ESTCP

FINAL REPORT

Demonstration of Mineral Traps to Passively Evaluate and Monitor In-Situ Reactive Minerals for Chlorinated Solvent Treatment

Craig Divine
Arcadis U.S., Inc.

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ESTCP Project ER19-5190

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14. ABSTRACT

The objective of this project is to field-validate the Min-Trap® technology, a new in-situ monitoring tool for collecting mineralogical data to evaluate and manage in-situ groundwater remediation programs. The Min-Trap is a sampling device consisting of a solid medium (e.g., silica sand, iron oxide sand, site soil) contained within a water permeable mesh that is deployed inside a monitoring well and allowed to incubate over time. The media serves as a carrier substrate upon which target minerals can form passively. Analysis of the medium through chemical, microscopic or spectroscopic means gives direct evidence of the formation of target minerals in-situ. The degradation of chlorinated volatile organic compounds via the reducing power stored in reactive minerals (e.g., iron sulfides; FeSx) is recognized as a very important process, and cost-effective tools to support field applications are needed. The demonstration occurred at Sites SS003 and SD015 at Vandenberg Space Force Base in Central California. Both sites are undergoing active remediation via enhanced reductive dechlorination and Min-Traps were deployed in multiple wells, many where reactive FeSx minerals were expected to be actively forming. Min-Trap samples recovered after various incubation times ranging from 2 to 9 months were analyzed by a variety of analytical techniques, including total iron, Aqueous and Mineral Intrinsic Bioremediation Assessment (AMIBA), Scanning Electron Microscopy-Energy Dispersive X-Ray Spectroscopy (SEM-EDS), 14C-assay techniques (e.g., Mills et al. 2018), and microbiological characterization via QuantArray-Microbially Influenced Corrosion (MIC). In summary, Min-Traps samples were utilized to conclusively verify the formation of FeSx, measure reactivity of these minerals, and verify the presence of target microbiological communities.

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ABSTRACT

INTRODUCTION AND OBJECTIVES

The objective of this project is to field-validate the Min-Trap® technology, a new in-situ monitoring tool for collecting mineralogical data to evaluate and manage in-situ groundwater remediation programs.

TECHNOLOGY DESCRIPTION

The Min-Trap is a sampling device consisting of a solid medium (e.g., silica sand, iron oxide sand, site soil) contained within a water permeable mesh that is deployed inside a monitoring well and allowed to incubate over time. The media serves as a carrier substrate upon which target minerals can form passively. Analysis of the medium through chemical, microscopic or spectroscopic means gives direct evidence of the formation of target minerals in-situ. The degradation of chlorinated volatile organic compounds via the reducing power stored in reactive minerals (e.g., iron sulfides; FeS_x) is recognized as a very important process, and cost-effective tools to support field applications are needed.

PERFORMANCE AND COST ASSESSMENT

The demonstration occurred at Sites SS003 and SD015 at Vandenberg Space Force Base in Central California. Both sites are undergoing active remediation via enhanced reductive dechlorination and Min-Traps were deployed in multiple wells, many where reactive FeS_x minerals were expected to be actively forming. Min-Trap samples recovered after various incubation times ranging from 2 to 9 months were analyzed by a variety of analytical techniques, including total iron, Aqueous and Mineral Intrinsic Bioremediation Assessment (AMIBA), Scanning Electron Microscopy-Energy Dispersive X-Ray Spectroscopy (SEM-EDS), 14C-assay techniques (e.g., Mills et al. 2018), and microbiological characterization via QuantArray-Microbially Influenced Corrosion (MIC). In summary, Min-Traps samples were utilized to conclusively verify the formation of FeS_x, measure reactivity of these minerals, and verify the presence of target microbiological communities.

The success criteria for nine quantitative performance objectives were achieved which support the following summary statements:

1. The design allows results in representative groundwater flow rates through the Min-Trap.
2. The Min-Trap results correspond with expected results based on geochemical conditions.
3. The minimum deployment time for Min-Traps was determined to be two months.
4. Min-Trap samples are stable for at least 2 weeks.
5. The data from Min-Traps and traditional soil core collection methods are comparable.
6. The spatial variability in Min-Trap results correspond with expected results based on geochemical conditions.
7. Min-Traps are applicable for moderate-to-high flux unconsolidated geologic settings.
8. Targeted microbial community characterization can be performed from Min-Trap samples.
9. Abiotic reaction rates can be measured from Min-Trap samples.

Cost to utilize Min-Traps are scalable and highly predictable and it is anticipated that Min-Trap sampling costs will be relatively small compared to overall performance monitoring costs. For example, Min-Traps are commercially available for about $300 and laboratory analyses similar to those used in this study cost between about and $1,000 and $4,000 (depending on the specific methods selected), and deployment and retrieval costs are approximately $1,000 to $2,000 per sampled location. Min-Traps offer the potential for significant overall lifecycle cost savings because they eliminate the need for expensive drilling to collect solid phase samples from soil cores. Because they can provide remedy performance data that can be used for assessment, they can aid in optimization decisions and improved remedy performance, and therefore ultimately support earlier transition from active to passive remedy phases.

IMPLEMENTATION ISSUES

No significant implementation challenges or limitations were identified and Min-Traps are commercially available from Microbial Insights, Inc. Alternate support media types, including polymer beads, may be considered in future applications and may permit the use of x-ray diffraction techniques. Based on the recent work by Hua et al. (2021) it is recommended that samples be stored at temperatures no colder than -18 degrees Celsius.

PUBLICATIONS

Horst, J., Divine, C., Martin Tilton, J., Justicia-León, S., Ulrich, S., and R.J. Stuetzle. 2019. New Tools for Assessing Reactive Mineral-Mediated Abiotic Contaminant Transformation. Groundwater Monit. & Rem., 39(2): 12-21.

Ulrich, S., Martin Tilton, J., Justicia-Leon, S., Liles, D., Prigge, R., Carter, E., Divine, C., Taggart, D., and K. Clark. 2021. Laboratory and Initial Field Testing of the Min-Trap™ for Tracking Reactive Iron Sulfide Mineral Formation During in-situ Remediation. Remediation J., 31(3): 35-48.

EXECUTIVE SUMMARY

INTRODUCTION

This project was completed to field-validate the Min-Trap, a novel approach to directly monitor the formation of minerals associated with a variety of active and passive remediation technologies. For example, reduced iron minerals, which contribute to abiotic contaminant transformation processes, are commonly formed as a result of in-situ remediation activities for chlorinated solvents. If reduced iron minerals are actively precipitated in the aquifer, these minerals are expected to also precipitate in Min-Traps deployed in monitoring wells. The Min-Trap consists of a solid, porous medium (e.g., silica sand, iron oxide sand, or site soil) contained within a water-permeable mesh that can be deployed within the screened interval of a conventional 2-inch (or larger) monitoring well and allowed to incubate. Following incubation, the Min-Trap is retrieved, preserved, and submitted to a laboratory for reactive minerals characterization. In this project, the Min-Trap design, deployment methods, and analyses were initially validated through preliminary field testing and laboratory tank testing and then field tested at two different active remediation sites at Vandenberg Space Force Base (VSFB).

OBJECTIVES

The objective of this project is to field-validate the Min-Trap technology, which offers distinct advantages over traditional approaches for collecting mineralogical data to evaluate and manage in-situ groundwater remediation programs. These advantages include the ability to collect solid-phase samples using conventional monitoring wells instead of soil cores, reduced background matrix effects, and the opportunity to collect samples from the same location over time. This field demonstration was completed to validate the technology, quantify technical performance and limitations, and provide a basis for wider application at United States Department of Defense and other sites.

TECHNOLOGY DESCRIPTION

The Min-Trap is a passive sampling device that is deployed within a conventional monitoring well and allowed to incubate over time **(Figure ES-1)**. It consists of a non-reactive medium (e.g., silica sand), a reactive medium (e.g., iron oxide sand or site soil), or a combination of both, contained within a water-permeable mesh. The non-reactive medium within the Min-Trap provides a carrier substrate upon which target minerals can form passively **(Figure ES-2)**. The use of reactive media within the Min-Trap provides a substrate for transformation processes that reflect the natural and/or engineered geochemical conditions within the aquifer. Minerals that form in a Min-Trap represent the minerals forming in the subsurface. Groundwater flow modeling results indicate that the hydraulics of the current Min-Trap prototype are approximately representative of flux through an equivalent width of the aquifer (Divine et al. 2020a). Consequently, for both non-reactive and reactive media versions, analysis of the solid-phase media within the Min-Trap through chemical, microscopic, or spectroscopic means gives direct evidence of the formation, dissolution, and/or transformation of target minerals in-situ while avoiding the challenges associated with traditional solid-phase sampling techniques. Virtually any in-situ remediation strategy that results in either the precipitation, dissolution, or transformation of a mineral species can be validated, monitored, and assessed with Min-Traps. The Min-Trap approach is particularly applicable to identifying and quantifying the formation of reactive iron minerals for the treatment of chlorinated volatile organic compounds (CVOCs).

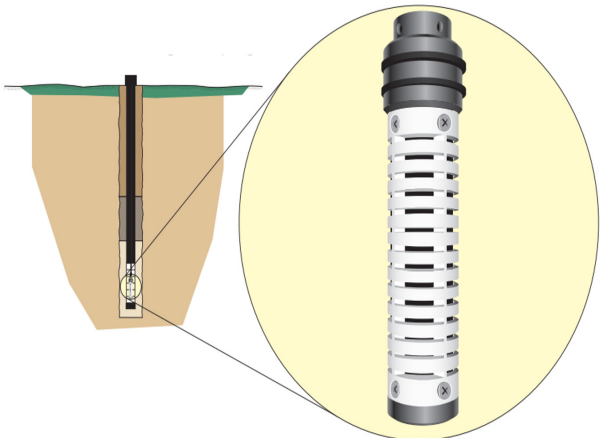

Figure ES-1. Conceptual Implementation of the Min-Trap Deployed in a Monitoring Well

The Min-Trap consists of a solid porous medium contained within a water permeable mesh housed within a slotted PVC casing. Groundwater flows across the permeable matrix and mineral precipitates are captured.

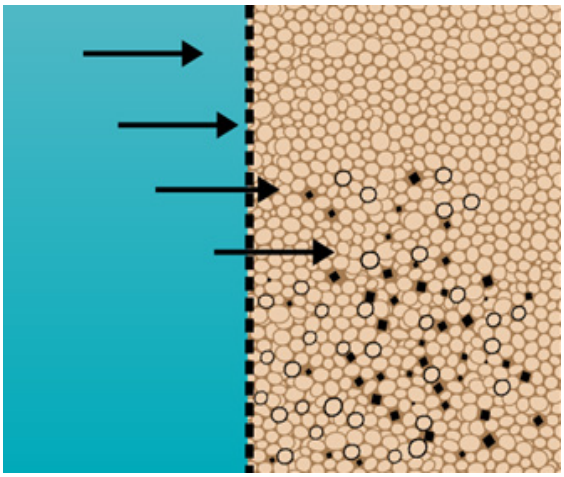

Figure ES-2. Conceptual Illustration of the Min-Trap Sampling Device Deployed Within a Standard 2-inch Monitoring Well

As groundwater infiltrates through the Min-Trap media (tan), mineral precipitate grains and/or coatings (black) are retained with the media.

PERFORMANCE ASSESSMENT

The Min-Trap technology field demonstration occurred at Installation Restoration Program Sites SS003/SS050 and SD015 at the VSFB in Central California. The key criteria for site selection included (1) a site where the objective is to treat CVOCs via enhanced reductive dechlorination (ERD), and (2) a site where the geologic setting is well understood and conducive to collection of soil core samples; detailed lithologic, geochemical, and contaminant data are available; and all of these environmental conditions are conducive to the formation of reactive minerals. Some specific environmental and logistical conditions that made Site SS003/SS050 an ideal candidate include:

- Site lithology and contaminant distributions are well-understood and delineated.
- The primary constituent of concern (TCE) is consistently present at concentrations above 1,000 micrograms per liter (µg/L) throughout the target treatment zone (Principal Zone).
- In-situ bioremediation (ISB) via ERD was implemented within the 1,000 µg/L TCE Principal Zone groundwater plume and other areas with elevated TCE concentrations and potential dense non-aqueous phase liquid (DNAPL) contamination. ERD-related reagents (i.e., amended emulsified vegetable oil: EOS Pro^{TM}) were injected with the objective of reducing TCE concentrations thought biologically mediated degradation processes.
- The lithologic materials observed within the Principal Zone consist of silts and silty sands, which should accommodate the injection of ERD-related reagents.

- The Principal Zone where Min-Traps were deployed is at a shallow depth and thickness, extending from approximately 10 to 25 feet (ft) below ground surface (bgs), allowing for ease in drilling.
- Groundwater chemistry (in particular, ambient iron and sulfate concentrations) appeared to be sufficient to drive iron sulfide mineral formation following ERD implementation and the resulting onset of reducing conditions.
- Potential logistical issues associated with ERD remedy implementation, Min-Trap deployment and retrieval, drilling, and performance evaluation are minimized at Site SS003/SS050.
- The location of project field staff is convenient, and the VSFB Remediation Program Manager is supportive of the demonstration.
- Site SS003/SS050 remedial objectives are consistent with use of the Min-Trap technology (i.e., collection of mineralogical data to evaluate and manage in-situ groundwater remediation programs).

Some specific environmental and logistical conditions that made Site SD015 an ideal candidate include:

- Site lithology and contaminant distributions are well-understood and delineated.
- Total CVOC concentrations are greater than 500 µg/L throughout most of the target treatment alluvial aquifer system.
- ISB via ERD via the injection of a fermentable soluble carbon solution within highest concentration zone has been implemented for more than a decade. As a result, geochemical data show the treatment zone has been sulfate-reducing for many years and the high concentrations of cis-1,2-dichloroethene and other daughter products confirm microbially-mediated reductive dechlorination processes are established. Therefore, it is understood that the remediation process is more mature at this site compared to Site SS003/SS0050.
- The lithologic materials observed within the alluvial aquifer system consist of sand with discontinuous layers of clay and silt and has accommodated the injection of ISB-related reagents.
- The target treatment zone is about 20 to 30 ft thick at a relatively shallow depth and thickness, extending from approximately 25 to 40 ft bgs.
- Groundwater chemistry (in particular, iron and sulfate concentrations) appear to be sufficient to drive iron sulfide mineral formation.
- The location of project field staff is convenient, and the VSFB Remediation Program Manager is supportive of the demonstration.
- Site SD015 remedial objectives are consistent with use of the Min-Trap technology (i.e., collection of mineralogical data to evaluate and manage in-situ groundwater remediation programs). Additionally, this is the demonstration site for ESTCP Project ER20-5028 (*Thermal In-Situ Sustainable Remediation to Accelerate Remediation Timeframes*) and data from Min-Traps will support both projects.

Based on the additional site characterization, laboratory tank testing, and design modeling completed between 2019 and 2021, the project team proceeded with the field demonstration. Min-Traps were deployed at Site SS003/SS050 between November and December 2020, and at Site SD015 in May 2021. Subsequent performance monitoring and analyses were used to evaluate key performance objectives summarized below.

Verify that design results in representative flow rates through the Min-Trap

A groundwater flow model was constructed to conceptually simulate the groundwater flow regime around and through the Min-Trap well for three model scenarios. The model scenario with the highest flow bypass (44 percent [%]) yielded a flow enhancement value of 108%, suggesting negligibly higher flux through the Min-Trap compared to an equivalent width of aquifer material. Overall, this indicates that the current Min-Trap design does not result in hydraulic effects that reduce or enhance groundwater flux passing through the Min-Trap. Based on these results, no significant design changes to current prototype design are recommended. Hydraulic modeling verifies that the success criterion for this performance objective has been achieved.

Compare Min-Trap results to expected results for corresponding geochemical conditions

Min-Trap mineralogical analyses results were evaluated against expected results for the geochemical conditions corresponding to the locations at which the Min-Traps had been deployed and incubated. Visual, chemical (AMIBA), and SEM-EDS data from laboratory tank testing and field demonstration at VSFB Sites SS003/SS050 and SD015 confirmed the presence of reduced iron minerals in Min-Traps at wells within treatment zones where highly reducing conditions were present. On the contrary, reduced iron minerals were not detected in Min-Traps at wells where groundwater geochemistry was not characterized as reducing. Specifically, five Min-Traps were deployed during laboratory tank testing and ten Min-Traps were deployed at distinct monitoring well locations across VSFB sites SS03/SS050 and SD015. Groundwater geochemical indicator and field parameter data indicated reducing to strongly reducing conditions, potentially conducive to the formation of reactive iron sulfide minerals, within the test tank and in five of the ten VSFB monitoring well locations. The Min-Traps deployed within the test tank and at these five VSFB monitoring well locations evidenced the formation of iron sulfide minerals. Both laboratory tank testing and field demonstration data verify that the minerals measured in the Min-Trap are 100% consistent with expectations based on groundwater geochemistry, indicating that the success criterion for this performance objective has been achieved.

Determine the (reasonable) minimum deployment time to obtain measurable amounts of reactive minerals within Min-Traps

A simple stoichiometric mineral precipitation model was developed to predict the total possible FeS that could precipitate over time at various groundwater flux and solute loading values. Total iron concentration Min-Trap data from laboratory tank testing showed an approximately linear increase through day 75 of incubation, generally matching the predicted mass for this simple model. Data from the field demonstration at VSFB Site SS003/SS050 are consistent with tank test results. Specifically, visual, chemical (AMIBA), and SEM-EDS data all strongly indicate that iron sulfide minerals were deposited in the Min-Trap samplers within 2 months of in-well incubation.

The tank test and field demonstration results indicate that Min-Traps can capture and store FeS_x minerals forming in the aquifer at detectable levels after approximately 1 to 2 months of incubation under ideal geochemical conditions. The rate of mineral accumulation in Min-Traps deployed at a site will depend on site characteristics and, in general, longer incubation times will result in more mineral mass formed, increasing the likelihood of detection and certainty of the amount and reactivity of the minerals formed. However, it should be noted that if the aquifer changes from reducing to oxidizing during the incubation period sulfide minerals formed within the Min-Trap may begin to dissolve. AMIBA analyses are straightforward to interpret and can confirm the presence of FeS_x minerals. Additional analyses, such as total iron and SEM-EDS, can provide further evidence of FeS_x but may not be necessary in many cases. These results provide validation of deployment time to trap sufficient mineral material to be detected via laboratory methods and indicate the success criterion for this performance objective has been achieved.

Evaluate Min-Trap sample stability for mineral mass loss using Microbial Insights' sample preservation protocol

Because iron sulfide minerals are susceptible to degradation/oxidation during sample storage and analysis, testing was performed to validate sample shipping requirements and acceptable hold times. Two preservation methods were tested: shipment of samples under chilled conditions using wet ice and freezing conditions using dry ice. All samples were stored under freezing conditions at the analytical laboratory before analysis. In addition, the effect of sample hold time on the iron sulfide minerals, as indicated by the concentrations of weak acid soluble iron (WAS-Fe), strong acid soluble iron (SAS-Fe), acid-volatile sulfide (AVS), and chromium-extractable sulfide (CrES), was investigated for hold times up to 28 days. The measured WAS iron values for all preservation methods tested are similar, and most significantly, the very high abundance of WAS-Fe^{2+} relative to total WAS iron (greater than 96% for all samples) confirms reliability of the Min-Trap preservation method for minimizing the oxidation of Fe^{2+} to Fe^{3+}. Similarly, the measured WAS-Fe^{2+} values were consistently at least 94% of the total WAS-Fe for all sample hold times tested, indicating that there was not a significant impact to WAS-Fe during the 28-day hold time (i.e., loss due to oxidation). Further, the results of the WAS-Fe, SAS-Fe, AVS, and CrES analyses after hold times of 5, 15, and 28 days do not indicate significant differences that could be attributed to degradation processes occurring during the hold time. The variability between samples likely reflects the analytical precision and variability in concentrations between individual "pillows" within the Min-Trap. Min-Trap preservation method testing verifies that the success criterion for this performance objective has been achieved.

Evaluate the comparability of data from Min-Traps and traditional soil core collection methods

The purpose of this performance objective is to understand the comparability of data sets from Min-Traps and traditional soil core collection methods, as well as the factors that contribute to differences. It is important to note that the evaluation of this performance objectives could yield three general results:

- If reactive iron minerals detected in soil cores are also present in 90% or more of the Min-Traps, the success criterion will be considered achieved.
- If reactive iron minerals are detected in soil cores but are not present in 90% of the Min-Traps, this criterion will not be considered achieved.

- If reactive iron minerals are detected in Min-Traps but not in soil cores, this criterion may or may not be considered achieved. This situation may occur if the soil core samples are not representative of the predominant groundwater flux zone measured by the monitoring well.

Two sets of co-located Min-Trap and soil core samples were collected during the laboratory tank test and at the preliminary field-testing site. Results from the chemical (AMIBA) and spectroscopic (SEM-EDS) analyses from the collected soil cores were consistent with the Min-Trap data and indicate that significant biogenic iron sulfide minerals were present in both matrices. These results confirm the identification of iron sulfide minerals in both the Min-Trap matrix and the aquifer matrix, further indicating that minerals detected in Min-Traps are representative of reactive minerals forming in the aquifer in systems with robust microbial iron and sulfate reduction. The success criterion for this performance objective has been achieved.

Evaluate the spatial variability in Min-Trap results deployed at multiple locations

Min-Traps were deployed at eight monitoring wells, covering a distance of approximately 1,000 ft parallel to groundwater flow, in VSFB Site SS003/SS050. The monitoring wells were selected primarily based on their location with respect to the target radius of influence of carbon substrate injection activities: some wells were immediately downgradient of injection points, some wells were more distant from injection points but still within the target radius of influence of injection, and some wells were outside of the target radius of influence of injection. The spatial distribution of the wells selected for Min-Trap deployment provided variability in terms of groundwater flux values and geochemical conditions. The presence or absence of reactive iron sulfide minerals within the Min-Traps deployed at these locations was consistent with spatial variations in groundwater flux, groundwater geochemistry, and/or remediation system operation. Iron sulfide minerals were encountered in 100% of the locations where expected (based on groundwater geochemistry), verifying that the success criterion for this performance objective has been achieved.

Confirm Min-Traps are applicable for moderate-to-high flux unconsolidated geologic settings

VSFB Sites SS003/SS050 and SD015 occur within unconsolidated geologic settings with different groundwater flux values. Min-Traps deployed at both sites indicate the presence of iron sulfide minerals in 100% of the locations where expected (based on groundwater geochemistry) within 2 to 5 months of incubation. Min-Trap results from two different field demonstration sites verify that the success criterion for this performance objective has been achieved.

Evaluate if targeted microbial community characterization can be performed from Min-Trap samples

Min-Trap and Bio-Trap® (Microbial Insights) samplers were deployed, in series, in two VSFB Site SS003/SS050 wells. Both Min-Traps and Bio-Traps were sampled following a 4-month, post carbon substrate injection incubation period and submitted to Microbial Insights for microbiological characterization via QuantArray-MIC and CENSUS qPCR-AHY analyses. QuantArray-MIC and CENSUS qPCR-AHY results indicate that Min-Trap and Bio-Trap samplers provide comparable microbiological data, albeit differences in the detection and abundance of select gene targets.

The differences in gene target abundance are potentially caused by the differences in sample matrix and the fact that active precipitation of iron sulfide minerals is occurring within the Min-Trap sample matrix (and not within the Bio-Trap matrix). Despite the differences in gene target presence and abundance observed between the Min-Trap and Bio-Trap samples, the Min-Trap sample provided sufficient microbial community characterization in relation to key microbial groups involved in redox reactions and the formation of reactive iron sulfide minerals. Because only two of the three most abundant gene targets match in both the Min-Trap and Bio-Trap samples, the success criterion for this performance objective was not entirely achieved.

Evaluate if abiotic reaction rates can be measured from Min-Trap samples and verify sample collection and storage methods

The assay developed under ESTCP ER-201584z, which involved measurement of rate constants for aerobic co-oxidation of TCE, was modified to test Min-Trap material. The results demonstrated that the 14C assay can measure mineral reactivity for TCE on Min-Trap samples. In the future, higher sample mass is necessary to increase certainty on results. Additional work is needed to convert measured reaction rates to representative field rate that can be used in modeling and site decision making. This performance objective is considered achieved.

Identify challenges and limitations of Min-Trap design

A fundamental consideration, and potential limitation associated with the Min-Trap technology is that is utilizes monitoring wells, and therefore, assumes the wells have been constructed properly (e.g., grout seals are functioning, screened interval intercepts and is hydraulically connected with target lithology) and that groundwater in the well is representative of aquifer conditions. Furthermore, the technology assumes geochemical processes occurring in the aquifer will occur similarly in the well. This potential limitation is relevant for all well-based sampling methods generally, and was evaluated for the Min-Trap technology through several performance objectives (no specific concerns were identified). The current Min-Trap design utilizes a standard Ottawa silica sand support matrix. Advantages to this matrix include its high hydraulic conductivity and porosity, similarity to materials in many sandy alluvial aquifers, and modest and known background ferric iron content (~82 milligrams per kilogram; Ulrich et al. 2021a). However, the quartz in the Ottawa sand prevents the use of x-ray diffraction (XRD) because it obscures the signals of less abundant minerals. To evaluate the potential applicability of XRD with an alternate support matrix, a Min-Trap polyvinyl chloride (PVC) casing that had accumulated black precipitates during incubation in a well was subjected to XRD analysis. The SEM-EDS results from this sample indicate that the sample was mostly composed of carbon, oxygen, sulfur, chlorine, and iron, and that the XRD results indicate the dominant minerals present were iron sulfides (interpreted as greigite) and calcium carbonate. Alternate media types, including polymer beads, may be considered in future applications and could permit the more effective use of XRD. This performance objective is considered achieved.

Evaluate the utility of Min-Trap results to inform remedial decision-making

General feedback about the Min-Trap technology from stakeholders, which include remedial project managers (RPMs), regulators, field technicians, and technical experts, was limited, but positive and affirms the general usefulness, practical field protocols, and intuitiveness of results.

Likewise, responses to presentations and webinars given to the practitioner community at large has been positive. In a 2021 Evonix webinar, Dan Leigh presented the results of a study where Min-Traps were successfully used to evaluate the formation of FeS_x at a remediation site utilizing two different remediation reagents. Mr. Leigh provided additional specific comments, observations, and suggestions which are detailed in Section 6.11. This performance objective is considered achieved.

Consolidate Min-Trap performance data into technical guidance for their use

The Min-Trap user guidance included as Appendix A was developed to aid practitioners during planning and field implementation. This guidance will be available for download from the Microbial Insights and ESTCP Project ER19-5190 websites. This performance objective has been achieved.

COST ASSESSMENT

A simple cost model summarizing all expected costs associated with field use of Min-Traps is presented in **Table ES-1**. The elements and actual costs were validated through this project.

Table ES-1. Cost Model for Min-Traps as of July 2022

Element	Validated Costs
Min-Trap Sampler	$300 per sampler
Typical Baseline Groundwater Analyses	Up to $1,000 per well, depending on analyses
Min-Trap Analyses	Costs depend on the laboratory and specific analyses applied. The most common are: • Total iron: $26 • AMIBA: $950 • SEM-EDS: $1,140 • XRD: $580 • QuantArray-MIC: $950
Min-Trap deployment, retrieval, data interpretation, and reporting costs	Estimated at $10,000 per sampling event assuming 5 to 10 Min-Trap samplers are deployed. Per-well scale efficiencies are anticipated when multiple Min-Traps are deployed.

The main cost drivers of the Min-Trap technology are the number of wells tested, analyses selected, and frequency of testing. For most remediation sites, scale efficiencies are anticipated as the number of Min-Traps deployed increases. Furthermore, the ability to visually confirm the likely presence of FeS_x minerals can allow a field-based decision on sampling and analysis, which will maximize the value of Min-Trap applications.

Therefore, the cost model presented above was applied using the following assumptions

- 8 wells with Min-Traps deployed: $2,400
- Baseline groundwater analyses costs: $4,000

- 3 separate Min-Trap sampling events: $30,000
- Analyses (based on groundwater quality and visual screening):
  - 24 Total Iron: $624
  - 12 AMIBA: $11,400
  - 8 SEM-EDS: $9,120
  - 4 QuantArray-MIC: 3,800

Based on these assumptions, the total Min-Trap program cost would be $61,344. However, these are scalable and highly predictable and therefore reasonable upper and lower cost bounds can be readily calculated based on reasonable assumptions. In almost all cases, it is anticipated that Min-Trap sampling costs will be relatively small compared to overall performance monitoring costs. Also, Min-Traps offer the potential for significant overall lifecycle cost savings because the eliminate the need for drilling to collect solid phase samples (soil cores), which is the current practice and considered the comparative technology. Because Min-Traps can be utilized more frequently and more reliably than the conventional method, they can provide more and better data to aid in better remedy implementation and performance optimization, and potentially support earlier transition from active to passive remedy phases.

IMPLEMENTATION CONSIDERATIONS

No significant implementation challenges or limitations were identified. In some locations, Min-Traps had to be temporarily removed to accomplish routine groundwater sampling, but this was not problematic. The current Min-Trap design utilizes a standard Ottawa silica sand support matrix which provides some advantages; however, the strong background signature of the silicon dioxide precludes the use of XRD analyses in most cases. Alternate media types, including polymer beads, may be considered in future applications and could permit the more effective use of XRD. Additionally, based on the recent work by Hua et al. (2021) cryogenic sample storage (about -78 degrees Celsius [^{o}C]) may induce the conversion of mackinawite to pyrite prior to analyses. Therefore, it is recommended that samples be stored at temperatures no colder than (-18^{o}C). Non-freezing storage conditions (4^{o}C) may even be preferable, though further work is needed to confirm this.

1.0 INTRODUCTION

This Final Report (report) describes the field demonstration and performance monitoring associated with Environmental Security Technology Certification Program (ESTCP) Project ER19-5190, which field-tested the Mineral Trap (Min-Trap®; US Patent 11002643B1, Ulrich et al. 2021b) technology at two United States Department of Defense (DoD) sites. This report documents the methods, performance data, cost evaluation, key considerations necessary for successful deployment and use of this technology, lessons learned from the demonstration, a user guidance, and recommendation for future research and possible design modifications.

1.1 BACKGROUND

Many in-situ groundwater treatment technologies for chlorinated solvents, as well as many other contaminants, rely upon the formation, dissolution, and/or transformation of target minerals either to degrade or sequester groundwater contaminants. For example, reduced iron sulfide minerals, which contribute to abiotic chlorinated volatile organic compound (CVOC) transformation processes, are commonly formed as a result of in-situ remediation activities for chlorinated solvents. In many conventional enhanced anaerobic bioremediation systems, an organic carbon source (e.g., lactate) is injected into the groundwater that stimulates iron reducing bacteria (IRB) and sulfate reducing bacteria (SRB). The SRB produce hydrogen sulfide which reacts with reduced iron generated from iron oxides/hydroxides in the native soil to form iron sulfide mineral precipitates. However, sulfate and/or iron (bio)availability may be limiting in many natural settings. Increased awareness of the potential for abiotic degradation facilitated by reactive minerals produced in these enhanced bioremediation environments has facilitated a drive in the industry to maximize treatment effectiveness by accelerating conditions for both biological and abiotic degradation. Consequently, many vendors now offer injectable carbon-based reagents that also include reduced iron and/or sulfate components, as well as pH buffers and nutrients, to concurrently enhance both biological and abiotic degradation potential. Recently, Davis and Miller (2018) assessed data from 100 remediation performance monitoring wells from 24 sites to evaluate the added benefit of including soluble iron (Fe^{2+}) in emulsified oil injection solutions to promote the formation of iron-based minerals in-situ. Although they did not document iron formation or directly confirm abiotic processes were enhanced, they reported a statistically significant reduction in the time to achieve a 90 percent (%) decline in chlorinated ethene concentrations at locations where iron was included.

Reactive iron minerals generally form under reducing or anoxic conditions; as such, they may be present naturally in certain soil types where the presence of oxygen is limited (e.g., clay) or in certain settings where the oxygen flux is overwhelmed by the presence of excess carbon (e.g., near the groundwater-surface water interface of a wetland or within a petroleum hydrocarbon groundwater plume). There are several iron-bearing minerals that can directly react and promote the abiotic transformation of CVOCs. The most important of these are iron sulfides such as disordered and ordered mackinawite (FeS) and pyrite (FeS_2) (collectively referred to herein as iron sulfides, or FeS_x), and iron oxides such as magnetite (a mixed valence Fe(II)-Fe(III) iron oxide) and green rust (a mixed valence Fe(II)-Fe(III) layered hydroxide). In general, transformation reactions occur at the mineral surface (not in the aqueous phase) and reaction rates are influenced by mineral surface area, degree of ordering (crystallinity), pH, and mineral surface oxidation over time (passivation). United States Environmental Protection Agency (USEPA 2009) provides a comprehensive discussion of these and other relevant iron minerals involved in the abiotic transformation of CVOCs.

He et al. (2015) completed a comprehensive survey of reported mineral reactivity for CVOCs and, while rates varied widely based on experimental conditions, they observed the following general trend in relative reactivity with CVOCs: disordered FeS > FeS > Fe(0) > FeS_2 > sorbed Fe^{2+} > green rust = magnetite > biotite = vermiculite.

Four primary reactions associated with abiotic CVOC transformation include: reductive elimination, hydrogenolysis (also known as reductive dechlorination), dehydrohalogenation, and hydrolysis. Some of these reactions may occur through both abiotic and biotic processes. The specific role of these reactions in the overall transformation pathways under field conditions is complex and an area of much active research. **Figure 1**, which follows the summary presented by He et al. (2015) and Horst et al. (2019), highlights the most common and understood transformation pathways for chlorinated ethenes, ethanes, and methanes. For chlorinated ethenes, the primary abiotic reaction pathway is reductive elimination, resulting in the signature transformation product acetylene (Butler and Hayes 1999; Lee and Batchelor 2002a, b; Jeong et al. 2007a, b). Unfortunately, acetylene can be difficult to detect in a field setting because its high volatility can result in sample loss and because it is readily transformed to ethene and ethane. Chlorinated ethanes, like 1,1,1-trichloroethane (TCA), and chlorinated methanes, like carbon tetrachloride (CTET), can be transformed through several potential reaction pathways, shown in **Figure 2**. Various researchers have reported transformation of chlorinated ethanes and methanes by magnetite and pyrite (Devlin and Muller 1999; Butler and Hayes 2000; Assaf-Anid and Lin 2002; Lee and Batchelor 2002a; Choi et al. 2009), magnetite (Vikesland et al. 2007), and green rust (O'Loughlin et al. 2003).

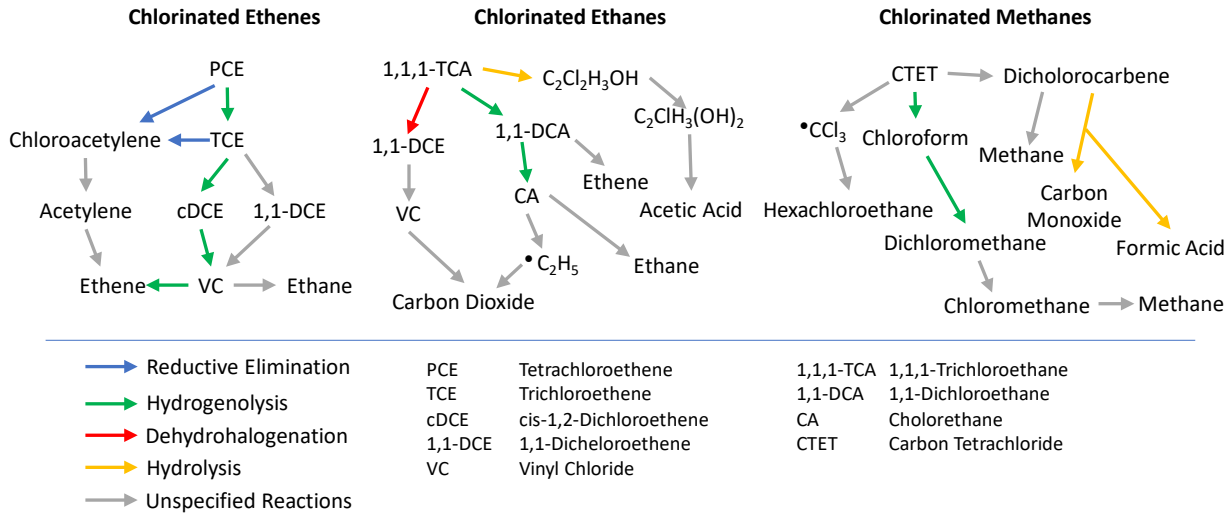

Figure 1. Summary of the Most Commonly Understood or Proposed Reaction Pathways for Chlorinated Ethenes, Ethanes, and Methanes

Adapted from He et al. (2015) and Horst et al. (2019).

Verifying the formation of these target reactive minerals can support optimization of remedy design and implementation to maximize the formation of these minerals and overall remediation system performance. However, evaluation of these minerals and/or processes is often only inferred from aqueous phase conditions (i.e., groundwater sampling) because of the significant challenges and costs associated with the collection of solid-phase samples (e.g., Lebrón et al. 2015).

Traditional approaches for the collection of solid-phase samples include the use of high cost drilling/coring techniques and sub-sampling of discrete zones within the core material for analysis. In addition to the high costs and health and safety risks, drilling/soil sampling examines discrete points/depths within the subsurface, often requiring a relatively large sample number to characterize the subsurface area of interest and account for the high heterogeneity observed across very small scales at most sites.

The Min-Trap is a comparatively low-cost tool to collect direct physical evidence of reactive iron mineral formation in-situ without collecting soil/rock core samples – a capability that was not previously commercially available. As such, Min-Traps can solve many challenges inherent to the field evaluation of remedies that use reactive minerals (i.e., in-situ biogeochemical or abiotic degradation). These challenges include: (1) lack of direct feedback from the subsurface regarding the presence and reactivity of relevant mineral phases, (2) costs, time, data quality, and health and safety risks associated with drilling and conventional soil core collection for mineral samples, (3) lack of a technical basis to support estimates of stored reactivity or the transition from active to passive treatment, and (4) confirmation of effectiveness of passive treatment following active treatment phases. If needed, Min-Trap samples could be readily collected from the same monitoring well over time (e.g., once per year) to assess remedial performance and long-term changes in site geochemistry.

1.2 OBJECTIVE OF THE DEMONSTRATION

The purpose and scope of ER19-5190 is to field-validate the Min-Trap technology, which offers distinct advantages over traditional approaches for collecting mineralogical data to evaluate and manage in-situ groundwater remediation programs. The overall goal of this effort was to complete a field demonstration to validate the technology, quantify technical performance and limitations, and provide a basis for wider application at DoD and other sites. This demonstration has been completed and this report documents the data, cost assessment, key implementation factors necessary for successful deployment of this technology, key lessons learned from the demonstration, and areas for future research.

1.3 PROBLEM STATEMENT AND REGULATORY DRIVERS

In-situ remediation systems can be engineered to stimulate and even enhance abiotic processes; however, further work is needed to develop a framework for optimally designing and efficiently operating these systems. This framework should include a more thorough understanding of the controls on mineral reactivity, and how to engineer in-situ systems that maximize long term reactivity. An improved basis of understanding is needed to support more reliable remedial strategy development and gain regulatory acceptance of remedial targets and the maximum dissolved contaminant concentrations that could leave a source zone and still not exceed cleanup levels, required timeframes for active treatment, and long-term performance during passive management strategies (e.g., monitored natural attenuation [MNA] and/or long-term monitoring). Additionally, while the importance of abiotic degradation processes to plume-scale attenuation has been increasingly accepted by regulators, a more reliable quantitative assessment of these transformation processes will allow for improved predictive tools for long-term plume management. For example, Yu et al. (2018) measured abiotic transformation rates equivalent to half-life values of about 20 years for trichloroethene (TCE) and 23 years for cis-1,2- dichloroethene (cis-1,2-DCE), which they note may be sufficient to support an MNA remedy for some site settings.

Improved quantification of abiotic degradation processes will increase confidence for MNA and passive remedies, especially where abiotic degradation of CVOCs by reactive minerals is the dominant mechanism for transformation. For many sites, a more reliable understanding of abiotic processes will provide a quantitative basis for ending active in-situ treatment and transitioning to MNA several years earlier than expected, resulting in significant life cycle cost savings.

Mineralogical data gathered from Min-Traps can be applied at several stages of a remedial program, including during the initial characterization, alternatives evaluation, feasibility testing, remedy optimization, and transition from active to passive treatment. The Min-Trap sampling approach can be adapted to monitor the performance of essentially any treatment remedy where minerals are formed, dissolved, or transformed, providing direct evidence of treatment without drilling. The Min-Trap is particularly applicable to monitoring reactive mineral formation during in-situ chemical reduction (ISCR) and/or enhanced reductive dechlorination (ERD) to treat CVOCs. Given the large variety of contaminants and treatment approaches employed at DoD and other federal sites, Min-Traps provide a unique and versatile tool for directly monitoring and documenting treatment progress, especially to stakeholders and the public, at a fraction of the cost and risks associated with currently available approaches. Min-Traps also represent a potential opportunity for significant cost savings at sites with complex and/or challenging geology (i.e., significant depths, bedrock environments).

2.0 TECHNOLOGY

This section provides an overview of the Min-Trap, which is a novel approach to directly monitor the formation of minerals associated with a variety of active and passive remediation technologies. More detailed technology descriptions were provided in previous ESTCP submittals (Divine et al. 2018, 2019, and 2020a, b, c).

2.1 TECHNOLOGY DESCRIPTION

The Min-Trap is a passive sampling device that is deployed within a conventional monitoring well and allowed to incubate over time (**Figure 2**). It consists of a non-reactive medium (e.g., silica sand), a reactive medium (e.g., iron oxide sand or site soil), or a combination of both, contained within a water-permeable mesh. The non-reactive medium within the Min-Trap provides a carrier substrate upon which target minerals can form passively (**Figure 3**). The use of reactive media within the Min-Trap provides a substrate for transformation processes that reflect the natural and/or engineered geochemical conditions within the aquifer. Minerals that form in a Min-Trap represent the minerals forming in the subsurface. Groundwater flow modeling results indicate that the hydraulics of the current Min-Trap prototype are approximately representative of flux through an equivalent width of the aquifer (Divine et al. 2020b). Consequently, for both non-reactive and reactive media versions, analysis of the solid-phase media within the Min-Trap through chemical, microscopic, or spectroscopic means gives direct evidence of the formation, dissolution, and/or transformation of target minerals in-situ while avoiding the challenges associated with traditional solid-phase sampling techniques. Because Min-Traps are designed to measured minerals that are actively forming, they are not intended to assess background aquifer mineralogy of an aquifer. As summarized in **Table 1**, virtually any in-situ remediation strategy that results in either the precipitation, dissolution, or transformation of a mineral species can be validated, monitored, and assessed with Min-Traps. The Min-Trap approach is particularly applicable to identifying and quantifying the formation of reactive iron minerals for the treatment of CVOCs, which is often a target mechanism for ISCR and ERD strategies.

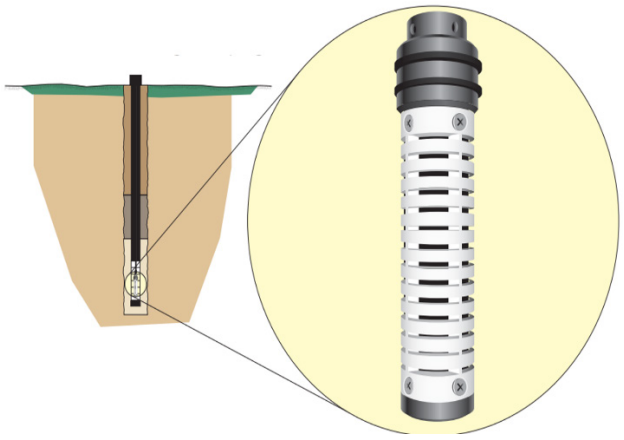

Figure 2. Conceptual Implementation of the Min-Trap Deployed in a Monitoring Well

The Min-Trap consists of a solid porous medium contained within a water permeable mesh housed within a slotted PVC casing. Groundwater flows across the permeable matrix and mineral precipitates are captured.

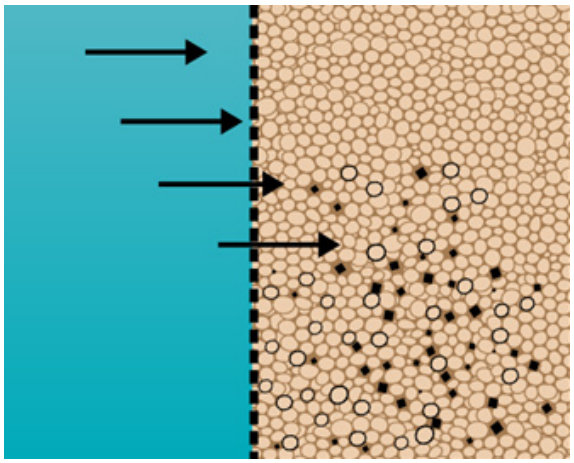

Figure 3. Conceptual Illustration of the Min-Trap Sampling Device Deployed Within a Standard 2-inch Monitoring Well

As groundwater infiltrates through the Min-Trap media (tan), mineral precipitate grains and/or coatings (black) are retained with the media.

Table 1. Potential Applications of Min-Traps

Treatment Approach	Media Options	Target Observation	Mechanism
In-situ chemical oxidation (ISCO; or ISCO with added iron) for metals sequestration	• Ottawa sand or inert polymer to provide locus for mineral precipitation • Site soil to demonstrate transformation of native mineralogy to reactive minerals	Precipitated iron with co-precipitated contaminant	Dissolved, reduced iron or zero valent iron (ZVI) is chemically oxidized and precipitates as iron oxide, incorporating contaminant (e.g., arsenic)
ISCR	• Ottawa sand or inert polymer • Iron oxide-coated silica sand or ZVI to demonstrate transformation of iron minerals to reactive minerals and measure dissolution rate • Site soil	Formation of sulfides with co-precipitated contaminant	Oxides dissolve and are then directly chemically reduced, forming sulfides incorporating contaminant
		Precipitation of contaminant	Direct chemical reduction of a redox-sensitive contaminant to a less soluble species (e.g., soluble Cr^{6+} to low solubility Cr^{3+} or soluble U^{6+} to low solubility U^{4+} using calcium sulfide)
ERD		Formation of iron sulfides	Injected carbohydrate promotes microbially-mediated reduction of iron and sulfate which drives formation of reactive iron sulfide minerals
pH Manipulation	• Ottawa sand, inert polymer, limestone pebbles, or acidic media to evaluate potential for fouling due to excessive precipitates clogging pore space	Precipitated metal oxides and hydroxides with co-precipitated contaminants; changes in permeability; changes in mineralogy of non-inert substrate	Dissolved metals, especially iron and aluminum, precipitate as pH increases; trace metals will also commonly co-precipitate with iron and aluminum oxides/hydroxides

For the field demonstration of ER19-5190, in-situ formation of reactive minerals during ERD treatment of CVOCs (primarily chlorinated ethenes, like TCE) were evaluated and monitored using the Min-Trap technology. The degradation of chlorinated methanes, ethanes, and ethenes by the reducing power stored in reactive minerals (e.g., magnetite, iron sulfides, sorbed ferrous iron) is a subject of much research (e.g., Wilkin 2006; Air Force Center for Engineering and the Environment [AFCEE] 2008; USEPA 2009; Whiting et al. 2014; He et al. 2015), including several Strategic Environmental Research and Development Program (SERDP) and ESTCP projects (e.g., ER-2620, ER-2622, ER-201584, ER-2621, and ER-2533). However, cost-effective tools to support and evaluate field applications of this treatment are currently limited. While the analytical techniques to characterize reactive minerals are well developed (USEPA 2009), and sample preservation methods for reactive minerals formed in anoxic environments have already been established (Wilkin 2006), the Min-Trap technology provides a simpler and more cost-effective approach for the collection of samples to directly confirm the formation of these reactive minerals in-situ.

2.2 TECHNOLOGY DEVELOPMENT

The Min-Trap technology is patented and is commercially available through Microbial Insights (https://microbe.com/min-trap-sampler). As part of this project, the Min-Trap design has been evaluated through numerical flow modeling and extensive laboratory tank testing; the results of this work are presented in Divine et al. 2020a,b,c and Ulrich et al. 2021a. In addition, the Min-Trap technology was pilot tested at a non-DoD site undergoing full-scale treatment of CVOCs in groundwater with a combined ZVI-organic carbon substrate (EHC®) delivered via direct push injection (the results of this pilot testing are presented in Horst et al. 2019 and Ulrich et al. 2021a). The results of the numerical modeling, tank testing, and pilot testing provided the basis for the field demonstration at two DoD field sites: Vandenberg Space Force Base (VSFB) Site SS003/SS050 and VSFB Site SS015. The results of these field demonstrations validate the Min-Trap technology and are presented comprehensively in this report.

2.3 ADVANTAGES AND LIMITATIONS OF THE TECHNOLOGY

Min-Traps solve many challenges inherent to the field evaluation of remedies that use reactive minerals. These challenges include: (1) lack of direct feedback from the subsurface regarding the presence and reactivity of relevant mineral phases, (2) costs, time, data quality, and health and safety risks associated with drilling for mineral samples, (3) lack of a technical basis to support estimates of stored reactivity or the transition from active to passive treatment, and (4) confirmation of effectiveness of passive treatment following active treatment phases. Particularly, the Min-Trap technology holds significant promise for improving the management of CVOC treatment programs by providing a reliable and cost-effective method for measuring the formation of reactive minerals that facilitate CVOC degradation in the subsurface (currently, an unmet need).

For CVOC sites, confirmation of the formation of reactive, reduced iron minerals (e.g., FeS, FeS_2) in-situ can be a key line of evidence to evaluate the synergy between biological and abiotic processes, support remedy optimization by indicating the need to increase or decrease injection frequency, and provide a basis for the transition from active treatment to an MNA approach.

For many sites, we anticipate data from Min-Traps may provide a basis for ending active in-situ treatment and transitioning to MNA several years earlier than they would otherwise, potentially saving hundreds of thousands of dollars per site. Scaled up across the portfolio of DoD sites with groundwater impacted by CVOCs and other relevant contaminants, it is possible that widespread application of Min-Traps could result in total savings to DoD of many millions of dollars.

The Min-Trap sampling approach can be adapted to monitor the performance of essentially any treatment remedy where minerals are formed, dissolved, or transformed, providing direct evidence of treatment without drilling. For sites where metals treatment via precipitation is the remedy, such as enhanced precipitation of hexavalent chromium or uranium, data collected from Min-Traps provide direct confirmation that the target precipitation activity is occurring. Traditional approaches typically rely on a decline in aqueous concentrations. Min-Traps provide the opportunity to collect direct evidence using a monitoring well-based approach that can be more seamlessly integrated into existing groundwater monitoring programs. Min-Trap data can also be used to proactively evaluate the ongoing stability of mineral precipitates once formed without the need for repeated drilling events.

As with any remediation-related technology, there are limitations that need to be considered when evaluating suitability of Min-Traps for a given site. The most significant technical performance risks lie in two areas for applications at CVOC sties: (1) minerals formed within a Min-Trap are not representative of aquifer conditions, and (2) degradation of reactive minerals by oxygen during sampling, transport, and analysis results in lost or misrepresentative data. For the first area, the failure to detect minerals in the Min-Traps that are forming in the aquifer (i.e., “false negative”) is the most likely, and could be the result of inadequate deployment times and/or elevated mineral detection limits. Min-Trap deployment times were initially validated through laboratory tank and initial field pilot testing and were further validated through the field demonstration.

The second technical risk (loss of data due to transformation of reduced iron minerals by oxygen) has been addressed through the use of Microbial Insights’ sample preservation protocol. Testing of this protocol during field testing indicated minor loss of target minerals (iron sulfides) during sampling and short-term storage. The primary objective of the original proposal was to evaluate the reliability of Min-Traps for confirming iron sulfide formation (i.e., documentation of the presence of these minerals) and measure iron sulfide formation rates (i.e., the amount of iron sulfide formed over time). It is well understood that iron sulfides are unstable in oxic environments and, therefore, initial efforts (including work prior to ESTCP funding) to develop a practical and reliable preservation method prioritized minimizing exposure to oxygen. The Min-Trap guidance document, which includes this sampling protocol is included in Appendix A.

3.0 PERFORMANCE OBJECTIVES

The overall objectives of this Min-Trap field demonstration are to field-validate the technology, quantify technical performance and limitations, and provide a basis for wider application at relevant DoD and other sites. The overarching general goals of this demonstration project include:

1. Identify DoD sites for field testing of Min-Traps based on several technical and logistical criteria;

2. Demonstrate mineral formation/dissolution/transformation within Min-Traps at the field scale via collection of temporal and spatial data;

3. Characterize minerals formed in or dissolved from reactive media within Min-Traps using analytical methods relevant to the mineral or constituent of interest such as those described in USEPA (2009);

4. Correlate and calibrate mineral changes within the Min-Traps to aquifer soil through the collection and analysis of co-located soil core samples; and

5. Develop guidance regarding the technology application, limitations, anticipated performance, design considerations, and cost based on data and feedback from users, field personnel, and regulatory agencies.

The performance objectives, data requirements, and criteria that were be used to evaluate success are summarized in **Table 2**. These 12 performance objectives were defined to address the general goals and were the basis for the specific work scope. Detailed evaluations of each performance objective are presented in Section 6.

Table 2. Performance Objectives

Quantitative Performance Objectives		
Performance Objective	**Data Requirements**	**Success Criteria**
1. Verify design results in representative flow rates through the Min-Trap	Hydraulic modeling	Min-Trap design facilitates flow through Min-Trap matrix, not around it. If simulated flow through the Min-Trap is at least 80% of the flow through and equivalent aquifer width, the success criterion will be achieved. *Hydraulic modeling has been completed and verifies that the success criterion for this performance objective has been achieved.*
2. Compare Min-Trap results to expected results for corresponding geochemical conditions and evaluate robustness of the correlation	Results of mineralogical analysis of Min-Traps and groundwater geochemistry data	The mineralogy in the Min-Trap is consistent with predictions based on groundwater geochemistry. Specifically, reduced iron minerals are expected in Min-Traps at wells within treatment zones where highly reducing conditions are present, iron is elevated relative to background, and sulfate is depressed relative to background. If Min-Trap samples indicate the presence of iron sulfide minerals in at least 90% of the locations where expected (based on groundwater geochemistry and soil core sampling), the success criterion for this objective will be considered achieved. *Both laboratory tank testing and field demonstration data verify that the mineralogy in the Min-Trap is consistent with predictions based on groundwater geochemistry, indicating that the success criterion for this performance objective has been achieved.*
3. Determine the minimum deployment time to obtain measurable amounts of reactive minerals within Min-Traps	Results of lab-scale and field-scale tests compared with expected results based on groundwater geochemistry and flux	Validation of deployment time to trap sufficient mineral material to be detected via laboratory methods. *Field demonstration data are consistent with laboratory tank testing data and confirm the reliability of the minimum deployment time calculations. These data verify that the success criterion has been achieved.*
4. Evaluate Min-Trap sample stability for mineral mass loss using Microbial Insights' sample preservation protocol	Results of Min-Trap samples from laboratory testing using multiple published sample-preservation protocols and hold times	Mineral mass loss over 2-week storage time does not exhibit decrease ≥20%. *Testing of Microbial Insights' protocol at varying hold times during laboratory testing and field demonstration show little degradation of reactive minerals and confirm the stability of the mineral mass and mineral reactivity during storage. No significant decrease in mineral mass was observed over a 2-week hold time, verifying that the success criterion has been achieved.*
5. Evaluate the comparability of data from Min-Traps and traditional soil core collection methods	Characterize mineralogical results within Min-Traps and core samples using identical or complementary analytical techniques	Understand comparability of data sets and factors that contribute to differences. Three general results are possible • If reactive iron minerals detected in soil cores are also present in 90% or more of the Min-Traps, the success criterion will be considered achieved. • If reactive iron minerals are detected in soil cores but are not present in 90% of the Min-Traps, this criterion will not be considered achieved. • If reactive iron minerals are detected in Min-Traps but not in soil cores, this criterion may or may not be considered achieved. This situation may occur if the soil core samples are not representative of the predominant groundwater flux zone measured by the monitoring well. *Comparison of data from Min-Traps and traditional soil core collection methods indicate that iron sulfide minerals detected in soil cores are also present in 90% or more of the Min-Traps and verifies that the success criterion has been achieved.*

Table 2. Performance Objectives (Continued)

Quantitative Performance Objectives		
Performance Objective	**Data Requirements**	**Success Criteria**
6. Evaluate the spatial variability in Min-Trap results deployed at multiple locations	Comparability of Min-Trap results from different locations in the context of spatial variations in geochemistry, groundwater flux, or remediation system operation	Variations in reactive minerals detected in Min-Traps are consistent with spatial variations in geochemistry, groundwater flux, or remediation system operation. *Min-Trap results from spatially distinct incubation locations verify that the success criterion for this performance objective has been achieved.*
7. Confirm Min-Traps are applicable for moderate-to-high flux unconsolidated geologic settings	Min-Trap results from two unconsolidated geologic settings with different groundwater flux values	Min-Trap performance is consistent with expectations at two different sites. Specifically, if Min-Traps indicate the presence of iron sulfide minerals in at least 90% of the locations where expected (based on groundwater geochemistry and soil core sampling, where available), the success criterion for this objective will be considered achieved. *Min-Trap results from two different field demonstration sites verify that the success criterion for this performance objective has been achieved.*
8. Evaluate if targeted microbial community characterization can be performed from Min-Trap samples	Comparability of Min-Trap results and Bio-Trap results from samples collected at the same location	Data resulting from targeted microbial community characterization (e.g., QuantArray and/or CENSUS assays) of Min-Trap samples are consistent with similar data from co-located Bio-Trap samples. Specifically, if the measured three most abundant microbial communities (i.e., sulfate reducers, iron reducers) are the same for the Bio-Trap and Min-Trap samples, the success criterion for this objective will be considered achieved. Note: This performance objective was not considered in the original project scope but was included in the field demonstration plan. *Results from microbial analyses performed on co-located Min-Trap, Bio-Trap, and groundwater samples verify that the success criterion for this performance objective has been achieved.*
9. Evaluate if abiotic reaction rates can be measured from Min-Trap samples and verify sample collection and storage methods	Adapt previously developed techniques using ^{14}C-labeled contaminants (e.g., Mills et al. 2018) to measure abiotic degradation rates in "hold time" experiments	Successful adaptation of Mills et al. (2018) method to determine abiotic degradation rates. If it can be measured in Min-Trap samples and reactivity loss over a 2-week storage time does not exhibit a decrease greater than 20%, the success criterion objective will be considered achieved. *Abiotic reactivity was measured in multiple Min-Trap samples and hold-time testing indicates minimal loss within 2 weeks, therefore, this objective is considered achieved.*
Qualitative Performance Objectives		
1. Identify challenges and limitations of Min-Traps design	Feedback from installation/ monitoring personnel and project technical staff	Challenges/limitations are understood and/or can be readily mitigated. *Challenges/limitations and potential mitigations have been identified through this demonstration and this performance objective is considered achieved*
2. Evaluate the utility of Min-Trap results to inform remedial decision-making	Min-Trap analytical data; understanding of field site conceptual site model (CSM) and performance objectives	Data from Min-Traps are useful in supporting remedial decision making based on stakeholder feedback. *Qualitative feedback from stakeholders is positive and Min-Traps have been successfully utilized by an outside party, therefore this objective is considered achieved.*
3. Consolidate Min-Trap performance data into technical guidance for their use	Laboratory and field demonstration performance and lessons learned	Develop Technical Guidance for the use of Min-Traps and data interpretation. *This performance objective is achieved based on the completion of this Final Report, Ulrich et al. (2021a), and the final user guidance (Appendix A).*

4.0 SITE DESCRIPTION

Based on the evaluation presented in the Site Selection Memorandum (Divine et al. 2019) and recommendations in the Demonstration Plan (Divine et al. 2020c), Min-Trap field testing was primarily completed at VSFB Site SS003/SS050, located in central California. The Demonstration Plan also recommended additional verification testing at a second site and proposed Beale Air Force Base Plume CG041-017. However, as discussed with ESTCP in the In-Progress Review meeting in February 2020, the second site was changed to VSFB Site SD0015 due to site schedules and other technical considerations. VSFB Site SD0015 served as a secondary field demonstration site to further verify field methods and confirm the broad applicability of the Min-Trap technology across different hydrogeologies, subsurface geochemical conditions, and stage of remedial progress. The key criteria for site selection included (1) sites where the objective is to treat CVOCs via ERD, (2) sites where the geologic setting was well understood and conducive to collection of soil core samples, and (3) available geochemical and contaminant data indicate environmental conditions conducive to the formation of reactive iron sulfide minerals. VSFB Site SS003/SS050 served as the primary field demonstration site and was subject to a comprehensive scope of work that allowed for sufficient data collection to address the performance objectives outlined in Section 3. The Min-Trap field demonstration was initiated in November 2020 at VSFB Site SS003/SS050. Additional testing was completed at VSFB Site SD0015 in the second half of 2021.

4.1 VSFB SITE SS0003/SS0050

VSFB Site SS003/SS0050 was described in detail in the Demonstration Plan and, therefore, an abbreviated description is provided in the following sections. VSFB Site SS003/SS0050 is located within the Cantonment Area at VSFB and is divided into three geographical areas: (1) 9300 Block industrial complex of the Cantonment Area (9300 Block); (2) Mesa Area; and (3) Oak Canyon Area (above the former VSFB landfill access road). Site SS050 is located across 6th Street along the southwestern border of SS003. Site SS050 is an active Installation Restoration Program (IRP) site with similar historical industrial operations and similar soil vapor, soil, and groundwater contamination. Former industrial activities conducted at the site include electroplating, printed circuit board manufacturing, washing of heavy equipment, missile assembly activities, and photographic processing. TCE and its degradation products represent the main volatile organic compounds (VOCs) present in soil, groundwater, and soil vapor. The local groundwater flow direction and proximity of sites SS003 and SS050 result in hydrogeological connectivity between the two sites, causing a comingled groundwater plume. For the purposes of this document, these sites are jointly referenced as VSFB Site SS0003/SS050.

4.1.1 VSFB Site SS003/SS050 Geology/Hydrogeology

VSFB Site SS003/SS050 is located on the eastern edge of the Burton Mesa, which is a broad, flat platform (approximately 50 square miles) that rises approximately 400 feet (ft) above the Santa Ynez River floodplain. Most of the site is relatively flat, and the southeastern portion gradually dips toward the southeast to Oak Canyon, which ultimately leads to the VSFB Landfill. The Burton Mesa, a paleomarine terrace, is characterized by a relatively thin mantle of unconsolidated Holocene alluvial sediments overlying Miocene Monterey Formation shale bedrock. The top of the Monterey Formation shale has been observed between 35 to 50 ft bgs onsite and appears to dip towards Oak Canyon.

The unconsolidated alluvial materials include fine-grained sands interspersed with discontinuous deposits of clay, silts, clayey sands, and silty sands designated as the Orcutt Formation sand of the Late Pleistocene age (Dibblee and Ehrenspeck 1989). The unconsolidated sediments at this location range in thickness from approximately 40 to 50 ft or greater, and comprise predominantly discontinuous deposits of clay, silt, sand, clayey sand, and silty sand. Two water-bearing zones relevant to this project have been identified:

- Shallow Perched Zone: The Shallow Perched Zone is laterally discontinuous with a 5-foot average thickness of saturated, poorly graded fill sands perched on a clayey/variably cemented sand aquitard (often referred to onsite as the "hardpan"). The top of the Shallow Perched Zone generally occurs at 2 to 5 ft bgs (Arcadis 2016).
- Principal Zone: The Principal Zone consists of a very fine-grained sand and silt overlying deeper greenish/olive gray clay. The top of the Principal Zone generally occurs at 6 to 33 ft bgs in the 9300 Block and Mesa Area (Arcadis 2016). In the vicinity of the wells where Min-Traps were deployed, the depth to the top of the Principal Zone is approximately10 to 15 ft bgs and ranges in total saturated thickness from approximately 5 to 12 ft and averages about 8 to 10 ft thick.

Unconsolidated sediments at SS003/SS050 range in thickness from approximately 40 to 50 ft or greater, and comprise predominantly discontinuous deposits of clay, silt, sand, clayey sand, and silty sand. The depth to the Monterey Shale underlying the unconsolidated sediments is at approximately 45 ft bgs. Three water-bearing zones have been identified in this area: shallow perched zone, principal zone, and deep zone. These hydrostratigraphic zones are generally separated from each other by clays, clayey sands, and hardpan. The shallow perched zone, encountered at approximately 3 to 6 ft bgs, is laterally discontinuous with a 5-ft average thickness of saturated, poorly graded fill sands perched on top of the hardpan. The principal zone is contiguous through the sites and consists of silt with occasional fine-grained sands overlying a continuous greenish/olive gray clay and is encountered at approximately 10 to 15 ft bgs (with a total saturated thickness from approximately 5 to 12 ft). The hydraulic conductivity of the Principal Aquifer is about 0.3 ft per day and the groundwater flow velocity is generally less than 50 ft per year (e.g., Divine et al. 2018).

4.1.2 VSFB Site SS0003/SS050 Contaminant Distribution and Remedial Strategy

TCE is the primary constituent of concern (COC) at both SS003 and SS050, with high concentrations of TCE in some locations (10,000 micrograms per liter [µg/L] to greater than 50,000 µg/L; **Figure 4**). The concentrations of TCE in the principal zone are generally orders of magnitude higher than the concentrations of TCE in the shallow perched groundwater zone. The transport of contaminants to the principal zone has been attributed to vertical migration from the shallow perched zone through discontinuities in the confining layer. Transport of contaminants into the subsurface is interpreted to have occurred via percolation from the wastewater line system and the shallow perched zone into the principal zone. The local groundwater flow direction and proximity of SS003 and SS050 result in hydrogeological connectivity between the two sites, causing a comingled groundwater TCE plume along the southern perimeter of SS003.

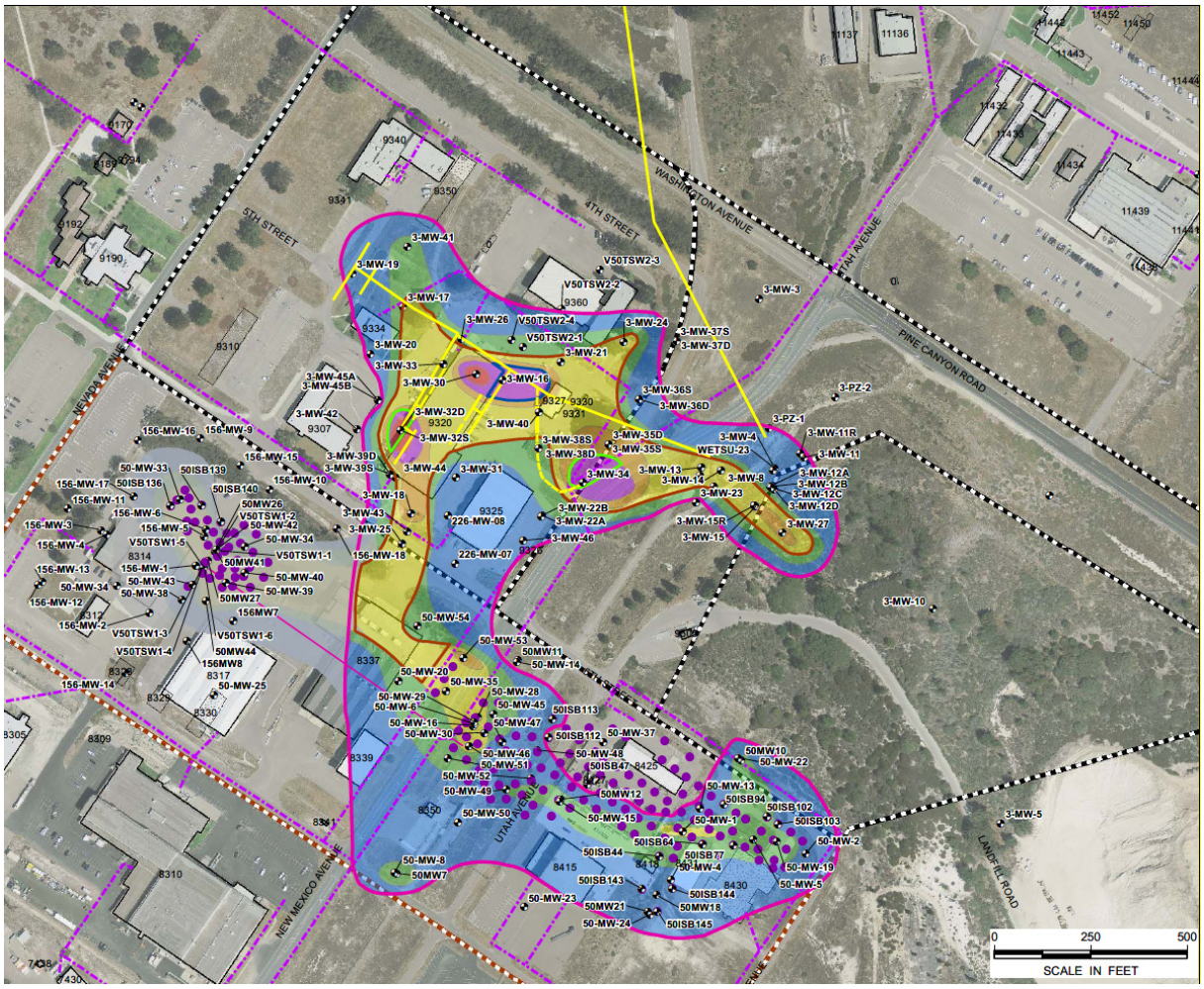

Figure 4. TCE Plume at Site SS003/SS050

Groundwater and related soil remediation have been conducted at select areas of IRP Site SS003/SS050. Remedial measures conducted at these sites have included excavation, sodium persulfate ISCO treatability study, ozone treatability study, and installation of a Horizontal Reactive Media Treatment Well (HRX® Well; ESTCP project ER-201631; Divine et al. 2018). The SS050 selected remedy includes shallow soil excavation, continued in-situ bioremediation (ISB) of groundwater, long-term monitoring (LTM) of groundwater, and land use controls (LUCs) for soil, soil vapor, and groundwater. Site SS003's selected remedy includes soil excavation, ISCR, in-situ soil mixing (ISM), cover to prevent direct contact by restoring pre-excavation site surface conditions, ISB, LTM of groundwater, LUCs for soil, soil vapor, and groundwater, and soil vapor extraction (SVE) as a contingent remedy.

At SS003, 14 DPT injection transects were added across the 9300 Block, Mesa /Canyon Area, and SS050 Area to target areas containing TCE greater than 1,000 µg/L in the Principal Groundwater Zone. In addition, Principal Groundwater Zone ISB DPT injections were performed on a grid pattern across the potential DNAPL source zone area between Buildings 9320 and 9327 and in the easternmost potential DNAPL source zone area located south of the HRX Well on the northwest side of New Mexico Avenue. The following activities were conducted in 2021:

- Injection at 171 DPT injection points in the 9300 Block Area (January 4, 2021 through May 19, 2021);
- Injection at 33 DPT injection points in the Mesa/Canyon Area (December 7, 2020 through March 5, 2021); and
- Injection at 23 DPT injection points in the SS050 Area (February 8, 2021 through March 5, 2021).

At SS050 15 DPT injection transects were added across Areas 1, 2, and 3 to target areas containing total CVOC concentrations of approximately 1,000 µg/L to promote a reducing environment in groundwater at near optimal pH that is conducive to bioremediation. The following activities were conducted in 2020 and 2021:

- Injection at 81 DPT injection points and two injection wells in Area 1 (October 19, 2020 through December 18, 2020);
- Injection at 39 DPT injection points in Area 2 (September 28, 2020 through October 15, 2020 and January 5, 2021 through January 20, 2021); and
- Injection at 49 DPT injection points and one injection well in Area 3 (August 24, 2020 through September 25, 2020).

4.1.3 VSFB Site SS003/SS050 Site Selection Criteria

Specific environmental and logistical conditions at VSFB Site SS003/SS050 made this an ideal testing site, as summarized below.

- Site lithology and contaminant distributions are well-understood and delineated. This site was the location of a previous ESTCP demonstration project (ER-201631; *Demonstration and Validation of the HRX Well for Managing Contaminant Plumes in Complex Geological Environments*).
- The primary COC (TCE) is consistently present at concentrations above 1,000 µg/L throughout the target treatment zone (Principal Zone).
- ISB via ERD was implemented within the 1,000 µg/L TCE Principal Zone groundwater plume: more than 200 direct-push technology (DPT) locations . ERD-related reagents (i.e., amended emulsified vegetable oil: EOS Pro™) were injected with the objective of reducing TCE concentrations thought biologically mediated degradation processes.
- The lithologic materials observed within the Principal Zone consist of silts and silty sands, which should accommodate the injection of ERD-related reagents.
- The groundwater is at a shallow depth and thickness, extending from approximately 10 to 25 ft bgs, allowing for ease in drilling.
- Groundwater chemistry (in particular, ambient iron and sulfate concentrations) appear to be sufficient to drive iron sulfide mineral formation following ERD implementation and the resulting onset of reducing conditions.

- Potential logistical issues associated with ERD remedy implementation, Min-Trap deployment and retrieval, drilling, and performance evaluation are minimized at Site SS003/SS050.
- The location of project field staff is convenient, and the VSFB Remediation Program Manager is supportive of the demonstration; and
- Site SS003/SS050 remedial objectives are consistent with use of the Min-Trap technology (i.e., collection of mineralogical data to evaluate and manage in-situ groundwater remediation programs).

The Site Selection Memorandum (Divine et al. 2019) contains additional detail and summarizes the most relevant and important parameters and site conditions that factored into this site selection; these parameters and associated values are focused on conditions that would ensure a robust evaluation of the Min-Trap technology and assessment of the Performance Objectives.

4.2 VSFB SITE SD015

As noted above, site CG041-017 at Beale Air Force Base was originally identified as the planned second testing site in the Demonstration Plan; however, the second site was subsequently changed to VSFB Site SD0015 due to site schedules and other technical considerations. Therefore, additional site information is provided in the following sections. VSFB Site SD015 encompasses the Advanced Ballistic Re-Entry Systems-B Launch Complex (ABRES-B) and is located approximately 1.5 miles east of the Pacific Ocean and 3,500 ft north of the San Antonio Creek. The SD015 groundwater VOC plume extends downgradient to, and into, San Antonio Creek surface water. SD015 was constructed in 1959 and was used to launch Atlas D and Atlas F missiles from 1960 to 1967. The launch complex included a control center (Building 1823), a water pump station (Building 1830), a maintenance facility building (Building 1824), three abandoned launch pads (Pads 1, 2, and 3), and associated building structures (Buildings 1835, 1825, and 1820). Building 1833 was an experimental missile stage processing facility located outside the boundary of SD015 as defined by Battelle Corporation (1986). Each launch pad was constructed with a concrete-lined deluge channel extending from the pad to a drainage channel (Channels A, B, and C) through which deluge water from the launch pad was discharged.

The nature and extent of COCs and the remedial design overview are briefly described below, and a detailed account of the SD015 background and the selected remedial alternative can be found in the Final Remedial Design/Remedial Action Work Plan (RD/RAWP) (Arcadis 2017). Prior to launches, TCE solvent was used to degrease rocket engines and fueling system components at the launch pads. This chemical substance, at times along with tens to hundreds of thousands of gallons of deluge water, was washed down the drainage channels and discharged to the ground surface. Channel A extends approximately 800 ft northwest from Pad 1, Channel B extends approximately 1,200 ft southeast from Pad 2, and Channel C extends approximately 600 ft south from Pad 3. Channels A and B have been identified in subsequent investigations as the potential source areas of the VOC contamination in groundwater beneath SD015, which extends to the south-southwest and impacts surface water in San Antonio Creek. Occurrence of site COCs is largely controlled by site geology and hydrogeology, which is described in more detail in the following section.

4.2.1 VSFB Site SD015 Geology/Hydrogeology

The ambient groundwater gradient direction at SD015 is generally to the southwest toward San Antonio Creek. In general, the gradient is steeper at the source areas located at the northeastern portion of the site. The calculated gradient is approximately an order of magnitude greater between the source area (near well 15-MW-41) and the mid-plume area, as compared to the distal plume area, under ambient conditions (**Figure 5**).

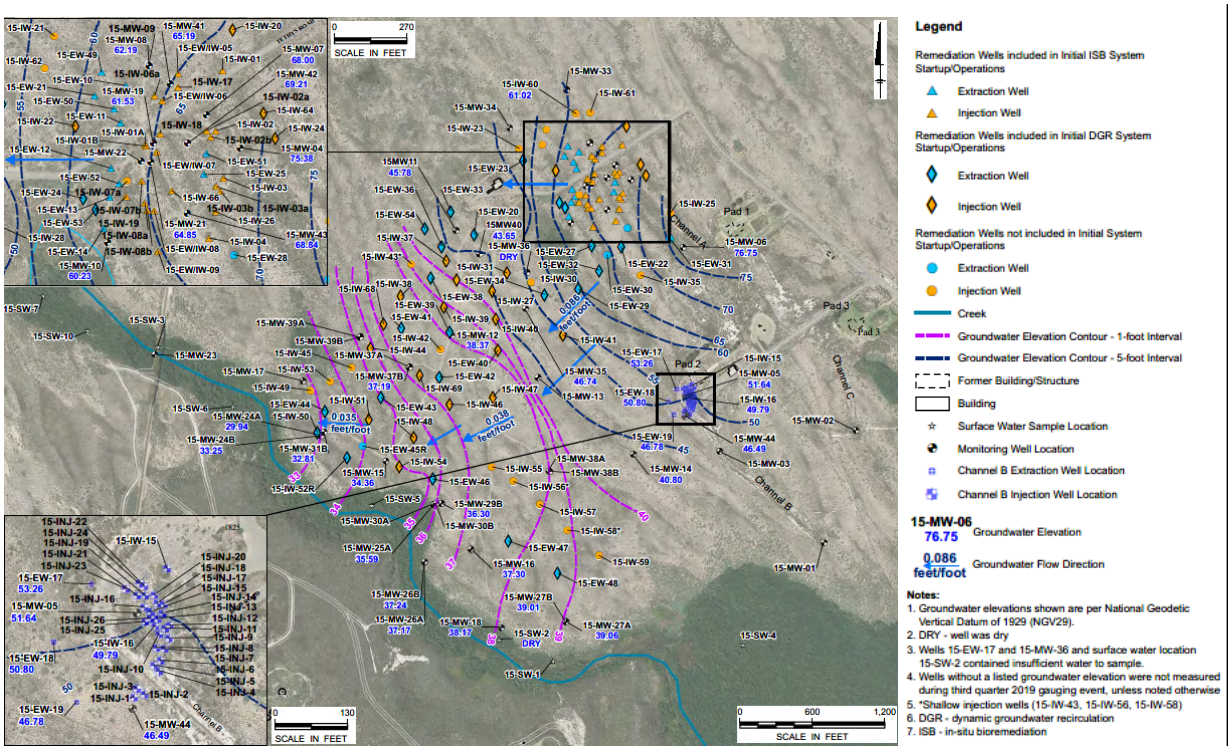

Figure 5. VSFB Site SD015 Groundwater Elevation Contours and Flow Direction

The lithology of the aquifer at the site is well-defined with a high degree of lithologic variation in bedrock surface, aquifer lithology, and saturated thickness across the site. Site lithology can be grouped into three distinct areas based on depositional environment and observed lithology:

- Source area: Consists of heterogeneous alluvial sediments (i.e., sands and silty sands with localized silts and clays) underlain by bedrock and overlain by relatively thin dune deposits.
- Mid-plume: Consists of a transition between alluvium and dune deposits, underlain to the northeast by bedrock, and underlain by basal clay to the west and southwest; and
- Distal plume: consists primarily of thick, more homogeneous dune sand deposits underlain by basal clays. The alluvial sediments are not present in the distal-plume area.

Bedrock elevation and saturated thickness is variable in the source area and mid-plume area due to the presence of the irregular bedrock surface; in the distal-plume area, the aquifer is primarily underlain by a flatter basal clay, which results in a more regular surface and less lateral variability in saturated thickness. A geologic cross-section is provided in **Figure 6**.

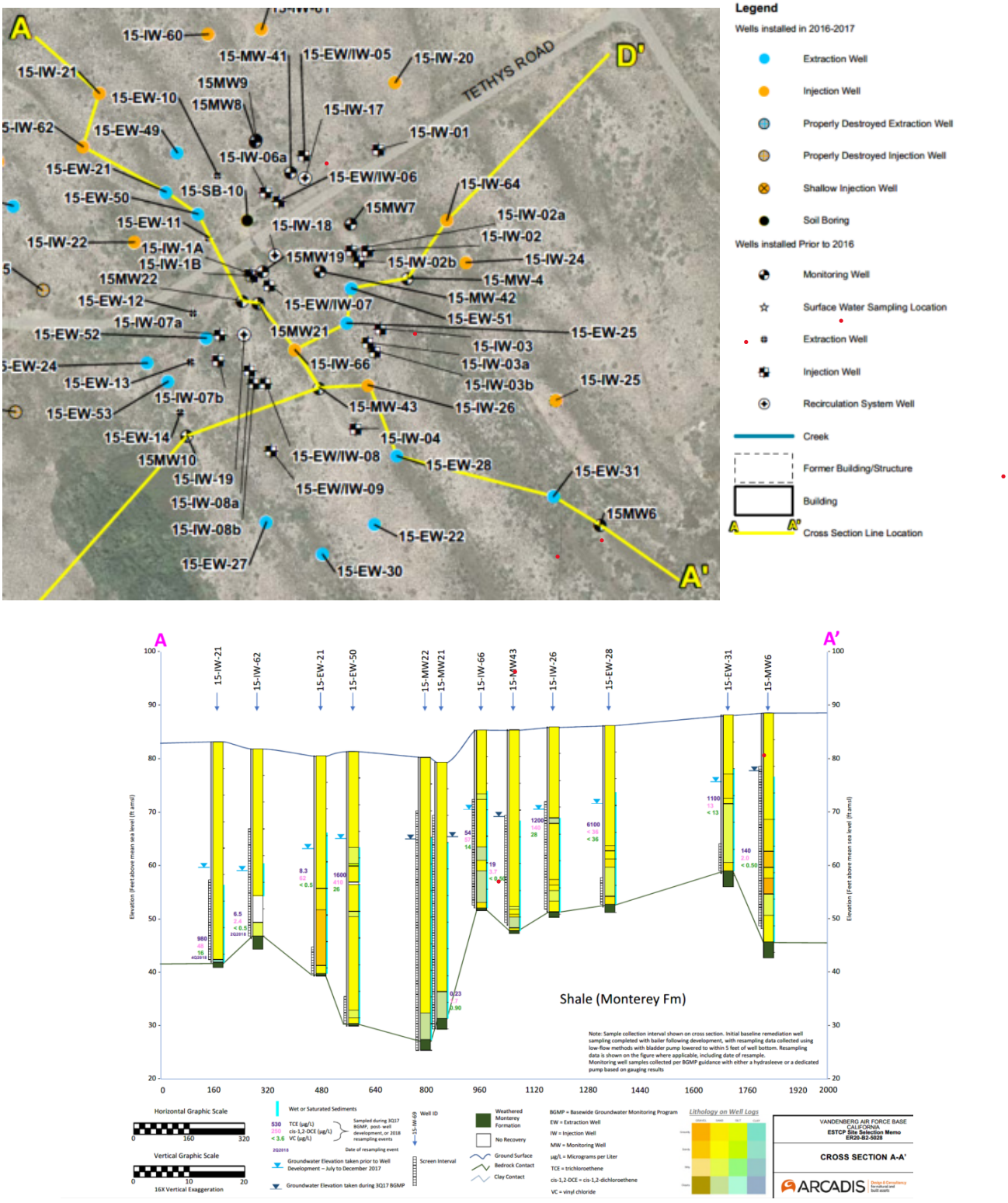

Figure 6. Cross-section Location Map and the Cross-section A-A'

Aquifer hydrogeology, well hydraulics, and calculated specific capacity values correlate strongly to observed lithology from the three distinct areas of the site. Wells in the source area had low values of specific capacity, attributed primarily to relatively low permeability in this area. Specific capacity values in the mid-plume area positively correlate to saturated thickness at a given location, with low saturated thickness results generally consistent with the observation of a laterally extensive bedrock high in this part of the site. Distal plume wells had higher than expected specific capacity values and are anticipated to have relatively high well yields.

A large laterally extensive bedrock is present in the central part of the site. This area is generally defined as the area immediately surrounding the wetland and areas immediately to the west and southwest. The bedrock high results in a thinning of the aquifer in the mid-plume area, including the complete disappearance of the saturated zone in a portion of the central part of the site.

4.2.2 VSFB Site SD015 Contaminant Distribution and Remedial Strategy

Primary COCs for the site include TCE and degradation products of TCE, including cis-1,2-DCE, and vinyl chloride. The plume is large, has developed from multiple source areas, and ultimately flows toward San Antonio Creek. Groundwater levels and COC concentrations at 15-MW-41 have fluctuated significantly over time, as shown in **Figure 7**. These trends in both parent and daughter products indicate ISB processes have been treating contaminants, but that significant residual source mass is likely still present in this area, and that the performance of the ISB remedy has been challenged by geologic heterogeneity and hydraulic variability. Nevertheless, these data and other available geochemical data indicate the sulfate-reducing conditions have been present in this area for many years and that iron sulfide reactive minerals that could be measured by Min-Traps are likely actively forming.

