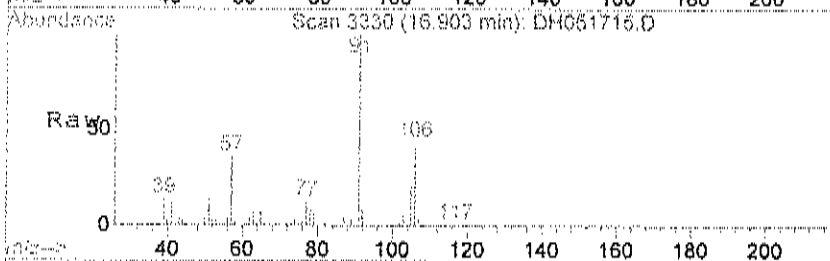
#59
Ethylbenzene
Concen: 1.14 ppb
RT: 16.75 min Scan# 3301
Delta R.T. -0.00 min
Lab File: DH051715.D
Acq: 17 May 2017 5:01 pm

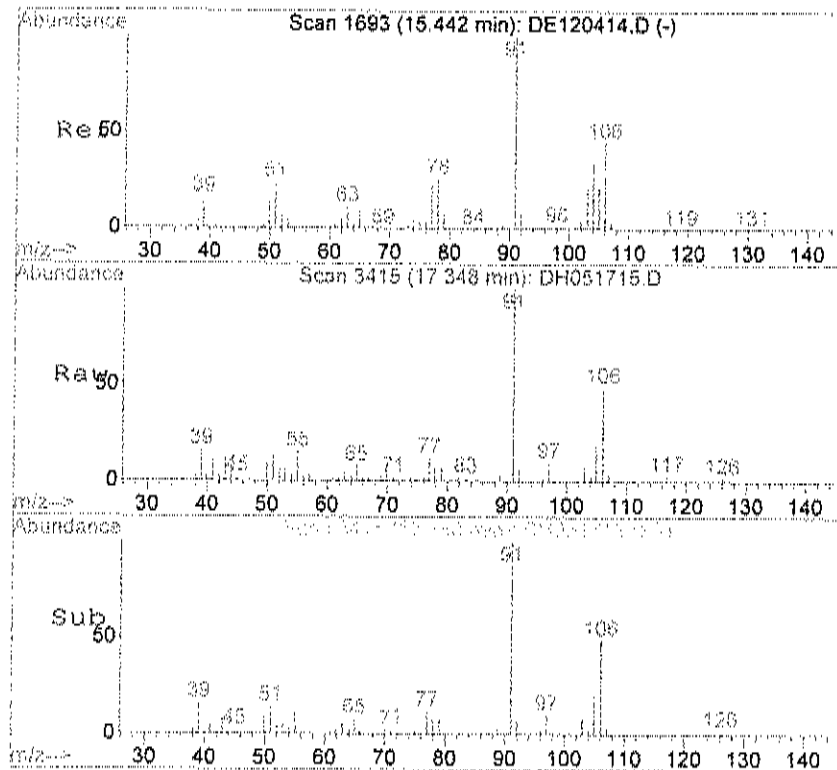
Tgt Ion	106	Resp	4200
Ion Ratio	100	Lower	Upper
91	378.9	319.2	359.2#



#60
m,p-Xylene
Concen: 6.87 ppb
RT: 16.90 min Scan# 3330
Delta R.T. -0.03 min
Lab File: DH051715.D
Acq: 17 May 2017 5:01 pm

Tgt Ion	106	Resp	31238
Ion Ratio	100	Lower	Upper
91	220.2	202.1	242.1





#63

o-xylene

Concen: 2.24 ppb

RT: 17.35 min Scan# 3415

Delta R.T. -0.00 min

Lab File: DH051715.D

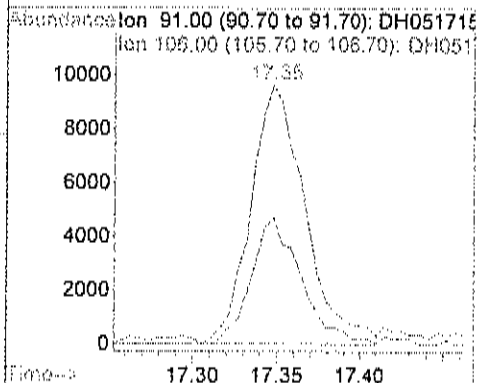
Acq: 17 May 2017 5:01 pm

Tgt Ion: 91 Resp: 21651

Ion Ratio Lower Upper

91 100

106 44.7 22.6 62.6



Data File : C:\HPCHEM\1\DATA2\DH051715.D
 Acq On : 17 May 2017 5:01 pm
 Sample : C1705036-011A
 Misc : T015
 MS Integration Params: LSCINT.P

Vial: 13
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Smoothing : ON
 Sampling : 1
 Start Thrs: 0.2
 Stop Thrs : 0
 Filtering: 5
 Min Area: 3 % of largest Peak
 Max Peaks: 100
 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Signal : TIC

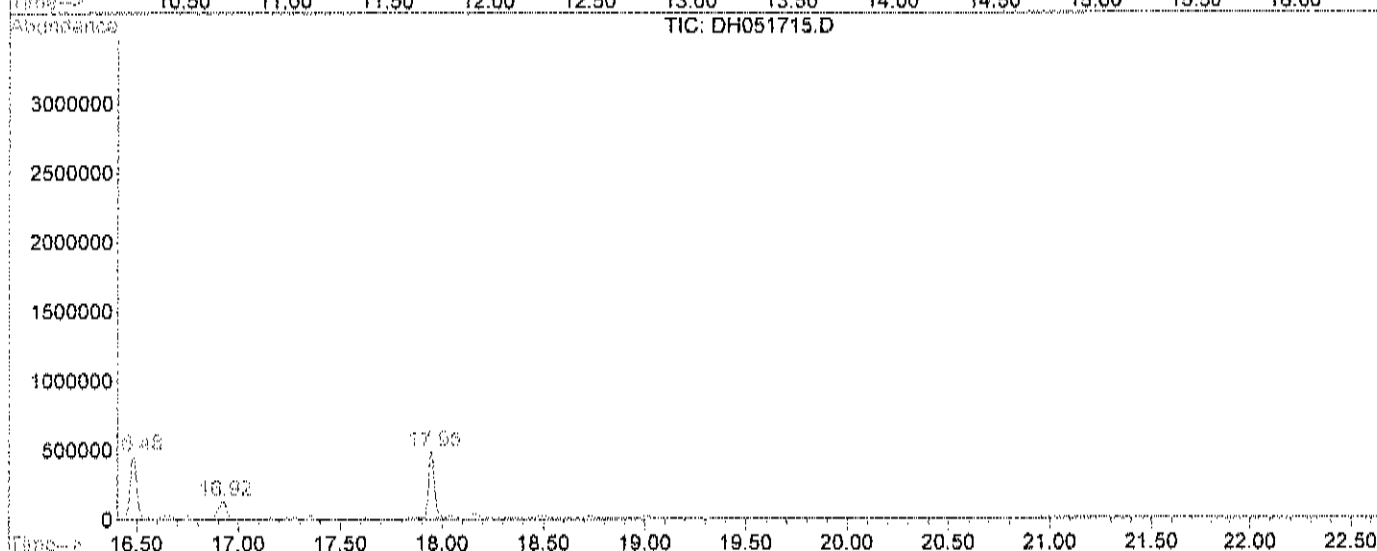
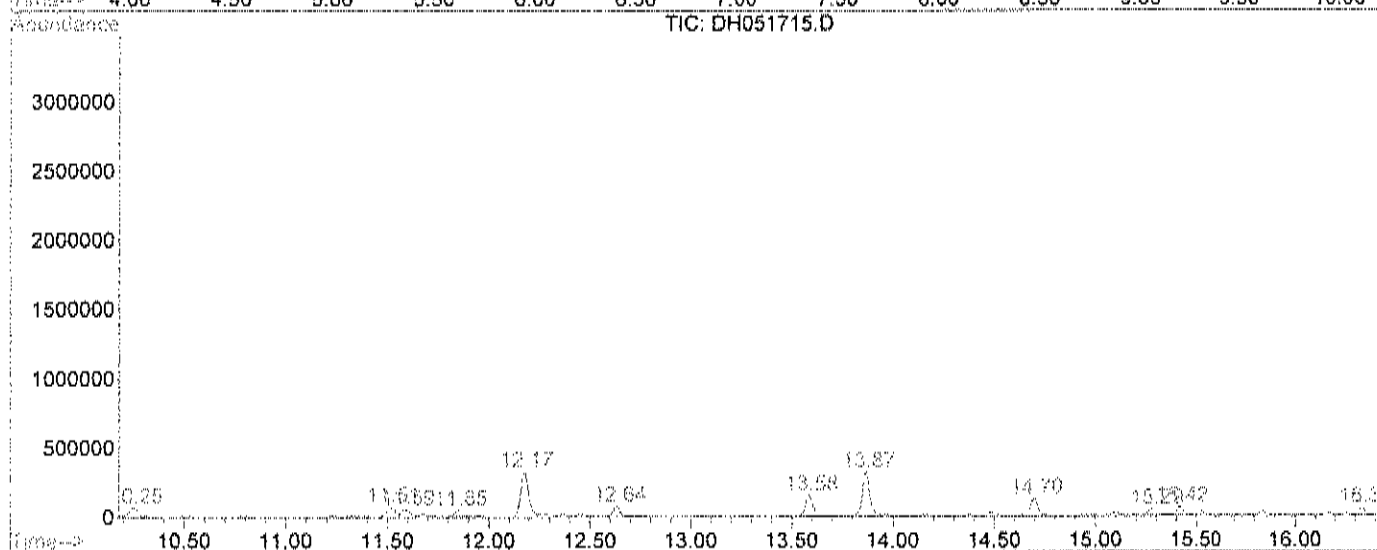
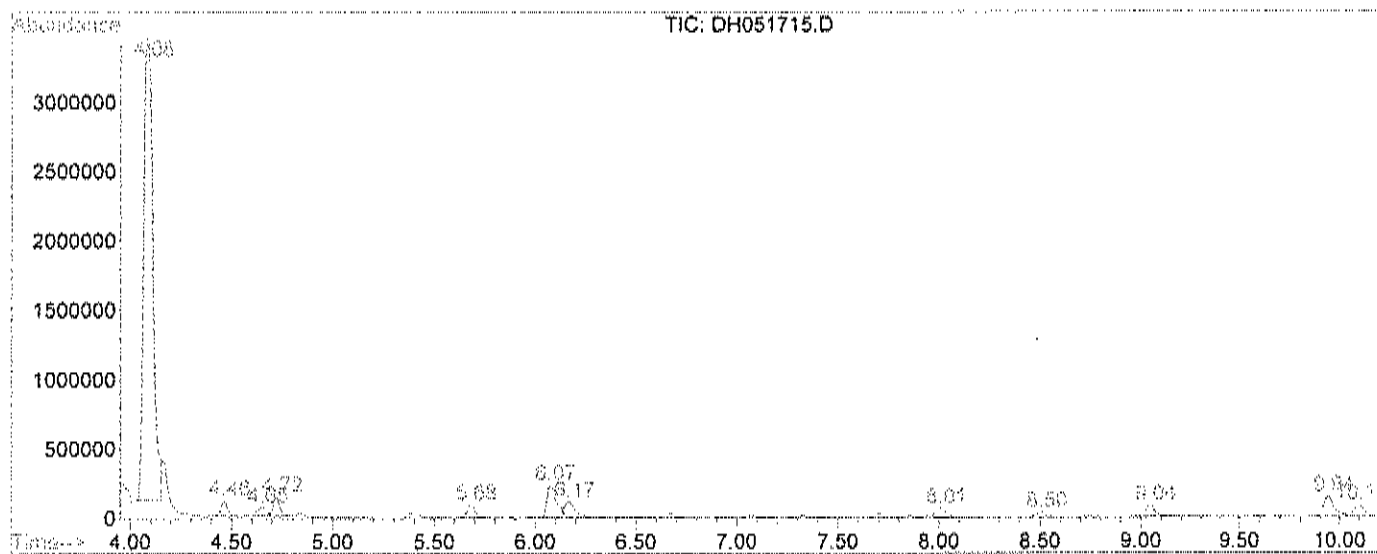
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	4.084	312	328	351	rBV	3344217	10701485	100.00%	52.201%
2	4.462	441	453	470	rVB2	110908	233179	2.18%	1.137%
3	4.650	498	515	526	rBV4	59633	168784	1.58%	0.823%
4	4.722	528	539	560	rVB	136031	302158	2.82%	1.474%
5	5.679	777	788	807	rBV2	97514	266270	2.49%	1.299%
6	6.072	871	880	894	rBV	230829	719131	6.72%	3.508%
7	6.166	896	902	929	rVB2	112521	357732	3.34%	1.745%
8	8.009	1324	1333	1352	rVB4	60937	211016	1.97%	1.029%
9	8.505	1433	1449	1465	rBV3	37262	113874	1.06%	0.555%
10	9.044	1561	1575	1595	rBV	82256	257333	2.40%	1.255%
11	9.942	1766	1785	1807	rBV3	145832	547969	5.12%	2.673%
12	10.095	1809	1821	1843	rVV2	87193	305834	2.86%	1.492%
13	10.249	1843	1857	1874	rVB3	63985	208623	1.95%	1.018%
14	11.515	2138	2153	2163	rBV5	71675	225450	2.11%	1.100%
15	11.588	2163	2170	2183	rVV3	53705	161687	1.51%	0.789%
16	11.848	2219	2231	2245	rVB2	45697	121794	1.14%	0.594%
17	12.173	2292	2307	2323	rBV2	328301	927166	8.66%	4.523%
18	12.635	2399	2415	2428	rBV2	75773	198910	1.86%	0.970%
19	13.584	2627	2637	2656	rVB2	147971	383773	3.59%	1.872%
20	13.866	2683	2703	2722	rBV2	317981	862405	8.06%	4.207%
21	14.696	2876	2897	2917	rBV3	123122	357446	3.34%	1.744%
22	15.290	3009	3022	3033	rBV5	46696	160602	1.50%	0.783%
23	15.416	3033	3046	3058	rVV3	60386	164635	1.54%	0.803%
24	16.337	3213	3222	3233	rVB2	53894	122452	1.14%	0.597%
25	16.484	3240	3250	3265	rBV	457460	1026335	9.59%	5.006%
26	16.924	3322	3334	3346	rBV2	135902	383096	3.58%	1.869%
27	17.950	3514	3530	3543	rBV	480027	1011325	9.45%	4.933%

Sum of corrected areas: 20500464

DH051715.D I0511T15.M Mon Jun 19 14:43:26 2017

LSC Report - Integrated Chromatogram

File : C:\HPCHEM\1\DATA2\DH051715.D
Operator : WD
Acquired : 17 May 2017 5:01 pm using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-011A
Misc Info : TO15
Vial Number: 13
Quant File : I0511T15.RES (RTE Integrator)



DH051715.D I0511T15.M Mon Jun 19 14:43:28 2017

Data File : C:\HPCHEM\1\DATA2\DH051715.D
Acq On : 17 May 2017 5:01 pm
Sample : C1705036-011A
Misc : T015
MS Integration Params: LSCINT.P

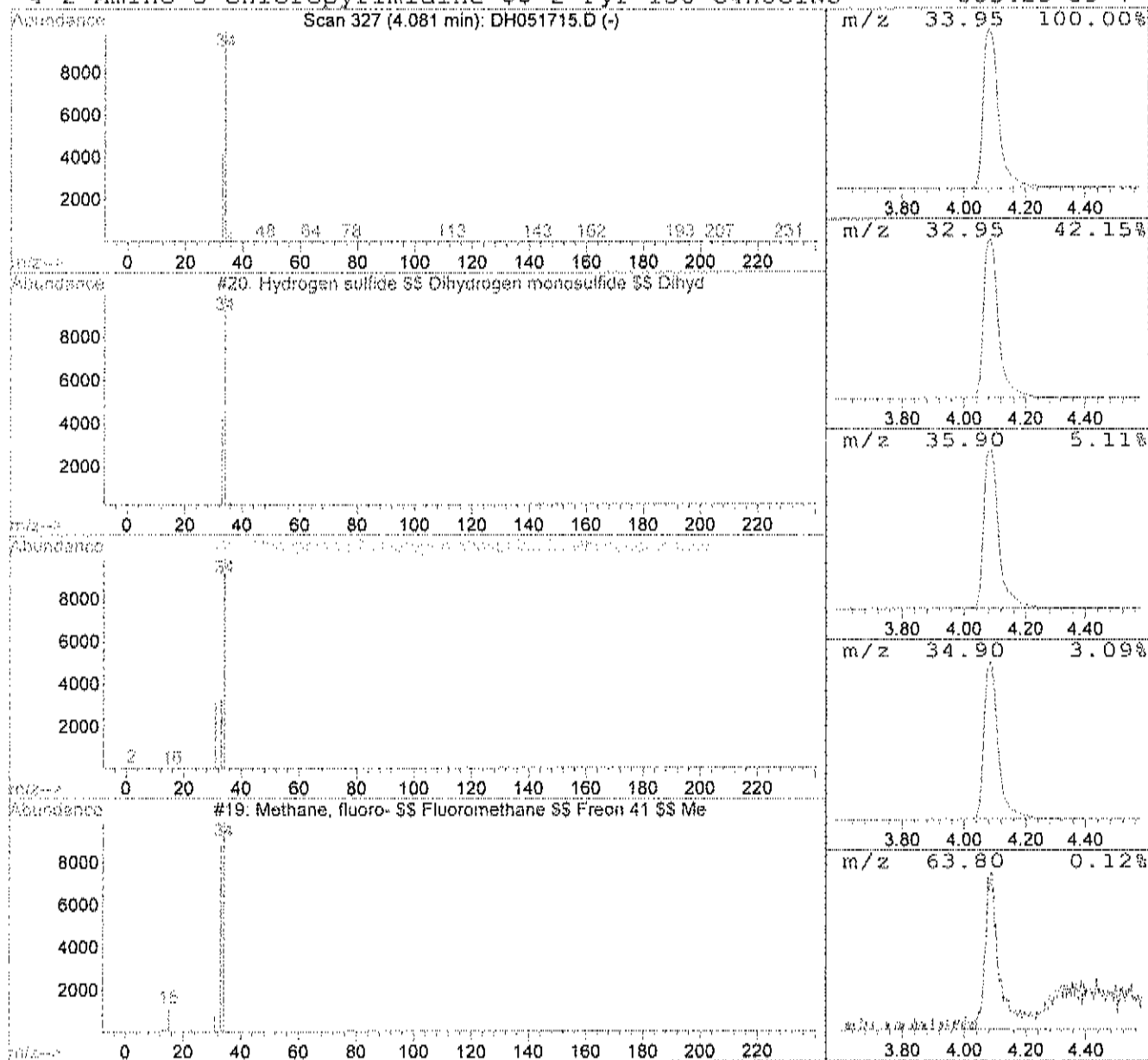
Vial: 13
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 1 Hydrogen sulfide \$\$ Dihydrogen Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.08	976.47 ppb	10701500	Bromochloromethane	9.94

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Hydrogen sulfide \$\$ Dihydrogen mono	34	H2S	007783-06-4	78
2			Phosphine \$\$ Hydrogen phosphide \$\$	34	H3P	007803-51-2	7
3			Methane, fluoro- \$\$ Fluoromethane \$	34	CH3F	000593-53-3	3
4			2-Amino-5-chloropyrimidine \$\$ 2-Pyr	130	C4H5ClN3	005428-89-7	1



Data File : C:\HPCHEM\1\DATA2\DH051715.D
Acq On : 17 May 2017 5:01 pm
Sample : C1705036-011A
Misc : TO15
MS Integration Params: LSCINT.P

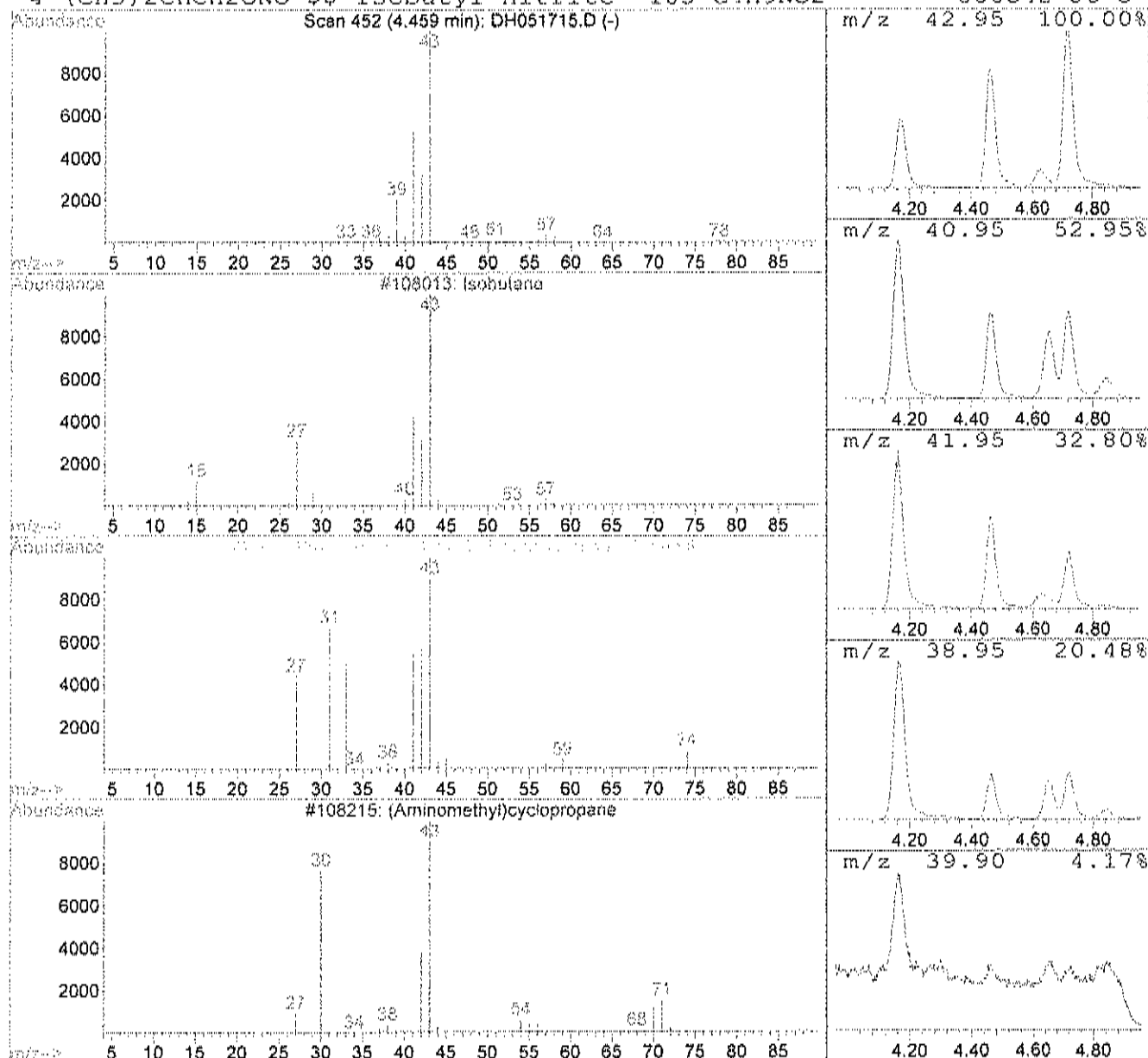
Vial: 13
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 2 Isobutane Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.46	21.28 ppb	233179	Bromochloromethane	9.94

Hit#	of 5	Tentative ID	MW	MolForm	CAS#	Qual
1		Isobutane	58	C4H10	000075-28-5	64
2		1-Propanol, 2-methyl- \$\$ Isobutyl a	74	C4H10O	000078-83-1	33
3		(Aminomethyl)cyclopropane	71	C4H9N	002516-47-4	33
4		(CH3)2CHCH2ONO \$\$ Isobutyl nitrite	103	C4H9NO2	000542-56-3	25



Data File : C:\HPCHEM\1\DATA2\DH051715.D
Acq On : 17 May 2017 5:01 pm
Sample : C1705036-011A
Misc : TO15
MS Integration Params: LSCINT.P

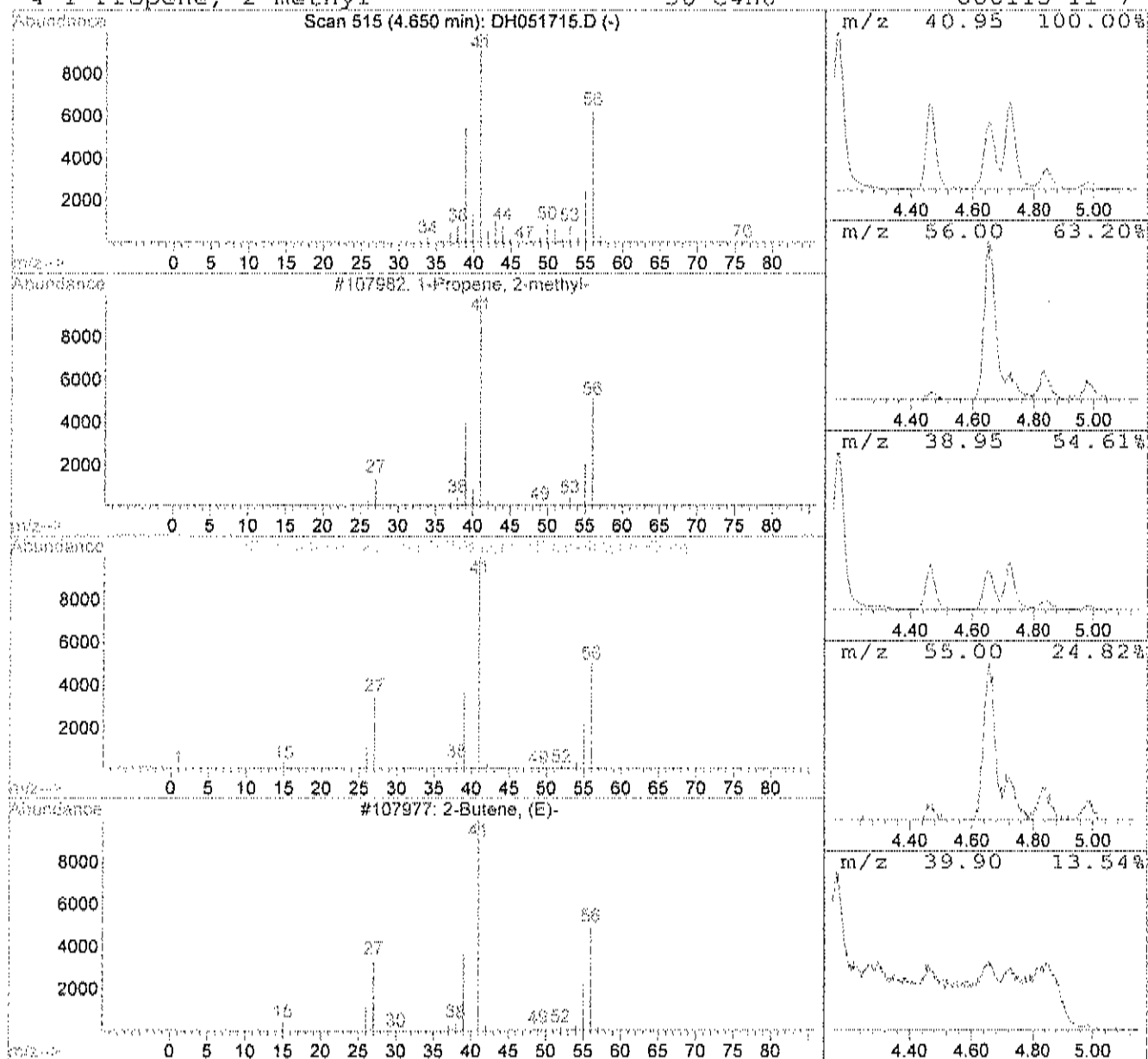
Vial: 13
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 3 1-Propene, 2-methyl- Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.65	15.40 ppb	168784	Bromochloromethane	9.94

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Propene, 2-methyl-	56	C4H8	000115-11-7	87
2	2-Butene, (Z)- \$\$ (Z)-2-Butene \$\$ c	56	C4H8	000590-18-1	80
3	2-Butene, (E)-	56	C4H8	000624-64-6	80
4	1-Propene, 2-methyl-	56	C4H8	000115-11-7	80



Data File : C:\HPCHEM\1\DATA2\DH051715.D
Acq On : 17 May 2017 5:01 pm
Sample : C1705036-011A
Misc : TO15
MS Integration Params: LSCINT.P

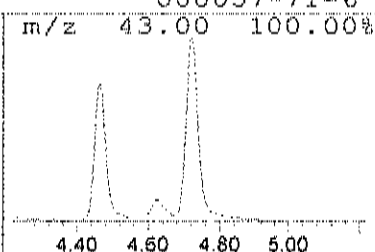
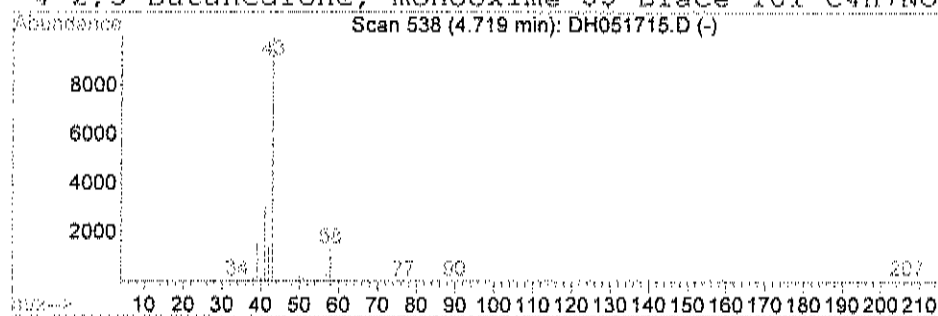
Vial: 13
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

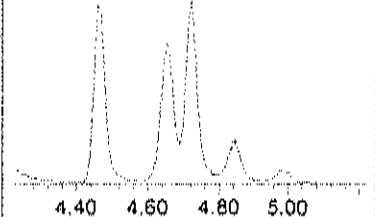
Peak Number 4 Butane Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.72	27.57 ppb	302158	Bromochloromethane	9.94

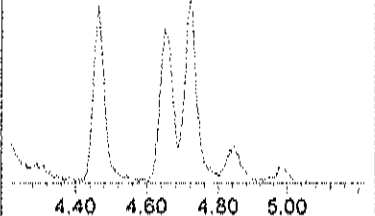
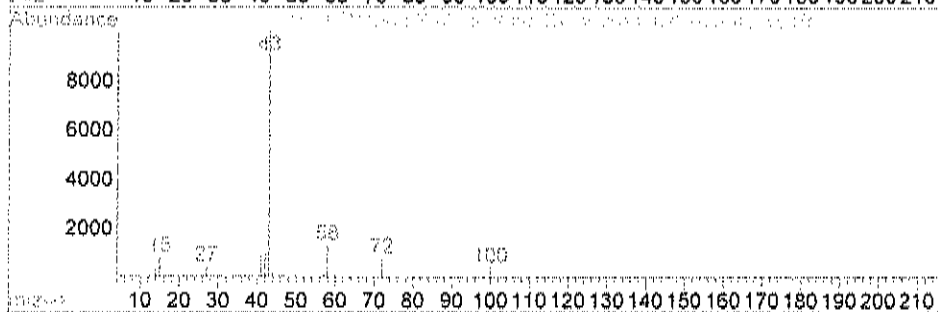
Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Butane	58	C4H10	000106-97-8	64
2			1-Propen-2-ol, acetate \$\$ Isopropan	100	C5H8O2	000108-22-5	50
3			Butane \$\$ n-Butane \$\$ Diethyl \$\$ Fr	58	C4H10	000106-97-8	37
4			2,3-Butanedione, monoxime \$\$ Biace	101	C4H7NO2	000057-71-6	9



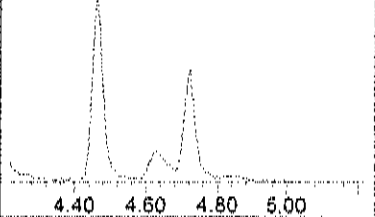
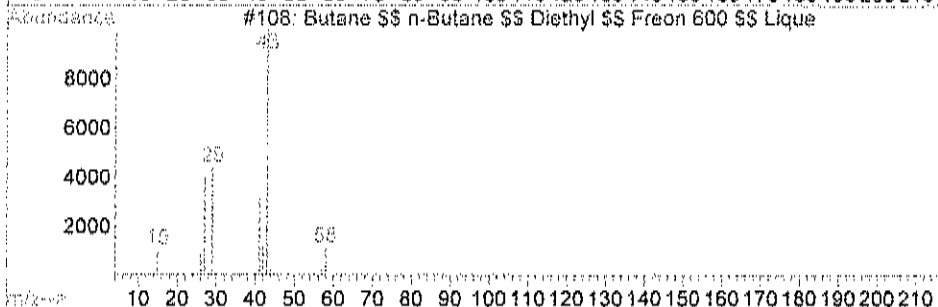
m/z 41.00 31.92%



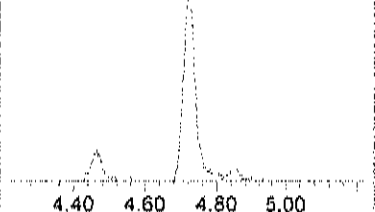
m/z 39.00 16.02%



m/z 57.95 13.61%



m/z 43.00 100.00%



Data File : C:\HPCHEM\1\DATA2\DH051715.D
Acq On : 17 May 2017 5:01 pm
Sample : C1705036-011A
Misc : T015
MS Integration Params: LSCINT.F

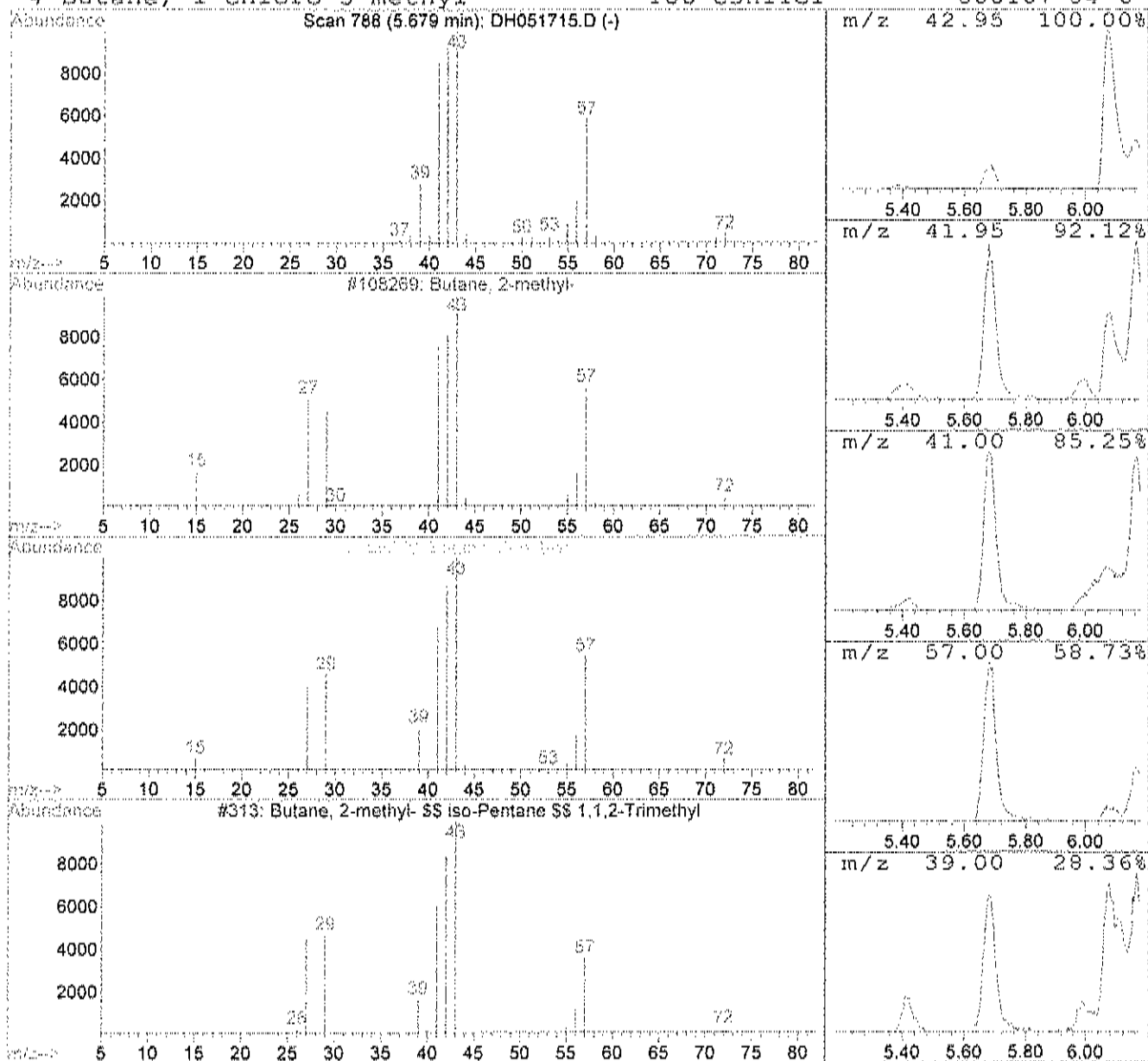
Vial: 13
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 5 Butane, 2-methyl- Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
5.68	24.30 ppb	266270	Bromochloromethane	9.94

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Butane, 2-methyl-	72	C5H12	000078-78-4	91
2			Butane, 2-methyl-	72	C5H12	000078-78-4	83
3			Butane, 2-methyl- \$\$ iso-Pentane \$\$	72	C5H12	000078-78-4	72
4			Butane, 1-chloro-3-methyl-	106	C5H11Cl	000107-84-6	25



Data File : C:\HPCHEM\1\DATA2\DH051715.D
Acq On : 17 May 2017 5:01 pm
Sample : C1705036-011A
Misc : TO15
MS Integration Params: LSCINT.P

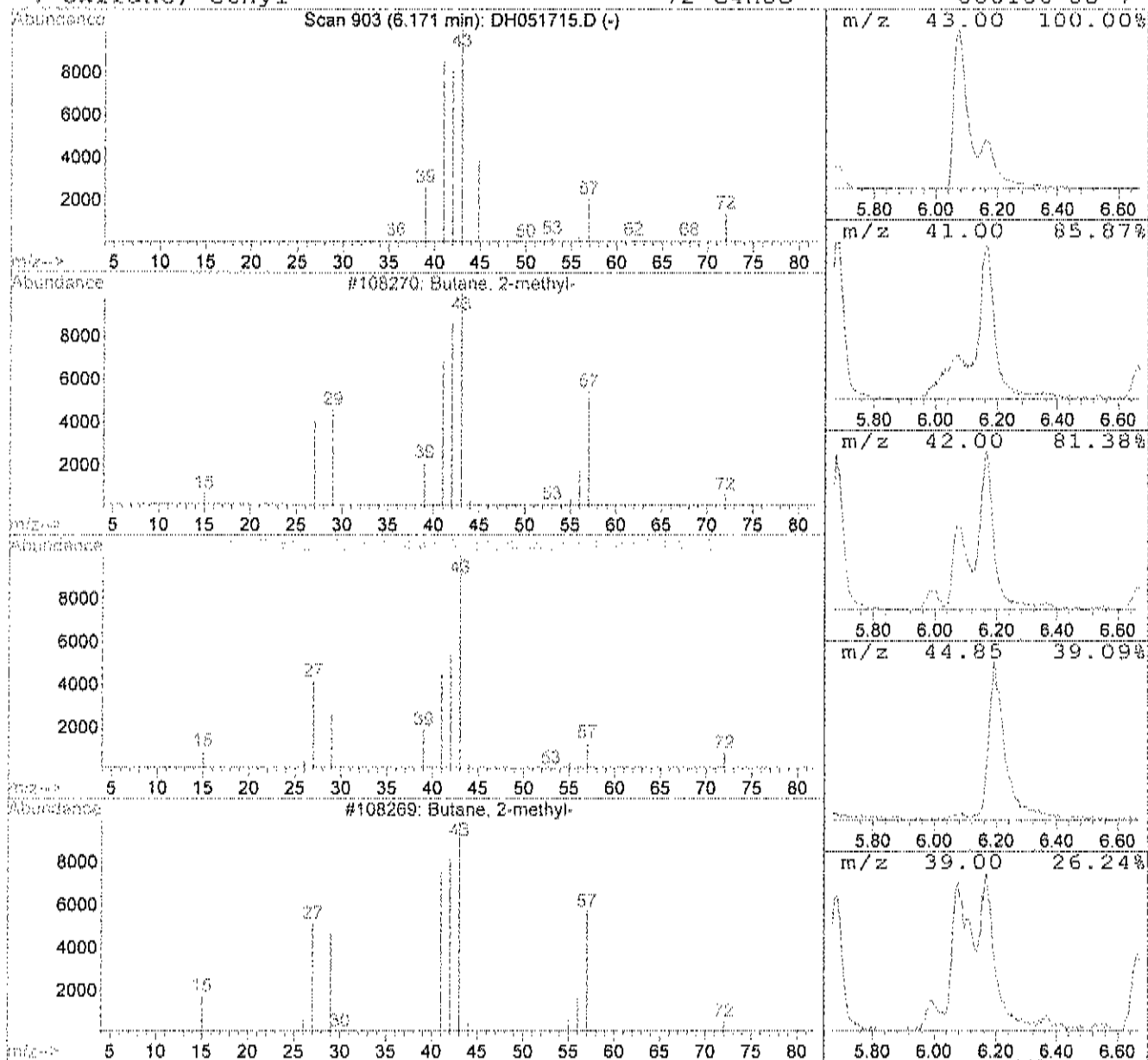
Vial: 13
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 6 Pentane \$\$ n-Pentane \$\$ Skelly Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.17	32.64 ppb	357732	Bromochloromethane	9.94

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Butane, 2-methyl-	72	C5H12	000078-78-4	45
2			Pentane \$\$ n-Pentane \$\$ Skellysolve	72	C5H12	000109-66-0	42
3			Butane, 2-methyl-	72	C5H12	000078-78-4	9
4			Oxirane, ethyl-	72	C4H8O	000106-88-7	9



Data File : C:\HPCHEM\1\DATA2\DH051715.D
Acq On : 17 May 2017 5:01 pm
Sample : C1705036-011A
Misc : TO15
MS Integration Params: LSCINT.P

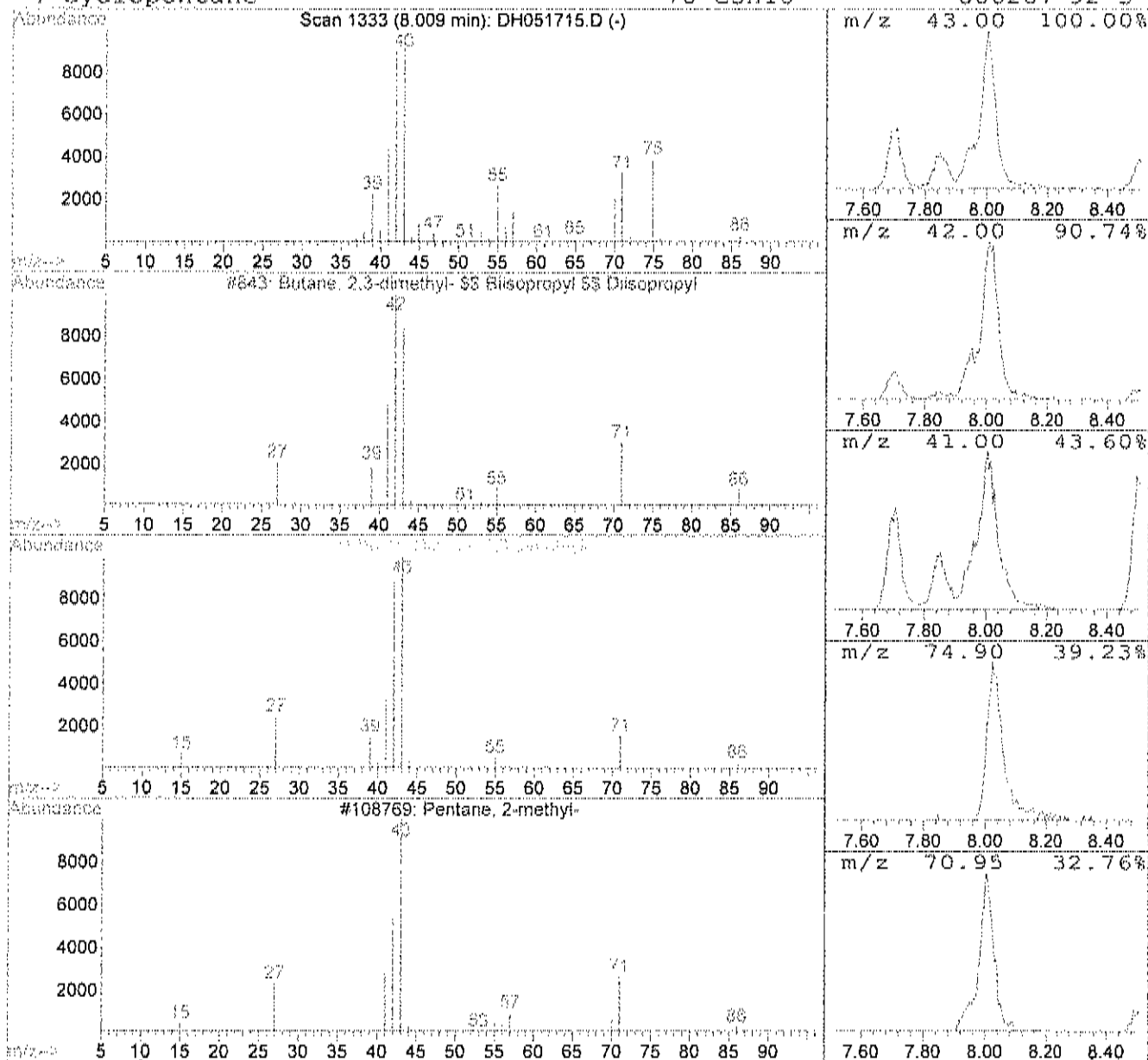
Vial: 13
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 7 Butane, 2,3-dimethyl- \$\$ Biiso Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
8.01	19.25 ppb	211016	Bromochloromethane	9.94

Hit#	of 5	Tentative ID	MW	MolForm	CAS#	Qual
1		Butane, 2,3-dimethyl- \$\$ Biisopropyl	86	C6H14	000079-29-8	47
2		Butane, 2,3-dimethyl-	86	C6H14	000079-29-8	43
3		Pentane, 2-methyl-	86	C6H14	000107-83-5	38
4		Cyclopentane	70	C5H10	000287-92-3	38



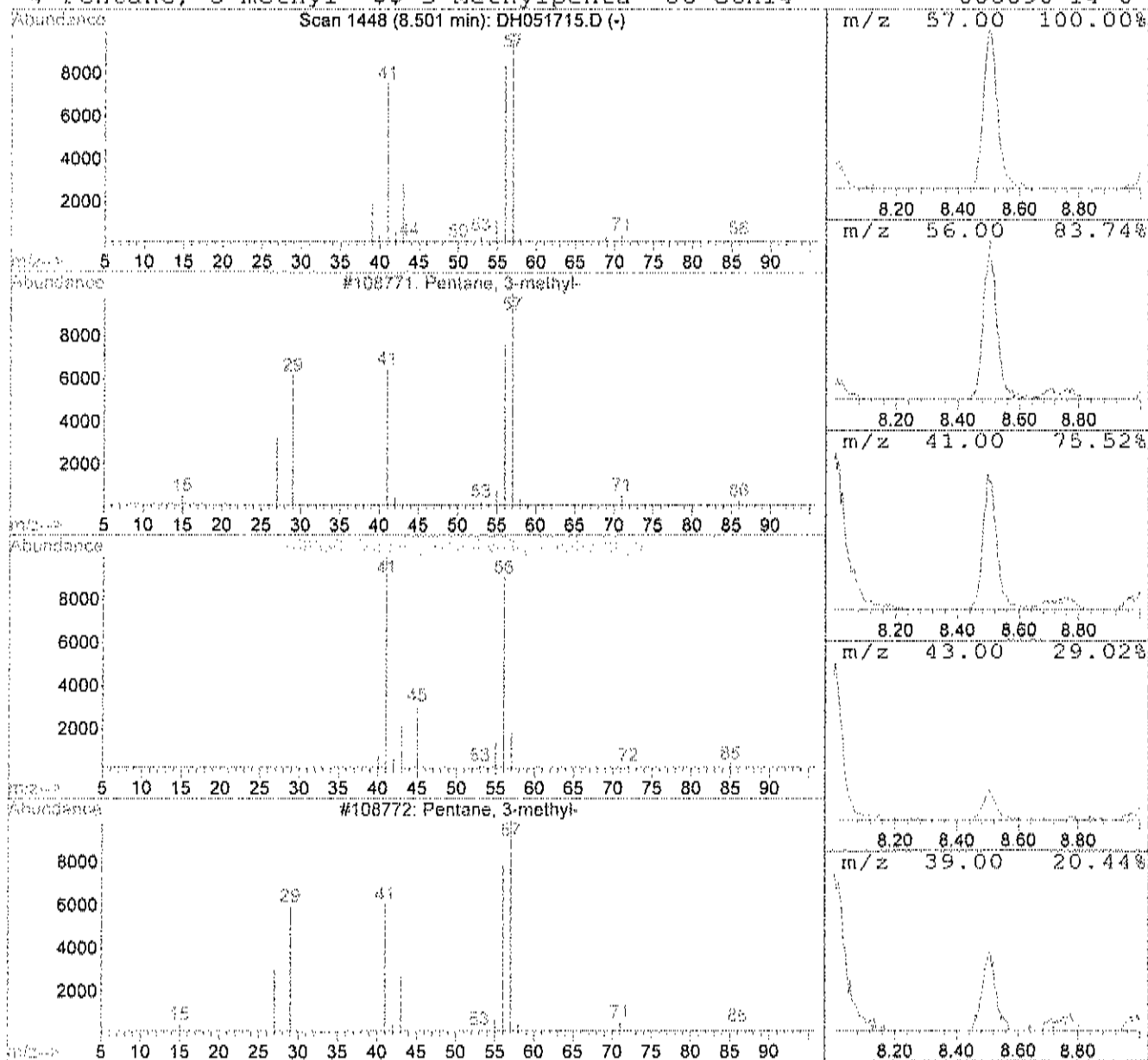
Data File : C:\HPCHEM\1\DATA2\DH051715.D
Acq On : 17 May 2017 5:01 pm
Sample : C1705036-011A
Misc : T015
MS Integration Params: LSCINT.P

Vial: 13
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 8 Pentane, 3-methyl- Concentration Rank 10

R.T.	EstConc	Area	Relative to ISTD	R.T.	
8.50	10.39 ppb	113874	Bromochloromethane	9.94	
Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Pentane, 3-methyl-	86	C6H14	000096-14-0	90
2	Oxirane, 2-methyl-3-(1-methylethyl)	100	C6H12O	001192-31-0	64
3	Pentane, 3-methyl-	86	C6H14	000096-14-0	64
4	Pentane, 3-methyl- \$\$ 3-Methylpenta	86	C6H14	000096-14-0	52



Data File : C:\HPCHEM\1\DATA2\DH051715.D
Acq On : 17 May 2017 5:01 pm
Sample : C1705036-011A
Misc : T015
MS Integration Params: LSCINT.P

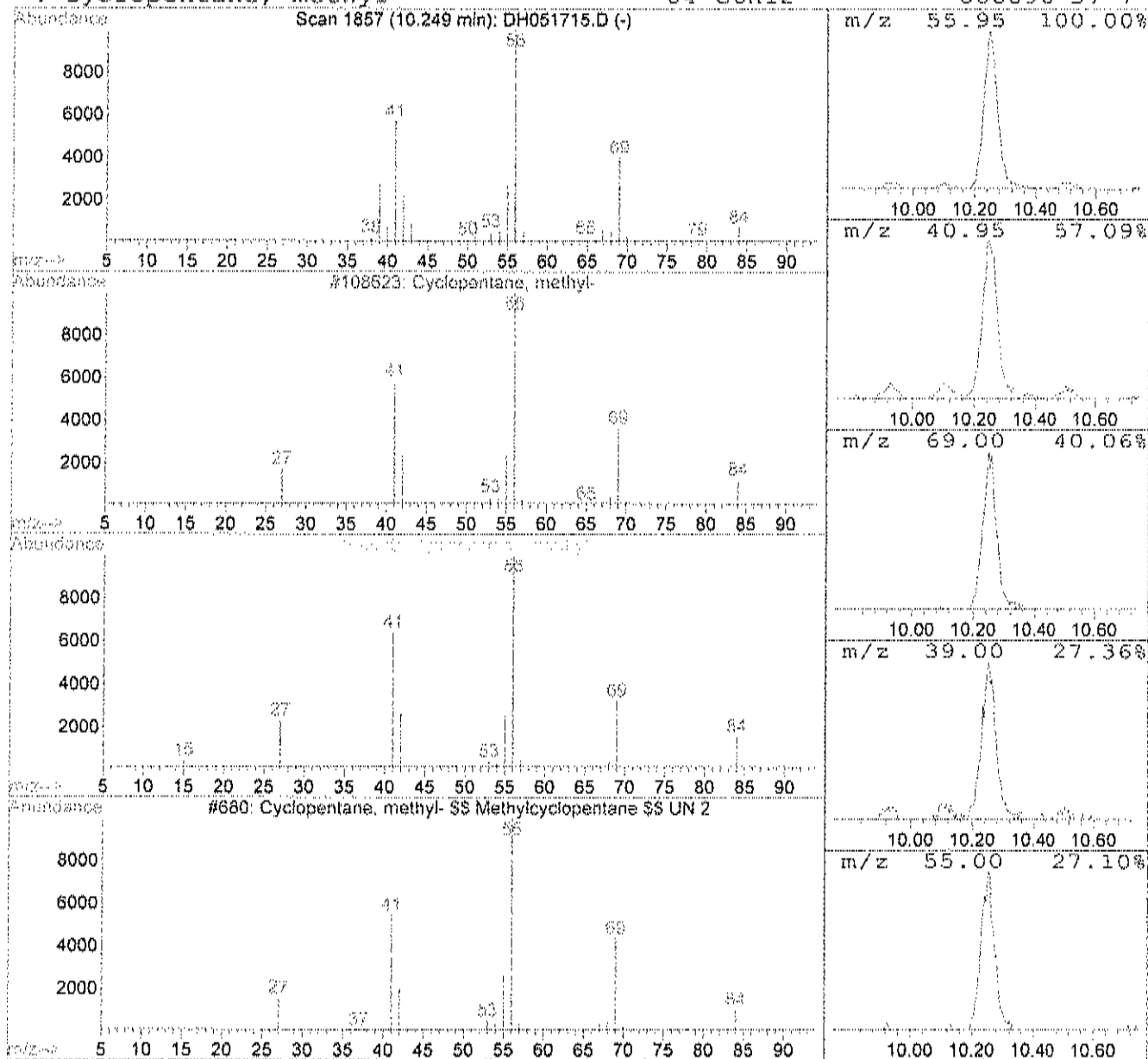
Vial: 13
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 9 Cyclopentane, methyl- Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
10.25	19.04 ppb	208623	Bromochloromethane	9.94

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Cyclopentane, methyl-	84	C6H12	000096-37-7	91
2			Cyclopentane, methyl-	84	C6H12	000096-37-7	91
3			Cyclopentane, methyl- \$\$ Methylcycl	84	C6H12	000096-37-7	91
4			Cyclopentane, methyl-	84	C6H12	000096-37-7	87



Data File : C:\HPCHEM\1\DATA2\DH051715.D
Acq On : 17 May 2017 5:01 pm
Sample : C1705036-011A
Misc : T015
MS Integration Params: LSCINT.P

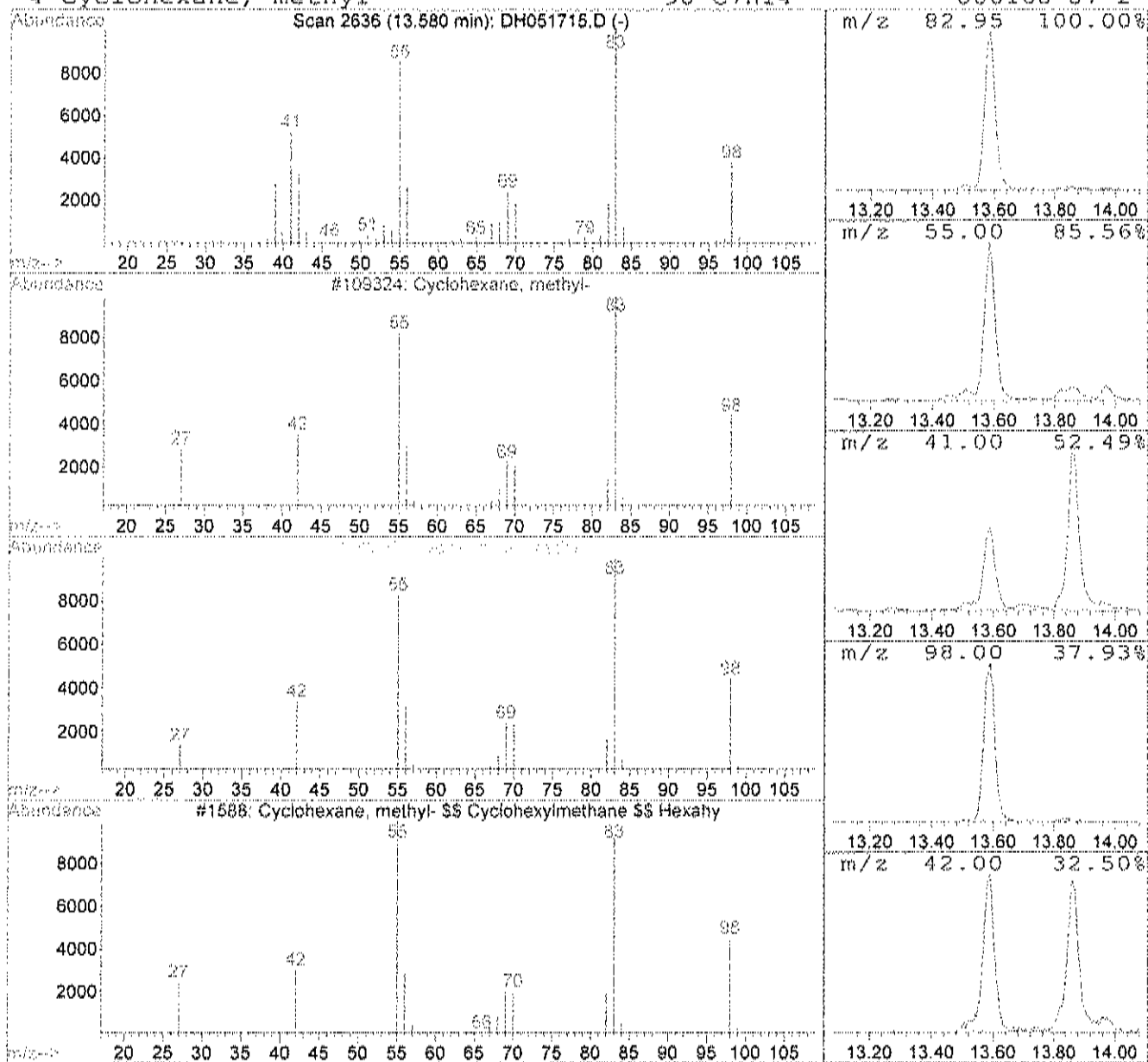
Vial: 13
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 10 Cyclohexane, methyl- Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
13.58	20.70 ppb	383773	1,4-difluorobenzene	12.17

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Cyclohexane, methyl-	98	C7H14	000108-87-2	94
2			Cyclohexane, methyl-	98	C7H14	000108-87-2	94
3			Cyclohexane, methyl- \$\$ Cyclohexylm	98	C7H14	000108-87-2	94
4			Cyclohexane, methyl-	98	C7H14	000108-87-2	91



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 17 May 2017 5:01 pm
 Data File: C:\HPCHEM\1\DATA2\DH051715.D
 Name: C1705036-011A
 Misc: T015
 Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title: VOA Standards for 5 point calibration
 Library Searched: C:\DATABASE\NIST129.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc
Hydrogen sulfide \$\$	4.08	976.5	ppb	10701500	ISTD01	9.94	547969	50.0
Isobutane	4.46	21.3	ppb	233179	ISTD01	9.94	547969	50.0
1-Propene, 2-methyl-	4.65	15.4	ppb	168784	ISTD01	9.94	547969	50.0
Butane	4.72	27.6	ppb	302158	ISTD01	9.94	547969	50.0
Butane, 2-methyl-	5.68	24.3	ppb	266270	ISTD01	9.94	547969	50.0
Pentane \$\$ n-Pentane	6.17	32.6	ppb	357732	ISTD01	9.94	547969	50.0
Butane, 2,3-dimethyl	8.01	19.3	ppb	211016	ISTD01	9.94	547969	50.0
Pentane, 3-methyl-	8.50	10.4	ppb	113874	ISTD01	9.94	547969	50.0
Cyclopentane, methyl	10.25	19.0	ppb	208623	ISTD01	9.94	547969	50.0
Cyclohexane, methyl-	13.58	20.7	ppb	383773	ISTD02	12.17	927166	50.0

DH051715.D I0511T15.M Mon Jun 19 14:43:44 2017

Data File : C:\HPCHEM\1\DATA\DH051716.D

Vial: 13

Acq On : 17 May 2017 5:36 pm

Operator: WD

Sample : C1705036-011A 5X

Inst : GCMS3

Misc : T015

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: Jun 1 11:41 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	70443m ^(u)	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	352890	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	273927	50.00	ppb	0.00

System Monitoring Compounds

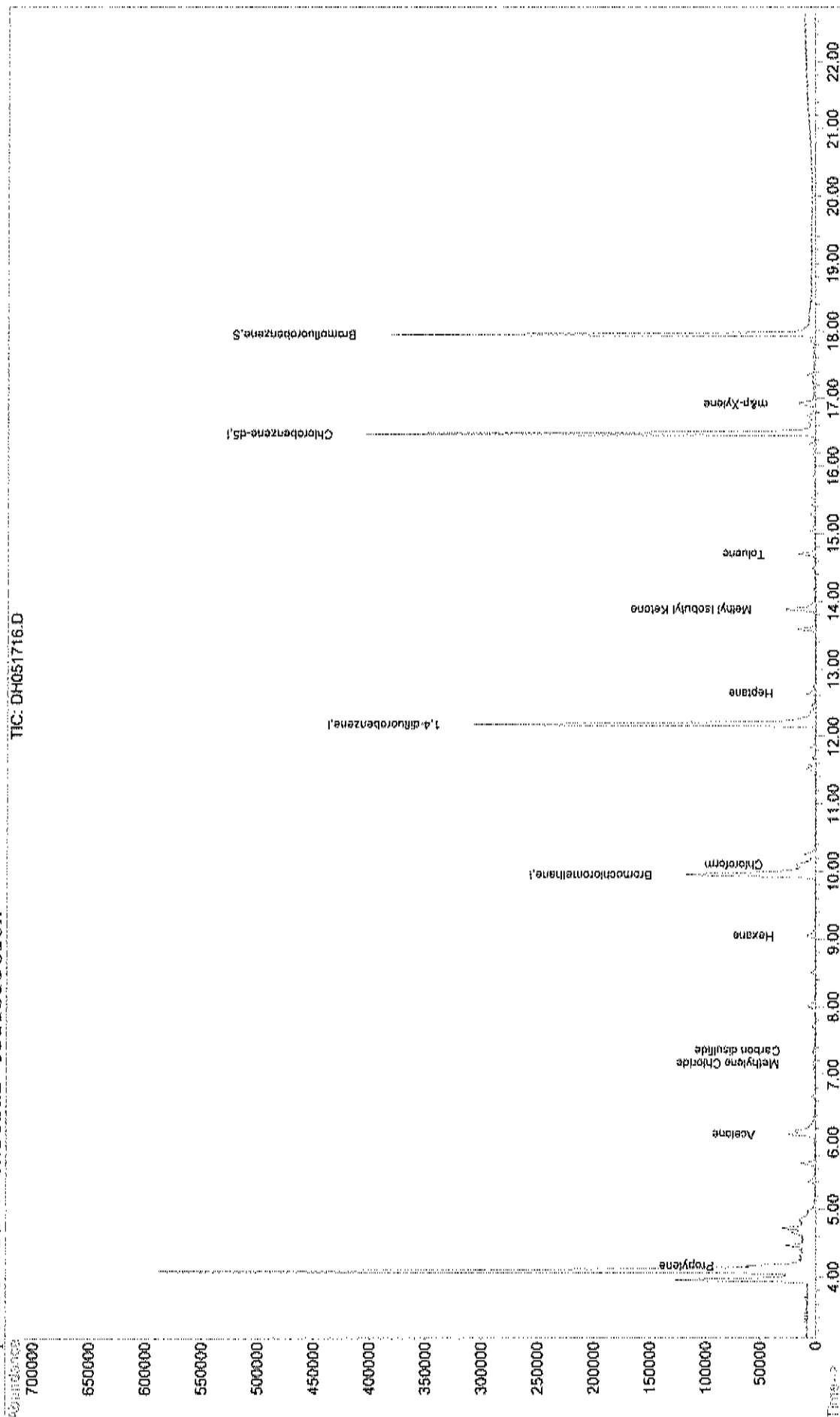
67) Bromofluorobenzene	17.95	95	158639	40.83	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	81.66%

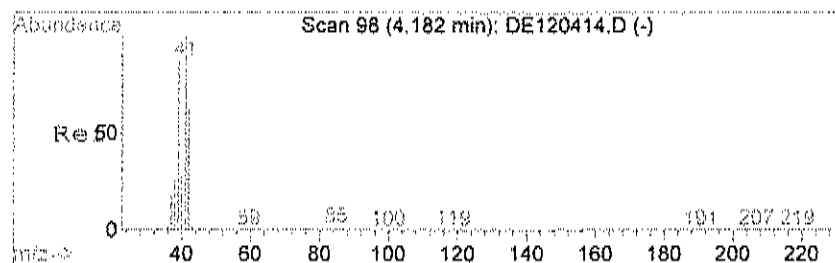
Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.17	41	16162m ^(u)	7.09	ppb	
16) Acetone	6.11	43	46591	17.59	ppb	74
23) Methylene Chloride	7.16	84	1846	1.02	ppb	# 72
24) Carbon disulfide	7.36	76	6649m ^(u)	1.26	ppb	
30) Hexane	9.05	41	4926	1.54	ppb	# 49
33) Chloroform	10.09	83	11097	2.20	ppb	97
42) Heptane	12.64	43	5321	1.13	ppb	88
48) Methyl Isobutyl Ketone	13.88	43	37567	6.32	ppb	92
52) Toluene	14.70	92	8392	1.64	ppb	96
60) m,p-Xylene	16.92	106	6269	1.52	ppb	100

Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051716.D
Acq On : 17 May 2017 5:36 pm
Sample : C1705036-011A 5X
Misc : TO15
MS Integration Params: rteint.p
Quant Time: Jun 1 11:41 2017
Quant Results File: I0511T15.RES
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





#2

Propylene

Concen: 7.09 ppb m

RT: 4.17 min Scan# 355

Delta R.T. -0.02 min

Lab File: DH051716.D

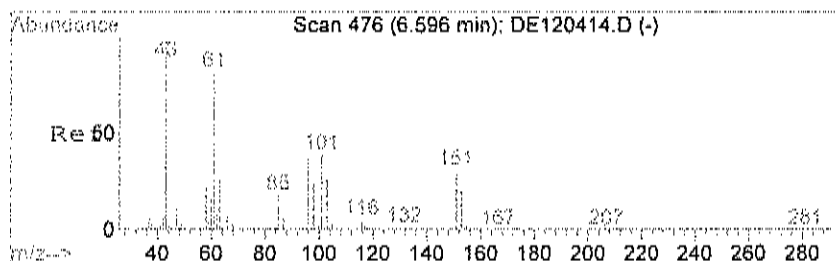
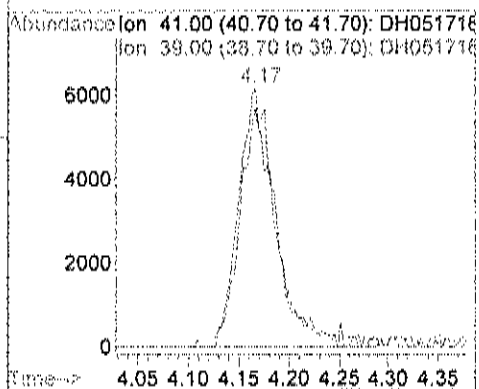
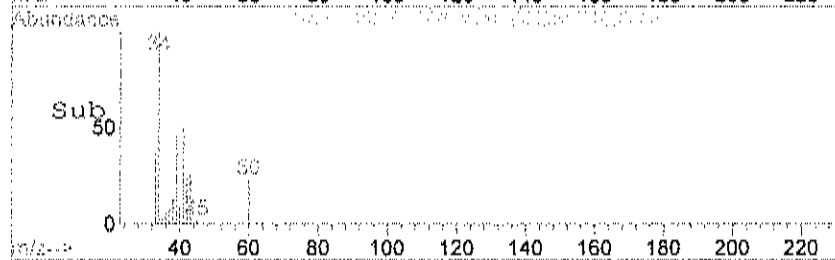
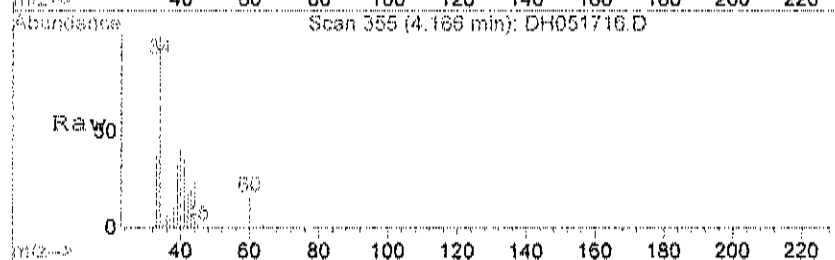
Acq: 17 May 2017 5:36 pm

Tgt Ion: 41 Resp: 16162

Ion Ratio Lower Upper

41 100

39 87.9 42.4 127.1



#16

Acetone

Concen: 17.59 ppb

RT: 6.11 min Scan# 888

Delta R.T. -0.00 min

Lab File: DH051716.D

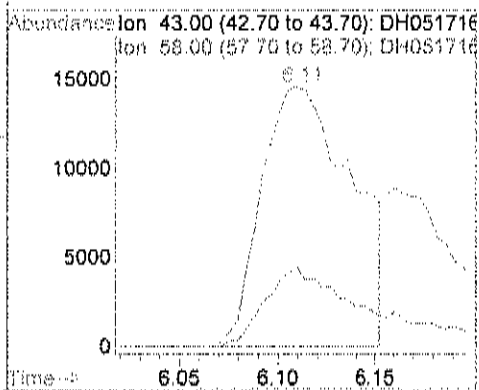
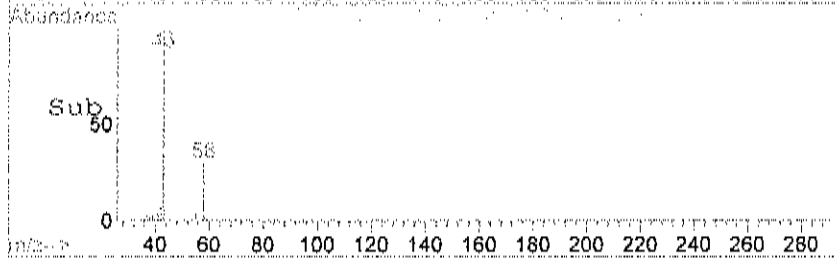
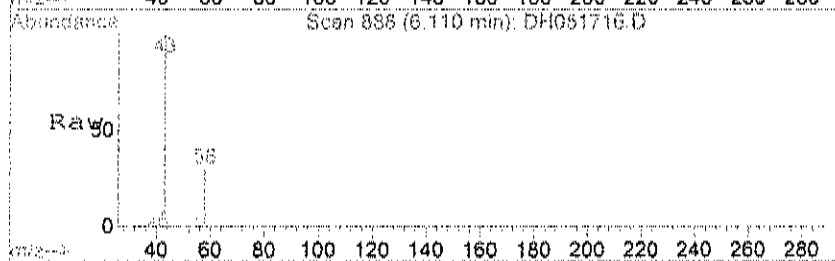
Acq: 17 May 2017 5:36 pm

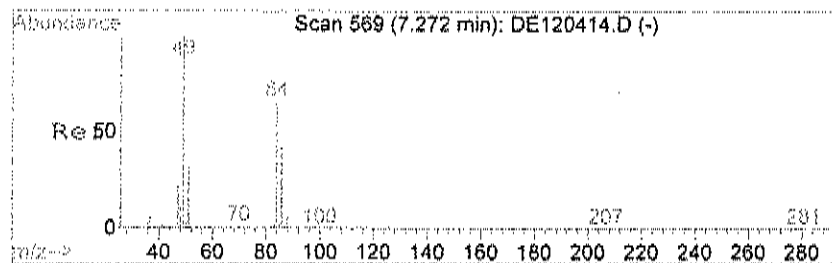
Tgt Ion: 43 Resp: 46591

Ion Ratio Lower Upper

43 100

58 36.6 3.7 43.7





#23

Methylene Chloride

Concen: 1.02 ppb

RT: 7.16 min Scan# 1134

Delta R.T. -0.01 min

Lab File: DH051716.D

Acq: 17 May 2017 5:36 pm

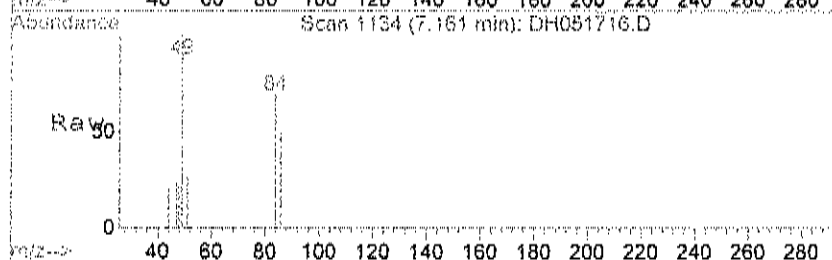
Tgt Ion: 84 Resp: 1846

Ion Ratio Lower Upper

84 100

49 109.8 124.3 164.3#

86 40.9 43.0 83.0#

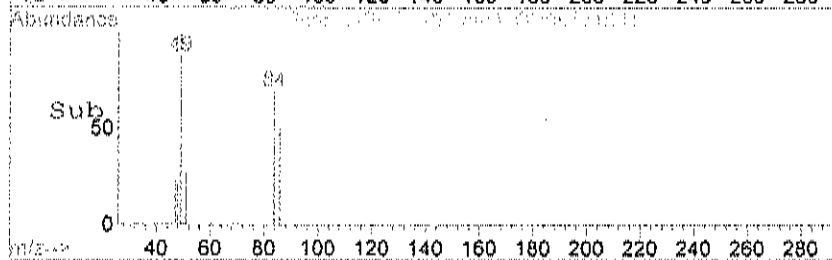


Abundance Ion 84.00 (83.70 to 84.70): DH051716

Ion 49.00 (48.70 to 49.70): DH051716

Time-->

7.10 7.15 7.20



#24

Carbon disulfide

Concen: 1.26 ppb m

RT: 7.36 min Scan# 1180

Delta R.T. 0.01 min

Lab File: DH051716.D

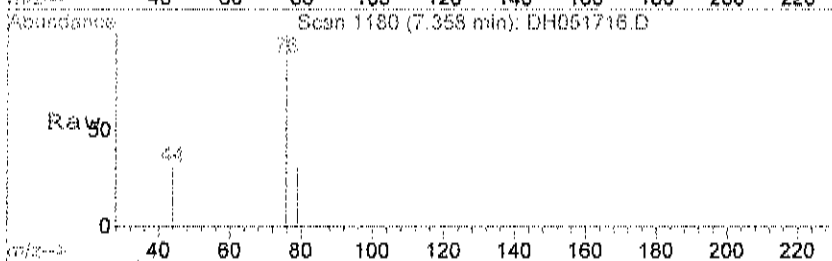
Acq: 17 May 2017 5:36 pm

Tgt Ion: 76 Resp: 6649

Ion Ratio Lower Upper

76 100

78 0.6 0.0 29.3

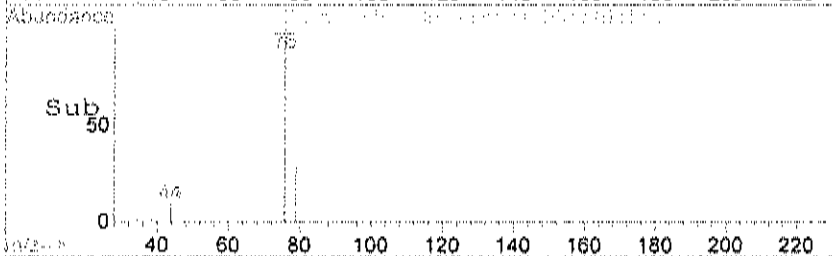


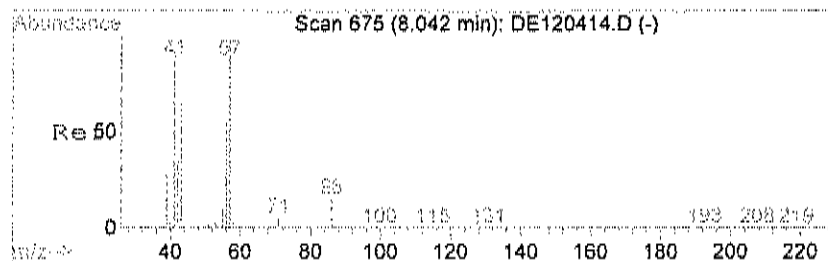
Abundance Ion 76.00 (75.70 to 76.70): DH051716

Ion 78.00 (77.70 to 78.70): DH051716

Time-->

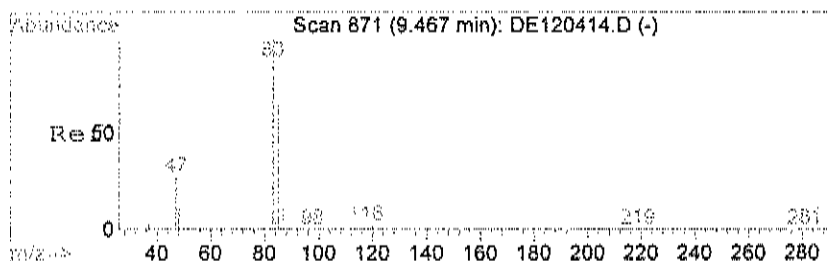
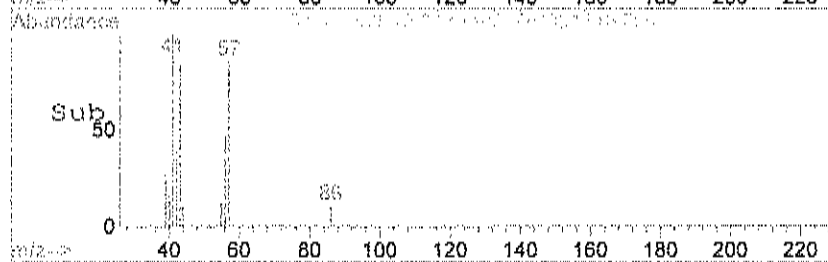
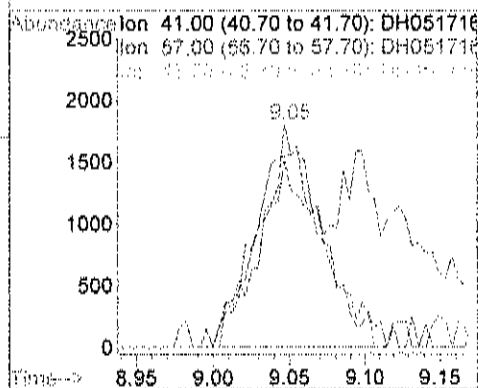
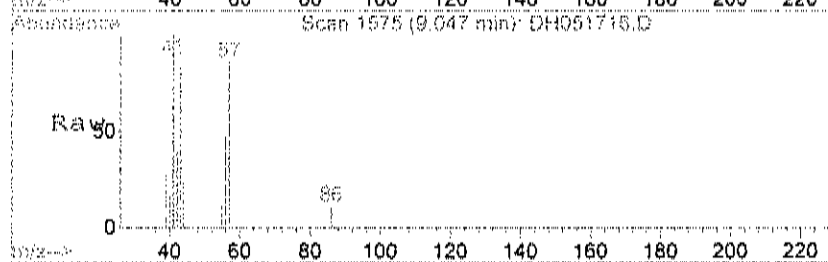
7.20 7.30 7.40 7.50 7.60





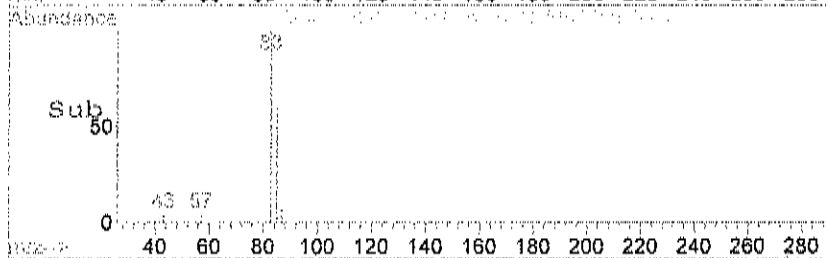
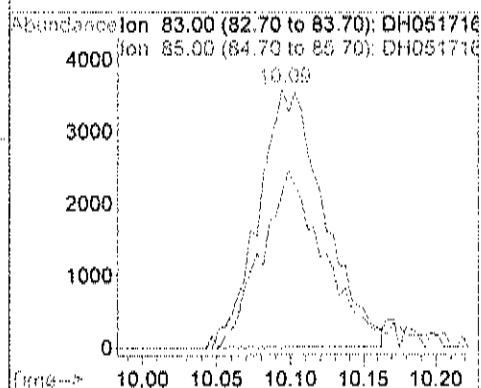
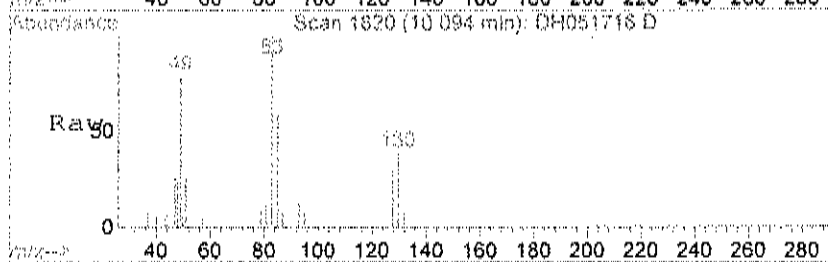
#30
Hexane
Concen: 1.54 ppb
RT: 9.05 min Scan# 1575
Delta R.T. -0.02 min
Lab File: DH051716.D
Acq: 17 May 2017 5:36 pm

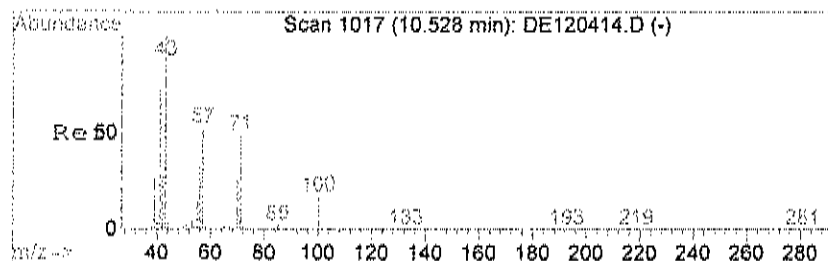
Tgt Ion	Ratio	Lower	Upper
41	100		
57	106.0	96.5	136.5
43	76.6	168.6	208.6#



#33
Chloroform
Concen: 2.20 ppb
RT: 10.09 min Scan# 1820
Delta R.T. -0.02 min
Lab File: DH051716.D
Acq: 17 May 2017 5:36 pm

Tgt Ion	Ratio	Lower	Upper
83	100		
85	66.0	43.5	83.5





#42

Heptane

Concen: 1.13 ppb

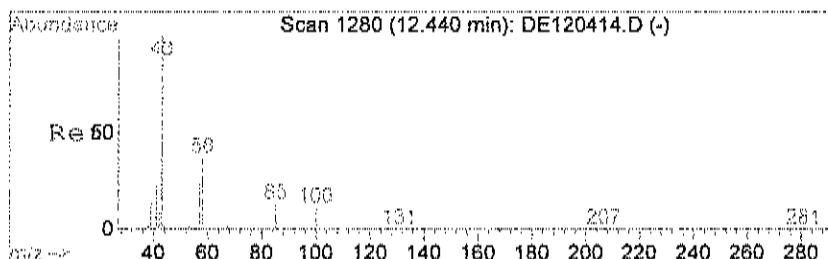
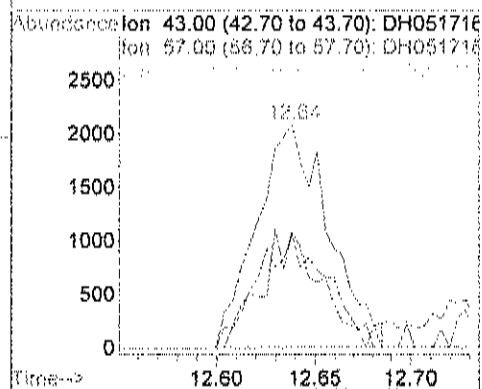
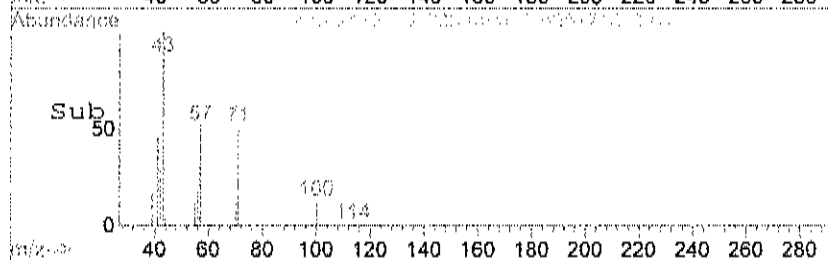
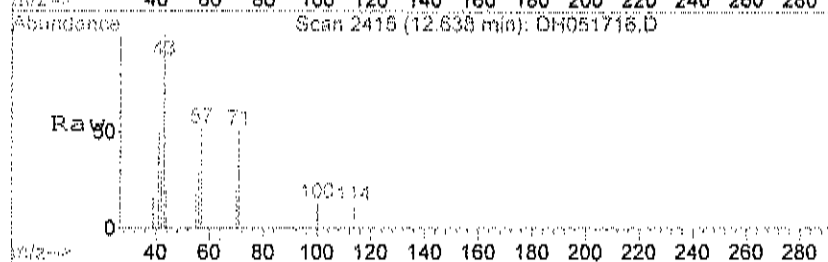
RT: 12.64 min Scan# 2415

Delta R.T. -0.01 min

Lab File: DH051716.D

Acq: 17 May 2017 5:36 pm

Tgt Ion:	43	Resp:	5321
Ion	Ratio	Lower	Upper
43	100		
57	48.5	32.3	72.3
71	43.4	37.2	77.2



#48

Methyl Isobutyl Ketone

Concen: 6.32 ppb

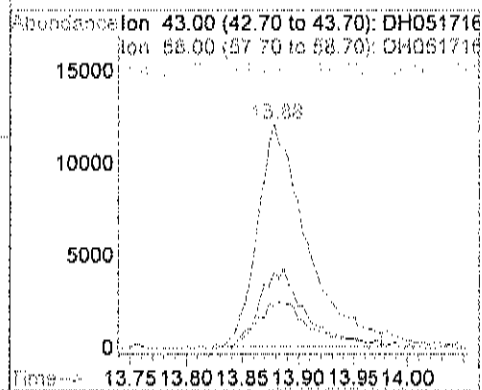
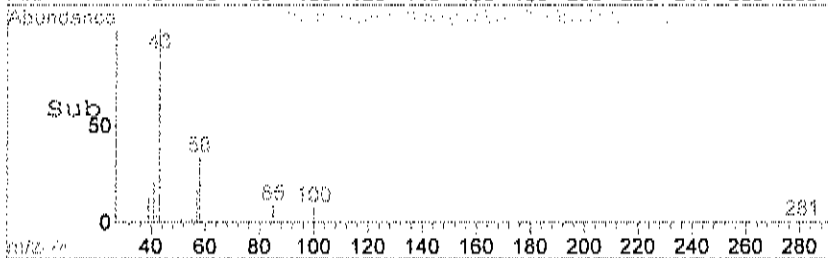
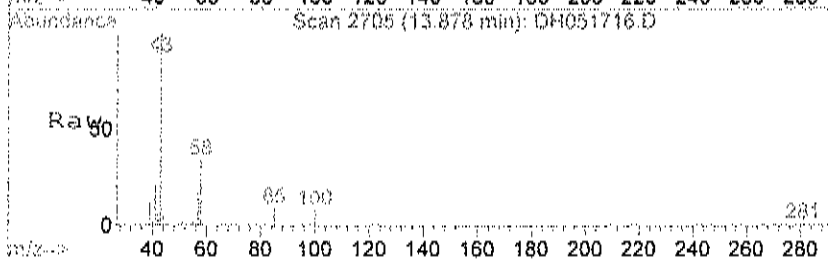
RT: 13.88 min Scan# 2705

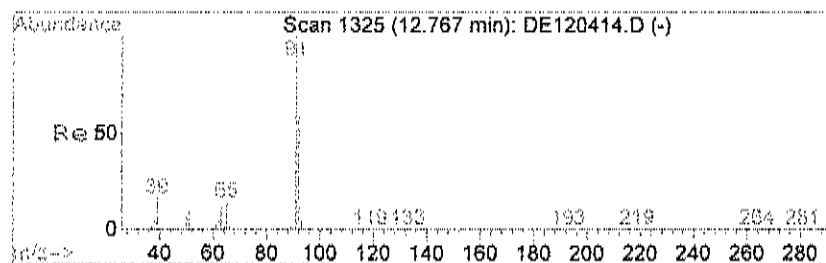
Delta R.T. 0.00 min

Lab File: DH051716.D

Acq: 17 May 2017 5:36 pm

Tgt Ion:	43	Resp:	37567
Ion	Ratio	Lower	Upper
43	100		
58	32.0	15.8	55.8
57	21.4	6.8	46.8





#52

Toluene

Concen: 1.64 ppb

RT: 14.70 min Scan# 2898

Delta R.T. 0.00 min

Lab File: DH051716.D

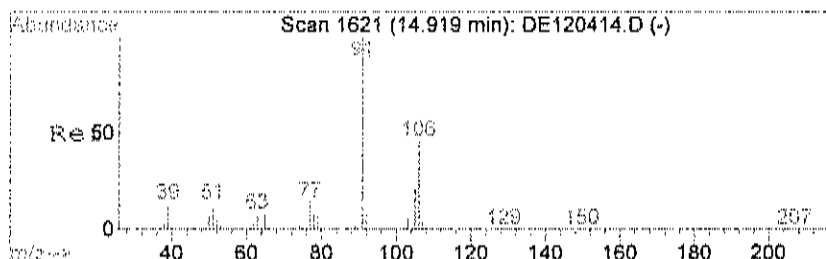
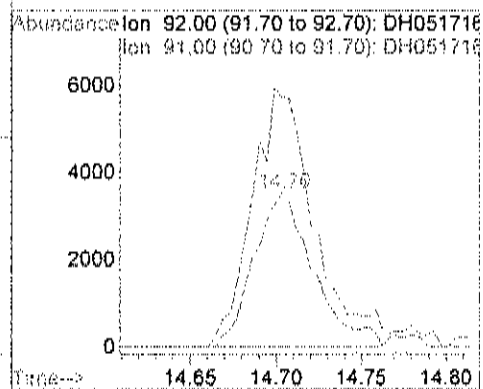
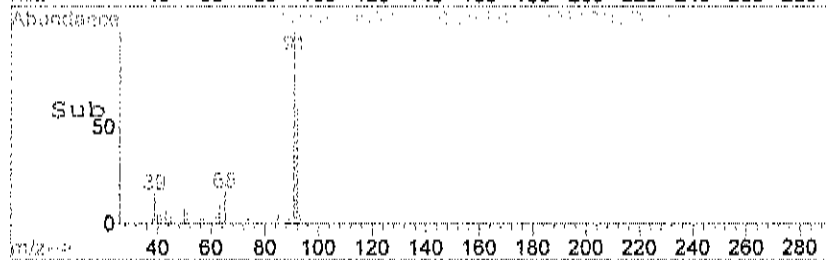
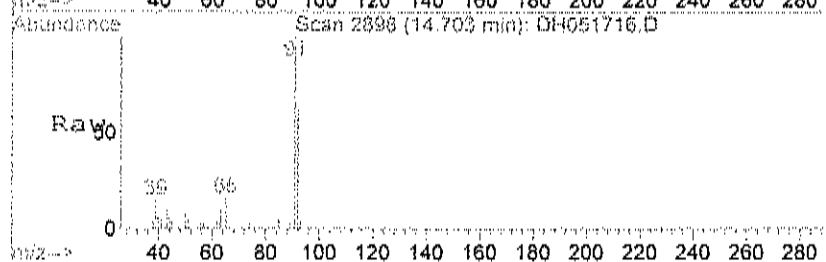
Acq: 17 May 2017 5:36 pm

Tgt Ion: 92 Resp: 8392

Ion Ratio Lower Upper

92 100

91 177.2 151.4 191.4



#60

m&p-Xylene

Concen: 1.52 ppb

RT: 16.92 min Scan# 3332

Delta R.T. -0.02 min

Lab File: DH051716.D

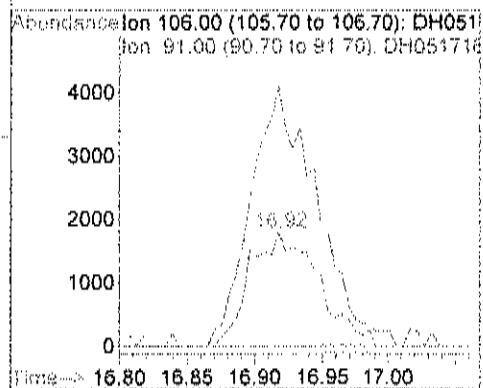
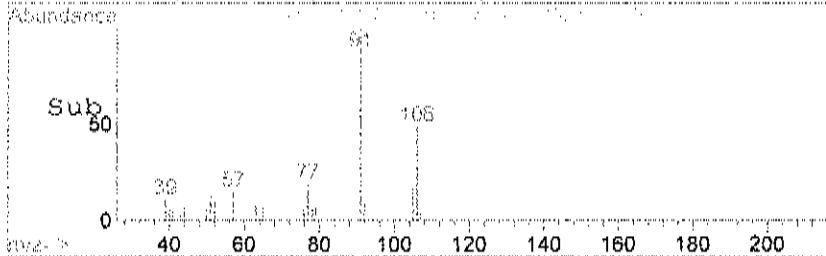
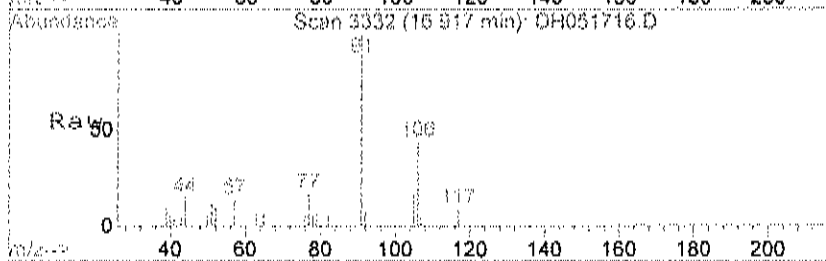
Acq: 17 May 2017 5:36 pm

Tgt Ion: 106 Resp: 6269

Ion Ratio Lower Upper

106 100

91 222.3 202.1 242.1



Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT:	CH2M - St Louis	Client Sample ID:	WAT-SV15-050917
Lab Order:	C1705036	Tag Number:	1019.403
Project:	Former Hampshire	Collection Date:	5/9/2017
Lab ID:	C1705036-012A	Matrix:	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	32.1	1.90	%		1	5/15/2017
Carbon Monoxide	ND	0.880	%		1	5/15/2017
Methane	38.6	0.580	%		1	5/15/2017
Nitrogen	18.4	8.30	%		1	5/15/2017
Oxygen	1.94	0.880	%		1	5/15/2017
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,1,2,2-Tetrachloroethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,1,2-Trichloroethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,1-Dichloroethane	39	50	J	ppbV	10	5/15/2017 9:29:00 PM
1,1-Dichloroethene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,2,4-Trichlorobenzene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,2,4-Trimethylbenzene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,2-Dibromoethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,2-Dichlorobenzene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,2-Dichloroethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,2-Dichloropropane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,3,5-Trimethylbenzene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,3-butadiene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,3-Dichlorobenzene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,4-Dichlorobenzene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
1,4-Dioxane	< 100	100		ppbV	10	5/15/2017 9:29:00 PM
2,2,4-trimethylpentane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
4-ethyltoluene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Acetone	6200	1300		ppbV	128	5/17/2017 1:46:00 PM
Allyl chloride	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Benzene	54	50		ppbV	10	5/15/2017 9:29:00 PM
Benzyl chloride	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Bromodichloromethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Bromoform	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Bromomethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Carbon disulfide	3000	640		ppbV	128	5/17/2017 1:46:00 PM
Carbon tetrachloride	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Chlorobenzene	28	50	J	ppbV	10	5/15/2017 9:29:00 PM
Chloroethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Chloroform	1400	640		ppbV	128	5/17/2017 1:46:00 PM

Qualifiers:	** Quantitation Limit	- Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E Estimated Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limit
JN	Non-routine analyte. Quantitation estimated.	ND Not Detected at the Limit of Detection
S	Spike Recovery outside accepted recovery limits	

Date: 22-Jun-17

Centek Laboratories, LLC

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-012A

Client Sample ID: WAT-SV15-050917
 Tag Number: 1019.403
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
cis-1,2-Dichloroethene	140	50		ppbV	10	5/15/2017 9:29:00 PM
cis-1,3-Dichloropropene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Cyclohexane	45	50	J	ppbV	10	5/15/2017 9:29:00 PM
Dibromochloromethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Ethyl acetate	< 100	100		ppbV	10	5/15/2017 9:29:00 PM
Ethylbenzene	800	50		ppbV	10	5/15/2017 9:29:00 PM
Freon 11	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Freon 113	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Freon 114	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Freon 12	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Heptane	300	50		ppbV	10	5/15/2017 9:29:00 PM
Hexachloro-1,3-butadiene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Hexane	970	50		ppbV	10	5/15/2017 9:29:00 PM
Isopropyl alcohol	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
m&p-Xylene	11000	1300		ppbV	128	5/17/2017 1:46:00 PM
Methyl Butyl Ketone	< 100	100		ppbV	10	5/15/2017 9:29:00 PM
Methyl Ethyl Ketone	< 100	100		ppbV	10	5/15/2017 9:29:00 PM
Methyl Isobutyl Ketone	32000	6400		ppbV	640	5/17/2017 6:46:00 PM
Methyl tert-butyl ether	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Methylene chloride	1700	640		ppbV	128	5/17/2017 1:46:00 PM
o-Xylene	3200	640		ppbV	128	5/17/2017 1:46:00 PM
Propylene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Styrene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Tetrachloroethylene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Tetrahydrofuran	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Toluene	2100	640		ppbV	128	5/17/2017 1:46:00 PM
trans-1,2-Dichloroethane	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
trans-1,3-Dichloropropene	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Trichloroethene	48	50	J	ppbV	10	5/15/2017 9:29:00 PM
Vinyl acetate	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Vinyl Bromide	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Vinyl chloride	< 50	50		ppbV	10	5/15/2017 9:29:00 PM
Surr: Bromofluorobenzene	120	73.7-124		%REC	10	5/15/2017 9:29:00 PM
TIC: 1-Butanol, 3-methoxy-	5400	0	JN	ppbV	10	5/15/2017 9:29:00 PM
TIC: 2,2-Bifuran, octahydro-	3800	0	JN	ppbV	10	5/15/2017 9:29:00 PM
TIC: 2-Propanethiol \$\$	16000	0	EJN	ppbV	10	5/15/2017 9:29:00 PM
Isopropanethiol \$\$ Iso						
TIC: 3-Penten-2-one	13000	0	EJN	ppbV	10	5/15/2017 9:29:00 PM

Qualifiers:	** Quantitation Limit	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E Estimated Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limit
JN	Non-routine analyte. Quantitation estimated.	ND Not Detected at the Limit of Detection
S	Spike Recovery outside accepted recovery limits	

Page 35 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-012A

Client Sample ID: WAT-SV15-050917
 Tag Number: 1019.403
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
TIC: Butane, 1,1'-[ethylidenebis(oxy)]bis[2-m	8300	0	JN	ppbV	10	5/15/2017 9:29:00 PM
TIC: Butanoic acid, 3-methylbutyl ester	4300	0	JN	ppbV	10	5/15/2017 9:29:00 PM
TIC: Cyclopropane, 1,2-dimethyl-, cis-	3500	0	JN	ppbV	10	5/15/2017 9:29:00 PM
TIC: Pentane, 1,1'-oxybis- (19.16)	4600	0	JN	ppbV	10	5/15/2017 9:29:00 PM
TIC: Pentane, 1,1'-oxybis- (19.63)	4000	0	JN	ppbV	10	5/15/2017 9:29:00 PM

NOTES:

* The reporting limits were raised due to the high concentration of methane in the sample.

LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	4000	640		ppbV	128	5/18/2017 4:25:00 PM
Carbon disulfide	2900	640		ppbV	128	5/18/2017 4:25:00 PM
Carbonyl sulfide	< 50	50		ppbV	10	5/16/2017 7:54:00 PM
Dimethyl sulfide	270	50		ppbV	10	5/16/2017 7:54:00 PM
Ethyl mercaptan	7100	640		ppbV	128	5/18/2017 4:25:00 PM
Hydrogen Sulfide	110000000	410000		ppbV	81920	5/19/2017 7:44:00 AM
Isopropyl mercaptan	73000	6400		ppbV	1280	5/18/2017 5:01:00 PM
Methyl mercaptan	54000	6400		ppbV	1280	5/18/2017 5:01:00 PM
Surr: Bromofluorobenzene	155	70-130	S	%REC	10	5/16/2017 7:54:00 PM
Surr: Bromofluorobenzene	145	70-130	S	%REC	1280	5/18/2017 5:01:00 PM
Surr: Bromofluorobenzene	130	70-130		%REC	81920	5/19/2017 7:44:00 AM
Surr: Bromofluorobenzene	158	70-130	S	%REC	128	5/18/2017 4:25:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-012A

Client Sample ID: WAT-SV15-050917
 Tag Number: 1019.403
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15				TO-15		Analyst: WD
1,1,1-Trichloroethane	< 270	270		ug/m3	10	5/15/2017 9:29:00 PM
1,1,2,2-Tetrachloroethane	< 340	340		ug/m3	10	5/15/2017 9:29:00 PM
1,1,2-Trichloroethane	< 270	270		ug/m3	10	5/15/2017 9:29:00 PM
1,1-Dichloroethane	160	200	J	ug/m3	10	5/15/2017 9:29:00 PM
1,1-Dichloroethene	< 200	200		ug/m3	10	5/15/2017 9:29:00 PM
1,2,4-Trichlorobenzene	< 370	370		ug/m3	10	5/15/2017 9:29:00 PM
1,2,4-Trimethylbenzene	< 250	250		ug/m3	10	5/15/2017 9:29:00 PM
1,2-Dibromoethane	< 380	380		ug/m3	10	5/15/2017 9:29:00 PM
1,2-Dichlorobenzene	< 300	300		ug/m3	10	5/15/2017 9:29:00 PM
1,2-Dichloroethane	< 200	200		ug/m3	10	5/15/2017 9:29:00 PM
1,2-Dichloropropane	< 230	230		ug/m3	10	5/15/2017 9:29:00 PM
1,3,5-Trimethylbenzene	< 250	250		ug/m3	10	5/15/2017 9:29:00 PM
1,3-butadiene	< 110	110		ug/m3	10	5/15/2017 9:29:00 PM
1,3-Dichlorobenzene	< 300	300		ug/m3	10	5/15/2017 9:29:00 PM
1,4-Dichlorobenzene	< 300	300		ug/m3	10	5/15/2017 9:29:00 PM
1,4-Dioxane	< 360	360		ug/m3	10	5/15/2017 9:29:00 PM
2,2,4-trimethylpentane	< 230	230		ug/m3	10	5/15/2017 9:29:00 PM
4-ethyltoluene	< 250	250		ug/m3	10	5/15/2017 9:29:00 PM
Acetone	15000	3100		ug/m3	128	5/17/2017 1:46:00 PM
Allyl chloride	< 160	160		ug/m3	10	5/15/2017 9:29:00 PM
Benzene	170	160		ug/m3	10	5/15/2017 9:29:00 PM
Benzyl chloride	< 290	290		ug/m3	10	5/15/2017 9:29:00 PM
Bromodichloromethane	< 330	330		ug/m3	10	5/15/2017 9:29:00 PM
Bromoform	< 520	520		ug/m3	10	5/15/2017 9:29:00 PM
Bromomethane	< 190	190		ug/m3	10	5/15/2017 9:29:00 PM
Carbon disulfide	9300	2000		ug/m3	128	5/17/2017 1:46:00 PM
Carbon tetrachloride	< 310	310		ug/m3	10	5/15/2017 9:29:00 PM
Chlorobenzene	130	230	J	ug/m3	10	5/15/2017 9:29:00 PM
Chloroethane	< 130	130		ug/m3	10	5/15/2017 9:29:00 PM
Chloroform	7000	3100		ug/m3	128	5/17/2017 1:46:00 PM
Chloromethane	< 100	100		ug/m3	10	5/15/2017 9:29:00 PM
cis-1,2-Dichloroethene	570	200		ug/m3	10	5/15/2017 9:29:00 PM
cis-1,3-Dichloropropene	< 230	230		ug/m3	10	5/15/2017 9:29:00 PM
Cyclohexane	160	170	J	ug/m3	10	5/15/2017 9:29:00 PM
Dibromochloromethane	< 430	430		ug/m3	10	5/15/2017 9:29:00 PM
Ethyl acetate	< 360	360		ug/m3	10	5/15/2017 9:29:00 PM
Ethylbenzene	3500	220		ug/m3	10	5/15/2017 9:29:00 PM
Freon 11	< 280	280		ug/m3	10	5/15/2017 9:29:00 PM
Freon 113	< 380	380		ug/m3	10	5/15/2017 9:29:00 PM
Freon 114	< 350	350		ug/m3	10	5/15/2017 9:29:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte, Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-012A

Client Sample ID: WAT-SV15-050917
 Tag Number: 1019.403
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 250	250		ug/m3	10	5/15/2017 9:29:00 PM
Heptane	1200	200		ug/m3	10	5/15/2017 9:29:00 PM
Hexachloro-1,3-butadiene	< 530	530		ug/m3	10	5/15/2017 9:29:00 PM
Hexane	3400	180		ug/m3	10	5/15/2017 9:29:00 PM
Isopropyl alcohol	< 120	120		ug/m3	10	5/15/2017 9:29:00 PM
m&p-Xylene	47000	5600		ug/m3	128	5/17/2017 1:46:00 PM
Methyl Butyl Ketone	< 410	410		ug/m3	10	5/15/2017 9:29:00 PM
Methyl Ethyl Ketone	< 290	290		ug/m3	10	5/15/2017 9:29:00 PM
Methyl Isobutyl Ketone	130000	26000		ug/m3	640	5/17/2017 6:46:00 PM
Methyl tert-butyl ether	< 180	180		ug/m3	10	5/15/2017 9:29:00 PM
Methylene chloride	5700	2200		ug/m3	128	5/17/2017 1:46:00 PM
o-Xylene	14000	2800		ug/m3	128	5/17/2017 1:46:00 PM
Propylene	< 86	86		ug/m3	10	5/15/2017 9:29:00 PM
Styrene	< 210	210		ug/m3	10	5/15/2017 9:29:00 PM
Tetrachloroethylene	< 340	340		ug/m3	10	5/15/2017 9:29:00 PM
Tetrahydrofuran	< 150	150		ug/m3	10	5/15/2017 9:29:00 PM
Toluene	7800	2400		ug/m3	128	5/17/2017 1:46:00 PM
trans-1,2-Dichloroethene	< 200	200		ug/m3	10	5/15/2017 9:29:00 PM
trans-1,3-Dichloropropene	< 230	230		ug/m3	10	5/15/2017 9:29:00 PM
Trichloroethene	260	270	J	ug/m3	10	5/15/2017 9:29:00 PM
Vinyl acetate	< 180	180		ug/m3	10	5/15/2017 9:29:00 PM
Vinyl Bromide	< 220	220		ug/m3	10	5/15/2017 9:29:00 PM
Vinyl chloride	< 130	130		ug/m3	10	5/15/2017 9:29:00 PM

NOTES:

* The reporting limits were raised due to the high concentration of methane in the sample.

LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	12000	2000		ug/m3	128	5/18/2017 4:25:00 PM
Carbon disulfide	9000	2000		ug/m3	128	5/18/2017 4:25:00 PM
Carbonyl sulfide	< 120	120		ug/m3	10	5/16/2017 7:54:00 PM
Dimethyl sulfide	1100	190		ug/m3	10	5/16/2017 7:54:00 PM
Ethyl mercaptan	18000	1600		ug/m3	128	5/18/2017 4:25:00 PM
Hydrogen Sulfide	150000000	570000		ug/m3	81920	5/19/2017 7:44:00 AM
Isopropyl mercaptan	230000	20000		ug/m3	1280	5/18/2017 5:01:00 PM
Methyl mercaptan	110000	13000		ug/m3	1280	5/18/2017 5:01:00 PM

Qualifiers:	**	Quantitation Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits		

Data File : C:\HPCHEM\1\DATA\DH051522.D
 Acq On : 15 May 2017 9:29 pm
 Sample : C1705036-012A 10X
 Misc : T015
 MS Integration Params: rteint.p
 Quant Time: Jun 1 10:36 2017

Vial: 16
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.97	128	97735	50.00	ppb	0.02
40) 1,4-difluorobenzene	12.19	114	546927	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	596752	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	505779	59.75	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	119.50%

Target Compounds

						Qvalue
16) Acetone	6.12	43	2819234m	767.15	ppb	
23) Methylene Chloride	7.20	84	524775	208.46	ppb	# 82
24) Carbon disulfide	7.37	76	2611128	355.93	ppb	100
28) 1,1-Dichloroethane	8.57	63	24836	3.91	ppb	99
30) Hexane	9.08	41	432185	97.31	ppb	# 24
31) cis-1,2-dichloroethene	9.52	96	42756	14.45	ppb	97
33) Chloroform	10.13	83	1421945	203.23	ppb	98
37) Benzene	11.53	78	60932	5.37	ppb	94
39) Cyclohexane	11.62	56	28057	4.53	ppb	# 24
42) Heptane	12.64	43	222209	30.32	ppb	93
43) Trichloroethene	12.79	130	20720	4.83	ppb	94
44) 1,2-Dichloropropane	12.90	63	8180	1.83	ppb	90
48) Methyl Isobutyl Ketone	13.91	43	20762789	2252.37	ppb	84
52) Toluene	14.70	92	3478335	438.73	ppb	99
58) Chlorobenzene	16.53	112	36547	2.77	ppb	97
59) Ethylbenzene	16.75	106	578354	79.63	ppb	96
60) m&p-Xylene	16.91	106	4451290	495.94	ppb	# 86
61) Nonane	17.24	43	1204669	90.84	ppb	99
63) o-xylene	17.37	91	9033180	472.94	ppb	91
66) Cumene	17.84	105	162769	6.37	ppb	99

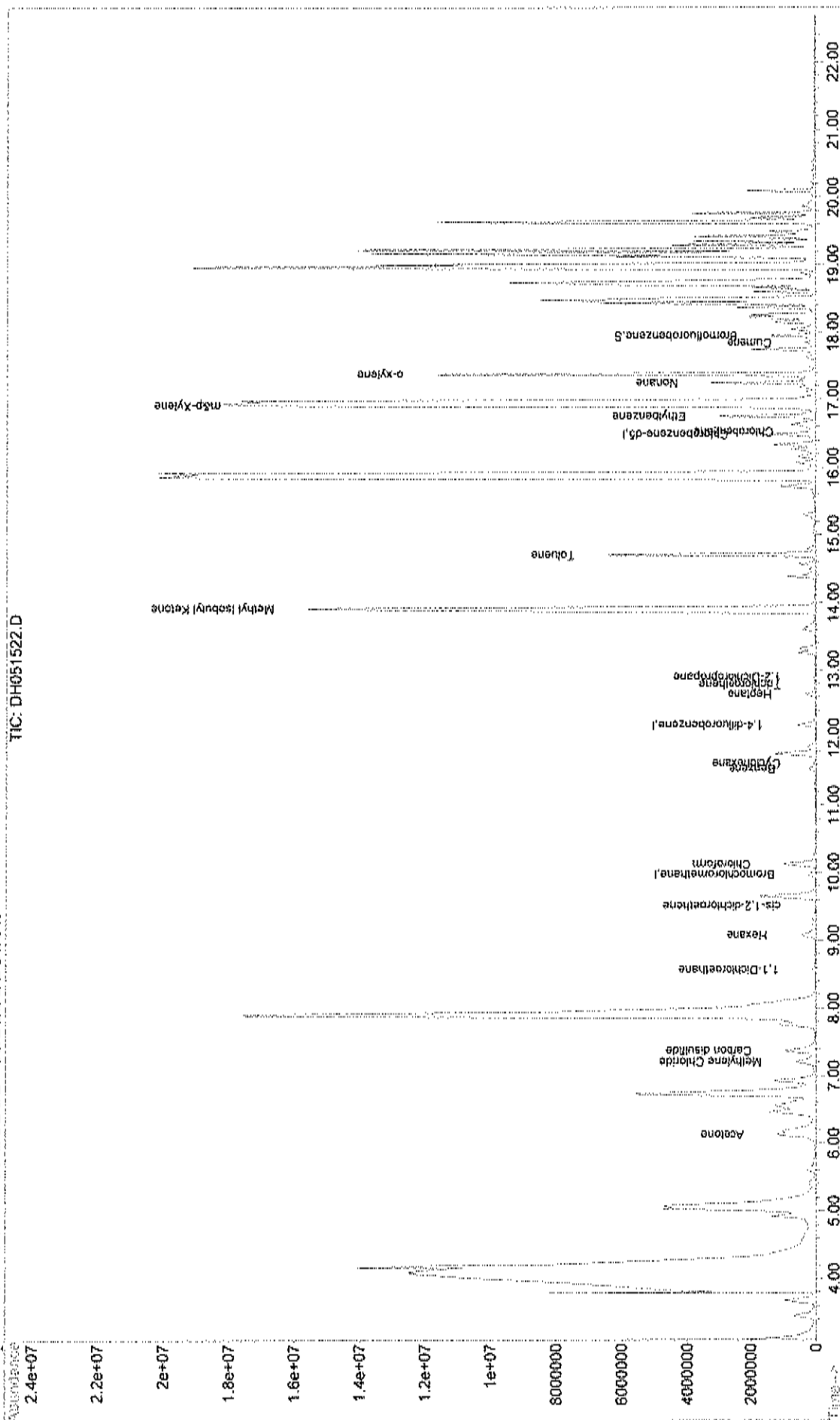
Quantitation Report

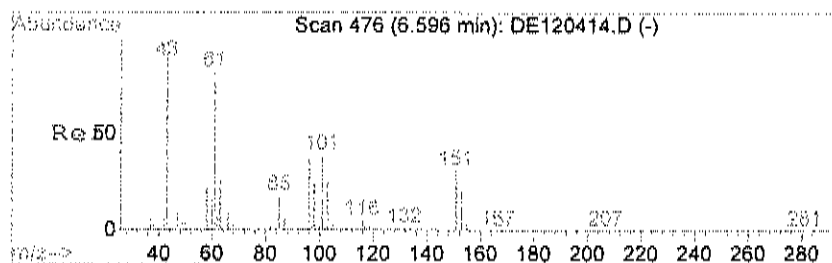
Data File : C:\HPCHEM\1\DATA\DH051522.D
Acq On : 15 May 2017 9:29 pm
Sample : C1705036-012A 10X
Misc : T015
MS Integration Params: rteint.p
Quant Time: Jun 1 10:36 2017

Vial: 16
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

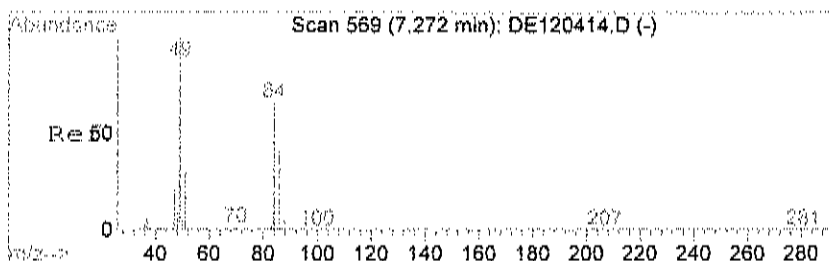
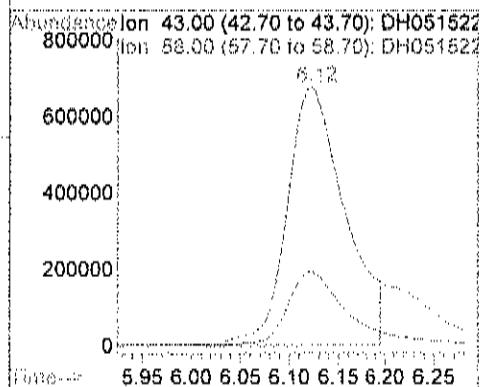
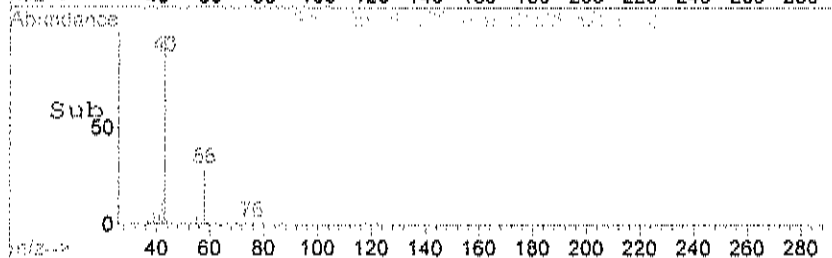
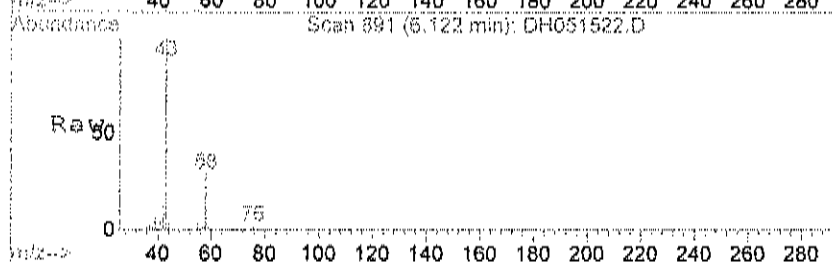
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





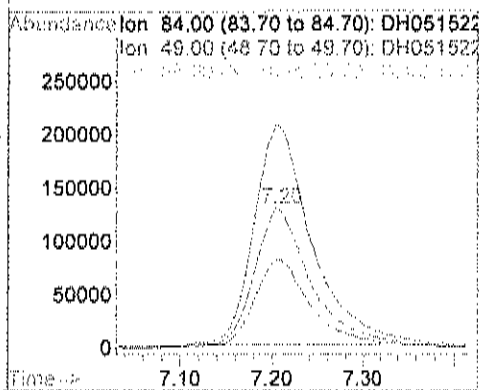
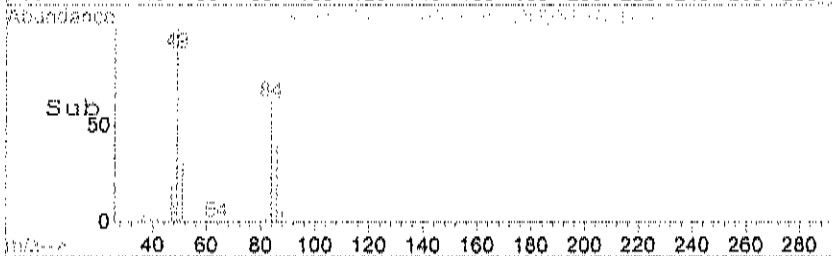
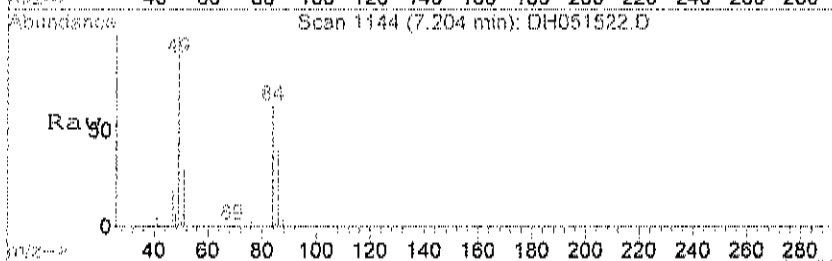
#16
Acetone
Concen: 767.15 ppb m
RT: 6.12 min Scan# 891
Delta R.T. 0.01 min
Lab File: DH051522.D
Acq: 15 May 2017 9:29 pm

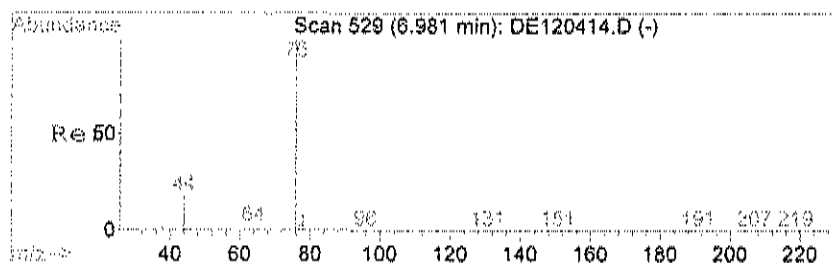
Tgt Ion: 43 Resp: 2819234
Ion Ratio Lower Upper
43 100
58 29.7 3.7 43.7



#23
Methylene Chloride
Concen: 208.46 ppb
RT: 7.20 min Scan# 1144
Delta R.T. 0.03 min
Lab File: DH051522.D
Acq: 15 May 2017 9:29 pm

Tgt Ion: 84 Resp: 524775
Ion Ratio Lower Upper
84 100
49 175.5 124.3 164.3#
86 63.9 43.0 83.0





#24

Carbon disulfide

Concen: 353.93 ppb

RT: 7.37 min Scan# 1183

Delta R.T. 0.02 min

Lab File: DH051522.D

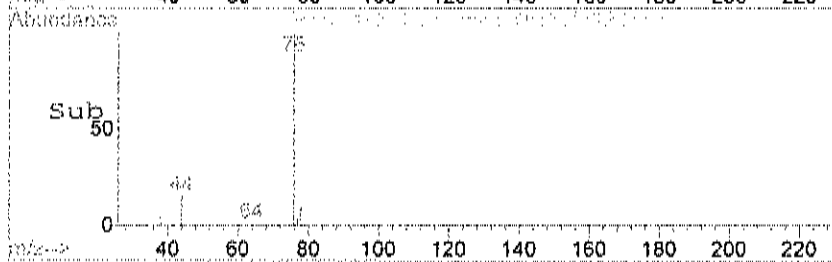
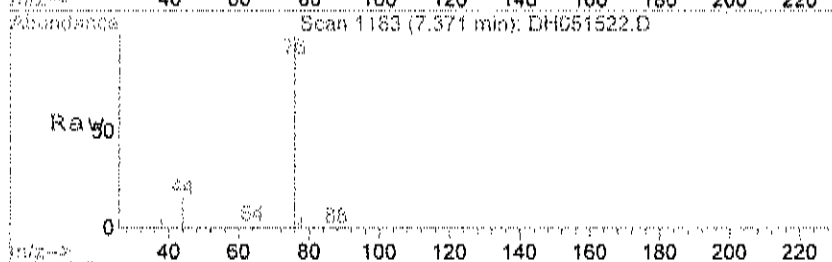
Acq: 15 May 2017 9:29 pm

Tgt Ion: 76 Resp: 2611128

Ion Ratio Lower Upper

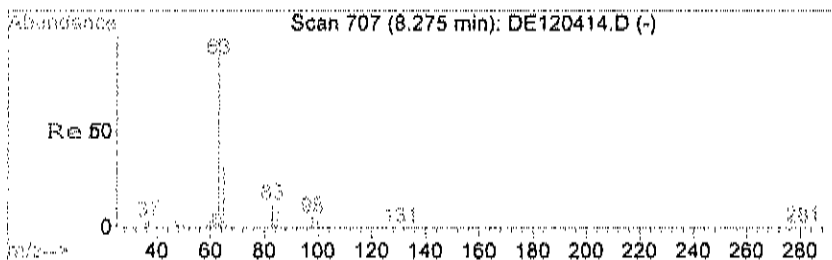
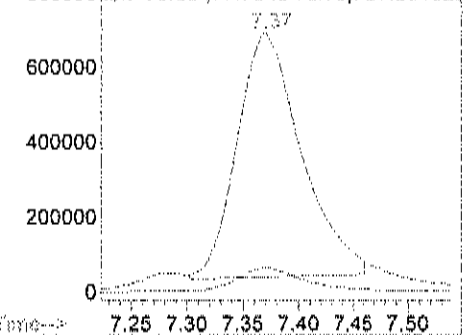
76 100

78 9.2 0.0 29.3



Abundance Ion 76.00 (75.70 to 76.70): DH051522

Ion 78.00 (77.70 to 78.70): DH051522



#28

1,1-Dichloroethane

Concen: 3.91 ppb

RT: 8.57 min Scan# 1464

Delta R.T. 0.02 min

Lab File: DH051522.D

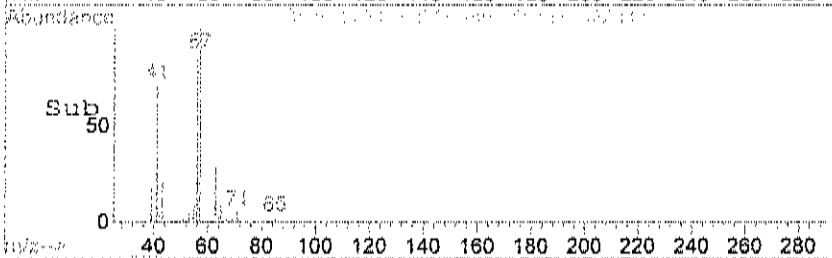
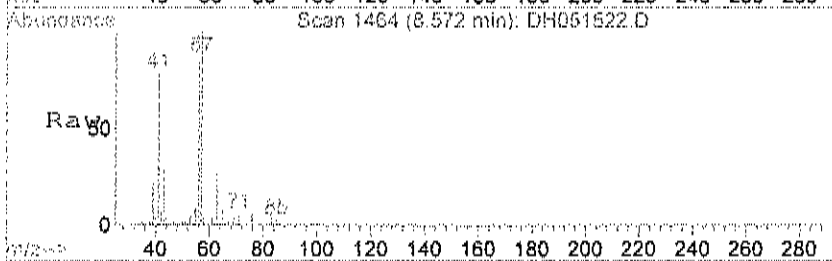
Acq: 15 May 2017 9:29 pm

Tgt Ion: 63 Resp: 24836

Ion Ratio Lower Upper

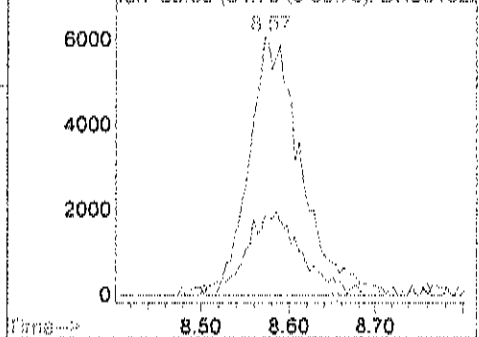
63 100

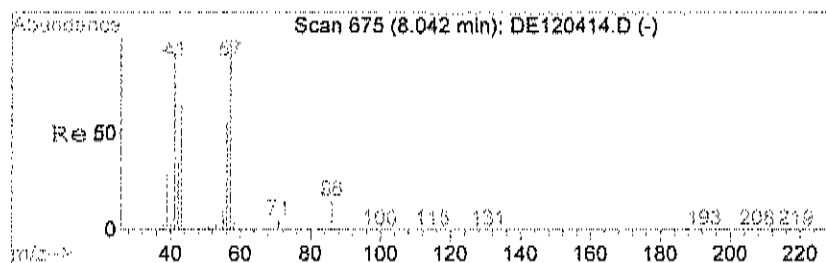
65 31.7 11.3 51.3



Abundance Ion 63.00 (62.70 to 63.70): DH051522

Ion 65.00 (64.70 to 65.70): DH051522





#30

Hexane

Concen: 97.31 ppb

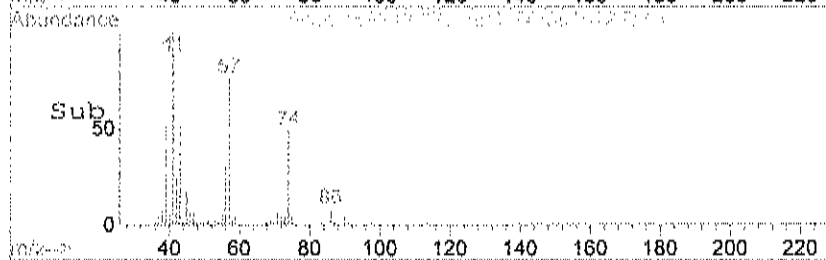
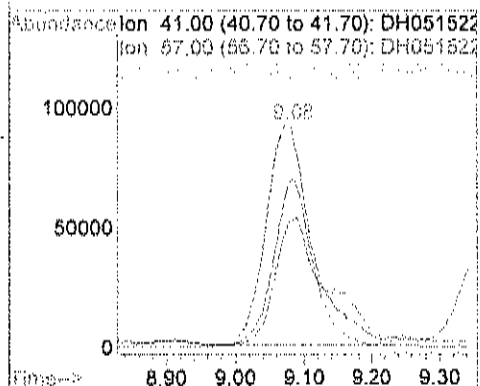
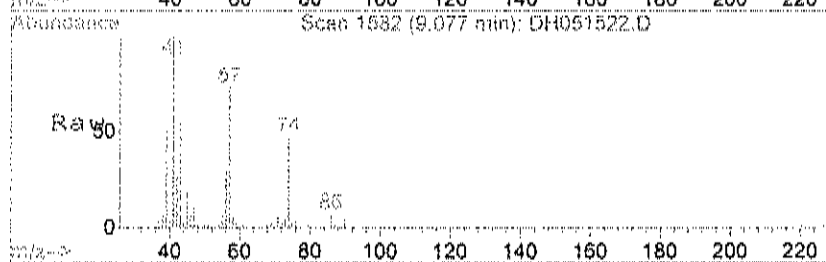
RT: 9.08 min Scan# 1582

Delta R.T. 0.01 min

Lab File: DH051522.D

Acq: 15 May 2017 9:29 pm

Tgt Ion:	41	Resp:	432185
Ion Ratio	Lower	Upper	
41	100		
57	65.9	96.5	136.5#
43	50.1	168.6	208.6#



#31

cis-1,2-dichloroethene

Concen: 14.45 ppb

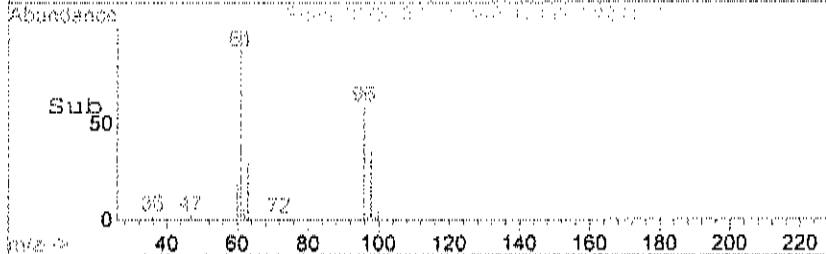
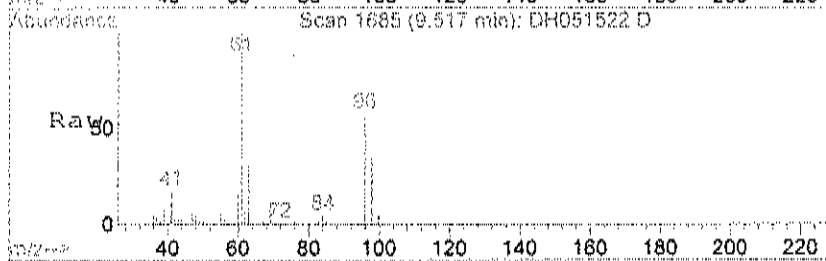
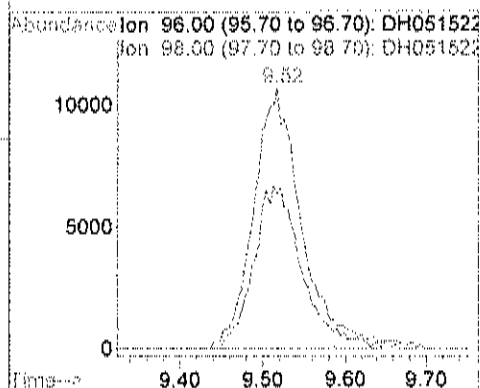
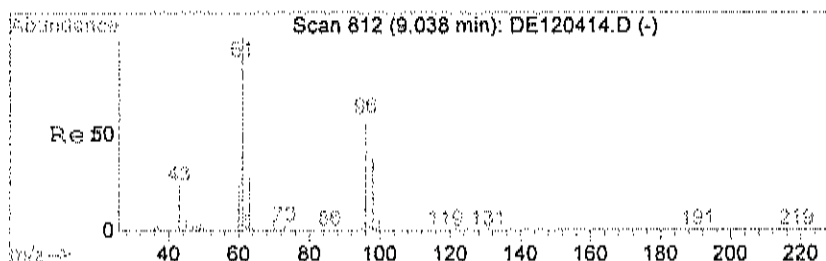
RT: 9.52 min Scan# 1685

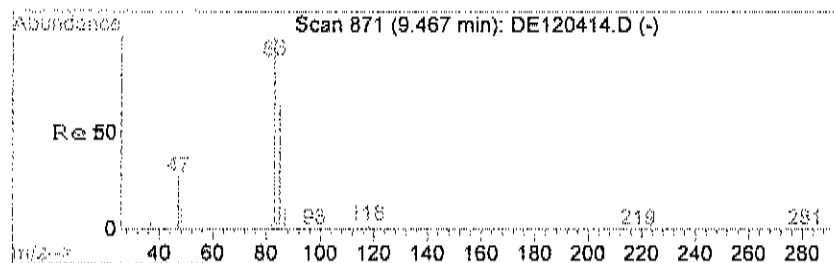
Delta R.T. 0.02 min

Lab File: DH051522.D

Acq: 15 May 2017 9:29 pm

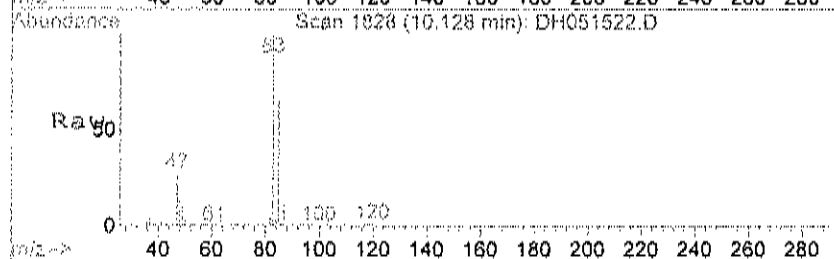
Tgt Ion:	96	Resp:	42756
Ion Ratio	Lower	Upper	
96	100		
98	62.8	45.4	85.4



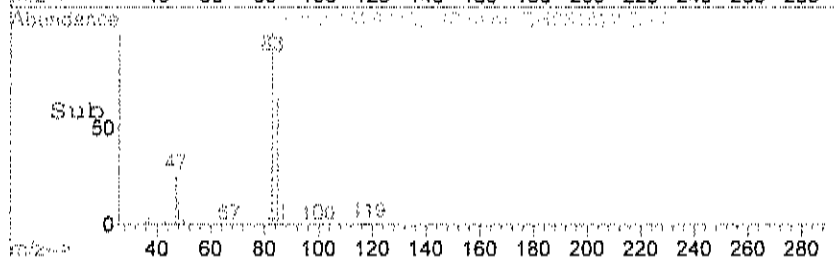
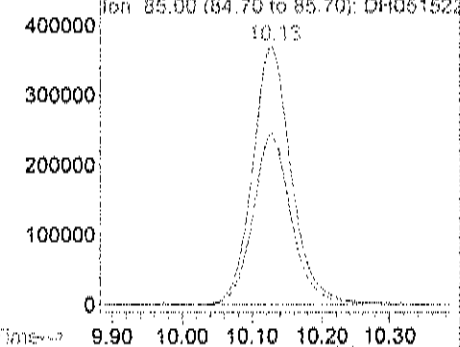


#33
Chloroform
Concen: 203.23 ppb
RT: 10.13 min Scan# 1828
Delta R.T. 0.02 min
Lab File: DH051522.D
Acq: 15 May 2017 9:29 pm

Tgt Ion: 83 Resp: 1421945
Ion Ratio Lower Upper
83 100
85 65.3 43.5 83.5

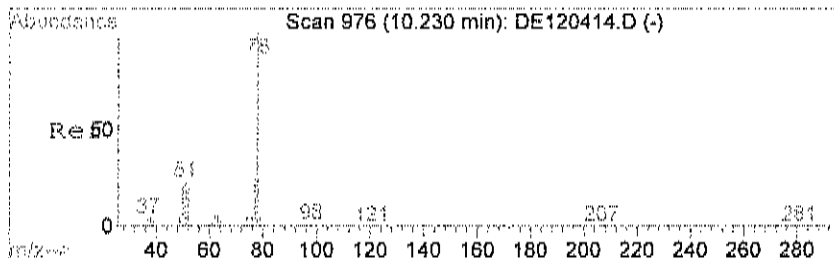


Abundance Ion 83.00 (82.70 to 83.70): DH051522
Ion 85.00 (84.70 to 85.70): DH051522

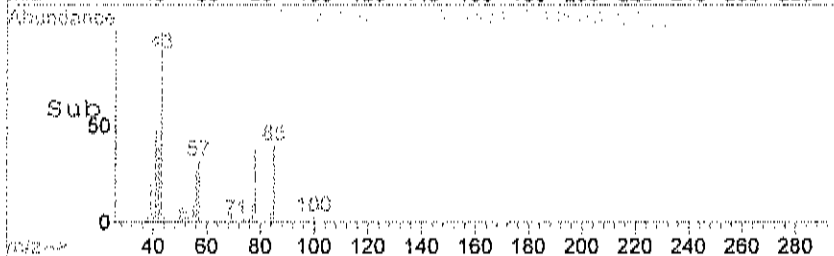
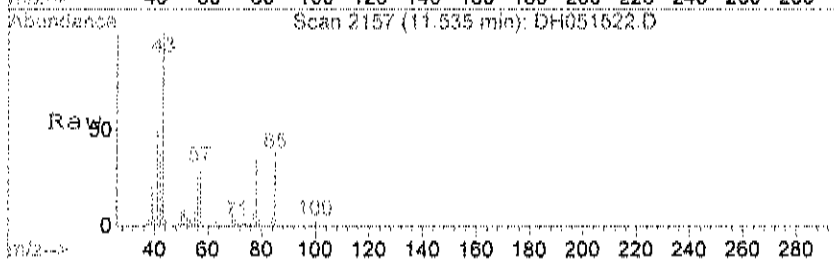
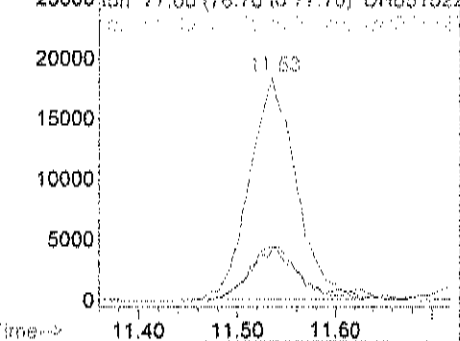


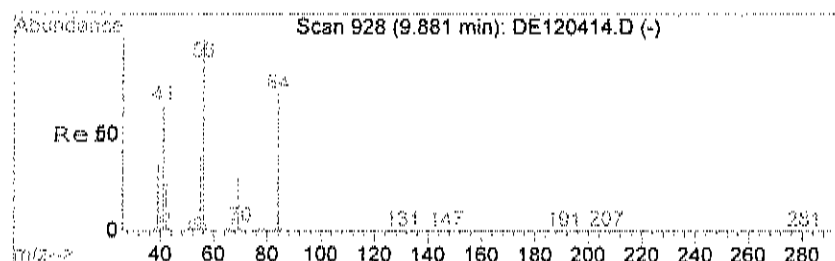
#37
Benzene
Concen: 5.37 ppb
RT: 11.53 min Scan# 2157
Delta R.T. 0.01 min
Lab File: DH051522.D
Acq: 15 May 2017 9:29 pm

Tgt Ion: 78 Resp: 60932
Ion Ratio Lower Upper
78 100
77 25.5 3.1 43.1
51 23.1 0.0 39.8



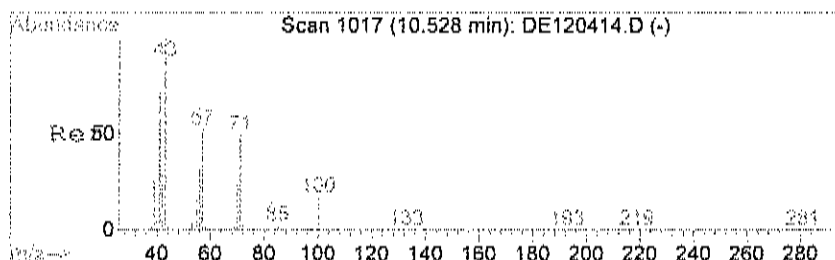
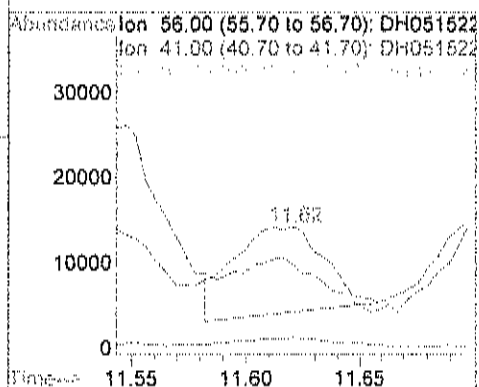
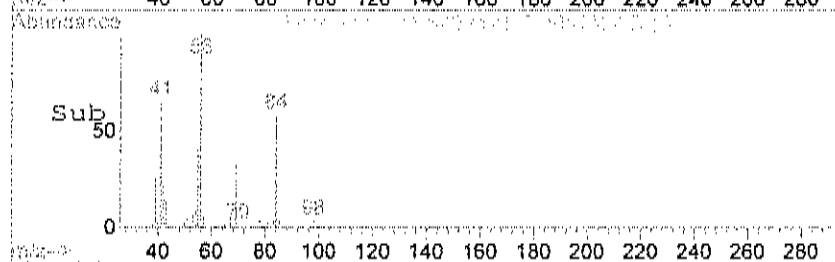
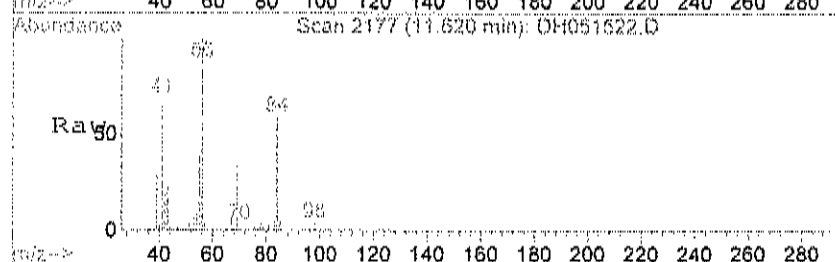
Abundance Ion 78.00 (77.70 to 78.70): DH051522
Ion 77.00 (76.70 to 77.70): DH051522





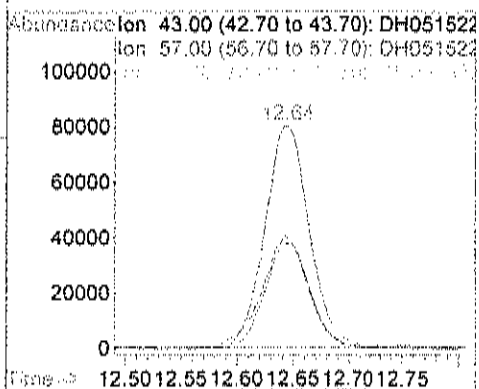
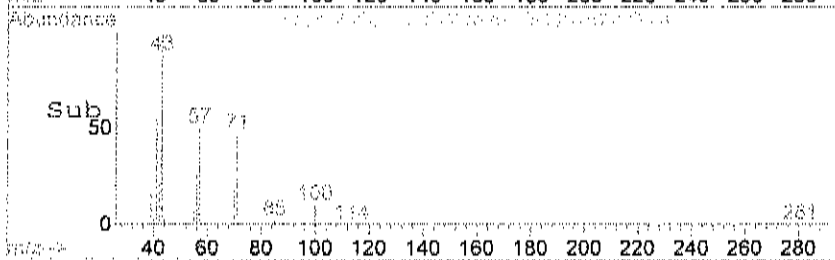
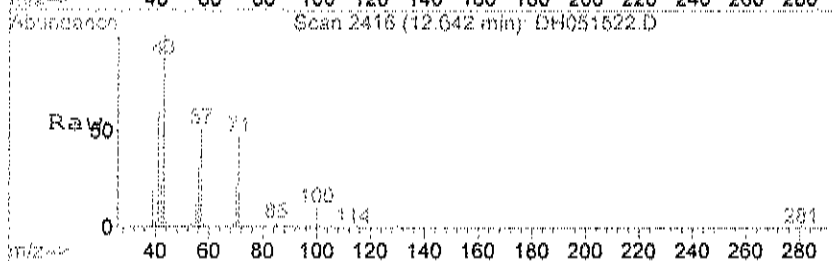
#39
Cyclohexane
Concen: 4.53 ppb
RT: 11.62 min Scan# 2177
Delta R.T. 0.02 min
Lab File: DH051522.D
Acq: 15 May 2017 9:29 pm

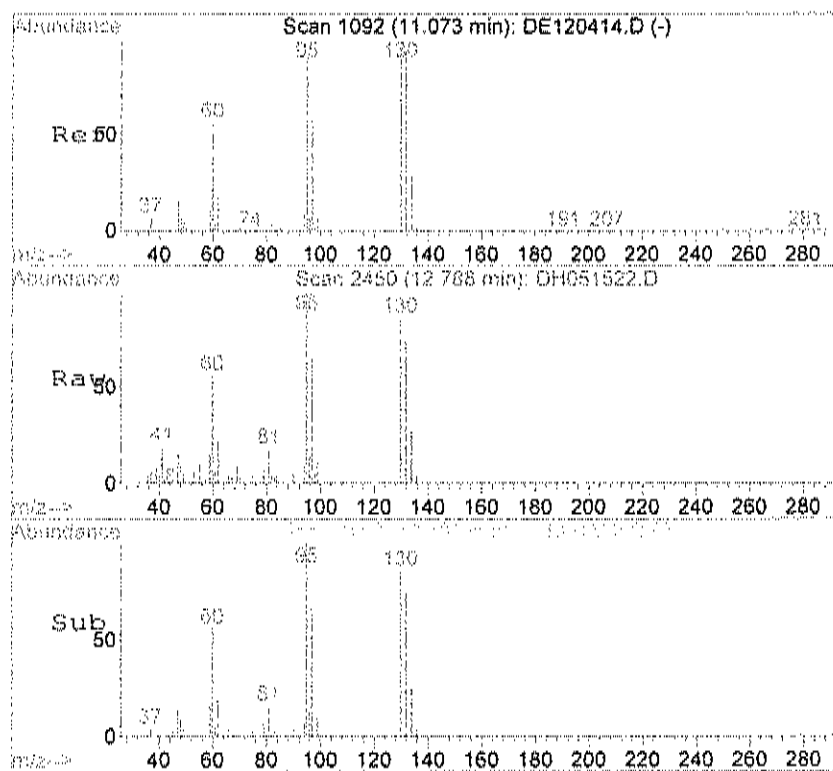
Tgt Ion	Ratio	Lower	Upper
56	100		
41	0.0	47.0	87.0#
54	10.1	0.0	27.5



#42
Heptane
Concen: 30.32 ppb
RT: 12.64 min Scan# 2416
Delta R.T. -0.00 min
Lab File: DH051522.D
Acq: 15 May 2017 9:29 pm

Tgt Ion	Ratio	Lower	Upper
43	100		
57	54.2	32.3	72.3
71	48.4	37.2	77.2





#43

Trichloroethene

Concen: 4.83 ppb

RT: 12.79 min Scan# 2450

Delta R.T. 0.00 min

Lab File: DH051522.D

Acq: 15 May 2017 9:29 pm

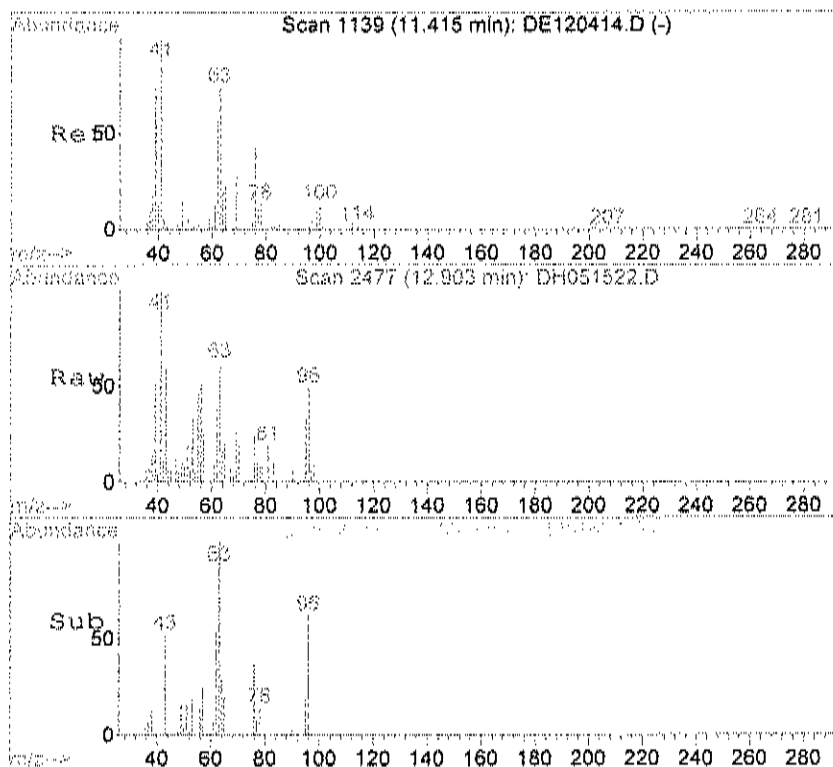
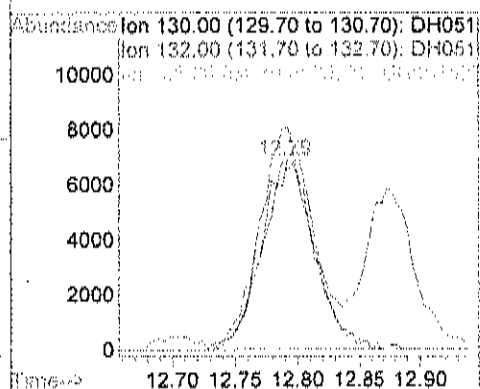
Tgt Ion: 130 Resp: 20720

Ion Ratio Lower Upper

130 100

132 95.8 77.9 117.9

95 116.2 85.8 125.8



#44

1,2-Dichloropropane

Concen: 1.83 ppb

RT: 12.90 min Scan# 2477

Delta R.T. 0.00 min

Lab File: DH051522.D

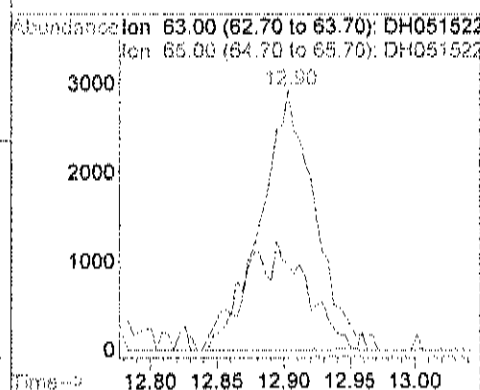
Acq: 15 May 2017 9:29 pm

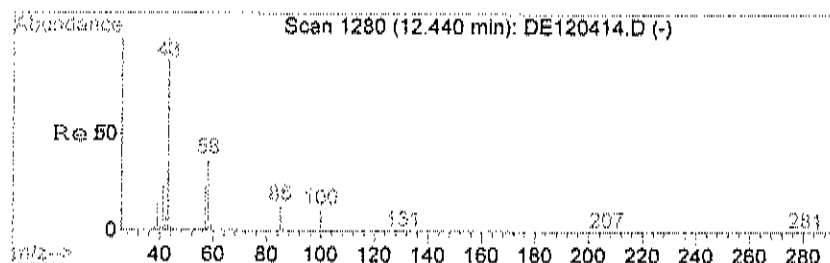
Tgt Ion: 63 Resp: 8180

Ion Ratio Lower Upper

63 100

65 25.7 11.1 51.1





#48

Methyl Isobutyl Ketone

Concen: 2252.37 ppb

RT: 13.91 min Scan# 2713

Delta R.T. 0.04 min

Lab File: DH051522.D

Acq: 15 May 2017 9:29 pm

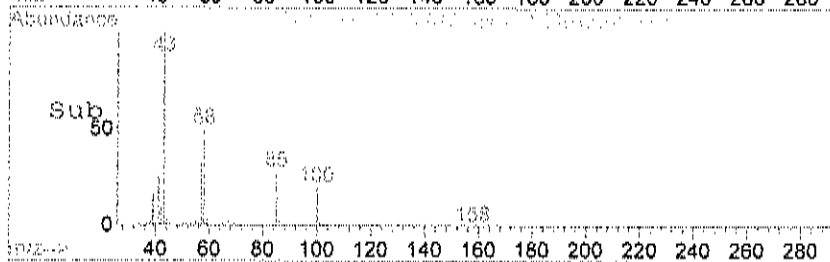
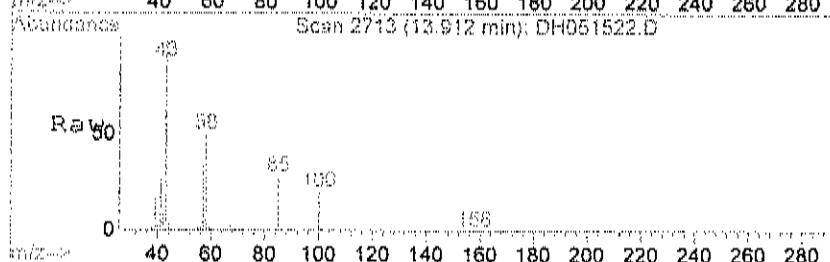
Tgt Ion: 43 Resp: 20762789

Ion Ratio Lower Upper

43 100

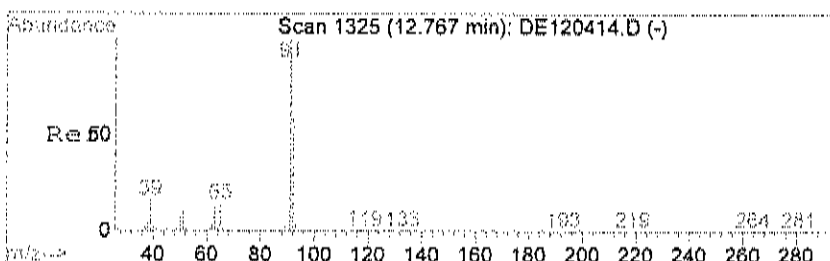
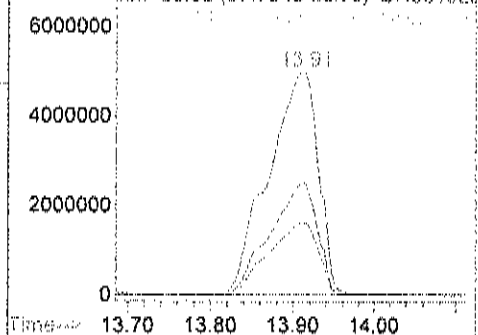
58 47.9 15.8 55.8

57 32.1 6.8 46.8



Abundance Ion 43.00 (42.70 to 43.70): DH051522

Ion 58.00 (57.70 to 58.70): DH051522



#52

Toluene

Concen: 438.73 ppb

RT: 14.70 min Scan# 2898

Delta R.T. 0.00 min

Lab File: DH051522.D

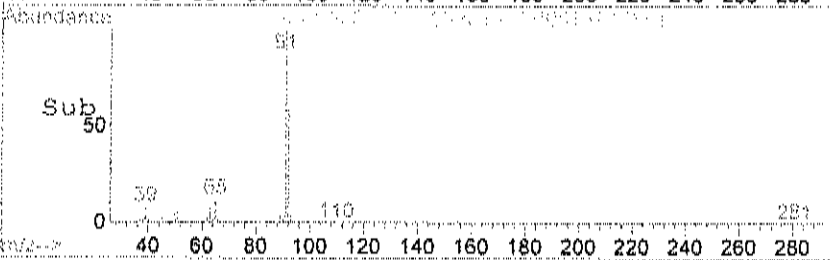
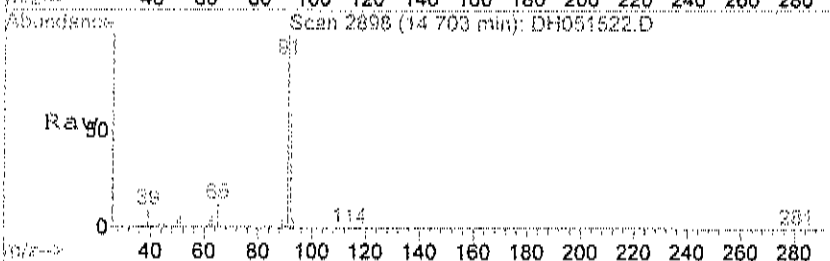
Acq: 15 May 2017 9:29 pm

Tgt Ion: 92 Resp: 3478335

Ion Ratio Lower Upper

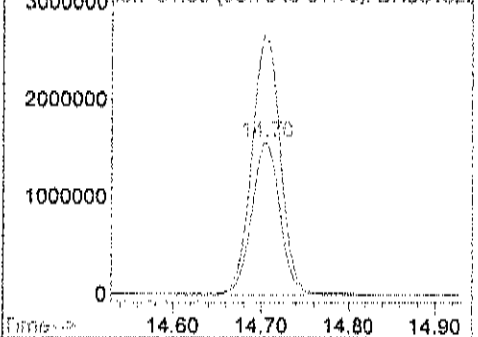
92 100

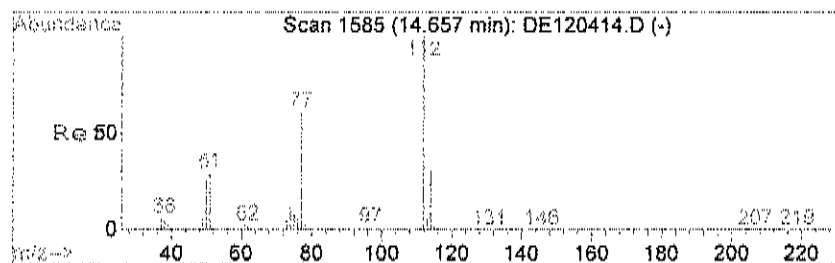
91 172.2 151.4 191.4



Abundance Ion 92.00 (91.70 to 92.70): DH051522

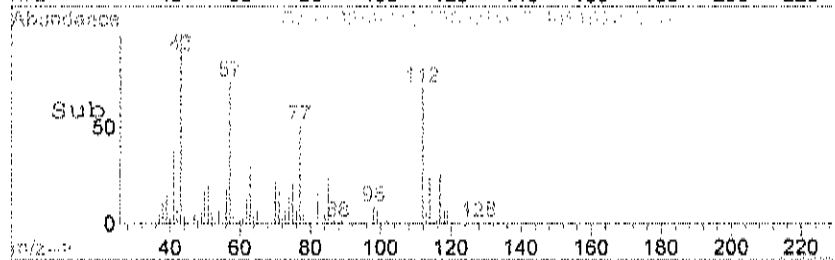
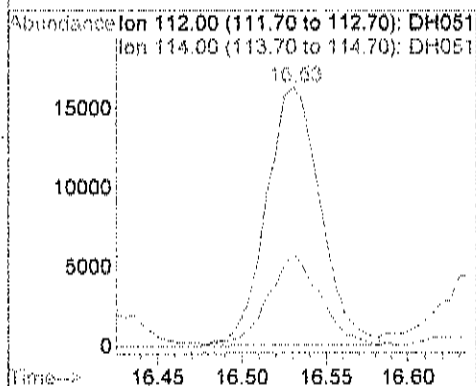
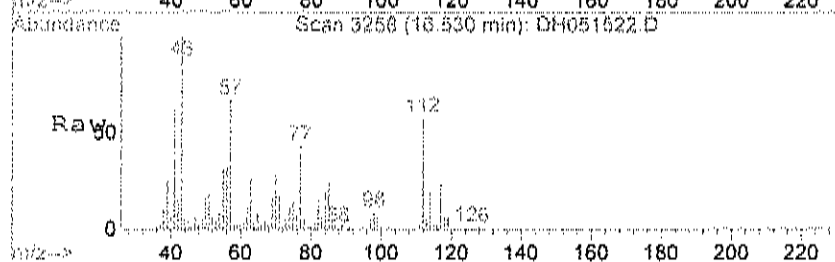
Ion 91.00 (90.70 to 91.70): DH051522





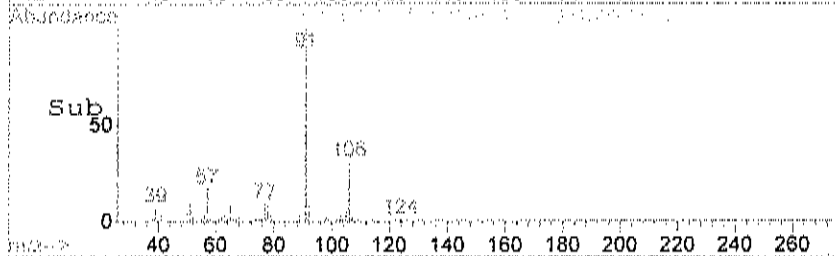
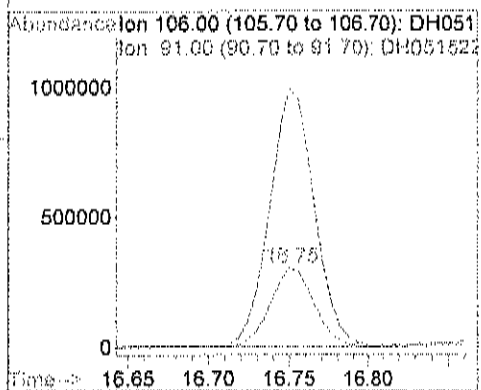
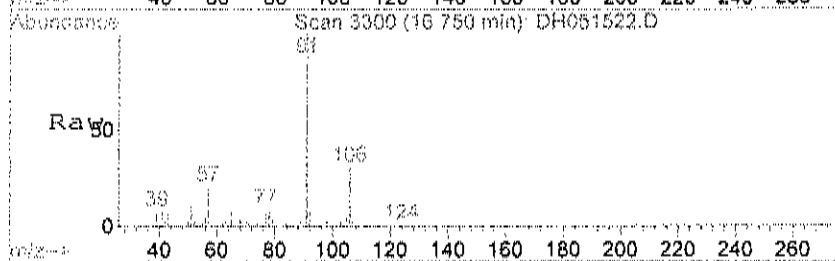
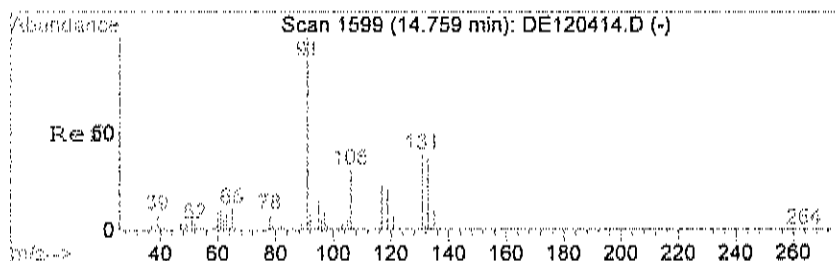
#58
Chlorobenzene
Concen: 2.77 ppb
RT: 16.53 min Scan# 3258
Delta R.T. -0.00 min
Lab File: DH051522.D
Acq: 15 May 2017 9:29 pm

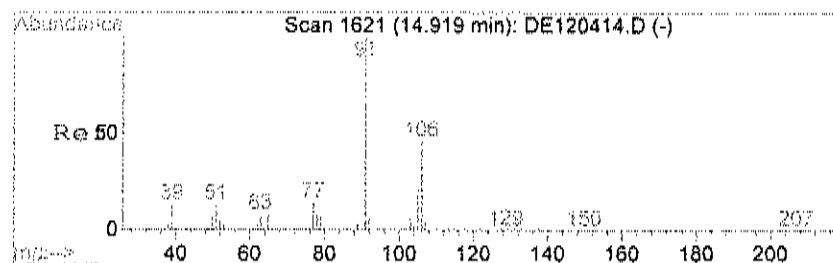
Tgt Ion	Ratio	Lower	Upper
112	100		
114	33.7	11.9	51.9



#59
Ethylbenzene
Concen: 79.63 ppb
RT: 16.75 min Scan# 3300
Delta R.T. -0.00 min
Lab File: DH051522.D
Acq: 15 May 2017 9:29 pm

Tgt Ion	Ratio	Lower	Upper
106	100		
91	330.5	319.2	359.2





#60

m&p-Xylene

Concen: 495.94 ppb

RT: 16.91 min Scan# 3330

Delta R.T. -0.03 min

Lab File: DH051522.D

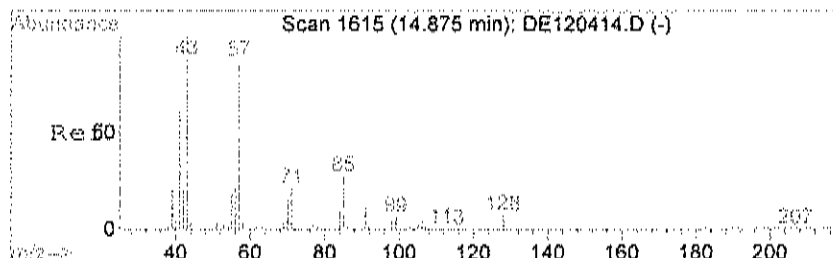
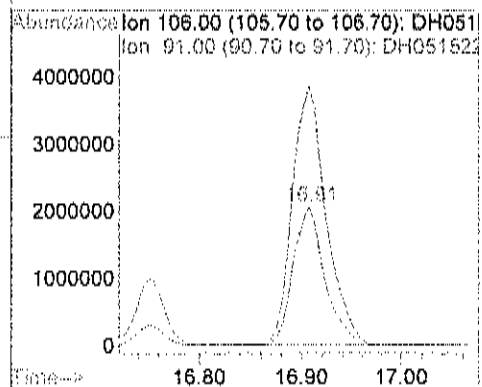
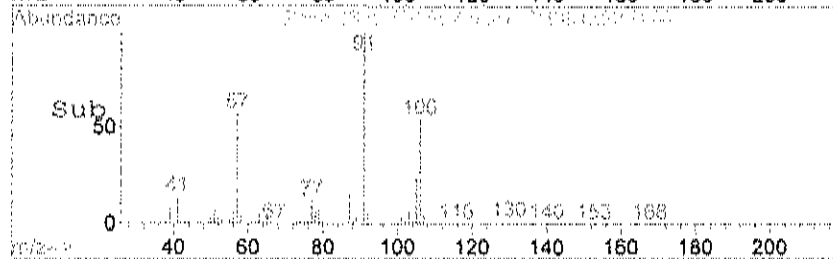
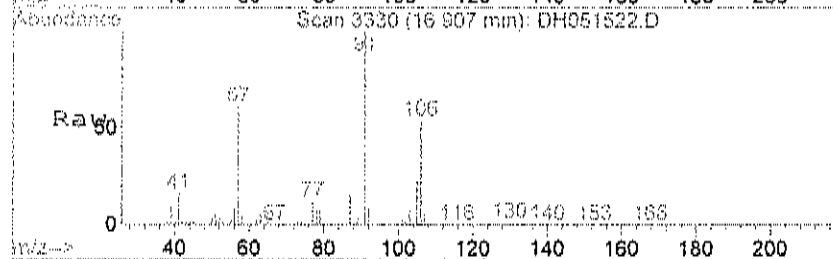
Acq: 15 May 2017 9:29 pm

Tgt Ion: 106 Resp: 4451290

Ion Ratio Lower Upper

106 100

91 199.3 202.1 242.1#



#61

Nonane

Concen: 90.84 ppb

RT: 17.24 min Scan# 3394

Delta R.T. -0.00 min

Lab File: DH051522.D

Acq: 15 May 2017 9:29 pm

Tgt Ion: 43 Resp: 1204669

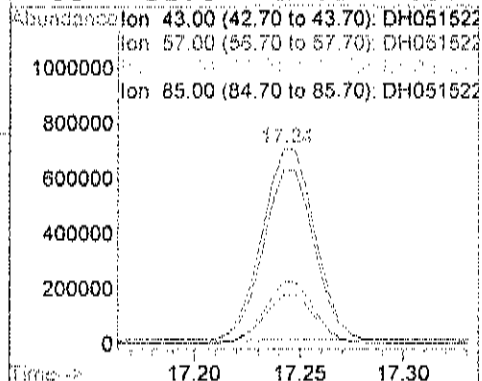
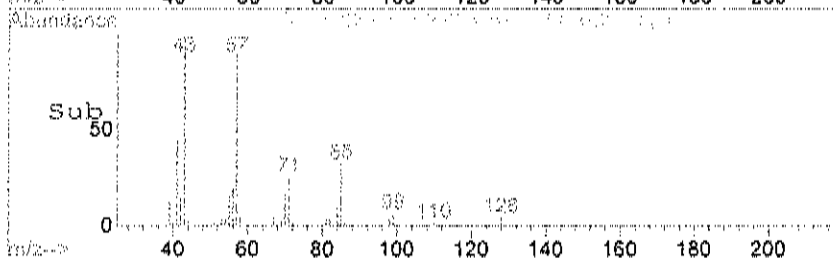
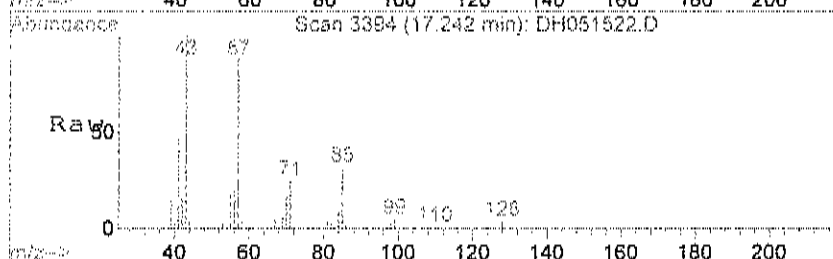
Ion Ratio Lower Upper

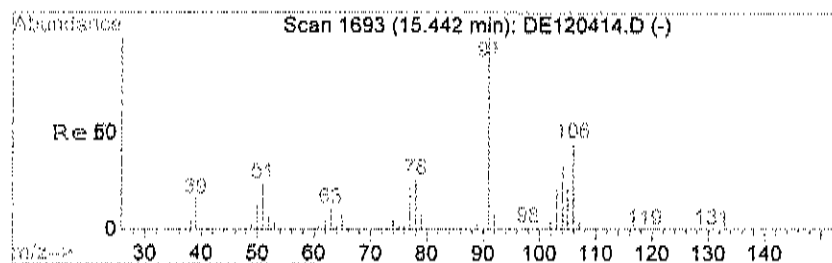
43 100

57 85.9 68.6 102.8

71 24.5 19.4 29.0

85 31.3 27.1 40.7





#63

o-xylene

Concen: 472.94 ppb

RT: 17.37 min Scan# 3419

Delta R.T. 0.03 min

Lab File: DH051522.D

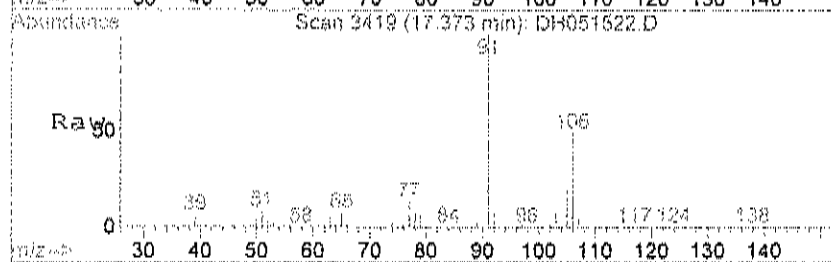
Acq: 15 May 2017 9:29 pm

Tgt Ion: 91 Resp: 9033180

Ion Ratio Lower Upper

91 100

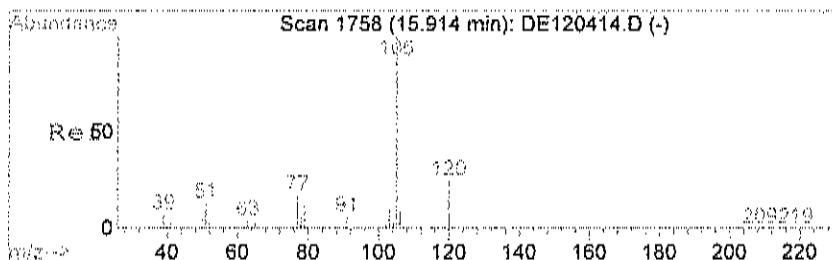
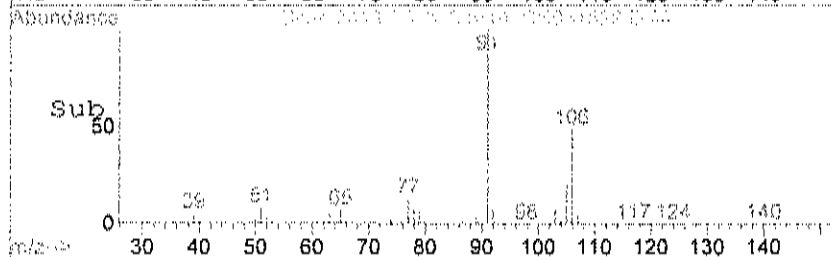
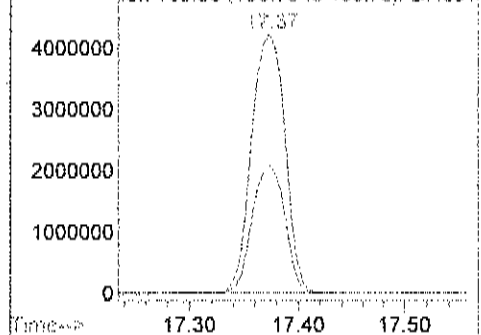
106 48.1 22.6 62.6



Abundance

Ion 91.00 (90.70 to 91.70): DH051522.D

Ion 106.00 (105.70 to 106.70): DH051522.D



#66

Cumene

Concen: 6.37 ppb

RT: 17.84 min Scan# 3508

Delta R.T. -0.00 min

Lab File: DH051522.D

Acq: 15 May 2017 9:29 pm

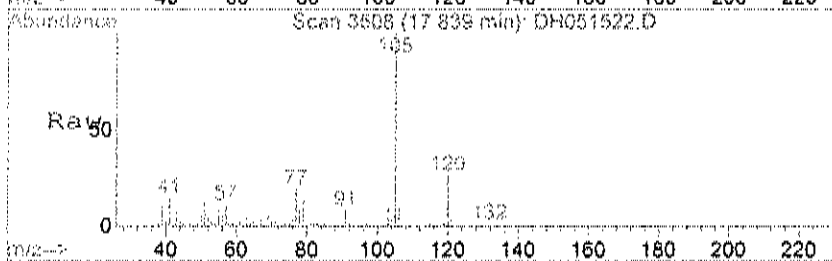
Tgt Ion: 105 Resp: 162769

Ion Ratio Lower Upper

105 100

120 24.6 19.4 29.0

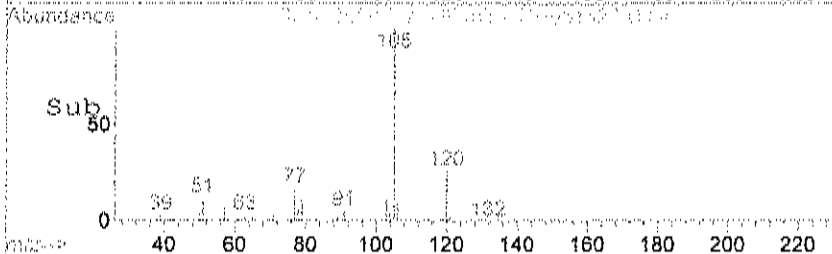
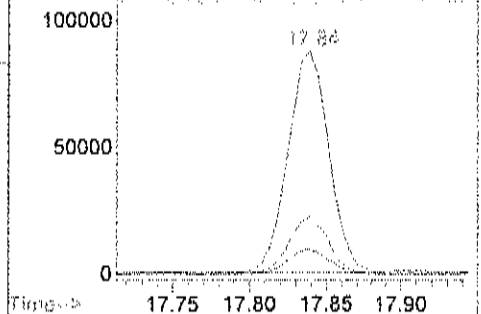
103 11.1 9.0 13.6



Abundance

Ion 105.00 (104.70 to 105.70): DH051522.D

Ion 120.00 (119.70 to 120.70): DH051522.D



LSC Area Percent Report

Data File : C:\HPCHEM\1\DATA2\DH051522.D
 Acq On : 15 May 2017 9:29 pm
 Sample : C1705036-012A 10X
 Misc : T015
 MS Integration Params: LSCINT.F

Vial: 16
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Smoothing : ON Filtering: 5
 Sampling : 1 Min Area: 3 % of largest Peak
 Start Thrs: 0.2 Max Peaks: 100
 Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	4.165	354	355	369	rVB	5936734	10630592	9.19%	1.319%
2	4.922	593	605	619	rBV2	918650	2538519	2.19%	0.315%
3	5.032	624	636	640	rBV	3823169	9594001	8.29%	1.191%
4	6.122	864	891	898	rBV	1156944	4309147	3.72%	0.535%
5	6.464	951	971	981	rBV2	1314278	5301279	4.58%	0.658%
6	6.725	1018	1032	1064	rVV3	5306336	24512470	21.18%	3.042%
7	6.926	1067	1079	1112	rVB3	1220707	4989204	4.31%	0.619%
8	7.208	1131	1145	1167	rBV2	547374	2280201	1.97%	0.283%
9	7.371	1169	1183	1229	rVB	938440	4262161	3.68%	0.529%
10	7.755	1243	1273	1281	rBV	1122112	4127530	3.57%	0.512%
11	7.897	1287	1306	1389	rVB3	17550586	115718755	100.00%	14.362%
12	9.077	1558	1582	1612	rBV7	453407	2273624	1.96%	0.282%
13	9.649	1697	1716	1755	rVB	1700273	6553772	5.66%	0.813%
14	10.128	1810	1828	1849	rBV	955183	3524431	3.05%	0.437%
15	11.762	2187	2210	2225	rBV	1234301	4191083	3.62%	0.520%
16	12.189	2292	2310	2328	rBV	587578	1883056	1.63%	0.234%
17	13.254	2545	2559	2568	rBV3	530377	1474709	1.27%	0.183%
18	13.326	2568	2576	2593	rVB2	483798	1334831	1.15%	0.166%
19	13.609	2611	2642	2674	rBV5	399416	2182851	1.89%	0.271%
20	13.912	2687	2713	2747	rBV3	15595122	64946685	56.12%	8.060%
21	14.382	2810	2823	2831	rBV	849090	2032070	1.76%	0.252%
22	14.703	2884	2898	2912	rBV	6374221	14554934	12.58%	1.806%
23	15.719	3093	3103	3115	rBV3	990656	3127816	2.70%	0.388%
24	15.860	3115	3130	3136	rBV5	20078772	82507680	71.30%	10.240%
25	16.070	3162	3170	3179	rVB5	567610	1477454	1.28%	0.183%
26	16.153	3179	3186	3196	rBV3	460896	1245978	1.08%	0.155%
27	16.274	3196	3209	3214	rBV	646956	1527198	1.32%	0.190%
28	16.342	3214	3222	3231	rVB	1196436	2576208	2.23%	0.320%
29	16.488	3242	3250	3258	rBV2	1538536	3152913	2.72%	0.391%
30	16.630	3265	3277	3291	rVB3	693171	2626553	2.27%	0.326%
31	16.755	3291	3301	3314	rBV2	2951530	6815902	5.89%	0.846%
32	16.923	3315	3333	3341	rBV2	19006592	80062279	69.19%	9.936%
33	17.248	3388	3395	3401	rVV	3128182	5631165	4.87%	0.699%
34	17.373	3410	3419	3435	rVB	11613948	25211539	21.79%	3.129%
35	17.740	3475	3489	3498	rBV2	1904927	3828705	3.31%	0.475%
36	17.944	3522	3528	3536	rVB	1211454	2132225	1.84%	0.265%
37	18.038	3540	3546	3557	rVB3	627338	1413157	1.22%	0.175%
38	18.153	3557	3568	3573	rBV2	1083734	2937848	2.54%	0.365%
39	18.227	3573	3582	3585	rVV3	1852992	4854303	4.19%	0.602%
40	18.263	3585	3589	3595	rVB	1869239	3038482	2.63%	0.377%
41	18.363	3596	3608	3614	rBV	2373963	4167353	3.60%	0.517%

Centek Laboratories, LLC

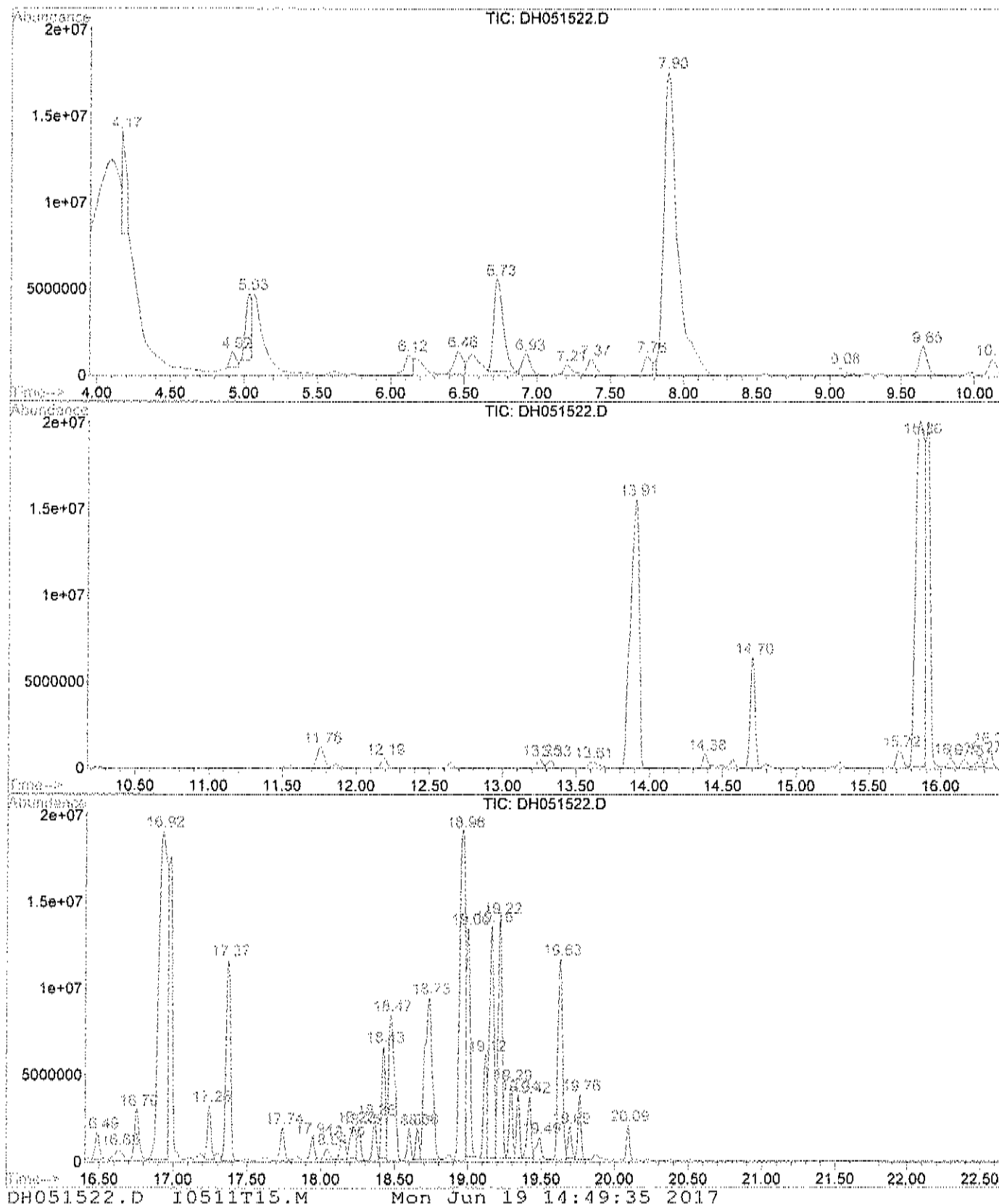
42	18.426	3614	3620	3624	rVV	6426399	11282097	9.75%	1.400%
43	18.473	3624	3629	3645	rVB2	8384148	23945369	20.69%	2.972%
44	18.598	3646	3653	3659	rBV	1827576	2840553	2.45%	0.353%
45	18.656	3659	3664	3668	rBV	1771832	2792562	2.41%	0.347%
46	18.734	3668	3679	3699	rVB3	9352127	34287940	29.63%	4.255%
47	18.965	3710	3723	3727	rBV3	19037819	52089312	45.01%	6.465%
48	19.001	3727	3730	3741	rVB	13215576	21621671	18.68%	2.683%
49	19.117	3746	3752	3755	rVV	5968964	10299803	8.90%	1.278%
50	19.164	3755	3761	3766	rVV	13457578	28870943	24.95%	3.583%
51	19.221	3766	3772	3780	rVV	13931329	27418145	23.69%	3.403%
52	19.295	3780	3786	3791	rVV	4294073	6704715	5.79%	0.832%
53	19.342	3791	3795	3801	rVV	3655770	5281542	4.56%	0.655%
54	19.420	3801	3810	3815	rVV	3557809	6469898	5.59%	0.803%
55	19.488	3815	3823	3840	rVB2	1306712	3241839	2.80%	0.402%
56	19.630	3840	3850	3858	rBV2	11622303	25457748	22.00%	3.159%
57	19.692	3858	3862	3869	rVV2	1788372	2976713	2.57%	0.369%
58	19.761	3869	3875	3886	rVB	3737145	5568228	4.81%	0.691%
59	20.090	3932	3938	3948	rVB	2036897	3054568	2.64%	0.379%

Sum of corrected areas: 805754309

DH051522.D 10511T15.M Mon Jun 19 14:49:33 2017

LSC Report - Integrated Chromatogram

File : C:\HPCHEM\1\DATA2\DH051522.D
Operator : WD
Acquired : 15 May 2017 9:29 pm using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-012A 10X
Misc Info : TO15
Vial Number: 16
Quant File : I0511T15.RES (RTE Integrator)



Data File : C:\HPCHEM\1\DATA2\DH051522.D
Acq On : 15 May 2017 9:29 pm
Sample : C1705036-012A 10X
Misc : TQ15
MS Integration Params: LSCINT.P

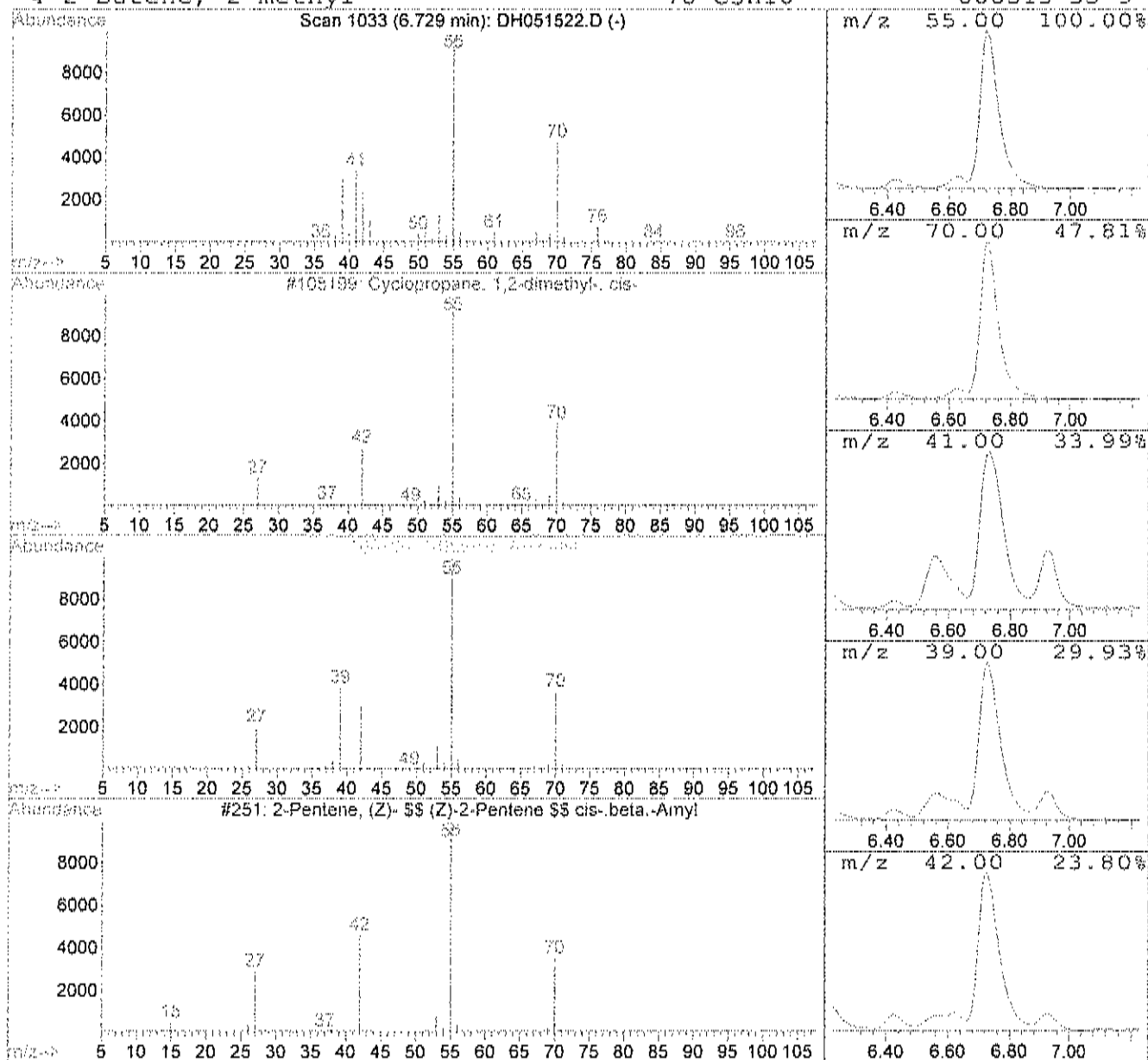
Vial: 16
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 1 Cyclopropane, 1,2-dimethyl-, c Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.73	347.75 ppb	24512500	Bromochloromethane	9.97

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Cyclopropane, 1,2-dimethyl-, cis-	70	C5H10	000930-18-7	90
2			1-Butene, 2-methyl-	70	C5H10	000563-46-2	87
3			2-Pentene, (Z)- \$\$ (Z)-2-Pentene \$\$	70	C5H10	000627-20-3	78
4			2-Butene, 2-methyl-	70	C5H10	000513-35-9	74



Data File : C:\HPCHEM\1\DATA2\DH051522.D

Acq On : 15 May 2017 9:29 pm

Sample : C1705036-012A 10X

Misc : T015

MS Integration Params: LSCINT.P

Vial: 16

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

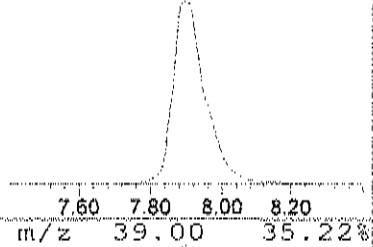
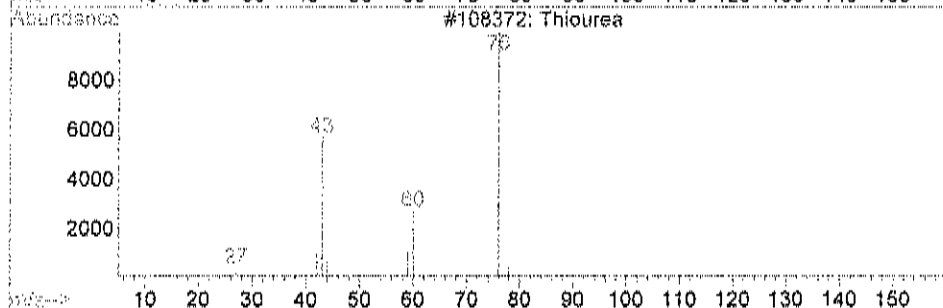
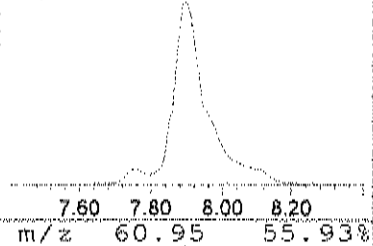
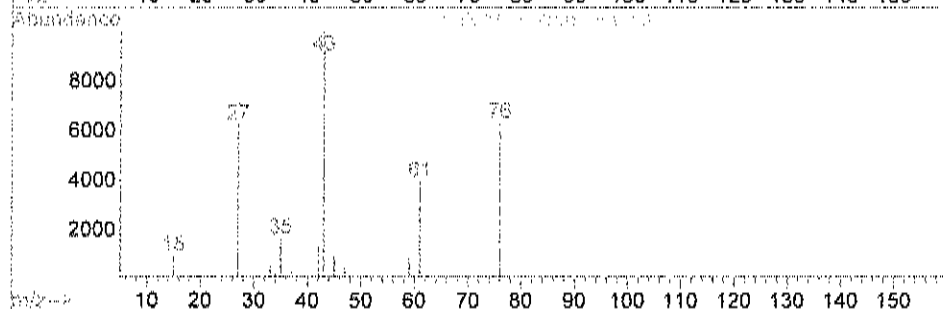
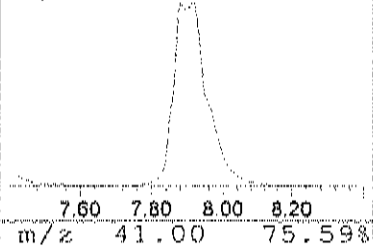
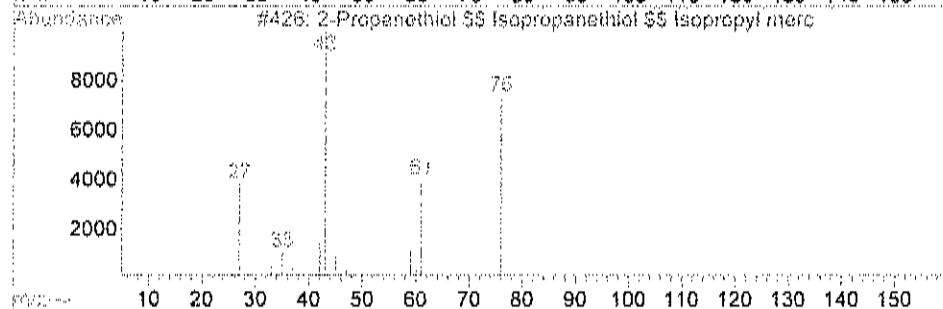
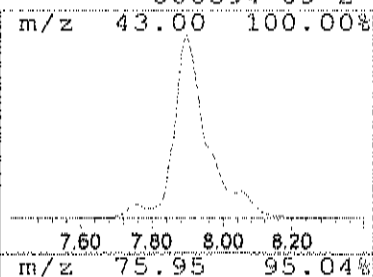
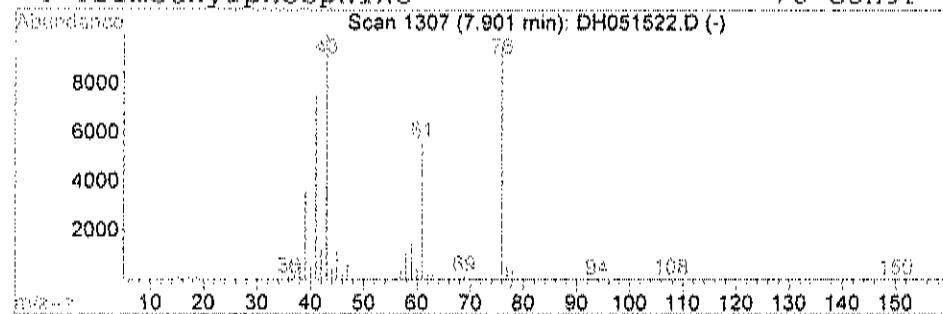
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 2 2-Propanethiol \$\$ Isopropaneth Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
7.90	1641.67 ppb	115719000	Bromochloromethane	9.97

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			2-Propanethiol \$\$ Isopropanethiol \$	76	C3H8S	000075-33-2	91
2			2-Propanethiol	76	C3H8S	000075-33-2	90
3			Thiourea	76	CH4N2S	000062-56-6	64
4			Trimethylphosphine	76	C3H9P	000594-09-2	64



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051522.D
Acq On : 15 May 2017 9:29 pm
Sample : C1705036-012A 10X
Misc : T015
MS Integration Params: LSCINT.P

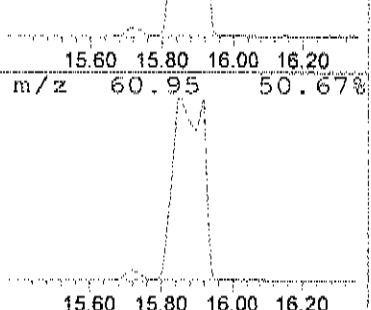
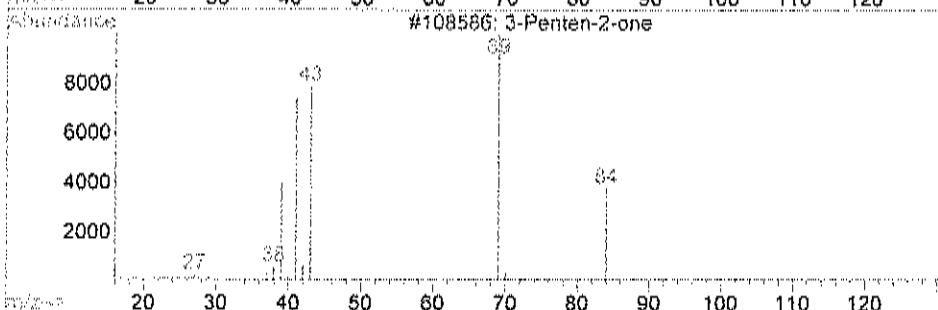
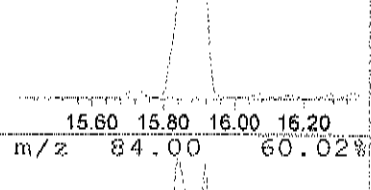
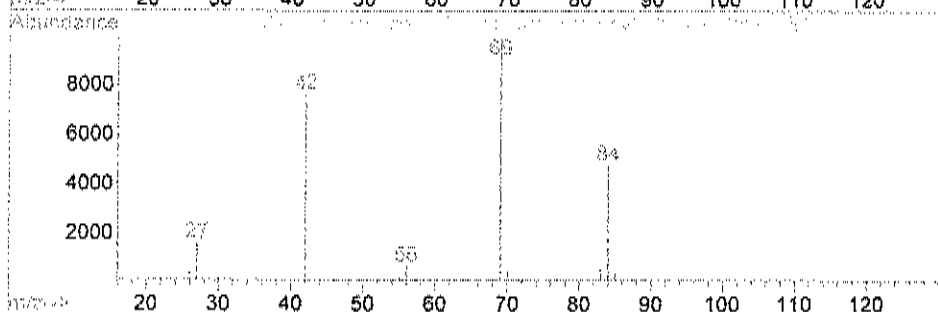
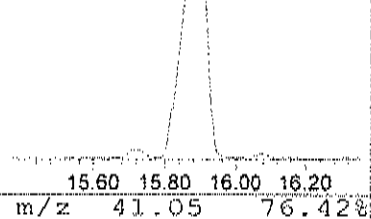
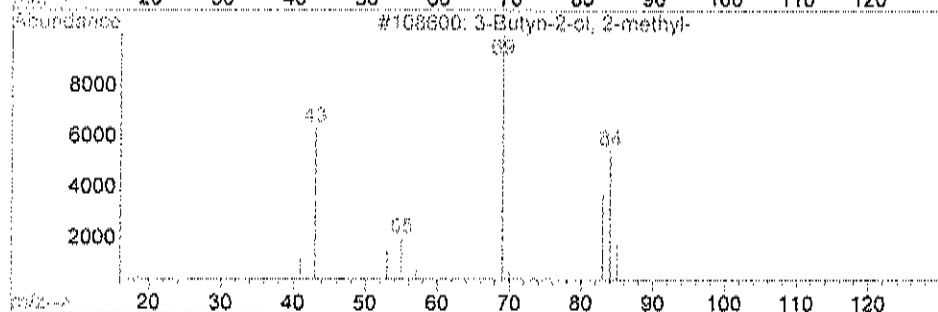
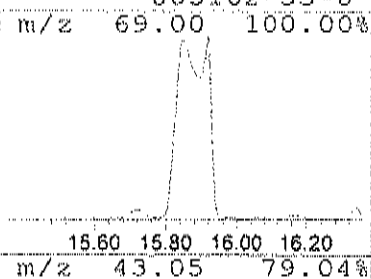
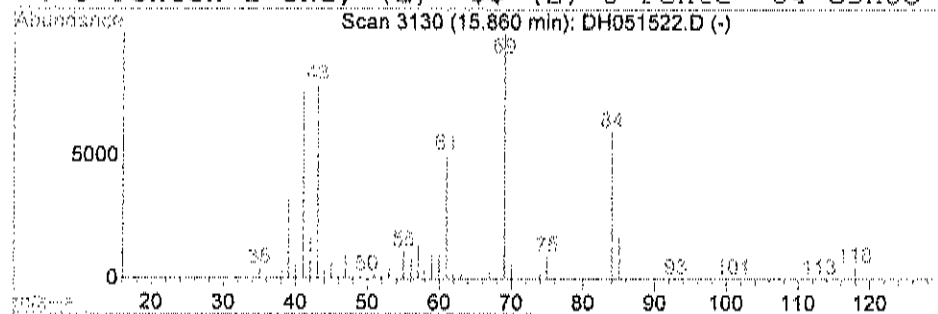
Vial: 16
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 3 3-Penten-2-one Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
15.86	1308.44 ppb	82507700	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			3-Butyn-2-ol, 2-methyl-	84	C5H8O	000115-19-5	52
2			1H-Pyrazole, 4,5-dihydro-5-methyl-	84	C4H8N2	001568-20-3	46
3			3-Penten-2-one	84	C5H8O	000625-33-2	43
4			3-Penten-2-one, (E)- \$\$ (E)-3-Pente	84	C5H8O	003102-33-8	43



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051522.D

Acq On : 15 May 2017 9:29 pm

Sample : C1705036-012A 10X

Misc : TO15

MS Integration Params: LSCINT.P

Vial: 16

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

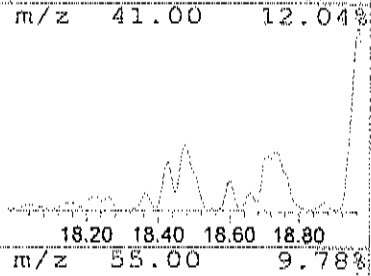
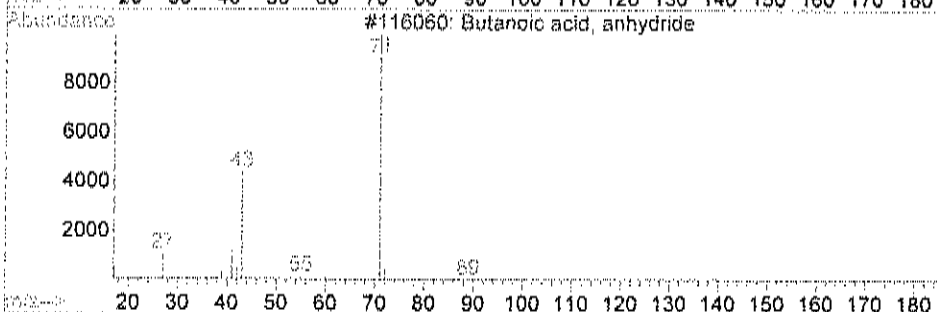
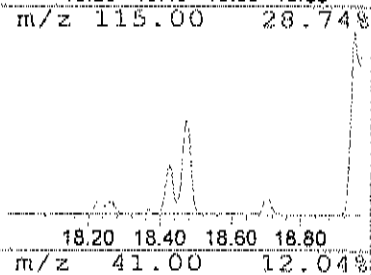
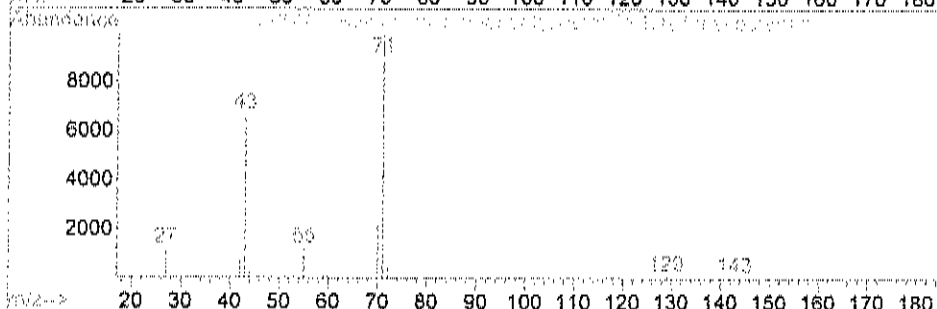
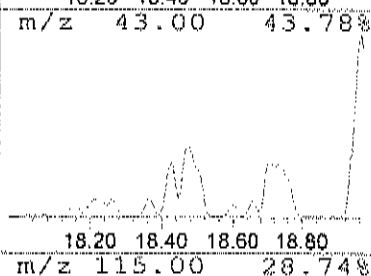
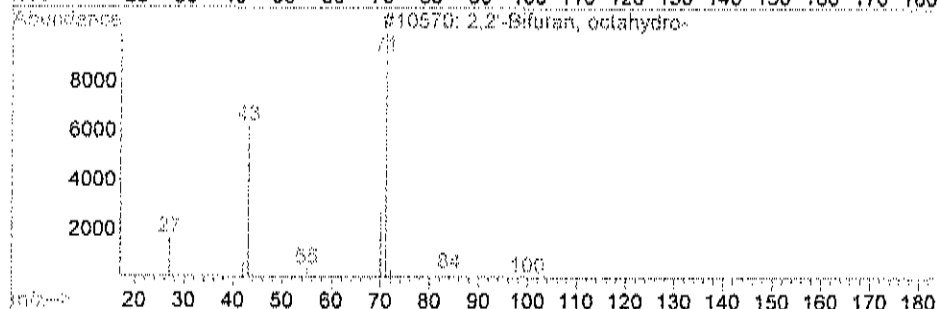
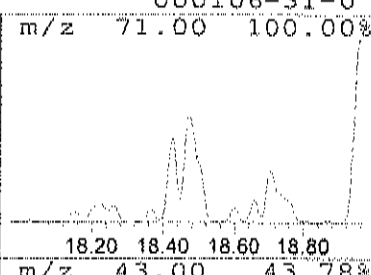
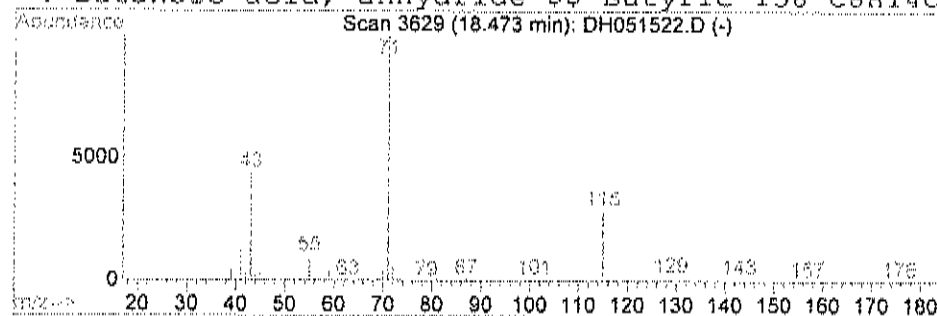
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 4 2,2'-Bifuran, octahydro- Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
18.47	379.73 ppb	23945400	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			2,2'-Bifuran, octahydro-	142	C8H14O2	001592-33-2	42
2			Butyric acid, neopentyl ester \$\$ te	158	C9H18O2	002050-00-2	38
3			Butanoic acid, anhydride	158	C8H14O3	000106-31-0	36
4			Butanoic acid, anhydride \$\$ Butyric	158	C8H14O3	000106-31-0	9



Data File : C:\HPCHEM\1\DATA2\DH051522.D

Acq On : 15 May 2017 9:29 pm

Sample : C1705036-012A 10X

Misc : T015

MS Integration Params: LSCINT.P

Vial: 16

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

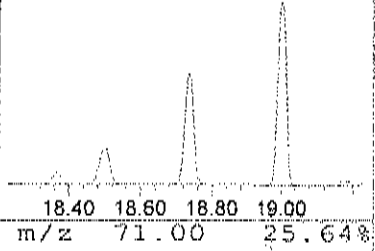
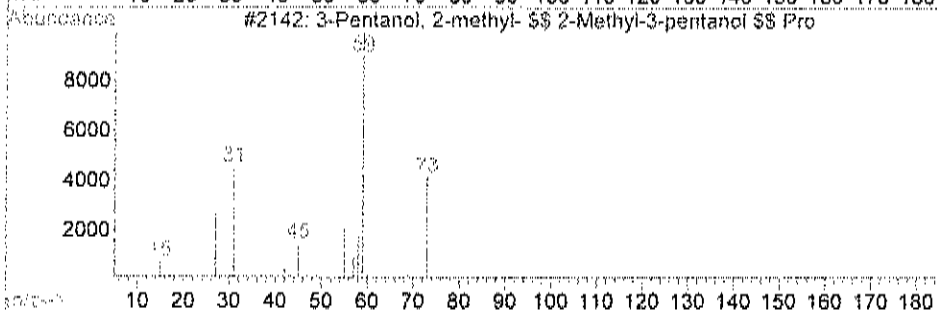
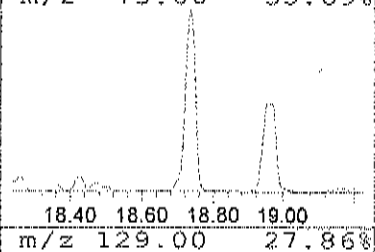
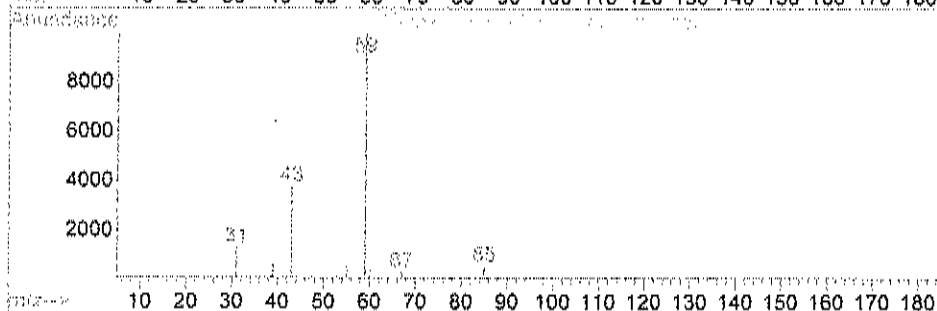
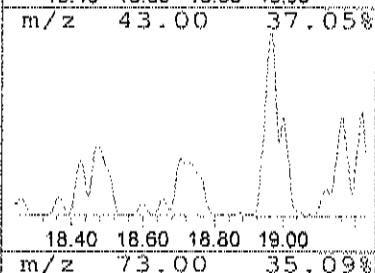
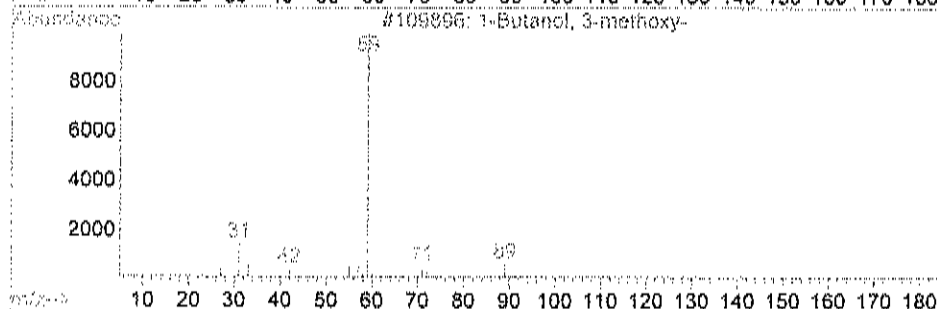
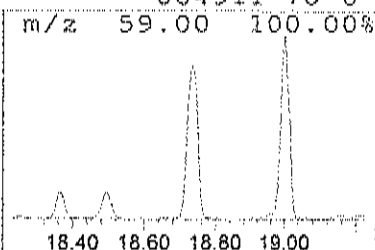
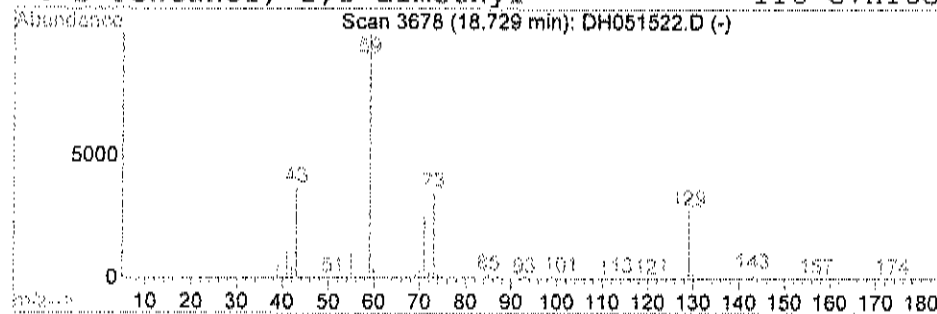
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 5 1-Butanol, 3-methoxy- Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
18.73	543.75 ppb	34287900	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			1-Butanol, 3-methoxy-	104	C5H12O2	002517-43-3	38
2			4-Pentene-2-ol, 2-methyl	100	C6H12O	000624-97-5	37
3			3-Pentanol, 2-methyl- \$\$ 2-Methyl-3	102	C6H14O	000565-67-3	36
4			2-Pentanol, 2,3-dimethyl-	116	C7H16O	004911-70-0	25



Data File : C:\HPCHEM\1\DATA2\DH051522.D

Acq On : 15 May 2017 9:29 pm

Sample : C1705036-012A 10X

Misc : T015

MS Integration Params: LSCINT.P

Vial: 16

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

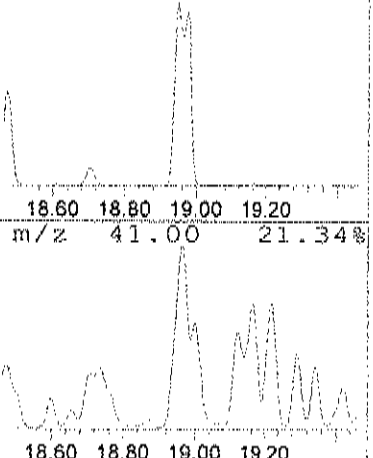
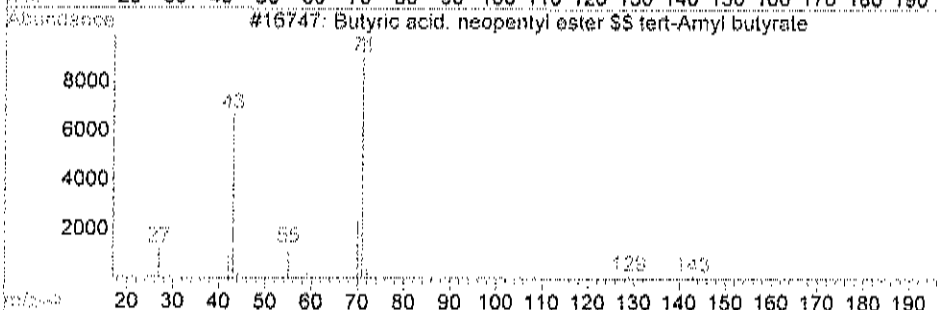
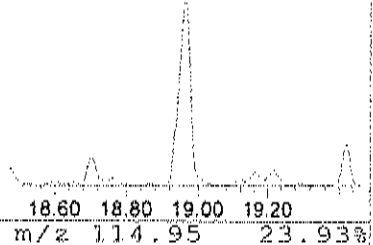
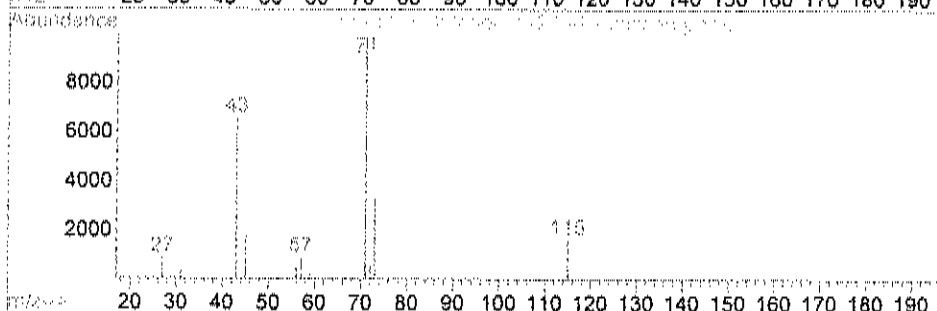
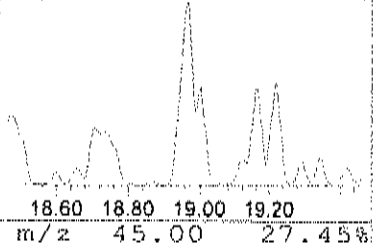
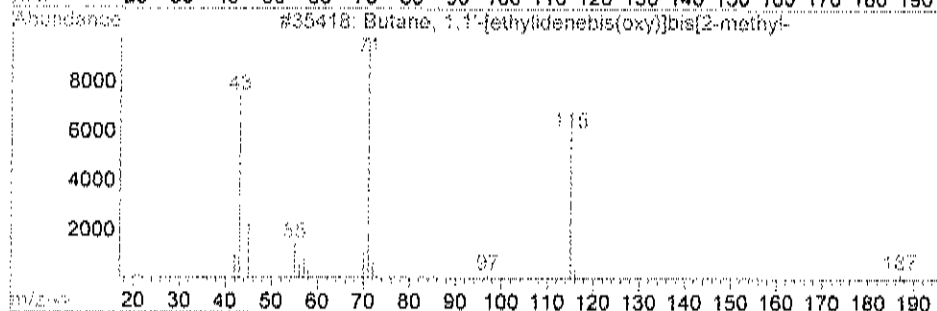
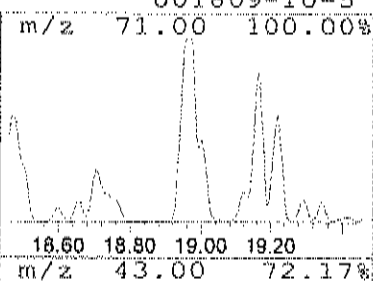
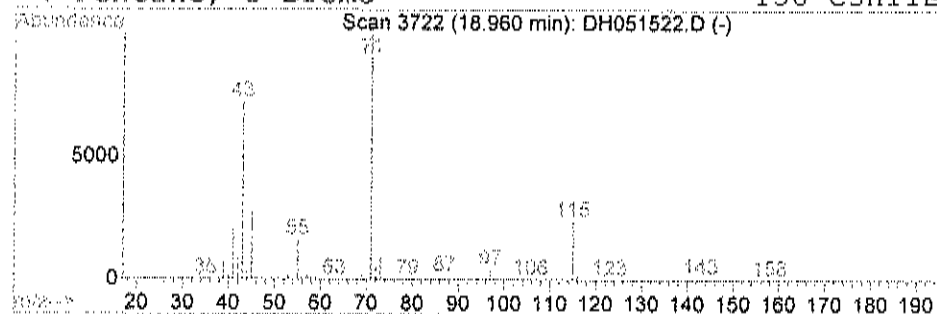
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 6 Butane, 1,1'-[ethylidenebis(ox Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
18.96	826.05 ppb	52089300	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Butane, 1,1'-[ethylidenebis(oxy)]bi	202	C12H26O2	013535-43-8	78
2			2-Butanol, 3-(2,2-dimethylpropoxy)-	160	C9H20O2	074793-66-1	50
3			Butyric acid, neopentyl ester \$\$ te	158	C9H18O2	002050-00-2	50
4			Pentane, 3-bromo-	150	C5H11Br	001809-10-5	50



Data File : C:\HPCHEM\1\DATA2\DH051522.D

Acq On : 15 May 2017 9:29 pm

Sample : C1705036-012A 10X

Misc : T015

MS Integration Params: LSCINT.P

Vial: 16

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

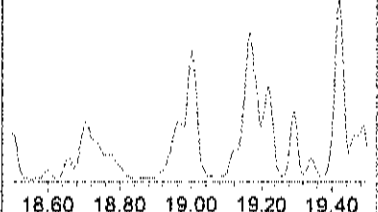
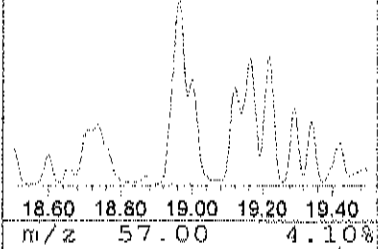
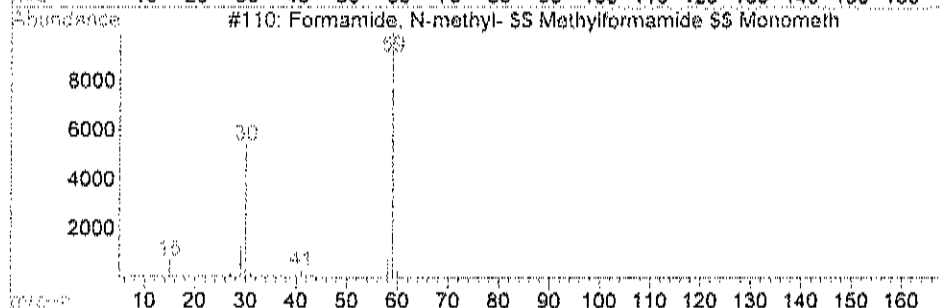
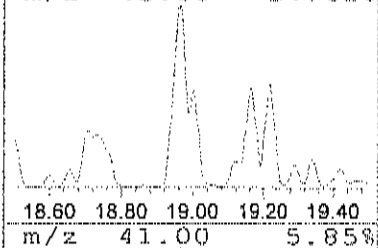
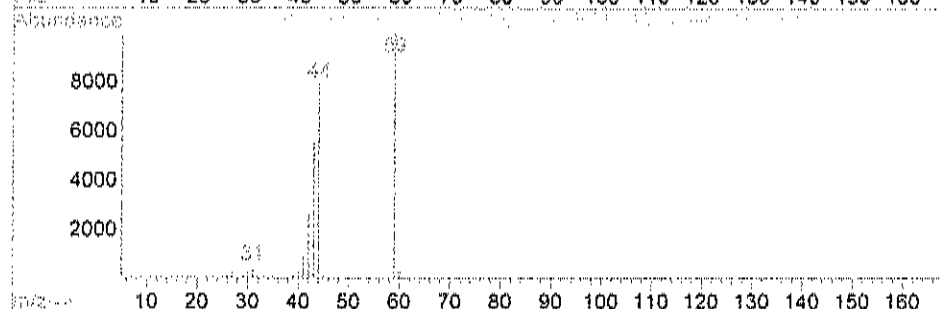
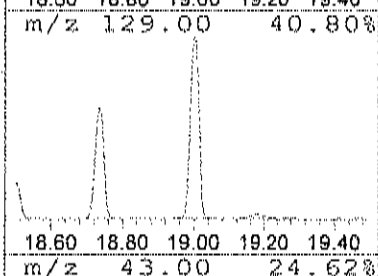
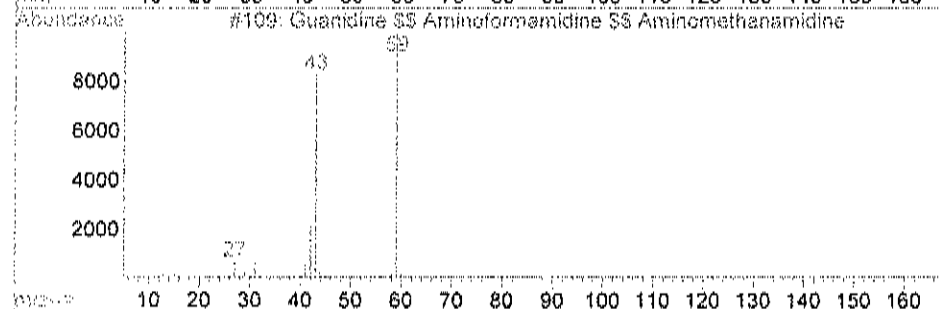
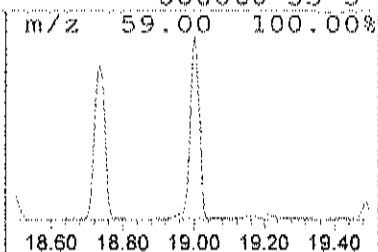
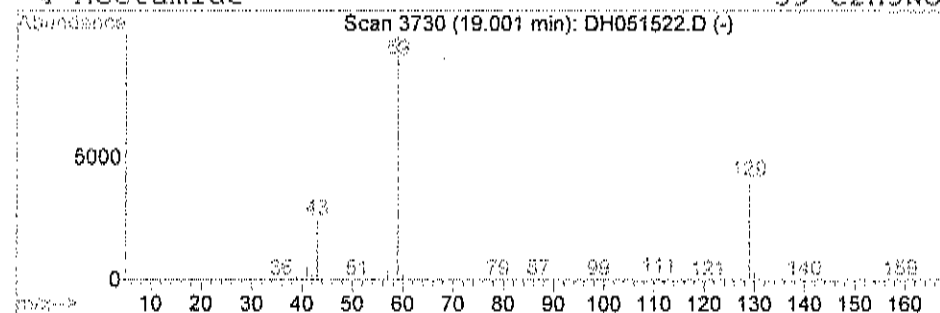
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 7 unknown Concentration Rank 10

R.T.	EstConc	Area	Relative to ISTD	R.T.
19.00	342.88 ppb	21621700	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Guanidine \$\$ Aminoformamidine \$\$ Am	59	CH5N3	000113-00-8	5
2			Acetamide \$\$ Acetic acid amide \$\$ A	59	C2H5NO	000060-35-5	4
3			Formamide, N-methyl- \$\$ Methylforma	59	C2H5NO	000123-39-7	4
4			Acetamide	59	C2H5NO	000060-35-5	4



Data File : C:\HPCHEM\1\DATA2\DH051522.D

Acq On : 15 May 2017 9:29 pm

Sample : C1705036-012A 10X

Misc : TO15

MS Integration Params: LSCINT.P

Vial: 16

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

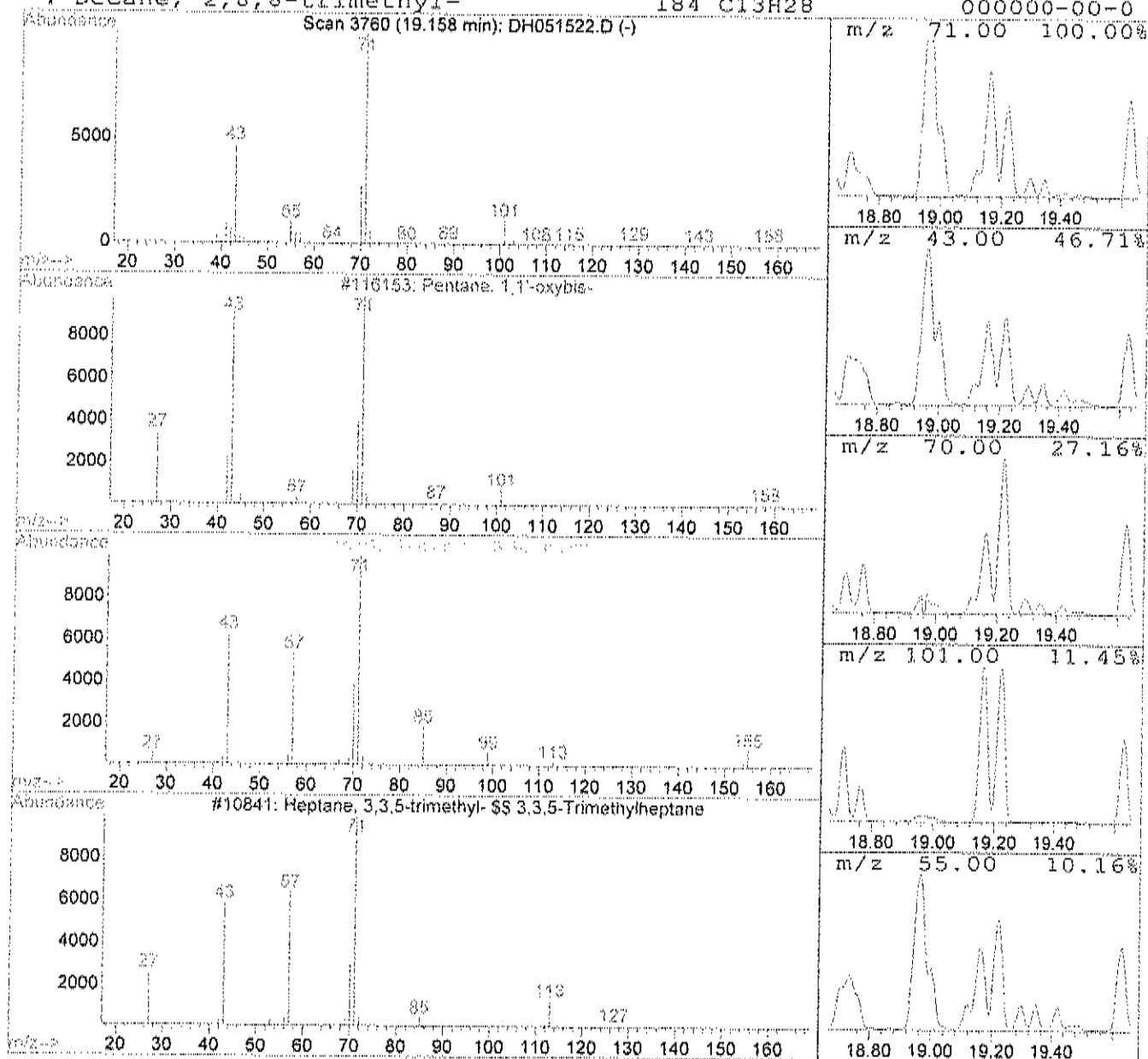
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 8 Pentane, 1,1'-oxybis- Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
19.16	457.85 ppb	28870900	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Pentane, 1,1'-oxybis-	158	C10H22O	000693-65-2	74
2			Undecane, 3,3-dimethyl-	184	C13H28	017312-65-1	40
3			Heptane, 3,3,5-trimethyl- \$\$ 3,3,5-	142	C10H22	007154-80-5	40
4			Decane, 2,8,8-trimethyl-	184	C13H28	000000-00-0	40