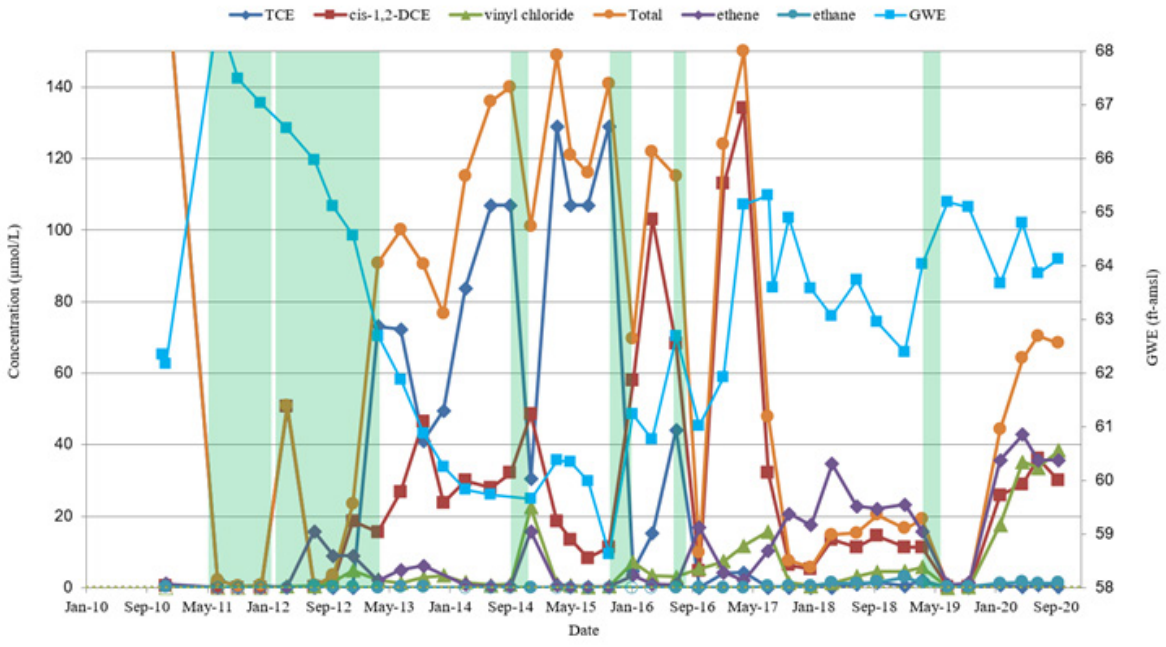

Figure 7. CVOC Concentrations at Well 15-MW-41

4.2.3 VSFB Site SD015 Site Selection Criteria

The following specific environmental and logistical conditions at Site SD015 made this site an ideal secondary testing site:

- Site lithology and contaminant distributions are adequately understood and delineated.
- Total CVOC concentrations are greater than 500 µg/L throughout most of the target treatment alluvial aquifer system.
- ISB via ERD and ISCR via the injection of a soluble carbon solution near highest concentration area has been implemented for more than a decade. Geochemical data indicate the treatment zone has been sulfate-reducing for many years and the high concentrations of cis-1,2-DCE and other daughter products confirm microbially-mediated reductive dechlorination processes are established. Therefore, it is understood that the remediation process is more mature at this site compared to Site SS003/SS0050.
- The lithologic materials observed within the alluvial aquifer system consist of sand with discontinuous layers of clay and silt and has accommodated the injection of ISB-related reagents.
- The target treatment zone is about 20 to 30 ft thick at a relatively shallow depth and thickness, extending from approximately 25 to 40 ft bgs.
- Groundwater chemistry (in particular, iron and sulfate concentrations) appear to be sufficient to drive iron sulfide mineral formation
- The location of project field staff is convenient, and the VSFB Remediation Program Manager is supportive of the demonstration.
- Site SD015 remedial objectives are consistent with use of the Min-Trap technology (i.e., collection of mineralogical data to evaluate and manage in-situ groundwater remediation programs). Additionally, this is the demonstration site for ESTCP Project ER20-5028 (*Thermal In-Situ Sustainable Remediation to Accelerate Remediation Timeframes*) and data from Min-Traps will support both projects.

5.0 FIELD DEMONSTRATION DESIGN

This section provides a detailed description of the Min-Trap field demonstration activities conducted to address the performance objectives described in Section 3.

5.1 BASELINE CHARACTERIZATION ACTIVITIES

The following baseline characterization activities were completed at all or a subset of the monitoring wells at which Min-Traps were tested prior to deployment:

- Geochemical indicator parameters, including nitrate, total and dissolved iron and manganese, sulfate, hydrogen sulfide, dissolved methane, and TOC.
- Field parameters, including dissolved oxygen, oxidation-reduction potential, pH, specific conductance, temperature, and turbidity.
- Dissolved-phase CVOC concentrations.
- Downhole magnetic susceptibility as a proxy measurement for further understanding the availability of potentially reduceable iron in the aquifer at two of the monitoring wells at Site SS003/SS050.
- Groundwater flux using single-well tracer tests.

All laboratory data, including data obtained during baseline characterization activities are summarized below and included in **Appendix B**. These results were compared to samples collected during Min-Trap deployment and/or retrieval to evaluate the achievement of geochemical conditions conducive to the formation of reactive iron minerals and CVOC degradation (see Section 6).

5.1.1 Geochemical Parameters and CVOC Concentrations

As part of the baseline characterization activities completed in 2020, groundwater was collected from VSFB Site SS003/SS0050 wells 3-MW-14, 3-MW-15, 3-MW-18, 3-MW-33, 3-MW-39D, 3-MW-40, 3-MW-55, and 3-MW-57, and VSFB Site SD015 wells 15-MW-08 and 15-MW-41 for analyses of dissolved-phase concentrations, geochemical indicator parameters, and field parameters. Baseline data indicate that the main COC in Site SS003/SS050 is TCE, with concentrations ranging between 310 µg/L to 16,000 µg/L at the sampled wells. Baseline geochemical indicator and field parameter data reveal oxidizing to mildly reducing conditions in Site SS003/SS050 groundwater, which are consistent with expectations because carbon substrates have not been historically introduced in site groundwater and the site is considered an “immature” ISB site.

Conversely, baseline data indicate that the main COCs in Site SD015 are TCE and cis-1,2-DCE, with maximum concentrations of up to 7,200 µg/L and 4,200 µg/L, respectively, in the vicinity of the testing areas, with TCE and cis-1,2-DCE measured at <20 µg/L and 1,300 µg/L at 15-MW-41. Baseline geochemical indicator and field parameter data reveal reducing to strongly reducing conditions in Site SD015 groundwater, verifying the success of over 10 years of remedial operations including routine carbon substrate injections. Site SD015 is considered a “mature” ISB site.

5.1.2 Magnetic Susceptibility

In most systems, a strong near-linear correlation can be observed between iron-based magnetic materials in an aquifer and magnetic susceptibility (see Weidemeier et al. 2017). Usually, magnetic susceptibility of soils and sediment is dominated by magnetite in aerobic conditions (Dearing 1999; He et al. 2009). Although important reactive iron sulfide minerals, such as mackinawite and pyrite, exhibit low magnetic susceptibility, greigite (Fe_3S_4), will exhibit limited magnetic susceptibility (Dekkers et al. 2000; Roberts 2015). Therefore, in aerobic aquifers prior to implementation of ISB, magnetic susceptibility will most likely represent magnetite and can be potentially used as a measure of available iron.

As part of the baseline characterization activity, magnetic susceptibility was measured at seven wells at VSFB Site SS003/SS050: 3-MW-14, 3-MW-15, 3-MW-18, 3-MW-33, 3-MW-40, 3-MW-35D, and 3-MW-55. Magnetic susceptibility was measured using a down hole W&R Instruments HM-453S Magnetic Susceptibility Probe (W&R-instruments, Brno, Czech Republic; http://www.wr-instruments.com/index.php). The probe generates an alternating magnetic field that is sensed with a nearby receiver coil and oscillator circuit. Magnetic material located within the field will proportionally reduce the natural resonant frequency of the oscillator circuit which is recorded by a data logger system. The optimal reading range for this instrument is about 20 centimeters from the sonde.

Immediately prior to use at each monitoring well, the sonde was recalibrated against air (null magnetic susceptibility) and then against a standard that was equivalent to a magnetic susceptibility of 2.94×10^{6} cubic meters per kilogram (m^3/kg). Because magnetic susceptibility is temperature sensitive, the sonde is allowed to equilibrate with the groundwater for at least 15 minutes prior to calibration and subsequent use. At each monitoring well, the magnetic susceptibility profile was measured across the entire well profile twice: one pass moving the probe upward and one pass moving it downward. Generally, the measured values exhibited high repeatability, replicating vertical changes in magnetic susceptibility with very high accuracy. Therefore, the reported volumetric magnetic susceptibility values were converted to mass magnetic susceptibility by dividing by an assumed bulk density for aquifer material (1.7 grams per cubic centimeter).

The measured magnetic susceptibility values ranged from approximately 2.4×10^{-7} to 2.7×10^{-6} m^3/kg and the well-specific profiles are presented in **Figure 8**. These values are consistent with field measurements published by Weidemeier et al. (2017) and Edwards and Wilson (2019) for similar aquifer characteristics and confirm the presence of adequate natural iron that could be covered to reduced iron sulfides during ISB.

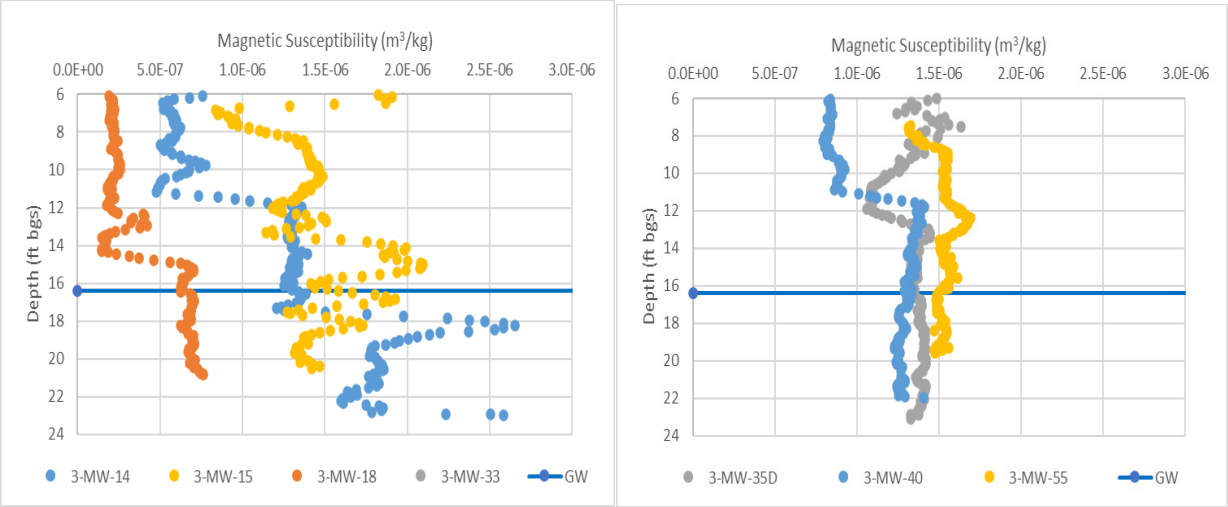

Figure 8. Measured Magnetic Susceptibility

(the approximate water table elevation indicated by the blue horizontal line)

5.1.3 Groundwater Flux

Groundwater flux (Darcy velocity) was measured at six monitoring wells at site VSFB Site SS003/SS050 using single-well tracer tests methods. Briefly, this technique involves the addition of a small volume of tracer water to a monitoring well and measuring the rate of tracer elution over time. This elution rate can be analyzed using simple analytical models to estimate local groundwater flux. Further details on the field methods and analysis tools are described in the Demonstration Plan. The results of these test are summarized in **Table 3**. Overall, these results are consistent with expectations and confirm adequate groundwater flow for using Min-Trap samplers. The wells selected for Min-Trap deployment and incubation should be hydraulically and geochemically representative of the aquifer; monitoring wells with analytical results that have historically deviated from what is expected based on locations and/or geochemical conditions (i.e., outlier) should be avoided, if possible, for Min-Trap deployment.

Table 3. Summary for Groundwater Flux Measured by Single-Well Tracer Testing

Well ID	Mid-Point Darcy Flux
	ft/day
3-MW-13*	0.06
3-MW-15	0.29
3-MW-18	0.05
3-MW-33	0.13
3-MW-35D*	0.04
3-MW-48*	0.09

*Previously measured during project ESTCP ER201631

5.2 MIN-TRAP DEPLOYMENT, RETRIEVAL, AND ANALYSIS

In November and December 2020, Min-Traps were deployed in eight monitoring wells at Site SS003/SS050: wells 3-MW-14, 3-MW-15, 3-MW-18, 3-MW-33, 3-MW-40, 3-MW-55, 3-MW-57, and 3-MW-39D (**Figure 9**). Two Min-Traps were deployed in series at well 3-MW-14 and 3-MW-55, whereas a single Min-Trap was deployed at each of the six remaining wells. Based on site data and deployment time calculations, the retrieval of Min-Traps for sample collection occurred at approximately 2, 4, and 9 months following carbon substrate injection. In May 2021, Min-Traps were also deployed in two monitoring wells at Site SD015: wells 15-MW-08, and 15-MW-41 (**Figure 9**).

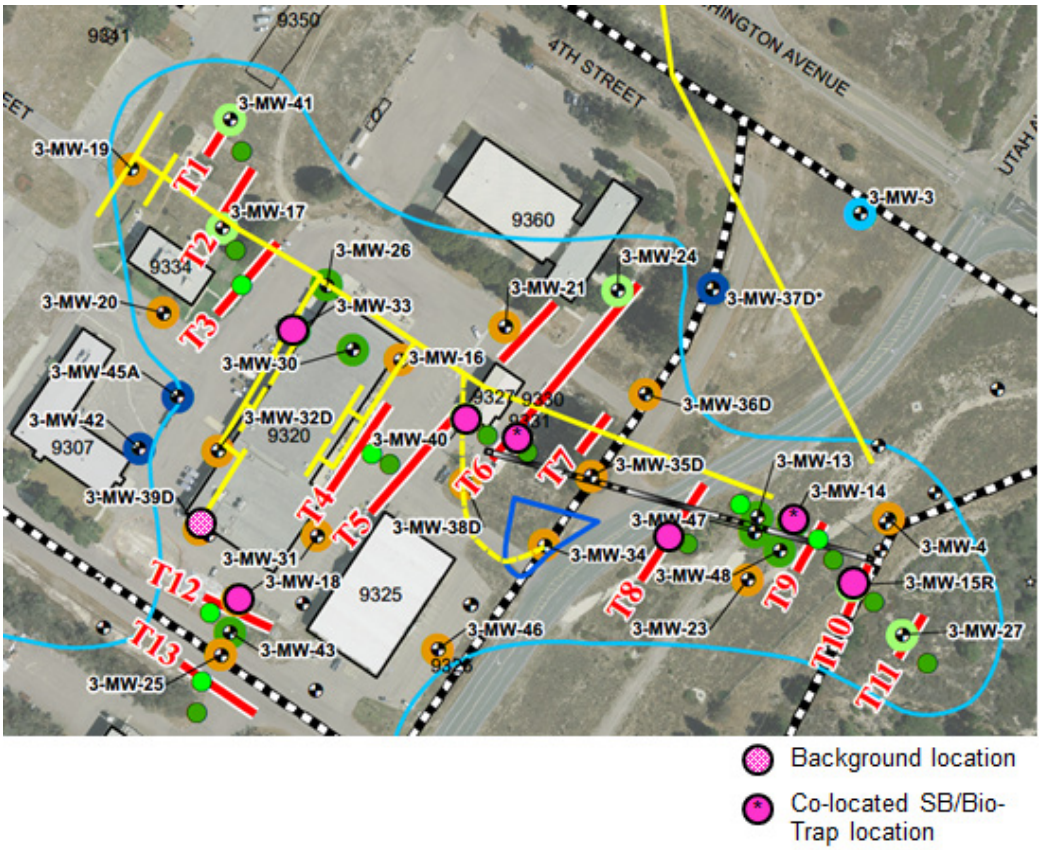

Figure 9. Locations of Min-Traps

Upon retrieval, Min-Traps were visually inspected and photo logged (**Appendix C**). Based on the observations and in accordance with the sampling plan, Min-Trap samples were preserved and submitted to laboratories for analysis. Min-Trap samples were submitted for a variety of analyses, including of total iron (USEPA methods 3050B and 6020), Aqueous and Mineral Intrinsic Bioremediation Assessment (AMIBA; Kennedy et al. 2004), and Scanning Electron Microscopy-Energy Dispersive X-Ray Spectroscopy (SEM-EDS). The AMIBA suite of analyses includes: Acid Volatile Sulfide (AVS) to indicate the amount of sulfide present as iron monosulfides like mackinawite (FeS), Chromium Extractable Sulfide (CrES) for the amount of sulfide present as iron disulfides like pyrite (FeS_2) and as elemental sulfur, Weak Acid Soluble (WAS) iron in poorly-crystalline phases, and Strong Acid Soluble (SAS) iron in crystalline phases.

Some samples were also be submitted to Dr. David Freedman's laboratory at Clemson University for evaluation of abiotic degradation rates via the previously developed ^{14}C assay technique using ^{14}C-labeled contaminants (Mills et al. 2018). The presence of dissolved acetylene in site groundwater and/or acetylene hydratase (AHY) gene target in Min-Trap matrix were also evaluated in some samples. In addition, Min-Trap samples from wells 3-MW-14 and 3-MW-55 were submitted for targeted microbial community characterization. For comparison, a single Bio-Trap was also deployed at these two locations in vertical series with the two Min-Traps. Co-located Min-Trap and Bio-Trap samples were collected 4 months following carbon substrate delivery. The co-located Min-Trap and Bio-Trap samples were preserved and submitted to Microbial Insights for molecular-based analysis via the QuantArray-Microbially Influenced Corrosion (MIC) assay.

Contemporaneous groundwater data collected from monitoring wells were used to assess geochemical conditions at specific Min-Trap testing locations. The geochemical indicator parameters included: nitrate, total and dissolved iron and manganese, sulfate, total sulfides, dissolved methane and acetylene, and TOC, as well as field parameters (i.e., dissolved oxygen, oxidation-reduction potential, pH, specific conductance, temperature, and turbidity).

Min-Trap results were also compared with aquifer soil data to evaluate the relationship between the types and quantities of minerals that form within the Min-Trap and those that form in the aquifer matrix. Specifically, site soil core samples were collected adjacent to two of the Min-Trap-containing wells at Site SS003/SS050 (3-MW-14 and 3-MW-55) contemporaneous with the 4-month post carbon substrate injection Min-Trap retrieval event and as close as possible to the Min-Trap containing well. Soil boring logs and photos are included in **Appendix D**. Two soil samples from each soil core were preserved and submitted for laboratories for total iron, AMIBA, SEM-EDS, and the ^{14}C assay.

Additionally, Min-Trap matrix and the Min-Trap PVC casing retrieved from well 3-MW-14 in October 2021 (9 months following carbon substrate delivery) were subjected to XRD analysis. The SEM-EDS data for the Min-Trap matrix indicate that the sample was mostly composed of silicon and oxygen, and the XRD results confirm that quartz is the dominant mineral. This result is expected as the Min-Trap media currently employed is Ottawa (silica) sand and the significant amounts of silica in the Min-Trap matrix would have drowned less significant XRD peaks. However, The SEM-EDS results from the Min-Trap PVC casing (housing) indicate that the sample was mostly composed of carbon, oxygen, sulfur, chlorine, and iron, and that the XRD results indicate the dominant minerals present were iron sulfides (interpreted as greigite) and calcium carbonate.

A summary of the number and type of samples collected for the project is provided in **Table 4**. The analytical methods are summarized in **Table 5**.

Table 4. Total Number and Types of Samples Collected

Component	Matrix	Number of Samples	Analysis	Site	
				SS003/SS050	SD015
Baseline sampling (if needed)	GW[a]	10	CVOCs Geochemical indicator parameters[b] Field parameters[c]	3-MW-14 3-MW-15 3-MW-18 3-MW-33 3-MW-39D 3-MW-40 3-MW-55 3-MW-57	15-MW-08 15-MW-41
	MT	2	Total iron AMIBA SEM-EDS	NA	15-MW-08 15-MW-41
		1	Abiotic degradation rate	NA	15-MW-41
	Soil	NA	Magnetic susceptibility (downhole probe)	3-MW-14 3-MW-15 3-MW-18 3-MW-33 3-MW-40 3-MW-35D 3-MW-55	NA
Min-Trap performance sampling	GW[a]	16	CVOCs Geochemical indicator parameters[b] Field parameters[c]	3-MW-14 3-MW-15 3-MW-18 3-MW-33 3-MW-39D 3-MW-40 3-MW-55 3-MW-57	
	MT	14	Total iron AMIBA	2-, 4-, and 9-month events: 3-MW-14 3-MW-39D 3-MW-55 3-MW-57 4-month event: 3-MW-15 3-MW-33	NA
		7	SEM-EDS	2-, 4-, and 9-month events: 3-MW-14 3-MW-55 9-month event: 3-MW-57	NA

Table 4. Total Number and Types of Samples Collected (Continued)

Component	Matrix	Number of Samples	Analysis	Site	
				SS003/SS050	SD015
Min-Trap performance sampling (cont.)		2	Microbial characterization	4-month event: 3-MW-14 3-MW-55	NA
		3	Abiotic degradation rate	3-MW-14 3-MW-55 9-month event: 3-MW-14	NA
		2	XRD (Min-Trap matrix and PVC casing)	9-month event: 3-MW-14	NA
	BT	2	Microbial characterization	4-month event: 3-MW-14 3-MW-55	NA
	Soil	3 (1-2 samples per core)	Total iron AMIBA SEM-EDS	4-month event: 3-MW-14 3-MW-55	NA
		1	Abiotic degradation rate	3-MW-14 (well sediment/precipitate)	NA

[a] GW = groundwater

[b] Geochemical indicator parameters: nitrate, total and dissolved iron and manganese, sulfate, total sulfides, dissolved methane and acetylene, and TOC.

[c] Field parameters: dissolved oxygen, oxidation-reduction potential, pH, specific conductance, temperature, and turbidity.

BT = Bio-Trap

MT = Min-Trap

MW = monitoring well

NA = not applicable

TBD = to be determined based on Min-Trap sample results

Table 5. Analytical Methods

Matrix	Analysis	Method
Groundwater	CVOCs	USEPA 8260
	Nitrate	USEPA 300.0
	Total iron, manganese	USEPA 3010A/6010C
	Dissolved iron, manganese	USEPA 3010A/6010C
	Sulfate	USEPA 300.0
	Total sulfides	SM4500-S2-D
	Dissolved methane and acetylene	RSK 175
	TOC	SM5310-B
	Field parameters[a]	Field meter
Min-Trap	Total iron	USEPA 3050B/6010C
	AVS CrES WAS iron SAS iron	AMIBA
	SEM-EDS	Scan and search
	Microbial characterization	QuantArray-MIC and CENSUS qPCR (for AHY)
	Abiotic degradation rate	Mills et al. 2018
	XRD (Min-Trap matrix and PVC casing)	Ni-filtered Cu Kα radiation in Bragg-Brentano geometry
Bio-Trap	Microbial characterization	QuantArray-MIC and CENSUS qPCR (for AHY)
Soil	Total iron	USEPA 3050B/6010C
	AVS CrES WAS iron SAS iron	AMIBA
	SEM-EDS	Scan and search
	Abiotic degradation rate	Mills et al. 2018
	Magnetic susceptibility	Downhole probe

[a] Field parameters: dissolved oxygen, oxidation-reduction potential, pH, specific conductance, temperature, and turbidity.

6.0 PERFORMANCE ASSESSMENT

Assessment of the specific quantitative and qualitative performance objectives presented in Table 2 are discussed in detail in the following sections.

6.1 QUANTITATIVE PERFORMANCE OBJECTIVE #1: VERIFY DESIGN RESULTS IN REPRESENTATIVE FLOW RATES THROUGH THE MIN-TRAP

To evaluate the Min-Trap design hydraulic effectiveness and improve understanding of the flow dynamics through Min-Trap, a groundwater flow model was developed based on the current Min-Trap design that used the vertical strip of parallel pockets of sand configured in 360 degrees to fit within a cylindrical outer protective casing while maintaining hollow center. The model was constructed using the USGS MODFLOW code (McDonald and Harbaugh 1988) to conceptually simulate the groundwater flow regime around and through the Min-Trap well based on conceptual design. Details regarding the groundwater flow model development and model scenarios are presented in the *Evaluation of Min-Trap Design Effectiveness Using Groundwater Flow Model* technical memorandum included in Divine et al. (2020b). The model was applied to evaluate the hydraulic effectiveness of Min-Trap well with respect to the potential groundwater flux bypass. Two flux transects were established perpendicular to the groundwater flow direction: Flux Transect 1 simulates the total groundwater flux across the diameter of the Min-Trap well, and Flux Transect 2 simulated groundwater flux through the Min-Trap media enclosed by the inner casing. The difference between two flux transects (Flux Transect 2 subtracted from Flux Transect 1) represents the amount of flux that is bypassing the Min-Trap media, and can be expressed as a bypass flow ratio; B_q. Flow enhancement (E_q) through the Min-Trap is defined as:

$$E_q = \frac{Length\ Transect\ 1 - Length\ of\ Transect\ 2}{Lenght\ Transect\ 1} {B_q}^{-1}$$

The E_q value is a measure of the groundwater flux through the Min-Trap relative to an equivalent volume of undisturbed aquifer material (values less than one indicate less water flow through the Min-Trap, while values greater than one indicate more water flows through the Min-Trap). **Table 6** presents the simulated percentage bypass of groundwater flux for the three model scenario. Scenario 2 indicates the highest flow bypass ($\boldsymbol{B_q}$) of 44% with screen slot size of 0.01-inch for both inner casing and outer casing. This bypass flow translates to a flow enhancement value ($\boldsymbol{E_q}$) of 108%, which suggest negligibly higher flux flows through the Min-Trap compared to an equivalent width of aquifer material. Overall, this indicates that the current Min-Trap design does not result in hydraulic effects that reduce or enhance groundwater flux passing through the Min-Trap. Scenarios 3 and 4 suggest that larger slot size screen (0.125-inch) for both inner casing and outer casing and the addition of baffles would enhance groundwater flow through Min-Trap media to the degree that flux through the Min-Trap could be 53 to 106% greater than groundwater flux through an equivalent aquifer width.

Table 6. Groundwater Flux Results of Modeling Scenarios

Scenarios	Groundwater Flux Through Well (in^3/day)	Groundwater Flux Passing by (in^3/day)	B_q (%)	E_q (%)
Scenario 2 (Current Design)	4.42	1.93	44%	108%
Scenario 3 (Larger Slot Size)	4.45	1.36	31%	153%
Scenario 4 (Baffles)	4.47	1.01	23%	206%

Overall, the groundwater modeling results indicates that the hydraulics of the current Min-Trap prototype is approximately representative of flux through an equivalent width of the aquifer. Based on these results, no significant design changes to current prototype design are recommended. *Hydraulic modeling verifies that the success criterion for this performance objective has been achieved.*

6.2 QUANTITATIVE PERFORMANCE OBJECTIVE #2: COMPARE MIN-TRAP RESULTS TO EXPECTED RESULTS FOR CORRESPONDING GEOCHEMICAL CONDITIONS AND EVALUATE ROBUSTNESS OF THE CORRELATION

Min-Trap mineralogical analyses results were evaluated against expected results for the geochemical conditions corresponding to the locations at which the Min-Traps had been deployed and incubated. Visual, chemical (AMIBA), and SEM-EDS data from laboratory tank testing and field demonstration at VSFB Sites SS003/SS050 and SD015 confirmed the presence of reduced iron minerals in Min-Traps at wells within treatment zones where highly reducing conditions were present. For example, geochemical indicator and field parameter data indicate that conditions in Site SS003/SS050 groundwater shifted from oxidizing/mildly reducing to reducing/strongly reducing as a result of the carbon substrate injection activities performed in January 2021 (**Figures 10 and 11**). The shift in redox poise of Site SS003/SS050 groundwater allowed for iron and sulfate reduction (as evidenced by increased dissolved iron and decreased sulfate concentrations immediately following carbon substrate injection), promoting the formation of reactive iron sulfide minerals within the aquifer. The reactive iron sulfide minerals deposited onto the inert matrix of the Min-Traps that had been deployed and incubated in wells within the radius of influence of the carbon substrate injections, such as wells 3-MW-14 and 3-MW-55. The deposition of reactive iron sulfide minerals within the Min-Traps resulted in black-tinted Min-Trap matrix (**Figure 12**). Total iron, AMIBA, and SEM-EDS analyses confirmed the presence of iron sulfide minerals within the Min-Traps deployed in wells 3-MW-14 and 3-MW-55 during 2-, 4-, and 9-month incubation periods (**Figures 13 and 14)**. Similar results were obtained for the Min-Traps deployed in Site SS003/SS050 well 3-MW-57, which was also positively influenced by the carbon substrate injection activities (as evidenced by groundwater geochemical indicator and field parameter data), after 4- and 9-month incubation periods following carbon substrate injections.

On the contrary, groundwater sampled from Site SS003/SS050 well 3-MW-39D, which was selected as a background well because its location was outside of the radius of influence of the carbon substrate injection activities, did not show a shift in redox poise and/or geochemical conditions throughout the field demonstration. The Min-Trap deployed and incubated in well 3-MW-39D did not appear to contain black-tinted matrix after 2, 4, or 9 months of in-well incubation (**Figure 12**). In addition, AMIBA data from the 3-MW-39D Min-Trap sampled after 4 months of incubation did not suggest presence of reactive iron sulfide minerals. Similar results were obtained for the Min-Traps deployed in Site SS003/SS050 wells 3-MW-15, 3-MW-18, 3-MW-33, and 3-MW-40. Although some of these wells were located within the targeted radius of influence of carbon substrate injections, groundwater geochemical indicator and field parameter data did not evidence influence of injection (i.e., no significant shift in groundwater redox poise of geochemical conditions).

Details regarding the laboratory tank test are presented in the *Laboratory Validation of Min-Trap Performance: Tank Evaluation Report* included as (Divine et al. 2020a,b and Ulrich et al. 2021a).

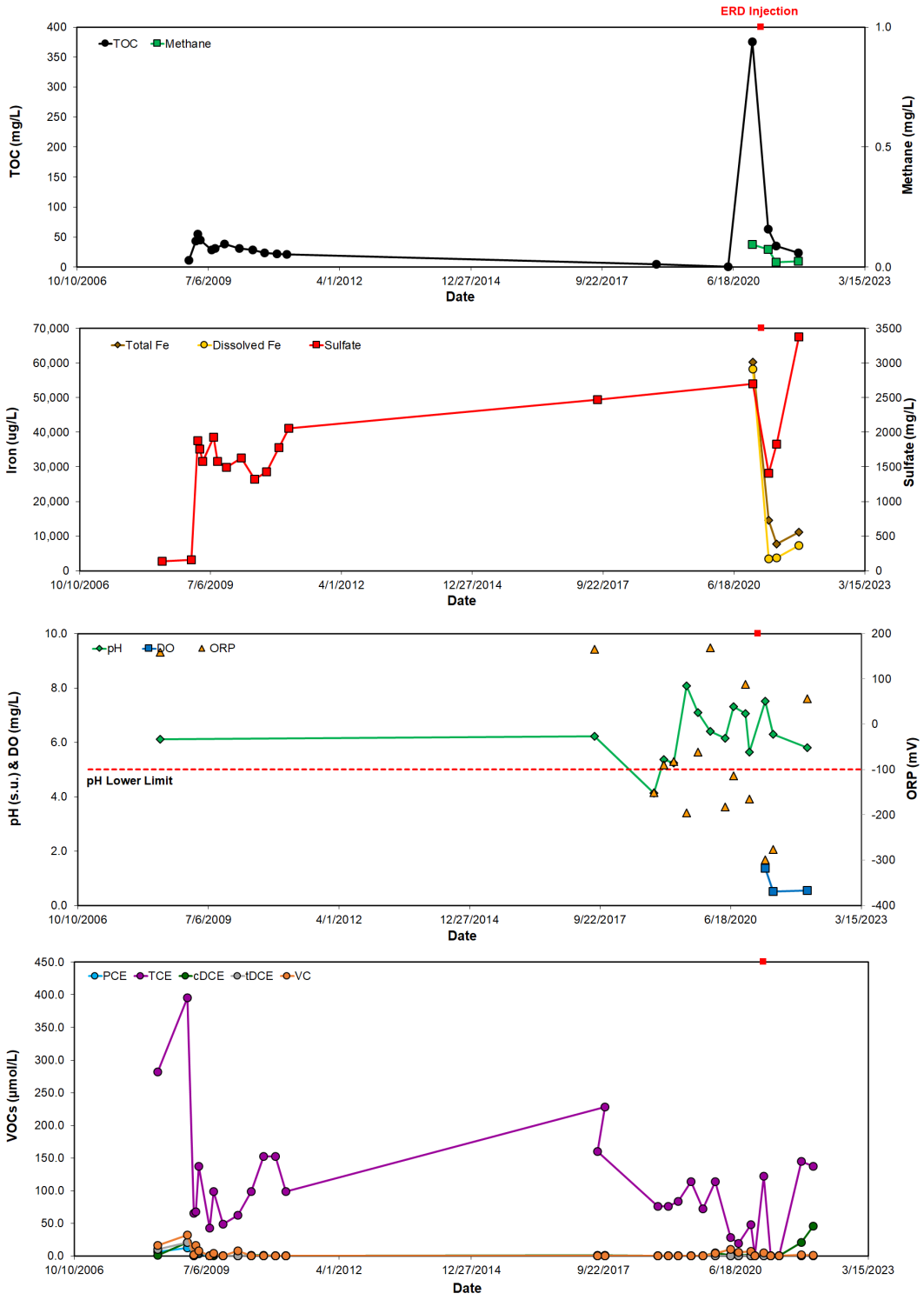

Figure 10. At-a-glance Chart Showing TOC, Dissolved Methane, Total and Dissolved Iron, Sulfate in mg/L, and VOC Concentrations in Micromoles per Liter (µmol/L), as well as Selected Field Parameters (pH, Dissolved Oxygen [DO], and Oxidation Reduction Potential [ORP]) in Groundwater through Time at VSFB Site SS003/SS050 Well 3-MW-14

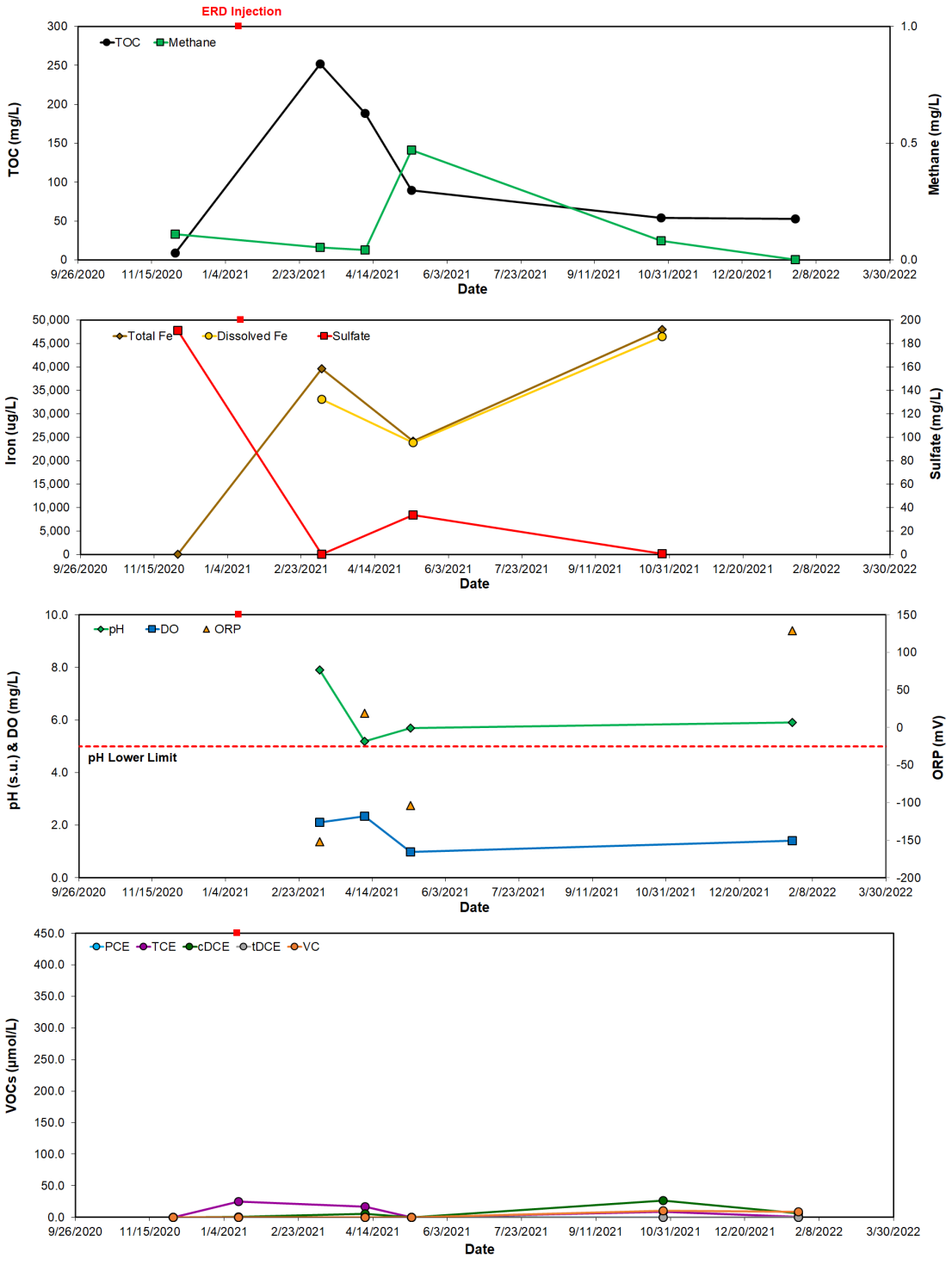

Figure 11. At-a-glance Chart Showing TOC, Dissolved Methane, Total and Dissolved Iron, Sulfate in mg/L, and VOC Concentrations in µmol/L, as well as Selected Field Parameters (pH, Dissolved Oxygen [DO], and Oxidation Reduction Potential [ORP]) in Groundwater through Time at VSFB Site SS003/SS050 Well 3-MW-55

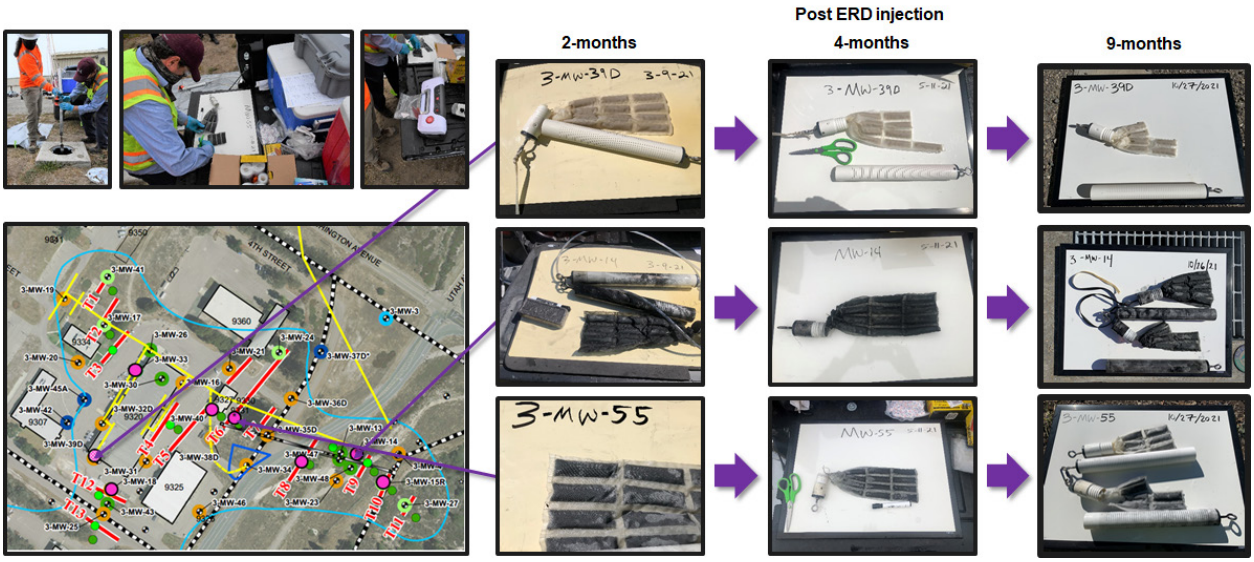

Figure 12. Photographs of Min-Traps Recovered at VSFB Site 003 at 2-, 4-, and 9-month Incubation Times.

Well 3-MW-39D (top row) is background, located outside of the radius of influence of the carbon injections

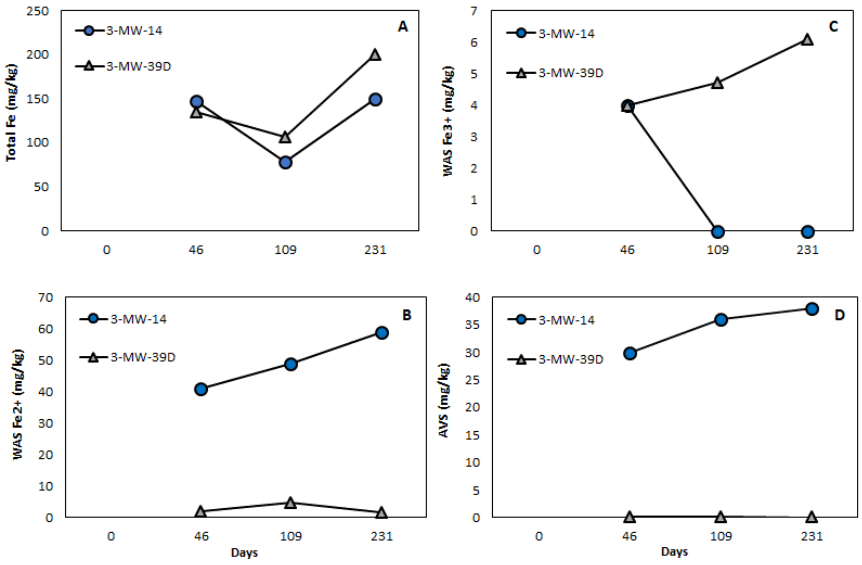

Figure 13. Total Iron (A), WAS-Fe^{2+} (B), WAS-Fe^{3+} (C), and AVS Measurements for Min-Traps Retrieved from Wells 3-MW-14 and 3-MW-39D (Background) throughout the 9-Month Incubation.

All measurements are in milligrams per kilogram (mg/kg)

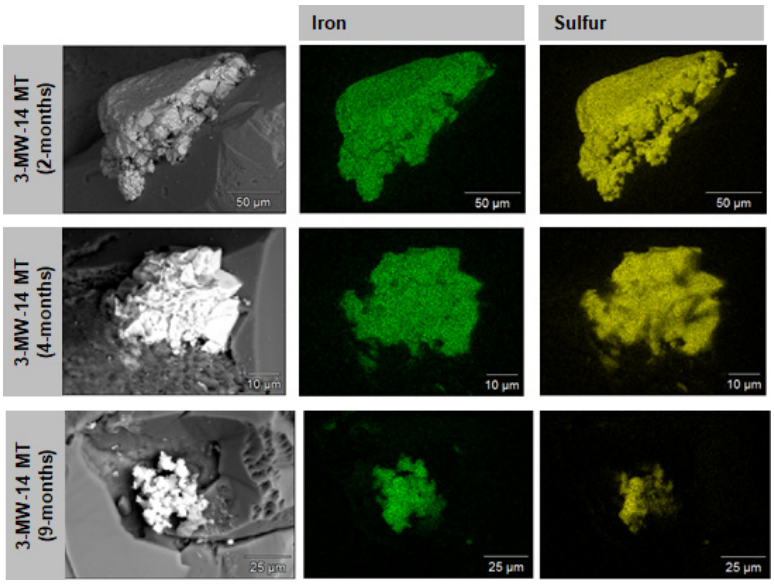

Figure 14. SEM-EDS Results (MVA Scientific Consultants) from Min-Trap Samples Collected at Site SS003/SS050 well 3-MW-14 after 2 Months (Top Row), 4 Months (Middle Row), and 9 Months (Bottom Row) Incubation Periods

The backscatter images (left column) highlight the size and morphology of specific iron-rich minerals and the elemental maps show strong spatial correlation of iron (green; middle column) and sulfur (yellow; right column) strongly indicating that these are iron sulfide species.

Even though no recent carbon substrate injections had been performed at Site SD015, geochemical indicator and field parameter data indicate that conditions in site groundwater in the vicinity of wells 15-MW-08 and 15-MW-41 remained reducing/highly reducing as a results of over 10 years of previous ISB treatment. Visual, chemical (AMIBA), and SEM-EDS data from the Min-Traps deployed and incubated for 5 months in Site SD015 wells 15-MW-08 and 15-MW-41 confirmed the active formation of reactive iron sulfide minerals at these locations (**Figure 15**).

AMIBA results

Sample	Total Fe (mg/kg)	WAS Fe: Fe2+ (mg/kg)	WAS Fe: Fe3+ (mg/kg)	WAS Fe: Total Fe (mg/kg)	SAS Fe: Fe2+ (mg/kg)	SAS Fe: Fe3+ (mg/kg)	SAS Fe: Total Fe (mg/kg)	AVS (mg/kg)	CrES (mg/kg)
MW-41	100	38	0.0	38	44	18	62	13	41
MW-8	114	14	1.8	15	18	23	42	1.2	24

SEM-EDS images

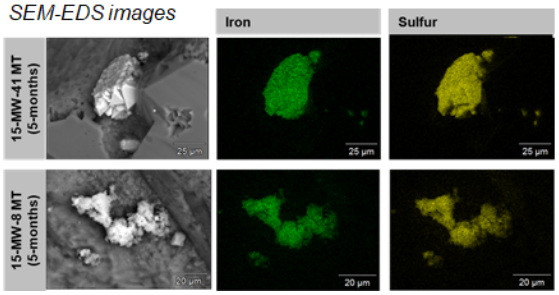

Figure 15. AMIBA Results and SEM-EDS Element Distribution Maps for the Min-Traps Deployed at Wells 15-MW-08 and 15-MW-41 After a 5-month Incubation Period

Overall, five Min-Traps were deployed during laboratory tank testing and ten Min-Traps were deployed at distinct monitoring well locations across VSFB sites SS003/SS050 and SD015. Groundwater geochemical indicator and field parameter data indicated reducing to strongly reducing conditions, potentially conducive to the formation of reactive iron sulfide minerals, within the test tank and in five of the ten VSFB monitoring well locations. The Min-Traps deployed within the test tank and at these five VSFB monitoring well locations evidenced the formation of iron sulfide minerals (based on visual, chemical [AMIBA], and SEM-EDS data). Hence, Min-Trap samples indicate the presence of iron sulfide minerals in 100% of the locations where expected (based on groundwater geochemistry). *Both laboratory tank testing and field demonstration data verify that the mineralogy in the Min-Trap is consistent with predictions based on groundwater geochemistry, indicating that the success criterion for this performance objective has been achieved.*

6.3 QUANTITATIVE PERFORMANCE OBJECTIVE #3: DETERMINE THE (REASONABLE) MINIMUM DEPLOYMENT TIME TO OBTAIN MEASURABLE AMOUNTS OF REACTIVE MINERALS WITHIN MIN-TRAPS

To aid in predicting mineral formation rates and reasonable Min-Trap deployment times, a simple stoichiometric mineral precipitation model was developed to predict the total possible FeS that could precipitate over time at various groundwater flux and solute loading values. The model is based on the difference between measured sulfate concentrations in the influent and the effluent during the first 48 days of tank testing (270 mg/L) and assumes that all consumed sulfate reacted with available soluble iron and was converted to FeS. The total iron results were corrected for the background iron in the Ottawa sand and iron that may have precipitated in the tank before initiating flow. As shown in **Figure 16**, the measured total iron concentrations in the Min-Traps increased approximately linearly to 330 milligrams per kilogram (mg/kg), generally matching the predicted mass for this simple model. After 75 days, iron content did not continue to increase (late test results were 330 and 280 mg/kg, as shown in **Figure 16**). However, this model appears to provide a reasonable first approximation of early-time iron precipitation rates under test conditions and, therefore, may be useful as a tool to guide reasonable Min-Trap deployment times in the field for similar geochemical conditions. These results suggest Min-Trap incubation times of 30 to 60 days are appropriate for similar conditions. Notably, these are safe minimum incubation times that have been demonstrated not to yield false negative results; however, there could be shorter deployment times that still lead to the formation of measurable amounts of reactive minerals within Min-Traps. Incubation times of 30 to 60 days are also consistent with published guidance for Bio-Traps, which are similar passive samplers for microbiological analyses.

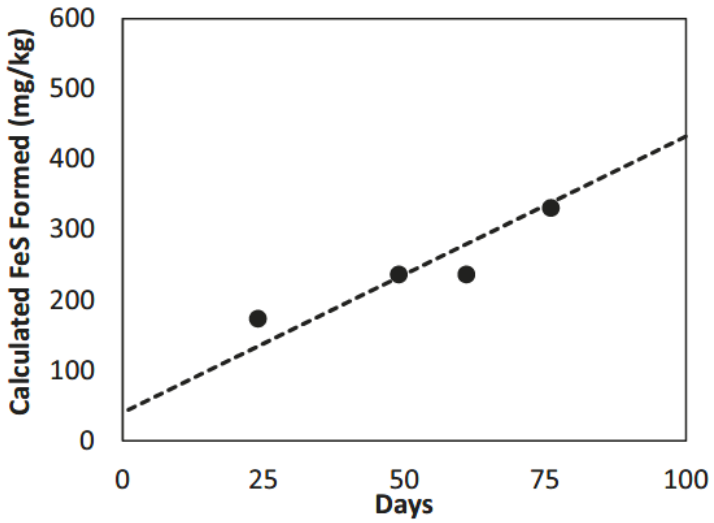

Figure 16. Comparison of the Simple Mineral Precipitation Model (Dashed Line) to the Calculated FeS Precipitation Based on Measured Iron Concentrations in the Laboratory Experiments (Points)

Data from the field demonstration at VSFB Site SS003/SS050 are consistent with tank test results. Specifically, visual, chemical (AMIBA), and SEM-EDS data all strongly indicate that iron sulfide minerals were deposited in the Min-Trap samplers within 2 months of in-well incubation (**Figure 13**). Iron sulfide minerals remained within the Min-Trap matrix in sufficient amounts for successful chemical and SEM-EDS analysis after 2, 4, and 9 months of in-well incubation following carbon substrate injections (**Figure 13**).

The tank test and field demonstration results indicate that Min-Traps can capture and store FeS_x minerals forming in the aquifer at detectable levels after approximately 1 to 2 months of incubation under ideal geochemical conditions. The rate of mineral accumulation in Min-Traps deployed at a site will depend on site characteristics and, in general, longer incubation times will increase the probability of detection. AMIBA analyses are straightforward to interpret and can confirm the presence of FeS_x minerals. Additional analyses, such as total iron and SEM-EDS, can provide further evidence of FeS_x but may not be necessary in many cases.

Overall, the results and analyses presented in this section provide validation of deployment time to trap sufficient mineral material to be detected via laboratory methods and indicate the success criterion for this performance objective has been achieved.

6.4 QUANTITATIVE PERFORMANCE OBJECTIVE #4: EVALUATE MIN-TRAP SAMPLE STABILITY FOR MINERAL MASS LOSS USING MICROBIAL INSIGHTS' SAMPLE PRESERVATION PROTOCOL

The standard Min-Trap sample preservation method is as follows: (1) the Min-Trap is removed from the well, (2) the housing is opened and individual media pillows are photo logged and separated with scissors for individual analyses, (3) individual pillow samples are double vacuum sealed using an inexpensive household vacuum sealer within 15 minutes of retrieval, and (4), the samples are shipped to the analytical laboratory where they are stored at about -18 degrees Celsius (°C) until analysis.

Because FeS minerals are susceptible to degradation/oxidation during sample storage and analysis, testing was performed to validate sample shipping requirements and acceptable hold times. Split samples were collected from tank test samples (collected on Day 172) and from a separate "bucket test" that mimicked conditions within the tank test. Two preservation methods were tested: shipment of samples under chilled conditions using wet ice and freezing conditions using dry ice. All samples were stored under freezing conditions at the analytical laboratory before analysis.

Figure 17 presents the WAS iron results (which are expected to be most sensitive to oxygen exposure) of Min-Trap split samples (collected at 172 days) preserved by two methods: (1) where the samples were initially placed on dry ice (about -78°C) for shipping and then stored in a freezer (about -18°C) until analyzed, and (2): shipped and stored at about 4°C. The measured WAS iron values for all analyses are similar, and most significantly, the very high abundance of WAS-Fe^{2+} relative to total WAS iron (greater than 96% for all samples) confirms reliability of the Min-Trap preservation method for minimizing the oxidation of Fe^{2+} to Fe^{3+}. Additionally, the results of a tank sand core sample, also collected at 172 days, immediately adjacent to the well in which the Min-Trap had been deployed (i.e., concurrent and co-located sample) are consistent with these results, where the abundance ratios of Fe^{2+} to total iron was 97%. The effect of sample hold time on the iron sulfide minerals as indicated by the concentrations of WAS-Fe, SAS-Fe, AVS, and CrES was investigated for hold times up to 28 days. Split samples from a batch test were recovered and packaged in a single event and were analyzed at 5, 15, and 28 days following collection. As shown in **Table 7**, the total WAS-Fe ranged from 220 to 288 mg/kg with no apparent correlation between hold time and concentration. Similarly, WAS-Fe^{2+} was consistently at least 94% of the total WAS-Fe, indicating that there was not a significant impact to WAS-Fe during the 28-day hold time (i.e., loss due to oxidation). The WAS-Fe^{3+} concentrations ranged from 0 to 16 mg/kg and are not correlated with hold time. If oxidation of WAS-Fe^{2+} was occurring during the hold time, an increase in WAS-Fe^{3+} would be expected. The concentration of SAS-Fe (total) that was not WAS-Fe (total) ranged from 102 to 28 mg/kg for samples analyzed after a 5-day hold time down to zero for the sample analyzed after 28 days. It is likely that the SAS-Fe that is not WAS-Fe represents the background iron present in the Ottawa sand. Variability is observed in the concentration of iron in Ottawa sand, and this appears to be reflected in the SAS-Fe results. The concentration of AVS ranged from 82 to 113 mg/kg with no apparent decline in concentration with increasing hold time. For all samples, AVS was between 77% and 83% of the total extractible sulfur. The results of the WAS-Fe, SAS-Fe, AVS, and CrES analyses after hold times of 5, 15, and 28 days are similar and the variability between samples likely reflects the analytical precision and variability in concentrations between individual "pillows" within the Min-Trap.

Table 7. WAS-Fe, SAS-Fe, AVS, and CrES Results for Ottawa Sand (Background) and Min-Trap Samples with Hold Times of 5 (Shipping on Dry Ice and Wet Ice), 15, and 28 Days

	Ottawa sand background, average, $n = 3$	5 Days, dry ice	5 Days, wet ice	15 Days, wet ice	28 Days, wet ice
Hold time (days)	NA	5	5	15	28
Shipping/storage temperature	NA	−78°C/−18°C	4°C/−18°C	4°C/−18°C	4°C/−18°C
WAS Fe (mg/kg)					
Fe^{2+}	3	270	220	288	232
Fe^{3+}	2	16	3.8	Not detected	14
Total Fe	6	286	224	288	245
Fe^{2+}/total	59%	94%	98%	100%	95%
SAS Fe (mg/kg)					
Fe^{2+}	7	253	224	281	230
Fe^{3+}	47	135	27	22	14
Total Fe	54	388	252	303	244
Fe^{2+}/total	14%	65%	89%	93%	94%
WAS Fe/total extractible Fe (SAS)	11%	74%	89%	95%	100%
AVS (mg/kg)	<0.40	105	83	82	113
CrES (mg/kg)	40	31	17	24	26
AVS/total extractible S	<0.01%	77%	83%	77%	81%

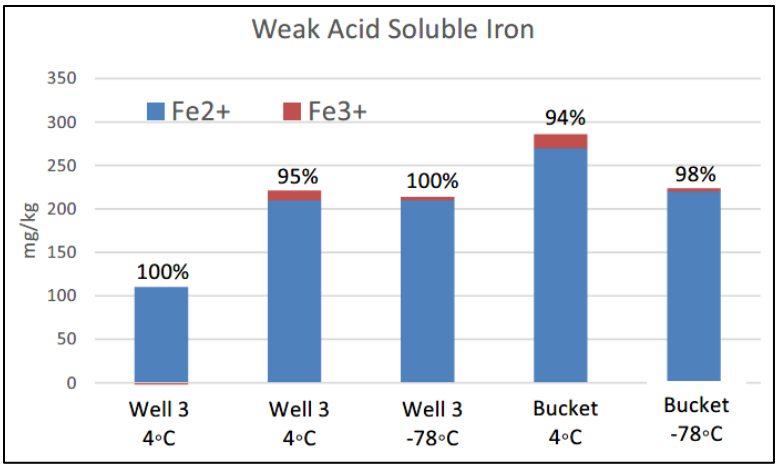

Figure 17. WAS Iron Results Comparing Min-Trap Split Samples Collected from Tank Testing (Well 3) and Bucket Testing (Bucket)

Following collection, samples were shipped to analytical labs using wet ice (4°C) or dry ice (-78°C). The blue area represents WAS-Fe^{2+}, the dark red area represents WAS-Fe^{3+}, and the height of the bars represents the total WAS-Fe. The fraction of the total WAS-Fe that is WAS-Fe^{2+} for each sample is indicated by the percent value above each bar.

Overall, the results and analyses of the preservation methods testing indicate that mineral mass loss over a 2- to 3-week storage time does not exhibit a decrease greater than 20%. *Therefore, Min-Trap preservation method testing verifies that the success criterion for this performance objective has been achieved.*

6.5 QUANTITATIVE PERFORMANCE OBJECTIVE #5: EVALUATE THE COMPARABILITY OF DATA FROM MIN-TRAPS AND TRADITIONAL SOIL CORE COLLECTION METHODS

The purpose of this performance objective is to understand the comparability of data sets from Min-Traps and traditional soil core collection methods, as well as the factors that contribute to differences. It is important to note that the evaluation of this performance objective could yield three general results:

- If reactive iron minerals detected in soil cores are also present in 90% or more of the Min-Traps, the success criterion will be considered achieved.
- If reactive iron minerals are detected in soil cores but are not present in 90% of the Min-Traps, this criterion will not be considered achieved. Note, this condition could occur if either the Min-Traps do note yield samples of aquifer conditions or if the soil core samples are not representative of the predominant groundwater flux zone measured by the monitoring well.
- If reactive iron minerals are detected in Min-Traps but not in soil cores, this criterion may or may not be considered achieved. This situation may occur if the soil core samples are not representative of the predominant groundwater flux zone measured by the monitoring well.

Co-located Min-Trap and soil core samples were collected during the laboratory tank test and at the preliminary field-testing site. Results from the chemical (AMIBA) and spectroscopic (SEM-EDS) analyses from the collected soil cores were consistent with the Min-Trap data and indicate that significant biogenic iron sulfide minerals were present in both matrices. These results confirm the identification of iron sulfide minerals in both the Min-Trap matrix and the aquifer matrix, further indicating that minerals detected in Min-Traps are representative of reactive minerals forming in the aquifer in systems with robust microbial iron and sulfate reduction.

Co-located and concurrent Min-Trap and soil core samples were collected at VSFB Site SS003 wells 3-MW-14 and 3-MW-55 four months following carbon substrate injection activities. Visual, chemical, and spectroscopic analyses yielded conclusive evidence of the presence of iron sulfide minerals within the Min-Traps deployed at wells 3-MW-14 and 3-MW-55. However, evidence of iron sulfide minerals were not visually observed or detected in the adjacent soil core samples. We believe these results are likely the result of the inherent differences in the sampling methods: Min-Traps are more representative of flux-weighted conditions because water in the well is dominated by the water quality in the more permeable zones, whereas soil core samples represent very small soil volumes that may exhibit different geochemical conditions, especially at a site with dynamic geochemistry as a result of remediation activities. We believe this further underscores the challenges of using soil core sampling to document reactive mineral formation in these kinds of conditions and highlights an important advantage of Min-Traps.

Overall, four sets of co-located Min-Trap and traditional soil core samples were collected (one set per laboratory tank test, preliminary field-testing site, VSFB well 3-MW-14, and VSFB well 3-MW-55). Two of the four soil core samples collected via traditional methods evidenced the presence of significant amounts of iron sulfide minerals (i.e., soil cores collected from the tank test and at the preliminary field-testing site). The co-located Min-Trap samples corresponding to these two soil core samples also exhibited iron sulfide mineral formation (based on visual, chemical [AMIBA], and SEM-EDS data). Hence, the comparison of data from Min-Traps and traditional soil core collection methods indicate that iron sulfide minerals detected in soil cores are also present in 100% of the corresponding, co-located Min-Traps. *These results verify that the success criterion for this performance objective has been achieved.*

6.6 QUANTITATIVE PERFORMANCE OBJECTIVE #6: EVALUATE THE SPATIAL VARIABILITY IN MIN-TRAP RESULTS DEPLOYED AT MULTIPLE LOCATIONS

Min-Traps were deployed at eight monitoring wells in VSFB Site SS003/SS050. The monitoring wells were selected primarily based on their location with respect to the target radius of influence of carbon substrate injection activities: some wells were immediately downgradient of injection points, some wells were more distant from injection points but still within the target radius of influence of injection, and some wells were outside of the target radius of influence of injection. Since carbon substrate injections were performed across a significant area of Site SS003/SS050, the monitoring wells selected for Min-Trap deployment and incubation covered a distance of approximately 1,000 ft parallel to groundwater flow. The spatial distribution among the eight Site SS003/SS050 monitoring wells selected for Min-Trap deployment provided variability in terms of groundwater flux values (Darcy velocity), which ranged between 0.04 feet per day (ft/day) and 0.29 ft/day (as described in Section 5.1.3.), and geochemical conditions (as described in Section 6.2). The presence or absence of reactive iron sulfide minerals within the Min-Traps deployed at these locations was consistent with spatial variations in groundwater flux, groundwater geochemistry, and/or remediation system operation. Iron sulfide minerals were encountered in 100% of the locations where expected (based on groundwater geochemistry) within 5 months of incubation. These locations include 3-MW-14, 3-MW-55, and 3-MW-57 at Site SS003/SS050, and 15-MW-08 and 15-MW-41 at Site SD015. *Min-Trap results from spatially distinct incubation locations verify that the success criterion for this performance objective has been achieved.*

6.7 QUANTITATIVE PERFORMANCE OBJECTIVE #7: CONFIRM MIN-TRAPS ARE APPLICABLE FOR MODERATE-TO-HIGH FLUX UNCONSOLIDATED GEOLOGIC SETTINGS

VSFB Sites SS003/SS050 and SD015 occur within unconsolidated geologic settings with different groundwater flux values. As described in Section 5.1.3 and measured during baseline characterization activities, groundwater flux (Darcy velocity) at Site SS003/SS050 averages 0.11 ft/day. Conversely, groundwater flux at Site SD015 has been estimated at about 0.27 ft/day. Horst et al. (2019) describes low permeability/low flux settings as those characterized by bulk hydraulic conductivity values (measured from aquifer tests) of less than 1 ft/day, which correlates to groundwater flux values closer to less than 0.01 ft/day for typical hydraulic gradients (0.01 and less). The groundwater flux values measured for VSFB sites SS003/SS050 and SD015 indicate that groundwater flux at these sites is moderate-to-high.

Min-Traps deployed at both sites indicate the presence of iron sulfide minerals in 100% of the locations where expected (based on groundwater geochemistry) within 5 months of incubation. These locations include 3-MW-14, 3-MW-55, and 3-MW-57 at Site SS003/SS050, and 15-MW-08 and 15-MW-41 at Site SD015. *Min-Trap results from two different field demonstration sites verify that the success criterion for this performance objective has been achieved.*

6.8 QUANTITATIVE PERFORMANCE OBJECTIVE #8: EVALUATE IF TARGETED MICROBIAL COMMUNITY CHARACTERIZATION CAN BE PERFORMED FROM MIN-TRAP SAMPLES

Min-Trap and Bio-Trap samplers were deployed in series in VSFB Site SS003/SS050 wells 3-MW-14 and 3-MW-55. Both Min-Traps and Bio-Traps were sampled following a 4-month, post carbon substrate injection incubation period and submitted to Microbial Insights for microbiological characterization via QuantArray-MIC and CENSUS qPCR-AHY analyses. QuantArray-MIC and CENSUS qPCR-AHY results indicate that Min-Trap and Bio-Trap samplers provide comparable microbiological data (**Figure 18**). The data resulting from microbiological analyses of both Min-Traps and Bio-Traps provide insight on redox poise/geochemical conditions and abundance of key microbial groups for the formation of reactive iron mineral species. For example, three of the most abundant targets in the Min-Trap and Bio-Trap samples collected from well 3-MW-14 were identified as fermenters (FER), IRB, and SRB (identified as APS in the QuantArray-MIC). Fermenters are anaerobic bacteria that can metabolize organic carbon substrates to produce organic acids and hydrogen. Hydrogen production, in turn, can support growth of other MIC-associated organisms including SRB. IRB reduce insoluble ferric iron to soluble ferrous iron potentially facilitating the availability of ferrous iron for reactive iron mineral formation. SRB consume hydrogen and produce hydrogen sulfide. Hydrogen sulfide, in turn, can react with available ferrous iron to form reactive iron sulfides.

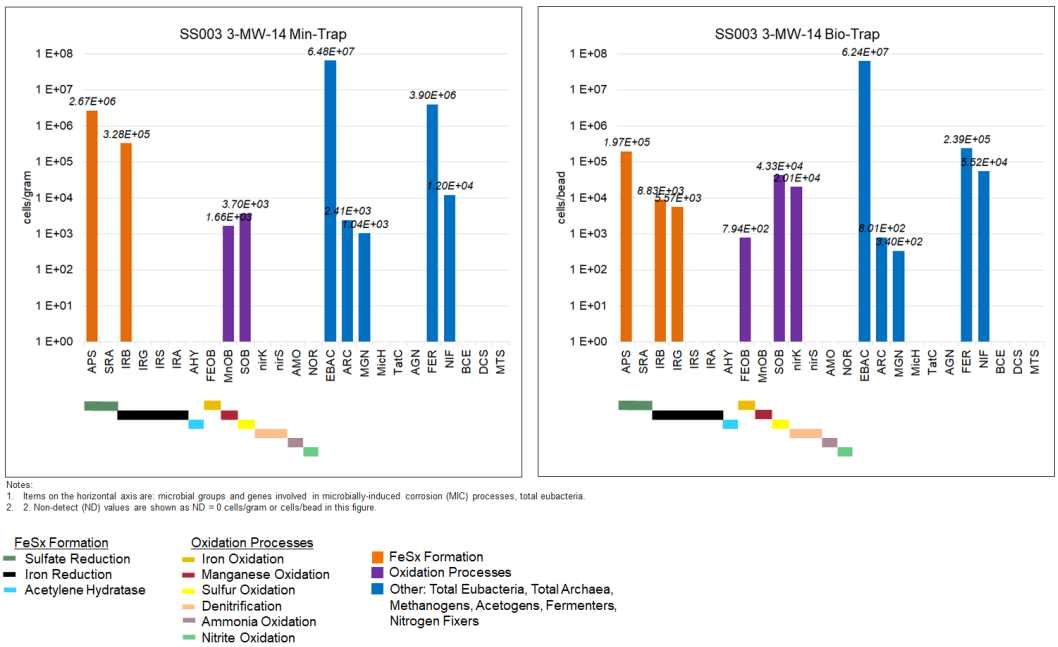

Figure 18. QuantArray-MIC and CENSUS qPCR-AHY Results from Min-Trap and Bio-Trap Samples Collected from Well 3-MW-14 in May 2021, After a 4-month Incubation Period

Specifically (and as shown on the Figure 18), both the Min-Trap and Bio-Trap samples collected at VSFB Site SS003/SS050 well 3-MW-14 yielded FER and SRB (identified as APS on Figure 18) as the two most abundant gene targets, with abundances over 1.00 x 10^5. The third most abundant gene target in the Min-Trap sample was IRB, with an abundance of 3.28 x 10^5. Conversely, IRB was the sixth most abundant gene target in the Bio-Trap sample, with an abundance of 8.83 x 10^3. The third, fourth, and fifth most abundant gene targets in the Bio-Trap sample were NIF (nitrogen fixers), SOB (sulfur oxidizing bacteria), and nirK (denitrifying bacteria). NIF and SOB were also detected in the Min-Trap sample; nirK was not detected in the Min-Trap sample, but the detection limit for this gene target was elevated, at 1.00 x 104. The difference in abundance of IRB between the Min-Trap and Bio-Trap samples is probably due to the (low but perceivable) background iron concentrations associated with the Min-Trap matrix (Ottawa sand) and lacking from the Bio-Trap matrix (glass beads). As mentioned above, IRB reduce insoluble ferric iron to soluble ferrous iron potentially facilitating the availability of ferrous iron for reactive iron mineral formation. Since insoluble ferric iron is part of the makeup of the Min-Trap matrix deployed at well 3-MW-14, it is reasonable to expect that IRB will preferentially colonize the Min-Trap matrix (over the Bio-Trap matrix) and grow while using the available ferric iron.

The QuantArray-MIC results indicate that two of the three most abundant gene targets were the same in the co-deployed Min-Trap and Bio-Trap samples. The third most abundant gene target in the Min-Trap sample did not match the third most abundant gene target in the Bio-Trap sample, and abundances of select gene targets varied by up to two orders of magnitude between the Min-Trap and Bio-Trap samples. The differences in gene target abundance are potentially caused by the differences in sample matrix and the fact that active precipitation of iron sulfide minerals is occurring within the Min-Trap sample matrix (and not within the Bio-Trap matrix). Despite the differences in gene target presence and abundance observed between the Min-Trap and Bio-Trap samples, the Min-Trap sample provided sufficient microbial community characterization in relation to key microbial groups involved in redox reactions and the formation of reactive iron sulfide minerals.

It is important to note that data from both Min-Trap and Bio-Trap samples are comparable to data from co-located groundwater samples. In general, gene target abundance in Min-Trap and Bio-Trap samples is higher than in co-located groundwater samples. The difference in gene target abundance is possibly explained by the presence of surfaces within the Min-Trap and Bio-Trap samplers onto which bacteria can adhere. In general, adhering to surfaces provides bacteria with many advantages, most of which stimulate bacterial growth. *Results from microbial analyses performed on co-located Min-Trap, Bio-Trap, and groundwater samples verify that only two of the three most abundant gene targets match in both the Min-Trap and Bio-Trap samples; hence, the success criterion for this performance objective was not achieved.*

6.9 QUANTITATIVE PERFORMANCE OBJECTIVE #9: EVALUATE IF ABIOTIC REACTION RATES CAN BE MEASURED FROM MIN-TRAP SAMPLES AND VERIFY SAMPLE COLLECTION AND STORAGE METHODS

The assay developed under ESTCP ER-201584z, which involved measurement of rate constants for aerobic co-oxidation of TCE, was modified to test Min-Trap material by Dr. David Freedman at Clemson University. This method was validated in the lab and its sensitivity to mineral mass present in the Min-Trap was assessed. Min-Trap samples (pillows) from VSFB Site SS003/SS050 wells 3-MW-14 and 3-MW-55, and Site SD015 well 15-MW-41 were field-preserved, shipped to Clemson University, and placed in an anaerobic chamber.

The contents of the Min-Trap pillows were transferred to serum bottles and filter sterilized groundwater was added. The bottles were capped, removed from the anaerobic chamber, sparged with nitrogen gas to remove hydrogen, and resealed. Purified ^{14}C-TCE was injected in the headspace of the serum bottles per the methods developed in ESTCP ER-201584z and SERDP ER-2622. Unlabeled TCE was added to achieve an aqueous concentration similar to what was observed in site groundwater. A time zero measurement of the ^{14}C was made by removing headspace and aqueous samples. The bottles were incubated and sampled weekly for up to six weeks to quantify the ^{14}C products formed (e.g., $^{14}CO_2$, nonvolatile compounds, and possibly acetylene, ethene, and ethane). A mass balance approach was used to translate the accumulation rate of ^{14}C products into a pseudo first order rate constant (k). Further details on this testing are presented in **Appendix E** and the key results are summarized below.

Accumulation of ^{14}C products from the 3-MW-14 microcosm with the contents of the Min-trap pillow followed a consistent linear trend through 42 days of monitoring. Results for the microcosm with the precipitate recovered from 3-MW-14 groundwater followed a similar trend. In contrast, ^{14}C products in the triplicate control microcosms with only filter-sterilized ground water (FSGW) present were lower. The data from day 7 were considered to be outliers. The 15-MW-41 microcosm with the Min-Trap pillow followed a similar trend, although the magnitude of accumulation of products was not as high as in the Min-Trap microcosm for 3-MW-14. The triplicate FSGW controls for 15-MW-41 were similarly low in ^{14}C product accumulation compared to the microcosms for 3-MW-14. As with the 3-MW-14 microcosms, the data from day 7 were considered to be outliers.

Pseudo-first order rate constants are shown in **Figure 19**. Results for the Min-Trap pillow and precipitate from the 3-MW-14 location are ~70% higher than the rate constant for the Min-Trap pillow from the 15-MW-41 location. The corresponding half-lives range from 5.1 to 8.6 years. For both locations, the rate constants for the FSGW controls are not statistically different from zero, as indicated by the magnitude of the 95% confidence intervals.

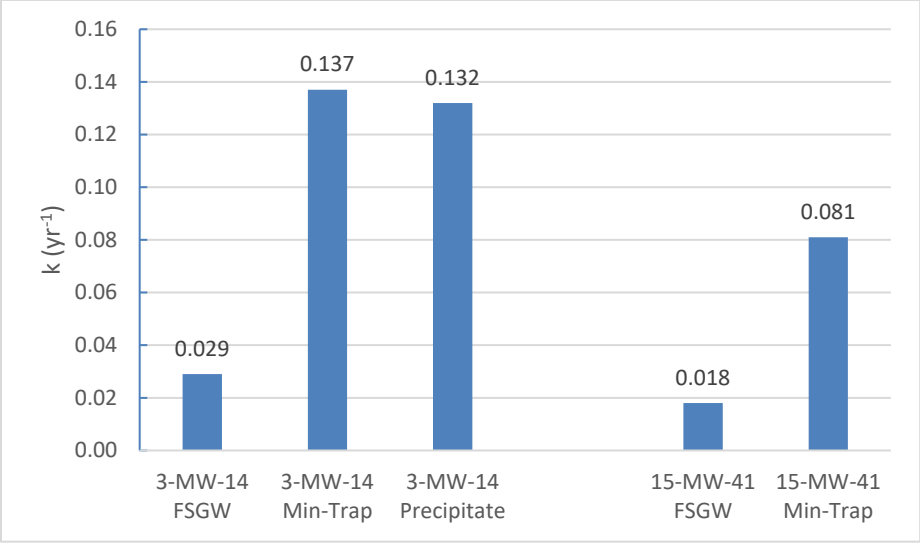

Figure 19. First Order Rate Constants Determined from 3-MW-14 (Shown as MW-14) and 15-MW-41 (Shown as MW-41) Min-Traps Based on the Rate of Accumulation of ^{14}C Degradation Products.

These results confirm that the Min-Trap solids include minerals that catalyze abiotic degradation of TCE. The mineral precipitate recovered from the sample of groundwater from 3-MW-14 was also reactive. Nevertheless, both samples generated ^{14}C degradation products well in excess of what was generated in the FSGW controls.

Analyses performed on Min-Trap samples collected during the Tank Testing studies early in the project also confirmed the ^{14}C assay can be successfully applied to Min-Trap samples. These analyses were also utilized to evaluate the sufficiency of hold times. Two tank Min-Trap split samples were analyzed within one week of collection and resulted in k measurements of 0.47 yr^{-1} and 0.54 yr^{-1}. A third split sample was analyzed after 4 weeks and resulted in a k measurements 0.69 yr^{-1} and a fourth split sample was analyzed after 7 weeks and resulted in a k measurements 0.74 yr^{-1}. These data indicate a slight increasing trend with hold times (about 0.05 yr^{-1}); however, this trend indicates samples are analyzed at two weeks would only differ by about 10% from the samples analyzed after 1 week. Considering other sources of uncertainty and error, this variation is not considered significant. Therefore, is recommended that Min-Trap samples be analyzed by the ^{14}C assay within two weeks of collection.

In total, 14 Min-Trap samples were collected from the Tank Testing studies, preliminary field-testing site, and VSFB Sites SS003/SS050 and SD015 for measurement of in-situ abiotic degradation activity via the ^{14}C-TCE assay. The calculated pseudo-first order rate constants for abiotic degradation in the 14 samples ranged between 0.015 and 1.17 yr^{-1}, significant at the confidence interval of 88% or higher. Notably, the calculated pseudo-first order rate constants for 9 of the 14 samples were also significant at the 95% confidence interval. A summary of the ^{14}C-TCE assay results is included in **Appendix E**.

An important next step for the ^{14}C-TCE assay as applied to Min-Trap samples is to relate the laboratory results to in-situ abiotic degradation activity. This will require normalizing the rate constants to the mass of reactive minerals and volume of groundwater present in the microcosms. If the concentration of reactive minerals is known, it would be possible to use the microcosm normalized rate constant to estimate the rate constant for in-situ conditions. That rate constant could be used in groundwater models to predict the time needed to reach a remediation goal. For future studies, it will be essential to replicate the Min-Trap microcosms and to increase the amount of Min-Trap solids added to each serum bottle. This will facilitate a more robust separation in the amount of ^{14}C products recovered compared to the FSGW controls. Use of triplicates will make it possible to determine confidence intervals for the rate constants, which are needed to assess the degree of variability. *Abiotic reactivity was successfully measured in multiple Min-Trap samples and hold-time testing indicates minimal loss within 2 weeks, therefore, this objective is considered achieved.*

6.10 QUALITATIVE PERFORMANCE OBJECTIVE #10: IDENTIFY CHALLENGES AND LIMITATIONS OF MIN-TRAPS DESIGN

A fundamental consideration, and potential limitation associated with the Min-Trap technology is that is utilizes monitoring wells, and therefore, assumes the wells have been constructed properly (e.g., grout seals are functioning, screened interval intercepts and is hydraulically connected with target lithology) and that groundwater in the well is representative of aquifer conditions.

Furthermore, the technology assumes geochemical processes occurring in the aquifer will occur similarly in the well. This potential limitation is relevant for all well-based sampling methods generally, and was evaluated for the Min-Trap technology through several performance objectives (no specific concerns were identified). In some locations, Min-Traps had to be temporarily removed to accomplish routine groundwater sampling, but this was not problematic. If dedicated pups or other sampling equipment is present in a well, this may impede Min-Trap deployment. The current Min-Trap design utilizes a standard Ottawa silica sand support matrix. Advantages to this matrix include its high hydraulic conductivity and porosity, similarity to materials in many sandy alluvial aquifers, and modest and known background ferric iron content (~82 mg/kg; Ulrich et al., 2021a). However, the strong background signature of the quartz precludes the use of XRD analyses in most cases. As described previously, it was determined that while XRD cannot be readily applied to the Min-Trap sand matrix, it can be applied to the Min-Trap PVC housing with successful results. Alternate media types, including polymer beads, may be considered in future applications and could permit the more effective use of XRD.

The Min-Trap user guidance included as **Appendix A** was developed to aid practitioners during planning and field implementation. This guidance will be available for download from the Microbial Insights and ESTCP Project ER19-5190 websites.

Key challenges/limitations and potential mitigations have been identified through this demonstration and this performance objective is considered achieved.

6.11 QUALITATIVE PERFORMANCE OBJECTIVE #11: EVALUATE THE UTILITY OF MIN-TRAP RESULTS TO INFORM REMEDIAL DECISION-MAKING

General feedback from stakeholders, which include RPMs, regulators, field technicians, and technical experts about the Min-Trap technology was universally positive, and affirms the general usefulness, practical field protocols, and intuitiveness of results. For example, the consultant team implementing the ERD remedy at Site SS003 have used the Min-Trap data to inform their interpretation of geochemical conditions and expectations on treatment performance. This understanding will be used to assess whether additional injections activity in some areas may be necessary in the future. The remedial project manager at VSFB and the regulator (Regional Water Quality Control Board) were willing to state at this time that they view Min-Traps as a promising technology. However, at this time, no relevant regulatory decisions have been supported by Min-Trap data. Responses to presentations and webinars given to the practitioner community at large have been positive and resulted in the generation of 19 new proposals for Min-Traps by Microbial Insights to other interested parties. In a 2021 Evonik webinar, Mr. Dan Leigh presented the results of a study where Min-Traps were successfully used to evaluate the formation of FeS_x at a remediation site utilizing two different remediation reagents. Mr. Leigh provided additional comments which are summarized in the bullets below.

- The Min-Traps are very easy to prepare, install, collect and submit for analyses.
- The Min-Traps size make them applicable for most common types of monitoring wells.
- The directions regarding collection and submittal of the samples are easy to understand and follow.
- The equipment to vacuum seal the Min-Traps are readily available and easy to use.

- The vacuum packaging of the samples for shipment is very convenient.
- One of the issues with the Min-Traps is that there is iron already in the sand that is used to make the sand bags. Some of the iron that is reported in the total iron analyses is coming from the applied iron and some is from the iron on/in the Min Trap sand. A fine quartz or maybe dolomite sand which do not contain iron would work as effectively.
- Replacing the current sand with a sample of the site matrix collected prior to remedial application would be a more representative of actual site conditions.
- SEM and AMIBA analyses are very useful for confirming the formation of, and identifying iron-sulfide minerals. I think WASFe and SASFe is useful only prior to remedial application, I don't think there is a reason to do it after remedial application.
- The biological analyses seem more academic to me. Not that it could not be useful but I don't know what information those analyses provide that would change my remedial approach on most of my applications. Sulfate reducers (SRBs) and methanogens are ubiquitous and I rarely add SRBs although they are already in many commercial dechlorinating consortiums already. In any event, I would probably want the biological data before remedial application.
- Many of Evonik's reductive and biogeochemical reagents contain zero valent iron (ZVI). The work Paul Tratnyak has done indicates, and Evonik's studies show that sulfidation increases the reactivity of the ZVI. It could be useful to evaluate if the iron is being sulfidized in situ, and if it is, does this increase ZVI reactivity. Sulfidation occurs on sand particles and it may also occur on ZVI. ZVI was included in one of the Min-Traps however, it leaked out because of the fine grain size.
- It would be interesting to evaluate if our biogeochemical reagents (Geoform) would perform in the Min-Trap sampler. It would also be interesting to apply these Min-Traps in the field with our biogeochemical reagents, collect them and do a live and killed study to evaluate abiotic degradation by the generated reactive iron-sulfides.
- Biogeochemical reagents, such as Geoform ER and Geoform Soluble, are also applied for precipitation of metals as sulfides and iron-sulfides, such as arsenic. SEM analyses would be useful in confirming that this occurs and to quantify the amount of the metal or metalloid sequestered by the formation of the sulfides or iron-sulfides.
- For one of the Min-Traps, black staining was only on one side of the Min Trap. This might be related to the direction of groundwater flow in the area of the Min Trap.

In summary, qualitative feedback from stakeholders is positive and Min-Traps have recently been successfully utilized by an outside party, therefore this objective is considered achieved.

6.12 QUALITATIVE PERFORMANCE OBJECTIVE #12: CONSOLIDATE MIN-TRAP PERFORMANCE DATA INTO TECHNICAL GUIDANCE FOR THEIR USE

This performance objective is achieved based on the completion of this Final Report, Ulrich et al. (2021a) and the final user guidance. The Min-Trap user guidance included as **Appendix A** was developed to aid practitioners during planning and field implementation. This guidance will be available for download from the Microbial Insights and ESTCP Project ER19-5190 websites. *Completion of the Final Report and the user guidance is considered sufficient to meet the success criteria for this performance objective.*

7.0 COST ASSESSMENT

This section is intended to provide sufficient cost information so that a remediation practitioner could reasonably estimate costs for the use of Min-Traps at a given site.

7.1 COST MODEL

A simple cost model summarizing all expected costs associated with field use of Min-Traps are presented in **Table 8**. The elements and actual costs were validated through this project.

Table 8. Cost Model for Min-Traps as of July 2022

Element	Validated Costs
Min-Trap Sampler	$300 per sampler
Typical Baseline Groundwater Analyses	Up to $1,000 per well, depending on analyses
Min-Trap Analyses	Costs depend on laboratory and analyses applied. The most common are: • Total iron: $26 • AMIBA: $950 • SEM-EDS: $1,140 • XRD: $580 • QuantArray-MIC: $950
Min-Trap deployment, retrieval, data interpretation, and reporting costs	Estimated at $10,000 per sampling event assuming 10 Min-Trap samplers are deployed. This assumes a total of 60 labor hours (at $100 per hour) and $4,000 for expendables, field equipment, travel, and per diem costs. Per-well scale efficiencies are anticipated when multiple Min-Traps are deployed.

7.2 COST DRIVERS

The main cost drivers of the Min-Trap technology are the number of wells tested, analyses selected, and frequency of testing. For most remediation sites scale efficiencies are anticipated as the number of Min-Traps deployed increases. Furthermore, the ability to visually confirm the likely presence of FeS_x minerals can allow a field-based decision on sampling and analysis, which will maximize the value of Min-Traps applications.

7.3 COST ANALYSIS

The specific details, requirements, and scale of site remediation programs will vary, and these specific program elements will directly drive the cost of Min-Trap application. The scale of the Min-Trap deployment program at site SS003 for this demonstration is believed to be a representative model for a typical application. Therefore, the cost model presented in Section 7.1 was applied using the following assumptions

- 8 wells with Min-Traps deployed: $2,400
- Baseline groundwater analyses costs: $4,000
- 3 separate Min-Trap sampling events: $30,000

- Analyses (based on groundwater quality and visual screening):
  - 24 Total Iron: $624
  - 12 AMIBA: $11,400
  - 8 SEM-EDS: $9,120
  - 4 QuantArray-MIC: 3,800

Based on these assumptions, the total Min-Trap program cost would be $61,344. However, these are scalable and highly predictable and therefore reasonable upper and lower cost bounds can be readily calculated based on reasonable assumptions. In almost all cases, it is anticipated that Min-Trap sampling costs will be relatively small compared to overall performance monitoring costs. Also, Min-Traps offer the potential for significant overall lifecycle cost savings because the eliminate the need for drilling to collect solid phase samples (soil cores), which is the current practice and considered the comparative technology. In comparison, collecting the same number of soil core samples (24), would require 24 soil borings completed during three separate drill rig mobilizations. These costs vary depending on site location (and associated travel and mobilization requirements) and characteristics, however, to complete this activity at VSFB, estimated drilling subcontractor costs using conventional hollow stem auger technology would be approximately $45,000. Additional labor costs associated with contractor oversight, utility clearance, and waste management is estimated at $15,000. Therefore, the cost of an equivalent program to the one described above using conventional technology instead of Min-Traps is estimated at more than $120,000. Furthermore, because Min-Traps can be utilized more frequently and more reliably than the conventional method they can provide more and better data to aid in remedy implementation and performance optimization, and potentially support earlier transition from active to passive remedy phases.

8.0 IMPLEMENTATION ISSUES

Based on the work in this demonstration, the following lessons learned can be applied during future Min-Trap applications.

- The current Min-Trap design utilizes a standard Ottawa silica sand support matrix. Advantages to this matrix include its high hydraulic conductivity and porosity, similarity to martials in many sandy alluvial aquifers, and modest and known background ferric iron content (~82 mg/kg; Ulrich et al. 2021b). However, the strong background signature of the quartz precludes the use of XRD analyses in most cases. Alternate media types, including polymer beads, may be considered in future applications and could permit the more effective use of XRD.
- Based on the recent work by Hua et al. (2021) cryogenic sample storage (about -78ºC) may induce the conversion of mackinawite to pyrite prior to analyses. Based on the data obtained during this demonstration project, this effect was not evidenced when samples were stored under modest freezing conditions (-18ºC) or when shipped on dry ice (-78 ºC). Therefore, it is recommended that samples stored at temperatures no colder than (-18ºC). Non-freezing storage conditions (4ºC) may even be preferable, though further work is needed to confirm this.
- The Min-Trap is a well-based sampler and therefore it is imperative that wells utilized be constructed properly and represent the geochemical conditions of the aquifer zone of interest. It is recommended that well construction and development, hydraulic, and geochemical data be reviewed prior to selecting the wells for Min-Trap use.

The Min-Trap achieved the demonstration objectives, as discussed in Section 6. The Min-Trap user guidance included as **Appendix A** was developed to aid practitioners during planning and field implementation. This guidance will be available for download from the Microbial Insights and ESTCP Project ER19-5190 websites.

9.0 REFERENCES

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APPENDIX A MINERAL TRAP USER GUIDANCE

DRAFT

MINERAL TRAP USER GUIDANCE

ESTCP Project ER19-5190

Arcadis Project 30028451

Dr. Craig Divine, Jennifer Martin Tilton, Shannon Ulrich,
Dr. Shandra Justicia-León, David Liles, and Dr. Erika Carter – Arcadis
Dora Taggart and Dr. Katherine Clark – Microbial Insights

December 2021

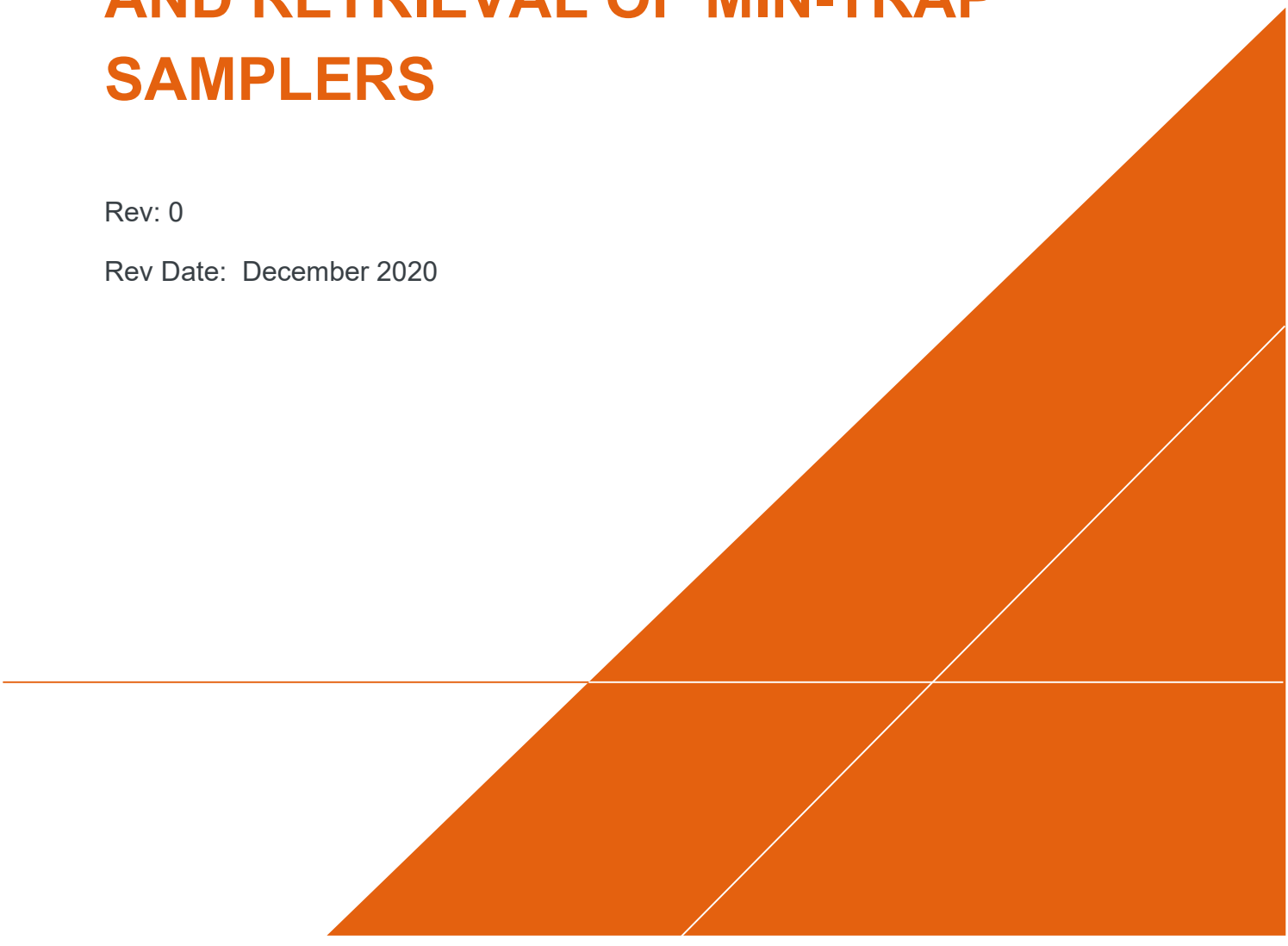
Min-Trap™

ARCADIS Design & Consultancy for natural and built assets

TECHNICAL GUIDANCE INSTRUCTIONS FOR DEPLOYMENT AND RETRIEVAL OF MIN-TRAP SAMPLERS

Rev: 0

Rev Date: December 2020



VERSION CONTROL

Revision No	Revision Date	Page No(s)	Description	Reviewed by

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APPROVAL SIGNATURES

Prepared by:		12/11/2020
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	Craig Divine, Ph.D., P.G. (Technical Expert)	Date:

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1 INTRODUCTION

This document describes general and/or specific procedures, methods, actions, steps, and considerations to be used and observed by Arcadis staff when performing work, tasks, or actions under the scope and relevancy of this document. This document may describe expectations, requirements, guidance, recommendations, and/or instructions pertinent to the service, work task, or activity it covers.

It is the responsibility of the Arcadis Certified Project Manager (CPM) to provide this document to the persons conducting services that fall under the scope and purpose of this procedure, instruction, and/or guidance. The Arcadis CPM will also ensure that the persons conducting the work falling under this document are appropriately trained and familiar with its content. The persons conducting the work under this document are required to meet the minimum competency requirements outlined herein, and inquire to the CPM regarding any questions, misunderstanding, or discrepancy related to the work under this document.

This document is not considered to be all inclusive nor does it apply to all projects. It is the CPM's responsibility to determine the proper scope and personnel required for each project. There may be project- and/or client- and/or state-specific requirements that may be more or less stringent than what is described herein. The CPM is responsible for informing Arcadis and/or Subcontractor personnel of omissions and/or deviations from this document that may be required for the project. In turn, project staff are required to inform the CPM if or when there is a deviation or omission from work performed as compared to what is described herein.

In following this document to execute the scope of work for a project, it may be necessary for staff to make professional judgment decisions to meet the project's scope of work based upon site conditions, staffing expertise, regulation-specific requirements, health and safety concerns, etc. Staff are required to consult with the CPM when or if a deviation or omission from this document is required that has not already been previously approved by the CPM. Upon approval by the CPM, the staff can perform the deviation or omission as confirmed by the CPM.

2 SCOPE AND APPLICATION

Arcadis, in partnership with Microbial Insights, Inc., has developed a passive sampling device to document the formation of minerals in-situ without the need for invasive drilling activities. The Min-Trap™ (Arcadis-patented) is a low-cost tool to collect direct physical evidence of mineral formation in-situ without collecting soil/rock core samples - a capability that is not provided by other commercially-available technologies. Min-Traps consist of a solid phase matrix enclosed within a slotted polyvinyl chloride (PVC) housing that can be deployed in a 2-inch diameter monitoring well. An illustration of the Min- Trap sampler is shown on **Figure 1**.

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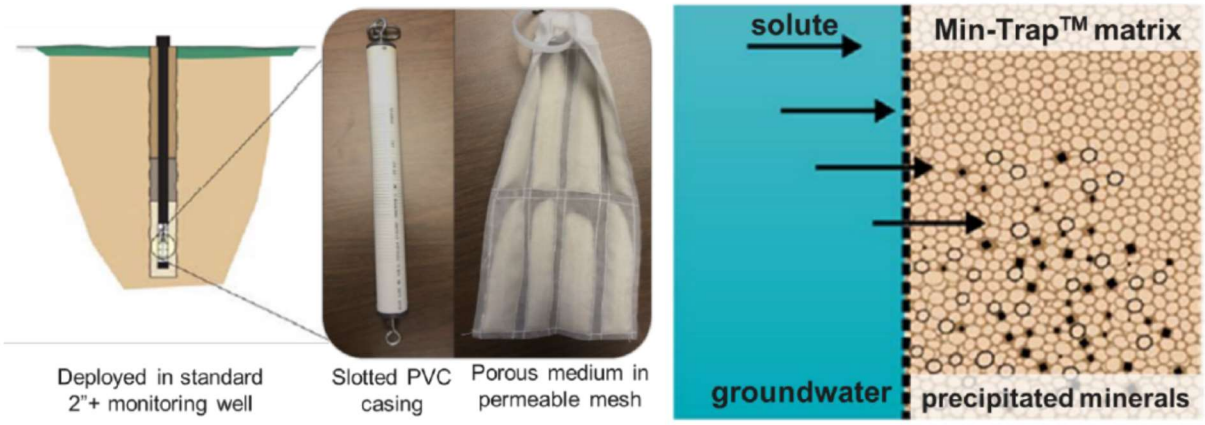

Figure 1. Min-Trap™ sampling device and conceptual deployment (left) and mineral precipitation process (right).

Min-Traps are deployed in existing monitoring wells for a period of weeks to months, depending on the site-specific groundwater flow rate and geochemical conditions. Following this incubation period, Min-Traps are removed from the monitoring well, and the solid phase material within the PVC casing is submitted for laboratory analysis.

The Min-Trap sampler can be utilized to collect mineral precipitate samples from a variety of geochemical environments. For application to sites where enhanced precipitation of reactive iron minerals that degrade chlorinated VOCs is the goal, the target precipitates are iron sulfide minerals, including iron monosulfide (mackinawite) and iron disulfide (pyrite). The analytical techniques that are most applicable for analysis of these minerals include Scanning Electron Microscopy with Energy Dispersive X-ray Spectroscopy (referred to as SEM-EDS) and the sequential extraction and analysis of iron and sulfide (referred to collectively as the AMIBA suite).

The SEM is a powerful technique that can visually identify target minerals in the Min-Trap sample and generate valuable information about the particle sizes, shapes, and surface area. EDS is used to determine the elemental composition at target areas within the sample. Of particular interest is the physical association of iron and sulfide within the samples.

The AMIBA suite is a collection of analyses performed to quantify iron and sulfur availability in various states to allow assessment of the microbial/mineral/contaminant interactions. The suite includes acid volatile sulfide (correlated with iron monosulfide), chromium extractable sulfide (correlated with iron disulfide), strong acid soluble iron, and weak acid soluble iron.

Engage a technical expert from the Min-Trap development team to determine the most appropriate analytical methods and experimental approach for your project. These individuals are as follows:

- Jennifer Martin Tilton
- Erika Carter
- Shannon Ulrich
- Shandra Justicia-Leon
- Craig Divine

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3 PERSONNEL QUALIFICATIONS

Arcadis field personnel will have current health and safety training, including 40- hour HAZWOPER training, and site-specific health and safety training. In addition, personnel overseeing, directing, or supervising sediment collection will be versed in the applicable Standard Operating Procedures (SOPs) to successfully complete the sampling activities and be experienced with general sampling methods used in aquatic environments (e.g., sediment, surface water, an/or porewater).

4 EQUIPMENT LIST

The following materials and supplies are required for Min-Trap deployment and retrieval. This list is in addition to typical groundwater sampling equipment and supplies, as well as any personal protective equipment required by the site-specific health and safety plan.

Min-Traps deployment:

- Min-Traps™ (purchase from Microbial Insights)
- Well caps with loops
- Cable ties
- Rope/twine to suspend Min-Trap sampler
- Tape measure appropriate to well depth
- Water level meter
- Water quality meter (YSI or equivalent)
- Plastic sheeting (laydown for clean work area)
- Traffic cones to define work area
- Decon supplies
- 5-gallon buckets
- Well construction logs

Min-Trap retrieval:

- "Kitchen" vacuum sealer and vacuum sealer bags (i.e. Ziploc brand V200 series) [https://ziploc.com/en/Products/Bags/Specialty/Ziploc-Brand-Vacuum-Sealer-V200-Series]. Ziploc brand vacuum sealer bags can be purchased as a role and cut to the desired size (https://ziploc.com/en/Products/Bags/Specialty/Ziploc-Brand-Vacuum-Sealer-8-Roll)
    - If power is not available at the site, a power inverter is needed to power the vacuum sealer from a field vehicle. Depending on electrical specifications of the vacuum sealer, a generator may be needed.

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  - It is recommended that field personnel test the vacuum sealer operation prior to mobilizing to the field. Instructional videos can be found here: https://ziplocvacuumsealer.com/pages/user-manuals

- Scissors
- Camera
- White board (least 24 inches across) and dry erase markers
- Ruler
- Permanent markers
- 1-gal Ziploc bags
- Paper towels
- Coolers
- Ice

5 CAUTIONS

If inclement weather occurs, then sampling must be conducted under cover to prevent potential contamination of Min-Trap samples by rainwater.

To prevent oxidation of minerals within Min-Trap samplers, the retrieval procedures must take place as quickly as possible. If possible, it is recommended that 2 staff work together to complete the retrieval process.

Min-Traps samples must be immediately vacuum sealed and then stored on ice and protected from sunlight. Coolers should be shipped for overnight delivery, and samples should be stored in a freezer upon receipt by the analytical laboratory.

Compared to conventional groundwater or soil sampling, special considerations associated with analysis of precipitated minerals; therefore, the project team should engage a member of the Min-Traps team during project planning to provide expert guidance on coordination with analytical laboratories and sample handling.

6 HEALTH AND SAFETY CONSIDERATIONS

Always review and follow site specific SOPs and consult the site-specific HASP and JSAs.

Wear appropriate PPE and have safety equipment specified by the site HASP and JSAs.

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7 PROCEDURE

Min-Traps consist of 1.5-inch slotted PVC casing that is approximately 18 inches long. Both ends of the PVC casing are equipped with eyelet screws. The top of the Min-Trap casing unscrews from the main body – it is important to note which end is UP during Min-Trap deployment as the inner mesh insert is attached to the TOP end of the Min-Trap.

Figure 2. Assembled Min-Trap (left) and internal porous media pillows (right). The eyebolts can be used to connect the retrieval line and to string multiple Min-Traps together.

Min-Traps are deployed within monitoring well screen zones similar to passive diffusion bag samplers. The standard deployment location for Min-Traps would be in the center of the saturated screen zone; however, this could be modified as needed to accommodate groundwater sampling activities. Should groundwater sampling be conducted while a Min-Trap is deployed in a monitoring well, it is recommended that the Min-Trap be deployed in the lower part of the saturated screen zone so groundwater sampling can be conducted from the interval above the Min-Trap. If available, historical seasonal groundwater level data should be reviewed to ensure the Min-Trap is placed at an elevation that will always remain saturated and below the water level during the deployment period.

The deployment time for Min-Traps is a minimum of 2 months; however, this may be modified based on the geochemical conditions at individual monitoring wells. The Work Plan should allow flexibility to adjust the deployment time in response to real time conditions. In order to confirm that the deployment time has been sufficient, groundwater geochemical data, as well as visual inspection of the Min-Trap, are used.

Min-Trap Deployment Procedure

- Access well vault, determine depth to groundwater, depth to bottom of well, and depth to center of saturated screen (record on field form).
- Measure and record down-hole field parameters (pH, dissolved oxygen, ORP, temperature) using a calibrated meter.
- Target the Min-Trap assembly to be centered at the mid-point of the saturated screen interval.
- Attach deployment line to the top eyelet screw of the Min-Trap.
- A weight can be clipped to bottom eyelet screw of the Min-Trap.
- Attach the deployment line to well cap loop and secure well vault.

Figure 3. Min-Trap deployment in a monitoring well. Attach deployment line to top eyebolt to secure to well cap.

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Min-Trap Retrieval Procedure

The samples within the Min-Traps are sensitive to oxygen, therefore the sampling procedure needs to be conducted as efficiently as possible to minimize oxygen exposure. The time between pulling the Min-Trap from the well and getting samples vacuumed sealed and on ice should be less than 15 minutes.

- It is important to record the time of Min-Trap retrieval from the well and the length of time required to get all samples in vacuum sealed bags in the logbook.
- Prior to accessing the well vault, prepare the Min-Trap sample bags as follows:
  - Cut bags approximately 6-8 inches wide from the roll of vacuum seal bags
  - Label the individual bags using a permanent marker with the following information:
    - Field Site Name
    - Well Name
    - Sampling Date
    - Analysis
    - Laboratory
    - Sampler Initials
  - Seal one side of all of the bags with the vacuum sealer.
  - Label the white board with the well name and sampling date. Place the ruler on the white board.
  - Arrange the work area such that the white board, vacuum sealer, vacuum sealer bags, paper towels, scissors, camera, and logbook are organized and ready for Min-Trap retrieval.
  - Have cooler with ice ready at the workstation.
- Access the well. If groundwater sampling is being conducted concurrent with Min-Trap sampling, complete the groundwater sampling prior to pulling the Min-Trap from the well.
  - Note any odors from the well in the log.
- Carefully pull the deployment line to remove the Min-Trap from the well.
  - Note any precipitate (i.e. grey, brown, black material) on the PVC casing in the log.
  - Note any odors in the log.
  - Photograph the PVC casing against the labeled white board background, or other suitable background given the color, lighting, etc. (Figure 4)
- Unscrew the top of the Min-Trap PVC casing and expose the inner mesh of sand-filled pillows.

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Figure 4. Assembled Min-Trap following retrieval, shown against white board (left). Unrolled sheet of pillows following removal from PVC housing (right). White board provides contrast for observation of precipitate colors on pillows.

  - Photograph the sheet of sand-filled pillows on the white board (Figure 4).
  - Describe the odor and visual appearance of any precipitate material in the logbook.

- Carefully cut the desired number of pillows for each of the required analyses in the thin line between the pillow seams.
  - The number of pillows required for each analytical technique will be provided in advance of the sampling event.
- Place the sample pillows within the labeled vacuum seal bags and seal immediately.
  - Photograph the sealed sample once it is in the labeled bag.
- Place samples on ice in cooler immediately.
- Repeat this process as needed for each well. Before moving on to the next well, review the field notes to ensure that all sampling details and observations have been recorded.
- Once all Min-Traps have been retrieved and chain of custody have been completed, group the samples according to laboratory and seal them together:
  - Cut a large length of vacuum seal bag from the roll. Seal one side. Place the individual samples for that laboratory together inside the larger bag. Vacuum seal.
  - Label the external bag as follows:

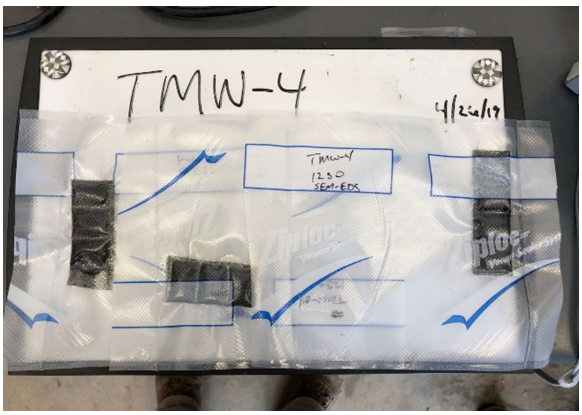

Figure 5. Min-Trap pillows sealed within vacuum bags.

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  - Field Site Name
  - Sampling Date
  - Laboratory and Analysis
  - Number of samples contained within
- Samples must be kept on ice at all times and sent to laboratories via overnight delivery.

9 WASTE MANAGEMENT

Materials generated during the sampling and decontamination activities along with disposable equipment will be managed in accordance with project requirements and applicable State regulations.

10 DATA RECORDING AND MANAGEMENT

Daily sampling activities will be recorded in the field notebook. Photographs of sampling apparatuses and field activities will be taken as appropriate, and a log of photographs taken will be recorded (e.g., subject matter, photograph location, and photograph facing) in the field notebook. Copies of the field notebook will be forwarded to the CPM or designee, as requested. Upon completion of the field activities, field notebooks will be maintained in the project files.

11 ADDITIONAL RESOURCES

Brief Explainer Video

https://youtu.be/yfBdo8Qoblo

ESTCP Project Page

https://serdp-estcp.org/Program-Areas/Environmental-Restoration/Contaminated-Groundwater/Monitoring/ER19-5190

Journal Articles

Ulrich et al., 2020. Laboratory and Initial Field Testing of the Min-Trap™ for Tracking Reactive Iron Sulfide Mineral Formation During In Situ Remediation. *Remediation Journal*, in review.

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Min-Trap™ Sampling Form

Site: _____ **Field Technician: Name(s)/Company**

Location: _____ _____

Well ID: _____ _____

Well Type: ☐Monitoring ☐Other: _____

Well Finish: ☐Stick Up ☐Flush Mount

Measuring Pt (MP): ☐Top of Casing ☐Other (specify):_____

Total Depth (ft bgs): _____ **Screened Interval (ft bgs):** _____

Well Casing: Diameter: _____ Material: _____

Well Screen: Diameter: _____

Deployment

Date and Time of Deployment: Date: _____ Time: _____

Weather Conditions: _____

Depth to groundwater at time of deployment (below MP): _____

Sounded depth to bottom (below MP) _____

Calculated saturated screen interval thickness (ft): _____ **Calculated midpoint of saturated screen (ft below MP):** _____

Type & Number of Min-Traps™: ___ Regular ___ Other

___ Plus Iron

Dimensions of Min-Trap™ : Length (in.) _____ Diameter (in.) _____

Total Length of Min-Trap™ Assembly : Length (ft.) _____

Depth to top of Min-Trap™ (ft below MP): _____

Position of Min-Trap™ weight: ☐Attached to bottom of Min-Trap™ and suspended at bottom of well

☐Attached to bottom of deployment line and suspended at bottom of well

Retrieval (note: target deployment period is 2 months)

Date and Time of Retrieval: Date: _____ Time: _____

Total # of days deployed: _____

Weather Conditions: _____

Depth to groundwater at time of retrieval: _____

Downhole Field Parameters Upon Retrieval:

Temp:_____ (mV) **ORP:**_____ **(mV) Water quality meter:**_____

pH:_____ **DO:**_____ **(mg/L) Serial #:**_____

Notes/Observations:

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Guide to Mineralogical and Geochemical Analysis of Reactive Minerals

Analytical Method	Purpose	Comments	Labs and Typical Pricing
Total metals analysis (**EPA 3050B extraction with EPA 6010 or EPA 6020**)	Bulk metals analysis	• Element quantification in bulk samples • May be used to screen for target elements (e.g., iron, constituent of concern metals) to select intervals for more specialized analyses • Does not account for metals in highly recalcitrant mineral phases such as silicates	• Eurofins, SGS, Alpha, etc. • $10-$20 per metal per sample
X-ray fluorescence spectroscopy (**XRF**)	Bulk metals analysis	• Field measurements of total metals in soil cores • May be used to screen samples for more detailed analysis • Detection limits vary by element and XRF model	• Rental equipment vendor (e.g., Pine, Geotech) • $400/d, $1,200/wk (Geotech)
Aqueous and Mineralogical Intrinsic Bioremediation Assessment **(AMIBA)**	Iron and sulfur biogeochemistry	• Low level quantitation of relevant minerals • Acid-volatile sulfide (AVS): labile sulfide compounds including mackinawite (FeS) • Chromium extractable sulfide (CrES): elemental sulfur and sulfide in disulfides like pyrite (FeS_2) • Weak acid soluble iron (WAS): iron present in poorly crystalline phases (iron environmentally available for reactions), sometimes interpreted as biogenic minerals • Strong acid soluble iron (SAS): iron present in crystalline phases ("bulk" iron that is not readily available for reactions)	• Prima Environmental (El Dorado Hills, CA) • ~$1,000 per sample, $2,000 minimum
Scanning electron microscopy with energy dispersive spectroscopy **(SEM-EDS)**	Identification of mineralogy, elemental ratios, and particle morphology and distribution	• Element identification, relative quantitation of elemental ratios • Visualization of mineral associations, elemental composition, and grain size/shape • Ability to focus on areas of interest within sample • Can analyze sample with minimal pre-processing (i.e., drying or grinding), dependent on SEM model	• MVA Scientific Consultants (Duluth, GA, https://www.mvainc.com) • Western Surface Science (Ontario, Canada) • ~$800 - $1,000 per sample

Analytical Method	Purpose	Comments	Labs and Typical Pricing
Magnetic Susceptibility	Estimation of magnetite quantity	• Inexpensive measurement in soil sample/core or using downhole probe • Special sample handling (i.e., protecting from oxygen exposure) is not needed • Magnetite is not the only magnetic mineral, so there is some variability in estimating magnetite mass from magnetic susceptibility	• Microbial Insights • $75 per analytical sample • Probe rental for field use
X-ray Absorption Spectroscopy **(XAS)**	Identification of element valence state and coordination with other elements	• Can be used to study crystalline and non-crystalline mineral forms, sees elements that might be missed by other techniques, involves simple sample preservation • Bulk analysis or microprobe (high spatial resolution) • Limited number of beamlines available around the world	• Stanford U, U Cal Berkeley, Argonne National Lab, Brookhaven National Lab, Canadian Light Source • Beam time at U.S. national labs accessed through proposal process based on scientific merit • Commercial pricing available at Canadian Light Source ~$2,000 per sample; data evaluation service available
X-ray diffraction **(XRD)**	Identification of bulk mineralogy	• Not applicable to poorly crystalline phases • Sample preparation requires grinding to create a powder. Difficult to prevent oxygen exposure during this process, which negatively impacts reactive iron minerals. • Detection limits around 1-5% by weight may be too high to detect target reactive minerals	• DCM Science* (Wheat Ridge, CO) • $200-300 per sample *may require subcontracting through another lab

Note: Prices as of September 2021

ARCADIS Design & Consultancy for natural and built assets

APPENDIX B BASELINE AND PERFORMANCE MONITORING DATA

METHOD 300.0
NITRATE-N

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20K098
Matrix : WATER
InstrumentID : D0

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	ICK015WB	ND	1	NA	0.1	0.025	0.05	11/10/2014:36	NA	AK11-03	AK11-01	ICK015W	NA	NA
LCS1W	ICK015WL	0.998	1	NA	0.1	0.025	0.05	11/10/2014:53	NA	AK11-04	AK11-01	ICK015W	NA	NA
LCD1W	ICK015WC	0.997	1	NA	0.1	0.025	0.05	11/10/2015:10	NA	AK11-05	AK11-01	ICK015W	NA	NA
SS003-3-MW-39D(11092020)	K098-02	ND	1	NA	0.1	0.025	0.05	11/11/2011:37	NA	AK11-66	AK11-60	ICK015W	11/09/2015:45	11/11/20
SS003-3-MW-14(11092020)	K098-01I	ND	2	NA	0.2	0.05	0.1	11/11/2011:55	NA	AK11-67	AK11-60	ICK015W	11/09/2013:50	11/11/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K098
METHOD : 300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICK015WB	ICK015WL	ICK015WC
LAB FILE ID :	AK11-03	AK11-04	AK11-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	11/10/2014:36	11/10/2014:53	11/10/2015:10
PREP BATCH :	ICK015W	ICK015W	ICK015W
CALIBRATION REF:	AK11-01	AK11-01	AK11-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
NITRATE-N	ND	1	0.998	100	1	0.997	100	0	90-110	20

METHOD 300.0
SULFATE

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20K098
Matrix : WATER
InstrumentID : D0

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	ICK015WB	ND	1	NA	0.5	0.125	0.25	11/10/2014:36	NA	AK11-03	AK11-01	ICK015W	NA	NA
LCS1W	ICK015WL	4.95	1	NA	0.5	0.125	0.25	11/10/2014:53	NA	AK11-04	AK11-01	ICK015W	NA	NA
LCD1W	ICK015WC	5.44	1	NA	0.5	0.125	0.25	11/10/2015:10	NA	AK11-05	AK11-01	ICK015W	NA	NA
SS003-3-MW-14(11092020)	K098-01J	2700	200	NA	100	25	50	11/11/2014:03	NA	AK11-74	AK11-72	ICK015W	11/09/2013:50	11/11/20
SS003-3-MW-39D(11092020)	K098-02J	211	20	NA	10	2.5	5	11/11/2014:20	NA	AK11-75	AK11-72	ICK015W	11/09/2015:45	11/11/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K098
METHOD : 300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICK015WB	ICK015WL	ICK015WC
LAB FILE ID :	AK11-03	AK11-04	AK11-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	11/10/2014:36	11/10/2014:53	11/10/2015:10
PREP BATCH :	ICK015W	ICK015W	ICK015W
CALIBRATION REF:	AK11-01	AK11-01	AK11-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	5	4.95	99	5	5.44	109	9	90-110	20

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/09/20 13:50
Project	: VAFB-SS003	Date Received:	11/11/20
SDG NO.	: 20K098	Date Extracted:	11/17/20 11:52
Sample ID:	SS003-3-MW-14(11092020)	Date Analyzed:	11/18/20 17:06
Lab Samp ID:	K098-01	Dilution Factor:	1
Lab File ID:	ID8K011088	Matrix:	WATER
Ext Btch ID:	IPK022W	% Moisture:	NA
Calib. Ref.:	ID8K011079	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	58200	200	20.0	40.0
Manganese	1230	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/09/20 15:45
Project	: VAFB-SS003	Date Received:	11/11/20
SDG NO.	: 20K098	Date Extracted:	11/17/20 11:52
Sample ID:	SS003-3-MW-39D(11092020)	Date Analyzed:	11/18/20 17:11
Lab Samp ID:	K098-02	Dilution Factor:	1
Lab File ID:	ID8K011089	Matrix:	WATER
Ext Btch ID:	IPK022W	% Moisture:	NA
Calib. Ref.:	ID8K011079	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	3910	200	20.0	40.0
Manganese	279	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	NA
Project	: VAFB-SS003	Date Received:	NA
SDG NO.	: 20K098	Date Extracted:	11/17/20 11:52
Sample ID:	MBLK1W	Date Analyzed:	11/18/20 13:21
Lab Samp ID:	IPK022WB	Dilution Factor:	1
Lab File ID:	ID8K011041	Matrix:	WATER
Ext Btch ID:	IPK022W	% Moisture:	NA
Calib. Ref.:	ID8K011034	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	28.1J	200	20.0	40.0
Manganese	ND	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

IPK022WB.TXT
IPK022WC.TXT
IPK022WL.TXT
K098-01.TXT
K098-02.TXT
MRLK1802.TXT

```
00  ID8K011014  ICV         |
00  ID8K011015  ICB         |
00  ID8K011017  MRLK1802    |
00  ID8K011020  ICSA1       |
00  ID8K011021  ICSAB1      |
00  ID8K011034  CCV2        |
00  ID8K011035  CCB2        |
00  ID8K011041  IPK022WB    |
00  ID8K011042  IPK022WL    |
00  ID8K011043  IPK022WC    |
00  ID8K011046  CCV3        |
00  ID8K011047  CCB3        |
00  ID8K011079  CCV6        |
00  ID8K011080  CCB6        |
00  ID8K011088  K098-01     |
00  ID8K011089  K098-02     |
00  ID8K011091  CCV7        |
00  ID8K011092  CCB7        |
```

"1","IPK022WB","ID8K011041"
"2","IPK022WL","ID8K011042"
"3","IPK022WC","ID8K011043"

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K098
METHOD : 3010A/6010B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1.000	1.000	1.000
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: IPK022WB	IPK022WL	IPK022WC
LAB FILE ID	: ID8K011041	ID8K011042	ID8K011043
DATE PREPARED	: 11/17/20 11:52	11/17/20 11:52	11/17/20 11:52
DATE ANALYZED	: 11/18/20 13:21	11/18/20 13:25	11/18/20 13:30
PREP BATCH	: IPK022W	IPK022W	IPK022W
CALIBRATION REF	: ID8K011034	ID8K011034	ID8K011034

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Iron	28.1J	5000	5040	101	5000	4990	100	1	80-120	20
Manganese	ND	500	478	96	500	472	94	1	80-120	20

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/09/20 13:50
Project	: VAFB-SS003	Date Received:	11/11/20
SDG NO.	: 20K098	Date Extracted:	11/19/20 11:32
Sample ID:	SS003-3-MW-14(11092020)	Date Analyzed:	11/20/20 15:22
Lab Samp ID:	K098-01	Dilution Factor:	1
Lab File ID:	ID8K013054	Matrix:	WATER
Ext Btch ID:	IPK023W	% Moisture:	NA
Calib. Ref.:	ID8K013047	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	60300	200	20.0	40.0
Manganese	1260	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/09/20 15:45
Project	: VAFB-SS003	Date Received:	11/11/20
SDG NO.	: 20K098	Date Extracted:	11/19/20 11:32
Sample ID:	SS003-3-MW-39D(11092020)	Date Analyzed:	11/20/20 15:27
Lab Samp ID:	K098-02	Dilution Factor:	1
Lab File ID:	ID8K013055	Matrix:	WATER
Ext Btch ID:	IPK023W	% Moisture:	NA
Calib. Ref.:	ID8K013047	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	4520	200	20.0	40.0
Manganese	278	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	NA
Project	: VAFB-SS003	Date Received:	NA
SDG NO.	: 20K098	Date Extracted:	11/19/20 11:32
Sample ID:	MBLK1W	Date Analyzed:	11/20/20 13:05
Lab Samp ID:	IPK023WB	Dilution Factor:	1
Lab File ID:	ID8K013026	Matrix:	WATER
Ext Btch ID:	IPK023W	% Moisture:	NA
Calib. Ref.:	ID8K013024	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	ND	200	20.0	40.0
Manganese	ND	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

IPK023WB.TXT
IPK023WC.TXT
IPK023WL.TXT
K098-01.TXT
K098-02.TXT
MRLK2002.TXT

```
00  ID8K013014  ICV        |
00  ID8K013015  ICB        |
00  ID8K013021  MRLK2002   |
00  ID8K013022  ICSA1      |
00  ID8K013023  ICSAB1     |
00  ID8K013024  CCV1       |
00  ID8K013025  CCB1       |
00  ID8K013026  IPK023WB   |
00  ID8K013027  IPK023WL   |
00  ID8K013028  IPK023WC   |
00  ID8K013035  CCV2       |
00  ID8K013036  CCB2       |
00  ID8K013047  CCV3       |
00  ID8K013048  CCB3       |
00  ID8K013054  K098-01    |
00  ID8K013055  K098-02    |
00  ID8K013059  CCV4       |
00  ID8K013060  CCB4       |
```

"1","IPK023WB","ID8K013026"
"2","IPK023WL","ID8K013027"
"3","IPK023WC","ID8K013028"

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K098
METHOD : 3010A/6010B

MATRIX	WATER		% MOISTURE:NA
DILUTION FACTOR	1.000	1.000	1.000
SAMPLE ID	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	IPK023WB	IPK023WL	IPK023WC
LAB FILE ID	ID8K013026	ID8K013027	ID8K013028
DATE PREPARED	11/19/20 11:32	11/19/20 11:32	11/19/20 11:32
DATE ANALYZED	11/20/20 13:05	11/20/20 13:10	11/20/20 13:15
PREP BATCH	IPK023W	IPK023W	IPK023W
CALIBRATION REF	ID8K013024	ID8K013024	ID8K013024

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Iron	ND	5000	5030	101	5000	5060	101	1	80-120	20
Manganese	ND	500	486	97	500	490	98	1	80-120	20

RSK-175
DISSOLVED GASES

Client	: ARCADIS	Date Collected	: 11/09/20
Project	: VAFB-SS003	Date Received	: 11/11/20
Batch No.	: 20K098	Date Extracted	: 11/13/20 10:20
Sample ID	: SS003-3-MW-14(11092020)	Date Analyzed	: 11/13/20 17:27
Lab Samp ID	: K098-01I	Dilution Factor	: 5
Lab File ID	: BK13029A	Matrix	: WATER
Ext Btch ID	: DGK008W	% Moisture	: NA
Calib. Ref.	: BK13024A	Instrument ID	: GCT072

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	94	10	0.85	1.7

RSK-175
DISSOLVED GASES

Client	: ARCADIS	Date Collected	: 11/09/20
Project	: VAFB-SS003	Date Received	: 11/11/20
Batch No.	: 20K098	Date Extracted	: 11/13/20 10:20
Sample ID	: SS003-3-MW-39D(11092020)	Date Analyzed	: 11/13/20 17:59
Lab Samp ID	: K098-02I	Dilution Factor	: 20
Lab File ID	: BK13031A	Matrix	: WATER
Ext Btch ID	: DGK008W	% Moisture	: NA
Calib. Ref.	: BK13024A	Instrument ID	: GCT072

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	180	40	3.4	6.8

RSK-175
DISSOLVED GASES

Client	: ARCADIS	Date Collected	: NA
Project	: VAFB-SS003	Date Received	: 11/13/20
Batch No.	: 20K098	Date Extracted	: 11/13/20 10:20
Sample ID	: MBLK1W	Date Analyzed	: 11/13/20 10:45
Lab Samp ID	: DGK008WB	Dilution Factor	: 1
Lab File ID	: BK13003A	Matrix	: WATER
Ext Btch ID	: DGK008W	% Moisture	: NA
Calib. Ref.	: BK13002A	Instrument ID	: GCT072

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	ND	2.0	0.17	0.34

BK13001A.ESD
BK13002A.ESD
BK13003A.ESD
BK13004A.ESD
BK13005A.ESD
BK13013A.ESD
BK13024A.ESD
BK13029A.ESD
BK13031A.ESD
BK13035A.ESD

DGK008WB.TXT
DGK008WC.TXT
DGK008WL.TXT
K098-01I.TXT
K098-02I.TXT

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: ARCADIS
PROJECT: VAFB-SS003
BATCH NO.: 20K098
METHOD: RSK-175

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	DGK008WB	DGK008WL	DGK008WC		
LAB FILE ID:	BK13003A	BK13004A	BK13005A		
DATE EXTRACTED:	11/13/2010:20	11/13/2010:20	11/13/2010:20	DATE COLLECTED:	NA
DATE ANALYZED:	11/13/2010:45	11/13/2010:59	11/13/2011:12	DATE RECEIVED:	11/13/20
PREP. BATCH:	DGK008W	DGK008W	DGK008W		
CALIB. REF:	BK13002A	BK13002A	BK13002A		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Methane	ND	13.6	12.6	93	13.6	12.9	95	2	73-125	20

METHOD SM4500-S2-D
TOTAL SULFIDE

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20K098
Matrix : WATER
InstrumentID : H9

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	SFK004WB	ND	1	NA	0.1	0.01	0.02	11/13/2014:26	NA	20SFK00410	20SFK004	SFK004W	NA	NA
LCS1W	SFK004WL	0.398	1	NA	0.1	0.01	0.02	11/13/2014:26	NA	20SFK00411	20SFK004	SFK004W	NA	NA
LCD1W	SFK004WC	0.399	1	NA	0.1	0.01	0.02	11/13/2014:26	NA	20SFK00412	20SFK004	SFK004W	NA	NA
SS003-3-MW-39D(11092020)	K098-02	0.0474J	1	NA	0.1	0.01	0.02	11/13/2014:27	NA	20SFK00418	20SFK004	SFK004W	11/09/2015:45	11/11/20
SS003-3-MW-14(11092020)	K098-01I	9.31	20	NA	2	0.2	0.4	11/13/2014:29	NA	20SFK00428	20SFK004	SFK004W	11/09/2013:50	11/11/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K098
METHOD : SM4500-S2-D

MATRIX	WATER		% MOISTURE:NA
DILUTION FACTOR	1	1	1
SAMPLE ID	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	SFK004WB	SFK004WL	SFK004WC
LAB FILE ID	20SFK00410	20SFK00411	20SFK00412
DATE PREPARED	NA	NA	NA
DATE ANALYZED	11/13/2014:26	11/13/2014:26	11/13/2014:26
PREP BATCH	SFK004W	SFK004W	SFK004W
CALIBRATION REF	20SFK004	20SFK004	20SFK004

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
SULFIDE	ND	0.400	0.398	99	0.400	0.399	100	0	80-120	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

METHOD SM2320-B
TOTAL ALKALINITY

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20K098
Matrix : WATER
InstrumentID : E5

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DIL. FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ALK011WB	ND	1	NA	5	5	5	11/20/2017:33	NA	20E5K1903	20E5K19	ALK011W	NA	NA
LCS1W	ALK011WL	75.1	1	NA	5	5	5	11/20/2017:41	NA	20E5K1904	20E5K19	ALK011W	NA	NA
LCD1W	ALK011WC	77.3	1	NA	5	5	5	11/20/2017:48	NA	20E5K1905	20E5K19	ALK011W	NA	NA
SS003-3-MW-14(11092020)	K098-01	392	1	NA	5	5	5	11/20/2019:15	NA	20E5K1915	20E5K19	ALK011W	11/09/2013:50	11/11/20
SS003-3-MW-39D(11092020)	K098-02	33.2	1	NA	5	5	5	11/20/2019:20	NA	20E5K1916	20E5K19	ALK011W	11/09/2015:45	11/11/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K098
METHOD : METHOD SM2320-B

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ALK011WB	ALK011WL	ALK011WC
LAB FILE ID :	20E5K1903	20E5K1904	20E5K1905
DATE EXTRACTED :	NA	NA	NA
DATE ANALYZED :	11/20/2017:33	11/20/2017:41	11/20/2017:48
PREP BATCH :	ALK011W	ALK011W	ALK011W
CALIBRATION REF:	20E5K19	20E5K19	20E5K19

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
ALKALINITY	ND	75.8	75.1	99	75.8	77.3	102	3	80-120	20

METHOD SM5310-B
TOC

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20K098

Matrix : WATER
InstrumentID : 62

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DIL'N FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	TCL001WB	ND	1	NA	1.00	0.250	0.500	12/01/2020:00	NA	TCL001-05	TCL001-02	TCL001W	NA	NA
LCS1W	TCL001WL	24.7	1	NA	1.00	0.250	0.500	12/01/2020:15	NA	TCL001-06	TCL001-02	TCL001W	NA	NA
LCD1W	TCL001WC	24.8	1	NA	1.00	0.250	0.500	12/01/2020:30	NA	TCL001-07	TCL001-02	TCL001W	NA	NA
SS003-3-MW-14(11092020)	K098-01I	375	10	NA	10.0	2.50	5.00	12/01/2020:45	NA	TCL001-08	TCL001-02	TCL001W	11/09/2013:50	11/11/20
MBLK2W	TCK011WB	ND	1	NA	1.00	0.250	0.500	11/23/2020:33	NA	TCK007-05	TCK007-02	TCK011W	NA	NA
LCS2W	TCK011WL	24.7	1	NA	1.00	0.250	0.500	11/23/2020:48	NA	TCK007-06	TCK007-02	TCK011W	NA	NA
LCD2W	TCK011WC	24.7	1	NA	1.00	0.250	0.500	11/23/2021:04	NA	TCK007-07	TCK007-02	TCK011W	NA	NA
SS003-3-MW-39D(11092020)	K098-02	13.7	1	NA	1.00	0.250	0.500	11/24/2001:02	NA	TCK007-22	TCK007-14	TCK011W	11/09/2015:45	11/11/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K098
METHOD : SM5310-B

MATRIX	WATER		% MOISTURE:NA
DILUTION FACTOR	1	1	1
SAMPLE ID	MBLK2W	LCS2W	LCD2W
LAB SAMPLE ID	TCK011WB	TCK011WL	TCK011WC
LAB FILE ID	TCK007-05	TCK007-06	TCK007-07
DATE PREPARED	NA	NA	NA
DATE ANALYZED	11/23/2020:33	11/23/2020:48	11/23/2021:04
PREP BATCH	TCK011W	TCK011W	TCK011W
CALIBRATION REF	TCK007-02	TCK007-02	TCK007-02

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
TOC	ND	25.0	24.7	99	25.0	24.7	99	0	80-120	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K098
METHOD : SM5310-B

MATRIX	WATER		% MOISTURE:NA
DILUTION FACTOR	1	1	1
SAMPLE ID	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	TCL001WB	TCL001WL	TCL001WC
LAB FILE ID	TCL001-05	TCL001-06	TCL001-07
DATE PREPARED	NA	NA	NA
DATE ANALYZED	12/01/2020:00	12/01/2020:15	12/01/2020:30
PREP BATCH	TCL001W	TCL001W	TCL001W
CALIBRATION REF	TCL001-02	TCL001-02	TCL001-02

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
TOC	ND	25.0	24.7	99	25.0	24.8	99	0	80-120	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889

Date: 12-09-2020
EMAX Batch No.: 20K128

Attn: Hoa Voscott

Arcadis
200 South Michigan Ave,Ste 2000
Chicago, IL 60604

Subject: Laboratory Report
Project: VAFB-SS003

Enclosed is the Laboratory report for samples received on 11/13/20.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
SS003-3-MW-15R(11102020)	K128-01	11/10/20	WATER	DISSOLVED METALS BY ICP METALS BY ICP ANIONS BY IC TOTAL ORGANIC CARBON ALKALINITY TOTAL SULFIDE BY STD METHOD METHANE
SS003-3-MW-18(11102020)	K128-02	11/09/20	WATER	DISSOLVED METALS BY ICP METALS BY ICP ANIONS BY IC TOTAL ORGANIC CARBON ALKALINITY TOTAL SULFIDE BY STD METHOD METHANE
SS003-3-MW-33(11102020)	K128-03	11/10/20	WATER	DISSOLVED METALS BY ICP METALS BY ICP ANIONS BY IC TOTAL ORGANIC CARBON ALKALINITY TOTAL SULFIDE BY STD METHOD METHANE
SS003-3-MW-40(11102020)	K128-04	11/10/20	WATER	DISSOLVED METALS BY ICP METALS BY ICP ANIONS BY IC TOTAL ORGANIC CARBON ALKALINITY TOTAL SULFIDE BY STD METHOD METHANE
SS003-DUP1(11102020)	K128-05	11/10/20	WATER	DISSOLVED METALS BY ICP METALS BY ICP ANIONS BY IC TOTAL ORGANIC CARBON ALKALINITY TOTAL SULFIDE BY STD METHOD METHANE

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning
these results.

Sincerely yours,

Caspar J. Pang
Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that results included in this report meets all TNI & DOD requirements unless noted in the Case Narrative.

NELAP Accredited Certificate Number CA002912018-15
ANAB Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
California ELAP Accredited Certificate Number 2672

CHAIN OF CUSTODY

Laboratories, Inc.	1835 W. 205th Street, Torrance, CA 90501 Tel # : 310-618-8889 FAX#: 310-618-0818 Email: info@emaxlabs.com	**PO NUMBER: 30028451** SAMPLE STORAGE	**EMAX CONTROL NO.** 20K128

PROJECT ESTCP Min Trap Baseline Sampling
COORDINATOR Craig Divine
TEL 720-308-5367 FAX EMAIL craig.divine@arcadis.com
SEND REPORT TO craig.divine@arcadis.com
COMPANY Arcadis
ADDRESS 735 Tank Farm Road, Ste. 150
San Luis Obispo, CA 93405
EMAX PM Richard Beauvil

MATRIX CODE: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste SL=Sludge; SS=Soil/ Sediment; WP=Wipes PP=Pure Products; AR=Air; O=

PRESERVATIVE CODE: IC = Ice; HC = HCl; HN=HNO3; SH=NaO3; ST=Na2S2O3; ZA=Zinc Acetate; HS=H2SO4

TAT: ☐ ~~Rush 24 hrs.~~ ☐ ~~Rush 48 hrs~~ ☐ ~~Rush 72 hrs~~ ☐ ~~7 days~~ ☑ ~~14 days~~ ☐ ~~21 days~~

LAB	SAMPLE ID (CLIENT)	SAMPLING LOCATION	SAMPLING DATE	SAMPLING TIME	CONTAINER NO.	CONTAINER SIZE	CONTAINER TYPE	MATRIX CODE	QC	Sulfides	Diss. Fe & Mn	Total Fe & Mn	Methane (RSK175)	TOC (5310)	Anions/Alkalinity	PRESERVATIVE CODE	COMMENTS
* 1	SS003-3-MW-15R(11102020)	VAFB, CA	11/10/2020	1110	8	VARY	VARY	GW		1	1	1	3	1	1		Preservatives Vary
* 2	SS003-3-MW-18(11102020)	VAFB, CA	11/9/2020	1520	8	VARY	VARY	GW		1	1	1	3	1	1		Preservatives Vary
* 3	SS003-3-MW-33(11102020)	VAFB, CA	11/10/2020	1430	8	VARY	VARY	GW		1	1	1	3	1	1		Preservatives Vary
* 4	SS003-3-MW-40(11102020)	VAFB, CA	11/10/2020	1330	8	VARY	VARY	GW		1	1	1	3	1	1		Preservatives Vary
* 5	SS003-DUP1(11102020)	VAFB, CA	11/10/2020	800	8	VARY	VARY	GW	FD	1	1	1	3	1	1		Preservatives Vary
* 6																	
* 7																	
* 8																	
* 9																	
10																	

Instructions: STD TAT, please adhere to appropriate hold times
Level 2 Reporting requested, Please submit to Equis/EDD

Cooler #	Temp. (°C)	Sample #s
1	5.6	

SAMPLER
COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
Erik Zardouzian	11/11/2020	1639	Benito Montez
	11/12/20	1430	FedEx
	11/13/20	9:30	

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

Type of Delivery	Airbill / Tracking Number	ECN 20K128
☒ Fedex ☐ UPS ☐ GSO ☐ Others	7720 6232 8291	Recipient Maria Rivera
☐ EMAX Courier ☐ Client Delivery		Date 11/13/20 Time 9:30

COC INSPECTION

☒ Client Name	☒ Client PM/FC	☐ Sampler Name	☒ Sampling Date/Time	☒ Sample ID	☒ Matrix
☒ Address	☒ Tel # / Fax #	☐ Courier Signature	☒ Analysis Required	☐ Preservative (if any)	☒ TAT
Safety Issues (if any)	☐ High concentrations expected	☐ From Superfund Site	☐ Rad screening required		

Note: _____

PACKAGING INSPECTION

Container	☒ Cooler	☐ Box	☐ Other		
Condition	☒ Custody Seal	☐ Intact	☐ Damaged		
Packaging	☒ Bubble Pack	☐ Styrofoam	☐ Popcorn	☐ Sufficient	☐ _____
Temperatures (Cool, ≤6 °C but not frozen)	☒ Cooler 1 5.6 °C	☐ Cooler 2_____ °C	☐ Cooler 3_____ °C	☐ Cooler 4_____ °C	☐ Cooler 5_____ °C
	☐ Cooler 6_____ °C	☐ Cooler 7_____ °C	☐ Cooler 8_____ °C	☐ Cooler 9_____ °C	☐ Cooler 10_____ °C
Thermometer:	*A - S/N* 192381464	*B - S/N* 200291755	*C - S/N* 200291756	*D - S/N* 14025267	

Comments: ☐ **Temperature is out of range. PM was informed IMMEDIATELY.**

Note: _____

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
1-5	1-40	D1		R1
1-5	5,6,13,14,21,22, 29,30,37,38	D20	Metals (*)	R8
2		D13	Anions	

11/13/20 AM 11/13/20

☐ pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS: (*) Container 6 looks more clear than 5 (sample #1); sample #2 both look alike; sample #3, both look alike; same for samples #4 and #5

LEGEND:

☐ **Continue to next page.**

Code	Description- Sample Management
D1	Analysis is not indicated in label
D2	Analysis mismatch COC vs label
D3	Sample ID mismatch COC vs label
D4	Sample ID is not indicated in _____
D5	Container -[improper] [leaking] [broken]
D6	Date/Time is not indicated in _____
D7	Date/Time mismatch COC vs label
D8	Sample listed in COC is not received
D9	Sample received is not listed in COC
D10	No initial/date on corrections in COC/label
D11	Container count mismatch COC vs received
D12	Container size mismatch COC vs received

Code	Description-Sample Management
D13	Out of Holding Time
D14	Bubble is >6mm
D15	No trip blank in cooler
D16	Preservation not indicated in _____
D17	Preservation mismatch COC vs label
D18	Insufficient chemical preservative
D19	Insufficient Sample
D20	No filtration info for dissolved analysis
D21	No sample for moisture determination
D22	_____
D23	_____
D24	_____

Code	Description-Sample Management
R1	Proceed as indicated in ☒ COC ☐ Label
R2	Refer to attached instruction
R3	Cancel the analysis
R4	Use vial with smallest bubble first
R5	Log-in with latest sampling date and time+1 min
R6	Adjust pH as necessary
R7	Filter and preserved as necessary
R8	Informed Client.
R9	_____
R10	_____
R11	_____
R12	_____

REVIEWS:

Sample Labeling Maria Rivera / Aquilina
Date 11/13/20 / 11/13/20

SRF Aquilina
Date 11/13/20

PM AM
Date 11/13/20

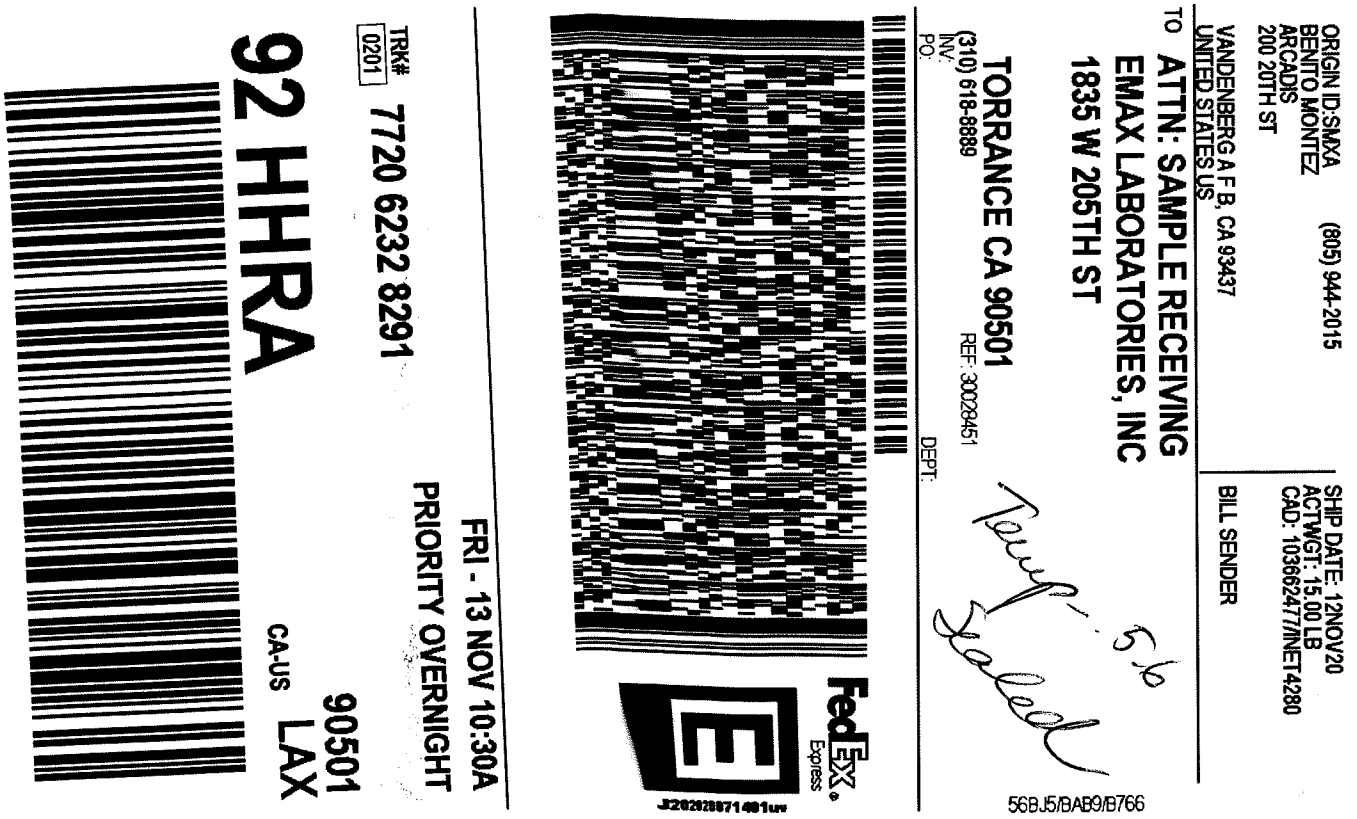
EMAX LABORATORIES, INC.

METALS FILTRATION AND PRESERVATION LOG

Book #: SFP-009

LAB SAMPLE ID	CONTAINER ID	SAMPLE VOLUME (mL)	TYPE OF ANALYSIS	FILTRATION		PRESERVATION		PRESERVATIVE			Final pH	pH Strip Lot#	Vacuum Filtration System Batch ID	COMMENT
				DATE/TIME	BY	DATE/TIME	BY	REAGENT	REAGENT ID	Amt. Added (mL)				
K128-01	008	70	METALS	11-19-201430	CF	11-19-201445	CF	HNO3	SWIA-009-048	1	<2	HC998032	191207054	
-02	016													
-03	024													
-04	032													
-05	040													

* Indicates non-compliant pH preservation.



ORIGIN ID:SMXA (805) 944-2015
BENITO MONTEZ
ARCADIS
200 20TH ST
VANDENBERG A F B, CA 93437
UNITED STATES US

SHIP DATE: 12NOV20
ACTWGT: 15.00 LB
CAD: 103662477/INET4280

BILL SENDER

TO ATTN: SAMPLE RECEIVING
EMAX LABORATORIES, INC
1835 W 205TH ST
TORRANCE CA 90501
(310) 618-8889
INV:
PO:
REF: 30028451
DEPT:

FedEx Express

J202808071401uv

56BJ5/BAB9/B766

FRI - 13 NOV 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7720 6232 8291

92 HHRA

CA-US LAX 90501

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Use the 'Print' button on this page to print your label to your laser or inkjet printer.
Fold the printed page along the horizontal line.
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REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than LOQ/RL but greater than LOD/MDL/DL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

ARCADIS

VAFB-SS003

METHOD RSK-175
DISSOLVED GASES

SDG#: 20K128

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20K128

METHOD RSK-175
DISSOLVED GASES

A total of five(5) water samples were received on 11/13/20 to be analyzed for Dissolved Gases in accordance with Method RSK-175 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DGK013WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. DGK013WL/DGK013WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
DISSOLVED GASES

Client : ARCADIS
Project : VAFB-SS003
SDG NO. : 20K128
Instrument ID : GCT072

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DGK013WB	1	NA	11/18/2010:53	11/18/2010:20	BK18003A	BK18002A	DGK013W	Method Blank
LCS1W	DGK013WL	1	NA	11/18/2011:09	11/18/2010:20	BK18004A	BK18002A	DGK013W	Lab Control Sample (LCS)
LCD1W	DGK013WC	1	NA	11/18/2011:22	11/18/2010:20	BK18005A	BK18002A	DGK013W	LCS Duplicate
SS003-3-MW-15R(11102020)	K128-01I	10	NA	11/18/2016:34	11/18/2010:20	BK18025A	BK18016A	DGK013W	Diluted Sample
SS003-3-MW-18(11102020)	K128-02	1	NA	11/18/2016:46	11/18/2010:20	BK18026A	BK18016A	DGK013W	Field Sample
SS003-3-MW-33(11102020)	K128-03I	50	NA	11/18/2017:27	11/18/2010:20	BK18029A	BK18027A	DGK013W	Diluted Sample
SS003-3-MW-40(11102020)	K128-04	1	NA	11/18/2017:39	11/18/2010:20	BK18030A	BK18027A	DGK013W	Field Sample
SS003-DUP1(11102020)	K128-05I	50	NA	11/18/2018:08	11/18/2010:20	BK18032A	BK18027A	DGK013W	Diluted Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

RSK-175
DISSOLVED GASES

Client	: ARCADIS	Date Collected:	11/10/20
Project	: VAFB-SS003	Date Received:	11/13/20
Batch No.	: 20K128	Date Extracted:	11/18/20 10:20
Sample ID:	SS003-3-MW-15R(11102020)	Date Analyzed:	11/18/20 16:34
Lab Samp ID:	K128-01I	Dilution Factor:	10
Lab File ID:	BK18025A	Matrix :	WATER
Ext Btch ID:	DGK013W	% Moisture :	NA
Calib. Ref.:	BK18016A	Instrument ID :	GCT072

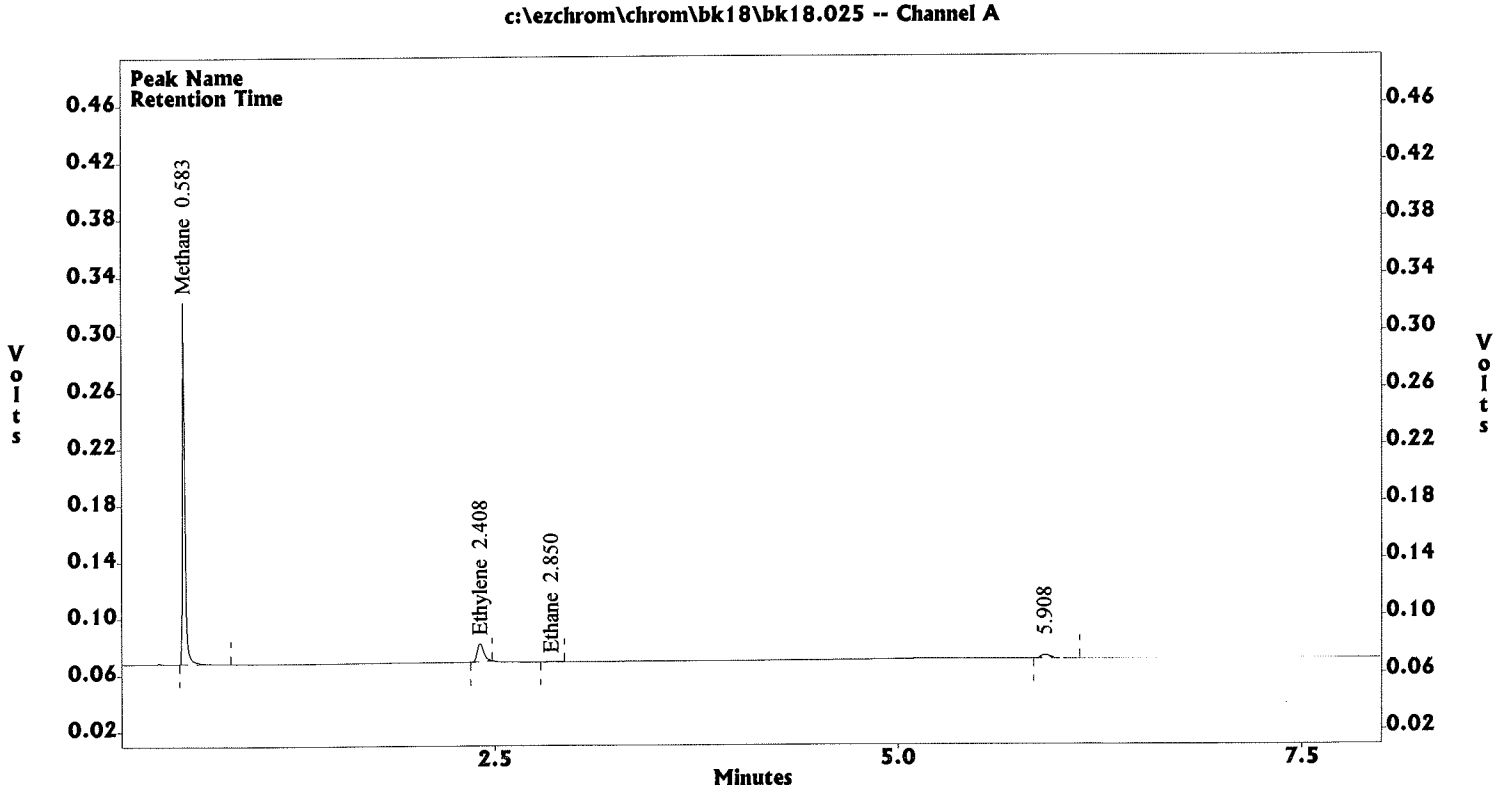
PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	190	20	1.7	3.4

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bk18\bk18.025
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : K128-01I DF=10
Acquired : Nov 18, 2020 16:34:16
Printed : Nov 18, 2020 16:50:54
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.583	266192	13975.2	190.474
--	Acetylene	1.933	0	0.0	0.000
2	Ethylene	2.408	35297	9519.0	37.081
3	Ethane	2.850	663	13110.4	0.506
--	Propane	5.133	0	0.0	0.000



RSK-175
DISSOLVED GASES

Client	: ARCADIS	Date Collected:	11/09/20
Project	: VAFB-SS003	Date Received:	11/13/20
Batch No.	: 20K128	Date Extracted:	11/18/20 10:20
Sample ID	: SS003-3-MW-18(11102020)	Date Analyzed:	11/18/20 16:46
Lab Samp ID	: K128-02	Dilution Factor:	1
Lab File ID	: BK18026A	Matrix :	WATER
Ext Btch ID	: DGK013W	% Moisture :	NA
Calib. Ref.	: BK18016A	Instrument ID :	GCT072

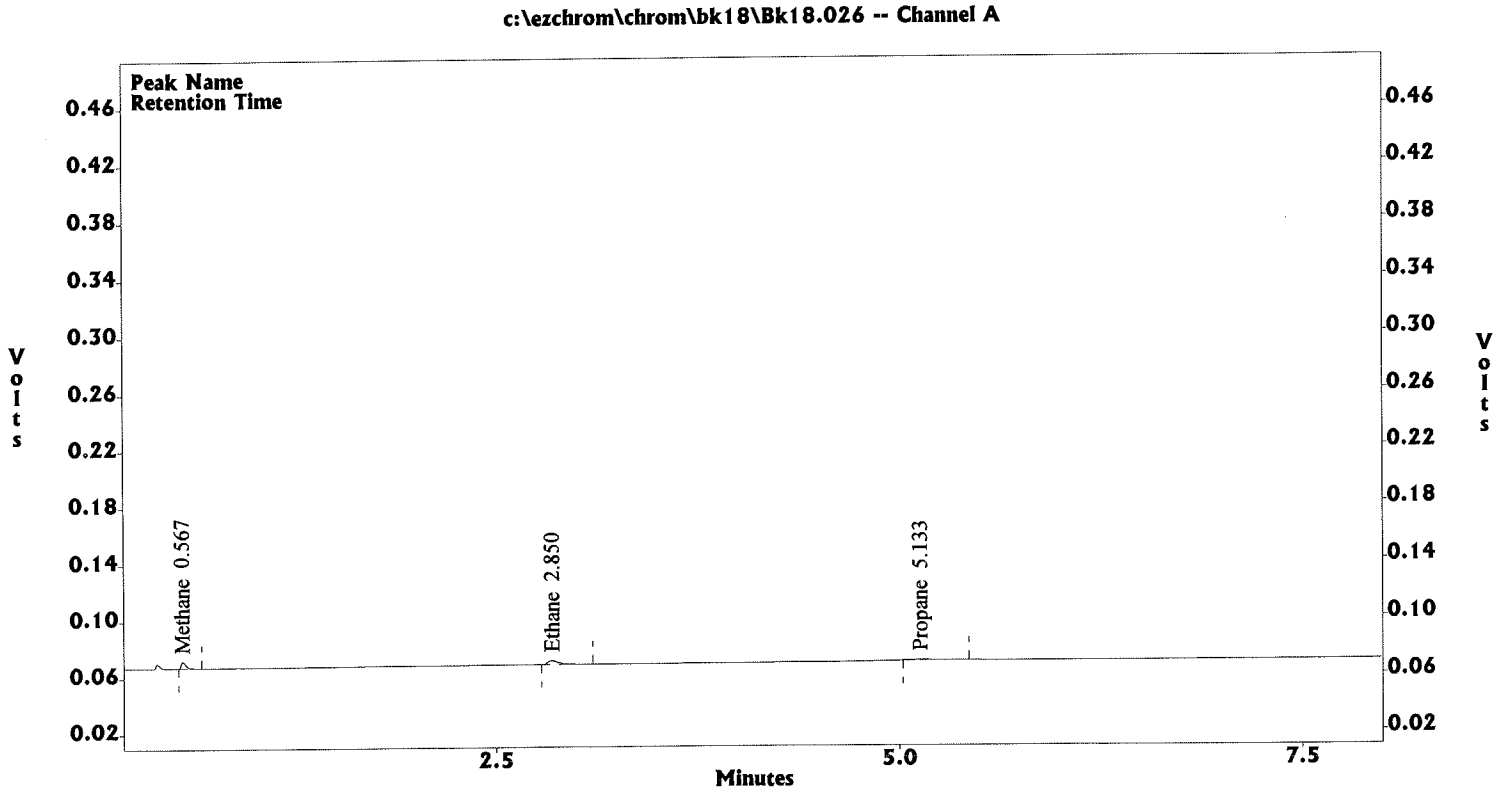
PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	0.66J	2.0	0.17	0.34

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bk18\Bk18.026
Method : c:\ezchrom\methods\Dg72d29.met
Sample ID : K128-02
Acquired : Nov 18, 2020 16:46:51
Printed : Nov 18, 2020 16:54:53
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	9278	13975.2	0.664
--	Acetylene	1.933	0	0.0	0.000
--	Ethylene	2.408	0	0.0	0.000
2	Ethane	2.850	11783	13110.4	0.899
3	Propane	5.133	4656	13914.6	0.335



RSK-175
DISSOLVED GASES

Client	: ARCADIS	Date Collected:	11/10/20
Project	: VAFB-SS003	Date Received:	11/13/20
Batch No.	: 20K128	Date Extracted:	11/18/20 10:20
Sample ID	: SS003-3-MW-33(11102020)	Date Analyzed:	11/18/20 17:27
Lab Samp ID	: K128-03I	Dilution Factor:	50
Lab File ID	: BK18029A	Matrix	: WATER
Ext Btch ID	: DGK013W	% Moisture	: NA
Calib. Ref.	: BK18027A	Instrument ID	: GCT072

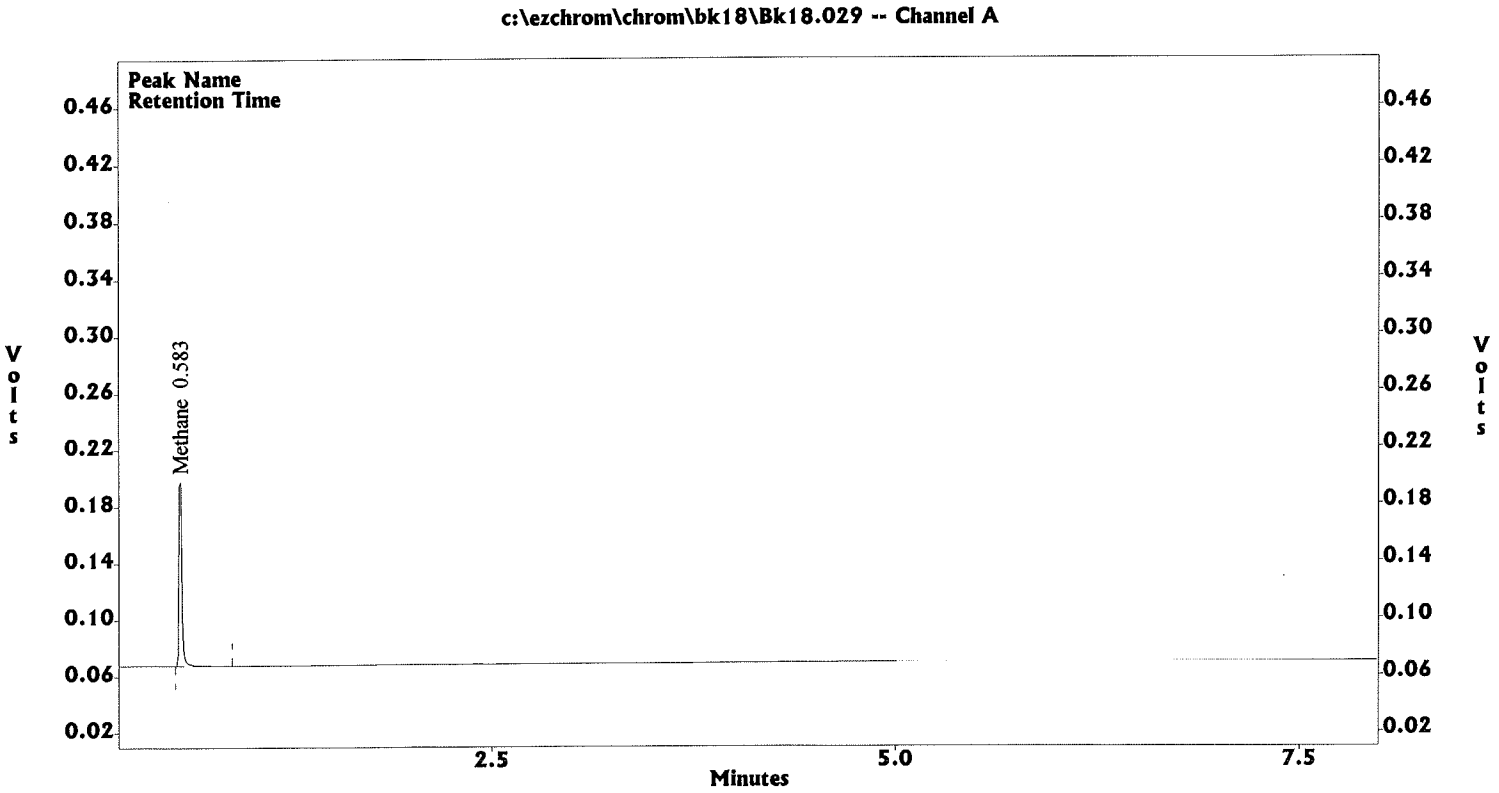
PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	600	100	8.5	17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bk18\Bk18.029
Method : c:\ezchrom\methods\Dg72d29.met
Sample ID : K128-03I DF=50
Acquired : Nov 18, 2020 17:27:24
Printed : Nov 18, 2020 17:35:25
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.583	166340	13975.2	595.125
--	Acetylene	1.933	0	0.0	0.000
--	Ethylene	2.400	0	0.0	0.000
--	Ethane	2.850	0	0.0	0.000
--	Propane	5.125	0	0.0	0.000



RSK-175
DISSOLVED GASES

Client	: ARCADIS	Date Collected:	11/10/20
Project	: VAFB-SS003	Date Received:	11/13/20
Batch No.	: 20K128	Date Extracted:	11/18/20 10:20
Sample ID	: SS003-3-MW-40(11102020)	Date Analyzed:	11/18/20 17:39
Lab Samp ID	: K128-04	Dilution Factor:	1
Lab File ID	: BK18030A	Matrix :	WATER
Ext Btch ID	: DGK013W	% Moisture :	NA
Calib. Ref.	: BK18027A	Instrument ID :	GCT072

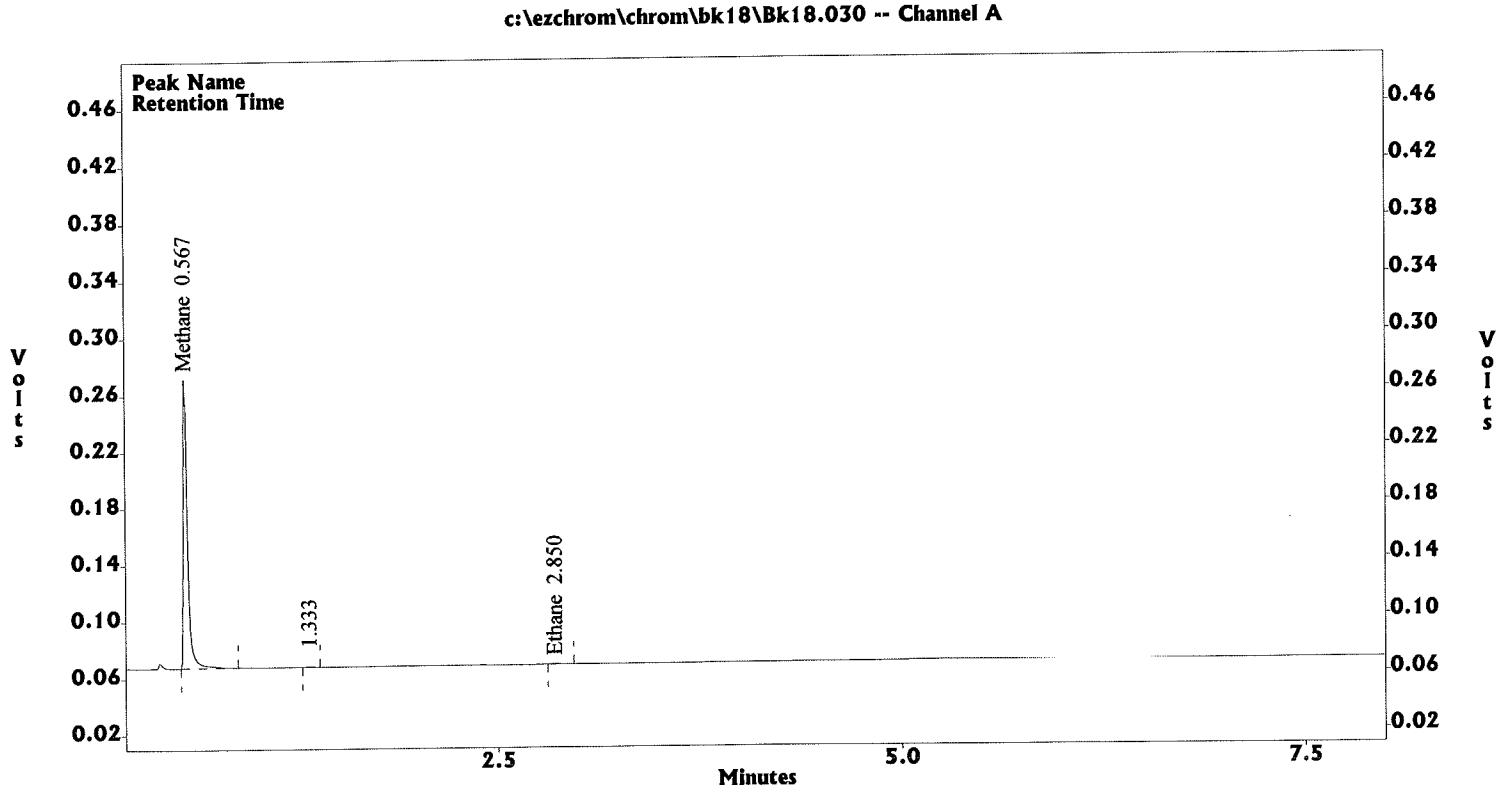
PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	26	2.0	0.17	0.34

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bk18\Bk18.030
Method : c:\ezchrom\methods\Dg72d29.met
Sample ID : K128-04
Acquired : Nov 18, 2020 17:39:59
Printed : Nov 18, 2020 17:48:00
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	364153	13975.2	26.057
--	Acetylene	1.933	0	0.0	0.000
--	Ethylene	2.400	0	0.0	0.000
3	Ethane	2.850	1312	13110.4	0.100
--	Propane	5.125	0	0.0	0.000



RSK-175
DISSOLVED GASES

Client	: ARCADIS	Date Collected:	11/10/20
Project	: VAFB-SS003	Date Received:	11/13/20
Batch No.	: 20K128	Date Extracted:	11/18/20 10:20
Sample ID	: SS003-DUP1(11102020)	Date Analyzed:	11/18/20 18:08
Lab Samp ID	: K128-05I	Dilution Factor:	50
Lab File ID	: BK18032A	Matrix :	WATER
Ext Btch ID	: DGK013W	% Moisture :	NA
Calib. Ref.	: BK18027A	Instrument ID :	GCT072

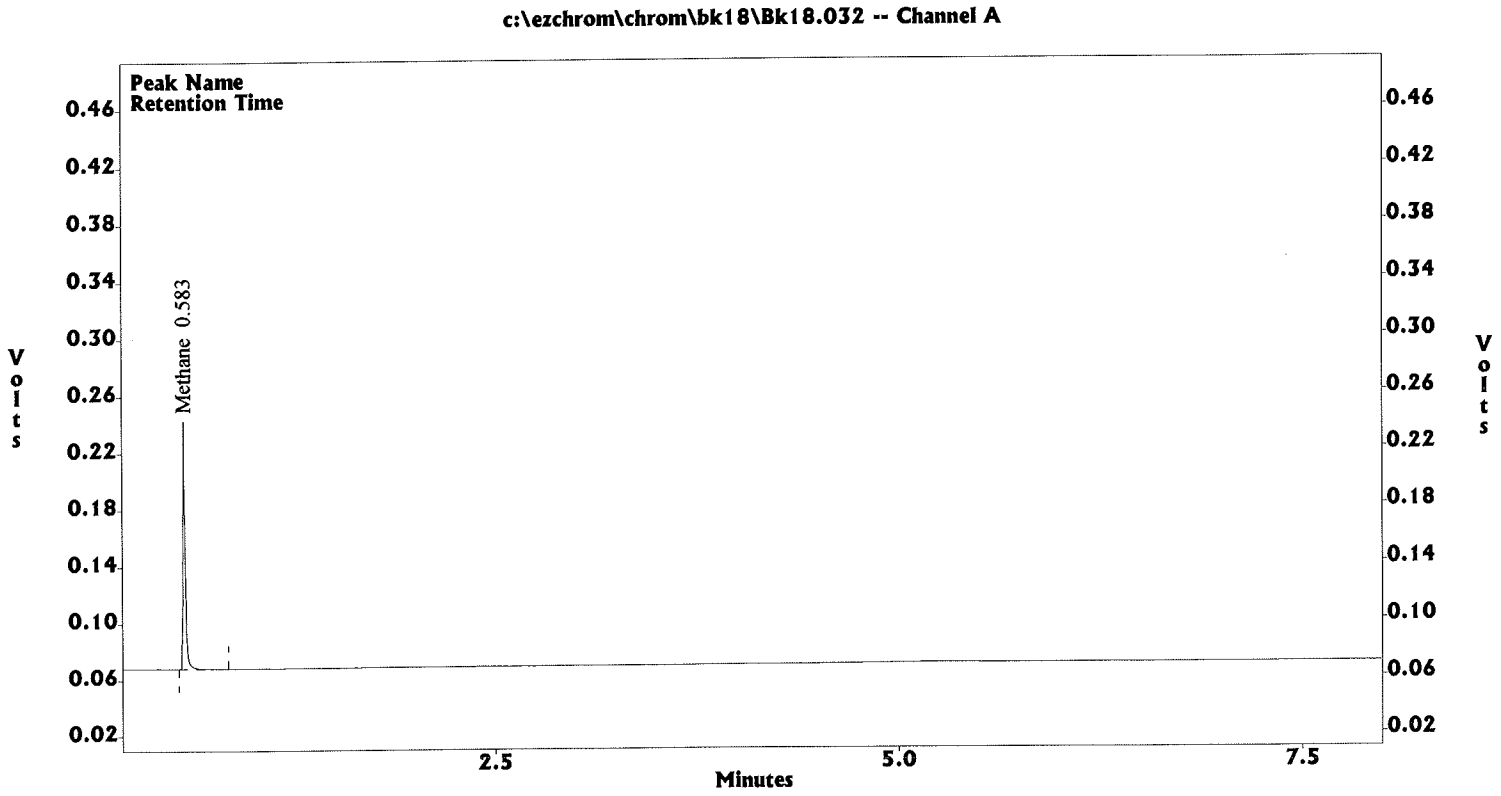
PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	620	100	8.5	17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bk18\Bk18.032
Method : c:\ezchrom\methods\Dg72d29.met
Sample ID : K128-05I DF=50
Acquired : Nov 18, 2020 18:08:53
Printed : Nov 18, 2020 18:16:54
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.583	172467	13975.2	617.046
--	Acetylene	1.933	0	0.0	0.000
--	Ethylene	2.400	0	0.0	0.000
--	Ethane	2.850	0	0.0	0.000
--	Propane	5.125	0	0.0	0.000



QC SUMMARIES

RSK-175
DISSOLVED GASES

Client	: ARCADIS	Date Collected:	NA
Project	: VAFB-SS003	Date Received:	11/18/20
Batch No.	: 20K128	Date Extracted:	11/18/20 10:20
Sample ID	: MBLK1W	Date Analyzed:	11/18/20 10:53
Lab Samp ID	: DGK013WB	Dilution Factor:	1
Lab File ID	: BK18003A	Matrix :	WATER
Ext Btch ID	: DGK013W	% Moisture :	NA
Calib. Ref.	: BK18002A	Instrument ID :	GCT072