Data File : C:\HPCHEM\1\DATA2\DH051522.D

Acq On : 15 May 2017 9:29 pm

Sample : C1705036-012A 10X

Misc : TO15

MS Integration Params: LSCINT.P

Vial: 16

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

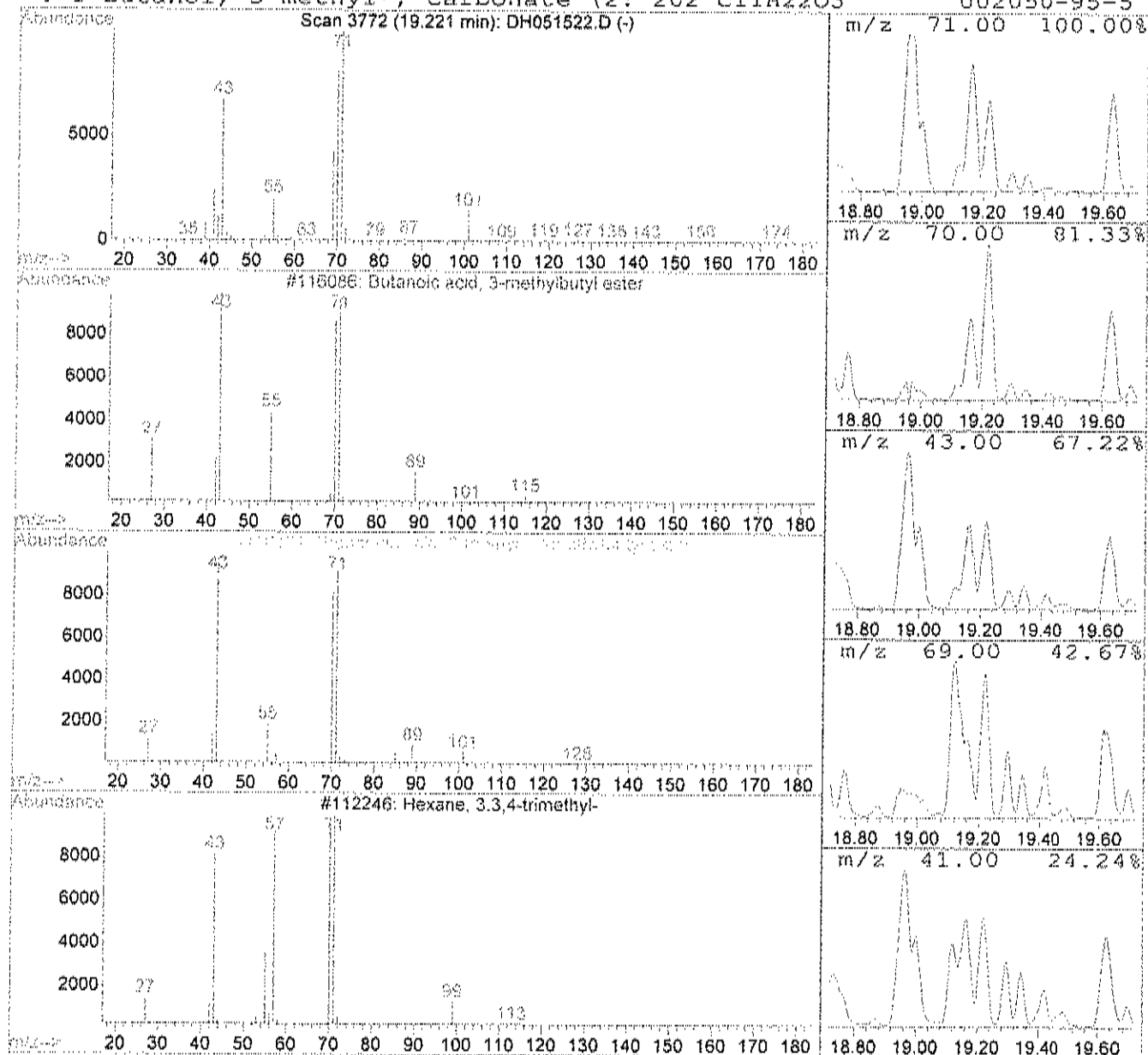
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 9 Butanoic acid, 3-methylbutyl e Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
19.22	434.81 ppb	27418100	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Butanoic acid, 3-methylbutyl ester	158	C9H18O2	000106-27-4	78
2			Propanoic acid, 2-methyl-, 2-methyl	158	C9H18O2	002445-69-4	72
3			Hexane, 3,3,4-trimethyl-	128	C9H20	016747-31-2	72
4			1-Butanol, 3-methyl-, carbonate (2:	202	C11H22O3	002050-95-5	64



Data File : C:\HPCHEM\1\DATA2\DH051522.D

Acq On : 15 May 2017 9:29 pm

Sample : C1705036-012A 10X

Misc : TO15

MS Integration Params: LSCINT.P

Vial: 16

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

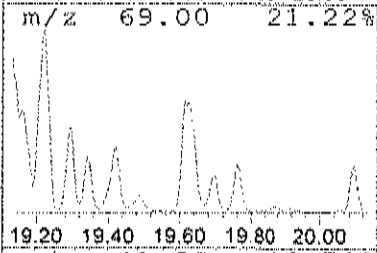
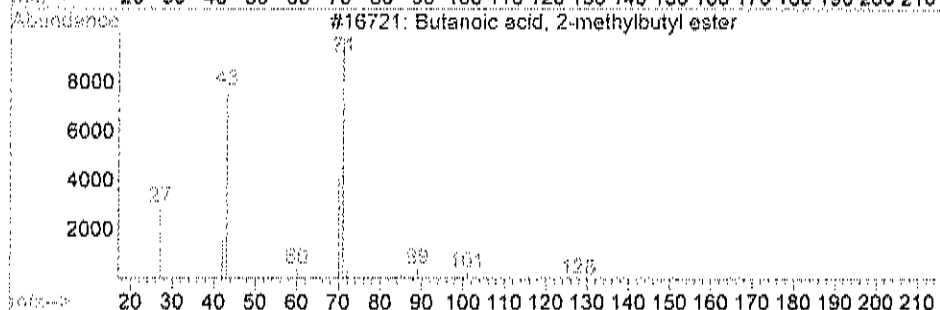
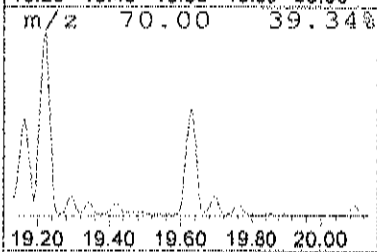
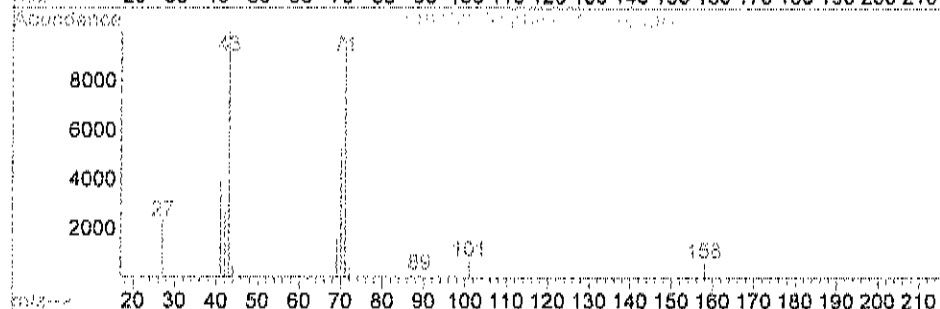
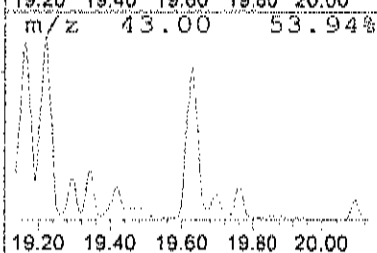
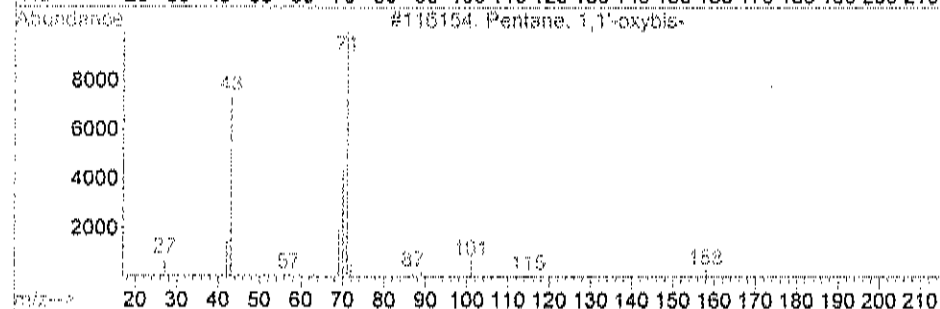
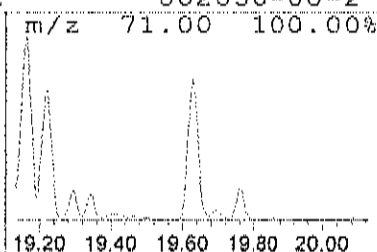
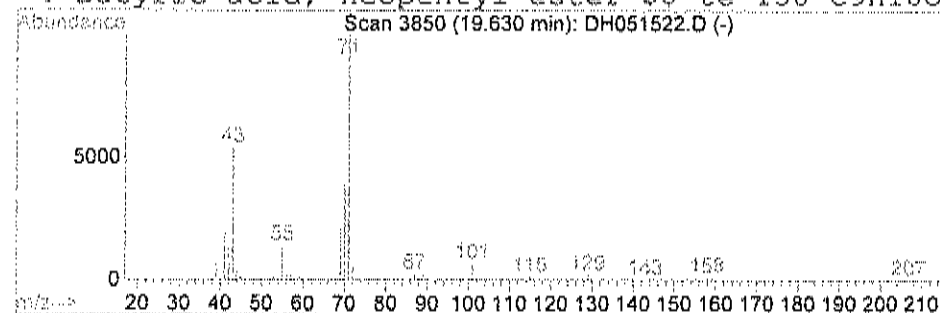
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 10 Pentane, 1,1'-oxybis- Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
19.63	403.72 ppb	25457700	Chlorobenzene-d5	16.48

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Pentane, 1,1'-oxybis-	158	C10H22O	000693-65-2	83
2			Pentane, 1,1'-oxybis-	158	C10H22O	000693-65-2	74
3			Butanoic acid, 2-methylbutyl ester	158	C9H18O2	051115-64-1	64
4			Butyric acid, neopentyl ester \$S te	158	C9H18O2	002050-00-2	59



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 15 May 2017 9:29 pm
 Data File: C:\HPCHEM\1\DATA2\DH051522.D
 Name: C1705036-012A 10X
 Misc: TO15
 Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title: VOA Standards for 5 point calibration
 Library Searched: C:\DATABASE\NIST129.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc
Cyclopropane, 1,2-di	6.73	347.8	ppb	24512500	ISTD01	9.97	3524430	50.0
2-Propanethiol \$\$ Is	7.90	1641.7	ppb	115719000	ISTD01	9.97	3524430	50.0
3-Penten-2-one	15.86	1308.4	ppb	82507700	ISTD03	16.48	3152910	50.0
2,2'-Bifuran, octahy	18.47	379.7	ppb	23945400	ISTD03	16.48	3152910	50.0
1-Butanol, 3-methoxy	18.73	543.8	ppb	34287900	ISTD03	16.48	3152910	50.0
Butane, 1,1'-[ethyl	18.96	826.1	ppb	52089300	ISTD03	16.48	3152910	50.0
unknown	19.00	342.9	ppb	21621700	ISTD03	16.48	3152910	50.0
Pentane, 1,1'-oxybis	19.16	457.8	ppb	28870900	ISTD03	16.48	3152910	50.0
Butanoic acid, 3-met	19.22	434.8	ppb	27418100	ISTD03	16.48	3152910	50.0
Pentane, 1,1'-oxybis	19.63	403.7	ppb	25457700	ISTD03	16.48	3152910	50.0

DH051522.D I0511T15.M Mon Jun 19 14:49:52 2017

Data File : C:\HPCHEM\1\DATA\DH051710.D

Vial: 16

Acq On : 17 May 2017 1:46 pm

Operator: WD

Sample : C1705036-012A 128X

Inst : GCMS3

Misc : T015

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: Jun 1 11:16 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	101650	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	603882	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	500734	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	366289	51.57	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	103.14%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
16) Acetone	6.11	43	186534	48.80	ppb	100
23) Methylene Chloride	7.17	84	33843	12.93	ppb	89
24) Carbon disulfide	7.33	76	177673	23.29	ppb	99
30) Hexane	9.05	41	22201	4.81	ppb	# 23
33) Chloroform	10.11	83	80985	11.13	ppb	98
42) Heptane	12.64	43	11261	1.39	ppb	91
48) Methyl Isobutyl Ketone	13.87	43	3182555	312.69	ppb	96
52) Toluene	14.70	92	141054	16.11	ppb	95
59) Ethylbenzene	16.76	106	26655	4.37	ppb	97
60) m&p-Xylene	16.91	106	633901	84.17	ppb	# 82
61) Nonane	17.24	43	51519	4.63	ppb	# 88
63) o-xylene	17.35	91	406057	25.34	ppb	97

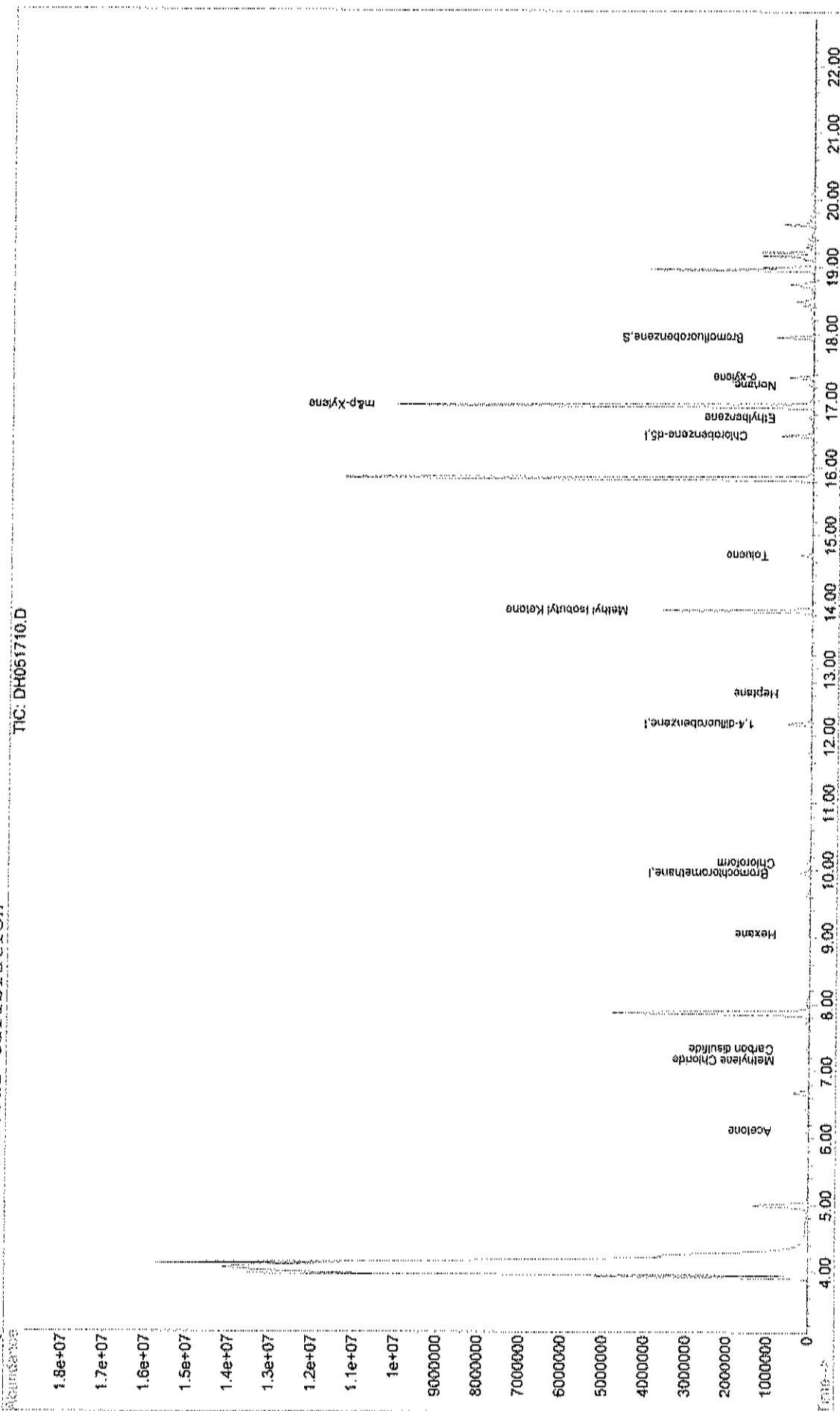
Quantitation Report

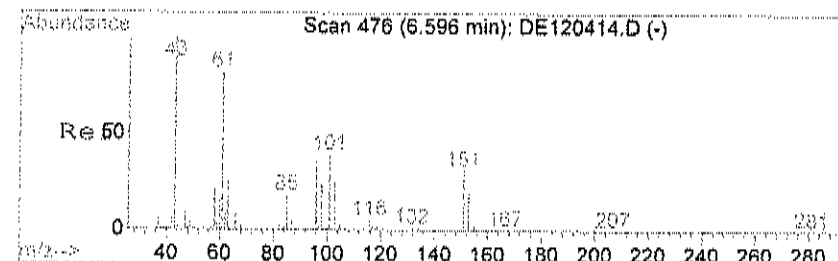
Data File : C:\HPCHEM\1\DATA\DH051710.D
Acq On : 17 May 2017 1:46 pm
Sample : C1705036-012A 128X
Misc : TO15
MS Integration Params: rteint.p
Quant Time: Jun 1 11:16 2017

Vial: 16
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





#16

Acetone

Concen: 48.80 ppb

RT: 6.11 min Scan# 888

Delta R.T. -0.00 min

Lab File: DH051710.D

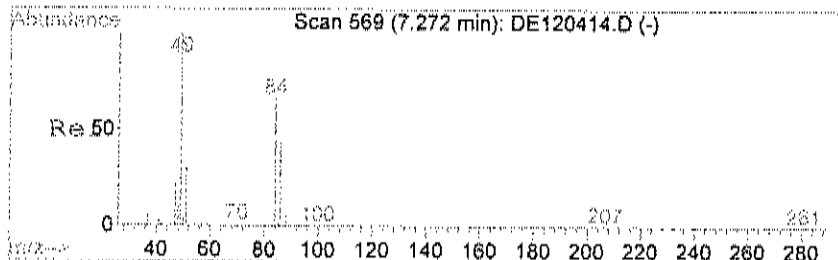
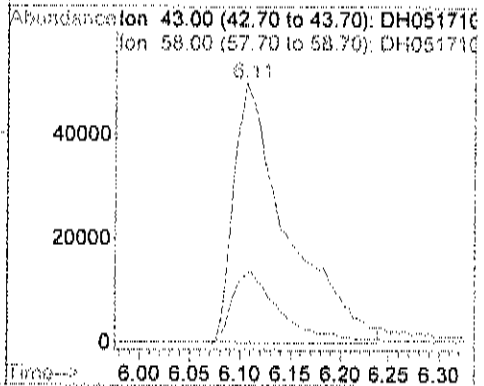
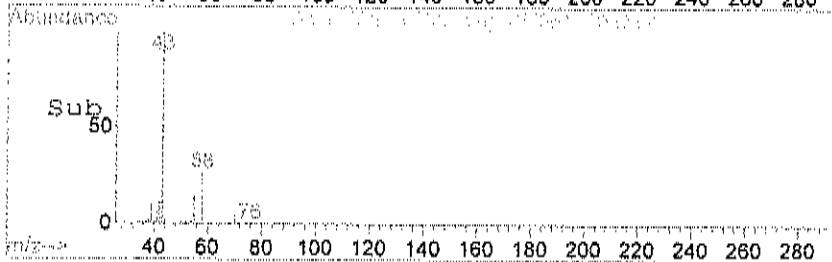
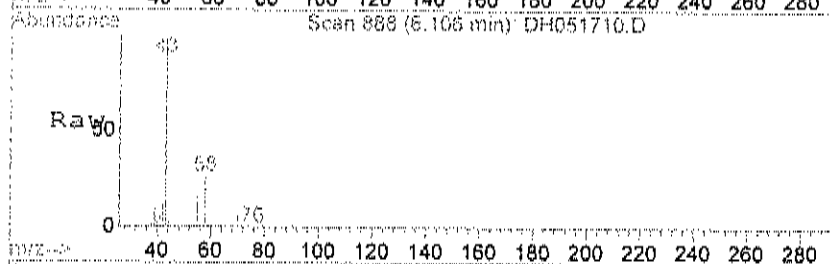
Acq: 17 May 2017 1:46 pm

Tgt Ion: 43 Resp: 186534

Ion Ratio Lower Upper

43 100

58 23.9 3.7 43.7



#23

Methylene Chloride

Concen: 12.93 ppb

RT: 7.17 min Scan# 1136

Delta R.T. -0.01 min

Lab File: DH051710.D

Acq: 17 May 2017 1:46 pm

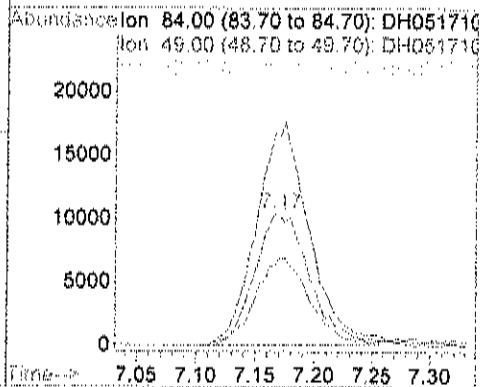
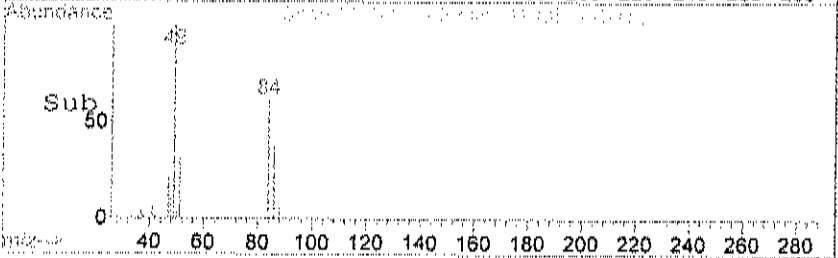
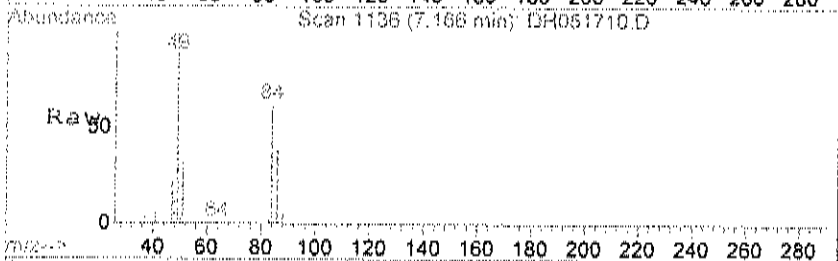
Tgt Ion: 84 Resp: 33843

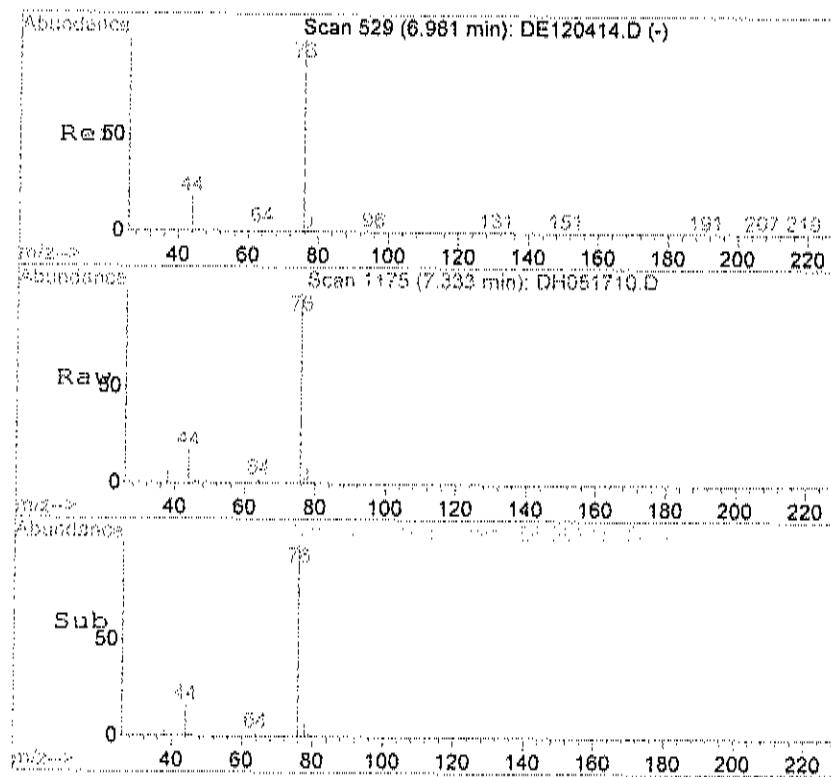
Ion Ratio Lower Upper

84 100

49 163.0 124.3 164.3

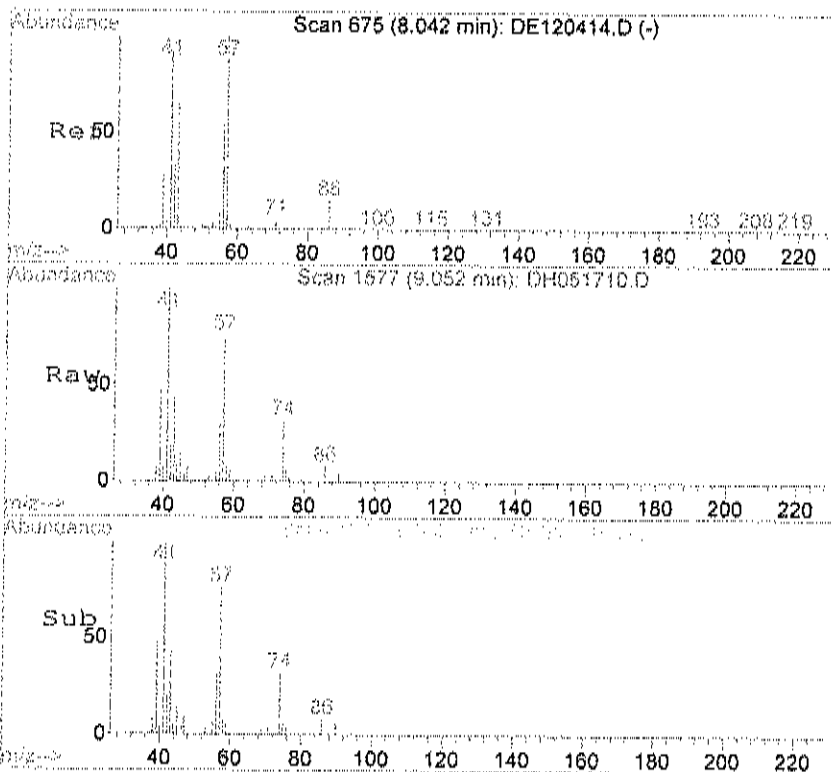
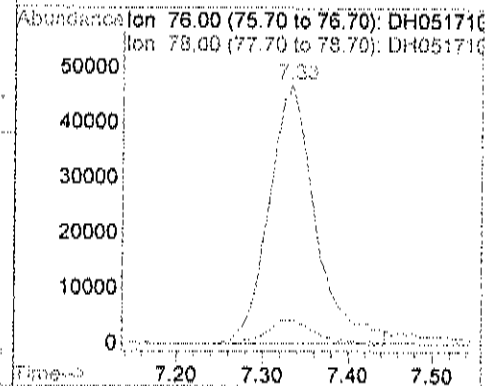
86 64.9 43.0 83.0





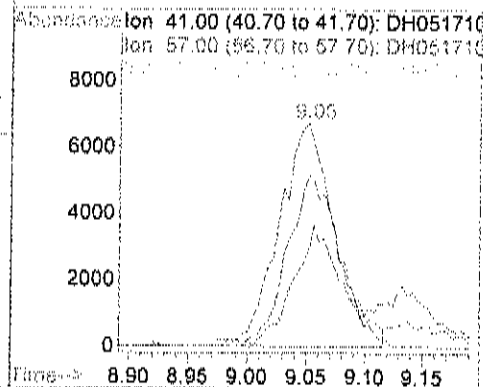
#24
Carbon disulfide
Concen: 23.29 ppb
RT: 7.33 min Scan# 1175
Delta R.T. -0.01 min
Lab File: DH051710.D
Acq: 17 May 2017 1:46 pm

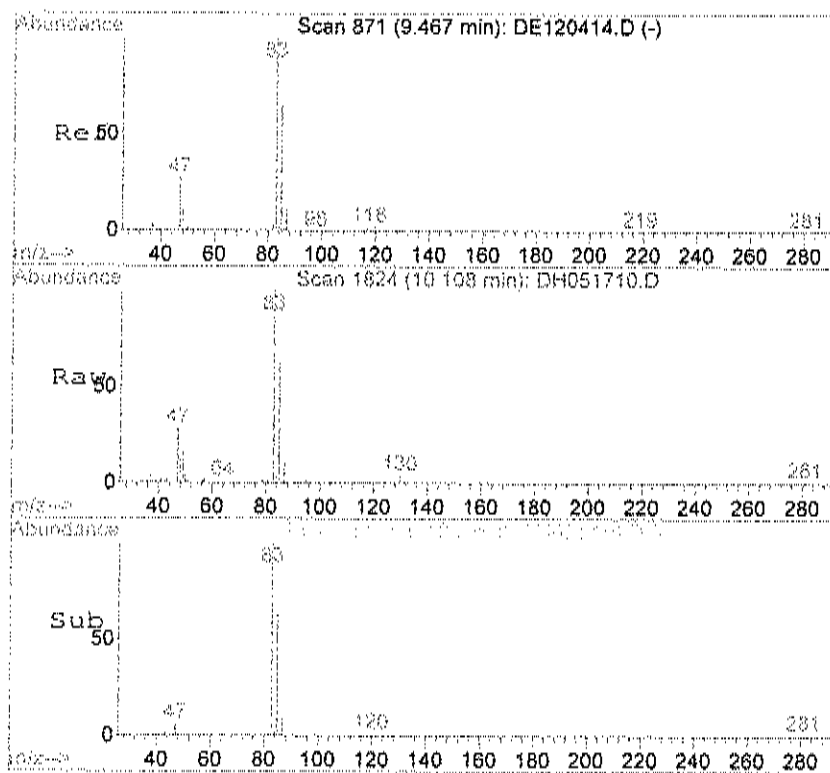
Tgt Ion	76	Resp	177673
Ion Ratio	76	100	
Lower	78	9.0	0.0
Upper			29.3



#30
Hexane
Concen: 4.81 ppb
RT: 9.05 min Scan# 1577
Delta R.T. -0.01 min
Lab File: DH051710.D
Acq: 17 May 2017 1:46 pm

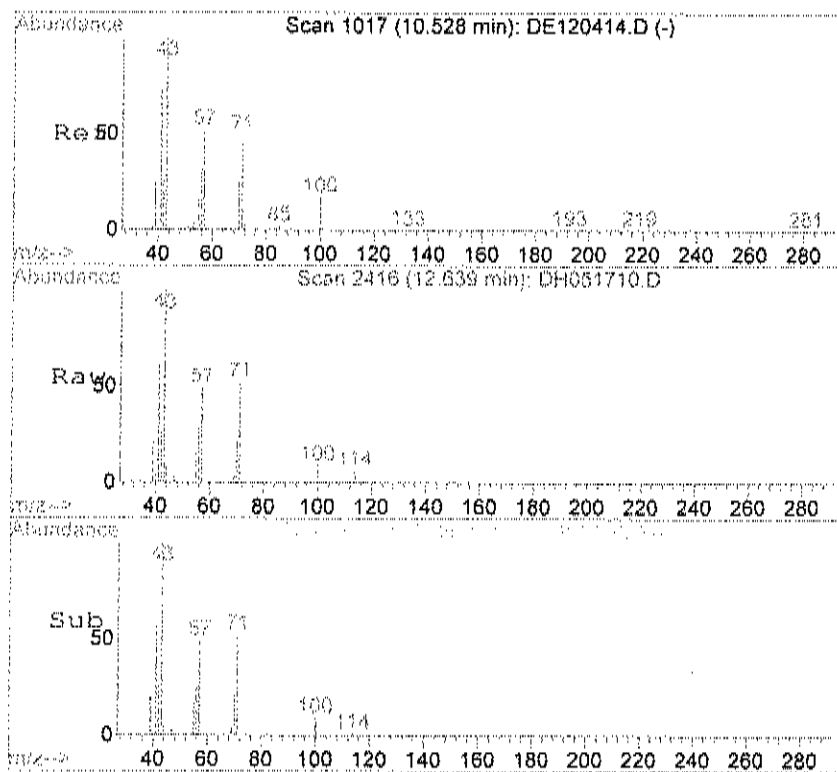
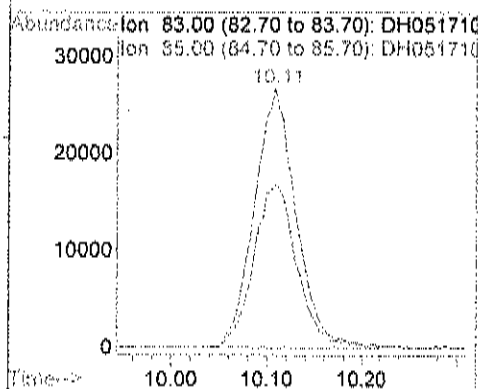
Tgt Ion	41	Resp	22201
Ion Ratio	41	100	
Lower	57	70.5	96.5
Upper	43	45.5	168.6





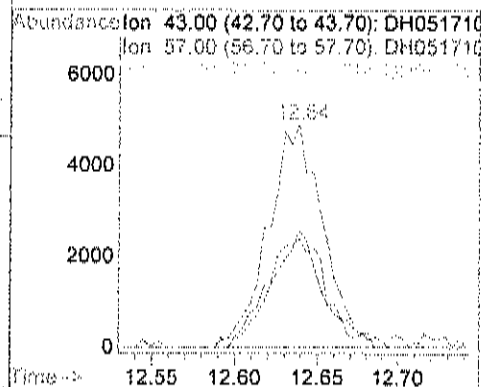
#33
Chloroform
Concen: 11.13 ppb
RT: 10.11 min Scan# 1824
Delta R.T. -0.00 min
Lab File: DH051710.D
Acq: 17 May 2017 1:46 pm

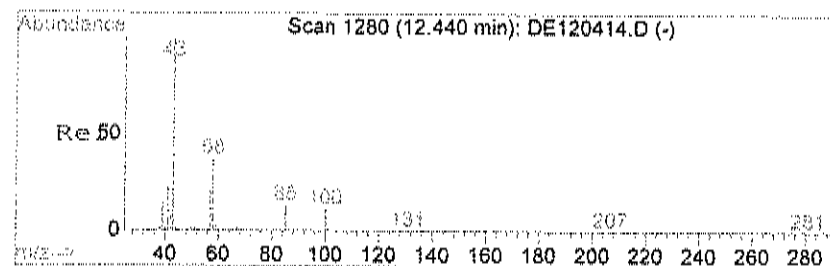
Tgt Ion	Ratio	Lower	Upper
83	100		
85	64.7	43.5	83.5



#42
Heptane
Concen: 1.39 ppb
RT: 12.64 min Scan# 2416
Delta R.T. -0.00 min
Lab File: DH051710.D
Acq: 17 May 2017 1:46 pm

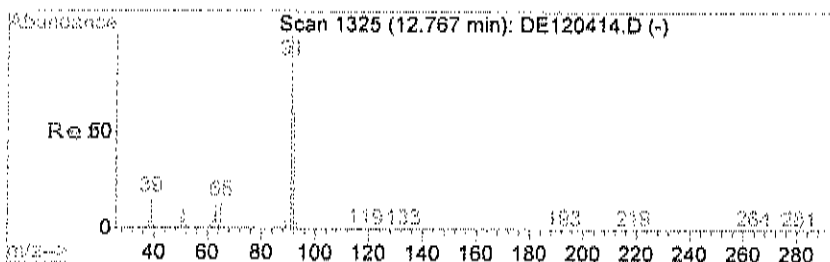
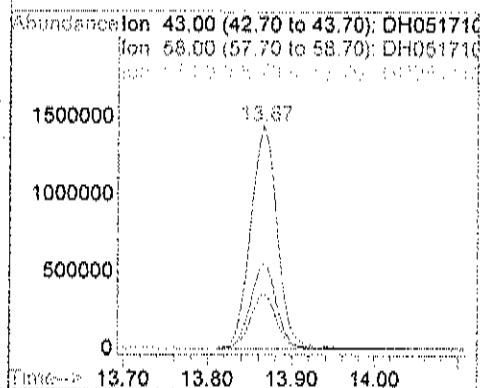
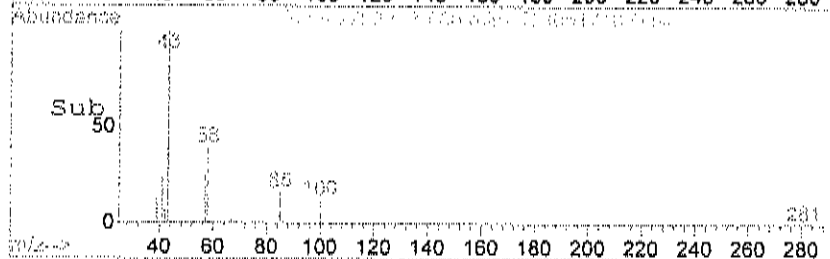
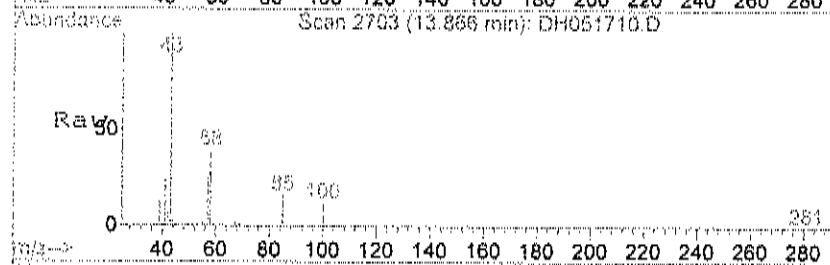
Tgt Ion	Ratio	Lower	Upper
43	100		
57	55.8	32.3	72.3
71	47.9	37.2	77.2





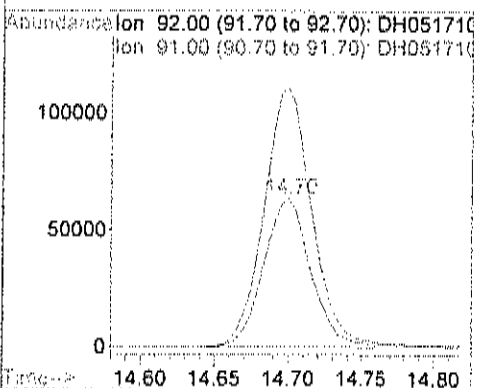
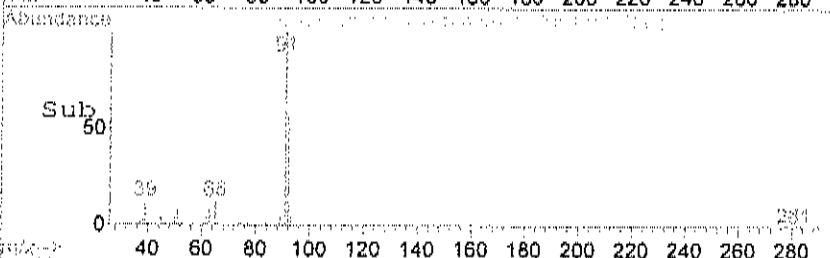
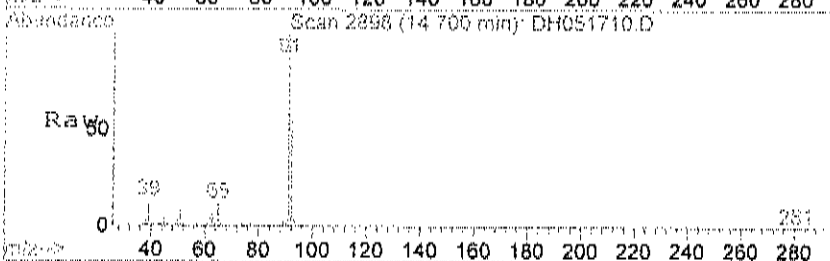
#48
Methyl Isobutyl Ketone
Concen: 312.69 ppb
RT: 13.87 min Scan# 2703
Delta R.T. -0.01 min
Lab File: DH051710.D
Acq: 17 May 2017 1:46 pm

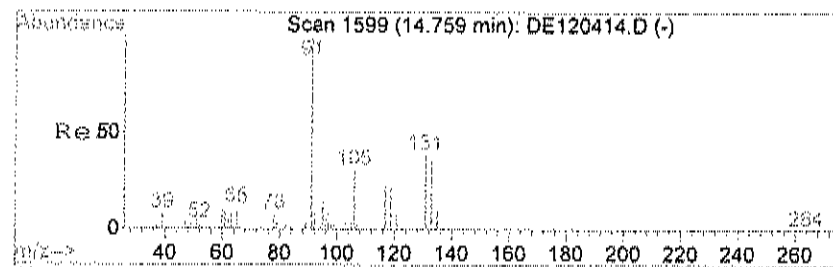
Tgt Ion	Ratio	Lower	Upper
43	100		
58	37.2	15.8	55.8
57	23.6	6.8	46.8



#52
Toluene
Concen: 16.11 ppb
RT: 14.70 min Scan# 2898
Delta R.T. -0.00 min
Lab File: DH051710.D
Acq: 17 May 2017 1:46 pm

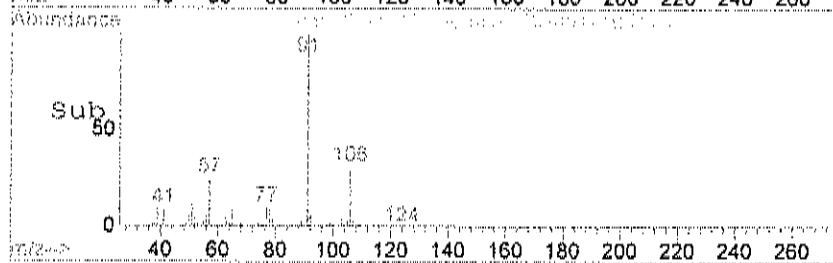
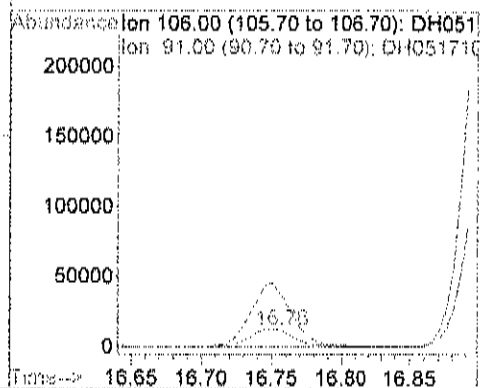
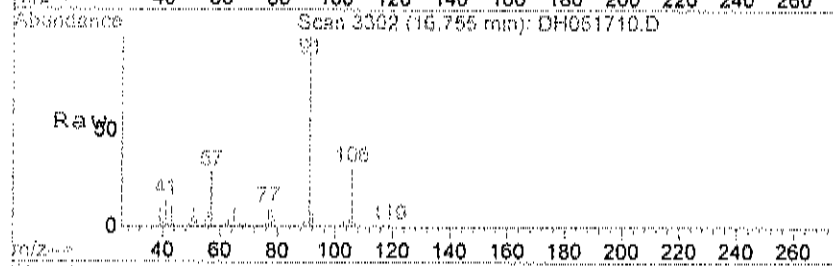
Tgt Ion	Ratio	Lower	Upper
92	100		
91	178.7	151.4	191.4





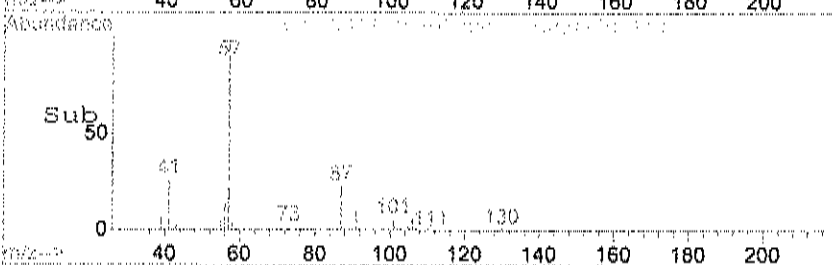
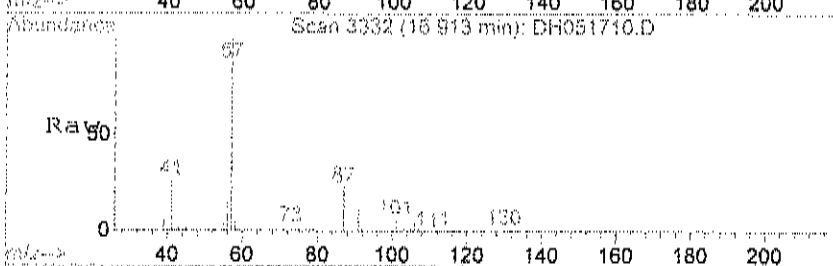
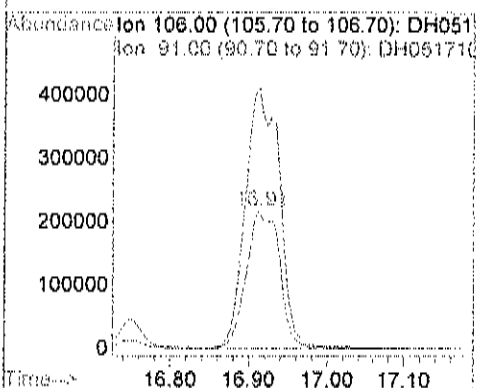
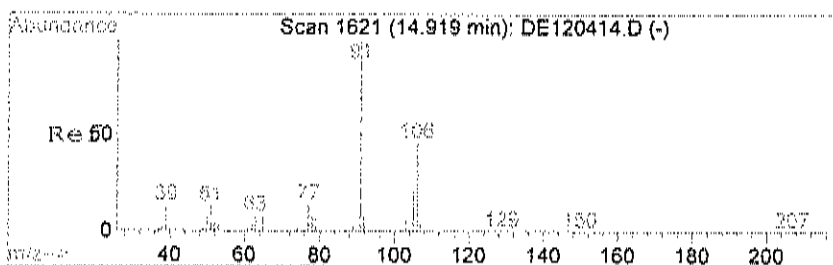
#59
Ethylbenzene
Concen: 4.37 ppb
RT: 16.76 min Scan# 3302
Delta R.T. 0.00 min
Lab File: DH051710.D
Acq: 17 May 2017 1:46 pm

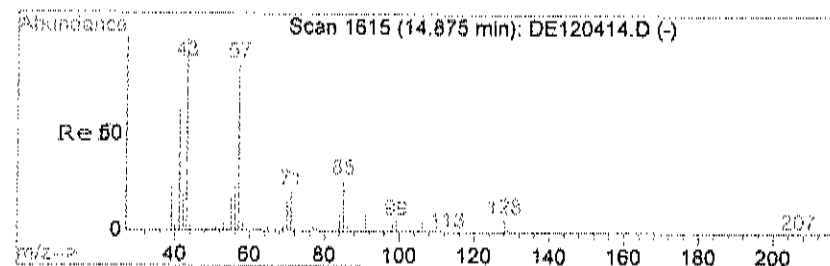
Tgt Ion:106 Resp: 26655
Ion Ratio Lower Upper
106 100
91 345.4 319.2 359.2



#60
m&p-Xylene
Concen: 84.17 ppb
RT: 16.91 min Scan# 3332
Delta R.T. -0.02 min
Lab File: DH051710.D
Acq: 17 May 2017 1:46 pm

Tgt Ion:106 Resp: 633901
Ion Ratio Lower Upper
106 100
91 193.6 202.1 242.1#





#61

Nonane

Concen: 4.63 ppb

RT: 17.24 min Scan# 3394

Delta R.T. -0.01 min

Lab File: DH051710.D

Acq: 17 May 2017 1:46 pm

Tgt Ion: 43 Resp: 51519

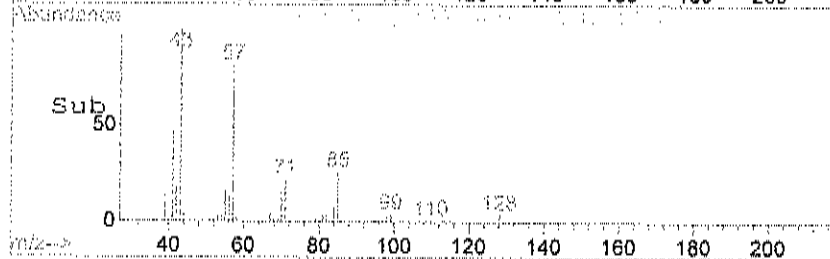
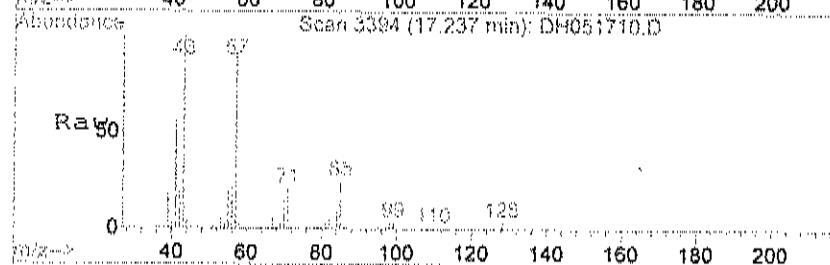
Ion Ratio Lower Upper

43 100

57 74.2 68.6 102.8

71 21.0 19.4 29.0

85 24.8 27.1 40.7#



Abundance Ion 43.00 (42.70 to 43.70): DH051710.D

Ion 57.00 (56.70 to 57.70): DH051710.D

Ion 85.00 (84.70 to 85.70): DH051710.D

Time-->

17.15 17.20 17.25 17.30 17.35

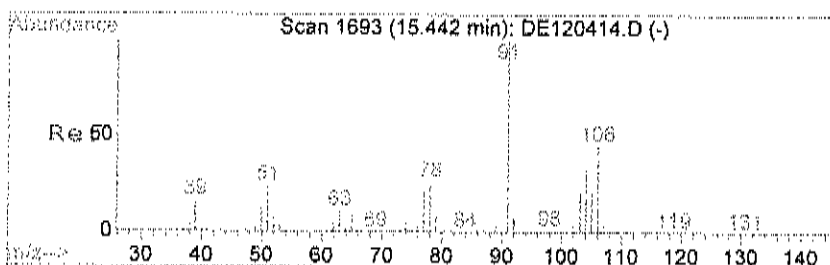
17.24

30000

20000

10000

0



#63

o-xylene

Concen: 25.34 ppb

RT: 17.35 min Scan# 3415

Delta R.T. -0.00 min

Lab File: DH051710.D

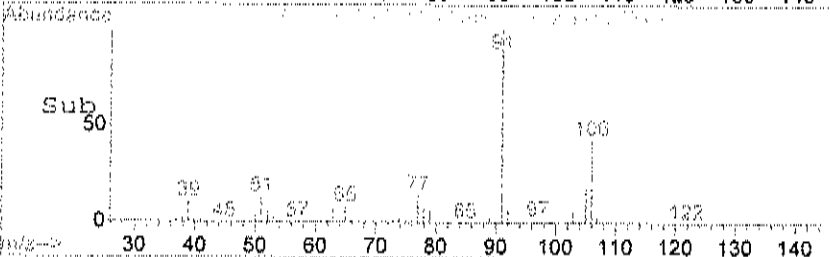
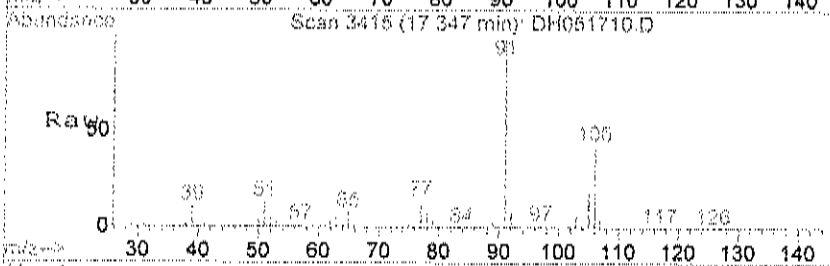
Acq: 17 May 2017 1:46 pm

Tgt Ion: 91 Resp: 406057

Ion Ratio Lower Upper

91 100

106 44.3 22.6 62.6



Abundance Ion 91.00 (90.70 to 91.70): DH051710.D

Ion 106.00 (105.70 to 106.70): DH051710.D

Time-->

17.30 17.40 17.50

17.35

200000

150000

100000

50000

0

Data File : C:\HPCHEM\1\DATA\DH051718.D
 Acq On : 17 May 2017 6:46 pm
 Sample : C1705036-012A 640X
 Misc : TO15

Vial: 16
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: Jun 1 11:44 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	76075m ^u	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	417803	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	337962	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	216670	45.19	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	90.38%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
16) Acetone	6.13	43	22816m ^u	7.98	ppb	
23) Methylene Chloride	7.16	84	5874	3.00	ppb	# 80
24) Carbon disulfide	7.32	76	19146	3.35	ppb	# 88
33) Chloroform	10.10	83	9430	1.73	ppb	# 55
48) Methyl Isobutyl Ketone	13.86	43	346968	49.27	ppb	93
52) Toluene	14.70	92	17117	2.83	ppb	97
59) Ethylbenzene	16.75	106	4422	1.08	ppb	100
60) m&p-Xylene	16.91	106	50370	9.91	ppb	99
63) o-xylene	17.35	91	50954	4.71	ppb	99

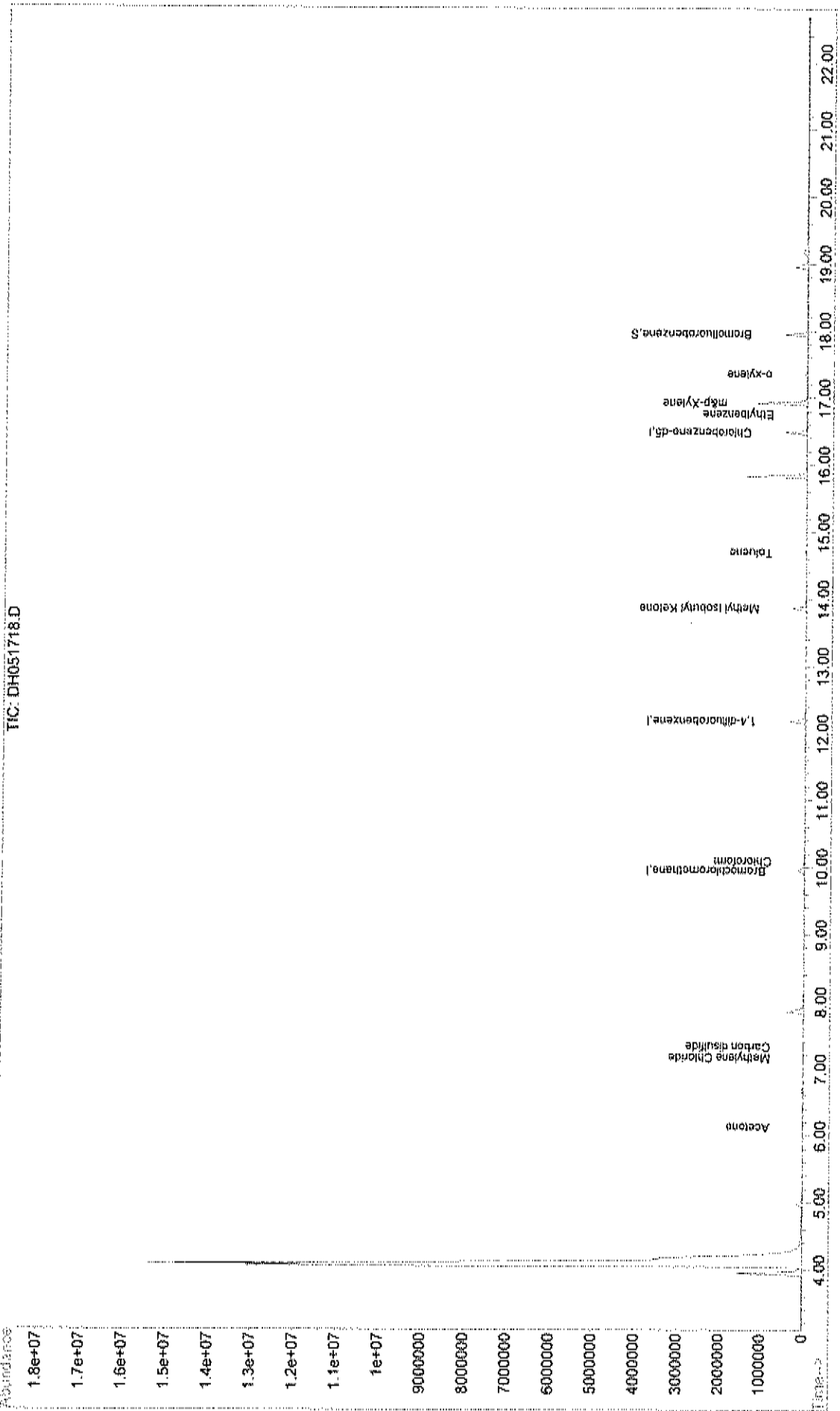
(#) = qualifier out of range (m) = manual integration

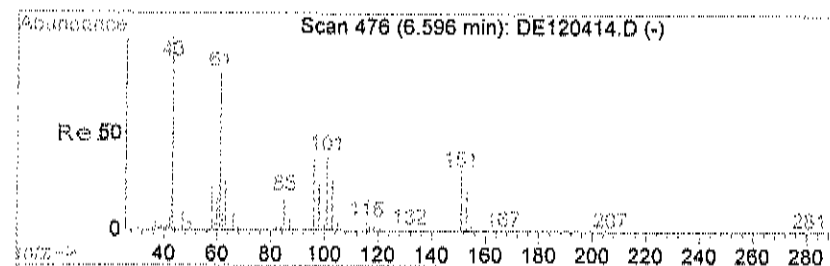
DH051718.D I0511T15.M Thu Jun 01 11:52:12 2017

Page 1

Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051718.D
 Acq On : 17 May 2017 6:46 pm
 Sample : C1705036-012A 640X
 Misc : T015
 MS Integration Params: rteint.p
 Quant Time: Jun 1 11:44 2017
 Quant Results File: I0511T15.RES
 Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration





#16

Acetone

Concen: 7.98 ppb m

RT: 6.13 min Scan# 893

Delta R.T. 0.02 min

Lab File: DH051718.D

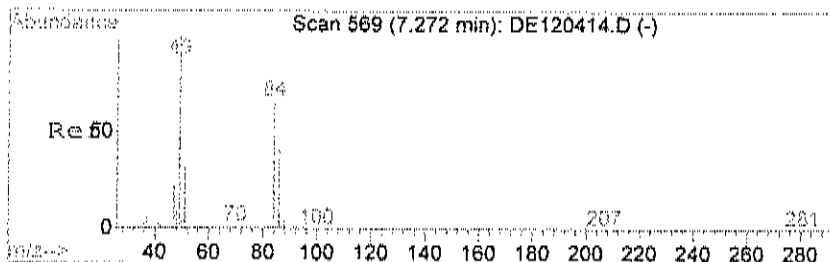
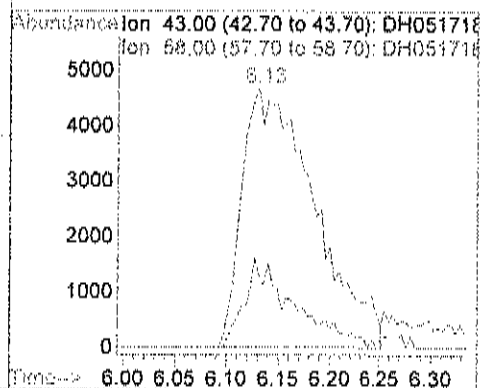
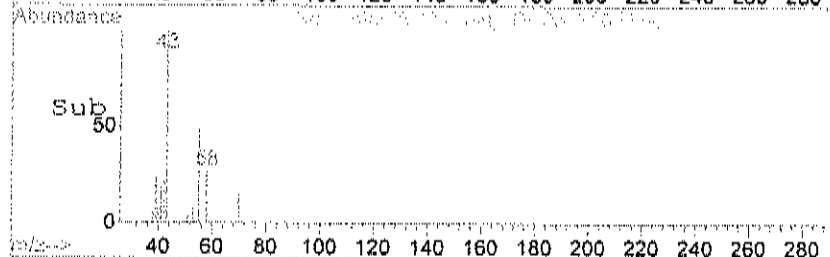
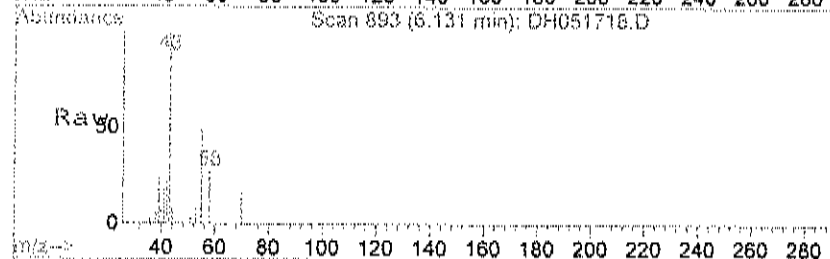
Acq: 17 May 2017 6:46 pm

Tgt Ion: 43 Resp: 22816

Ion Ratio Lower Upper

43 100

58 8.7 3.7 43.7



#23

Methylene Chloride

Concen: 3.00 ppb

RT: 7.16 min Scan# 1134

Delta R.T. -0.01 min

Lab File: DH051718.D

Acq: 17 May 2017 6:46 pm

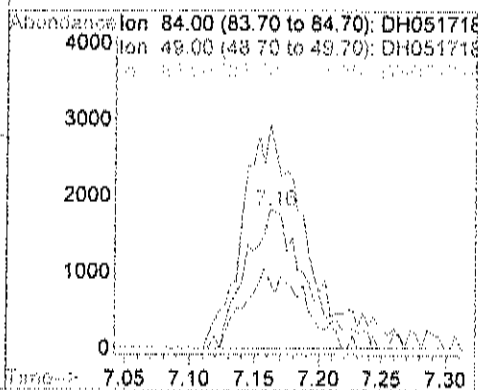
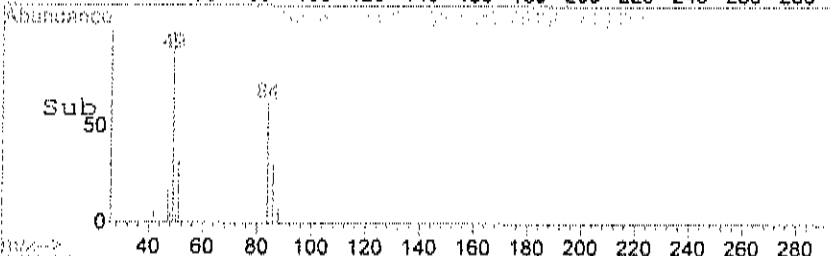
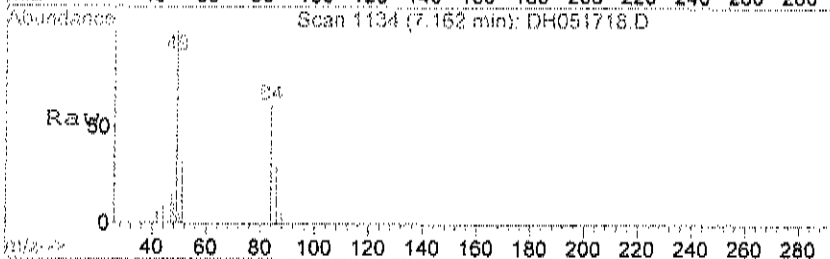
Tgt Ion: 84 Resp: 5874

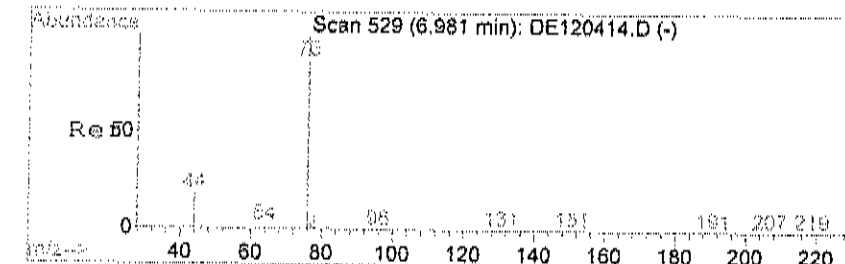
Ion Ratio Lower Upper

84 100

49 155.2 124.3 164.3

86 28.1 43.0 83.0#





#24

Carbon disulfide

Concen: 3.35 ppb

RT: 7.32 min Scan# 1172

Delta R.T. -0.02 min

Lab File: DH051718.D

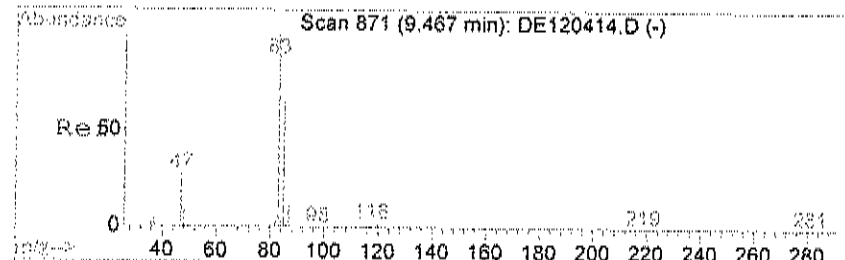
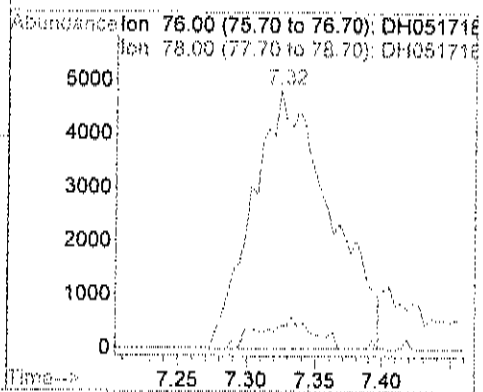
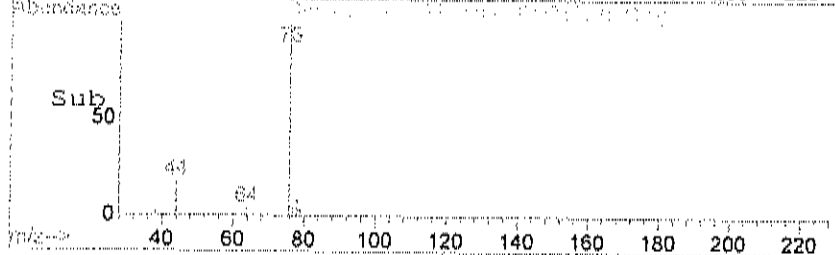
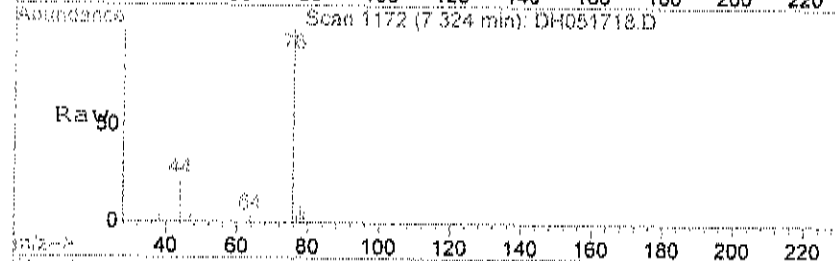
Acq: 17 May 2017 6:46 pm

Tgt Ion: 76 Resp: 19146

Ion Ratio Lower Upper

76 100

78 4.8 0.0 29.3



#33

Chloroform

Concen: 1.73 ppb

RT: 10.10 min Scan# 1822

Delta R.T. -0.01 min

Lab File: DH051718.D

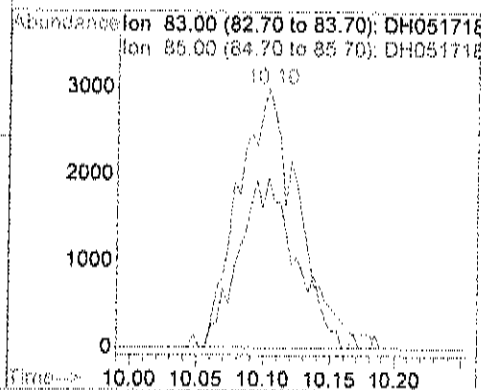
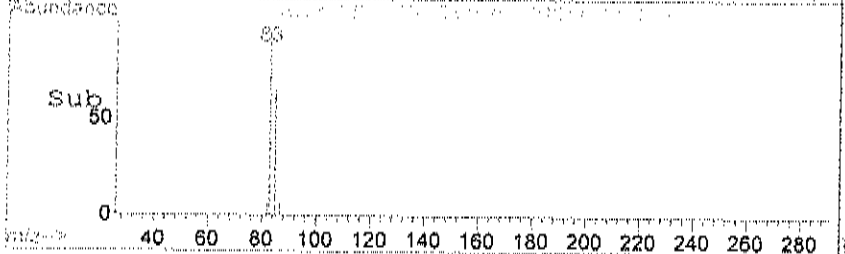
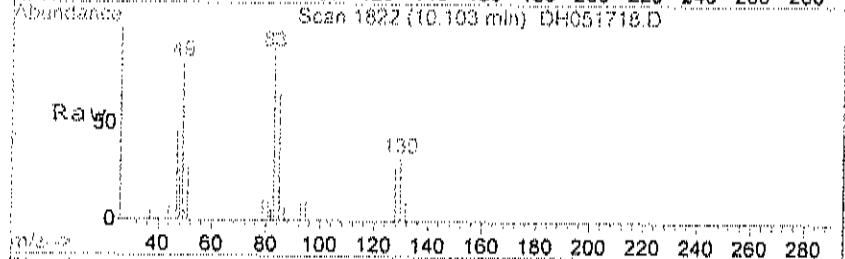
Acq: 17 May 2017 6:46 pm

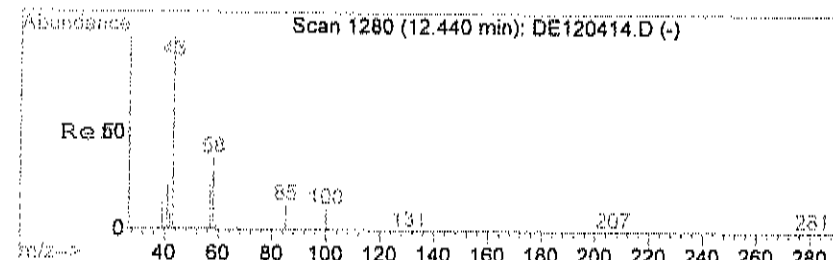
Tgt Ion: 83 Resp: 9430

Ion Ratio Lower Upper

83 100

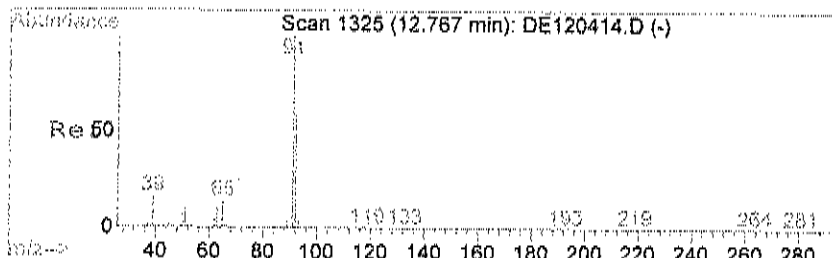
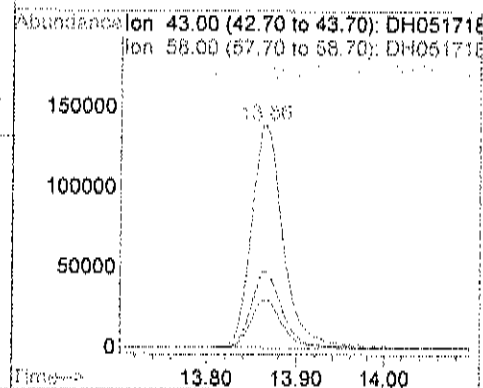
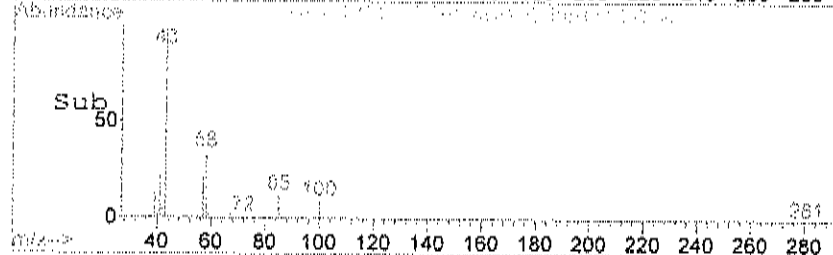
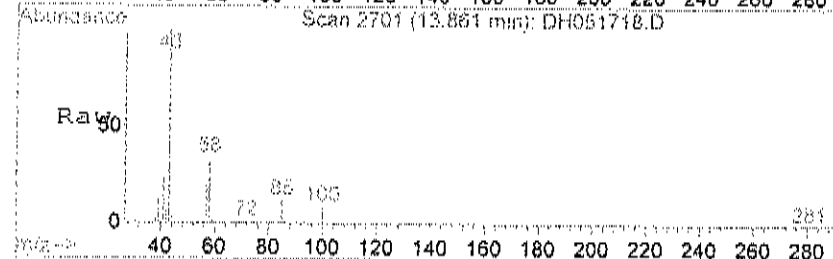
85 28.1 43.5 83.5#





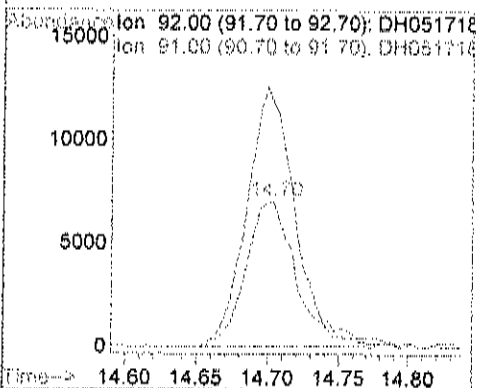
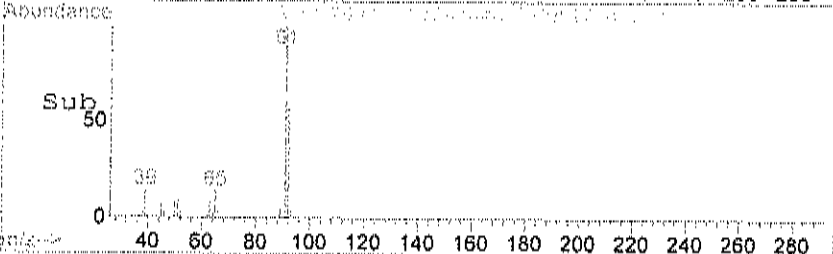
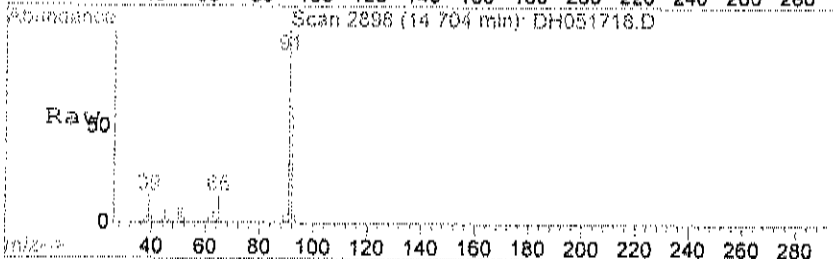
#48
Methyl Isobutyl Ketone
Concen: 49.27 ppb
RT: 13.86 min Scan# 2701
Delta R.T. -0.01 min
Lab File: DH051718.D
Acq: 17 May 2017 6:46 pm

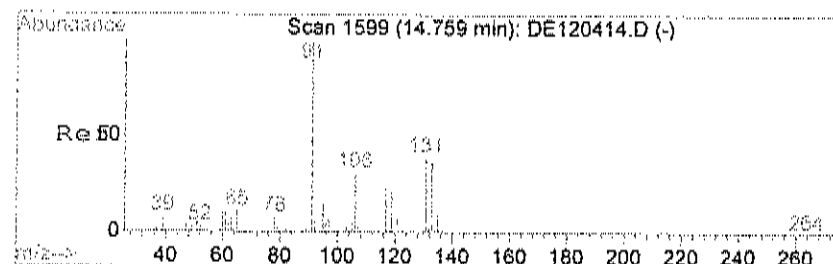
Tgt Ion	Ratio	Lower	Upper
43	100		
58	33.3	15.8	55.8
57	21.7	6.8	46.8



#52
Toluene
Concen: 2.83 ppb
RT: 14.70 min Scan# 2898
Delta R.T. 0.00 min
Lab File: DH051718.D
Acq: 17 May 2017 6:46 pm

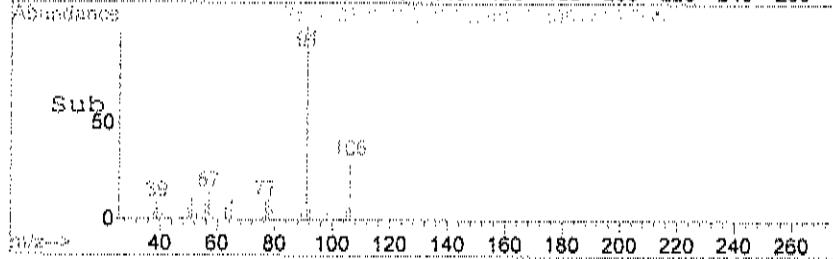
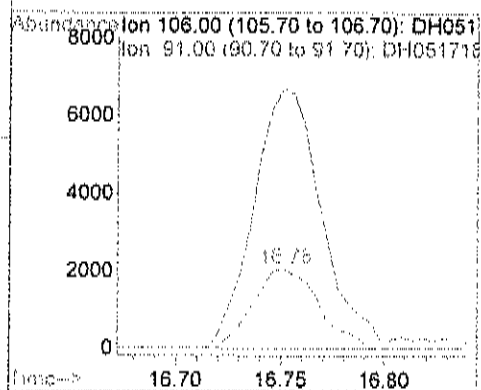
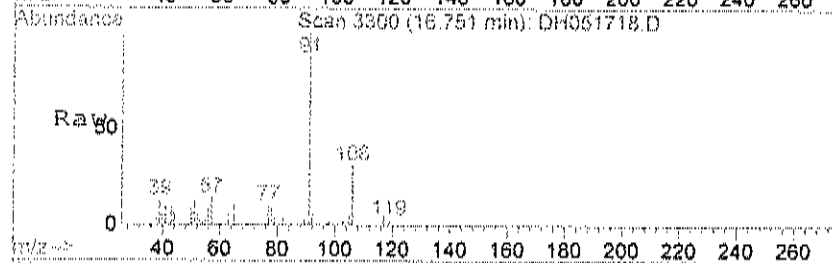
Tgt Ion	Ratio	Lower	Upper
92	100		
91	176.0	151.4	191.4





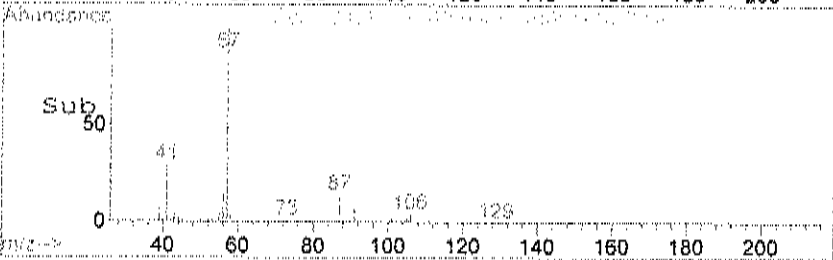
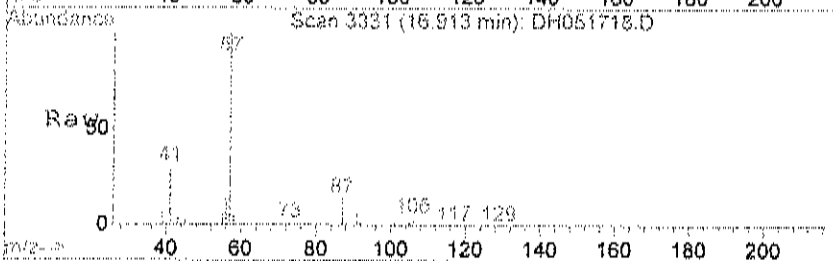
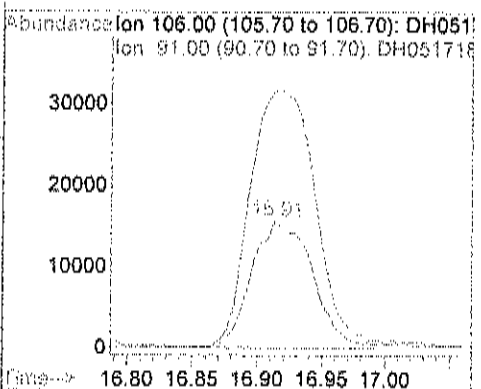
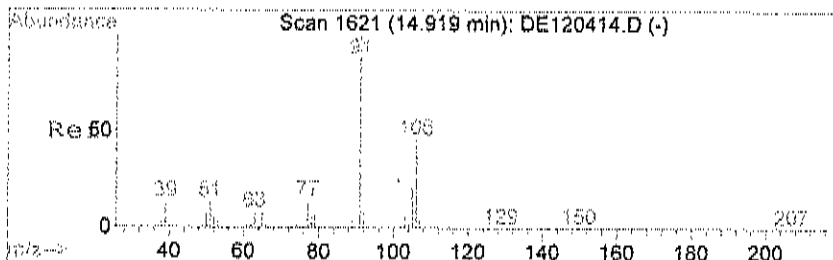
#59
Ethylbenzene
Concen: 1.08 ppb
RT: 16.75 min Scan# 3300
Delta R.T. -0.00 min
Lab File: DH051718.D
Acq: 17 May 2017 6:46 pm

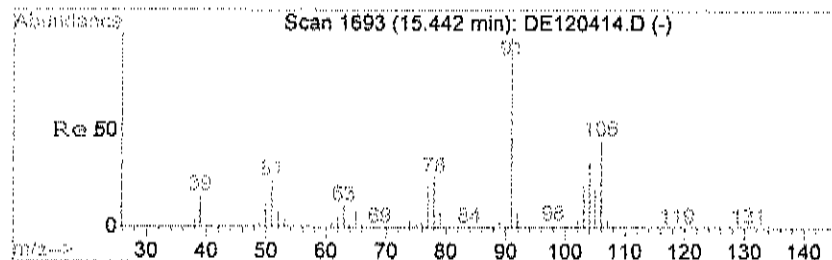
Tgt Ion	Ratio	Lower	Upper
106	100		
91	339.2	319.2	359.2



#60
m&p-Xylene
Concen: 9.91 ppb
RT: 16.91 min Scan# 3331
Delta R.T. -0.02 min
Lab File: DH051718.D
Acq: 17 May 2017 6:46 pm

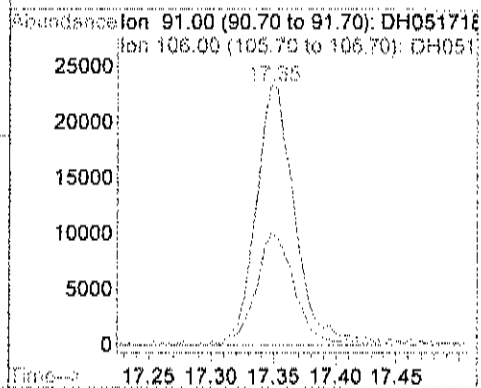
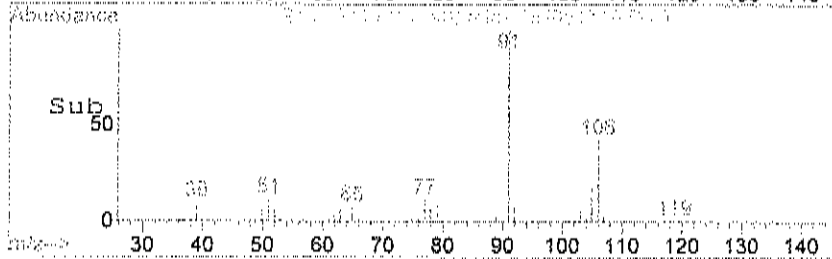
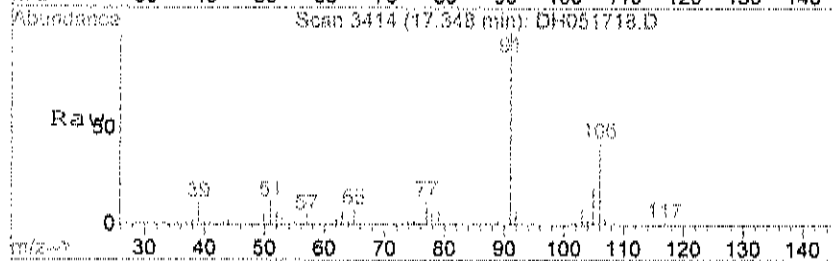
Tgt Ion	Ratio	Lower	Upper
106	100		
91	223.0	202.1	242.1





#63
o-xylene
Concen: 4.71 ppb
RT: 17.35 min Scan# 3414
Delta R.T. -0.00 min
Lab File: DH051718.D
Acq: 17 May 2017 6:46 pm

Tgt Ion: 91 Resp: 50954
Ion Ratio Lower Upper
91 100
106 41.9 22.6 62.6



Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-013A

Client Sample ID: WAT-SV06-050917
 Tag Number: 1018.56
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS						
			FLD			Analyst:
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES						
			EPA METHOD 3C			Analyst: WD
Carbon dioxide	0.0520	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	31.1	0.580		%	1	5/15/2017
Nitrogen	60.0	8.30		%	1	5/15/2017
Oxygen	2.87	0.880		%	1	5/15/2017
5PPB BY METHOD TO15						
			TO-15			Analyst: WD
1,1,1-Trichloroethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,1,2,2-Tetrachloroethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,1,2-Trichloroethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,1-Dichloroethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,1-Dichloroethene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,2,4-Trichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,2,4-Trimethylbenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,2-Dibromoethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,2-Dichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,2-Dichloroethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,2-Dichloropropane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,3,5-Trimethylbenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,3-butadiene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,3-Dichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,4-Dichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
1,4-Dioxane	< 100	100		ppbV	10	5/17/2017 7:21:00 PM
2,2,4-trimethylpentane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
4-ethyltoluene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Acetone	80	100	J	ppbV	10	5/17/2017 7:21:00 PM
Allyl chloride	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Benzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Benzyl chloride	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Bromodichloromethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Bromoform	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Bromomethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Carbon disulfide	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Carbon tetrachloride	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Chlorobenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Chloroethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Chloroform	< 50	50		ppbV	10	5/17/2017 7:21:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

- Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-013A

Client Sample ID: WAT-SV06-050917
 Tag Number: 1018.56
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
cis-1,2-Dichloroethene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
cis-1,3-Dichloropropene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Cyclohexane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Dibromochloromethane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Ethyl acetate	< 100	100		ppbV	10	5/17/2017 7:21:00 PM
Ethylbenzene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Freon 11	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Freon 113	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Freon 114	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Freon 12	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Heptane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Hexachloro-1,3-butadiene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Hexane	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Isopropyl alcohol	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
m&p-Xylene	< 100	100		ppbV	10	5/17/2017 7:21:00 PM
Methyl Butyl Ketone	< 100	100		ppbV	10	5/17/2017 7:21:00 PM
Methyl Ethyl Ketone	< 100	100		ppbV	10	5/17/2017 7:21:00 PM
Methyl Isobutyl Ketone	< 100	100		ppbV	10	5/17/2017 7:21:00 PM
Methyl tert-butyl ether	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Methylene chloride	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
o-Xylene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Propylene	6300	400		ppbV	80	5/18/2017 3:15:00 PM
Styrene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Tetrachloroethylene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Tetrahydrofuran	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Toluene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
trans-1,2-Dichloroethene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
trans-1,3-Dichloropropene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Trichloroethene	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Vinyl acetate	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Vinyl Bromide	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Vinyl chloride	< 50	50		ppbV	10	5/17/2017 7:21:00 PM
Surr: Bromofluorobenzene	76.0	73.7-124		%REC	10	5/17/2017 7:21:00 PM
TIC: 1-Butene, 2-methyl-	120	0	JN	ppbV	10	5/17/2017 7:21:00 PM
TIC: 1-Pentene, 4-methyl-	240	0	JN	ppbV	10	5/17/2017 7:21:00 PM
TIC: 1-Propene, 2-methyl-	100	0	JN	ppbV	10	5/17/2017 7:21:00 PM
TIC: Butane	180	0	JN	ppbV	10	5/17/2017 7:21:00 PM
TIC: Butane, 2-methyl-	140	0	JN	ppbV	10	5/17/2017 7:21:00 PM
TIC: Ethane, 1-chloro-1,1-difluoro	72	0	JN	ppbV	10	5/17/2017 7:21:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

, Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

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Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-013A

Client Sample ID: WAT-SV06-050917
 Tag Number: 1018.56
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
TIC: Hydrogen sulfide \$\$ Dihydrogen monosulfi	270	0	JN	ppbV	10	5/17/2017 7:21:00 PM
TIC: Isobutane	110	0	JN	ppbV	10	5/17/2017 7:21:00 PM
TIC: Pentane, 2-methyl- \$\$ Isohexane \$\$ 2-Met	440	0	JN	ppbV	10	5/17/2017 7:21:00 PM
NOTES:						
* The reporting limits were raised due to the high concentration of methane in the sample.						
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Carbon disulfide	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Carbonyl sulfide	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Dimethyl sulfide	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Ethyl mercaptan	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Hydrogen Sulfide	1500	50		ppbV	10	5/16/2017 6:45:00 PM
Isopropyl mercaptan	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Methyl mercaptan	< 50	50		ppbV	10	5/16/2017 6:45:00 PM
Surr: Bromofluorobenzene	133	70-130	S	%REC	10	5/16/2017 6:45:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-013A

Client Sample ID: WAT-SV06-050917
 Tag Number: 1018.56
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
1,1,1-Trichloroethane	< 270	270		ug/m3	10	5/17/2017 7:21:00 PM
1,1,2,2-Tetrachloroethane	< 340	340		ug/m3	10	5/17/2017 7:21:00 PM
1,1,2-Trichloroethane	< 270	270		ug/m3	10	5/17/2017 7:21:00 PM
1,1-Dichloroethane	< 200	200		ug/m3	10	5/17/2017 7:21:00 PM
1,1-Dichloroethene	< 200	200		ug/m3	10	5/17/2017 7:21:00 PM
1,2,4-Trichlorobenzene	< 370	370		ug/m3	10	5/17/2017 7:21:00 PM
1,2,4-Trimethylbenzene	< 250	250		ug/m3	10	5/17/2017 7:21:00 PM
1,2-Dibromoethane	< 380	380		ug/m3	10	5/17/2017 7:21:00 PM
1,2-Dichlorobenzene	< 300	300		ug/m3	10	5/17/2017 7:21:00 PM
1,2-Dichloroethane	< 200	200		ug/m3	10	5/17/2017 7:21:00 PM
1,2-Dichloropropane	< 230	230		ug/m3	10	5/17/2017 7:21:00 PM
1,3,5-Trimethylbenzene	< 250	250		ug/m3	10	5/17/2017 7:21:00 PM
1,3-butadiene	< 110	110		ug/m3	10	5/17/2017 7:21:00 PM
1,3-Dichlorobenzene	< 300	300		ug/m3	10	5/17/2017 7:21:00 PM
1,4-Dichlorobenzene	< 300	300		ug/m3	10	5/17/2017 7:21:00 PM
1,4-Dioxane	< 360	360		ug/m3	10	5/17/2017 7:21:00 PM
2,2,4-trimethylpentane	< 230	230		ug/m3	10	5/17/2017 7:21:00 PM
4-ethyltoluene	< 250	250		ug/m3	10	5/17/2017 7:21:00 PM
Acetone	190	240	J	ug/m3	10	5/17/2017 7:21:00 PM
Allyl chloride	< 160	160		ug/m3	10	5/17/2017 7:21:00 PM
Benzene	< 160	160		ug/m3	10	5/17/2017 7:21:00 PM
Benzyl chloride	< 290	290		ug/m3	10	5/17/2017 7:21:00 PM
Bromodichloromethane	< 330	330		ug/m3	10	5/17/2017 7:21:00 PM
Bromoform	< 520	520		ug/m3	10	5/17/2017 7:21:00 PM
Bromomethane	< 190	190		ug/m3	10	5/17/2017 7:21:00 PM
Carbon disulfide	< 160	160		ug/m3	10	5/17/2017 7:21:00 PM
Carbon tetrachloride	< 310	310		ug/m3	10	5/17/2017 7:21:00 PM
Chlorobenzene	< 230	230		ug/m3	10	5/17/2017 7:21:00 PM
Chloroethane	< 130	130		ug/m3	10	5/17/2017 7:21:00 PM
Chloroform	< 240	240		ug/m3	10	5/17/2017 7:21:00 PM
Chloromethane	< 100	100		ug/m3	10	5/17/2017 7:21:00 PM
cis-1,2-Dichloroethene	< 200	200		ug/m3	10	5/17/2017 7:21:00 PM
cis-1,3-Dichloropropene	< 230	230		ug/m3	10	5/17/2017 7:21:00 PM
Cyclohexane	< 170	170		ug/m3	10	5/17/2017 7:21:00 PM
Dibromochloromethane	< 430	430		ug/m3	10	5/17/2017 7:21:00 PM
Ethyl acetate	< 360	360		ug/m3	10	5/17/2017 7:21:00 PM
Ethylbenzene	< 220	220		ug/m3	10	5/17/2017 7:21:00 PM
Freon 11	< 280	280		ug/m3	10	5/17/2017 7:21:00 PM
Freon 113	< 380	380		ug/m3	10	5/17/2017 7:21:00 PM
Freon 114	< 350	350		ug/m3	10	5/17/2017 7:21:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis

Client Sample ID: WAT-SV06-050917

Lab Order: C1705036

Tag Number: 1018.56

Project: Former Hampshire

Collection Date: 5/9/2017

Lab ID: C1705036-013A

Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 250	250		ug/m3	10	5/17/2017 7:21:00 PM
Heptane	< 200	200		ug/m3	10	5/17/2017 7:21:00 PM
Hexachloro-1,3-butadiene	< 530	530		ug/m3	10	5/17/2017 7:21:00 PM
Hexane	< 180	180		ug/m3	10	5/17/2017 7:21:00 PM
Isopropyl alcohol	< 120	120		ug/m3	10	5/17/2017 7:21:00 PM
m&p-Xylene	< 430	430		ug/m3	10	5/17/2017 7:21:00 PM
Methyl Butyl Ketone	< 410	410		ug/m3	10	5/17/2017 7:21:00 PM
Methyl Ethyl Ketone	< 290	290		ug/m3	10	5/17/2017 7:21:00 PM
Methyl Isobutyl Ketone	< 410	410		ug/m3	10	5/17/2017 7:21:00 PM
Methyl tert-butyl ether	< 180	180		ug/m3	10	5/17/2017 7:21:00 PM
Methylene chloride	< 170	170		ug/m3	10	5/17/2017 7:21:00 PM
o-Xylene	< 220	220		ug/m3	10	5/17/2017 7:21:00 PM
Propylene	11000	690		ug/m3	80	5/18/2017 3:15:00 PM
Styrene	< 210	210		ug/m3	10	5/17/2017 7:21:00 PM
Tetrachloroethylene	< 340	340		ug/m3	10	5/17/2017 7:21:00 PM
Tetrahydrofuran	< 150	150		ug/m3	10	5/17/2017 7:21:00 PM
Toluene	< 190	190		ug/m3	10	5/17/2017 7:21:00 PM
trans-1,2-Dichloroethene	< 200	200		ug/m3	10	5/17/2017 7:21:00 PM
trans-1,3-Dichloropropene	< 230	230		ug/m3	10	5/17/2017 7:21:00 PM
Trichloroethene	< 270	270		ug/m3	10	5/17/2017 7:21:00 PM
Vinyl acetate	< 180	180		ug/m3	10	5/17/2017 7:21:00 PM
Vinyl Bromide	< 220	220		ug/m3	10	5/17/2017 7:21:00 PM
Vinyl chloride	< 130	130		ug/m3	10	5/17/2017 7:21:00 PM

NOTES:

* The reporting limits were raised due to the high concentration of methane in the sample.

LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 160	160		ug/m3	10	5/16/2017 6:45:00 PM
Carbon disulfide	< 160	160		ug/m3	10	5/16/2017 6:45:00 PM
Carbonyl sulfide	< 120	120		ug/m3	10	5/16/2017 6:45:00 PM
Dimethyl sulfide	< 190	190		ug/m3	10	5/16/2017 6:45:00 PM
Ethyl mercaptan	< 130	130		ug/m3	10	5/16/2017 6:45:00 PM
Hydrogen Sulfide	2100	70		ug/m3	10	5/16/2017 6:45:00 PM
Isopropyl mercaptan	< 160	160		ug/m3	10	5/16/2017 6:45:00 PM
Methyl mercaptan	< 98	98		ug/m3	10	5/16/2017 6:45:00 PM

Qualifiers:	** Quantitation Limit	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E Estimated Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limit
JN	Non-routine analyte. Quantitation estimated.	ND Not Detected at the Limit of Detection
S	Spike Recovery outside accepted recovery limits	

Page 26 of 28

Data File : C:\HPCHEM\1\DATA\DH051719.D

Acq On : 17 May 2017 7:21 pm

Sample : C1705036-013A 10X

Misc : T015

MS Integration Params: rteint.p

Quant Time: Jun 1 11:47 2017

Vial: 14

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	9.95	128	75747m	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	393455	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	324264	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	174839	38.01	ppb	0.01
Spiked Amount	50.000	Range	70 - 130	Recovery	=	76.02%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.17	41	984143	401.27	ppb	92
16) Acetone	6.12	43	22675m	7.96	ppb	
23) Methylene Chloride	7.16	84	2168m	1.11	ppb	
30) Hexane	9.05	41	6903	2.01	ppb	# 56
62) Styrene	17.33	104	10846	1.56	ppb	95

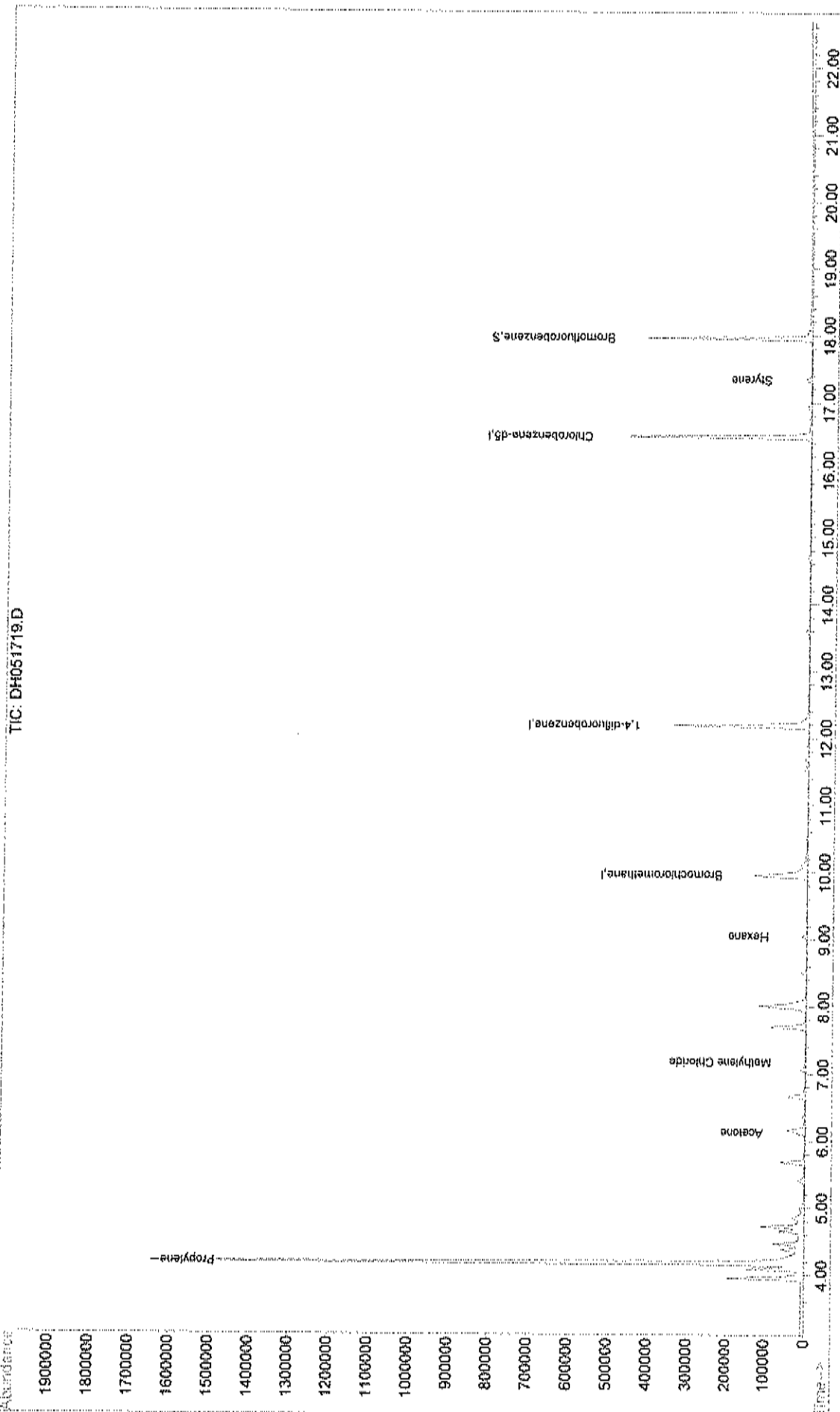
Quantitation Report

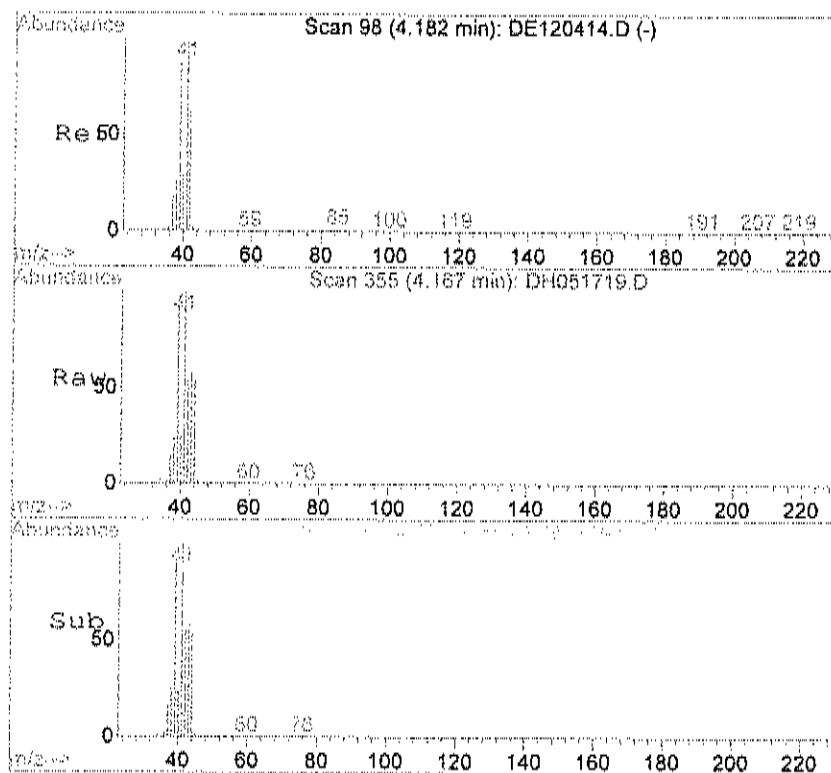
Data File : C:\HPCHEM\1\DATA\DH051719.D
Acq On : 17 May 2017 7:23 pm
Sample : C1705036-013A 10X
Misc : T015
MS Integration Params: rteint.p
Quant Time: Jun 1 11:47 2017

Vial: 14
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

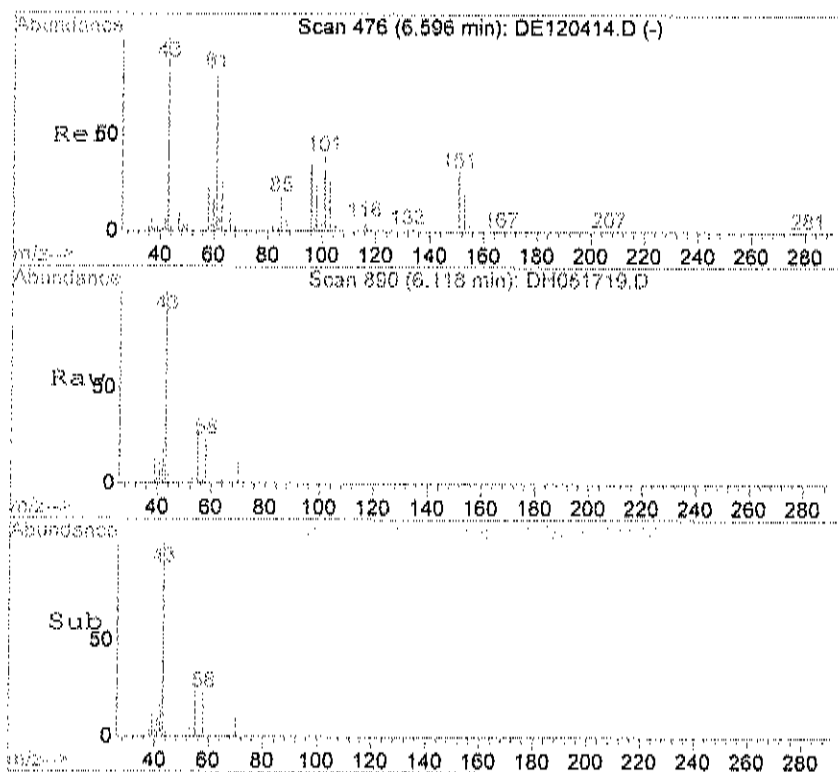
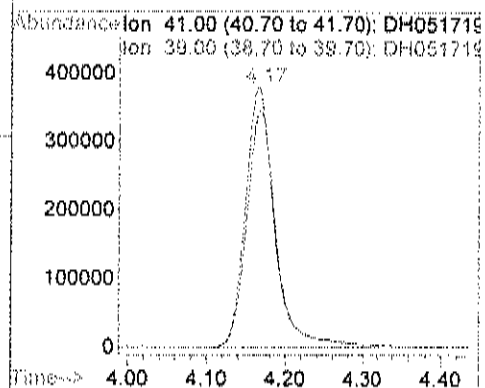
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





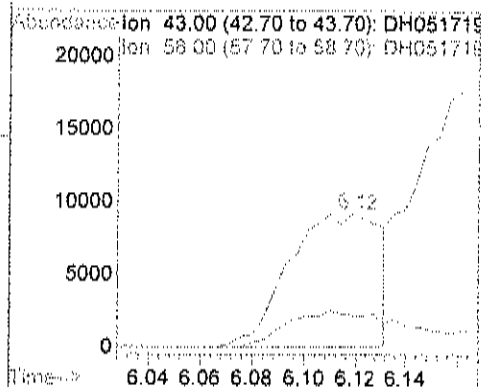
#2
Propylene
Concen: 401.27 ppb
RT: 4.17 min Scan# 355
Delta R.T. -0.02 min
Lab File: DH051719.D
Acq: 17 May 2017 7:21 pm

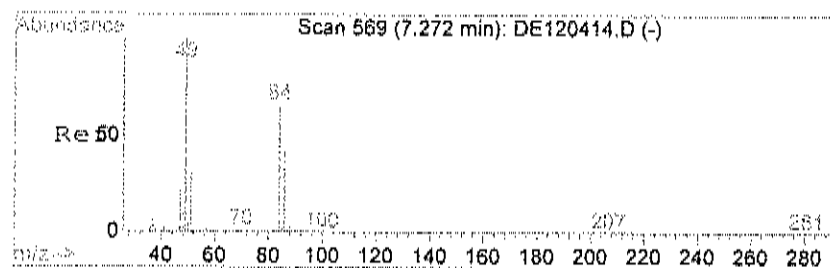
Tgt Ion	41	Resp	984143
Ion	Ratio	Lower	Upper
41	100		
39	91.8	42.4	127.1



#16
Acetone
Concen: 7.96 ppb m
RT: 6.12 min Scan# 890
Delta R.T. 0.01 min
Lab File: DH051719.D
Acq: 17 May 2017 7:21 pm

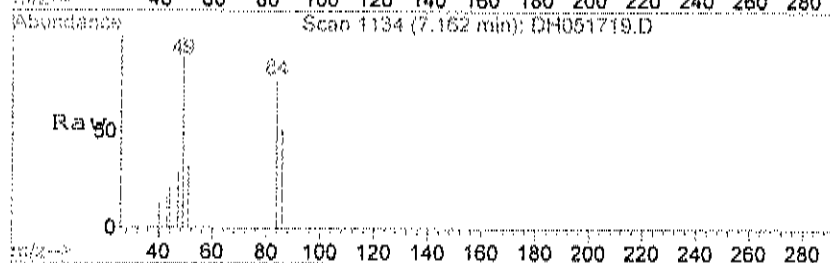
Tgt Ion	43	Resp	22675
Ion	Ratio	Lower	Upper
43	100		
58	43.4	3.7	43.7





#23
Methylene Chloride
Concen: 1.11 ppb m
RT: 7.16 min Scan# 1134
Delta R.T. -0.01 min
Lab File: DH051719.D
Acq: 17 May 2017 7:21 pm

Tgt Ion	Ratio	Lower	Upper
84	100		
49	0.0	124.3	164.3#
86	10.8	43.0	83.0#

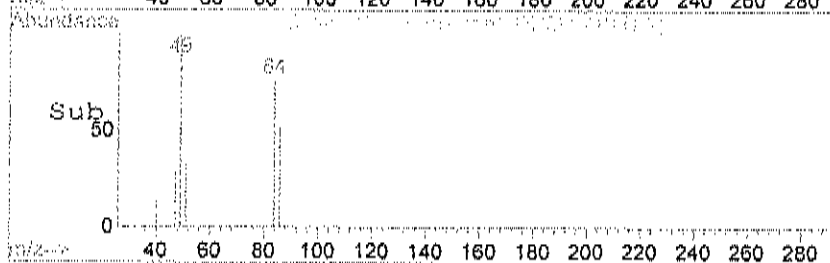
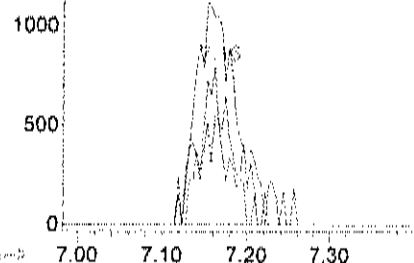


Abundance

Ion 84.00 (83.70 to 84.70): DH051719.D

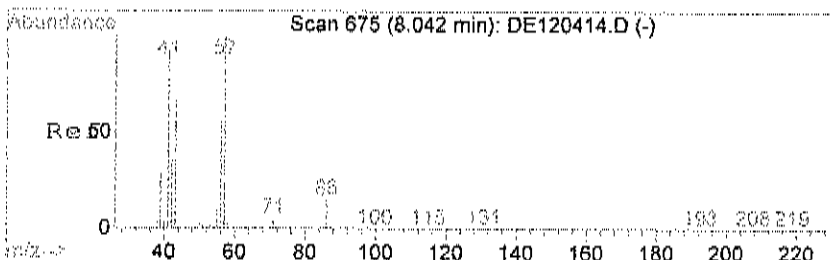
1500

Ion 49.00 (48.70 to 49.70): DH051719.D



#30
Hexane
Concen: 2.01 ppb
RT: 9.05 min Scan# 1575
Delta R.T. -0.02 min
Lab File: DH051719.D
Acq: 17 May 2017 7:21 pm

Tgt Ion	Ratio	Lower	Upper
41	100		
57	120.8	96.5	136.5
43	87.6	168.6	208.6#

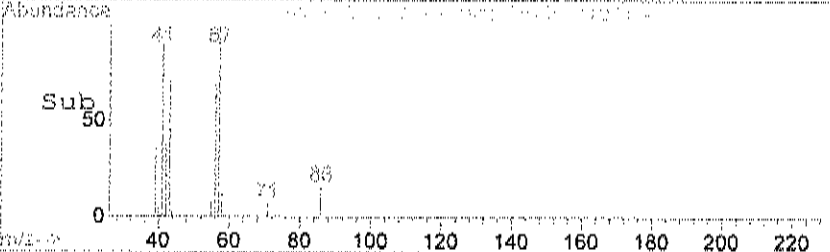
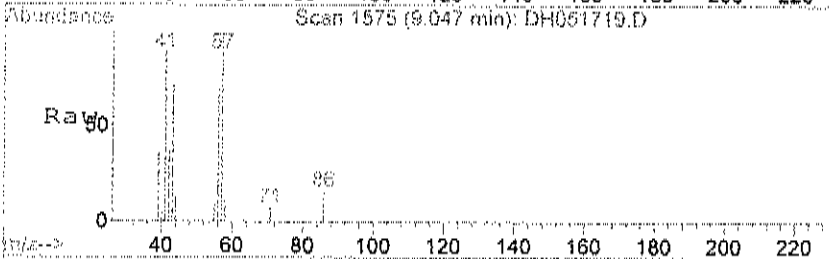
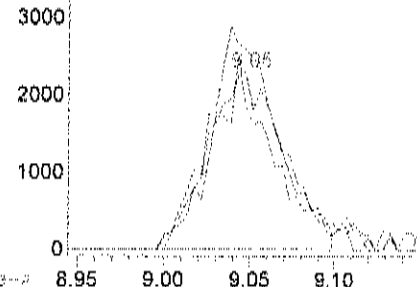