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	ND	2.0	0.17	0.34

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: ARCADIS
PROJECT: VAFB-SS003
BATCH NO.: 20K128
METHOD: RSK-175

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: DGK013WB DGK013WL DGK013WC
LAB FILE ID: BK18003A BK18004A BK18005A
DATE EXTRACTED: 11/18/2010:20 11/18/2010:20 11/18/2010:20 DATE COLLECTED: NA
DATE ANALYZED: 11/18/2010:53 11/18/2011:09 11/18/2011:22 DATE RECEIVED: 11/18/20
PREP. BATCH: DGK013W DGK013W DGK013W
CALIB. REF: BK18002A BK18002A BK18002A

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Methane	ND	13.6	14.5	107	13.6	14.0	103	4	73-125	20

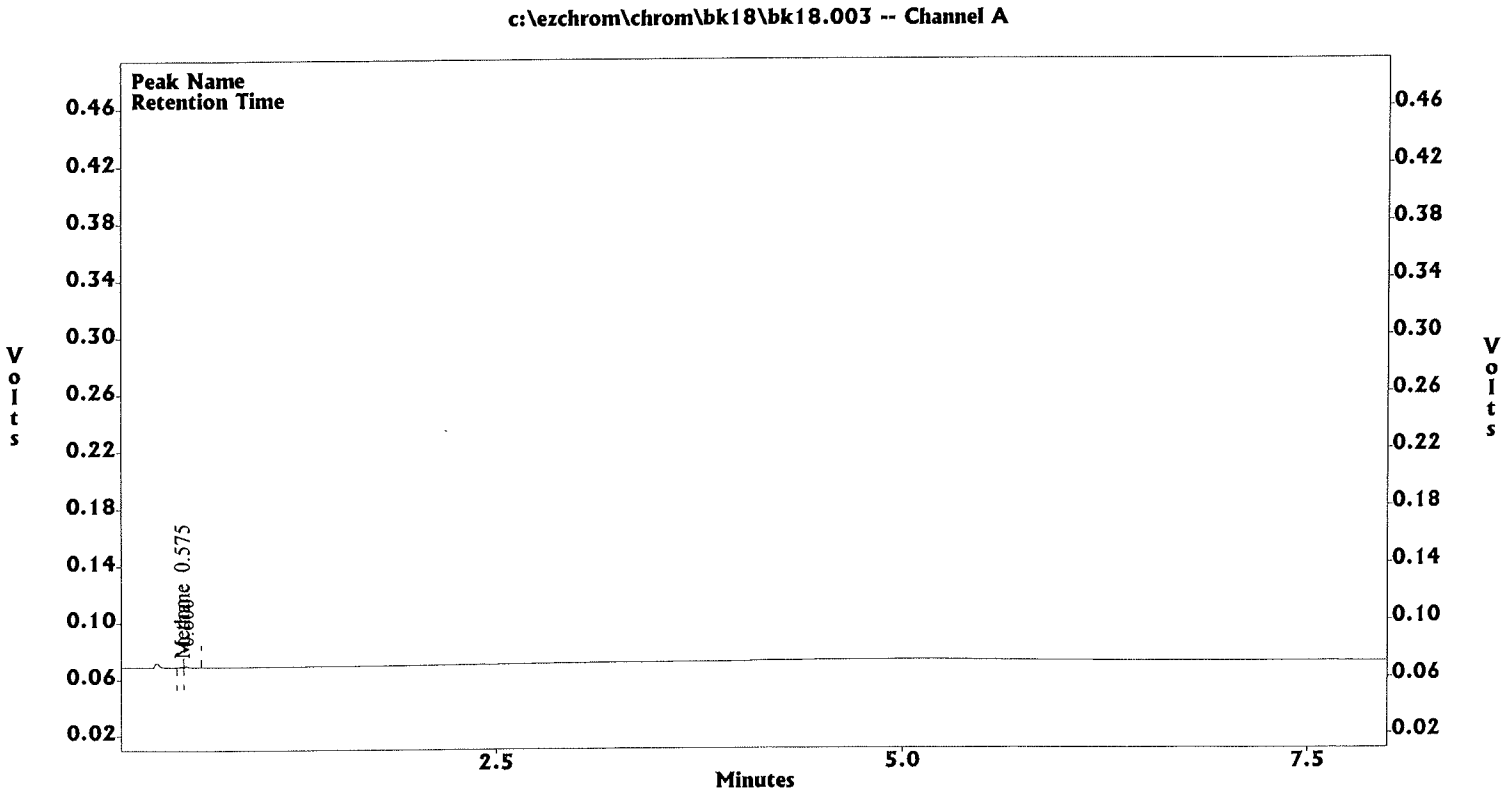
QC DATA

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bk18\bk18.003
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DGK013WB
Acquired : Nov 18, 2020 10:53:52
Printed : Nov 18, 2020 11:11:59
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.575	703	13975.2	0.050
--	Acetylene	1.942	0	0.0	0.000
--	Ethylene	2.417	0	0.0	0.000
--	Ethane	2.858	0	0.0	0.000
--	Propane	5.133	0	0.0	0.000

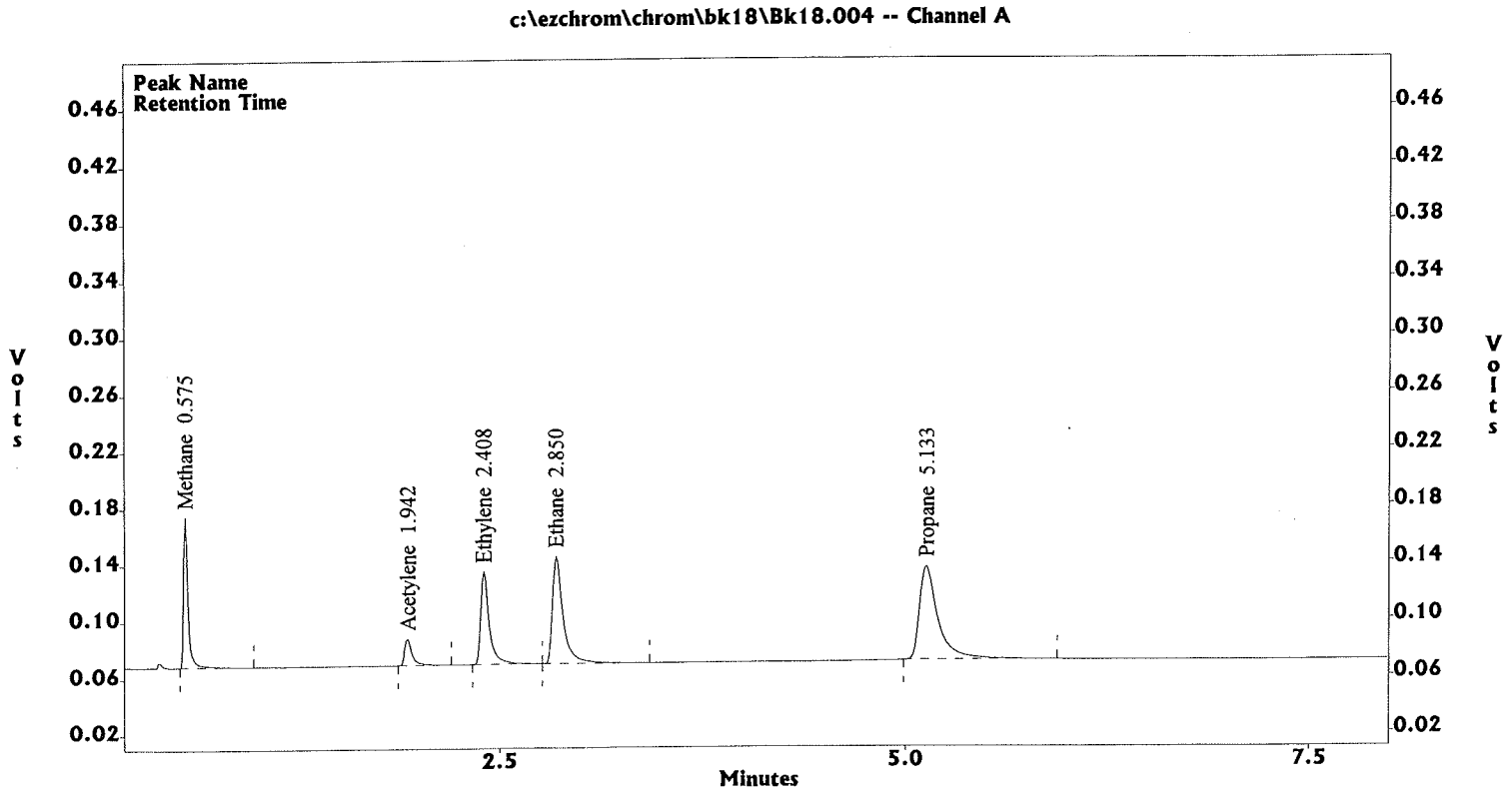


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bk18\Bk18.004
Method : c:\ezchrom\methods\Dg72d29.met
Sample ID : DGK013WL
Acquired : Nov 18, 2020 11:09:38
Printed : Nov 18, 2020 11:17:41
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.575	202344	13975.2	14.479
2	Acetylene	1.942	59703	2483.4	24.041
3	Ethylene	2.408	227091	9519.0	23.857
4	Ethane	2.850	342135	13110.4	26.096
5	Propane	5.133	529184	13914.6	38.031

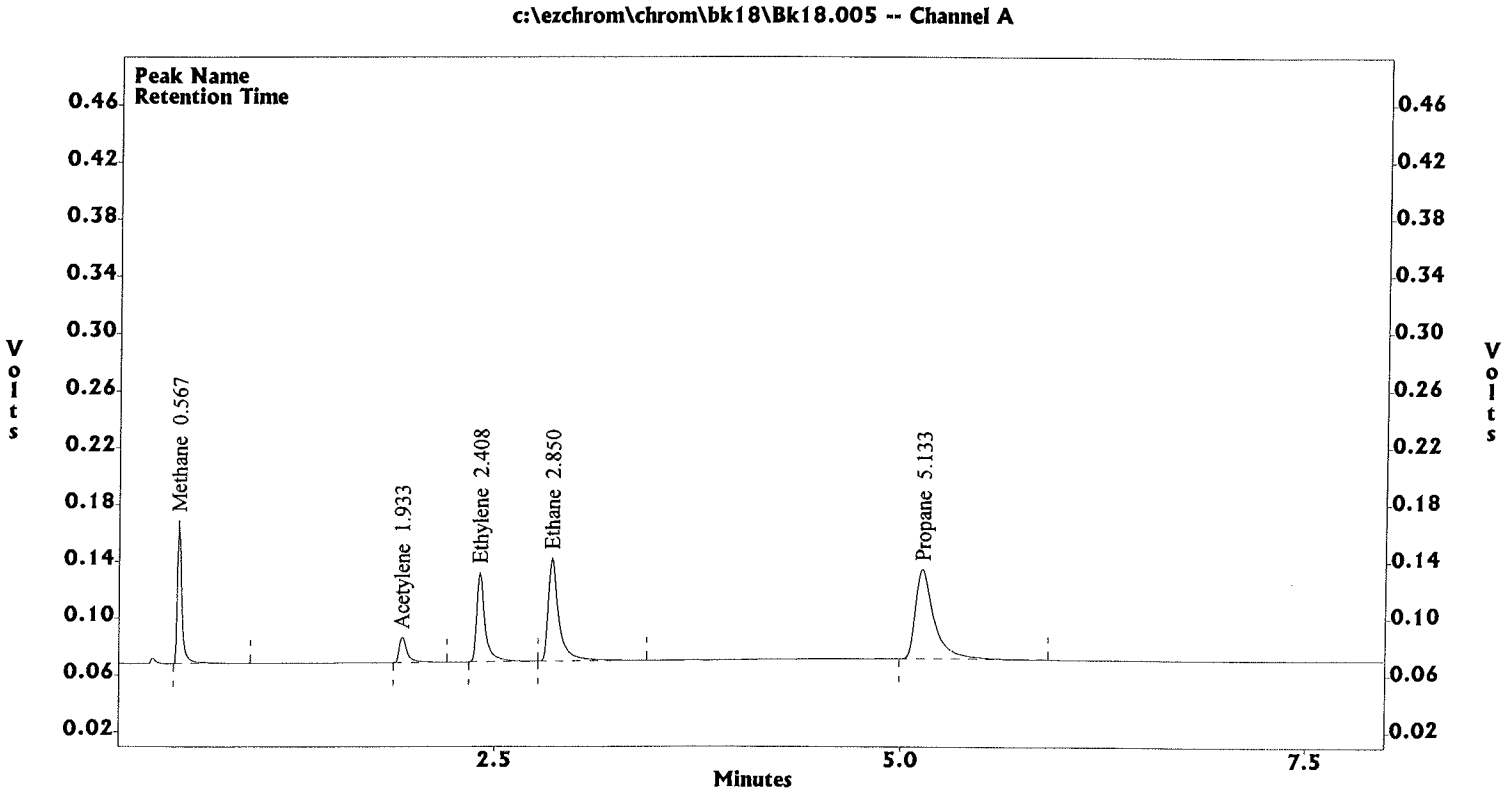


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bk18\Bk18.005
Method : c:\ezchrom\methods\Dg72d29.met
Sample ID : DGK013WC
Acquired : Nov 18, 2020 11:22:14
Printed : Nov 18, 2020 11:30:15
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	195953	13975.2	14.021
2	Acetylene	1.933	58036	2483.4	23.370
3	Ethylene	2.408	220158	9519.0	23.128
4	Ethane	2.850	338399	13110.4	25.811
5	Propane	5.133	504056	13914.6	36.225



INITIAL CALIBRATION

INITIAL CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
LFID & Datetime: BD29002A 04/29/20 14:01
LFID & Datetime: BD29003A 04/29/20 14:14
LFID & Datetime: BD29004A 04/29/20 14:26
LFID & Datetime: BD29005A 04/29/20 14:39
LFID & Datetime: BD29006A 04/29/20 14:52
LFID & Datetime: BD29007A 04/29/20 15:06
CONC UNIT: ppb

COMPOUND	CONC X	CALIBRATION FACTORS (AREA)/UNIT 2.00X	10.00X	25.00X	40.00X	75.00X	100.00X	MEAN	%RSD
Methane	0.34	15844	15625	13737	12982	12496	13168	13975.2	10.2
Acetylene	0.55	2837	2796	2436	2283	2225	2322	2483.4	10.8
Ethylene	0.60	11084	10815	9218	8751	8417	8830	9519.0	12.0
Ethane	0.64	14697	14960	12826	12138	11732	12310	13110.4	10.5
Propane	0.94	16216	14816	13670	13030	12584	13171	13914.6	9.8

DG72D29.MET

FORM VI DGAS -2 1/96 Rev 2/2006

5/6/20

INITIAL CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
LFID & Datetime: BD29002A 04/29/20 14:01
LFID & Datetime: BD29003A 04/29/20 14:14
LFID & Datetime: BD29004A 04/29/20 14:26
LFID & Datetime: BD29005A 04/29/20 14:39
LFID & Datetime: BD29006A 04/29/20 14:52
LFID & Datetime: BD29007A 04/29/20 15:06

COMPOUND	RT OF STANDARDS (MIN)						MEAN	RT WINDOW		RTWINDOW
	2.0X	10.0X	25.0X	40.0X	75.0X	100.0X	RT	FROM	TO	WIDTH
Methane	0.558	0.550	0.542	0.542	0.542	0.542	0.546	0.520	0.572	0.026
Acetylene	1.900	1.900	1.883	1.883	1.883	1.883	1.889	1.836	1.942	0.053
Ethylene	2.358	2.367	2.350	2.350	2.350	2.350	2.354	2.316	2.392	0.038
Ethane	2.800	2.800	2.792	2.792	2.792	2.792	2.795	2.757	2.833	0.038
Propane	5.067	5.075	5.050	5.058	5.050	5.050	5.058	5.006	5.110	0.052

DG72D29.MET

FORM VI DGAS -1 1/96 Rev 2/2006

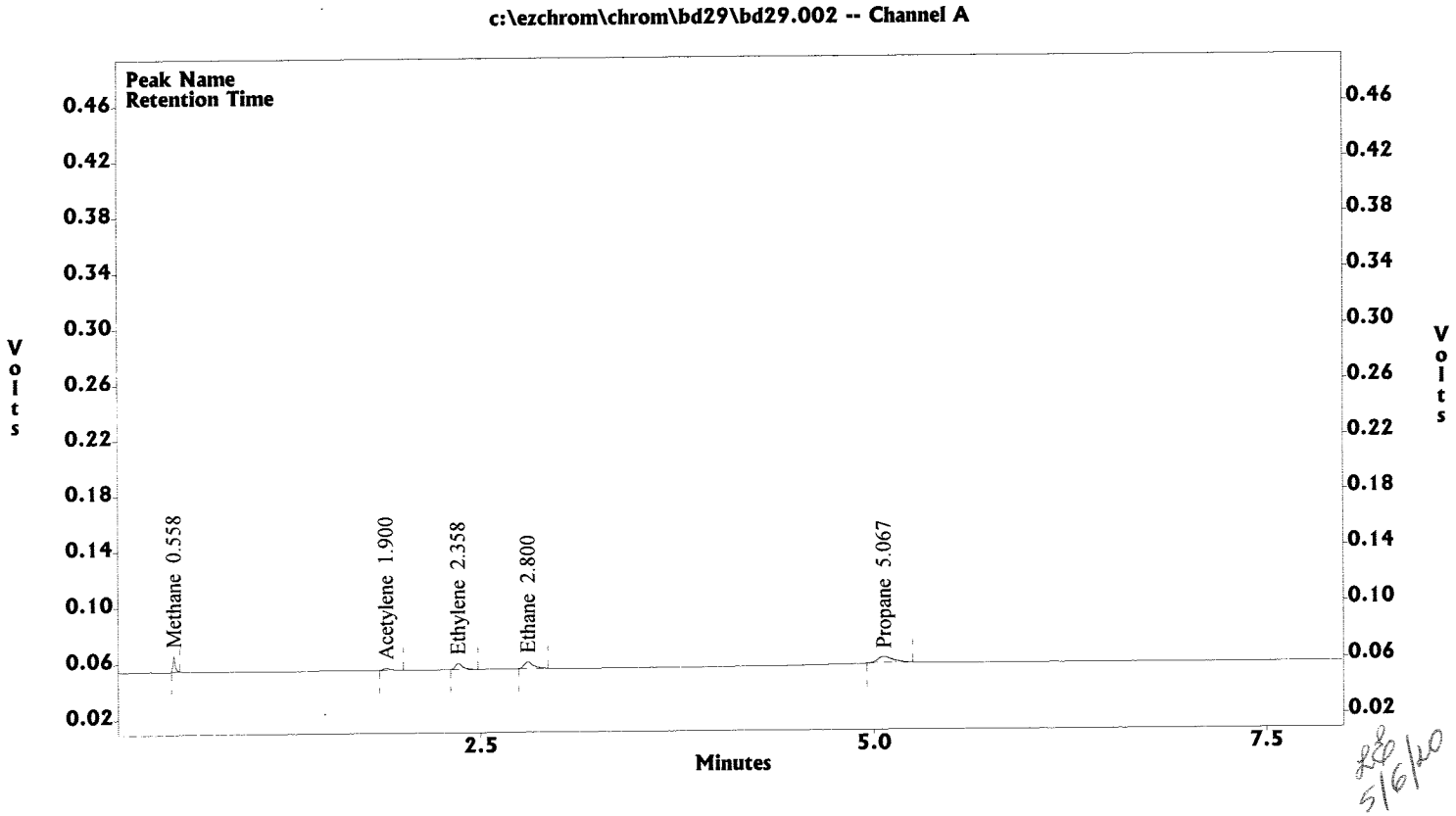
RE 5/6/20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.002
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DG72D2901
Acquired : Apr 29, 2020 14:01:33
Printed : Apr 30, 2020 11:05:49
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.558	10774	13975.2	0.680
2	Acetylene	1.900	3135	2483.4	1.105
3	Ethylene	2.358	13190	9519.0	1.190
4	Ethane	2.800	18739	13110.4	1.275
5	Propane	5.067	30324	13914.6	1.870



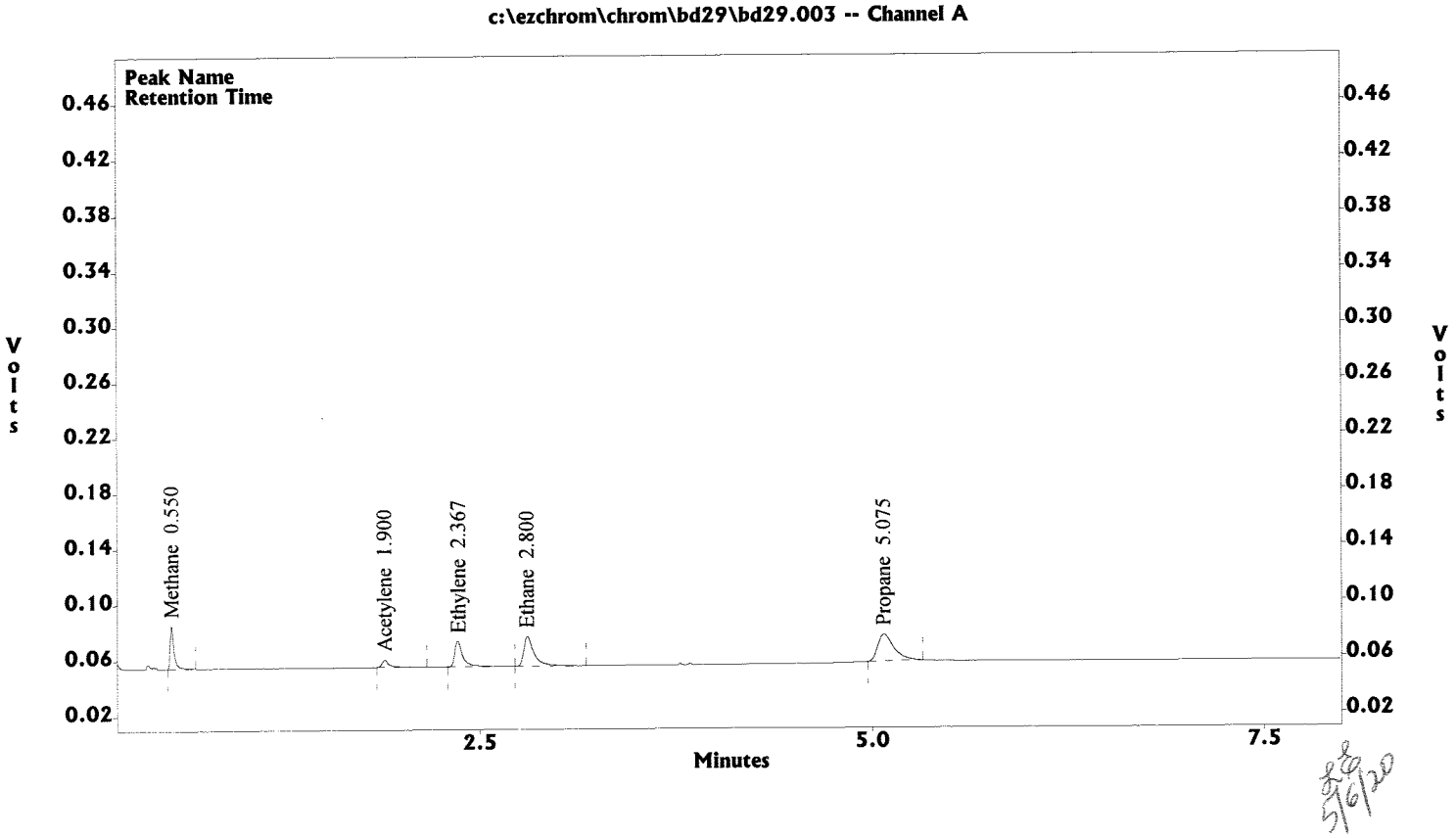
5/6/20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.003
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DG72D2902
Acquired : Apr 29, 2020 14:14:03
Printed : Apr 30, 2020 11:05:58
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.550	53155	13975.2	3.402
2	Acetylene	1.900	15459	2483.4	5.528
3	Ethylene	2.367	64381	9519.0	5.953
4	Ethane	2.800	95413	13110.4	6.378
5	Propane	5.075	138530	13914.6	9.350



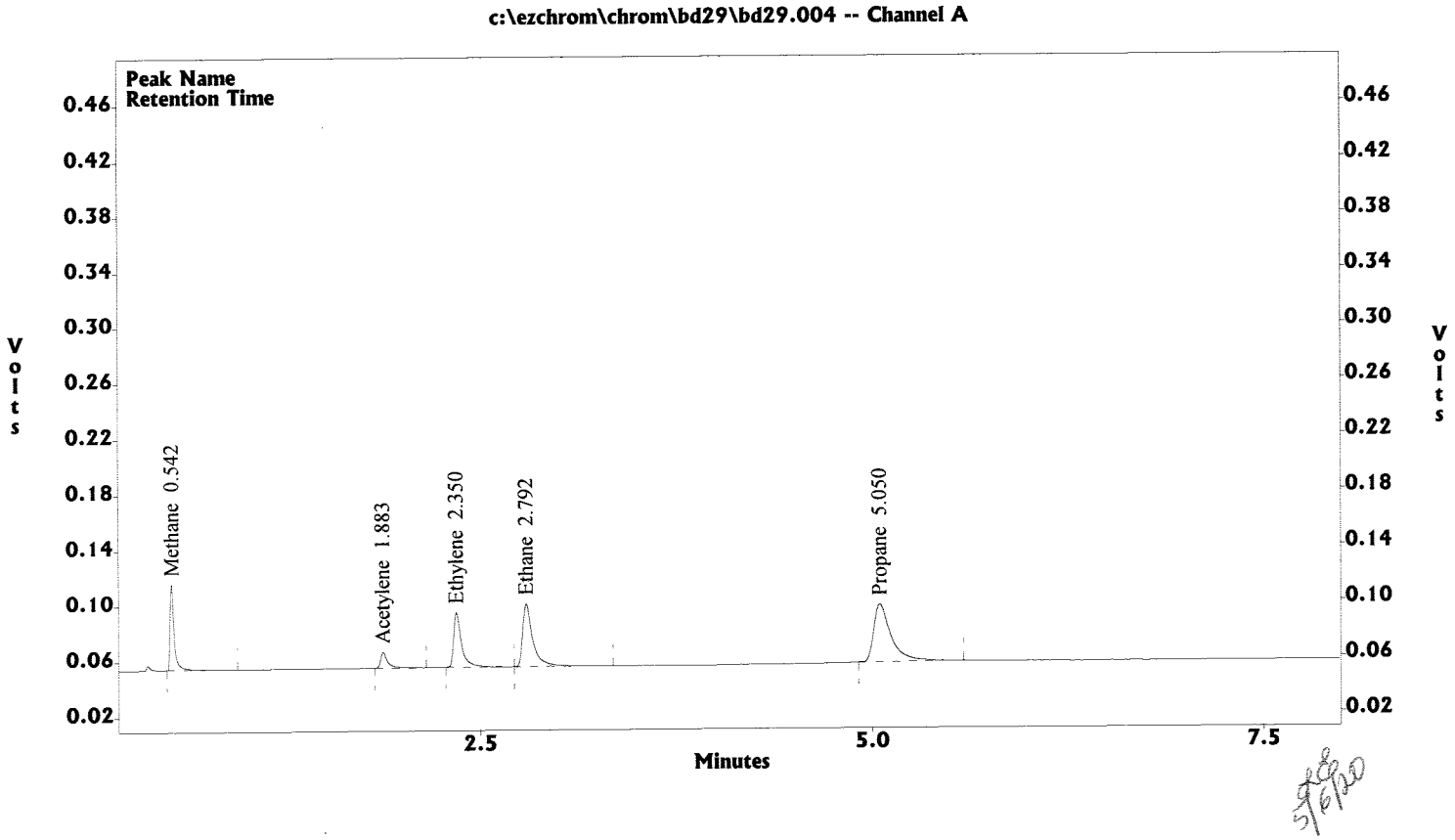
5/6/20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.004
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DG72D2903
Acquired : Apr 29, 2020 14:26:21
Printed : Apr 30, 2020 11:06:03
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.542	116823	13975.2	8.504
2	Acetylene	1.883	33667	2483.4	13.820
3	Ethylene	2.350	137168	9519.0	14.880
4	Ethane	2.792	204569	13110.4	15.950
5	Propane	5.050	319746	13914.6	23.390



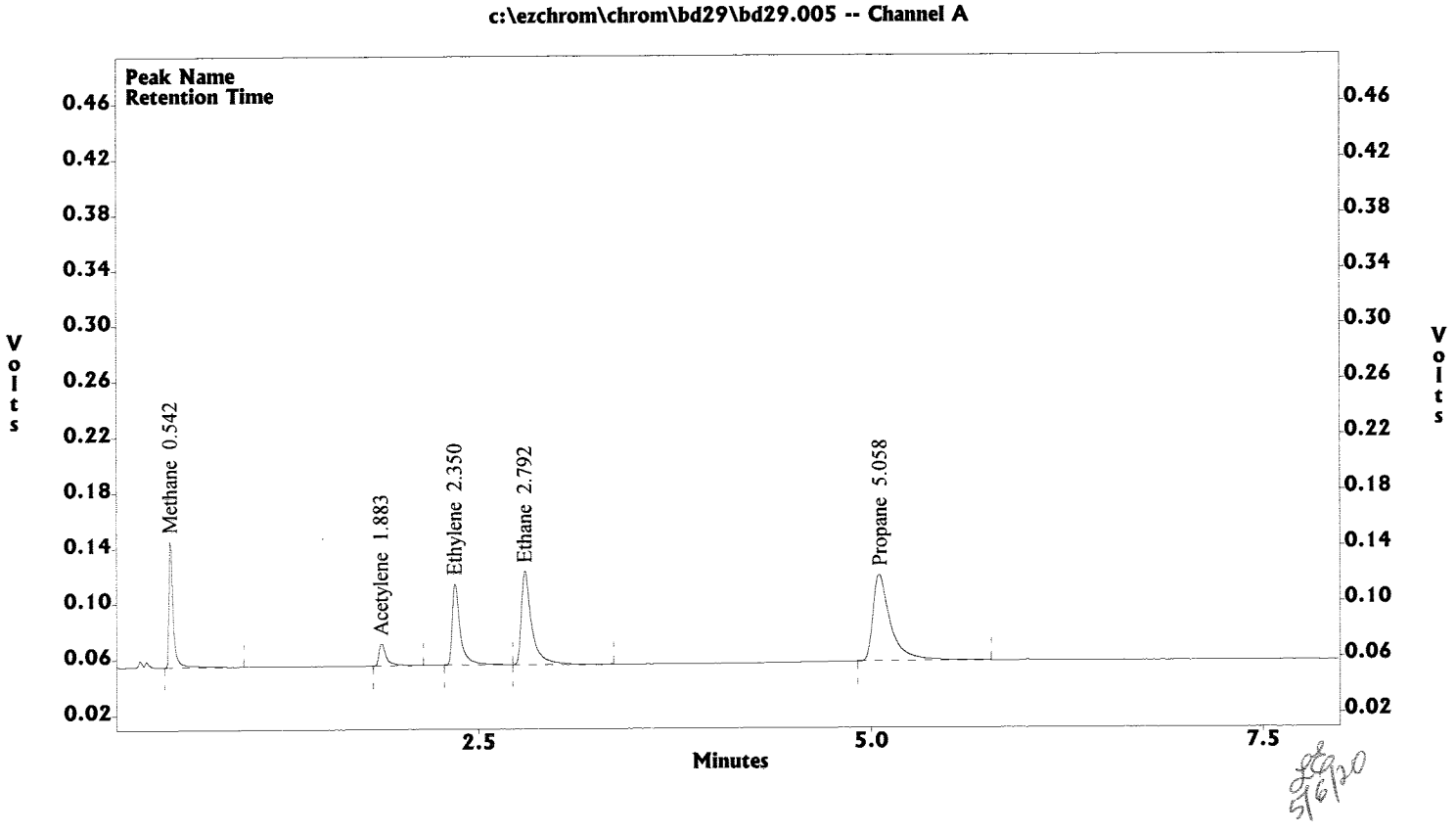
5/6/20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.005
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DG72D2904
Acquired : Apr 29, 2020 14:39:09
Printed : Apr 30, 2020 11:06:10
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.542	176554	13975.2	13.600
2	Acetylene	1.883	50480	2483.4	22.110
3	Ethylene	2.350	208350	9519.0	23.810
4	Ethane	2.792	309628	13110.4	25.510
5	Propane	5.058	487465	13914.6	37.410

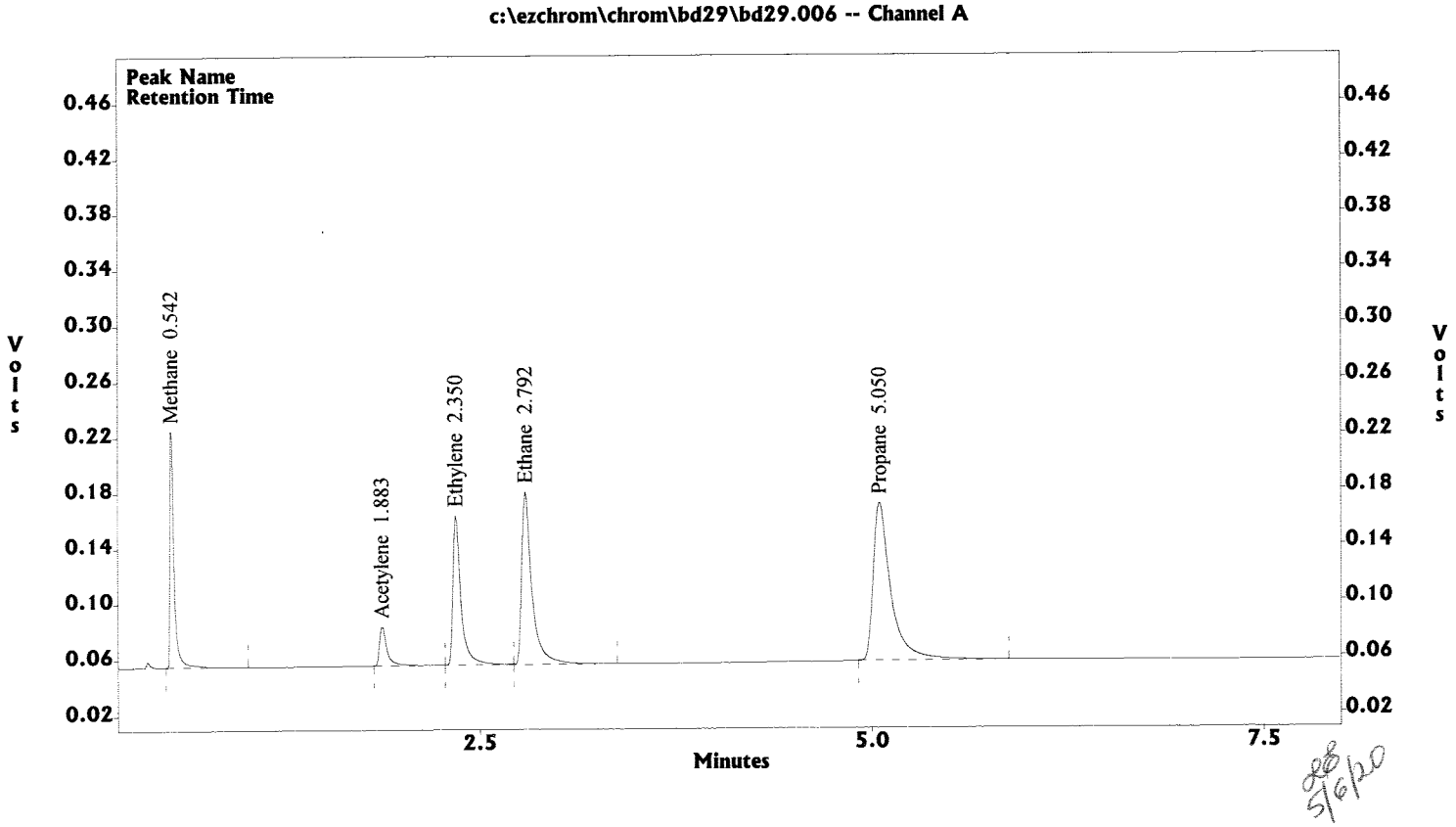


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.006
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DG72D2905
Acquired : Apr 29, 2020 14:52:16
Printed : Apr 30, 2020 11:06:16
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.542	318762	13975.2	25.510
2	Acetylene	1.883	92228	2483.4	41.450
3	Ethylene	2.350	375713	9519.0	44.640
4	Ethane	2.792	561146	13110.4	47.830
5	Propane	5.050	882797	13914.6	70.150



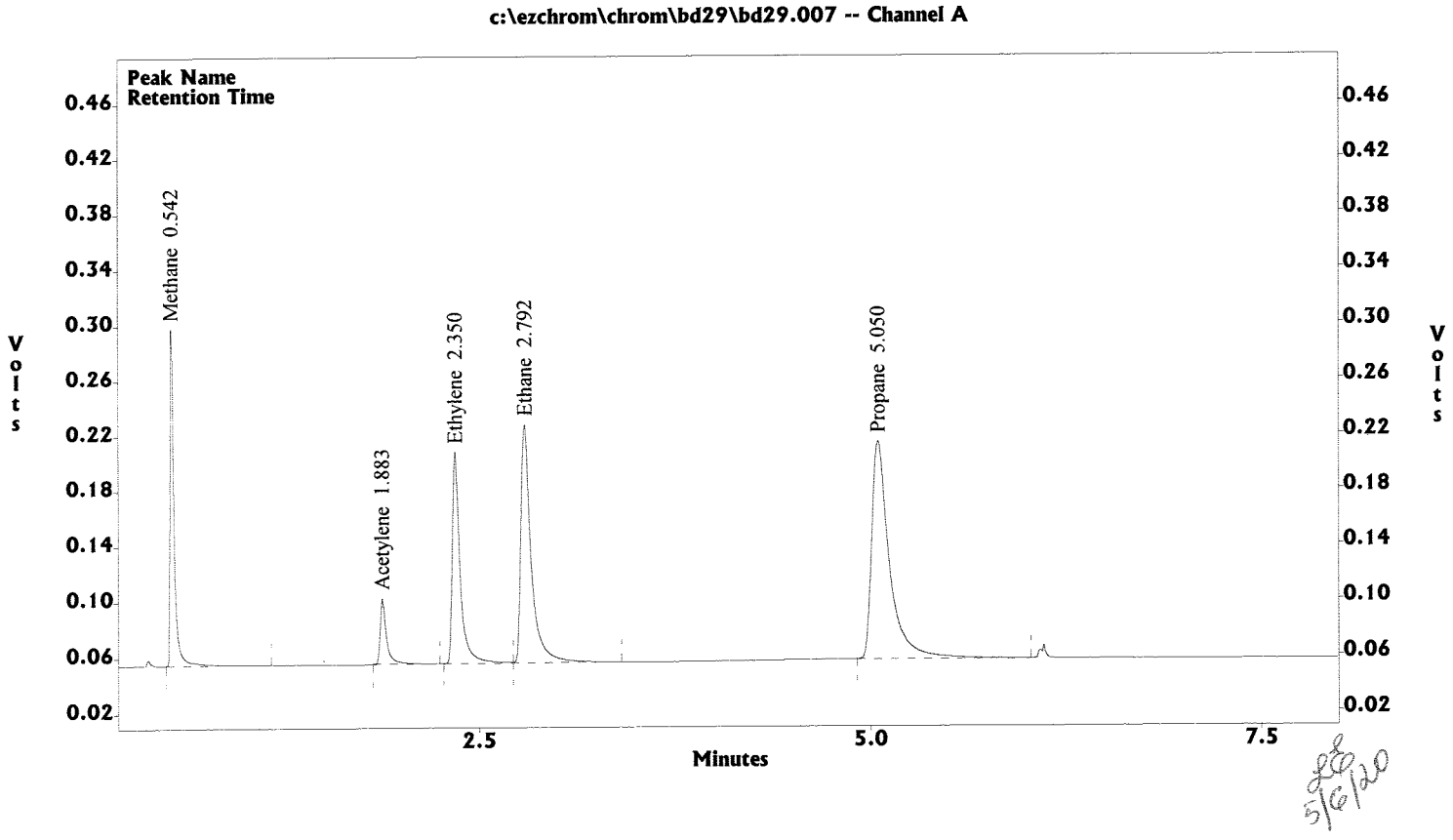
5/6/20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.007
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DG72D2906
Acquired : Apr 29, 2020 15:06:38
Printed : Apr 30, 2020 11:06:21
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.542	447831	13975.2	34.010
2	Acetylene	1.883	128359	2483.4	55.270
3	Ethylene	2.350	525533	9519.0	59.520
4	Ethane	2.792	785030	13110.4	63.770
5	Propane	5.050	1231861	13914.6	93.530



5/6/20

SECOND SOURCE VERIFICATION

INITIAL CALIBRATION VERIFICATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BD29005A 04/29/2020 14:39
Conc Cont LFID & Datetime: BD29008A 04/29/2020 15:22
CONC UNIT : ppb

COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.542	0.516	0.568	13.6	13975.2	190886	13.66	0		15
Acetylene	1.883	1.830	1.936	22.1	2483.4	53083	21.38	-3		15
Ethylene	2.350	2.312	2.388	23.8	9519.0	236366	24.83	4		15
Ethane	2.792	2.754	2.830	25.5	13110.4	345766	26.37	3		15
Propane	5.050	4.998	5.102	37.4	13914.6	523750	37.64	1		15

DG72D29.MET

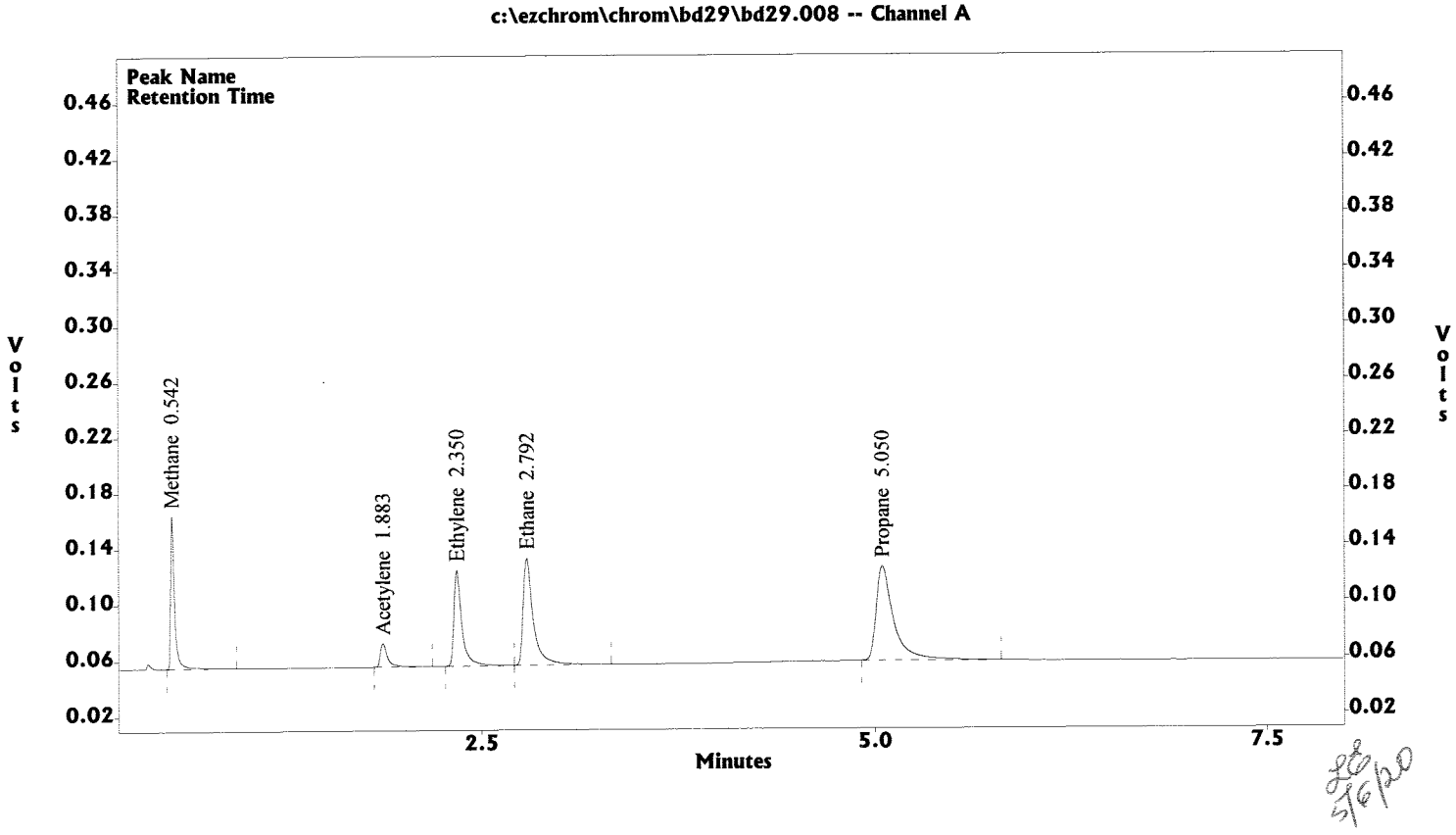
5/6/20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.008
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : IDG72D29001
Acquired : Apr 29, 2020 15:22:29
Printed : Apr 30, 2020 11:06:33
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.542	190886	13975.2	13.659
2	Acetylene	1.883	53083	2483.4	21.375
3	Ethylene	2.350	236366	9519.0	24.831
4	Ethane	2.792	345766	13110.4	26.373
5	Propane	5.050	523750	13914.6	37.640



DAILY CALIBRATIONS

CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BD29005A 04/29/2020 14:39
Conc Cont LFID & Datetime: BK18002A 11/18/2020 10:39
CONC UNIT : ppb

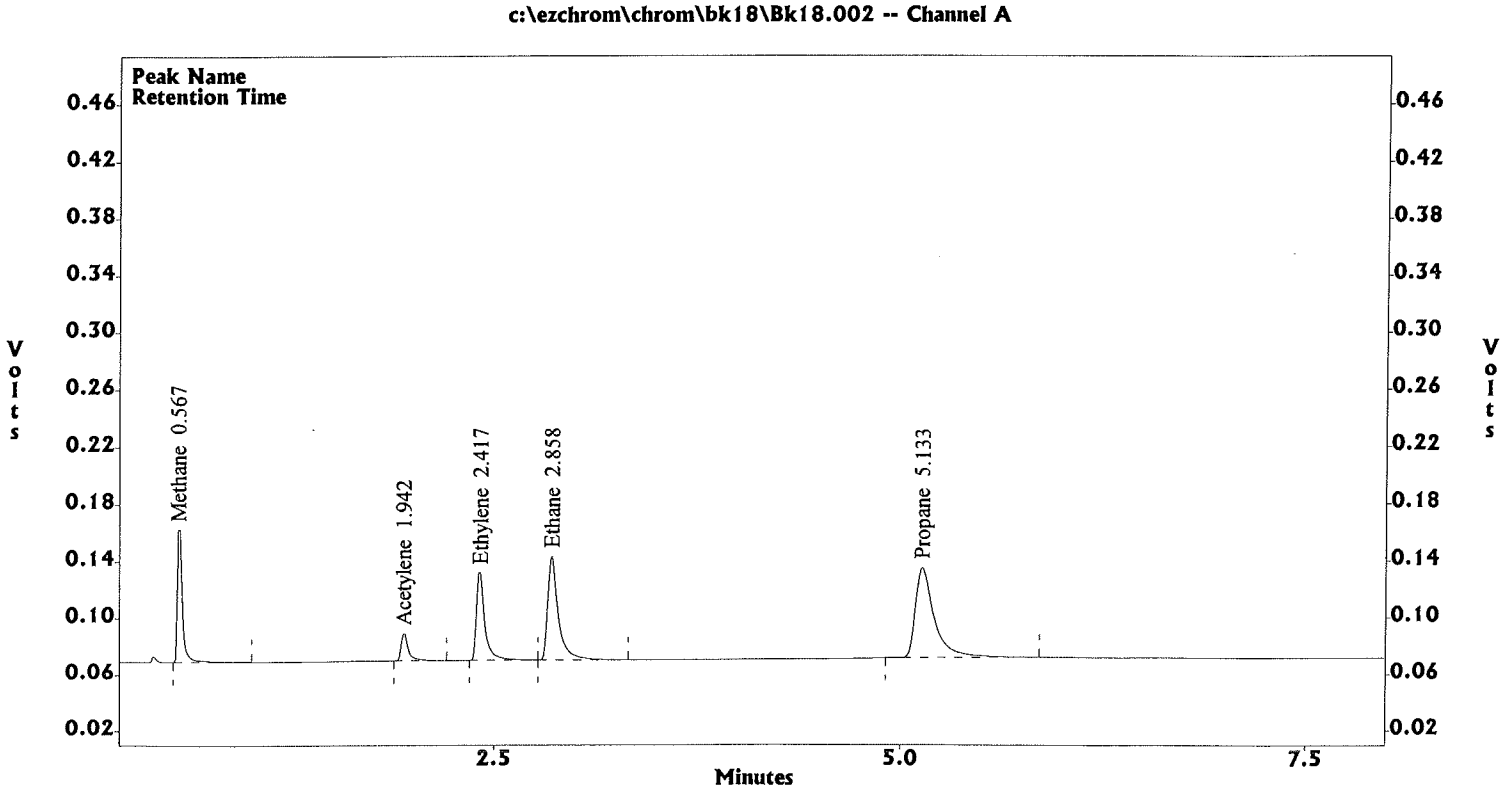
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.567	0.541	0.593	13.6	13975.2	197823	14.15	4		20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bk18\Bk18.002
Method : c:\ezchrom\methods\Dg72d29.met
Sample ID : CDG72D29396
Acquired : Nov 18, 2020 10:39:12
Printed : Nov 18, 2020 10:47:13
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	197823	13975.2	14.155
2	Acetylene	1.942	58771	2483.4	23.666
3	Ethylene	2.417	220826	9519.0	23.199
4	Ethane	2.858	329873	13110.4	25.161
5	Propane	5.133	512387	13914.6	36.824



CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BD29005A 04/29/2020 14:39
Conc Cont LFID & Datetime: BK18016A 11/18/2020 13:54
CONC UNIT : ppb

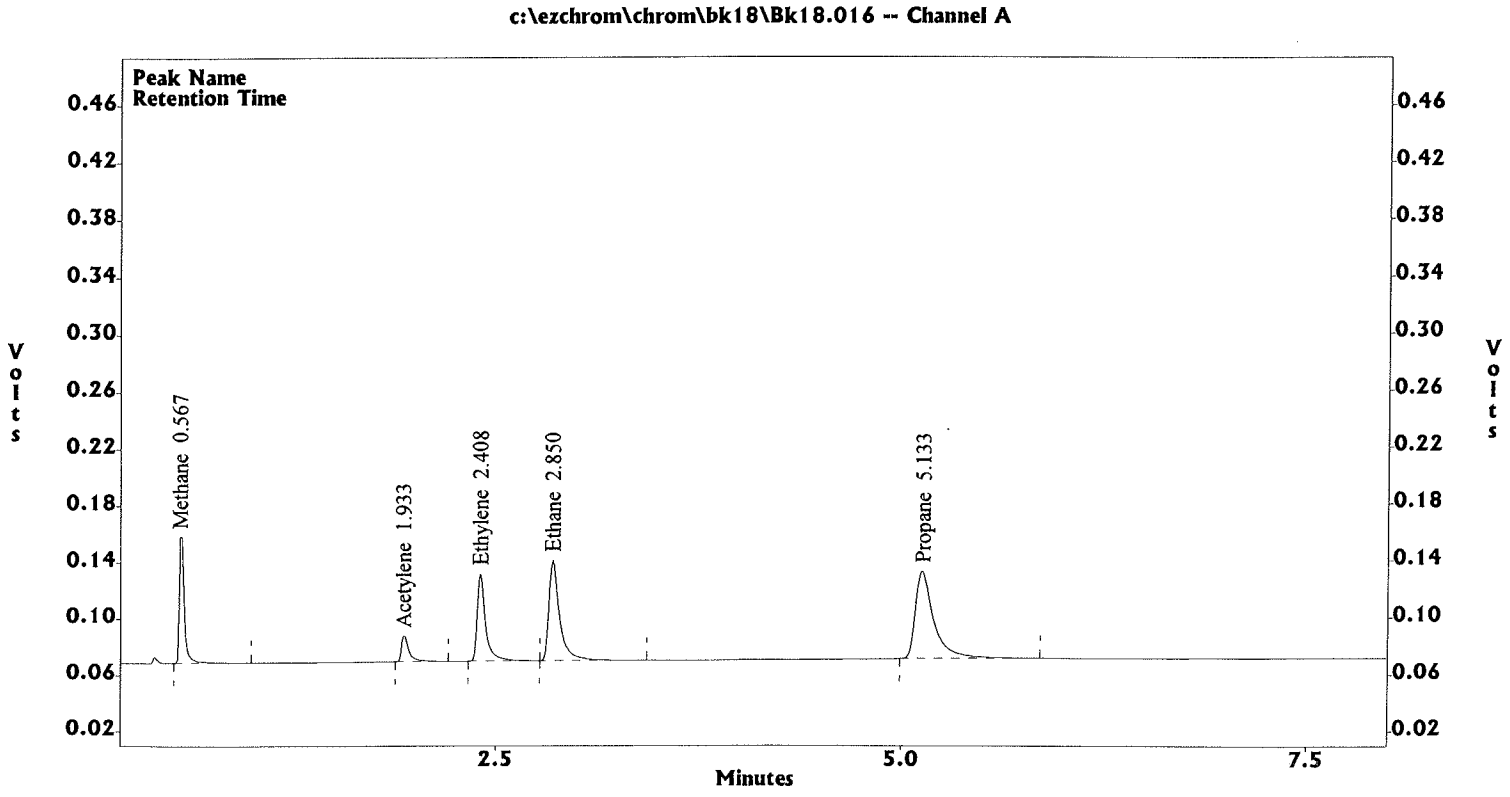
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.567	0.541	0.593	13.6	13975.2	190914	13.66	0		20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bk18\Bk18.016
Method : c:\ezchrom\methods\Dg72d29.met
Sample ID : CDG72D29397
Acquired : Nov 18, 2020 13:54:03
Printed : Nov 18, 2020 14:02:04
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	190914	13975.2	13.661
2	Acetylene	1.933	57957	2483.4	23.338
3	Ethylene	2.408	216186	9519.0	22.711
4	Ethane	2.850	322653	13110.4	24.610
5	Propane	5.133	491418	13914.6	35.317



CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BD29005A 04/29/2020 14:39
Conc Cont LFID & Datetime: BK18027A 11/18/2020 17:00
CONC UNIT : ppb

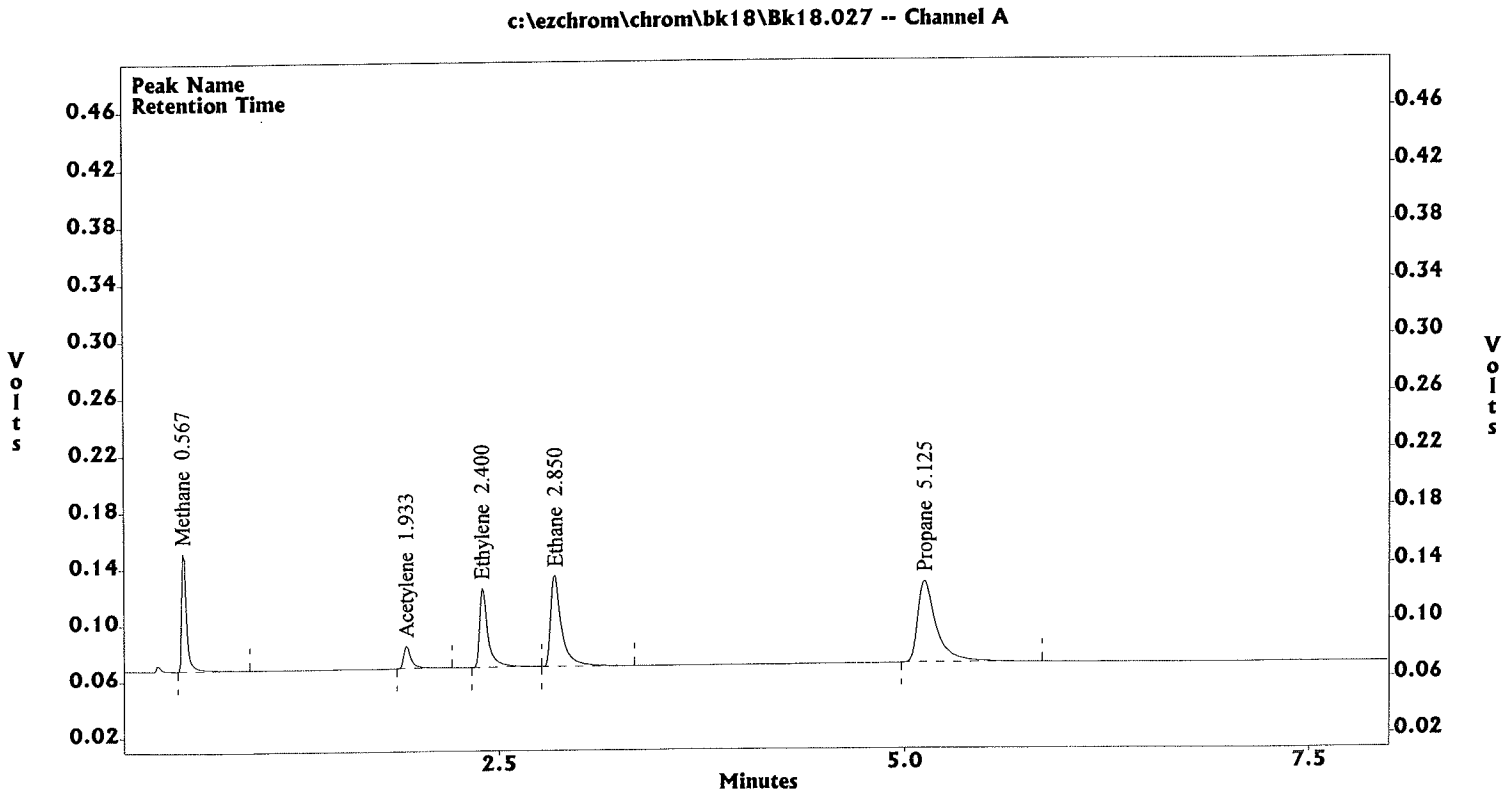
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.567	0.541	0.593	13.6	13975.2	176367	12.62	-7		20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bk18\Bk18.027
Method : c:\ezchrom\methods\Dg72d29.met
Sample ID : CDG72D29398
Acquired : Nov 18, 2020 17:00:12
Printed : Nov 18, 2020 17:08:13
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	176367	13975.2	12.620
2	Acetylene	1.933	53232	2483.4	21.435
3	Ethylene	2.400	201178	9519.0	21.134
4	Ethane	2.850	299202	13110.4	22.822
5	Propane	5.125	459691	13914.6	33.037



CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BD29005A 04/29/2020 14:39
Conc Cont LFID & Datetime: BK18033A 11/18/2020 18:21
CONC UNIT : ppb

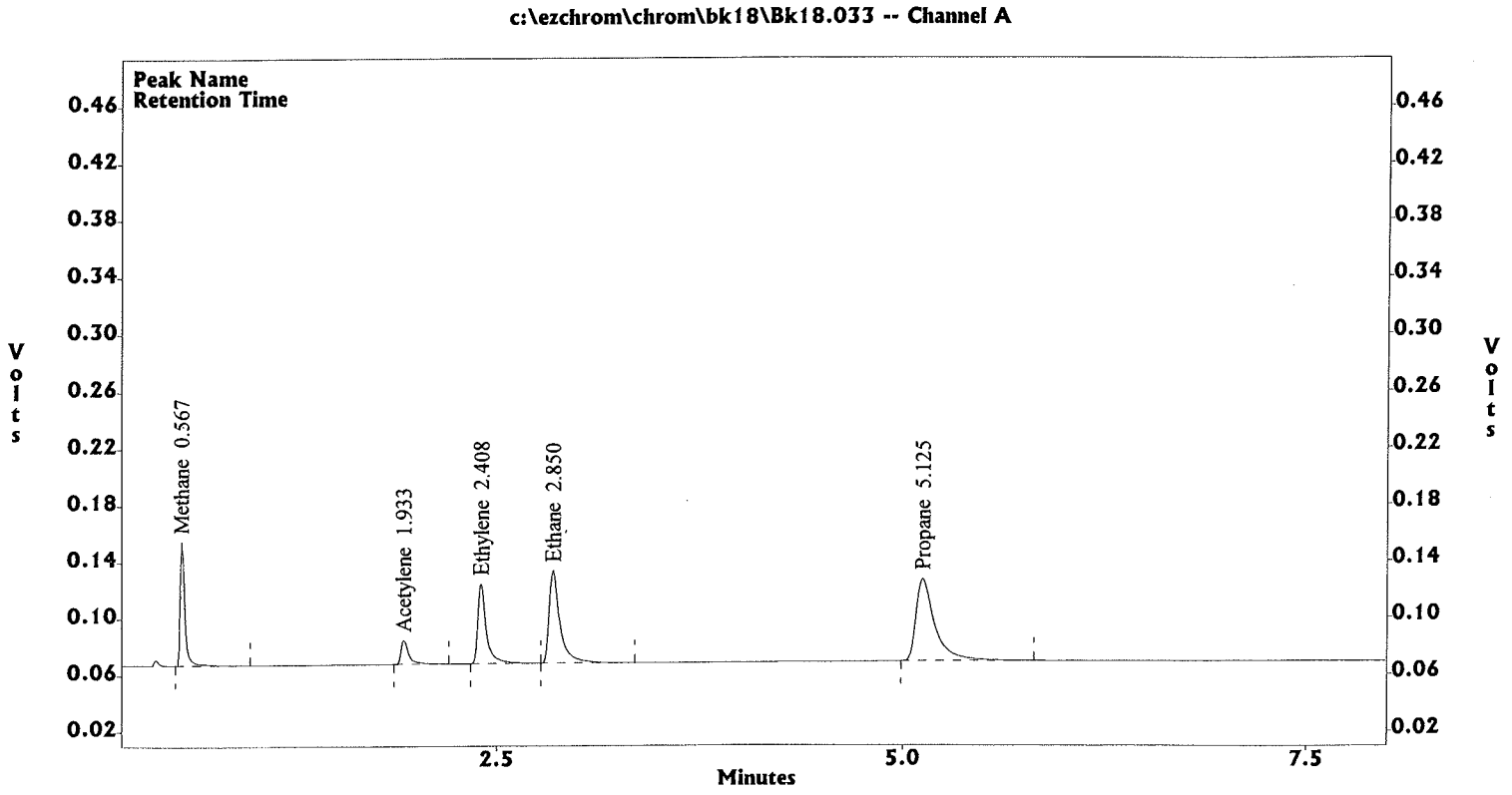
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.567	0.541	0.593	13.6	13975.2	177194	12.68	-7		20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bk18\Bk18.033
Method : c:\ezchrom\methods\Dg72d29.met
Sample ID : CDG72D29399
Acquired : Nov 18, 2020 18:21:32
Printed : Nov 18, 2020 18:29:33
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	177194	13975.2	12.679
2	Acetylene	1.933	54446	2483.4	21.924
3	Ethylene	2.408	203335	9519.0	21.361
4	Ethane	2.850	301926	13110.4	23.029
5	Propane	5.125	459477	13914.6	33.021



ANALYTICAL LOG(S)

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
DISSOLVED GAS

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

DGAS ICAL

Book #:	A72-019
Instrument No.:	72
Analytical Sequence:	BD29
Method File:	DG72D29
Analytical Batch:	N/A

SOP #	Rev. #
☑ EMAX-RSK175	4
☐ EMAX-D1945	0
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		Conc (µL/L)
ICAL	SSSB-18-22-01	10-7500
ICV	↓ -02	200
Temperature (°C)	21	
Data File		

SYRINGES
☐ 500 µL - MSF-01-03-21
☑ 500 µL - MSF-01-02-12
☐ 100 µL - MSF-01-03-05
☐ 100 µL - MSF-01-02-01
☐ 100 µL - MSF-01-02-03
☐ 100 µL - MSF-01-03-08
☐ 10 µL - MSF-01-02-05
☐

ELECTRONIC DATA ARCHIVAL	
Location	Date
Labbkup/Ezchrom/EZC_9_DGAS	

Analyzed By: AS

Date: 4/29/20

Disposed By:

Date Disposed:

Batch: bd29.seq

Num	Sample ID	Method	Filename	Level	Sample Amt	Multiplier	Description
1	IB72D2901	dg72d29.met	BD29.001	0	500uL	1	
2	DG72D2901	dg72d29.met	BD29.002	1	500uL	1	
3	DG72D2902	dg72d29.met	BD29.003	2	500uL	1	
4	DG72D2903	dg72d29.met	BD29.004	3	500uL	1	
5	DG72D2904	dg72d29.met	BD29.005	4	500uL	1	
6	DG72D2905	dg72d29.met	BD29.006	5	500uL	1	
7	DG72D2906	dg72d29.met	BD29.007	6	500uL	1	
8	IDG72D29001	dg72d29.met	BD29.008	0	500uL	1	

FINAL

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

DGK013W: K118, K128

Book #:	A72-021
Instrument No.:	72
Analytical Sequence:	BK18
Method File:	DG72D29
Analytical Batch:	CDG72D29396

SOP #	Rev. #
☑ EMAX-RSK175	4
☐ EMAX-D1945	0
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		Conc (µL/L)
DCC	SSSB-19-08-03	200
Temperature (°C)	21	
Data File		

SYRINGES
☐ 500 µL - MSF-02-01-01
☑ 500 µL - MSF-01-02-12
☑ 100 µL - MSF-01-03-05
☐ 100 µL - MSF-01-02-01
☐ 100 µL - MSF-01-02-20
☐ 100 µL - MSF-01-03-08
☐ 100 µL - MSF-01-02-13
☐ 10 µL - MSF-01-02-05
☐

ELECTRONIC DATA ARCHIVAL	
Location	Date
Labbkup/Ezchrom/EZC_9_DGAS	

Analyzed By: AS

Date: 11/18/20

Disposed By:

Date Disposed:

Batch: bk18.seq

Run	Sample ID	Method	Filename	Sample Amt	Mult	Description
1	IB72K1801	dg72d29.met	BK18.001	500uL	1	
2	CDG72D29396	dg72d29.met	BK18.002	500uL	1	
3	DGK013WB	dg72d29.met	BK18.003	500uL	1	
4	DGK013WL	dg72d29.met	BK18.004	500uL	1	
5	DGK013WC	dg72d29.met	BK18.005	500uL	1	
6	K118-06	dg72d29.met	BK18.006	500uL	1	
7	K118-08	dg72d29.met	BK18.007	500uL	1	
8	K118-10	dg72d29.met	BK18.008	500uL	1	
9	K118-13	dg72d29.met	BK18.009	500uL	1	
10	K118-01	dg72d29.met	BK18.010	500uL	1	
11	K118-02	dg72d29.met	BK18.011	500uL	1	
12	K118-03	dg72d29.met	BK18.012	500uL	1	
13	K118-04	dg72d29.met	BK18.013	500uL	1	
14	K118-04I DF=10	dg72d29.met	BK18.014	50uL	10	
15	K118-05	dg72d29.met	BK18.015	500uL	1	
16	CDG72D29397	dg72d29.met	BK18.016	500uL	1	
17	K118-07	dg72d29.met	BK18.017	500uL	1	
18	K118-09	dg72d29.met	BK18.018	500uL	1	
19	K118-11	dg72d29.met	BK18.019	500uL	1	
20	K118-11I DF=100	dg72d29.met	BK18.020	5uL	100	
21	K118-12	dg72d29.met	BK18.021	500uL	1	
22	K118-12I DF=25	dg72d29.met	BK18.022	20uL	25	
23	K118-14	dg72d29.met	BK18.023	500uL	1	
24	K128-01	dg72d29.met	BK18.024	500uL	1	
25	K128-01I DF=10	dg72d29.met	BK18.025	50uL	10	
26	K128-02	dg72d29.met	BK18.026	500uL	1	
27	CDG72D29398	dg72d29.met	BK18.027	500uL	1	
28	K128-03	dg72d29.met	BK18.028	500uL	1	
29	K128-03I DF=50	dg72d29.met	BK18.029	10uL	50	
30	K128-04	dg72d29.met	BK18.030	500uL	1	
31	K128-05	dg72d29.met	BK18.031	500uL	1	
32	K128-05I DF=50	dg72d29.met	BK18.032	10uL	50	
33	CDG72D29399	dg72d29.met	BK18.033	500uL	1	

FINAL

EXTRACTION LOG(S)

EMAX LABORATORIES, INC.

EXTRACTION LOG FOR DISSOLVED GAS

SOP ☐ EMAX-RSK175 Rev. 4 ☐ CO2 ☐ Room Temp. (°C): 21 Book #: EDG-048

Start Date: 11/18/20 Time: 10:20 End Date: 11/18/20 Time: 11:50

PREPARATION BATCH* DGK013W

Sample Prep ID	Lab Sample ID	Sample Amount (ml)	Extract Volume (ml)	pH (< 2)	Notes
01	DGK013WB	39	4	N/A	
02	WL			N/A	
03	WC			N/A	
04	K118-06			✓	
05	-08			✓	
06	-10			✓	
07	-13			✓	
08	-01			✓	
09	-02			✓	
10	-03			✓	
11	-04			✓	
12	-05			✓	
13	-07			✓	
14	-09			✓	
15	-11			✓	
16	-12			✓	
17	-14			✓	
18	K128-01			✓	
19	-02			✓	
20	-03			✓	
21	-04			✓	
22	-05			✓	
23					
24					
25					
26					
27					
28					
29					
30					

AS 11/18/20

Standards	ID	Amount Added (ul)
LCS/MS	SSSA-10-02-03	1600

Reagent	Source
H_2O	SWA-009-05-07
He	SSSA-11-01-01
Thermometer ID #:	RSK175-01
Tedlar Bag Lot#:	28181028
pH Strips:	HC904495
Vial Manufacturer:	ESS# FR2575122 20283

Syringes

- ☐ 10 mL - MSF-01-01-24
- ☑ 5 mL - MSF-01-01-25
- ☑ 5 mL - MSF-01-03-06
- ☐ 1 mL - MSF-01-02-24
- ☐
- ☐

Comments:

Prepared By: AS

Standard Added By: AS

LABORATORY REPORT FOR

ARCADIS

VAFB-SS003

METALS

SDG#: 20K128

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20K128

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

A total of five(5) water samples were received on 11/13/20 to be analyzed for Total Metals by Trace ICP in accordance with Method 3010A/6010B and project specific requirements.

Holding Time
Samples were digested and analyzed within the prescribed holding time.

Calibration
Initial Calibration was established as prescribed by the method and was verified using a secondary source(ICV). Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were satisfied. MRL was analyzed as required by the project.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. IPK023WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. IPK023WL/IPK023WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
TOTAL METALS BY TRACE ICP

Client : ARCADIS
Project : VAFB-SS003

SDG NO. : 20K128
Instrument ID : D8

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IPK023WB	1.000	NA	11/20/2013:05	11/19/2011:32	ID8K013026	ID8K013024	IPK023W	Method Blank
LCS1W	IPK023WL	1.000	NA	11/20/2013:10	11/19/2011:32	ID8K013027	ID8K013024	IPK023W	Lab Control Sample (LCS)
LCD1W	IPK023WC	1.000	NA	11/20/2013:15	11/19/2011:32	ID8K013028	ID8K013024	IPK023W	LCS Duplicate
SS003-3-MW-15R(11102020)	K128-01	1.000	NA	11/20/2014:54	11/19/2011:32	ID8K013049	ID8K013047	IPK023W	Field Sample
SS003-3-MW-18(11102020)	K128-02	1.000	NA	11/20/2014:59	11/19/2011:32	ID8K013050	ID8K013047	IPK023W	Field Sample
SS003-3-MW-33(11102020)	K128-03	1.000	NA	11/20/2015:04	11/19/2011:32	ID8K013051	ID8K013047	IPK023W	Field Sample
SS003-3-MW-40(11102020)	K128-04	1.000	NA	11/20/2015:09	11/19/2011:32	ID8K013052	ID8K013047	IPK023W	Field Sample
SS003-DUP1(11102020)	K128-05	1.000	NA	11/20/2015:14	11/19/2011:32	ID8K013053	ID8K013047	IPK023W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/10/20 11:10
Project	: VAFB-SS003	Date Received:	11/13/20
SDG NO.	: 20K128	Date Extracted:	11/19/20 11:32
Sample ID:	SS003-3-MW-15R(11102020)	Date Analyzed:	11/20/20 14:54
Lab Samp ID:	K128-01	Dilution Factor:	1
Lab File ID:	ID8K013049	Matrix:	WATER
Ext Btch ID:	IPK023W	% Moisture:	NA
Calib. Ref.:	ID8K013047	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	16800	200	20.0	40.0
Manganese	3500	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/09/20 15:20
Project	: VAFB-SS003	Date Received:	11/13/20
SDG NO.	: 20K128	Date Extracted:	11/19/20 11:32
Sample ID:	SS003-3-MW-18(11102020)	Date Analyzed:	11/20/20 14:59
Lab Samp ID:	K128-02	Dilution Factor:	1
Lab File ID:	ID8K013050	Matrix:	WATER
Ext Btch ID:	IPK023W	% Moisture:	NA
Calib. Ref.:	ID8K013047	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	60.0J	200	20.0	40.0
Manganese	35.6	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/10/20 14:30
Project	: VAFB-SS003	Date Received:	11/13/20
SDG NO.	: 20K128	Date Extracted:	11/19/20 11:32
Sample ID:	SS003-3-MW-33(11102020)	Date Analyzed:	11/20/20 15:04
Lab Samp ID:	K128-03	Dilution Factor:	1
Lab File ID:	ID8K013051	Matrix:	WATER
Ext Btch ID:	IPK023W	% Moisture:	NA
Calib. Ref.:	ID8K013047	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	7900	200	20.0	40.0
Manganese	546	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/10/20 13:30
Project	: VAFB-SS003	Date Received:	11/13/20
SDG NO.	: 20K128	Date Extracted:	11/19/20 11:32
Sample ID:	SS003-3-MW-40(11102020)	Date Analyzed:	11/20/20 15:09
Lab Samp ID:	K128-04	Dilution Factor:	1
Lab File ID:	ID8K013052	Matrix:	WATER
Ext Btch ID:	IPK023W	% Moisture:	NA
Calib. Ref.:	ID8K013047	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	70.3J	200	20.0	40.0
Manganese	255	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/10/20 08:00
Project	: VAFB-SS003	Date Received:	11/13/20
SDG NO.	: 20K128	Date Extracted:	11/19/20 11:32
Sample ID:	SS003-DUP1(11102020)	Date Analyzed:	11/20/20 15:14
Lab Samp ID:	K128-05	Dilution Factor:	1
Lab File ID:	ID8K013053	Matrix:	WATER
Ext Btch ID:	IPK023W	% Moisture:	NA
Calib. Ref.:	ID8K013047	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	7180	200	20.0	40.0
Manganese	505	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	NA
Project	: VAFB-SS003	Date Received:	NA
SDG NO.	: 20K128	Date Extracted:	11/19/20 11:32
Sample ID:	MBLK1W	Date Analyzed:	11/20/20 13:05
Lab Samp ID:	IPK023WB	Dilution Factor:	1
Lab File ID:	ID8K013026	Matrix:	WATER
Ext Btch ID:	IPK023W	% Moisture:	NA
Calib. Ref.:	ID8K013024	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	ND	200	20.0	40.0
Manganese	ND	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K128
METHOD : 3010A/6010B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1.000	1.000	1.000
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: IPK023WB	IPK023WL	IPK023WC
LAB FILE ID	: ID8K013026	ID8K013027	ID8K013028
DATE PREPARED	: 11/19/20 11:32	11/19/20 11:32	11/19/20 11:32
DATE ANALYZED	: 11/20/20 13:05	11/20/20 13:10	11/20/20 13:15
PREP BATCH	: IPK023W	IPK023W	IPK023W
CALIBRATION REF	: ID8K013024	ID8K013024	ID8K013024

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Iron	ND	5000	5030	101	5000	5060	101	1	80-120	20
Manganese	ND	500	486	97	500	490	98	1	80-120	20

ICP (6010) QC CHECK TABLE

QC	ICV	CCV	ICSAB	ICSA
Limit%	90-110	90-110	80-120	80-120
Comp	mg/L	mg/L	mg/L	mg/L
Al	100	100	400	400
Sb	1.5	1.5	1	0
As	1	1	1	0
Ba	2	2	0.5	0
Be	1.5	1.5	0.5	0
B	2.5	2.5	1	0
Cd	2	2	1	0
Ca	75	75	500	500
Cr	2.5	2.5	0.5	0
Co	1	1	0.5	0
Cu	2.5	2.5	0.5	0
Fe	25	25	200	200
Pb	2.5	2.5	1	0
Li	0.5	0.5	1	0
Mg	60	60	200	200
Mn	2.5	2.5	0.5	0
Mo	2.5	2.5	1	0
Ni	2.5	2.5	1	0
K	60	60	75	0
Se	1	1	1	0
Ag	0.5	0.5	1	0
Na	60	60	75	0
Sr	0.5	0.5	0.5	0
Tl	2.5	2.5	1	0
Sn	0.5	0.5	1	0
Ti	0.5	0.5	1	0
V	1.5	1.5	0.5	0
Zn	2.5	2.5	1	0

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 11/20/20 10:49
End Date: 11/20/20 18:55

SOP #	Rev. #
☑ EMAX-6010	8
☑ EMAX-6010C	2
☐ EMAX-200.7	5
☐ EMAX-	

Comments:
QC OK

K136-03 & 04 Na OR diluted at 5X 1mL → 5mL

K118-04 Na OR for dilution

Book #: AD8-058
Instrument No.: D8
Analytical Batch: ID8K013
Analytical Sequence: S_20K6010(V22)
Method File: 20K6010(V22)
Database: EMAX-27
Micropipette ID: ☐ 542761827
Micropipette ID: ☑ 942780530
Micropipette ID: ☑ M34663I
Micropipette ID: ☑ A42761570
Micropipette ID: ☐

	STANDARDS ID		STANDARDS ID
S0	SMIB23-4202	S26	SMIB23-4501
S1	N/A	S27	4502
S2		S28	SMIB24-1101
S3		S29	1102
S4		S30	0601
S5		S31	0602
S6		ICV	SMIB23-4801
S7		CCV	SMIB24-0701
S8		ICSA	1402
S9		ICSAB	SMIB23-4802
S10		CRI/MRL	4901
S11		CRI/MRL	SMIB24-0402
S12		CRI/MRL	SMIB23-4901 (2x
S16		CRI/MRL	SMIB24-0401
S17		Internal Standard	SMIB018-0803
S18		Post-Spike 1	1210
S20	SMIB24-1001	Post-Spike 2	1301
S21	1002	Post-Spike 3	1302
S22	1201		
S23	0801		
S24	SMIB23-4201		
S25	4602		

Analyzed By: NT
Date: 11/20/20

INITIAL CALIBRATION VERIFICATION SUMMARY FORM

Client : ARCADIS
Project : VAFB-SS003
SDG NO. : 20K128
Method : METHOD 3010A/6010B
Sequence : ID8K013
InstrumentID: D8

Lab Samp ID :		ICV				ICSA1			ICSAB1	
QC Limit :		%R:90-110/RSD:<5				%R:80-120/<LOD			%R:80-120	
Lab File ID :		ID8K013014				ID8K013022			ID8K013023	
DateAnalyed :		11/20/2012:02				11/20/2012:44			11/20/2012:51	
Parameter		Result	ICV EV	RSD	%Recovery	Result	ICSA EV	%Rec/LOD	Result	ICSAB EV	%Recovery
Aluminum		108.14	100	.41156	108	394.01	400	99	394.25	400	99
Antimony		1.3921	1.5	.01455	93	.02163	0	<0.03	1.0021	1	100
Arsenic		1.0192	1.0	.12812	102	.00881	0	>0.005	1.0857	1	109
Barium		2.0645	2.0	.32358	103	-.00012	0	<0.002	.51947	0.5	104
Beryllium		1.5190	1.5	.29323	101	-.00008	0	<0.001	.50248	0.5	100
Boron		2.5100	2.5	.16270	100	.05635	0	>0.01	1.0493	1.0	105
Cadmium		1.9376	2.0	.12569	97	.00150	0	<0.002	.95878	1	96
Calcium		78.474	75	.10823	105	502.20	500	100	503.58	500	101
Chromium		2.4767	2.5	.32494	99	-.00051	0	<0.003	.50717	0.5	101
Cobalt		1.0023	1.0	.12364	100	-.00012	0	<0.002	.50907	0.5	102
Copper		2.4319	2.5	.17017	97	.00234	0	<0.003	.50438	0.5	101
Iron	T	24.447	25	.55387	98	190.73	200	95	190.25	200	95
Lead		2.5007	2.5	.21867	100	.00320	0	>0.003	1.0007	1	100
Lithium		.53047	0.5	.44751	106	.01088	0	<0.05	1.1030	1	110
Magnesium		60.192	60	.03524	100	197.23	200	99	196.66	200	98
Manganese	T	2.4208	2.5	.18145	97	.00064	0	<0.003	.47538	0.5	95
Molybdenum		2.5324	2.5	.27303	101	-.00080	0	<0.003	1.0547	1	105
Nickel		2.6115	2.5	.23012	104	-.00140	0	<0.003	1.0609	1	106
Potassium		62.626	60	.14834	104	-.01413	0	<0.1	82.689	75	110
Selenium		1.0371	1.0	.11248	104	-.00117	0	<0.005	1.0585	1	106
Silver		.49293	0.5	.47123	99	-.00034	0	<0.003	1.0649	1	106
Sodium		64.459	60	.20127	107	.04903	0	<0.1	83.479	75	111
Strontium		.49426	0.5	.07369	99	-.00119	0	>0.001	.50350	0.5	101
Thallium		2.3222	2.5	.05655	93	-.00006	0	<0.005	.86488	1	86
Tin		.54694	0.5	.29690	109	.00046	0	<0.005	1.1068	1	111
Titanium		.51929	0.5	.56893	104	.00260	0	<0.005	1.0489	1	105
Vanadium		1.5298	1.5	.35570	102	-.00087	0	<0.002	.51778	0.5	104
Zinc		2.7631	2.5	.09737	111*	.00170	0	<0.01	1.1294	1	113

Unit: mg/L
T: Target analyte
EV: Expected Value
Comment: * Out of QC limit

CONTINUING CALIBRATION VERIFICATION SUMMARY FORM

Client : ARCADIS
Project : VAFB-SS003
SDG NO. : 20K128
Method : 3010A/6010B
Sequence : ID8K013
Instrument ID: D8

CCV SampleID		: CCV1				CCV2				CCV3				CCV4			
CCV DataFileID		: ID8K013024				ID8K013035				ID8K013047				ID8K013059			
CCV DateTime		: 11/20/20 12:56				11/20/20 13:48				11/20/20 14:45				11/20/20 15:46			
PARAMETER		CCV EV	RESULT	%REC	RSD	RESULT	%REC	RSD		RESULT	%REC	RSD		RESULT	%REC	RSD	
Aluminum		100	109	109	1.2289	107	107	.28016		107	107	.78395		103	103	.95990	
Antimony		1.5	1.4	93	.21986	1.37	91	.25492		1.4	93	.55964		1.35	90	.21202	
Arsenic		1.0	1.03	103	.44919	1.01	101	.49646		1.02	102	.47418		1.01	101	.28798	
Barium		2.0	2.04	102	.28012	2.09	105	.39224		2.07	104	.65283		2.06	103	.27044	
Beryllium		1.5	1.51	100	.21779	1.54	103	.34765		1.52	101	.42425		1.51	101	.16205	
Boron		2.5	2.52	101	.08920	2.47	99	.15652		2.52	101	.08983		2.43	97	.21376	
Cadmium		2.0	1.94	97	.14076	1.9	95	.16806		1.94	97	.31056		1.87	94	.19193	
Calcium		75	78.3	104	.05334	78.6	105	.08879		78.1	104	.07328		76.8	102	.31890	
Chromium		2.5	2.48	99	.05513	2.45	98	.24648		2.48	99	.06932		2.41	96	.28480	
Cobalt		1.0	1	100	.15517	1.01	101	.11017		1	100	.19023		0.992	99	.01190	
Copper		2.5	2.45	98	.11056	2.41	96	.19099		2.45	98	.18805		2.36	94	.20457	
Iron	T	25	24.6	99	.19771	24.2	97	.36154		24.6	99	.28797		23.7	95	.21733	
Lead		2.5	2.5	100	.09952	2.51	100	.19183		2.51	100	.12605		2.46	98	.07151	
Lithium		0.5	0.52	104	.43163	0.523	105	.49403		0.521	104	.49764		0.51	102	.67152	
Magnesium		60	59.8	100	.07337	60.2	100	.09169		59.8	100	.26342		58.8	98	.11679	
Manganese	T	2.5	2.41	96	.15117	2.43	97	.12398		2.42	97	.41617		2.38	95	.09871	
Molybdenum		2.5	2.53	101	.05252	2.57	103	.35621		2.54	101	.19858		2.53	101	.40006	
Nickel		2.5	2.61	104	.10477	2.64	106	.31070		2.61	104	.20023		2.61	104	.34351	
Potassium		60	62.1	103	.18231	62.3	104	.15198		61.8	103	.14583		61.1	102	.05396	
Selenium		1.0	1.04	104	.46346	1.02	102	.24538		1.04	104	.28403		1.01	101	.08222	
Silver		0.5	0.499	100	.17577	0.484	97	.48955		0.499	100	.19272		0.475	95	.14633	
Sodium		60	63.6	106	.26586	64.8	108	.19179		63.7	106	.46624		64.2	107	.13457	
Strontium		0.5	0.493	99	.07374	0.495	99	.11223		0.493	99	.16750		0.488	98	.17009	
Thallium		2.5	2.33	93	.18696	2.28	91	.33204		2.33	93	.54337		2.24	90	.23308	
Tin		0.5	0.547	109	.28644	0.551	110	.28913		0.546	109	.14554		0.545	109	.14208	
Titanium		0.5	0.514	103	.69348	0.524	105	.24170		0.52	104	.42589		0.513	103	.11845	
Vanadium		1.5	1.54	103	.16426	1.52	101	.26431		1.54	102	.18318		1.5	100	.09831	
Zinc		2.5	2.76	110	.12965	2.78	111*	.16438		2.75	110	.11828		2.74	110	.06568	

Unit: ug/L
T: Target analyte
%Rec QC Limit: 90-110
RSD QC Limit: <5
CCV EV: CCV Expected Value ug/L
Comment: * Out of QC limit

CONTINUING CALIBRATION BLANK SUMMARY FORM

Client : ARCADIS
Project : VAFB-SS003
SDG NO. : 20K128
Method : 3010A/6010B
Sequence : ID8K013
Instrument ID: D8

CB SampleID		: ICB		CCB1		CCB2		CCB3		CCB4	
CB DataFileID		: ID8K013015		ID8K013025		ID8K013036		ID8K013048		ID8K013060	
CB DateTime		: 11/20/2012:07		11/20/2013:00		11/20/2013:53		11/20/2014:49		11/20/2015:51	
PARAMETER	LOD	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >
Aluminum	0.03	0.01	<0.03	0.02	<0.03	0.01	<0.03	0.009	<0.03	0.01	<0.03
Antimony	0.03	0.0009	<0.03	0.002	<0.03	0.001	<0.03	0.001	<0.03	0.001	<0.03
Arsenic	0.005	0.003	<0.005	0.002	<0.005	0.005	<0.005	0.002	<0.005	0.002	<0.005
Barium	0.002	0.00009	<0.002	0.0001	<0.002	0.00002	<0.002	0.0005	<0.002	0.0003	<0.002
Beryllium	0.001	0.00007	<0.001	0.0001	<0.001	0.0002	<0.001	0.0001	<0.001	0.0001	<0.001
Boron	0.01	0.010	>0.01	0.007	<0.01	0.006	<0.01	0.007	<0.01	0.006	<0.01
Cadmium	0.002	0.0002	<0.002	0.0002	<0.002	0.00005	<0.002	0.00007	<0.002	0.0001	<0.002
Calcium	0.1	0.005	<0.1	0.009	<0.1	0.002	<0.1	0.002	<0.1	0.0003	<0.1
Chromium	0.003	0.0002	<0.003	0.0003	<0.003	0.00006	<0.003	0.00009	<0.003	0.00001	<0.003
Cobalt	0.002	0.0002	<0.002	0.0001	<0.002	0.00005	<0.002	0.0002	<0.002	0.00004	<0.002
Copper	0.003	0.0002	<0.003	0.00002	<0.003	0.00005	<0.003	0.0001	<0.003	0.00006	<0.003
Iron T	0.04	0.006	<0.04	0.002	<0.04	0.002	<0.04	0.008	<0.04	0.006	<0.04
Lead	0.003	0.0007	<0.003	0.0010	<0.003	0.0009	<0.003	0.001	<0.003	0.001	<0.003
Lithium	0.05	0.001	<0.05	0.0009	<0.05	0.0003	<0.05	0.0007	<0.05	0.001	<0.05
Magnesium	0.1	0.01	<0.1	0.009	<0.1	0.008	<0.1	0.01	<0.1	0.009	<0.1
Manganese T	0.003	0.0004	<0.003	0.0006	<0.003	0.0006	<0.003	0.0006	<0.003	0.0003	<0.003
Molybdenum	0.003	0.0006	<0.003	0.0007	<0.003	0.0007	<0.003	0.0004	<0.003	0.0006	<0.003
Nickel	0.003	0.0002	<0.003	0.0001	<0.003	0.0001	<0.003	0.0004	<0.003	0.0002	<0.003
Potassium	0.1	0.02	<0.1	0.12	>0.1	0.16	>0.1	0.08	<0.1	0.14	>0.1
Selenium	0.005	0.001	<0.005	0.0002	<0.005	0.0002	<0.005	0.0002	<0.005	0.0007	<0.005
Silver	0.003	0.0004	<0.003	0.0002	<0.003	0.0004	<0.003	0.0003	<0.003	0.0002	<0.003
Sodium	0.1	0.02	<0.1	0.06	<0.1	0.13	>0.1	0.16	>0.1	0.37	>0.1
Strontium	0.001	0.0004	<0.001	0.0001	<0.001	0.0001	<0.001	0.0002	<0.001	0.0002	<0.001
Thallium	0.005	0.001	<0.005	0.00007	<0.005	0.001	<0.005	0.001	<0.005	0.002	<0.005
Tin	0.005	0.001	<0.005	0.0002	<0.005	0.0009	<0.005	0.0007	<0.005	0.001	<0.005
Titanium	0.005	0.0003	<0.005	0.00004	<0.005	0.0003	<0.005	0.0004	<0.005	0.0004	<0.005
Vanadium	0.002	0.0001	<0.002	0.0002	<0.002	0.0002	<0.002	0.0001	<0.002	0.0003	<0.002
Zinc	0.01	0.0004	<0.01	0.0005	<0.01	0.0005	<0.01	0.0003	<0.01	0.0002	<0.01

Unit: mg/L
CB: Calibration Blank
T: Target analyte
Acceptance Criteria: CCB Result <LOD
Comment:

SEQUENCE FILE : ID8K013

4-18	19-33	34-43	44-53	54-63
LFID	LSID	TIME	DATE	DF
ID8K013001	S0	10:49	11/20/20	1.000
ID8K013002	S20	10:53	11/20/20	1.000
ID8K013003	S21	10:58	11/20/20	1.000
ID8K013004	S22	11:03	11/20/20	1.000
ID8K013005	S23	11:08	11/20/20	1.000
ID8K013006	S24	11:13	11/20/20	1.000
ID8K013007	S25	11:18	11/20/20	1.000
ID8K013008	S26	11:22	11/20/20	1.000
ID8K013009	S27	11:27	11/20/20	1.000
ID8K013010	S28	11:32	11/20/20	1.000
ID8K013011	S29	11:37	11/20/20	1.000
ID8K013012	S30	11:42	11/20/20	1.000
ID8K013013	S31	11:46	11/20/20	1.000
ID8K013014	ICV	12:02	11/20/20	1.000
ID8K013015	ICB	12:07	11/20/20	1.000
ID8K013016	MRLK2001	12:11	11/20/20	1.000
ID8K013017	MRLK2002	12:16	11/20/20	1.000
ID8K013018	MRLK2003	12:21	11/20/20	1.000
ID8K013019	MRLK2004	12:26	11/20/20	1.000
ID8K013020	MRLK2001	12:35	11/20/20	1.000
ID8K013021	MRLK2002	12:40	11/20/20	1.000
ID8K013022	ICSA1	12:44	11/20/20	1.000
ID8K013023	ICSAB1	12:51	11/20/20	1.000
ID8K013024	CCV1	12:56	11/20/20	1.000
ID8K013025	CCB1	13:00	11/20/20	1.000
ID8K013026	IPK023WB	13:05	11/20/20	1.000
ID8K013027	IPK023WL	13:10	11/20/20	1.000
ID8K013028	IPK023WC	13:15	11/20/20	1.000
ID8K013029	TXK005SB	13:19	11/20/20	1.000
ID8K013030	K076-01M	13:24	11/20/20	1.000
ID8K013031	K076-01S	13:29	11/20/20	1.000
ID8K013032	K076-01A	13:34	11/20/20	1.000
ID8K013033	K076-01	13:38	11/20/20	1.000
ID8K013034	K076-01J	13:43	11/20/20	5.000
ID8K013035	CCV2	13:48	11/20/20	1.000
ID8K013036	CCB2	13:53	11/20/20	1.000
ID8K013037	K136-01M	13:57	11/20/20	1.000
ID8K013038	K136-01S	14:02	11/20/20	1.000
ID8K013039	K136-01A	14:07	11/20/20	1.000
ID8K013040	K136-01	14:11	11/20/20	1.000
ID8K013041	K136-01J	14:16	11/20/20	5.000
ID8K013042	K136-02	14:21	11/20/20	1.000
ID8K013043	K136-03	14:25	11/20/20	1.000
ID8K013044	K136-04	14:30	11/20/20	1.000
ID8K013045	K136-07	14:35	11/20/20	1.000
ID8K013046	K136-08	14:40	11/20/20	1.000
ID8K013047	CCV3	14:45	11/20/20	1.000
ID8K013048	CCB3	14:49	11/20/20	1.000
ID8K013049	K128-01	14:54	11/20/20	1.000
ID8K013050	K128-02	14:59	11/20/20	1.000
ID8K013051	K128-03	15:04	11/20/20	1.000
ID8K013052	K128-04	15:09	11/20/20	1.000
ID8K013053	K128-05	15:14	11/20/20	1.000
ID8K013054	K098-01	15:22	11/20/20	1.000
ID8K013055	K098-02	15:27	11/20/20	1.000
ID8K013056	K420-04	15:32	11/20/20	1.000
ID8K013057	K421-08	15:37	11/20/20	1.000
ID8K013058	K421-10	15:41	11/20/20	1.000
ID8K013059	CCV4	15:46	11/20/20	1.000
ID8K013060	CCB4	15:51	11/20/20	1.000
ID8K013061	IPK024WB	15:56	11/20/20	1.000
ID8K013062	IPK024WL	16:00	11/20/20	1.000

ID8K013063	IPK024WC	16:05	11/20/20	1.000
ID8K013064	K118-01M	16:10	11/20/20	1.000
ID8K013065	K118-01S	16:14	11/20/20	1.000
ID8K013066	K118-01A	16:19	11/20/20	1.000
ID8K013067	K118-01	16:24	11/20/20	1.000
ID8K013068	K118-01J	16:29	11/20/20	5.000
ID8K013069	K118-02	16:33	11/20/20	1.000
ID8K013070	K118-03	16:38	11/20/20	1.000
ID8K013071	CCV5	16:43	11/20/20	1.000
ID8K013072	CCB5	16:47	11/20/20	1.000
ID8K013073	K118-04	16:52	11/20/20	1.000
ID8K013074	K118-05	16:57	11/20/20	1.000
ID8K013075	K118-06	17:02	11/20/20	1.000
ID8K013076	K118-07	17:07	11/20/20	1.000
ID8K013077	K118-09	17:11	11/20/20	1.000
ID8K013078	K118-10	17:16	11/20/20	1.000
ID8K013079	K118-11	17:21	11/20/20	1.000
ID8K013080	K118-12	17:25	11/20/20	1.000
ID8K013081	K118-14	17:30	11/20/20	1.000
ID8K013082	CCV6	17:35	11/20/20	1.000
ID8K013083	CCB6	17:40	11/20/20	1.000
ID8K013084	K415-01	17:44	11/20/20	1.000
ID8K013085	K415-02	17:49	11/20/20	1.000
ID8K013086	K415-04	17:54	11/20/20	1.000
ID8K013087	K415-07	17:58	11/20/20	1.000
ID8K013088	K415-08	18:03	11/20/20	1.000
ID8K013089	K415-09	18:08	11/20/20	1.000
ID8K013090	K415-10	18:13	11/20/20	1.000
ID8K013091	K415-11	18:17	11/20/20	1.000
ID8K013092	K417-04	18:22	11/20/20	1.000
ID8K013093	K417-06	18:27	11/20/20	1.000
ID8K013094	CCV7	18:31	11/20/20	1.000
ID8K013095	CCB7	18:36	11/20/20	1.000
ID8K013096	K136-03I	18:41	11/20/20	5.000
ID8K013097	K136-04I	18:46	11/20/20	5.000
ID8K013098	CCV8	18:50	11/20/20	1.000
ID8K013099	CCB8	18:55	11/20/20	1.000

	Pos ID	Rack	Row	Col	Type	Samplename	Comment	Data File	Anaylst	CorrFact	Check	Check Data	Fail Action
1	0	0	0	0	Unk	S0		ID8K013001	NTan	1	☒	unk6010C	---
2	0	0	0	0	Unk	S20		ID8K013002	NTan	1	☒	unk6010C	---
3	0	0	0	0	Unk	S21		ID8K013003	NTan	1	☒	unk6010C	---
4	0	0	0	0	Unk	S22		ID8K013004	NTan	1	☒	unk6010C	---
5	0	0	0	0	Unk	S23		ID8K013005	NTan	1	☒	unk6010C	---
6	0	0	0	0	Unk	S24		ID8K013006	NTan	1	☒	unk6010C	---
7	0	0	0	0	Unk	S25		ID8K013007	NTan	1	☒	unk6010C	---
8	0	0	0	0	Unk	S26		ID8K013008	NTan	1	☒	unk6010C	---
9	0	0	0	0	Unk	S27		ID8K013009	NTan	1	☒	unk6010C	---
10	0	0	0	0	Unk	S28		ID8K013010	NTan	1	☒	unk6010C	---
11	0	0	0	0	Unk	S29		ID8K013011	NTan	1	☒	unk6010C	---
12	0	0	0	0	Unk	S30		ID8K013012	NTan	1	☒	unk6010C	---
13	0	0	0	0	Unk	S31		ID8K013013	NTan	1	☒	unk6010C	---
14	1	2	1	1	QC	ICV		ID8K013014	NTan	1	☒	CCV	None
15	2	2	2	1	QC	ICB		ID8K013015	NTan	1	☒	LOD	None
16	3	2	3	1	QC	MRLK2001		ID8K013016	NTan	1	☒	MRL-EMAX	None
17	4	2	4	1	QC	MRLK2002		ID8K013017	NTan	1	☒	MRL-AFCEE	None
18	5	2	5	1	Unk	MRLK2003	E2X	ID8K013018	NTan	1	☒	unk6010C	---
19	6	2	6	1	Unk	MRLK2004	4e	ID8K013019	NTan	1	☒	unk6010C	---
20	121	4	1	1	QC	MRLK2001	REPREP	ID8K013020	NTan	1	☒	MRL-EMAX	None
21	122	4	2	1	QC	MRLK2002	REPREP	ID8K013021	NTan	1	☒	MRL-AFCEE	None
22	7	2	7	1	QC	ICSA1		ID8K013022	NTan	1	☒	ICSA-DoD	None
23	8	2	8	1	QC	ICSAB1		ID8K013023	NTan	1	☒	ICSAB	None
24	9	2	9	1	QC	CCV1		ID8K013024	NTan	1	☒	CCV	None
25	10	2	10	1	QC	CCB1		ID8K013025	NTan	1	☒	LOD	None
26	11	2	11	1	QC	IPK023WB		ID8K013026	NTan	1	☒	1/2LOQ	None
27	12	2	12	1	QC	IPK023WL		ID8K013027	NTan	1	☒	LCS-WDoD	None
28	13	2	1	2	QC	IPK023WC		ID8K013028	NTan	1	☒	LCS-WDoD	None
29	14	2	2	2	QC	TXK005SB	TCLP	ID8K013029	NTan	1	☒	1/2LOQ	None
30	15	2	3	2	Unk	K076-01M	TCLP	ID8K013030	NTan	1	☒	unk6010C	---
31	16	2	4	2	Unk	K076-01S	TCLP	ID8K013031	NTan	1	☒	unk6010C	---
32	17	2	5	2	Unk	K076-01A	TCLP	ID8K013032	NTan	1	☒	unk6010C	---
33	18	2	6	2	Unk	K076-01	TCLP	ID8K013033	NTan	1	☒	unk6010C	---
34	19	2	7	2	Unk	K076-01J	5X TCLP	ID8K013034	NTan	1	☒	unk6010C	---
35	20	2	8	2	QC	CCV2		ID8K013035	NTan	1	☒	CCV	None
36	21	2	9	2	QC	CCB2		ID8K013036	NTan	1	☒	LOD	None
37	22	2	10	2	Unk	K136-01M		ID8K013037	NTan	1	☒	unk6010C	---
38	23	2	11	2	Unk	K136-01S		ID8K013038	NTan	1	☒	unk6010C	---
39	24	2	12	2	Unk	K136-01A		ID8K013039	NTan	1	☒	unk6010C	---
40	25	2	1	3	Unk	K136-01		ID8K013040	NTan	1	☒	unk6010C	---

	Pos ID	Rack	Row	Col	Type	Sample name	Comment	Date File	Anaylst	Co	Check	Check Table	Fail Action
41	26	2	2	3	Unk	K136-01J	5X	ID8K013041	NTan	1	☒	unk6010C	---
42	27	2	3	3	Unk	K136-02		ID8K013042	NTan	1	☒	unk6010C	---
43	28	2	4	3	Unk	K136-03	Na	ID8K013043	NTan	1	☒	unk6010C	---
44	29	2	5	3	Unk	K136-04	Na	ID8K013044	NTan	1	☒	unk6010C	---
45	30	2	6	3	Unk	K136-07		ID8K013045	NTan	1	☒	unk6010C	---
46	31	2	7	3	Unk	K136-08		ID8K013046	NTan	1	☒	unk6010C	---
47	32	2	8	3	QC	CCV3		ID8K013047	NTan	1	☒	CCV	None
48	33	2	9	3	QC	CCB3		ID8K013048	NTan	1	☒	LOD	None
49	34	2	10	3	Unk	K128-01	TOT	ID8K013049	NTan	1	☒	unk6010C	---
50	35	2	11	3	Unk	K128-02	TOT	ID8K013050	NTan	1	☒	unk6010C	---
51	36	2	12	3	Unk	K128-03	TOT	ID8K013051	NTan	1	☒	unk6010C	---
52	37	2	1	4	Unk	K128-04	TOT	ID8K013052	NTan	1	☒	unk6010C	---
53	38	2	2	4	Unk	K128-05	TOT	ID8K013053	NTan	1	☒	unk6010C	---
54	39	2	3	4	Unk	K098-01		ID8K013054	NTan	1	☒	unk6010C	---
55	40	2	4	4	Unk	K098-02		ID8K013055	NTan	1	☒	unk6010C	---
56	123	4	3	1	Unk	K420-04	IM	ID8K013056	NTan	1	☒	unk6010C	---
57	124	4	4	1	Unk	K421-08	IM	ID8K013057	NTan	1	☒	unk6010C	---
58	125	4	5	1	Unk	K421-10	IM	ID8K013058	NTan	1	☒	unk6010C	---
59	41	2	5	4	QC	CCV4		ID8K013059	NTan	1	☒	CCV	None
60	42	2	6	4	QC	CCB4		ID8K013060	NTan	1	☒	LOD	None
61	43	2	7	4	QC	IPK024WB		ID8K013061	NTan	1	☒	1/2LOQ	None
62	44	2	8	4	QC	IPK024WL		ID8K013062	NTan	1	☒	LCS-WDoD	None
63	45	2	9	4	QC	IPK024WC		ID8K013063	NTan	1	☒	LCS-WDoD	None
64	46	2	10	4	Unk	K118-01M		ID8K013064	NTan	1	☒	unk6010C	---
65	47	2	11	4	Unk	K118-01S		ID8K013065	NTan	1	☒	unk6010C	---
66	48	2	12	4	Unk	K118-01A		ID8K013066	NTan	1	☒	unk6010C	---
67	49	2	1	5	Unk	K118-01		ID8K013067	NTan	1	☒	unk6010C	---
68	50	2	2	5	Unk	K118-01J	5X	ID8K013068	NTan	1	☒	unk6010C	---
69	51	2	3	5	Unk	K118-02		ID8K013069	NTan	1	☒	unk6010C	---
70	52	2	4	5	Unk	K118-03		ID8K013070	NTan	1	☒	unk6010C	---
71	53	2	5	5	QC	CCV5		ID8K013071	NTan	1	☒	CCV	None
72	54	2	6	5	QC	CCB5		ID8K013072	NTan	1	☒	LOD	None
73	55	2	7	5	Unk	K118-04		ID8K013073	NTan	1	☒	unk6010C	---
74	56	2	8	5	Unk	K118-05		ID8K013074	NTan	1	☒	unk6010C	---
75	57	2	9	5	Unk	K118-06		ID8K013075	NTan	1	☒	unk6010C	---
76	58	2	10	5	Unk	K118-07		ID8K013076	NTan	1	☒	unk6010C	---
77	59	2	11	5	Unk	K118-09		ID8K013077	NTan	1	☒	unk6010C	---
78	60	2	12	5	Unk	K118-10		ID8K013078	NTan	1	☒	unk6010C	---
79	61	3	1	1	Unk	K118-11		ID8K013079	NTan	1	☒	unk6010C	---
80	62	3	2	1	Unk	K118-12		ID8K013080	NTan	1	☒	unk6010C	---

	Pos ID	Rack	Row	Col	Type	Samplename	Comment	Data File	Anaylst	CorrFact	Check	Check Std	Fail Action
81	63	3	3	1	Unk	K118-14		ID8K013081	NTan	1	☒	unk6010C	---
82	64	3	4	1	QC	CCV6		ID8K013082	NTan	1	☒	CCV	None
83	65	3	5	1	QC	CCB6		ID8K013083	NTan	1	☒	LOD	None
84	66	3	6	1	Unk	K415-01	IM	ID8K013084	NTan	1	☒	unk6010C	---
85	67	3	7	1	Unk	K415-02	IM	ID8K013085	NTan	1	☒	unk6010C	---
86	68	3	8	1	Unk	K415-04	IM	ID8K013086	NTan	1	☒	unk6010C	---
87	69	3	9	1	Unk	K415-07	IM	ID8K013087	NTan	1	☒	unk6010C	---
88	70	3	10	1	Unk	K415-08	IM	ID8K013088	NTan	1	☒	unk6010C	---
89	71	3	11	1	Unk	K415-09	IM	ID8K013089	NTan	1	☒	unk6010C	---
90	72	3	12	1	Unk	K415-10	IM	ID8K013090	NTan	1	☒	unk6010C	---
91	73	3	1	2	Unk	K415-11	IM	ID8K013091	NTan	1	☒	unk6010C	---
92	74	3	2	2	Unk	K417-04	IM	ID8K013092	NTan	1	☒	unk6010C	---
93	75	3	3	2	Unk	K417-06	IM	ID8K013093	NTan	1	☒	unk6010C	---
94	76	3	4	2	QC	CCV7		ID8K013094	NTan	1	☒	CCV	None
95	77	3	5	2	QC	CCB7		ID8K013095	NTan	1	☒	LOD	None
96	78	3	6	2	Unk	K136-03I	5X	ID8K013096	NTan	1	☒	unk6010C	---
97	79	3	7	2	Unk	K136-04I	5X	ID8K013097	NTan	1	☒	unk6010C	---
98	80	3	8	2	QC	CCV8		ID8K013098	NTan	1	☒	CCV	None
99	81	3	9	2	QC	CCB8		ID8K013099	NTan	1	☒	LOD	None

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	MDL
Al 308.215 {109}	11/20/2020 11:32:32	11/20/2020 11:32:32	Linear	1/Conc	0.001774	0.022945	0.000000	1.000000	0.999923	0.000313	0.001937
Sb 206.833 {463}	11/20/2020 11:41:57	11/20/2020 11:41:57	Linear	1/Conc	0.000044	0.005175	0.000000	1.000000	0.999995	0.000003	0.001880
As 189.042 {478}	11/20/2020 11:51:25	11/20/2020 11:51:25	Linear	1/Conc	-0.000010	0.001920	0.000000	1.000000	0.999996	0.000000	0.002607
Ba 455.403 { 74}	11/20/2020 11:13:14	11/20/2020 11:13:14	Linear	1/Conc	0.001372	0.543904	0.000000	1.000000	0.999969	0.000774	0.000405
Be 313.042 {108}	11/20/2020 11:03:28	11/20/2020 11:03:28	Linear	1/Conc	0.000112	1.008339	0.000000	1.000000	1.000000	0.000131	0.000107
B 249.773 {135}	11/20/2020 11:22:50	11/20/2020 11:22:50	Linear	1/Conc	0.000831	0.124684	0.000000	1.000000	0.999996	0.000065	0.000302
Cd 226.502 {449}	11/20/2020 11:03:28	11/20/2020 11:03:28	Linear	1/Conc	-0.000061	0.151430	0.000000	1.000000	0.999988	0.000133	0.000093
Ca 317.933 {106}	11/20/2020 11:32:32	11/20/2020 11:32:32	Linear	1/Conc	0.000549	0.019764	0.000000	1.000000	0.999905	0.002471	0.004603
Cr 267.716 {126}	11/20/2020 11:32:32	11/20/2020 11:32:32	Linear	1/Conc	0.000140	0.158198	0.000000	1.000000	0.999994	0.000098	0.000266
Co 228.616 {447}	11/20/2020 11:13:14	11/20/2020 11:13:14	Linear	1/Conc	-0.001050	0.793579	0.000000	1.000000	0.999994	0.000102	0.000268
Cu 324.754 {104}	11/20/2020 11:13:14	11/20/2020 11:13:14	Linear	1/Conc	0.000492	0.302824	0.000000	1.000000	0.999890	0.000815	0.000226
Fe 271.441 {124}	11/20/2020 11:13:14	11/20/2020 11:13:14	Linear	1/Conc	0.000163	0.006051	0.000000	1.000000	0.999819	0.000140	0.007774
Pb 220.353 {453}	11/20/2020 11:03:28	11/20/2020 11:03:28	Linear	1/Conc	-0.000329	0.200072	0.000000	1.000000	0.999999	0.000045	0.001050
Li 670.784 { 50}	11/20/2020 11:51:25	11/20/2020 11:51:25	Linear	1/Conc	-0.000400	0.118194	0.000000	1.000000	0.999987	0.000016	0.002466
Mg 279.079 {121}	11/20/2020 11:41:57	11/20/2020 11:41:57	Linear	1/Conc	-0.000058	0.002948	0.000000	1.000000	0.999996	0.000014	0.022896
Mn 257.610 {131}	11/20/2020 11:03:28	11/20/2020 11:03:28	Linear	1/Conc	-0.000138	0.135610	0.000000	1.000000	0.999999	0.000034	0.000506
Mo 202.030 {467}	11/20/2020 11:22:50	11/20/2020 11:22:50	Linear	1/Conc	-0.000151	0.693330	0.000000	1.000000	0.999932	0.001464	0.000204
Ni 231.604 {446}	11/20/2020 11:32:32	11/20/2020 11:32:32	Linear	1/Conc	-0.001333	0.848773	0.000000	1.000000	0.999999	0.000181	0.000275
K 766.490 { 44}	11/20/2020 11:32:32	11/20/2020 11:32:32	Linear	1/Conc	-0.002960	0.006394	0.000000	1.000000	0.999999	0.000091	0.056475
Se 196.090 {472}	11/20/2020 11:51:25	11/20/2020 11:51:25	Linear	1/Conc	0.000017	0.002518	0.000000	1.000000	0.999994	0.000001	0.002600
Si 212.412 {459}	11/20/2020 10:53:53	11/20/2020 10:53:53	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000
Ag 328.068 {103}	11/20/2020 11:51:25	11/20/2020 11:51:25	Linear	1/Conc	-0.000281	0.184968	0.000000	1.000000	0.999873	0.000079	0.000441
Na 589.592 { 57}	11/20/2020 11:22:50	11/20/2020 11:22:50	Linear	1/Conc	0.000594	0.020321	0.000000	1.000000	0.999852	0.002530	0.013854
Sr 421.552 { 80}	11/20/2020 11:51:25	11/20/2020 11:51:25	Linear	1/Conc	-0.001492	0.791187	0.000000	1.000000	0.999885	0.000322	0.000238
Tl 190.856 {477}	11/20/2020 11:41:57	11/20/2020 11:41:57	Linear	1/Conc	-0.000008	0.006042	0.000000	1.000000	0.999702	0.000027	0.001142
Sn 189.989 {477}	11/20/2020 11:51:25	11/20/2020 11:51:25	Linear	1/Conc	-0.000088	0.106076	0.000000	1.000000	0.999997	0.000007	0.000777
Ti 334.941 {101}	11/20/2020 11:51:25	11/20/2020 11:51:25	Linear	1/Conc	0.000130	0.083084	0.000000	1.000000	0.999952	0.000022	0.001407
U 409.014 { 82}	11/20/2020 10:53:53	11/20/2020 10:53:53	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000
V 292.402 {115}	11/20/2020 11:13:14	11/20/2020 11:13:14	Linear	1/Conc	-0.000211	0.143640	0.000000	1.000000	0.999993	0.000098	0.000329
Zn 206.200 {463}	11/20/2020 11:51:25	11/20/2020 11:51:25	Linear	1/Conc	0.000288	0.759338	0.000000	1.000000	1.000000	0.000133	0.000183
Sc 227.318 {448}*	11/20/2020 10:53:53	11/20/2020 10:53:53	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000
Sc 361.384 { 93}*	11/20/2020 10:53:53	11/20/2020 10:53:53	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000
Sc 364.531 { 92}*	11/20/2020 10:53:53	11/20/2020 10:53:53	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000

ID8K013
S 20K6010(V22)
EMAX - 27
NT 11/20/20

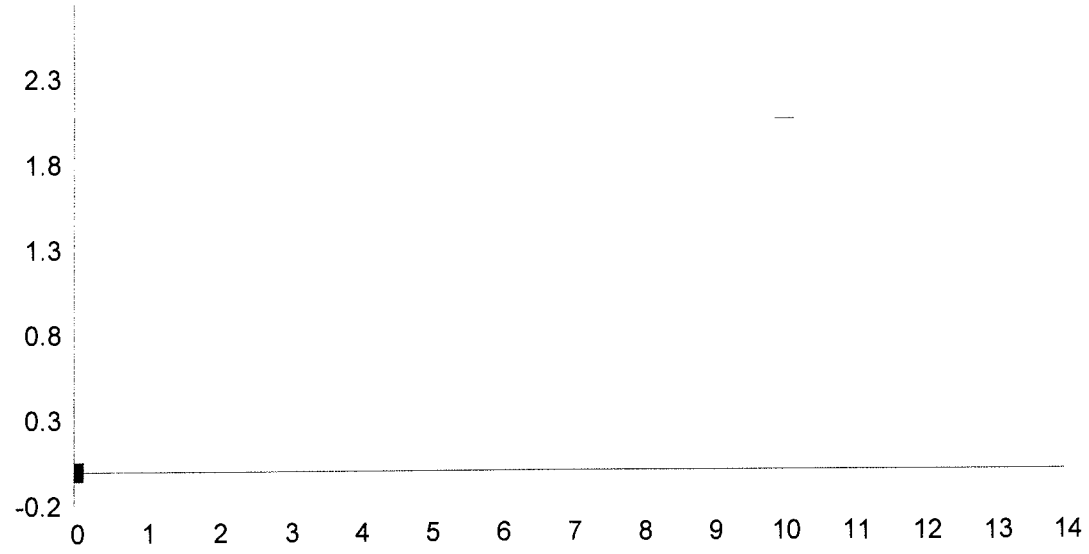
	Element Wavelength and Order	Predicted MQL	Status	Reslope		Norm	
				Slope	Y-int	Slope factor	Offset
	Al 308.215 {109}	0.006458	OK.	1.000000	0.000000	1	0
	Sb 206.833 {463}	0.006266	OK.	1.000000	0.000000	1	0
	As 189.042 {478}	0.008689	OK.	1.000000	0.000000	1	0
	Ba 455.403 { 74}	0.001351	OK.	1.000000	0.000000	1	0
	Be 313.042 {108}	0.000356	OK.	1.000000	0.000000	1	0
	B 249.773 {135}	0.001007	OK.	1.000000	0.000000	1	0
	Cd 226.502 {449}	0.000310	OK.	1.000000	0.000000	1	0
	Ca 317.933 {106}	0.015343	OK.	1.000000	0.000000	1	0
	Cr 267.716 {126}	0.000886	OK.	1.000000	0.000000	1	0
	Co 228.616 {447}	0.000895	OK.	1.000000	0.000000	1	0
	Cu 324.754 {104}	0.000752	OK.	1.000000	0.000000	1	0
	Fe 271.441 {124}	0.025915	OK.	1.000000	0.000000	1	0
	Pb 220.353 {453}	0.003498	OK.	1.000000	0.000000	1	0
	Li 670.784 { 50}	0.008220	OK.	1.000000	0.000000	1	0
	Mg 279.079 {121}	0.076320	OK.	1.000000	0.000000	1	0
	Mn 257.610 {131}	0.001685	OK.	1.000000	0.000000	1	0
	Mo 202.030 {467}	0.000681	OK.	1.000000	0.000000	1	0
	Ni 231.604 {446}	0.000917	OK.	1.000000	0.000000	1	0
	K 766.490 { 44}	0.188251	OK.	1.000000	0.000000	1	0
	Se 196.090 {472}	0.008667	OK.	1.000000	0.000000	1	0
	Si 212.412 {459}	-1.000000	Warnin	1.000000	0.000000	1	0
	Ag 328.068 {103}	0.001470	OK.	1.000000	0.000000	1	0
	Na 589.592 { 57}	0.046182	OK.	1.000000	0.000000	1	0
	Sr 421.552 { 80}	0.000794	OK.	1.000000	0.000000	1	0
	Tl 190.856 {477}	0.003807	OK.	1.000000	0.000000	1	0
	Sn 189.989 {477}	0.002589	OK.	1.000000	0.000000	1	0
	Ti 334.941 {101}	0.004691	OK.	1.000000	0.000000	1	0
	U 409.014 { 82}	-1.000000	Warnin	1.000000	0.000000	1	0
	V 292.402 {115}	0.001096	OK.	1.000000	0.000000	1	0
	Zn 206.200 {463}	0.000610	OK.	1.000000	0.000000	1	0
	Sc 227.318 {448}*	-1.000000	Warnin	1.000000	0.000000	1	0
	Sc 361.384 { 93}*	-1.000000	Warnin	1.000000	0.000000	1	0
	Sc 364.531 { 92}*	-1.000000	Warnin	1.000000	0.000000	1	0

Fe 271.441 {124}

Date of Fit:	11/20/2020 11:13:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000163	Re-Slope:	1.000000
A1 (Gain):	0.006051	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999819	Status:	OK.
Std Error of Est:	0.000140		
Predicted MDL:	0.007774		
Predicted MQL:	0.025915		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S020H6010	.00000	-.00041	.000	.000	.00016	.000	1
S23	200.00	199.63	-.375	-.187	1.1901	.004	1
S22	2.5000	2.9191	.419	16.8	.01602	.000	1



Pb 220.353 {453}

Date of Fit:	11/20/2020 11:03:28	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000329	Re-Slope:	1.000000
A1 (Gain):	0.200072	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999999	Status:	OK.
Std Error of Est:	0.000045		
Predicted MDL:	0.001050		
Predicted MQL:	0.003498		

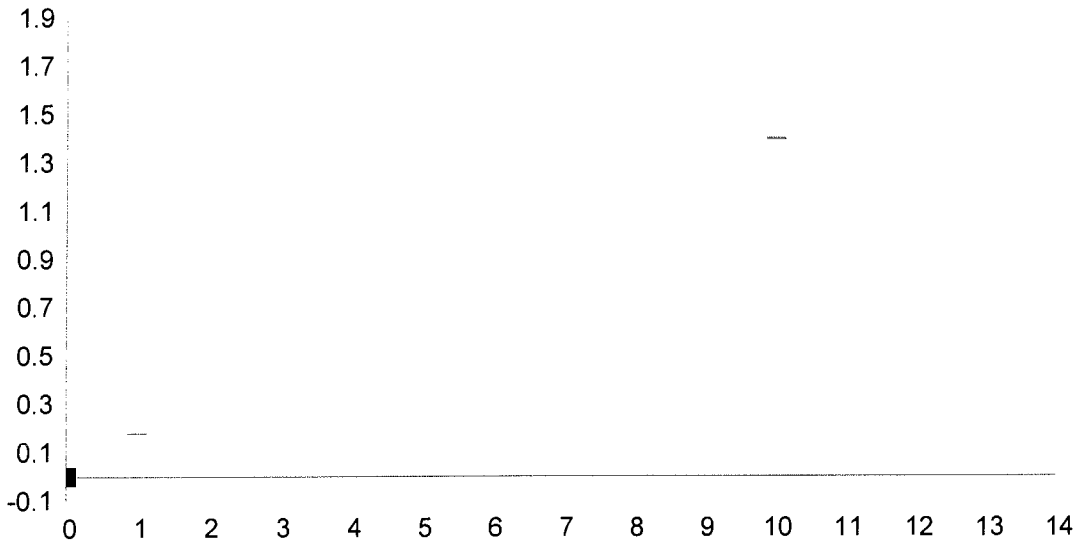
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S020H6010	.00000	.00000	.000	.000	-.00033	.000	1
S21	10.000	9.9961	-.004	-.039	1.9996	.001	1
S20	1.0000	1.0039	.004	.390	.20052	.000	1

Mg 279.079 {121}

Date of Fit:	11/20/2020 11:41:57	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000058	Re-Slope:	1.000000
A1 (Gain):	0.002948	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999996	Status:	OK.
Std Error of Est:	0.000014		
Predicted MDL:	0.022896		
Predicted MQL:	0.076320		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S020H6010	.00000	-.00008	.000	.000	-.00006	.000	1
S29	100.00	99.914	-.086	-.086	.29448	.001	1
S28	10.000	10.086	.086	.856	.02967	.000	1



Mn 257.610 {131}

Date of Fit:	11/20/2020 11:03:28	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000138	Re-Slope:	1.000000
A1 (Gain):	0.135610	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999999	Status:	OK.
Std Error of Est:	0.000034		
Predicted MDL:	0.000506		
Predicted MQL:	0.001685		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S020H6010	.00000	.00000	.000	.000	-.00014	.000	1
S21	10.000	9.9956	-.004	-.044	1.3554	.003	1
S20	1.0000	1.0044	.004	.442	.13607	.001	1

Status

Revision	22	
Date Created	08/14/2006 16:36:29	by admin
Date Modified	11/20/2020 10:37:53	by admin
Date Calibrated	11/20/2020 11:51:25	
Current Status	by admin	
Number of Elements	31	
Number of Wavelengths	33	
Calibration Type	External	
Notes:		

Analysis Preferences

Sample Options	# Repeats:	3			
	Delay Time:	0.0 seconds			
	Sample Flush Time:	47 seconds			
	Analysis mode	Speed			
Source	Sample Introduction	Nebulizer			
	Plasma View:	Line Selectior			
Analysis Maximum Integration Times (sec)	Low WL Range	Axial	15	Radial	15
	High WL Range:	Axial	10	Radial	5
Calibration Mode	Concentration				
Trailing Full Frame Options	Intelli-Frame:		No		
	Max Integration Time (sec):		30		
	WL Range:		Low		
	View:		Axial		
	Auto-Increment Sample Names:		Yes		
	Use Sample Weight Corrections:		No		

Source Settings

Nebulizer Pump	Flush Pump Rate (rpm):	100	
	Analysis Pump Rate (rpm):	20	
	Pump Relaxation Time (sec):	8	
	Pump Tubing Type:	Tygon Orange/White	
	RF Power:	1150	W

Sample Name: S020H6010 Acquired: 11/20/2020 10:49:11 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00177**	**.00004**	**-.00001**	**.00136**	**.00011**	**.00083**	**-.00006**	**.00051**	**.00014**	**-.00105**
Stddev	.00003	.00001	.00000	.00008	.00008	.00001	.00001	.00011	.00001	.00011
%RSD	1.5731	20.158	47.256	5.9381	74.870	1.7478	11.478	22.501	10.434	10.602
#1	.00179	.00004	-.00001	.00127	.00017	.00085	-.00007	.00060	.00013	-.00117
#2	.00174	.00004	-.00001	.00141	.00002	.00083	-.00007	.00038	.00013	-.00104
#3	.00177	.00005	.00000	.00140	.00014	.00082	-.00005	.00055	.00015	-.00095

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00048**	**.00016**	**-.00033**	**-.00040**	**-.00006**	**-.00014**	**-.00013**	**-.00134**	**-.00296**	**.00002**
Stddev	.00004	.00001	.00004	.00002	.00008	.00001	.00015	.00021	.00028	.00001
%RSD	8.4944	6.7519	12.665	5.3497	136.64	3.9707	119.97	15.784	9.4473	42.578
#1	.00043	.00017	-.00028	-.00038	-.00008	-.00014	-.00026	-.00158	-.00271	.00002
#2	.00050	.00017	-.00035	-.00042	-.00012	-.00013	-.00017	-.00120	-.00326	.00001
#3	.00050	.00015	-.00036	-.00040	.00003	-.00014	.00004	-.00123	-.00291	.00002

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00028**	**.00056**	**-.00150**	**-.00001**	**-.00009**	**.00013**	**-.00021**	**.00029**
Stddev	.00002	.00007	.00012	.00001	.00003	.00003	.00004	.00008
%RSD	6.2043	11.650	8.3429	73.214	34.595	23.791	16.955	28.637
#1	-.00030	.00061	-.00164	.00000	-.00005	.00013	-.00024	.00036
#2	-.00029	.00049	-.00143	-.00002	-.00011	.00010	-.00017	.00020
#3	-.00026	.00057	-.00142	-.00001	-.00010	.00016	-.00022	.00031

Sample Name: S020H6010 Acquired: 11/20/2020 10:49:11 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6788.6**	**62045.**	**127570.**
Stddev	11.4	171.	255.
%RSD	.16861	.27578	.20023
#1	6801.5	62023.	127390.
#2	6784.7	61886.	127450.
#3	6779.7	62226.	127860.

Sample Name: S20 Acquired: 11/20/2020 10:53:56 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Be	Cd	Pb	Mn
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.0107	.15369	.20052	.13607
Stddev	.0042	.00054	.00030	.00065
%RSD	.41523	.35260	.15112	.47575
#1	1.0062	.15422	.20084	.13539
#2	1.0115	.15314	.20049	.13614
#3	1.0145	.15370	.20024	.13668

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	7107.1	65413.	134490.
Stddev	12.5	262.	278.
%RSD	.17612	.40031	.20697
#1	7114.4	65715.	134180.
#2	7092.7	65245.	134710.
#3	7114.3	65280.	134580.

Sample Name: S21 Acquired: 11/20/2020 10:58:39 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Be	Cd	Pb	Mn
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**10.081**	**1.5119**	**1.9996**	**1.3554**
Stddev	.151	.0011	.0013	.0029
%RSD	1.4999	.07417	.06250	.21430
#1	9.9176	1.5109	1.9991	1.3527
#2	10.110	1.5131	1.9987	1.3585
#3	10.216	1.5117	2.0010	1.3549

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**7014.9**	**65637.**	**134630.**
Stddev	18.1	399.	251.
%RSD	.25841	.60741	.18669
#1	7000.2	65865.	134590.
#2	7009.5	65176.	134400.
#3	7035.2	65868.	134900.

Sample Name: S22 Acquired: 11/20/2020 11:03:32 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Ba	Co	Cu	Fe	V
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.55875**	**.15944**	**.31741**	**.01602**	**.14514**
Stddev	.00121	.00043	.00028	.00001	.00026
%RSD	.21691	.27175	.08859	.07337	.18256
#1	.56010	.15897	.31733	.01603	.14494
#2	.55777	.15983	.31718	.01602	.14544
#3	.55836	.15951	.31773	.01601	.14505

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6813.0**	**63134.**	**129320.**
Stddev	4.7	296.	292.
%RSD	.06960	.46823	.22572
#1	6816.1	62822.	129320.
#2	6815.2	63410.	129030.
#3	6807.5	63170.	129610.

Sample Name: S23 Acquired: 11/20/2020 11:08:17 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Ba	Co	Cu	Fe	V
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5.4270**	**1.5843**	**3.0070**	**1.1901**	**1.4349**
Stddev	.0716	.0008	.0127	.0040	.0040
%RSD	1.3198	.05126	.42165	.33468	.28206
#1	5.4991	1.5837	3.0118	1.1936	1.4378
#2	5.4260	1.5840	2.9926	1.1858	1.4303
#3	5.3558	1.5853	3.0165	1.1909	1.4367

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6659.6**	**65867.**	**133040.**
Stddev	6.8	90.	513.
%RSD	.10189	.13637	.38543
#1	6652.0	65834.	132470.
#2	6664.8	65798.	133470.
#3	6662.1	65968.	133170.

Sample Name: S24 Acquired: 11/20/2020 11:13:18 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	B	Mo	Na
Units	Cts/S	Cts/S	Cts/S
Avg	.12439	.66769	1.0594
Stddev	.00007	.00078	.0011
%RSD	.05971	.11741	.10235
#1	.12436	.66809	1.0585
#2	.12448	.66679	1.0606
#3	.12434	.66819	1.0592

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6985.4	68377.	136030.
Stddev	37.3	256.	304.
%RSD	.53427	.37512	.22372
#1	6944.1	68094.	135710.
#2	6995.3	68594.	136320.
#3	7016.8	68442.	136070.

Sample Name: S25 Acquired: 11/20/2020 11:18:03 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	B	Mo	Na
Units	Cts/S	Cts/S	Cts/S
Avg	**1.2488**	**6.9586**	**6.0543**
Stddev	.0029	.0123	.0147
%RSD	.22930	.17731	.24357
#1	1.2517	6.9444	6.0590
#2	1.2487	6.9667	6.0377
#3	1.2460	6.9648	6.0660

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6280.1**	**67870.**	**127830.**
Stddev	10.7	231.	914.
%RSD	.17014	.33978	.71465
#1	6269.6	67687.	127070.
#2	6279.6	68129.	127580.
#3	6291.0	67794.	128840.

Sample Name: S26 Acquired: 11/20/2020 11:22:53 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Al	Ca	Cr	Ni	K
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.05336**	**1.0318**	**.16007**	**.85059**	**.31515**
Stddev	.00015	.0020	.00029	.00183	.00087
%RSD	.28931	.19283	.18412	.21476	.27757
#1	.05319	1.0297	.15975	.85269	.31416
#2	.05340	1.0321	.16012	.84961	.31581
#3	.05349	1.0336	.16034	.84945	.31548

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6553.2**	**65936.**	**129580.**
Stddev	10.1	386.	147.
%RSD	.15464	.58600	.11339
#1	6544.4	66353.	129730.
#2	6550.9	65865.	129560.
#3	6564.3	65590.	129440.

Sample Name: S27 Acquired: 11/20/2020 11:27:36 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Al	Ca	Cr	Ni	K
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**4.5852**	**9.8398**	**1.5808**	**8.4833**	**3.1956**
Stddev	.0302	.0330	.0020	.0186	.0048
%RSD	.65859	.33502	.12690	.21972	.15136
#1	4.5627	9.8041	1.5797	8.5005	3.1922
#2	4.6195	9.8692	1.5796	8.4859	3.1935
#3	4.5732	9.8460	1.5831	8.4634	3.2012

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5530.0**	**63635.**	**115450.**
Stddev	16.1	204.	225.
%RSD	.29137	.32096	.19530
#1	5525.2	63406.	115700.
#2	5516.8	63798.	115270.
#3	5548.0	63702.	115370.

Sample Name: S28 Acquired: 11/20/2020 11:32:36 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Sb	Mg	Tl
Units	Cts/S	Cts/S	Cts/S
Avg	**.00527**	**.02967**	**.00650**
Stddev	.00000	.00011	.00002
%RSD	.08369	.36043	.31176
#1	.00527	.02957	.00651
#2	.00527	.02966	.00648
#3	.00528	.02979	.00651

Int. Std.	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S
Avg	**66622.**	**133560.**
Stddev	355.	199.
%RSD	.53235	.14914
#1	66817.	133760.
#2	66837.	133550.
#3	66213.	133360.

Sample Name: S29 Acquired: 11/20/2020 11:37:19 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Sb	Mg	Tl
Units	Cts/S	Cts/S	Cts/S
Avg	**.05174**	**.29448**	**.05994**
Stddev	.00010	.00056	.00016
%RSD	.18795	.19013	.26853
#1	.05173	.29471	.06004
#2	.05184	.29489	.06004
#3	.05165	.29384	.05976

Int. Std.	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S
Avg	**65853.**	**130940.**
Stddev	186.	344.
%RSD	.28258	.26300
#1	65781.	130700.
#2	65715.	130770.
#3	66065.	131330.

Sample Name: S30 Acquired: 11/20/2020 11:42:01 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	As	Li	Se	Ag	Sr	Sn	Ti	Zn
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00096**	**.02351**	**.00127**	**.03803**	**.16211**	**.02125**	**.01711**	**.75731**
Stddev	.00001	.00013	.00000	.00018	.00030	.00006	.00016	.00121
%RSD	.66382	.54503	.35541	.47705	.18469	.27838	.92267	.15920
#1	.00096	.02336	.00126	.03823	.16229	.02120	.01720	.75708
#2	.00095	.02359	.00127	.03788	.16177	.02131	.01693	.75624
#3	.00096	.02358	.00127	.03797	.16228	.02124	.01720	.75862

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6915.**6	**64499.**	**134030.**
Stddev	12.1	210.	477.
%RSD	.17431	.32501	.35572
#1	6911.2	64727.	133540.
#2	6929.2	64315.	134040.
#3	6906.3	64453.	134490.

Sample Name: S31 Acquired: 11/20/2020 11:46:47 Type: Cal
Method: 20k6010(v22) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	As	Li	Se	Ag	Sr	Sn	Ti	Zn
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00382**	**.11752**	**.00506**	**.18337**	**.78433**	**.10586**	**.08285**	**7.5960**
Stddev	.00001	.00011	.00001	.00043	.00084	.00007	.00043	.0065
%RSD	.37682	.09551	.16486	.23365	.10765	.06424	.51347	.08566
#1	.00384	.11763	.00507	.18355	.78416	.10585	.08334	7.5943
#2	.00381	.11740	.00507	.18368	.78358	.10594	.08255	7.6032
#3	.00383	.11753	.00505	.18288	.78524	.10581	.08266	7.5905

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6872.6**	**65463.**	**136150.**
Stddev	4.9	176.	232.
%RSD	.07068	.26916	.17059
#1	6868.3	65268.	135880.
#2	6871.7	65610.	136250.
#3	6877.9	65512.	136320.

Sample Name: ICV Acquired: 11/20/2020 12:02:33 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013014 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**108.14**	**1.3921**	**1.0192**	**2.0645**	**1.5190**	**2.5100**	**1.9376**	**78.474**	**2.4767**	**1.0023**
Stddev	.45	.0002	.0013	.0067	.0045	.0041	.0024	.085	.0080	.0012
%RSD	.41156	.01455	.12812	.32358	.29323	.16270	.12569	.10823	.32494	.12364
#1	108.16	1.3923	1.0181	2.0713	1.5233	2.5074	1.9388	78.475	2.4713	1.0018
#2	108.58	1.3920	1.0206	2.0644	1.5194	2.5147	1.9348	78.388	2.4859	1.0038
#3	107.69	1.3919	1.0187	2.0579	1.5144	2.5079	1.9392	78.558	2.4729	1.0014
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**2.4319**	**24.447**	**2.5007**	**.53047**	**60.192**	2.4208	**2.5324**	2.6115	**62.626**	**1.0371**
Stddev	.0041	.135	.0055	.00237	.021	.0044	.0069	.0060	.093	.0012
%RSD	.17017	.55387	.21867	.44751	.03524	.18145	.27303	.23012	.14834	.11248
#1	2.4312	24.357	2.4971	.53085	60.184	2.4259	2.5266	2.6070	62.555	1.0376
#2	2.4364	24.603	2.5070	.53263	60.176	2.4182	2.5306	2.6091	62.591	1.0380
#3	2.4282	24.381	2.4981	.52793	60.216	2.4184	2.5401	2.6183	62.731	1.0358
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Sample Name: ICV Acquired: 11/20/2020 12:02:33 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013014 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.49293**	**64.459**	**.49426**	**2.3222**	**.54694**	**.51929**	**1.5298**	F **2.7631**
Stddev	.00232	.130	.00036	.0013	.00162	.00295	.0054	.0027
%RSD	.47123	.20127	.07369	.05655	.29690	.56893	.35570	.09737
#1	.49271	64.583	.49439	2.3236	.54620	.51913	1.5260	2.7607
#2	.49535	64.469	.49454	2.3211	.54880	.52232	1.5360	2.7627
#3	.49072	64.324	.49385	2.3219	.54581	.51642	1.5273	2.7660
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
Value								2.5000
Range								10.000%

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5699.6**	**61741.**	**120320.**
Stddev	3.6	225.	166.
%RSD	.06335	.36448	.13817
#1	5701.3	61483.	120150.
#2	5695.5	61900.	120330.
#3	5702.1	61839.	120480.

Sample Name: ICB Acquired: 11/20/2020 12:07:14 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013015 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.01209	.00087	.00281	.00009	.00007	F .01014	.00018	.00486	.00016	.00016
Stddev	.00257	.00092	.00339	.00010	.00010	.00060	.00011	.00175	.00021	.00023
%RSD	21.222	105.75	120.98	118.52	132.93	5.9288	57.342	35.965	133.83	147.21
#1	.01059	.00039	.00403	.00013	.00019	.01081	.00030	.00541	.00008	.00010
#2	.01506	.00194	.00542	.00017	.00004	.00996	.00011	.00290	.00000	.00041
#3	.01063	.00030	-.00103	-.00003	.00000	.00965	.00014	.00626	.00039	-.00004
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit						.01000				
Low Limit						-.01000				

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00016	-.00643	.00069	.00137	-.01050	.00043	.00058	.00018	.01624	-.00124
Stddev	.00019	.00338	.00056	.00161	.02024	.00038	.00009	.00018	.04013	.00175
%RSD	123.18	52.591	81.193	117.10	192.83	88.655	14.870	100.35	247.15	140.58
#1	-.00003	-.01019	.00082	.00027	-.00871	.00068	.00066	.00039	.06001	-.00241
#2	-.00038	-.00363	.00117	.00063	.00879	.00062	.00049	.00007	-.01881	-.00209
#3	-.00006	-.00547	.00007	.00322	-.03157	-.00001	.00059	.00008	.00750	.00077
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Sample Name: ICB Acquired: 11/20/2020 12:07:14 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013015 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00038	.01506	.00038	.00116	.00134	-.00028	.00014	-.00043
Stddev	.00012	.01338	.00021	.00066	.00054	.00105	.00027	.00016
%RSD	30.420	88.810	54.802	56.934	40.426	378.12	195.64	37.782
#1	-.00030	.02426	.00049	.00135	.00160	.00029	-.00016	-.00030
#2	-.00034	.02122	.00014	.00172	.00170	-.00149	.00034	-.00061
#3	-.00052	-.00028	.00050	.00043	.00072	.00037	.00023	-.00037
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6670.8	62109.	129200.
Stddev	10.9	327.	244.
%RSD	.16277	.52625	.18920
#1	6658.3	61848.	128960.
#2	6677.9	62004.	129190.
#3	6676.1	62476.	129450.

Sample Name: MRLK2002 Acquired: 11/20/2020 12:40:02 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013021 Type: Anaylst: NTan
Comment: REPREP

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	F .24393	.04672	.01181	.00505	.00393	.09428	.00492	.54101	.01045	.00980
Stddev	.00122	.00104	.00101	.00027	.00005	.00026	.00003	.00263	.00014	.00012
%RSD	.50064	2.2212	8.5231	5.2705	1.3003	.27679	.69729	.48564	1.3233	1.2390
#1	.24520	.04683	.01183	.00481	.00392	.09457	.00489	.54367	.01042	.00978
#2	.24277	.04563	.01079	.00534	.00398	.09417	.00495	.54096	.01060	.00968
#3	.24382	.04769	.01280	.00499	.00388	.09409	.00490	.53842	.01033	.00992
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	.20000									
Range	20.000%									

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.01002	.10201	.01086	.09678	.21835	.00528	.00919	.01040	.97960	.01145
Stddev	.00014	.00251	.00067	.00170	.01326	.00024	.00023	.00031	.03899	.00249
%RSD	1.4053	2.4632	6.1906	1.7596	6.0720	4.4797	2.4976	2.9829	3.9800	21.747
#1	.01016	.09940	.01033	.09524	.20662	.00534	.00939	.01068	1.0185	.01013
#2	.01004	.10442	.01063	.09650	.23274	.00502	.00894	.01007	.97974	.00989
#3	.00988	.10222	.01162	.09861	.21570	.00549	.00922	.01046	.94054	.01432
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Sample Name: MRLK2002 Acquired: 11/20/2020 12:40:02 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013021 Type: Anaylst: NTan
Comment: REPREP

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00977	.53324	.01024	.00997	.01076	.00927	.01039	F .01240
Stddev	.00035	.00815	.00019	.00042	.00062	.00071	.00043	.00008
%RSD	3.5911	1.5289	1.8623	4.1759	5.7523	7.6078	4.1271	.68445
#1	.01000	.53447	.01046	.00999	.01140	.00863	.01015	.01243
#2	.00936	.52454	.01016	.00955	.01017	.00916	.01013	.01230
#3	.00994	.54071	.01011	.01038	.01070	.01003	.01088	.01246
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
Value								.01000
Range								20.000%

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6769.4	63400.	132570.
Stddev	14.2	151.	52.
%RSD	.20934	.23762	.03957
#1	6753.1	63477.	132630.
#2	6779.2	63226.	132520.
#3	6775.8	63496.	132550.

Sample Name: ICSA1 Acquired: 11/20/2020 12:44:48 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013022 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**394.01**	**.02163**	F **.00881**	**-.00012**	**-.00008**	F **.05635**	**.00150**	**502.20**	**-.00051**
Stddev	1.88	.00305	.00241	.00046	.00008	.00083	.00008	3.07	.00029
%RSD	.47723	14.106	27.387	383.13	95.892	1.4795	5.0847	.61038	56.607
#1	395.50	.02353	.01157	-.00020	-.00017	.05548	.00155	505.66	-.00076
#2	394.62	.02325	.00775	-.00054	-.00001	.05714	.00155	499.83	-.00019
#3	391.90	.01811	.00711	.00038	-.00007	.05643	.00142	501.11	-.00058
Check ?	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit			.00400			.01000			
Low Limit			-.00400			-.01000			

Elem	Co	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00012**	**.00234**	**190.73**	F **.00320**	**.01088**	**197.23**	**.00064**	**-.00080**	**-.00140**
Stddev	.00022	.00020	.37	.00186	.00244	.28	.00054	.00024	.00037
%RSD	187.42	8.4935	.19224	58.182	22.386	.14237	83.814	30.312	26.678
#1	.00014	.00215	191.11	.00521	.01071	197.20	.00031	-.00087	-.00097
#2	-.00025	.00232	190.38	.00153	.01340	197.53	.00127	-.00053	-.00157
#3	-.00023	.00254	190.70	.00287	.00853	196.97	.00035	-.00100	-.00165
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit				.00300					
Low Limit				-.00300					

Sample Name: ICSA1 Acquired: 11/20/2020 12:44:48 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013022 Type: Anaylst: NTan
Comment:

Elem	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.01413**	**-.00117**	**-.00034**	**.04903**	F **-.00119**	**-.00006**	**.00046**	**.00260**	**-.00087**
Stddev	.01545	.00235	.00060	.01504	.00015	.00297	.00192	.00017	.00050
%RSD	109.33	201.94	179.10	30.668	12.707	5354.9	415.67	6.6726	57.918
#1	-.00335	.00155	-.00098	.03781	-.00136	.00076	-.00034	.00243	-.00034
#2	-.00721	-.00235	-.00025	.06612	-.00109	-.00335	.00265	.00278	-.00094
#3	-.03183	-.00269	.00022	.04316	-.00111	.00242	-.00092	.00260	-.00134
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit					.00100				
Low Limit					-.00100				

Elem	Zn
Units	mg/L
Avg	**.00170**
Stddev	.00035
%RSD	20.871
#1	.00210
#2	.00145
#3	.00154
Check ?	Chk Pass
High Limit	
Low Limit	

Sample Name: ICSA1 Acquired: 11/20/2020 12:44:48 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013022 Type: Anaylst: NTan
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5050.**7	**60208.**	**111680.**
Stddev	8.8	313.	149.
%RSD	.17424	.52060	.13307
#1	5042.3	60421.	111540.
#2	5049.9	59848.	111660.
#3	5059.9	60355.	111830.

Sample Name: ICSAB1 Acquired: 11/20/2020 12:51:24 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013023 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**394.25**	**1.0021**	**1.0857**	**.51947**	**.50248**	**1.0493**	**.95878**	**503.58**	**.50717**	**.50907**	**.50438**
Stddev	2.69	.0074	.0074	.00081	.00049	.0025	.00428	5.78	.00138	.00090	.00109
%RSD	.68169	.74018	.68133	.15598	.09728	.24192	.44649	1.1478	.27274	.17767	.21636
#1	392.89	.99353	1.0858	.51911	.50252	1.0471	.95390	509.86	.50624	.50887	.50367
#2	392.50	1.0063	1.0931	.51891	.50197	1.0486	.96192	502.41	.50652	.50828	.50383
#3	397.34	1.0065	1.0783	.52040	.50294	1.0521	.96052	498.48	.50876	.51006	.50563
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**190.25**	**1.0007**	**1.1030**	**196.66**	**.47538**	**1.0547**	**1.0609**	**82.689**	**1.0585**	**1.0649**	**83.479**
Stddev	.63	.0005	.0050	.16	.00082	.0013	.0007	.190	.0031	.0040	.183
%RSD	.33055	.04899	.45604	.08007	.17316	.12552	.06848	.22987	.29219	.37590	.21960
#1	189.70	1.0010	1.1017	196.70	.47623	1.0548	1.0606	82.722	1.0609	1.0626	83.562
#2	190.11	1.0009	1.0988	196.48	.47531	1.0534	1.0604	82.484	1.0550	1.0626	83.269
#3	190.94	1.0001	1.1086	196.79	.47459	1.0560	1.0618	82.860	1.0596	1.0696	83.606
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Sample Name: ICSAB1 Acquired: 11/20/2020 12:51:24 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013023 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.50350**	**.86488**	**1.1068**	**1.0489**	**.51778**	**1.1294**
Stddev	.00132	.00421	.0038	.0019	.00151	.0015
%RSD	.26297	.48714	.34255	.17832	.29117	.13579
#1	.50467	.86052	1.1112	1.0475	.51610	1.1306
#2	.50206	.86893	1.1040	1.0510	.51824	1.1277
#3	.50377	.86518	1.1054	1.0483	.51901	1.1298
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value						
Range						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5080.8**	**60575.**	**110540.**
Stddev	7.7	69.	433.
%RSD	.15139	.11471	.39200
#1	5072.6	60619.	111040.
#2	5087.8	60610.	110260.
#3	5081.9	60495.	110330.

Sample Name: CCV1 Acquired: 11/20/2020 12:56:13 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013024 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	108.91	1.4017	1.0279	2.0397	1.5062	2.5214	1.9424	78.295	2.4828	1.0025
Stddev	1.34	.0031	.0046	.0057	.0033	.0022	.0027	.042	.0014	.0016
%RSD	1.2289	.21986	.44919	.28012	.21779	.08920	.14076	.05334	.05513	.15517
#1	109.20	1.4052	1.0231	2.0335	1.5027	2.5192	1.9441	78.295	2.4813	1.0039
#2	107.46	1.3999	1.0323	2.0406	1.5065	2.5214	1.9393	78.337	2.4831	1.0008
#3	110.09	1.3999	1.0284	2.0448	1.5093	2.5237	1.9439	78.253	2.4841	1.0027
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	2.4474	24.635	2.5022	.52037	59.806	2.4120	2.5344	2.6101	62.090	1.0365
Stddev	.0027	.049	.0025	.00225	.044	.0037	.0013	.0027	.113	.0048
%RSD	.11056	.19771	.09952	.43163	.07337	.15117	.05252	.10477	.18231	.46346
#1	2.4472	24.583	2.5050	.52007	59.822	2.4083	2.5356	2.6112	61.960	1.0402
#2	2.4448	24.640	2.5013	.51829	59.757	2.4120	2.5347	2.6122	62.147	1.0311
#3	2.4502	24.680	2.5003	.52275	59.840	2.4156	2.5330	2.6070	62.164	1.0384
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Sample Name: CCV1 Acquired: 11/20/2020 12:56:13 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013024 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.49924	63.622	.49316	2.3294	.54687	.51424	1.5379	F 2.7579
Stddev	.00088	.169	.00036	.0044	.00157	.00357	.0025	.0036
%RSD	.17577	.26586	.07374	.18696	.28644	.69348	.16426	.12965
#1	.49898	63.427	.49275	2.3342	.54591	.51079	1.5356	2.7599
#2	.49852	63.725	.49339	2.3256	.54603	.51401	1.5375	2.7600
#3	.50022	63.715	.49336	2.3286	.54868	.51792	1.5406	2.7538
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
Value								2.5000
Range								10.000%

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	5674.6	62039.	119420.
Stddev	9.8	98.	339.
%RSD	.17274	.15752	.28376
#1	5665.2	62095.	119260.
#2	5684.7	62096.	119810.
#3	5673.8	61926.	119200.

Sample Name: CCB1 Acquired: 11/20/2020 13:00:55 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013025 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.01837	-.00187	.00173	-.00014	.00012	.00721	.00016	.00943	.00034	.00013
Stddev	.00312	.00091	.00261	.00035	.00006	.00060	.00004	.00353	.00006	.00015
%RSD	17.009	48.575	150.79	244.86	46.325	8.3541	24.523	37.435	18.758	113.26
#1	.02115	-.00286	-.00083	-.00013	.00006	.00769	.00015	.01163	.00029	-.00001
#2	.01896	-.00107	.00438	-.00050	.00013	.00741	.00013	.00536	.00033	.00030
#3	.01499	-.00167	.00164	.00020	.00018	.00654	.00021	.01131	.00041	.00011
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00002	.00198	.00098	-.00086	.00872	.00056	.00067	.00013	F .11813	-.00017
Stddev	.00015	.00124	.00066	.00189	.01377	.00059	.00011	.00027	.04194	.00086
%RSD	740.31	62.512	67.042	219.41	157.90	105.52	15.825	204.02	35.503	514.35
#1	.00003	.00055	.00023	-.00272	-.00403	-.00012	.00079	.00036	.11817	-.00082
#2	-.00014	.00274	.00126	.00106	.02333	.00091	.00066	.00020	.07618	-.00049
#3	.00017	.00267	.00146	-.00093	.00687	.00088	.00058	-.00016	.16006	.00081
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass
High Limit									.10000	
Low Limit									-.10000	

Sample Name: CCB1 Acquired: 11/20/2020 13:00:55 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013025 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00017	.05845	.00014	.00007	.00024	.00004	.00024	-.00050
Stddev	.00017	.00318	.00016	.00044	.00027	.00111	.00030	.00020
%RSD	99.268	5.4437	118.15	666.37	109.81	2520.3	127.54	39.522
#1	-.00012	.05811	.00019	.00047	-.00006	-.00123	.00000	-.00049
#2	-.00003	.05546	-.00005	.00013	.00036	.00083	.00014	-.00031
#3	-.00036	.06179	.00027	-.00040	.00043	.00052	.00058	-.00070
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6472.4	60480.	127030.
Stddev	8.9	442.	485.
%RSD	.13799	.73026	.38168
#1	6482.7	60624.	126680.
#2	6467.2	60831.	126840.
#3	6467.3	59984.	127590.

Sample Name: IPK023WB Acquired: 11/20/2020 13:05:41 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013026 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.01419**	**-.00247**	**.00126**	**-.00028**	**-.00001**	**.00189**	**.00004**	**.02973**	**.00040**	**-.00013**	**.00023**
Stddev	.00200	.00150	.00223	.00016	.00005	.00014	.00005	.00132	.00008	.00024	.00014
%RSD	14.089	60.829	176.49	59.816	496.84	7.6251	133.37	4.4506	20.133	182.42	60.220
#1	.01231	-.00100	-.00121	-.00011	-.00005	.00176	-.00001	.02830	.00048	-.00038	.00026
#2	.01629	-.00241	.00311	-.00027	.00005	.00205	.00009	.02998	.00032	.00009	.00034
#3	.01397	-.00400	.00190	-.00044	-.00003	.00187	.00004	.03091	.00039	-.00009	.00008
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00291**	**.00041**	**-.00045**	**-.00159**	**.00066**	**-.00008**	**-.00024**	**.06391**	**-.00063**	**-.00021**	**.03721**
Stddev	.00479	.00088	.00113	.02216	.00028	.00015	.00019	.04006	.00055	.00018	.00424
%RSD	164.48	212.43	251.12	1396.8	43.330	200.71	78.988	62.685	87.256	82.607	11.397
#1	-.00144	.00025	-.00134	-.02473	.00061	-.00023	-.00011	.05190	-.00046	-.00006	.03629
#2	.00805	.00136	-.00083	.01944	.00096	-.00007	-.00046	.03123	-.00019	-.00018	.03350
#3	.00214	-.00037	.00082	.00052	.00040	.00007	-.00016	.10861	-.00125	-.00041	.04183
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Sample Name: IPK023WB Acquired: 11/20/2020 13:05:41 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013026 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00021**	**-.00073**	**.00056**	**.00095**	**.00001**	**.00119**
Stddev	.00017	.00028	.00097	.00101	.00027	.00010
%RSD	80.539	37.935	175.24	105.72	2441.2	8.3099
#1	.00024	-.00077	.00039	.00156	-.00018	.00119
#2	.00036	-.00044	.00160	.00151	.00032	.00128
#3	.00003	-.00099	-.00032	-.00021	-.00010	.00109
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit						
Low Limit						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6553.0**	**61305.**	**129820.**
Stddev	16.6	103.	590.
%RSD	.25384	.16836	.45481
#1	6545.9	61422.	129150.
#2	6572.1	61266.	130040.
#3	6541.2	61227.	130270.

Sample Name: IPK023WL Acquired: 11/20/2020 13:10:29 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013027 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**5.5903**	**2.5183**	**.52090**	**.52382**	**.51680**	**.50132**	**.48104**	**52.373**	**.49822**	**.50129**
Stddev	.0050	.0106	.00270	.00225	.00230	.00064	.00078	.126	.00033	.00054
%RSD	.08938	.42033	.51838	.42894	.44485	.12816	.16219	.23978	.06583	.10697
#1	5.5959	2.5305	.52360	.52188	.51458	.50061	.48191	52.228	.49815	.50179
#2	5.5887	2.5129	.52089	.52628	.51917	.50186	.48083	52.441	.49794	.50136
#3	5.5864	2.5116	.51820	.52330	.51666	.50149	.48039	52.450	.49858	.50072
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.48472**	**5.0312**	**.49519**	F **.00013**	**50.361**	**.48648**	**.50793**	**.53229**	**51.681**	**.51446**
Stddev	.00032	.0077	.00182	.00198	.199	.00075	.00079	.00087	.074	.00153
%RSD	.06608	.15335	.36777	1472.1	.39604	.15351	.15523	.16302	.14343	.29670
#1	.48456	5.0229	.49713	.00099	50.146	.48563	.50803	.53145	51.602	.51527
#2	.48509	5.0325	.49352	-.00212	50.539	.48703	.50866	.53318	51.691	.51541
#3	.48452	5.0381	.49491	.00154	50.397	.48677	.50710	.53222	51.750	.51270
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				.50000						
Range				-15.200%						

Sample Name: IPK023WL Acquired: 11/20/2020 13:10:29 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013027 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.49532**	**54.560**	**.49444**	**.46859**	**.54470**	**.53117**	**.51502**	**.55294**
Stddev	.00078	.159	.00117	.00094	.00205	.00276	.00011	.00033
%RSD	.15808	.29112	.23701	.20074	.37630	.52045	.02217	.05914
#1	.49620	54.377	.49311	.46967	.54549	.52961	.51489	.55295
#2	.49504	54.658	.49533	.46794	.54623	.53436	.51511	.55326
#3	.49471	54.646	.49487	.46816	.54237	.52953	.51506	.55261
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5834.6**	**61683.**	**123510.**
Stddev	10.0	209.	306.
%RSD	.17102	.33886	.24761
#1	5830.9	61915.	123160.
#2	5826.9	61511.	123620.
#3	5845.9	61622.	123740.

Sample Name: IPK023WC Acquired: 11/20/2020 13:15:03 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013028 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**5.6717**	**2.5526**	**.52429**	**.52323**	**.51718**	**.50659**	**.48828**	**52.758**	**.50230**
Stddev	.0139	.0058	.00716	.00302	.00034	.00163	.00168	.077	.00072
%RSD	.24435	.22591	1.3662	.57644	.06519	.32221	.34433	.14577	.14426
#1	5.6637	2.5501	.51669	.52177	.51702	.50512	.48645	52.786	.50146
#2	5.6877	2.5592	.53092	.52122	.51694	.50631	.48977	52.816	.50277
#3	5.6637	2.5485	.52525	.52670	.51756	.50835	.48860	52.671	.50266
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Co	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.50410**	**.49023**	**5.0563**	**.50047**	**F -.00107**	**50.730**	**.48970**	**.50640**	**.53258**
Stddev	.00095	.00034	.0082	.00140	.00084	.049	.00067	.00114	.00099
%RSD	.18810	.06875	.16188	.27986	78.504	.09566	.13738	.22521	.18654
#1	.50518	.48985	5.0654	.50029	-.00096	50.761	.49021	.50520	.53144
#2	.50340	.49048	5.0539	.49917	-.00029	50.674	.48994	.50747	.53310
#3	.50373	.49036	5.0495	.50196	-.00196	50.754	.48893	.50652	.53322
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					.50000				
Range					-15.200%				

Sample Name: IPK023WC Acquired: 11/20/2020 13:15:03 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013028 Type: Anaylst: NTan
Comment:

Elem	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**51.824**	**.52268**	**.50022**	**54.290**	**.49639**	**.47398**	**.54680**	**.52982**	**.51789**
Stddev	.012	.00486	.00139	.176	.00125	.00258	.00189	.00148	.00037
%RSD	.02348	.92945	.27716	.32489	.25145	.54336	.34477	.27869	.07169
#1	51.833	.52291	.49872	54.260	.49677	.47103	.54715	.52908	.51748
#2	51.810	.51772	.50049	54.131	.49741	.47513	.54849	.52887	.51820
#3	51.829	.52742	.50145	54.480	.49500	.47578	.54476	.53152	.51798
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Zn
Units	mg/L
Avg	**.55394**
Stddev	.00014
%RSD	.02487
#1	.55407
#2	.55394
#3	.55380
Check ?	Chk Pass
Value	
Range	

Sample Name: IPK023WC Acquired: 11/20/2020 13:15:03 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013028 Type: Anaylst: NTan
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5845.5**	**61384.**	**122410.**
Stddev	7.5	62.	333.
%RSD	.12893	.10141	.27243
#1	5838.8	61451.	122630.
#2	5844.0	61371.	122030.
#3	5853.7	61329.	122590.

Sample Name: CCV2 Acquired: 11/20/2020 13:48:30 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013035 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**106.82**	**1.3725**	**1.0146**	**2.0906**	**1.5415**	**2.4702**	**1.8985**	**78.568**	**2.4524**	**1.0055**
Stddev	.30	.0035	.0050	.0082	.0054	.0039	.0032	.070	.0060	.0011
%RSD	.28016	.25492	.49646	.39224	.34765	.15652	.16806	.08879	.24648	.11017
#1	106.47	1.3764	1.0094	2.1000	1.5476	2.4739	1.9015	78.495	2.4572	1.0054
#2	107.00	1.3696	1.0195	2.0848	1.5388	2.4662	1.8951	78.634	2.4456	1.0045
#3	106.98	1.3715	1.0150	2.0870	1.5380	2.4706	1.8989	78.576	2.4543	1.0067
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**2.4090**	**24.157**	**2.5057**	**.52252**	**60.206**	**2.4319**	**2.5672**	**2.6436**	**62.285**	**1.0193**
Stddev	.0046	.087	.0048	.00258	.055	.0030	.0091	.0082	.095	.0025
%RSD	.19099	.36154	.19183	.49403	.09169	.12398	.35621	.31070	.15198	.24538
#1	2.4133	24.236	2.5015	.52523	60.218	2.4353	2.5663	2.6449	62.298	1.0167
#2	2.4041	24.063	2.5046	.52008	60.254	2.4295	2.5586	2.6348	62.373	1.0196
#3	2.4097	24.173	2.5109	.52225	60.146	2.4309	2.5768	2.6511	62.185	1.0217
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Sample Name: CCV2 Acquired: 11/20/2020 13:48:30 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013035 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.48411**	**64.788**	**.49549**	**2.2804**	**F .55135**	**.52435**	**1.5210**	**F 2.7753**
Stddev	.00237	.124	.00056	.0076	.00159	.00127	.0040	.0046
%RSD	.48955	.19179	.11223	.33204	.28913	.24170	.26431	.16438
#1	.48610	64.923	.49536	2.2886	.55201	.52474	1.5238	2.7759
#2	.48149	64.678	.49611	2.2736	.54953	.52537	1.5164	2.7704
#3	.48476	64.763	.49502	2.2790	.55251	.52293	1.5228	2.7795
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Fail
Value					.50000			2.5000
Range					10.000%			10.000%

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5667.5**	**62048.**	**122590.**
Stddev	14.5	59.	305.
%RSD	.25664	.09549	.24842
#1	5664.6	62008.	122310.
#2	5683.2	62116.	122920.
#3	5654.6	62019.	122540.

Sample Name: CCB2 Acquired: 11/20/2020 13:53:12 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013036 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.01295**	**-.00108**	F **.00450**	**-.00002**	**.00015**	**.00611**	**.00005**	**.00219**	**-.00006**	**.00005**
Stddev	.00096	.00043	.00109	.00034	.00011	.00047	.00015	.00305	.00002	.00018
%RSD	7.4329	39.526	24.280	1959.9	75.240	7.6956	332.15	139.22	25.612	348.68
#1	.01184	-.00059	.00325	-.00041	.00027	.00657	.00022	.00372	-.00004	.00012
#2	.01344	-.00126	.00494	.00014	.00010	.00614	-.00005	.00417	-.00008	-.00015
#3	.01356	-.00139	.00530	.00022	.00007	.00563	-.00003	-.00132	-.00006	.00019
Check ?	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit			.00400							
Low Limit			-.00400							

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00005**	**.00176**	**.00094**	**.00026**	**.00790**	**.00063**	**.00065**	**.00010**	F **.15626**	**-.00019**
Stddev	.00019	.00231	.00108	.00175	.00975	.00021	.00009	.00005	.03969	.00040
%RSD	368.40	130.88	114.89	669.91	123.37	34.059	13.861	52.455	25.402	215.20
#1	.00001	.00138	.00061	.00163	.00755	.00041	.00060	.00015	.15736	-.00061
#2	-.00026	-.00033	.00214	.00087	-.00167	.00084	.00075	.00009	.19538	.00019
#3	.00010	.00424	.00006	-.00171	.01782	.00064	.00059	.00005	.11602	-.00013
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass
High Limit									.10000	
Low Limit									-.10000	

Sample Name: CCB2 Acquired: 11/20/2020 13:53:12 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013036 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00040**	F **.13054**	**.00014**	**.00134**	**.00092**	**-.00030**	**.00023**	**-.00045**
Stddev	.00070	.01907	.00011	.00127	.00006	.00052	.00021	.00011
%RSD	175.60	14.608	83.225	94.528	6.4341	174.52	92.654	23.509
#1	-.00026	.14734	.00019	.00224	.00087	-.00045	.00000	-.00033
#2	.00022	.13447	.00001	.00189	.00098	-.00074	.00041	-.00052
#3	-.00116	.10982	.00021	-.00011	.00090	.00028	.00027	-.00051
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		.10000						
Low Limit		-.10000						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6639.1**	**61930.**	**130690.**
Stddev	10.9	328.	95.
%RSD	.16428	.53010	.07238
#1	6651.6	61811.	130790.
#2	6634.2	61677.	130610.
#3	6631.5	62301.	130650.

Sample Name: CCV3 Acquired: 11/20/2020 14:45:13 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013047 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**107.26**	**1.3983**	**1.0226**	**2.0739**	**1.5205**	**2.5158**	**1.9384**	**78.119**	**2.4798**	**1.0029**
Stddev	.84	.0078	.0049	.0135	.0065	.0023	.0060	.057	.0017	.0019
%RSD	.78395	.55964	.47418	.65283	.42425	.08983	.31056	.07328	.06932	.19023
#1	106.52	1.3943	1.0240	2.0864	1.5270	2.5184	1.9388	78.174	2.4783	1.0014
#2	107.09	1.3932	1.0172	2.0595	1.5141	2.5142	1.9322	78.060	2.4795	1.0050
#3	108.17	1.4073	1.0265	2.0757	1.5203	2.5148	1.9442	78.123	2.4817	1.0022
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**2.4486**	**24.642**	**2.5055**	**.52055**	**59.846**	**2.4180**	**2.5359**	**2.6085**	**61.755**	**1.0352**
Stddev	.0046	.071	.0032	.00259	.158	.0101	.0050	.0052	.090	.0029
%RSD	.18805	.28797	.12605	.49764	.26342	.41617	.19858	.20023	.14583	.28403
#1	2.4539	24.632	2.5038	.52198	60.013	2.4296	2.5349	2.6078	61.810	1.0321
#2	2.4456	24.576	2.5092	.51756	59.700	2.4124	2.5414	2.6140	61.651	1.0356
#3	2.4462	24.717	2.5036	.52211	59.824	2.4120	2.5314	2.6036	61.804	1.0379
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Sample Name: CCV3 Acquired: 11/20/2020 14:45:13 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013047 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.49903**	**63.722**	**.49345**	**2.3252**	**.54619**	**.51957**	**1.5370**	F **2.7525**
Stddev	.00096	.297	.00083	.0126	.00079	.00221	.0028	.0033
%RSD	.19272	.46624	.16750	.54337	.14554	.42589	.18318	.11828
#1	.49987	64.005	.49438	2.3249	.54546	.52212	1.5366	2.7532
#2	.49798	63.412	.49280	2.3127	.54703	.51812	1.5344	2.7553
#3	.49923	63.750	.49317	2.3380	.54607	.51847	1.5400	2.7489
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
Value								2.5000
Range								10.000%

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5724.4**	**62244.**	**120720.**
Stddev	18.1	225.	167.
%RSD	.31532	.36170	.13827
#1	5726.5	62018.	120760.
#2	5705.3	62469.	120860.
#3	5741.2	62245.	120540.

Sample Name: CCB3 Acquired: 11/20/2020 14:49:56 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013048 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00942	-.00142	.00174	-.00053	.00010	.00678	.00007	.00212	.00009	.00017
Stddev	.00148	.00102	.00192	.00023	.00006	.00022	.00004	.00565	.00011	.00004
%RSD	15.672	71.981	110.15	43.116	55.405	3.2219	68.959	266.52	124.03	21.328
#1	.01091	-.00212	.00306	-.00077	.00006	.00698	.00009	.00851	.00015	.00015
#2	.00940	-.00189	.00263	-.00048	.00017	.00682	.00001	-.00219	.00015	.00014
#3	.00796	-.00025	-.00046	-.00033	.00008	.00655	.00009	.00004	-.00004	.00021
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00014	-.00803	.00149	.00072	-.01497	.00062	.00041	.00042	.08254	-.00020
Stddev	.00019	.00384	.00074	.00116	.00654	.00019	.00011	.00014	.04798	.00201
%RSD	135.98	47.881	49.816	160.67	43.660	30.961	27.557	32.139	58.126	1007.3
#1	-.00006	-.01105	.00124	-.00043	-.01636	.00042	.00045	.00027	.04302	-.00217
#2	.00032	-.00370	.00232	.00189	-.00785	.00080	.00028	.00050	.06868	.00185
#3	.00017	-.00932	.00090	.00071	-.02070	.00063	.00049	.00051	.13592	-.00028
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Sample Name: CCB3 Acquired: 11/20/2020 14:49:56 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013048 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00034	F .16197	.00016	.00140	.00074	-.00037	.00012	-.00030
Stddev	.00036	.00526	.00011	.00047	.00038	.00057	.00031	.00014
%RSD	107.89	3.2459	65.377	33.877	50.994	153.37	259.58	47.519
#1	-.00006	.16780	.00023	.00139	.00106	.00029	-.00024	-.00023
#2	-.00075	.15757	.00004	.00188	.00032	-.00071	.00028	-.00020
#3	-.00020	.16056	.00022	.00093	.00084	-.00068	.00032	-.00046
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		.10000						
Low Limit		-.10000						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6526.3	61523.	128930.
Stddev	5.0	88.	263.
%RSD	.07678	.14228	.20367
#1	6531.1	61489.	129180.
#2	6526.7	61457.	128660.
#3	6521.1	61622.	128960.

Sample Name: K128-01 Acquired: 11/20/2020 14:54:42 Type: Unk
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013049 Type: Anaylst: NTan
Comment: TOT

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	9.0323	.00152	.02458	.09933	.00129	.56985	.00399	F 553.20	.03345	.01715
Stddev	.0100	.00047	.00517	.00064	.00006	.00025	.00000	4.55	.00008	.00041
%RSD	.11093	30.628	21.015	.64370	4.7800	.04459	.03640	.82241	.23311	2.4069
#1	9.0243	.00134	.01865	.09863	.00122	.57015	.00399	553.29	.03348	.01673
#2	9.0436	.00205	.02812	.09989	.00134	.56968	.00399	557.71	.03336	.01756
#3	9.0292	.00117	.02696	.09948	.00132	.56974	.00400	548.61	.03350	.01715

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.02780	16.767	.00434	.09243	F 322.00	3.5017	.00805	.11081	17.436	.00039
Stddev	.00002	.020	.00117	.00212	.99	.0033	.00038	.00028	.174	.00130
%RSD	.08246	.12147	26.941	2.2903	.30804	.09346	4.7350	.25167	.99935	329.09
#1	.02779	16.790	.00498	.09001	321.07	3.4982	.00809	.11113	17.234	.00060
#2	.02778	16.760	.00506	.09391	323.04	3.5047	.00841	.11069	17.539	-.00100
#3	.02782	16.751	.00299	.09338	321.88	3.5023	.00765	.11062	17.533	.00158

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00079	F 1622.0	F 3.2546	-.00099	.00173	.14577	.04922	.06331
Stddev	.00034	14.7	.0020	.00080	.00162	.00022	.00030	.00038
%RSD	43.204	.90896	.06081	81.152	93.837	.15290	.61110	.59627
#1	-.00113	1638.6	3.2527	-.00106	.00271	.14600	.04949	.06299
#2	-.00078	1617.4	3.2566	-.00176	-.00014	.14576	.04928	.06321
#3	-.00045	1610.2	3.2544	-.00015	.00262	.14556	.04889	.06373

Sample Name: K128-01 Acquired: 11/20/2020 14:54:42 Type: Unk
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013049 Type: Anaylst: NTan
Comment: TOT

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	4497.6	57689.	102710.
Stddev	4.4	376.	293.
%RSD	.09683	.65093	.28481
#1	4492.6	57852.	102670.
#2	4500.4	57259.	102440.
#3	4499.9	57955.	103020.