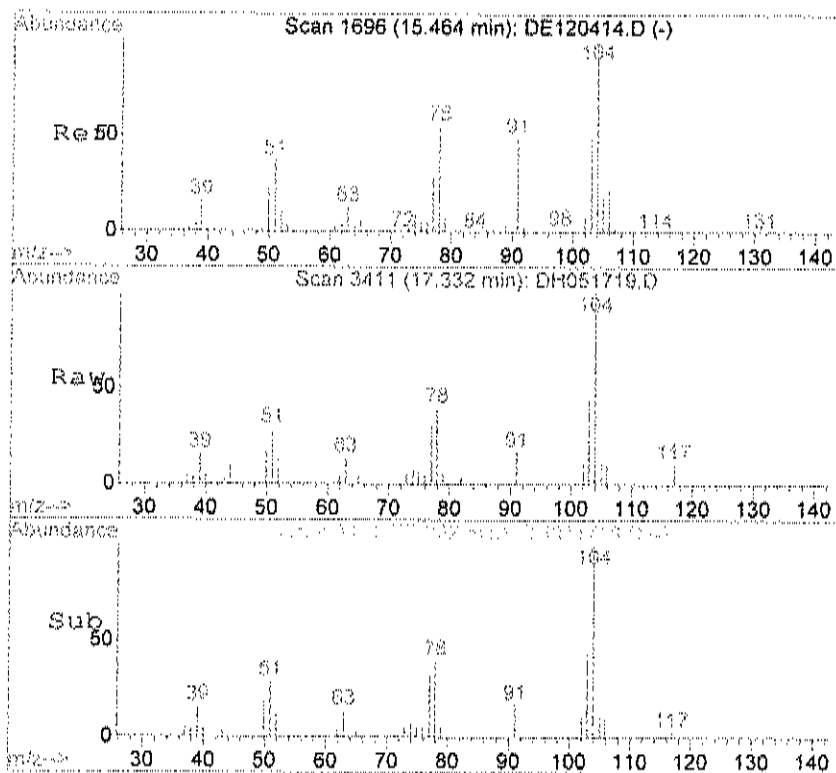
Abundance

Ion 41.00 (40.70 to 41.70): DH051719.D

4000

Ion 57.00 (56.70 to 57.70): DH051719.D





#62

Styrene

Concen: 1.56 ppb

RT: 17.33 min Scan# 3411

Delta R.T. 0.00 min

Lab File: DH051719.D

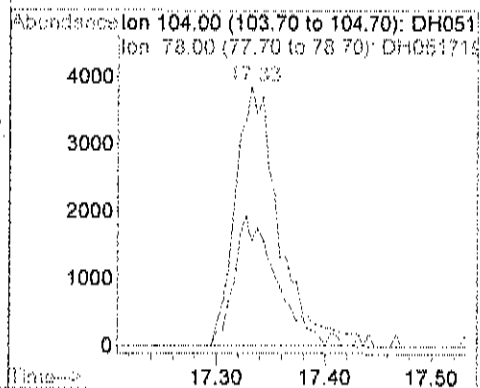
Acq: 17 May 2017 7:21 pm

Tgt Ion: 104 Resp: 10846

Ion Ratio Lower Upper

104 100

78 47.5 31.1 71.1



LSC Area Percent Report

Data File : C:\HPCHEM\1\DATA2\DH051719.D

Acq On : 17 May 2017 7:21 pm

Sample : C1705036-013A 10X

Misc : TO15

MS Integration Params: LSCINT.P

Vial: 14

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 8 point calibration

Smoothing : ON

Filtering: 5

Sampling : 1

Min Area: 3 % of largest Peak

Start Thrs: 0.2

Max Peaks: 100

Stop Thrs : 0

Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	4.085	314	328	339	rBV	126800	307292	7.52%	3.117%
2	4.170	340	356	398	rVB4	1618845	4083926	100.00%	41.432%
3	4.376	416	424	439	rVB2	40925	83176	2.04%	0.844%
4	4.464	443	453	468	rVB2	62396	129131	3.16%	1.310%
5	4.649	501	514	527	rBV3	49982	116104	2.84%	1.178%
6	4.721	527	538	557	rVB3	93139	207833	5.09%	2.108%
7	5.682	775	788	803	rBV3	59646	159780	3.91%	1.621%
8	6.165	894	901	919	rVB3	45649	124357	3.05%	1.262%
9	6.661	1003	1017	1032	rBV3	46914	133982	3.28%	1.359%
10	7.696	1244	1259	1279	rBV3	88720	274563	6.72%	2.785%
11	8.008	1307	1332	1359	rBV3	116197	512365	12.55%	5.198%
12	8.504	1432	1448	1462	rBV4	13443	41644	1.02%	0.422%
13	9.949	1769	1786	1815	rBV3	135245	577420	14.14%	5.858%
14	12.177	2292	2307	2337	rBV	345442	1031117	25.25%	10.461%
15	16.484	3239	3249	3267	rBV	471612	1120360	27.43%	11.366%
16	17.342	3404	3413	3424	rBV5	16606	49988	1.22%	0.507%
17	17.950	3520	3529	3543	rBV	418002	904011	22.14%	9.171%

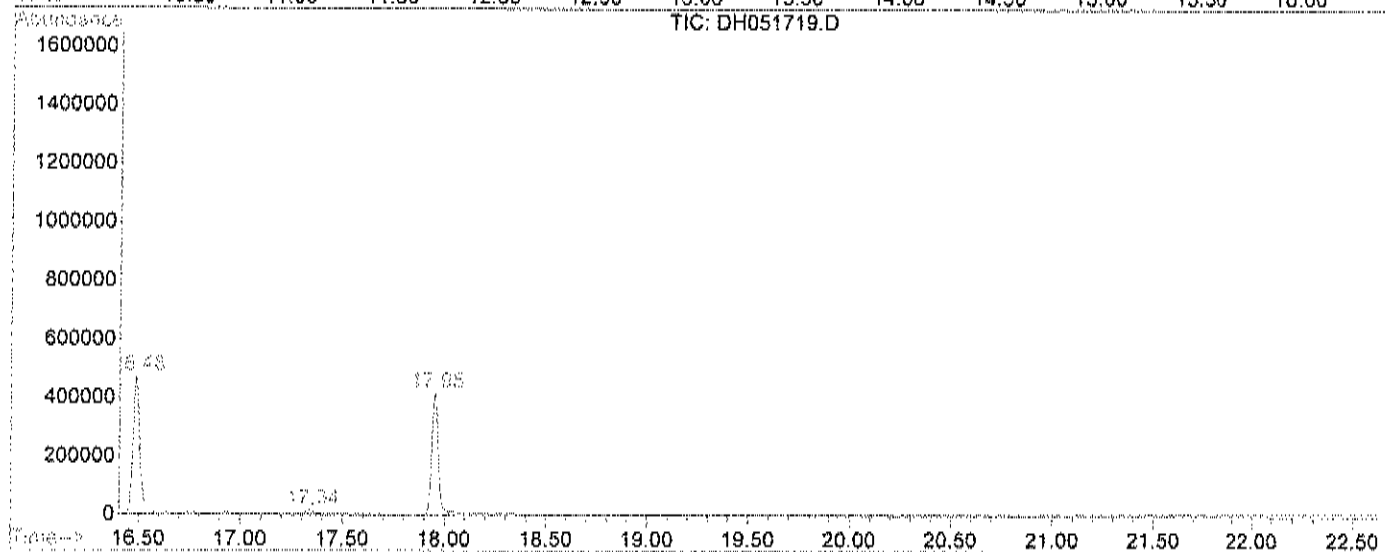
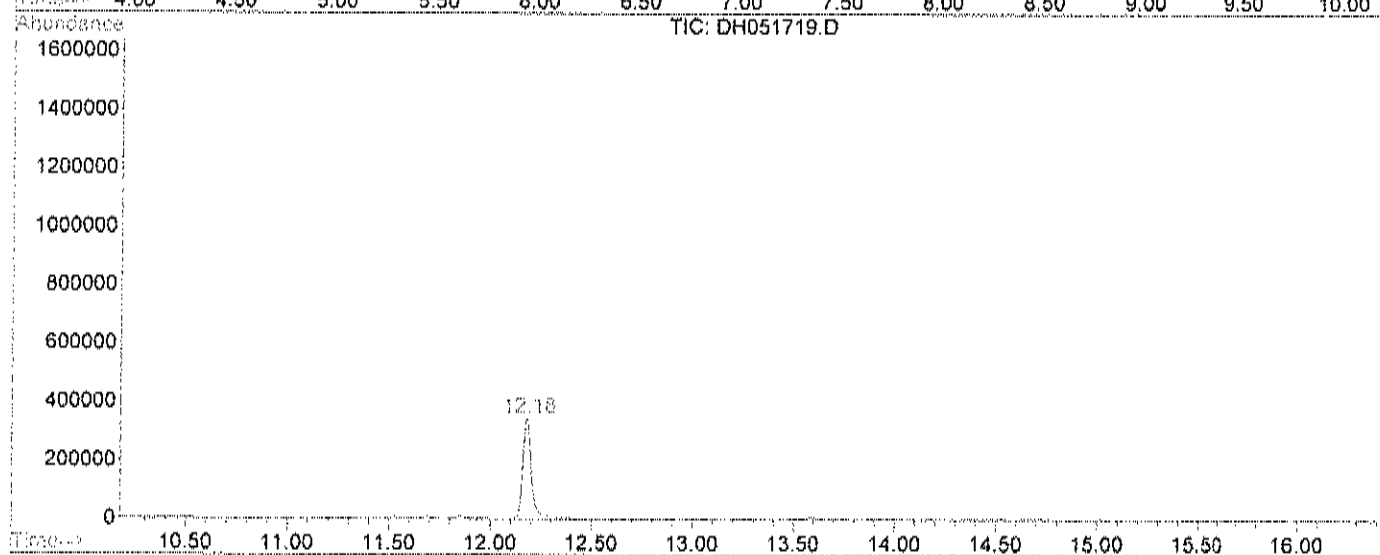
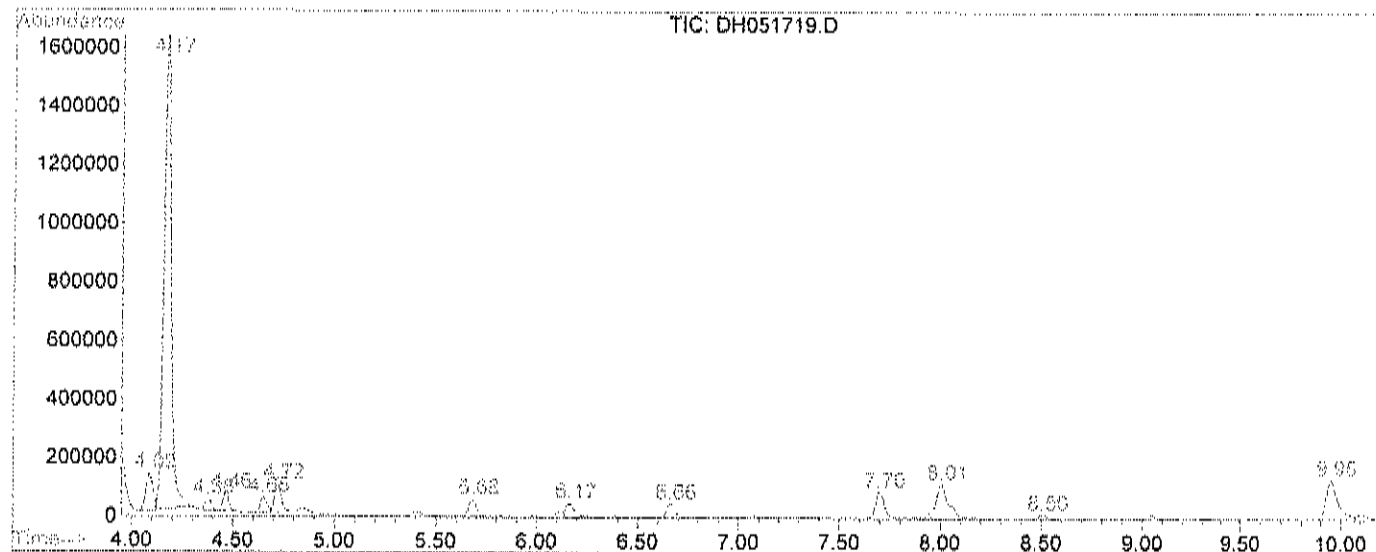
Sum of corrected areas: 9857049

DH051719.D I0511T15.M

Mon Jun 19 14:53:11 2017

LSC Report - Integrated Chromatogram

File : C:\HPCHEM\1\DATA2\DH051719.D
Operator : WD
Acquired : 17 May 2017 7:21 pm using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-013A 10X
Misc Info : TO15
Vial Number: 14
Quant File : I0511T15.RES (RTE Integrator)



DH051719.D I0511T15.M Mon Jun 19 14:53:12 2017

Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051719.D
Acq On : 17 May 2017 7:21 pm
Sample : C1705036-013A 10X
Misc : TO15
MS Integration Params: LSCINT.P

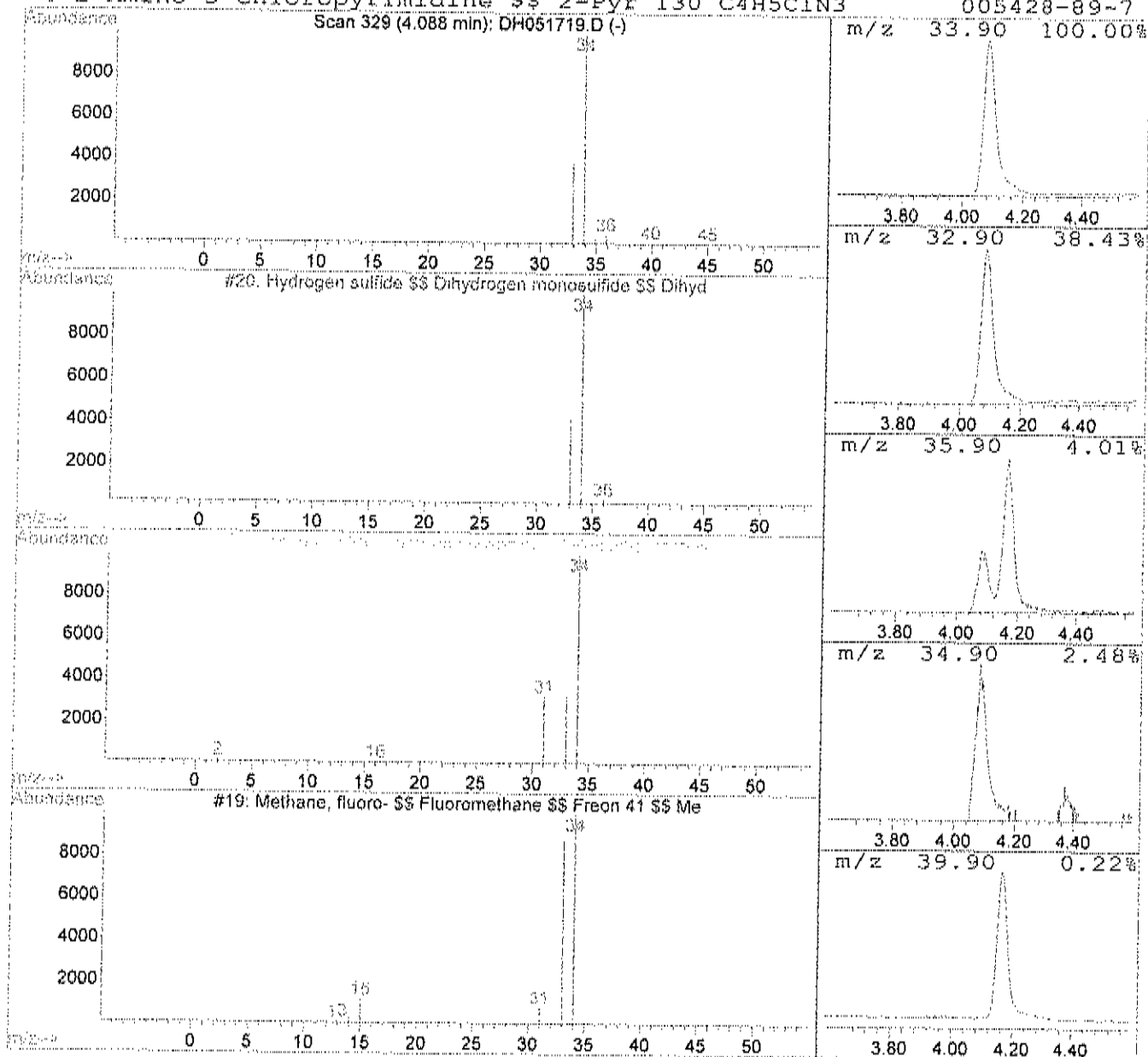
Vial: 14
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 1 Hydrogen sulfide \$\$ Dihydrogen Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.09	26.61 ppb	307292	Bromochloromethane	9.95

Hit#	of	S	Tentative ID	MW	MolForm	CAS#	Qual
1			Hydrogen sulfide \$\$ Dihydrogen mono	34	H2S	007783-06-4	83
2			Phosphine \$\$ Hydrogen phosphide \$\$	34	H3P	007803-51-2	7
3			Methane, fluoro- \$\$ Fluoromethane \$	34	CH3F	000593-53-3	3
4			2-Amino-5-chloropyrimidine \$\$ 2-Pyr	130	C4H5ClN3	005428-89-7	1



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051719.D
Acq On : 17 May 2017 7:21 pm
Sample : C1705036-013A 10X
Misc : TO15
MS Integration Params: LSCINT.P

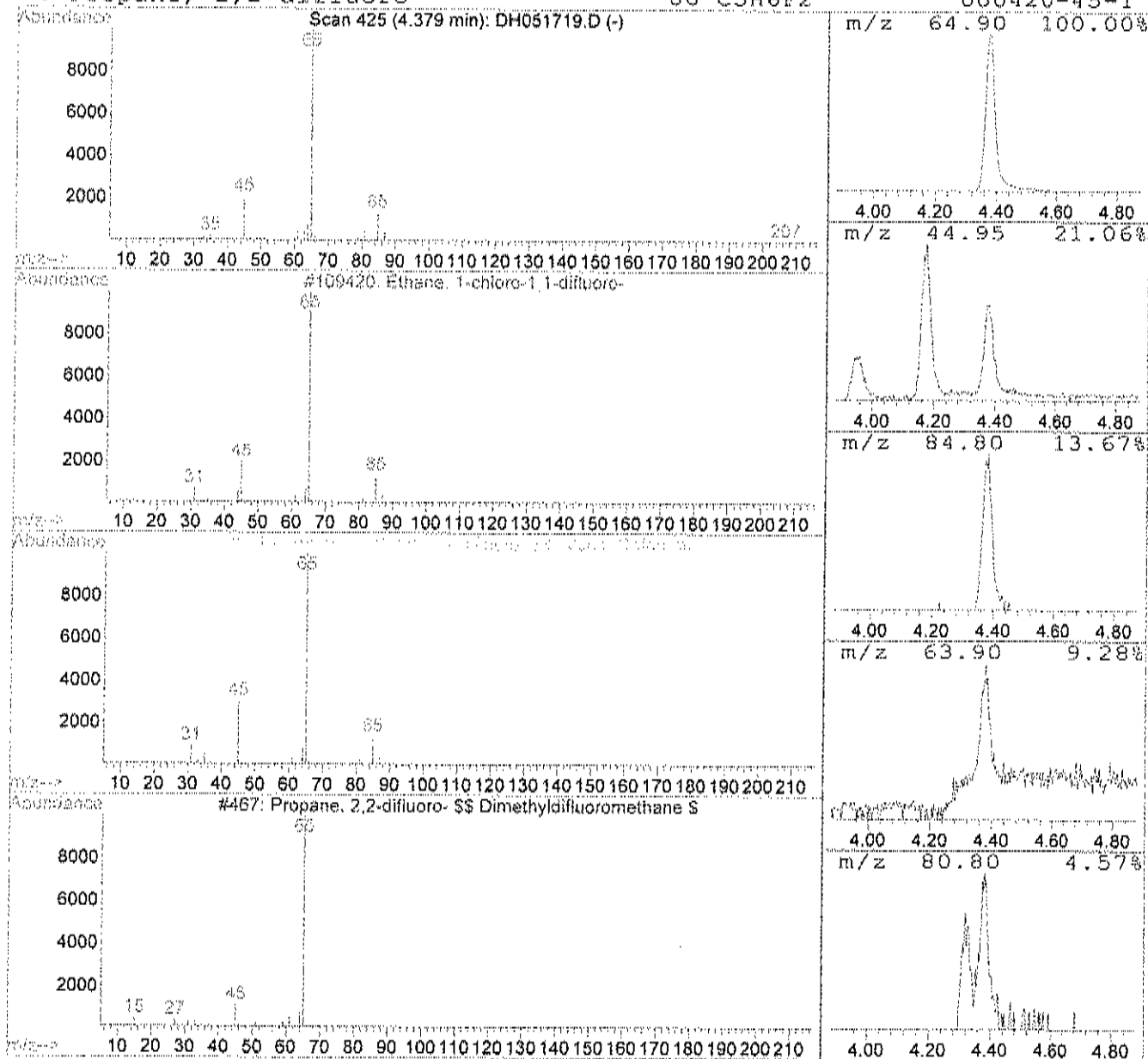
Vial: 14
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 2 Ethane, 1-chloro-1,1-difluoro- Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.38	7.20 ppb	83176	Bromochloromethane	9.95

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Ethane, 1-chloro-1,1-difluoro-	100	C2H3ClF2	000075-68-3	74
2			Ethane, 1-chloro-1,1-difluoro- \$\$	100	C2H3ClF2	000075-68-3	32
3			Propane, 2,2-difluoro- \$\$ Dimethyl	80	C3H6F2	000420-45-1	9
4			Propane, 2,2-difluoro-	80	C3H6F2	000420-45-1	4



Data File : C:\HPCHEM\1\DATA2\DH051719.D
Acq On : 17 May 2017 7:21 pm
Sample : C1705036-013A 10X
Misc : TO15
MS Integration Params: LSCINT.P

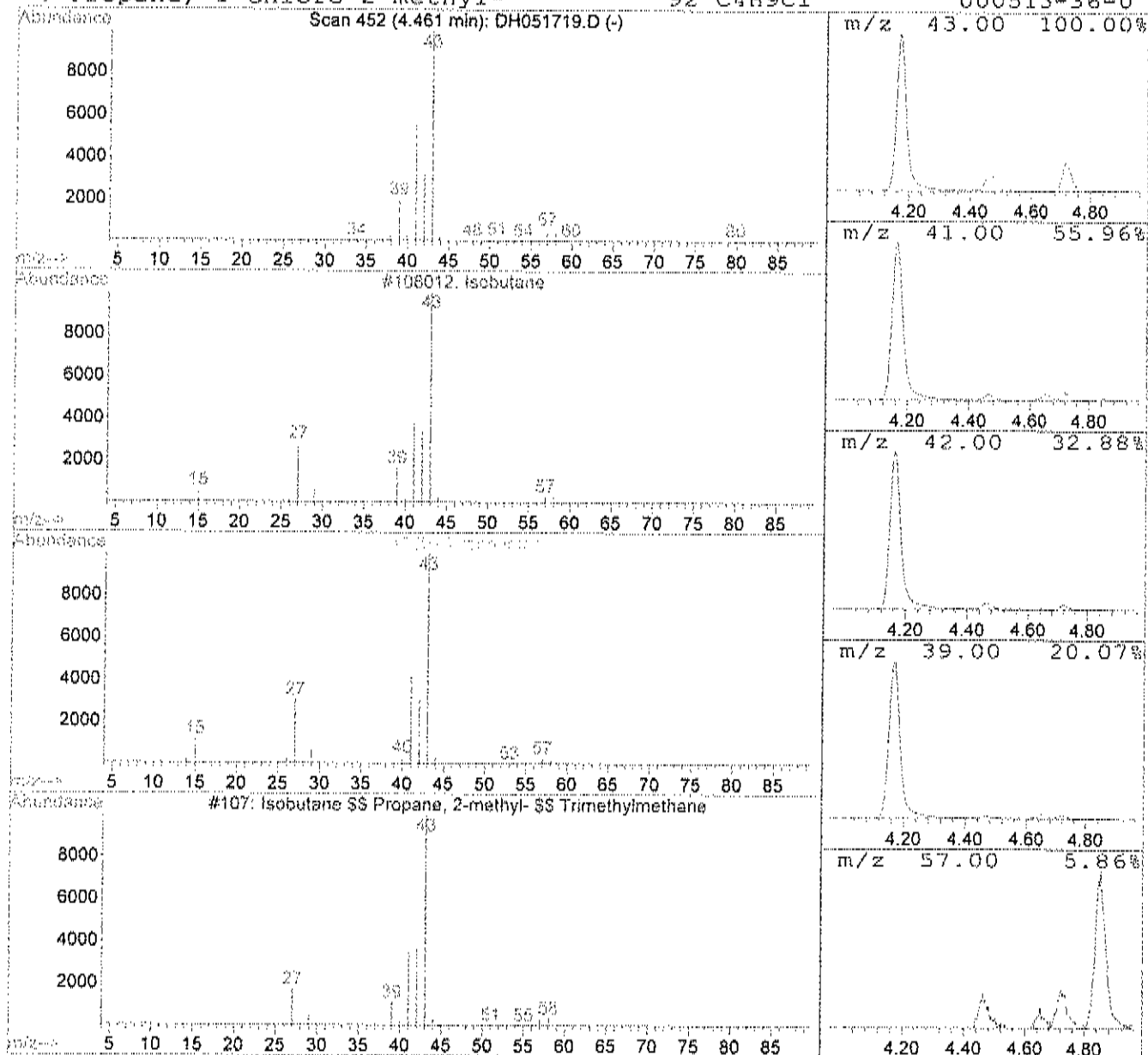
Vial: 14
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\10511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 3 Isobutane Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.46	11.18 ppb	129131	Bromochloromethane	9.95

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Isobutane	58	C4H10	000075-28-5	64
2			Isobutane	58	C4H10	000075-28-5	64
3			Isobutane \$\$ Propane, 2-methyl- \$\$	58	C4H10	000075-28-5	45
4			Propane, 1-chloro-2-methyl-	92	C4H9Cl	000513-36-0	38



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051719.D
Acq On : 17 May 2017 7:21 pm
Sample : C1705036-013A 10X
Misc : T015
MS Integration Params: LSCINT.P

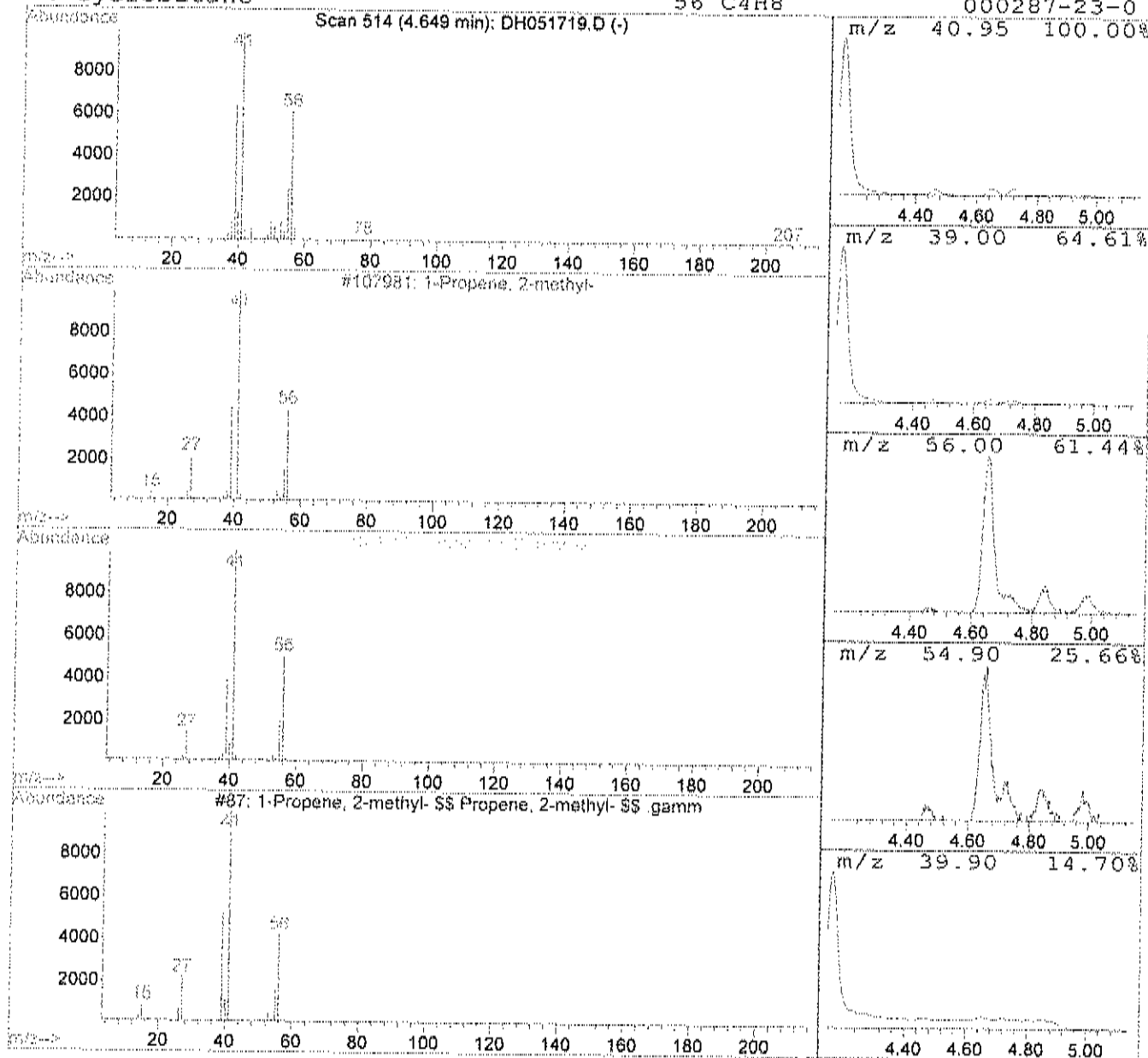
Vial: 14
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 4 1-Propene, 2-methyl- Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.65	10.05 ppb	116104	Bromochloromethane	9.95

Hit#	of 5	Tentative ID	MW	MolForm	CAS#	Qual
1		1-Propene, 2-methyl-	56	C4H8	000115-11-7	86
2		1-Propene, 2-methyl-	56	C4H8	000115-11-7	76
3		1-Propene, 2-methyl- \$\$ Propene, 2-	56	C4H8	000115-11-7	72
4		Cyclobutane	56	C4H8	000287-23-0	49



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051719.D

Acq On : 17 May 2017 7:21 pm

Sample : C1705036-013A 10X

Misc : T015

MS Integration Params: LSCINT.P

Vial: 14

Operator: WD

Inst : GCMS3

Multiplier: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

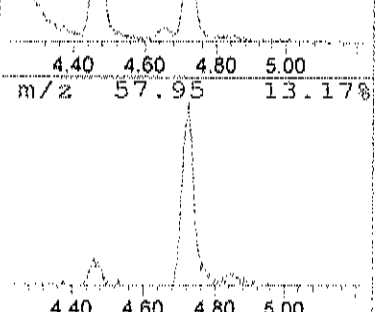
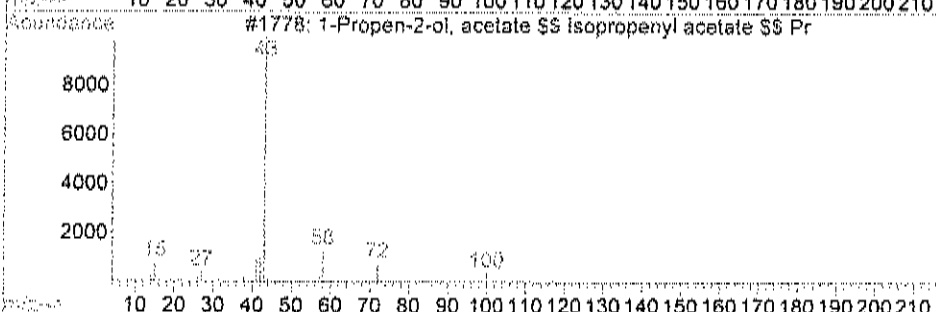
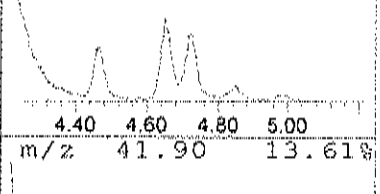
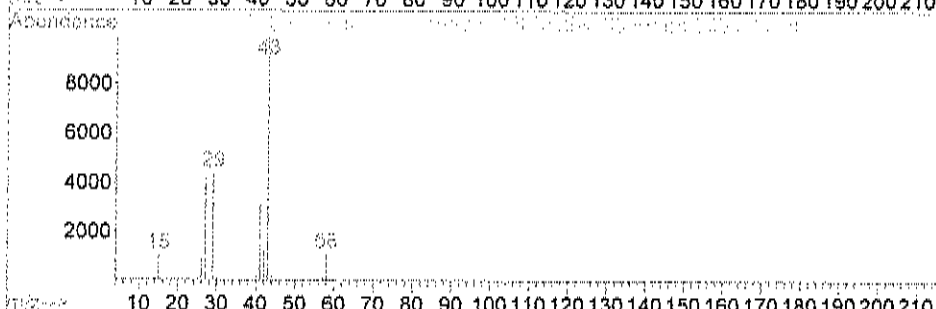
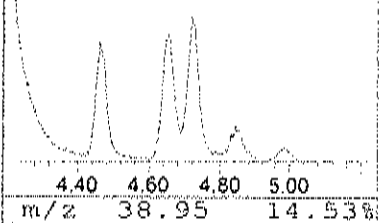
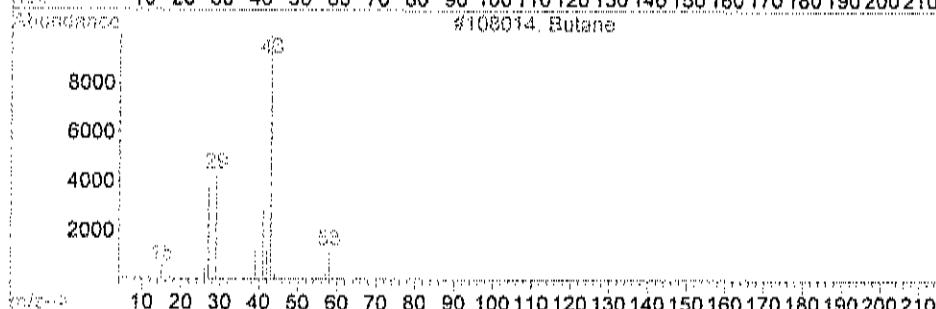
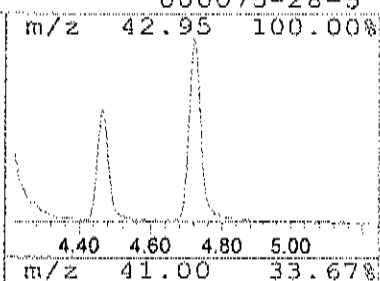
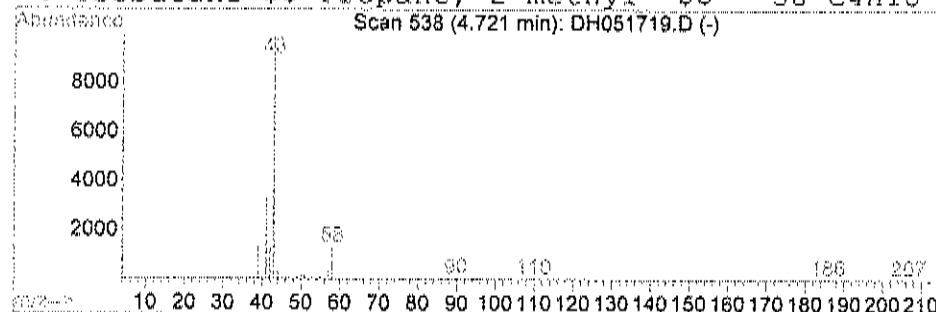
Library : C:\DATABASE\NIST129.L

Peak Number 5 Butane

Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.72	18.00 ppb	207833	Bromochloromethane	9.95

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Butane	58	C4H10	000106-97-8	72
2			Butane \$\$ n-Butane \$\$ Diethyl \$\$ Fr	58	C4H10	000106-97-8	64
3			1-Propen-2-ol, acetate \$\$ Isopropen	100	C5H8O2	000108-22-5	50
4			Isobutane \$\$ Propane, 2-methyl- \$\$	58	C4H10	000075-28-5	43



Data File : C:\HPCHEM\1\DATA2\DH051719.D

Acq On : 17 May 2017 7:21 pm

Sample : C1705036-013A 10X

Misc : TO15

MS Integration Params: LSCINT.P

Vial: 14

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

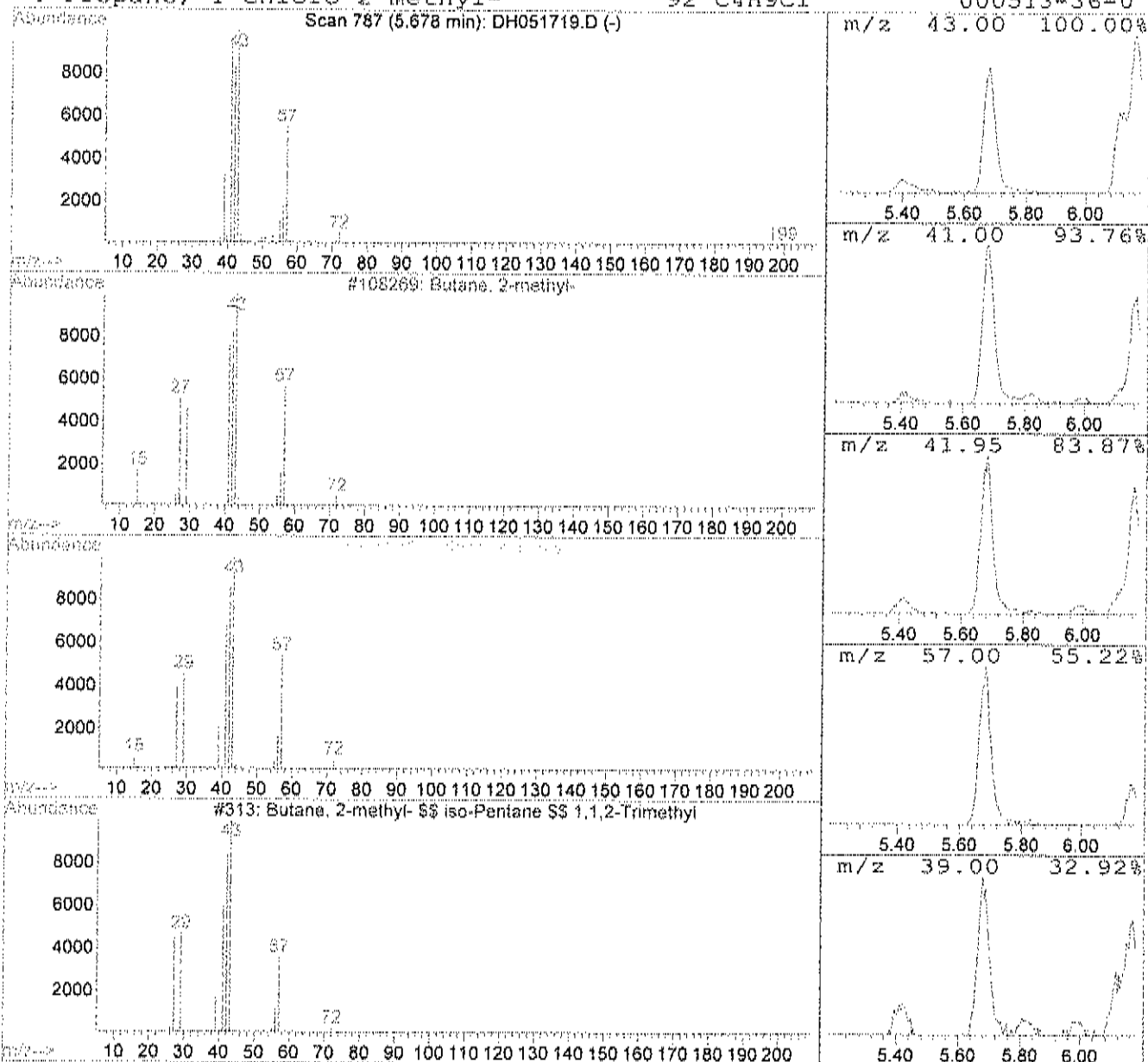
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 6 Butane, 2-methyl- Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
5.68	13.84 ppb	159780	Bromochloromethane	9.95

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Butane, 2-methyl-	72	C5H12	000078-78-4	86
2			Butane, 2-methyl-	72	C5H12	000078-78-4	78
3			Butane, 2-methyl- \$\$ iso-Pentane \$\$	72	C5H12	000078-78-4	72
4			Propane, 1-chloro-2-methyl-	92	C4H9Cl	000513-36-0	39



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051719.D
Acq On : 17 May 2017 7:21 pm
Sample : C1705036-013A 10X
Misc : TO15
MS Integration Params: LSCINT.P

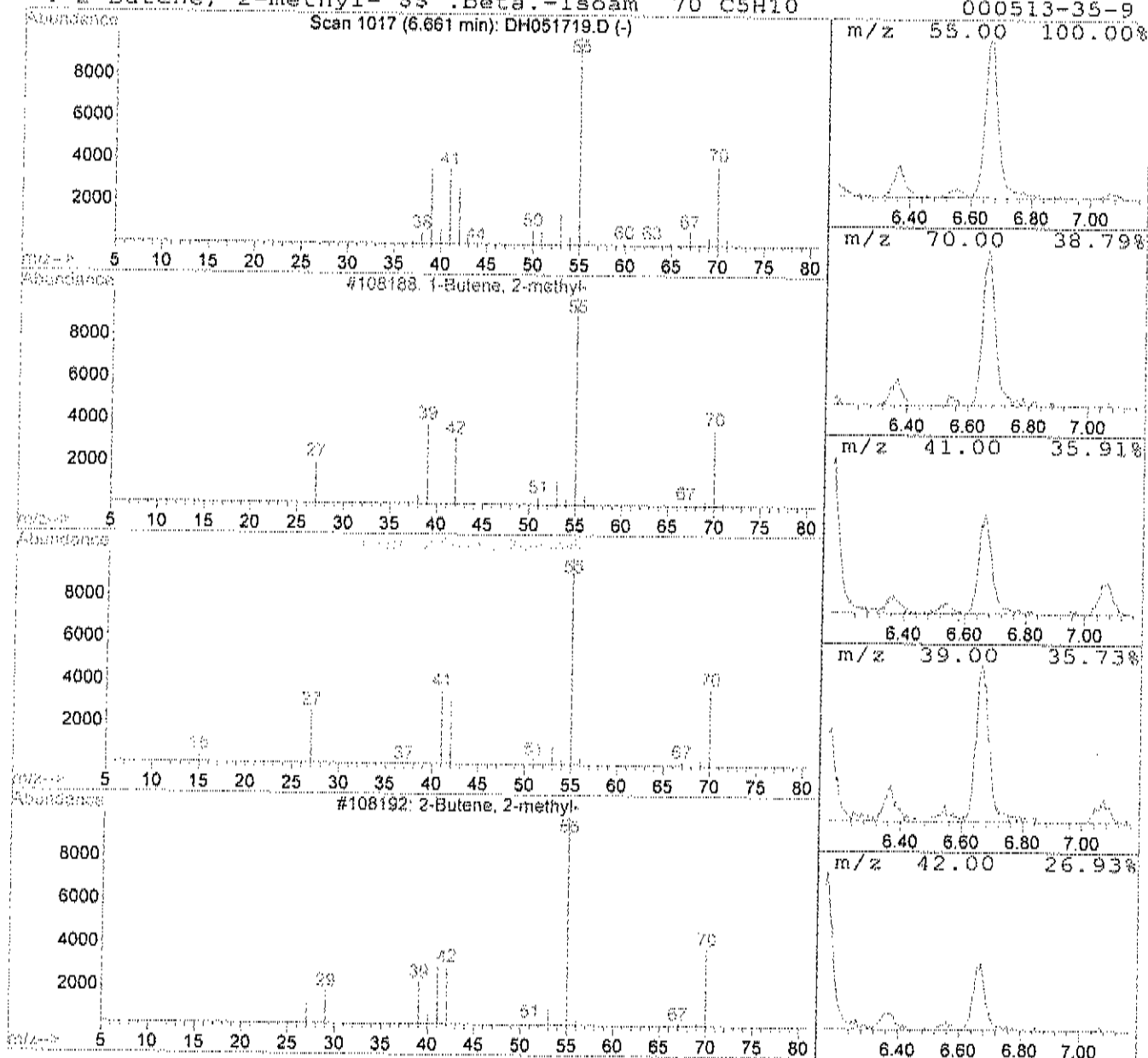
Vial: 14
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 7 1-Butene, 2-methyl- Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.66	11.60 ppb	133982	Bromochloromethane	9.95

Hit#	of 5	Tentative ID	MW	MolForm	CAS#	Qual
1		1-Butene, 2-methyl-	70	C5H10	000563-46-2	91
2		2-Butene, 2-methyl-	70	C5H10	000513-35-9	91
3		2-Butene, 2-methyl-	70	C5H10	000513-35-9	90
4		2-Butene, 2-methyl- \$.beta.-Isoam	70	C5H10	000513-35-9	86



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051719.D
Acq On : 17 May 2017 7:21 pm
Sample : C1705036-013A 10X
Misc : TO15
MS Integration Params: LSCINT.P

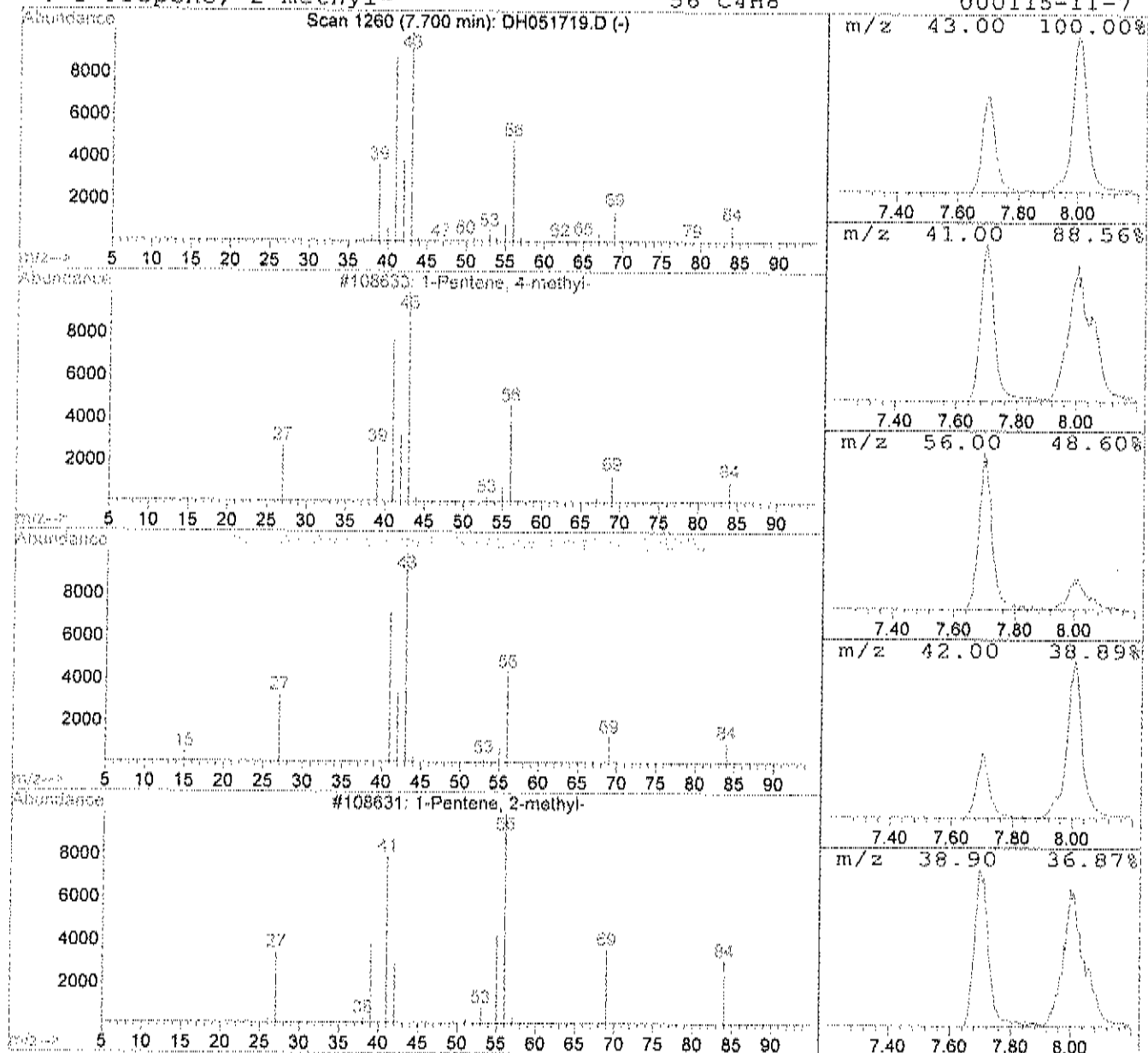
Vial: 14
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 8 1-Pentene, 4-methyl- Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
7.70	23.77 ppb	274563	Bromochloromethane	9.95

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Pentene, 4-methyl-	84	C6H12	000691-37-2	64
2	1-Pentene, 4-methyl- \$\$ 4-Methyl-1-	84	C6H12	000691-37-2	62
3	1-Pentene, 2-methyl-	84	C6H12	000763-29-1	53
4	1-Propene, 2-methyl-	56	C4H8	000115-11-7	49



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051719.D

Acq On : 17 May 2017 7:21 pm

Sample : C1705036-013A 10X

Misc : T015

MS Integration Params: LSCINT.P

Vial: 14

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

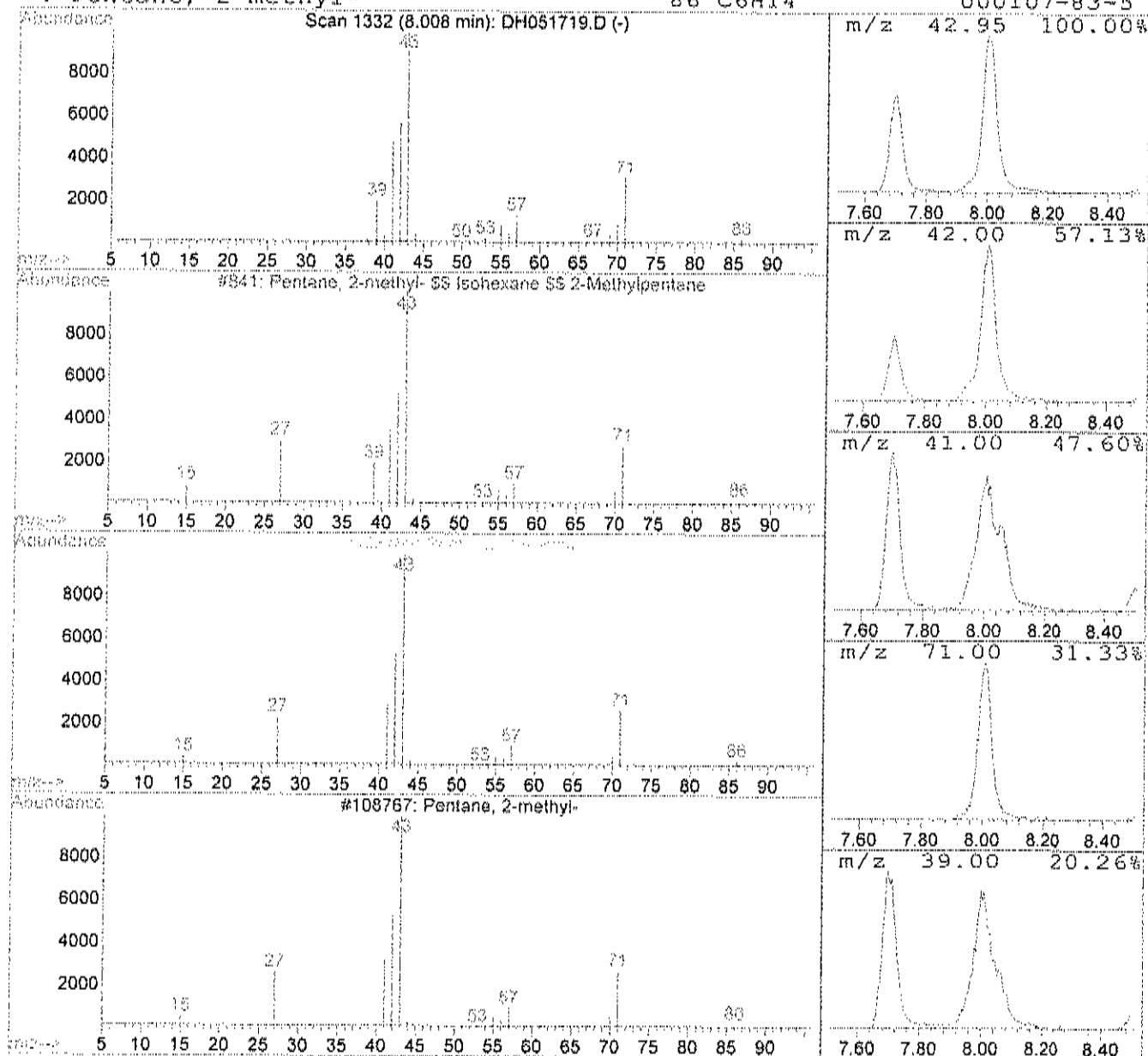
Title : VOA Standards for 5 point calibration

Library : C:\DATABASE\NIST129.L

Peak Number 9 Pentane, 2-methyl- \$\$ Isohexane Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
8.01	44.37 ppb	512365	Bromochloromethane	9.95

Hit#	of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Pentane, 2-methyl- \$\$ Isohexane \$\$	86	C6H14	000107-83-5	90	
2	Pentane, 2-methyl-	86	C6H14	000107-83-5	87	
3	Pentane, 2-methyl-	86	C6H14	000107-83-5	87	
4	Pentane, 2-methyl-	86	C6H14	000107-83-5	86	



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 17 May 2017 7:21 pm
 Data File: C:\HPCHEM\1\DATA2\DH051719.D
 Name: C1705036-013A 10X
 Misc: TO15
 Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title: VOA Standards for 5 point calibration
 Library Searched: C:\DATABASE\NIST129.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc
Hydrogen sulfide \$\$	4.09	26.6	ppb	307292	ISTD01	9.95	577420	50.0
Ethane, 1-chloro-1,1	4.38	7.2	ppb	83176	ISTD01	9.95	577420	50.0
Isobutane	4.46	11.2	ppb	129131	ISTD01	9.95	577420	50.0
1-Propene, 2-methyl-	4.65	10.1	ppb	116104	ISTD01	9.95	577420	50.0
Butane	4.72	18.0	ppb	207833	ISTD01	9.95	577420	50.0
Butane, 2-methyl-	5.68	13.8	ppb	159780	ISTD01	9.95	577420	50.0
1-Butene, 2-methyl-	6.66	11.6	ppb	133982	ISTD01	9.95	577420	50.0
1-Pentene, 4-methyl-	7.70	23.8	ppb	274563	ISTD01	9.95	577420	50.0
Pentane, 2-methyl- \$	8.01	44.4	ppb	512365	ISTD01	9.95	577420	50.0

DH051719.D I0511T15.M Mon Jun 19 14:53:28 2017

Data File : C:\HPCHEM\1\DATA\DH051812.D
 Acq On : 18 May 2017 3:15 pm
 Sample : C1705036-013A 80X
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: Jun 1 11:59 2017

Vial: 14
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	70538	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	432921	50.00	ppb	0.00
57) Chlorobenzene-d5	16.49	117	337259	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	200404	41.89	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	83.78%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.16	41	179763	78.71	ppb	91
16) Acetone	6.16	43	16543	6.24	ppb	52
60) m&p-Xylene	16.92	106	5360	1.06	ppb	98

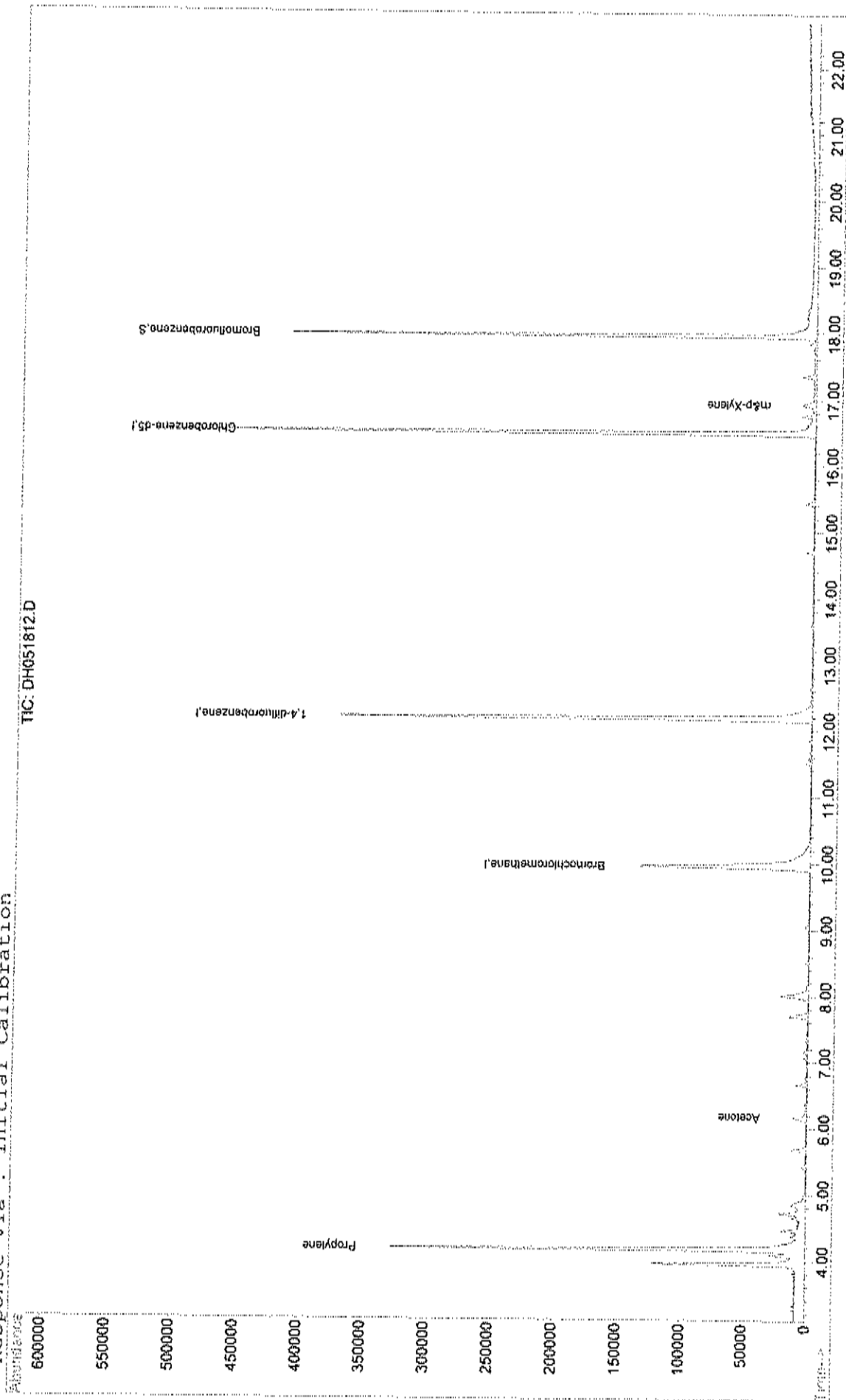
Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051812.D
Acq On : 18 May 2017 3:15 pm
Sample : C1705036-013A 80X
Misc : T015
MS Integration Params: rteint.p
Quant Time: Jun 1 11:59 2017

Vial: 14
Operator: WD
Inst : GCMS3
Multiplr: 1.00

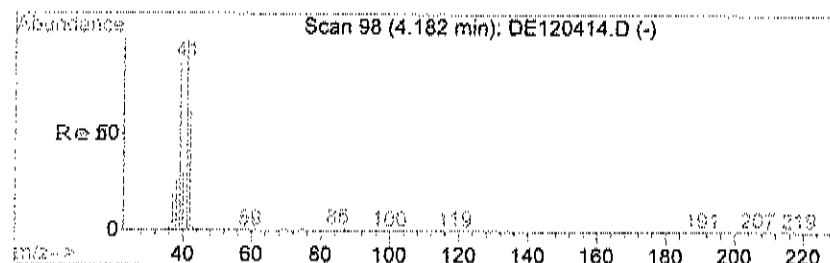
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Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration



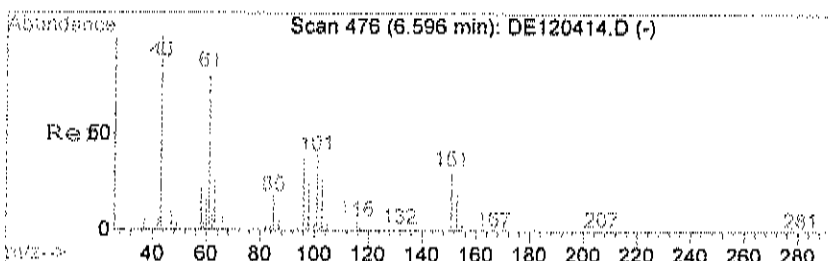
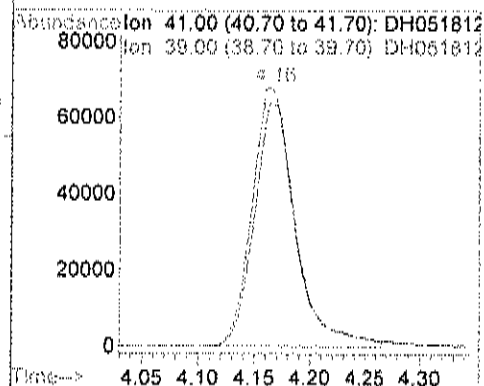
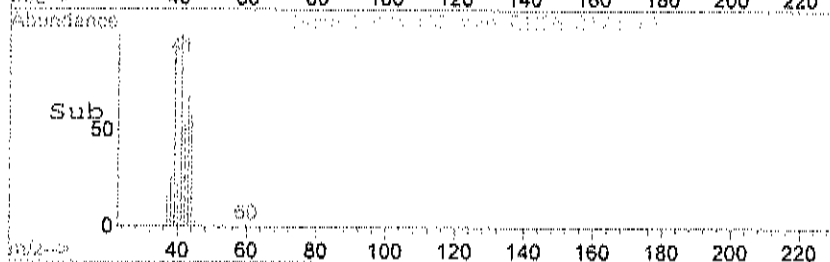
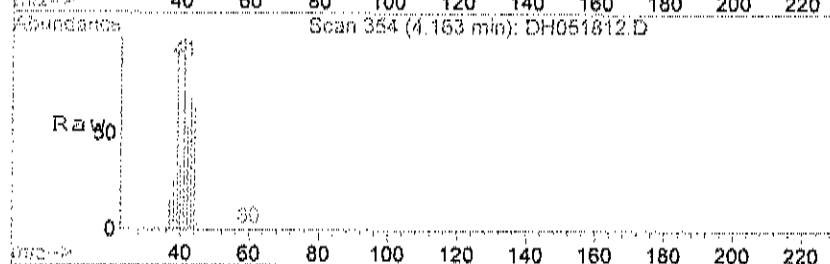
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Thu Jun 01 12:02:33 2017



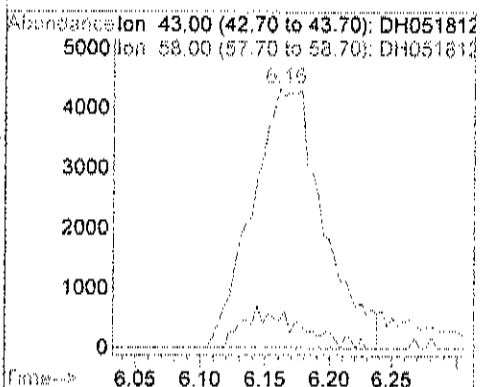
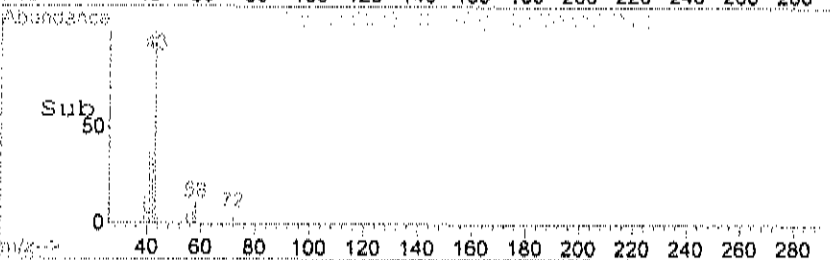
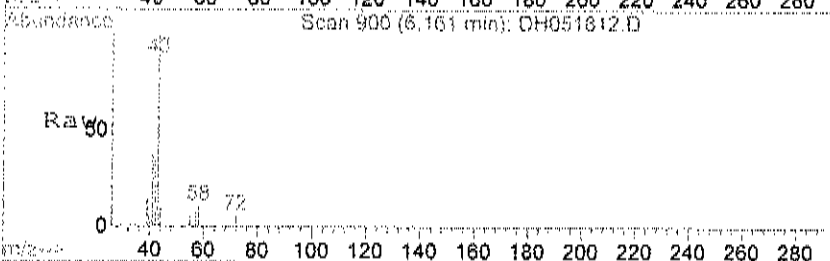
#2
Propylene
Concen: 78.71 ppb
RT: 4.16 min Scan# 354
Delta R.T. -0.03 min
Lab File: DH051812.D
Acq: 18 May 2017 3:15 pm

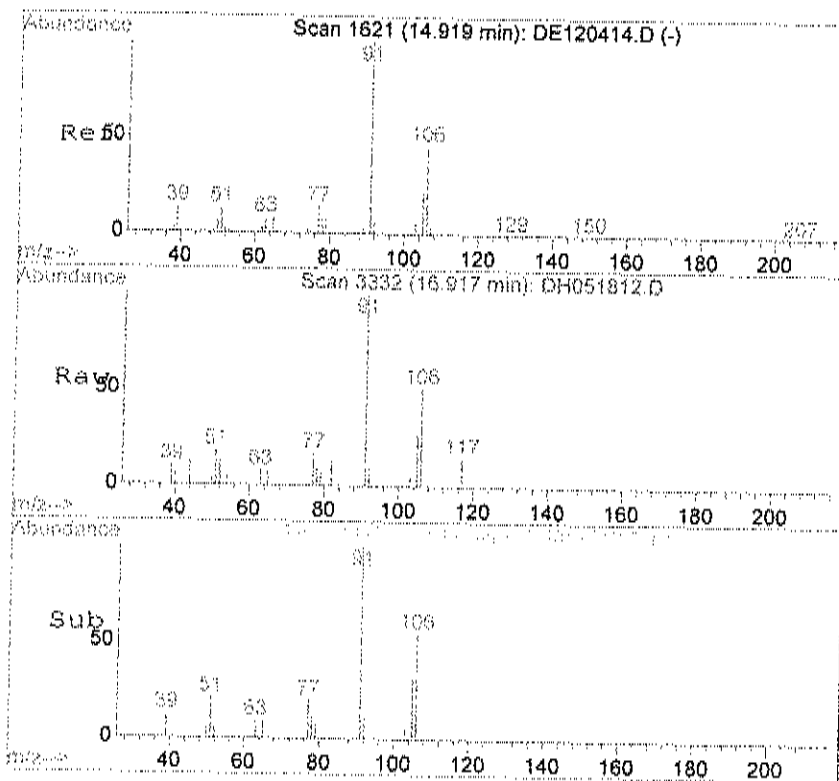
Tgt Ion	41	Resp	179763
Ion Ratio	Lower	Upper	
41	100		
39	93.0	42.4	127.1



#16
Acetone
Concen: 6.24 ppb
RT: 6.16 min Scan# 900
Delta R.T. 0.05 min
Lab File: DH051812.D
Acq: 18 May 2017 3:15 pm

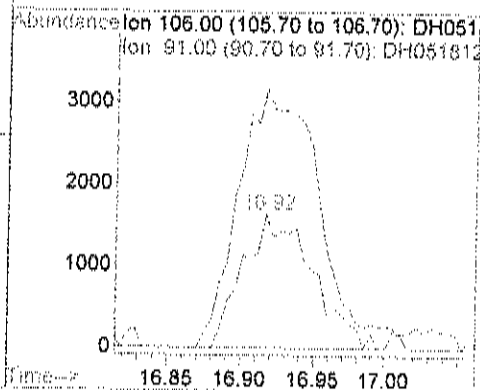
Tgt Ion	43	Resp	16543
Ion Ratio	Lower	Upper	
43	100		
58	0.0	3.7	43.7#





#60
 m&p-Xylene
 Concen: 1.06 ppb
 RT: 16.92 min Scan# 3332
 Delta R.T. -0.02 min
 Lab File: DH051812.D
 Acq: 18 May 2017 3:15 pm

Tgt Ion	Ratio	Lower	Upper
106	100		
91	219.0	202.1	242.1



Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-014A

Client Sample ID: DUP-SV-050917
 Tag Number: 614
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD			Analyst:	
Lab Vacuum In	-4			"Hg		5/12/2017
Lab Vacuum Out	-30			"Hg		5/12/2017
FIXED GAS SERIES		EPA METHOD 3C			Analyst: WD	
Carbon dioxide	0.0440	1.90	J	%	1	5/15/2017
Carbon Monoxide	ND	0.880		%	1	5/15/2017
Methane	33.9	0.580		%	1	5/15/2017
Nitrogen	64.0	8.30		%	1	5/15/2017
Oxygen	2.76	0.880		%	1	5/15/2017
5PPB BY METHOD TO15		TO-15			Analyst: WD	
1,1,1-Trichloroethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,1,2,2-Tetrachloroethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,1,2-Trichloroethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,1-Dichloroethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,1-Dichloroethene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,2,4-Trichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,2,4-Trimethylbenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,2-Dibromoethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,2-Dichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,2-Dichloroethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,2-Dichloropropane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,3,5-Trimethylbenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,3-butadiene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,3-Dichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,4-Dichlorobenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
1,4-Dioxane	< 100	100		ppbV	10	5/17/2017 7:56:00 PM
2,2,4-trimethylpentane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
4-ethyltoluene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Acetone	68	100	J	ppbV	10	5/17/2017 7:56:00 PM
Allyl chloride	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Benzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Benzyl chloride	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Bromodichloromethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Bromoform	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Bromomethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Carbon disulfide	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Carbon tetrachloride	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Chlorobenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Chloroethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Chloroform	< 50	50		ppbV	10	5/17/2017 7:56:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-014A

Client Sample ID: DUP-SV-050917
 Tag Number: 614
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Chloromethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
cis-1,2-Dichloroethene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
cis-1,3-Dichloropropene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Cyclohexane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Dibromochloromethane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Ethyl acetate	< 100	100		ppbV	10	5/17/2017 7:56:00 PM
Ethylbenzene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Freon 11	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Freon 113	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Freon 114	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Freon 12	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Heptane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Hexachloro-1,3-butadiene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Hexane	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Isopropyl alcohol	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
m&p-Xylene	< 100	100		ppbV	10	5/17/2017 7:56:00 PM
Methyl Butyl Ketone	< 100	100		ppbV	10	5/17/2017 7:56:00 PM
Methyl Ethyl Ketone	< 100	100		ppbV	10	5/17/2017 7:56:00 PM
Methyl Isobutyl Ketone	< 100	100		ppbV	10	5/17/2017 7:56:00 PM
Methyl tert-butyl ether	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Methylene chloride	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
o-Xylene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Propylene	6100	400		ppbV	80	5/18/2017 3:50:00 PM
Styrene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Tetrachloroethylene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Tetrahydrofuran	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Toluene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
trans-1,2-Dichloroethene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
trans-1,3-Dichloropropene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Trichloroethene	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Vinyl acetate	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Vinyl Bromide	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Vinyl chloride	< 50	50		ppbV	10	5/17/2017 7:56:00 PM
Surr: Bromofluorobenzene	76.9	73.7-124		%REC	10	5/17/2017 7:56:00 PM
TIC: 1-Pentene, 4-methyl-	240	0	JN	ppbV	10	5/17/2017 7:56:00 PM
TIC: 1-Propene, 2-methyl-	100	0	JN	ppbV	10	5/17/2017 7:56:00 PM
TIC: Butane	170	0	JN	ppbV	10	5/17/2017 7:56:00 PM
TIC: Butane, 2-methyl-	140	0	JN	ppbV	10	5/17/2017 7:56:00 PM
TIC: Cyclopropane, 1,2-dimethyl-, trans-	120	0	JN	ppbV	10	5/17/2017 7:56:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Page 41 of 42

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-014A

Client Sample ID: DUP-SV-050917
 Tag Number: 614
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
TIC: Ethane, 1-chloro-1,1-difluoro	73	0	JN	ppbV	10	5/17/2017 7:56:00 PM
SS .alpha						
TIC: Hydrogen sulfide	940	0	JN	ppbV	10	5/17/2017 7:56:00 PM
Dihydrogen monosulfide						
TIC: Isobutane	110	0	JN	ppbV	10	5/17/2017 7:56:00 PM
TIC: Pentane, 2-methyl-	440	0	JN	ppbV	10	5/17/2017 7:56:00 PM
NOTES:						
* The reporting limits were raised due to the high concentration of methane in the sample.						
LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Carbon disulfide	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Carbonyl sulfide	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Dimethyl sulfide	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Ethyl mercaptan	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Hydrogen Sulfide	3900	50		ppbV	10	5/16/2017 7:19:00 PM
Isopropyl mercaptan	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Methyl mercaptan	< 50	50		ppbV	10	5/16/2017 7:19:00 PM
Surr: Bromofluorobenzene	140	70-130	S	%REC	10	5/16/2017 7:19:00 PM

Qualifiers:	** Quantitation Limit	Results reported are not blank corrected
	B Analyte detected in the associated Method Blank	E Estimated Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limit
	JN Non-routine analyte. Quantitation estimated.	ND Not Detected at the Limit of Detection
	S Spike Recovery outside accepted recovery limits	

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-014A

Client Sample ID: DUP-SV-050917
 Tag Number: 614
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
SPPB BY METHOD TO15				TO-15		Analyst: WD
1,1,1-Trichloroethane	< 270	270		ug/m3	10	5/17/2017 7:56:00 PM
1,1,2,2-Tetrachloroethane	< 340	340		ug/m3	10	5/17/2017 7:56:00 PM
1,1,2-Trichloroethane	< 270	270		ug/m3	10	5/17/2017 7:56:00 PM
1,1-Dichloroethane	< 200	200		ug/m3	10	5/17/2017 7:56:00 PM
1,1-Dichloroethene	< 200	200		ug/m3	10	5/17/2017 7:56:00 PM
1,2,4-Trichlorobenzene	< 370	370		ug/m3	10	5/17/2017 7:56:00 PM
1,2,4-Trimethylbenzene	< 250	250		ug/m3	10	5/17/2017 7:56:00 PM
1,2-Dibromoethane	< 380	380		ug/m3	10	5/17/2017 7:56:00 PM
1,2-Dichlorobenzene	< 300	300		ug/m3	10	5/17/2017 7:56:00 PM
1,2-Dichloroethane	< 200	200		ug/m3	10	5/17/2017 7:56:00 PM
1,2-Dichloropropane	< 230	230		ug/m3	10	5/17/2017 7:56:00 PM
1,3,5-Trimethylbenzene	< 250	250		ug/m3	10	5/17/2017 7:56:00 PM
1,3-butadiene	< 110	110		ug/m3	10	5/17/2017 7:56:00 PM
1,3-Dichlorobenzene	< 300	300		ug/m3	10	5/17/2017 7:56:00 PM
1,4-Dichlorobenzene	< 300	300		ug/m3	10	5/17/2017 7:56:00 PM
1,4-Dioxane	< 360	360		ug/m3	10	5/17/2017 7:56:00 PM
2,2,4-trimethylpentane	< 230	230		ug/m3	10	5/17/2017 7:56:00 PM
4-ethyltoluene	< 250	250		ug/m3	10	5/17/2017 7:56:00 PM
Acetone	160	240	J	ug/m3	10	5/17/2017 7:56:00 PM
Allyl chloride	< 160	160		ug/m3	10	5/17/2017 7:56:00 PM
Benzene	< 160	160		ug/m3	10	5/17/2017 7:56:00 PM
Benzyl chloride	< 290	290		ug/m3	10	5/17/2017 7:56:00 PM
Bromodichloromethane	< 330	330		ug/m3	10	5/17/2017 7:56:00 PM
Bromoform	< 520	520		ug/m3	10	5/17/2017 7:56:00 PM
Bromomethane	< 190	190		ug/m3	10	5/17/2017 7:56:00 PM
Carbon disulfide	< 160	160		ug/m3	10	5/17/2017 7:56:00 PM
Carbon tetrachloride	< 310	310		ug/m3	10	5/17/2017 7:56:00 PM
Chlorobenzene	< 230	230		ug/m3	10	5/17/2017 7:56:00 PM
Chloroethane	< 130	130		ug/m3	10	5/17/2017 7:56:00 PM
Chloroform	< 240	240		ug/m3	10	5/17/2017 7:56:00 PM
Chloromethane	< 100	100		ug/m3	10	5/17/2017 7:56:00 PM
cis-1,2-Dichloroethene	< 200	200		ug/m3	10	5/17/2017 7:56:00 PM
cis-1,3-Dichloropropene	< 230	230		ug/m3	10	5/17/2017 7:56:00 PM
Cyclohexane	< 170	170		ug/m3	10	5/17/2017 7:56:00 PM
Dibromochloromethane	< 430	430		ug/m3	10	5/17/2017 7:56:00 PM
Ethyl acetate	< 360	360		ug/m3	10	5/17/2017 7:56:00 PM
Ethylbenzene	< 220	220		ug/m3	10	5/17/2017 7:56:00 PM
Freon 11	< 280	280		ug/m3	10	5/17/2017 7:56:00 PM
Freon 113	< 380	380		ug/m3	10	5/17/2017 7:56:00 PM
Freon 114	< 350	350		ug/m3	10	5/17/2017 7:56:00 PM

Qualifiers: ** Quantitation Limit
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 JN Non-routine analyte. Quantitation estimated.
 S Spike Recovery outside accepted recovery limits

Results reported are not blank corrected
 E Estimated Value above quantitation range
 J Analyte detected below quantitation limit
 ND Not Detected at the Limit of Detection

Centek Laboratories, LLC

Date: 22-Jun-17

CLIENT: CH2M - St Louis
 Lab Order: C1705036
 Project: Former Hampshire
 Lab ID: C1705036-014A

Client Sample ID: DUP-SV-050917
 Tag Number: 614
 Collection Date: 5/9/2017
 Matrix: AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
5PPB BY METHOD TO15		TO-15		Analyst: WD		
Freon 12	< 250	250		ug/m3	10	5/17/2017 7:56:00 PM
Heptane	< 200	200		ug/m3	10	5/17/2017 7:56:00 PM
Hexachloro-1,3-butadiene	< 530	530		ug/m3	10	5/17/2017 7:56:00 PM
Hexane	< 180	180		ug/m3	10	5/17/2017 7:56:00 PM
Isopropyl alcohol	< 120	120		ug/m3	10	5/17/2017 7:56:00 PM
m&p-Xylene	< 430	430		ug/m3	10	5/17/2017 7:56:00 PM
Methyl Butyl Ketone	< 410	410		ug/m3	10	5/17/2017 7:56:00 PM
Methyl Ethyl Ketone	< 290	290		ug/m3	10	5/17/2017 7:56:00 PM
Methyl Isobutyl Ketone	< 410	410		ug/m3	10	5/17/2017 7:56:00 PM
Methyl tert-butyl ether	< 180	180		ug/m3	10	5/17/2017 7:56:00 PM
Methylene chloride	< 170	170		ug/m3	10	5/17/2017 7:56:00 PM
o-Xylene	< 220	220		ug/m3	10	5/17/2017 7:56:00 PM
Propylene	10000	690		ug/m3	80	5/18/2017 3:50:00 PM
Styrene	< 210	210		ug/m3	10	5/17/2017 7:56:00 PM
Tetrachloroethylene	< 340	340		ug/m3	10	5/17/2017 7:56:00 PM
Tetrahydrofuran	< 150	150		ug/m3	10	5/17/2017 7:56:00 PM
Toluene	< 190	190		ug/m3	10	5/17/2017 7:56:00 PM
trans-1,2-Dichloroethene	< 200	200		ug/m3	10	5/17/2017 7:56:00 PM
trans-1,3-Dichloropropene	< 230	230		ug/m3	10	5/17/2017 7:56:00 PM
Trichloroethene	< 270	270		ug/m3	10	5/17/2017 7:56:00 PM
Vinyl acetate	< 180	180		ug/m3	10	5/17/2017 7:56:00 PM
Vinyl Bromide	< 220	220		ug/m3	10	5/17/2017 7:56:00 PM
Vinyl chloride	< 130	130		ug/m3	10	5/17/2017 7:56:00 PM

NOTES:

* The reporting limits were raised due to the high concentration of methane in the sample.

LOW LEVEL SULFURS BY TO-15		TO-15		Analyst: WD		
1-Propanethiol	< 160	160		ug/m3	10	5/16/2017 7:19:00 PM
Carbon disulfide	< 160	160		ug/m3	10	5/16/2017 7:19:00 PM
Carbonyl sulfide	< 120	120		ug/m3	10	5/16/2017 7:19:00 PM
Dimethyl sulfide	< 190	190		ug/m3	10	5/16/2017 7:19:00 PM
Ethyl mercaptan	< 130	130		ug/m3	10	5/16/2017 7:19:00 PM
Hydrogen Sulfide	5500	70		ug/m3	10	5/16/2017 7:19:00 PM
Isopropyl mercaptan	< 160	160		ug/m3	10	5/16/2017 7:19:00 PM
Methyl mercaptan	< 98	98		ug/m3	10	5/16/2017 7:19:00 PM

Qualifiers:	** Quantitation Limit	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E Estimated Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limit
JN	Non-routine analyte. Quantitation estimated.	ND Not Detected at the Limit of Detection
S	Spike Recovery outside accepted recovery limits	

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051720.D
 Acq On : 17 May 2017 7:56 pm
 Sample : C1705036-014A 10X
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: Jun 1 11:49 2017

Vial: 15
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	9.95	128	74464m	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	390360	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	321457	50.00	ppb	0.00

System Monitoring Compounds

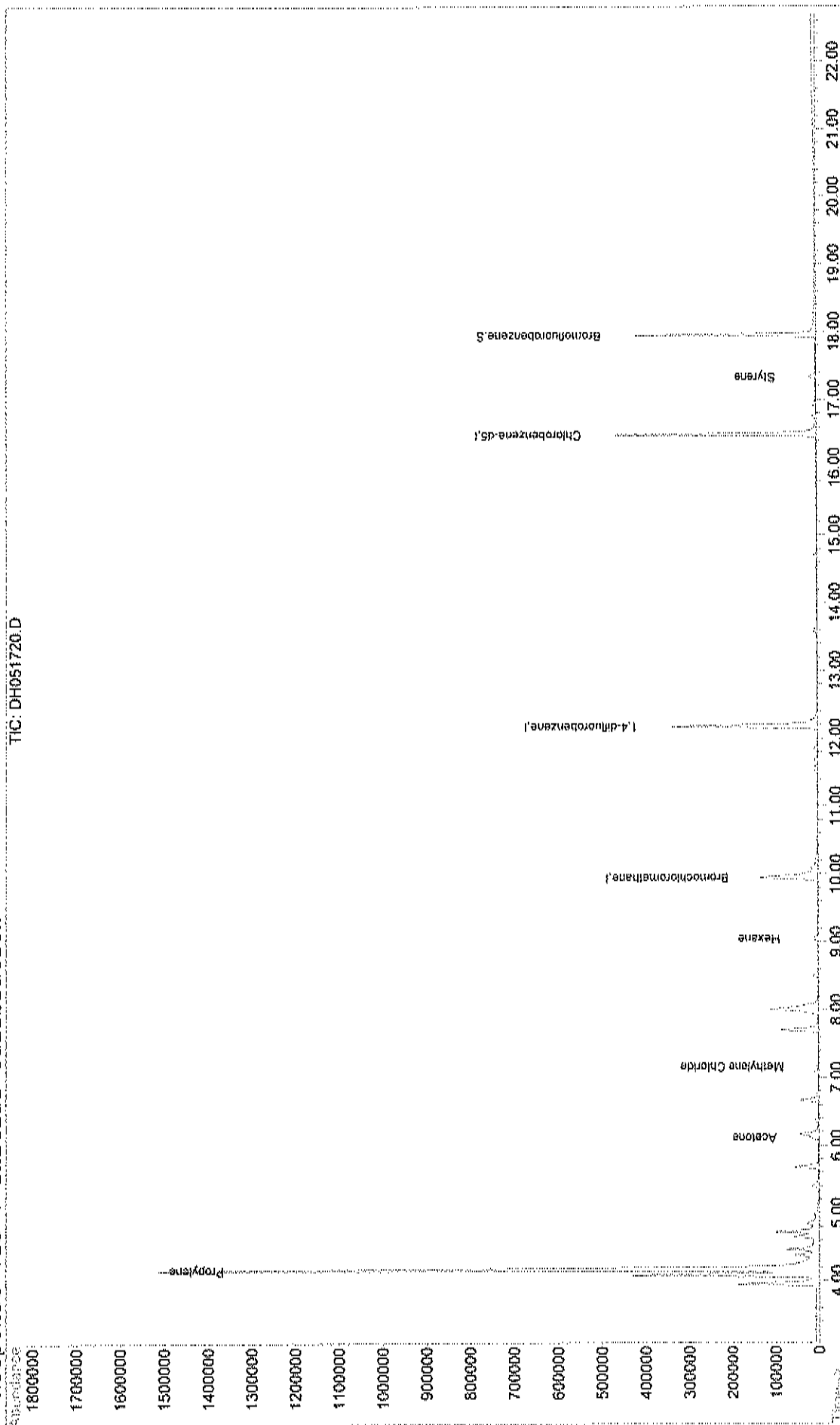
67) Bromofluorobenzene	17.95	95	175445	38.47	ppb	0.01
Spiked Amount	50.000	Range	70 - 130	Recovery	=	76.94%

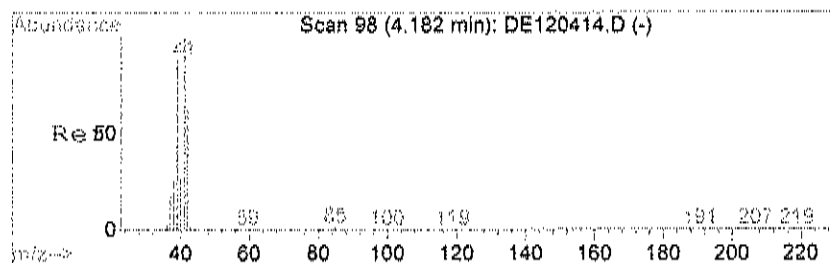
Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.17	41	898923	372.84	ppb	92
16) Acetone	6.11	43	18887	6.75	ppb	95
23) Methylene Chloride	7.16	84	2777m	1.45	ppb	
30) Hexane	9.05	41	6779	2.00	ppb	# 57
62) Styrene	17.33	104	9240	1.34	ppb	93

Quantitation Report

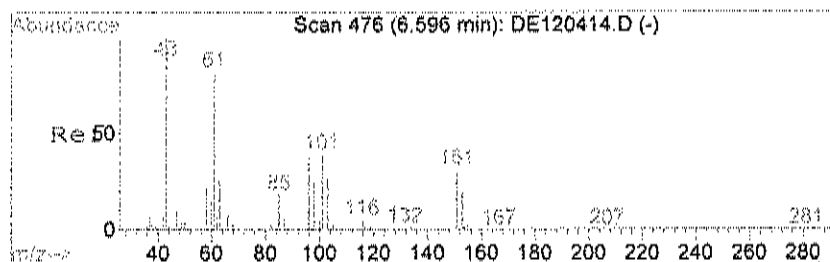
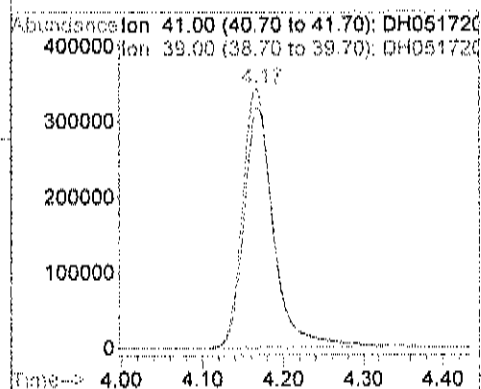
Data File : C:\HPCHEM\1\DATA\DH051720.D
 Acq On : 17 May 2017 7:56 pm
 Sample : C1705036-014A 10X
 Misc : T015
 MS Integration Params: rteint.p
 Quant Time: Jun 1 11:49 2017
 Quant Results File: I0511T15.RES
 Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration





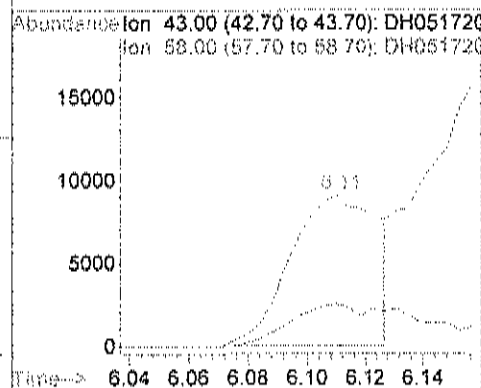
#2
Propylene
Concen: 372.84 ppb
RT: 4.17 min Scan# 355
Delta R.T. -0.02 min
Lab File: DH051720.D
Acq: 17 May 2017 7:56 pm

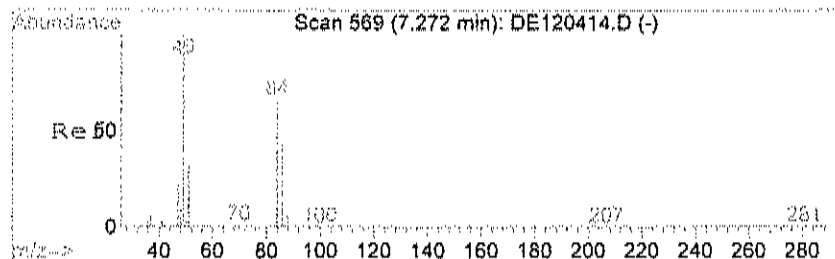
Tgt Ion:	41	Resp:	898923
Ion	Ratio	Lower	Upper
41	100		
39	91.6	42.4	127.1



#16
Acetone
Concen: 6.75 ppb
RT: 6.11 min Scan# 888
Delta R.T. -0.00 min
Lab File: DH051720.D
Acq: 17 May 2017 7:56 pm

Tgt Ion:	43	Resp:	18887
Ion	Ratio	Lower	Upper
43	100		
58	21.0	3.7	43.7





#23

Methylene Chloride

Concen: 1.45 ppb m

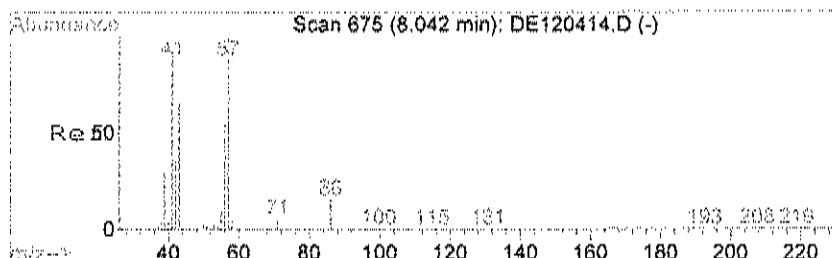
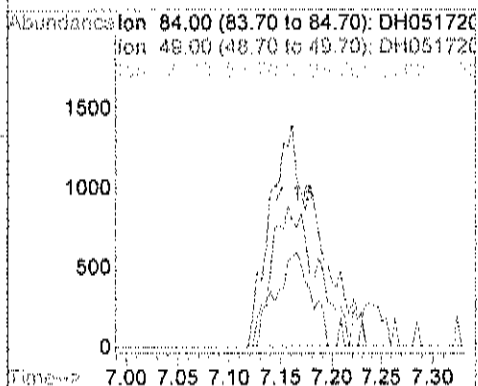
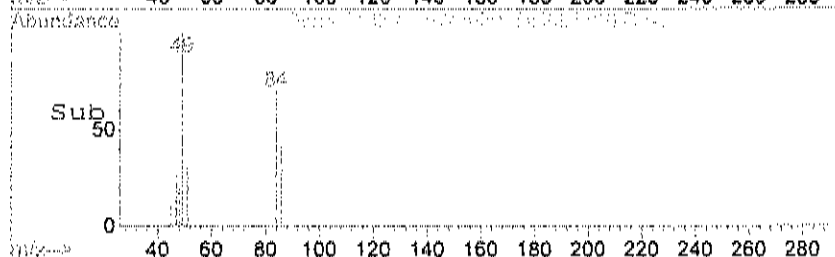
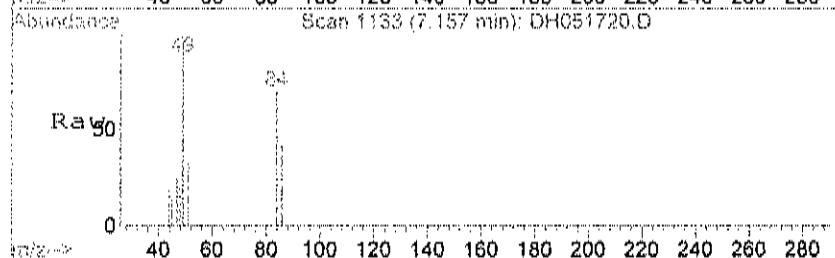
RT: 7.16 min Scan# 1133

Delta R.T. -0.02 min

Lab File: DH051720.D

Acq: 17 May 2017 7:56 pm

Tgt Ion:	84	Resp:	2777
Ion	Ratio	Lower	Upper
84	100		
49	162.1	124.3	164.3
86	52.9	43.0	83.0



#30

Hexane

Concen: 2.00 ppb

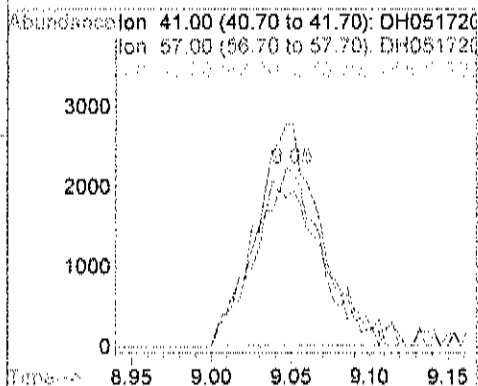
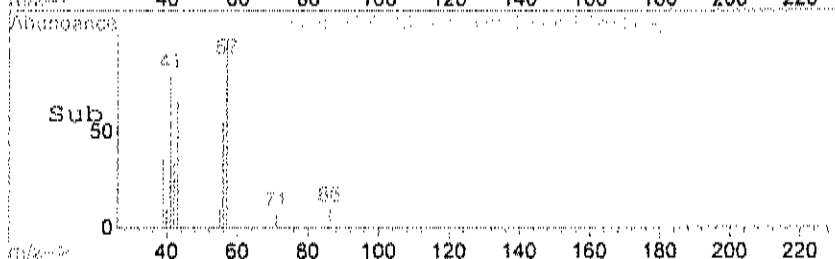
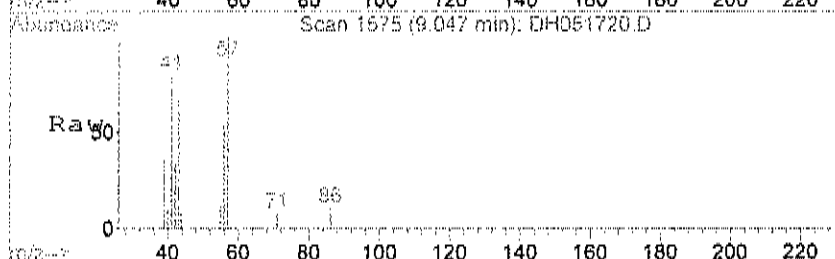
RT: 9.05 min Scan# 1575

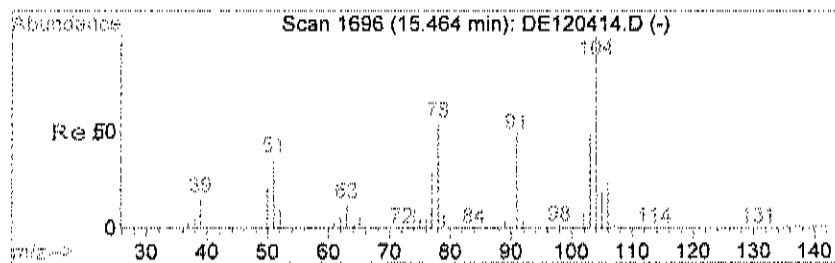
Delta R.T. -0.02 min

Lab File: DH051720.D

Acq: 17 May 2017 7:56 pm

Tgt Ion:	41	Resp:	6779
Ion	Ratio	Lower	Upper
41	100		
57	112.5	96.5	136.5
43	89.7	168.6	208.6#





#62

Styrene

Concen: 1.34 ppb

RT: 17.33 min Scan# 3411

Delta R.T. 0.00 min

Lab File: DH051720.D

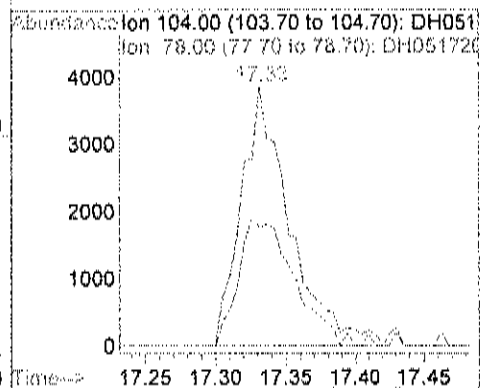
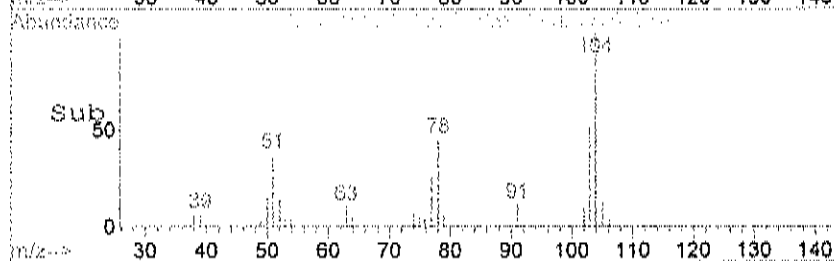
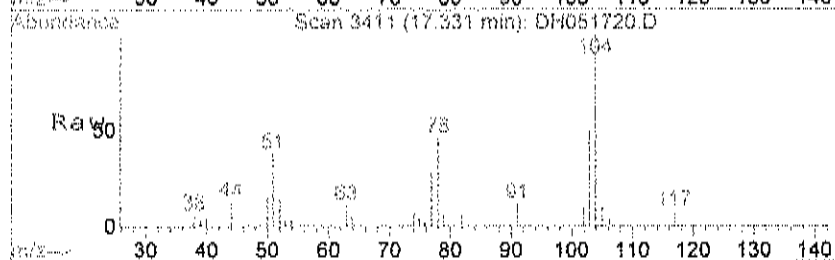
Acq: 17 May 2017 7:56 pm

Tgt Ion:104 Resp: 9240

Ion Ratio Lower Upper

104 100

78 56.1 31.1 71.1



LSC Area Percent Report

Data File : C:\HPCHEM\1\DATA2\DH051720.D
 Acq On : 17 May 2017 7:56 pm
 Sample : C1705036-014A 10X
 Misc : TO15
 MS Integration Params: LSCINT.P

Vial: 15
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Smoothing : ON Filtering: 5
 Sampling : 1 Min Area: 3 % of largest Peak
 Start Thrs: 0.2 Max Peaks: 100
 Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Signal : TIC

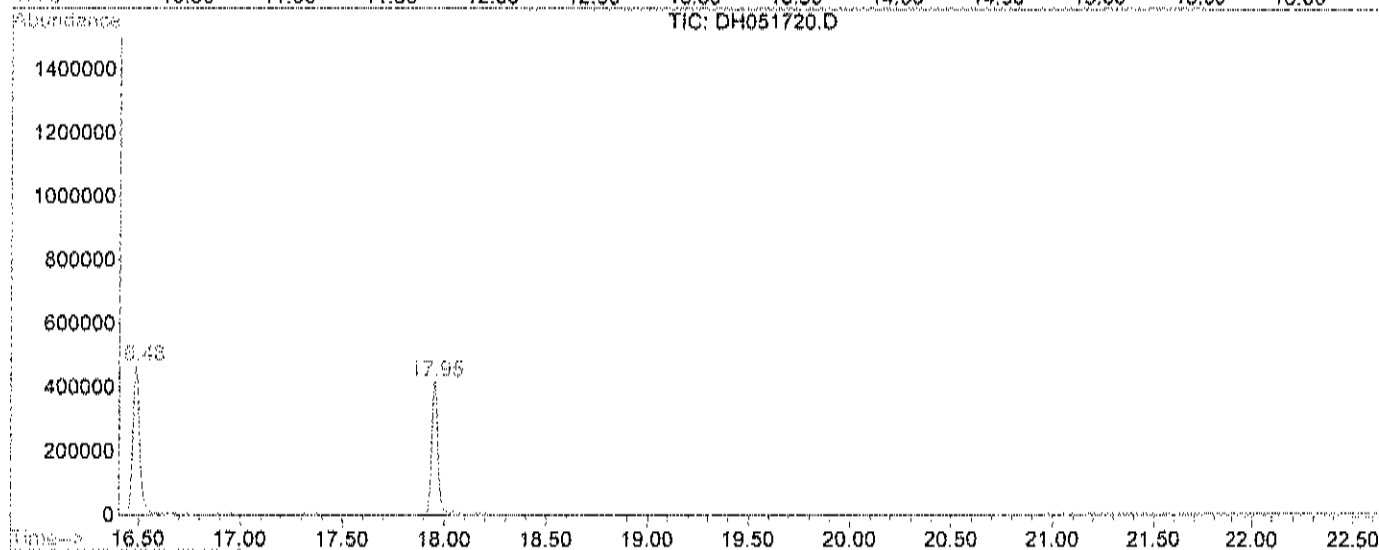
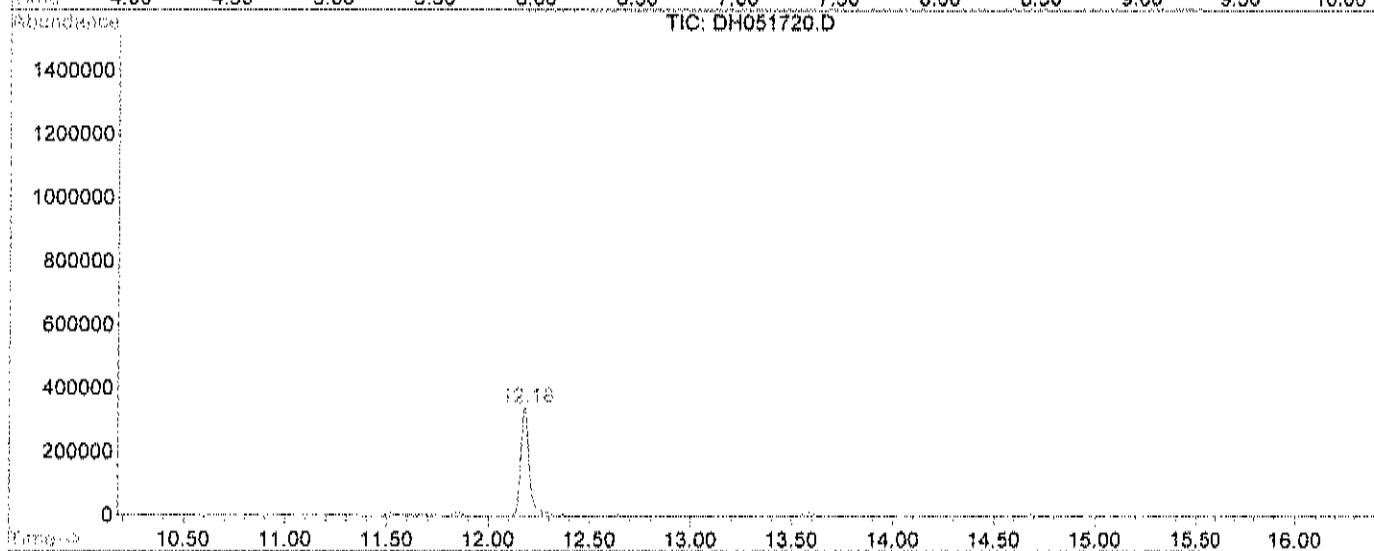
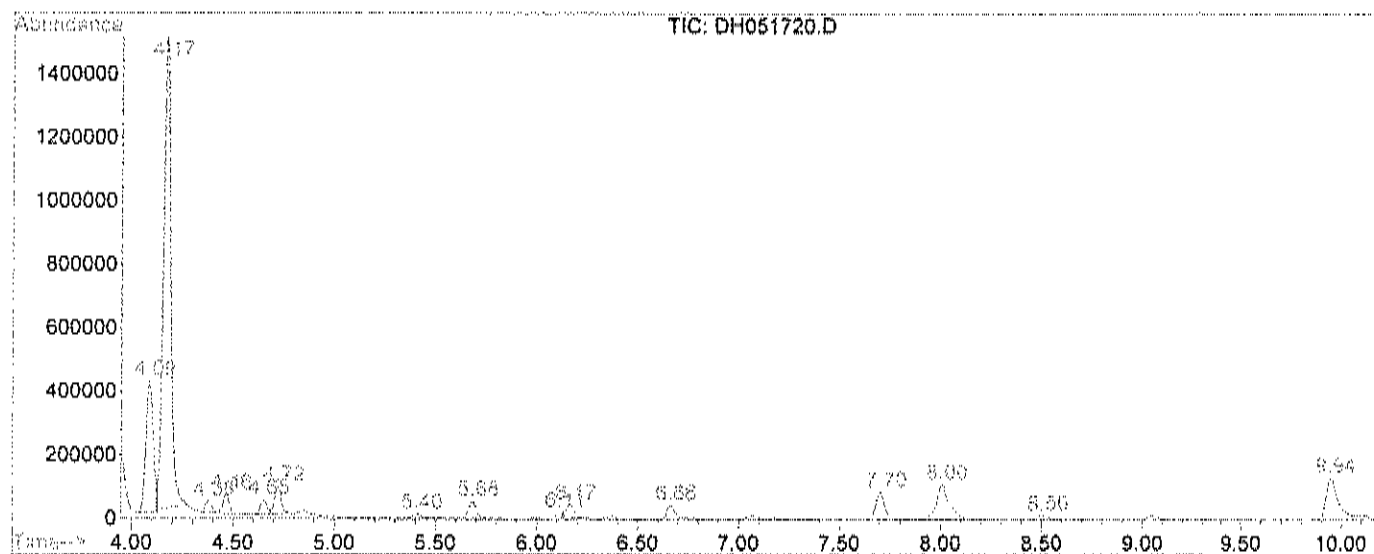
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	4.085	312	328	341	rBV	414793	1042742	28.17%	10.330%
2	4.170	342	356	389	rVB3	1478236	3701804	100.00%	36.673%
3	4.379	416	425	440	rVB2	39784	81118	2.19%	0.804%
4	4.464	444	453	469	rVB2	60091	120475	3.25%	1.194%
5	4.651	500	515	526	rBV3	47460	110666	2.99%	1.096%
6	4.724	528	539	556	rVB3	85079	193662	5.23%	1.919%
7	5.404	712	723	737	rBV6	15595	51057	1.38%	0.506%
8	5.682	774	788	803	rBV2	56821	151091	4.08%	1.497%
9	6.114	877	889	892	rBV3	20651	42363	1.14%	0.420%
10	6.165	894	901	917	rVB2	42465	118000	3.19%	1.169%
11	6.661	1002	1017	1033	rBV2	44627	129015	3.49%	1.278%
12	7.704	1245	1261	1288	rBV3	86396	263900	7.13%	2.614%
13	8.004	1306	1331	1357	rBV3	109758	486829	13.15%	4.823%
14	8.504	1435	1448	1460	rBV4	13015	38805	1.05%	0.384%
15	9.945	1770	1785	1811	rBV3	131578	554271	14.97%	5.491%
16	12.181	2293	2308	2328	rBV	339102	987090	26.67%	9.779%
17	16.483	3239	3249	3271	rBV	466352	1117453	30.19%	11.070%
18	17.949	3519	3529	3544	rBV	419588	903754	24.41%	8.953%

Sum of corrected areas: 10094095

DH051720.D I0511T15.M Mon Jun 19 14:55:31 2017

LSC Report - Integrated Chromatogram

File : C:\HPCHEM\1\DATA2\DH051720.D
Operator : WD
Acquired : 17 May 2017 7:56 pm using AcqMethod NEW1
Instrument : GCMS3
Sample Name: C1705036-014A 10X
Misc Info : TO15
Vial Number: 15
Quant File : I0511T15.RES (RTE Integrator)



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051720.D
Acq On : 17 May 2017 7:56 pm
Sample : C1705036-014A 10X
Misc : TO15
MS Integration Params: LSCINT.P

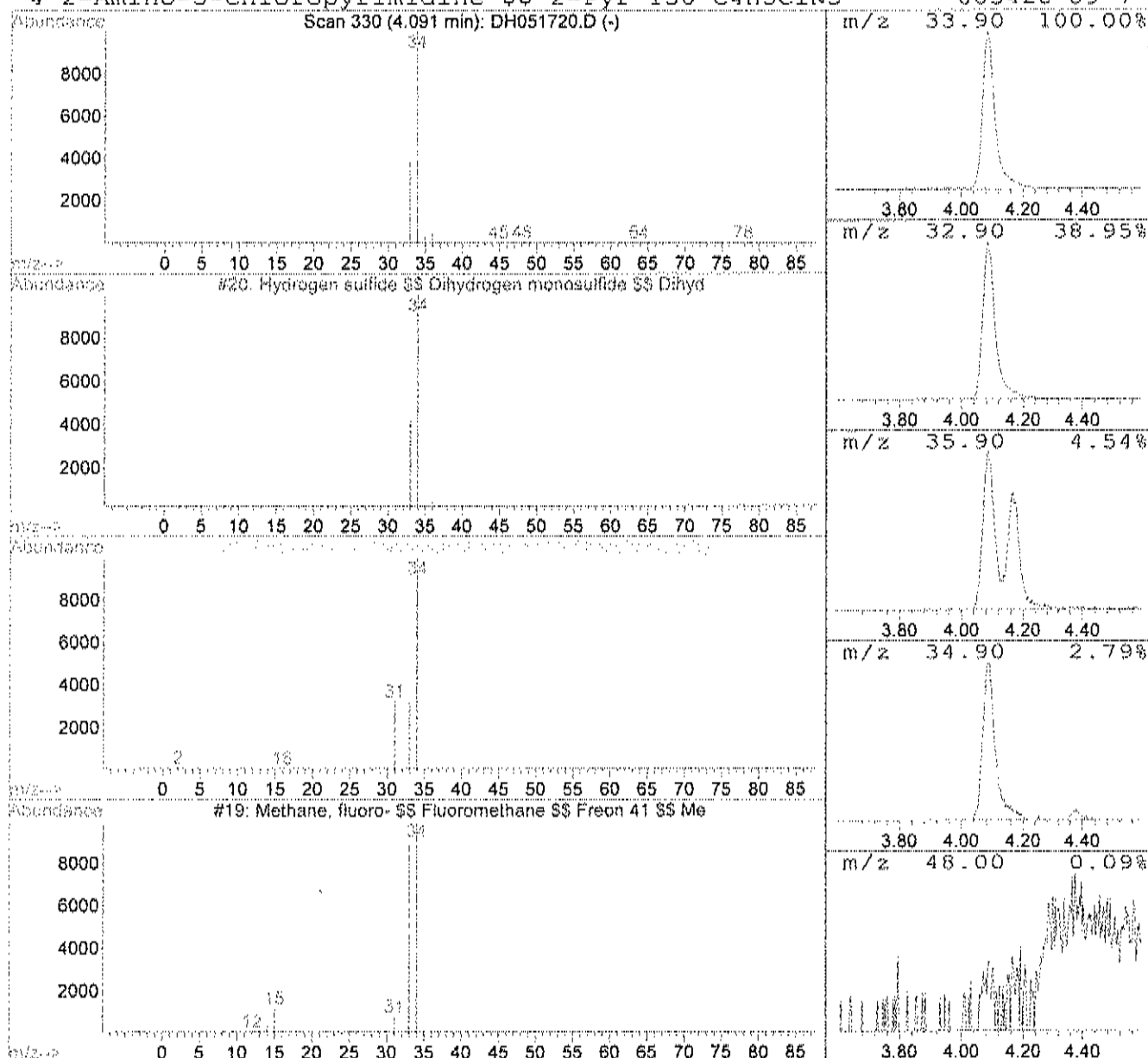
Vial: 15
Operator: WD
Inst : GCMS3
Multiplier: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 1 Hydrogen sulfide \$\$ Dihydrogen Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.09	94.06 ppb	1042740	Bromochloromethane	9.95

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Hydrogen sulfide \$\$ Dihydrogen mono	34	H2S	007783-06-4	83
2			Phosphine \$\$ Hydrogen phosphide \$\$	34	H3P	007803-51-2	7
3			Methane, fluoro- \$\$ Fluoromethane \$	34	CH3F	000593-53-3	3
4			2-Amino-5-chloropyrimidine \$\$ 2-Pyr	130	C4H5ClN3	005428-89-7	1



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051720.D
Acq On : 17 May 2017 7:56 pm
Sample : C1705036-014A 10X
Misc : TO15
MS Integration Params: LSCINT.P

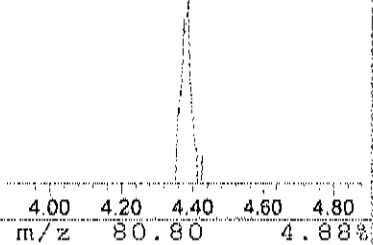
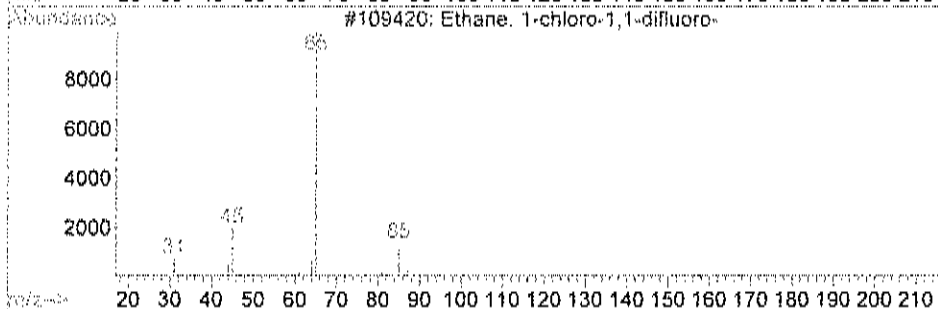
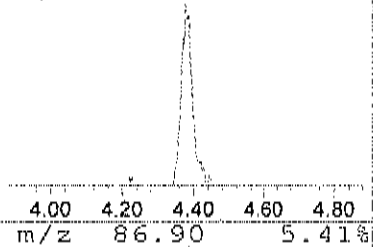
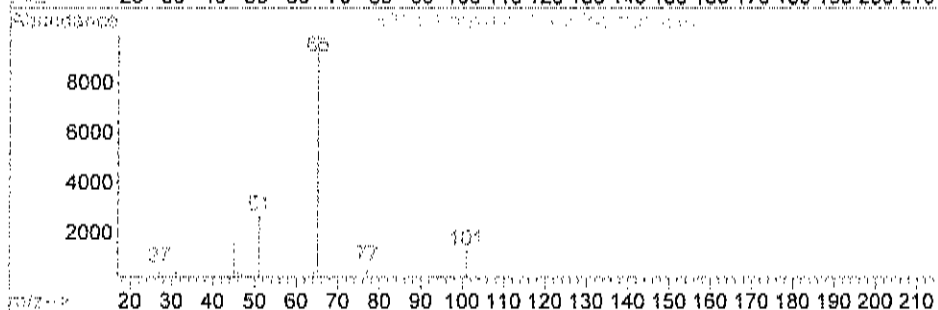
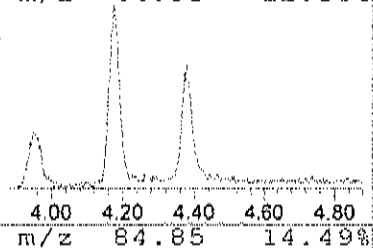
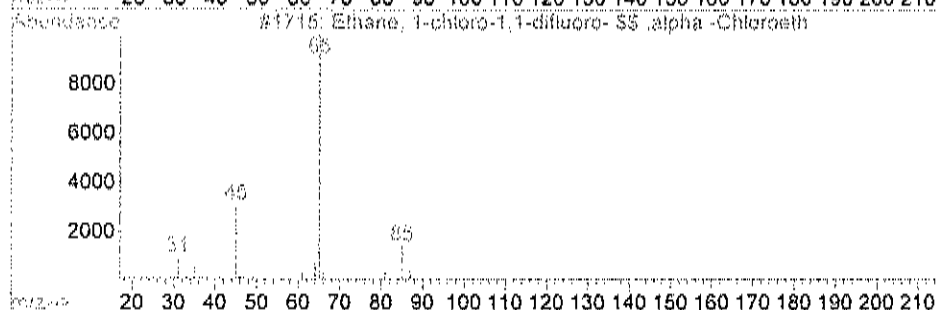
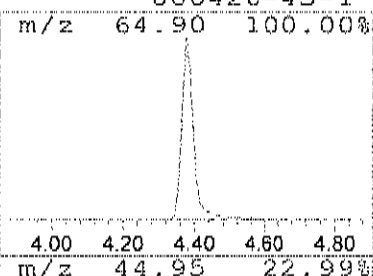
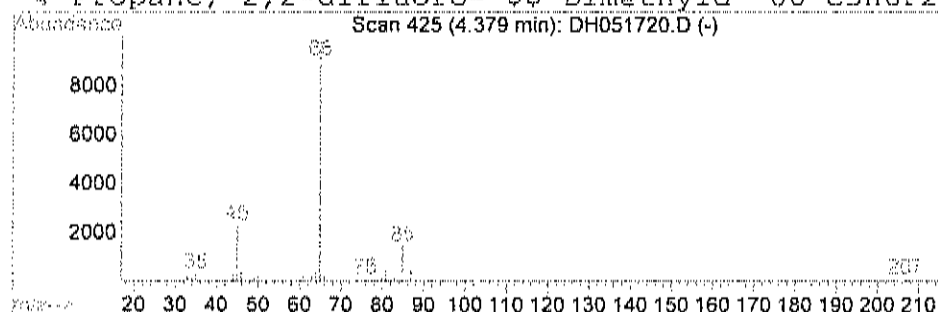
Vial: 15
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 2 Ethane, 1-chloro-1,1-difluoro- Concentration Rank 10

R.T.	EstCone	Area	Relative to ISTD	R.T.
4.38	7.32 ppb	81118	Bromochloromethane	9.95

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Ethane, 1-chloro-1,1-difluoro- \$\$	100	C2H3ClF2	000075-68-3	43
2			Propane, 1,1,2,2-tetrafluoro-	116	C3H4F4	040723-63-5	43
3			Ethane, 1-chloro-1,1-difluoro-	100	C2H3ClF2	000075-68-3	32
4			Propane, 2,2-difluoro- \$\$ Dimethylid	80	C3H6F2	000420-45-1	9



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051720.D
Acq On : 17 May 2017 7:56 pm
Sample : C1705036-014A 10X
Misc : T015
MS Integration Params: LSCINT.P

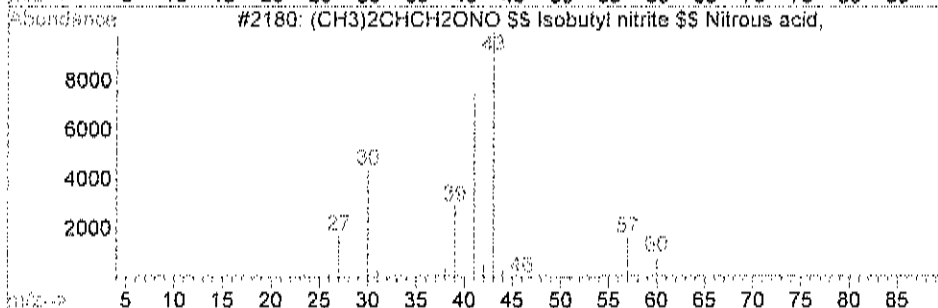
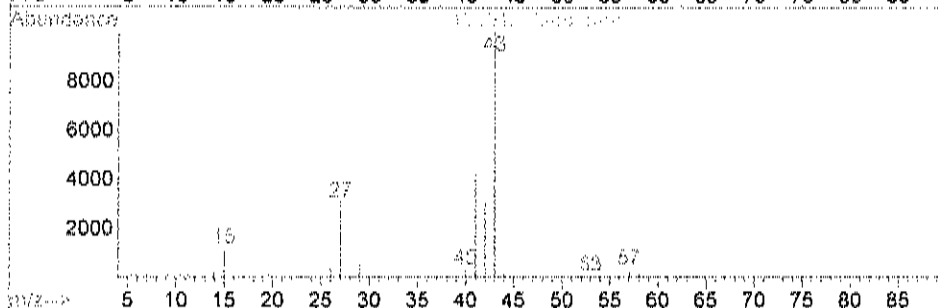
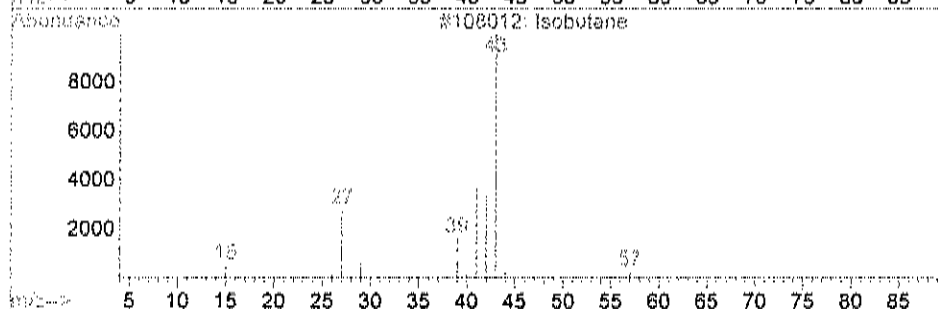
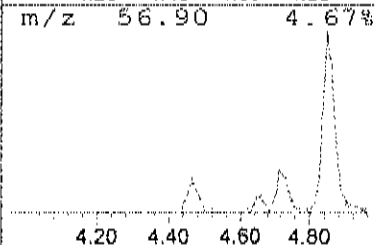
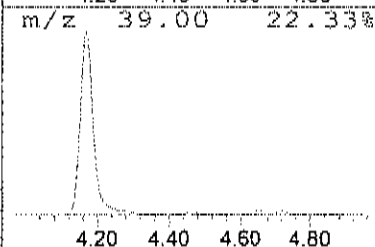
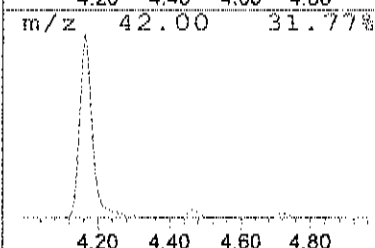
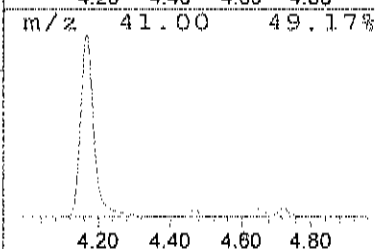
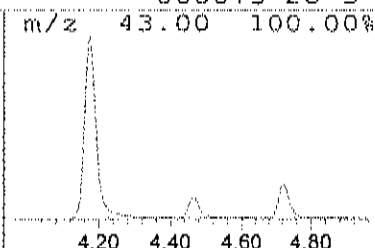
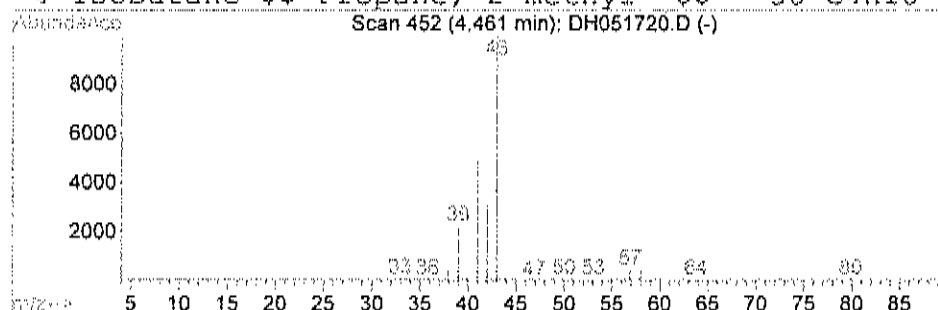
Vial: 15
Operator: WD
Inst : GCMS3
Multiplier: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 3 Isobutane Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.46	10.87 ppb	120475	Bromochloromethane	9.95

Hit#	of 5	Tentative ID	MW	MolForm	CAS#	Qual
1		Isobutane	58	C4H10	000075-28-5	64
2		Isobutane	58	C4H10	000075-28-5	64
3		(CH3)2CHCH2ONO \$\$ Isobutyl nitrite	103	C4H9NO2	000542-56-3	25
4		Isobutane \$\$ Propane, 2-methyl- \$\$	58	C4H10	000075-28-5	9



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051720.D
Acq On : 17 May 2017 7:56 pm
Sample : C1705036-014A 10X
Misc : TO15
MS Integration Params: LSCINT.P

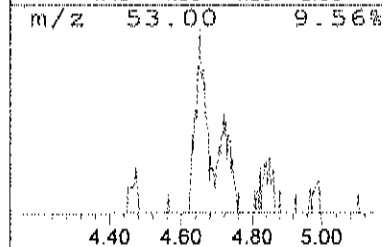
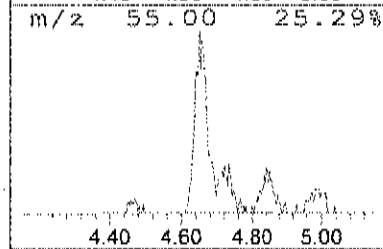
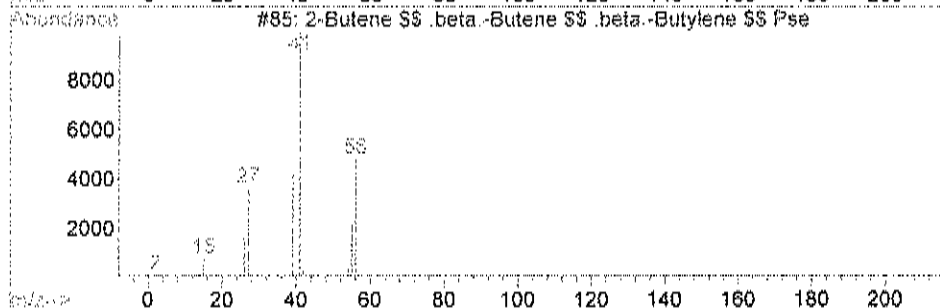
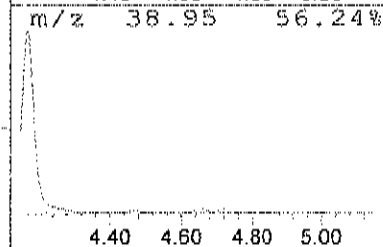
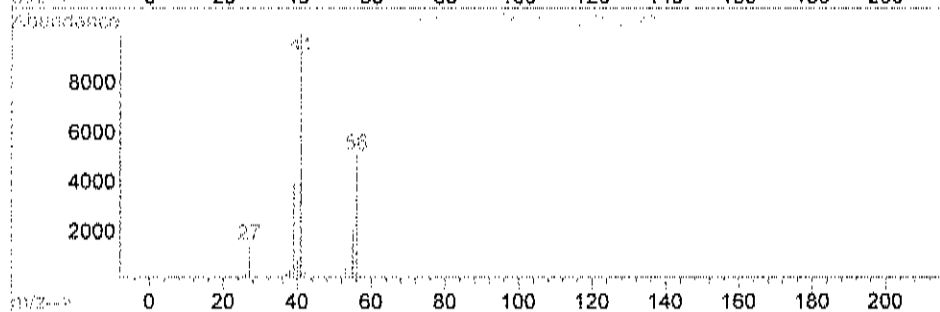
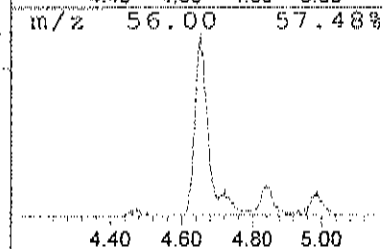
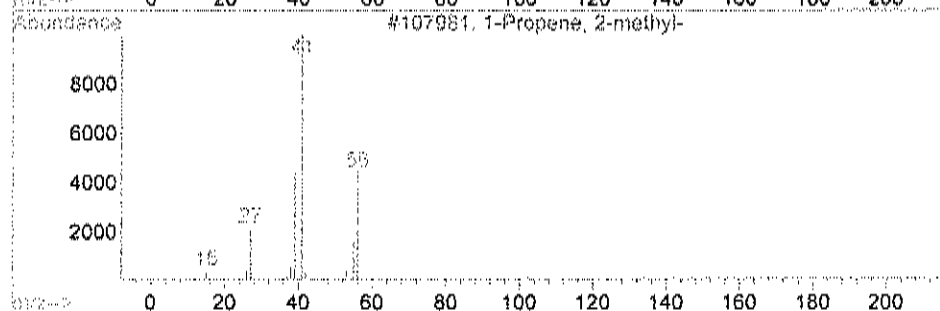
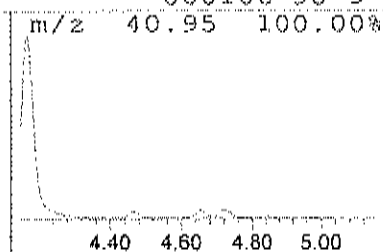
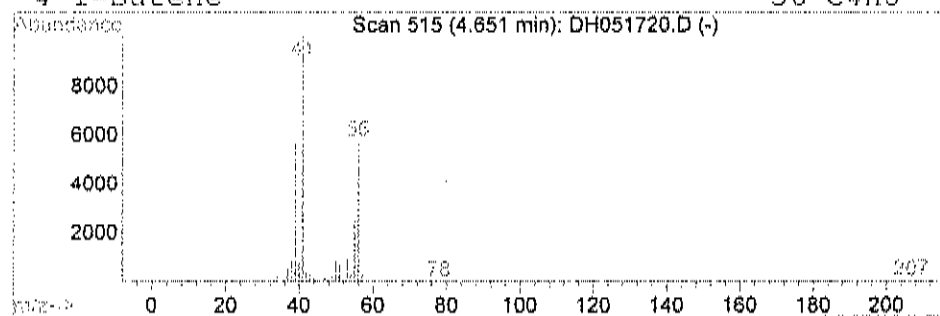
Vial: 15
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 4 1-Propene, 2-methyl- Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.65	9.98 ppb	110666	Bromochloromethane	9.95

Hit#	of 5	Tentative ID	MW	MolForm	CAS#	Qual
1		1-Propene, 2-methyl-	56	C4H8	000115-11-7	87
2		1-Propene, 2-methyl-	56	C4H8	000115-11-7	68
3		2-Butene \$\$.beta.-Butene \$\$.beta.	56	C4H8	000107-01-7	59
4		1-Butene	56	C4H8	000106-98-9	52



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051720.D
Acq On : 17 May 2017 7:56 pm
Sample : C1705036-014A 10X
Misc : TO15
MS Integration Params: LSCINT.P

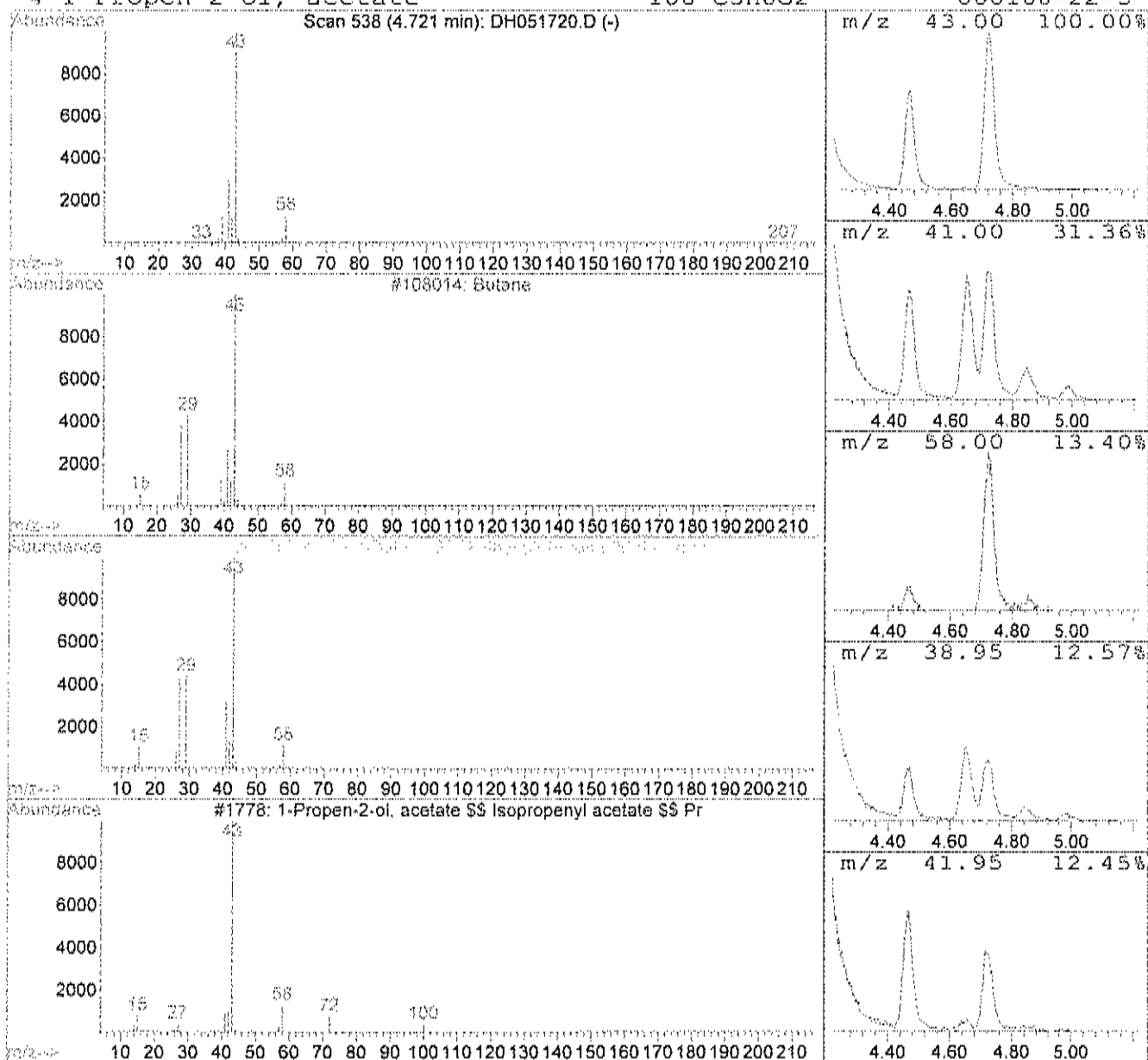
Vial: 15
Operator: WD
Inst : GCMS3
Multiplier: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 5 Butane Concentration Rank 4

R.T.	EstCone	Area	Relative to ISTD	R.T.
4.72	17.47 ppb	193662	Bromochloromethane	9.95

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Butane	58	C4H10	000106-97-8	72
2			Butane \$\$ n-Butane \$\$ Diethyl \$\$ Fr	58	C4H10	000106-97-8	64
3			1-Propen-2-ol, acetate \$\$ Isopropanol	100	C5H8O2	000108-22-5	50
4			1-Propen-2-ol, acetate	100	C5H8O2	000108-22-5	9



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051720.D
Acq On : 17 May 2017 7:56 pm
Sample : C1705036-014A 10X
Misc : TO15
MS Integration Params: LSCINT.P

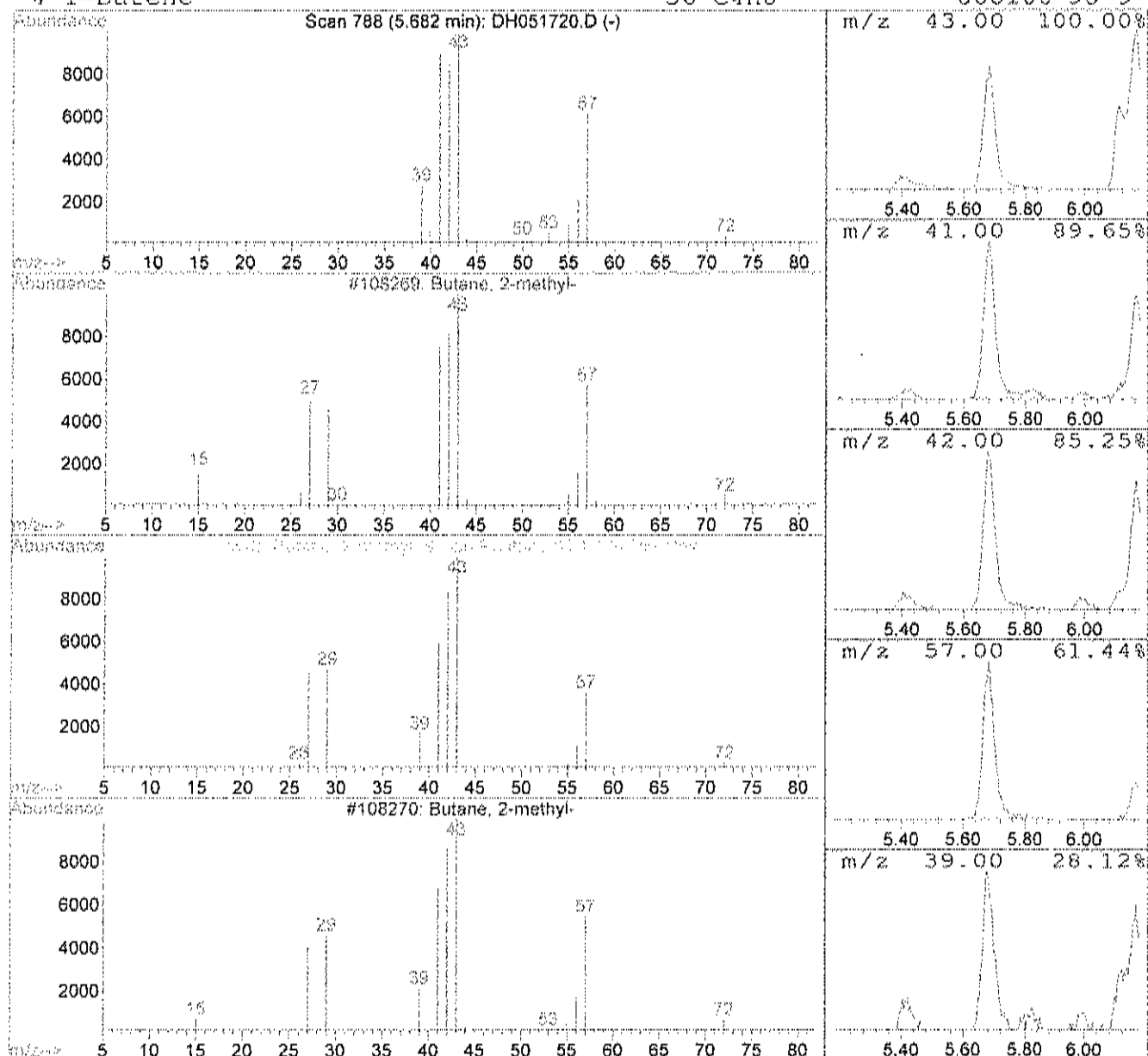
Vial: 15
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 6 Butane, 2-methyl- Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
5.68	13.63 ppb	151091	Bromochloromethane	9.95

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Butane, 2-methyl-	72	C5H12	000078-78-4	90
2			Butane, 2-methyl- \$\$ iso-Pentane \$\$	72	C5H12	000078-78-4	78
3			Butane, 2-methyl-	72	C5H12	000078-78-4	74
4			1-Butene	56	C4H8	000106-98-9	10



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051720.D
Acq On : 17 May 2017 7:56 pm
Sample : C1705036-014A 10X
Misc : TO15
MS Integration Params: LSCINT.P

Vial: 15
Operator: WD
Inst : GCMS3
Multiplr: 1.00

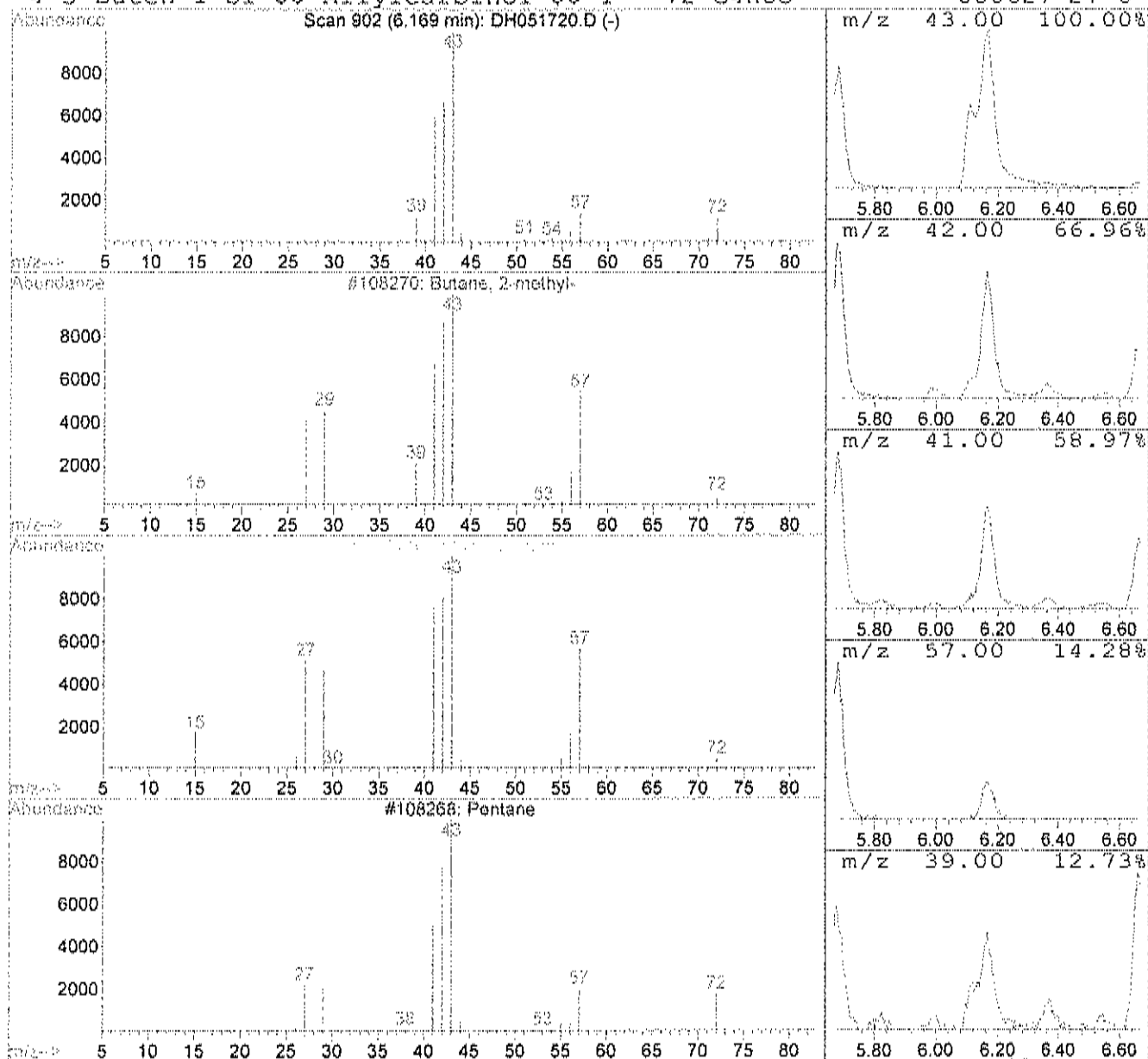
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Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 7 unknown

Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.17	10.64 ppb	118000	Bromochloromethane	9.95

Hit#	of 5	Tentative ID	MW	MolForm	CAS#	Qual
1		Butane, 2-methyl-	72	C5H12	000078-78-4	56
2		Butane, 2-methyl-	72	C5H12	000078-78-4	9
3		Pentane	72	C5H12	000109-66-0	9
4		3-Buten-1-ol \$\$ Allylcarbinol \$\$ 1-	72	C4H8O	000627-27-0	7



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051720.D
Acq On : 17 May 2017 7:56 pm
Sample : C1705036-014A 10X
Misc : TO15
MS Integration Params: LSCINT.P

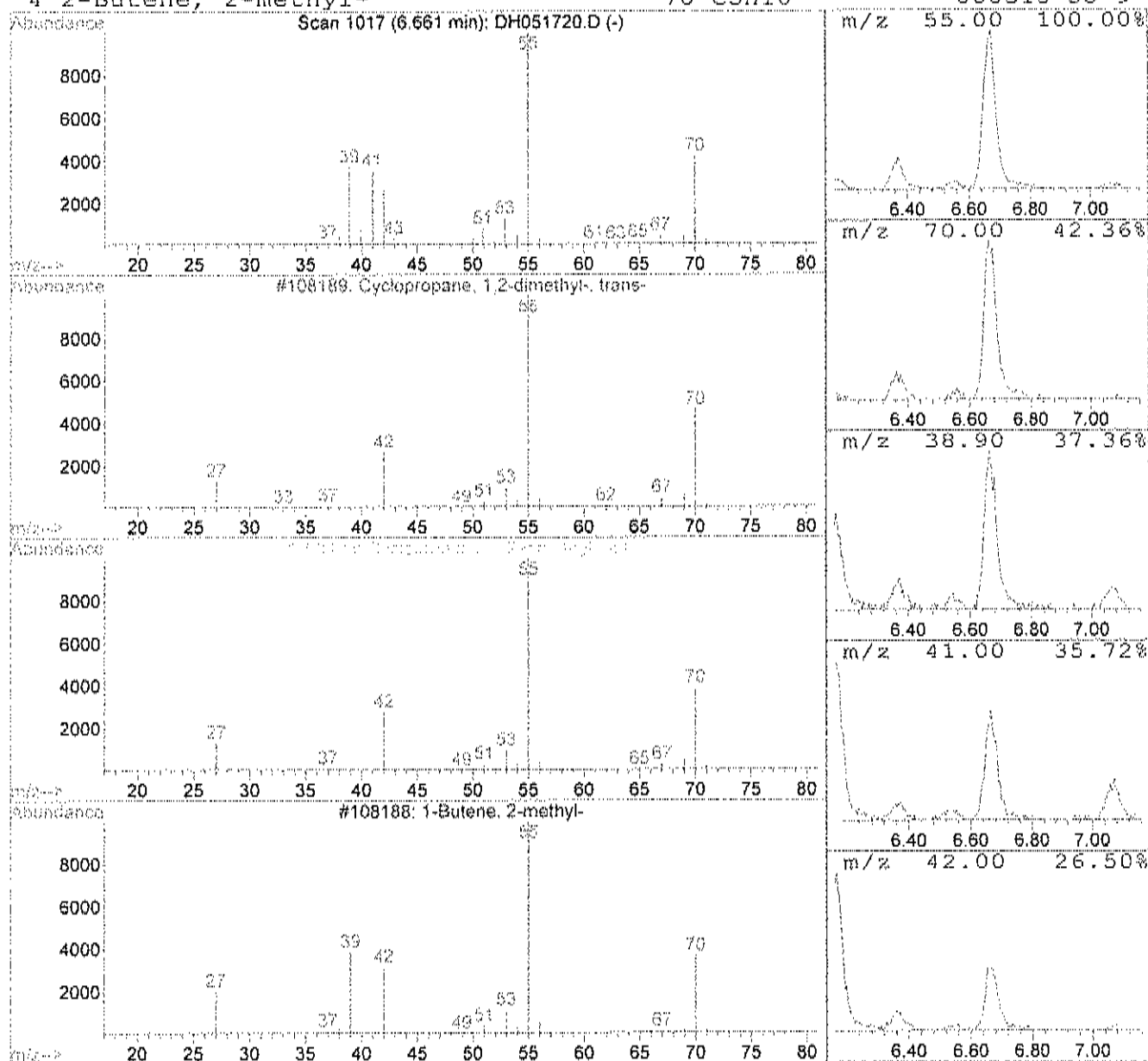
Vial: 15
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 8 Cyclopropane, 1,2-dimethyl-, t Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.66	11.64 ppb	129015	Bromochloromethane	9.95

Hit#	of 5	Tentative ID	MW	MolForm	CAS#	Qual
1		Cyclopropane, 1,2-dimethyl-, trans-	70	C5H10	002402-06-4	91
2		Cyclopropane, 1,2-dimethyl-, cis-	70	C5H10	000930-18-7	91
3		1-Butene, 2-methyl-	70	C5H10	000563-46-2	90
4		2-Butene, 2-methyl-	70	C5H10	000513-35-9	90



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051720.D
Acq On : 17 May 2017 7:56 pm
Sample : C1705036-014A 10X
Misc : T015
MS Integration Params: LSCINT.P

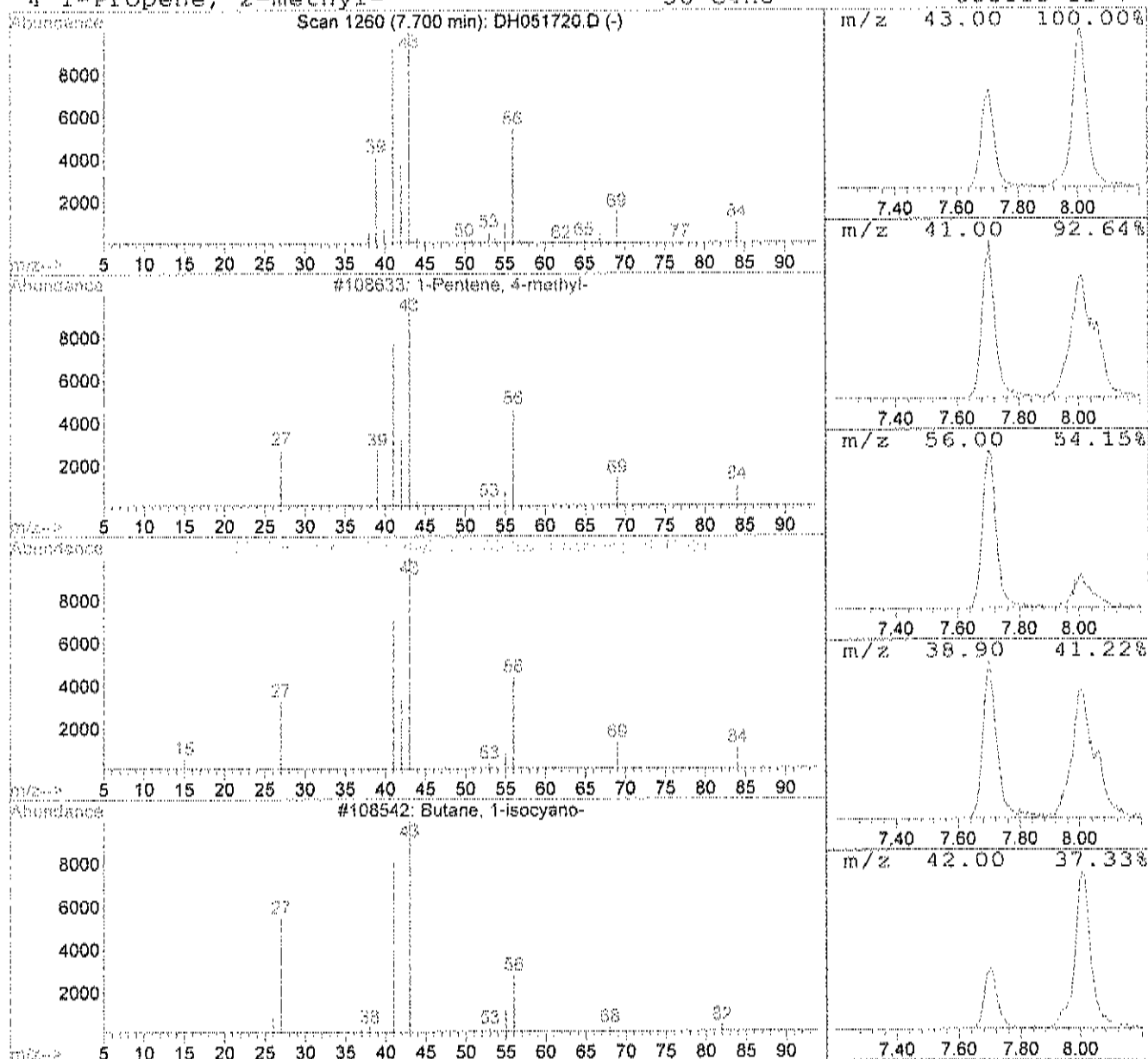
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Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 9 1-Pentene, 4-methyl- Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
7.70	23.81 ppb	263900	Bromochloromethane	9.95

Hit#	of 5	Tentative ID	MW	MolForm	CAS#	Qual
1		1-Pentene, 4-methyl-	84	C6H12	000691-37-2	91
2		1-Pentene, 4-methyl- \$\$ 4-Methyl-1-	84	C6H12	000691-37-2	91
3		Butane, 1-isocyano-	83	C5H9N	002769-64-4	50
4		1-Propene, 2-methyl-	56	C4H8	000115-11-7	38



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA2\DH051720.D
Acq On : 17 May 2017 7:56 pm
Sample : C1705036-014A 10X
Misc : T015
MS Integration Params: LSCINT.P

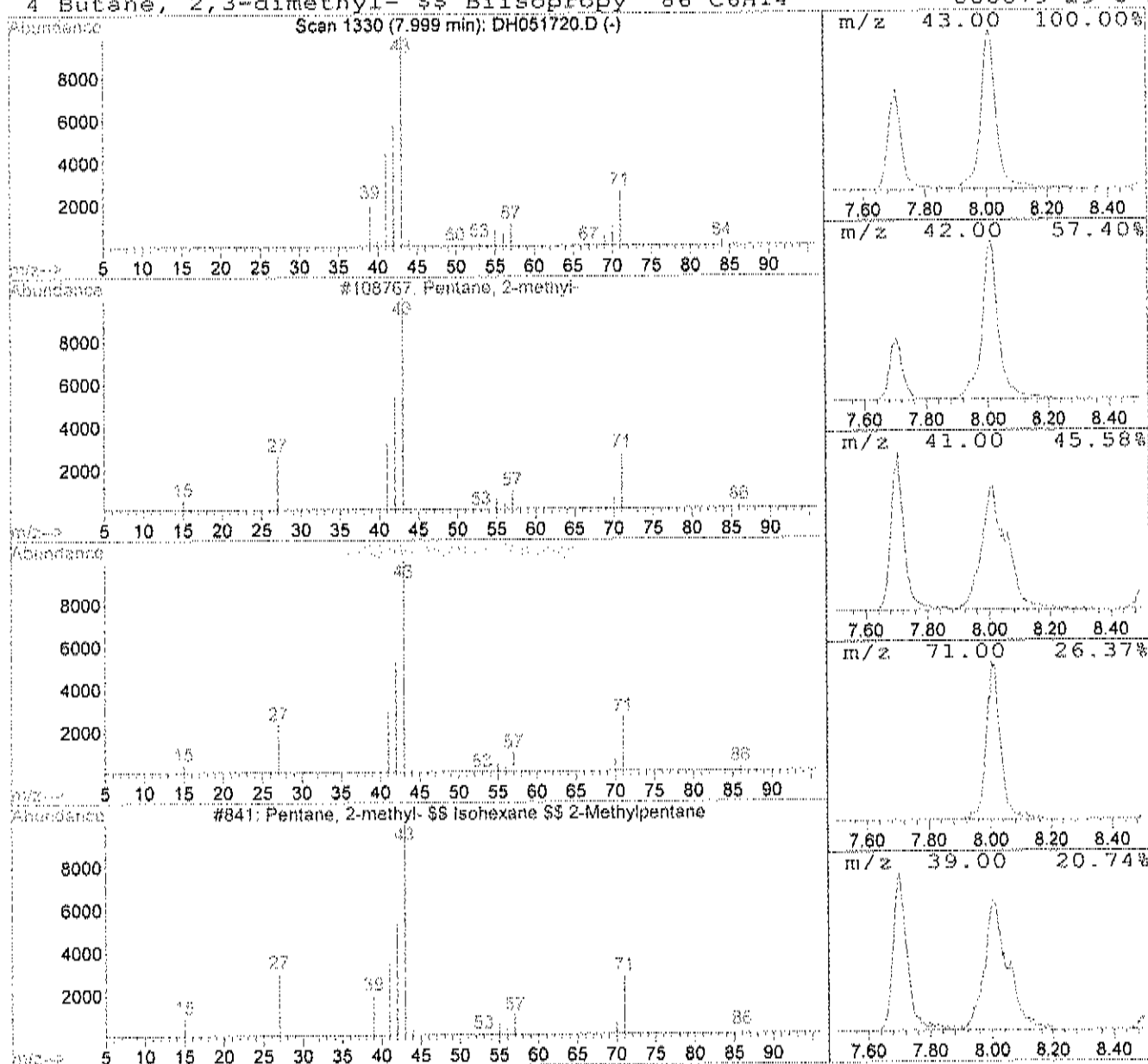
Vial: 15
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NIST129.L

Peak Number 10 Pentane, 2-methyl- Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
8.00	43.92 ppb	486829	Bromochloromethane	9.95

Hit#	of	5	Tentative ID	MW	MolForm	CAS#	Qual
1			Pentane, 2-methyl-	86	C6H14	000107-83-5	86
2			Pentane, 2-methyl-	86	C6H14	000107-83-5	86
3			Pentane, 2-methyl- \$\$ Isohexane \$\$	86	C6H14	000107-83-5	83
4			Butane, 2,3-dimethyl- \$\$ Biisopropy	86	C6H14	000079-29-8	58



Tentatively Identified Compound (LSC) summary

Operator ID: WD Date Acquired: 17 May 2017 7:56 pm
 Data File: C:\HPCHEM\1\DATA2\DH051720.D
 Name: C1705036-014A 10X
 Misc: TO15
 Method: C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title: VOA Standards for 5 point calibration
 Library Searched: C:\DATABASE\NIST129.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc
Hydrogen sulfide \$S	4.09	94.1	ppb	1042740	ISTD01	9.95	554271	50.0
Ethane, 1-chloro-1,1	4.38	7.3	ppb	81118	ISTD01	9.95	554271	50.0
Isobutane	4.46	10.9	ppb	120475	ISTD01	9.95	554271	50.0
1-Propene, 2-methyl-	4.65	10.0	ppb	110666	ISTD01	9.95	554271	50.0
Butane	4.72	17.5	ppb	193662	ISTD01	9.95	554271	50.0
Butane, 2-methyl-	5.68	13.6	ppb	151091	ISTD01	9.95	554271	50.0
unknown	6.17	10.6	ppb	118000	ISTD01	9.95	554271	50.0
Cyclopropane, 1,2-di	6.66	11.6	ppb	129015	ISTD01	9.95	554271	50.0
1-Pentene, 4-methyl-	7.70	23.8	ppb	263900	ISTD01	9.95	554271	50.0
Pentane, 2-methyl-	8.00	43.9	ppb	486829	ISTD01	9.95	554271	50.0

DH051720.D I0511T15.M Mon Jun 19 14:55:50 2017

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051813.D
 Acq On : 18 May 2017 3:50 pm
 Sample : C1705036-014A 80X
 Misc : TO15

Vial: 15
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: Jun 1 12:01 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	72585m	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	396415	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	313648	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	171012	38.44	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	76.88%

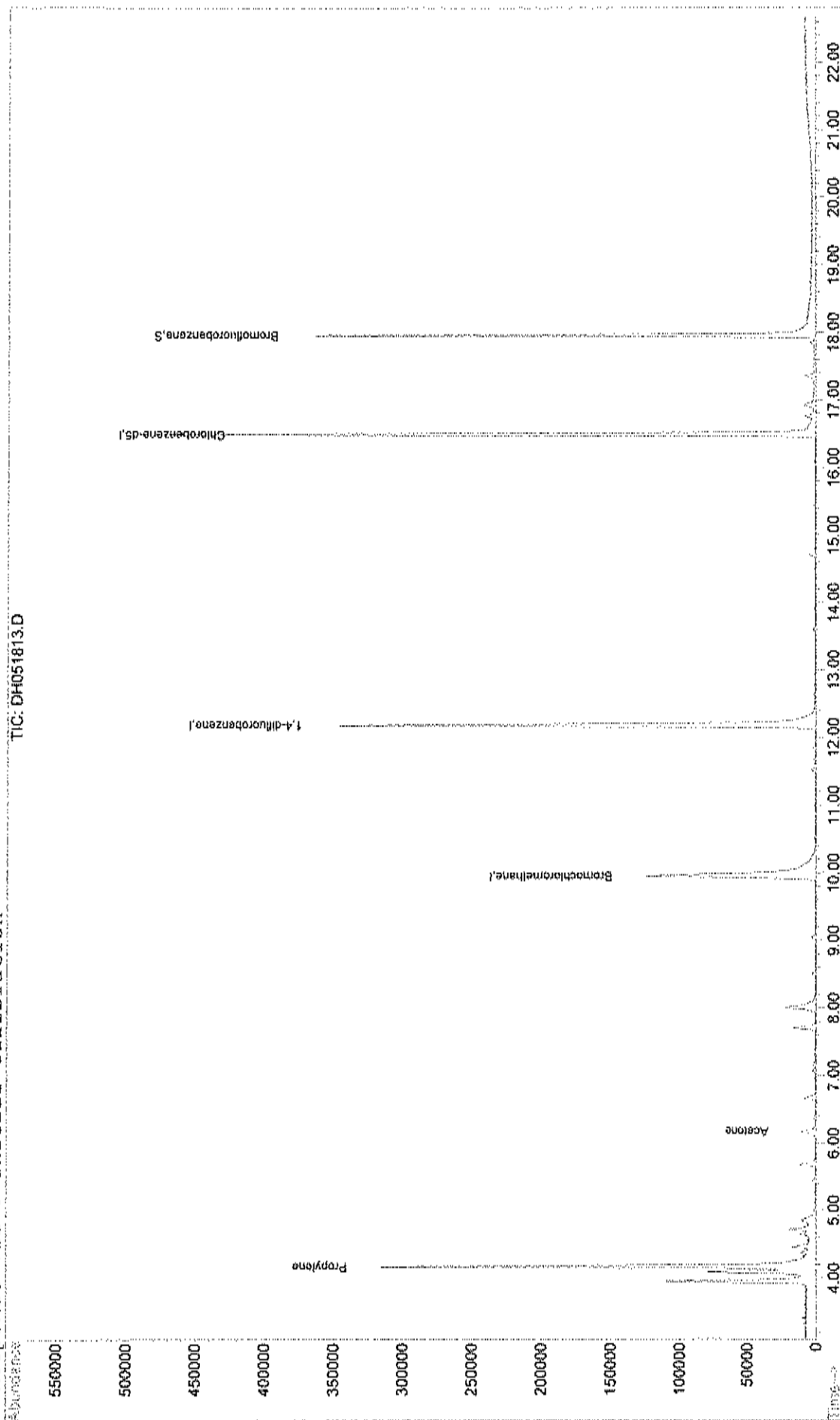
Target Compounds

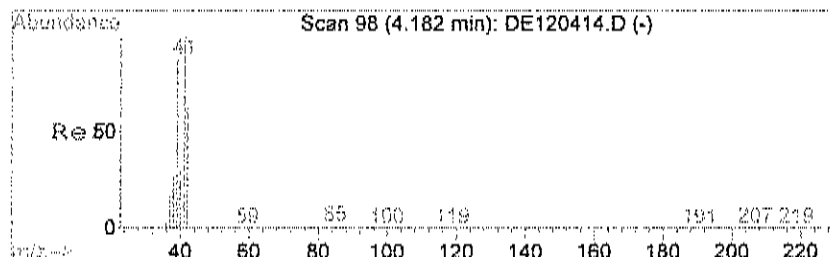
	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.16	41	178877	76.11	ppb	93
16) Acetone	6.17	43	15376	5.63	ppb	# 52

Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051813.D
Acq On : 18 May 2017 3:50 pm
Sample : C1705036-014A 80X
Misc : T015
MS Integration Params: rteint.p
Quant Time: Jun 1 12:01 2017
Quant Results File: I0511T15.RES

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration





#2

Propylene

Concen: 76.11 ppb

RT: 4.16 min Scan# 354

Delta R.T. -0.02 min

Lab File: DH051813.D

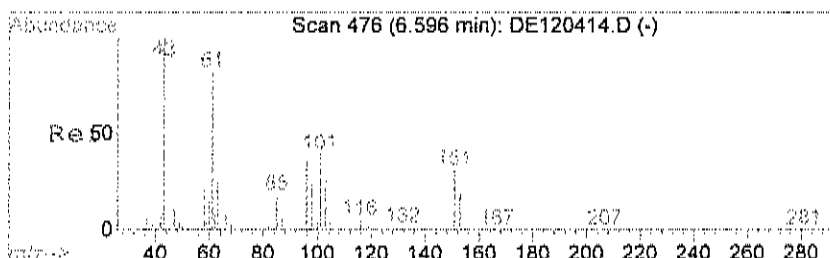
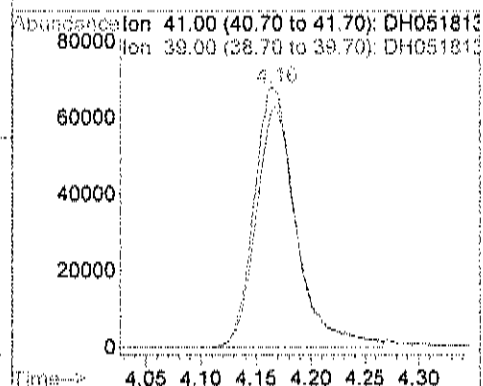
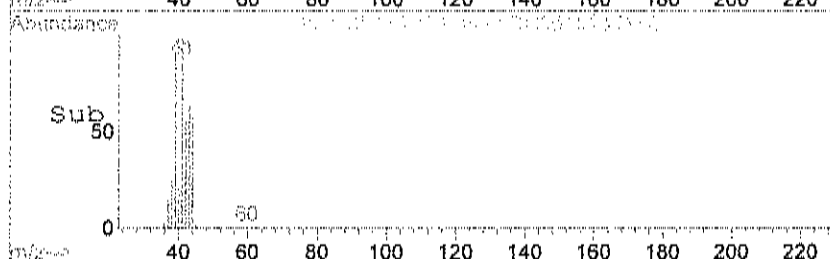
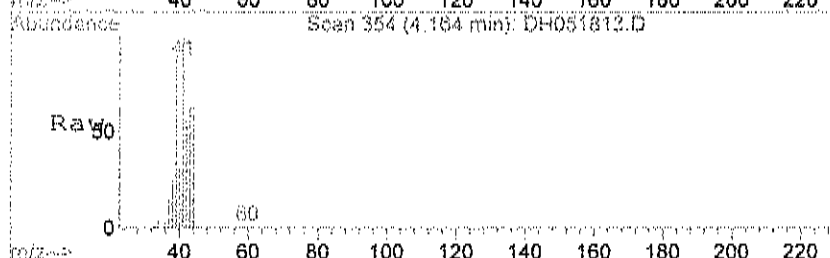
Acq: 18 May 2017 3:50 pm

Tgt Ion: 41 Resp: 178877

Ion Ratio Lower Upper

41 100

39 90.8 42.4 127.1



#16

Acetone

Concen: 5.63 ppb

RT: 6.17 min Scan# 901

Delta R.T. 0.06 min

Lab File: DH051813.D

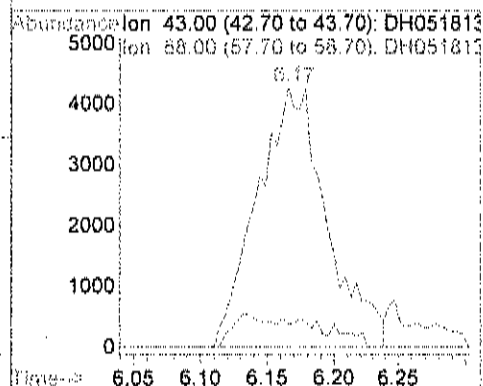
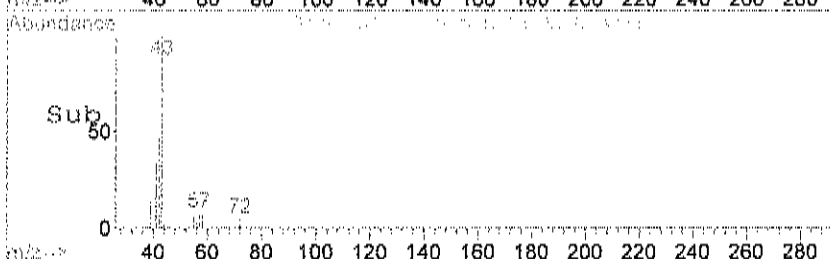
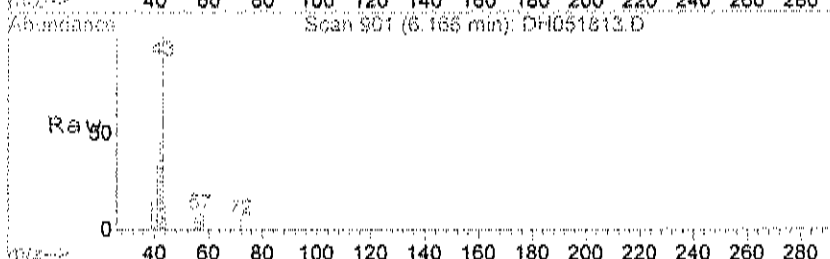
Acq: 18 May 2017 3:50 pm

Tgt Ion: 43 Resp: 15376

Ion Ratio Lower Upper

43 100

58 0.0 3.7 43.7#



GC/MS VOLATILES-WHOLE AIR

METHOD TO-15

STANDARDS DATA

GC/MS VOLATILES-WHOLE AIR

METHOD TO-15

INITIAL CALIBRATION

Response Factor Report GCMS3

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration

Calibration Files

5 =DH051109.D 10 =DH051108.D 25 =DH051107.D
 50 =DH051106.D 75 =DH051105.D 100 =DH051104.D

Compound		5	10	25	50	75	100	Avg	%RSD
-----		-----							
1) I	Bromochloromethane	-----ISTD-----							
2)	Propylene	1.984	1.790	1.574	1.496	1.380	1.489	1.619	13.91
3)	Freon 12	5.637	4.988	4.549	4.255	3.897	4.054	4.563	14.31
4)	Freon 114	7.133	6.080	5.067	4.739	4.642	5.124	5.464	17.63
5)	Chloromethane	2.154	2.020	1.486	1.391	1.405	1.710	1.694	19.34
6)	Acetaldehyde	0.516	0.339	0.293	0.332	0.296	0.363	0.357	23.20
7)	Vinyl Chloride	2.237	1.791	1.551	1.527	1.457	1.610	1.696	17.00
8)	Butane	3.099	2.022	1.847	1.619	1.608	1.845	2.007	27.77
9)	1,3-butadiene	1.616	1.127	1.088	1.016	0.985	1.074	1.151	20.29
10)	Bromomethane	2.490	1.711	1.567	1.468	1.336	1.421	1.665	25.45
11)	Chloroethane	1.167	1.015	0.876	0.848	0.771	0.795	0.912	16.61
12)	Ethanol	0.772	0.620	0.701	0.679	0.644	0.644	0.677	8.14
13)	Vinyl Bromide	1.593	1.474	1.404	1.335	1.228	1.241	1.379	10.20
14)	Freon 11	5.353	4.841	4.257	4.020	3.772	3.925	4.361	14.06
15)	Acrolein	0.685	0.549	0.659	0.612	0.565	0.535	0.601	10.28
16)	Acetone	1.751	1.610	2.061	2.014	1.913	1.931	1.880	9.03
17)	Pentane	5.636	4.877	4.247	3.850	3.637	3.831	4.346	17.72
18)	Isopropyl alcohol	3.879	3.368	3.280	3.009	2.744	2.940	3.203	12.55
19)	1,1-Dichloroethene	1.603	1.495	1.397	1.333	1.220	1.247	1.383	10.65
20)	Freon 113	3.810	3.417	3.039	2.972	2.765	2.831	3.139	12.74
21)	t-butyl alcohol	4.503	4.091	3.937	3.747	3.323	3.467	3.845	11.20
22)	Allyl chloride	2.632	2.486	2.390	2.312	2.207	2.330	2.393	6.22
23)	Methylene Chloride	1.564	1.291	1.325	1.232	1.151	1.164	1.288	11.76
24)	Carbon disulfide	4.685	3.676	3.780	3.743	3.299	3.336	3.753	13.35
25)	trans-1,2-dichloroe	2.037	2.006	2.201	2.206	2.055	2.157	2.110	4.18
26)	methyl tert-butyl e	6.253	5.712	5.273	4.949	4.680	4.767	5.272	11.58
27)	Vinyl acetate	4.033	3.899	4.394	4.461	4.205	4.430	4.237	5.47
28)	1,1-Dichloroethane	3.792	3.623	3.240	3.058	2.860	2.945	3.253	11.63
29)	Methyl Ethyl Ketone	0.748	0.730	0.830	0.832	0.784	0.802	0.788	5.35
30)	Hexane	2.741	2.398	2.212	2.133	2.021	2.127	2.272	11.52
31)	cis-1,2-dichloroeth	1.606	1.561	1.567	1.515	1.418	1.417	1.514	5.29
32)	Ethyl acetate	0.675	0.546	0.619	0.599	0.564	0.584	0.598	7.65
33)	Chloroform	4.231	3.858	3.547	3.396	3.184	3.261	3.579	11.14
34)	Tetrahydrofuran	2.548	2.235	2.268	2.170	2.081	2.151	2.242	7.30
35)	1,1,1-Trichloroetha	4.414	4.031	3.684	3.567	3.373	3.460	3.755	10.54
36)	1,2-Dichloroethane	2.542	2.283	2.248	2.200	2.102	2.194	2.262	6.65
37)	Benzene	6.811	6.266	5.693	5.455	5.241	5.393	5.810	10.46
38)	Carbon Tetrachlorid	4.463	4.104	3.847	3.720	3.622	3.796	3.925	7.88
39)	Cyclohexane	3.806	3.421	3.102	2.965	2.814	2.905	3.169	11.91
40) I	1,4-difluorobenzene	-----ISTD-----							
41)	2,2,4-trimethylpent	2.122	1.654	1.710	1.663	1.553	1.596	1.716	12.00
42)	Heptane	0.816	0.652	0.672	0.647	0.605	0.628	0.670	11.23
43)	Trichloroethene	0.421	0.375	0.399	0.399	0.376	0.381	0.392	4.49
44)	1,2-Dichloropropane	0.507	0.402	0.410	0.396	0.365	0.373	0.409	12.50
45)	Methyl methacrylate	0.493	0.430	0.502	0.501	0.477	0.494	0.483	5.65
46)	1,4-dioxane	0.245	0.203	0.212	0.206	0.192	0.197	0.209	8.98
47)	Bromodichloromethan	0.848	0.672	0.706	0.699	0.660	0.681	0.711	9.72
48)	Methyl Isobutyl Ket	0.978	0.792	0.856	0.826	0.784	0.821	0.843	8.42
49)	cis-1,3-Dichloropro	0.567	0.496	0.560	0.567	0.538	0.550	0.546	4.97
50)	trans-1,3-Dichlorop	0.451	0.389	0.479	0.500	0.482	0.506	0.468	9.21
51)	1,1,2-Trichloroetha	0.518	0.430	0.457	0.443	0.428	0.435	0.452	7.55
52)	Toluene	0.873	0.701	0.715	0.713	0.665	0.683	0.725	10.36
53)	Methyl Butyl Ketone	0.708	0.600	0.710	0.721	0.690	0.734	0.694	6.94
54)	Dibromochloromethan	0.772	0.625	0.722	0.751	0.719	0.775	0.727	7.60

(#) = Out of Range

I0511T15.M

Thu Jun 01 08:43:46 2017

Page 1

Response Factor Report GCMS3

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration

Calibration Files

5 =DH051109.D 10 =DH051108.D 25 =DH051107.D
 50 =DH051106.D 75 =DH051105.D 100 =DH051104.D

Compound		5	10	25	50	75	100	Avg	%RSD
55)	Tetrachloroethylene	0.494	0.409	0.440	0.459	0.451	0.474	0.455	6.45
56)	1,2-dibromoethane	0.602	0.508	0.578	0.596	0.573	0.596	0.575	6.06
57) I	Chlorobenzene-d5	-----ISTD-----							
58)	Chlorobenzene	1.273	1.041	1.120	1.123	1.033	1.042	1.105	8.31
59)	Ethylbenzene	0.726	0.567	0.616	0.609	0.561	0.572	0.609	10.20
60)	m&p-Xylene	0.851	0.700	0.748	0.763	0.713	0.738	0.752	7.15
61)	Nonane	1.302	1.006	1.136	1.130	1.027	1.065	1.111	9.68
62)	Styrene	1.081	0.912	1.088	1.146	1.068	1.124	1.070	7.72
63)	o-xylene	1.911	1.490	1.586	1.596	1.479	1.540	1.600	9.97
64)	Bromoform	0.843	0.701	0.820	0.874	0.837	0.893	0.828	8.13
65)	1,1,2,2-Tetrachloro	1.228	0.965	1.087	1.101	1.015	1.070	1.078	8.30
66)	Cumene	2.465	1.951	2.138	2.171	2.014	2.098	2.140	8.36
67) S	Bromofluorobenzene	0.621	0.661	0.711	0.747	0.753	0.763	0.709	8.07
68)	Propylbenzene	2.261	1.978	2.459	2.643	2.353	2.603	2.383	10.31
69)	2-Chlorotoluene	0.569	0.449	0.508	0.524	0.491	0.517	0.510	7.80
70)	4-ethyltoluene	1.724	1.485	1.894	2.064	1.956	2.086	1.868	12.26
71)	1,3,5-trimethylbenz	1.864	1.568	1.757	1.797	1.671	1.796	1.742	6.09
72)	1,2,4-trimethylbenz	1.624	1.387	1.646	1.731	1.636	1.739	1.627	7.85
73)	1,3-dichlorobenzene	0.649	0.633	0.844	0.945	0.922	1.044	0.839	19.88
74)	benzyl chloride	0.893	0.801	0.941	1.128	1.127	1.211	1.017	15.84
75)	1,4-dichlorobenzene	0.809	0.680	0.764	0.905	0.926	1.077	0.860	16.24
76)	1,2,3-Trimethylbenz	1.714	1.619	1.753	1.835	1.749	1.853	1.754	4.85
77)	1,2-dichlorobenzene	0.791	0.719	0.903	0.986	0.952	1.014	0.894	13.00
78)	1,2,4-trichlorobenz	0.483	0.415	0.413	0.533	0.568	0.618	0.505	16.45
79)	Naphthalene	0.865	1.037	0.995	1.103	1.070	1.177	1.041	10.19
80)	Hexachloro-1,3-buta	0.909	0.751	0.864	1.026	1.076	1.174	0.967	15.95

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051104.D
 Acq On : 11 May 2017 10:08 am
 Sample : DSTD100_TO15
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: May 11 11:48 2017

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 11:45:50 2017
 Response via : Continuing Cal File: C:\HPCHEM\1\DATA\DH051106.D
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	126048	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.19	114	715839	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	635035	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	484670	51.06	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	102.12%

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.17	41	375310	99.49	ppb	85
3) Freon 12	4.23	85	1022035	95.29	ppb	98
4) Freon 114	4.44	85	1291806	108.13	ppb	88
5) Chloromethane	4.44	50	430967	122.92	ppb	86
6) Acetaldehyde	4.65	44	91529	109.23	ppb	94
7) Vinyl Chloride	4.64	62	405801	105.41	ppb	98
8) Butane	4.74	43	465204	113.98	ppb	94
9) 1,3-butadiene	4.75	54	270677	105.70	ppb	86
10) Bromomethane	5.11	94	358127	96.77	ppb	100
11) Chloroethane	5.29	64	200291	93.71	ppb	98
12) Ethanol	5.41	45	162391	94.92	ppb	94
13) Vinyl Bromide	5.63	106	312751	92.90	ppb	100
14) Freon 11	5.91	101	989444	97.64	ppb	100
15) Acrolein	6.00	56	134757	87.30	ppb	97
16) Acetone	6.10	43	486817	95.90	ppb	72
17) Pentane	6.19	43	965865	99.51	ppb	92
18) Isopropyl alcohol	6.21	45	741169	97.71	ppb	# 1
19) 1,1-Dichloroethene	6.69	96	314463	93.60	ppb	92
20) Freon 113	6.88	101	713653	95.25	ppb	96
21) t-butyl alcohol	6.94	59	874093	92.52	ppb	98
22) Allyl chloride	7.15	41	587452	100.81	ppb	96
23) Methylene Chloride	7.17	84	293522	94.49	ppb	93
24) Carbon disulfide	7.33	76	840943	89.13	ppb	99
25) trans-1,2-dichloroethene	8.12	61	543848	97.81	ppb	100
26) methyl tert-butyl ether	8.13	73	1201648	96.31	ppb	99
27) Vinyl acetate	8.53	43	1116677	99.29	ppb	99
28) 1,1-Dichloroethane	8.55	63	742368	96.30	ppb	98
29) Methyl Ethyl Ketone	9.05	72	202166	96.44	ppb	# 82
30) Hexane	9.06	41	536200	99.71	ppb	# 66
31) cis-1,2-dichloroethene	9.50	96	357104	93.48	ppb	98
32) Ethyl acetate	9.64	45	147229	97.44	ppb	95
33) Chloroform	10.12	83	822007	96.02	ppb	98
34) Tetrahydrofuran	10.28	42	542270	99.13	ppb	91
35) 1,1,1-Trichloroethane	10.92	97	872314	97.00	ppb	98
36) 1,2-Dichloroethane	11.23	62	553224	99.76	ppb	99
37) Benzene	11.53	78	1359617	98.86	ppb	96
38) Carbon Tetrachloride	11.55	117	957018	102.06	ppb	98
39) Cyclohexane	11.60	56	732312	97.99	ppb	90
41) 2,2,4-trimethylpentane	12.32	57	2285395	96.00	ppb	92
42) Heptane	12.64	43	898916	97.05	ppb	96
43) Trichloroethene	12.79	130	546181	95.70	ppb	98
44) 1,2-Dichloropropane	12.90	63	533807	94.24	ppb	99
45) Methyl methacrylate	13.00	41	706745	98.46	ppb	91
46) 1,4-dioxane	13.03	88	281772	95.41	ppb	90
47) Bromodichloromethane	13.22	83	975395	97.46	ppb	99

(#)=qualifier out of range (m)=manual integration

DH051104.D I0511T15.M

Thu Jun 01 08:45:47 2017

Page 1

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051104.D
 Acq On : 11 May 2017 10:08 am
 Sample : DSTD100_TO15
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: May 11 11:48 2017

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 11:45:50 2017
 Response via : Continuing Cal File: C:\HPCHEM\1\DATA\DH051106.D
 DataAcq Meth : NEW1

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
48) Methyl Isobutyl Ketone	13.87	43	1176036	99.46	ppb	95
49) cis-1,3-Dichloropropene	13.95	75	788056	97.07	ppb	99
50) trans-1,3-Dichloropropene	14.64	75	725125	101.39	ppb	96
51) 1,1,2-Trichloroethane	14.94	97	623110	98.30	ppb	99
52) Toluene	14.70	92	978221	95.90	ppb	98
53) Methyl Butyl Ketone	15.09	43	1050528	101.83	ppb	94
54) Dibromochloromethane	15.58	129	1108963	103.17	ppb	100
55) Tetrachloroethylene	15.64	164	678554	103.32	ppb	97
56) 1,2-dibromoethane	15.81	107	853064	99.89	ppb	99
58) Chlorobenzene	16.53	112	1324008	92.83	ppb	99
59) Ethylbenzene	16.75	106	726513	93.89	ppb	92
60) m&p-Xylene	16.93	106	1874380	193.40	ppb	
61) Nonane	17.24	43	1352780	94.22	ppb	98
62) Styrene	17.33	104	1427310	98.05	ppb	98
63) o-xylene	17.35	91	1955624	96.48	ppb	93
64) Bromoform	17.45	173	1133638	102.17	ppb	99
65) 1,1,2,2-Tetrachloroethane	17.76	83	1359559	97.20	ppb	98
66) Cumene	17.84	105	2665226	96.64	ppb	96
68) Propylbenzene	18.31	91	3305682	98.48	ppb	99
69) 2-Chlorotoluene	18.35	126	656182	98.54	ppb	79
70) 4-ethyltoluene	18.45	105	2649868	101.11	ppb	95
71) 1,3,5-trimethylbenzene	18.49	105	2281049	99.95	ppb	95
72) 1,2,4-trimethylbenzene	18.88	105	2208295	100.43	ppb	94
73) 1,3-dichlorobenzene	19.13	146	1326206	110.45	ppb	98
74) benzyl chloride	19.19	91	1537440	107.29	ppb	98
75) 1,4-dichlorobenzene	19.24	146	1367614	118.95	ppb	97
76) 1,2,3-Trimethylbenzene	19.27	105	2353761	101.02	ppb	92
77) 1,2-dichlorobenzene	19.50	146	1288309	102.86	ppb	98
78) 1,2,4-trichlorobenzene	21.02	180	784518	115.97	ppb	100
79) Naphthalene	21.19	128	1494385	106.67	ppb	98
80) Hexachloro-1,3-butadiene	21.26	225	1491592	114.49	ppb	98

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051105.D
 Acq On : 11 May 2017 10:44 am
 Sample : DSTD75_TO15
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: May 11 11:47 2017

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 11:45:50 2017
 Response via : Continuing Cal File: C:\HPCHEM\1\DATA\DH051106.D
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.96	128	137676	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	780956	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	683530	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	514513	50.36	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	100.72%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.17	41	284965	69.16	ppb	86
3) Freon 12	4.23	85	804733	68.69	ppb	99
4) Freon 114	4.43	85	958605	73.46	ppb	# 83
5) Chloromethane	4.43	50	290133	75.76	ppb	86
6) Acetaldehyde	4.64	44	61036	66.69	ppb	97
7) Vinyl Chloride	4.63	62	300959	71.57	ppb	97
8) Butane	4.73	43	332087	74.49	ppb	96
9) 1,3-butadiene	4.74	54	203427	72.73	ppb	88
10) Bromomethane	5.11	94	275983	68.28	ppb	99
11) Chloroethane	5.28	64	159280	68.23	ppb	98
12) Ethanol	5.41	45	132913	71.13	ppb	93
13) Vinyl Bromide	5.63	106	253699	69.00	ppb	100
14) Freon 11	5.91	101	778968	70.38	ppb	100
15) Acrolein	6.00	56	116580	69.15	ppb	100
16) Acetone	6.09	43	395122	71.27	ppb	73
17) Pentane	6.18	43	751185	70.85	ppb	91
18) Isopropyl alcohol	6.20	45	566639	68.39	ppb	# 73
19) 1,1-Dichloroethene	6.69	96	251997	68.67	ppb	91
20) Freon 113	6.88	101	571090	69.79	ppb	96
21) t-butyl alcohol	6.92	59	686157	66.50	ppb	99
22) Allyl chloride	7.15	41	455781	71.61	ppb	98
23) Methylene Chloride	7.17	84	237624	70.04	ppb	95
24) Carbon disulfide	7.33	76	681319	66.11	ppb	99
25) trans-1,2-dichloroethene	8.12	61	424403	69.88	ppb	99
26) methyl tert-butyl ether	8.12	73	966549	70.93	ppb	100
27) Vinyl acetate	8.53	43	868488	70.70	ppb	99
28) 1,1-Dichloroethane	8.55	63	590527	70.13	ppb	98
29) Methyl Ethyl Ketone	9.04	72	161986	70.75	ppb	# 1
30) Hexane	9.06	41	417462	71.07	ppb	# 62
31) cis-1,2-dichloroethene	9.49	96	292899	70.20	ppb	98
32) Ethyl acetate	9.64	45	116418	70.54	ppb	98
33) Chloroform	10.11	83	657552	70.32	ppb	98
34) Tetrahydrofuran	10.27	42	429695	71.92	ppb	93
35) 1,1,1-Trichloroethane	10.92	97	696647	70.92	ppb	98
36) 1,2-Dichloroethane	11.23	62	434110	71.67	ppb	100
37) Benzene	11.52	78	1082263	72.05	ppb	95
38) Carbon Tetrachloride	11.55	117	747943	73.03	ppb	99
39) Cyclohexane	11.60	56	581068	71.18	ppb	89
41) 2,2,4-trimethylpentane	12.31	57	1819479	70.06	ppb	91
42) Heptane	12.64	43	708545	70.12	ppb	97
43) Trichloroethene	12.78	130	440779	70.80	ppb	98
44) 1,2-Dichloropropane	12.90	63	428130	69.28	ppb	99
45) Methyl methacrylate	13.00	41	559278	71.42	ppb	91
46) 1,4-dioxane	13.03	88	225282	69.92	ppb	91
47) Bromodichloromethane	13.21	83	772662	70.76	ppb	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051105.D
 Acq On : 11 May 2017 10:44 am
 Sample : DSTD75_T015
 Misc : T015

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 11 11:47 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 11:45:50 2017
 Response via : Continuing Cal File: C:\HPCHEM\1\DATA\DH051106.D
 DataAcq Meth : NEW1

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
48) Methyl Isobutyl Ketone	13.87	43	918127	71.17	ppb	95
49) cis-1,3-Dichloropropene	13.95	75	630288	71.17	ppb	99
50) trans-1,3-Dichloropropene	14.64	75	564572	72.36	ppb	97
51) 1,1,2-Trichloroethane	14.94	97	501211	72.48	ppb	99
52) Toluene	14.70	92	778755	69.98	ppb	97
53) Methyl Butyl Ketone	15.09	43	808290	71.82	ppb	93
54) Dibromochloromethane	15.58	129	842780	71.87	ppb	98
55) Tetrachloroethylene	15.64	164	528491	73.76	ppb	96
56) 1,2-dibromoethane	15.81	107	670791	72.00	ppb	99
58) Chlorobenzene	16.53	112	1059158	68.99	ppb	100
59) Ethylbenzene	16.75	106	575290	69.08	ppb	92
60) m&p-Xylene	16.93	106	1461623m	140.11	ppb	
61) Nonane	17.24	43	1053319	68.16	ppb	98
62) Styrene	17.32	104	1094793	69.87	ppb	99
63) o-xylene	17.35	91	1516691	69.52	ppb	93
64) Bromoform	17.45	173	858647	71.90	ppb	99
65) 1,1,2,2-Tetrachloroethane	17.76	83	1040182	69.09	ppb	98
66) Cumene	17.84	105	2065153	69.57	ppb	96
68) Propylbenzene	18.31	91	2412984	66.78	ppb	97
69) 2-Chlorotoluene	18.35	126	503673	70.27	ppb	89
70) 4-ethyltoluene	18.45	105	2005872	71.11	ppb	98
71) 1,3,5-trimethylbenzene	18.49	105	1713249	69.74	ppb	93
72) 1,2,4-trimethylbenzene	18.87	105	1677337	70.87	ppb	95
73) 1,3-dichlorobenzene	19.13	146	945498	73.16	ppb	98
74) benzyl chloride	19.19	91	1155110	74.89	ppb	97
75) 1,4-dichlorobenzene	19.24	146	949420	76.72	ppb	97
76) 1,2,3-Trimethylbenzene	19.26	105	1792850	71.48	ppb	92
77) 1,2-dichlorobenzene	19.51	146	976134	72.40	ppb	97
78) 1,2,4-trichlorobenzene	21.02	180	582315	79.97	ppb	99
79) Naphthalene	21.19	128	1097479	72.78	ppb	99
80) Hexachloro-1,3-butadiene	21.26	225	1103102	78.66	ppb	99

(#) = qualifier out of range (m) = manual integration

DH051105.D I0511T15.M Thu Jun 01 08:45:58 2017

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Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051106.D
 Acq On : 11 May 2017 11:19 am
 Sample : DSTD50_TO15
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: May 11 11:44 2017

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Tue May 09 07:34:46 2017
 Response via : Initial Calibration
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	139592	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	779502	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	658072	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	491815	54.92	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	109.84%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.17	41	208892	55.78	ppb	84
3) Freon 12	4.22	85	593911	55.85	ppb	99
4) Freon 114	4.43	85	661506	62.69	ppb	# 81
5) Chloromethane	4.43	50	194136	64.22	ppb	87
6) Acetaldehyde	4.63	44	46398	86.19	ppb	94
7) Vinyl Chloride	4.63	62	213177	65.64	ppb	99
8) Butane	4.73	43	226007	62.94	ppb	97
9) 1,3-butadiene	4.73	54	141804	65.14	ppb	90
10) Bromomethane	5.10	94	204917	50.16	ppb	100
11) Chloroethane	5.27	64	118355	49.74	ppb	97
12) Ethanol	5.39	45	94731	54.66	ppb	95
13) Vinyl Bromide	5.62	106	186409	50.83	ppb	99
14) Freon 11	5.90	101	561141	55.46	ppb	100
15) Acrolein	5.99	56	85470	50.27	ppb	94
16) Acetone	6.09	43	281078	63.36	ppb	71
17) Pentane	6.18	43	537479	51.71	ppb	91
18) Isopropyl alcohol	6.19	45	420044	55.97	ppb	# 75
19) 1,1-Dichloroethene	6.68	96	186041	49.94	ppb	# 89
20) Freon 113	6.87	101	414853	51.62	ppb	96
21) t-butyl alcohol	6.91	59	523115	53.68	ppb	98
22) Allyl chloride	7.14	41	322679	54.40	ppb	98
23) Methylene Chloride	7.16	84	172005	48.99	ppb	95
24) Carbon disulfide	7.33	76	522437	49.38	ppb	99
25) trans-1,2-dichloroethene	8.11	61	307873	53.68	ppb	97
26) methyl tert-butyl ether	8.11	73	690862	51.82	ppb	99
27) Vinyl acetate	8.52	43	622762	60.20	ppb	99
28) 1,1-Dichloroethane	8.54	63	426866	50.87	ppb	99
29) Methyl Ethyl Ketone	9.03	72	116074	53.45	ppb	# 1
30) Hexane	9.05	41	297780	55.41	ppb	# 63
31) cis-1,2-dichloroethene	9.48	96	211533	51.78	ppb	99
32) Ethyl acetate	9.63	45	83666	57.65	ppb	95
33) Chloroform	10.10	83	474032	52.31	ppb	98
34) Tetrahydrofuran	10.27	42	302908	55.14	ppb	94
35) 1,1,1-Trichloroethane	10.92	97	497986	55.49	ppb	99
36) 1,2-Dichloroethane	11.22	62	307076	56.14	ppb	99
37) Benzene	11.52	78	761533	48.69	ppb	96
38) Carbon Tetrachloride	11.54	117	519229	58.73	ppb	98
39) Cyclohexane	11.59	56	413835	50.06	ppb	89
41) 2,2,4-trimethylpentane	12.31	57	1296186	53.31	ppb	91
42) Heptane	12.63	43	504297	56.47	ppb	97
43) Trichloroethene	12.78	130	310724	55.21	ppb	98
44) 1,2-Dichloropropane	12.89	63	308409	52.33	ppb	100
45) Methyl methacrylate	12.99	41	390807	62.40	ppb	91
46) 1,4-dioxane	13.03	88	160795	53.28	ppb	91
47) Bromodichloromethane	13.21	83	544925	56.20	ppb	99

(#) = qualifier out of range (m) = manual integration

DH051106.D I0511T15.M

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Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051106.D

Vial: 1

Acq On : 11 May 2017 11:19 am

Operator: WD

Sample : DSTD50_TO15

Inst : GCMS3

Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 11 11:44 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Tue May 09 07:34:46 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
48) Methyl Isobutyl Ketone	13.86	43	643795	57.46	ppb	95
49) cis-1,3-Dichloropropene	13.94	75	442009	55.83	ppb	99
50) trans-1,3-Dichloropropene	14.64	75	389410	59.90	ppb	97
51) 1,1,2-Trichloroethane	14.94	97	345133	52.94	ppb	99
52) Toluene	14.70	92	555397	52.55	ppb	98
53) Methyl Butyl Ketone	15.08	43	561688	62.29	ppb	93
54) Dibromochloromethane	15.58	129	585241	62.86	ppb	99
55) Tetrachloroethylene	15.63	164	357588	59.04	ppb	97
56) 1,2-dibromoethane	15.81	107	464955	57.67	ppb	99
58) Chlorobenzene	16.53	112	739039	55.25	ppb	99
59) Ethylbenzene	16.75	106	400913	53.86	ppb	92
60) m&p-Xylene	16.93	106	1004346m (u)	110.43	ppb	
61) Nonane	17.24	43	743914	61.25	ppb	98
62) Styrene	17.32	104	754256	58.29	ppb	98
63) o-xylene	17.35	91	1050235	55.14	ppb	93
64) Bromoform	17.45	173	574910	65.63	ppb	100
65) 1,1,2,2-Tetrachloroethane	17.76	83	724724	56.07	ppb	98
66) Cumene	17.84	105	1428952	57.46	ppb	96
68) Propylbenzene	18.31	91	1739284	62.23	ppb	100
69) 2-Chlorotoluene	18.35	126	345024	60.02	ppb	79
70) 4-ethyltoluene	18.45	105	1357962	63.14	ppb	99
71) 1,3,5-trimethylbenzene	18.49	105	1182539	58.11	ppb	94
72) 1,2,4-trimethylbenzene	18.88	105	1139326	59.62	ppb	95
73) 1,3-dichlorobenzene	19.13	146	622118	66.29	ppb	98
74) benzyl chloride	19.19	91	742467	54.23	ppb	97
75) 1,4-dichlorobenzene	19.24	146	595741	64.42	ppb	97
76) 1,2,3-Trimethylbenzene	19.26	105	1207301	59.48	ppb	93
77) 1,2-dichlorobenzene	19.50	146	648977	63.16	ppb	98
78) 1,2,4-trichlorobenzene	21.03	180	350519	62.27	ppb	99
79) Naphthalene	21.20	128	725887m (u)	51.46	ppb	
80) Hexachloro-1,3-butadiene	21.26	225	675053	73.37	ppb	98

(#) = qualifier out of range (m) = manual integration

DH051106.D I0511T15.M

Thu Jun 01 08:46:09 2017

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Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051107.D
 Acq On : 11 May 2017 11:54 am
 Sample : DSTD25_TO15
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: May 11 12:31 2017

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 11:45:50 2017
 Response via : Continuing Cal File: C:\HPCHEM\1\DATA\DH051106.D
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	137908	50.00	ppb	-0.01
40) 1,4-difluorobenzene	12.18	114	783584	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	661632	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	470100	47.54	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	95.08%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.17	41	108552	26.30	ppb	86
3) Freon 12	4.22	85	313695	26.73	ppb	99
4) Freon 114	4.43	85	349401	26.73	ppb	# 82
5) Chloromethane	4.43	50	102443	26.71	ppb	87
6) Acetaldehyde	4.64	44	20209	22.04	ppb	# 87
7) Vinyl Chloride	4.63	62	106957	25.39	ppb	96
8) Butane	4.73	43	127378	28.52	ppb	94
9) 1,3-butadiene	4.74	54	75034	26.78	ppb	89
10) Bromomethane	5.10	94	108061	26.69	ppb	99
11) Chloroethane	5.27	64	60405	25.83	ppb	100
12) Ethanol	5.41	45	48360	25.84	ppb	94
13) Vinyl Bromide	5.62	106	96827	26.29	ppb	96
14) Freon 11	5.90	101	293552	26.48	ppb	99
15) Acrolein	6.00	56	45440	26.91	ppb	86
16) Acetone	6.09	43	142143	25.59	ppb	70
17) Pentane	6.17	43	292831	27.57	ppb	# 90
18) Isopropyl alcohol	6.19	45	226198	27.25	ppb	# 1
19) 1,1-Dichloroethene	6.68	96	96339	26.21	ppb	# 89
20) Freon 113	6.87	101	209534	25.56	ppb	96
21) t-butyl alcohol	6.92	59	271442	26.26	ppb	99
22) Allyl chloride	7.14	41	164798	25.85	ppb	99
23) Methylene Chloride	7.16	84	91386	26.89	ppb	98
24) Carbon disulfide	7.33	76	260614	25.25	ppb	99
25) trans-1,2-dichloroethene	8.11	61	151788	24.95	ppb	98
26) methyl tert-butyl ether	8.12	73	363611	26.64	ppb	99
27) Vinyl acetate	8.53	43	302950	24.62	ppb	99
28) 1,1-Dichloroethane	8.54	63	223445	26.49	ppb	99
29) Methyl Ethyl Ketone	9.04	72	57231	24.95	ppb	# 76
30) Hexane	9.05	41	152519	25.92	ppb	# 64
31) cis-1,2-dichloroethene	9.49	96	108058	25.85	ppb	97
32) Ethyl acetate	9.64	45	42717	25.84	ppb	98
33) Chloroform	10.10	83	244549	26.11	ppb	98
34) Tetrahydrofuran	10.27	42	156379	26.13	ppb	93
35) 1,1,1-Trichloroethane	10.92	97	254050	25.82	ppb	98
36) 1,2-Dichloroethane	11.22	62	154983	25.54	ppb	100
37) Benzene	11.52	78	392568	26.09	ppb	96
38) Carbon Tetrachloride	11.54	117	265271	25.86	ppb	99
39) Cyclohexane	11.59	56	213913	26.16	ppb	89
41) 2,2,4-trimethylpentane	12.31	57	669876	25.71	ppb	91
42) Heptane	12.63	43	263360	25.98	ppb	96
43) Trichloroethene	12.78	130	156296	25.02	ppb	98
44) 1,2-Dichloropropane	12.89	63	160551	25.89	ppb	100
45) Methyl methacrylate	13.00	41	196602	25.02	ppb	92
46) 1,4-dioxane	13.04	88	83135	25.72	ppb	93
47) Bromodichloromethane	13.21	83	276519	25.24	ppb	99

(#) = qualifier out of range (m) = manual integration

DH051107.D I0511T15.M

Thu Jun 01 08:46:17 2017

Page 1

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051107.D
 Acq On : 11 May 2017 11:54 am
 Sample : DSTD25_TO15
 Misc : TO15

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 11 12:31 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 11:45:50 2017
 Response via : Continuing Cal File: C:\HPCHEM\1\DATA\DH051106.D
 DataAcq Meth : NEW1

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
48) Methyl Isobutyl Ketone	13.87	43	335231	25.90	ppb	96
49) cis-1,3-Dichloropropene	13.95	75	219485	24.70	ppb	100
50) trans-1,3-Dichloropropene	14.64	75	187608	23.96	ppb	95
51) 1,1,2-Trichloroethane	14.94	97	179039	25.80	ppb	100
52) Toluene	14.70	92	279947	25.07	ppb	96
53) Methyl Butyl Ketone	15.09	43	278128	24.63	ppb	93
54) Dibromochloromethane	15.58	129	283052	24.06	ppb	98
55) Tetrachloroethylene	15.63	164	172514	24.00	ppb	97
56) 1,2-dibromoethane	15.81	107	226310	24.21	ppb	99
58) Chlorobenzene	16.53	112	370361	24.92	ppb	100
59) Ethylbenzene	16.75	106	203769	25.28	ppb	92
60) m&p-Xylene	16.93	106	494633	48.98	ppb	89
61) Nonane	17.24	43	375700	25.12	ppb	97
62) Styrene	17.33	104	359888	23.73	ppb	97
63) o-xylene	17.35	91	524804	24.85	ppb	93
64) Bromoform	17.45	173	271285	23.47	ppb	100
65) 1,1,2,2-Tetrachloroethane	17.76	83	359690	24.68	ppb	98
66) Cumene	17.84	105	707360	24.62	ppb	97
68) Propylbenzene	18.30	91	813426	23.26	ppb	99
69) 2-Chlorotoluene	18.35	126	168200	24.24	ppb	87
70) 4-ethyltoluene	18.45	105	626653	22.95	ppb	97
71) 1,3,5-trimethylbenzene	18.49	105	581124	24.44	ppb	98
72) 1,2,4-trimethylbenzene	18.88	105	544627	23.77	ppb	96
73) 1,3-dichlorobenzene	19.13	146	279054	22.31	ppb	98
74) benzyl chloride	19.19	91	311150	20.84	ppb	96
75) 1,4-dichlorobenzene	19.24	146	252805	21.10	ppb	98
76) 1,2,3-Trimethylbenzene	19.27	105	580033	23.89	ppb	95
77) 1,2-dichlorobenzene	19.50	146	298713	22.89	ppb	97
78) 1,2,4-trichlorobenzene	21.03	180	136703	19.40	ppb	96
79) Naphthalene	21.20	128	329302	22.56	ppb	96
80) Hexachloro-1,3-butadiene	21.26	225	285760	21.05	ppb	97

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051108.D
 Acq On : 11 May 2017 12:28 pm
 Sample : DSTD10_T015
 Misc : T015
 MS Integration Params: rteint.p
 Quant Time: May 11 13:19 2017

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 11:45:50 2017
 Response via : Continuing Cal File: C:\HPCHEM\1\DATA\DH051106.D
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.96	128	116207	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.19	114	738484	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	626434	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	413965	44.21	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	88.42%

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.17	41	41611	11.96	ppb	85
3) Freon 12	4.23	85	115928	11.72	ppb	98
4) Freon 114	4.43	85	141303	12.83	ppb	89
5) Chloromethane	4.44	50	46939	14.52	ppb	88
6) Acetaldehyde	4.66	44	7879m	10.20	ppb	
7) Vinyl Chloride	4.64	62	41624	11.73	ppb	98
8) Butane	4.74	43	47001	12.49	ppb	98
9) 1,3-butadiene	4.75	54	26199	11.10	ppb	86
10) Bromomethane	5.11	94	39762	11.65	ppb	96
11) Chloroethane	5.28	64	23579	11.97	ppb	95
12) Ethanol	5.46	45	14401	9.13	ppb	85
13) Vinyl Bromide	5.64	106	34250	11.04	ppb	98
14) Freon 11	5.90	101	112517	12.04	ppb	97
15) Acrolein	6.02	56	12755m	8.96	ppb	
16) Acetone	6.12	43	37410	7.99	ppb	87
17) Pentane	6.18	43	113337	12.67	ppb	# 88
18) Isopropyl alcohol	6.23	45	78279	11.19	ppb	# 1
19) 1,1-Dichloroethene	6.69	96	34755	11.22	ppb	91
20) Freon 113	6.88	101	79413	11.50	ppb	95
21) t-butyl alcohol	6.96	59	95084	10.92	ppb	# 97
22) Allyl chloride	7.15	41	57782	10.76	ppb	95
23) Methylene Chloride	7.17	84	30006	10.48	ppb	91
24) Carbon disulfide	7.35	76	85442	9.82	ppb	86
25) trans-1,2-dichloroethene	8.12	61	46623	9.10	ppb	95
26) methyl tert-butyl ether	8.13	73	132764	11.54	ppb	98
27) Vinyl acetate	8.55	43	90612	8.74	ppb	91
28) 1,1-Dichloroethane	8.55	63	84199	11.85	ppb	98
29) Methyl Ethyl Ketone	9.07	72	16964	8.78	ppb	# 35
30) Hexane	9.06	41	55726	11.24	ppb	# 74
31) cis-1,2-dichloroethene	9.50	96	36273	10.30	ppb	97
32) Ethyl acetate	9.65	45	12685	9.11	ppb	96
33) Chloroform	10.11	83	89668	11.36	ppb	99
34) Tetrahydrofuran	10.30	42	51944	10.30	ppb	92
35) 1,1,1-Trichloroethane	10.92	97	93691	11.30	ppb	99
36) 1,2-Dichloroethane	11.23	62	53066	10.38	ppb	100
37) Benzene	11.53	78	145620	11.48	ppb	98
38) Carbon Tetrachloride	11.55	117	95394	11.03	ppb	99
39) Cyclohexane	11.60	56	79505	11.54	ppb	90
41) 2,2,4-trimethylpentane	12.31	57	244266	9.95	ppb	92
42) Heptane	12.64	43	96286	10.08	ppb	96
43) Trichloroethene	12.78	130	55425	9.41	ppb	95
44) 1,2-Dichloropropane	12.90	63	59433	10.17	ppb	99
45) Methyl methacrylate	13.01	41	63526	8.58	ppb	89
46) 1,4-dioxane	13.06	88	30044	9.86	ppb	100
47) Bromodichloromethane	13.22	83	99262	9.61	ppb	100

(#) = qualifier out of range (m) = manual integration

DH051108.D I0511T15.M

Thu Jun 01 08:46:27 2017

Page 1

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051108.D
 Acq On : 11 May 2017 12:28 pm
 Sample : DSTD10_TO15
 Misc : TO15

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 11 13:19 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 11:45:50 2017
 Response via : Continuing Cal File: C:\HPCHEM\1\DATA\DH051106.D
 DataAcq Meth : NEW1

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
48) Methyl Isobutyl Ketone	13.88	43	116966	9.59	ppb	95
49) cis-1,3-Dichloropropene	13.96	75	73199	8.74	ppb	97
50) trans-1,3-Dichloropropene	14.65	75	57485	7.79	ppb	96
51) 1,1,2-Trichloroethane	14.94	97	63525	9.71	ppb	100
52) Toluene	14.70	92	103462	9.83	ppb	97
53) Methyl Butyl Ketone	15.10	43	88606	8.33	ppb	94
54) Dibromochloromethane	15.58	129	92334	8.33	ppb	95
55) Tetrachloroethylene	15.64	164	60369	8.91	ppb	95
56) 1,2-dibromoethane	15.82	107	75066	8.52	ppb	98
58) Chlorobenzene	16.53	112	130376	9.27	ppb	99
59) Ethylbenzene	16.76	106	71006	9.30	ppb	95
60) m&p-Xylene	16.93	106	175311m	18.34	ppb	
61) Nonane	17.24	43	125990	8.90	ppb	97
62) Styrene	17.33	104	114264	7.96	ppb	94
63) o-xylene	17.35	91	186633	9.33	ppb	93
64) Bromoform	17.45	173	87882	8.03	ppb	99
65) 1,1,2,2-Tetrachloroethane	17.76	83	120844	8.76	ppb	97
66) Cumene	17.84	105	244441	8.99	ppb	97
68) Propylbenzene	18.31	91	247790	7.48	ppb	96
69) 2-Chlorotoluene	18.35	126	56196	8.56	ppb	98
70) 4-ethyltoluene	18.45	105	186007	7.19	ppb	97
71) 1,3,5-trimethylbenzene	18.50	105	196474	8.73	ppb	99
72) 1,2,4-trimethylbenzene	18.88	105	173755	8.01	ppb	96
73) 1,3-dichlorobenzene	19.13	146	79253m	6.69	ppb	
74) benzyl chloride	19.20	91	100354m	7.10	ppb	
75) 1,4-dichlorobenzene	19.24	146	85209m	7.51	ppb	
76) 1,2,3-Trimethylbenzene	19.27	105	202881m	8.83	ppb	
77) 1,2-dichlorobenzene	19.50	146	90139	7.30	ppb	97
78) 1,2,4-trichlorobenzene	21.05	180	51985m	7.79	ppb	
79) Naphthalene	21.22	128	129871m	9.40	ppb	
80) Hexachloro-1,3-butadiene	21.26	225	94141m	7.33	ppb	

(#) = qualifier out of range (m) = manual integration

DH051108.D I0511T15.M Thu Jun 01 08:46:27 2017

Page 2

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051109.D
 Acq On : 11 May 2017 1:02 pm
 Sample : DSTD5_T015
 Misc : T015
 MS Integration Params: rteint.p
 Quant Time: May 11 13:59 2017

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 11:45:50 2017
 Response via : Continuing Cal File: C:\HPCHEM\1\DATA\DH051106.D
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.96	128	119912m	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.19	114	659810	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	544827	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	338326	41.54	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	%	83.08%

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.17	41	23787	6.63	ppb	83
3) Freon 12	4.23	85	67596	6.62	ppb	97
4) Freon 114	4.43	85	85537	7.53	ppb	86
5) Chloromethane	4.43	50	25828	7.74	ppb	85
6) Acetaldehyde	4.68	44	6191m	7.77	ppb	
7) Vinyl Chloride	4.64	62	26825	7.32	ppb	68
8) Butane	4.74	43	37157	9.57	ppb	95
9) 1,3-butadiene	4.75	54	19382	7.96	ppb	90
10) Bromomethane	5.11	94	29855	8.48	ppb	99
11) Chloroethane	5.28	64	13996	6.88	ppb	93
12) Ethanol	5.43	45	9261	5.69	ppb	# 51
13) Vinyl Bromide	5.63	106	19096	5.96	ppb	93
14) Freon 11	5.90	101	64192	6.66	ppb	99
15) Acrolein	6.02	56	8219m	5.60	ppb	
16) Acetone	6.13	43	21001m	4.35	ppb	
17) Pentane	6.18	43	67579	7.32	ppb	# 88
18) Isopropyl alcohol	6.23	45	46513	6.45	ppb	# 1
19) 1,1-Dichloroethene	6.69	96	19218	6.01	ppb	95
20) Freon 113	6.88	101	45689	6.41	ppb	94
21) t-butyl alcohol	6.95	59	53998	6.01	ppb	# 97
22) Allyl chloride	7.15	41	31556	5.69	ppb	99
23) Methylene Chloride	7.17	84	18750	6.34	ppb	97
24) Carbon disulfide	7.36	76	56180	6.26	ppb	# 74
25) trans-1,2-dichloroethene	8.12	61	24425	4.62	ppb	87
26) methyl tert-butyl ether	8.13	73	74977	6.32	ppb	95
27) Vinyl acetate	8.55	43	48357	4.52	ppb	93
28) 1,1-Dichloroethane	8.56	63	45474	6.20	ppb	98
29) Methyl Ethyl Ketone	9.07	72	8964	4.50	ppb	# 28
30) Hexane	9.06	41	32873	6.43	ppb	# 83
31) cis-1,2-dichloroethene	9.50	96	19257	5.30	ppb	100
32) Ethyl acetate	9.65	45	8092	5.63	ppb	85
33) Chloroform	10.11	83	50735	6.23	ppb	98
34) Tetrahydrofuran	10.31	42	30558	5.87	ppb	# 47
35) 1,1,1-Trichloroethane	10.92	97	52930	6.19	ppb	99
36) 1,2-Dichloroethane	11.23	62	30484	5.78	ppb	97
37) Benzene	11.53	78	81670	6.24	ppb	97
38) Carbon Tetrachloride	11.55	117	53513	6.00	ppb	98
39) Cyclohexane	11.60	56	45642	6.42	ppb	89
41) 2,2,4-trimethylpentane	12.31	57	139984	6.38	ppb	93
42) Heptane	12.64	43	53868	6.31	ppb	95
43) Trichloroethene	12.78	130	27750	5.28	ppb	93
44) 1,2-Dichloropropane	12.90	63	33463	6.41	ppb	99
45) Methyl methacrylate	13.01	41	32498	4.91	ppb	87
46) 1,4-dioxane	13.07	88	16160	5.94	ppb	96
47) Bromodichloromethane	13.22	83	55930	6.06	ppb	100

(#) = qualifier out of range (m) = manual integration

DH051109.D I0511T15.M

Thu Jun 01 08:46:37 2017

Page 1

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051109.D

Vial: 1

Acq On : 11 May 2017 1:02 pm

Operator: WD

Sample : DSTD5_TO15

Inst : GCMS3

Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 11 13:59 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 11:45:50 2017

Response via : Continuing Cal File: C:\HPCHEM\1\DATA\DH051106.D

DataAcq Meth : NEW1

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
48) Methyl Isobutyl Ketone	13.88	43	64508	5.92	ppb	97
49) cis-1,3-Dichloropropene	13.96	75	37386	5.00	ppb	97
50) trans-1,3-Dichloropropene	14.65	75	29769	4.52	ppb	97
51) 1,1,2-Trichloroethane	14.94	97	34185	5.85	ppb	99
52) Toluene	14.70	92	57613	6.13	ppb	98
53) Methyl Butyl Ketone	15.11	43	46709	4.91	ppb	94
54) Dibromochloromethane	15.58	129	50917	5.14	ppb	98
55) Tetrachloroethylene	15.64	164	32620	5.39	ppb	98
56) 1,2-dibromoethane	15.82	107	39718	5.05	ppb	100
58) Chlorobenzene	16.53	112	69382	5.67	ppb	100
59) Ethylbenzene	16.75	106	39571	5.96	ppb	97
60) m&p-Xylene	16.93	106	92742	11.15	ppb	93
61) Nonane	17.24	43	70961	5.76	ppb	93
62) Styrene	17.33	104	58903	4.72	ppb	87
63) o-xylene	17.35	91	104111	5.99	ppb	93
64) Bromoform	17.45	173	45937	4.83	ppb	100
65) 1,1,2,2-Tetrachloroethane	17.76	83	66889	5.57	ppb	98
66) Cumene	17.84	105	134320	5.68	ppb	99
68) Propylbenzene	18.31	91	123160	4.28	ppb	93
69) 2-Chlorotoluene	18.36	126	31018	5.43	ppb	90
70) 4-ethyltoluene	18.45	105	93909	4.18	ppb	100
71) 1,3,5-trimethylbenzene	18.50	105	101574	5.19	ppb	96
72) 1,2,4-trimethylbenzene	18.88	105	88483	4.69	ppb	98
73) 1,3-dichlorobenzene	19.14	146	35334	3.43	ppb	98
74) benzyl chloride	19.20	91	48658m (m)	3.96	ppb	
75) 1,4-dichlorobenzene	19.25	146	44074m (m)	4.47	ppb	
76) 1,2,3-Trimethylbenzene	19.27	105	93376	4.67	ppb	95
77) 1,2-dichlorobenzene	19.51	146	43086	4.01	ppb	97
78) 1,2,4-trichlorobenzene	21.08	180	26293m (m)	4.53	ppb	
79) Naphthalene	21.25	128	47112m (m)	3.92	ppb	
80) Hexachloro-1,3-butadiene	21.27	225	49522m (m)	4.43	ppb	

Response Factor Report GCMS3

Method : C:\HPCHEM\1\METHODS\I0406H2S.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Mon Jun 19 12:15:19 2017
Response via : Initial Calibration

Calibration Files

5 =DH040612.D 100 =DH040610.D 250 =DH040609.D
500 =DH040608.D 1000 =DH040607.D 2000 =DH040606.D

	Compound	5	100	250	500	1000	2000	Avg	%RSD
1) I	Bromochloromethane	-----ISTD-----							
2) t	Hydrogen Sulfide	0.467	0.931	1.148	1.242	1.272	1.301	1.060	30.20
3) I	1,4-difluorobenzene	-----ISTD-----							
4) I	Chlorobenzene-d5	-----ISTD-----							
5) S	Bromofluorobenzene	0.599	0.604	0.609	0.600	0.596	0.617	0.604	1.32

Response Factor Report GCMS3

Method : C:\HPCHEM\1\METHODS\I0412SSL.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu Apr 13 06:48:03 2017
 Response via : Initial Calibration

Calibration Files

5 =DH041213.D 10 =DH041212.D 15 =DH041211.D
 25 =DH041210.D 40 =DH041209.D 50 =DH041208.D

Compound		5	10	15	25	40	50	Avg	%RSD

1) I	Bromochloromethane	-----ISTD-----							
2) t	Carbonyl Sulfide	3.166	3.702	3.442	3.434	3.310	3.242	3.312	5.65
3) t	Methyl Mercaptan	1.518	1.738	1.848	1.792	1.864	1.855	1.803	6.54
4) t	Ethyl Mercaptan	1.055	1.238	1.180	1.228	1.188	1.211	1.183	4.80
5) t	Dimethyl Sulfide	1.607	1.768	1.673	1.586	1.625	1.559	1.605	5.24
6) t	Carbon Disulfide	4.586	5.456	4.689	4.644	4.780	4.601	4.738	6.01
7) t	Isopropyl Mercaptan	1.958	2.336	2.284	2.296	2.203	2.150	2.183	5.35
8) t	Trimethyl silanol		0.396	0.336	0.335	0.281	0.275	0.299	17.33
9) t	1-Propanethiol	0.864	1.031	0.961	0.998	1.040	1.058	1.011	6.40
10) I	1,4-difluorobenzene	-----ISTD-----							
11) t	Hexamethyldisiloxan	6.745	5.799	5.539	5.998	5.852	6.017	6.242	9.11
12) I	Chlorobenzene-d5	-----ISTD-----							
13) t	Hexamethylcyclotris	5.823	4.853	4.711	4.746	4.426	4.386	4.697	9.71
14) t	Octamethyltrisiloxa	3.898	3.305	3.191	3.418	3.351	3.438	3.493	6.40
15) S	Bromofluorobenzene	0.583	0.570	0.565	0.529	0.482	0.453	0.486	16.45
16) t	Octamethylcyclotetr	5.712	4.869	4.866	5.464	5.910	6.192	5.844	11.47
17) t	Decamethyltetrasilox	5.454	4.575	4.048	4.670	5.053	5.396	5.131	11.37
18) t	Decamethylcyclopent	5.828	4.024	4.096	4.476	4.341	4.133	4.136	18.82
19) t	Dodecamethylpentasi	1.218	1.454	1.085	1.375	1.241	1.321	1.399	17.12
20) t	Dodecamethylcyclohe	1.343	1.501	1.911	1.694	1.675	1.679	1.670	9.85

Response Factor Report HP G1530A

Method Path : C:\MSDCHEM\1\METHODS\
 Method File : CI0831FG.M
 Title : Fixed Gases by TCD
 Last Update : Fri Jul 08 09:32:21 2016
 Response Via : Initial Calibration

Calibration Files

1.88 =CI083107.D 3.75 =CI083106.D 7.5 =CI083105.D
 15.0 =CI083102.D 30 =CI083101.D

	Compound	1.88	3.75	7.5	15.0	30	Avg	%RSD
1) T	Carbon Dioxide	1.485	1.447	1.073	1.034	0.999	1.208	E7 19.67
2) T	Oxygen	3.782	3.572	3.867	3.671	3.750	3.728	E7 3.01
3) T	Nitrogen	3.808	3.741	4.021	3.812	3.805	3.838	E7 2.79
4) T	Methane	3.047	2.966	3.148	3.035	3.112	3.061	E7 2.31
5) T	Carbon Monoxide	3.773	3.692	4.043	3.851	4.013	3.874	E7 3.91

(#) = Out of Range

GC/MS VOLATILES-WHOLE AIR

METHOD TO-15

CALIBRATION VERIFICATION

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\DH051504.D

Vial: 1

Acq On : 15 May 2017 10:36 am

Operator: WD

Sample : DSTD50_TO15

Inst : GCMS3

Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min

Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRRF	CCRF	%Dev	Area%	Dev(min)
1	I Bromochloromethane	1.000	1.000	0.0	95	0.02
2	Propylene	1.619	1.461	9.8	93	-0.02
3	Freon 12	4.563	3.920	14.1	87	-0.01
4	Freon 114	5.464	4.425	19.0	88	0.00
5	Chloromethane	1.694	1.881	-11.0	128	0.00
6	Acetaldehyde	0.357	0.324	9.2	92	0.03
7	Vinyl Chloride	1.696	1.775	-4.7	110	0.00
8	Butane	2.007	2.460	-22.6	144	0.00
9	1,3-butadiene	1.151	1.310	-13.8	122	0.00
10	Bromomethane	1.665	1.727	-3.7	111	0.00
11	Chloroethane	0.912	0.736	19.3	82	0.00
12	Ethanol	0.677	0.639	5.6	89	0.06
13	Vinyl Bromide	1.379	1.423	-3.2	101	0.00
14	Freon 11	4.361	3.917	10.2	92	0.00
15	Acrolein	0.601	0.501	16.6	78	0.03
16	Acetone	1.880	1.361	27.6	64	0.03
17	Pentane	4.346	3.892	10.4	96	0.00
18	Isopropyl alcohol	3.203	2.807	12.4	88	0.06
19	1,1-Dichloroethene	1.383	1.418	-2.5	101	0.00
20	Freon 113	3.139	3.064	2.4	98	0.00
21	t-butyl alcohol	3.845	3.594	6.5	91	0.06
22	Allyl chloride	2.393	2.269	5.2	93	0.02
23	Methylene Chloride	1.288	1.284	0.3	99	0.01
24	Carbon disulfide	3.753	3.421	8.8	87	0.00
25	trans-1,2-dichloroethene	2.110	2.093	0.8	90	0.01
26	methyl tert-butyl ether	5.272	5.050	4.2	97	0.02
27	Vinyl acetate	4.237	3.996	5.7	85	0.03
28	1,1-Dichloroethane	3.253	3.191	1.9	99	0.02
29	Methyl Ethyl Ketone	0.788	0.850	-7.9	97	0.03
30	Hexane	2.272	2.097	7.7	93	0.01
31	cis-1,2-dichloroethene	1.514	1.558	-2.9	97	0.02
32	Ethyl acetate	0.598	0.571	4.5	90	0.03
33	Chloroform	3.579	3.455	3.5	96	0.02
34	Tetrahydrofuran	2.242	2.161	3.6	94	0.03
35	1,1,1-Trichloroethane	3.755	3.421	8.9	91	0.01
36	1,2-Dichloroethane	2.262	2.148	5.0	93	0.02
37	Benzene	5.810	5.871	-1.0	102	0.02
38	Carbon Tetrachloride	3.925	3.413	13.0	87	0.01
39	Cyclohexane	3.169	3.159	0.3	101	0.00
40	I 1,4-difluorobenzene	1.000	1.000	0.0	103	0.01
41	2,2,4-trimethylpentane	1.716	1.579	8.0	98	0.01
42	Heptane	0.670	0.588	12.2	93	0.00
43	Trichloroethene	0.392	0.373	4.8	96	0.01
44	1,2-Dichloropropane	0.409	0.383	6.4	99	0.01
45	Methyl methacrylate	0.483	0.427	11.6	87	0.01
46	1,4-dioxane	0.209	0.193	7.7	96	0.02
47	Bromodichloromethane	0.711	0.641	9.8	94	0.00
48	Methyl Isobutyl Ketone	0.843	0.717	14.9	89	0.01
49	cis-1,3-Dichloropropene	0.546	0.528	3.3	96	0.00
50	trans-1,3-Dichloropropene	0.468	0.446	4.7	92	0.00
51	1,1,2-Trichloroethane	0.452	0.431	4.6	100	0.00
52	Toluene	0.725	0.680	6.2	98	0.00

(#)= Out of Range

DH051504.D I0511T15.M

Thu Jun 01 08:55:07 2017

Page 1

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\DH051504.D

Vial: 1

Acq On : 15 May 2017 10:36 am

Operator: WD

Sample : DSTD50_TO15

Inst : GCMS3

Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min

Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev (min)
53	Methyl Butyl Ketone	0.694	0.616	11.2	88	0.02
54	Dibromochloromethane	0.727	0.612	15.8	84	0.00
55	Tetrachloroethylene	0.455	0.408	10.3	91	0.00
56	1,2-dibromoethane	0.575	0.553	3.8	95	0.00
57 I	Chlorobenzene-d5	1.000	1.000	0.0	108	0.00
58	Chlorobenzene	1.105	1.000	9.5	96	0.00
59	Ethylbenzene	0.609	0.543	10.8	96	0.00
60	m&p-Xylene	0.752	0.666	11.4	94	0.00
61	Nonane	1.111	0.957	13.9	91	0.00
62	Styrene	1.070	0.994	7.1	93	0.00
63	o-xylene	1.600	1.376	14.0	93	0.00
64	Bromoform	0.828	0.693	16.3	85	0.00
65	1,1,2,2-Tetrachloroethane	1.078	0.961	10.9	94	0.00
66	Cumene	2.140	1.846	13.7	92	0.00
67 S	Bromofluorobenzene	0.709	0.744	-4.9	107	0.00
68	Propylbenzene	2.383	2.133	10.5	87	0.00
69	2-Chlorotoluene	0.510	0.446	12.5	92	0.00
70	4-ethyltoluene	1.868	1.637	12.4	85	0.00
71	1,3,5-trimethylbenzene	1.742	1.523	12.6	91	0.00
72	1,2,4-trimethylbenzene	1.627	1.405	13.6	87	0.00
73	1,3-dichlorobenzene	0.839	0.764	8.9	87	0.00
74	benzyl chloride	1.017	0.939	7.7	90	0.00
75	1,4-dichlorobenzene	0.860	0.725	15.7	86	0.00
76	1,2,3-Trimethylbenzene	1.754	1.444	17.7	85	0.00
77	1,2-dichlorobenzene	0.894	0.765	14.4	83	0.00
78	1,2,4-trichlorobenzene	0.505	0.419	17.0	85	0.00
79	Naphthalene	1.041	1.016	2.4	99	0.00
80	Hexachloro-1,3-butadiene	0.967	0.699	27.7	73	0.00

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051504.D
 Acq On : 15 May 2017 10:36 am
 Sample : DSTD50_TO15
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: May 15 11:25 2017

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: 10511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\10511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.98	128	132275	50.00	ppb	0.02
40) 1,4-difluorobenzene	12.20	114	800659	50.00	ppb	0.01
57) Chlorobenzene-d5	16.49	117	708648	50.00	ppb	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev (Min)
67) Bromofluorobenzene	17.95	95	527290	52.45	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	104.90%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.17	41	193304	45.13	ppb	83
3) Freon 12	4.23	85	518504	42.95	ppb	99
4) Freon 114	4.45	85	585326	40.49	ppb	96
5) Chloromethane	4.45	50	248790	55.51	ppb	86
6) Acetaldehyde	4.68	44	42851	45.43	ppb	# 82
7) Vinyl Chloride	4.65	62	234788	52.34	ppb	97
8) Butane	4.75	43	325461	61.30	ppb	90
9) 1,3-butadiene	4.76	54	173286	56.91	ppb	87
10) Bromomethane	5.12	94	228397	51.84	ppb	98
11) Chloroethane	5.29	64	97360	40.36	ppb	100
12) Ethanol	5.47	45	84531m	47.22	ppb	
13) Vinyl Bromide	5.64	106	188292	51.61	ppb	100
14) Freon 11	5.92	101	518093	44.90	ppb	100
15) Acrolein	6.03	56	66240	41.68	ppb	98
16) Acetone	6.14	43	180023	36.20	ppb	# 36
17) Pentane	6.20	43	514775m	44.77	ppb	
18) Isopropyl alcohol	6.27	45	371252	43.81	ppb	# 1
19) 1,1-Dichloroethene	6.70	96	187611	51.29	ppb	# 87
20) Freon 113	6.90	101	405279	48.80	ppb	95
21) t-butyl alcohol	6.99	59	473391	46.74	ppb	97
22) Allyl chloride	7.17	41	300198	47.42	ppb	98
23) Methylene Chloride	7.19	84	169825	49.85	ppb	99
24) Carbon disulfide	7.35	76	452578	45.58	ppb	99
25) trans-1,2-dichloroethene	8.14	61	276894	49.60	ppb	95
26) methyl tert-butyl ether	8.15	73	668004	47.89	ppb	99
27) Vinyl acetate	8.56	43	528551	47.16	ppb	98
28) 1,1-Dichloroethane	8.57	63	422126	49.05	ppb	99
29) Methyl Ethyl Ketone	9.08	72	112397	53.95	ppb	# 79
30) Hexane	9.08	41	277330	46.14	ppb	# 62
31) cis-1,2-dichloroethene	9.51	96	206101	51.46	ppb	98
32) Ethyl acetate	9.67	45	75493	47.73	ppb	94
33) Chloroform	10.13	83	457032	48.26	ppb	98
34) Tetrahydrofuran	10.31	42	285829	48.19	ppb	98
35) 1,1,1-Trichloroethane	10.94	97	452498	45.55	ppb	99
36) 1,2-Dichloroethane	11.25	62	284148	47.49	ppb	100
37) Benzene	11.54	78	776591	50.53	ppb	94
38) Carbon Tetrachloride	11.56	117	451460	43.47	ppb	98
39) Cyclohexane	11.61	56	417863	49.85	ppb	84
41) 2,2,4-trimethylpentane	12.33	57	1264376	46.01	ppb	90
42) Heptane	12.65	43	470841	43.88	ppb	98
43) Trichloroethene	12.80	130	298248	47.53	ppb	98
44) 1,2-Dichloropropane	12.91	63	306643	46.83	ppb	99
45) Methyl methacrylate	13.02	41	341740	44.20	ppb	# 82
46) 1,4-dioxane	13.06	88	154407	46.07	ppb	94
47) Bromodichloromethane	13.22	83	512954	45.06	ppb	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051504.D