Sample Name: K128-02 Acquired: 11/20/2020 14:59:41 Type: Unk
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013050 Type: Anaylst: NTan
Comment: TOT

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.52921**	**.00083**	**.00767**	**.39640**	**.00062**	**.27597**	**.00012**	**90.578**	**.00426**	**.00479**
Stddev	.00551	.00077	.00263	.00166	.00004	.00052	.00005	.029	.00010	.00014
%RSD	1.0413	92.556	34.329	.41987	6.9675	.18693	44.186	.03235	2.3754	2.9748
#1	.53554	.00034	.00688	.39449	.00058	.27629	.00016	90.603	.00433	.00462
#2	.52659	.00044	.00553	.39756	.00061	.27625	.00013	90.546	.00414	.00488
#3	.52550	.00172	.01061	.39714	.00067	.27537	.00006	90.585	.00430	.00485

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00850**	**.06005**	**.00066**	**.19932**	**87.643**	**.03557**	**.00130**	**.02124**	**19.170**	**.02263**
Stddev	.00022	.00546	.00065	.00196	.180	.00034	.00013	.00027	.045	.00175
%RSD	2.5932	9.1005	98.764	.98114	.20574	.96636	10.254	1.2720	.23232	7.7210
#1	.00856	.06597	.00114	.20138	87.449	.03589	.00128	.02095	19.168	.02103
#2	.00826	.05519	-.00008	.19749	87.673	.03562	.00144	.02148	19.126	.02235
#3	.00868	.05899	.00091	.19908	87.806	.03520	.00118	.02129	19.215	.02449

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00002**	F **901.40**	F **2.9603**	**-.00113**	**.00197**	**.00280**	**.00173**	**.02275**
Stddev	.00014	2.80	.0005	.00027	.00036	.00086	.00029	.00021
%RSD	812.43	.31048	.01640	24.092	18.186	30.554	16.454	.91035
#1	-.00016	899.38	2.9608	-.00143	.00169	.00250	.00204	.02265
#2	-.00001	904.60	2.9598	-.00108	.00237	.00214	.00148	.02262
#3	.00012	900.23	2.9604	-.00089	.00185	.00377	.00167	.02299

Sample Name: K128-02 Acquired: 11/20/2020 14:59:41 Type: Unk
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013050 Type: Anaylst: NTan
Comment: TOT

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5085.7**	**60089.**	**112050.**
Stddev	13.7	194.	177.
%RSD	.26931	.32303	.15803
#1	5070.0	59865.	111920.
#2	5095.3	60190.	111970.
#3	5091.9	60212.	112250.

Sample Name: K128-03 Acquired: 11/20/2020 15:04:33 Type: Unk
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013051 Type: Anaylst: NTan
Comment: TOT

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.59216**	**-.00101**	**.02593**	**.05235**	**.00075**	**.53399**	**.00001**	**36.274**	**.00465**	**.01478**
Stddev	.00292	.00018	.00022	.00034	.00009	.00156	.00005	.064	.00005	.00010
%RSD	.49382	17.893	.85761	.64001	12.032	.29269	349.02	.17762	.98705	.69513
#1	.59498	-.00096	.02608	.05210	.00085	.53529	.00002	36.230	.00464	.01466
#2	.58914	-.00086	.02604	.05222	.00071	.53226	.00006	36.348	.00471	.01483
#3	.59236	-.00121	.02568	.05273	.00069	.53443	-.00004	36.244	.00462	.01485

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00324**	**7.9002**	**.00143**	**.06592**	**F 100.17**	**.54623**	**-.00016**	**.04898**	**7.6961**	**.00160**
Stddev	.00033	.0090	.00142	.00104	.18	.00157	.00020	.00016	.0972	.00281
%RSD	10.048	.11420	99.828	1.5734	.18000	.28770	127.72	.31922	1.2628	175.54
#1	.00290	7.9100	.00100	.06542	99.983	.54445	.00004	.04893	7.5853	.00480
#2	.00355	7.8922	.00301	.06712	100.34	.54741	-.00015	.04886	7.7671	.00050
#3	.00326	7.8984	.00026	.06524	100.17	.54684	-.00037	.04916	7.7358	-.00049

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00033**	**F 1369.7**	**.25857**	**-.00085**	**.00211**	**.00058**	**.00079**	**.21687**
Stddev	.00007	13.7	.00063	.00013	.00056	.00074	.00019	.00037
%RSD	19.662	1.0008	.24328	15.481	26.729	128.05	23.830	.17095
#1	-.00026	1361.6	.25785	-.00092	.00207	.00028	.00076	.21644
#2	-.00039	1361.9	.25880	-.00094	.00269	.00143	.00100	.21705
#3	-.00034	1385.5	.25904	-.00070	.00156	.00004	.00063	.21711

Sample Name: K128-03 Acquired: 11/20/2020 15:04:33 Type: Unk
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013051 Type: Anaylst: NTan
Comment: TOT

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5075.4**	**62451.**	**111600.**
Stddev	11.1	83.	274.
%RSD	.21937	.13233	.24584
#1	5069.3	62493.	111550.
#2	5068.7	62356.	111350.
#3	5088.2	62504.	111890.

Sample Name: K128-04 Acquired: 11/20/2020 15:09:22 Type: Unk
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013052 Type: Anaylst: NTan
Comment: TOT

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.26051**	**.00076**	**.00765**	**.03792**	**.00034**	**.58793**	**.00038**	35.133	**.00198**	.00573
Stddev	.00401	.00104	.00099	.00007	.00000	.00055	.00008	.052	.00012	.00028
%RSD	1.5377	136.07	12.976	.17816	.82634	.09342	21.136	.14811	6.1156	4.9699
#1	.26413	.00039	.00877	.03799	.00034	.58832	.00040	35.090	.00204	.00590
#2	.26120	-.00004	.00733	.03785	.00034	.58818	.00045	35.118	.00184	.00589
#3	.25621	.00193	.00686	.03791	.00035	.58730	.00030	35.191	.00205	.00540

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00094**	**.07027**	**.00175**	**.12565**	F **99.730**	**.25475**	**-.00024**	**.05804**	**8.1143**	**.00238**
Stddev	.00016	.00879	.00159	.00139	.320	.00125	.00018	.00031	.0512	.00180
%RSD	17.174	12.510	90.632	1.1037	.32097	.49183	73.025	.53298	.63067	75.598
#1	.00107	.07096	-.00004	.12428	99.382	.25492	-.00032	.05819	8.1587	.00410
#2	.00076	.07869	.00230	.12705	100.01	.25590	-.00036	.05768	8.0584	.00254
#3	.00099	.06115	.00300	.12561	99.797	.25341	-.00004	.05824	8.1260	.00051

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00065**	F **1183.8**	**.08273**	**-.00017**	**.00151**	.00315	**.00078**	**.02333**
Stddev	.00038	3.8	.00016	.00059	.00099	.00048	.00029	.00019
%RSD	58.447	.31922	.19774	344.31	65.738	15.095	36.859	.81960
#1	-.00055	1181.5	.08267	-.00086	.00037	.00275	.00049	.02321
#2	-.00033	1181.7	.08292	.00017	.00202	.00368	.00077	.02355
#3	-.00107	1188.2	.08261	.00017	.00214	.00303	.00107	.02322

Sample Name: K128-04 Acquired: 11/20/2020 15:09:22 Type: Unk
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013052 Type: Anaylst: NTan
Comment: TOT

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5112.1**	**62214.**	**111220.**
Stddev	12.5	177.	427.
%RSD	.24464	.28391	.38397
#1	5099.1	62377.	110990.
#2	5113.2	62239.	110970.
#3	5124.1	62027.	111720.

Sample Name: K128-05 Acquired: 11/20/2020 15:14:13 Type: Unk
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013053 Type: Anaylst: NTan
Comment: TOT

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.61609**	**.00183**	**.02230**	**.05016**	**.00074**	**.53348**	**-.00006**	**36.613**	**.00422**	**.01313**
Stddev	.00229	.00185	.00168	.00018	.00006	.00106	.00012	.043	.00026	.00021
%RSD	.37192	101.29	7.5119	.35347	8.6051	.19820	203.53	.11755	6.1888	1.5913
#1	.61346	.00227	.02405	.05036	.00069	.53465	.00001	36.578	.00392	.01290
#2	.61720	.00341	.02072	.05010	.00081	.53260	-.00020	36.661	.00435	.01318
#3	.61762	-.00021	.02213	.05002	.00072	.53318	.00001	36.600	.00440	.01330

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00321**	**7.1833**	**.00066**	**.07057**	F **102.25**	**.50537**	**-.00028**	**.04626**	**7.6823**	**-.00183**
Stddev	.00011	.0262	.00049	.00019	.06	.00035	.00012	.00033	.0263	.00154
%RSD	3.2847	.36440	74.322	.26801	.06006	.06874	41.637	.71993	.34274	83.911
#1	.00321	7.2110	.00113	.07044	102.29	.50504	-.00039	.04657	7.6544	-.00006
#2	.00311	7.1798	.00070	.07048	102.18	.50533	-.00028	.04630	7.7068	-.00283
#3	.00332	7.1590	.00015	.07079	102.29	.50573	-.00016	.04591	7.6856	-.00260

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00082**	F **1381.5**	**.25836**	**-.00049**	**.00111**	**.00071**	**.00048**	**.19324**
Stddev	.00048	8.7	.00021	.00082	.00030	.00075	.00012	.00017
%RSD	57.901	.62782	.08195	167.58	26.951	106.34	24.782	.08991
#1	-.00079	1375.7	.25858	.00046	.00078	.00091	.00059	.19305
#2	-.00036	1377.4	.25832	-.00095	.00137	.00134	.00035	.19339
#3	-.00131	1391.5	.25816	-.00097	.00119	-.00013	.00050	.19328

Sample Name: K128-05 Acquired: 11/20/2020 15:14:13 Type: Unk
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013053 Type: Anaylst: NTan
Comment: TOT

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**4983.2**	**62324.**	**109480.**
Stddev	5.8	197.	501.
%RSD	.11716	.31633	.45797
#1	4976.8	62551.	109970.
#2	4988.2	62221.	108970.
#3	4984.6	62199.	109500.

Sample Name: CCV4 Acquired: 11/20/2020 15:46:37 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013059 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	103.44	1.3509	1.0076	2.0577	1.5104	2.4272	1.8750	76.836	2.4098	.99183
Stddev	.99	.0029	.0029	.0056	.0024	.0052	.0036	.245	.0069	.00012
%RSD	.95990	.21202	.28798	.27044	.16205	.21376	.19193	.31890	.28480	.01190
#1	103.79	1.3502	1.0106	2.0630	1.5124	2.4214	1.8782	76.662	2.4023	.99193
#2	102.32	1.3541	1.0075	2.0519	1.5077	2.4312	1.8757	77.116	2.4158	.99184
#3	104.22	1.3485	1.0048	2.0582	1.5112	2.4291	1.8711	76.730	2.4114	.99170
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	2.3608	23.716	2.4587	.51024	58.787	2.3773	2.5316	2.6081	61.126	1.0113
Stddev	.0048	.052	.0018	.00343	.069	.0024	.0101	.0090	.033	.0008
%RSD	.20457	.21733	.07151	.67152	.11679	.09871	.40006	.34351	.05396	.08222
#1	2.3558	23.661	2.4593	.51082	58.709	2.3749	2.5429	2.6182	61.088	1.0117
#2	2.3654	23.763	2.4567	.50657	58.837	2.3796	2.5235	2.6011	61.140	1.0104
#3	2.3612	23.724	2.4600	.51334	58.816	2.3774	2.5284	2.6048	61.150	1.0120
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Sample Name: CCV4 Acquired: 11/20/2020 15:46:37 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013059 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.47474	64.167	.48795	F 2.2391	.54543	.51322	1.4959	2.7394
Stddev	.00069	.086	.00083	.0052	.00077	.00061	.0015	.0018
%RSD	.14633	.13457	.17009	.23308	.14208	.11845	.09831	.06568
#1	.47425	64.174	.48777	2.2395	.54454	.51372	1.4947	2.7415
#2	.47553	64.249	.48886	2.2441	.54585	.51254	1.4975	2.7383
#3	.47442	64.077	.48723	2.2337	.54591	.51339	1.4956	2.7385
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				2.5000				
Range				-10.000%				

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	5807.1	63902.	125640.
Stddev	12.6	272.	284.
%RSD	.21672	.42632	.22594
#1	5792.6	63708.	125530.
#2	5813.5	64214.	125430.
#3	5815.2	63785.	125960.

Sample Name: CCB4 Acquired: 11/20/2020 15:51:20 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013060 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.01287	.00126	.00240	-.00025	.00013	.00614	.00012	-.00028	.00001	-.00004
Stddev	.00317	.00086	.00084	.00015	.00006	.00082	.00006	.00192	.00010	.00025
%RSD	24.668	68.424	35.070	58.660	49.379	13.381	45.055	695.07	958.99	689.20
#1	.01653	.00028	.00233	-.00035	.00017	.00696	.00016	.00059	.00012	-.00012
#2	.01084	.00161	.00159	-.00031	.00005	.00614	.00016	.00106	-.00002	.00025
#3	.01123	.00188	.00327	-.00008	.00016	.00532	.00006	-.00248	-.00007	-.00024
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00006	-.00637	.00126	.00127	-.00855	.00031	.00059	.00020	F .14330	.00066
Stddev	.00006	.00359	.00098	.00106	.03291	.00019	.00012	.00023	.03592	.00043
%RSD	90.061	56.347	78.148	83.350	384.99	59.901	20.116	115.31	25.069	65.674
#1	.00010	-.00907	.00014	.00248	.02468	.00048	.00055	.00039	.15162	.00087
#2	.00009	-.00774	.00197	.00055	-.04113	.00012	.00049	-.00006	.10395	.00016
#3	.00000	-.00230	.00167	.00077	-.00919	.00033	.00072	.00027	.17434	.00095
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass
High Limit									.10000	
Low Limit									-.10000	

Sample Name: CCB4 Acquired: 11/20/2020 15:51:20 Type: QC
Method: 20k6010(v22) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K013060 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00022	F .36720	.00021	.00205	.00123	-.00041	.00033	-.00023
Stddev	.00052	.00948	.00011	.00045	.00054	.00054	.00013	.00025
%RSD	235.83	2.5827	51.571	21.943	43.687	132.49	40.356	107.81
#1	-.00052	.37569	.00028	.00236	.00102	-.00066	.00019	-.00048
#2	.00038	.35696	.00026	.00225	.00185	-.00077	.00034	.00002
#3	-.00052	.36895	.00008	.00153	.00083	.00021	.00045	-.00023
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		.10000						
Low Limit		-.10000						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6657.8	62999.	132790.
Stddev	2.1	262.	207.
%RSD	.03196	.41522	.15597
#1	6655.5	63213.	132570.
#2	6659.8	63076.	132830.
#3	6657.9	62707.	132980.

EMAX LABORATORIES, INC.

DIGESTION LOG
for
ICP-METALS

Note: For samples, relevant QCs/Standards digested, refer to attached digestion sequence.

Comments:

Digestion Vessel Lot # SMSA-04-05-06

Filter Lot # N/A

ALL SAMPLES PH<2

Book #: EIP-147

Batch: IPK023W

Matrix: WATER

Digestor ID: E

SOP #	Rev. #
☑ EMAX-3010	7
☐ EMAX-3050	7
☐ EMAX-200.7	5
☐ EMAX-	

Start	Temp	End	Temp
	91.8 °C		93.4 °C

Standards	ID	Amount Added (ml/g)
LCS-1	SMIA-018-1210	.25
LCS-2	-1301	.25
LCS-3	-1302	.50
MS	SAME SPIKE SOLN VOLS	LCS 1,2,3
Blank Soil (Bead)	N/A	N/A
Reagent	**Lot# / ID**	**Amount Added (ml)**
HNO_3	SWIA-009-04-09	1.5+1.5
HCl	-04-08	2.5+2.5
H_2O_2	N/A	N/A
HNO_3(1:1)		
pH Strip (0-14)	HC918032	

Digestate Location	METALS
Extract Location	N/A
☑ Reagent Water ID:	SWIA-009-09-02
☑ Thermometer ID:	192062809/E28
☑ Pipette ID:	742766331
☑ Pipette ID:	842780799
☐ Pipette ID:	
☐ HNO_3 dispenser checked @ 5.0 ml with Class A volumetric flask	
☐ HCl dispenser checked @ 5.0 ml with Class A volumetric flask	

Prepared By: CK

Standard Added By: CK Witnessed By: MC

Extract Rcvd By: MC Checked By: CK

EMAX LABORATORIES, INC.

DIGESTION LOG FOR METALS

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
20IPK023W01	IPK023WB	50	ml	11/19/20 9:04	50	50	50	1	
20IPK023W02	IPK023WL	50	ml	11/19/20 9:04	50	50	50	1	
20IPK023W03	IPK023WC	50	ml	11/19/20 9:04	50	50	50	1	
20IPK023W04	K136-01	50	ml	11/19/20 9:04	50	50	50	1	TOTAL
20IPK023W05	K136-01M	50	ml	11/19/20 9:04	50	50	50	1	TOTAL
20IPK023W06	K136-01S	50	ml	11/19/20 9:04	50	50	50	1	TOTAL
20IPK023W07	K136-02	50	ml	11/19/20 9:04	50	50	50	1	TOTAL
20IPK023W08	K136-03	50	ml	11/19/20 9:04	50	50	50	1	TOTAL
20IPK023W09	K136-04	50	ml	11/19/20 9:04	50	50	50	1	TOTAL
20IPK023W10	K136-07	50	ml	11/19/20 9:04	50	50	50	1	TOTAL
20IPK023W11	K136-08	50	ml	11/19/20 9:04	50	50	50	1	TOTAL
20IPK023W12	K128-01	50	ml	11/19/20 9:04	50	50	50	1	TOTAL CONTAINER #5
20IPK023W13	K128-02	50	ml	11/19/20 9:04	50	50	50	1	TOTAL CONTAINER #13
20IPK023W14	K128-03	50	ml	11/19/20 9:04	50	50	50	1	TOTAL CONTAINER #21
20IPK023W15	K128-04	50	ml	11/19/20 9:04	50	50	50	1	TOTAL CONTAINER #29
20IPK023W16	K128-05	50	ml	11/19/20 9:04	50	50	50	1	TOTAL CONTAINER #37
20IPK023W17	K128-01	50	ml	11/19/20 9:04	50	50	50	1	DISSOLVED CONTAINER #6
20IPK023W18	K128-02	50	ml	11/19/20 9:04	50	50	50	1	DISSOLVED CONTAINER #14
20IPK023W19	K128-03	50	ml	11/19/20 9:04	50	50	50	1	DISSOLVED CONTAINER #22
20IPK023W20	K128-04	50	ml	11/19/20 9:04	50	50	50	1	DISSOLVED CONTAINER #30
20IPK023W21	K128-05	50	ml	11/19/20 9:04	50	50	50	1	DISSOLVED CONTAINER #38
20IPK023W22	K098-01	50	ml	11/19/20 9:04	50	50	50	1	TOTAL
20IPK023W23	K098-02	50	ml	11/19/20 9:04	50	50	50	1	TOTAL
20IPK023W24	TXK005SB	10	ml	11/19/20 9:04	50	50	50	5	TCLP
20IPK023W25	K076-01	10	ml	11/19/20 9:04	50	50	50	5	TCLP
20IPK023W26	K076-01M	10	ml	11/19/20 9:04	50	50	50	5	TCLP
20IPK023W27	K076-01S	10	ml	11/19/20 9:04	50	50	50	5	TCLP

CK 11-19-20

Vd=digestate volume PrepFctr=)ExpAmt/Aliquot)*(Vd/ExpVd)

☑ Digestion Started @ 11/19/20 11:32 Prepared By: CKaing

☑ Digestion Ended @ 11/19/20 16:06 Checked By: CK

Comments: Date 11-19-20

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20K128

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

A total of five(5) water samples were received on 11/13/20 to be analyzed for Dissolved Metals by Trace ICP in accordance with Method 3010A/6010B and project specific requirements.

Holding Time
Samples were digested and analyzed within the prescribed holding time.

Calibration
Initial Calibration was established as prescribed by the method and was verified using a secondary source(ICV). Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were satisfied. MRL was analyzed as required by the project.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. IPK026WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. IPK026WL/IPK026WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
DISSOLVED METALS BY TRACE ICP

Client : ARCADIS
Project : VAFB-SS003

SDG NO. : 20K128
Instrument ID : D8

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IPK026WB	1.000	NA	11/24/2014:55	11/23/2012:06	ID8K014026	ID8K014024	IPK026W	Method Blank
LCS1W	IPK026WL	1.000	NA	11/24/2015:00	11/23/2012:06	ID8K014027	ID8K014024	IPK026W	Lab Control Sample (LCS)
LCD1W	IPK026WC	1.000	NA	11/24/2015:05	11/23/2012:06	ID8K014028	ID8K014024	IPK026W	LCS Duplicate
SS003-3-MW-15R(11102020)	K128-01	1.000	NA	11/24/2016:02	11/23/2012:06	ID8K014040	ID8K014035	IPK026W	Field Sample
SS003-3-MW-18(11102020)	K128-02	1.000	NA	11/24/2016:07	11/23/2012:06	ID8K014041	ID8K014035	IPK026W	Field Sample
SS003-3-MW-33(11102020)	K128-03	1.000	NA	11/24/2016:12	11/23/2012:06	ID8K014042	ID8K014035	IPK026W	Field Sample
SS003-3-MW-40(11102020)	K128-04	1.000	NA	11/24/2016:16	11/23/2012:06	ID8K014043	ID8K014035	IPK026W	Field Sample
SS003-DUP1(11102020)	K128-05	1.000	NA	11/24/2016:21	11/23/2012:06	ID8K014044	ID8K014035	IPK026W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/10/20 11:10
Project	: VAFB-SS003	Date Received:	11/13/20
SDG NO.	: 20K128	Date Extracted:	11/23/20 12:06
Sample ID:	SS003-3-MW-15R(11102020)	Date Analyzed:	11/24/20 16:02
Lab Samp ID:	K128-01	Dilution Factor:	1
Lab File ID:	ID8K014040	Matrix:	WATER
Ext Btch ID:	IPK026W	% Moisture:	NA
Calib. Ref.:	ID8K014035	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	50.8J	200	20.0	40.0
Manganese	3250	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/09/20 15:20
Project	: VAFB-SS003	Date Received:	11/13/20
SDG NO.	: 20K128	Date Extracted:	11/23/20 12:06
Sample ID:	SS003-3-MW-18(11102020)	Date Analyzed:	11/24/20 16:07
Lab Samp ID:	K128-02	Dilution Factor:	1
Lab File ID:	ID8K014041	Matrix:	WATER
Ext Btch ID:	IPK026W	% Moisture:	NA
Calib. Ref.:	ID8K014035	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	22.7J	200	20.0	40.0
Manganese	31.2	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/10/20 14:30
Project	: VAFB-SS003	Date Received:	11/13/20
SDG NO.	: 20K128	Date Extracted:	11/23/20 12:06
Sample ID:	SS003-3-MW-33(11102020)	Date Analyzed:	11/24/20 16:12
Lab Samp ID:	K128-03	Dilution Factor:	1
Lab File ID:	ID8K014042	Matrix:	WATER
Ext Btch ID:	IPK026W	% Moisture:	NA
Calib. Ref.:	ID8K014035	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	5420	200	20.0	40.0
Manganese	552	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/10/20 13:30
Project	: VAFB-SS003	Date Received:	11/13/20
SDG NO.	: 20K128	Date Extracted:	11/23/20 12:06
Sample ID:	SS003-3-MW-40(11102020)	Date Analyzed:	11/24/20 16:16
Lab Samp ID:	K128-04	Dilution Factor:	1
Lab File ID:	ID8K014043	Matrix:	WATER
Ext Btch ID:	IPK026W	% Moisture:	NA
Calib. Ref.:	ID8K014035	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	27.5J	200	20.0	40.0
Manganese	253	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	11/10/20 08:00
Project	: VAFB-SS003	Date Received:	11/13/20
SDG NO.	: 20K128	Date Extracted:	11/23/20 12:06
Sample ID:	SS003-DUP1(11102020)	Date Analyzed:	11/24/20 16:21
Lab Samp ID:	K128-05	Dilution Factor:	1
Lab File ID:	ID8K014044	Matrix:	WATER
Ext Btch ID:	IPK026W	% Moisture:	NA
Calib. Ref.:	ID8K014035	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	5070	200	20.0	40.0
Manganese	530	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	NA
Project	: VAFB-SS003	Date Received:	NA
SDG NO.	: 20K128	Date Extracted:	11/23/20 12:06
Sample ID:	MBLK1W	Date Analyzed:	11/24/20 14:55
Lab Samp ID:	IPK026WB	Dilution Factor:	1
Lab File ID:	ID8K014026	Matrix:	WATER
Ext Btch ID:	IPK026W	% Moisture:	NA
Calib. Ref.:	ID8K014024	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	ND	200	20.0	40.0
Manganese	ND	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K128
METHOD : 3010A/6010B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1.000	1.000	1.000
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: IPK026WB	IPK026WL	IPK026WC
LAB FILE ID	: ID8K014026	ID8K014027	ID8K014028
DATE PREPARED	: 11/23/20 12:06	11/23/20 12:06	11/23/20 12:06
DATE ANALYZED	: 11/24/20 14:55	11/24/20 15:00	11/24/20 15:05
PREP BATCH	: IPK026W	IPK026W	IPK026W
CALIBRATION REF	: ID8K014024	ID8K014024	ID8K014024

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Iron	ND	5000	4940	99	5000	4950	99	0	80-120	20
Manganese	ND	500	491	98	500	488	98	1	80-120	20

ICP (6010) QC CHECK TABLE

QC	ICV	CCV	ICSAB	ICSA
Limit%	90-110	90-110	80-120	80-120
Comp	mg/L	mg/L	mg/L	mg/L
Al	100	100	400	400
Sb	1.5	1.5	1	0
As	1	1	1	0
Ba	2	2	0.5	0
Be	1.5	1.5	0.5	0
B	2.5	2.5	1	0
Cd	2	2	1	0
Ca	75	75	500	500
Cr	2.5	2.5	0.5	0
Co	1	1	0.5	0
Cu	2.5	2.5	0.5	0
Fe	25	25	200	200
Pb	2.5	2.5	1	0
Li	0.5	0.5	1	0
Mg	60	60	200	200
Mn	2.5	2.5	0.5	0
Mo	2.5	2.5	1	0
Ni	2.5	2.5	1	0
K	60	60	75	0
Se	1	1	1	0
Ag	0.5	0.5	1	0
Na	60	60	75	0
Sr	0.5	0.5	0.5	0
Tl	2.5	2.5	1	0
Sn	0.5	0.5	1	0
Ti	0.5	0.5	1	0
V	1.5	1.5	0.5	0
Zn	2.5	2.5	1	0

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 11/24/20 12:52

End Date: 11/24/20 16:37

SOP #	Rev. #
☑ EMAX-6010	8
☑ EMAX-6010C	2
☐ EMAX-200.7	5
☐ EMAX-	

Comments:

QC OK

K118-04I was diluted at 5X
1mL → 5mL

Book #: AD8-058

Instrument No.: D8

Analytical Batch: ID8K014

Analytical Sequence: S_20K6010(√24)

Method File: 20K6010(√24)

Database: EMAX-27

Micropipette ID: ☐ 542761827

Micropipette ID: ☑ 942780530

Micropipette ID: ☑ M34663I

Micropipette ID: ☑ A42761570

Micropipette ID: ☐

	STANDARDS ID		STANDARDS ID
S0	SMIB23-4202	S26	SMIB23-4501
S1	N/A	S27	↓ 4502
S2	↓	S28	SMIB24-1101
S3	↓	S29	↓ 1102
S4	↓	S30	0601
S5	↓	S31	↓ 0602
S6	↓	ICV	SMIB23-4801
S7	↓	CCV	SMIB24-0701
S8	↓	ICSA	↓ 1402
S9	↓	ICSAB	SMIB23-4802
S10	↓	CRI/MRL	↓ 4901
S11	↓	CRI/MRL	SMIB24-0402
S12	↓	CRI/MRL	SMIB23-4901(2X
S16	↓	CRI/MRL	SMIB24-0401
S17	↓	Internal Standard	SMIB018-0803
S18	↓	Post-Spike 1	↓ 1210
S20	SMIB24-1001	Post-Spike 2	↓ 1301
S21	↓ 1002	Post-Spike 3	↓ 1302
S22	↓ 1201		
S23	↓ 0801		
S24	SMIB23-4201		
S25	↓ 4602		

Analyzed By: NT

Date: 11/24/20

INITIAL CALIBRATION VERIFICATION SUMMARY FORM

Client : ARCADIS
Project : VAFB-SS003
SDG NO. : 20K128
Method : METHOD 3010A/6010B
Sequence : ID8K014
InstrumentID: D8

Lab Samp ID :	ICV				ICSA1				ICSAB1	
QC Limit :	%R:90-110/RSD:<5				%R:80-120/<LOD				%R:80-120	
Lab File ID :	ID8K014014				ID8K014022				ID8K014023	
DateAnalyed :	11/24/2013:56				11/24/2014:35				11/24/2014:40	
Parameter	Result	ICV EV	RSD	%Recovery	Result	ICSA EV	%Rec/LOD	Result	ICSAB EV	%Recovery
Aluminum	109.35	100	.15638	109	401.32	400	100	402.09	400	101
Antimony	1.3959	1.5	.20058	93	.02027	0	<0.03	1.0043	1	100
Arsenic	.99597	1.0	.49171	100	.00393	0	<0.005	1.0732	1	107
Barium	1.9674	2.0	.20737	98	-.00035	0	<0.002	.50825	0.5	102
Beryllium	1.4840	1.5	.09547	99	-.00002	0	<0.001	.50421	0.5	101
Boron	2.5251	2.5	.18767	101	.05492	0	>0.01	1.0683	1.0	107
Cadmium	1.8993	2.0	.23580	95	.00121	0	<0.002	.94307	1	94
Calcium	77.432	75	.10035	103	502.97	500	101	509.39	500	102
Chromium	2.4572	2.5	.19177	98	-.00056	0	<0.003	.51099	0.5	102
Cobalt	.98730	1.0	.15430	99	-.00012	0	<0.002	.50872	0.5	102
Copper	2.4271	2.5	.25863	97	.00087	0	<0.003	.50793	0.5	102
Iron T	23.642	25	.12853	95	185.29	200	93	187.16	200	94
Lead	2.4451	2.5	.12052	98	.00015	0	<0.003	.99611	1	100
Lithium	.51670	0.5	.40733	103	.01030	0	<0.05	1.1108	1	111
Magnesium	58.425	60	.11726	97	195.17	200	98	196.04	200	98
Manganese T	2.3740	2.5	.13293	95	.00085	0	<0.003	.47730	0.5	95
Molybdenum	2.4941	2.5	.02703	100	-.00100	0	<0.003	1.0634	1	106
Nickel	2.5226	2.5	.08959	101	-.00044	0	<0.003	1.0502	1	105
Potassium	61.342	60	.16166	102	.00086	0	<0.1	82.792	75	110
Selenium	1.0097	1.0	.75993	101	-.00749	0	>0.005	1.0308	1	103
Silver	.47836	0.5	.10116	96	-.00046	0	<0.003	1.0437	1	104
Sodium	61.092	60	.05291	102	.03680	0	<0.1	81.501	75	109
Strontium	.48946	0.5	.23824	98	-.00102	0	>0.001	.50776	0.5	102
Thallium	2.3099	2.5	.51285	92	-.00212	0	<0.005	.86607	1	87
Tin	.53406	0.5	.17526	107	.00030	0	<0.005	1.1075	1	111
Titanium	.50472	0.5	.76985	101	.00037	0	<0.005	1.0471	1	105
Vanadium	1.4906	1.5	.09652	99	-.00054	0	<0.002	.51251	0.5	103
Zinc	2.6860	2.5	.03494	107	.00183	0	<0.01	1.1318	1	113

Unit: mg/L
T: Target analyte
EV: Expected Value
Comment:

CONTINUING CALIBRATION VERIFICATION SUMMARY FORM

Client : ARCADIS
Project : VAFB-SS003
SDG NO. : 20K128
Method : 3010A/6010B
Sequence : ID8K014
Instrument ID: D8

CCV SampleID			CCV1			CCV2			CCV3		
CCV DataFileID			ID8K014024			ID8K014035			ID8K014046		
CCV DateTime			11/24/20 14:46			11/24/20 15:38			11/24/20 16:31		
PARAMETER		CCV EV	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD
Aluminum		100	107	107	.72349	102	102	.08745	101	101	.38301
Antimony		1.5	1.37	91	.32845	1.29	86*	.13802	1.31	87*	.05545
Arsenic		1.0	0.993	99	.13683	0.97	97	.03103	0.971	97	.63279
Barium		2.0	1.98	99	.48965	2.03	101	.24535	2.04	102	.19313
Beryllium		1.5	1.49	100	.33285	1.52	101	.15002	1.51	101	.11420
Boron		2.5	2.51	100	.21073	2.38	95	.14927	2.37	95	.24089
Cadmium		2.0	1.87	93	.39589	1.85	92	.16014	1.87	94	.09947
Calcium		75	77.2	103	.30492	77.7	104	.09029	77.8	104	.15611
Chromium		2.5	2.46	98	.15644	2.45	98	.07488	2.46	98	.05925
Cobalt		1.0	0.971	97	.27238	0.952	95	.27452	0.955	96	.11425
Copper		2.5	2.41	96	.29418	2.26	90	.05846	2.25	90	.25991
Iron	T	25	23.8	95	.21667	23.6	94	.20221	23.7	95	.18958
Lead		2.5	2.4	96	.28994	2.32	93	.15828	2.35	94	.09589
Lithium		0.5	0.517	103	.56465	0.523	105	.69767	0.52	104	.10114
Magnesium		60	58.5	98	.33321	59.5	99	.15225	59.5	99	.12323
Manganese	T	2.5	2.38	95	.32222	2.42	97	.18392	2.4	96	.16213
Molybdenum		2.5	2.49	99	.04158	2.47	99	.03614	2.47	99	.02580
Nickel		2.5	2.51	101	.09549	2.5	100	.11206	2.51	101	.07565
Potassium		60	61.1	102	.19959	62.1	104	.21671	62.1	103	.09041
Selenium		1.0	0.988	99	.27067	0.935	94	.58184	0.948	95	.51592
Silver		0.5	0.478	96	.39406	0.451	90	.13923	0.45	90	.29308
Sodium		60	61.3	102	.14994	64.7	108	.06395	63.7	106	.15271
Strontium		0.5	0.488	98	.24359	0.488	98	.27213	0.491	98	.07649
Thallium		2.5	2.27	91	.11168	2.21	88*	.11706	2.23	89*	.47275
Tin		0.5	0.529	106	.34155	0.521	104	.04317	0.522	104	.47049
Titanium		0.5	0.508	102	.51244	0.518	104	.33824	0.517	103	.31049
Vanadium		1.5	1.5	100	.21366	1.49	99	.01533	1.49	99	.09010
Zinc		2.5	2.66	106	.32706	2.67	107	.06194	2.69	108	.12541

Unit: ug/L
T: Target analyte
%Rec QC Limit: 90-110
RSD QC Limit: <5
CCV EV: CCV Expected Value ug/L
Comment: * Out of QC limit

CONTINUING CALIBRATION BLANK SUMMARY FORM

Client : ARCADIS
Project : VAFB-SS003
SDG NO. : 20K128
Method : 3010A/6010B
Sequence : ID8K014
Instrument ID: D8

CB SampleID		: ICB		CCB1		CCB2		CCB3	
CB DataFileID		: ID8K014015		ID8K014025		ID8K014036		ID8K014047	
CB DateTime		: 11/24/2014:01		11/24/2014:51		11/24/2015:42		11/24/2016:37	
PARAMETER		LOD	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >
Aluminum		0.03	0.009	<0.03	0.02	<0.03	0.002	<0.03	0.001	<0.03
Antimony		0.03	0.00005	<0.03	0.0003	<0.03	0.0008	<0.03	0.0005	<0.03
Arsenic		0.005	0.002	<0.005	0.0005	<0.005	0.001	<0.005	0.00007	<0.005
Barium		0.002	0.0002	<0.002	0.00003	<0.002	0.0005	<0.002	0.0003	<0.002
Beryllium		0.001	0.00002	<0.001	0.00009	<0.001	0.0001	<0.001	0.00	<0.001
Boron		0.01	0.005	<0.01	0.005	<0.01	0.006	<0.01	0.003	<0.01
Cadmium		0.002	0.00009	<0.002	0.0001	<0.002	0.00006	<0.002	0.00001	<0.002
Calcium		0.1	0.009	<0.1	0.02	<0.1	0.008	<0.1	0.00009	<0.1
Chromium		0.003	0.00002	<0.003	0.00001	<0.003	0.0005	<0.003	0.0005	<0.003
Cobalt		0.002	0.0001	<0.002	0.0003	<0.002	0.00008	<0.002	0.0002	<0.002
Copper		0.003	0.0003	<0.003	0.0002	<0.003	0.0003	<0.003	0.0003	<0.003
Iron	T	0.04	0.003	<0.04	0.005	<0.04	0.002	<0.04	0.004	<0.04
Lead		0.003	0.0006	<0.003	0.00004	<0.003	0.001	<0.003	0.0002	<0.003
Lithium		0.05	0.004	<0.05	0.0006	<0.05	0.001	<0.05	0.001	<0.05
Magnesium		0.1	0.01	<0.1	0.0006	<0.1	0.003	<0.1	0.01	<0.1
Manganese	T	0.003	0.0004	<0.003	0.0005	<0.003	0.0007	<0.003	0.0005	<0.003
Molybdenum		0.003	0.0007	<0.003	0.0006	<0.003	0.0004	<0.003	0.00002	<0.003
Nickel		0.003	0.0003	<0.003	0.0003	<0.003	0.0003	<0.003	0.0002	<0.003
Potassium		0.1	0.05	<0.1	0.05	<0.1	0.09	<0.1	0.08	<0.1
Selenium		0.005	0.0004	<0.005	0.002	<0.005	0.001	<0.005	0.001	<0.005
Silver		0.003	0.0005	<0.003	0.0004	<0.003	0.0008	<0.003	0.001	<0.003
Sodium		0.1	0.010	<0.1	0.008	<0.1	1.1	>0.1	0.68	>0.1
Strontium		0.001	0.00001	<0.001	0.00007	<0.001	0.0004	<0.001	0.0003	<0.001
Thallium		0.005	0.0001	<0.005	0.0006	<0.005	0.0009	<0.005	0.00008	<0.005
Tin		0.005	0.0003	<0.005	0.0005	<0.005	0.0001	<0.005	0.0010	<0.005
Titanium		0.005	0.001	<0.005	0.002	<0.005	0.0006	<0.005	0.0008	<0.005
Vanadium		0.002	0.0005	<0.002	0.0005	<0.002	0.0003	<0.002	0.0006	<0.002
Zinc		0.01	0.006	<0.01	0.0004	<0.01	0.0005	<0.01	0.0006	<0.01

Unit: mg/L
CB: Calibration Blank
T: Target analyte
Acceptance Criteria: CCB Result <LOD
Comment:

SEQUENCE FILE : ID8K014

4-18	19-33	34-43	44-53	54-63
LFID	LSID	TIME	DATE	DF
ID8K014001	S0	12:32	11/24/20	1.000
ID8K014002	S20	12:36	11/24/20	1.000
ID8K014003	S21	12:41	11/24/20	1.000
ID8K014004	S22	12:46	11/24/20	1.000
ID8K014005	S23	12:51	11/24/20	1.000
ID8K014006	S24	12:56	11/24/20	1.000
ID8K014007	S25	13:01	11/24/20	1.000
ID8K014008	S26	13:05	11/24/20	1.000
ID8K014009	S27	13:10	11/24/20	1.000
ID8K014010	S28	13:15	11/24/20	1.000
ID8K014011	S29	13:20	11/24/20	1.000
ID8K014012	S30	13:24	11/24/20	1.000
ID8K014013	S31	13:29	11/24/20	1.000
ID8K014014	ICV	13:56	11/24/20	1.000
ID8K014015	ICB	14:01	11/24/20	1.000
ID8K014016	MRLK2401	14:05	11/24/20	1.000
ID8K014017	MRLK2402	14:10	11/24/20	1.000
ID8K014018	MRLK2403	14:16	11/24/20	1.000
ID8K014019	MRLK2404	14:21	11/24/20	1.000
ID8K014020	MRLK2401	14:25	11/24/20	1.000
ID8K014021	MRLK2402	14:30	11/24/20	1.000
ID8K014022	ICSA1	14:35	11/24/20	1.000
ID8K014023	ICSAB1	14:40	11/24/20	1.000
ID8K014024	CCV1	14:46	11/24/20	1.000
ID8K014025	CCB1	14:51	11/24/20	1.000
ID8K014026	IPK026WB	14:55	11/24/20	1.000
ID8K014027	IPK026WL	15:00	11/24/20	1.000
ID8K014028	IPK026WC	15:05	11/24/20	1.000
ID8K014029	K143-01M	15:09	11/24/20	1.000
ID8K014030	K143-01S	15:14	11/24/20	1.000
ID8K014031	K143-01A	15:19	11/24/20	1.000
ID8K014032	K143-01	15:23	11/24/20	1.000
ID8K014033	K143-01J	15:28	11/24/20	5.000
ID8K014034	K143-02	15:33	11/24/20	1.000
ID8K014035	CCV2	15:38	11/24/20	1.000
ID8K014036	CCB2	15:42	11/24/20	1.000
ID8K014037	MRLK2405	15:47	11/24/20	1.000
ID8K014038	MRLK2406	15:52	11/24/20	1.000
ID8K014039	K198-01	15:57	11/24/20	1.000
ID8K014040	K128-01	16:02	11/24/20	1.000
ID8K014041	K128-02	16:07	11/24/20	1.000
ID8K014042	K128-03	16:12	11/24/20	1.000
ID8K014043	K128-04	16:16	11/24/20	1.000
ID8K014044	K128-05	16:21	11/24/20	1.000
ID8K014045	K118-04I	16:26	11/24/20	5.000
ID8K014046	CCV3	16:31	11/24/20	1.000
ID8K014047	CCB3	16:37	11/24/20	1.000

	[illegible]D	Rack	Row	Col	Type	Samplenan	Comment	Date File	Anaylst	CorrFact	Check	Check Table	Fail Action
1	0	0	0	0	Unk	S0		ID8K014001	NTan	1	☒	unk6010C	---
2	0	0	0	0	Unk	S20		ID8K014002	NTan	1	☒	unk6010C	---
3	0	0	0	0	Unk	S21		ID8K014003	NTan	1	☒	unk6010C	---
4	0	0	0	0	Unk	S22		ID8K014004	NTan	1	☒	unk6010C	---
5	0	0	0	0	Unk	S23		ID8K014005	NTan	1	☒	unk6010C	---
6	0	0	0	0	Unk	S24		ID8K014006	NTan	1	☒	unk6010C	---
7	0	0	0	0	Unk	S25		ID8K014007	NTan	1	☒	unk6010C	---
8	0	0	0	0	Unk	S26		ID8K014008	NTan	1	☒	unk6010C	---
9	0	0	0	0	Unk	S27		ID8K014009	NTan	1	☒	unk6010C	---
10	0	0	0	0	Unk	S28		ID8K014010	NTan	1	☒	unk6010C	---
11	0	0	0	0	Unk	S29		ID8K014011	NTan	1	☒	unk6010C	---
12	0	0	0	0	Unk	S30		ID8K014012	NTan	1	☒	unk6010C	---
13	0	0	0	0	Unk	S31		ID8K014013	NTan	1	☒	unk6010C	---
14	1	2	1	1	QC	ICV		ID8K014014	NTan	1	☒	CCV	None
15	2	2	2	1	QC	ICB		ID8K014015	NTan	1	☒	LOD	None
16	3	2	3	1	QC	MRLK2401		ID8K014016	NTan	1	☒	MRL-EMAX	None
17	4	2	4	1	QC	MRLK2402		ID8K014017	NTan	1	☒	MRL-AFCEE	None
18	5	2	5	1	Unk	MRLK2403	E2X	ID8K014018	NTan	1	☒	unk6010C	---
19	6	2	6	1	Unk	MRLK2404	4e	ID8K014019	NTan	1	☒	unk6010C	---
20	178	4	10	5	QC	MRLK2401	REPREP	ID8K014020	NTan	1	☒	MRL-EMAX	None
21	179	4	11	5	QC	MRLK2402	REPREP	ID8K014021	NTan	1	☒	MRL-AFCEE	None
22	7	2	7	1	QC	ICSA1		ID8K014022	NTan	1	☒	ICSA-DoD	None
23	8	2	8	1	QC	ICSAB1		ID8K014023	NTan	1	☒	ICSAB	None
24	9	2	9	1	QC	CCV1		ID8K014024	NTan	1	☒	CCV	None
25	10	2	10	1	QC	CCB1		ID8K014025	NTan	1	☒	LOD	None
26	11	2	11	1	QC	IPK026WB		ID8K014026	NTan	1	☒	1/2LOQ	None
27	12	2	12	1	QC	IPK026WL		ID8K014027	NTan	1	☒	LCS-WDoD	None
28	13	2	1	2	QC	IPK026WC		ID8K014028	NTan	1	☒	LCS-WDoD	None
29	14	2	2	2	Unk	K143-01M		ID8K014029	NTan	1	☒	unk6010C	---
30	15	2	3	2	Unk	K143-01S		ID8K014030	NTan	1	☒	unk6010C	---
31	16	2	4	2	Unk	K143-01A		ID8K014031	NTan	1	☒	unk6010C	---
32	17	2	5	2	Unk	K143-01		ID8K014032	NTan	1	☒	unk6010C	---
33	18	2	6	2	Unk	K143-01J	5X	ID8K014033	NTan	1	☒	unk6010C	---
34	19	2	7	2	Unk	K143-02		ID8K014034	NTan	1	☒	unk6010C	---
35	20	2	8	2	QC	CCV2		ID8K014035	NTan	1	☒	CCV	None
36	21	2	9	2	QC	CCB2		ID8K014036	NTan	1	☒	LOD	None
37	22	2	10	2	QC	MRLK2405		ID8K014037	NTan	1	☒	MRL-EMAX	None
38	23	2	11	2	QC	MRLK2406		ID8K014038	NTan	1	☒	MRL-AFCEE	None
39	24	2	12	2	Unk	K198-01		ID8K014039	NTan	1	☒	unk6010C	---
40	25	2	1	3	Unk	K128-01		ID8K014040	NTan	1	☒	unk6010C	---

	Pos ID	Rack	Row	[illegible]	Type	Samplename	Comment	Date File	Anaylst	CorrFact	Check	Check Table	Fa[illegible]tion
41	26	2	2	3	Unk	K128-02		ID8K014041	NTan	1	☒	unk6010C	---
42	27	2	3	3	Unk	K128-03		ID8K014042	NTan	1	☒	unk6010C	---
43	28	2	4	3	Unk	K128-04		ID8K014043	NTan	1	☒	unk6010C	---
44	29	2	5	3	Unk	K128-05		ID8K014044	NTan	1	☒	unk6010C	---
45	30	2	6	3	Unk	K118-04I	5X	ID8K014045	NTan	1	☒	unk6010C	---
46	31	2	7	3	QC	CCV3		ID8K014046	NTan	1	☒	CCV	None
47	32	2	8	3	QC	CCB3		ID8K014047	NTan	1	☒	LOD	None

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL
Al 308.215 {109}	11/24/2020 13:15:30	11/24/2020 13:15:30	Linear	1/Conc	0.001842	0.021741	0.000000	1.000000	0.999934	0.000275	0.001985
Sb 206.833 {463}	11/24/2020 13:24:55	11/24/2020 13:24:55	Linear	1/Conc	0.000043	0.004955	0.000000	1.000000	0.999993	0.000003	0.001927
As 189.042 {478}	11/24/2020 13:34:22	11/24/2020 13:34:22	Linear	1/Conc	-0.000005	0.001917	0.000000	1.000000	1.000000	0.000000	0.002550
Ba 455.403 { 74}	11/24/2020 12:56:12	11/24/2020 12:56:12	Linear	1/Conc	0.001195	0.570001	0.000000	1.000000	0.999970	0.000795	0.000397
Be 313.042 {108}	11/24/2020 12:46:25	11/24/2020 12:46:25	Linear	1/Conc	0.000079	1.040332	0.000000	1.000000	0.999993	0.000701	0.000106
B 249.773 {135}	11/24/2020 13:05:48	11/24/2020 13:05:48	Linear	1/Conc	0.000942	0.119324	0.000000	1.000000	0.999996	0.000061	0.000309
Cd 226.502 {449}	11/24/2020 12:46:25	11/24/2020 12:46:25	Linear	1/Conc	-0.000061	0.149178	0.000000	1.000000	0.999982	0.000164	0.000093
Ca 317.933 {106}	11/24/2020 13:15:30	11/24/2020 13:15:30	Linear	1/Conc	0.000611	0.019576	0.000000	1.000000	0.999877	0.002792	0.004706
Cr 267.716 {126}	11/24/2020 13:15:30	11/24/2020 13:15:30	Linear	1/Conc	0.000135	0.155721	0.000000	1.000000	0.999992	0.000111	0.000265
Co 228.616 {447}	11/24/2020 12:56:12	11/24/2020 12:56:12	Linear	1/Conc	-0.001100	0.778679	0.000000	1.000000	0.999984	0.000159	0.000273
Cu 324.754 {104}	11/24/2020 12:56:12	11/24/2020 12:56:12	Linear	1/Conc	0.000371	0.292767	0.000000	1.000000	0.999862	0.000881	0.000230
Fe 271.441 {124}	11/24/2020 12:56:12	11/24/2020 12:56:12	Linear	1/Conc	0.000139	0.006115	0.000000	1.000000	0.999780	0.000155	0.007666
Pb 220.353 {453}	11/24/2020 12:46:25	11/24/2020 12:46:25	Linear	1/Conc	-0.000063	0.197199	0.000000	1.000000	0.999995	0.000112	0.001060
Li 670.784 { 50}	11/24/2020 13:34:22	11/24/2020 13:34:22	Linear	1/Conc	-0.000162	0.121182	0.000000	1.000000	0.999965	0.000027	0.002455
Mg 279.079 {121}	11/24/2020 13:24:55	11/24/2020 13:24:55	Linear	1/Conc	-0.000051	0.002998	0.000000	1.000000	0.999995	0.000016	0.022990
Mn 257.610 {131}	11/24/2020 12:46:25	11/24/2020 12:46:25	Linear	1/Conc	-0.000140	0.136078	0.000000	1.000000	0.999999	0.000042	0.000513
Mo 202.030 {467}	11/24/2020 13:05:48	11/24/2020 13:05:48	Linear	1/Conc	-0.000196	0.687222	0.000000	1.000000	0.999972	0.000940	0.000205
Ni 231.604 {446}	11/24/2020 13:15:30	11/24/2020 13:15:30	Linear	1/Conc	-0.001448	0.861233	0.000000	1.000000	1.000000	0.000083	0.000270
K 766.490 { 44}	11/24/2020 13:15:30	11/24/2020 13:15:30	Linear	1/Conc	-0.002857	0.006388	0.000000	1.000000	0.999998	0.000119	0.057477
Se 196.090 {472}	11/24/2020 13:34:22	11/24/2020 13:34:22	Linear	1/Conc	0.000020	0.002482	0.000000	1.000000	0.999981	0.000001	0.002574
Si 212.412 {459}	11/24/2020 12:36:50	11/24/2020 12:36:50	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000
Ag 328.068 {103}	11/24/2020 13:34:22	11/24/2020 13:34:22	Linear	1/Conc	-0.000263	0.182953	0.000000	1.000000	0.999954	0.000047	0.000444
Na 589.592 { 57}	11/24/2020 13:05:48	11/24/2020 13:05:48	Linear	1/Conc	0.002221	0.021439	0.000000	1.000000	0.999895	0.002248	0.013488
Sr 421.552 { 80}	11/24/2020 13:34:22	11/24/2020 13:34:22	Linear	1/Conc	-0.001326	0.786745	0.000000	1.000000	0.999867	0.000344	0.000244
Tl 190.856 {477}	11/24/2020 13:24:55	11/24/2020 13:24:55	Linear	1/Conc	-0.000007	0.005802	0.000000	1.000000	0.999831	0.000019	0.001161
Sn 189.989 {477}	11/24/2020 13:34:22	11/24/2020 13:34:22	Linear	1/Conc	-0.000021	0.105143	0.000000	1.000000	0.999999	0.000004	0.000779
Ti 334.941 {101}	11/24/2020 13:34:22	11/24/2020 13:34:22	Linear	1/Conc	0.000218	0.085127	0.000000	1.000000	0.999942	0.000025	0.001409
U 409.014 { 82}	11/24/2020 12:36:50	11/24/2020 12:36:50	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000
V 292.402 {115}	11/24/2020 12:56:12	11/24/2020 12:56:12	Linear	1/Conc	-0.000242	0.144662	0.000000	1.000000	0.999984	0.000147	0.000324
Zn 206.200 {463}	11/24/2020 13:34:22	11/24/2020 13:34:22	Linear	1/Conc	0.000356	0.759286	0.000000	1.000000	1.000000	0.000051	0.000182
Sc 227.318 {448}*	11/24/2020 12:36:50	11/24/2020 12:36:50	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000
Sc 361.384 { 93}*	11/24/2020 12:36:50	11/24/2020 12:36:50	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000
Sc 364.531 { 92}*	11/24/2020 12:36:50	11/24/2020 12:36:50	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000

ID# K014
Sr 20K6010 (V24)
EMAX-27
NT 11/24/20

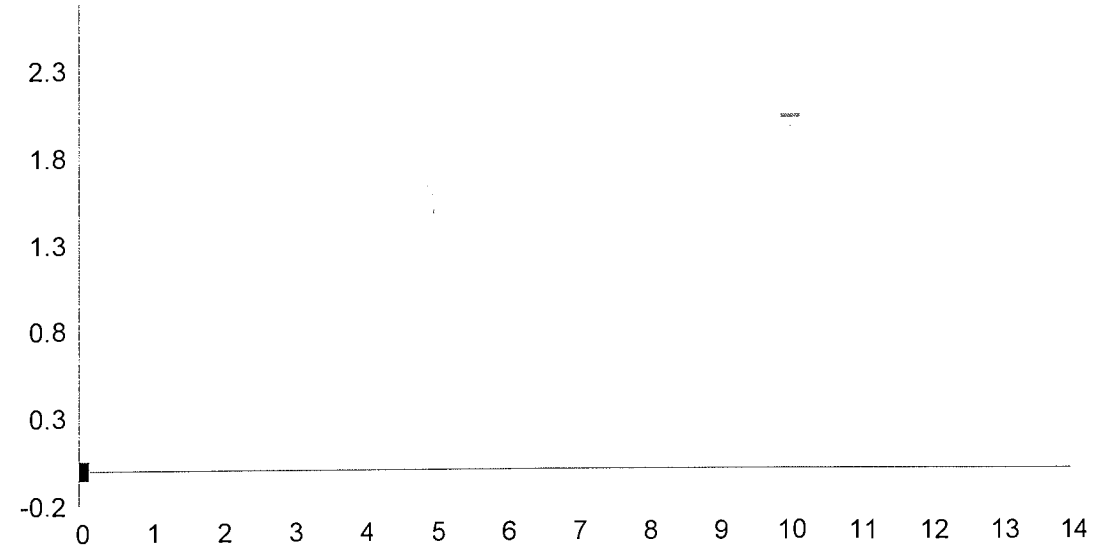
	Element, Wavelength and Order	Predicted MQL	Status	Reslope		QC Norm	
				Slope	Y-int	Slope factor	Offset
	Al 308.215 {109}	0.006618	OK.	1.000000	0.000000	1	0
	Sb 206.833 {463}	0.006425	OK.	1.000000	0.000000	1	0
	As 189.042 {478}	0.008502	OK.	1.000000	0.000000	1	0
	Ba 455.403 { 74}	0.001323	OK.	1.000000	0.000000	1	0
	Be 313.042 {108}	0.000353	OK.	1.000000	0.000000	1	0
	B 249.773 {135}	0.001031	OK.	1.000000	0.000000	1	0
	Cd 226.502 {449}	0.000309	OK.	1.000000	0.000000	1	0
	Ca 317.933 {106}	0.015687	OK.	1.000000	0.000000	1	0
	Cr 267.716 {126}	0.000885	OK.	1.000000	0.000000	1	0
	Co 228.616 {447}	0.000910	OK.	1.000000	0.000000	1	0
	Cu 324.754 {104}	0.000765	OK.	1.000000	0.000000	1	0
	Fe 271.441 {124}	0.025554	OK.	1.000000	0.000000	1	0
	Pb 220.353 {453}	0.003535	OK.	1.000000	0.000000	1	0
	Li 670.784 { 50}	0.008184	OK.	1.000000	0.000000	1	0
	Mg 279.079 {121}	0.076633	OK.	1.000000	0.000000	1	0
	Mn 257.610 {131}	0.001710	OK.	1.000000	0.000000	1	0
	Mo 202.030 {467}	0.000684	OK.	1.000000	0.000000	1	0
	Ni 231.604 {446}	0.000901	OK.	1.000000	0.000000	1	0
	K 766.490 { 44}	0.191590	OK.	1.000000	0.000000	1	0
	Se 196.090 {472}	0.008580	OK.	1.000000	0.000000	1	0
	Si 212.412 {459}	-1.000000	Warnin	1.000000	0.000000	1	0
	Ag 328.068 {103}	0.001480	OK.	1.000000	0.000000	1	0
	Na 589.592 { 57}	0.044961	OK.	1.000000	0.000000	1	0
	Sr 421.552 { 80}	0.000813	OK.	1.000000	0.000000	1	0
	Tl 190.856 {477}	0.003869	OK.	1.000000	0.000000	1	0
	Sn 189.989 {477}	0.002596	OK.	1.000000	0.000000	1	0
	Ti 334.941 {101}	0.004698	OK.	1.000000	0.000000	1	0
	U 409.014 { 82}	-1.000000	Warnin	1.000000	0.000000	1	0
	V 292.402 {115}	0.001079	OK.	1.000000	0.000000	1	0
	Zn 206.200 {463}	0.000606	OK.	1.000000	0.000000	1	0
	Sc 227.318 {448}*	-1.000000	Warnin	1.000000	0.000000	1	0
	Sc 361.384 { 93}*	-1.000000	Warnin	1.000000	0.000000	1	0
	Sc 364.531 { 92}*	-1.000000	Warnin	1.000000	0.000000	1	0

Fe 271.441 {124}

Date of Fit:	11/24/2020 12:56:12	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000139	Re-Slope:	1.000000
A1 (Gain):	0.006115	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999780	Status:	OK.
Std Error of Est:	0.000155		
Predicted MDL:	0.007666		
Predicted MQL:	0.025554		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S020H6010	.00000	-.00046	.000	.000	.00014	.000	1
S23	200.00	199.59	-.413	-.206	1.2023	.003	1
S22	2.5000	2.9618	.462	18.5	.01642	.000	1



Pb 220.353 {453}

Date of Fit:	11/24/2020 12:46:25	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000063	Re-Slope:	1.000000
A1 (Gain):	0.197199	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999995	Status:	OK.
Std Error of Est:	0.000112		
Predicted MDL:	0.001060		
Predicted MQL:	0.003535		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S020H6010	.00000	-.00001	.000	.000	-.00006	.000	1
S21	10.000	9.9901	-.010	-.099	1.9700	.006	1
S20	1.0000	1.0099	.010	.985	.19908	.000	1

Mg 279.079 {121}

Date of Fit:	11/24/2020 13:24:55	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000051	Re-Slope:	1.000000
A1 (Gain):	0.002998	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999995	Status:	OK.
Std Error of Est:	0.000016		
Predicted MDL:	0.022990		
Predicted MQL:	0.076633		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S020H6010	.00000	-.00009	.000	.000	-.00005	.000	1
S29	100.00	99.905	-.095	-.095	.29944	.000	1
S28	10.000	10.095	.095	.953	.03021	.000	1

Mn 257.610 {131}

Date of Fit:	11/24/2020 12:46:25	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000140	Re-Slope:	1.000000
A1 (Gain):	0.136078	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999999	Status:	OK.
Std Error of Est:	0.000042		
Predicted MDL:	0.000513		
Predicted MQL:	0.001710		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S020H6010	.00000	.00000	.000	.000	-.00014	.000	1
S21	10.000	9.9947	-.005	-.053	1.3599	.001	1
S20	1.0000	1.0053	.005	.531	.13666	.000	1

Status

Revision	24				
Date Created	08/14/2006 16:36:29	by admin			
Date Modified	11/24/2020 12:27:20	by admin			
Date Calibrated	11/24/2020 13:34:22				
Current Status	by admin				
Number of Elements	31				
Number of Wavelengths	33				
Calibration Type	External				
Notes:					

Analysis Preferences

Sample Options	# Repeats:	3			
	Delay Time:	0.0 seconds			
	Sample Flush Time:	47 seconds			
	Analysis mode	Speed			
Source	Sample Introduction	Nebulizer			
	Plasma View:	Line Selection			
Analysis Maximum Integration Times (sec)	Low WL Range	Axial	15	Radial	15
	High WL Range:	Axial	10	Radial	5
Calibration Mode	Concentration				
Trailing Full Frame Options	Intelli-Frame:		No		
	Max Integration Time (sec):		30		
	WL Range:		Low		
	View:		Axial		
	Auto-Increment Sample Names:		Yes		
	Use Sample Weight Corrections:		No		

Source Settings

Nebulizer Pump	Flush Pump Rate (rpm):	100	
	Analysis Pump Rate (rpm):	20	
	Pump Relaxation Time (sec):	8	
	Pump Tubing Type:	Tygon Orange/White	
	RF Power:	1150	W

Sample Name: S020H6010 Acquired: 11/24/2020 12:32:08 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00184	.00004	.00000	.00118	.00007	.00094	-.00006	.00057	.00013	-.00110
Stddev	.00003	.00000	.0000	.00017	.00007	.00002	.00000	.00004	.00001	.00019
%RSD	1.4876	9.7767	76.386	14.470	103.94	1.7556	4.6265	7.3231	10.882	17.048
#1	.00181	.00005	.00000	.00108	-.00001	.00093	-.00007	.00055	.00015	-.00091
#2	.00184	.00004	-.00001	.00109	.00012	.00096	-.00006	.00053	.00013	-.00111
#3	.00186	.00004	-.00001	.00138	.00010	.00093	-.00006	.00061	.00013	-.00129

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00036	.00014	-.00006	-.00016	-.00005	-.00014	-.00018	-.00145	-.00286	.00002
Stddev	.00000	.00001	.00014	.00019	.00002	.00002	.00004	.00009	.00017	.00000
%RSD	1.2270	9.3233	213.47	116.67	40.066	12.857	22.723	6.4914	6.1185	24.977
#1	.00036	.00013	-.00014	.00006	-.00006	-.00014	-.00023	-.00149	-.00272	.00002
#2	.00036	.00015	.00010	-.00029	-.00003	-.00012	-.00017	-.00134	-.00280	.00002
#3	.00035	.00013	-.00015	-.00026	-.00006	-.00016	-.00014	-.00151	-.00305	.00003

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00026	.00219	-.00133	-.00001	-.00002	.00022	-.00024	.00036
Stddev	.00003	.00021	.00009	.00000	.00008	.00003	.00003	.00007
%RSD	10.388	9.6022	6.6985	64.054	390.42	13.087	12.795	20.048
#1	-.00026	.00242	-.00135	.00000	.00005	.00024	-.00023	.00027
#2	-.00029	.00213	-.00123	-.00001	-.00011	.00019	-.00028	.00040
#3	-.00024	.00202	-.00141	-.00001	.00000	.00022	-.00022	.00040

Sample Name: S020H6010 Acquired: 11/24/2020 12:32:08 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6881.6	61305.	131410.
Stddev	8.2	167.	526.
%RSD	.11902	.27321	.39997
#1	6878.8	61207.	130940.
#2	6890.8	61499.	131310.
#3	6875.2	61210.	131980.

Sample Name: S20 Acquired: 11/24/2020 12:36:53 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Be	Cd	Pb	Mn
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.0526	.15198	.19908	.13666
Stddev	.0024	.00036	.00019	.00032
%RSD	.23251	.23671	.09358	.23764
#1	1.0523	.15239	.19887	.13645
#2	1.0503	.15182	.19922	.13650
#3	1.0552	.15172	.19915	.13703

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	7229.5	65248.	138350.
Stddev	6.7	263.	431.
%RSD	.09207	.40330	.31167
#1	7225.8	65517.	137850.
#2	7237.2	65234.	138620.
#3	7225.5	64991.	138580.

Sample Name: S21 Acquired: 11/24/2020 12:41:37 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Be	Cd	Pb	Mn
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	10.391	1.4889	1.9700	1.3599
Stddev	.086	.0010	.0060	.0014
%RSD	.82443	.07029	.30721	.10439
#1	10.468	1.4889	1.9767	1.3615
#2	10.299	1.4899	1.9684	1.3595
#3	10.408	1.4878	1.9649	1.3587

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	7151.0	66107.	138750.
Stddev	25.8	317.	214.
%RSD	.36138	.47904	.15438
#1	7121.8	65793.	138530.
#2	7160.3	66427.	138760.
#3	7170.9	66102.	138960.

Sample Name: S22 Acquired: 11/24/2020 12:46:29 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Ba	Co	Cu	Fe	V
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.58504	.15740	.30838	.01642	.14699
Stddev	.00114	.00014	.00033	.00007	.00037
%RSD	.19433	.08854	.10697	.44808	.25323
#1	.58441	.15745	.30829	.01646	.14703
#2	.58436	.15724	.30875	.01647	.14733
#3	.58635	.15751	.30811	.01634	.14659

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6856.8	63371.	132950.
Stddev	4.9	255.	291.
%RSD	.07166	.40183	.21917
#1	6857.4	63639.	132670.
#2	6861.4	63344.	132930.
#3	6851.6	63132.	133260.

Sample Name: S23 Acquired: 11/24/2020 12:51:14 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Ba	Co	Cu	Fe	V
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5.6874	1.5535	2.9054	1.2023	1.4443
Stddev	.0380	.0029	.0156	.0032	.0031
%RSD	.66742	.19006	.53656	.26510	.21241
#1	5.6526	1.5558	2.9056	1.2052	1.4473
#2	5.7279	1.5502	2.9209	1.2027	1.4443
#3	5.6816	1.5545	2.8897	1.1989	1.4412

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6590.8	64545.	135610.
Stddev	19.5	328.	187.
%RSD	.29555	.50799	.13807
#1	6586.6	64598.	135420.
#2	6612.0	64194.	135800.
#3	6573.8	64843.	135620.

Sample Name: S24 Acquired: 11/24/2020 12:56:16 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	B	Mo	Na
Units	Cts/S	Cts/S	Cts/S
Avg	**.11921**	**.67067**	**1.1122**
Stddev	.00012	.00083	.0028
%RSD	.09688	.12320	.24841
#1	.11910	.67162	1.1129
#2	.11933	.67029	1.1091
#3	.11920	.67010	1.1144

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6563.9**	**63049.**	**131630.**
Stddev	18.1	266.	113.
%RSD	.27627	.42196	.08565
#1	6546.2	62786.	131580.
#2	6563.0	63318.	131760.
#3	6582.4	63042.	131550.

Sample Name: S25 Acquired: 11/24/2020 13:01:01 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	B	Mo	Na
Units	Cts/S	Cts/S	Cts/S
Avg	**1.1952**	**6.8884**	**6.3958**
Stddev	.0017	.0113	.0077
%RSD	.13855	.16431	.12085
#1	1.1963	6.8815	6.3872
#2	1.1960	6.8822	6.4022
#3	1.1933	6.9014	6.3980

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6249.8**	**65389.**	**130510.**
Stddev	6.6	132.	322.
%RSD	.10525	.20246	.24681
#1	6243.7	65536.	130140.
#2	6256.8	65353.	130740.
#3	6249.0	65279.	130650.

Sample Name: S26 Acquired: 11/24/2020 13:05:52 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Al	Ca	Cr	Ni	K
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.05032	1.0280	.15782	.85833	.31445
Stddev	.00010	.0021	.00019	.00048	.00088
%RSD	.19463	.19947	.12033	.05637	.27898
#1	.05025	1.0282	.15766	.85792	.31411
#2	.05029	1.0259	.15776	.85821	.31378
#3	.05043	1.0300	.15803	.85887	.31544

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6563.0	64756.	134300.
Stddev	9.9	309.	215.
%RSD	.15046	.47755	.16024
#1	6562.6	65038.	134150.
#2	6573.0	64805.	134550.
#3	6553.3	64425.	134210.

Sample Name: S27 Acquired: 11/24/2020 13:10:33 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Al	Ca	Cr	Ni	K
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**4.3451**	**9.7400**	**1.5558**	**8.6123**	**3.1930**
Stddev	.0307	.0494	.0045	.0123	.0014
%RSD	.70541	.50710	.28945	.14230	.04340
#1	4.3449	9.6830	1.5564	8.6052	3.1936
#2	4.3759	9.7659	1.5600	8.6053	3.1914
#3	4.3146	9.7710	1.5510	8.6265	3.1940

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5551.9**	**63207.**	**120320.**
Stddev	6.3	359.	250.
%RSD	.11283	.56833	.20783
#1	5551.5	63512.	120220.
#2	5558.4	62811.	120130.
#3	5545.9	63296.	120600.

Sample Name: S28 Acquired: 11/24/2020 13:15:33 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Sb	Mg	Tl
Units	Cts/S	Cts/S	Cts/S
Avg	.00494	.03021	.00613
Stddev	.00001	.00004	.00001
%RSD	.29637	.14082	.19347
#1	.00493	.03016	.00613
#2	.00496	.03023	.00612
#3	.00493	.03024	.00614

Int. Std.	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S
Avg	66309.	140260.
Stddev	322.	188.
%RSD	.48568	.13425
#1	66169.	140050.
#2	66081.	140340.
#3	66677.	140400.

Sample Name: S29 Acquired: 11/24/2020 13:20:16 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Sb	Mg	Tl
Units	Cts/S	Cts/S	Cts/S
Avg	**.04966**	**.29944**	**.05768**
Stddev	.00014	.00047	.00016
%RSD	.27405	.15793	.27406
#1	.04951	.29903	.05749
#2	.04969	.29934	.05775
#3	.04977	.29996	.05778

Int. Std.	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S
Avg	**67075.**	**138190.**
Stddev	102.	193.
%RSD	.15217	.13962
#1	66999.	138390.
#2	67035.	138000.
#3	67191.	138180.

Sample Name: S30 Acquired: 11/24/2020 13:24:59 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	As	Li	Se	Ag	Sr	Sn	Ti	Zn
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00095	.02453	.00125	.03711	.16176	.02108	.01765	.75875
Stddev	.00001	.00033	.00001	.00014	.00050	.00013	.00003	.00101
%RSD	.63154	1.3616	.67423	.36421	.30939	.62995	.15489	.13254
#1	.00095	.02415	.00124	.03711	.16125	.02101	.01765	.75974
#2	.00095	.02478	.00125	.03698	.16225	.02123	.01763	.75878
#3	.00096	.02466	.00124	.03725	.16180	.02100	.01768	.75773

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	7137.9	66415.	140230.
Stddev	18.5	145.	570.
%RSD	.25891	.21892	.40676
#1	7122.7	66521.	139970.
#2	7132.5	66250.	140880.
#3	7158.4	66475.	139830.

Sample Name: S31 Acquired: 11/24/2020 13:29:43 Type: Cal
Method: 20k6010(v24) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	As	Li	Se	Ag	Sr	Sn	Ti	Zn
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00383	.12057	.00500	.18191	.77968	.10505	.08493	7.5941
Stddev	.00001	.00056	.00002	.00042	.00127	.00065	.00028	.0079
%RSD	.23277	.46130	.38840	.23325	.16291	.62196	.32469	.10454
#1	.00382	.12004	.00498	.18206	.78087	.10560	.08465	7.6010
#2	.00384	.12051	.00499	.18223	.77834	.10433	.08495	7.5854
#3	.00383	.12115	.00502	.18143	.77982	.10522	.08520	7.5958

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	7077.3	67170.	140700.
Stddev	18.5	124.	175.
%RSD	.26115	.18454	.12469
#1	7058.5	67309.	140580.
#2	7078.0	67129.	140610.
#3	7095.5	67072.	140900.

Sample Name: ICV Acquired: 11/24/2020 13:56:27 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014014 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	109.35	1.3959	.99597	1.9674	1.4840	2.5251	1.8993	77.432	2.4572	.98730	2.4271
Stddev	.17	.0028	.00490	.0041	.0014	.0047	.0045	.078	.0047	.00152	.0063
%RSD	.15638	.20058	.49171	.20737	.09547	.18767	.23580	.10035	.19177	.15430	.25863
#1	109.27	1.3986	1.0016	1.9633	1.4824	2.5241	1.9045	77.507	2.4543	.98771	2.4334
#2	109.54	1.3961	.99292	1.9676	1.4848	2.5210	1.8961	77.435	2.4547	.98561	2.4208
#3	109.23	1.3930	.99337	1.9714	1.4848	2.5303	1.8975	77.352	2.4627	.98858	2.4270
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	23.642	2.4451	.51670	58.425	2.3740	2.4941	2.5226	61.342	1.0097	.47836	61.092
Stddev	.030	.0029	.00210	.069	.0032	.0007	.0023	.099	.0077	.00048	.032
%RSD	.12853	.12052	.40733	.11726	.13293	.02703	.08959	.16166	.75993	.10116	.05291
#1	23.620	2.4432	.51432	58.362	2.3774	2.4936	2.5251	61.393	1.0144	.47877	61.076
#2	23.628	2.4437	.51833	58.415	2.3733	2.4939	2.5221	61.406	1.0008	.47783	61.129
#3	23.677	2.4485	.51744	58.498	2.3712	2.4949	2.5206	61.228	1.0138	.47849	61.070
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Sample Name: ICV Acquired: 11/24/2020 13:56:27 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014014 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.48946	2.3099	.53406	.50472	1.4906	2.6860
Stddev	.00117	.0118	.00094	.00389	.0014	.0009
%RSD	.23824	.51285	.17526	.76985	.09652	.03494
#1	.49080	2.3215	.53376	.50051	1.4891	2.6867
#2	.48894	2.2978	.53332	.50547	1.4907	2.6850
#3	.48865	2.3104	.53511	.50817	1.4920	2.6865
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value						
Range						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	5893.9	63666.	125100.
Stddev	8.1	169.	116.
%RSD	.13783	.26599	.09235
#1	5902.8	63766.	124970.
#2	5892.0	63470.	125180.
#3	5886.9	63761.	125140.

Sample Name: ICB Acquired: 11/24/2020 14:01:09 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014015 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00924	.00005	-.00156	-.00024	.00002	.00505	.00009	.00920	.00002	.00011	.00033
Stddev	.00092	.00101	.00080	.00005	.00006	.00048	.00013	.00320	.00021	.00012	.00006
%RSD	9.9464	1892.7	50.955	21.744	236.77	9.4360	143.27	34.736	998.13	113.43	19.196
#1	.00995	.00122	-.00113	-.00018	.00004	.00546	.00018	.00956	.00020	.00023	.00039
#2	.00957	-.00050	-.00107	-.00029	.00007	.00516	-.00006	.00584	.00006	-.00002	.00033
#3	.00820	-.00056	-.00248	-.00025	-.00004	.00453	.00014	.01220	-.00020	.00011	.00026
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00325	-.00057	.00425	.01101	.00036	.00071	.00033	.04510	.00044	-.00046	-.00981
Stddev	.00516	.00040	.00108	.01086	.00023	.00025	.00012	.02580	.00220	.00035	.01062
%RSD	158.85	69.674	25.383	98.600	64.810	35.794	35.384	57.222	501.42	75.237	108.19
#1	-.00248	-.00035	.00346	-.00111	.00043	.00089	.00036	.06640	-.00208	-.00073	-.00974
#2	.00753	-.00103	.00382	.01983	.00055	.00082	.00042	.05248	.00199	-.00058	.00077
#3	.00471	-.00033	.00548	.01431	.00010	.00042	.00020	.01640	.00140	-.00007	-.02047
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Sample Name: ICB Acquired: 11/24/2020 14:01:09 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014015 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00001	.00013	-.00030	-.00128	.00053	.00647
Stddev	.00007	.00031	.00048	.00095	.00032	.00019
%RSD	532.94	247.80	162.06	73.909	59.868	2.8694
#1	.00009	.00026	.00018	-.00023	.00024	.00636
#2	-.00004	-.00023	-.00078	-.00206	.00087	.00636
#3	-.00001	.00035	-.00030	-.00156	.00049	.00668
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit						
Low Limit						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6763.6	63412.	133300.
Stddev	28.4	211.	351.
%RSD	.41948	.33207	.26343
#1	6731.0	63643.	133640.
#2	6776.8	63359.	132940.
#3	6782.9	63232.	133320.

Sample Name: MRLK2402 Acquired: 11/24/2020 14:30:43 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014021 Type: Anaylst: NTan
Comment: REPREP

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.23982	.04592	.01051	.00478	.00393	.09401	.00480	.52843	.01004	.00975	.01001
Stddev	.00380	.00100	.00431	.00033	.00012	.00002	.00006	.00666	.00024	.00026	.00014
%RSD	1.5826	2.1747	41.019	6.9764	3.0271	.02221	1.1697	1.2600	2.4004	2.6709	1.3996
#1	.24419	.04657	.01509	.00516	.00394	.09403	.00483	.52260	.00981	.00953	.01006
#2	.23787	.04477	.00990	.00459	.00404	.09401	.00473	.52700	.01001	.01004	.00985
#3	.23739	.04642	.00653	.00458	.00381	.09399	.00483	.53568	.01029	.00967	.01011
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.10385	.00941	.09837	.19970	.00512	.00924	.01038	.96616	.00808	.00981	.47934
Stddev	.00203	.00087	.00198	.01692	.00036	.00015	.00010	.02709	.00205	.00011	.01381
%RSD	1.9549	9.2893	2.0118	8.4746	6.9504	1.6360	.94515	2.8039	25.399	1.0949	2.8817
#1	.10153	.01018	.10011	.19032	.00511	.00907	.01050	.97656	.00761	.00993	.47553
#2	.10473	.00846	.09622	.21923	.00549	.00935	.01032	.98652	.00631	.00979	.46783
#3	.10530	.00959	.09879	.18953	.00478	.00929	.01033	.93541	.01033	.00972	.49466
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Sample Name: MRLK2402 Acquired: 11/24/2020 14:30:43 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014021 Type: Anaylst: NTan
Comment: REPREP

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.01029	.00960	.00996	.00958	.01033	.01032
Stddev	.00007	.00099	.00065	.00139	.00029	.00024
%RSD	.66132	10.342	6.4994	14.506	2.7921	2.3174
#1	.01031	.01075	.00976	.01041	.01017	.01006
#2	.01033	.00901	.00943	.01035	.01015	.01036
#3	.01021	.00905	.01068	.00797	.01066	.01053
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value						
Range						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6948.9	63685.	136790.
Stddev	12.8	339.	435.
%RSD	.18430	.53259	.31808
#1	6963.1	63294.	136410.
#2	6938.2	63858.	137260.
#3	6945.5	63902.	136700.

Sample Name: ICSA1 Acquired: 11/24/2020 14:35:29 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014022 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	401.32	.02027	.00393	-.00035	-.00002	F .05492	.00121	502.97	-.00056
Stddev	2.76	.00191	.00085	.00022	.00006	.00012	.00009	2.98	.00012
%RSD	.68673	9.4199	21.753	63.446	276.53	.22014	7.6313	.59175	20.713
#1	401.85	.02126	.00312	-.00012	.00003	.05502	.00123	502.97	-.00053
#2	403.78	.02148	.00483	-.00056	-.00009	.05478	.00129	505.95	-.00046
#3	398.34	.01807	.00383	-.00036	-.00001	.05495	.00111	499.99	-.00069
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit						.01000			
Low Limit						-.01000			

Elem	Co	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00012	.00087	185.29	.00015	.01030	195.17	.00085	-.00100	-.00044
Stddev	.00022	.00019	.45	.00082	.00212	.48	.00014	.00026	.00034
%RSD	192.32	21.851	.24094	563.19	20.597	.24786	16.738	26.122	76.457
#1	-.00016	.00106	185.47	.00075	.01273	194.61	.00101	-.00070	-.00035
#2	-.00031	.00068	184.78	.00047	.00881	195.42	.00074	-.00113	-.00081
#3	.00013	.00088	185.62	-.00078	.00937	195.47	.00080	-.00117	-.00016
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: ICSA1 Acquired: 11/24/2020 14:35:29 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014022 Type: Anaylst: NTan
Comment:

Elem	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00086	F -.00749	-.00046	.03680	F -.00102	-.00212	.00030	.00037	-.00054
Stddev	.01663	.00290	.00026	.01558	.00007	.00225	.00003	.00123	.00024
%RSD	1932.8	38.725	55.983	42.323	6.7833	106.08	11.248	332.93	44.893
#1	-.01370	-.00604	-.00067	.01882	-.00095	.00038	.00030	.00076	-.00079
#2	-.00270	-.01084	-.00017	.04618	-.00104	-.00278	.00026	.00136	-.00053
#3	.01898	-.00560	-.00054	.04541	-.00108	-.00398	.00033	-.00101	-.00030
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		.00500			.00100				
Low Limit		-.00500			-.00100				

Elem	Zn
Units	mg/L
Avg	.00183
Stddev	.00001
%RSD	.49849
#1	.00183
#2	.00183
#3	.00182
Check ?	Chk Pass
High Limit	
Low Limit	

Sample Name: ICSA1 Acquired: 11/24/2020 14:35:29 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014022 Type: Anaylst: NTan
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5190.0**	**60828.**	**115510.**
Stddev	3.8	66.	14.
%RSD	.07347	.10851	.01244
#1	5193.6	60830.	115520.
#2	5186.1	60761.	115490.
#3	5190.4	60893.	115520.

Sample Name: ICSAB1 Acquired: 11/24/2020 14:40:27 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014023 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	402.09	1.0043	1.0732	.50825	.50421	1.0683	.94307	509.39	.51099	.50872	.50793
Stddev	1.01	.0044	.0031	.00349	.00282	.0031	.00168	3.55	.00039	.00088	.00142
%RSD	.25107	.43877	.28447	.68694	.55882	.29225	.17849	.69633	.07540	.17368	.28011
#1	401.44	1.0002	1.0708	.50489	.50135	1.0656	.94281	505.30	.51101	.50922	.50674
#2	401.57	1.0037	1.0720	.50801	.50431	1.0676	.94153	511.65	.51059	.50925	.50754
#3	403.25	1.0089	1.0766	.51186	.50698	1.0718	.94487	511.22	.51136	.50770	.50951
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	187.16	.99611	1.1108	196.04	.47730	1.0634	1.0502	82.792	1.0308	1.0437	81.501
Stddev	.24	.00172	.0041	.70	.00282	.0012	.0010	.186	.0020	.0022	.378
%RSD	.12624	.17266	.37109	.35536	.59154	.10791	.09939	.22454	.19359	.20663	.46320
#1	186.94	.99809	1.1062	195.25	.47417	1.0624	1.0512	82.645	1.0324	1.0413	81.152
#2	187.41	.99498	1.1121	196.31	.47806	1.0646	1.0504	82.731	1.0315	1.0441	81.448
#3	187.13	.99525	1.1141	196.56	.47966	1.0631	1.0491	83.001	1.0285	1.0456	81.902
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Sample Name: ICSAB1 Acquired: 11/24/2020 14:40:27 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014023 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.50776	.86607	1.1075	1.0471	.51251	1.1318
Stddev	.00142	.00218	.0020	.0078	.00063	.0008
%RSD	.27926	.25224	.17790	.74161	.12363	.07281
#1	.50633	.86363	1.1098	1.0396	.51242	1.1319
#2	.50779	.86785	1.1062	1.0468	.51319	1.1310
#3	.50917	.86673	1.1065	1.0551	.51193	1.1326
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value						
Range						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	5144.4	61043.	114120.
Stddev	13.4	434.	104.
%RSD	.26073	.71033	.09092
#1	5134.6	61532.	114000.
#2	5138.9	60894.	114150.
#3	5159.7	60704.	114200.

Sample Name: CCV1 Acquired: 11/24/2020 14:46:21 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014024 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	106.69	1.3682	.99339	1.9779	1.4939	2.5057	1.8674	77.164	2.4557	.97071	2.4111
Stddev	.77	.0045	.00136	.0097	.0050	.0053	.0074	.235	.0038	.00264	.0071
%RSD	.72349	.32845	.13683	.48965	.33285	.21073	.39589	.30492	.15644	.27238	.29418
#1	107.43	1.3652	.99266	1.9681	1.4908	2.5108	1.8696	77.404	2.4600	.97268	2.4187
#2	106.76	1.3734	.99496	1.9874	1.4996	2.5060	1.8734	77.154	2.4546	.97175	2.4099
#3	105.89	1.3661	.99255	1.9781	1.4912	2.5003	1.8591	76.934	2.4526	.96771	2.4047
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	23.804	2.4005	.51744	58.540	2.3751	2.4873	2.5136	61.110	.98828	.47761	61.265
Stddev	.052	.0070	.00292	.195	.0076	.0010	.0024	.122	.00267	.00188	.092
%RSD	.21667	.28994	.56465	.33321	.32222	.04158	.09549	.19959	.27067	.39406	.14994
#1	23.840	2.4047	.51408	58.667	2.3790	2.4870	2.5119	61.222	.98977	.47929	61.237
#2	23.828	2.4043	.51887	58.639	2.3801	2.4884	2.5163	61.128	.98988	.47798	61.368
#3	23.745	2.3925	.51937	58.316	2.3663	2.4864	2.5125	60.980	.98519	.47558	61.191
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Sample Name: CCV1 Acquired: 11/24/2020 14:46:21 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014024 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.48849	2.2748	.52859	.50801	1.4956	2.6570
Stddev	.00119	.0025	.00181	.00260	.0032	.0087
%RSD	.24359	.11168	.34155	.51244	.21366	.32706
#1	.48972	2.2732	.52862	.50520	1.4983	2.6608
#2	.48839	2.2777	.53038	.50849	1.4965	2.6631
#3	.48735	2.2735	.52677	.51034	1.4921	2.6470
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value						
Range						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	5875.4	63018.	125100.
Stddev	18.8	289.	489.
%RSD	.32008	.45907	.39096
#1	5853.7	63039.	124680.
#2	5887.0	63297.	124980.
#3	5885.6	62719.	125640.