Vial: 1

Acq On : 15 May 2017 10:36 am

Operator: WD

Sample : DSTD50_TO15

Inst : GCMS3

Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 15 11:25 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
48) Methyl Isobutyl Ketone	13.89	43	574238	42.55	ppb	94
49) cis-1,3-Dichloropropene	13.96	75	422553	48.30	ppb	98
50) trans-1,3-Dichloropropene	14.65	75	356955	47.64	ppb	93
51) 1,1,2-Trichloroethane	14.95	97	345053	47.69	ppb	99
52) Toluene	14.71	92	544280	46.90	ppb	99
53) Methyl Butyl Ketone	15.10	43	493589	44.44	ppb	90
54) Dibromochloromethane	15.59	129	490188	42.09	ppb	93
55) Tetrachloroethylene	15.64	164	326839	44.90	ppb	97
56) 1,2-dibromoethane	15.82	107	442827	48.05	ppb	99
58) Chlorobenzene	16.54	112	708804	45.24	ppb	99
59) Ethylbenzene	16.76	106	384450	44.57	ppb	92
60) m&p-Xylene	16.93	106	943260	88.50	ppb	# 88
61) Nonane	17.24	43	678157	43.06	ppb	97
62) Styrene	17.33	104	704597	46.47	ppb	99
63) o-xylene	17.35	91	975172	42.99	ppb	92
64) Bromoform	17.45	173	491339	41.87	ppb	99
65) 1,1,2,2-Tetrachloroethane	17.76	83	680770	44.57	ppb	98
66) Cumene	17.84	105	1308196	43.14	ppb	96
68) Propylbenzene	18.31	91	1511316	44.75	ppb	98
69) 2-Chlorotoluene	18.35	126	316171	43.76	ppb	93
70) 4-ethyltoluene	18.45	105	1160260	43.82	ppb	95
71) 1,3,5-trimethylbenzene	18.50	105	1079532	43.72	ppb	97
72) 1,2,4-trimethylbenzene	18.88	105	995676	43.17	ppb	95
73) 1,3-dichlorobenzene	19.13	146	541072	45.48	ppb	99
74) benzyl chloride	19.19	91	665339	46.17	ppb	97
75) 1,4-dichlorobenzene	19.24	146	513853	42.15	ppb	99
76) 1,2,3-Trimethylbenzene	19.27	105	1023210	41.16	ppb	94
77) 1,2-dichlorobenzene	19.50	146	541815	42.75	ppb	98
78) 1,2,4-trichlorobenzene	21.03	180	296582	41.45	ppb	97
79) Naphthalene	21.20	128	720312	48.82	ppb	98
80) Hexachloro-1,3-butadiene	21.26	225	495230	36.15	ppb	99

Quantitation Report

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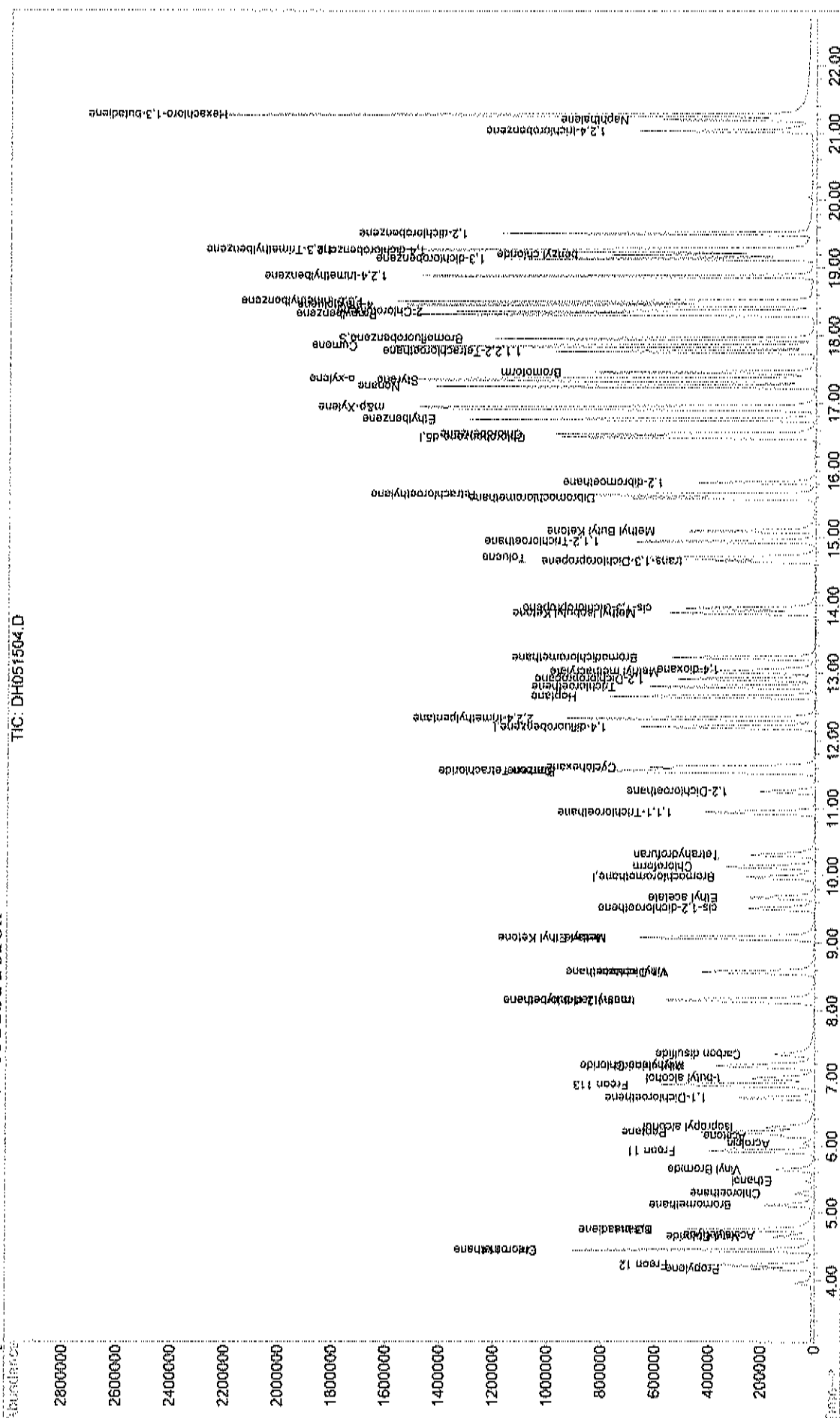
Data File : C:\HPCHEM\1\DATA\DH051504.D
Acq On : 15 May 2017 10:36 am
Sample : DSTD50__TO15
Misc : TO15
MS Integration Params: rteint.p
Quant Time: May 15 11:25 2017

Vial: 1
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration

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Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\DH051703.D

Acq On : 17 May 2017 9:34 am

Sample : DSTD50_TO15

Misc : TO15

MS Integration Params: rteint.p

Vial: 1

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min

Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I Bromochloromethane	1.000	1.000	0.0	64	0.00
2	Propylene	1.619	1.569	3.1	67	-0.03
3	Freon 12	4.563	4.241	7.1	63	-0.03
4	Freon 114	5.464	6.387	-16.9	86	-0.03
5	Chloromethane	1.694	2.028	-19.7	93	-0.02
6	Acetaldehyde	0.357	0.443	-24.1	85	-0.02
7	Vinyl Chloride	1.696	2.054	-21.1	86	-0.02
8	Butane	2.007	2.480	-23.6	97	-0.03
9	1,3-butadiene	1.151	1.452	-26.2	91	-0.02
10	Bromomethane	1.665	1.324	20.5	57	-0.03
11	Chloroethane	0.912	0.789	13.5	59	-0.02
12	Ethanol	0.677	0.675	0.3	63	-0.02
13	Vinyl Bromide	1.379	1.185	14.1	56	-0.02
14	Freon 11	4.361	4.144	5.0	66	-0.02
15	Acrolein	0.601	0.554	7.8	58	-0.02
16	Acetone	1.880	1.955	-4.0	62	-0.02
17	Pentane	4.346	3.984	8.3	66	-0.02
18	Isopropyl alcohol	3.203	2.849	11.1	60	-0.02
19	1,1-Dichloroethene	1.383	1.166	15.7	56	-0.03
20	Freon 113	3.139	2.715	13.5	58	-0.02
21	t-butyl alcohol	3.845	3.469	9.8	59	-0.02
22	Allyl chloride	2.393	2.281	4.7	63	-0.02
23	Methylene Chloride	1.288	1.133	12.0	58	-0.02
24	Carbon disulfide	3.753	3.308	11.9	56	-0.02
25	trans-1,2-dichloroethene	2.110	2.047	3.0	59	-0.02
26	methyl tert-butyl ether	5.272	4.514	14.4	58	-0.02
27	Vinyl acetate	4.237	4.044	4.6	58	-0.01
28	1,1-Dichloroethane	3.253	2.909	10.6	61	-0.02
29	Methyl Ethyl Ketone	0.788	0.688	12.7	53	-0.02
30	Hexane	2.272	2.187	3.7	65	-0.02
31	cis-1,2-dichloroethene	1.514	1.299	14.2	55	-0.01
32	Ethyl acetate	0.598	0.524	12.4	56	-0.02
33	Chloroform	3.579	3.226	9.9	60	-0.01
34	Tetrahydrofuran	2.242	2.110	5.9	62	-0.01
35	1,1,1-Trichloroethane	3.755	3.402	9.4	61	0.00
36	1,2-Dichloroethane	2.262	2.240	1.0	65	0.00
37	Benzene	5.810	4.844	16.6	56	0.00
38	Carbon Tetrachloride	3.925	3.684	6.1	63	0.00
39	Cyclohexane	3.169	2.736	13.7	59	0.00
40	I 1,4-difluorobenzene	1.000	1.000	0.0	63	0.00
41	2,2,4-trimethylpentane	1.716	1.545	10.0	59	0.00
42	Heptane	0.670	0.628	6.3	61	0.00
43	Trichloroethene	0.392	0.348	11.2	55	0.00
44	1,2-Dichloropropane	0.409	0.364	11.0	58	0.00
45	Methyl methacrylate	0.483	0.497	-2.9	63	0.00
46	1,4-dioxane	0.209	0.173	17.2	53	0.00
47	Bromodichloromethane	0.711	0.678	4.6	61	0.00
48	Methyl Isobutyl Ketone	0.843	0.808	4.2	62	0.00
49	cis-1,3-Dichloropropene	0.546	0.510	6.6	57	0.00
50	trans-1,3-Dichloropropene	0.468	0.453	3.2	57	0.00
51	1,1,2-Trichloroethane	0.452	0.398	11.9	57	0.00
52	Toluene	0.725	0.626	13.7	56	0.00

(#) = Out of Range

DH051703.D I0511T15.M

Thu Jun 01 09:06:24 2017

Page 1

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\DH051703.D

Vial: 1

Acq On : 17 May 2017 9:34 am

Operator: WD

Sample : DSTD50_TO15

Inst : GCMS3

Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min

Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev (min)
53	Methyl Butyl Ketone	0.694	0.692	0.3	61	0.00
54	Dibromochloromethane	0.727	0.688	5.4	58	0.00
55	Tetrachloroethylene	0.455	0.401	11.9	55	0.00
56	1,2-dibromoethane	0.575	0.533	7.3	56	0.00
57	1 Chlorobenzene-d5	1.000	1.000	0.0	69	0.00
58	Chlorobenzene	1.105	0.895	19.0	55	0.00
59	Ethylbenzene	0.609	0.488	19.9	56	0.00
60	m&p-Xylene	0.752	0.614	18.4	56	0.00
61	Nonane	1.111	1.068	3.9	66	0.00
62	Styrene	1.070	0.925	13.6	56	0.00
63	o-xylene	1.600	1.366	14.6	59	0.00
64	Bromoform	0.828	0.736	11.1	59	0.00
65	1,1,2,2-Tetrachloroethane	1.078	0.936	13.2	59	0.00
66	Cumene	2.140	1.839	14.1	59	0.00
67	S Bromofluorobenzene	0.709	0.836	-17.9	78	0.00
68	Propylbenzene	2.383	2.142	10.1	56	0.00
69	2-Chlorotoluene	0.510	0.443	13.1	59	0.00
70	4-ethyltoluene	1.868	1.737	7.0	58	0.00
71	1,3,5-trimethylbenzene	1.742	1.509	13.4	58	0.00
72	1,2,4-trimethylbenzene	1.627	1.456	10.5	58	0.00
73	1,3-dichlorobenzene	0.839	0.795	5.2	58	0.00
74	benzyl chloride	1.017	0.886	12.9	55	0.00
75	1,4-dichlorobenzene	0.860	0.751	12.7	58	0.00
76	1,2,3-Trimethylbenzene	1.754	1.554	11.4	59	0.00
77	1,2-dichlorobenzene	0.894	0.817	8.6	58	0.00
78	1,2,4-trichlorobenzene	0.505	0.417	17.4	54	0.00
79	Naphthalene	1.041	0.743	28.6	47#	0.00
80	Hexachloro-1,3-butadiene	0.967	0.896	7.3	61	0.00

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051703.D
 Acq On : 17 May 2017 9:34 am
 Sample : DSTD50_TO15
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: May 17 10:05 2017

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	88790	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	492391	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	457206	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	382026	58.90	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	117.80%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.16	41	139342	48.47	ppb	85
3) Freon 12	4.21	85	376544	46.47	ppb	98
4) Freon 114	4.42	85	567126	58.45	ppb	# 83
5) Chloromethane	4.43	50	180078	59.86	ppb	92
6) Acetaldehyde	4.63	44	39326	62.11	ppb	97
7) Vinyl Chloride	4.63	62	182349	60.56	ppb	100
8) Butane	4.72	43	220161	61.78	ppb	98
9) 1,3-butadiene	4.73	54	128959	63.09	ppb	86
10) Bromomethane	5.09	94	117563	39.75	ppb	97
11) Chloroethane	5.27	64	70040	43.25	ppb	97
12) Ethanol	5.40	45	59932	49.88	ppb	93
13) Vinyl Bromide	5.62	106	105243	42.97	ppb	99
14) Freon 11	5.89	101	367964	47.51	ppb	100
15) Acrolein	5.99	56	49193	46.11	ppb	91
16) Acetone	6.09	43	173565	51.99	ppb	75
17) Pentane	6.17	43	353721	45.83	ppb	92
18) Isopropyl alcohol	6.19	45	252992	44.47	ppb	# 1
19) 1,1-Dichloroethene	6.67	96	103558	42.18	ppb	98
20) Freon 113	6.87	101	241060	43.25	ppb	95
21) t-butyl alcohol	6.91	59	307993	45.11	ppb	97
22) Allyl chloride	7.13	41	202502	47.66	ppb	92
23) Methylene Chloride	7.16	84	100619	44.00	ppb	# 87
24) Carbon disulfide	7.33	76	293707	44.07	ppb	98
25) trans-1,2-dichloroethene	8.10	61	181774	48.50	ppb	95
26) methyl tert-butyl ether	8.11	73	400803	42.81	ppb	93
27) Vinyl acetate	8.53	43	359031	47.72	ppb	96
28) 1,1-Dichloroethane	8.54	63	258280	44.71	ppb	99
29) Methyl Ethyl Ketone	9.03	72	61065	43.66	ppb	# 62
30) Hexane	9.04	41	194174	48.12	ppb	# 73
31) cis-1,2-dichloroethene	9.48	96	115354	42.91	ppb	96
32) Ethyl acetate	9.63	45	46524	43.82	ppb	87
33) Chloroform	10.10	83	286473	45.07	ppb	98
34) Tetrahydrofuran	10.27	42	187339	47.05	ppb	86
35) 1,1,1-Trichloroethane	10.92	97	302102	45.30	ppb	98
36) 1,2-Dichloroethane	11.22	62	198862	49.52	ppb	98
37) Benzene	11.51	78	430074	41.69	ppb	97
38) Carbon Tetrachloride	11.54	117	327065	46.92	ppb	98
39) Cyclohexane	11.59	56	242950	43.18	ppb	97
41) 2,2,4-trimethylpentane	12.30	57	760717	45.01	ppb	95
42) Heptane	12.63	43	309208	46.86	ppb	92
43) Trichloroethene	12.78	130	171114	44.34	ppb	98
44) 1,2-Dichloropropane	12.89	63	178989	44.45	ppb	100
45) Methyl methacrylate	12.99	41	244596	51.44	ppb	# 97
46) 1,4-dioxane	13.03	88	85099	41.28	ppb	87
47) Bromodichloromethane	13.21	83	333742	47.67	ppb	99

(#) = qualifier out of range (m) = manual integration

DH051703.D I0511T15.M

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Page 1

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051703.D

Vial: 1

Acq On : 17 May 2017 9:34 am

Operator: WD

Sample : DSTD50_T015

Inst : GCMS3

Misc : T015

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 17 10:05 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
48) Methyl Isobutyl Ketone	13.87	43	397674	47.92	ppb	95
49) cis-1,3-Dichloropropene	13.95	75	251337	46.72	ppb	100
50) trans-1,3-Dichloropropene	14.64	75	223264	48.46	ppb	95
51) 1,1,2-Trichloroethane	14.93	97	196041	44.06	ppb	100
52) Toluene	14.70	92	308426	43.21	ppb	96
53) Methyl Butyl Ketone	15.09	43	340676	49.87	ppb	98
54) Dibromochloromethane	15.58	129	338714	47.29	ppb	99
55) Tetrachloroethylene	15.63	164	197600	44.14	ppb	98
56) 1,2-dibromoethane	15.81	107	262636	46.34	ppb	100
58) Chlorobenzene	16.53	112	409077	40.47	ppb	99
59) Ethylbenzene	16.75	106	222923	40.06	ppb	97
60) m&p-Xylene	16.93	106	561254	81.62	ppb	93
61) Nonane	17.24	43	488314	48.06	ppb	92
62) Styrene	17.33	104	423083	43.25	ppb	93
63) o-xylene	17.35	91	624754	42.69	ppb	95
64) Bromoform	17.45	173	336352	44.42	ppb	99
65) 1,1,2,2-Tetrachloroethane	17.76	83	427800	43.41	ppb	98
66) Cumene	17.84	105	840934	42.98	ppb	98
68) Propylbenzene	18.31	91	979339	44.95	ppb	99
69) 2-Chlorotoluene	18.35	126	202390	43.42	ppb	83
70) 4-ethyltoluene	18.45	105	794207	46.49	ppb	100
71) 1,3,5-trimethylbenzene	18.49	105	689764	43.30	ppb	95
72) 1,2,4-trimethylbenzene	18.88	105	665584	44.73	ppb	97
73) 1,3-dichlorobenzene	19.13	146	363576	47.37	ppb	98
74) benzyl chloride	19.19	91	404959	43.56	ppb	100
75) 1,4-dichlorobenzene	19.24	146	343243	43.64	ppb	98
76) 1,2,3-Trimethylbenzene	19.26	105	710699	44.32	ppb	96
77) 1,2-dichlorobenzene	19.50	146	373659	45.69	ppb	98
78) 1,2,4-trichlorobenzene	21.03	180	190667	41.30	ppb	97
79) Naphthalene	21.20	128	339794	35.69	ppb	99
80) Hexachloro-1,3-butadiene	21.26	225	409785	46.36	ppb	97

(#) = qualifier out of range (m) = manual integration

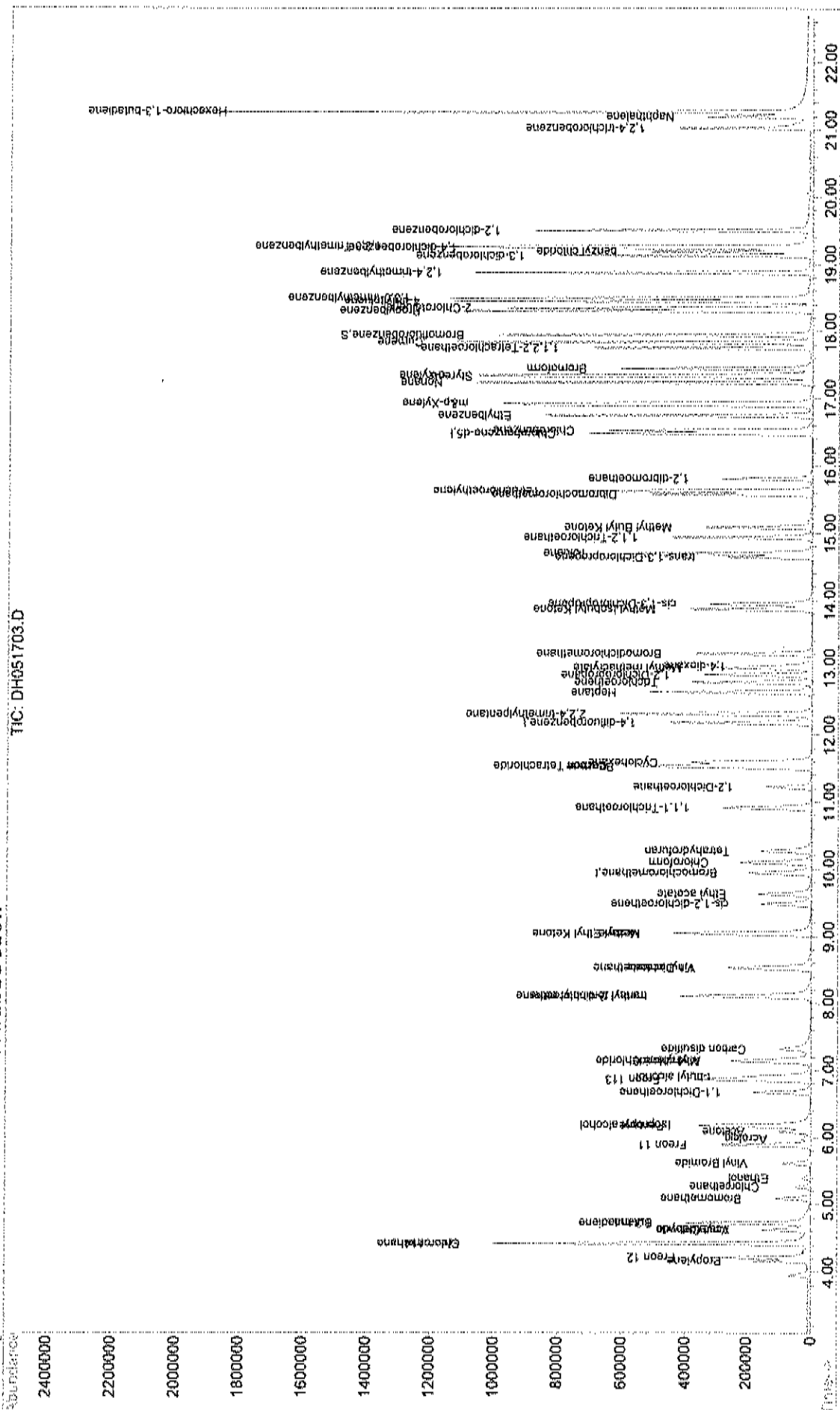
DH051703.D I0511T15.M

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Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051703.D
Acq On : 17 May 2017 9:34 am
Sample : DSTD50_TO15
Misc : TO15
MS Integration Params: rteint.p
Quant Time: May 17 10:05 2017
Quant Results File: I0511T15.RES
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\DH051807.D

Acq On : 18 May 2017 12:16 pm

Sample : DSTD50_T015

Misc : T015

MS Integration Params: rteint.p

Vial: 1

Operator: WD

Inst : GCMS3

Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min

Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRRF	CCRF	%Dev	Area%	Dev(min)
1	I Bromochloromethane	1.000	1.000	0.0	51	-0.02
2	Propylene	1.619	2.062	-27.4	70	-0.03
3	Freon 12	4.563	4.025	11.8	48#	-0.03
4	Freon 114	5.464	5.674	-3.8	61	-0.03
5	Chloromethane	1.694	2.088	-23.3	76	-0.03
6	Acetaldehyde	0.357	0.434	-21.6	66	-0.02
7	Vinyl Chloride	1.696	1.995	-17.6	66	-0.02
8	Butane	2.007	2.566	-27.9	81	-0.03
9	1,3-butadiene	1.151	1.367	-18.8	68	-0.03
10	Bromomethane	1.665	1.423	14.5	49#	-0.03
11	Chloroethane	0.912	0.938	-2.9	56	-0.03
12	Ethanol	0.677	0.764	-12.9	57	-0.03
13	Vinyl Bromide	1.379	1.206	12.5	46#	-0.03
14	Freon 11	4.361	3.937	9.7	50#	-0.03
15	Acrolein	0.601	0.617	-2.7	51	-0.02
16	Acetone	1.880	2.390	-27.1	60	-0.03
17	Pentane	4.346	4.931	-13.5	65	-0.03
18	Isopropyl alcohol	3.203	3.516	-9.8	59	-0.02
19	1,1-Dichloroethene	1.383	1.273	8.0	49#	-0.03
20	Freon 113	3.139	2.799	10.8	48#	-0.03
21	t-butyl alcohol	3.845	4.091	-6.4	55	-0.02
22	Allyl chloride	2.393	2.870	-19.9	63	-0.03
23	Methylene Chloride	1.288	1.241	3.6	51	-0.03
24	Carbon disulfide	3.753	3.650	2.7	50#	-0.02
25	trans-1,2-dichloroethene	2.110	2.422	-14.8	56	-0.03
26	methyl tert-butyl ether	5.272	5.236	0.7	54	-0.03
27	Vinyl acetate	4.237	5.103	-20.4	58	-0.02
28	1,1-Dichloroethane	3.253	3.495	-7.4	58	-0.02
29	Methyl Ethyl Ketone	0.788	0.815	-3.4	50#	-0.01
30	Hexane	2.272	2.752	-21.1	66	-0.02
31	cis-1,2-dichloroethene	1.514	1.399	7.6	47#	-0.02
32	Ethyl acetate	0.598	0.691	-15.6	59	-0.02
33	Chloroform	3.579	3.524	1.5	53	-0.01
34	Tetrahydrofuran	2.242	2.635	-17.5	62	-0.02
35	1,1,1-Trichloroethane	3.755	3.448	8.2	49#	-0.01
36	1,2-Dichloroethane	2.262	2.622	-15.9	61	-0.01
37	Benzene	5.810	5.676	2.3	53	0.00
38	Carbon Tetrachloride	3.925	3.325	15.3	45#	-0.01
39	Cyclohexane	3.169	3.455	-9.0	59	-0.02
40	I 1,4-difluorobenzene	1.000	1.000	0.0	52	-0.01
41	2,2,4-trimethylpentane	1.716	1.847	-7.6	58	0.00
42	Heptane	0.670	0.784	-17.0	64	-0.01
43	Trichloroethene	0.392	0.323	17.6	42#	0.00
44	1,2-Dichloropropane	0.409	0.426	-4.2	56	0.00
45	Methyl methacrylate	0.483	0.616	-27.5	64	-0.01
46	1,4-dioxane	0.209	0.191	8.6	49#	0.00
47	Bromodichloromethane	0.711	0.708	0.4	53	-0.01
48	Methyl Isobutyl Ketone	0.843	0.974	-15.5	62	0.00
49	cis-1,3-Dichloropropene	0.546	0.580	-6.2	54	0.00
50	trans-1,3-Dichloropropene	0.468	0.508	-8.5	53	0.00
51	1,1,2-Trichloroethane	0.452	0.415	8.2	49#	0.00
52	Toluene	0.725	0.677	6.6	50#	0.00

(#) = Out of Range

DH051807.D I0511T15.M

Thu Jun 01 09:10:40 2017

Page 1

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\DH051807.D

Vial: 1

Acq On : 18 May 2017 12:16 pm

Operator: WD

Sample : DSTD50_TO15

Inst : GCMS3

Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min

Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
53	Methyl Butyl Ketone	0.694	0.811	-16.9	59	0.00
54	Dibromochloromethane	0.727	0.597	17.9	42#	0.00
55	Tetrachloroethylene	0.455	0.351	22.9	40#	0.00
56	1,2-dibromoethane	0.575	0.531	7.7	47#	0.00
57 I	Chlorobenzene-d5	1.000	1.000	0.0	59	0.00
58	Chlorobenzene	1.105	0.876	20.7	46#	0.00
59	Ethylbenzene	0.609	0.493	19.0	47#	0.00
60	m&p-Xylene	0.752	0.627	16.6	48#	0.00
61	Nonane	1.111	1.260	-13.4	65	0.00
62	Styrene	1.070	0.946	11.6	48#	0.00
63	o-xylene	1.600	1.433	10.4	53	0.00
64	Bromoform	0.828	0.600	27.5	40#	0.00
65	1,1,2,2-Tetrachloroethane	1.078	1.031	4.4	55	0.00
66	Cumene	2.140	1.835	14.3	49#	0.00
67 S	Bromofluorobenzene	0.709	0.887	-25.1	69	0.00
68	Propylbenzene	2.383	2.313	2.9	51	0.00
69	2-Chlorotoluene	0.510	0.427	16.3	48#	0.00
70	4-ethyltoluene	1.868	1.754	6.1	50#	0.00
71	1,3,5-trimethylbenzene	1.742	1.609	7.6	52	0.00
72	1,2,4-trimethylbenzene	1.627	1.467	9.8	50#	0.00
73	1,3-dichlorobenzene	0.839	0.755	10.0	47#	0.00
74	benzyl chloride	1.017	0.945	7.1	49#	0.00
75	1,4-dichlorobenzene	0.860	0.719	16.4	46#	0.00
76	1,2,3-Trimethylbenzene	1.754	1.528	12.9	49#	0.00
77	1,2-dichlorobenzene	0.894	0.728	18.6	43#	0.00
78	1,2,4-trichlorobenzene	0.505	0.391	22.6	43#	0.00
79	Naphthalene	1.041	0.739	29.0	39#	0.00
80	Hexachloro-1,3-butadiene	0.967	0.622	35.7#	35#	0.00

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051807.D
 Acq On : 18 May 2017 12:16 pm
 Sample : DSTD50_TO15
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: May 18 13:18 2017

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.94	128	70916m	50.00	ppb	-0.02
40) 1,4-difluorobenzene	12.17	114	408744	50.00	ppb	-0.01
57) Chlorobenzene-d5	16.48	117	384998	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	341528	62.54	ppb	0.00
Spiked Amount	50.000	Range	70 ~ 130	Recovery	=	125.08%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.16	41	146220	63.68	ppb	92
3) Freon 12	4.21	85	285404	44.10	ppb	99
4) Freon 114	4.42	85	402397	51.92	ppb	96
5) Chloromethane	4.42	50	148064	61.62	ppb	92
6) Acetaldehyde	4.63	44	30800	60.90	ppb	# 95
7) Vinyl Chloride	4.62	62	141502	58.84	ppb	98
8) Butane	4.72	43	181998	63.94	ppb	96
9) 1,3-butadiene	4.73	54	96917	59.36	ppb	89
10) Bromomethane	5.09	94	100937	42.73	ppb	99
11) Chloroethane	5.26	64	66553	51.46	ppb	96
12) Ethanol	5.39	45	54197	56.48	ppb	94
13) Vinyl Bromide	5.61	106	85496	43.71	ppb	99
14) Freon 11	5.89	101	279175	45.13	ppb	99
15) Acrolein	5.99	56	43724	51.32	ppb	87
16) Acetone	6.08	43	169459	63.55	ppb	76
17) Pentane	6.17	43	349715	56.73	ppb	93
18) Isopropyl alcohol	6.19	45	249329	54.88	ppb	# 1
19) 1,1-Dichloroethene	6.67	96	90268	46.03	ppb	92
20) Freon 113	6.86	101	198487	44.58	ppb	88
21) t-butyl alcohol	6.91	59	290147	53.21	ppb	97
22) Allyl chloride	7.13	41	203542	59.98	ppb	89
23) Methylene Chloride	7.15	84	88001	48.18	ppb	# 77
24) Carbon disulfide	7.32	76	258876	48.63	ppb	99
25) trans-1,2-dichloroethene	8.10	61	171759	57.38	ppb	87
26) methyl tert-butyl ether	8.11	73	371295	49.65	ppb	89
27) Vinyl acetate	8.52	43	361866	60.22	ppb	95
28) 1,1-Dichloroethane	8.53	63	247865	53.72	ppb	100
29) Methyl Ethyl Ketone	9.04	72	57787	51.73	ppb	# 55
30) Hexane	9.04	41	195190	60.57	ppb	# 76
31) cis-1,2-dichloroethene	9.48	96	99211	46.20	ppb	98
32) Ethyl acetate	9.63	45	48992	57.78	ppb	85
33) Chloroform	10.10	83	249887	49.22	ppb	99
34) Tetrahydrofuran	10.27	42	186899	58.77	ppb	84
35) 1,1,1-Trichloroethane	10.91	97	244551	45.92	ppb	99
36) 1,2-Dichloroethane	11.22	62	185956	57.97	ppb	99
37) Benzene	11.51	78	402553	48.85	ppb	98
38) Carbon Tetrachloride	11.54	117	235798	42.35	ppb	99
39) Cyclohexane	11.59	56	245025	54.52	ppb	97
41) 2,2,4-trimethylpentane	12.31	57	754895	53.81	ppb	94
42) Heptane	12.63	43	320510	58.51	ppb	89
43) Trichloroethene	12.78	130	131887	41.17	ppb	92
44) 1,2-Dichloropropane	12.89	63	174105	52.09	ppb	99
45) Methyl methacrylate	12.99	41	251797	63.80	ppb	# 93
46) 1,4-dioxane	13.03	88	78184	45.69	ppb	79
47) Bromodichloromethane	13.20	83	289290	49.78	ppb	98

(#) = qualifier out of range (m) = manual integration

DH051807.D I0511T15.M

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Page 1

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051807.D
 Acq On : 18 May 2017 12:16 pm
 Sample : DSTD50_T015
 Misc : T015

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 18 13:18 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
48) Methyl Isobutyl Ketone	13.87	43	398170	57.80	ppb	94
49) cis-1,3-Dichloropropene	13.94	75	237032	53.07	ppb	100
50) trans-1,3-Dichloropropene	14.64	75	207586	54.27	ppb	95
51) 1,1,2-Trichloroethane	14.93	97	169789	45.97	ppb	99
52) Toluene	14.70	92	276707	46.70	ppb	96
53) Methyl Butyl Ketone	15.09	43	331540	58.47	ppb	98
54) Dibromochloromethane	15.58	129	244167	41.06	ppb	97
55) Tetrachloroethylene	15.63	164	143672	38.66	ppb	98
56) 1,2-dibromoethane	15.81	107	216997	46.13	ppb	99
58) Chlorobenzene	16.53	112	337309	39.63	ppb	100
59) Ethylbenzene	16.75	106	189919	40.53	ppb	97
60) m&p-Xylene	16.93	106	482798m ω Δ	83.38	ppb	
61) Nonane	17.24	43	485104	56.70	ppb	# 91
62) Styrene	17.32	104	364164	44.21	ppb	86
63) o-xylene	17.35	91	551894	44.79	ppb	98
64) Bromoform	17.45	173	230941	36.22	ppb	100
65) 1,1,2,2-Tetrachloroethane	17.76	83	396996	47.84	ppb	98
66) Cumene	17.83	105	706507	42.88	ppb	99
68) Propylbenzene	18.31	91	890349	48.53	ppb	97
69) 2-Chlorotoluene	18.35	126	164247	41.85	ppb	91
70) 4-ethyltoluene	18.45	105	675101	46.93	ppb	100
71) 1,3,5-trimethylbenzene	18.49	105	619642	46.19	ppb	98
72) 1,2,4-trimethylbenzene	18.87	105	564649	45.07	ppb	100
73) 1,3-dichlorobenzene	19.13	146	290567	44.96	ppb	98
74) benzyl chloride	19.19	91	363821	46.48	ppb	97
75) 1,4-dichlorobenzene	19.24	146	276764	41.78	ppb	97
76) 1,2,3-Trimethylbenzene	19.26	105	588422	43.57	ppb	97
77) 1,2-dichlorobenzene	19.50	146	280224	40.69	ppb	98
78) 1,2,4-trichlorobenzene	21.03	180	150409m ω Δ	38.69	ppb	
79) Naphthalene	21.20	128	284327	35.47	ppb	94
80) Hexachloro-1,3-butadiene	21.26	225	239350m ω Δ	32.15	ppb	

(#) = qualifier out of range (m) = manual integration

DH051807.D I0511T15.M

Thu Jun 01 09:10:45 2017

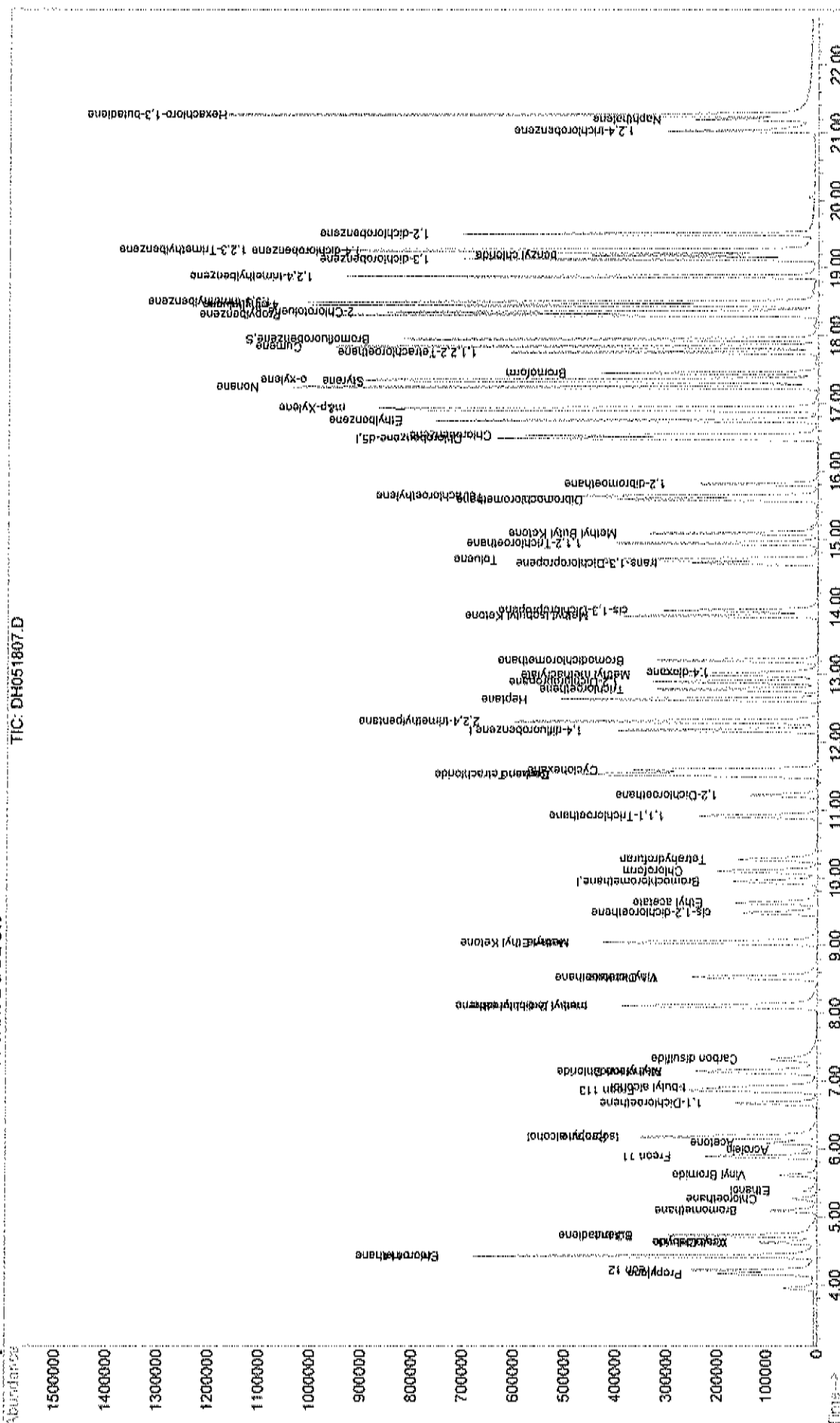
Page 2

Data File : C:\HPCHEM\1\DATA\DH051807.D
Acq On : 18 May 2017 12:16 pm
Sample : DSTD50_F015
Misc : T015
MMS Integration Params: rtimeint.p
Quant Time: May 18 13:18 2017

```

Method      : C:\HPCHEM\1\METHODS\I05lit15.M (RTE Integrator)
Title       : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration

```



Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\DH051605.D
Acq On : 16 May 2017 10:24 am
Sample : DSTD500_H2S
Misc : Siloxane
MS Integration Params: RTEINT.P

Vial: 2
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0406H2S.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Mon Jun 19 12:15:19 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 I	Bromochloromethane	1.000	1.000	0.0	221#	-0.04
2 t	Hydrogen Sulfide	1.060	1.079	-1.8	192#	-0.08
3 I	1,4-difluorobenzene	1.000	1.000	0.0	193#	-0.03
4 I	Chlorobenzene-d5	1.000	1.000	0.0	192#	-0.01
5 S	Bromofluorobenzene	0.604	0.592	2.0	190#	-0.01

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\DH051805.D

Vial: 2

Acq On : 18 May 2017 10:42 am

Operator: WD

Sample : DSTD500_H2S

Inst : GCMS3

Misc : Siloxane

Multiplr: 1.00

MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\I0406H2S.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Mon Jun 19 12:15:19 2017

Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min

Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev (min)
1 I	Bromochloromethane	1.000	1.000	0.0	186#	-0.05
2 t	Hydrogen Sulfide	1.060	1.057	0.3	159#	-0.08
3 I	1,4-difluorobenzene	1.000	1.000	0.0	169#	-0.02
4 I	Chlorobenzene-d5	1.000	1.000	0.0	173#	-0.01
5 S	Bromofluorobenzene	0.604	0.634	-5.0	183#	-0.01

Evaluate Continuing Calibration Report

Data File : F:\GCMS4DATA\2017MS4\2017MAY\DH051603.D Vial: 1
 Acq On : 16 May 2017 9:14 am Operator: WD
 Sample : DSTD50_SLXSF Inst : GCMS3
 Misc : Siloxane Multiplr: 1.00
 MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\I0412SSL.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu Apr 13 06:48:03 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I Bromochloromethane	1.000	1.000	0.0	117	-0.04
2	t Carbonyl Sulfide	3.312	2.405	27.4	87	-0.09
3	t Methyl Mercaptan	1.803	1.424	21.0	90	-0.08
4	t Ethyl Mercaptan	1.183	0.900	23.9	87	-0.08
5	t Dimethyl Sulfide	1.605	1.258	21.6	95	-0.07
6	t Carbon Disulfide	4.738	3.895	17.8	99	-0.06
7	t Isopropyl Mercaptan	2.183	1.533	29.8	84	-0.06
8	Trimethyl silanol	0.299	0.528	-76.6#	225#	-0.06
9	t 1-Propanethiol	1.011	0.903	10.7	100	-0.04
10	I 1,4-difluorobenzene	1.000	1.000	0.0	117	-0.03
11	t Hexamethyldisiloxane-L2	6.242	5.409	13.3	105	-0.03
12	I Chlorobenzene-d5	1.000	1.000	0.0	134	-0.01
13	t Hexamethylcyclotrisiloxane-	4.697	3.938	16.2	120	-0.01
14	t Octamethyltrisiloxane-L3	3.493	2.940	15.8	115	-0.01
15	S Bromofluorobenzene	0.486	0.403	17.1	119	-0.01
16	t Octamethylcyclotetrasiloxan	5.844	11.904	-103.7#	258#	-0.01
17	t Decamethyltetrasiloxane-L4	5.131	4.311	16.0	107	-0.01
18	t Decamethylcyclopentasiloxan	4.136	5.447	-31.7#	177#	-0.01
19	Dodecamethylpentasiloxane-L	1.399	0.533	61.9#	54	0.00
20	Dodecamethylcyclohexasiloxa	1.670	0.690	58.7#	55	0.00

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\DH051803.D
 Acq On : 18 May 2017 9:33 am
 Sample : DSTD50_SLXSF
 Misc : Siloxane
 MS Integration Params: rteint.p

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\I0412SSL.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu Apr 13 06:48:03 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev (min)
1	I Bromochloromethane	1.000	1.000	0.0	116	-0.05
2	t Carbonyl Sulfide	3.312	2.735	17.4	98	-0.10
3	t Methyl Mercaptan	1.803	1.427	20.9	89	-0.09
4	t Ethyl Mercaptan	1.183	1.035	12.5	99	-0.08
5	t Dimethyl Sulfide	1.605	1.535	4.4	114	-0.08
6	t Carbon Disulfide	4.738	4.313	9.0	109	-0.07
7	t Isopropyl Mercaptan	2.183	1.593	27.0	86	-0.07
8	Trimethyl silanol	0.299	0.347	-16.1	146	-0.06
9	t 1-Propanethiol	1.011	0.967	4.4	106	-0.05
10	I 1,4-difluorobenzene	1.000	1.000	0.0	124	-0.03
11	t Hexamethyldisiloxane-L2	6.242	5.043	19.2	104	-0.03
12	I Chlorobenzene-d5	1.000	1.000	0.0	119	-0.01
13	t Hexamethylcyclotrisiloxane-	4.697	3.644	22.4	99	-0.01
14	t Octamethyltrisiloxane-L3	3.493	2.690	23.0	93	-0.01
15	S Bromofluorobenzene	0.486	0.498	-2.5	131	0.00
16	t Octamethylcyclotetrasiloxan	5.844	4.799	17.9	92	-0.01
17	t Decamethyltetrasiloxane-L4	5.131	3.680	28.3	81	-0.01
18	t Decamethylcyclopentasiloxan	4.136	3.552	14.1	102	-0.01
19	Dodecamethylpentasiloxane-L	1.399	0.851	39.2#	76	-0.01
20	Dodecamethylcyclohexasiloxa	1.670	2.137	-28.0	151#	-0.02

Evaluate Continuing Calibration Report

Data Path : C:\MSDchem\1\DATA\
Data File : CK051501.D
Signal(s) : TCD1A.CH
Acq On : 15 May 2017 8:47 am
Operator : WD
Sample : CCFG-051517
Misc : 1 ml
ALS Vial : 1 Sample Multiplier: 1

Integration File: events.e
Quant Time: May 15 08:57:17 2017
Quant Method : C:\MSDchem\1\METHODS\CI0831FG.M
Quant Title : Fixed Gases by TCD
QLast Update : Fri Jul 08 09:32:21 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 T	Carbon Dioxide	12.078	9.182 E6	24.0	89	0.02
2 T	Oxygen	37.285	36.899 E6	1.0	101	0.00
3 T	Nitrogen	38.376	38.614 E6	-0.6	101	-0.03
4 T	Methane	30.614	28.382 E6	7.3	94	-0.02
5 T	Carbon Monoxide	38.743	40.860 E6	-5.5	106	-0.13

Evaluate Continuing Calibration Report - Not Found

(#) = Out of Range

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

Evaluate Continuing Calibration Report

Data Path : C:\MSDchem\1\DATA\
Data File : CK051511.D
Signal(s) : TCD1A.CH
Acq On : 15 May 2017 10:46 am
Operator : WD
Sample : CCFG2-051517
Misc : 1 ml
ALS Vial : 1 Sample Multiplier: 1

Integration File: events.e
Quant Time: May 15 10:57:25 2017
Quant Method : C:\MSDchem\1\METHODS\CI0831FG.M
Quant Title : Fixed Gases by TCD
QLast Update : Fri Jul 08 09:32:21 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 T	Carbon Dioxide	12.078	9.175 E6	24.0	89	0.02
2 T	Oxygen	37.285	36.483 E6	2.2	99	0.00
3 T	Nitrogen	38.376	38.098 E6	0.7	100	-0.03
4 T	Methane	30.614	28.395 E6	7.2	94	-0.02
5 T	Carbon Monoxide	38.743	40.005 E6	-3.3	104	-0.14

Evaluate Continuing Calibration Report - Not Found

(#) = Out of Range

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

Evaluate Continuing Calibration Report

Data Path : C:\MSDchem\1\DATA\
Data File : CK051519.D
Signal(s) : TCD1A.CH
Acq On : 15 May 2017 12:24 pm
Operator : WD
Sample : CCFG3-051517
Misc : 1 ml
ALS Vial : 1 Sample Multiplier: 1

Integration File: events.e
Quant Time: May 15 12:36:49 2017
Quant Method : C:\MSDchem\1\METHODS\CI0831FG.M
Quant Title : Fixed Gases by TCD
QLast Update : Fri Jul 08 09:32:21 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 T	Carbon Dioxide	12.078	10.623 E6	12.0	103	0.01
2 T	Oxygen	37.285	30.803 E6	17.4	84	0.00
3 T	Nitrogen	38.376	38.948 E6	-1.5	102	-0.03
4 T	Methane	30.614	29.057 E6	5.1	96	-0.02
5 T	Carbon Monoxide	38.743	41.208 E6	-6.4	107	-0.14

Evaluate Continuing Calibration Report ~ Not Found

(#) = Out of Range

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

GC/MS VOLATILES-WHOLE AIR

METHOD TO-15

RAW DATA

BFB

Data File : C:\HPCHEM\1\DATA2\DH040601.D

Vial: 1

Acq On : 6 Apr 2017 7:54 am

Operator: WD

Sample : BFB

Inst : GCMS3

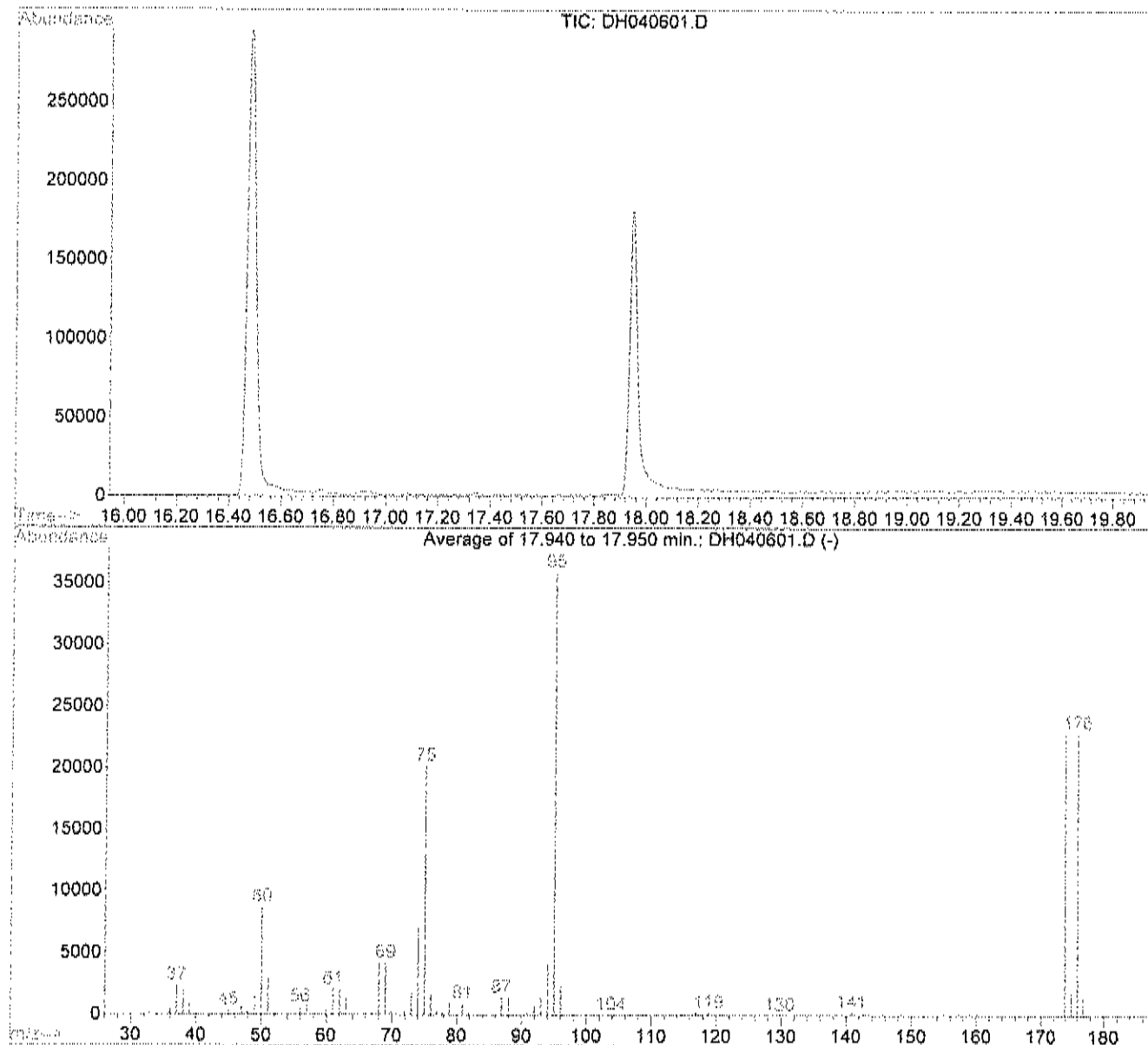
Misc : TO15

Multiplier: 1.00

MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\I0406H2S.M (RTE Integrator)

Title : VOA Standards for 5 point calibration



AutoFind: Scans 3527, 3528, 3529; Background Corrected with Scan 3518

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
Mass	Mass	Limit%	Limit%	Abn%	Abn	Pass/Fail
50	95	8	40	24.2	8704	PASS
75	95	30	66	56.3	20227	PASS
95	95	100	100	100.0	35957	PASS
96	95	5	9	6.6	2364	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	63.5	22837	PASS
175	174	4	9	8.1	1857	PASS
176	174	95	101	100.3	22912	PASS
177	176	5	9	6.6	1516	PASS

BFB

Data File : C:\HPCHEM\1\DATA2\DH041201.D

Acq On : 12 Apr 2017 8:23 am

Sample : BFB

Misc : TO15

MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\I0406H2S.M (RTE Integrator)

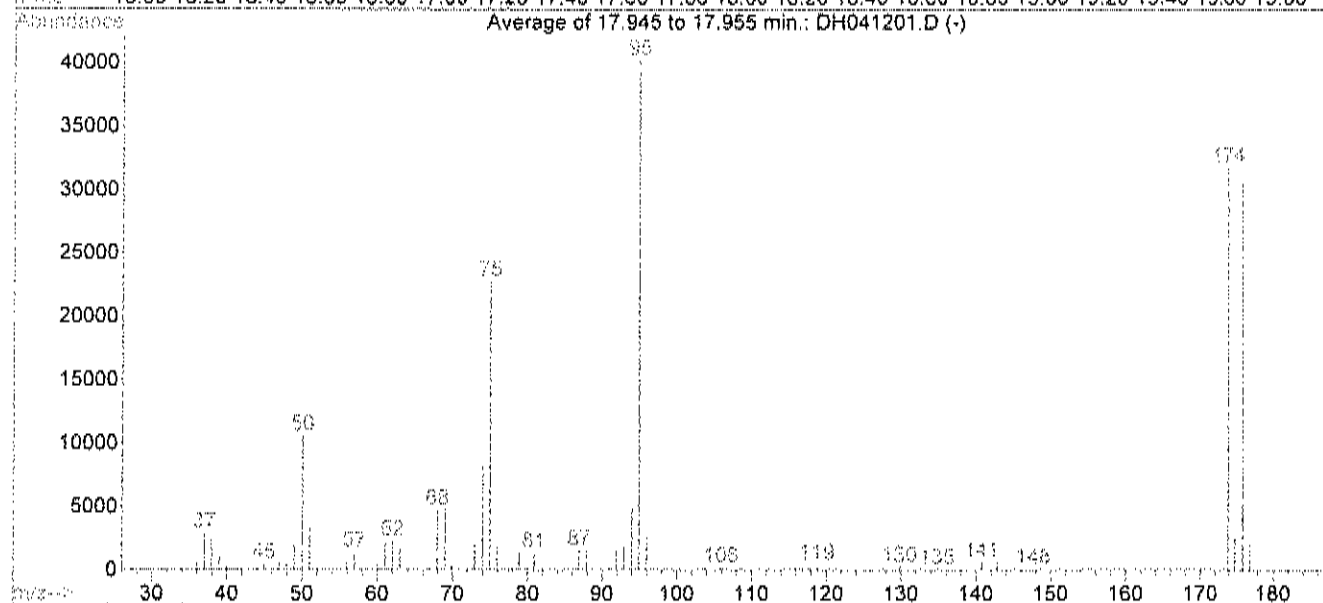
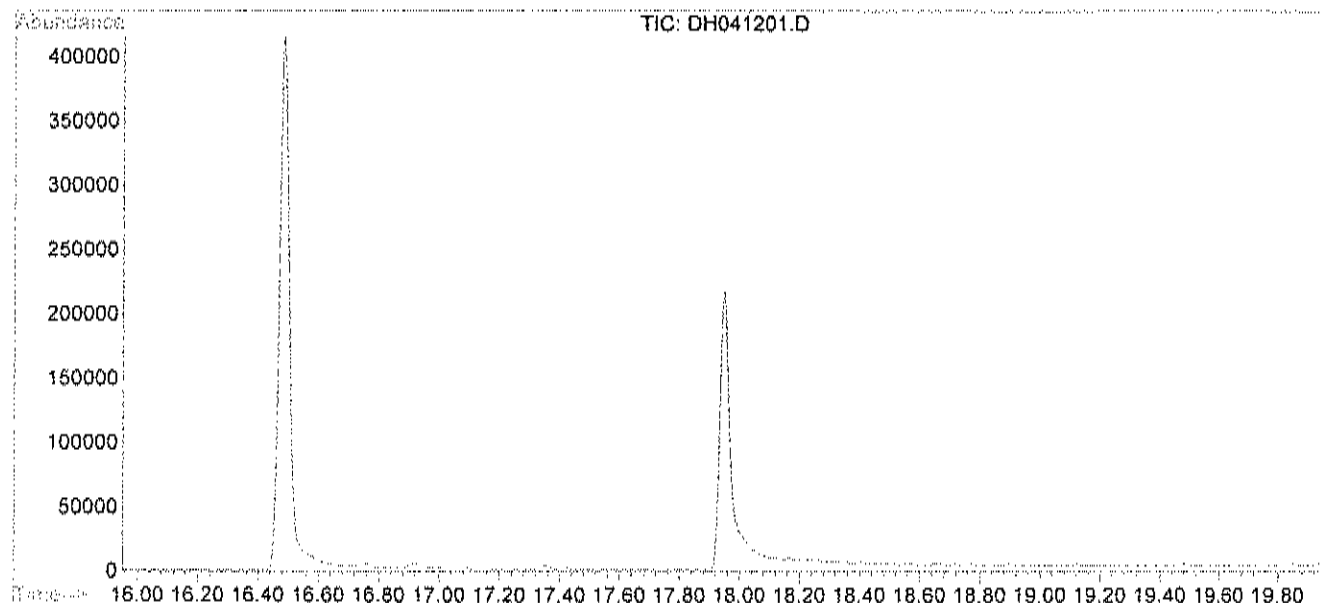
Title : VOA Standards for 5 point calibration

Vial: 1

Operator: WD

Inst : GCMS3

Multiplr: 1.00



AutoFind: Scans 3529, 3530, 3531; Background Corrected with Scan 3519

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
Mass	Mass	Limit%	Limit%	Abn%	Abn	Pass/Fail
50	95	8	40	26.2	10563	PASS
75	95	30	66	56.6	22765	PASS
95	95	100	100	100.0	40256	PASS
96	95	5	9	6.8	2719	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	78.8	31739	PASS
175	174	4	9	7.7	2452	PASS
176	174	95	101	96.3	30549	PASS
177	176	5	9	7.1	2161	PASS

BFB

Data File : C:\HPCHEM\1\DATA\DH051101.D

Acq On : 11 May 2017 8:18 am

Sample : BFB

Misc : TO15

MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

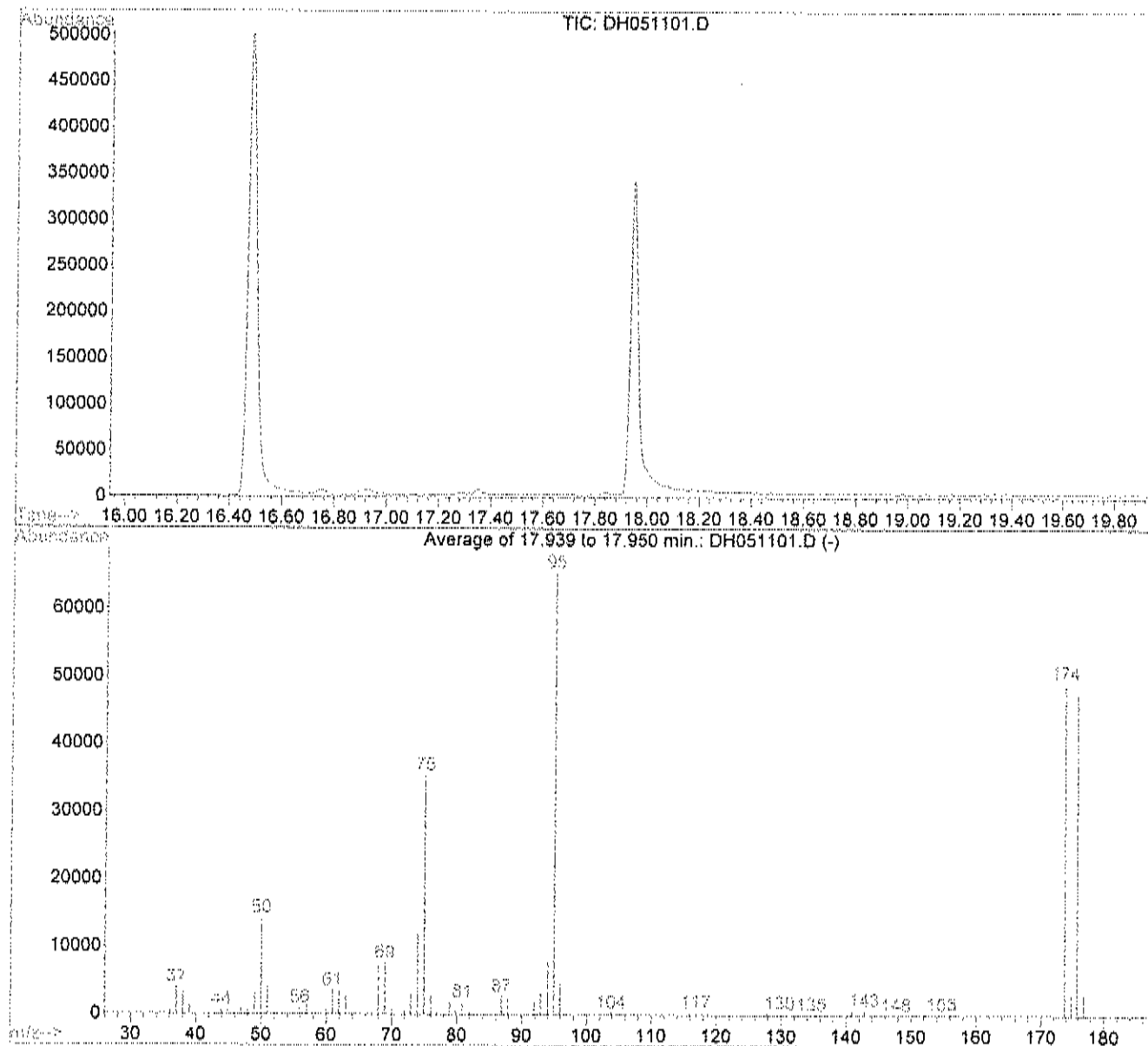
Title : VOA Standards for 5 point calibration

Vial: 1

Operator: WD

Inst : GCMS3

Multiplr: 1.00



Spectrum Information: Average of 17.939 to 17.950 min.

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
Mass	Mass	Limit%	Limit%	Abn%	Abn	Pass/Fail
50	95	15	40	21.8	14300	PASS
75	95	30	66	54.1	35432	PASS
95	95	100	100	100.0	65536	PASS
96	95	5	9	6.9	4524	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	75.3	49320	PASS
175	174	5	9	7.3	3586	PASS
176	174	95	101	96.5	47605	PASS
177	176	5	9	6.6	3144	PASS

BFB

Data File : C:\HPCHEM\1\DATA\DH051501.D

Vial: 1

Acq On : 15 May 2017 8:24 am

Operator: WD

Sample : BFB

Inst : GCMS3

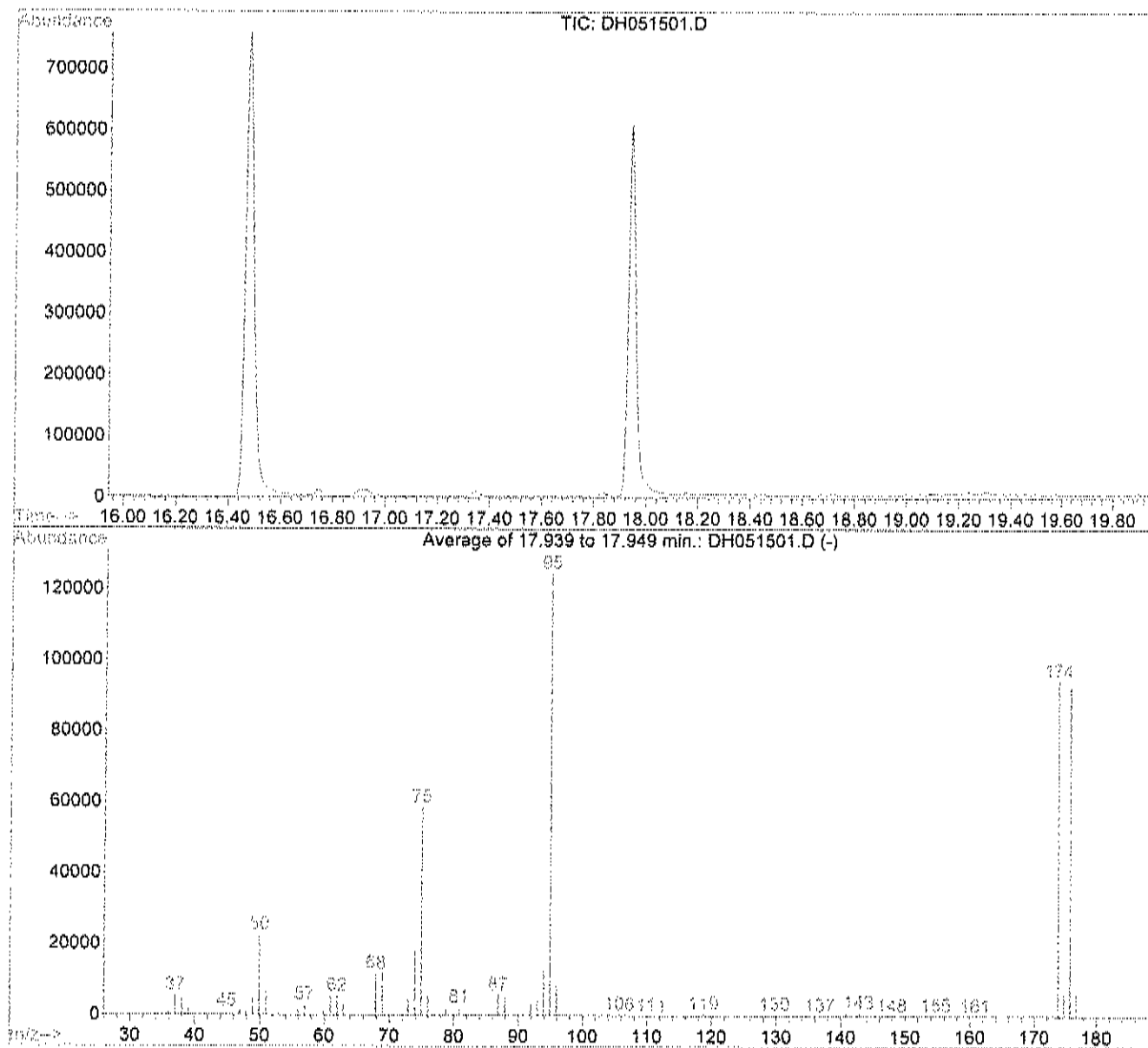
Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration



Spectrum Information: Average of 17.939 to 17.949 min.

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
Mass	Mass	Limit%	Limit%	Abn%	Abn	Pass/Fail
50	95	15	40	18.1	22555	PASS
75	95	30	66	47.0	58707	PASS
95	95	100	100	100.0	124795	PASS
96	95	5	9	6.9	8549	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	75.8	94611	PASS
175	174	5	9	7.3	6910	PASS
176	174	95	101	98.1	92859	PASS
177	176	5	9	6.8	6314	PASS

BFB

Data File : C:\HPCHEM\1\DATA\DH051701.D

Vial: 1

Acq On : 17 May 2017 8:17 am

Operator: WD

Sample : BFB

Inst : GCMS3

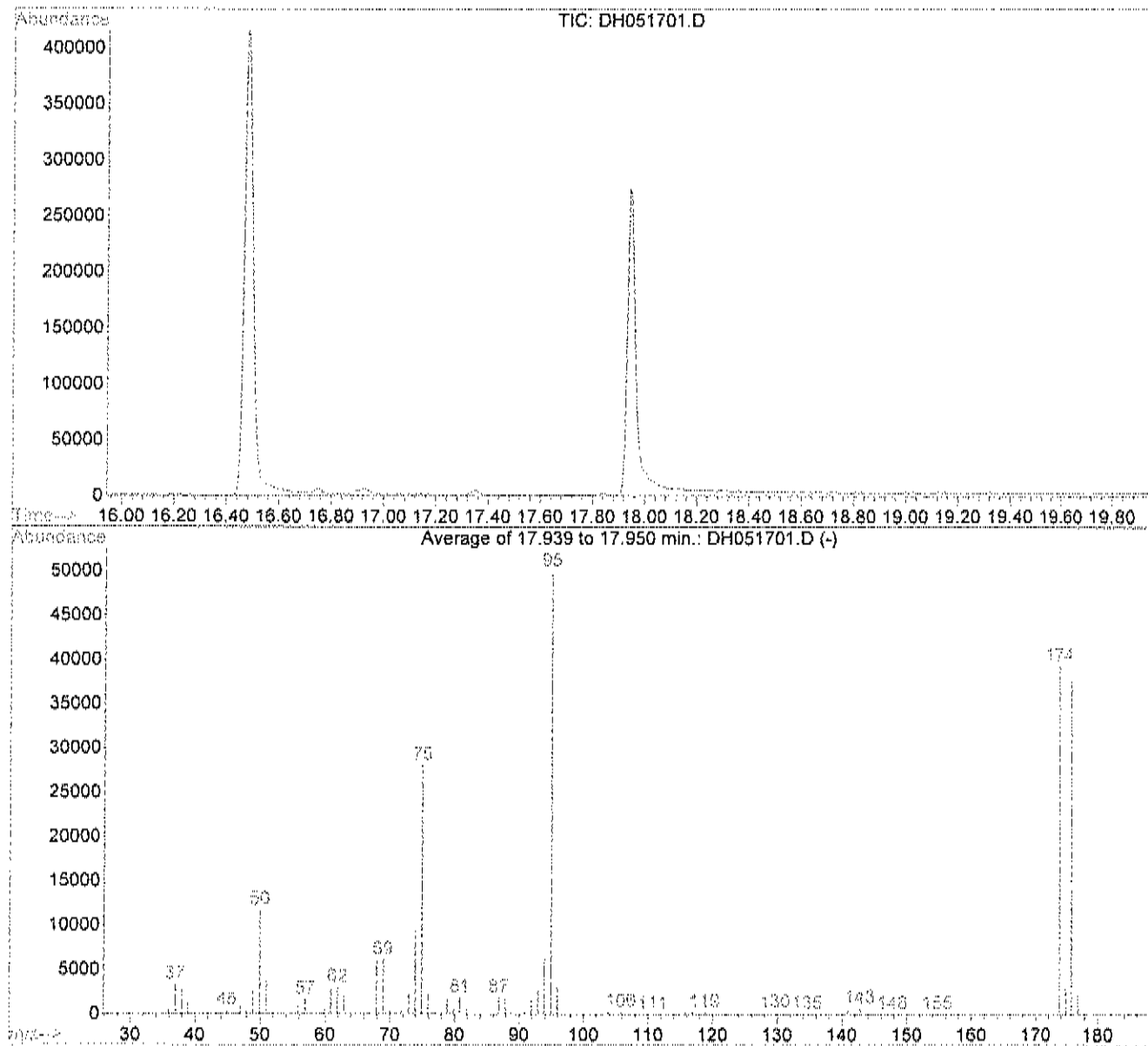
Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration



Spectrum Information: Average of 17.939 to 17.950 min.

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
Mass	Mass	Limit%	Limit%	Abn%	Abn	Pass/Fail
50	95	15	40	23.6	11804	PASS
75	95	30	66	56.4	28189	PASS
95	95	100	100	100.0	50024	PASS
96	95	5	9	6.5	3245	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	78.7	39368	PASS
175	174	5	9	7.5	2938	PASS
176	174	95	101	95.9	37755	PASS
177	176	5	9	6.4	2403	PASS

BFB

Data File : C:\HPCHEM\1\DATA\DH051801.D

Vial: 1

Acq On : 18 May 2017 8:21 am

Operator: WD

Sample : BFB

Inst : GCMS3

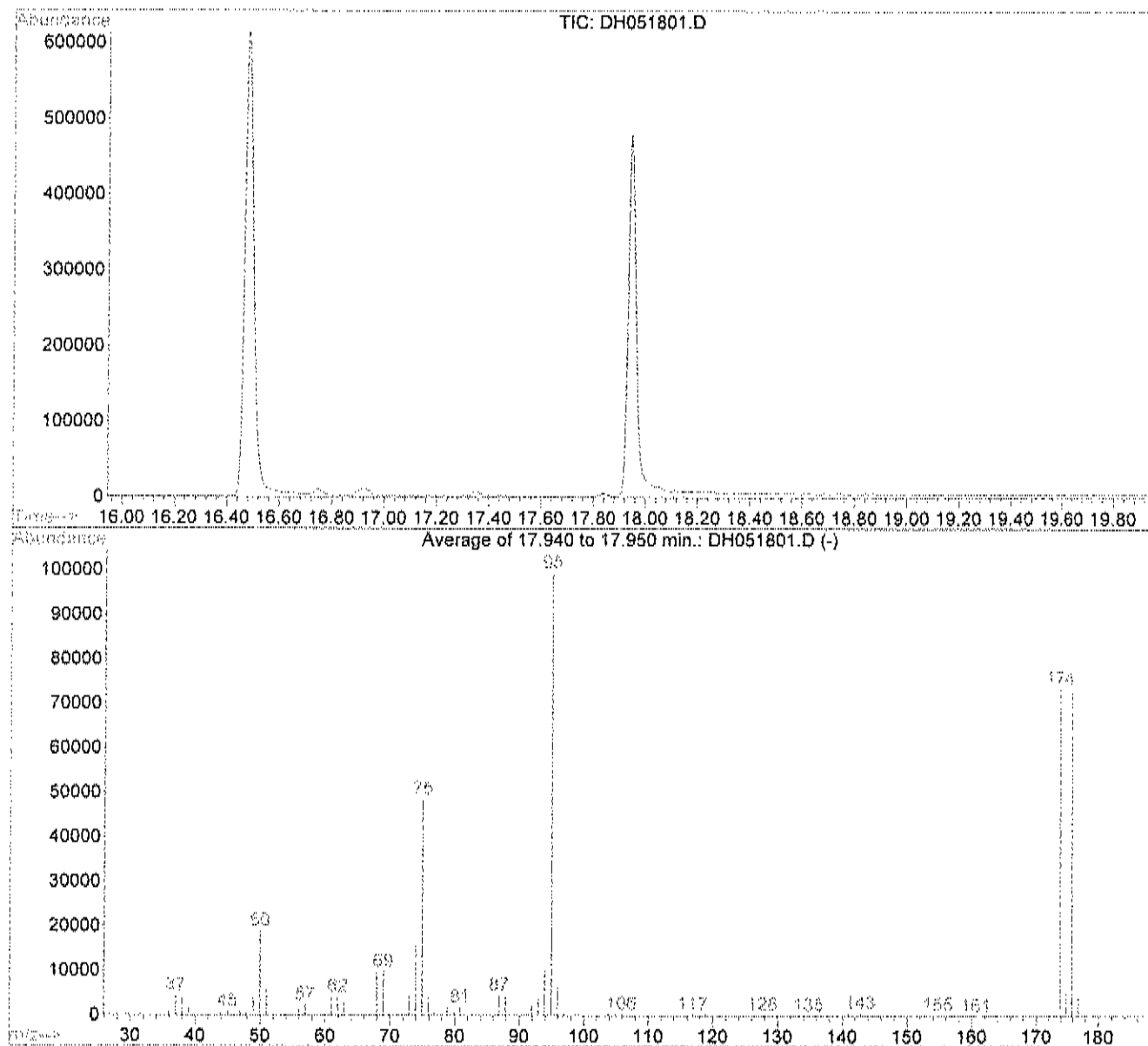
Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration



Spectrum Information: Average of 17.940 to 17.950 min.

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
Mass	Mass	Limit%	Limit%	Abn%	Abn	Pass/Fail
50	95	15	40	19.0	18963	PASS
75	95	30	66	48.9	48699	PASS
95	95	100	100	100.0	99581	PASS
96	95	5	9	6.6	6535	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	73.9	73632	PASS
175	174	5	9	7.1	5252	PASS
176	174	95	101	98.7	72696	PASS
177	176	5	9	6.7	4844	PASS

GC/MS VOLATILES-WHOLE AIR

METHOD TO-15

RAW QC DATA

Date: 01-Jun-17

CENTEK LABORATORIES, LLC

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-051517	SampleType: MBLK	TestCode: TO16	Units: ppbV	Prep Date:	RunNo: 12257						
Client ID: ZZZZZ	Batch ID: R12257	TestNo: TO-15		Analysis Date: 5/15/2017	SeqNo: 143176						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	< 5.0	5.0									
1,1,2,2-Tetrachloroethane	< 5.0	5.0									
1,1,2-Trichloroethane	< 5.0	5.0									
1,1-Dichloroethane	< 5.0	5.0									
1,1-Dichloroethene	< 5.0	5.0									
1,2,4-Trichlorobenzene	< 5.0	5.0									
1,2,4-Trimethylbenzene	< 5.0	5.0									
1,2-Dibromoethane	< 5.0	5.0									
1,2-Dichlorobenzene	< 5.0	5.0									
1,2-Dichloroethane	< 5.0	5.0									
1,2-Dichloropropane	< 5.0	5.0									
1,3,5-Trimethylbenzene	< 5.0	5.0									
1,3-butadiene	< 5.0	5.0									
1,3-Dichlorobenzene	< 5.0	5.0									
1,4-Dichlorobenzene	< 5.0	5.0									
1,4-Dioxane	< 10	10									
2,2,4-trimethylpentane	< 5.0	5.0									
4-ethyltoluene	< 5.0	5.0									
Acetone	< 10	10									
Allyl chloride	< 5.0	5.0									
Benzene	< 5.0	5.0									
Benzyl chloride	< 5.0	5.0									
Bromodichloromethane	< 5.0	5.0									
Bromoform	< 5.0	5.0									
Bromomethane	< 5.0	5.0									

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-061517		SampleType: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12257					
Client ID: ZZZZZ		Batch ID: R12257	TestNo: TO-15		Analysis Date: 5/15/2017	SeqNo: 143176					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon disulfide	< 5.0	5.0									
Carbon tetrachloride	< 5.0	5.0									
Chlorobenzene	< 5.0	5.0									
Chloroethane	< 5.0	5.0									
Chloroform	< 5.0	5.0									
Chloromethane	< 5.0	5.0									
cis-1,2-Dichloroethene	< 5.0	5.0									
cis-1,3-Dichloropropene	< 5.0	5.0									
Cyclohexane	< 5.0	5.0									
Dibromochloromethane	< 5.0	5.0									
Ethyl acetate	< 10	10									
Ethylbenzene	< 5.0	5.0									
Freon 11	< 5.0	5.0									
Freon 113	< 5.0	5.0									
Freon 114	< 5.0	5.0									
Freon 12	< 5.0	5.0									
Heptane	< 5.0	5.0									
Hexachloro-1,3-butadiene	< 5.0	5.0									
Hexane	< 5.0	5.0									
Isopropyl alcohol	< 5.0	5.0									
m&p-Xylene	< 10	10									
Methyl Butyl Ketone	< 10	10									
Methyl Ethyl Ketone	< 10	10									
Methyl Isobutyl Ketone	< 10	10									
Methyl tert-butyl ether	< 5.0	5.0									
Methylene chloride	< 5.0	5.0									
o-Xylene	< 5.0	5.0									
Propylene	< 5.0	5.0									
Styrene	< 5.0	5.0									
Tetrachloroethylene	< 5.0	5.0									
Tetrahydrofuran	< 5.0	5.0									

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-051517	Sample Type: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12257						
Client ID: ZZZZZ	Batch ID: R12257	TestNo: TO-15		Analysis Date: 5/15/2017	SeqNo: 143176						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	< 5.0	5.0									
trans-1,2-Dichloroethene	< 5.0	5.0									
trans-1,3-Dichloropropene	< 5.0	5.0									
Trichloroethene	< 5.0	5.0									
Vinyl acetate	< 5.0	5.0									
Vinyl Bromide	< 5.0	5.0									
Vinyl chloride	< 5.0	5.0									
Surr. Bromofluorobenzene	36.06	0	50	0	72.1	55.8	141				

Sample ID: DMB_TO15-051717	Sample Type: MBLK	TestCode: TOT5	Units: ppbV	Prep Date:	RunNo: 12258						
Client ID: ZZZZZ	Batch ID: R12258	TestNo: TO-15		Analysis Date: 5/17/2017	SeqNo: 143185						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	< 5.0	5.0									
1,1,2,2-Tetrachloroethane	< 5.0	5.0									
1,1,2-Trichloroethane	< 5.0	5.0									
1,1-Dichloroethane	< 5.0	5.0									
1,1-Dichloroethene	< 5.0	5.0									
1,2,4-Trichlorobenzene	< 5.0	5.0									
1,2,4-Trimethylbenzene	< 5.0	5.0									
1,2-Dibromoethane	< 5.0	5.0									
1,2-Dichlorobenzene	< 5.0	5.0									
1,2-Dichloroethane	< 5.0	5.0									
1,2-Dichloropropane	< 5.0	5.0									
1,3,5-Trimethylbenzene	< 5.0	5.0									
1,3-butadiene	< 5.0	5.0									
1,3-Dichlorobenzene	< 5.0	5.0									
1,4-Dichlorobenzene	< 5.0	5.0									
1,4-Dioxane	< 10	10									
2,2,4-trimethylpentane	< 5.0	5.0									

Qualifiers: Results reported are not blank corrected
 J Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-051717	Sample Type: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12258						
Client ID: ZZZZZ	Batch ID: R12258	TestNo: TO-15		Analysis Date: 5/17/2017	SeqNo: 143185						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-ethyltoluene	< 5.0	5.0									
Acetone	< 10	10									
Allyl chloride	< 5.0	5.0									
Benzene	< 5.0	5.0									
Benzyl chloride	< 5.0	5.0									
Bromodichloromethane	< 5.0	5.0									
Bromoform	< 5.0	5.0									
Bromomethane	< 5.0	5.0									
Carbon disulfide	< 5.0	5.0									
Carbon tetrachloride	< 5.0	5.0									
Chlorobenzene	< 5.0	5.0									
Chloroethane	< 5.0	5.0									
Chloroform	< 5.0	5.0									
Chloromethane	< 5.0	5.0									
cis-1,2-Dichloroethene	< 5.0	5.0									
cis-1,3-Dichloropropene	< 5.0	5.0									
Cyclohexane	< 5.0	5.0									
Dibromochloromethane	< 5.0	5.0									
Ethyl acetate	< 10	10									
Ethylbenzene	< 5.0	5.0									
Freon 11	< 5.0	5.0									
Freon 113	< 5.0	5.0									
Freon 114	< 5.0	5.0									
Freon 12	< 5.0	5.0									
Heptane	< 5.0	5.0									
Hexachloro-1,3-butadiene	< 5.0	5.0									
Hexane	< 5.0	5.0									
Isopropyl alcohol	< 5.0	5.0									
m&p-Xylene	< 10	10									
Methyl Butyl Ketone	< 10	10									
Methyl Ethyl Ketone	< 10	10									

Qualifiers: Results reported are not blank corrected
 F Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-051717	SampleType: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12258						
Client ID: ZZZZZ	Batch ID: R12258	TestNo: TO-15		Analysis Date: 5/17/2017	SeqNo: 143185						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Methyl isobutyl Ketone	< 10	10									
Methyl tert-butyl ether	< 5.0	5.0									
Methylene chloride	< 5.0	5.0									
o-Xylene	< 5.0	5.0									
Propylene	< 5.0	5.0									
Styrene	< 5.0	5.0									
Tetrachloroethylene	< 5.0	5.0									
Tetrahydrofuran	< 5.0	5.0									
Toluene	< 5.0	5.0									
trans-1,2-Dichloroethene	< 5.0	5.0									
trans-1,3-Dichloropropene	< 5.0	5.0									
Trichloroethene	< 5.0	5.0									
Vinyl acetate	< 5.0	5.0									
Vinyl Bromide	< 5.0	5.0									
Vinyl chloride	< 5.0	5.0									
Surr: Bromofluorobenzene	37.00	0	50	0	74.0	55.8	141				

Sample ID: DMB_TO15-051817	Sample Type: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12259						
Client ID: ZZZZZ	Batch ID: R12259	TestNo: TO-15		Analysis Date: 5/18/2017	SeqNo: 143202						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,1,1-Trichloroethane	< 5.0	5.0									
1,1,2,2-Tetrachloroethane	< 5.0	5.0									
1,1,2-Trichloroethane	< 5.0	5.0									
1,1-Dichloroethane	< 5.0	5.0									
1,1-Dichloroethene	< 5.0	5.0									
1,2,4-Trichlorobenzene	< 5.0	5.0									
1,2,4-Trimethylbenzene	< 5.0	5.0									
1,2-Dibromoethane	< 5.0	5.0									
1,2-Dichlorobenzene	< 5.0	5.0									

Qualifiers: - Results reported are not blank, corrected
 J Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-051817	SampleType: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12259						
Client ID: ZZZZZ	Batch ID: R12259	TestNo: TO-15		Analysis Date: 5/18/2017	SeqNo: 143202						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane	< 5.0	5.0									
1,2-Dichloropropane	< 5.0	5.0									
1,3,5-Trimethylbenzene	< 5.0	5.0									
1,3-butadiene	< 5.0	5.0									
1,3-Dichlorobenzene	< 5.0	5.0									
1,4-Dichlorobenzene	< 5.0	5.0									
1,4-Dioxane	< 10	10									
2,2,4-trimethylpentane	< 5.0	5.0									
4-ethyltoluene	< 5.0	5.0									
Acetone	< 10	10									
Allyl chloride	< 5.0	5.0									
Benzene	< 5.0	5.0									
Benzyl chloride	< 5.0	5.0									
Bromodichloromethane	< 5.0	5.0									
Bromoform	< 5.0	5.0									
Bromomethane	< 5.0	5.0									
Carbon disulfide	< 5.0	5.0									
Carbon tetrachloride	< 5.0	5.0									
Chlorobenzene	< 5.0	5.0									
Chloroethane	< 5.0	5.0									
Chloroform	< 5.0	5.0									
Chloromethane	< 5.0	5.0									
cis-1,2-Dichloroethene	< 5.0	5.0									
cis-1,3-Dichloropropene	< 5.0	5.0									
Cyclohexane	< 5.0	5.0									
Dibromochloromethane	< 5.0	5.0									
Ethyl acetate	< 10	10									
Ethylbenzene	< 5.0	5.0									
Freon 11	< 5.0	5.0									
Freon 113	< 5.0	5.0									
Freon 114	< 5.0	5.0									

Qualifiers: Results reported are not blank corrected
 J Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DMB_TO15-051817	Sample Type: MBLK	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12259						
Client ID: ZZZZZ	Batch ID: R12259	TestNo: TO-15		Analysis Date: 5/18/2017	SeqNo: 143202						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Freon 12	< 5.0	5.0									
Heptane	< 5.0	5.0									
Hexachloro-1,3-butadiene	< 5.0	5.0									
Hexane	< 5.0	5.0									
Isopropyl alcohol	< 5.0	5.0									
m&p-Xylene	< 10	10									
Methyl Butyl Ketone	< 10	10									
Methyl Ethyl Ketone	< 10	10									
Methyl Isobutyl Ketone	< 10	10									
Methyl tert-butyl ether	< 5.0	5.0									
Methylene chloride	< 5.0	5.0									
o-Xylene	< 5.0	5.0									
Propylene	< 5.0	5.0									
Styrene	< 5.0	5.0									
Tetrachloroethylene	< 5.0	5.0									
Tetrahydrofuran	< 5.0	5.0									
Toluene	< 5.0	5.0									
trans-1,2-Dichloroethene	< 5.0	5.0									
trans-1,3-Dichloropropene	< 5.0	5.0									
Trichloroethene	< 5.0	5.0									
Vinyl acetate	< 5.0	5.0									
Vinyl Bromide	< 5.0	5.0									
Vinyl chloride	< 5.0	5.0									
Surr: Bromofluorobenzene	35.27	0	50	0	70.5	55.8	141				

Qualifiers: . Results reported are not blank corrected
 J Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051508.D
Acq On : 15 May 2017 1:00 pm
Sample : DMB TO15-051517
Misc : TO15

Vial: 1
Operator: WD
Inst : GCMS3
Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 15 13:32 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.96	128	129471	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.19	114	783626	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	601561	50.00	ppb	0.00

System Monitoring Compounds

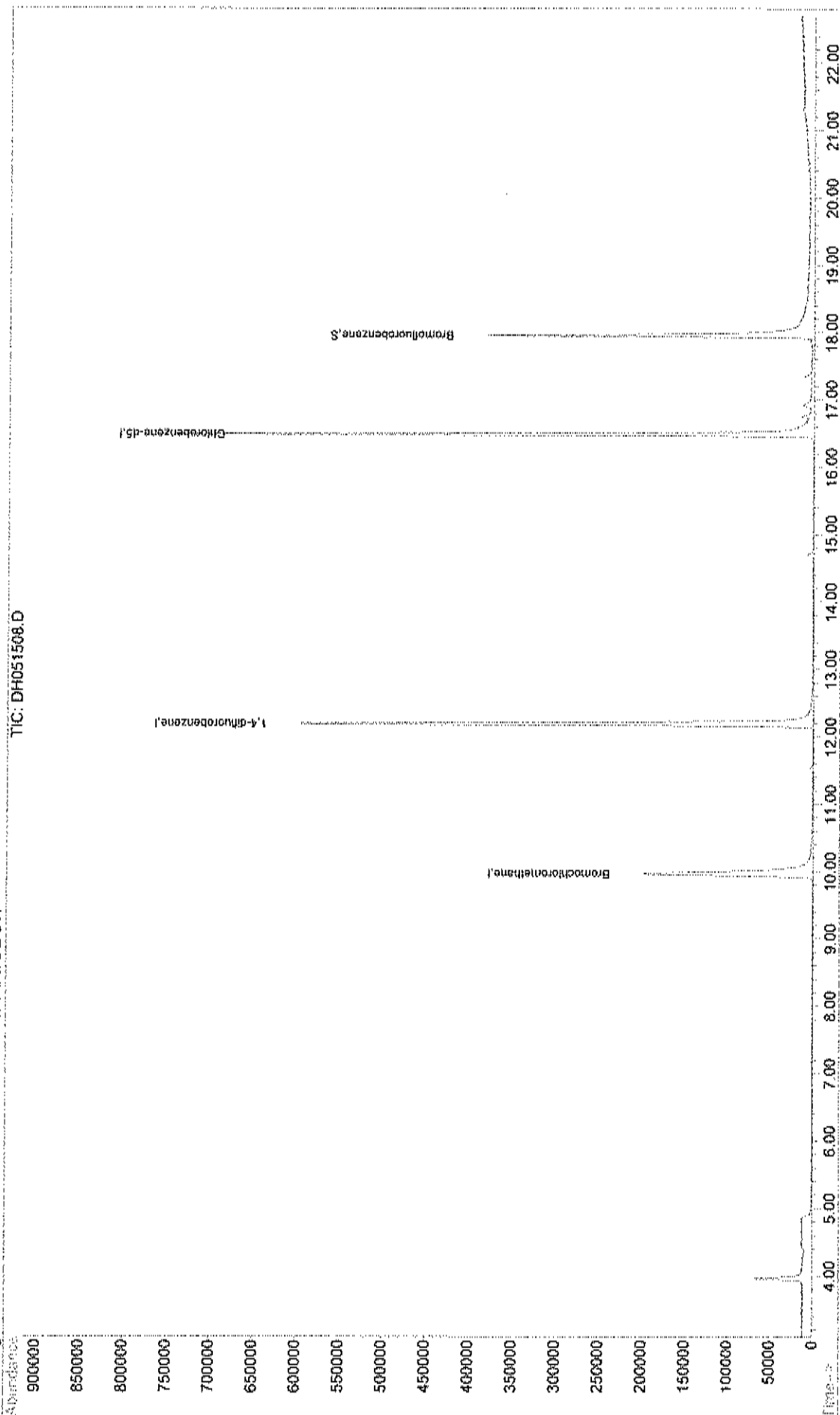
67) Bromofluorobenzene	17.95	95	307750m 4	36.06	ppb	0.00
Spiked Amount	50.000	Range	70 ~ 130	Recovery	=	72.12%

Target Compounds

Qvalue

Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051508.D
Acq On : 15 May 2017 1:00 pm
Sample : DMB TO15-051517
Misc : TO15
MS Integration Params: rteint.p
Quant Time: May 15 13:32 2017
Quant Results File: I0511T15.RES
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration



Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051706.D
Acq On : 17 May 2017 11:18 am
Sample : DMB TO15-051717
Misc : TO15

Vial: 1
Operator: WD
Inst : GCMS3
Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 17 12:16 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	106084	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	645962	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	515205	50.00	ppb	0.00

System Monitoring Compounds

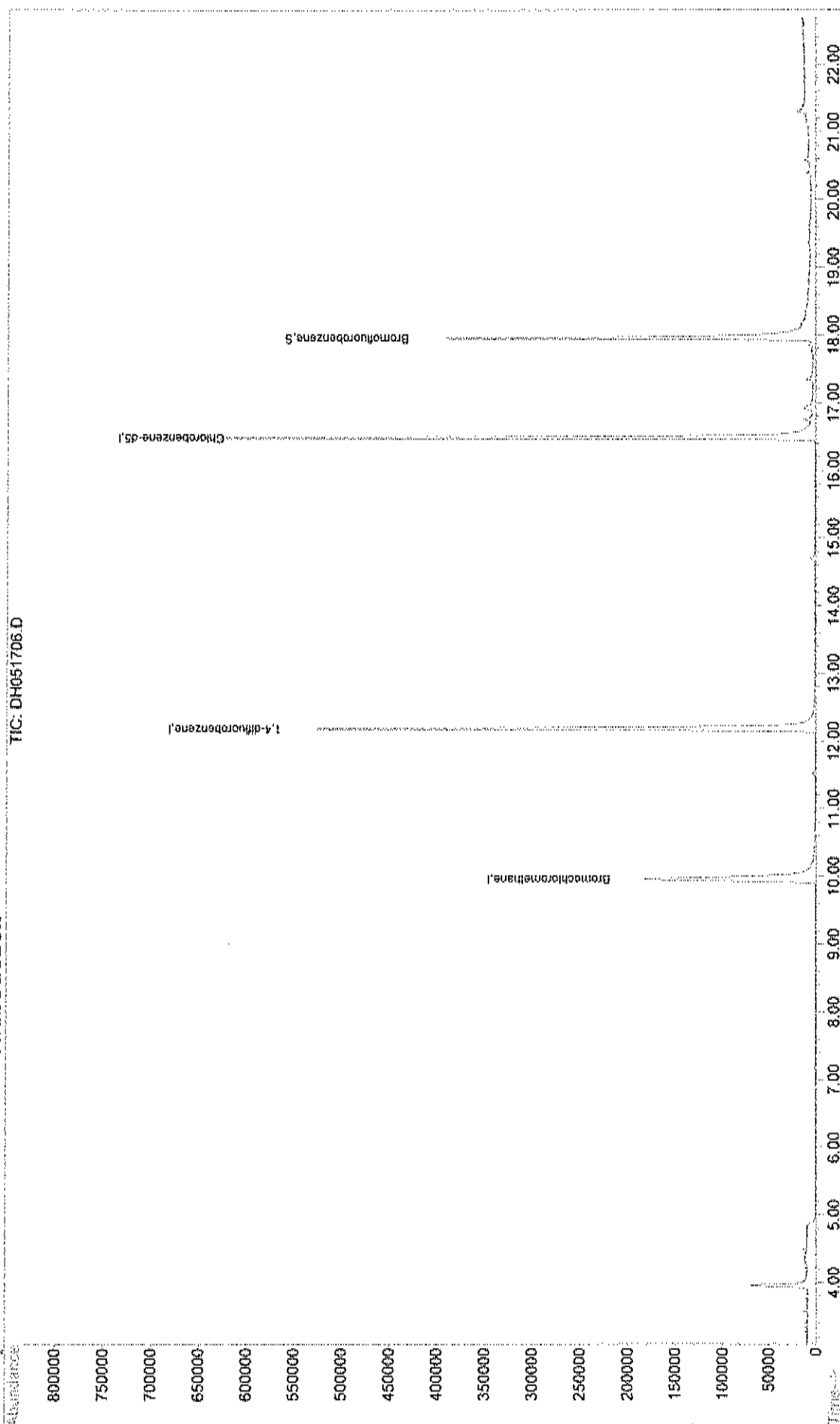
67) Bromofluorobenzene	17.95	95	270398m	37.00	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	74.00%

Target Compounds

Qvalue

Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051706.D
Acq On : 17 May 2017 11:18 am
Sample : DMB_TO15-051717
Misc : TO15
MS Integration Params: rteint.p
Quant Time: May 17 12:16 2017
Quant Results File: I0511T15.RES
Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration



Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051811.D
Acq On : 18 May 2017 2:39 pm
Sample : DMB_T015-051817
Misc : T015

Vial: 1
Operator: WD
Inst : GCMS3
Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 18 15:02 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	77664	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	476928	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	367493	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	183882	35.27	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	70.54%

Target Compounds

60) m&p-Xylene	16.93	106	5717	1.03	ppb	Qvalue # 77
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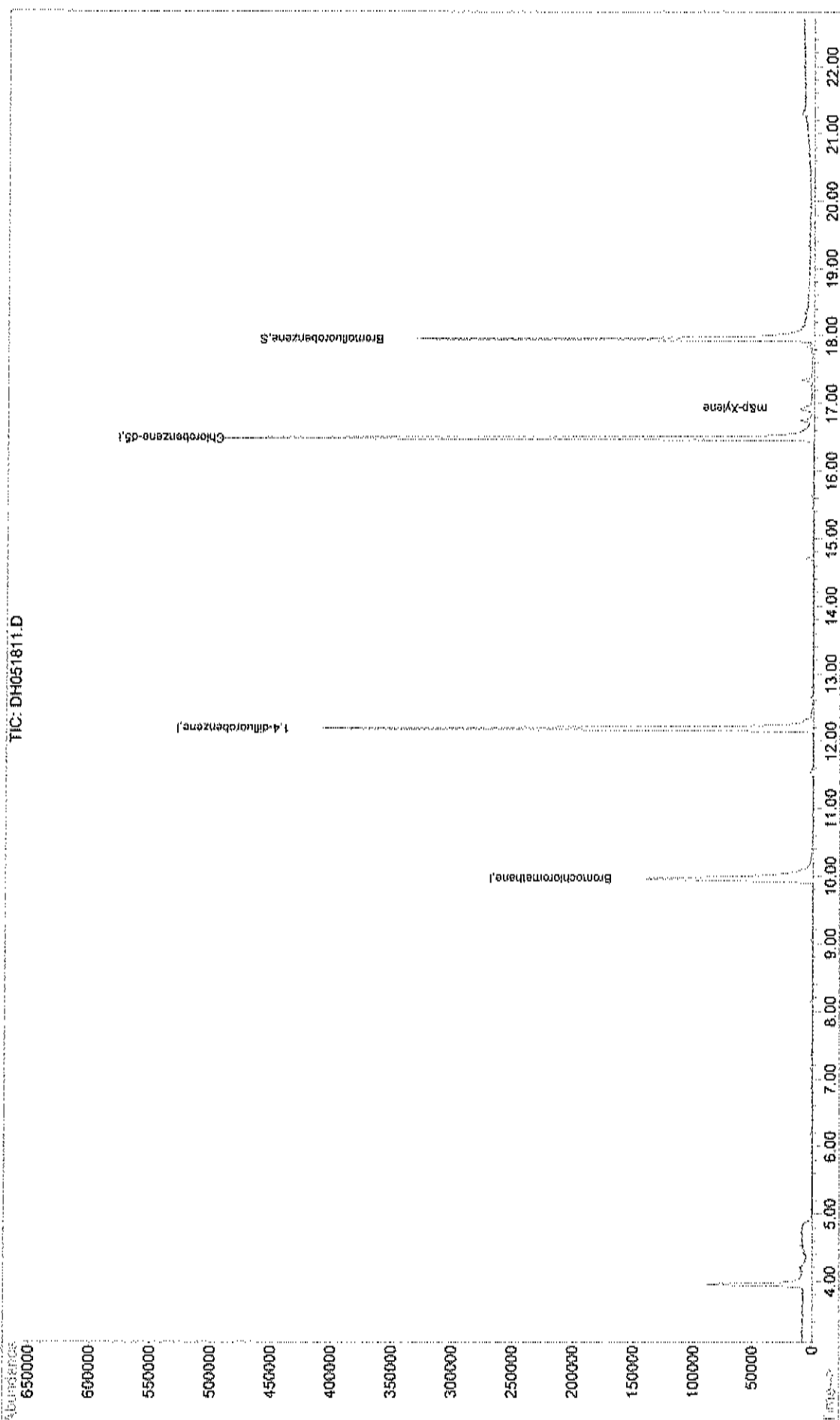
Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051811.D
Acq On : 18 May 2017 2:39 pm
Sample : DMB TO15-051817
Misc : TO15
MS Integration Params: rteint.p
Quant Time: May 18 15:02 2017

Vial: 1
Operator: WD
Inst : GCMS3
Multiplr: 1.00

Quant Results File: I0511T15.RES

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration



Date: 01-Jun-17

CENTEK LABORATORIES, LLC

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051517	Sample Type: LCS	Batch ID: R12257	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12257					
Client ID: ZZZZZ			TestNo: TO-15		Analysis Date: 5/15/2017	SeqNo: 143177					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	41.20	5.0	50	0	82.4	76.6	124				
1,1,2,2-Tetrachloroethane	44.93	5.0	50	0	89.9	47.3	139				
1,1,2-Trichloroethane	44.81	5.0	50	0	89.6	59.9	149				
1,1-Dichloroethane	45.84	5.0	50	0	91.7	56.9	146				
1,1-Dichloroethene	51.97	5.0	50	0	104	50.2	131				
1,2,4-Trichlorobenzene	43.64	5.0	50	0	87.3	27	127				
1,2,4-Trimethylbenzene	45.18	5.0	50	0	90.4	49	138				
1,2-Dibromoethane	45.37	5.0	50	0	90.7	59	145				
1,2-Dichlorobenzene	44.88	5.0	50	0	89.8	36.5	138				
1,2-Dichloroethane	43.02	5.0	50	0	86.0	71.6	126				
1,2-Dichloropropane	44.01	5.0	50	0	88.0	62.9	156				
1,3,5-Trimethylbenzene	44.44	5.0	50	0	88.9	48.2	136				
1,3-butadiene	36.96	5.0	50	0	73.9	17.2	190				
1,3-Dichlorobenzene	47.47	5.0	50	0	94.9	35.9	141				
1,4-Dichlorobenzene	43.31	5.0	50	0	86.6	41.5	136				
1,4-Dioxane	47.08	10	50	0	94.2	52.4	150				
2,2,4-trimethylpentane	43.77	5.0	50	0	87.5	60.6	159				
4-ethyltoluene	43.42	5.0	50	0	86.8	52.2	129				
Acetone	48.04	10	50	0	96.1	65.4	142				
Allyl chloride	42.66	5.0	50	0	85.3	52	176				
Benzene	46.15	5.0	50	0	92.3	58.6	151				
Benzyl chloride	49.24	5.0	50	0	98.5	36.5	106				
Bromodichloromethane	42.24	5.0	50	0	84.5	73.9	129				
Bromoform	41.95	5.0	50	0	83.9	15.5	180				
Bromomethane	40.30	5.0	50	0	80.6	51.5	126				

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051517		Sample Type: LCS	Batch ID: R12257		TestCode: TO15		Units: ppbV	Prep Date:		RunNo: 12257	
Client ID: ZZZZZ		Batch ID: R12257		TestCode: TO-15		TestNo: TO-15		Analysis Date: 5/15/2017		SeqNo: 143177	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon disulfide	47.58	5.0	50	0	95.2	55	144				
Carbon tetrachloride	39.23	5.0	50	0	78.5	70	122				
Chlorobenzene	44.83	5.0	50	0	89.7	49.7	142				
Chloroethane	43.35	5.0	50	0	86.7	58	138				
Chloroform	44.50	5.0	50	0	89.0	64.8	130				
Chloromethane	35.12	5.0	50	0	70.2	57	153				
cis-1,2-Dichloroethene	49.77	5.0	50	0	99.5	53.2	146				
cis-1,3-Dichloropropene	45.84	5.0	50	0	91.7	70.4	129				
Cyclohexane	44.47	5.0	50	0	88.9	57.4	162				
Dibromochloromethane	39.87	5.0	50	0	79.7	52.5	145				
Ethyl acetate	43.92	10	50	0	87.8	61.5	147				
Ethylbenzene	45.32	5.0	50	0	90.6	54.8	138				
Freon 11	37.46	5.0	50	0	74.9	69.2	125				
Freon 113	49.17	5.0	50	0	98.3	55.5	122				
Freon 114	35.22	5.0	50	0	70.4	62.6	166				
Freon 12	38.24	5.0	50	0	76.5	79.1	129				
Heptane	41.11	5.0	50	0	82.2	65.2	158				S
Hexachloro-1,3-butadiene	38.64	5.0	50	0	77.3	35.9	124				
Hexane	40.87	5.0	50	0	81.7	61.6	151				
Isopropyl alcohol	44.42	5.0	50	0	88.8	53.4	147				
m&p-Xylene	89.69	10	100	0	89.7	64.6	141				
Methyl Butyl Ketone	44.05	10	50	0	88.1	74.5	117				
Methyl Ethyl Ketone	49.89	10	50	0	99.8	57.2	142				
Methyl Isobutyl Ketone	41.48	10	50	0	83.0	73	122				
Methyl tert-butyl ether	44.01	5.0	50	0	88.0	67.4	134				
Methylene chloride	50.04	5.0	50	0	100	48.6	142				
o-Xylene	43.36	5.0	50	0	86.7	62.4	140				
Propylene	36.37	5.0	50	0	72.7	51.7	165				
Styrene	46.45	5.0	50	0	92.9	49.4	147				
Tetrachloroethylene	42.68	5.0	50	0	85.4	45.5	149				
Tetrahydrofuran	43.24	5.0	50	0	86.5	58.6	149				

Qualifiers: - Results reported are not blank corrected
 J Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

J1 Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051517	SampleType: LCS	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12257						
Client ID: ZZZZZ	Batch ID: R12257	TestNo: TO-15		Analysis Date: 5/15/2017	SeqNo: 143177						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	44.33	5.0	50	0	88.7	60.3	147				
trans-1,2-Dichloroethene	48.28	5.0	50	0	96.6	66.9	152				
trans-1,3-Dichloropropene	45.83	5.0	50	0	91.7	79.5	136				
Trichloroethene	45.22	5.0	50	0	90.4	57.4	144				
Vinyl acetate	48.11	5.0	50	0	96.2	64.9	157				
Vinyl Bromide	46.15	5.0	50	0	92.3	69.1	134				
Vinyl chloride	35.82	5.0	50	0	71.6	59.9	147				
Surr: Bromofluorobenzene	49.69	0	50	0	99.4	70.6	129				

Sample ID: DLCS_TO15-051717	SampleType: LCS	Batch ID: R12258	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12258					
Client ID: ZZZZZ			TestNo: TO-15		Analysis Date: 5/17/2017	SeqNo: 143186					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	49.01	5.0	50	0	98.0	76.6	124				
1,1,2,2-Tetrachloroethane	46.52	5.0	50	0	93.0	47.3	139				
1,1,2-Trichloroethane	46.58	5.0	50	0	93.2	59.9	149				
1,1-Dichloroethane	49.13	5.0	50	0	98.3	56.9	146				
1,1-Dichloroethene	50.08	5.0	50	0	100	50.2	131				
1,2,4-Trichlorobenzene	46.60	5.0	50	0	93.2	27	127				
1,2,4-Trimethylbenzene	49.46	5.0	50	0	98.9	49	138				
1,2-Dibromoethane	48.64	5.0	50	0	97.3	59	145				
1,2-Dichlorobenzene	49.15	5.0	50	0	98.3	36.5	138				
1,2-Dichloroethane	52.42	5.0	50	0	105	71.6	126				
1,2-Dichloropropane	45.88	5.0	50	0	91.8	62.9	156				
1,3,5-Trimethylbenzene	49.00	5.0	50	0	98.0	48.2	136				
1,3-butadiene	57.77	5.0	50	0	116	17.2	190				
1,3-Dichlorobenzene	52.06	5.0	50	0	104	35.9	141				
1,4-Dichlorobenzene	47.53	5.0	50	0	95.1	41.5	136				
1,4-Dioxane	46.72	10	50	0	93.4	52.4	150				
2,2,4-trimethylpentane	47.20	5.0	50	0	94.4	60.6	159				

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051717			Samp Type: LCS		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12258	
Client ID: ZZZZZ			Batch ID: R12258		TestNo: TO-15				Analysis Date: 5/17/2017		SeqNo: 143186	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
4-ethyltoluene	47.89	5.0	50	0	95.8	52.2	129					
Acetone	57.83	10	50	0	116	65.4	142					
Allyl chloride	48.96	5.0	50	0	97.9	52	176					
Benzene	45.60	5.0	50	0	91.2	58.6	151					
Benzyl chloride	48.89	5.0	50	0	97.8	36.5	106					
Bromedichloromethane	48.70	5.0	50	0	97.4	73.9	129					
Bromoform	50.28	5.0	50	0	101	15.5	180					
Bromomethane	40.53	5.0	50	0	81.1	51.5	126					
Carbon disulfide	47.46	5.0	50	0	94.9	55	144					
Carbon tetrachloride	50.36	5.0	50	0	101	70	122					
Chlorobenzene	44.76	5.0	50	0	89.5	49.7	142					
Chloroethane	43.14	5.0	50	0	86.3	58	138					
Chloroform	48.87	5.0	50	0	97.7	64.8	130					
Chloromethane	58.64	5.0	50	0	117	57	153					
cis-1,2-Dichloroethene	47.26	5.0	50	0	94.5	53.2	146					
cis-1,3-Dichloropropene	48.18	5.0	50	0	96.4	70.4	129					
Cyclohexane	45.86	5.0	50	0	91.7	57.4	162					
Dibromochloromethane	49.98	5.0	50	0	100	52.5	145					
Ethyl acetate	50.13	10	50	0	100	61.5	147					
Ethylbenzene	44.53	5.0	50	0	89.1	54.8	138					
Freon 11	46.68	5.0	50	0	93.4	69.2	125					
Freon 113	51.67	5.0	50	0	103	55.5	122					
Freon 114	56.84	5.0	50	0	114	62.6	166					
Freon 12	47.52	5.0	50	0	95.0	79.1	129					
Heptane	48.56	5.0	50	0	97.1	65.2	158					
Hexachloro-1,3-butadiene	52.17	5.0	50	0	104	35.9	124					
Hexane	49.68	5.0	50	0	99.4	61.6	151					
Isopropyl alcohol	52.28	5.0	50	0	105	53.4	147					
m&p-Xylene	91.63	10	100	0	91.6	64.6	141					
Methyl Butyl Ketone	54.20	10	50	0	108	74.5	117					
Methyl Ethyl Ketone	48.68	10	50	0	97.4	57.2	142					

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 E Estimated Value above quantitation range
 NID Not Detected at the Limit of Detection
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051717		SampType: LCS	TestCode: TO15		Units: ppbv		Prep Date:		RunNo: 12258		
Client ID: ZZZZZ		Batch ID: R12258	TestNo: TO-15				Analysis Date: 5/17/2017		SeqNo: 143186		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl Isobutyl Ketone	51.53	10	50	0	103	73	122				
Methyl tert-butyl ether	47.12	5.0	50	0	94.2	67.4	134				
Methylene chloride	48.34	5.0	50	0	96.7	48.6	142				
o-Xylene	46.75	5.0	50	0	93.5	62.4	140				
Propylene	45.57	5.0	50	0	91.1	51.7	165				
Styrene	47.30	5.0	50	0	94.6	49.4	147				
Tetrachloroethylene	47.28	5.0	50	0	94.6	45.5	149				
Tetrahydrofuran	49.24	5.0	50	0	98.5	58.6	149				
Toluene	45.07	5.0	50	0	90.1	60.3	147				
trans-1,2-Dichloroethene	51.14	5.0	50	0	102	66.9	152				
trans-1,3-Dichloropropene	50.41	5.0	50	0	101	79.5	136				
Trichloroethene	46.45	5.0	50	0	92.9	57.4	144				
Vinyl acetate	55.07	5.0	50	0	110	64.9	157				
Vinyl Bromide	45.22	5.0	50	0	90.4	69.1	134				
Vinyl chloride	59.07	5.0	50	0	118	59.9	147				
Surr: Bromofluorobenzene	53.61	0	50	0	107	70.6	129				

Sample ID: DLCS_TO15-051817	SampType: LCS	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12259						
Client ID: ZZZZZ	Batch ID: R12259	TestNo: TO-15		Analysis Date: 5/18/2017	SeqNo: 143203						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	54.99	5.0	50	0	110	76.6	124				
1,1,2,2-Tetrachloroethane	57.51	5.0	50	0	115	47.3	139				
1,1,2-Trichloroethane	51.58	5.0	50	0	103	59.9	149				
1,1-Dichloroethane	65.91	5.0	50	0	132	56.9	146				
1,1-Dichloroethene	62.22	5.0	50	0	124	50.2	131				
1,2,4-Trichlorobenzene	40.73	5.0	50	0	81.5	27	127				
1,2,4-Trimethylbenzene	54.93	5.0	50	0	110	49	138				
1,2-Dibromoethane	51.76	5.0	50	0	104	59	145				
1,2-Dichlorobenzene	49.62	5.0	50	0	99.2	36.5	138				

Qualifiers: . Results reported are not blank corrected E Estimated Value above quantitation range H Holding times for preparation or analysis exceeded
 J Analyte detected below quantitation limit ND Not Detected at the Limit of Detection R RPD outside accepted recovery limits
 S Spike Recovery outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051817		SampType: LCS	TestCode: TO15		Units: ppbV	Prep Date:		RunNo: 12259			
Client ID: ZZZZZ		Batch ID: R12259	TestNo: TO-15			Analysis Date: 5/18/2017		SeqNo: 143203			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane	67.35	5.0	50	0	135	71.6	126				S
1,2-Dichloropropane	56.98	5.0	50	0	114	62.9	156				
1,3,5-Trimethylbenzene	52.87	5.0	50	0	106	48.2	136				
1,3-butadiene	60.49	5.0	50	0	121	17.2	190				
1,3-Dichlorobenzene	54.67	5.0	50	0	109	35.9	141				
1,4-Dichlorobenzene	52.08	5.0	50	0	104	41.5	136				
1,4-Dioxane	54.85	10	50	0	110	52.4	150				
2,2,4-trimethylpentane	59.62	5.0	50	0	119	60.6	159				
4-ethyltoluene	55.37	5.0	50	0	111	52.2	129				S
Acetone	79.25	10	50	0	158	65.4	142				
Allyl chloride	69.04	5.0	50	0	138	52	176				
Benzene	59.71	5.0	50	0	119	58.6	151				
Benzyl chloride	60.28	5.0	50	0	121	36.5	106				S
Bromodichloromethane	54.16	5.0	50	0	108	73.9	129				
Bromoform	44.29	5.0	50	0	88.6	15.5	180				
Bromomethane	57.08	5.0	50	0	114	51.5	126				
Carbon disulfide	61.63	5.0	50	0	123	55	144				
Carbon tetrachloride	50.72	5.0	50	0	101	70	122				
Chlorobenzene	48.25	5.0	50	0	96.5	49.7	142				
Chloroethane	62.07	5.0	50	0	124	58	138				
Chloroform	60.13	5.0	50	0	120	64.8	130				
Chloromethane	64.54	5.0	50	0	129	57	153				
cis-1,2-Dichloroethene	56.33	5.0	50	0	113	53.2	146				
cis-1,3-Dichloropropene	57.74	5.0	50	0	115	70.4	129				
Cyclohexane	64.63	5.0	50	0	129	57.4	162				
Dibromochloromethane	45.73	5.0	50	0	91.5	52.5	145				
Ethyl acetate	66.41	10	50	0	133	61.5	147				
Ethylbenzene	49.70	5.0	50	0	99.4	54.8	138				
Freon 11	51.89	5.0	50	0	104	69.2	125				
Freon 113	60.77	5.0	50	0	122	55.5	122				
Freon 114	57.11	5.0	50	0	114	62.6	166				

Qualifiers: J Results reported are not blank corrected
 J Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits
 E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection
 R Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCS_TO15-051817		SampType: LCS		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12259			
Client ID: ZZZZZ		Batch ID: R12259		TestNo: TO-15		Analysis Date: 5/18/2017						SeqNo: 143203	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Freon 12	56.15	5.0	50	0	112	79.1	129						
Heptane	62.63	5.0	50	0	125	65.2	158						
Hexachloro-1,3-butadiene	39.72	5.0	50	0	79.4	35.9	124						
Hexane	69.14	5.0	50	0	138	61.6	151						
Isopropyl alcohol	73.00	5.0	50	0	146	53.4	147						
m&p-Xylene	101.2	10	100	0	101	64.6	141						
Methyl Butyl Ketone	67.28	10	50	0	135	74.5	117				S		
Methyl Ethyl Ketone	64.98	10	50	0	130	57.2	142						
Methyl Isobutyl Ketone	64.57	10	50	0	129	73	122				S		
Methyl tert-butyl ether	60.80	5.0	50	0	122	67.4	134						
Methylene chloride	62.51	5.0	50	0	125	48.6	142						
o-Xylene	53.85	5.0	50	0	108	62.4	140						
Propylene	62.69	5.0	50	0	125	51.7	165						
Styrene	53.53	5.0	50	0	107	49.4	147						
Tetrachloroethylene	43.93	5.0	50	0	87.9	45.5	149						
Tetrahydrofuran	69.17	5.0	50	0	138	58.6	149						
Toluene	51.93	5.0	50	0	104	60.3	147						
trans-1,2-Dichloroethene	65.25	5.0	50	0	130	66.9	152						
trans-1,3-Dichloropropene	60.05	5.0	50	0	120	79.5	136						
Trichloroethene	46.19	5.0	50	0	92.4	57.4	144						
Vinyl acetate	76.13	5.0	50	0	152	64.9	157						
Vinyl Bromide	55.42	5.0	50	0	111	69.1	134						
Vinyl chloride	62.19	5.0	50	0	124	59.9	147						
Surrogate: Bromofluorobenzene	57.74	0	50	0	115	70.6	129						

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

Data File : C:\HPCHEM\1\DATA\DH051505.D

Vial: 1

Acq On : 15 May 2017 11:18 am

Operator: WD

Sample : DLCS_TO15-051517

Inst : GCMS3

Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 15 11:48 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	9.95	128	149458	50.00	ppb	-0.01
40) 1,4-difluorobenzene	12.17	114	867691	50.00	ppb	-0.01
57) Chlorobenzene-d5	16.48	117	727533	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	512825	49.69	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	99.38%

Target Compounds

						Qvalue
2) Propylene	4.16	41	175988	36.37	ppb	83
3) Freon 12	4.21	85	521666	38.24	ppb	99
4) Freon 114	4.42	85	575220m	35.22	ppb	
5) Chloromethane	4.42	50	177841m	35.12	ppb	
7) Vinyl Chloride	4.62	62	181521m	35.82	ppb	
8) Butane	4.73	43	209875m	34.99	ppb	
9) 1,3-butadiene	4.73	54	127163m	36.96	ppb	
10) Bromomethane	5.09	94	200628	40.30	ppb	100
11) Chloroethane	5.27	64	118164	43.35	ppb	96
12) Ethanol	5.40	45	91929	45.45	ppb	92
13) Vinyl Bromide	5.62	106	190244	46.15	ppb	98
14) Freon 11	5.89	101	488348	37.46	ppb	100
15) Acrolein	5.99	56	74520	41.50	ppb	99
16) Acetone	6.09	43	269959	48.04	ppb	62
17) Pentane	6.18	43	526224	40.50	ppb	# 91
18) Isopropyl alcohol	6.19	45	425384	44.42	ppb	82
19) 1,1-Dichloroethene	6.67	96	214801	51.97	ppb	# 86
20) Freon 113	6.86	101	461372	49.17	ppb	95
21) t-butyl alcohol	6.91	59	541492	47.12	ppb	96
22) Allyl chloride	7.13	41	305131	42.66	ppb	98
23) Methylene Chloride	7.15	84	192628	50.04	ppb	96
24) Carbon disulfide	7.32	76	533796	47.58	ppb	96
25) trans-1,2-dichloroethene	8.10	61	304569	48.28	ppb	95
26) methyl tert-butyl ether	8.11	73	693595	44.01	ppb	98
27) Vinyl acetate	8.52	43	609295	48.11	ppb	98
28) 1,1-Dichloroethane	8.54	63	445780	45.84	ppb	98
29) Methyl Ethyl Ketone	9.04	72	117457	49.89	ppb	# 87
30) Hexane	9.04	41	277599	40.87	ppb	# 59
31) cis-1,2-dichloroethene	9.48	96	225219	49.77	ppb	97
32) Ethyl acetate	9.63	45	78487	43.92	ppb	93
33) Chloroform	10.10	83	476103	44.50	ppb	98
34) Tetrahydrofuran	10.27	42	289808	43.24	ppb	98
35) 1,1,1-Trichloroethane	10.91	97	462463	41.20	ppb	98
36) 1,2-Dichloroethane	11.22	62	290832	43.02	ppb	99
37) Benzene	11.52	78	801537	46.15	ppb	94
38) Carbon Tetrachloride	11.54	117	460295	39.23	ppb	99
39) Cyclohexane	11.59	56	421231	44.47	ppb	84
41) 2,2,4-trimethylpentane	12.31	57	1303488	43.77	ppb	89
42) Heptane	12.63	43	477998	41.11	ppb	97
43) Trichloroethene	12.78	130	307522	45.22	ppb	99
44) 1,2-Dichloropropane	12.90	63	312300	44.01	ppb	99
45) Methyl methacrylate	12.99	41	334346	39.90	ppb	# 85
46) 1,4-dioxane	13.03	88	171013	47.08	ppb	95
47) Bromodichloromethane	13.21	83	521109	42.24	ppb	99
48) Methyl Isobutyl Ketone	13.87	43	606573	41.48	ppb	93

(#) = qualifier out of range (m) = manual integration

DH051505.D I0511T15.M

Thu Jun 01 08:56:14 2017

Page 1

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051505.D

Vial: 1

Acq On : 15 May 2017 11:18 am

Operator: WD

Sample : DLCS_T015-051517

Inst : GCMS3

Misc : T015

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 15 11:48 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
49) cis-1,3-Dichloropropene	13.94	75	434593	45.84	ppb	99
50) trans-1,3-Dichloropropene	14.64	75	372096	45.83	ppb	95
51) 1,1,2-Trichloroethane	14.94	97	351400	44.81	ppb	99
52) Toluene	14.70	92	557564	44.33	ppb	97
53) Methyl Butyl Ketone	15.08	43	530284	44.05	ppb	90
54) Dibromochloromethane	15.58	129	503215	39.87	ppb	95
55) Tetrachloroethylene	15.63	164	336677	42.68	ppb	97
56) 1,2-dibromoethane	15.81	107	453130	45.37	ppb	99
58) Chlorobenzene	16.53	112	721004	44.83	ppb	100
59) Ethylbenzene	16.75	106	401271	45.32	ppb	# 90
60) m&p-Xylene	16.93	106	981429	89.69	ppb	# 87
61) Nonane	17.24	43	683666	42.29	ppb	95
62) Styrene	17.32	104	723116	46.45	ppb	100
63) o-xylene	17.35	91	1009667	43.36	ppb	92
64) Bromoform	17.45	173	505474	41.95	ppb	99
65) 1,1,2,2-Tetrachloroethane	17.75	83	704544	44.93	ppb	98
66) Cumene	17.84	105	1376163	44.20	ppb	96
68) Propylbenzene	18.31	91	1567800	45.22	ppb	98
69) 2-Chlorotoluene	18.35	126	325619	43.90	ppb	93
70) 4-ethyltoluene	18.45	105	1180208	43.42	ppb	96
71) 1,3,5-trimethylbenzene	18.49	105	1126588	44.44	ppb	96
72) 1,2,4-trimethylbenzene	18.87	105	1069825	45.18	ppb	94
73) 1,3-dichlorobenzene	19.13	146	579790	47.47	ppb	98
74) benzyl chloride	19.19	91	728363	49.24	ppb	97
75) 1,4-dichlorobenzene	19.24	146	542084	43.31	ppb	98
76) 1,2,3-Trimethylbenzene	19.26	105	1111927	43.57	ppb	93
77) 1,2-dichlorobenzene	19.50	146	584010	44.88	ppb	98
78) 1,2,4-trichlorobenzene	21.02	180	320581	43.64	ppb	98
79) Naphthalene	21.19	128	844459	55.74	ppb	95
80) Hexachloro-1,3-butadiene	21.26	225	543516	38.64	ppb	99

(#) = qualifier out of range (m) = manual integration

DH051505.D I0511T15.M

Thu Jun 01 08:56:15 2017

Page 2

Data File : C:\HPCHEM\1\DATA\DH051505.D
 : 15 May 2017 11:18 am
 Sample : DLCS_TO15-051517
 Misc : TO15
 FIMS Integration Params: rteint.p
 Quant Time: May 15 11:48 2017

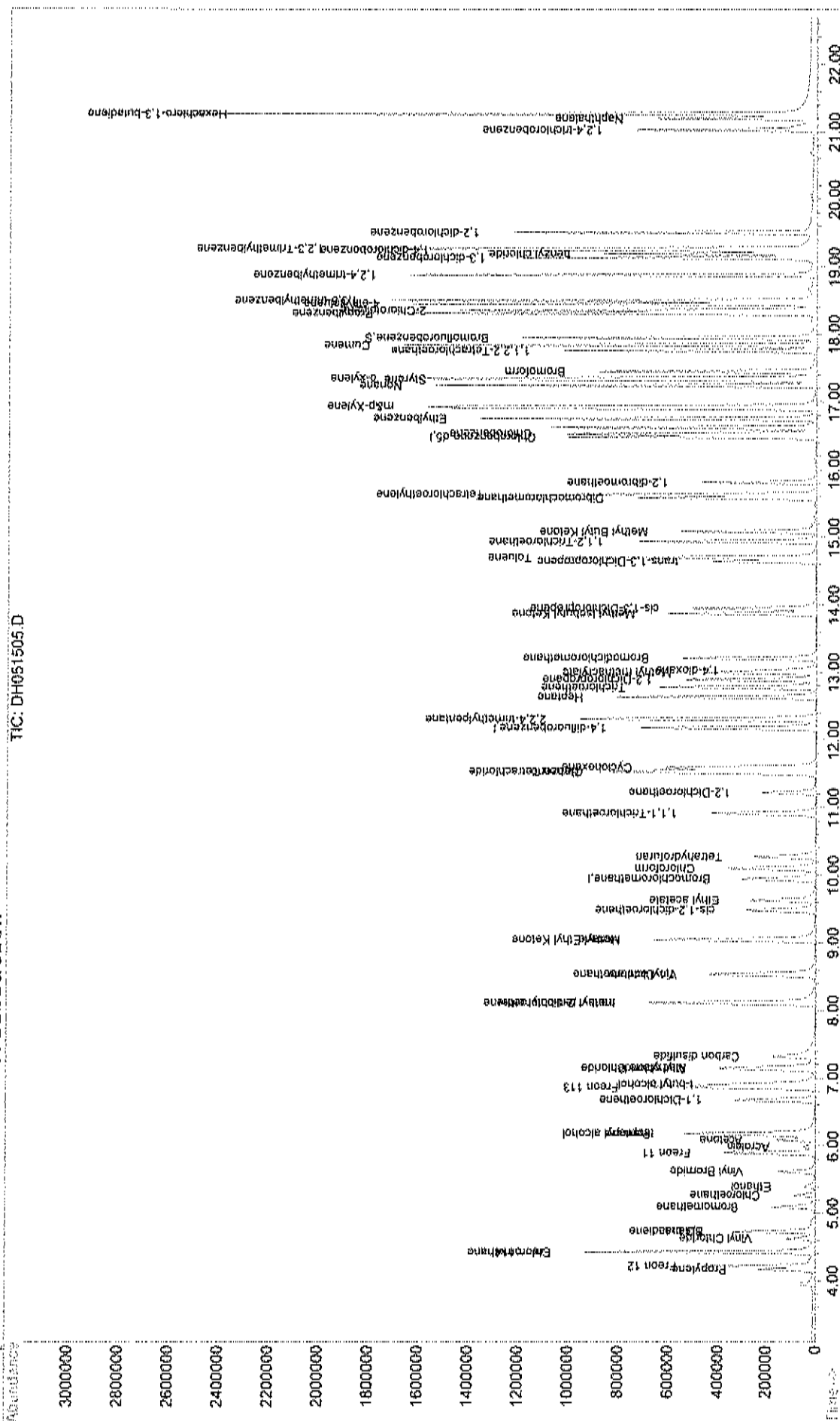
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Vial: 1
Operator: WD
Inst : GCMS3
Multiplier: 1.00
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Quant Results File: I0511T15.RES

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Method      : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
Title       : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration

```



DH051505.D I0511T15.M Thu Jun 01 08:56:16 2017

Data File : C:\HPCHEM\1\DATA\DH051704.D

Vial: 1

Acq On : 17 May 2017 10:09 am

Operator: WD

Sample : DLCS_TO15-051717

Inst : GCMS3

Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 17 10:37 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	104225	50.00	ppb	-0.01
40) 1,4-difluorobenzene	12.18	114	596368	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	529494	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	402693	53.61	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	107.22%

Target Compounds

						Qvalue
2) Propylene	4.16	41	153779	45.57	ppb	85
3) Freon 12	4.22	85	452020	47.52	ppb	100
4) Freon 114	4.42	85	647389	56.84	ppb	84
5) Chloromethane	4.43	50	207062	58.64	ppb	89
7) Vinyl Chloride	4.62	62	208780	59.07	ppb	100
8) Butane	4.72	43	259233	61.97	ppb	96
9) 1,3-butadiene	4.73	54	138602	57.77	ppb	88
10) Bromomethane	5.09	94	140706	40.53	ppb	98
11) Chloroethane	5.27	64	82002	43.14	ppb	98
12) Ethanol	5.40	45	74086	52.53	ppb	96
13) Vinyl Bromide	5.62	106	129990	45.22	ppb	99
14) Freon 11	5.89	101	424410	46.68	ppb	100
15) Acrolein	5.99	56	53386	42.63	ppb	98
16) Acetone	6.09	43	226651	57.83	ppb	75
17) Pentane	6.17	43	433572	47.86	ppb	91
18) Isopropyl alcohol	6.19	45	349099	52.28	ppb	# 1
19) 1,1-Dichloroethene	6.68	96	144344	50.08	ppb	98
20) Freon 113	6.86	101	338100	51.67	ppb	96
21) t-butyl alcohol	6.91	59	419456	52.34	ppb	98
22) Allyl chloride	7.14	41	244183	48.96	ppb	94
23) Methylene Chloride	7.16	84	129770	48.34	ppb	# 88
24) Carbon disulfide	7.32	76	371261	47.46	ppb	98
25) trans-1,2-dichloroethene	8.10	61	224980	51.14	ppb	96
26) methyl tert-butyl ether	8.11	73	517913	47.12	ppb	95
27) Vinyl acetate	8.52	43	486327	55.07	ppb	97
28) 1,1-Dichloroethane	8.54	63	333139	49.13	ppb	99
29) Methyl Ethyl Ketone	9.03	72	79908	48.68	ppb	# 74
30) Hexane	9.05	41	235294	49.68	ppb	# 70
31) cis-1,2-dichloroethene	9.48	96	149156	47.26	ppb	97
32) Ethyl acetate	9.63	45	62480	50.13	ppb	88
33) Chloroform	10.10	83	364649	48.87	ppb	98
34) Tetrahydrofuran	10.27	42	230143	49.24	ppb	89
35) 1,1,1-Trichloroethane	10.91	97	383608	49.01	ppb	98
36) 1,2-Dichloroethane	11.22	62	247123	52.42	ppb	99
37) Benzene	11.51	78	552230	45.60	ppb	97
38) Carbon Tetrachloride	11.54	117	412068	50.36	ppb	98
39) Cyclohexane	11.60	56	302902	45.86	ppb	95
41) 2,2,4-trimethylpentane	12.31	57	966242	47.20	ppb	94
42) Heptane	12.63	43	388043	48.56	ppb	93
43) Trichloroethene	12.78	130	217100	46.45	ppb	98
44) 1,2-Dichloropropane	12.89	63	223765	45.88	ppb	100
45) Methyl methacrylate	13.00	41	277592	48.20	ppb	94
46) 1,4-dioxane	13.03	88	116642	46.72	ppb	90
47) Bromodichloromethane	13.21	83	412956	48.70	ppb	100
48) Methyl Isobutyl Ketone	13.87	43	517940	51.53	ppb	95

(#) = qualifier out of range (m) = manual integration

DH051704.D I0511T15.M

Thu Jun 01 09:06:35 2017

Page 1

Data File : C:\HPCHEM\1\DATA\DH051704.D
 Acq On : 17 May 2017 10:09 am
 Sample : DLCS_TO15-051717
 Misc : TO15

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 17 10:37 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
49) cis-1,3-Dichloropropene	13.95	75	313922	48.18	ppb	98
50) trans-1,3-Dichloropropene	14.64	75	281306	50.41	ppb	96
51) 1,1,2-Trichloroethane	14.94	97	251057	46.58	ppb	100
52) Toluene	14.70	92	389596	45.07	ppb	95
53) Methyl Butyl Ketone	15.09	43	448413	54.20	ppb	96
54) Dibromochloromethane	15.58	129	433628	49.98	ppb	100
55) Tetrachloroethylene	15.63	164	256336	47.28	ppb	96
56) 1,2-dibromoethane	15.81	107	333868	48.64	ppb	100
58) Chlorobenzene	16.53	112	523928	44.76	ppb	100
59) Ethylbenzene	16.75	106	286965	44.53	ppb	97
60) m&p-Xylene	16.93	106	729726m	91.63	ppb	
61) Nonane	17.24	43	610459	51.88	ppb	94
62) Styrene	17.32	104	535852	47.30	ppb	93
63) o-xylene	17.35	91	792364	46.75	ppb	96
64) Bromoform	17.45	173	440883	50.28	ppb	99
65) 1,1,2,2-Tetrachloroethane	17.76	83	530884	46.52	ppb	98
66) Cumene	17.84	105	1097132	48.42	ppb	98
68) Propylbenzene	18.31	91	1265629	50.16	ppb	99
69) 2-Chlorotoluene	18.35	126	254362	47.12	ppb	81
70) 4-ethyltoluene	18.45	105	947359	47.89	ppb	98
71) 1,3,5-trimethylbenzene	18.49	105	904100	49.00	ppb	99
72) 1,2,4-trimethylbenzene	18.87	105	852299	49.46	ppb	96
73) 1,3-dichlorobenzene	19.13	146	462753	52.06	ppb	98
74) benzyl chloride	19.19	91	526365	48.89	ppb	99
75) 1,4-dichlorobenzene	19.24	146	432980	47.53	ppb	98
76) 1,2,3-Trimethylbenzene	19.26	105	903658	48.65	ppb	95
77) 1,2-dichlorobenzene	19.50	146	465487	49.15	ppb	98
78) 1,2,4-trichlorobenzene	21.02	180	249146	46.60	ppb	97
79) Naphthalene	21.20	128	620235	56.25	ppb	# 92
80) Hexachloro-1,3-butadiene	21.26	225	534093	52.17	ppb	97

(#) = qualifier out of range (m) = manual integration

DH051704.D I0511T15.M

Thu Jun 01 09:06:35 2017

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 100. *Ad. 100*

FIG. D4051304.D



Data File : C:\HPCHEM\1\DATA\DH051808.D

Vial: 1

Acq On : 18 May 2017 12:51 pm

Operator: WD

Sample : DLCS_T015-051817

Inst : GCMS3

Misc : T015

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 18 13:18 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	74179	50.00	ppb	0.00
40) 1,4-difluorobenzene	12.18	114	463540	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	400893	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	328339	57.74	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	115.48%

Target Compounds

						Qvalue
2) Propylene	4.16	41	150566	62.69	ppb	84
3) Freon 12	4.21	85	380163	56.15	ppb	99
4) Freon 114	4.42	85	462950	57.11	ppb	94
5) Chloromethane	4.42	50	162197	64.54	ppb	88
7) Vinyl Chloride	4.62	62	156437	62.19	ppb	100
8) Butane	4.72	43	190829	64.10	ppb	97
9) 1,3-butadiene	4.73	54	103292	60.49	ppb	88
10) Bromomethane	5.09	94	141037	57.08	ppb	100
11) Chloroethane	5.27	64	83975	62.07	ppb	97
12) Ethanol	5.40	45	76311	76.02	ppb	# 75
13) Vinyl Bromide	5.62	106	113393	55.42	ppb	99
14) Freon 11	5.89	101	335767	51.89	ppb	100
15) Acrolein	5.99	56	49228	55.23	ppb	98
16) Acetone	6.09	43	221047	79.25	ppb	73
17) Pentane	6.17	43	438174	67.95	ppb	# 91
18) Isopropyl alcohol	6.20	45	346909	73.00	ppb	# 1
19) 1,1-Dichloroethene	6.68	96	127627	62.22	ppb	94
20) Freon 113	6.87	101	282999	60.77	ppb	90
21) t-butyl alcohol	6.92	59	411499	72.14	ppb	98
22) Allyl chloride	7.14	41	245097	69.04	ppb	91
23) Methylene Chloride	7.16	84	119434	62.51	ppb	# 83
24) Carbon disulfide	7.32	76	343145	61.63	ppb	100
25) trans-1,2-dichloroethene	8.11	61	204283	65.25	ppb	92
26) methyl tert-butyl ether	8.12	73	475590	60.80	ppb	92
27) Vinyl acetate	8.53	43	478543	76.13	ppb	96
28) 1,1-Dichloroethane	8.55	63	318098	65.91	ppb	99
29) Methyl Ethyl Ketone	9.04	72	75926	64.98	ppb	# 67
30) Hexane	9.05	41	233078	69.14	ppb	# 72
31) cis-1,2-dichloroethene	9.49	96	126525	56.33	ppb	97
32) Ethyl acetate	9.64	45	58901	66.41	ppb	93
33) Chloroform	10.11	83	319330	60.13	ppb	99
34) Tetrahydrofuran	10.27	42	230076	69.17	ppb	85
35) 1,1,1-Trichloroethane	10.92	97	306327	54.99	ppb	98
36) 1,2-Dichloroethane	11.23	62	225971	67.35	ppb	98
37) Benzene	11.52	78	514636	59.71	ppb	98
38) Carbon Tetrachloride	11.54	117	295393	50.72	ppb	99
39) Cyclohexane	11.59	56	303823	64.63	ppb	94
41) 2,2,4-trimethylpentane	12.31	57	948603	59.62	ppb	93
42) Heptane	12.64	43	389038	62.63	ppb	90
43) Trichloroethene	12.78	130	167783	46.19	ppb	93
44) 1,2-Dichloropropane	12.89	63	215980	56.98	ppb	100
45) Methyl methacrylate	13.00	41	276842	61.85	ppb	# 95
46) 1,4-dioxane	13.04	88	106448	54.85	ppb	79
47) Bromodichloromethane	13.21	83	356934	54.16	ppb	98
48) Methyl Isobutyl Ketone	13.87	43	504481	64.57	ppb	96

(#)=qualifier out of range (m)=manual integration

DH051808.D I0511T15.M

Thu Jun 01 09:10:58 2017

Page 1

Data File : C:\HPCHEM\1\DATA\DH051808.D
 Acq On : 18 May 2017 12:51 pm
 Sample : DLCS_TO15-051817
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: May 18 13:18 2017

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

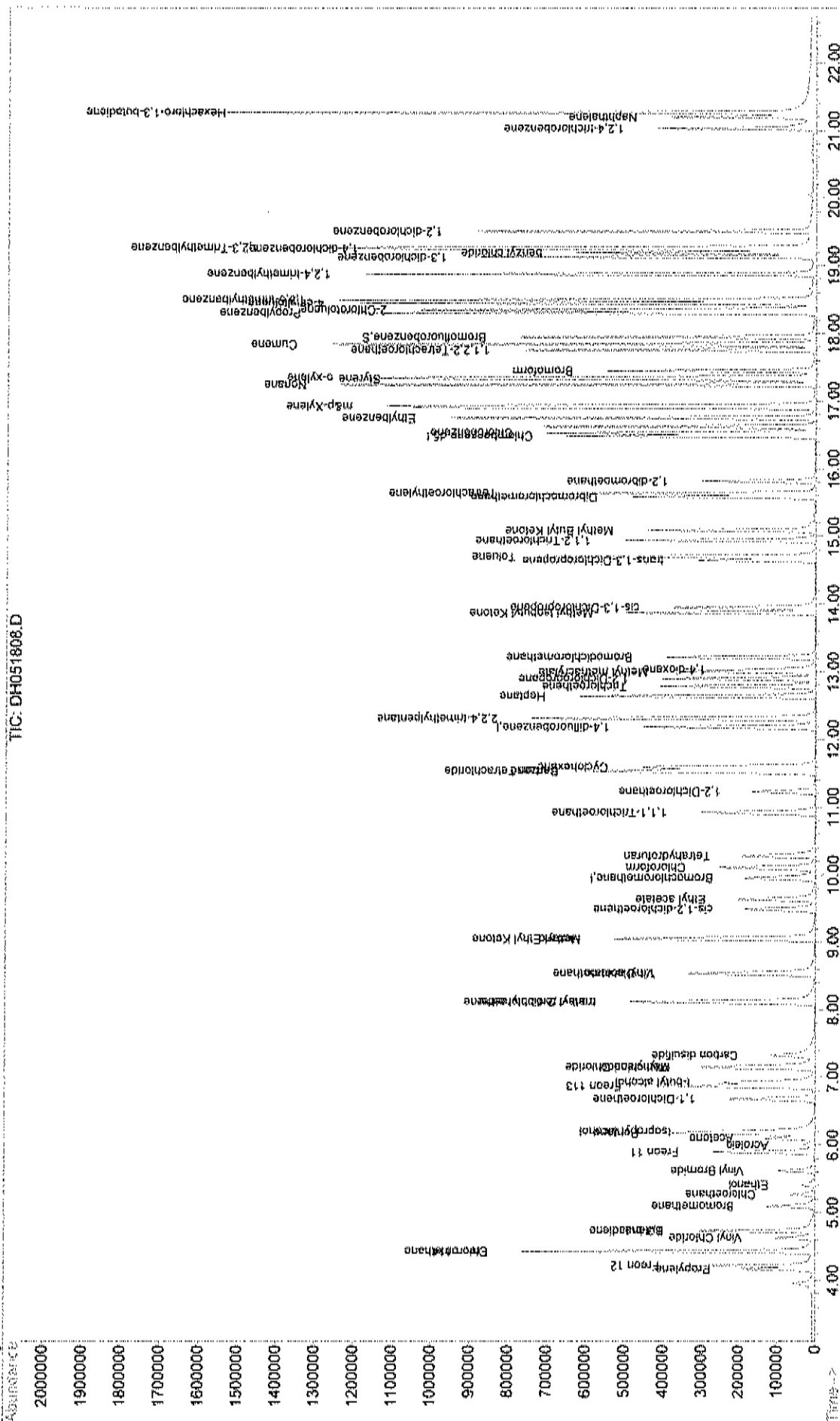
Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration
 DataAcq Meth : NEW1

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
49)	cis-1,3-Dichloropropene	13.95	75	292469	57.74	ppb	100
50)	trans-1,3-Dichloropropene	14.64	75	260453	60.05	ppb	95
51)	1,1,2-Trichloroethane	14.94	97	216058	51.58	ppb	98
52)	Toluene	14.70	92	348912	51.93	ppb	96
53)	Methyl Butyl Ketone	15.09	43	432702	67.28	ppb	96
54)	Dibromochloromethane	15.58	129	308360	45.73	ppb	97
55)	Tetrachloroethylene	15.63	164	185126	43.93	ppb	96
56)	1,2-dibromoethane	15.81	107	276127	51.76	ppb	100
58)	Chlorobenzene	16.53	112	427611	48.25	ppb	100
59)	Ethylbenzene	16.75	106	242505	49.70	ppb	99
60)	m&p-Xylene	16.93	106	610351	101.23	ppb	97
61)	Nonane	17.24	43	589680	66.19	ppb	# 94
62)	Styrene	17.33	104	459114	53.53	ppb	89
63)	o-xylene	17.35	91	691006	53.85	ppb	99
64)	Bromoform	17.45	173	294033	44.29	ppb	99
65)	1,1,2,2-Tetrachloroethane	17.76	83	496916	57.51	ppb	99
66)	Cumene	17.84	105	907530	52.90	ppb	99
68)	Propylbenzene	18.30	91	1154490	60.43	ppb	95
69)	2-Chlorotoluene	18.35	126	203639	49.82	ppb	100
70)	4-ethyltoluene	18.45	105	829406	55.37	ppb	99
71)	1,3,5-trimethylbenzene	18.49	105	738579	52.87	ppb	100
72)	1,2,4-trimethylbenzene	18.88	105	716714	54.93	ppb	98
73)	1,3-dichlorobenzene	19.13	146	367909	54.67	ppb	98
74)	benzyl chloride	19.19	91	491378	60.28	ppb	98
75)	1,4-dichlorobenzene	19.24	146	359176	52.08	ppb	99
76)	1,2,3-Trimethylbenzene	19.26	105	757398	53.86	ppb	97
77)	1,2-dichlorobenzene	19.50	146	355811	49.62	ppb	99
78)	1,2,4-trichlorobenzene	21.02	180	164849	40.73	ppb	95
79)	Naphthalene	21.19	128	456711	54.71	ppb	97
80)	Hexachloro-1,3-butadiene	21.26	225	307902	39.72	ppb	97

Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051808.D
 Acq On : 18 May 2017 12:51 pm
 Sample : DLCS-TO15-051817
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: May 18 13:18 2017
 Quant Results File: I0511T15.RES
 Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration



Date: 01-Jun-17

CENTEK LABORATORIES, LLC

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCSO_TO15-05151	Sample Type: LCSD	Batch ID: R12257	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12257					
Client ID: ZZZZZ			TestNo: TO-15		Analysis Date: 5/15/2017	SeqNo: 143178					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	44.06	5.0	50	0	88.1	64.6	141	41.2	6.71	0	0
1,1,2,2-Tetrachloroethane	49.56	5.0	50	0	99.1	62.1	130	44.93	9.80	0	0
1,1,2-Trichloroethane	50.76	5.0	50	0	102	63.1	147	44.81	12.5	0	0
1,1-Dichloroethane	48.63	5.0	50	0	97.3	62.4	134	45.84	5.91	0	0
1,1-Dichloroethene	55.75	5.0	50	0	112	54.5	125	51.97	7.02	0	0
1,2,4-Trichlorobenzene	47.54	5.0	50	0	95.1	25.1	129	43.64	8.55	0	0
1,2,4-Trimethylbenzene	49.74	5.0	50	0	99.5	60.4	139	45.18	9.61	0	0
1,2-Dibromoethane	52.04	5.0	50	0	104	63.6	140	45.37	13.7	0	0
1,2-Dichlorobenzene	48.96	5.0	50	0	97.9	52.7	128	44.88	8.70	0	0
1,2-Dichloroethane	45.95	5.0	50	0	91.9	63.7	139	43.02	6.59	0	0
1,2-Dichloropropane	50.32	5.0	50	0	101	67.3	144	44.01	13.4	0	0
1,3,5-Trimethylbenzene	48.69	5.0	50	0	97.4	56	136	44.44	9.13	0	0
1,3-butadiene	39.16	5.0	50	0	78.3	21.8	166	36.96	5.78	0	0
1,3-Dichlorobenzene	51.38	5.0	50	0	103	52.6	134	47.47	7.91	0	0
1,4-Dichlorobenzene	47.54	5.0	50	0	95.1	54.6	131	43.31	9.31	0	0
1,4-Dioxane	52.64	10	50	0	105	56.8	141	47.08	11.2	0	0
2,2,4-trimethylpentane	50.14	5.0	50	0	100	71.8	138	43.77	13.6	0	0
4-ethyltoluene	48.83	5.0	50	0	97.7	60.6	130	43.42	11.7	0	0
Acetone	53.19	10	50	0	106	49.5	149	48.04	10.2	0	0
Allyl chloride	45.21	5.0	50	0	90.4	55.5	156	42.66	5.80	0	0
Benzene	49.06	5.0	50	0	98.1	62	140	46.15	6.11	0	0
Benzyl chloride	52.61	5.0	50	0	105	42.5	106	49.24	6.62	0	0
Bromodichloromethane	48.16	5.0	50	0	96.3	63.6	144	42.24	13.1	0	0
Bromoform	46.50	5.0	50	0	93.0	43.9	148	41.95	10.3	0	0
Bromomethane	42.39	5.0	50	0	84.8	42.6	139	40.3	5.06	0	0

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

Page 1 of 7

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCSO_TO15-05151		Sample Type: LCSD		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12257	
Client ID: ZZZZZ		Batch ID: R12257		TestNo: TO-15				Analysis Date: 5/15/2017		SeqNo: 143178	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon disulfide	52.44	5.0	50	0	105	59.9	133	47.58	9.72	0	0
Carbon tetrachloride	41.98	5.0	50	0	84.0	63.2	139	39.23	6.77	0	0
Chlorobenzene	49.29	5.0	50	0	98.6	58.9	136	44.83	9.48	0	0
Chloroethane	45.91	5.0	50	0	91.8	56.1	134	43.35	5.74	0	0
Chloroform	47.56	5.0	50	0	95.1	62.4	135	44.5	6.65	0	0
Chloromethane	34.03	5.0	50	0	68.1	58.5	160	35.12	3.15	0	0
cis-1,2-Dichloroethene	52.96	5.0	50	0	106	61.7	135	49.77	6.21	0	0
cis-1,3-Dichloropropene	52.90	5.0	50	0	106	63.1	134	45.84	14.3	0	0
Cyclohexane	47.24	5.0	50	0	94.5	65.5	142	44.47	6.04	0	0
Dibromochloromethane	46.47	5.0	50	0	92.9	61.5	137	39.87	15.3	0	0
Ethyl acetate	47.00	10	50	0	94.0	46.6	140	43.92	6.78	0	0
Ethylbenzene	49.60	5.0	50	0	99.2	62.4	140	45.32	9.02	0	0
Freon 11	39.65	5.0	50	0	79.3	44.7	165	37.46	5.68	0	0
Freon 113	52.62	5.0	50	0	105	58	124	49.17	6.78	0	0
Freon 114	35.65	5.0	50	0	71.3	62	176	35.22	1.21	0	0
Freon 12	41.33	5.0	50	0	82.7	52.5	163	38.24	7.77	0	0
Heptane	46.74	5.0	50	0	93.5	65.5	144	41.11	12.8	0	0
Hexachloro-1,3-butadiene	42.39	5.0	50	0	84.8	32.9	129	38.64	9.26	0	0
Hexane	43.00	5.0	50	0	86.0	59.1	148	40.87	5.08	0	0
Isopropyl alcohol	45.38	5.0	50	0	90.8	50.5	142	44.42	2.14	0	0
m&p-Xylene	98.35	10	100	0	98.4	69.7	137	89.69	9.21	0	0
Methyl Butyl Ketone	49.46	10	50	0	98.9	59.1	125	44.05	11.6	0	0
Methyl Ethyl Ketone	54.31	10	50	0	109	51.3	137	49.89	8.48	0	0
Methyl Isobutyl Ketone	47.37	10	50	0	94.7	58.3	127	41.48	13.3	0	0
Methyl tert-butyl ether	47.09	5.0	50	0	94.2	62.9	134	44.01	6.76	0	0
Methylene chloride	53.67	5.0	50	0	107	57.4	131	50.04	7.00	0	0
o-Xylene	47.30	5.0	50	0	94.6	68	142	43.36	8.69	0	0
Propylene	39.09	5.0	50	0	78.2	45.4	150	36.37	7.21	0	0
Styrene	50.77	5.0	50	0	102	60.4	135	46.45	8.89	0	0
Tetrachloroethylene	49.24	5.0	50	0	98.5	59.1	138	42.68	14.3	0	0
Tetrahydrofuran	46.10	5.0	50	0	92.2	57.3	136	43.24	6.40	0	0

Quantifiers: J Results reported are not blank corrected
 S Analytic detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCSO_TO15-05151		Sample Type: LCSD		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12257			
Client ID: ZZZZZ		Batch ID: R12257		TestNo: TO-15		Analysis Date: 5/15/2017						SeqNo: 143178	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Toluene	51.40	5.0	50	0	103	63.9	142	44.33	14.8	0			
trans-1,2-Dichloroethene	51.54	5.0	50	0	103	70.2	142	48.28	6.53	0			
trans-1,3-Dichloropropene	52.11	5.0	50	0	104	71.5	145	45.83	12.8	0			
Trichloroethene	52.14	5.0	50	0	104	64.5	135	45.22	14.2	0			
Vinyl acetate	51.56	5.0	50	0	103	55.9	150	48.11	6.92	0			
Vinyl Bromide	49.45	5.0	50	0	98.9	54.7	150	46.15	6.90	0			
Vinyl chloride	35.44	5.0	50	0	70.9	59.9	151	35.82	1.07	0			
Surr: Bromofluorobenzene	51.70	0	50	0	103	71.1	142	0	0	0			

Sample ID: DLCSO_TO15-05171		SampType: LCSD		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12258			
Client ID: ZZZZZ		Batch ID: R12258		TestNo: TO-15		Analysis Date: 5/17/2017						SeqNo: 143187	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
1,1,1-Trichloroethane	47.63	5.0	50	0	95.3	64.6	141	49.01	2.86	0			
1,1,2,2-Tetrachloroethane	46.83	5.0	50	0	93.7	62.1	130	46.52	0.664	0			
1,1,2-Trichloroethane	46.49	5.0	50	0	93.0	63.1	147	46.58	0.193	0			
1,1-Dichloroethane	47.56	5.0	50	0	95.1	62.4	134	49.13	3.25	0			
1,1-Dichloroethene	49.29	5.0	50	0	98.6	54.5	125	50.08	1.59	0			
1,2,4-Trichlorobenzene	51.28	5.0	50	0	103	25.1	129	46.6	9.56	0			
1,2,4-Trimethylbenzene	49.10	5.0	50	0	98.2	60.4	139	49.46	0.731	0			
1,2-Dibromoethane	48.77	5.0	50	0	97.5	63.6	140	48.64	0.267	0			
1,2-Dichlorobenzene	49.88	5.0	50	0	99.8	52.7	128	49.15	1.47	0			
1,2-Dichloroethane	50.73	5.0	50	0	101	63.7	139	52.42	3.28	0			
1,2-Dichloropropane	45.23	5.0	50	0	90.5	67.3	144	45.88	1.43	0			
1,3,5-Trimethylbenzene	48.60	5.0	50	0	97.2	56	136	49	0.820	0			
1,3-butadiene	53.90	5.0	50	0	108	21.8	166	57.77	6.93	0			
1,3-Dichlorobenzene	51.51	5.0	50	0	103	52.6	134	52.06	1.06	0			
1,4-Dichlorobenzene	47.82	5.0	50	0	95.6	54.6	131	47.53	0.608	0			
1,4-Dioxane	46.16	10	50	0	92.3	56.8	141	46.72	1.21	0			
2,2,4-trimethylpentane	46.89	5.0	50	0	93.8	71.8	138	47.2	0.659	0			

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits
 E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCDSD_TO15-05171		SampType: LCSD		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12258	
Client ID: ZZZZZ		Batch ID: R12258		TestNo: TO-15				Analysis Date: 5/17/2017		SeqNo: 143187	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-ethyltoluene	47.63	5.0	50	0	95.3	60.6	130	47.89	0.544	0	0
Acetone	59.46	10	50	0	119	49.5	149	57.83	2.78	0	0
Allyl chloride	47.36	5.0	50	0	94.7	55.5	156	48.96	3.32	0	0
Benzene	44.93	5.0	50	0	89.9	62	140	45.6	1.48	0	0
Benzyl chloride	48.59	5.0	50	0	97.2	42.5	106	48.89	0.616	0	0
Bromodichloromethane	48.61	5.0	50	0	97.2	63.6	144	48.7	0.185	0	0
Bromoform	49.92	5.0	50	0	99.8	43.9	148	50.28	0.719	0	0
Bromomethane	40.76	5.0	50	0	81.5	42.6	139	40.53	0.566	0	0
Carbon disulfide	47.51	5.0	50	0	95.0	59.9	133	47.46	0.105	0	0
Carbon tetrachloride	49.05	5.0	50	0	98.1	63.2	139	50.36	2.64	0	0
Chlorobenzene	44.46	5.0	50	0	88.9	58.9	136	44.76	0.672	0	0
Chloroethane	42.02	5.0	50	0	84.0	56.1	134	43.14	2.63	0	0
Chloroform	47.66	5.0	50	0	95.3	62.4	135	48.87	2.51	0	0
Chloromethane	53.94	5.0	50	0	108	58.5	150	58.64	8.35	0	0
cis-1,2-Dichloroethene	47.06	5.0	50	0	94.1	61.7	135	47.26	0.424	0	0
cis-1,3-Dichloropropene	48.58	5.0	50	0	97.2	63.1	134	48.18	0.827	0	0
Cyclohexane	44.69	5.0	50	0	89.4	65.5	142	45.86	2.58	0	0
Dibromochloromethane	50.14	5.0	50	0	100	61.5	137	49.98	0.320	0	0
Ethyl acetate	48.26	10	50	0	96.5	46.6	140	50.13	3.80	0	0
Ethylbenzene	44.90	5.0	50	0	89.8	62.4	140	44.53	0.827	0	0
Freon 11	44.78	5.0	50	0	89.6	44.7	165	46.68	4.15	0	0
Freon 113	50.74	5.0	50	0	101	58	124	51.67	1.82	0	0
Freon 114	52.87	5.0	50	0	106	62	176	56.84	7.24	0	0
Freon 12	46.71	5.0	50	0	93.4	52.5	163	47.52	1.72	0	0
Heptane	47.77	5.0	50	0	95.5	65.5	144	48.56	1.64	0	0
Hexachloro-1,3-butadiene	55.72	5.0	50	0	111	32.9	129	52.17	6.58	0	0
Hexane	48.56	5.0	50	0	97.1	59.1	148	49.68	2.28	0	0
Isopropyl alcohol	50.51	5.0	50	0	101	50.5	142	52.28	3.44	0	0
m&p-Xylene	90.15	10	100	0	90.2	69.7	137	91.63	1.63	0	0
Methyl Butyl Ketone	52.53	10	50	0	105	59.1	125	54.2	3.13	0	0
Methyl Ethyl Ketone	48.69	10	50	0	97.4	51.3	137	48.68	0.0205	0	0

Qualifiers: . Results reported are not blank corrected
 J Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCSO_TO15-05171		SampType: LCSD		TestCode: TO15		Units: ppbv		Prep Date:		RunNo: 12258			
Client ID: ZZZZZ		Batch ID: R12258		TestNo: TO-15		Analysis Date: 5/17/2017						SeqNo: 143187	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Methyl Isobutyl Ketone	50.06	10	50	0	100	58.3	127	51.53	2.89	0	0		
Methyl tert-butyl ether	45.96	5.0	50	0	91.9	62.9	134	47.12	2.49	0	0		
Methylene chloride	48.45	5.0	50	0	96.9	57.4	131	48.34	0.227	0	0		
o-Xylene	46.17	5.0	50	0	92.3	68	142	46.75	1.25	0	0		
Propylene	43.92	5.0	50	0	87.8	45.4	150	45.57	3.69	0	0		
Styrene	47.29	5.0	50	0	94.6	60.4	135	47.3	0.0211	0	0		
Tetrachloroethylene	46.99	5.0	50	0	94.0	59.1	138	47.28	0.615	0	0		
Tetrahydrofuran	48.35	5.0	50	0	96.7	57.3	136	49.24	1.82	0	0		
Toluene	45.48	5.0	50	0	91.0	63.9	142	45.07	0.906	0	0		
trans-1,2-Dichloroethene	50.93	5.0	50	0	102	70.2	142	51.14	0.411	0	0		
trans-1,3-Dichloropropene	50.49	5.0	50	0	101	71.5	145	50.41	0.159	0	0		
Trichloroethene	46.72	5.0	50	0	93.4	64.5	135	46.45	0.580	0	0		
Vinyl acetate	55.51	5.0	50	0	111	55.9	150	55.07	0.796	0	0		
Vinyl Bromide	44.36	5.0	50	0	88.7	54.7	150	45.22	1.92	0	0		
Vinyl chloride	56.03	5.0	50	0	112	59.9	151	59.07	5.28	0	0		
Surr: Bromofluorobenzene	54.78	0	50	0	110	71.1	142	0	0	0	0		

Sample ID: DLCSO_TO15-05181		SampType: LCSD		TestCode: TO15		Units: ppbv		Prep Date:		RunNo: 12259			
Client ID: ZZZZZ		Batch ID: R12259		TestNo: TO-15		Analysis Date: 5/18/2017						SeqNo: 143204	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
1,1,1-Trichloroethane	53.60	5.0	50	0	107	64.6	141	54.99	2.56	0	0		
1,1,2,2-Tetrachloroethane	56.34	5.0	50	0	113	62.1	130	57.51	2.06	0	0		
1,1,2-Trichloroethane	52.56	5.0	50	0	105	63.1	147	51.58	1.88	0	0		
1,1-Dichloroethane	62.98	5.0	50	0	126	62.4	134	65.91	4.55	0	0		
1,1-Dichloroethene	61.61	5.0	50	0	123	54.5	125	62.22	0.985	0	0		
1,2,4-Trichlorobenzene	43.35	5.0	50	0	86.7	25.1	129	40.73	6.23	0	0		
1,2,4-Trimethylbenzene	54.12	5.0	50	0	108	60.4	139	54.93	1.49	0	0		
1,2-Dibromoethane	52.13	5.0	50	0	104	63.6	140	51.76	0.712	0	0		
1,2-Dichlorobenzene	47.80	5.0	50	0	95.6	52.7	128	49.62	3.74	0	0		

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 S Spike Recovery outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCSO_TO15-05181		SampType: LCSO		TestCode: TO15		Units: ppbV		Prep Date:		RunNo: 12259			
Client ID: ZZZZZ		Batch ID: R12259		TestNo: TO-15		Analysis Date: 5/18/2017						SeqNo: 143204	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
1,2-Dichloroethane	64.30	5.0	50	0	129	63.7	139	67.35	4.63	0			
1,2-Dichloropropane	57.74	5.0	50	0	115	67.3	144	56.98	1.32	0			
1,3,5-Trimethylbenzene	51.30	5.0	50	0	103	56	136	52.87	3.01	0			
1,3-butadiene	50.98	5.0	50	0	102	21.8	166	60.49	17.1	0			
1,3-Dichlorobenzene	50.65	5.0	50	0	101	52.6	134	54.67	7.63	0			
1,4-Dichlorobenzene	47.30	5.0	50	0	94.6	54.6	131	52.08	9.62	0			
1,4-Dioxane	55.84	10	50	0	112	56.8	141	54.85	1.79	0			
2,2,4-trimethylpentane	59.44	5.0	50	0	119	71.8	138	59.62	0.302	0			
4-ethyltoluene	54.52	5.0	50	0	109	60.6	130	55.37	1.55	0			
Acetone	76.31	10	50	0	153	49.5	149	79.25	3.78	0	S		
Allyl chloride	65.54	5.0	50	0	131	55.5	156	69.04	5.20	0			
Benzene	58.59	5.0	50	0	117	62	140	59.71	1.89	0			
Benzyl chloride	57.90	5.0	50	0	116	42.5	106	60.28	4.03	0	S		
Bromodichloromethane	53.91	5.0	50	0	108	63.6	144	54.16	0.463	0			
Bromoform	44.00	5.0	50	0	88.0	43.9	148	44.29	0.657	0			
Bromomethane	49.16	5.0	50	0	98.3	42.6	139	57.08	14.9	0			
Carbon disulfide	62.74	5.0	50	0	125	59.9	133	61.63	1.78	0			
Carbon tetrachloride	49.29	5.0	50	0	98.6	63.2	139	50.72	2.86	0			
Chlorobenzene	49.47	5.0	50	0	98.9	58.9	136	48.25	2.50	0			
Chloroethane	57.10	5.0	50	0	114	56.1	134	62.07	8.34	0			
Chloroform	57.74	5.0	50	0	115	62.4	135	60.13	4.06	0			
Chloromethane	51.89	5.0	50	0	104	58.5	150	64.54	21.7	0			
cis-1,2-Dichloroethene	57.42	5.0	50	0	115	61.7	135	56.33	1.92	0			
cis-1,3-Dichloropropene	58.88	5.0	50	0	118	63.1	134	57.74	1.96	0			
Cyclohexane	62.30	5.0	50	0	125	65.5	142	64.63	3.67	0			
Dibromochloromethane	47.25	5.0	50	0	94.5	61.5	137	45.73	3.27	0			
Ethyl acetate	65.40	10	50	0	131	46.6	140	66.41	1.53	0			
Ethylbenzene	50.20	5.0	50	0	100	62.4	140	49.7	1.00	0			
Freon 11	48.35	5.0	50	0	96.7	44.7	165	51.89	7.06	0			
Freon 113	58.84	5.0	50	0	118	58	124	60.77	3.23	0			
Freon 114	48.98	5.0	50	0	98.0	62	176	57.11	15.3	0			

Qualifiers:

- Results reported are not blank corrected
- J Analyte detected below quantization limit
- S Spike Recovery outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

CLIENT: CH2M - St Louis
 Work Order: C1705036
 Project: Former Hampshire

TestCode: TO15

Sample ID: DLCSO_TO15-05181	Batch ID: R12259	SampType: LCSD	TestCode: TO15	Units: ppbV	Prep Date:	RunNo: 12259					
Client ID: ZZZZZ	Batch ID: R12259		TestNo: TO-15		Analysis Date: 5/18/2017	SeqNo: 143204					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Freon 12	52.85	5.0	50	0	106	52.5	163	56.15	6.06	0	
Heptane	61.43	5.0	50	0	123	65.5	144	62.63	1.93	0	
Hexachloro-1,3-butadiene	41.06	5.0	50	0	82.1	32.9	129	39.72	3.32	0	
Hexane	64.34	5.0	50	0	129	59.1	148	69.14	7.19	0	
Isopropyl alcohol	67.01	5.0	50	0	134	50.5	142	73	8.56	0	
m&p-Xylene	102.5	10	100	0	103	69.7	137	101.2	1.28	0	
Methyl Butyl Ketone	65.88	10	50	0	132	59.1	125	67.28	2.10	0	S
Methyl Ethyl Ketone	64.50	10	50	0	129	51.3	137	64.98	0.741	0	
Methyl Isobutyl Ketone	63.73	10	50	0	127	58.3	127	64.57	1.31	0	S
Methyl tert-butyl ether	59.43	5.0	50	0	119	62.9	134	60.8	2.28	0	
Methylene chloride	61.57	5.0	50	0	123	57.4	131	62.51	1.52	0	
o-Xylene	53.30	5.0	50	0	107	68	142	53.85	1.03	0	
Propylene	57.06	5.0	50	0	114	45.4	150	62.69	9.40	0	
Styrene	53.66	5.0	50	0	107	60.4	135	53.53	0.243	0	
Tetrachloroethylene	43.62	5.0	50	0	87.2	59.1	138	43.93	0.708	0	
Tetrahydrofuran	65.37	5.0	50	0	131	57.3	136	69.17	5.65	0	
Toluene	52.50	5.0	50	0	105	63.9	142	51.93	1.09	0	
trans-1,2-Dichloroethene	68.85	5.0	50	0	138	70.2	142	65.25	5.37	0	
trans-1,3-Dichloropropene	59.62	5.0	50	0	119	71.5	145	60.05	0.719	0	
Trichloroethene	48.23	5.0	50	0	96.5	64.5	135	46.19	4.32	0	
Vinyl acetate	75.60	5.0	50	0	151	55.9	150	76.13	0.699	0	S
Vinyl Bromide	53.04	5.0	50	0	106	54.7	150	55.42	4.39	0	
Vinyl chloride	52.90	5.0	50	0	106	59.9	151	62.19	16.1	0	
Surr: Bromofluorobenzene	54.96	0	50	0	110	71.1	142	0	0	0	

Qualifiers: J Results reported are not blank corrected
 S Analyte detected below quantitation limit
 S Spike Recovery outside accepted recovery limits

E Estimated Value above quantitation range
 ND Not Detected at the Limit of Detection

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

Data File : C:\HPCHEM\1\DATA\DH051506.D

Vial: 1

Acq On : 15 May 2017 11:52 am

Operator: WD

Sample : DLCSO_T015-051517

Inst : GCMS3

Misc : T015

Multiplier: 1.00

MS Integration Params: rteint.p

Quant Time: May 15 12:22 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	147271	50.00	ppb	-0.01
40) 1,4-difluorobenzene	12.18	114	799073	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	699699	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.95	95	513129	51.70	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	103.40%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.17	41	186375	39.09	ppb	84
3) Freon 12	4.22	85	555536	41.33	ppb	99
4) Freon 114	4.42	85	573758m	35.65	ppb	
5) Chloromethane	4.43	50	169823m	34.03	ppb	
7) Vinyl Chloride	4.63	62	176988	35.44	ppb	96
8) Butane	4.73	43	222265	37.60	ppb	95
9) 1,3-butadiene	4.73	54	132758	39.16	ppb	90
10) Bromomethane	5.10	94	207922	42.39	ppb	100
11) Chloroethane	5.27	64	123322	45.91	ppb	97
12) Ethanol	5.39	45	100753	50.56	ppb	95
13) Vinyl Bromide	5.62	106	200871	49.45	ppb	99
14) Freon 11	5.89	101	509368	39.65	ppb	100
15) Acrolein	5.99	56	88164	49.82	ppb	98
16) Acetone	6.09	43	294548	53.19	ppb	65
17) Pentane	6.17	43	532558	41.60	ppb	# 91
18) Isopropyl alcohol	6.18	45	428150	45.38	ppb	83
19) 1,1-Dichloroethene	6.68	96	227016	55.75	ppb	# 84
20) Freon 113	6.87	101	486545	52.62	ppb	95
21) t-butyl alcohol	6.91	59	556314	49.13	ppb	96
22) Allyl chloride	7.14	41	318652	45.21	ppb	97
23) Methylene Chloride	7.16	84	203591	53.67	ppb	96
24) Carbon disulfide	7.33	76	579688	52.44	ppb	99
25) trans-1,2-dichloroethene	8.11	61	320362	51.54	ppb	93
26) methyl tert-butyl ether	8.11	73	731316	47.09	ppb	98
27) Vinyl acetate	8.52	43	643398	51.56	ppb	97
28) 1,1-Dichloroethane	8.54	63	465970	48.63	ppb	99
29) Methyl Ethyl Ketone	9.04	72	125974	54.31	ppb	# 90
30) Hexane	9.05	41	287783	43.00	ppb	# 57
31) cis-1,2-dichloroethene	9.48	96	236182	52.96	ppb	98
32) Ethyl acetate	9.63	45	82761	47.00	ppb	96
33) Chloroform	10.10	83	501385	47.56	ppb	98
34) Tetrahydrofuran	10.27	42	304449	46.10	ppb	98
35) 1,1,1-Trichloroethane	10.91	97	487373	44.06	ppb	99
36) 1,2-Dichloroethane	11.22	62	306068	45.95	ppb	100
37) Benzene	11.52	78	839499	49.06	ppb	94
38) Carbon Tetrachloride	11.54	117	485336	41.98	ppb	99
39) Cyclohexane	11.59	56	440873	47.24	ppb	83
41) 2,2,4-trimethylpentane	12.31	57	1375297	50.14	ppb	89
42) Heptane	12.63	43	500461	46.74	ppb	97
43) Trichloroethene	12.78	130	326516	52.14	ppb	99
44) 1,2-Dichloropropane	12.89	63	328790	50.32	ppb	100
45) Methyl methacrylate	12.99	41	346467	44.90	ppb	# 84
46) 1,4-dioxane	13.03	88	176106	52.64	ppb	94
47) Bromodichloromethane	13.21	83	547182	48.16	ppb	100
48) Methyl Isobutyl Ketone	13.87	43	637947	47.37	ppb	94

(#)=qualifier out of range (m)=manual integration

DH051506.D I0511T15.M

Thu Jun 01 08:56:26 2017

Page 1

Data File : C:\HPCHEM\1\DATA\DH051506.D
 Acq On : 15 May 2017 11:52 am
 Sample : DLCSO_TO15-051517
 Misc : TO15
 MS Integration Params: rteint.p
 Quant Time: May 15 12:22 2017

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration
 DataAcq Meth : NEW1

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
49) cis-1,3-Dichloropropene	13.94	75	461837	52.90	ppb	100
50) trans-1,3-Dichloropropene	14.64	75	389645	52.11	ppb	95
51) 1,1,2-Trichloroethane	14.94	97	366560	50.76	ppb	100
52) Toluene	14.70	92	595390	51.40	ppb	99
53) Methyl Butyl Ketone	15.08	43	548277	49.46	ppb	89
54) Dibromochloromethane	15.58	129	540135	46.47	ppb	96
55) Tetrachloroethylene	15.63	164	357685	49.24	ppb	97
56) 1,2-dibromoethane	15.81	107	478579	52.04	ppb	99
58) Chlorobenzene	16.53	112	762502	49.29	ppb	100
59) Ethylbenzene	16.75	106	422406	49.60	ppb	# 90
60) m&p-Xylene	16.93	106	1034990	98.35	ppb	# 87
61) Nonane	17.24	43	715582	46.02	ppb	95
62) Styrene	17.32	104	759997	50.77	ppb	100
63) o-xylene	17.35	91	1059334	47.30	ppb	92
64) Bromoform	17.45	173	538886	46.50	ppb	99
65) 1,1,2,2-Tetrachloroethane	17.75	83	747367	49.56	ppb	98
66) Cumene	17.84	105	1484199	49.57	ppb	96
68) Propylbenzene	18.31	91	1706172	51.17	ppb	98
69) 2-Chlorotoluene	18.35	126	347883	48.77	ppb	90
70) 4-ethyltoluene	18.44	105	1276571	48.83	ppb	97
71) 1,3,5-trimethylbenzene	18.50	105	1187077	48.69	ppb	96
72) 1,2,4-trimethylbenzene	18.87	105	1132557	49.74	ppb	94
73) 1,3-dichlorobenzene	19.13	146	603572	51.38	ppb	98
74) benzyl chloride	19.19	91	748562	52.61	ppb	97
75) 1,4-dichlorobenzene	19.24	146	572232	47.54	ppb	98
76) 1,2,3-Trimethylbenzene	19.26	105	1175187	47.88	ppb	93
77) 1,2-dichlorobenzene	19.51	146	612745	48.96	ppb	98
78) 1,2,4-trichlorobenzene	21.02	180	335862	47.54	ppb	99
79) Naphthalene	21.19	128	822543	56.46	ppb	96
80) Hexachloro-1,3-butadiene	21.26	225	573494	42.39	ppb	99

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051705.D

Vial: 1

Acq On : 17 May 2017 10:44 am

Operator: WD

Sample : DLCSO_TO15-051717

Inst : GCMS3

Misc : TO15

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 17 11:07 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	112827	50.00	ppb	-0.01
40) 1,4-difluorobenzene	12.18	114	636022	50.00	ppb	0.00
57) Chlorobenzene-d5	16.48	117	565460	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	439393	54.78	ppb	0.00
Spiked Amount	50.000	Range	70 ~ 130	Recovery	=	109.56%

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.16	41	160457	43.92	ppb	86
3) Freon 12	4.21	85	481037	46.71	ppb	100
4) Freon 114	4.42	85	651883	52.87	ppb	84
5) Chloromethane	4.42	50	206184	53.94	ppb	90
7) Vinyl Chloride	4.62	62	214365	56.03	ppb	99
8) Butane	4.72	43	260362	57.50	ppb	96
9) 1,3-butadiene	4.73	54	139990	53.90	ppb	88
10) Bromomethane	5.09	94	153186	40.76	ppb	99
11) Chloroethane	5.26	64	86474	42.02	ppb	98
12) Ethanol	5.39	45	84244	55.18	ppb	94
13) Vinyl Bromide	5.61	106	138067	44.36	ppb	99
14) Freon 11	5.89	101	440698	44.78	ppb	99
15) Acrolein	5.98	56	58252	42.97	ppb	95
16) Acetone	6.08	43	252253	59.46	ppb	79
17) Pentane	6.17	43	433160	44.17	ppb	93
18) Isopropyl alcohol	6.18	45	365090	50.51	ppb	# 1
19) 1,1-Dichloroethene	6.67	96	153764	49.29	ppb	96
20) Freon 113	6.86	101	359425	50.74	ppb	96
21) t-butyl alcohol	6.91	59	448725	51.72	ppb	99
22) Allyl chloride	7.13	41	255732	47.36	ppb	94
23) Methylene Chloride	7.15	84	140812	48.45	ppb	89
24) Carbon disulfide	7.32	76	402350	47.51	ppb	99
25) trans-1,2-dichloroethene	8.10	61	242522	50.93	ppb	97
26) methyl tert-butyl ether	8.11	73	546838	45.96	ppb	96
27) Vinyl acetate	8.51	43	530717	55.51	ppb	98
28) 1,1-Dichloroethane	8.54	63	349117	47.56	ppb	98
29) Methyl Ethyl Ketone	9.03	72	86535	48.69	ppb	# 1
30) Hexane	9.04	41	248968	48.56	ppb	# 69
31) cis-1,2-dichloroethene	9.48	96	160760	47.06	ppb	97
32) Ethyl acetate	9.62	45	65109	48.26	ppb	91
33) Chloroform	10.09	83	384917	47.66	ppb	98
34) Tetrahydrofuran	10.27	42	244620	48.35	ppb	88
35) 1,1,1-Trichloroethane	10.91	97	403633	47.63	ppb	97
36) 1,2-Dichloroethane	11.22	62	258895	50.73	ppb	100
37) Benzene	11.51	78	589055	44.93	ppb	98
38) Carbon Tetrachloride	11.54	117	434488	49.05	ppb	98
39) Cyclohexane	11.59	56	319568	44.69	ppb	96
41) 2,2,4-trimethylpentane	12.31	57	1023741	46.89	ppb	94
42) Heptane	12.63	43	407172	47.77	ppb	94
43) Trichloroethene	12.78	130	232858	46.72	ppb	100
44) 1,2-Dichloropropane	12.89	63	235245	45.23	ppb	100
45) Methyl methacrylate	12.99	41	292222	47.58	ppb	94
46) 1,4-dioxane	13.03	88	122899	46.16	ppb	90
47) Bromodichloromethane	13.21	83	439575	48.61	ppb	99
48) Methyl Isobutyl Ketone	13.86	43	536595	50.06	ppb	96

(#) = qualifier out of range (m) = manual integration

DH051705.D I0511T15.M

Thu Jun 01 09:06:51 2017

Page 1

Data File : C:\HPCHEM\1\DATA\DH051705.D

Vial: 1

Acq On : 17 May 2017 10:44 am

Operator: WD

Sample : DLCSO_T015-051717

Inst : GCMS3

Misc : T015

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 17 11:07 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
49) cis-1,3-Dichloropropene	13.94	75	337622	48.58	ppb	100
50) trans-1,3-Dichloropropene	14.64	75	300475	50.49	ppb	95
51) 1,1,2-Trichloroethane	14.93	97	267224	46.49	ppb	100
52) Toluene	14.70	92	419270	45.48	ppb	97
53) Methyl Butyl Ketone	15.08	43	463544	52.53	ppb	96
54) Dibromochloromethane	15.58	129	463928	50.14	ppb	100
55) Tetrachloroethylene	15.63	164	271724	46.99	ppb	98
56) 1,2-dibromoethane	15.81	107	357005	48.77	ppb	100
58) Chlorobenzene	16.53	112	555823	44.46	ppb	99
59) Ethylbenzene	16.75	106	309025	44.90	ppb	95
60) m&p-Xylene	16.93	106	766742	90.15	ppb	93
61) Nonane	17.24	43	634744	50.51	ppb	94
62) Styrene	17.32	104	572112	47.29	ppb	94
63) o-xylene	17.35	91	835652	46.17	ppb	95
64) Bromoform	17.45	173	467510	49.92	ppb	100
65) 1,1,2,2-Tetrachloroethane	17.76	83	570681	46.83	ppb	98
66) Cumene	17.84	105	1156795	47.80	ppb	97
68) Propylbenzene	18.31	91	1325447	49.19	ppb	99
69) 2-Chlorotoluene	18.35	126	271422	47.08	ppb	94
70) 4-ethyltoluene	18.45	105	1006377	47.63	ppb	98
71) 1,3,5-trimethylbenzene	18.49	105	957647	48.60	ppb	99
72) 1,2,4-trimethylbenzene	18.87	105	903547	49.10	ppb	96
73) 1,3-dichlorobenzene	19.13	146	488965	51.51	ppb	98
74) benzyl chloride	19.18	91	558632	48.59	ppb	98
75) 1,4-dichlorobenzene	19.24	146	465174	47.82	ppb	98
76) 1,2,3-Trimethylbenzene	19.26	105	964892	48.65	ppb	95
77) 1,2-dichlorobenzene	19.50	146	504476	49.88	ppb	98
78) 1,2,4-trichlorobenzene	21.02	180	292777	51.28	ppb	99
79) Naphthalene	21.19	128	573915	48.74	ppb	98
80) Hexachloro-1,3-butadiene	21.26	225	609128	55.72	ppb	98

(#) = qualifier out of range (m) = manual integration

DH051705.D I0511T15.M

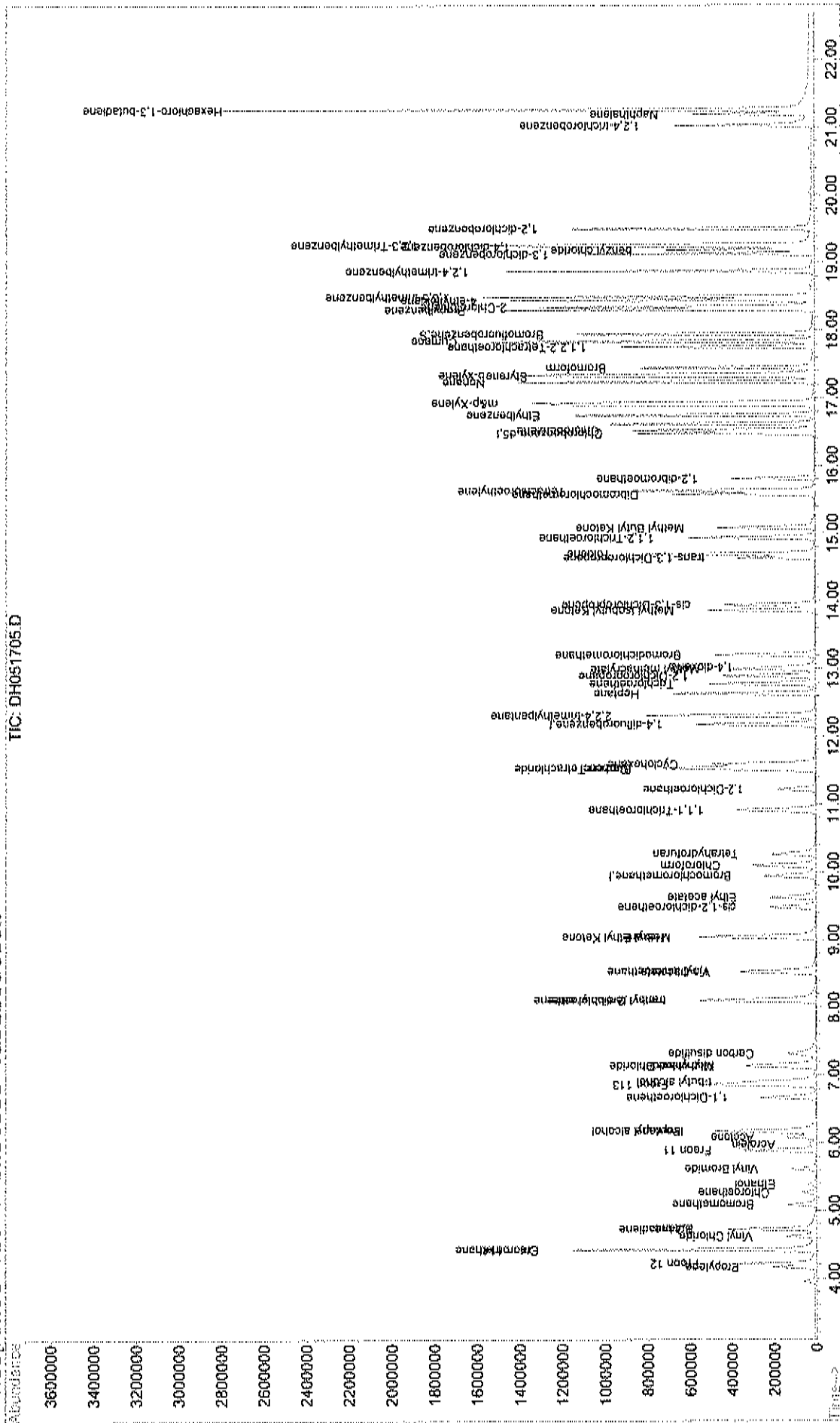
Thu Jun 01 09:06:51 2017

Page 2

Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051705.D
 Vial: 1
 Acq On : 17 May 2017 10:44 am
 Operator: WD
 Sample : DLCSO_T015-051717
 Inst : GCMS3
 Misc : T015
 Multiplr: 1.00
 MS Integration Params: rteint.p
 Quant Time: May 17 11:07 2017
 Quant Results File: I0511T15.RES

Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration



Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\DH051809.D
 Acq On : 18 May 2017 1:26 pm
 Sample : DLCSO_T015-051817
 Misc : T015
 MS Integration Params: rteint.p
 Quant Time: May 18 13:53 2017

Vial: 1
 Operator: WD
 Inst : GCMS3
 Multiplr: 1.00

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)
 Title : VOA Standards for 5 point calibration
 Last Update : Thu May 11 14:01:56 2017
 Response via : Initial Calibration
 DataAcq Meth : NEW1

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane	9.95	128	83236	50.00	ppb	-0.01
40) 1,4-difluorobenzene	12.17	114	499565	50.00	ppb	-0.01
57) Chlorobenzene-d5	16.48	117	427123	50.00	ppb	0.00

System Monitoring Compounds

67) Bromofluorobenzene	17.94	95	333009	54.96	ppb	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	109.92%

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propylene	4.16	41	153776	57.06	ppb	86
3) Freon 12	4.21	85	401499	52.85	ppb	100
4) Freon 114	4.42	85	445573	48.98	ppb	90
5) Chloromethane	4.42	50	146332	51.89	ppb	88
7) Vinyl Chloride	4.62	62	149306	52.90	ppb	100
8) Butane	4.72	43	182918	54.75	ppb	96
9) 1,3-butadiene	4.73	54	97690	50.98	ppb	90
10) Bromomethane	5.09	94	136302	49.16	ppb	99
11) Chloroethane	5.26	64	86687	57.10	ppb	98
12) Ethanol	5.38	45	84274	74.82	ppb	95
13) Vinyl Bromide	5.61	106	121772	53.04	ppb	98
14) Freon 11	5.89	101	351014	48.35	ppb	100
15) Acrolein	5.98	56	63052	63.05	ppb	89
16) Acetone	6.08	43	238835	76.31	ppb	76
17) Pentane	6.17	43	439171	60.70	ppb	93
18) Isopropyl alcohol	6.18	45	357350	67.01	ppb	# 1
19) 1,1-Dichloroethene	6.67	96	141799	61.61	ppb	99
20) Freon 113	6.86	101	307495	58.84	ppb	90
21) t-butyl alcohol	6.90	59	428586	66.96	ppb	99
22) Allyl chloride	7.13	41	261060	65.54	ppb	92
23) Methylene Chloride	7.15	84	131993	61.57	ppb	# 85
24) Carbon disulfide	7.32	76	391991	62.74	ppb	100
25) trans-1,2-dichloroethene	8.10	61	241896	68.85	ppb	93
26) methyl tert-butyl ether	8.11	73	521582	59.43	ppb	94
27) Vinyl acetate	8.51	43	533231	75.60	ppb	97
28) 1,1-Dichloroethane	8.53	63	341052	62.98	ppb	99
29) Methyl Ethyl Ketone	9.03	72	84564	64.50	ppb	# 73
30) Hexane	9.04	41	243349	64.34	ppb	# 67
31) cis-1,2-dichloroethene	9.48	96	144710	57.42	ppb	100
32) Ethyl acetate	9.62	45	65092	65.40	ppb	92
33) Chloroform	10.09	83	344048	57.74	ppb	99
34) Tetrahydrofuran	10.27	42	243996	65.37	ppb	87
35) 1,1,1-Trichloroethane	10.91	97	335075	53.60	ppb	99
36) 1,2-Dichloroethane	11.22	62	242071	64.30	ppb	99
37) Benzene	11.51	78	566660	58.59	ppb	97
38) Carbon Tetrachloride	11.54	117	322115	49.29	ppb	99
39) Cyclohexane	11.59	56	328635	62.30	ppb	92
41) 2,2,4-trimethylpentane	12.31	57	1019336	59.44	ppb	93
42) Heptane	12.63	43	411237	61.43	ppb	93
43) Trichloroethene	12.78	130	188831	48.23	ppb	93
44) 1,2-Dichloropropane	12.89	63	235877	57.74	ppb	100
45) Methyl methacrylate	12.99	41	296559	61.48	ppb	# 95
46) 1,4-dioxane	13.03	88	116792	55.84	ppb	83
47) Bromodichloromethane	13.21	83	382914	53.91	ppb	99
48) Methyl Isobutyl Ketone	13.87	43	536643	63.73	ppb	96

(#) = qualifier out of range (m) = manual integration

DH051809.D I0511T15.M

Thu Jun 01 09:11:09 2017

Page 1

Data File : C:\HPCHEM\1\DATA\DH051809.D

Vial: 1

Acq On : 18 May 2017 1:26 pm

Operator: WD

Sample : DLCSD_T015-051817

Inst : GCM83

Misc : T015

Multiplr: 1.00

MS Integration Params: rteint.p

Quant Time: May 18 13:53 2017

Quant Results File: I0511T15.RES

Quant Method : C:\HPCHEM\1\METHODS\I0511T15.M (RTE Integrator)

Title : VOA Standards for 5 point calibration

Last Update : Thu May 11 14:01:56 2017

Response via : Initial Calibration

DataAcq Meth : NEW1

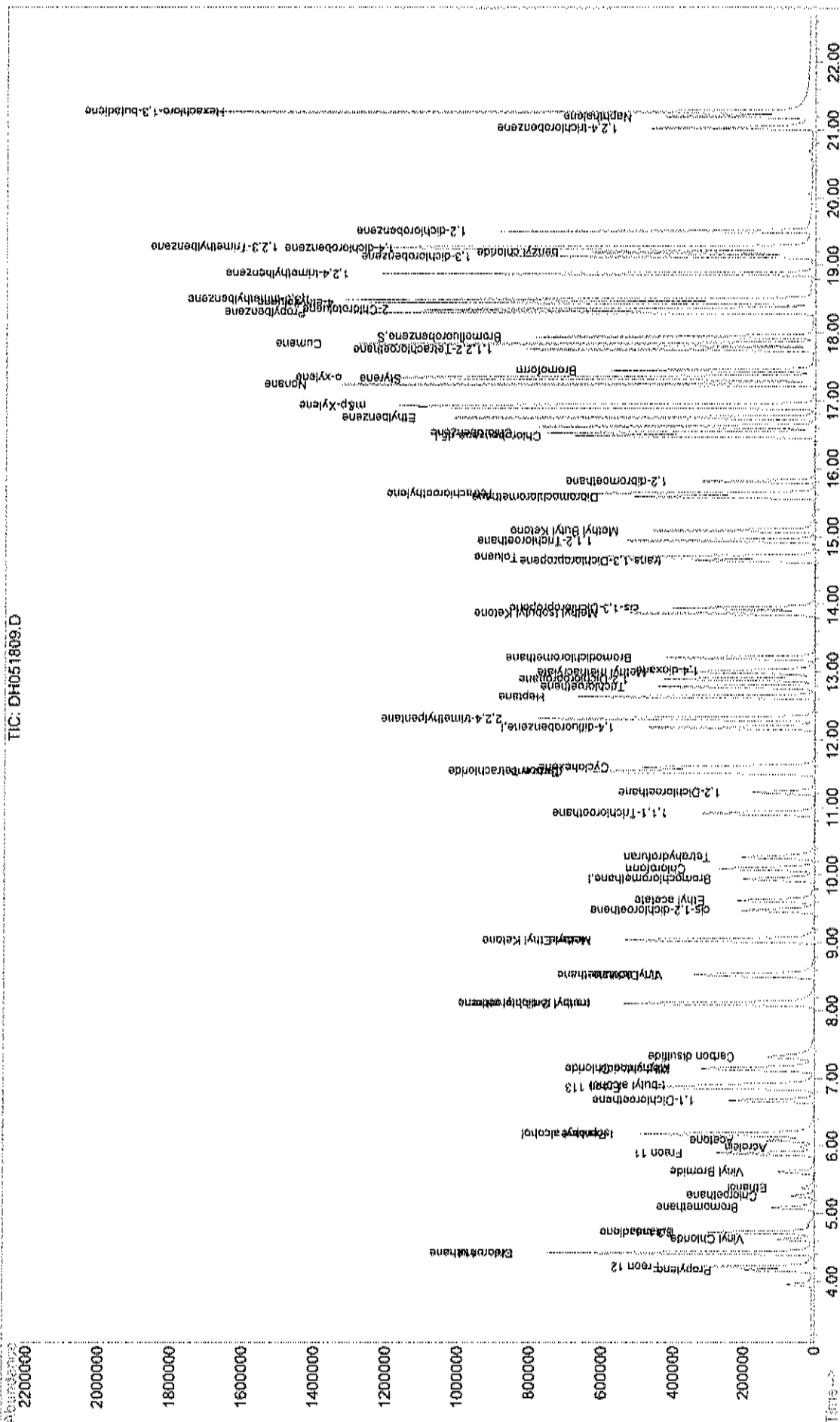
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
49) cis-1,3-Dichloropropene	13.94	75	321401	58.88	ppb	100
50) trans-1,3-Dichloropropene	14.64	75	278698	59.62	ppb	97
51) 1,1,2-Trichloroethane	14.93	97	237280	52.56	ppb	100
52) Toluene	14.70	92	380170	52.50	ppb	96
53) Methyl Butyl Ketone	15.08	43	456632	65.88	ppb	96
54) Dibromochloromethane	15.58	129	343381	47.25	ppb	100
55) Tetrachloroethylene	15.63	164	198079	43.62	ppb	97
56) 1,2-dibromoethane	15.81	107	299750	52.13	ppb	99
58) Chlorobenzene	16.53	112	467123	49.47	ppb	100
59) Ethylbenzene	16.75	106	260974	50.20	ppb	99
60) m&p-Xylene	16.93	106	658641m	102.53	ppb	
61) Nonane	17.24	43	613427	64.63	ppb	95
62) Styrene	17.32	104	490404	53.66	ppb	90
63) o-xylene	17.35	91	728646	53.30	ppb	97
64) Bromoform	17.45	173	311213	44.00	ppb	100
65) 1,1,2,2-Tetrachloroethane	17.76	83	518675	56.34	ppb	98
66) Cumene	17.84	105	958693	52.45	ppb	98
68) Propylbenzene	18.31	91	1167357	57.35	ppb	98
69) 2-Chlorotoluene	18.35	126	215561	49.50	ppb	97
70) 4-ethyltoluene	18.45	105	870133	54.52	ppb	98
71) 1,3,5-trimethylbenzene	18.49	105	763548	51.30	ppb	97
72) 1,2,4-trimethylbenzene	18.88	105	752297	54.12	ppb	98
73) 1,3-dichlorobenzene	19.13	146	363184	50.65	ppb	98
74) benzyl chloride	19.19	91	502868	57.90	ppb	98
75) 1,4-dichlorobenzene	19.24	146	347594	47.30	ppb	98
76) 1,2,3-Trimethylbenzene	19.26	105	784094	52.34	ppb	96
77) 1,2-dichlorobenzene	19.50	146	365209	47.80	ppb	98
78) 1,2,4-trichlorobenzene	21.02	180	186938	43.35	ppb	98
79) Naphthalene	21.19	128	519869	58.45	ppb	# 92
80) Hexachloro-1,3-butadiene	21.26	225	339042	41.06	ppb	98

Quantitation Report

Data File : C:\HPCHEM\1\DATA\DH051809.D
Acq On : 18 May 2017 1:26 pm
Sample : DLCSO_T015-051817
Misc : T015
MS Integration Params: rtimeint.p
Quant Time: May 18 13:53 2017