Sample Name: CCB1 Acquired: 11/24/2020 14:51:03 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014025 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.01685	.00027	-.00045	-.00003	.00009	.00531	.00011	.01581	.00001	.00029	.00017
Stddev	.00170	.00021	.00311	.00031	.00003	.00037	.00006	.00451	.00008	.00007	.00012
%RSD	10.105	75.062	692.31	1180.9	33.353	6.8992	50.339	28.503	1462.8	25.056	71.255
#1	.01863	.00042	.00113	-.00034	.00007	.00564	.00014	.02037	-.00002	.00036	.00018
#2	.01524	.00004	-.00403	-.00002	.00007	.00536	.00015	.01570	-.00006	.00030	.00027
#3	.01667	.00036	.00155	.00028	.00012	.00492	.00005	.01136	.00010	.00022	.00004
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00477	-.00004	.00064	.00060	.00051	.00064	.00034	.05156	-.00233	-.00039	.00774
Stddev	.00733	.00059	.00067	.01267	.00017	.00012	.00025	.03110	.00188	.00003	.00456
%RSD	153.87	1535.4	105.33	2100.9	33.915	19.398	73.215	60.311	80.667	8.3337	58.857
#1	.01037	-.00056	.00027	.00874	.00065	.00049	.00006	.04199	-.00027	-.00043	.01170
#2	.00746	.00060	.00023	.00706	.00057	.00070	.00053	.08632	-.00395	-.00036	.00276
#3	-.00353	-.00016	.00141	-.01399	.00032	.00071	.00044	.02638	-.00279	-.00039	.00876
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Sample Name: CCB1 Acquired: 11/24/2020 14:51:03 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014025 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00007	.00063	.00045	-.00157	.00050	.00040
Stddev	.00014	.00040	.00054	.00054	.00032	.00006
%RSD	190.18	64.051	118.39	34.634	63.262	13.933
#1	.00015	.00037	.00095	-.00096	.00075	.00046
#2	.00015	.00109	-.00012	-.00199	.00061	.00039
#3	-.00009	.00043	.00053	-.00176	.00014	.00036
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit						
Low Limit						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6697.0	61394.	132450.
Stddev	19.6	482.	152.
%RSD	.29202	.78538	.11455
#1	6700.5	61809.	132580.
#2	6714.6	61507.	132290.
#3	6675.9	60865.	132490.

Sample Name: IPK026WB Acquired: 11/24/2020 14:55:49 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014026 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.01445	-.00066	-.00058	.00021	.00000	.00037	.00003	.03862	.00012	.00013	.00033
Stddev	.00111	.00058	.00174	.00017	.0001	.00026	.00006	.00251	.00011	.00009	.00015
%RSD	7.6841	87.042	299.42	82.640	5705.1	70.334	165.45	6.4951	86.805	70.101	45.724
#1	.01387	.00000	.00135	.00001	-.00006	.00047	.00008	.03644	.00023	.00003	.00029
#2	.01573	-.00107	-.00205	.00033	-.00004	.00007	.00006	.03806	.00002	.00015	.00021
#3	.01374	-.00091	-.00104	.00029	.00009	.00056	-.00003	.04136	.00011	.00020	.00050
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00537	-.00049	-.00048	-.00325	.00069	.00004	.00027	.02083	-.00096	-.00033	.00378
Stddev	.00602	.00052	.00170	.02793	.00040	.00028	.00018	.05086	.00395	.00027	.01049
%RSD	112.00	105.10	356.13	860.58	57.377	733.18	66.186	244.21	412.08	81.944	277.63
#1	.00897	-.00057	.00090	-.03535	.00030	-.00028	.00046	.07955	.00244	-.00053	.00514
#2	.00872	-.00097	.00004	.01014	.00069	.00027	.00025	-.00955	-.00002	-.00002	.01353
#3	-.00157	.00006	-.00238	.01547	.00109	.00012	.00011	-.00752	-.00529	-.00044	-.00733
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Sample Name: IPK026WB Acquired: 11/24/2020 14:55:49 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014026 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00040	-.00051	.00097	-.00131	.00033	.00301
Stddev	.00009	.00057	.00020	.00038	.00012	.00005
%RSD	23.595	111.92	20.949	29.377	37.264	1.7139
#1	.00043	.00010	.00084	-.00141	.00020	.00297
#2	.00029	-.00103	.00120	-.00163	.00044	.00307
#3	.00047	-.00061	.00086	-.00088	.00035	.00299
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit						
Low Limit						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6831.7	62353.	135160.
Stddev	4.0	210.	280.
%RSD	.05879	.33707	.20732
#1	6830.0	62580.	135050.
#2	6828.9	62315.	134960.
#3	6836.3	62165.	135480.

Sample Name: IPK026WL Acquired: 11/24/2020 15:00:38 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014027 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**5.6641**	**2.4972**	**.50859**	**.51305**	**.51551**	**.50219**	**.47197**	**52.535**	**.49938**	.48560
Stddev	.0186	.0048	.00187	.00093	.00112	.00081	.00034	.035	.00056	.00050
%RSD	.32764	.19161	.36690	.18095	.21722	.16100	.07128	.06582	.11188	.10329
#1	5.6601	2.5011	.50863	.51212	.51492	.50126	.47170	52.525	.49943	.48529
#2	5.6843	2.4987	.51043	.51305	.51480	.50262	.47234	52.506	.49880	.48618
#3	5.6479	2.4919	.50670	.51398	.51680	.50269	.47186	52.573	.49991	.48534
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.48434**	**4.9419**	**.47517**	F **.00037**	**49.691**	**.49080**	**.49327**	**.51192**	**51.354**	**.49936**
Stddev	.00063	.0127	.00090	.00092	.224	.00065	.00055	.00058	.019	.00091
%RSD	.12935	.25648	.19019	251.90	.45077	.13288	.11124	.11351	.03714	.18256
#1	.48381	4.9388	.47506	-.00004	49.525	.49040	.49269	.51147	51.334	.49886
#2	.48503	4.9310	.47433	.00143	49.603	.49155	.49331	.51258	51.372	.49880
#3	.48417	4.9558	.47612	-.00028	49.946	.49046	.49379	.51172	51.354	.50041
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				.50000						
Range				-15.200%						

Sample Name: IPK026WL Acquired: 11/24/2020 15:00:38 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014027 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.48173**	**52.758**	**.49285**	**.46387**	**.52281**	**.52634**	**.50791**	**.53472**
Stddev	.00138	.109	.00026	.00064	.00085	.00170	.00055	.00055
%RSD	.28736	.20631	.05212	.13825	.16170	.32347	.10865	.10241
#1	.48120	52.641	.49276	.46422	.52291	.52747	.50741	.53422
#2	.48330	52.777	.49264	.46425	.52361	.52716	.50780	.53464
#3	.48069	52.856	.49313	.46313	.52192	.52438	.50850	.53530
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6102.8**	**62239.**	**128210.**
Stddev	5.5	141.	152.
%RSD	.08994	.22585	.11893
#1	6109.1	62179.	128250.
#2	6099.2	62400.	128050.
#3	6100.1	62138.	128340.

Sample Name: IPK026WC Acquired: 11/24/2020 15:05:11 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014028 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**5.7214**	**2.5369**	**.51502**	**.50749**	**.51247**	**.50901**	**.47684**	**52.552**	**.50216**	**.49082**
Stddev	.0149	.0009	.00251	.00230	.00149	.00154	.00055	.010	.00017	.00170
%RSD	.26121	.03384	.48742	.45405	.29151	.30348	.11577	.01969	.03309	.34621
#1	5.7345	2.5359	.51767	.50507	.51075	.50914	.47715	52.546	.50221	.48888
#2	5.7246	2.5375	.51471	.50774	.51323	.51049	.47717	52.547	.50229	.49154
#3	5.7051	2.5373	.51268	.50966	.51344	.50740	.47621	52.564	.50197	.49204
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.48899**	**4.9453**	**.48038**	F **.00288**	**49.**799	**.48849**	**.49775**	**.51365**	51.250	.50**199**
Stddev	.00075	.0017	.00265	.00176	.064	.00123	.00076	.00054	.067	.00288
%RSD	.15311	.03396	.55246	61.148	.12806	.25197	.15184	.10576	.12997	.57298
#1	.48902	4.9468	.48017	.00483	49.734	.48712	.49688	.51308	51.174	.49892
#2	.48972	4.9455	.48314	.00239	49.803	.48885	.49824	.51415	51.284	.50462
#3	.48822	4.9435	.47785	.00141	49.861	.48949	.49813	.51374	51.293	.50243
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				.50000						
Range				-15.200%						

Sample Name: IPK026WC Acquired: 11/24/2020 15:05:11 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014028 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.48463**	**52.367**	**.49557**	**.47024**	**.52972**	**.52638**	**.50847**	**.53777**
Stddev	.00079	.153	.00045	.00341	.00118	.00067	.00043	.00202
%RSD	.16237	.29256	.09177	.72563	.22185	.12724	.08535	.37592
#1	.48489	52.207	.49543	.47026	.52900	.52665	.50797	.53544
#2	.48525	52.383	.49521	.47365	.52908	.52687	.50866	.53882
#3	.48374	52.512	.49608	.46682	.53107	.52562	.50878	.53906
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6078.8**	**62376.**	**127390.**
Stddev	9.5	359.	100.
%RSD	.15548	.57617	.07875
#1	6084.2	62781.	127280.
#2	6084.2	62095.	127480.
#3	6067.8	62252.	127400.

Sample Name: CCV2 Acquired: 11/24/2020 15:38:25 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014035 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	102.12	F 1.2934	.96970	2.0288	1.5157	2.3787	1.8461	77.736	2.4524	.95241
Stddev	.09	.0018	.00030	.0050	.0023	.0036	.0030	.070	.0018	.00261
%RSD	.08745	.13802	.03103	.24535	.15002	.14927	.16014	.09029	.07488	.27452
#1	102.21	1.2954	.96941	2.0327	1.5175	2.3765	1.8495	77.728	2.4509	.95276
#2	102.04	1.2928	.97001	2.0304	1.5165	2.3769	1.8442	77.809	2.4518	.95484
#3	102.10	1.2920	.96968	2.0232	1.5132	2.3828	1.8447	77.669	2.4544	.94965
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value		1.5000								
Range		-10.000%								

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	2.2622	23.561	2.3226	.52263	59.506	2.4176	2.4663	2.5031	62.128	.93546
Stddev	.0013	.048	.0037	.00365	.091	.0045	.0009	.0028	.135	.00544
%RSD	.05846	.20221	.15828	.69767	.15225	.18392	.03614	.11206	.21671	.58184
#1	2.2624	23.523	2.3200	.52228	59.462	2.4212	2.4671	2.5013	62.264	.94174
#2	2.2609	23.546	2.3268	.52644	59.610	2.4190	2.4666	2.5063	62.124	.93203
#3	2.2635	23.614	2.3209	.51917	59.445	2.4127	2.4654	2.5016	61.995	.93262
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Sample Name: CCV2 Acquired: 11/24/2020 15:38:25 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014035 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.45085	64.745	.48849	F 2.2084	.52079	.51833	1.4869	2.6697
Stddev	.00063	.041	.00133	.0026	.00022	.00175	.0002	.0017
%RSD	.13923	.06395	.27213	.11706	.04317	.33824	.01533	.06194
#1	.45016	64.768	.48966	2.2113	.52062	.51631	1.4868	2.6687
#2	.45099	64.770	.48876	2.2077	.52070	.51919	1.4868	2.6716
#3	.45139	64.698	.48704	2.2063	.52105	.51948	1.4872	2.6688
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				2.5000				
Range				-10.000%				

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	5268.8	52294.	112080.
Stddev	12.6	209.	89.
%RSD	.23916	.39894	.07962
#1	5275.7	52446.	112030.
#2	5254.3	52379.	112030.
#3	5276.4	52056.	112180.

Sample Name: CCB2 Acquired: 11/24/2020 15:42:58 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014036 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00220	-.00078	-.00114	.00047	.00010	.00636	.00006	.00837	.00050	-.00008
Stddev	.00202	.00182	.00143	.00038	.00008	.00056	.00004	.00223	.00007	.00016
%RSD	91.810	232.26	125.70	80.659	83.269	8.8814	64.763	26.601	14.025	203.55
#1	-.00001	.00128	-.00105	.00088	.00011	.00687	.00002	.00665	.00058	-.00024
#2	.00267	-.00146	-.00260	.00013	.00001	.00644	.00006	.00758	.00044	.00007
#3	.00394	-.00216	.00025	.00040	.00018	.00575	.00011	.01089	.00048	-.00007
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00027	.00152	-.00144	-.00110	-.00327	.00068	.00044	.00033	.09478	-.00103
Stddev	.00029	.00616	.00154	.00067	.01265	.00053	.00015	.00018	.01374	.00189
%RSD	108.88	405.46	107.27	60.737	386.67	77.789	35.198	54.011	14.502	183.29
#1	-.00003	-.00486	-.00131	-.00064	-.00849	.00120	.00059	.00051	.10047	-.00032
#2	-.00018	.00199	-.00305	-.00080	-.01247	.00014	.00043	.00033	.07910	.00040
#3	-.00059	.00743	.00003	-.00187	.01115	.00069	.00029	.00015	.10476	-.00317
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Sample Name: CCB2 Acquired: 11/24/2020 15:42:58 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014036 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00077	F 1.1049	-.00035	.00086	.00013	-.00059	.00032	-.00047
Stddev	.00038	.0491	.00029	.00055	.00062	.00086	.00015	.00007
%RSD	50.171	4.4434	83.672	64.027	482.89	144.97	48.167	14.508
#1	-.00046	1.1314	-.00006	.00134	.00056	-.00024	.00034	-.00041
#2	-.00064	1.1351	-.00065	.00026	-.00058	-.00157	.00045	-.00054
#3	-.00120	1.0483	-.00034	.00098	.00040	.00004	.00015	-.00044
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		.10000						
Low Limit		-.10000						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6006.8	51672.	119180.
Stddev	18.0	43.	84.
%RSD	.29997	.08317	.07032
#1	5988.5	51625.	119090.
#2	6007.2	51681.	119220.
#3	6024.6	51709.	119240.

Sample Name: K128-01 Acquired: 11/24/2020 16:02:13 Type: Unk
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014040 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.02245**	**.00123**	**.00435**	**.03324**	**-.00007**	**.55912**	**.00065**	**F 533.27**	**.00040**	**.01209**
Stddev	.00151	.00243	.00118	.00048	.00007	.00130	.00010	.63	.00025	.00067
%RSD	6.7094	197.52	27.225	1.4571	97.804	.23176	15.524	.11872	62.542	5.5102
#1	.02416	-.00153	.00464	.03334	-.00002	.55971	.00060	533.28	.00016	.01176
#2	.02189	.00307	.00304	.03367	-.00015	.55763	.00059	532.63	.00066	.01166
#3	.02131	.00216	.00536	.03271	-.00004	.56001	.00077	533.90	.00037	.01286

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00565**	**.05084**	**-.00068**	**.08452**	**F 315.02**	**3.2515**	**.01572**	**.06696**	**16.504**	**-.00346**
Stddev	.00021	.00637	.00152	.00280	.22	.0012	.00013	.00042	.039	.00207
%RSD	3.7351	12.530	224.96	3.3125	.06983	.03523	.81319	.62154	.23495	59.741
#1	.00572	.04358	-.00160	.08132	315.27	3.2524	.01560	.06707	16.486	-.00584
#2	.00541	.05348	.00108	.08655	314.85	3.2519	.01586	.06650	16.477	-.00230
#3	.00581	.05547	-.00151	.08568	314.95	3.2502	.01571	.06730	16.548	-.00223

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00125**	**F 1554.0**	**F 3.1410**	**.00088**	**.00025**	**.00114**	**.00155**	**.00833**
Stddev	.00041	7.1	.0013	.00155	.00082	.00086	.00031	.00008
%RSD	32.971	.45694	.04003	176.68	333.25	75.105	20.293	.97319
#1	-.00166	1545.8	3.1424	.00261	.00081	.00032	.00181	.00835
#2	-.00083	1557.6	3.1406	.00042	-.00070	.00203	.00164	.00841
#3	-.00126	1558.5	3.1400	-.00039	.00062	.00108	.00120	.00825

Sample Name: K128-01 Acquired: 11/24/2020 16:02:13 Type: Unk
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014040 Type: Anaylst: NTan
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**4435.8**	**51426.**	**97352.**
Stddev	18.3	256.	227.
%RSD	.41165	.49720	.23266
#1	4415.7	51188.	97480.
#2	4440.4	51394.	97485.
#3	4451.4	51697.	97090.

Sample Name: K128-02 Acquired: 11/24/2020 16:07:12 Type: Unk
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014041 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.04183**	**.00168**	**.00828**	**.36519**	**.00011**	**.26653**	**.00000**	**89.889**	**.00379**	**.00410**
Stddev	.00154	.00383	.00391	.00041	.00003	.00039	.0001	.141	.00016	.00001
%RSD	3.6837	228.61	47.179	.11335	26.760	.14657	3994.2	.15655	4.2972	.36302
#1	.04108	-.00127	.00963	.36565	.00012	.26698	.00007	89.777	.00398	.00411
#2	.04360	.00028	.00388	.36487	.00014	.26635	-.00004	90.047	.00370	.00408
#3	.04081	.00601	.01133	.36504	.00008	.26626	-.00004	89.843	.00369	.00410

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.01064**	**.02268**	**-.00040**	**.19528**	**87.303**	**.03123**	**.00112**	**.01983**	**18.865**	**.02286**
Stddev	.00011	.00964	.00167	.00093	.167	.00042	.00014	.00026	.029	.00155
%RSD	1.0175	42.523	414.03	.47686	.19166	1.3509	12.950	1.3284	.15216	6.7835
#1	.01053	.01233	-.00229	.19488	87.140	.03118	.00108	.01981	18.832	.02435
#2	.01065	.03141	.00085	.19635	87.474	.03084	.00128	.02010	18.883	.02125
#3	.01075	.02430	.00024	.19462	87.296	.03168	.00099	.01957	18.881	.02298

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00071**	**F 856.46**	**F 2.8995**	**.00055**	**.00188**	**.00239**	**.00110**	**.01228**
Stddev	.00030	2.61	.0036	.00207	.00114	.00047	.00037	.00009
%RSD	42.339	.30502	.12379	372.59	60.558	19.764	33.428	.73839
#1	-.00103	858.29	2.8960	.00077	.00201	.00252	.00139	.01219
#2	-.00065	857.63	2.9032	-.00161	.00294	.00279	.00122	.01237
#3	-.00044	853.47	2.8992	.00251	.00068	.00187	.00069	.01228

Sample Name: K128-02 Acquired: 11/24/2020 16:07:12 Type: Unk
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014041 Type: Anaylst: NTan
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**4858.0**	**52599.**	**104350.**
Stddev	9.5	228.	168.
%RSD	.19495	.43355	.16099
#1	4847.0	52360.	104210.
#2	4863.6	52624.	104530.
#3	4863.3	52814.	104300.

Sample Name: K128-03 Acquired: 11/24/2020 16:12:04 Type: Unk
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014042 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.44252**	**.00132**	**-.00106**	**.05111**	**.00056**	**.51680**	**.00001**	**35.686**	**.00349**	**.01334**
Stddev	.00227	.00110	.00140	.00006	.00007	.00144	.00008	.003	.00023	.00036
%RSD	.51188	83.866	131.71	.11904	11.760	.27863	832.66	.00898	6.6788	2.7024
#1	.43991	.00041	-.00047	.05106	.00050	.51539	-.00002	35.685	.00355	.01295
#2	.44396	.00099	-.00005	.05109	.00056	.51674	-.00005	35.684	.00324	.01367
#3	.44369	.00255	-.00266	.05118	.00063	.51827	.00010	35.690	.00370	.01339

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00652**	**5.4203**	**-.00019**	**.06770**	F **97.758**	**.55190**	**-.00044**	**.04732**	**7.4101**	**-.00221**
Stddev	.00024	.0195	.00130	.00144	.065	.00017	.00014	.00023	.0116	.00149
%RSD	3.6543	.35975	679.73	2.1277	.06671	.03028	30.904	.47659	.15662	67.474
#1	.00661	5.3993	.00092	.06771	97.812	.55171	-.00059	.04753	7.3997	-.00063
#2	.00670	5.4379	-.00163	.06625	97.685	.55202	-.00033	.04734	7.4081	-.00358
#3	.00625	5.4235	.00014	.06913	97.776	.55198	-.00039	.04708	7.4226	-.00241

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00099**	F **1296.6**	**.25288**	**.00030**	**.00326**	**.00001**	**-.00001**	**.20943**
Stddev	.00038	.6	.00054	.00060	.00148	.00127	.00012	.00097
%RSD	38.254	.04761	.21320	202.03	45.339	14556.	846.94	.46199
#1	-.00057	1297.3	.25349	.00002	.00494	-.00015	.00008	.20831
#2	-.00108	1296.5	.25245	-.00011	.00266	-.00117	.00003	.20996
#3	-.00131	1296.1	.25271	.00099	.00217	.00135	-.00015	.21001

Sample Name: K128-03 Acquired: 11/24/2020 16:12:04 Type: Unk
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014042 Type: Anaylst: NTan
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**4830.6**	**53101.**	**102460.**
Stddev	13.3	122.	273.
%RSD	.27544	.22886	.26623
#1	4815.3	53216.	102200.
#2	4838.4	52974.	102440.
#3	4838.2	53113.	102750.

Sample Name: K128-04 Acquired: 11/24/2020 16:16:53 Type: Unk
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014043 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.21349**	**.00199**	**.00635**	**.03722**	**.00030**	**.57174**	**.00026**	**34.965**	**.00176**	**.00520**
Stddev	.00201	.00172	.00448	.00044	.00004	.00159	.00006	.013	.00015	.00022
%RSD	.94319	86.396	70.571	1.1921	12.188	.27890	21.854	.03774	8.5874	4.2217
#1	.21517	.00297	.00620	.03695	.00033	.57069	.00030	34.960	.00192	.00538
#2	.21126	.00300	.00194	.03698	.00032	.57096	.00028	34.981	.00176	.00526
#3	.21405	.00000	.01090	.03773	.00026	.57358	.00019	34.956	.00161	.00495

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00098**	**.02752**	**-.00076**	**.12348**	F **98.742**	**.25336**	**-.00016**	**.06496**	**7.8852**	**.00068**
Stddev	.00014	.00577	.00019	.00217	.294	.00147	.00003	.00040	.0290	.00261
%RSD	14.794	20.953	24.973	1.7565	.29803	.58007	18.352	.61267	.36787	386.86
#1	.00094	.02087	-.00088	.12550	98.530	.25299	-.00013	.06535	7.8729	-.00232
#2	.00114	.03095	-.00086	.12375	98.619	.25210	-.00018	.06498	7.8644	.00185
#3	.00086	.03076	-.00054	.12119	99.078	.25497	-.00018	.06456	7.9183	.00250

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00080**	F **1132.4**	**.08164**	**-.00006**	**.00115**	**.00069**	**.00101**	**.01575**
Stddev	.00064	1.5	.00002	.00223	.00056	.00045	.00008	.00029
%RSD	79.230	.13382	.02363	3517.8	48.367	65.015	8.3509	1.8583
#1	-.00108	1130.6	.08162	-.00227	.00178	.00039	.00098	.01542
#2	-.00008	1133.4	.08165	.00219	.00095	.00121	.00111	.01596
#3	-.00126	1133.0	.08164	-.00011	.00072	.00047	.00095	.01588

Sample Name: K128-04 Acquired: 11/24/2020 16:16:53 Type: Unk
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014043 Type: Anaylst: NTan
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**4778.5**	**52486.**	**102580.**
Stddev	15.0	147.	342.
%RSD	.31399	.27999	.33310
#1	4766.7	52644.	102390.
#2	4795.4	52353.	102970.
#3	4773.4	52462.	102370.

Sample Name: K128-05 Acquired: 11/24/2020 16:21:44 Type: Unk
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014044 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.48689**	**.00297**	**.00076**	**.05153**	**.00067**	**.51974**	**.00001**	**36.473**	**.00364**	.01318
Stddev	.00133	.00094	.00302	.00055	.00011	.00045	.00018	.058	.00019	.00035
%RSD	.27241	31.716	396.32	1.0607	16.467	.08753	2685.7	.15802	5.2482	2.6383
#1	.48821	.00405	.00361	.05144	.00079	.52013	-.00016	36.540	.00342	.01334
#2	.48556	.00258	.00108	.05212	.00060	.51924	-.00002	36.441	.00375	.01342
#3	.48690	.00229	-.00240	.05103	.00061	.51986	.00020	36.439	.00376	.01278

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00289**	**5.0662**	**-.00058**	**.06588**	**F 100.72**	**.52959**	**-.00037**	**.04612**	**7.6363**	**.00118**
Stddev	.00005	.0041	.00190	.00141	.11	.00032	.00018	.00025	.0341	.00341
%RSD	1.7473	.08176	326.17	2.1452	.10661	.05974	49.468	.53459	.44652	289.49
#1	.00294	5.0656	.00103	.06619	100.83	.52931	-.00043	.04619	7.6198	-.00264
#2	.00284	5.0625	-.00011	.06712	100.62	.52994	-.00017	.04631	7.6135	.00393
#3	.00289	5.0707	-.00267	.06434	100.72	.52952	-.00052	.04584	7.6755	.00225

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00109**	**F 1344.3**	**.25643**	**-.00047**	**.00213**	**-.00003**	**-.00050**	**.19585**
Stddev	.00026	5.8	.00036	.00121	.00108	.00219	.00032	.00049
%RSD	23.646	.43381	.14032	259.56	50.892	6895.0	63.686	.24864
#1	-.00081	1349.6	.25682	-.00026	.00093	-.00161	-.00015	.19614
#2	-.00114	1345.3	.25611	-.00176	.00305	-.00095	-.00078	.19611
#3	-.00131	1338.0	.25636	.00063	.00240	.00247	-.00057	.19528

Sample Name: K128-05 Acquired: 11/24/2020 16:21:44 Type: Unk
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014044 Type: Anaylst: NTan
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**4737.4**	**51818.**	**101640.**
Stddev	12.3	115.	209.
%RSD	.25923	.22130	.20600
#1	4725.9	51685.	101440.
#2	4735.9	51888.	101630.
#3	4750.4	51880.	101850.

Sample Name: CCV3 Acquired: 11/24/2020 16:31:17 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014046 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	100.87	F 1.3069	.97101	2.0359	1.5118	2.3698	1.8712	77.838	2.4613	.95526
Stddev	.39	.0007	.00614	.0039	.0017	.0057	.0019	.122	.0015	.00109
%RSD	.38301	.05545	.63279	.19313	.11420	.24089	.09947	.15611	.05925	.11425
#1	101.13	1.3073	.96429	2.0363	1.5114	2.3754	1.8691	77.840	2.4629	.95404
#2	101.06	1.3073	.97242	2.0318	1.5103	2.3700	1.8723	77.715	2.4609	.95563
#3	100.43	1.3060	.97633	2.0397	1.5137	2.3640	1.8723	77.958	2.4600	.95612
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value		1.5000								
Range		-10.000%								

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	2.2525	23.718	2.3469	.51974	59.480	2.4007	2.4718	2.5139	62.096	.94807
Stddev	.0059	.045	.0022	.00053	.073	.0039	.0006	.0019	.056	.00489
%RSD	.25991	.18958	.09589	.10114	.12323	.16213	.02580	.07565	.09041	.51592
#1	2.2571	23.767	2.3446	.52011	59.395	2.3990	2.4725	2.5124	62.034	.94516
#2	2.2546	23.679	2.3491	.51997	59.524	2.3980	2.4718	2.5132	62.144	.95372
#3	2.2459	23.708	2.3471	.51914	59.521	2.4052	2.4712	2.5160	62.110	.94534
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Sample Name: CCV3 Acquired: 11/24/2020 16:31:17 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014046 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	F .44987	63.668	.49055	F 2.2261	.52242	.51730	1.4914	2.6932
Stddev	.00132	.097	.00038	.0105	.00246	.00161	.0013	.0034
%RSD	.29308	.15271	.07649	.47275	.47049	.31049	.09010	.12541
#1	.45133	63.715	.49014	2.2228	.51959	.51783	1.4930	2.6897
#2	.44951	63.556	.49063	2.2379	.52409	.51550	1.4905	2.6936
#3	.44877	63.732	.49088	2.2177	.52357	.51858	1.4908	2.6964
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	.50000			2.5000				
Range	-10.000%			-10.000%				

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	5315.5	52317.	112510.
Stddev	4.9	63.	89.
%RSD	.09190	.11958	.07892
#1	5309.9	52275.	112480.
#2	5318.6	52389.	112440.
#3	5318.0	52289.	112610.

Sample Name: CCB3 Acquired: 11/24/2020 16:37:33 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014047 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00141	-.00049	-.00007	.00030	.00000	.00274	.00001	-.00009	.00052	-.00015
Stddev	.00215	.00177	.00263	.00031	.00002	.00023	.00008	.00361	.00025	.00019
%RSD	152.64	358.05	3651.3	105.02	10357.	8.4410	1004.2	3956.3	47.136	125.73
#1	-.00005	.00010	.00010	.00063	.00003	.00296	.00010	.00373	.00057	-.00035
#2	-.00389	-.00248	.00247	.00024	-.00001	.00250	-.00006	-.00343	.00026	-.00011
#3	-.00029	.00090	-.00279	.00002	-.00002	.00276	-.00002	-.00057	.00074	.00001
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00031	.00353	-.00019	.00106	.01065	.00052	.00002	.00023	-.08136	-.00110
Stddev	.00016	.00495	.00130	.00203	.00752	.00022	.00011	.00017	.03729	.00012
%RSD	50.389	140.45	695.97	190.56	70.629	42.927	483.98	71.456	45.833	10.504
#1	-.00021	-.00066	.00095	.00054	.01853	.00029	-.00005	.00016	-.06151	-.00098
#2	-.00049	.00224	-.00161	-.00065	.00986	.00073	.00015	.00043	-.12437	-.00112
#3	-.00022	.00899	.00010	.00330	.00355	.00053	-.00003	.00012	-.05820	-.00121
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Sample Name: CCB3 Acquired: 11/24/2020 16:37:33 Type: QC
Method: 20k6010(v24) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8K014047 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00108	F .68035	-.00027	-.00008	-.00098	-.00080	.00064	-.00063
Stddev	.00046	.02547	.00020	.00014	.00087	.00007	.00023	.00011
%RSD	42.595	3.7440	73.907	172.65	88.976	8.4796	36.068	17.093
#1	-.00089	.70541	-.00020	-.00024	-.00174	-.00073	.00086	-.00075
#2	-.00074	.68115	-.00012	.00001	-.00003	-.00086	.00040	-.00059
#3	-.00160	.65448	-.00049	-.00001	-.00117	-.00082	.00068	-.00055
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		.10000						
Low Limit		-.10000						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6044.9	52673.	119720.
Stddev	4.2	215.	216.
%RSD	.06897	.40749	.18037
#1	6040.6	52430.	119970.
#2	6045.2	52752.	119620.
#3	6048.9	52837.	119570.

EMAX LABORATORIES, INC.

DIGESTION LOG
for
ICP-METALS

Note: For samples, relevant QCs/Standards digested, refer to attached digestion sequence.

Comments:

Digestion Vessel Lot # SMSA-04-05-06

Filter Lot # N/A

ALL SAMPLES PH<2

Book #: EIP-147
Batch: IPK026W
Matrix: WATER
Digestor ID: E

SOP #	Rev. #
☑ EMAX-3010	7
☐ EMAX-3050	7
☐ EMAX-200.7	5
☐ EMAX-	

Start	Temp	End	Temp
	91.5 °C		93.4 °C

Standards	ID	Amount Added (ml/g)
LCS-1	SMIA-018-1210	.25
LCS-2	-1301	.25
LCS-3	-1302	.50
MS	SAME SPIKE SOLN VOL AS LCS 1,2,3	
Blank Soil (Bead)	N/A	N/A
Reagent	**Lot# / ID**	**Amount Added (ml)**
HNO_3	SWIA-009-09-10	1.5+1.5
HCl	-04-08	2.5+2.5
H_2O_2	N/A	N/A
HNO_3(1:1)		
pH Strip (0-14)	HC998032	
Digestate Location	METALS	
Extract Location	N/A	
☑ Reagent Water ID:	SWIA-009-09-02	
☑ Thermometer ID:	192062809/E50	
☑ Pipette ID:	74276633	
☑ Pipette ID:	8127807 99	
☐ Pipette ID:		
☐ HNO_3 dispenser checked @ 5.0 ml with Class A volumetric flask		
☐ HCl dispenser checked @ 5.0 ml with Class A volumetric flask		

Prepared By: CK
Standard Added By: CK Witnessed By: MC
Extract Rcvd By: MC Checked By: CK

EMAX LABORATORIES, INC.

DIGESTION LOG FOR METALS

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
20IPK026W01	IPK026WB	50	ml	11/23/20 10:26	50	50	50	1	
20IPK026W02	IPK026WL	50	ml	11/23/20 10:26	50	50	50	1	
20IPK026W03	IPK026WC	50	ml	11/23/20 10:26	50	50	50	1	
20IPK026W04	K143-01	50	ml	11/23/20 10:26	50	50	50	1	TOTAL
20IPK026W05	K143-01M	50	ml	11/23/20 10:26	50	50	50	1	TOTAL
20IPK026W06	K143-01S	50	ml	11/23/20 10:26	50	50	50	1	TOTAL
20IPK026W07	K143-02	50	ml	11/23/20 10:26	50	50	50	1	TOTAL
20IPK026W08	K128-01	50	ml	11/23/20 10:26	50	50	50	1	DISSOLVED
20IPK026W09	K128-02	50	ml	11/23/20 10:26	50	50	50	1	DISSOLVED
20IPK026W10	K128-03	50	ml	11/23/20 10:26	50	50	50	1	DISSOLVED
20IPK026W11	K128-04	50	ml	11/23/20 10:26	50	50	50	1	DISSOLVED
20IPK026W12	K128-05	50	ml	11/23/20 10:26	50	50	50	1	DISSOLVED
20IPK026W13	K198-01	50	ml	11/23/20 11:16	50	50	50	1	TOTAL

AK 11-23-20

Vd=digestate volume PrepFctr=)ExpAmt/Aliquot)*(Vd/ExpVd)

☑ Digestion Started @ 11/23/20 12:06 Prepared By: CKaing

☑ Digestion Ended @ 11/23/20 16:40 Checked By: AK

Comments: Date 11-23-20

LABORATORY REPORT FOR

ARCADIS

VAFB-SS003

WET CHEMICAL ANALYSES

SDG#: 20K128

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20K128

METHOD 300.0
NITRATE-N

A total of five(5) water samples were received on 11/13/20 to be analyzed for Nitrate-N in accordance with Method 300.0 and project specific requirements.

Holding Time
Samples were received out of the prescribed holding time and were analyzed per client request.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Nitrate-N was not detected in ICK021WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. ICK021WL/ICK021WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20K128

METHOD 300.0
SULFATE

A total of five(5) water samples were received on 11/13/20 to be analyzed for Sulfate in accordance with Method 300.0 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, two(2) method blanks were analyzed. ICK021WB and ICK039WB were compliant to project requirement. Refer to sample result summary forms for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, two(2) sets of LCS/LCD were analyzed. ICK021WL/ICK021WC and ICK039WL/ICK039WC were within LCS limits. Refer to LCS summary forms for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

SAMPLE RESULTS

METHOD 300.0
NITRATE-N

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20K128
Matrix : WATER
InstrumentID : D0

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	ICK021WB	ND	1	NA	0.1	0.025	0.05	11/13/2013:15	NA	AK17-03	AK17-01	ICK021W	NA	NA
LCS1W	ICK021WL	0.987	1	NA	0.1	0.025	0.05	11/13/2013:32	NA	AK17-04	AK17-01	ICK021W	NA	NA
LCD1W	ICK021WC	0.983	1	NA	0.1	0.025	0.05	11/13/2013:49	NA	AK17-05	AK17-01	ICK021W	NA	NA
SS003-3-MW-15R(11102020)	K128-01	ND	1	NA	0.1	0.025	0.05	11/13/2014:06	NA	AK17-06	AK17-01	ICK021W	11/10/2011:10	11/13/20
SS003-3-MW-18(11102020)	K128-02I	13.0	20	NA	2	0.5	1	11/13/2014:23	NA	AK17-07	AK17-01	ICK021W	11/09/2015:20	11/13/20
SS003-3-MW-33(11102020)	K128-03	0.179	1	NA	0.1	0.025	0.05	11/13/2014:40	NA	AK17-08	AK17-01	ICK021W	11/10/2014:30	11/13/20
SS003-3-MW-40(11102020)	K128-04	1.36	1	NA	0.1	0.025	0.05	11/13/2014:57	NA	AK17-09	AK17-01	ICK021W	11/10/2013:30	11/13/20
SS003-DUP1(11102020)	K128-05	0.189	1	NA	0.1	0.025	0.05	11/13/2015:15	NA	AK17-10	AK17-01	ICK021W	11/10/2008:00	11/13/20

METHOD 300.0
SULFATE

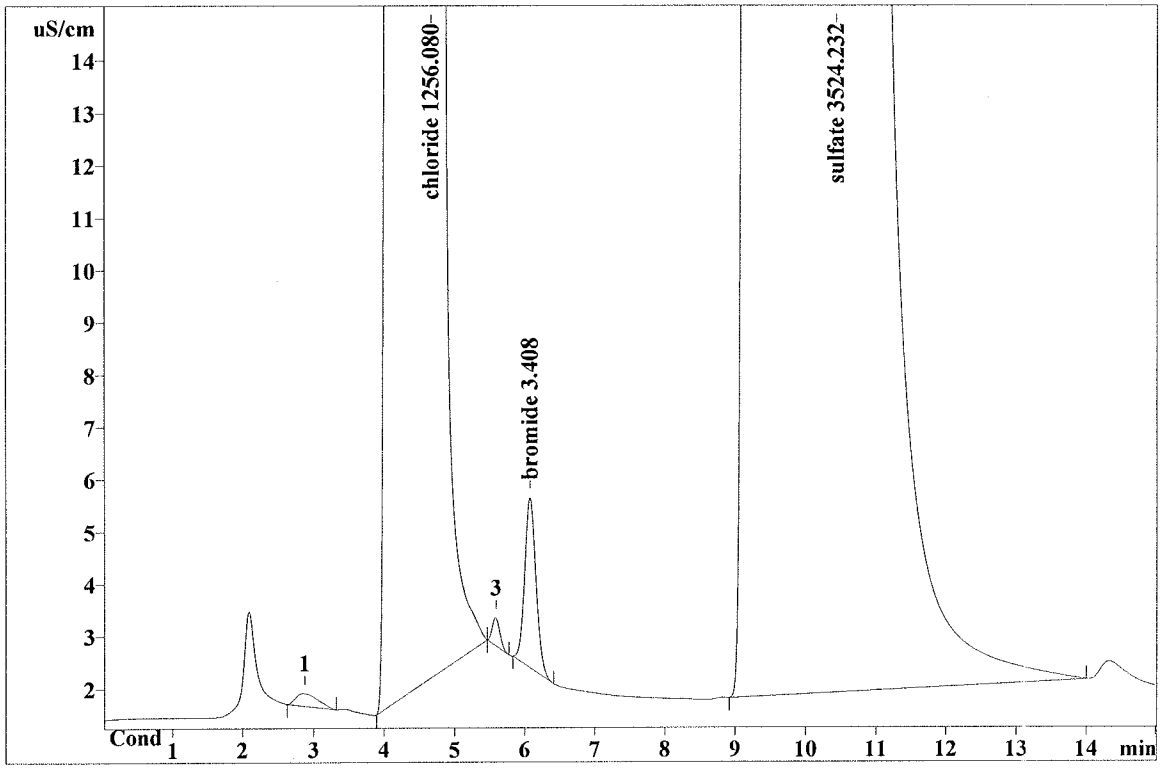
Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20K128
Matrix : WATER
InstrumentID : D0

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	ICK021WB	ND	1	NA	0.5	0.125	0.25	11/13/2013:15	NA	AK17-03	AK17-01	ICK021W	NA	NA
LCS1W	ICK021WL	4.98	1	NA	0.5	0.125	0.25	11/13/2013:32	NA	AK17-04	AK17-01	ICK021W	NA	NA
LCD1W	ICK021WC	5.02	1	NA	0.5	0.125	0.25	11/13/2013:49	NA	AK17-05	AK17-01	ICK021W	NA	NA
SS003-3-MW-18(11102020)	K128-02I	239	20	NA	10	2.5	5	11/13/2014:23	NA	AK17-07	AK17-01	ICK021W	11/09/2015:20	11/13/20
MBLK2W	ICK039WB	ND	1	NA	0.5	0.125	0.25	11/25/2014:29	NA	AK35-03	AK35-01	ICK039W	NA	NA
LCS2W	ICK039WL	4.95	1	NA	0.5	0.125	0.25	11/25/2014:46	NA	AK35-04	AK35-01	ICK039W	NA	NA
LCD2W	ICK039WC	4.95	1	NA	0.5	0.125	0.25	11/25/2015:03	NA	AK35-05	AK35-01	ICK039W	NA	NA
SS003-3-MW-15R(11102020)	K128-01I	3760	400	NA	200	50	100	11/26/2005:11	NA	AK35-51	AK35-46	ICK039W	11/10/2011:10	11/13/20
SS003-3-MW-33(11102020)	K128-03I	523	40	NA	20	5	10	11/26/2005:29	NA	AK35-52	AK35-46	ICK039W	11/10/2014:30	11/13/20
SS003-3-MW-40(11102020)	K128-04I	193	20	NA	10	2.5	5	11/26/2005:46	NA	AK35-53	AK35-46	ICK039W	11/10/2013:30	11/13/20
SS003-DUP1(11102020)	K128-05I	529	40	NA	20	5	10	11/26/2006:03	NA	AK35-54	AK35-46	ICK039W	11/10/2008:00	11/13/20

Report date: 11/16/2020 2:48:58 PM
Printed by: LDip

Ident: AK17-06 K128-01
Analysis from: 11/13/2020 2:06:39 PM
File: _2020-11-13_14-06.chw Last save: 11/13/2020 2:21:36 PM
Modified!
Method: ICD0-J27.mtw Last save: 11/13/2020 12:17:43 PM
Run operator: LDip
Analysis number: 163530

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 6
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.87	0.24	5.222	0.000	
2	4.66	1041.04	28357.584	1256.080	chloride
3	5.59	0.54	4.094	0.000	
4	6.07	3.25	36.402	3.408	bromide
5	10.42	801.93	68716.949	3524.232	sulfate
					NITRATE
5	15.00	1847.00	97120.250	4783.720	

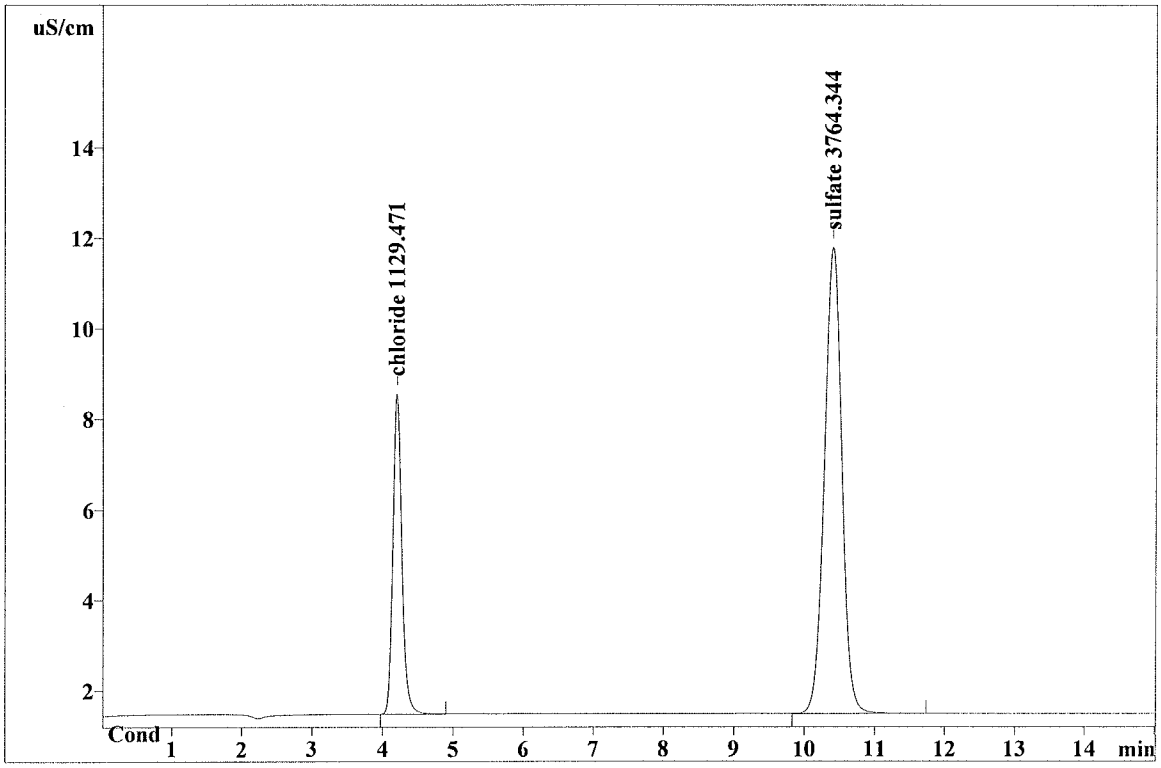
This report has been created by IC Net
METROHM LTD

Report date: 11/30/2020 12:27:35 PM
Printed by: LDip

Ident: AK35-51 K128-01I DF=400
Analysis from: 11/26/2020 5:11:58 AM
File: _2020-11-26_05-11.chw Last save: 11/26/2020 5:26:55 AM

Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164203

SAMPLE: METHOD 300/9056/4110B
: 0.1ml/40ml
Vial number: 51
Volume: 1.0 µL
Dilution: 400.00
Amount: 1.0000



Quantitation method: Custom

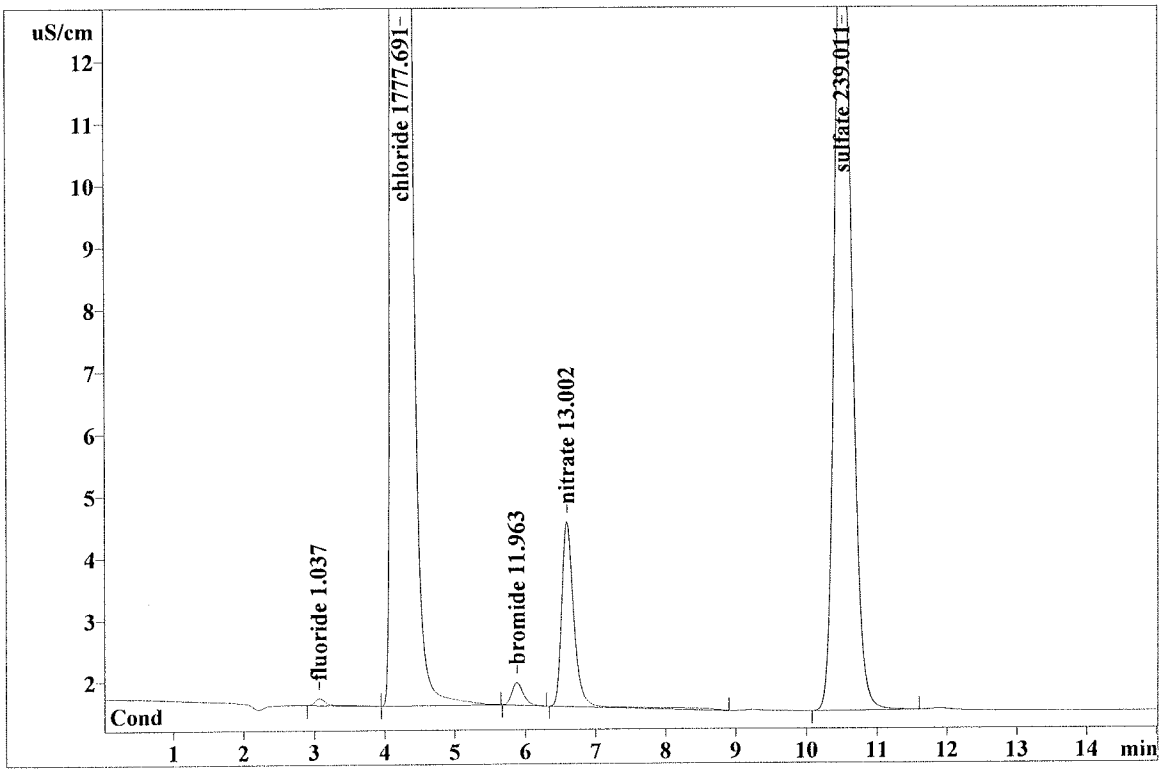
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.19	7.07	62.810	1129.471	chloride
2	10.40	10.30	179.264	3764.344	sulfate
2	15.00	17.37	242.074	4893.815	

This report has been created by IC Net
METROHM LTD

Report date: 12/8/2020 1:38:16 PM
Printed by: LDip

Ident: AK17-07 K128-02I DF=20
Analysis from: 11/13/2020 2:23:44 PM
File: _2020-11-13_14-23.chw Last save: 11/24/2020 2:07:25 PM
Modified!
Method: ICD0-J27.mtw Last save: 11/13/2020 12:17:43 PM
Run operator: LDip
Analysis number: 163531

SAMPLE: METHOD 300/9056/4110B
: 1ml/20ml
Vial number: 7
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

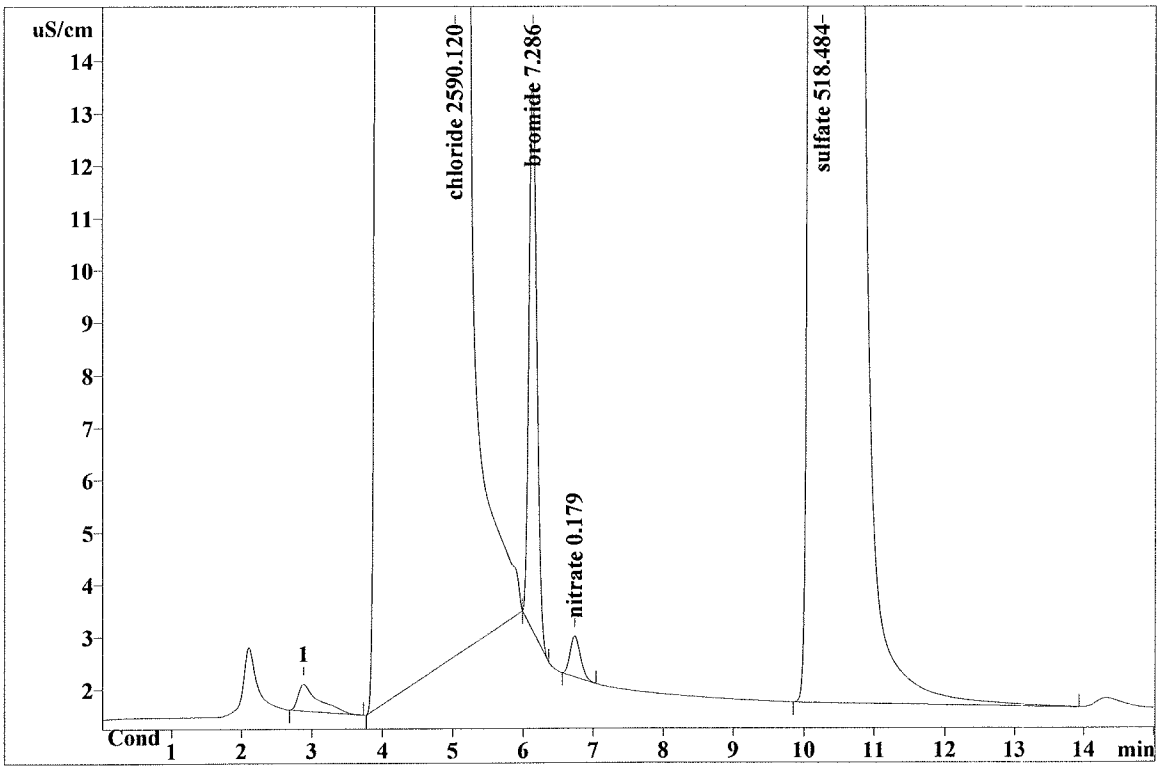
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.07	0.11	1.377	1.037	fluoride
2	4.25	207.72	2005.806	1777.691	chloride
3	5.88	0.36	4.102	11.963	bromide
4	6.59	2.98	37.104	13.002	nitrate ✓
5	10.52	14.17	228.787	239.011	sulfate ✓
5	15.00	225.34	2277.175	2042.703	

This report has been created by IC Net
METROHM LTD

Report date: 11/16/2020 2:49:16 PM
Printed by: LDip

Ident: AK17-08 K128-03
Analysis from: 11/13/2020 2:40:49 PM
File: _2020-11-13_14-40.chw Last save: 11/13/2020 4:43:02 PM
Modified!
Method: ICD0-J27.mtw Last save: 11/13/2020 12:17:43 PM
Run operator: LDip
Analysis number: 163532

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 8
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.89	0.51	10.604	0.000	
2	5.02	1178.62	58476.200	2590.120	chloride
3	6.13	10.48	80.993	7.286	bromide
4	6.74	0.78	8.058	0.179	nitrate
5	10.25	443.56	10105.999	518.484	sulfate
5	15.00	1633.95	68681.854	3116.069	

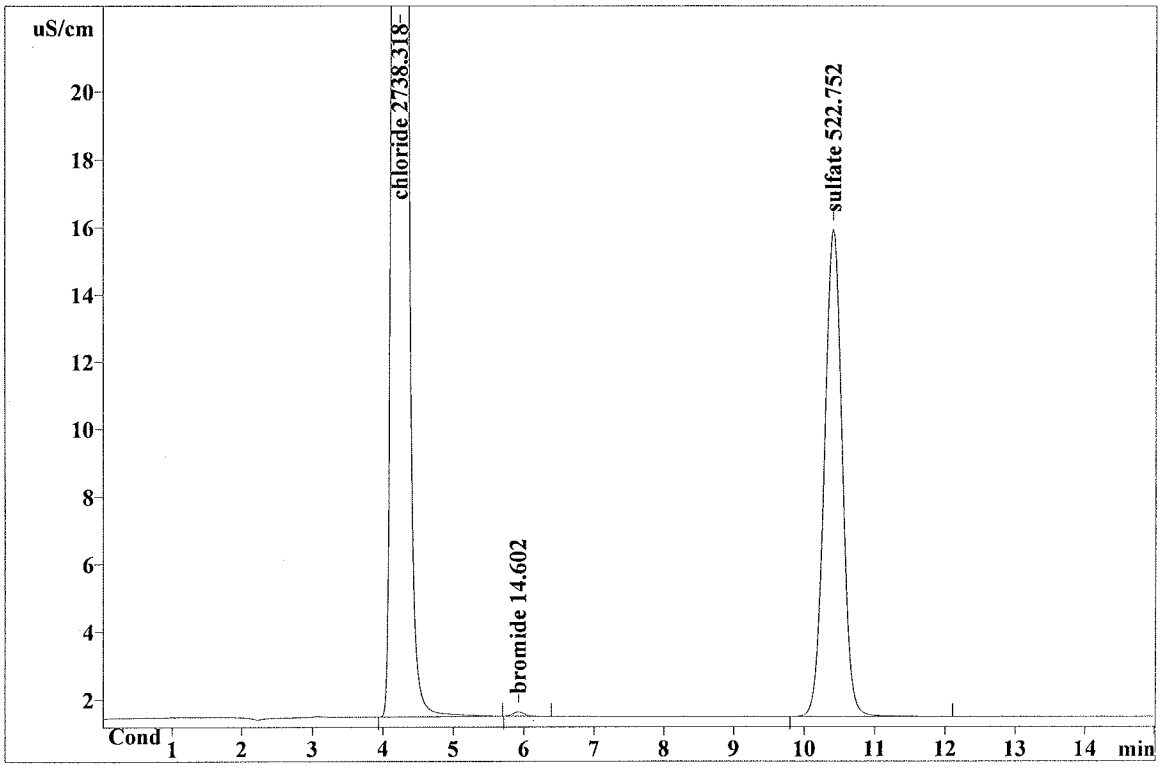
This report has been created by IC Net
METROHM LTD

Report date: 11/30/2020 12:27:42 PM
Printed by: LDip

Ident: AK35-52 K128-03I DF=40
Analysis from: 11/26/2020 5:29:04 AM
File: _2020-11-26_05-29.chw Last save: 11/26/2020 5:44:01 AM

Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164204

SAMPLE: METHOD 300/9056/4110B
: 1ml/40ml
Vial number: 52
Volume: 1.0 µL
Dilution: 40.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.24	166.60	1544.635	2738.318	chloride
2	5.92	0.12	1.421	14.602	bromide
3	10.40	14.44	250.593	522.752	sulfate ✓
3	15.00	181.16	1796.649	3275.672	

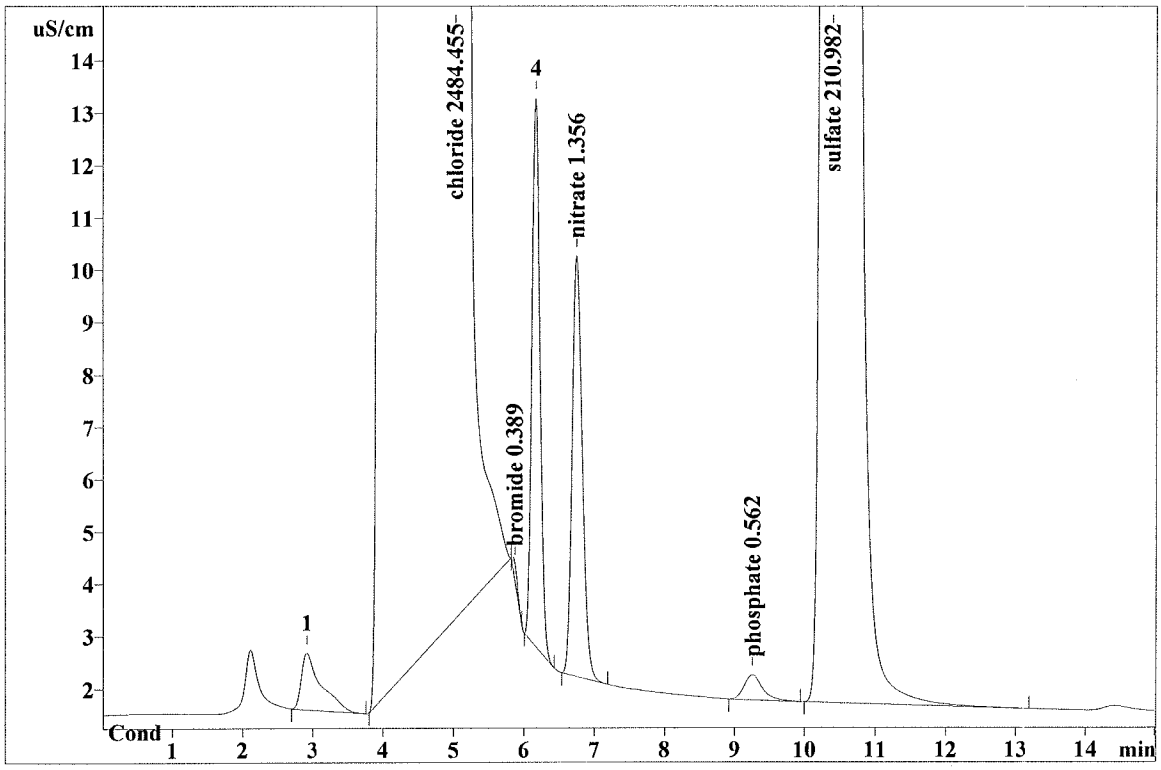
This report has been created by IC Net
METROHM LTD

Report date: 11/16/2020 2:49:22 PM
Printed by: LDip

Ident: AK17-09 K128-04
Analysis from: 11/13/2020 2:57:55 PM
File: _2020-11-13_14-57.chw Last save: 11/13/2020 5:09:48 PM

Method: ICD0-J27.mtw Last save: 11/13/2020 12:17:43 PM
Run operator: LDip
Analysis number: 163533

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 9
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.92	1.08	21.405	0.000	
2	5.02	1158.89	56090.601	2484.455	chloride
3	5.87	0.36	1.693	0.389	bromide
4	6.16	10.48	83.771	0.000	
5	6.74	8.03	80.611	1.356	nitrate
6	9.25	0.48	8.799	0.562	phosphate
7	10.39	212.63	4109.818	210.982	sulfate
7	15.00	1391.95	60396.697	2697.743	

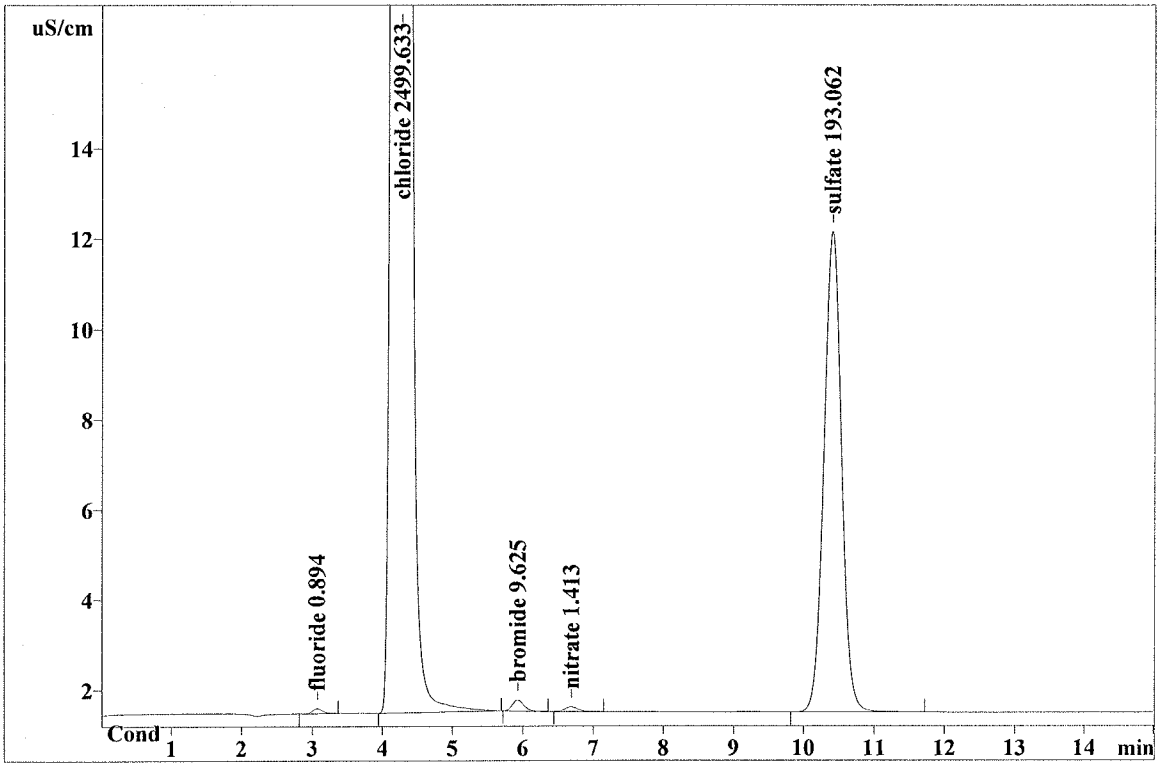
This report has been created by IC Net
METROHM LTD

Report date: 11/30/2020 12:27:44 PM
Printed by: LDip

Ident: AK35-53 K128-04I DF=20
Analysis from: 11/26/2020 5:46:09 AM
File: _2020-11-26_05-46.chw Last save: 11/26/2020 6:01:06 AM

Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164205

SAMPLE: METHOD 300/9056/4110B
: 1ml/20ml
Vial number: 53
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.07	0.11	1.087	0.894	fluoride
2	4.28	269.74	2820.770	2499.633	chloride
3	5.93	0.25	2.757	9.625	bromide
4	6.68	0.10	1.380	1.413	nitrate
5	10.41	10.65	183.987	193.062	sulfate ✓
5	15.00	280.86	3009.982	2704.627	

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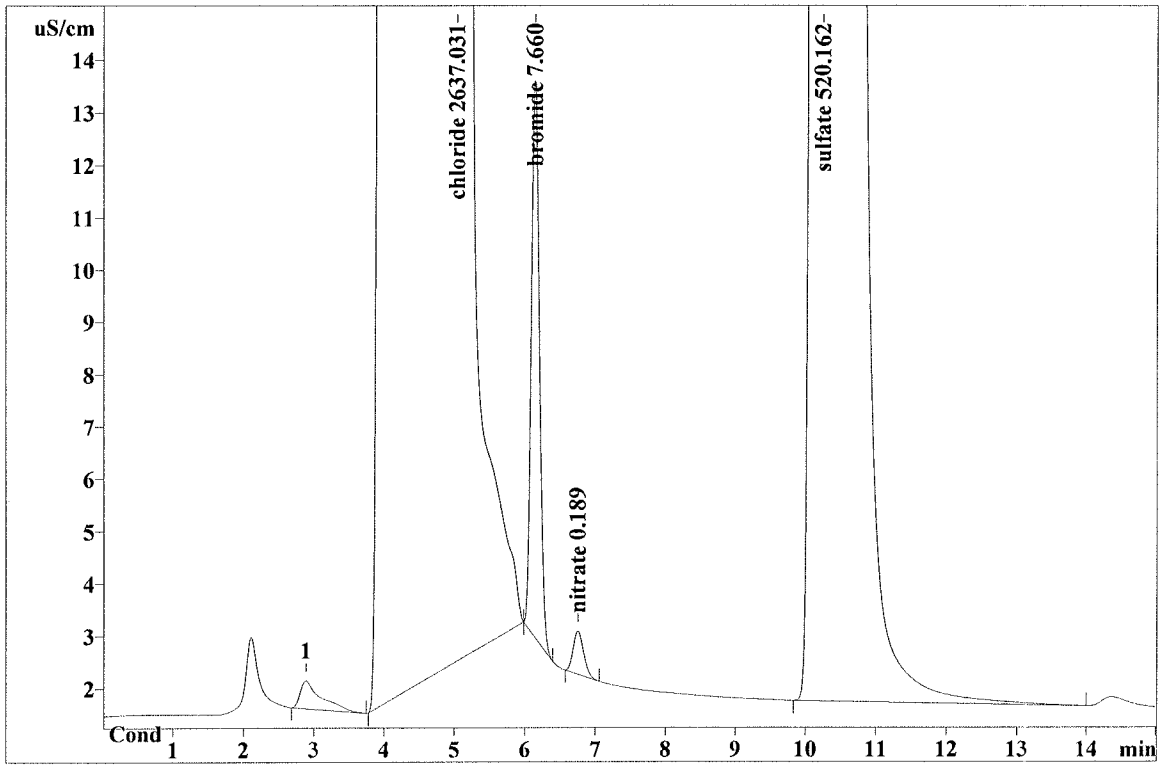
METROHM LTD

Report date: 11/16/2020 2:49:26 PM
Printed by: LDip

Ident: AK17-10 K128-05
Analysis from: 11/13/2020 3:15:00 PM
File: _2020-11-13_15-15.chw Last save: 11/13/2020 5:10:06 PM

Method: ICD0-J27.mtw Last save: 11/13/2020 12:17:43 PM
Run operator: LDip
Analysis number: 163534

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 10
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.89	0.53	11.095	0.000	
2	5.03	1184.50	59535.324	2637.031	chloride
3	6.14	10.65	85.287	7.660	bromide
4	6.75	0.83	8.698	0.189	nitrate
5	10.24	437.02	10138.709	520.162	sulfate
5	15.00	1633.54	69779.113	3165.042	

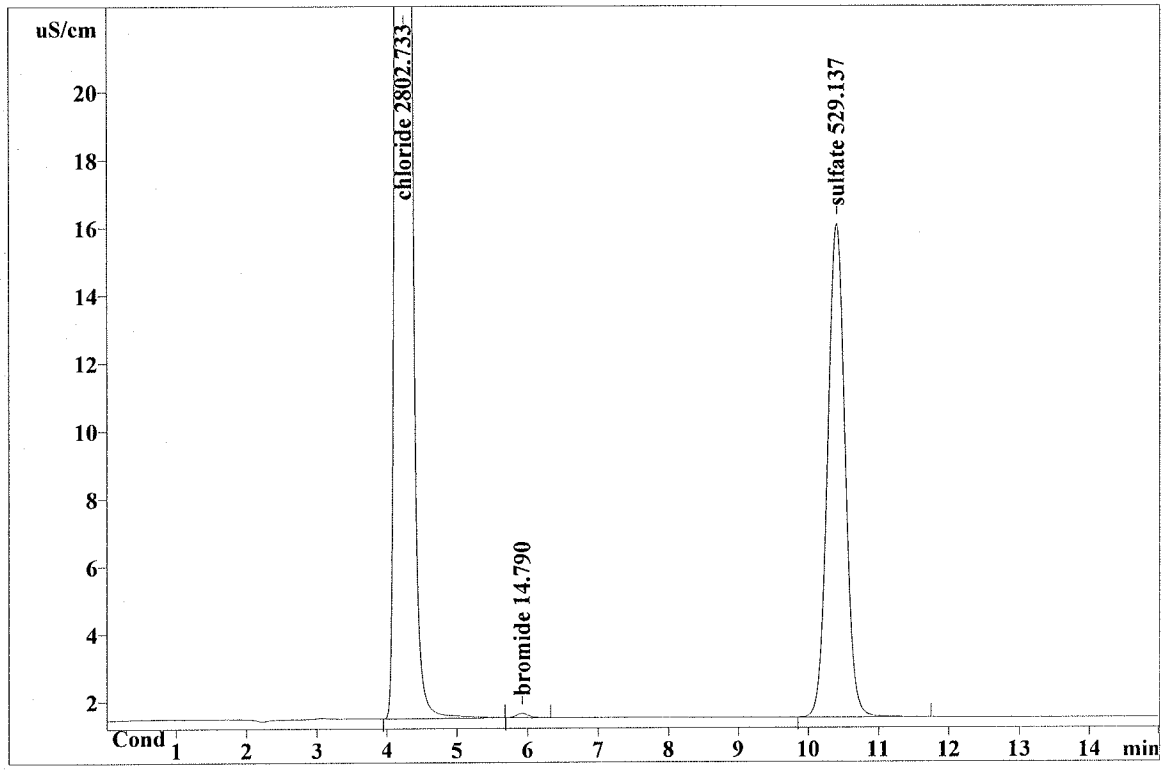
This report has been created by IC Net
METROHM LTD

Report date: 11/30/2020 12:27:51 PM
Printed by: LDip

Ident: AK35-54 K128-05I DF=40
Analysis from: 11/26/2020 6:03:14 AM
File: _2020-11-26_06-03.chw Last save: 11/26/2020 6:18:11 AM

Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164206

SAMPLE: METHOD 300/9056/4110B
: 1ml/40ml
Vial number: 54
Volume: 1.0 µL
Dilution: 40.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.24	170.32	1580.993	2802.733	chloride
2	5.92	0.13	1.475	14.790	bromide
3	10.40	14.58	253.705	529.137	sulfate
3	15.00	185.03	1836.173	3346.660	

This report has been created by IC Net
METROHM LTD

QC SUMMARIES

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K128
METHOD : 300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICK021WB	ICK021WL	ICK021WC
LAB FILE ID :	AK17-03	AK17-04	AK17-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	11/13/2013:15	11/13/2013:32	11/13/2013:49
PREP BATCH :	ICK021W	ICK021W	ICK021W
CALIBRATION REF:	AK17-01	AK17-01	AK17-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
NITRATE-N	ND	1	0.987	99	1	0.983	98	0	90-110	20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K128
METHOD : 300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICK021WB	ICK021WL	ICK021WC
LAB FILE ID :	AK17-03	AK17-04	AK17-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	11/13/2013:15	11/13/2013:32	11/13/2013:49
PREP BATCH :	ICK021W	ICK021W	ICK021W
CALIBRATION REF:	AK17-01	AK17-01	AK17-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	5	4.98	100	5	5.02	100	1	90-110	20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K128
METHOD : 300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK2W	LCS2W	LCD2W
LAB SAMPLE ID :	ICK039WB	ICK039WL	ICK039WC
LAB FILE ID :	AK35-03	AK35-04	AK35-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	11/25/2014:29	11/25/2014:46	11/25/2015:03
PREP BATCH :	ICK039W	ICK039W	ICK039W
CALIBRATION REF:	AK35-01	AK35-01	AK35-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	5	4.95	99	5	4.95	99	0	90-110	20

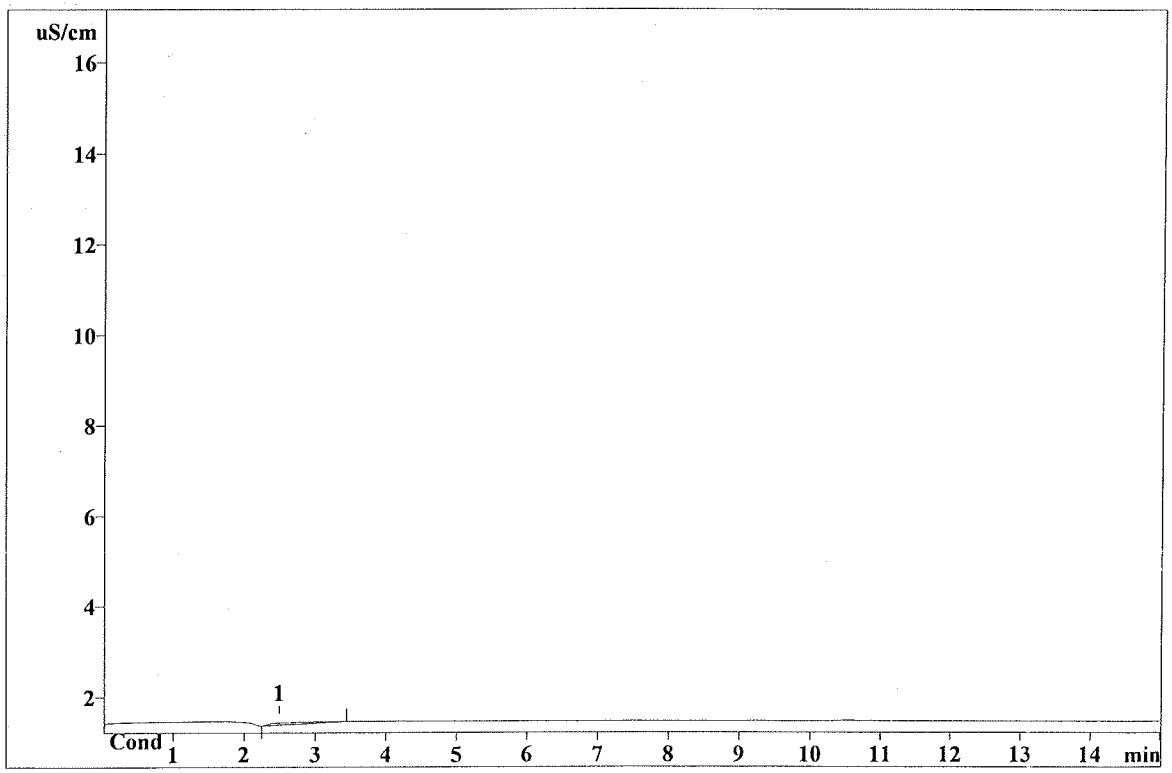
QC DATA

Report date: 11/16/2020 12:16:37 PM
Printed by: LDip

Ident: AK17-03 ICK021WB
Analysis from: 11/13/2020 1:15:21 PM
File: _2020-11-13_13-15.chw Last save: 11/13/2020 1:30:18 PM

Method: ICD0-J27.mtw Last save: 11/13/2020 12:17:43 PM
Run operator: LDip
Analysis number: 163527

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.48	0.05	2.086	0.000	

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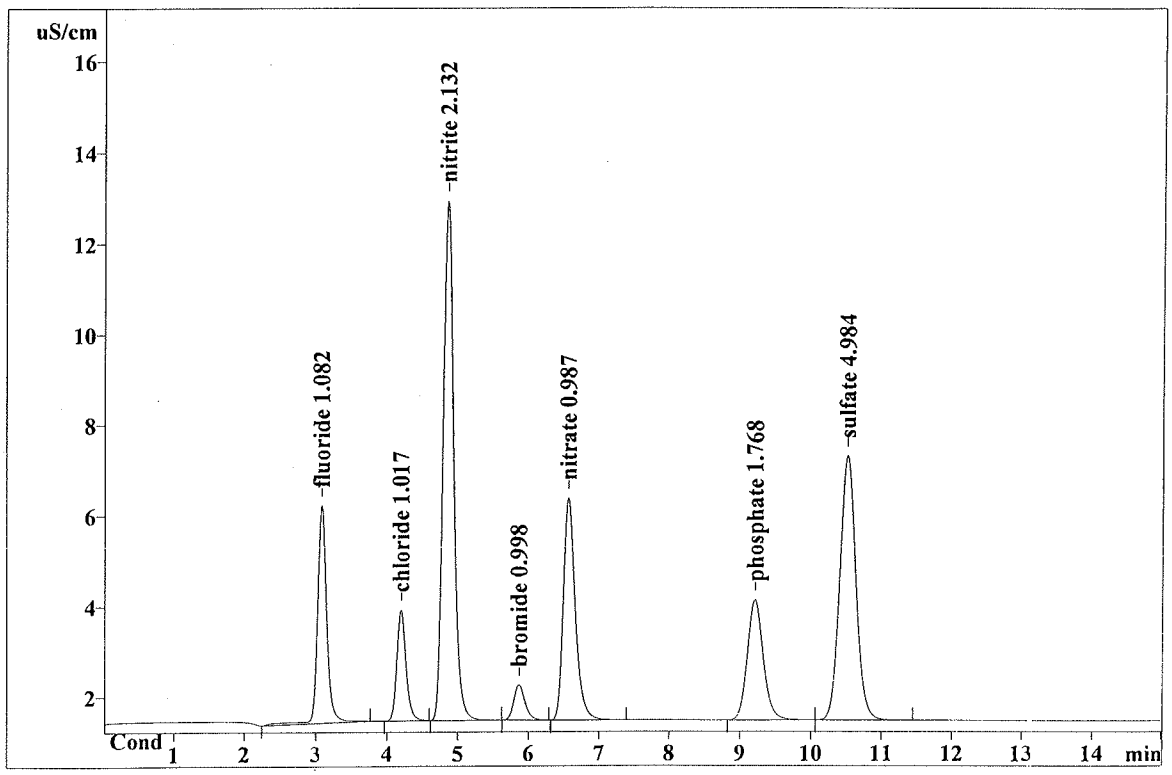
Report date: 11/16/2020 12:16:42 PM
Printed by: LDip

Ident: AK17-04 ICK021WL
Analysis from: 11/13/2020 1:32:26 PM
File: _2020-11-13_13-32.chw Last save: 11/13/2020 1:47:23 PM

Method: ICD0-J27.mtw Last save: 11/13/2020 12:17:43 PM
Run operator: LDip
Analysis number: 163528

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	4.80	43.378	1.082	fluoride
2	4.19	2.46	22.019	1.017	chloride
3	4.84	11.48	120.090	2.132	nitrite
4	5.86	0.78	8.704	0.998	bromide
5	6.57	4.90	57.851	0.987	nitrate
6	9.20	2.67	41.235	1.768	phosphate
7	10.51	5.83	92.942	4.984	sulfate
7	15.00	32.92	386.218	12.967	

This report has been created by IC Net
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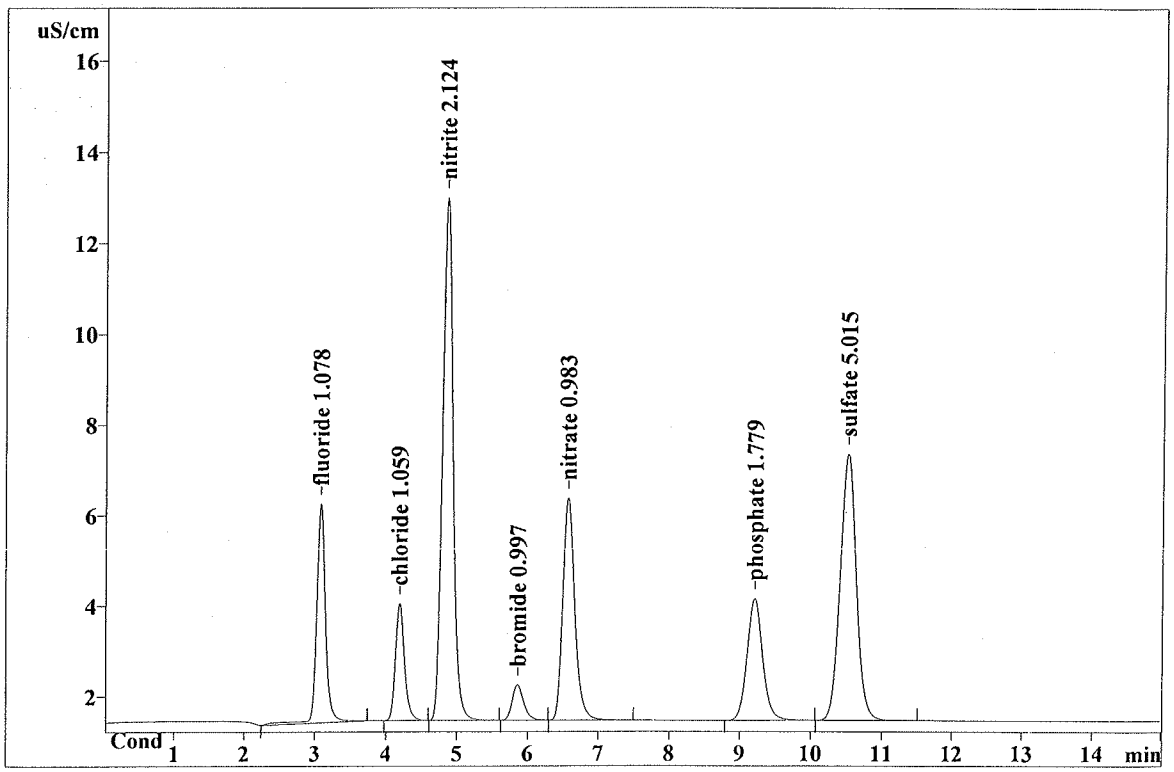
Report date: 11/16/2020 12:16:45 PM
Printed by: LDip

Ident: AK17-05 ICK021WC
Analysis from: 11/13/2020 1:49:34 PM
File: _2020-11-13_13-49.chw Last save: 11/13/2020 2:04:30 PM

Method: ICD0-J27.mtw Last save: 11/13/2020 12:17:43 PM
Run operator: LDip
Analysis number: 163529

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 5
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	4.84	43.215	1.078	fluoride
2	4.19	2.59	22.976	1.059	chloride
3	4.84	11.54	119.647	2.124	nitrite
4	5.86	0.78	8.683	0.997	bromide
5	6.56	4.92	57.617	0.983	nitrate
6	9.20	2.70	41.538	1.779	phosphate
7	10.51	5.89	93.549	5.015	sulfate
7	15.00	33.26	387.226	13.035	

This report has been created by IC Net
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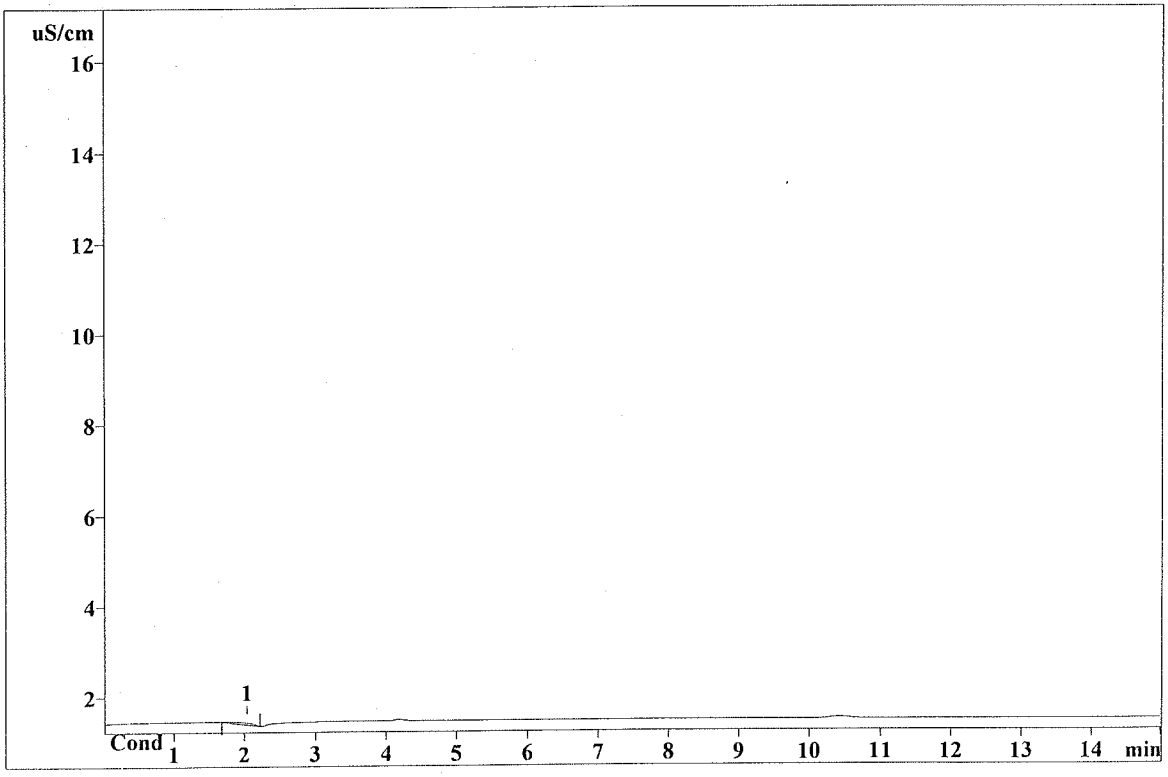
Report date: 11/30/2020 11:59:05 AM
Printed by: LDip

Ident: AK35-03 ICK039WB
Analysis from: 11/25/2020 2:29:39 PM
File: _2020-11-25_14-29.chw Last save: 11/25/2020 2:44:36 PM
Modified!
Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164152