```
Method      : C:\HPCHEM\1\METHODS\IO511T15.M (RTE Integrator)
Title       : VOA Standards for 5 point calibration
Last Update : Thu May 11 14:01:56 2017
Response via : Initial Calibration
```

Quant Results File: I0511T15.RES



DH051809.D IO511T15.M Thu Jun 01 09:11:10 2017

GC/MS VOLATILES-WHOLE AIR

METHOD TO-15

INJECTION LOG

Injection Log

Directory: C:\HPCHEM\1\Data2

Instrument # 4 593MS
 Internal Standard Stock # A1928
 Standard Stock # A1928, A1934, A1935, A1936
 LCS Stock # A1930, A1934, A1935, A1936
 Method Ref: EPA TO-15 / Jan. 1999

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	Dh040301.d	1.	BFB	TO15	3 Apr 2017 09:24
2	1	Dh040302.d	1.	DSTD50_SLXSF	Siloxane	3 Apr 2017 08:59
3	1	Dh040303.d	1.	DLCS_SLXSF-040317	Siloxane	3 Apr 2017 09:33
4	2	Dh040304.d	1.	DSTD500_H2S	Siloxane	3 Apr 2017 10:07
5	2	Dh040305.d	1.	DLCS_H2S-040317	Siloxane	3 Apr 2017 10:41
6	1	Dh040306.d	1.	DSTD50_TO15	TO15	3 Apr 2017 11:20
7	1	Dh040307.d	1.	DLCS_TO15-040317	TO15	3 Apr 2017 12:08
8	1	Dh040308.d	1.	DMB_SLXSF-040317	Siloxane	3 Apr 2017 12:42
9	1	Dh040309.d	1.	DMB_TO15-040317	TO15	3 Apr 2017 13:19
10	3	Dh040310.d	1.	WAC040317A	Siloxane	3 Apr 2017 14:14
11	3	Dh040311.d	1.	WAC040317B	Siloxane	3 Apr 2017 14:48
12	4	Dh040312.d	1.	WAC040317C	Siloxane	3 Apr 2017 15:21
13	4	Dh040313.d	1.	WAC040317C	TO15	3 Apr 2017 16:01
14	5	Dh040314.d	1.	WAC040317D	Siloxane	3 Apr 2017 16:35
15	6	Dh040315.d	1.	WAC040317D	TO15	3 Apr 2017 17:15
16	1	Dh040501.d	1.	BFB	TO15	5 Apr 2017 08:57
17	1	Dh040502.d	1.	DSTD100_TO15	TO15	5 Apr 2017 09:48
18	1	Dh040503.d	1.	DSTD100_TO15	TO15	5 Apr 2017 10:25
19	1	Dh040504.d	1.	DSTD75_TO15	TO15	5 Apr 2017 11:01
20	1	Dh040505.d	1.	DSTD50_TO15	TO15	5 Apr 2017 11:36
21	1	Dh040506.d	1.	DSTD25_TO15	TO15	5 Apr 2017 12:10
22	1	Dh040507.d	1.	DSTD10_TO15	TO15	5 Apr 2017 12:44
23	1	Dh040508.d	1.	DSTD5_TO15	TO15	5 Apr 2017 13:18
24	1	Dh040509.d	1.	BLANK	Siloxane	5 Apr 2017 14:04
25	1	Dh040510.d	1.	DSTD100_SLXSF	Siloxane	5 Apr 2017 14:41
26	1	Dh040511.d	1.	DSTD100_SLXSF	Siloxane	5 Apr 2017 15:20
27	1	Dh040512.d	1.	DSTD75_SLXSF	Siloxane	5 Apr 2017 15:56
28	1	Dh040513.d	1.	DSTD60_SLXSF	Siloxane	5 Apr 2017 16:32
29	1	Dh040514.d	1.	DSTD50_SLXSF	Siloxane	5 Apr 2017 17:07
30	1	Dh040515.d	1.	DSTD40_SLXSF	Siloxane	5 Apr 2017 17:42
31	1	Dh040516.d	1.	DSTD25_SLXSF	Siloxane	5 Apr 2017 18:16
32	1	Dh040517.d	1.	DSTD15_SLXSF	Siloxane	5 Apr 2017 18:50
33	1	Dh040518.d	1.	DSTD10_SLXSF	Siloxane	5 Apr 2017 19:24
34	1	Dh040519.d	1.	DSTD5_SLXSF	Siloxane	5 Apr 2017 19:58
35	1	Dh040520.d	1.	BLANK	Siloxane	5 Apr 2017 20:32
36	1	Dh040521.d	1.	BLANK	Siloxane	5 Apr 2017 21:06
37	1	Dh040601.d	1.	BFB	TO15	6 Apr 2017 07:54
38	1	Dh040602.d	1.	DSTD50_SLXSF	Siloxane	6 Apr 2017 08:28
39	1	Dh040603.d	1.	DSTD50_SLXSF	Siloxane	6 Apr 2017 09:03
40	1	Dh040604.d	1.	DLCS_SLXSF-040617	Siloxane	6 Apr 2017 09:40
41	2	Dh040605.d	1.	DSTD500_H2S	Siloxane	6 Apr 2017 10:14
42	2	Dh040606.d	1.	DSTD2000_H2S	Siloxane	6 Apr 2017 10:51
43	2	Dh040607.d	1.	DSTD1000_H2S	Siloxane	6 Apr 2017 11:26
44	2	Dh040608.d	1.	DSTD500_H2S	Siloxane	6 Apr 2017 12:00
45	2	Dh040609.d	1.	DSTD250_H2S	Siloxane	6 Apr 2017 12:34
46	2	Dh040610.d	1.	DSTD100_H2S	Siloxane	6 Apr 2017 13:08
47	2	Dh040611.d	1.	DSTD25_H2S	Siloxane	6 Apr 2017 13:42
48	2	Dh040612.d	1.	DSTD5_H2S	Siloxane	6 Apr 2017 14:16
49	2	Dh040613.d	1.	DLCS_H2S-040617	Siloxane	6 Apr 2017 14:57
50	1	Dh040614.d	1.	DMB	Siloxane	6 Apr 2017 15:30
51	1	Dh040615.d	1.	DMB_SLXSF-040617	Siloxane	6 Apr 2017 16:04
52	5	Dh040616.d	1.	C1704009-001A 2X	Siloxane	6 Apr 2017 16:38
53	6	Dh040617.d	1.	C1704009-001A 34X	Siloxane	6 Apr 2017 17:12
54	1	Dh040618.d	1.	BLANK	Siloxane	6 Apr 2017 17:46
55	7	Dh040619.d	1.	C1704009-002A 2X	Siloxane	6 Apr 2017 18:20

Injection Log

Directory: C:\HPCHEM\1\Data2

Instrument # 4 5973MS
 Internal Standard Stock # A1940
 Standard Stock # A1941, A1946, A1947, A1948
 LCS Stock # A1942, A1946, A1947, A1948
 Method Ref: EPA 821-G-95-010 Jan. 1999
 Misc Info Injected

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
12	7	Dh041021.d	1.	C1704009-002A 10X	TO15	10 Apr 2017 20:15
13	8	Dh041022.d	1.	C1704010-001A	TO15	10 Apr 2017 20:53
14	8	Dh041023.d	1.	C1704010-001A 10X	TO15	10 Apr 2017 21:31
15	9	Dh041024.d	1.	C1704017-001A 4X	TO15	10 Apr 2017 22:09
16	9	Dh041025.d	1.	C1704017-001A 10X	TO15	10 Apr 2017 22:47
17	10	Dh041026.d	1.	C1704017-002A 4X	TO15	10 Apr 2017 23:25
18	10	Dh041027.d	1.	C1704017-002A 10X	TO15	11 Apr 2017 00:03
19	1	Dh041028.d	1.	BLANK	Siloxane	11 Apr 2017 00:41
20	12	Dh041029.d	1.	C1704011-002A	Siloxane	11 Apr 2017 01:18
21	9	Dh041030.d	1.	C1704017-001A 4X	Siloxane	11 Apr 2017 01:55
22	9	Dh041031.d	1.	C1704017-001A 10X	Siloxane	11 Apr 2017 02:32
23	10	Dh041032.d	1.	C1704017-002A 4X	Siloxane	11 Apr 2017 03:08
24	10	Dh041033.d	1.	C1704017-002A 10X	Siloxane	11 Apr 2017 03:45
25	1	Dh041034.d	1.	BLANK	Siloxane	11 Apr 2017 04:22
26	1	Dh041035.d	1.	BLANK	Siloxane	11 Apr 2017 04:58
27	1	Dh041101.d	1.	BFB	TO15	11 Apr 2017 08:27
28	1	Dh041102.d	1.	DSTD50_TO15	TO15	11 Apr 2017 09:09
29	1	Dh041103.d	1.	DSTD50_TO15	TO15	11 Apr 2017 09:44
30	1	Dh041104.d	1.	DSTD50_TO15	TO15	11 Apr 2017 10:19
31	1	Dh041105.d	1.	DLCS_TO15-041117	TO15	11 Apr 2017 10:56
32	1	Dh041106.d	1.	DLCS_TO15-041117	TO15	11 Apr 2017 11:32
33	1	Dh041107.d	1.	DMB_TO15-041117	TO15	11 Apr 2017 12:07
34	6	Dh041108.d	1.	C1704027-001A 640X	TO15	11 Apr 2017 12:51
35	6	Dh041109.d	1.	C1704027-001A 1280X	TO15	11 Apr 2017 13:33
36	7	Dh041110.d	1.	C1704027-002A 640X	TO15	11 Apr 2017 14:09
37	8	Dh041111.d	1.	C1704027-003A 640X	TO15	11 Apr 2017 14:45
38	8	Dh041112.d	1.	C1704027-003A 1280X	TO15	11 Apr 2017 15:21
39	11	Dh041113.d	1.	C1704017-001A 126X	TO15	11 Apr 2017 15:56
40	11	Dh041114.d	1.	C1704017-001A 630X	TO15	11 Apr 2017 16:32
41	11	Dh041115.d	1.	C1704017-001A 1260X	TO15	11 Apr 2017 17:07
42	12	Dh041116.d	1.	C1704017-002A 89X	TO15	11 Apr 2017 17:43
43	12	Dh041117.d	1.	C1704017-002A 445X	TO15	11 Apr 2017 18:18
44	12	Dh041118.d	1.	C1704017-002A 890X	TO15	11 Apr 2017 18:54
45	1	Dh041119.d	1.	BLANK	TO15	11 Apr 2017 19:29
46	1	Dh041120.d	1.	BLANK	Siloxane	12 Apr 2017 00:38
47	1	Dh041121.d	1.	BLANK	Siloxane	12 Apr 2017 01:13
48	1	Dh041122.d	1.	DSTD50_SLXSF	Siloxane	12 Apr 2017 01:48
49	1	Dh041123.d	1.	DSTD50_SLXSF	Siloxane	12 Apr 2017 02:23
50	1	Dh041124.d	1.	DSTD50_SLXSF	Siloxane	12 Apr 2017 02:58
51	1	Dh041125.d	1.	DSTD50_SLXSF	Siloxane	12 Apr 2017 03:33
52	2	Dh041126.d	1.	DSTD500_H2S	Siloxane	12 Apr 2017 04:07
53	2	Dh041127.d	1.	DSTD500_H2S	Siloxane	12 Apr 2017 04:42
54	2	Dh041128.d	1.	DSTD500_H2S	Siloxane	12 Apr 2017 05:16
55	1	Dh041129.d	1.	BLANK	Siloxane	12 Apr 2017 05:50
56	1	Dh041130.d	1.	BLANK	Siloxane	12 Apr 2017 06:24
57	1	Dh041201.d	1.	BFB	TO15	12 Apr 2017 08:23
58	2	Dh041202.d	1.	DSTD500_H2S	Siloxane	12 Apr 2017 08:56
59	2	Dh041203.d	1.	DLCS_H2S-041217	Siloxane	12 Apr 2017 09:30
60	1	Dh041204.d	1.	DSTD50_SLXSF	Siloxane	12 Apr 2017 10:04
61	1	Dh041205.d	1.	DSTD100_SLXSF	Siloxane	12 Apr 2017 10:58
62	1	Dh041206.d	1.	DSTD75_SLXSF	Siloxane	12 Apr 2017 11:34
63	1	Dh041207.d	1.	DSTD60_SLXSF	Siloxane	12 Apr 2017 12:09
64	1	Dh041208.d	1.	DSTD50_SLXSF	Siloxane	12 Apr 2017 12:44
65	1	Dh041209.d	1.	DSTD40_SLXSF	Siloxane	12 Apr 2017 13:18
66	1	Dh041210.d	1.	DSTD25_SLXSF	Siloxane	12 Apr 2017 13:52

Injection Log

Directory: C:\HPCHEM\1\Data2

Instrument: 45973MS
 Internal Standard Stock # A1940
 Standard Stock # A1941, A1946, A1947, A1948
 LCS Stock # A1942, A1946, A1947, A1948
 Method Ref: EPA 821-15 / Jan. 1999

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
166	1	Dh041211.d	1.	DSTD15_SLXSF	Siloxane	12 Apr 2017 14:26
167	1	Dh041212.d	1.	DSTD10_SLXSF	Siloxane	12 Apr 2017 14:59
168	1	Dh041213.d	1.	DSTD5_SLXSF	Siloxane	12 Apr 2017 15:33
169	1	Dh041214.d	1.	DLCS_SLXSF-041217	Siloxane	12 Apr 2017 16:08
170	1	Dh041215.d	1.	DMB	Siloxane	12 Apr 2017 16:42
171	1	Dh041216.d	1.	DMB_SLXSF-041217	Siloxane	12 Apr 2017 17:16
172	5	Dh041217.d	1.	C1704028-001A 4X	Siloxane	12 Apr 2017 17:51
173	6	Dh041218.d	1.	C1704029-001A 4X	Siloxane	12 Apr 2017 18:25
174	7	Dh041219.d	1.	C1704032-001A	Siloxane	12 Apr 2017 18:59
175	7	Dh041220.d	1.	C1704032-001A 4X	Siloxane	12 Apr 2017 19:34
176	8	Dh041221.d	1.	C1704031-001A 4X	Siloxane	12 Apr 2017 20:08
177	8	Dh041222.d	1.	C1704031-001A 10X	Siloxane	12 Apr 2017 20:43
178	9	Dh041223.d	1.	C1704031-002A	Siloxane	12 Apr 2017 21:17
179	10	Dh041224.d	1.	C1704033-001A 4X	Siloxane	12 Apr 2017 21:51
180	1	Dh041225.d	1.	BLANK	Siloxane	12 Apr 2017 22:26
181	1	Dh041226.d	1.	BLANK	Siloxane	12 Apr 2017 23:00
182	1	Dh041227.d	1.	BLANK	TO15	12 Apr 2017 23:37
183	1	Dh041301.d	1.	BFB	TO15	13 Apr 2017 07:58
184	1	Dh041302.d	1.	DSTD50_SLXSF	Siloxane	13 Apr 2017 08:32
185	1	Dh041303.d	1.	DSTD50_SLXSF	Siloxane	13 Apr 2017 09:07
186	1	Dh041304.d	1.	DLCS_SLXSF-041317	Siloxane	13 Apr 2017 09:42
187	2	Dh041305.d	1.	DSTD500_H2S	Siloxane	13 Apr 2017 10:16
188	2	Dh041306.d	1.	DSTD500_H2S	Siloxane	13 Apr 2017 10:49
189	2	Dh041307.d	1.	DSTD500_H2S	Siloxane	13 Apr 2017 11:24
190	2	Dh041308.d	1.	DLCS_H2S-041317	Siloxane	13 Apr 2017 11:57
191	1	Dh041309.d	1.	DMB	Siloxane	13 Apr 2017 12:31
192	1	Dh041310.d	1.	DMB_SLXSF-041317	Siloxane	13 Apr 2017 13:05
193	5	Dh041311.d	1.	C1704028-001A 2410X	Siloxane	13 Apr 2017 13:41
194	7	Dh041312.d	1.	C1704032-001A 65X	Siloxane	13 Apr 2017 14:15
195	10	Dh041313.d	1.	C1704033-001A 2005X	Siloxane	13 Apr 2017 14:49
196	6	Dh041314.d	1.	C1704036-001A 3710X	Siloxane	13 Apr 2017 15:23
197	8	Dh041315.d	1.	C1704036-001A 4X	Siloxane	13 Apr 2017 15:57
198	8	Dh041316.d	1.	C1704036-001A 10X	Siloxane	13 Apr 2017 16:31
199	9	Dh041317.d	1.	C1704038-001A	Siloxane	13 Apr 2017 17:05
200	9	Dh041318.d	1.	C1704038-001A 4X	Siloxane	13 Apr 2017 17:39
201	9	Dh041319.d	1.	C1704038-001A 10X	Siloxane	13 Apr 2017 18:13
202	1	Dh041320.d	1.	BLANK	Siloxane	13 Apr 2017 18:48
203	1	Dh041701.d	1.	BFB	TO15	17 Apr 2017 09:11
204	2	Dh041702.d	1.	ASTD50	TO15	17 Apr 2017 09:57
205	3	Dh041703.d	1.	ALCS-041717	TO15	17 Apr 2017 10:38
206	4	Dh041704.d	1.	DSTD50_SLXSF	TO15	17 Apr 2017 14:10
207	5	Dh041705.d	1.	DSTD500_H2S	TO15	17 Apr 2017 14:44
208	6	Dh041706.d	1.	AMB-041717	TO15	17 Apr 2017 15:32
209	7	Dh041707.d	1.	DMB_SLXSF-041717	Siloxane	17 Apr 2017 16:07
210	13	Dh041708.d	1.	WAC041717A	TO15 QC Can	17 Apr 2017 17:22
211	13	Dh041709.d	1.	WAC041717A	Siloxane QC Can	17 Apr 2017 17:56
212	14	Dh041710.d	1.	WAC041717B	TO15 QC Can	17 Apr 2017 18:36
213	14	Dh041711.d	1.	WAC041717B	Siloxane QC Can	17 Apr 2017 19:11
214	15	Dh041712.d	1.	WAC041717C	TO15 QC Can	17 Apr 2017 19:51
215	15	Dh041713.d	1.	WAC041717C	Siloxane QC Can	17 Apr 2017 20:28
216	17	Dh041714.d	1.	C1704046-001A	Sulfurs	17 Apr 2017 21:04
217	17	Dh041715.d	1.	C1704046-001A 10X	Sulfurs	17 Apr 2017 21:41
218	16	Dh041716.d	1.	C1704042-001A 4X	Sulf/Silix	17 Apr 2017 22:18
219	16	Dh041717.d	1.	C1704042-001A 10X	Sulf/Silix	17 Apr 2017 22:54
220	17	Dh041718.d	1.	Blank	Sulf/Silix	17 Apr 2017 23:30

Injection Log

Directory: C:\HPCHEM\1\Data2

Instrument # 4 5913MS
 Internal Standard Stock # A1976
 Standard Stock # A1977, A1982, A1983, A1984
 LCS Stock # A1978, A1982, A1983, A1984
 Method Ref: EPA TO-15 / Jan. 1999

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
66	1	Dh050901.d	1.	BFB	TO15	9 May 2017 08:45
67	1	Dh050902.d	1.	DSTD50_TO15	TO15	9 May 2017 09:35
68	1	Dh050903.d	1.	BFB	TO15	9 May 2017 10:32
69	1	Dh050904.d	1.	DSTD50_TO15	TO15	9 May 2017 11:12
70	1	Dh050905.d	1.	DLCS_TO15-050917	TO15	9 May 2017 11:54
71	1	Dh050906.d	1.	DLCS_TO15-050917	TO15	9 May 2017 12:29
72	1	Dh050907.d	1.	DMB	TO15	9 May 2017 13:04
73	1	Dh050908.d	1.	DMB_TO15-050917	TO15	9 May 2017 13:38
74	5	Dh050909.d	1.	C1705018-001A 475X	TO15	9 May 2017 14:15
75	6	Dh050910.d	1.	C1705018-002A 17420X	TO15	9 May 2017 14:49
76	7	Dh050911.d	1.	C1705018-004A 6530X	TO15	9 May 2017 15:23
77	8	Dh050912.d	1.	C1705018-001A 12780X	TO15	9 May 2017 15:58
78	9	Dh050913.d	1.	C1705018-003A 27840X	TO15	9 May 2017 16:32
79	10	Dh050914.d	1.	C1705018-005A 6720X	TO15	9 May 2017 17:07
80	1	Dh050915.d	1.	BLANK	TO15	9 May 2017 17:42
81	11	Dh050916.d	1.	C1705020-002A 4X	TO15	9 May 2017 18:16
82	11	Dh050917.d	1.	C1705020-002A 10X	TO15	9 May 2017 18:52
83	1	Dh050918.d	1.	BLANK	TO15	9 May 2017 19:27
84	4	Dh050919.d	1.	C1705024-001A 4X	TO15	9 May 2017 20:02
85	4	Dh050920.d	1.	C1705024-001A 10X	TO15	9 May 2017 20:37
86	1	Dh050921.d	1.	BLANK	TO15	9 May 2017 21:12
87	2	Dh050922.d	1.	BLANK	TO15	9 May 2017 21:47
88	3	Dh050923.d	1.	BLANK	TO15	9 May 2017 22:21
89	4	Dh050924.d	1.	BLANK	TO15	9 May 2017 22:56
90	5	Dh050925.d	1.	BLANK	TO15	9 May 2017 23:31
91	10	Dh050926.d	1.	C1705018-005A 672X	TO15	10 May 2017 07:47
92	1	Dh051001.d	1.	BFB	TO15	10 May 2017 10:02
93	1	Dh051002.d	1.	DSTD50_SLXSF	Siloxane	10 May 2017 10:37
94	1	Dh051003.d	1.	DSTD50_SLXSF	Siloxane	10 May 2017 11:13
95	2	Dh051004.d	1.	DSTD500_H2S	Siloxane	10 May 2017 11:46
96	2	Dh051005.d	1.	DLCS_H2S-051017	Siloxane	10 May 2017 12:20
97	1	Dh051006.d	1.	DSTD50_SLXSF	Siloxane	10 May 2017 12:54
98	1	Dh051007.d	1.	DLCS_SLXSF-051017	Siloxane	10 May 2017 13:29
99	1	Dh051008.d	1.	DSTD50_TO15	Siloxane	10 May 2017 14:14
00	1	Dh051009.d	1.	DMB_SLXSF-051017	Siloxane	10 May 2017 14:48
01	4	Dh051010.d	1.	C1705024-001A 4X	Siloxane	10 May 2017 15:22
02	4	Dh051011.d	1.	C1705024-001A 10X	Siloxane	10 May 2017 15:56
03	1	Dh051012.d	1.	BLANK	Siloxane	10 May 2017 16:30
04	1	Dh051013.d	1.	BLANK	Siloxane	10 May 2017 17:04
05	1	Dh051014.d	1.	BLANK	Siloxane	10 May 2017 17:38
06	1	Dh051015.d	1.	BLANK	Siloxane	10 May 2017 18:12
07	1	Dh051101.d	1.	BFB	TO15	11 May 2017 08:18
08	1	Dh051102.d	1.	DSTD50_TO15	TO15	11 May 2017 08:54
09	1	Dh051103.d	1.	DSTD100_TO15	TO15	11 May 2017 09:32
10	1	Dh051104.d	1.	DSTD100_TO15	TO15	11 May 2017 10:08
11	1	Dh051105.d	1.	DSTD75_TO15	TO15	11 May 2017 10:44
12	1	Dh051106.d	1.	DSTD50_TO15	TO15	11 May 2017 11:19
13	1	Dh051107.d	1.	DSTD25_TO15	TO15	11 May 2017 11:54
14	1	Dh051108.d	1.	DSTD10_TO15	TO15	11 May 2017 12:28
15	1	Dh051109.d	1.	DSTD5_TO15	TO15	11 May 2017 13:02
16	1	Dh051110.d	1.	DLCS_TO15-051117	TO15	11 May 2017 13:38
17	1	Dh051111.d	1.	DLCS_TO15-051117	TO15	11 May 2017 14:13
18	1	Dh051112.d	1.	DMB	TO15	11 May 2017 14:55
19	1	Dh051113.d	1.	DMB_TO15-051117	TO15	11 May 2017 15:29
20	12	Dh051114.d	1.	C1705027-001A	TO15	11 May 2017 16:05

Injection Log

Directory: C:\HPCHEM\1\Data2

Instrument # 75915712
 Internal Standard Stock # A1988
 Standard Stock # A1985, A1984, A1995, A1996
 LCS Stock # A1990, A1994, A1995, A1996
 Method Ref: EPA TO-15 / Jan. 1999

ine	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
21	12	Dh051115.d	1.	C1705027-001A 10X	TO15	11 May 2017 16:39
22	13	Dh051116.d	1.	C1705027-002A	TO15	11 May 2017 17:15
23	13	Dh051117.d	1.	C1705027-002A 10X	TO15	11 May 2017 17:50
24	14	Dh051118.d	1.	C1705027-003A	TO15	11 May 2017 18:26
25	14	Dh051119.d	1.	C1705027-003A 10X	TO15	11 May 2017 19:02
26	1	Dh051120.d	1.	BLANK	TO15	11 May 2017 19:38
27	11	Dh051121.d	1.	C1705020-002A 77X	TO15	11 May 2017 20:14
28	11	Dh051122.d	1.	C1705020-002A 385X	TO15	11 May 2017 20:50
29	11	Dh051123.d	1.	C1705020-002A 770X	TO15	11 May 2017 21:26
30	1	Dh051124.d	1.	BLANK	TO15	11 May 2017 22:01
31	4	Dh051125.d	1.	C1705024-001A 46X	TO15	11 May 2017 22:37
32	4	Dh051126.d	1.	C1705024-001A 184X	TO15	11 May 2017 23:13
33	1	Dh051127.d	1.	BLANK	TO15	11 May 2017 23:49
34	1	Dh051128.d	1.	BLANK	TO15	12 May 2017 00:25
35	1	Dh051129.d	1.	BLANK	TO15	12 May 2017 01:00
36	1	Dh051130.d	1.	BLANK	TO15	12 May 2017 01:36
37	1	Dh051201.d	1.	BFB	TO15	12 May 2017 08:42
38	1	Dh051202.d	1.	DSTD50_SLXSF	Siloxane	12 May 2017 09:17
39	1	Dh051203.d	1.	DSTD50_SLXSF	Siloxane	12 May 2017 09:52
40	1	Dh051204.d	1.	DLCS	Siloxane	12 May 2017 10:29
41	2	Dh051205.d	1.	DSTD500_H2S	Siloxane	12 May 2017 11:04
42	2	Dh051206.d	1.	DLCS_H2S-051217	Siloxane	12 May 2017 11:38
43	1	Dh051207.d	1.	DLCS_SLXSF-051217	Siloxane	12 May 2017 12:13
44	1	Dh051208.d	1.	DMB_H2S-051217	Siloxane	12 May 2017 12:48
45	1	Dh051209.d	1.	DMB_SLXSF-051217	Siloxane	12 May 2017 13:23
46	4	Dh051210.d	1.	C1705024-001A 460X	Siloxane	12 May 2017 13:58
47	5	Dh051211.d	1.	C1705024-001A 3340X	Siloxane	12 May 2017 14:34
48	12	Dh051212.d	1.	C1705034-003A 4X	Siloxane	12 May 2017 15:09
49	13	Dh051213.d	1.	C1705034-002A 4X	Siloxane	12 May 2017 15:44
50	14	Dh051214.d	1.	C1705034-001A 4X	Siloxane	12 May 2017 16:20
51	12	Dh051215.d	1.	C1705034-003A 10X	Siloxane	12 May 2017 16:56
52	13	Dh051216.d	1.	C1705034-002A 10X	Siloxane	12 May 2017 17:32
53	14	Dh051217.d	1.	C1705034-001A 10X	Siloxane	12 May 2017 18:08
54	13	Dh051218.d	1.	C1705034-002A	Siloxane	12 May 2017 18:44
55	14	Dh051219.d	1.	C1705034-001A	Siloxane	12 May 2017 19:21
56	1	Dh051220.d	1.	BLANK	Siloxane	12 May 2017 19:57
57	1	Dh051221.d	1.	BLANK	Siloxane	12 May 2017 20:34
58	1	Dh051222.d	1.	BLANK	Siloxane	12 May 2017 21:10
59	1	Dh051223.d	1.	BLANK	Siloxane	12 May 2017 21:47
60	1	Dh051224.d	1.	BLANK	Siloxane	12 May 2017 22:24
61	1	Dh051501.d	1.	BFB	TO15	15 May 2017 08:24
62	1	Dh051502.d	1.	DSTD50	TO15	15 May 2017 09:02
63	1	Dh051503.d	1.	DSTD50	TO15	15 May 2017 09:41
64	1	Dh051504.d	1.	DSTD50_TO15	TO15	15 May 2017 10:36
65	1	Dh051505.d	1.	DLCS_TO15-051517	TO15	15 May 2017 11:18
66	1	Dh051506.d	1.	DLCS_TO15-051517	TO15	15 May 2017 11:52
67	1	Dh051507.d	1.	DMB	TO15	15 May 2017 12:26
68	1	Dh051508.d	1.	DMB_TO15-051517	TO15	15 May 2017 13:00
69	3	Dh051509.d	1.	C1705036-001A 10X	TO15	15 May 2017 13:49
70	4	Dh051510.d	1.	C1705036-002A 10X	TO15	15 May 2017 14:23
71	5	Dh051511.d	1.	C1705036-003A	TO15	15 May 2017 14:59
72	6	Dh051512.d	1.	C1705036-004A	TO15	15 May 2017 15:34
73	7	Dh051513.d	1.	C1705036-005A	TO15	15 May 2017 16:09
74	8	Dh051514.d	1.	C1705036-006A	TO15	15 May 2017 16:45
75	9	Dh051515.d	1.	C1705036-007A	TO15	15 May 2017 17:20

Injection Log

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Instrument # 4 5413112

Internal Standard Stock # A1988

Standard Stock # A1989, A1994, A1995, A1996

LCS Stock # A1990, A1994, A1995, A1996

Method Ref: EPA 70-15 / Jan. 1999

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
76	10	Dh051516.d	1.	C1705036-008A	TO15	15 May 2017 17:55
77	11	Dh051517.d	1.	C1705036-009A	TO15	15 May 2017 18:31
78	12	Dh051518.d	1.	C1705036-010A	TO15	15 May 2017 19:06
79	13	Dh051519.d	1.	C1705036-011A	TO15	15 May 2017 19:42
80	14	Dh051520.d	1.	C1705036-013A 10X	TO15	15 May 2017 20:17
81	15	Dh051521.d	1.	C1705036-014A 10X	TO15	15 May 2017 20:53
82	16	Dh051522.d	1.	C1705036-012A 10X	TO15	15 May 2017 21:29
83	5	Dh051523.d	1.	C1705024-001A 68X	TO15	15 May 2017 22:03
84	9	Dh051524.d	1.	C1705036-007A	TO15	15 May 2017 22:39
85	9	Dh051525.d	1.	C1705036-007A 10X	TO15	15 May 2017 23:14
86	10	Dh051526.d	1.	C1705036-008A	TO15	15 May 2017 23:49
87	11	Dh051527.d	1.	C1705036-009A	TO15	16 May 2017 00:25
88	12	Dh051528.d	1.	C1705036-010A	TO15	16 May 2017 01:01
89	12	Dh051529.d	1.	C1705036-010A 10X	TO15	16 May 2017 01:35
90	13	Dh051530.d	1.	C1705036-011A	TO15	16 May 2017 02:11
91	13	Dh051531.d	1.	C1705036-011A 10X	TO15	16 May 2017 02:45
92	14	Dh051532.d	1.	C1705036-013A 10X	TO15	16 May 2017 03:20
93	15	Dh051533.d	1.	C1705036-014A 10X	TO15	16 May 2017 03:54
94	1	Dh051601.d	1.	BFB	TO15	16 May 2017 07:57
95	1	Dh051602.d	1.	BFB	TO15	16 May 2017 08:40
96	1	Dh051603.d	1.	DSTD50_SLXSF	Siloxane	16 May 2017 09:14
97	1	Dh051604.d	1.	DLCS_SLXSF-051617	Siloxane	16 May 2017 09:49
98	2	Dh051605.d	1.	DSTD500_H2S	Siloxane	16 May 2017 10:24
99	2	Dh051606.d	1.	DLCS_H2S-051617	Siloxane	16 May 2017 10:59
00	1	Dh051607.d	1.	DMB_SLXSF-051617	Siloxane	16 May 2017 11:44
01	3	Dh051608.d	1.	C1705036-001A	Siloxane	16 May 2017 12:19
02	4	Dh051609.d	1.	C1705036-002A	Siloxane	16 May 2017 12:54
03	5	Dh051610.d	1.	C1705036-003A	Siloxane	16 May 2017 13:30
04	6	Dh051611.d	1.	C1705036-004A	Siloxane	16 May 2017 14:05
05	7	Dh051612.d	1.	C1705036-005A	Siloxane	16 May 2017 14:40
06	8	Dh051613.d	1.	C1705036-006A	Siloxane	16 May 2017 15:15
07	9	Dh051614.d	1.	C1705036-007A	Siloxane	16 May 2017 15:50
08	10	Dh051615.d	1.	C1705036-008A	Siloxane	16 May 2017 16:25
09	11	Dh051616.d	1.	C1705036-009A	Siloxane	16 May 2017 17:00
10	12	Dh051617.d	1.	C1705036-010A	Siloxane	16 May 2017 17:35
11	13	Dh051618.d	1.	C1705036-011A	Siloxane	16 May 2017 18:10
12	14	Dh051619.d	1.	C1705036-013A 10X	Siloxane	16 May 2017 18:45
13	15	Dh051620.d	1.	C1705036-014A 10X	Siloxane	16 May 2017 19:19
14	16	Dh051621.d	1.	C1705036-012A 10X	Siloxane	16 May 2017 19:54
15	1	Dh051622.d	1.	BLANK	Siloxane	16 May 2017 20:28
16	13	Dh051623.d	1.	C1705036-011A 10X	Siloxane	16 May 2017 21:03
17	3	Dh051624.d	1.	C1705036-001A 10X	Siloxane	16 May 2017 21:38
18	1	Dh051625.d	1.	BLANK	Siloxane	16 May 2017 22:12
19	1	Dh051626.d	1.	BLANK	Siloxane	16 May 2017 22:47
20	1	Dh051701.d	1.	BFB	TO15	17 May 2017 08:17
21	1	Dh051702.d	1.	DSTD50_TO15	TO15	17 May 2017 08:58
22	1	Dh051703.d	1.	DSTD50_TO15	TO15	17 May 2017 09:34
23	1	Dh051704.d	1.	DLCS_TO15-051717	TO15	17 May 2017 10:09
24	1	Dh051705.d	1.	DLCS_TO15-051717	TO15	17 May 2017 10:44
25	1	Dh051706.d	1.	DMB_TO15-051717	TO15	17 May 2017 11:18
26	3	Dh051707.d	1.	C1705036-001A	TO15	17 May 2017 11:58
27	4	Dh051708.d	1.	C1705036-002A	TO15	17 May 2017 12:34
28	8	Dh051709.d	1.	C1705036-006A	TO15	17 May 2017 13:11
29	16	Dh051710.d	1.	C1705036-012A 128X	TO15	17 May 2017 13:46
30	10	Dh051711.d	1.	C1705036-008A	TO15	17 May 2017 14:23

Injection Log

Directory: C:\HPCHEM\1\Data2

Instrument # 4 5913MS

Internal Standard Stock # A1988

Standard Stock # A1989, A1990, A1995, A1996

LCS Stock # A1990, A1994, A1995, A1996

Method Ref: EPA TO-15 / Jan. 1999

Misc Info

Injected

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
31	11	Dh051712.d	1.	C1705036-009A	TO15	17 May 2017 15:00
32	12	Dh051713.d	1.	C1705036-010A	TO15	17 May 2017 15:49
33	12	Dh051714.d	1.	C1705036-010A 10X	TO15	17 May 2017 16:24
34	13	Dh051715.d	1.	C1705036-011A	TO15	17 May 2017 17:01
35	13	Dh051716.d	1.	C1705036-011A 5X	TO15	17 May 2017 17:36
36	3	Dh051717.d	1.	C1705036-001A 40X	TO15	17 May 2017 18:11
37	16	Dh051718.d	1.	C1705036-012A 640X	TO15	17 May 2017 18:46
38	14	Dh051719.d	1.	C1705036-013A 10X	TO15	17 May 2017 19:21
39	15	Dh051720.d	1.	C1705036-014A 10X	TO15	17 May 2017 19:56
40	5	Dh051721.d	1.	C1705042-001A 4X	TO15	17 May 2017 20:31
41	5	Dh051722.d	1.	C1705042-001A 10X	TO15	17 May 2017 21:06
42	1	Dh051723.d	1.	BLANK	TO15	17 May 2017 21:41
43	1	Dh051724.d	1.	BLANK	TO15	17 May 2017 22:16
44	1	Dh051725.d	1.	BLANK	TO15	17 May 2017 22:51
45	1	Dh051801.d	1.	BFB	TO15	18 May 2017 08:21
46	1	Dh051802.d	1.	DSTD50_SLXSF	Siloxane	18 May 2017 08:58
47	1	Dh051803.d	1.	DSTD50_SLXSF	Siloxane	18 May 2017 09:33
48	1	Dh051804.d	1.	DLCS_SLXSF-051817	Siloxane	18 May 2017 10:08
49	2	Dh051805.d	1.	DSTD500_H2S	Siloxane	18 May 2017 10:42
50	2	Dh051806.d	1.	DLCS_H2S-051817	Siloxane	18 May 2017 11:16
51	1	Dh051807.d	1.	DSTD50_TO15	TO15	18 May 2017 12:16
52	1	Dh051808.d	1.	DLCS_TO15-051817	TO15	18 May 2017 12:51
53	1	Dh051809.d	1.	DLCS_TO15-051817	TO15	18 May 2017 13:26
54	1	Dh051810.d	1.	DMB_SLXSF-051817	Siloxane	18 May 2017 14:01
55	1	Dh051811.d	1.	DMB_TO15-051817	TO15	18 May 2017 14:39
56	14	Dh051812.d	1.	C1705036-013A 80X	TO15	18 May 2017 15:15
57	15	Dh051813.d	1.	C1705036-014A 80X	TO15	18 May 2017 15:50
58	16	Dh051814.d	1.	C1705036-012A 128X	Siloxane	18 May 2017 16:25
59	16	Dh051815.d	1.	C1705036-012A 1280X	Siloxane	18 May 2017 17:01
60	5	Dh051816.d	1.	C1705043-001A 4X	Siloxane	18 May 2017 17:37
61	5	Dh051817.d	1.	C1705043-001A 10X	Siloxane	18 May 2017 18:12
62	6	Dh051818.d	1.	C1705044-001A 4X	Siloxane	18 May 2017 18:48
63	6	Dh051819.d	1.	C1705044-001A 10X	Siloxane	18 May 2017 19:24
64	1	Dh051820.d	1.	BLANK	Siloxane	18 May 2017 19:59
65	3	Dh051821.d	1.	C1705043-001A 1000X	Siloxane	18 May 2017 20:35
66	4	Dh051822.d	1.	C1705044-001A 4210X	Siloxane	18 May 2017 21:10
67	7	Dh051823.d	1.	C1705042-001A 10X	Siloxane	18 May 2017 21:46
68	1	Dh051824.d	1.	BLANK	Siloxane	18 May 2017 22:21
69	8	Dh051825.d	1.	C1705048-001A 10X	Siloxane	18 May 2017 22:56
70	9	Dh051826.d	1.	C1705053-001A	Siloxane	18 May 2017 23:31
71	10	Dh051827.d	1.	C1705055-001A	Siloxane	19 May 2017 00:06
72	11	Dh051828.d	1.	C1705055-002A	Siloxane	19 May 2017 00:41
73	1	Dh051829.d	1.	BLANK	Siloxane	19 May 2017 01:16
74	1	Dh051830.d	1.	BLANK	Siloxane	19 May 2017 01:51
75	12	Dh051831.d	1.	C1705036-012A 81920X	Siloxane	19 May 2017 07:44
76	1	Dh051901.d	1.	BFB	TO15	19 May 2017 09:14
77	1	Dh051902.d	1.	DSTD50_SLXSF	Siloxane	19 May 2017 09:49
78	1	Dh051903.d	1.	DSTD50_SLXSF	Siloxane	19 May 2017 10:23
79	1	Dh051904.d	1.	DLCS_SLXSF-051917	Siloxane	19 May 2017 10:58
80	2	Dh051905.d	1.	DSTD500_H2S	Siloxane	19 May 2017 11:32
81	2	Dh051906.d	1.	DLCS_H2S-051917	Siloxane	19 May 2017 12:05
82	1	Dh051907.d	1.	DSTD50_TO15	TO15	19 May 2017 12:45
83	1	Dh051908.d	1.	DSTD50_TO15	TO15	19 May 2017 13:26
84	1	Dh051909.d	1.	DLCS_TO15-051917	TO15	19 May 2017 14:00
85	1	Dh051910.d	1.	DMB_SLXSF-051917	Siloxane	19 May 2017 14:34

Centek Laboratories, LLC

Instrument: HP6890 TCD/FID
GC Column: CTR I

Injection Logbook GC-1

Standard Stock #(s): A0973

LCS Stock #(s) A0973

Detector TCD/FID	Login Number	Data File Name	Dil. Factor	Inj Vol cc	Method/Q File	Group Number	Inj. Date	Inj. Time	Comments	CD BackUp#
TCD	CCFG-050917	CK050901	1	1 ml	CTD831F9		5/9/17			
1	FG LCS - 050917	02			CK050901					
	FG MB - 050917	03								
	CT05020-001A	04							High O ₂	
	CT05020-002A	05								
	CT05024-001A	06								
✓	CCFG-050917	07	✓	✓	✓		✓			
TCD	CCFG-051517	CK051501	1	1 ml	CTD831F9		5/15/17			
1	FG LCS - 051517	02								
	FG MB - 051517	03								
	CT05036-001A	04								
	-002A	05								
	-003A	06								
	-004A	07								
	-005A	08								
	-006A	09								
	-007A	10								
	CCFG-051517	11								
	CT05036-008A	12								
	-009A	13								
	-010A	14								
	-011A	15								
	-013A	16								
	-014A	17								
	-012A	18								
✓	CCFG-051517	19	✓	✓	✓		✓			

Analyzed by: WJ
Form C148Page No: 75

GC/MS VOLATILES-WHOLE AIR

METHOD TO-15

STANDARDS LOG

GC/MS Calibration Standards Logbook

Centek Laboratories, LLC

Std #	Date Prep	Date Exp	Description	Stock #	Stock Conc	Initial Vol (psig)	Final Vol (psia)	Final Conc (ppb)	Prep by	Chkd by
A-A0946	8/31/15	9/7/15	TO15 S150X	9584	500ppb	30	30	50	100	
A-A0947			↓ SUL	A0270	1ppm	1.5	↓	↓		
A-A0948			↓ 425	A0269	10ppm	↓	↓	500		
A-A0949			TO1510G IS	A0960	50ppb	0.9	45	↓		
A-A0970			↓ STD	A0961	↓	↓	↓	↓		
A-A0971			↓ LCS	A0962	↓	↓	↓	↓		
A-A0972	7/31/15	12/11/16	FIXED GASES	109-46-12015	% varies	14L	Matheson	Tri-Gas	WJ	
A-A0973	9/5/15	9/11/17	FIXED GASES	109-54-13055-F3	% varies	10L	Matheson	Tri-Gas (LCS)	WJ	
A-A0974	9/7/15	7/24/16	FORMALDEHYDE	FF29657	ATR LIQUIDE	2000PSIA	11.5ppm	↓		
A-A0975	9/7/15	9/14/15	FORM50	A0974	11.5ppm	0.20	45	50		
A-A0980	9/8/15	9/15/15	TO15 IS	A0571	1ppm	1.5	30	50	100	
A-A0981			↓ STD	A0534	↓	↓	↓	↓		
A-A0982			↓ LCS	A0546	↓	↓	↓	↓		
A-A0983			↓ 4PCH	9519	↓	↓	↓	↓		
A-A0984			↓ 4PCH	A0583	50ppb	3.0	45	5		
A-A0985			↓ FORM50	9520	8.5ppm	0.25	30	50		
A-A0986			↓ S150X	9584	500ppb	30	↓	↓		
A-A0987			↓ SUL	A0270	1ppm	1.5	↓	↓		
A-A0988			↓ 1625	A0269	10ppm	↓	↓	500		
A-A0989			↓ TO15 IS	A0980	50ppb	0.9	45	↓		
A-A0990			↓ 1500G STD	A0981	↓	↓	↓	↓		

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A0972

Carbon Dioxide
Carbon Monoxide
Oxygen
Methane
Nitrogen

15%
7%
5%
45%
68.5%

A0973

Carbon Dioxide
Carbon Monoxide
Oxygen
Methane
Nitrogen

15%
7%
5%
4.5%
68.5%

Page # 47A

GC/MS Calibration Standards Logbook

Centek Laboratories, LLC

Std #	Date Prep	Date Exp	Description	Stock #	Stock Conc	Initial Vol (psig)	Final Vol (psia)	Final Conc (ppb)	Prep by	Chkd by
A-1201	1/15/16	1/23/16	TO15 APH	A1188	1ppm	1.5	30	50	no	
A-1202	↓	↓	TO15UG APH	A1201	50ppb	0.9	45	1	↓	
A-1203	1/15/16	1/15/17	TO15 MIX	-	1ppm	LINDE TO15 MIX		1ppm	no	
A-1204	1/18/16	1/18/17	LCS TO15	LL	A0534	STD IS NOW LCS		1ppm	Z.F.	
A-1205	1/18/16	1/25/16	TO15 IS	A1174	1ppm	1.5	30	50ppb	no	
A-1206	↓	↓	LCS	A1204	↓	↓	↓	↓	↓	
A-1207	↓	↓	STD	A1203	↓	↓	↓	↓	↓	
A-1208	↓	↓	TO15 FORM	A0974	11.5ppm	0.20	45	↓	↓	
A-1209	↓	↓	SILOX	A1204 A1203	1ppm	3.0	30	↓	↓	
A-1210	↓	↓	GULF	A0276	1ppm	1.5	↓	↓	↓	
A-1211	↓	↓	H2S	A0265	1ppm	↓	↓	500ppb	↓	
A-1212	↓	↓	TO15 HPC	9519	1ppm	1.5	30	50ppb	↓	
A-1213	↓	↓	↓ 4PCH5	A1212	50ppb	3.0	↓	5ppb	↓	
A-1214	↓	↓	TO15UG IS	A1205	↓	0.9	45	1ppb	↓	
A-1215	↓	↓	↓ STD	A1207	↓	↓	↓	↓	↓	
A-1216	↓	↓	↓ LCS	A1206	↓	↓	↓	↓	↓	
A-1217	1/25/16	2/1/16	TO15 IS	A1174	1ppm	1.5	30	50ppb	WD	
A-1218	↓	↓	STD	A1203	↓	↓	↓	↓	↓	
A-1219	↓	↓	LCS	A1204	↓	↓	↓	↓	↓	
A-1220	↓	↓	4PCH	9519	↓	↓	↓	↓	↓	
A-1221	↓	↓	4PCH5	A1220	50ppb	3.0	30	5	↓	

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Std #	Date Prep	Date Exp	Description	Stock #	Stock Conc	Initial Vol (psig)	Final Vol (psia)	Final Conc (ppb)	Prep by	Chkd
A-1788	12/22/16	12/29/16	TO15 SILX	A1088	500ppb	3.0	30	50	LL	
A-1789			↓	A0270	1ppm	1.5	30	50		
A-1790			↓	A0269	10ppm	1.5	30	500		
A-1791			TO15 IUG IS	A1782	50ppb	0.9	45	1		
A-1792			STD	A1783	↓	↓	↓	↓		
A-1793			↓	A1784	↓	↓	↓	↓		
A-1794	12/29/16	11/5/17	TO15 IS	A1289	1ppm	1.5	30	50	WD	
A-1795			STD	A1203	↓	↓	↓	↓		
A-1796			LCS	A1204	↓	↓	↓	↓		
A-1797			4PCH	9519	↓	↓	↓	↓		
A-1798			4PCHS	A1797	50ppb	3.0	30	5		
A-1799			FORM	A0974	11.5ppm	0.20	45	50		
A-1800			SILOX	A1088	500ppb	3.0	30	50		
A-1801			↓	A0270	1ppm	1.5	30	50		
A-1802			HzS	A0269	10ppm	1.5	30	500		
A-1803			TO15 IUG IS	A1794	50ppb	0.9	45	1		
A-1804			↓	A1795	↓	↓	↓	↓		
A-1805			↓	A1796	↓	↓	↓	↓		
A-1806	11/5/17	11/5/18	TO15 IS	FF-47206	LINDE		2000psig	1ppm	WD	
A-1807	11/5/17	11/5/18	STOCK TO15 STD	FF-45347	LINDE		2200psig	1ppm	WD	
A-1808	11/6/17	11/6/18	TO15 SS LCS	A1806	1ppm	1.5	30	50ppb	M	

FORM 153

A1203 STD IS NOW LCS

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GC/MS Calibration Standards Logbook

Centek Laboratories, LLC

Std #	Date Prep	Date Exp	Description	Stock #	Stock Conc	Initial Vol (psig)	Final Vol (psia)	Final Conc (ppb)	Prep by	Chkd by
A-1934	3/28/17	4/4/17	TO15	SILOX	A1089	500ppb	3.0	30	WD	
A-1935			↓	SOLF	A0270	1ppm	1.5	30		
A-1936			↓	H2S	A0269	10ppm	1.5	30		
A-1937			TO15 149	IS	A1928	50ppb	0.9	45		
A-1938			↓	STD	A1929	↓	↓	↓		
A-1939			↓	LCS	A1930	↓	↓	↓		
A-1940	4/5/17	4/15/17	TO15	IS	A1806	1ppm	1.5	30.0ppm	W	
A-1941			↓	STD	A1807	↓	↓	↓		
A-1942			↓	LCS	A1808	↓	↓	↓		
A-1943			↓	4PCP	9515	↓	↓	↓		
A-1944			↓	4PCP	A1973	50	3.0	↓		
A-1945			↓	FOAM	A0774	11.5ppm	0.2	45		
A-1946			↓	SILOX	A1088/108	500ppb	3.0	30		
A-1947			↓	SOLF	A0270	1ppm	1.5	↓		
A-1948			↓	H2S	A0269	10ppm	↓	↓		
A-1949			TO15 109	IS	A1940	50ppb	0.9	45		
A-1950			↓	STD	A1941	↓	↓	↓		
A-1951			↓	LCS	A1942	↓	↓	↓		
A-1952	4/17/17	4/23/17	TO15	IS	A1806	1ppm	1.5	30	M	
A-1953			↓	STD	A1807	↓	↓	↓		
A-1954			↓	LCS	A1808	↓	↓	↓		

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GC/MS Calibration Standards Logbook

Centek Laboratories, LLC

Std #	Date Prep	Date Exp	Description	Stock #	Stock Conc	Initial Vol (psig)	Final Vol (psia)	Final Conc (ppb)	Prep by	Chkd by
A-1976	5/4/17	5/11/17	T015	A1806	1 ppm	1.5	30	50	WJD	
A-1977			STD	A1807						
A-1978			LCS	A1808						
A-1979			4PCH	9519						
A-1980			4PCHS	A1979	50 ppb	3.0	30	5		
A-1981			FORM	A0974	11.5 ppm	0.20	45	50		
A-1982			SILOX	A1808 A1808	500 ppb	3.0	30	50		
A-1983			SULF	A0270	1 ppm	1.5	30	50		
A-1984			H ₂ S	A0269	10 ppm	1.5	30	500		
A-1985			T015 149 IS	A1976	500 ppb	0.9	45	1		
A-1986			STD	A1977						
A-1987			LCS	A1978						
A-1988	5/11/17	5/18/17	T015	A1806	1 ppm	1.5	30	50	WJD	
A-1989			STD	A1807						
A-1990			LCS	A1808						
A-1991			4PCH	9519	50 ppb 10 ppm	3.0 1.5	30	50		
A-1992			4PCHS	A1991	50 ppb	3.0	30	5		
A-1993			FORM	A0974	11.5 ppm	0.20	45	50		
A-1994			SILOX	A1808 A1808	500 ppb	3.0 3.0	30	50		
A-1995			SULF	A0270	1 ppm	1.5	30	50		
A-1996			H ₂ S	A0269	10 ppm	1.5	30	500		

GC/MS VOLATILES-WHOLE AIR

METHOD TO-15

CANISTER CLEANING LOG

QC Canister Cleaning Logbook

Canister Number	Canister Size	QC Can Number	# of Cycles	Int & Date Cleaned	QC Batch Number	Detection Limits	Leak Test 24hr Int & Date
598	11	646	30	4.24.17 WD	WAC042717A	5ppb (LEED)	+30 4.28.17 LL
616							+30
572							+30
643							+30
646							+30
557		431			WAC042717B		+30
91							+30
108							+30
134							+30
431							+30
90		312			WAC042717C		+30
477							+30
348							+30
371							+30
312							+30
637		629			WAC042717D		+30
636							+30
1012							+30
615							+30
629							+30
600					WAC042717E		+30
595							+30
549							+30
494							+30
474							+30
							+30

Quantitation Report

(QT Reviewed)

Data File : C:\MSDCHEM\DATA2\2017APR\BM042709.D

Vial: 13

Acq On : 27 Apr 2017 7:44 pm

Operator: LL

Sample : WAC042717A

Inst : MSD #2

Misc : B0323LED.M QC Can

Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Apr 28 09:22:43 2017

Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)

Title : TO-15 VOA Standards for 5 point calibration

Last Update : Thu Mar 23 17:24:54 2017

Response via : Initial Calibration

DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.40	128	112285	50.00	ppb	0.05
36) 1,4-difluorobenzene	10.67	114	439716	50.00	ppb	0.05
51) Chlorobenzene-d5	15.14	117	391187	50.00	ppb	0.02

System Monitoring Compounds

66) Bromofluorobenzene	16.62	95	291755	49.18	ppb	0.01
Spiked Amount	50.000	Range	70 - 130	Recovery	=	98.36%

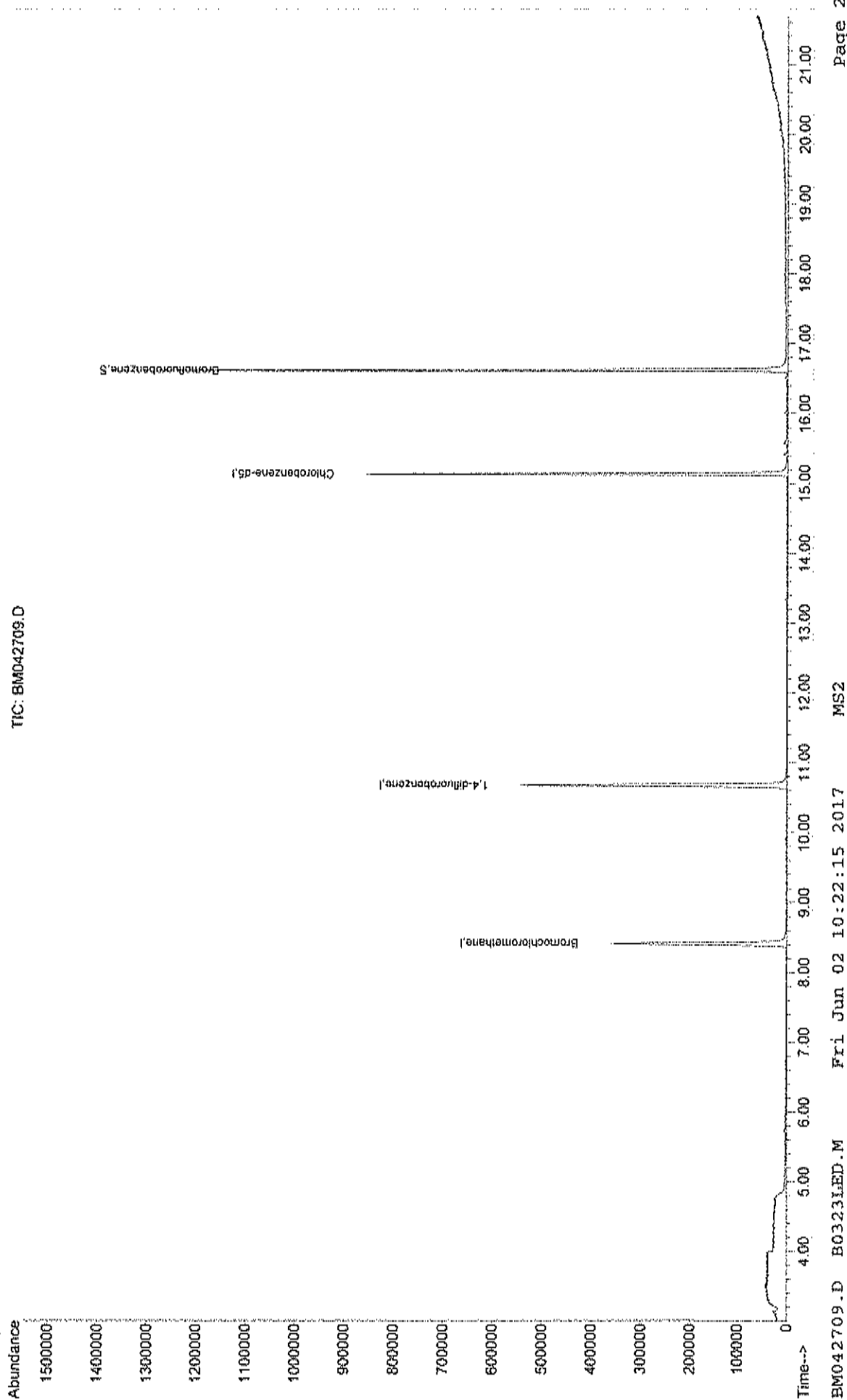
Target Compounds

Qvalue

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\DATA2\2017APR\BM042709.D
Acq On : 27 Apr 2017 7:44 pm Vial: 13
Sample : WAC042717A Operator: LL
Misc : B0323LED.M QC Can Inst : MSD #2
MS Integration Params: RTEINT.P Multiplr: 1.00
Quant Time: Jun 1 11:02 2017 Quant Results File: B0323LED.RES

Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration



Data File : C:\MSDCHEM\DATA2\2017APR\BM042710.D Vial: 14
Acq On : 27 Apr 2017 8:28 pm Operator: LL
Sample : WAC042717B Inst : MSD #2
Misc : B0323LED.M QC Can Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 28 09:22:52 2017 Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration
DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.42	128	93752	50.00	ppb	0.06
36) 1,4-difluorobenzene	10.69	114	362093	50.00	ppb	0.06
51) Chlorobenzene-d5	15.14	117	326277	50.00	ppb	0.02

System Monitoring Compounds

66) Bromofluorobenzene	16.62	95	247224	49.97	ppb	0.02
Spiked Amount	50.000	Range	70 - 130	Recovery	=	99.94%

Target Compounds

Qvalue

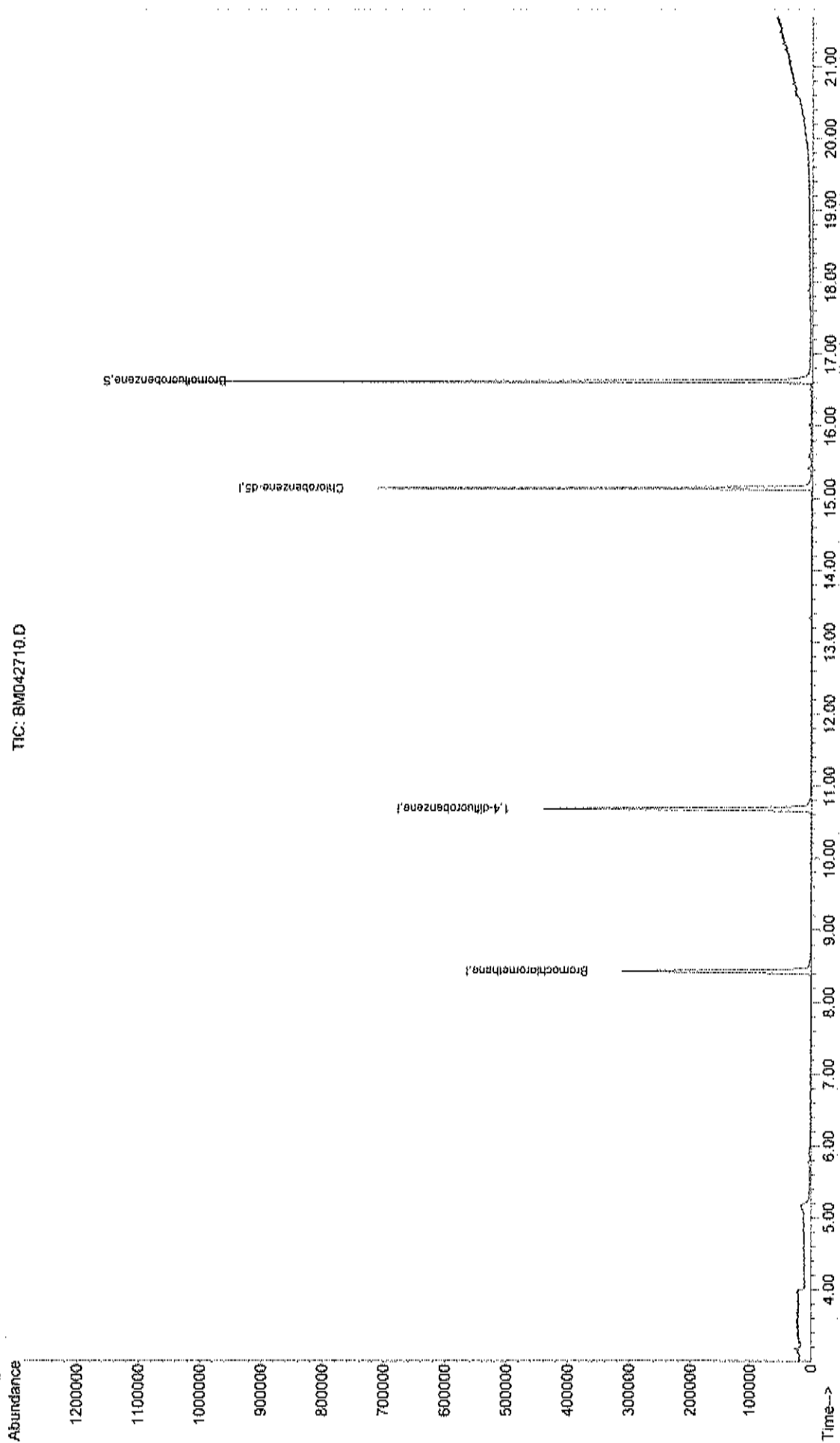
Quantitation Report (QF Reviewed)

Data File : C:\MSDCHEM\DATA2\2017APR\BM042710.D
Acq On : 27 Apr 2017 8:28 pm
Sample : WAC042717B
Misc : B0323LED.M QC Can
MS Integration Params: RTEINT.P
Quant Time: Jun 1 11:04 2017

Vial: 14
Operator: LL
Inst : MSD #2
Multiplr: 1.00

Quant Results File: B0323LED.RES

Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration



BM042710.D B0323LED.M Pri Jun 02 10:22:18 2017

MS2

Data File : C:\MSDCHEM\DATA2\2017APR\BM042713.D Vial: 34
Acq On : 27 Apr 2017 10:14 pm Operator: LL
Sample : WAC042717E Inst : MSD #2
Misc : B0323LED.M QC Can Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 28 09:24:22 2017 Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration
DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.41	128	105579	50.00	ppb	0.05
36) 1,4-difluorobenzene	10.67	114	402280	50.00	ppb	0.05
51) Chlorobenzene-d5	15.14	117	361848	50.00	ppb	0.02

System Monitoring Compounds

66) Bromofluorobenzene	16.62	95	280410	51.10	ppb	0.01
Spiked Amount	50.000	Range	70 - 130	Recovery	=	102.20%

Target Compounds

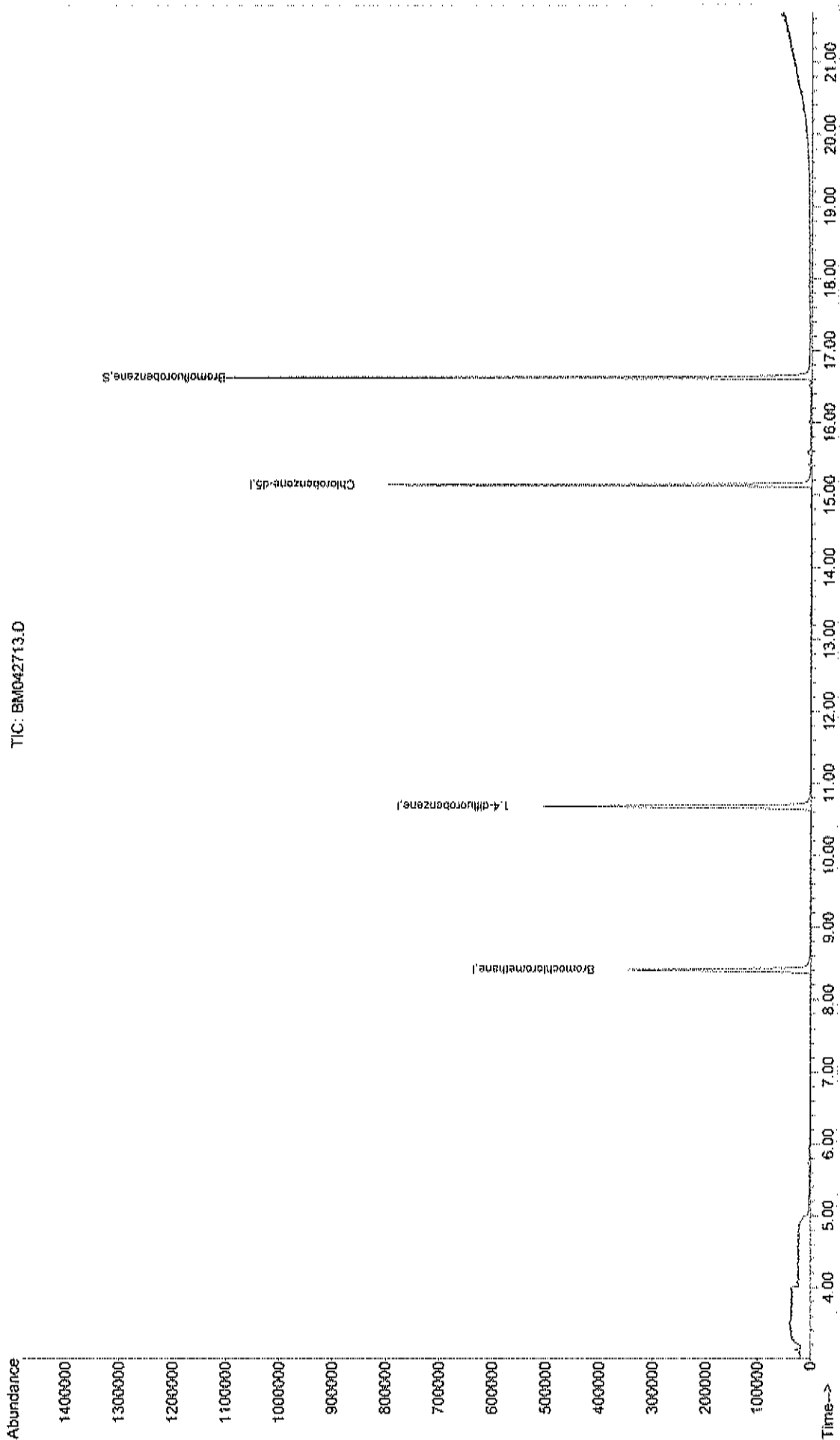
Qvalue

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\DATA2\2017APR\BM042713.D
Acq On : 27 Apr 2017 10:14 pm Vial: 34
Sample : WAC042717E Operator: LL
Misc : B0323LED.M QC Can Inst : MSD #2
MS Integration Params: RTEINT.P Multiplr: 1.00
Quant Time: Jun 1 14:04 2017 Quant Results File: B0323LED.RES

Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration

Abundance



BM042713.D B0323LED.M Fri Jun 02 10:22:27 2017

MS2

Page 2

Quantitation Report

(QT Reviewed)

Data File : C:\MSDCHEM\DATA2\2017APR\BM042714.D Vial: 35
 Acq On : 27 Apr 2017 10:49 pm Operator: LL
 Sample : WAC042717F Inst : MSD #2
 Misc : B0323LED.M QC Can Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Apr 28 09:25:01 2017 Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
 Title : TO-15 VOA Standards for 5 point calibration
 Last Update : Thu Mar 23 17:24:54 2017
 Response via : Initial Calibration
 DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.41	128	101415	50.00	ppb	0.06
36) 1,4-difluorobenzene	10.68	114	401215	50.00	ppb	0.05
51) Chlorobenzene-d5	15.14	117	358869	50.00	ppb	0.02

System Monitoring Compounds

66) Bromofluorobenzene	16.62	95	267821	49.21	ppb	0.02
Spiked Amount	50.000	Range	70 - 130	Recovery	=	98.42%

Target Compounds

Qvalue

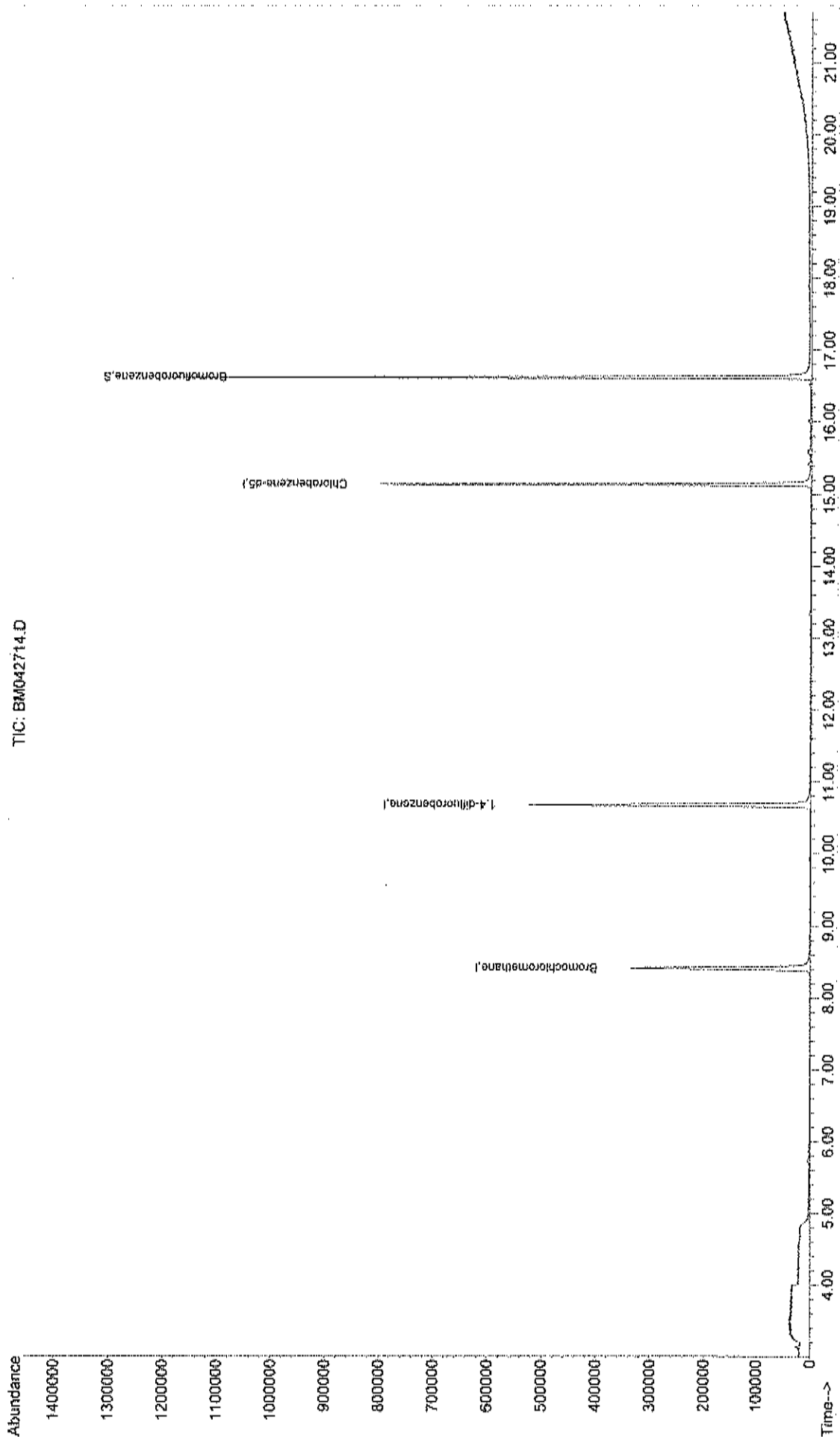
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\DATA2\2017APR\BM042714.D
Acq On : 27 Apr 2017 10:49 pm
Sample : WAC042717F
Misc : B0323LED.M QC Can
MS Integration Params: RTEINT.P
Quant Time: Jun 1 14:15 2017

Vial: 35
Operator: LL
Inst : MSD #2
Multiplr: 1.00

Quant Results File: B0323LED.RES

Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration



Data File : C:\MSDCHEM\DATA2\2017APR\BM042715.D Vial: 36
Acq On : 27 Apr 2017 11:24 pm Operator: LL
Sample : WAC042717G Inst : MSD #2
Misc : B0323LED.M QC Can Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 28 09:25:31 2017 Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration
DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.41	128	88370	50.00	ppb	0.05
36) 1,4-difluorobenzene	10.68	114	332934	50.00	ppb	0.06
51) Chlorobenzene-d5	15.14	117	307318	50.00	ppb	0.02

System Monitoring Compounds

66) Bromofluorobenzene	16.62	95	234594	50.34	ppb	0.02
Spiked Amount	50.000	Range	70 - 130	Recovery	=	100.68%

Target Compounds

Qvalue

Quantitation Report (QT Reviewed)

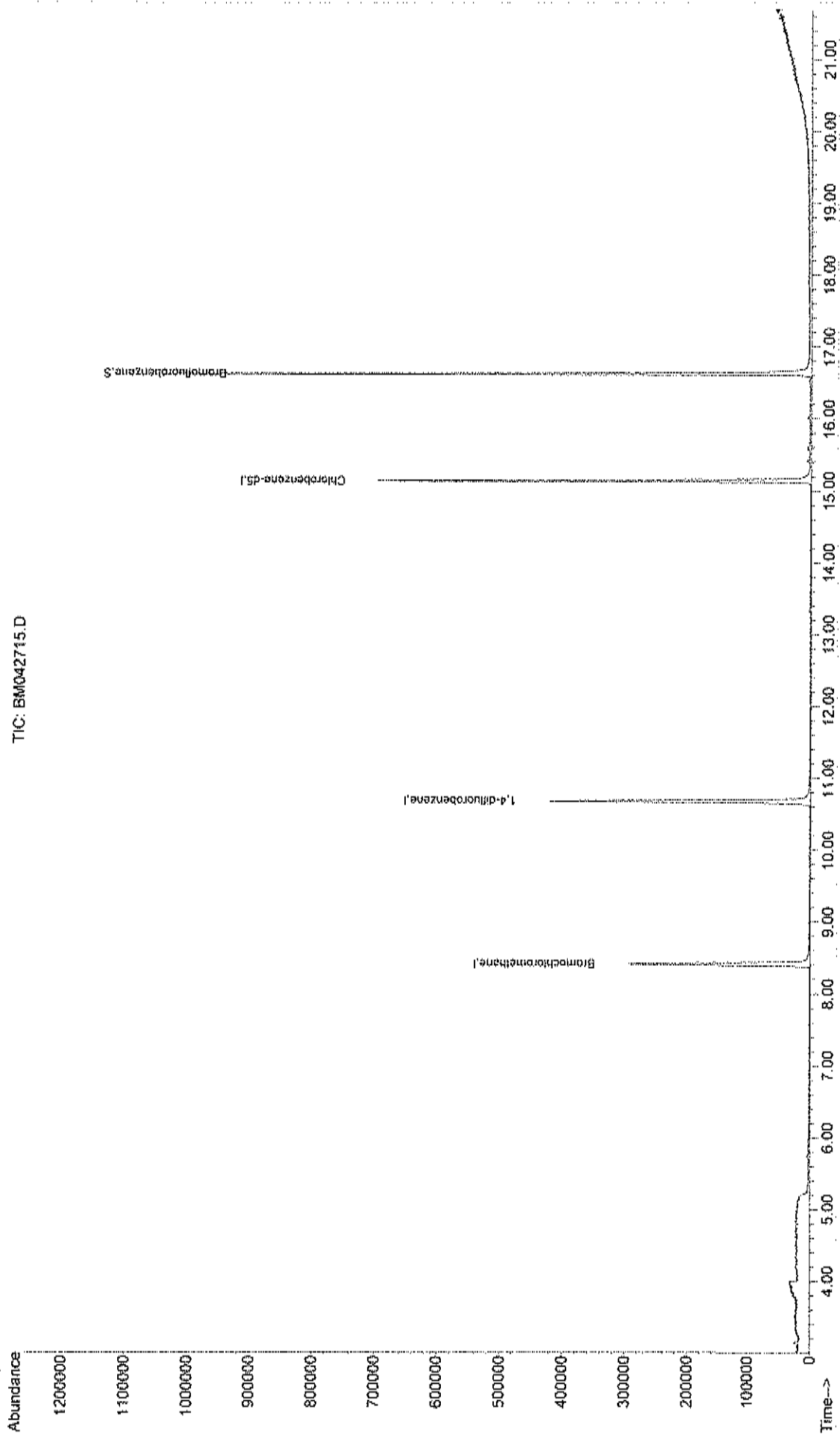
Data File : C:\MSDCHEM\DATA2\2017APR\BM042715.D
Acq On : 27 Apr 2017 11:24 pm
Sample : WAC042717G
Misc : B0323LED.M QC Can
MS Integration Params: RTEINT.P
Quant Time: Jun 1 14:40 2017

Vial: 36
Operator: LL
Inst : MSD #2
Multiplr: 1.00

Quant Results File: B0323LED.RES

Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration

TIC: BM042715.D



BM042715.D B0323LED.M Fri Jun 02 10:22:33 2017 MS2

Data File : C:\MSDCHEM\DATA2\2017APR\BM042716.D Vial: 37
Acq On : 28 Apr 2017 12:00 am Operator: LL
Sample : WAC042717H Inst : MSD #2
Misc : B0323LED.M QC Can Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 28 09:26:09 2017 Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration
DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.41	128	100494	50.00	ppb	0.06
36) 1,4-difluorobenzene	10.68	114	374084	50.00	ppb	0.06
51) Chlorobenzene-d5	15.14	117	339366	50.00	ppb	0.02

System Monitoring Compounds

66) Bromofluorobenzene	16.62	95	260079	50.54	ppb	0.02
Spiked Amount	50.000	Range	70 - 130	Recovery	=	101.08%

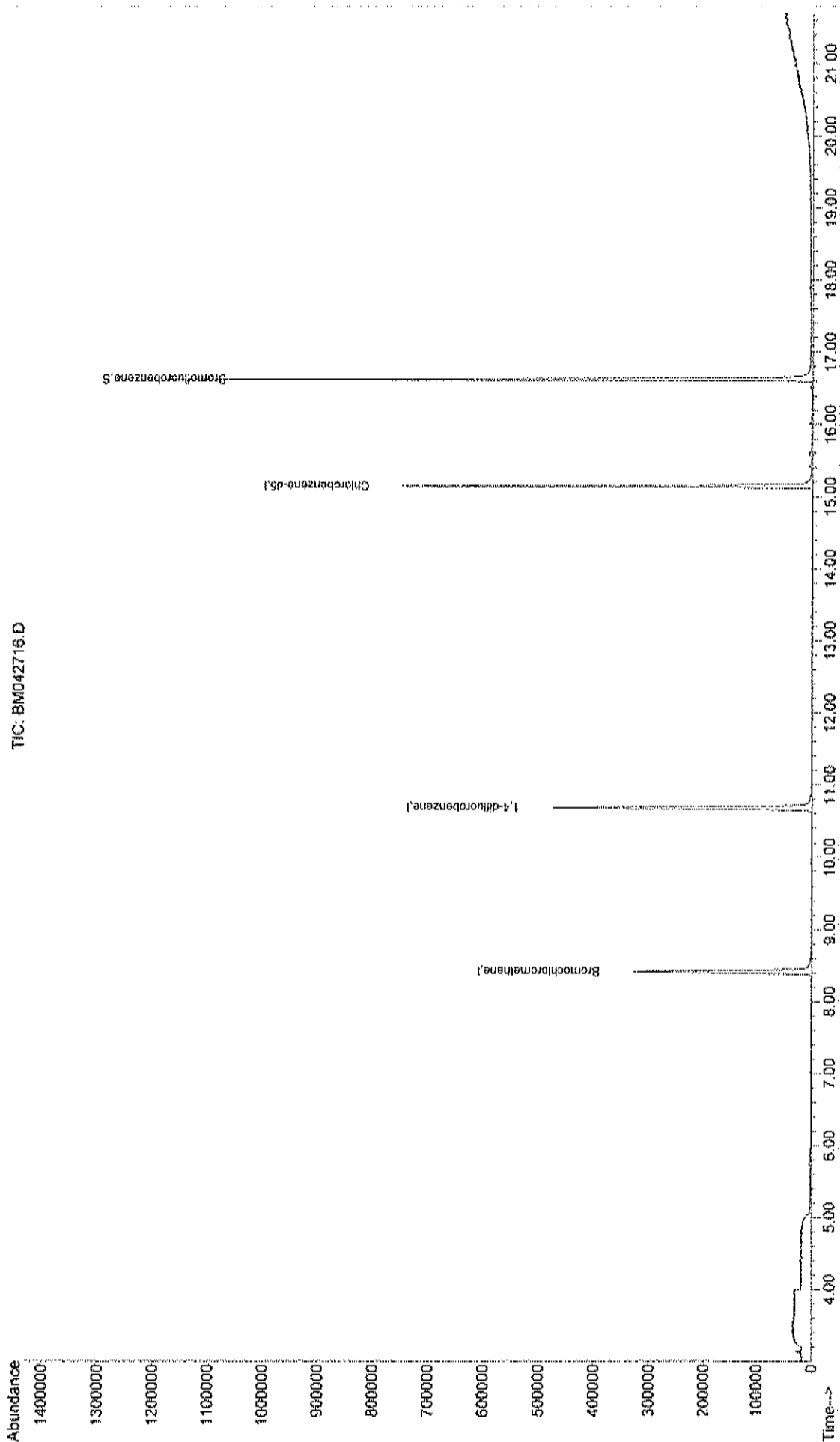
Target Compounds

Qvalue

Data File : C:\MSDCHEM\DATA2\2017APR\BM042716.D
Acq On : 28 Apr 2017 12:00 am
Sample : WAC042717H
Misc : B0323LED.M QC Can
MS Integration Params: RTEINT.P
Quant Time: Jun 1 14:44 2017
Quant Results File: B0323LED.RES

Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration

TIC: BM042716.D



Data File : C:\MSDCHEM\DATA2\2017APR\BM042717.D Vial: 38
Acq On : 28 Apr 2017 12:35 am Operator: LL
Sample : WAC042717I Inst : MSD #2
Misc : B0323LED.M QC Can Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 28 09:26:32 2017 Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration
DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.41	128	99251	50.00	ppb	0.05
36) 1,4-difluorobenzene	10.68	114	369875	50.00	ppb	0.05
51) Chlorobenzene-d5	15.14	117	344512	50.00	ppb	0.02

System Monitoring Compounds

66) Bromofluorobenzene	16.62	95	253788	48.58	ppb	0.02
Spiked Amount	50.000	Range	70 - 130	Recovery	=	97.16%

Target Compounds

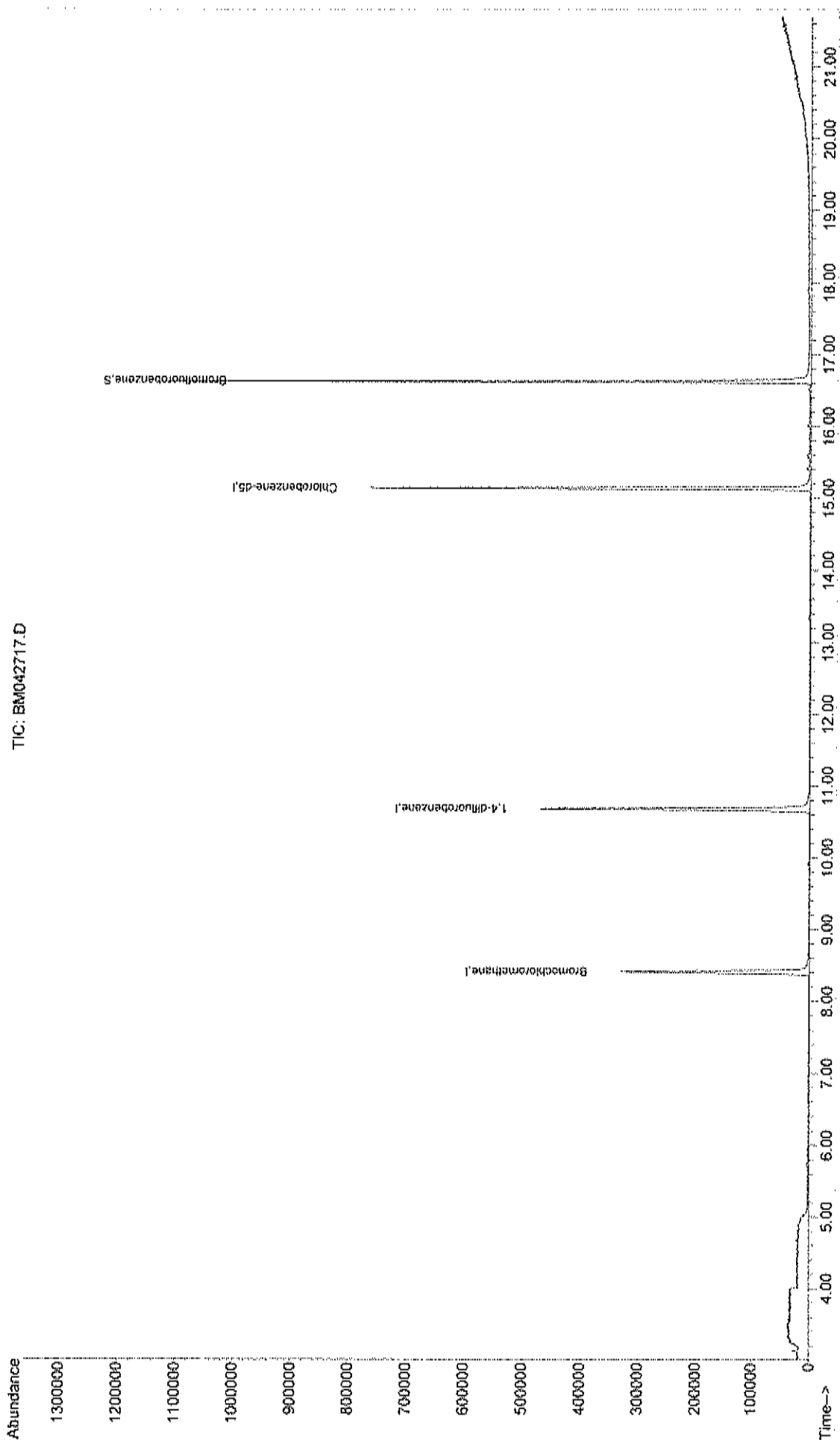
Qvalue

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\DATA2\2017APR\BM042717.D
Acq On : 28 Apr 2017 12:35 am Vial: 38
Sample : WAC042717I Operator: LL
Misc : B0323LED.M QC Can Inst : MSD #2
MS Integration Params: RTEINT.P Multiplr: 1.00
Quant Time: Jun 1 14:52 2017 Quant Results File: B0323LED.RES

Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration

TIC: BM042717.D



BM042717.D B0323LED.M Fri Jun 02 10:22:39 2017 MS2

page 2

Data File : C:\MSDCHEM\DATA2\2017APR\BM042718.D Vial: 39
Acq On : 28 Apr 2017 1:10 am Operator: LL
Sample : WAC042717J Inst : MSD #2
Misc : B0323LED.M QC Can Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 28 09:26:53 2017 Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration
DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.41	128	100698	50.00	ppb	0.06
36) 1,4-difluorobenzene	10.68	114	374134	50.00	ppb	0.05
51) Chlorobenzene-d5	15.14	117	343143	50.00	ppb	0.02

System Monitoring Compounds

66) Bromofluorobenzene	16.62	95	255952	49.19	ppb	0.02
Spiked Amount	50.000	Range	70 - 130	Recovery	=	98.38%

Target Compounds

Qvalue

Quantitation Report (QT Reviewed)

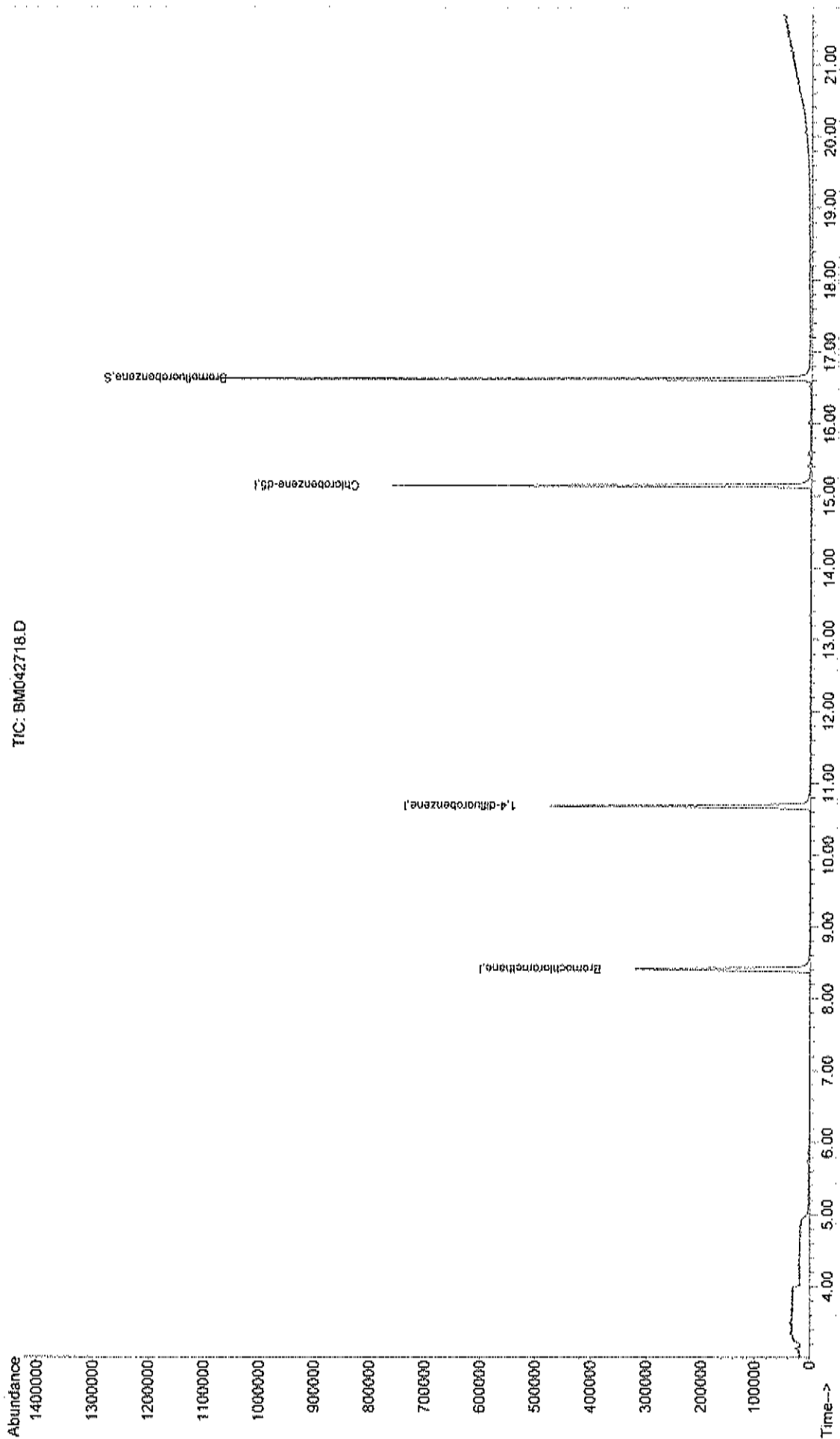
Data File : C:\MSDCHEM\DATA2\2017APR\BM042718.D
Acq On : 28 Apr 2017 1:10 am
Sample : WAC042717J
Misc : B0323LED.M QC Can
MS Integration Params: RTEINT.P
Quant Time: Jun 1 15:04 2017

Vial: 39
Operator: LL
Inst : MSD #2
Multiplr: 1.00

Quant Results File: B0323LED.RES

Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration

TIC: BM042718.D



Data File : C:\MSDCHEM\DATA2\2017APR\BM042720.D

Vial: 31

Acq On : 28 Apr 2017 2:21 am

Operator: LL

Sample : WAC042717L

Inst : MSD #2

Misc : B0323LED.M QC Can

Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Apr 28 09:27:48 2017

Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)

Title : TO-15 VOA Standards for 5 point calibration

Last Update : Thu Mar 23 17:24:54 2017

Response via : Initial Calibration

DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.43	128	88943	50.00	ppb	0.07
36) 1,4-difluorobenzene	10.69	114	327545	50.00	ppb	0.06
51) Chlorobenzene-d5	15.14	117	302797	50.00	ppb	0.02

System Monitoring Compounds

66) Bromofluorobenzene	16.62	95	227293	49.50	ppb	0.02
Spiked Amount	50.000	Range	70 - 130	Recovery	=	99.00%

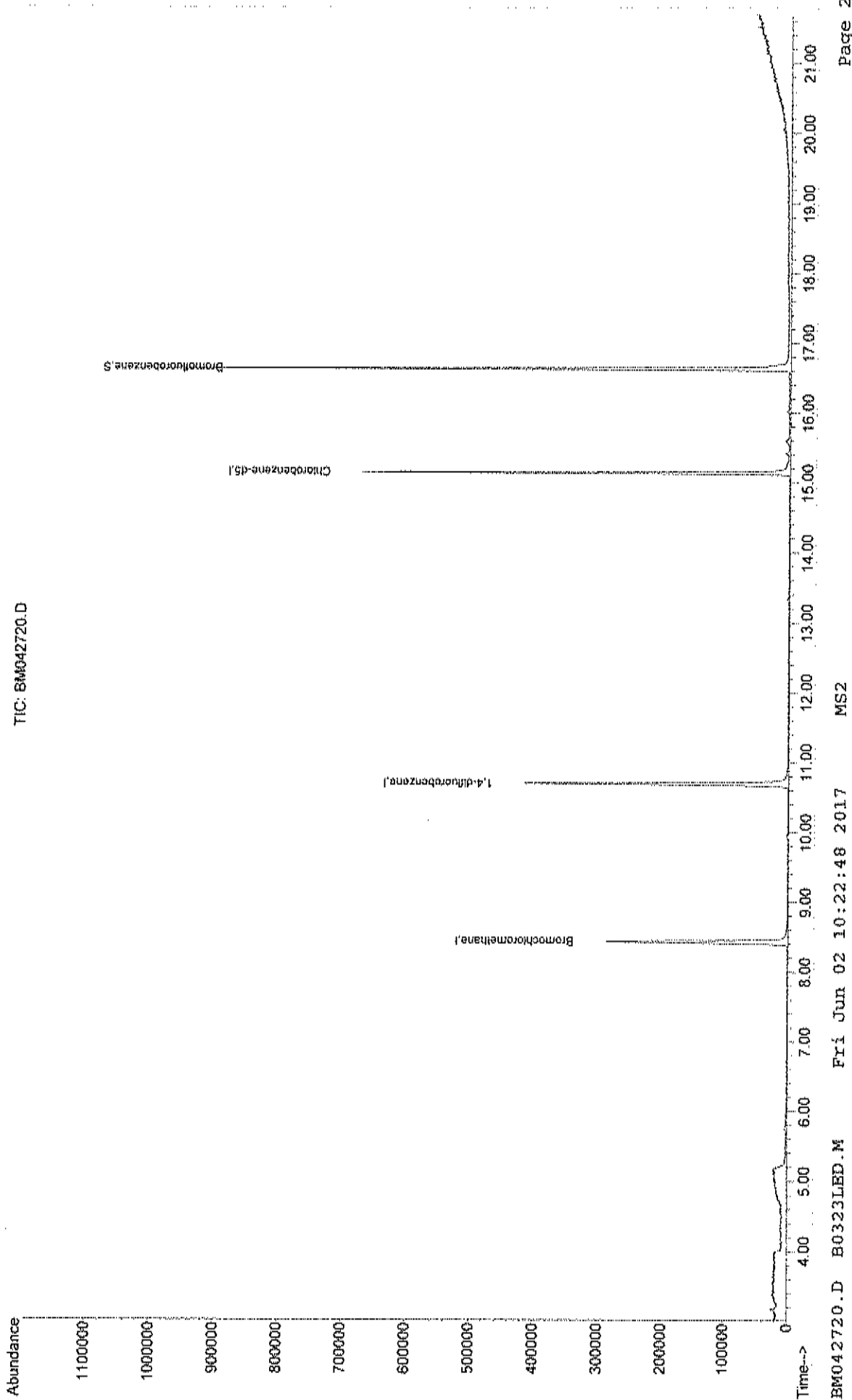
Target Compounds

Qvalue

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\DATA2\2017APR\BM042720.D
Acq On : 28 Apr 2017 2:21 am Vial: 31
Sample : WAC042717L Operator: LL
Misc : B0323LED.M QC Can Inst : MSD #2
MS Integration Params: RTEINT.P Multiplr: 1.00
Quant Time: Jun 1 15:17 2017 Quant Results File: B0323LED.RES
Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration

TIC: BM042720.D



Data File : C:\MSDCHEM\DATA2\2017APR\BM042721.D

Vial: 32

Acq On : 28 Apr 2017 2:56 am

Operator: LL

Sample : WAC042717M

Inst : MSD #2

Misc : B0323LED.M QC Can

Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Apr 28 09:30:35 2017

Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)

Title : TO-15 VOA Standards for 5 point calibration

Last Update : Thu Mar 23 17:24:54 2017

Response via : Initial Calibration

DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.41	128	99291	50.00	ppb	0.06
36) 1,4-difluorobenzene	10.68	114	375315	50.00	ppb	0.05
51) Chlorobenzene-d5	15.14	117	346435	50.00	ppb	0.02

System Monitoring Compounds

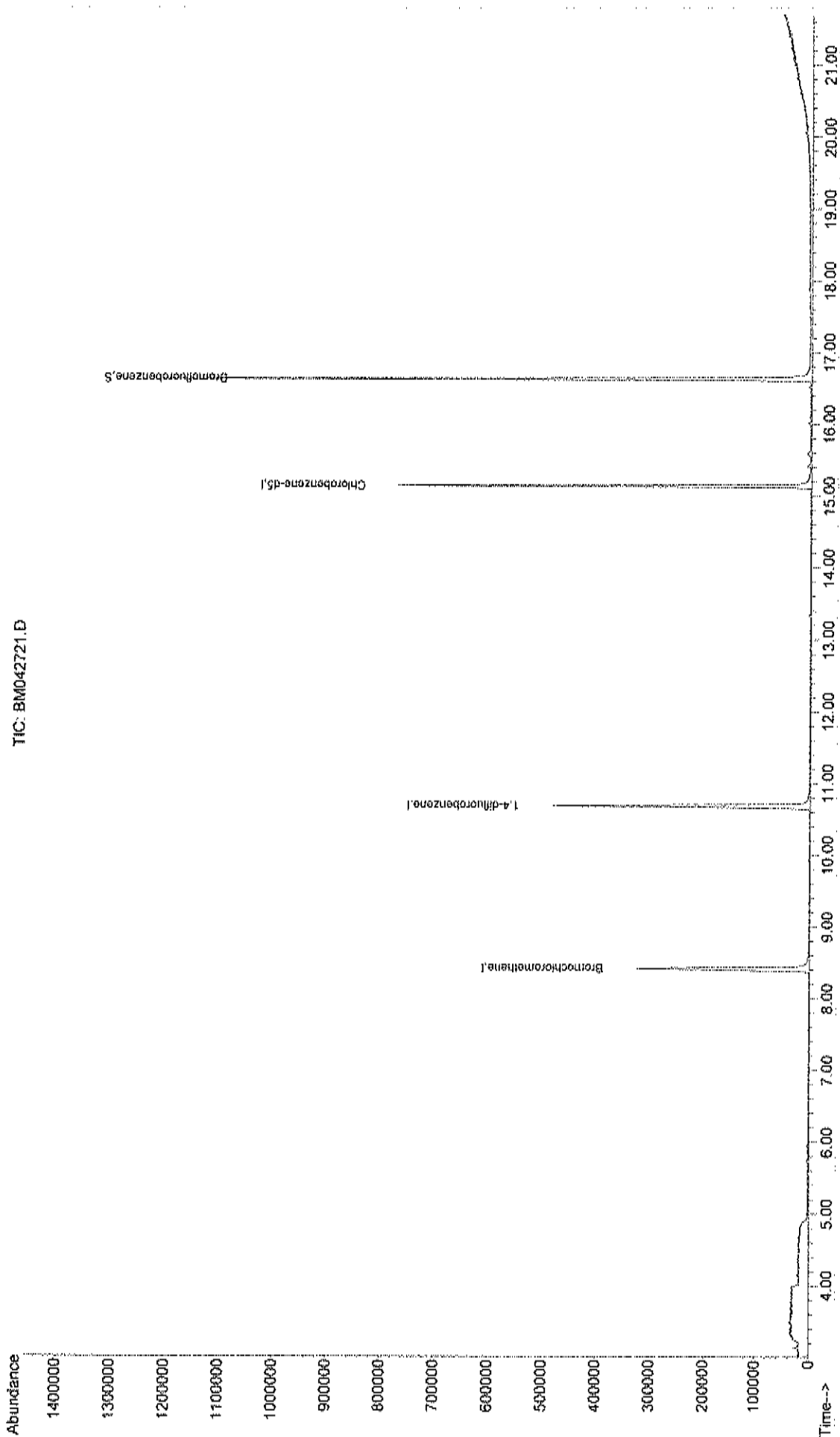
66) Bromofluorobenzene	16.62	95	260879	49.66	ppb	0.02
Spiked Amount	50.000	Range	70 - 130	Recovery	=	99.32%

Target Compounds

Qvalue

Data File : C:\MSDCHEM\DATA2\2017APR\BM042721.D
Acq On : 28 Apr 2017 2:56 am
Sample : WAC042717M
Misc : B0323LED.M QC Can
MS Integration Params: RTEINT.P
Quant Time: Jun 1 15:41 2017
Quant Results File: B0323LED.RES

Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration



Data File : C:\MSDCHEM\DATA2\2017APR\BM042722.D Vial: 41
Acq On : 28 Apr 2017 3:31 am Operator: LL
Sample : WAC042717N Inst : MSD #2
Misc : B0323LED.M QC Can Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 28 09:31:09 2017 Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration
DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.41	128	101197	50.00	ppb	0.05
36) 1,4-difluorobenzene	10.68	114	371204	50.00	ppb	0.05
51) Chlorobenzene-d5	15.14	117	347444	50.00	ppb	0.02

System Monitoring Compounds

66) Bromofluorobenzene	16.62	95	264569	50.22	ppb	0.02
Spiked Amount	50.000	Range	70 - 130	Recovery	=	100.44%

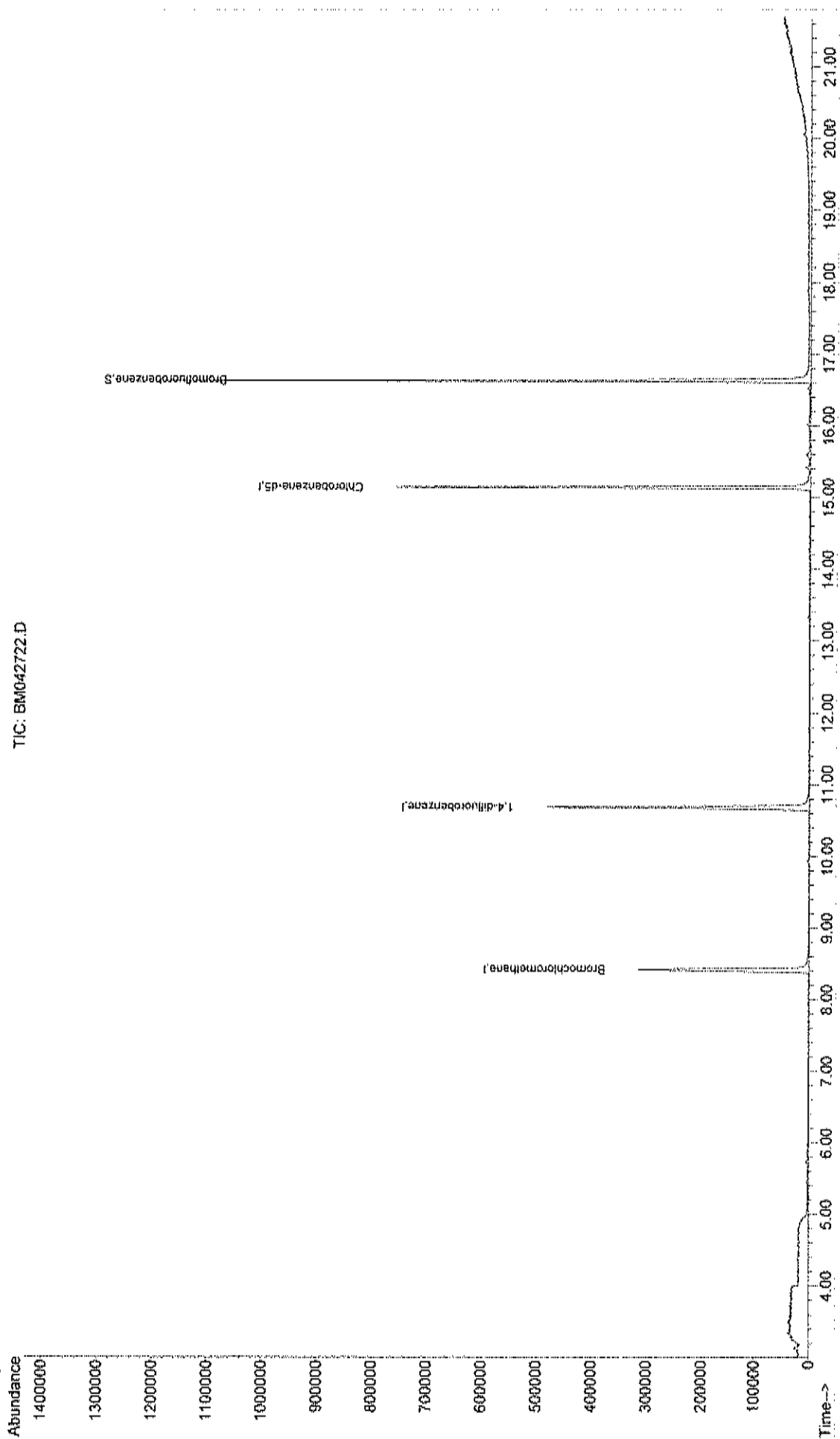
Target Compounds

Qvalue

Data File : C:\MSDCHEM\DATA2\2017APR\BM042722.D
Acq On : 28 Apr 2017 3:31 am Vial: 41
Sample : WAC042717N Operator: LL
Misc : B0323LED.M QC Can Inst : MSD #2
MS Integration Params: RTEINT.P Multiplr: 1.00
Quant Time: Jun 1 15:45 2017 Quant Results File: B0323LED.RES

Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration

TIC: BM042722.D



Data File : C:\MSDCHEM\DATA2\2017APR\BM042727.D Vial: 46
Acq On : 28 Apr 2017 6:27 am Operator: LL
Sample : WAC042717S Inst : MSD #2
Misc : B0323LED.M QC Can Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 28 09:34:57 2017 Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration
DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.41	128	86782	50.00	ppb	0.05
36) 1,4-difluorobenzene	10.68	114	316142	50.00	ppb	0.05
51) Chlorobenzene-d5	15.13	117	298118	50.00	ppb	0.01

System Monitoring Compounds

66) Bromofluorobenzene	16.62	95	231824	51.28	ppb	0.01
Spiked Amount	50.000	Range	70 - 130	Recovery	=	102.56%

Target Compounds

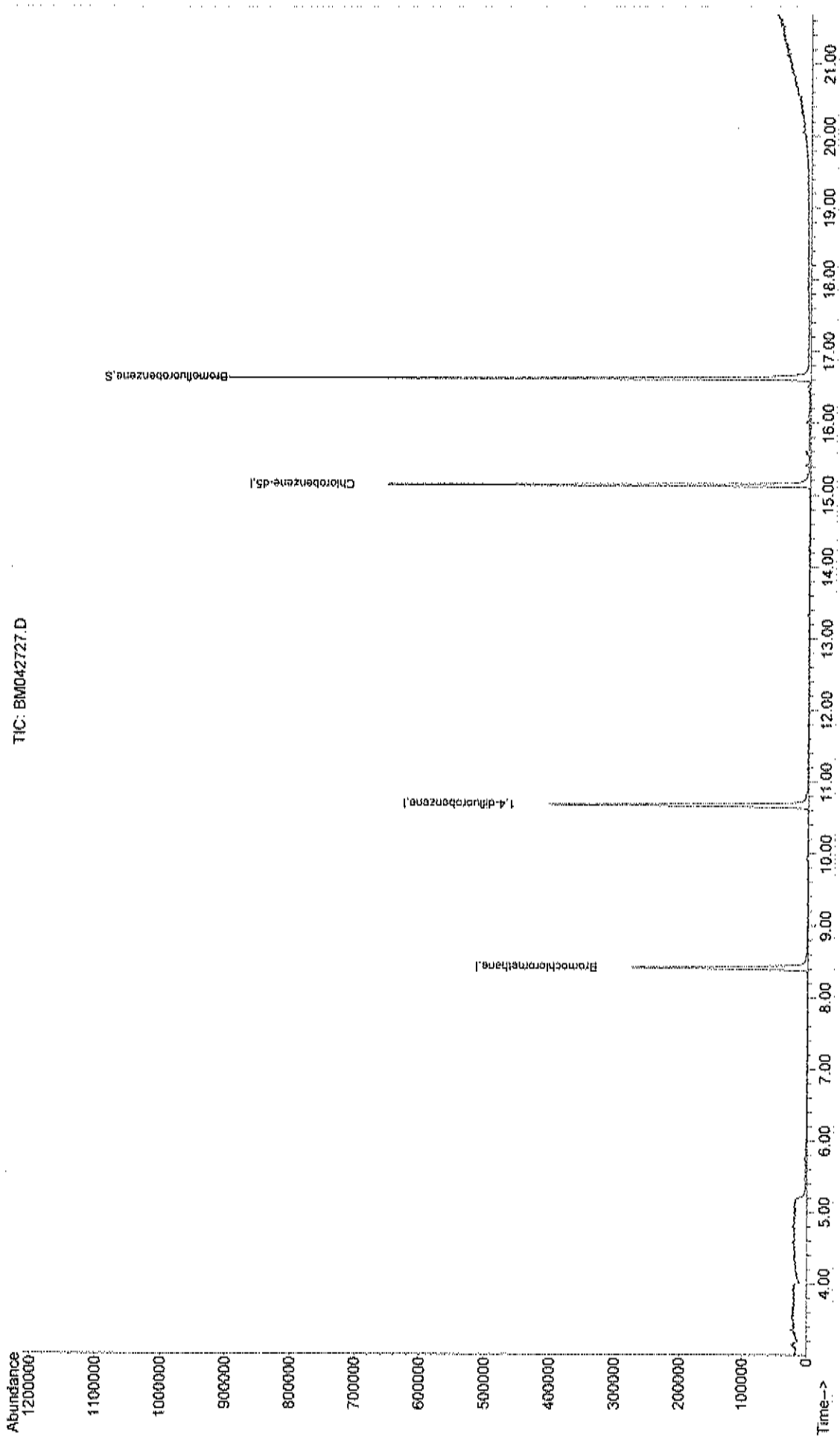
Qvalue

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\DATA2\2017APR\BM042727.D
Acq On : 28 Apr 2017 6:27 am Vial: 46
Sample : WAC042717S Operator: LL
Misc : B0323LED.M QC Can Inst : MSD #2
MS Integration Params: RTEINT.P Multiplr: 1.00
Quant Time: Jun 2 9:56 2017 Quant Results File: B0323LED.RES

Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration

TIC: BM042727.D



BM042727.D B0323LED.M

Fri Jun 02 10:23:06 2017 MS2

Data File : C:\MSDCHEM\DATA2\2017APR\BM042728.D Vial: 47
Acq On : 28 Apr 2017 7:03 am Operator: LL
Sample : WAC042717T Inst : MSD #2
Misc : B0323LED.M QC Can Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 28 09:35:35 2017 Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration
DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.40	128	97922	50.00	ppb	0.05
36) 1,4-difluorobenzene	10.67	114	358312	50.00	ppb	0.05
51) Chlorobenzene-d5	15.13	117	337731	50.00	ppb	0.01

System Monitoring Compounds

66) Bromofluorobenzene	16.62	95	263221	51.40	ppb	0.01
Spiked Amount	50.000	Range	70 - 130	Recovery	=	102.80%

Target Compounds

Qvalue

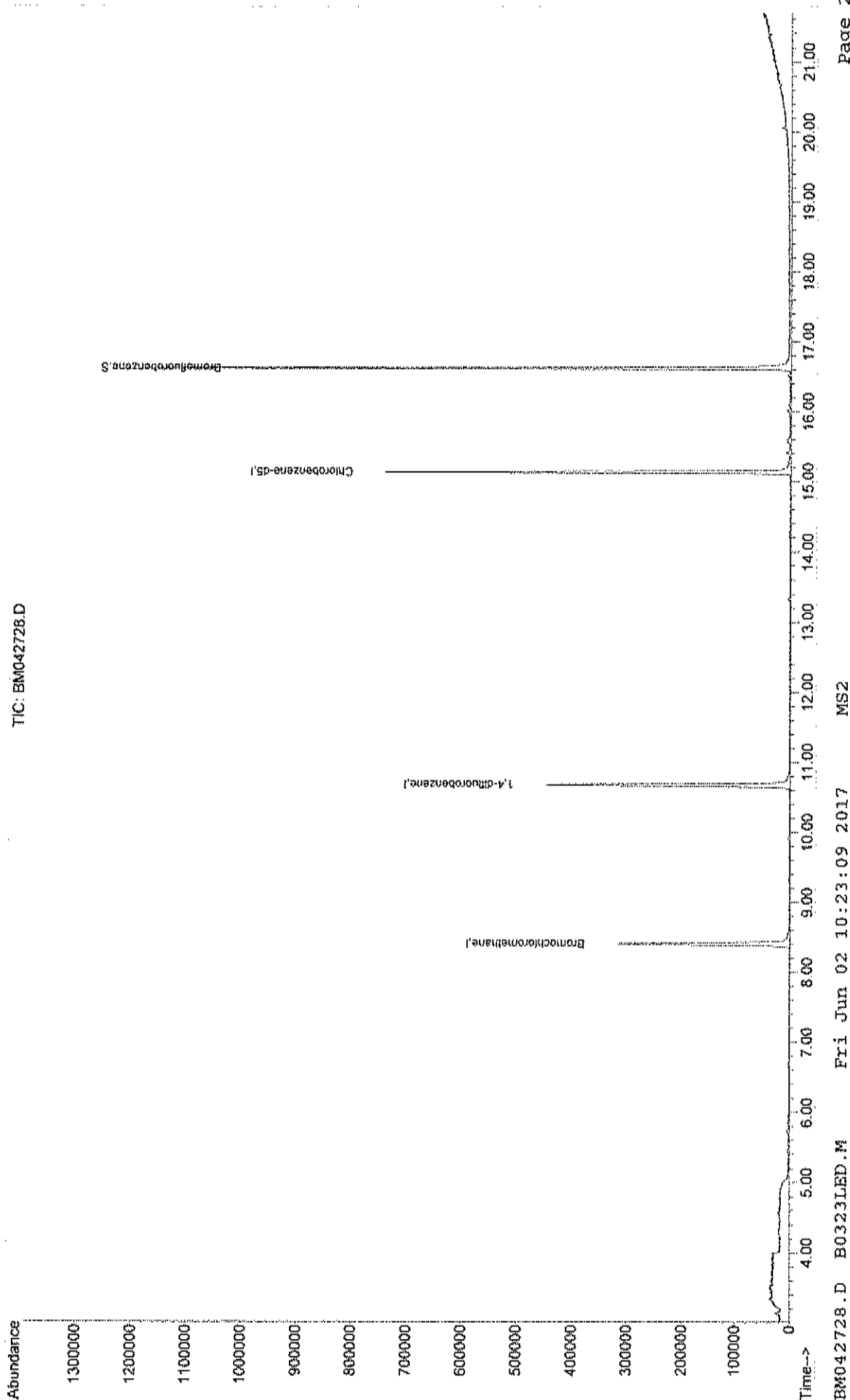
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\DATA2\2017APR\BM042728.D
Acq On : 28 Apr 2017 7:03 am
Sample : WAC042717T
Misc : B0323LED.M QC Can
MS Integration Params: RTEINT.P
Quant Time: Jun 2 10:01 2017

Vial: 47
Operator: LL
Inst : MSD #2
Multiplr: 1.00

Quant Results File: B0323LED.RES

Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration



Data File : C:\MSDCHEM\DATA2\2017APR\BM042731.D Vial: 11
Acq On : 28 Apr 2017 8:49 am Operator: LL
Sample : WAC042717W Inst : MSD #2
Misc : B0323LED.M QC Can Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 28 09:37:14 2017 Quant Results File: B0323LED.RES

Quant Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration
DataAcq Meth : LEEDRUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	8.43	128	83633	50.00	ppb	0.07
36) 1,4-difluorobenzene	10.69	114	306684	50.00	ppb	0.06
51) Chlorobenzene-d5	15.14	117	295169	50.00	ppb	0.02

System Monitoring Compounds

66) Bromofluorobenzene	16.62	95	221480	49.48	ppb	0.02
Spiked Amount	50.000	Range	70 - 130	Recovery	=	98.96%

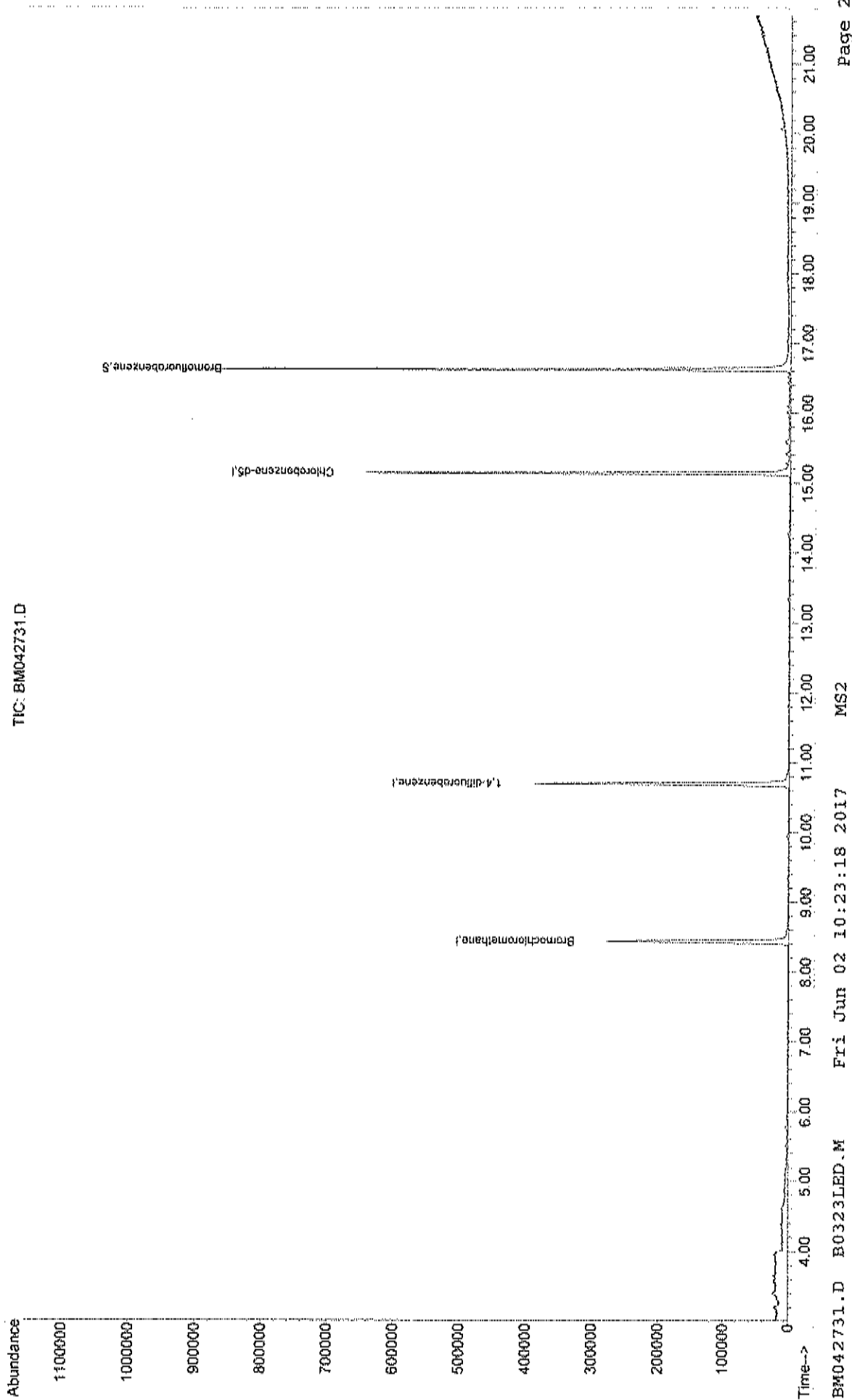
Target Compounds

Qvalue

Data File : C:\MSDCHEM\DATA2\2017APR\BM042731.D
Acq On : 28 Apr 2017 8:49 am Vial: 11
Sample : WAC042717W Operator: LL
Misc : B0323LED.M QC Can Inst : MSD #2
MS Integration Params: RTEINT.P Multiplr: 1.00
Quant Time: Jun 2 10:19 2017 Quant Results File: B0323LED.RES

Method : C:\MSDCHEM\1\METHODS\B0323LED.M (RTE Integrator)
Title : TO-15 VOA Standards for 5 point calibration
Last Update : Thu Mar 23 17:24:54 2017
Response via : Initial Calibration

TIC: BM042731.D



Attachment 2



Final Report
Utility/Structure Clearance at 18 Proposed Boring Locations, and
Void Detection beneath a ~120' x 210' Building and Environs
Former Hampshire Chemical Corporation – DOW Chemical Site
Waterloo, NY
Enviroscan Reference Number 011737d

Prepared For: CH2M
Prepared By: Enviroscan, Inc.
June 14, 2017





June 14, 2017

Mr. David Newman
CH2M

RE: Geophysical Survey
Utility/Structure Clearance at 18 Proposed Boring Locations, and
Void Detection beneath a ~120' x 210' Building and Environs
Former Hampshire Chemical Corporation – DOW Chemical Site
Waterloo, NY
Enviroscan Reference Number 011737d

Dear Mr. Newman:

Pursuant to our proposal dated February 1, 2017, Enviroscan, Inc. (Enviroscan) has completed a multi-technique geophysical survey at the above-referenced site. The purposes of the survey were to detect and delineate voids, or areas of less dense (higher porosity) materials, beneath an active chemical plant, and to provide utility clearance at 18 boring locations. The following report and figures describe the methods and results of the investigation.

Site Description

The geophysical survey was conducted over a five-day period ending April 12, 2017. The survey was performed within accessible interior and exterior portions of the site, encompassing several rooms within the former Hampshire Chemical Plant, and associated asphalt parking lots southeast of the plant (see Figure 1). Some exterior areas were inaccessible at the time of the survey due to tanks and other obstructions, while scattered interior obstructions included immovable equipment and floating slab flooring.

The site bedrock geology, reported by New York State Museum and New York State Geological Survey, consists of a the Middle Devonian Onondaga Limestone, a calcarenitic to cherty limestone with minor shale deposits (D.W. Fisher, Y.W. Isachsen, L.V. Rickard, 1970). The regional geologic strike, based on the geologic mapping, is west to east (Ibid.). Historical aeriels show the same building, with the earliest image dating back to 1995 (www.historicaerials.com). However, as informed by onsite personnel, the main building itself dates back to the late 1800's; therefore, documentation of karst-related features associated with the landscape is essentially non-existent.



Mr. Newman
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Page 2

Survey Methods

In order to provide confident detection of potential subsurface features and processes associated with the sinkholes, Enviroscan used multiple independent but complementary geophysical techniques:

Microgravity Mapping – to detect and delineate soil cavities, or zones of low-density soils, which result from rearrangement of soil fines and/or wholesale washouts or soil piping; and

Ground Penetrating Radar (GPR) – to detect and delineate shallow subsurface voids, or zones of low-density soils, which result from rearrangement of soil fines and/or wholesale washouts or soil piping – as well as shallow bedrock pinnacles.

The field investigation was completed using the techniques and procedures described below.

Microgravity

Microgravity meters are capable of measuring the force of gravity with great precision. Worldwide, the acceleration of gravity has been adopted as 980 centimeters per second squared (cm/s^2). However, this is really an average value since the actual measured value of gravity at a given station is dependent upon many things, including:

- the elevation of the station reading (since higher stations are farther from the center of mass of the earth);
- the latitude and longitude of the station (since the earth is not truly spherical);
- the positions of the sun and the moon (which create not only the readily observed ocean tides, but small deformations of the entire earth called earth tides);
- minute changes in the calibration of the gravity meter (called instrument drift);
- the attraction of massive landforms near or obliquely above the station (i.e. the mass of a nearby mountain actually produces a gravitational attraction which can have a significant effect on a precise gravity reading); and
- the density of materials immediately beneath a station.

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Page 3

The variations in gravity due to the first four factors above typically have magnitudes measured in milligals (where 1000 milligals equal one cm/s^2). The fifth and sixth factors are typically measured in microgals (where 1000 microgals equal one milligal). Since the purpose of a microgravity survey is generally to determine factor six above (i.e. the density or mass distribution in the subsurface of a survey site), the raw gridded or profile gravity measurements that comprise a gravity survey must be corrected for factors one through five. This yields a set of numbers (which are generally several parts per billion of the earth's adopted average gravity) that can be interpreted to determine subsurface mass distribution (see e.g. Telford et al., 1990).

To arrive at a number representative of the subsurface mass distribution, raw gravity readings are subjected to the following corrections:

reference ellipsoid correction – corrects for the non-spherical shape of the earth, based on the latitude and longitude of a station;

earth tide correction – corrects for deformation of the earth under the gravitational influence of the sun and moon;

drift correction – corrects for slow changes in the calibration of a gravity meter based on repeated measurements at a fixed base station;

free air correction – corrects for the elevation of a station above (or below) mean sea level, based on a surveyed station elevation;

Bouguer slab correction – corrects for the density of the hypothetical slab of material between the station elevation and mean sea level, based on an assumed average terrain density.

Processed microgravity data are called Bouguer gravity, and should retain only information on the mass or density distribution beneath a survey station. Bouguer gravity anomalies can be caused either by subsurface mass excesses (gravity highs) or deficiencies (gravity lows). Gravity highs commonly represent locally shallow bedrock pinnacles or float blocks in the soil profile, zones of particularly massive bedrock, etc. Gravity lows may represent locally deep bedrock cutters or clay seams where soil displaces bedrock; air-, water- or mud-filled voids within bedrock; stoping voids in the soil above bedrock; or zones where soils have been made less dense by removal of fines.

Mr. Newman
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To complete the microgravity survey, Enviroscan completed the following specific tasks:

- Gravity readings were collected at 10-foot intervals along profiles spaced 10 feet apart, throughout accessible portions of the site (see gray circle [●] symbols on Figure 2), using a Scintrex CG-5 microgravity meter. At each station, the metered gravity (representing a 60-second average), meter height, reading date and time were recorded in the logger.
- A fixed base station was re-occupied with the gravimeter approximately once every hour to provide drift control data.
- The location of each station point was mapped, and most were surveyed using the Topcon HyperLite RTK Global Positioning System (RTK-DGPS).
- The relative elevation of interior (and some exterior) station points were surveyed with a Zipline Pro.
- Initial data processing was automatically applied in the field by the instruments, which calculate the reference ellipsoid, earth tide, and coarse drift corrections. Free air, fine drift, and Bouguer corrections were calculated in a spreadsheet using standard formulae (see e.g. Telford et al., 1990), and applied during post-processing.
- The best-fitting (in the least squares sense) simple planar surface was removed from the Bouguer data, to delete the effects of any deep geologic source or regional gravity trend.
- The resulting residual gravity data were contoured in SURFER by Golden Software, and are shown on Figure 3. Note that the values should depict the general plan-view shallow mass distribution beneath the survey area, with lower values (red) representing mass deficiencies and higher values (blue) representing mass excesses.

Mr. Newman
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GPR

In an effort to detect and delineate shallow cavities (voids) immediately beneath the ground surface, Enviroscan also completed a modified GPR investigation. Scanning was performed using a GSSI SIR-4000 GPR controller with a color display and internal hard drive, utilizing a 400-megaHertz (mHz) scanning antenna. GPR systems produce cross-sectional images of subsurface features and layers by continuously emitting pulses of radar-frequency energy from a scanning antenna as it is towed along a survey profile. The radar pulses are reflected by interfaces between materials with differing dielectric properties. The reflections return to the antenna and are displayed on a video monitor as a continuous cross section in real time. Subsurface voids, rock surfaces, and soil type changes produce recognizable reflections.

For this investigation, GPR profiles were collected in areas within the microgravity grid where space allowed for continuous profile collection, with the majority of the interest in Buildings 3 and 4 as directed by on-site personnel. GPR scanning could not be performed throughout much of the plant, due to limited access caused by equipment and storage. Additionally, GPR scanning was greatly inhibited within the building interior due to reinforcement within the concrete. The data were examined in real time to delineate any radar reflections consistent with near-surface voids or dipping GPR reflectors indicative of subsurface subsidence.

Utility Clearance at Proposed Boring Locations

Enviroscan provided utility clearance in an approximate 10-foot radius around 18 client-designated proposed boring locations, using a combination of GPR (described above), electromagnetic (EM), and metal detection (MD) techniques – including the Fisher TW-6 EM pipe and cable locator, the Radiodetection CAT and Genny, the Radiodetection RD8000, and the GSSI HandyScan with a 1.6-GHZ scanning antenna (for mapping rebar and generally capable of scanning to depths of 18 to 20 inches). Note that the presence of metallic structures at the ground surface limited the effectiveness of several techniques; therefore, most of the clearance was conducted using GPR, the HandyScan, and the CAT. As a final product for this portion of the survey, identified utility and structure locations were marked directly on the ground surface using semi-permanent marking paint.

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Void Detection Results

The microgravity data are depicted on Figure 3 as color contours representing the relative density of the subsurface, with blue for high-density, green for “site normal”, and red for low-density areas. The microgravity results delineate mass-deficient, or low-mass, areas – as well as mass-excess, high-mass areas covering most of the site. The most notable mass-deficiencies (outlined by black-dashed lines) are located in the western portion of Building 4, and covering the majority of Building 11. Although the anomaly amplitudes are not alarmingly high, the transition from mass excess to mass deficiency within individual rooms is significant – possibly indicating non-geologic (e.g. utility- or structure-related) voids. Please note that the high-amplitude mass deficiency along the northern wall of Building 3 is likely the result of a terrain effect. This is caused by the drastic change in elevation from Building 3 to the asphalt lot above (~12 feet) outside of Building 13-A. Irregularities in topography cause a reduction in gravity due to the excess or deficit of mass; in this case, the stations are experiencing both.

Spectral analysis was applied to the microgravity dataset to predict anomaly source depths based on gravity power. This analysis was only performed within Building 4, where the largest anomaly was located and terrain effects were minimal. The deepest source depths display a range between 12-15 feet; however, the majority of the data are from much shallower source depths, averaging between 2-5 feet.

The GPR data indicated two significant GPR anomalies beneath the site, both in Building 4 (purple-dashed circles). Severe GPR signal attenuation, caused by reinforcement in the slab, inhibited the use of GPR in the interior of the building; however, anomalous areas were identified. The anomaly in the northwest corner of the building is indicative of a possible buried metallic plate, while the anomaly in the southeast corner of the same building shows characteristics of buried reinforced concrete.

Mr. Newman
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Limitations

The geophysical survey described above was completed using standard and/or routinely accepted practices of the geophysical industry and equipment representing the best available technology. Enviroscan does not accept responsibility for survey limitations due to inherent technological limitations or unforeseen site-specific conditions. In particular, Enviroscan cannot make any warranties concerning the future occurrence or development of soil piping activity. However, we make every effort to identify and notify the client of such limitations or conditions.

We have enjoyed and appreciated the opportunity to have worked with you. If you have any questions, please do not hesitate to contact me.

Sincerely,
Enviroscan, Inc.



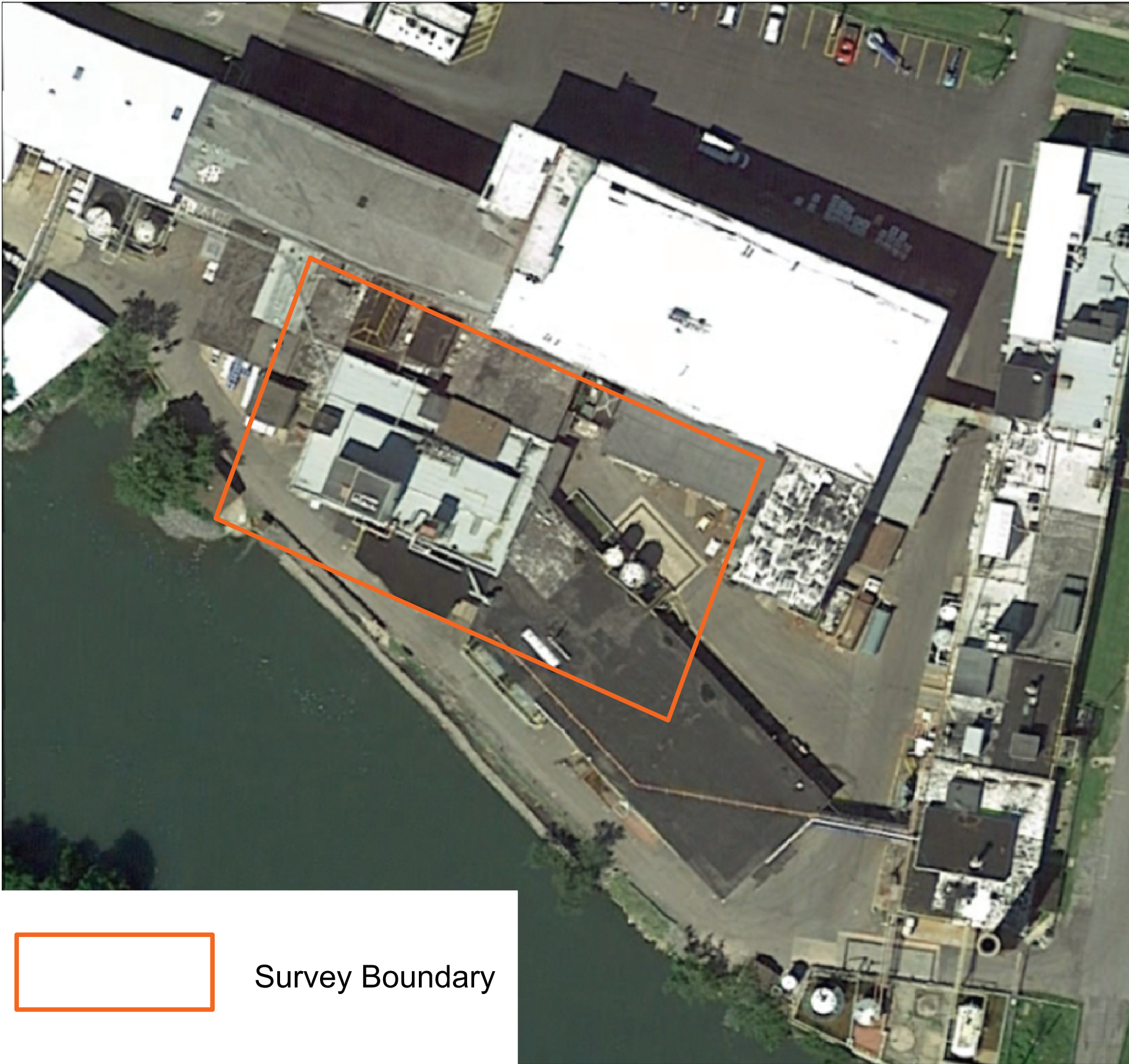
Max Griffiths
Project Geophysicist

Technical Review By:
Enviroscan, Inc.



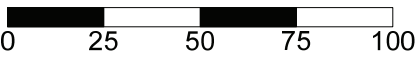
Felicia K. Bechtel, MSc, PG
President

Enclosures: Figure 1: Geophysical Survey Data Coverage Map
 Figure 2: Microgravity Survey Data Coverage Map
 Figure 3: Residual Microgravity Contour Map
 References



Survey Boundary


Scale (ft)

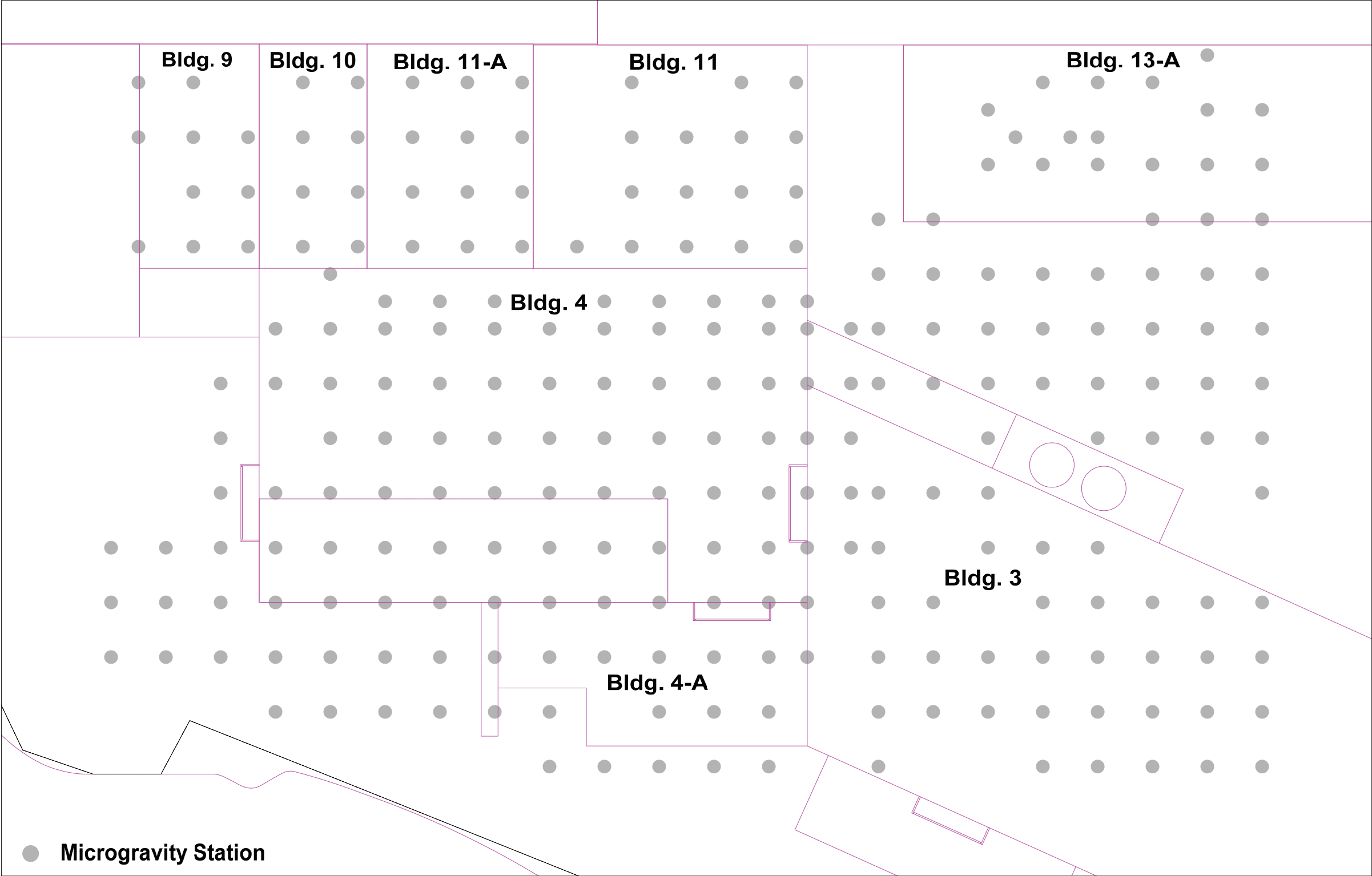


Notes:

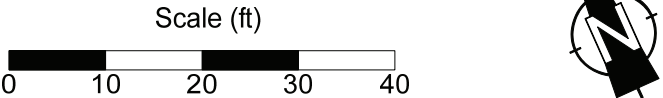
Coordinates in New York State Plane Grid, NAD-83 datum.


Figure composed using aerial image from Google Earth and DGPS survey by Enviroscan, Inc. personnel.

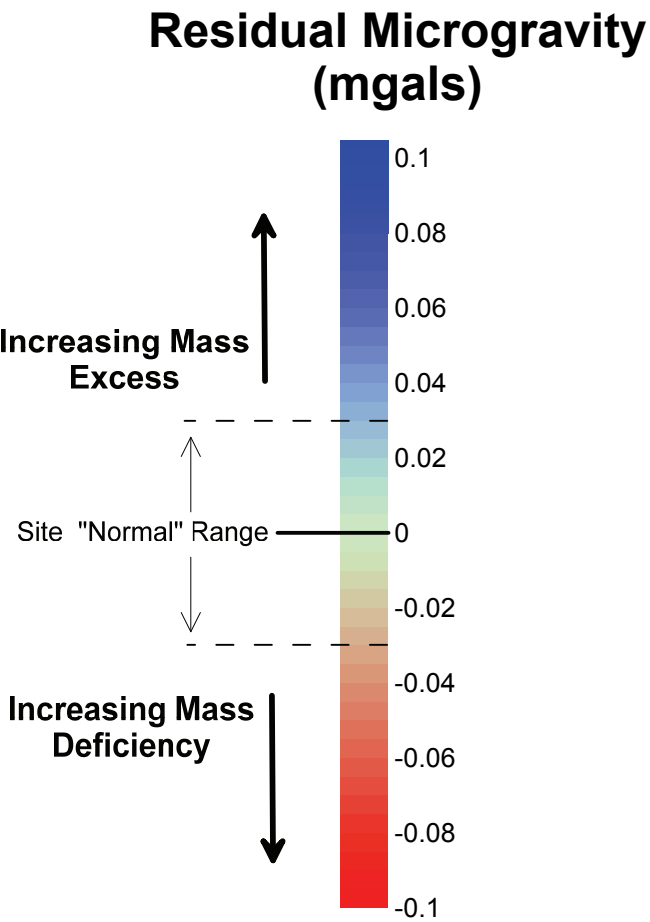
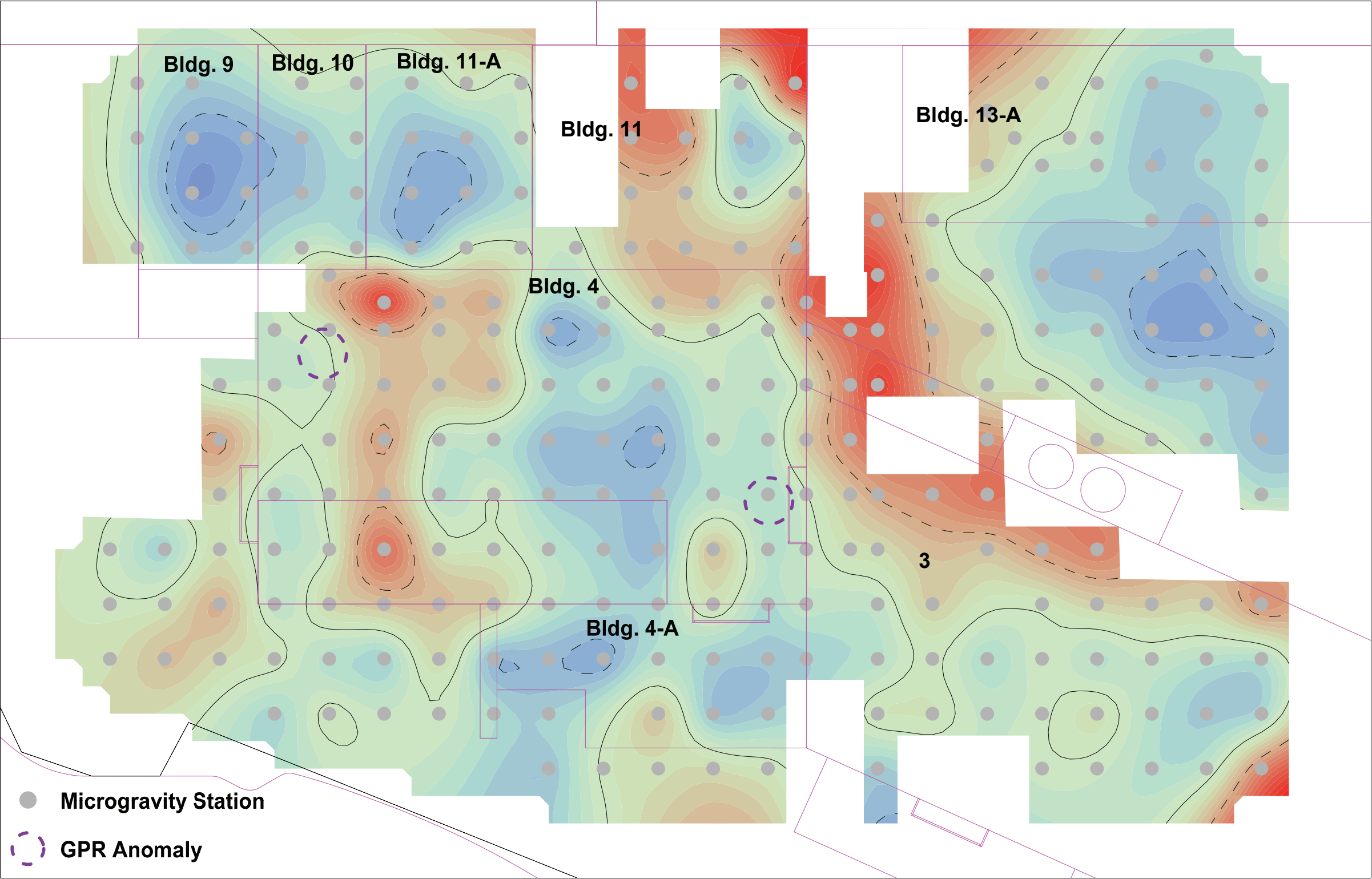
<div>Prepared by:</div> <div><div>Enviroscan, Inc. 1051 Columbia Ave. Lancaster PA 17603 717-396-8922 www.enviroscan.com</div></div>	<div>Title:</div> <div>Survey Boundary Map</div>	Project Location: Former Hampshire Chemical Corporation Waterloo, NY		Figure 1	
		Project Number 011737d	Revision/Issue 6/14/2017		
		Original Scale 1" = 50'	Survey Ending Date 4/06/2017	Drawn by: MEG	Approved by: FKB



Notes:
Basemap derived from Enviroscan Inc. DGPS survey, and client-provided AutoCAD drawing.



<div>Prepared by:</div> <div><div>Enviroscan, Inc. 1051 Columbia Ave. Lancaster PA 17603 717-396-8922 www.enviroscan.com</div></div>	<div>Title:</div> <div>Microgravity Survey Data Coverage Map</div>	<div>Project Location:</div> <div>Former Hampshire Chemical Corporation Waterloo, NY</div>		<div>Figure</div> <div>2</div>	
		<div>Project Number</div> <div>011737d</div>	<div>Revision/Issue</div> <div>6/14/2017</div>		
		<div>Original Scale</div> <div>1" = 20'</div>	<div>Survey Ending Date</div> <div>4/06/2017</div>	<div>Drawn by:</div> <div>MEG</div>	<div>Approved by:</div> <div>FKB</div>

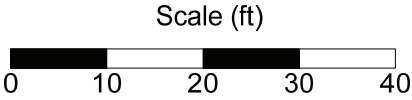



Notes:

The information depicted on this drawing represents survey results on the date surveyed and can only be considered to be indicative of the general conditions existing on the survey date.

Gravity data from Scintrex CG-5 gravity meter.

Basemap derived from Enviroscan Inc. DGPS survey, and client-provided AutoCAD drawing.



<div>Prepared by:</div> <div>Enviroscan, Inc. 1051 Columbia Ave. Lancaster PA 17603 717-396-8922 www.enviroscan.com</div>	<div>Title:</div> <div>Residual Microgravity Survey Results</div>	<div>Project Location:</div> <div>Former Hampshire Chemical Corporation Waterloo, NY</div>		<div>Figure</div> <div>3</div>	
		<div>Project Number</div> <div>011737d</div>	<div>Revision/Issue</div> <div>6/14/2017</div>		
		<div>Original Scale</div> <div>1" = 20'</div>	<div>Survey Ending Date</div> <div>4/06/2017</div>	<div>Drawn by:</div> <div>MEG</div>	<div>Approved by:</div> <div>FKB</div>

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