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.07	0.05	0.929	0.000	

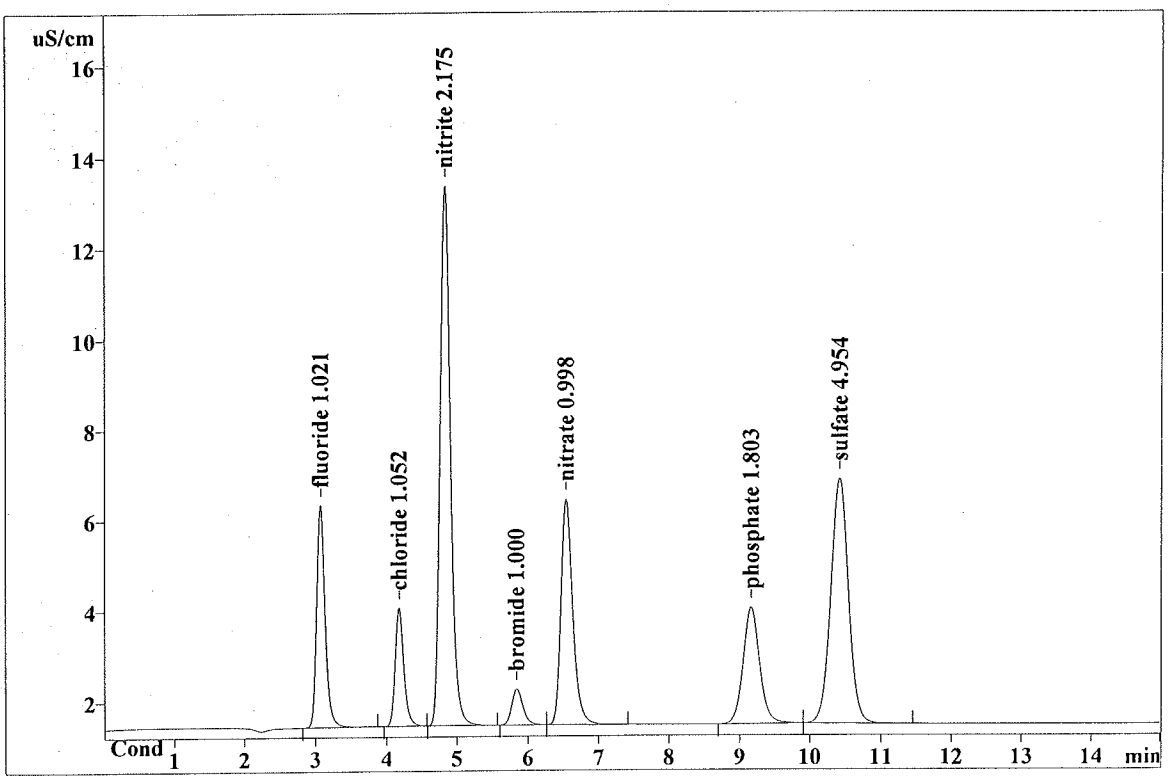
This report has been created by IC Net
METROHM LTD

Report date: 11/30/2020 11:59:12 AM
Printed by: LDip

Ident: AK35-04 ICK039WL
Analysis from: 11/25/2020 2:46:44 PM
File: _2020-11-25_14-46.chw Last save: 11/25/2020 3:01:41 PM

Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164153

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.07	4.90	40.889	1.021	fluoride
2	4.18	2.61	22.813	1.052	chloride
3	4.83	11.91	122.558	2.175	nitrite
4	5.84	0.79	8.718	1.000	bromide
5	6.54	4.98	58.545	0.998	nitrate
6	9.16	2.57	42.168	1.803	phosphate
7	10.42	5.41	92.350	4.954	sulfate
7	15.00	33.16	388.040	13.002	

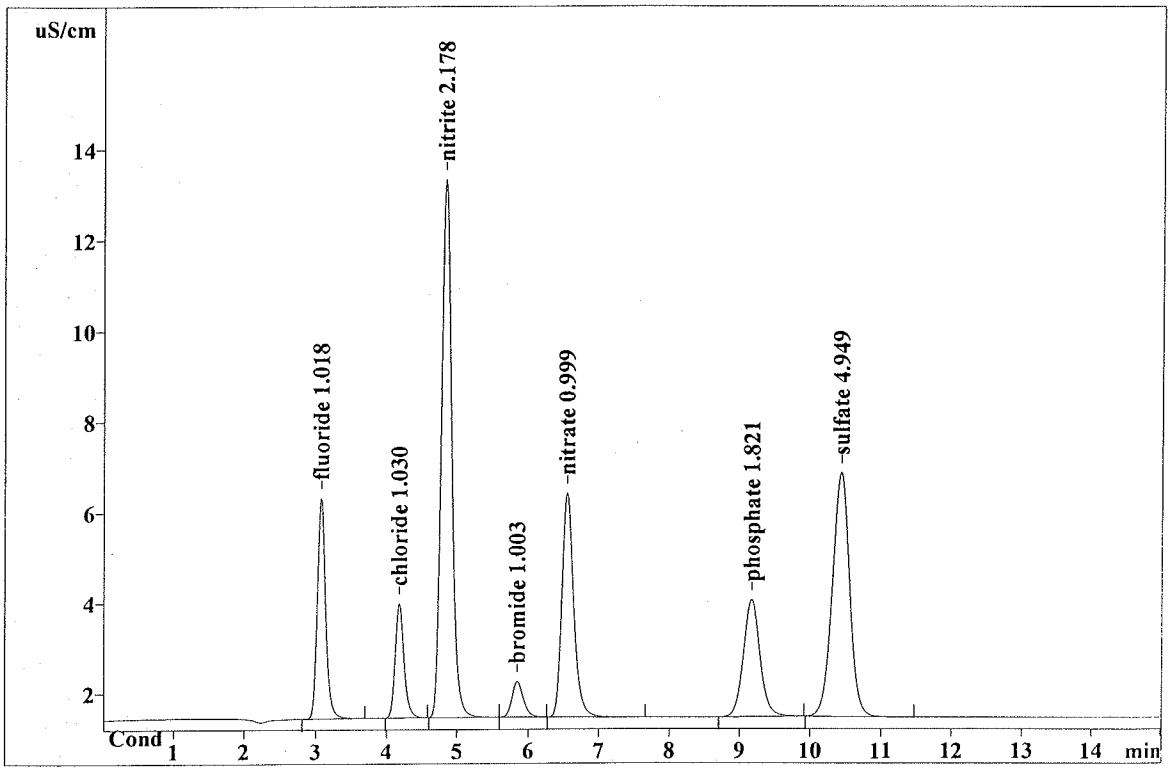
This report has been created by IC Net
METROHM LTD

Report date: 11/30/2020 11:59:17 AM
Printed by: LDip

Ident: AK35-05 ICK039WC
Analysis from: 11/25/2020 3:03:49 PM
File: _2020-11-25_15-03.chw Last save: 11/25/2020 3:18:46 PM

Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164154

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 5
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.07	4.89	40.793	1.018	fluoride
2	4.18	2.54	22.310	1.030	chloride
3	4.83	11.89	122.718	2.178	nitrite
4	5.84	0.79	8.753	1.003	bromide
5	6.55	4.96	58.629	0.999	nitrate
6	9.16	2.60	42.667	1.821	phosphate
7	10.42	5.40	92.256	4.949	sulfate
7	15.00	33.08	388.126	12.998	

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INITIAL CALIBRATION(S)

IC Result Check FormVersion : J27/AJ15(2020)

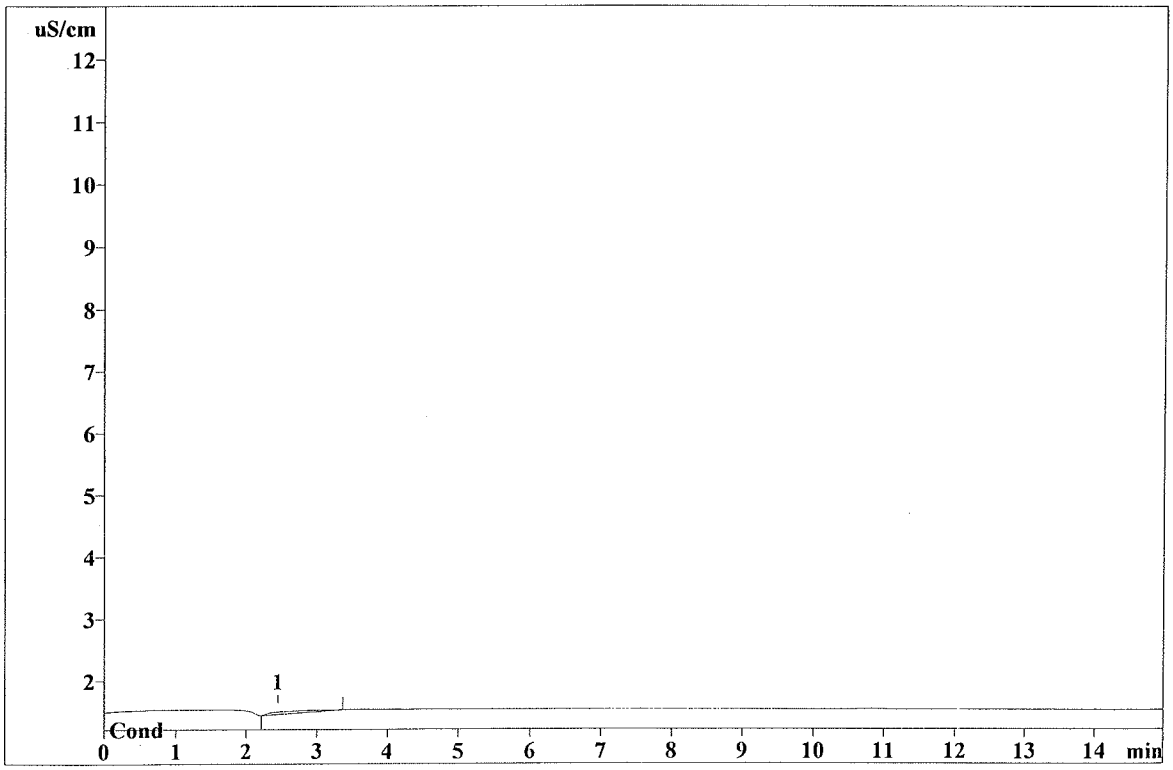
LFID	LSID	Selection	iodide	chloride	fluoride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AJ15-01	IB	OCFIBNPS	0	0	0	0	0	0	0	0	_2020-10-28_13-28	1
AJ15-02	S0	OCFIBNPS	0	0	0	0	0	0	0	0	_2020-10-28_13-45	1
AJ15-03	S1	OCFIBNPS	0	0.0812344	0.0576408	0.0671536	0.277728	0.084371	0.264307	0.265029	_2020-10-28_14-03	1
AJ15-04	S2	OCFIBNPS	0	0.121294	0.097092	0.104175	0.310119	0.120341	0.294602	0.299005	_2020-10-28_14-20	1
AJ15-05	S3	OCFIBNPS	0	0.206112	0.187748	0.187798	0.380854	0.20327	0.355772	0.36933	_2020-10-28_14-37	1
AJ15-06	S4	OCFIBNPS	0	0.466346	0.453199	0.455968	0.587569	0.465665	0.551093	0.577801	_2020-10-28_14-54	1
AJ15-07	S5	OCFIBNPS	0	0.944692	0.941658	0.936816	0.945875	0.946486	0.91239	0.948642	_2020-10-28_15-11	1
AJ15-08	S6	OCFIBNPS	0	2.03032	2.00503	1.99188	1.76425	2.02987	1.76888	1.775	_2020-10-28_15-28	1
AJ15-09	S7	OCFIBNPS	0	5.69621	5.21289	5.20334	4.67049	5.54632	4.73219	4.68897	_2020-10-28_15-45	1
AJ15-10	S8	OCFIBNPS	0	11.6873	9.89473	9.90287	9.66758	11.1989	9.79312	9.69846	_2020-10-28_16-02	1
AJ15-11	S9	OCFIBNPS	0	24.0502	18.4226	18.5347	20.2455	22.816	20.1777	20.2278	_2020-10-28_16-19	1
AJ15-12	ICV	OCFIBNPS	0%*	208.9%*	99%	102.9%	97.8%	100.5%	91.7%	94.4%	_2020-10-28_16-36	1
AJ15-13	ICV1	OCFIBNPS	0%*	99.5%	100.1%	102%	98.5%	100.5%	96.6%	98.2%	_2020-10-28_16-53	1
AJ15-14	ICB	OCFIBNPS	0	0	0	0	0	0	0	0	_2020-10-28_17-10	1

Report date: 10/28/2020 6:23:00 PM
Printed by: LDip

Ident: AJ15-02 S0
Analysis from: 10/28/2020 1:45:55 PM
File: _2020-10-28_13-45.chw Last save: 10/28/2020 6:20:36 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162702

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 2
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.45	0.04	1.740	0.000	

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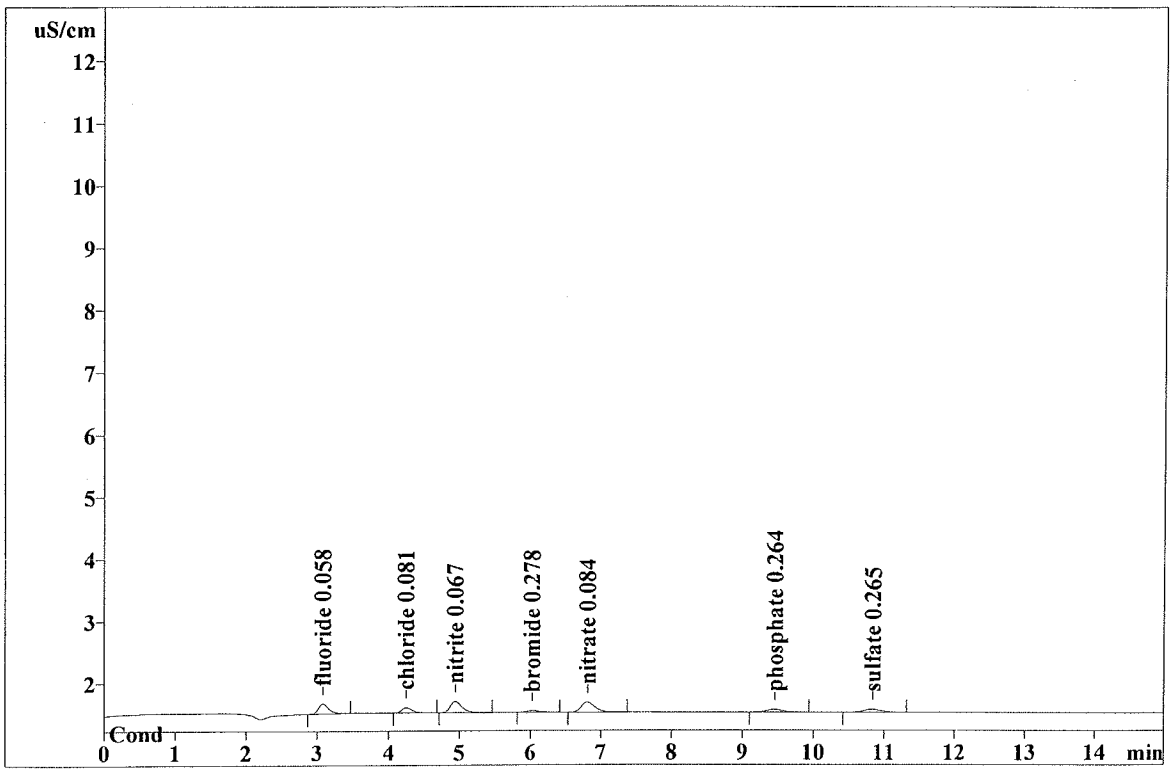
10/30/20

Report date: 10/28/2020 6:23:03 PM
Printed by: LDip

Ident: AJ15-03 S1
Analysis from: 10/28/2020 2:03:00 PM
File: _2020-10-28_14-03.chw Last save: 10/28/2020 6:16:05 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162703

SAMPLE: METHOD 300/9056/4110B
: 0.05 PPM
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	0.16	1.614	0.058	fluoride
2	4.25	0.09	0.894	0.081	chloride
3	4.94	0.18	2.116	0.067	nitrite
4	6.03	0.03	0.418	0.278	bromide
5	6.81	0.16	2.225	0.084	nitrate
6	9.45	0.04	0.784	0.264	phosphate
7	10.83	0.05	0.924	0.265	sulfate
7	15.00	0.73	8.975	1.097	

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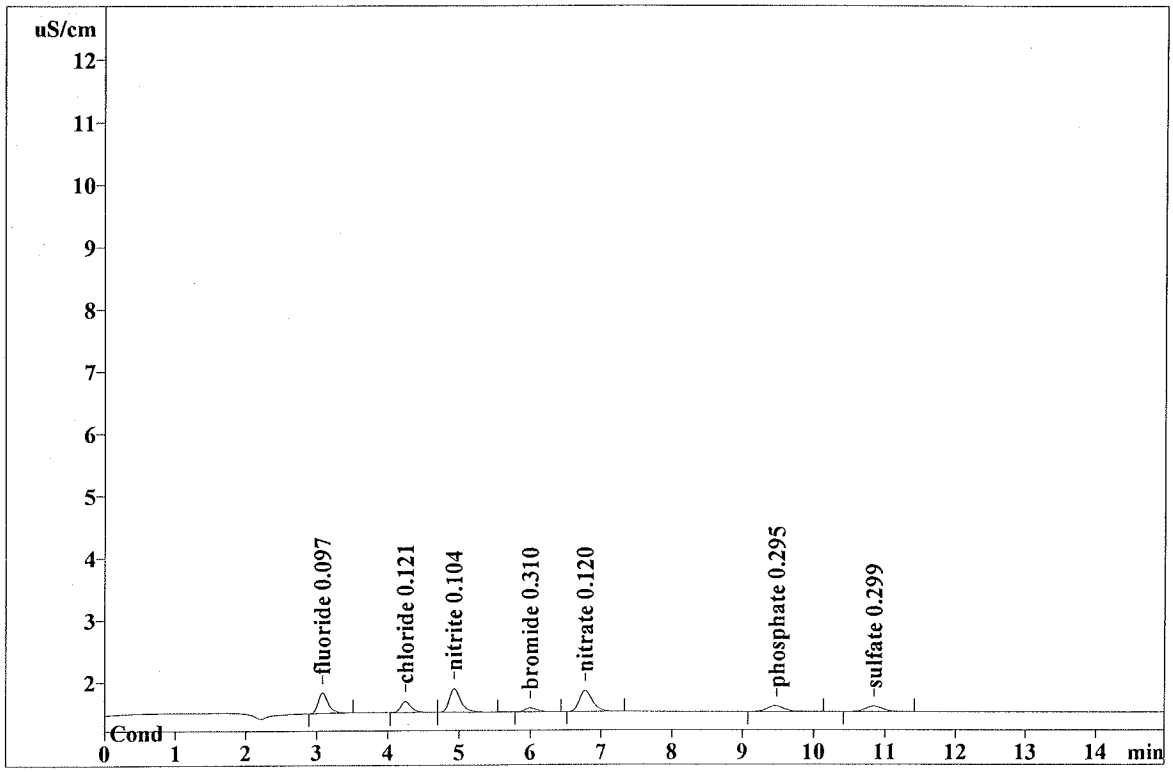
TK 10/30/20

Report date: 10/28/2020 6:23:08 PM
Printed by: LDip

Ident: AJ15-04 S2
Analysis from: 10/28/2020 2:20:06 PM
File: _2020-10-28_14-20.chw Last save: 10/28/2020 6:16:05 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162704

SAMPLE: METHOD 300/9056/4110B
: 0.1 PPM
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	0.33	3.223	0.097	fluoride
2	4.24	0.18	1.798	0.121	chloride
3	4.93	0.38	4.232	0.104	nitrite
4	6.00	0.06	0.790	0.310	bromide
5	6.77	0.34	4.443	0.120	nitrate
6	9.46	0.09	1.599	0.295	phosphate
7	10.84	0.09	1.586	0.299	sulfate
7	15.00	1.47	17.671	1.347	

This report has been created by IC Net
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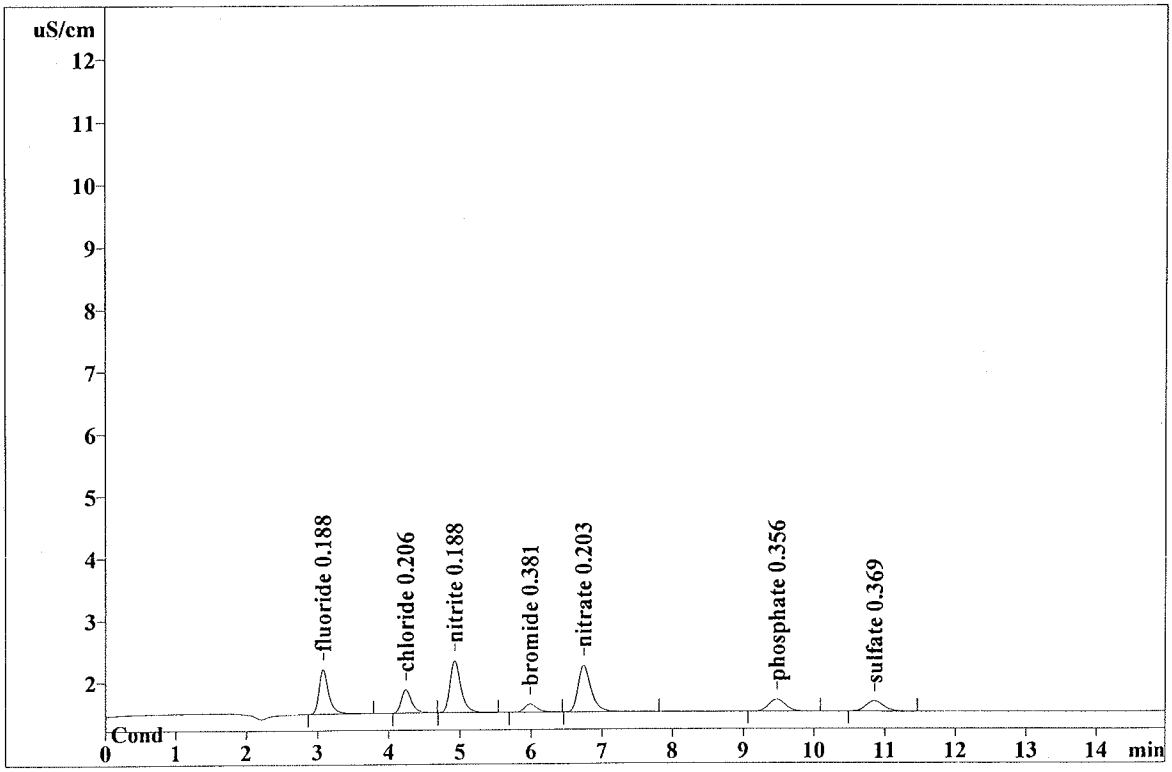
Report date: 10/28/2020 6:23:11 PM
Printed by: LDip

Ident: AJ15-05 S3
Analysis from: 10/28/2020 2:37:12 PM
File: _2020-10-28_14-37.chw Last save: 10/28/2020 6:16:06 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162705

SAMPLE: METHOD 300/9056/4110B
: 0.2 PPM
Vial number: 5
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	0.72	6.920	0.188	fluoride
2	4.24	0.38	3.713	0.206	chloride
3	4.92	0.84	9.011	0.188	nitrite
4	5.98	0.13	1.603	0.381	bromide
5	6.74	0.75	9.556	0.203	nitrate
6	9.47	0.20	3.245	0.356	phosphate
7	10.85	0.17	2.957	0.369	sulfate
7	15.00	3.18	37.005	1.891	

This report has been created by IC Net
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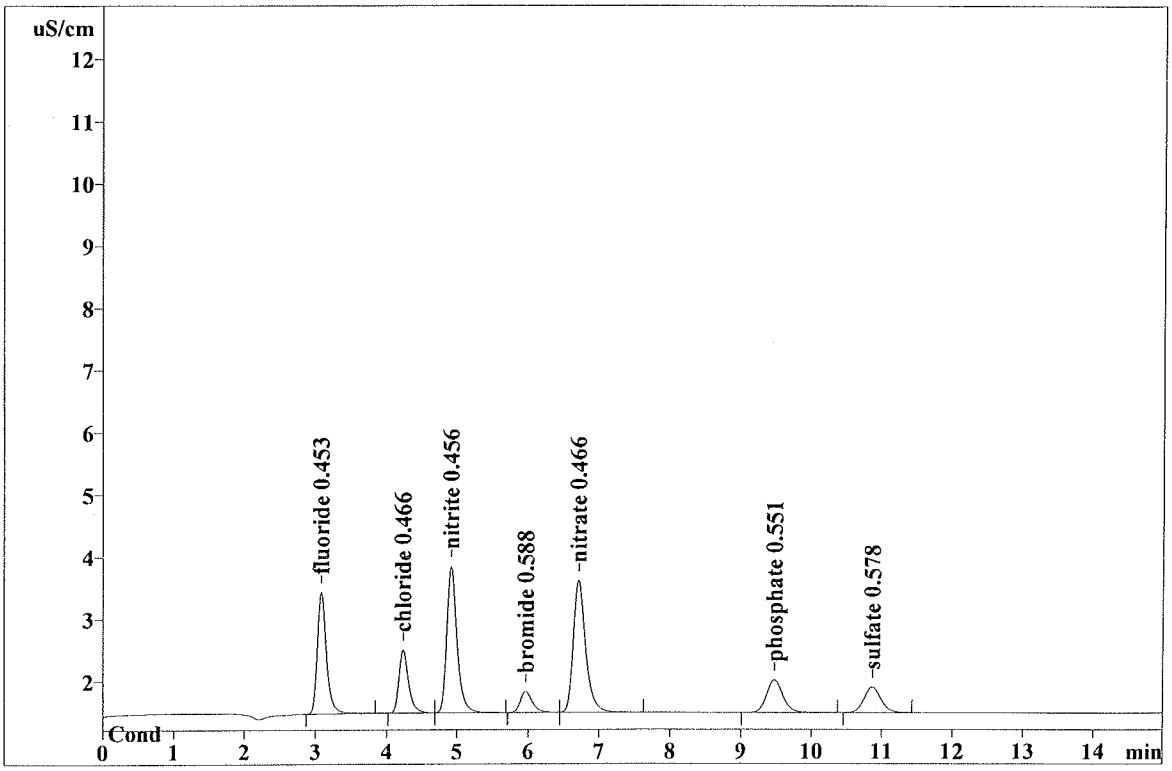
Report date: 10/28/2020 6:23:15 PM
Printed by: LDip

Ident: AJ15-06 S4
Analysis from: 10/28/2020 2:54:17 PM
File: _2020-10-28_14-54.chw Last save: 10/28/2020 6:16:06 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162706

SAMPLE: METHOD 300/9056/4110B
: 0.5 PPM
Vial number: 6
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	1.96	17.744	0.453	fluoride
2	4.23	1.01	9.588	0.466	chloride
3	4.91	2.34	24.336	0.456	nitrite
4	5.97	0.34	3.980	0.588	bromide
5	6.71	2.12	25.733	0.466	nitrate
6	9.48	0.53	8.499	0.551	phosphate
7	10.87	0.41	7.023	0.578	sulfate
7	15.00	8.71	96.903	3.558	

This report has been created by IC Net
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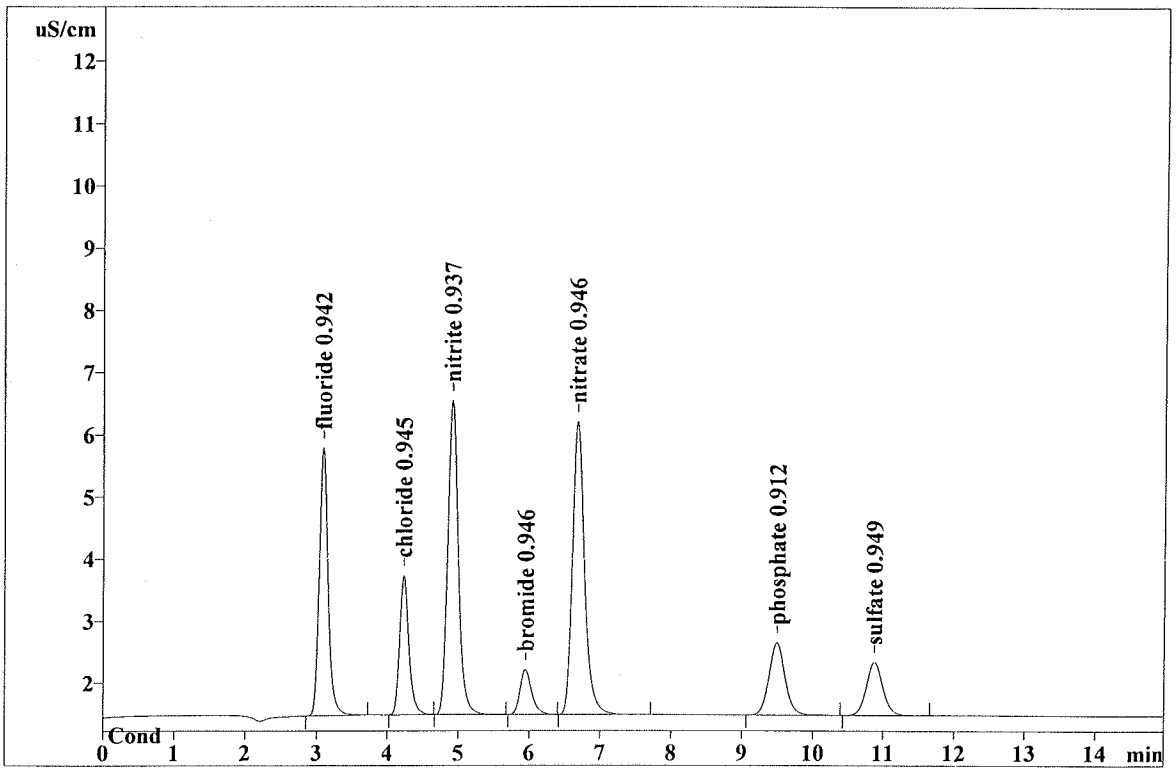
Report date: 10/28/2020 6:23:18 PM
Printed by: LDip

Ident: AJ15-07 S5
Analysis from: 10/28/2020 3:11:22 PM
File: _2020-10-28_15-11.chw Last save: 10/28/2020 6:16:06 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162707

SAMPLE: METHOD 300/9056/4110B
: 1.0 PPM
Vial number: 7
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.09	4.32	37.662	0.942	fluoride
2	4.23	2.25	20.388	0.945	chloride
3	4.90	5.07	51.816	0.937	nitrite
4	5.94	0.72	8.099	0.946	bromide
5	6.67	4.72	55.378	0.946	nitrate
6	9.48	1.17	18.218	0.912	phosphate
7	10.87	0.86	14.254	0.949	sulfate
7	15.00	19.12	205.814	6.577	

This report has been created by IC Net
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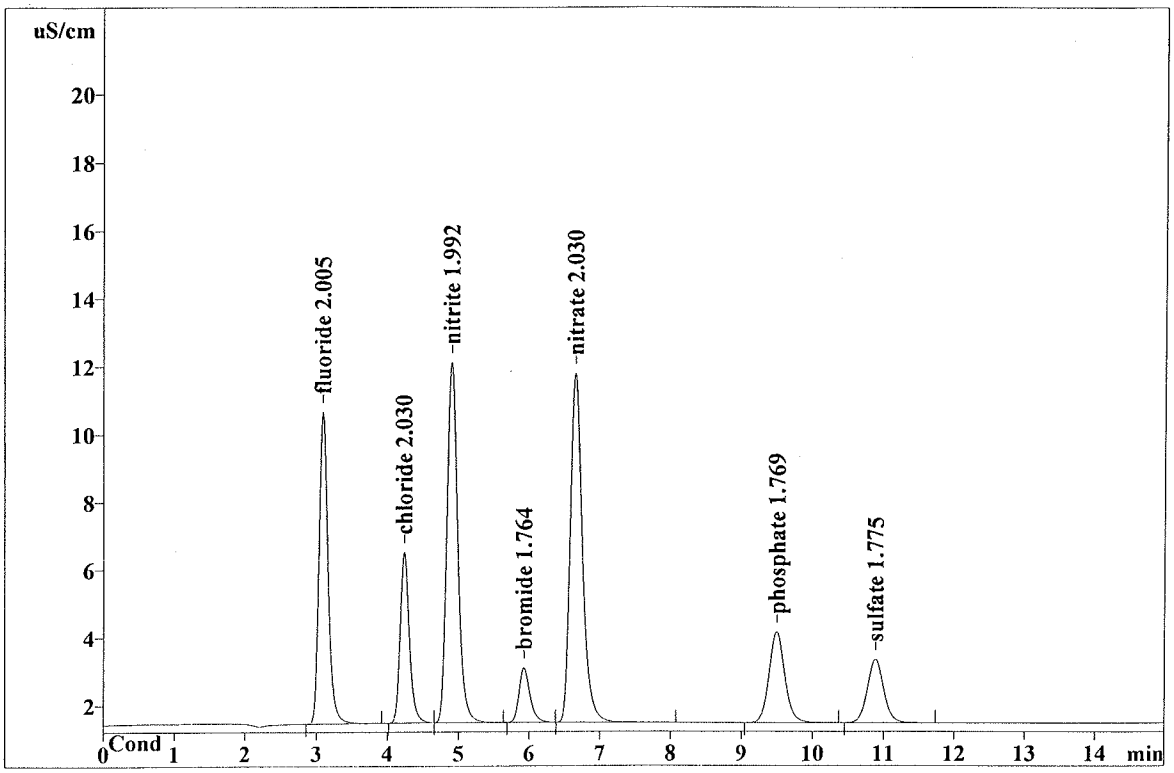
Report date: 10/28/2020 6:23:26 PM
Printed by: LDip

Ident: AJ15-08 S6
Analysis from: 10/28/2020 3:28:28 PM
File: _2020-10-28_15-28.chw Last save: 10/28/2020 6:16:06 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162708

SAMPLE: METHOD 300/9056/4110B
: 2.0 PPM
Vial number: 8
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.09	9.21	81.023	2.005	fluoride
2	4.23	5.04	44.898	2.030	chloride
3	4.89	10.64	112.110	1.992	nitrite
4	5.93	1.61	17.508	1.764	bromide
5	6.64	10.31	122.171	2.030	nitrate
6	9.49	2.68	41.259	1.769	phosphate
7	10.88	1.87	30.368	1.775	sulfate
7	15.00	41.37	449.336	13.365	

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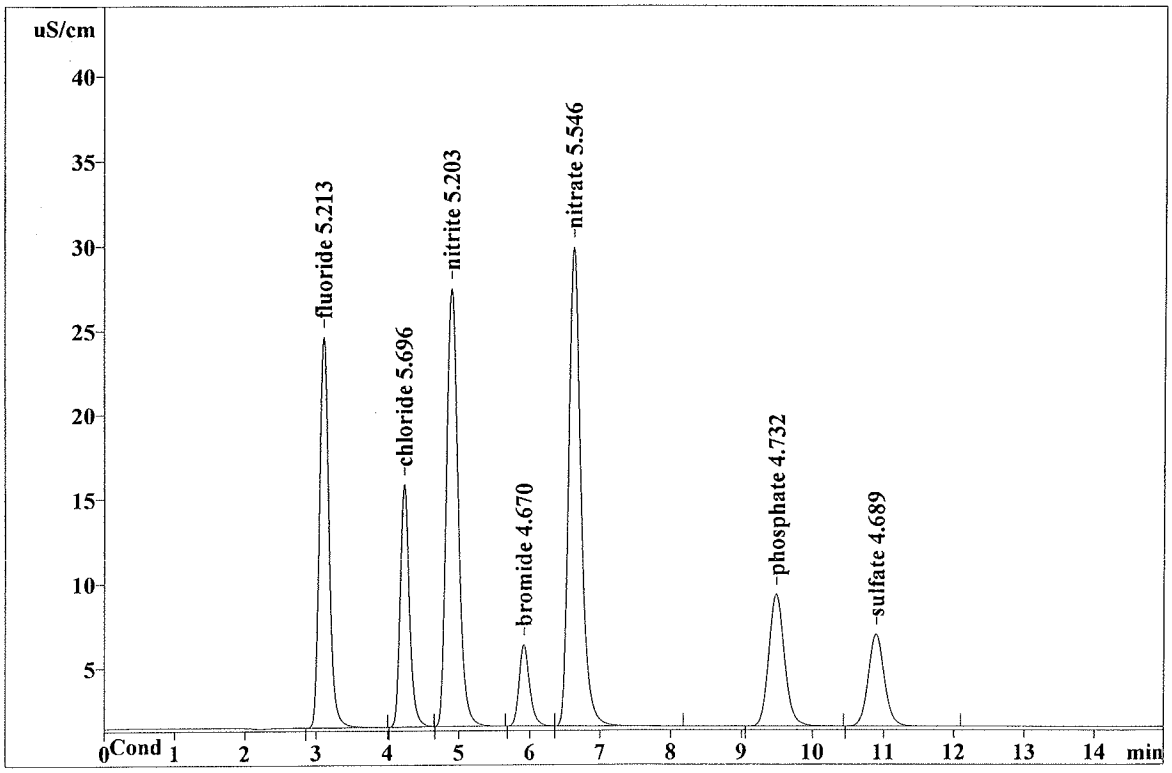
Report date: 10/28/2020 6:23:35 PM
Printed by: LDip

Ident: AJ15-09 S7
Analysis from: 10/28/2020 3:45:33 PM
File: _2020-10-28_15-45.chw Last save: 10/28/2020 6:16:06 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162709

SAMPLE: METHOD 300/9056/4110B
: 5.0 PPM
Vial number: 9
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.10	23.20	211.828	5.213	fluoride
2	4.23	14.36	127.663	5.696	chloride
3	4.89	25.98	295.637	5.203	nitrite
4	5.91	4.83	50.920	4.670	bromide
5	6.62	28.42	338.972	5.546	nitrate
6	9.48	7.83	120.975	4.732	phosphate
7	10.89	5.47	87.189	4.689	sulfate
7	15.00	110.09	1233.184	35.750	

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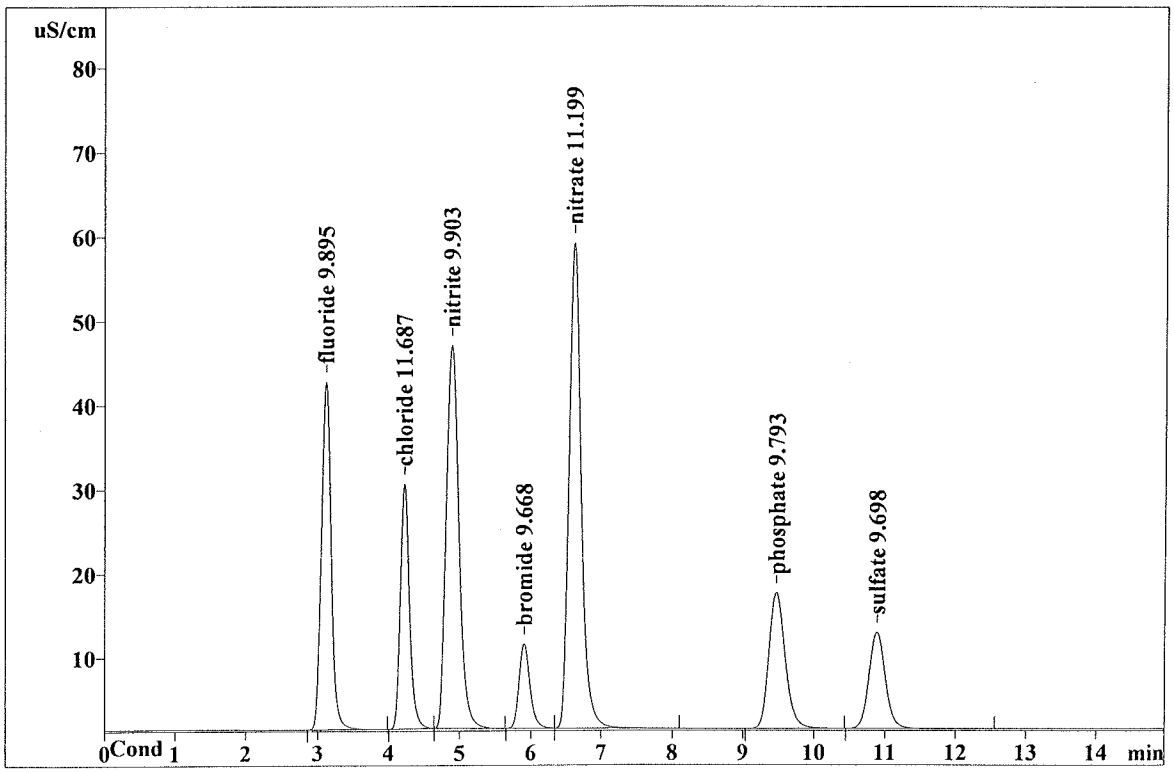
10/30/20

Report date: 10/28/2020 6:23:47 PM
Printed by: LDip

Ident: AJ15-10 S8
Analysis from: 10/28/2020 4:02:38 PM
File: _2020-10-28_16-02.chw Last save: 10/28/2020 6:16:06 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162710

SAMPLE: METHOD 300/9056/4110B
: 10.0 PPM
Vial number: 10
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.11	41.36	402.738	9.895	fluoride
2	4.22	29.18	262.923	11.687	chloride
3	4.88	45.56	564.204	9.903	nitrite
4	5.90	10.08	108.369	9.668	bromide
5	6.60	57.71	687.469	11.199	nitrate
6	9.46	16.20	257.120	9.793	phosphate
7	10.88	11.48	184.872	9.698	sulfate
7	15.00	211.57	2467.695	71.843	

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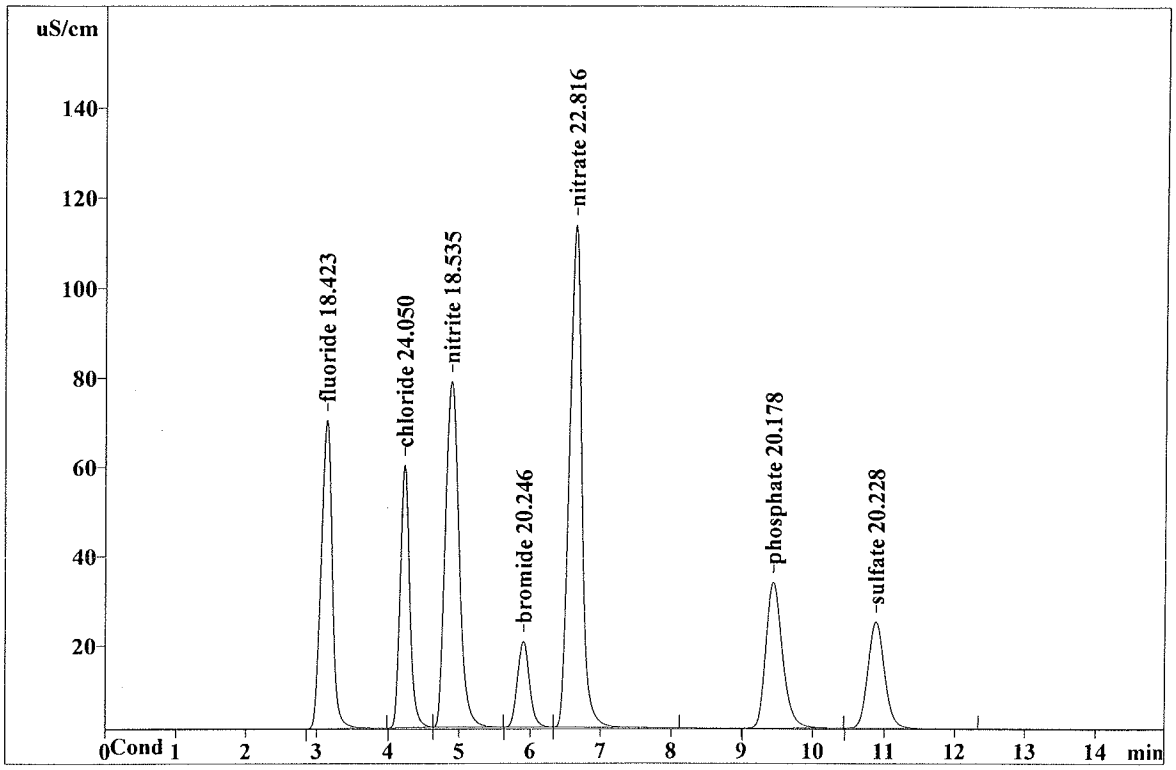
METROHM LTD

Report date: 10/28/2020 6:23:58 PM
Printed by: LDip

Ident: AJ15-11 S9
Analysis from: 10/28/2020 4:19:43 PM
File: _2020-10-28_16-19.chw Last save: 10/28/2020 6:16:06 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162711

SAMPLE: METHOD 300/9056/4110B
: 20.0 PPM
Vial number: 11
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.13	69.06	750.476	18.423	fluoride
2	4.22	58.85	542.042	24.050	chloride
3	4.87	77.49	1057.491	18.535	nitrite
4	5.90	19.20	229.980	20.246	bromide
5	6.63	112.34	1403.704	22.816	nitrate
6	9.43	32.65	536.476	20.178	phosphate
7	10.87	23.83	390.189	20.228	sulfate
7	15.00	393.43	4910.359	144.474	

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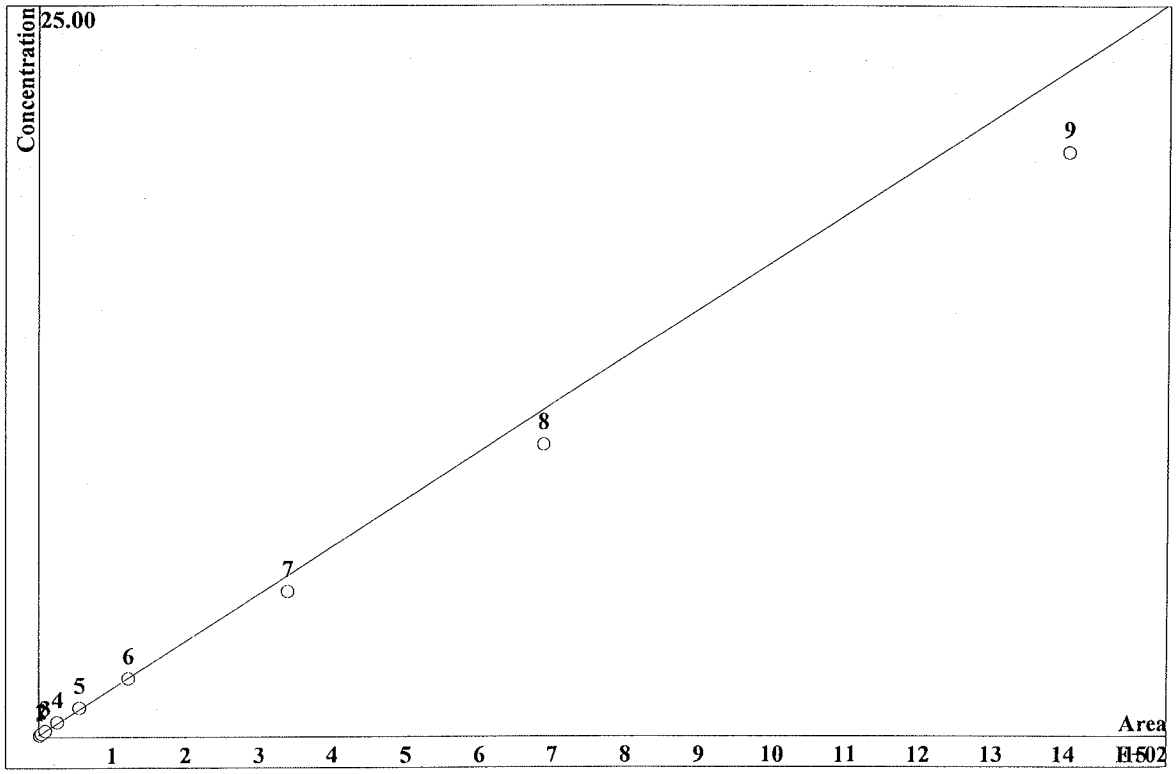
10/30/20

CALIBRATION OF COMPONENT nitrate

Method: ICD0-J27.mtw
Equation: Q = 0.0162198·A + 0.0482748
RSD: 6.302 %
Correlation coefficient: 0.998845



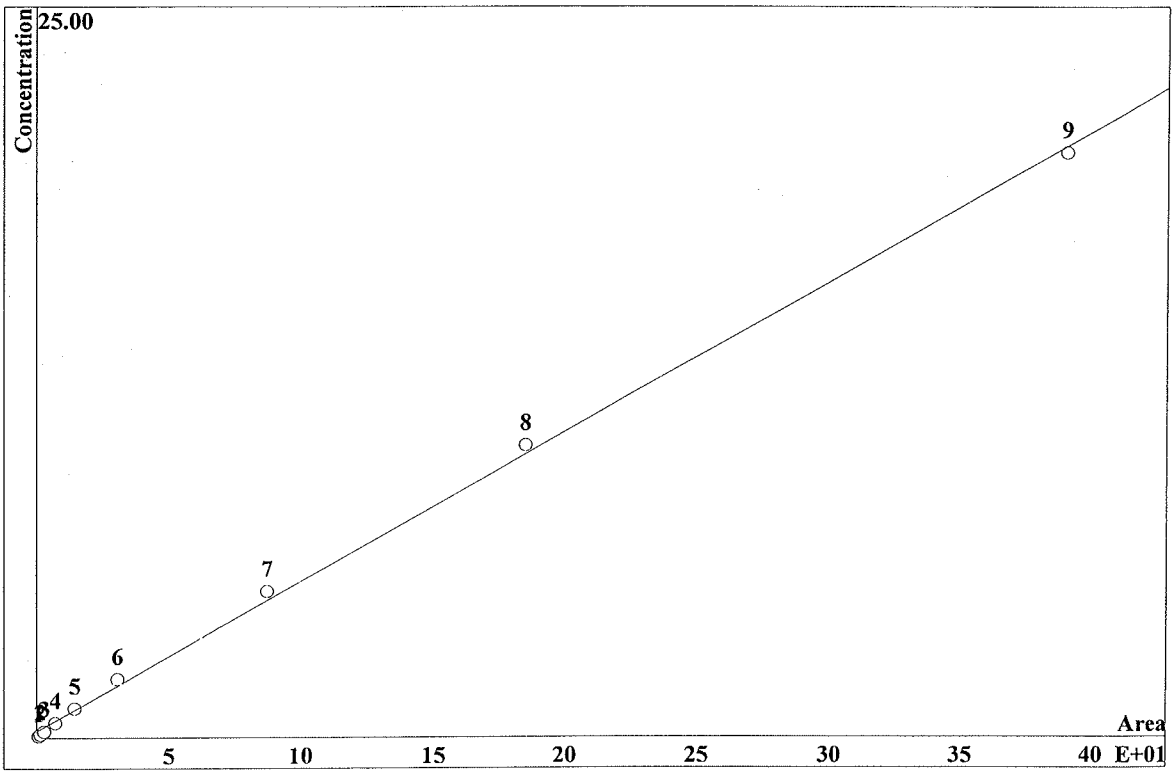
K3 = 0 K2 = 0 K1 = 0.0162198 K0 = 0.0482748
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.1652	2.225	0.05	1	6.69	Yes	_2020-10-28_1□
2	0.341	4.443	0.1	1	6.69	Yes	_2020-10-28_1□
3	0.7523	9.556	0.2	1	6.69	Yes	_2020-10-28_1□
4	2.121	25.73	0.5	1	6.69	Yes	_2020-10-28_1□
5	4.724	55.38	1	1	6.69	Yes	_2020-10-28_1□
6	10.31	122.2	2	1	6.69	Yes	_2020-10-28_1□
7	28.42	339	5	1	6.69	No	_2020-10-28_1□
8	57.72	687.5	10	1	6.69	No	_2020-10-28_1
9	112.3	1404	20	1	6.69	No	_2020-10-28_1

10/30/20

CALIBRATION OF COMPONENT sulfate

Method: ICD0-J27.mtw
Equation: Q = 0.0512831·A + 0.217664
RSD: 5.629 %
Correlation coefficient: 0.999430



K3 = 0 K2 = 0 K1 = 0.0512831 K0 = 0.217664
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.05108	0.9236	0.05	1	10.86	Yes	_2020-10-28_1□
2	0.08787	1.586	0.1	1	10.86	Yes	_2020-10-28_1□
3	0.1691	2.957	0.2	1	10.86	Yes	_2020-10-28_1□
4	0.4138	7.023	0.5	1	10.86	Yes	_2020-10-28_1□
5	0.8601	14.25	1	1	10.86	Yes	_2020-10-28_1□
6	1.875	30.37	2	1	10.86	Yes	_2020-10-28_1□
7	5.467	87.19	5	1	10.86	Yes	_2020-10-28_1□
8	11.48	184.9	10	1	10.86	Yes	_2020-10-28_1
9	23.83	390.2	20	1	10.86	Yes	_2020-10-28_1

SECOND SOURCE VERIFICATION

IC Result Check FormVersion : J27/AJ15(2020)

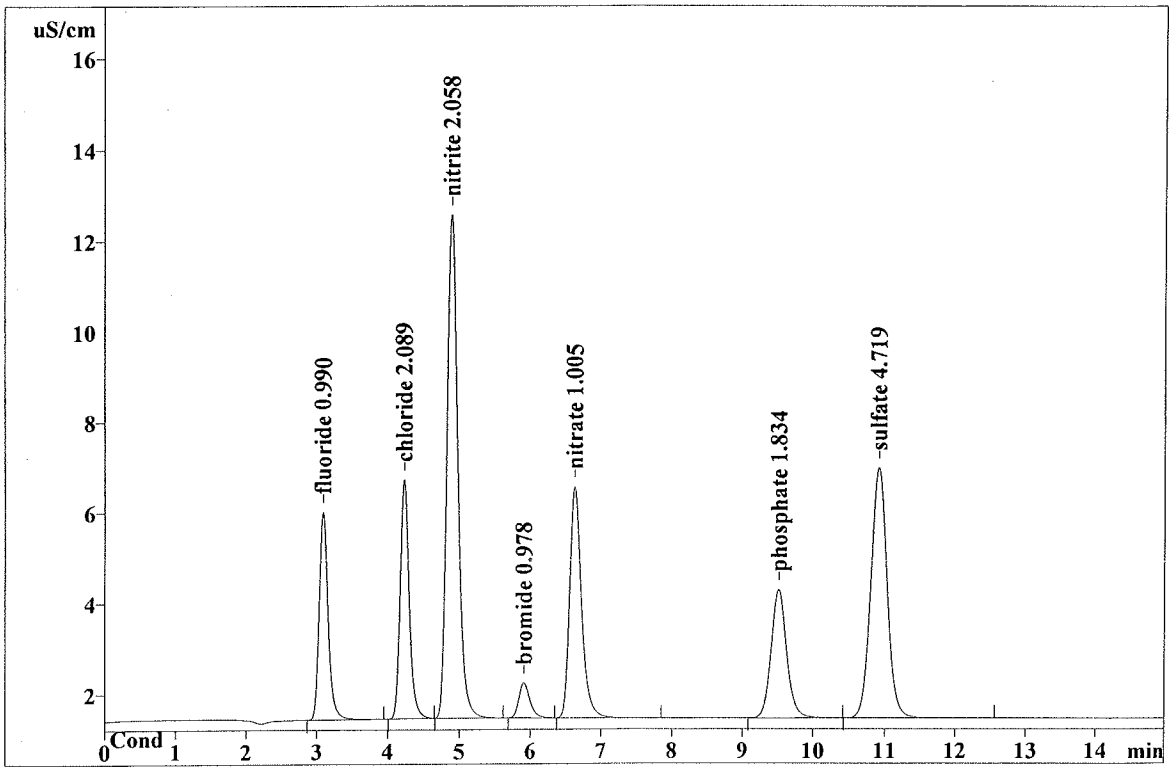
LFID	LSID	Selection	phosphate	nitrite	nitrate	iodide	fluoride	chloride	bromide	sulfate	RawNetID	DF
AJ15-01	IB	PINOFCBS	0	0	0	0	0	0	0	0	_2020-10-28_13-28	1
AJ15-12	ICV	PINOFCBS	91.7%	102.9%	100.5%	0%*	99%	208.9%*	97.8%	94.4%	_2020-10-28_16-36	1
AJ15-13	ICV1	PINOFCBS	96.6%	102%	100.5%	0%*	100.1%	99.5%	98.5%	98.2%	_2020-10-28_16-53	1
AJ15-14	ICB	PINOFCBS	0	0	0	0	0	0	0	0	_2020-10-28_17-10	1

Report date: 10/28/2020 6:24:05 PM
Printed by: LDip

Ident: AJ15-12 ICV
Analysis from: 10/28/2020 4:36:48 PM
File: _2020-10-28_16-36.chw Last save: 10/28/2020 6:16:06 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162712

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 12
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.09	4.58	39.618	0.990	fluoride
2	4.22	5.27	46.216	2.089	chloride
3	4.88	11.13	115.916	2.058	nitrite
4	5.91	0.77	8.468	0.978	bromide
5	6.63	5.09	58.969	1.005	nitrate
6	9.51	2.82	43.023	1.834	phosphate
7	10.91	5.51	87.774	4.719	sulfate
7	15.00	35.18	399.984	13.673	

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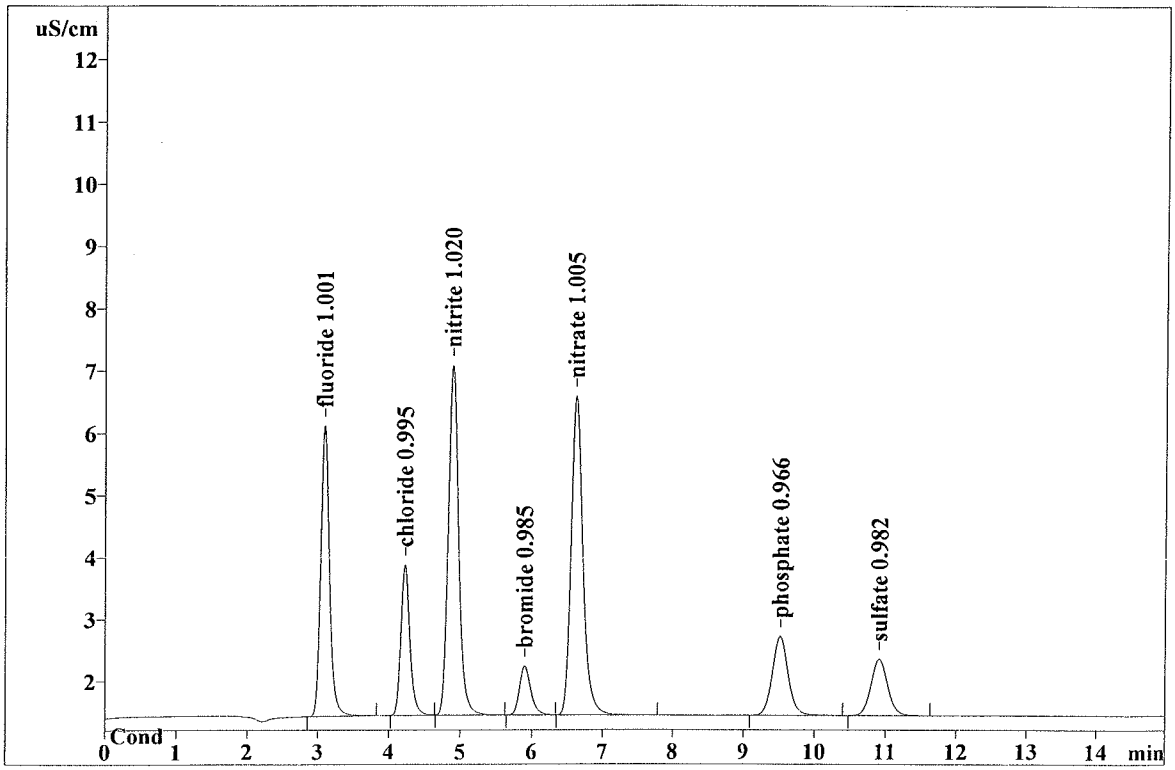
10/30/20

Report date: 10/28/2020 6:24:08 PM
Printed by: LDip

Ident: AJ15-13 ICV1
Analysis from: 10/28/2020 4:53:54 PM
File: _2020-10-28_16-53.chw Last save: 10/28/2020 6:16:07 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162713

SAMPLE: METHOD 300/9056/4110B
: 1.0 PPM
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.09	4.69	40.082	1.001	fluoride
2	4.22	2.43	21.516	0.995	chloride
3	4.88	5.63	56.582	1.020	nitrite
4	5.90	0.79	8.545	0.985	bromide
5	6.62	5.13	58.999	1.005	nitrate
6	9.51	1.27	19.671	0.966	phosphate
7	10.91	0.91	14.897	0.982	sulfate
7	15.00	20.84	220.293	6.954	

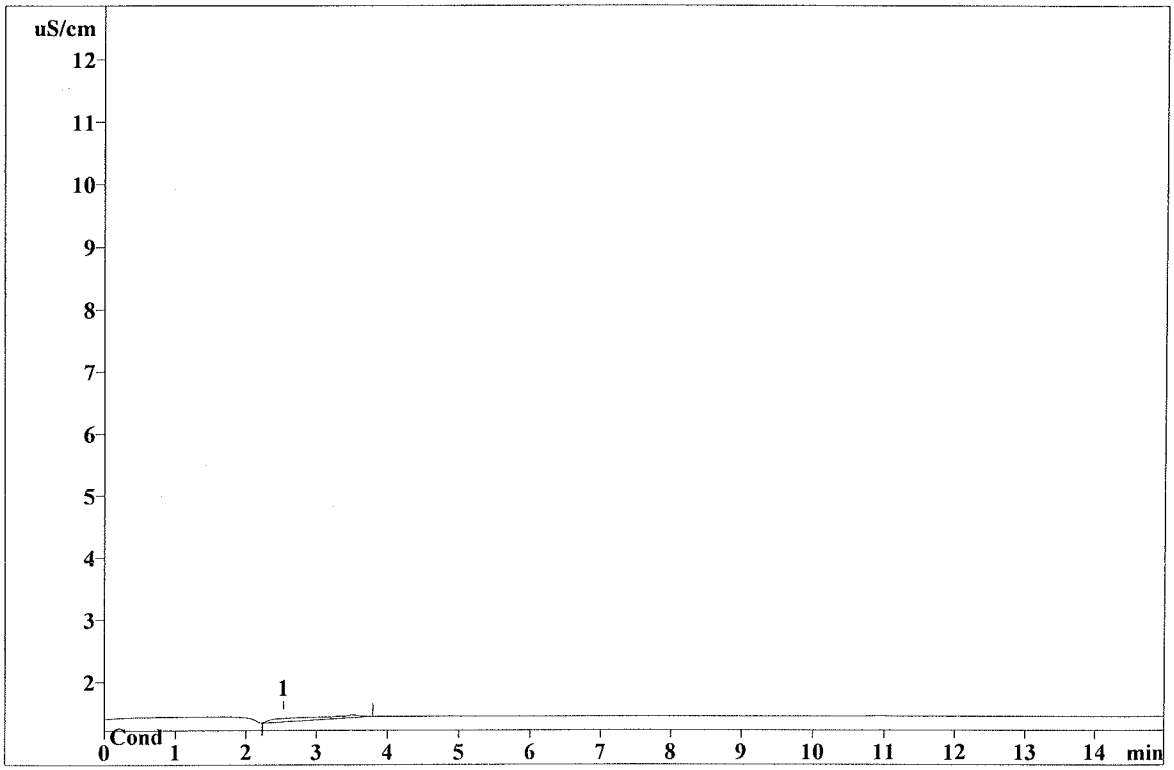
This report has been created by IC Net
METROHM LTD

Report date: 10/28/2020 6:24:11 PM
Printed by: LDip

Ident: AJ15-14 ICB
Analysis from: 10/28/2020 5:10:59 PM
File: _2020-10-28_17-10.chw Last save: 10/28/2020 6:22:47 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162714

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 14
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.52	0.05	3.566	0.000	

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DAILY CALIBRATION(S)

Continuing Calibration Summary Form

Client : ARCADIS
Project : VAFB-SS003
SDG : 20K128
Method : 300.0
ICAL Ref. : 20AJ15
InstrumentID: D0
Parameter : NITRATE-N

LFID	LSID	Recovery (%)	AnalysisDateTime
AK17-01	CCV157	97.3	11/13/2012:09
AK17-13	CCV159	99.1	11/13/2016:06

CCV Acceptance Criteria: 90-110%

Continuing Calibration Summary Form

Client : ARCADIS
Project : VAFB-SS003
SDG : 20K128
Method : 300.0
ICAL Ref. : 20AJ15
InstrumentID: D0
Parameter : SULFATE

LFID	LSID	Recovery (%)	AnalysisDateTime
AK17-01	CCV157	99.4	11/13/2012:09
AK17-13	CCV159	105	11/13/2016:06
AK35-01	CCV361	98.3	11/25/2013:55
AK35-12	CCV363	98.3	11/25/2017:13
AK35-46	CCV369	97	11/26/2003:29
AK35-56	CCV371	97.3	11/26/2006:37

CCV Acceptance Criteria: 90-110%

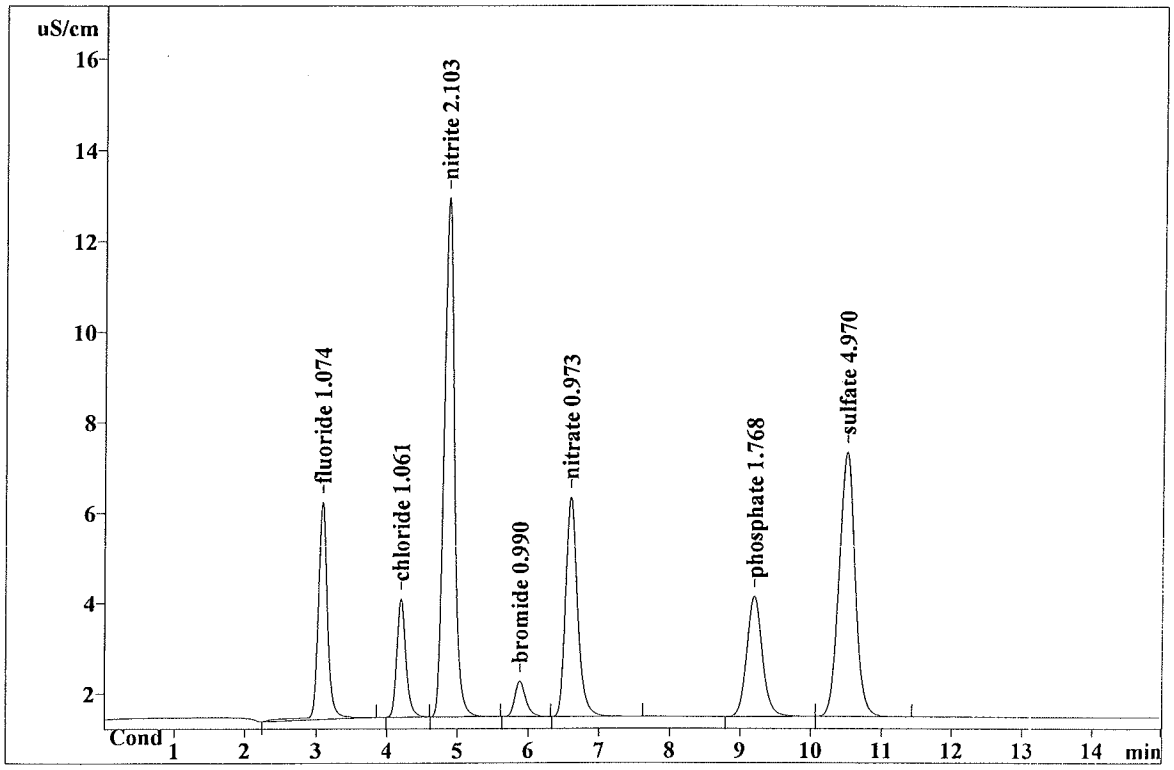
IC Result Check FormVersion : J27/AJ15(2020)

LFID	LSID	Selection	sulfate	nitrite	fluoride	iodide	nitrate	chloride	bromide	phosphate	RawNetID	DF
AK17-01	CCV157	SIFONCBP	99.4%	105.2%	107.4%	0%*	97.3%	106.1%	99%	88.4%*	_2020-11-13_12-09	1
AK17-02	CCB157	SIFONCBP	0	0	0	0	0	0	0	0	_2020-11-13_12-58	1
AK17-13	CCV159	SIFONCBP	105%	106.3%	108.9%	0%*	99.1%	108.4%	100.2%	88.8%*	_2020-11-13_16-06	1
AK17-14	CCB159	SIFONCBP	0	0	0	0	0	0	0	0	_2020-11-13_16-23	1
AK17-25	CCV161	SIFONCBP	95%	105.8%	108.4%	0%*	104.2%	108.4%	112.7%*	108.1%	_2020-11-13_20-35	1
AK17-26	CCB161	SIFONCBP	0	0	0	0	0	0	0	0	_2020-11-13_20-53	1
AK17-37	CCV163	SIFONCBP	90.1%	105.6%	107.5%	0%*	104.2%	109.4%	112.1%*	109.6%	_2020-11-14_00-05	1
AK17-38	CCB163	SIFONCBP	0	0	0	0	0	0	0	0	_2020-11-14_00-39	1
AK17-49	CCV165	SIFONCBP	92.5%	106%	107.4%	0%*	104.6%	119.9%*	111.9%*	107.9%	_2020-11-14_03-47	1
AK17-50	CCB165	SIFONCBP	0	0	0	0	0	0	0	0	_2020-11-14_04-21	1
AK17-60	CCV167	SIFONCBP	86.3%*	106.2%	107.6%	0%*	105%	108.7%	112.3%*	106.3%	_2020-11-14_07-12	1
AK17-61	CCB167	SIFONCBP	0	0	0	0	0	0	0	0	_2020-11-14_07-46	1
AK17-70	CCV169	SIFONCBP	88.8%*	107%	108.7%	0%*	106%	108.8%	113%*	109.8%	_2020-11-14_10-20	1
AK17-71	CCB169	SIFONCBP	0	0	0	0	0	0	0	0	_2020-11-14_10-54	1
AK17-82	CCV171	SIFONCBP	85.4%*	107.3%	109.3%	0%*	106.7%	107.9%	113.9%*	110%	_2020-11-14_14-19	1
AK17-83	CCB171	SIFONCBP	0	0	0	0	0	0	0	0	_2020-11-14_14-36	1
AK17-93	CCV173	SIFONCBP	86.7%*	107.5%	110.1%*	0%*	107.5%	107.8%	112.8%*	107.8%	_2020-11-14_17-27	1
AK17-94	CCB173	SIFONCBP	0	0	0	0	0	0	0	0	_2020-11-14_18-18	1

Report date: 11/16/2020 1:17:49 PM
Printed by: LDip

Ident: AK17-01 CCV157
Analysis from: 11/13/2020 12:09:45 PM
File: _2020-11-13_12-09.chw Last save: 11/13/2020 12:24:42 PM
Modified!
Method: ICD0-J27.mtw Last save: 11/13/2020 12:17:43 PM
Run operator: LDip
Analysis number: 163524

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 1
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	4.82	43.046	1.074	fluoride
2	4.19	2.62	23.016	1.061	chloride
3	4.85	11.48	118.466	2.103	nitrite
4	5.88	0.78	8.602	0.990	bromide
5	6.59	4.87	57.025	0.973	nitrate
6	9.19	2.67	41.237	1.768	phosphate
7	10.49	5.87	92.668	4.970	sulfate
7	15.00	33.10	384.060	12.939	

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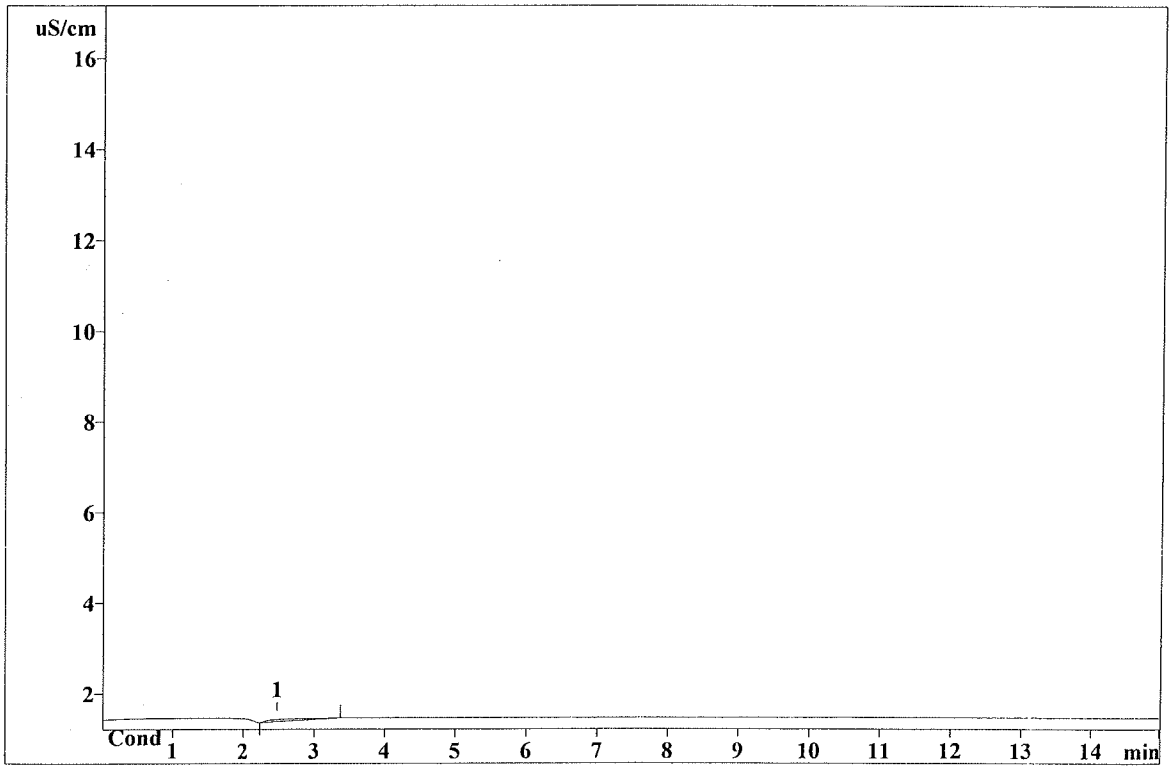
Report date: 11/16/2020 12:16:34 PM
Printed by: LDip

Ident: AK17-02 CCB157
Analysis from: 11/13/2020 12:58:15 PM
File: _2020-11-13_12-58.chw Last save: 11/13/2020 1:23:32 PM

Method: ICD0-J27.mtw Last save: 11/13/2020 12:17:43 PM
Run operator: LDip
Analysis number: 163526

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 2
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.47	0.05	1.914	0.000	

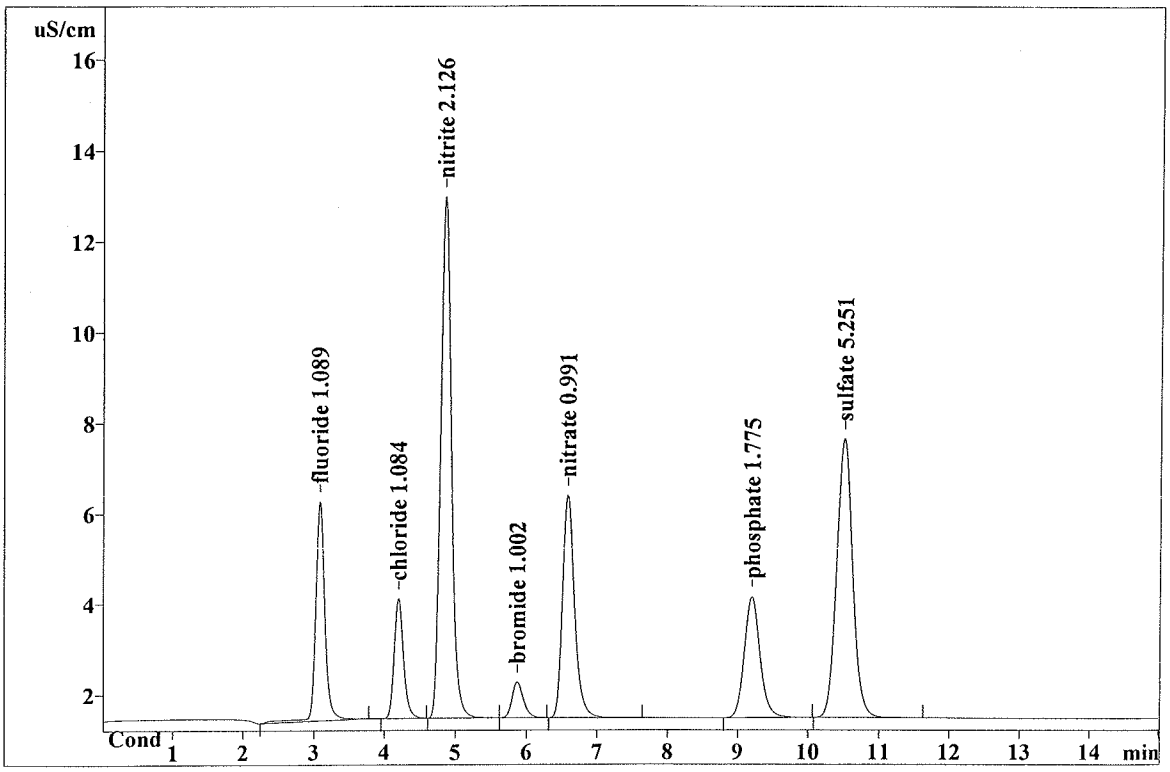
This report has been created by IC Net
METROHM LTD

Report date: 11/16/2020 12:16:50 PM
Printed by: LDip

Ident: AK17-13 CCV159
Analysis from: 11/13/2020 4:06:16 PM
File: _2020-11-13_16-06.chw Last save: 11/13/2020 4:21:13 PM

Method: ICD0-J27.mtw Last save: 11/13/2020 12:17:43 PM
Run operator: LDip
Analysis number: 163537

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	4.84	43.670	1.089	fluoride
2	4.19	2.65	23.522	1.084	chloride
3	4.85	11.51	119.747	2.126	nitrite
4	5.87	0.79	8.744	1.002	bromide
5	6.58	4.92	58.110	0.991	nitrate
6	9.19	2.67	41.430	1.775	phosphate
7	10.50	6.17	98.151	5.251	sulfate
7	15.00	33.54	393.372	13.317	

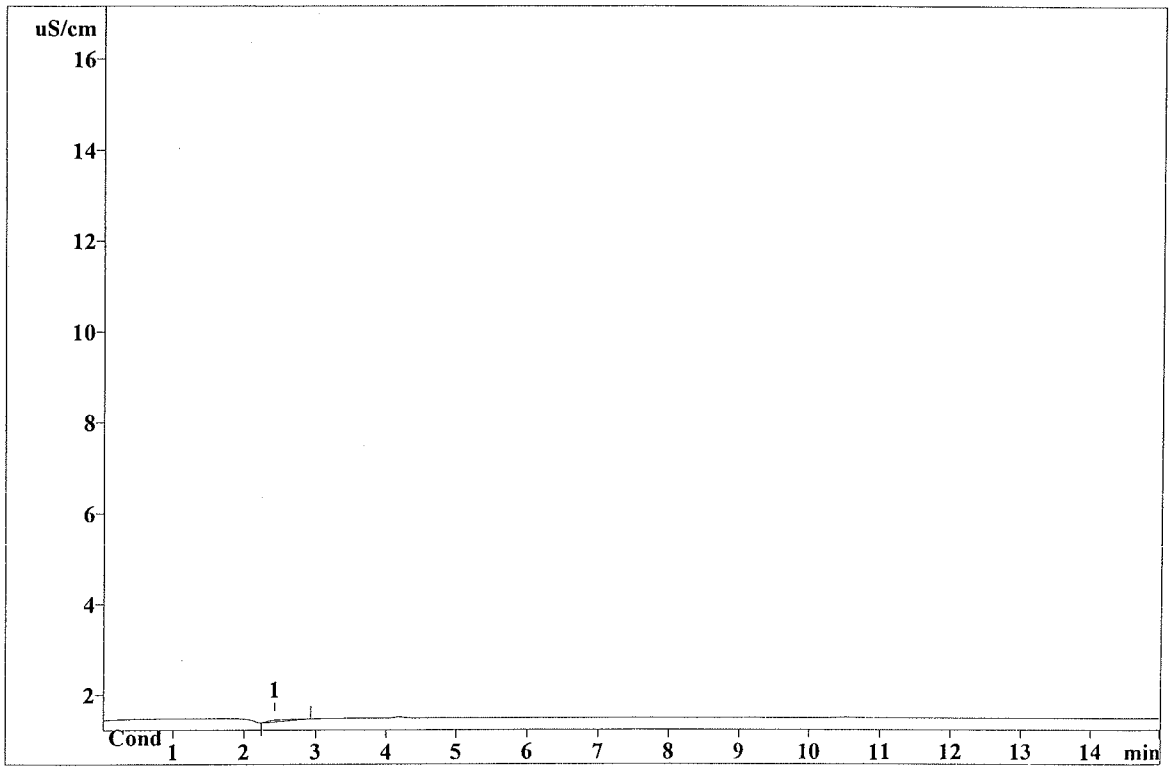
This report has been created by IC Net
METROHM LTD

Report date: 11/16/2020 12:16:53 PM
Printed by: LDip

Ident: AK17-14 CCB159
Analysis from: 11/13/2020 4:23:21 PM
File: _2020-11-13_16-23.chw Last save: 11/13/2020 4:38:18 PM

Method: ICD0-J27.mtw Last save: 11/13/2020 12:17:43 PM
Run operator: LDip
Analysis number: 163538

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 14
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.42	0.04	1.000	0.000	

This report has been created by IC Net
METROHM LTD

IC Result Check FormVersion : J27/AJ15(2020)

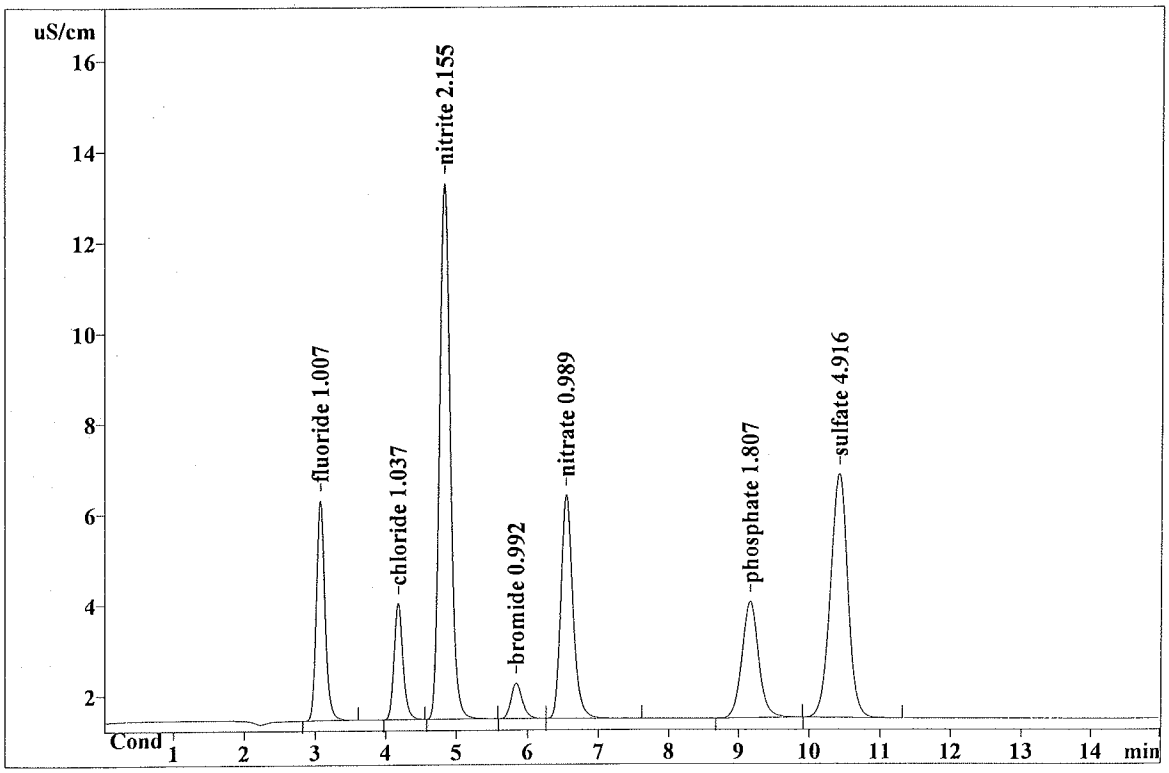
LFID	LSID	Selection	nitrate	iodide	fluoride	chloride	nitrite	bromide	phosphate	sulfate	RawNetID	DF
AK35-01	CCV361	NOFCIBPS	98.9%	0%*	100.7%	103.7%	107.8%	99.2%	90.3%	98.3%	_2020-11-25_13-55	1
AK35-02	CCB361	NOFCIBPS	0	0	0	0	0	0	0	0	_2020-11-25_14-12	1
AK35-12	CCV363	NOFCIBPS	99.2%	0%*	100.5%	104.3%	106.2%	99%	89.9%*	98.3%	_2020-11-25_17-13	1
AK35-13	CCB363	NOFCIBPS	0	0	0	0	0	0	0	0	_2020-11-25_17-30	1
AK35-22	CCV365	NOFCIBPS	99.9%	0%*	101.8%	107.5%	107.3%	100%	92.8%	98.7%	_2020-11-25_20-22	1
AK35-23	CCB365	NOFCIBPS	0	0	0	0.0571302	0	0	0	0	_2020-11-25_20-39	1
AK35-34	CCV367	NOFCIBPS	99.6%	0%*	101.2%	104.5%	106.9%	99.1%	92.4%	98.8%	_2020-11-25_23-47	1
AK35-35	CCB367	NOFCIBPS	0	0	0	0	0	0	0	0	_2020-11-26_00-21	1
AK35-46	CCV369	NOFCIBPS	98.1%	0%*	100.7%	99.8%	106.6%	98.8%	89.7%*	97%	_2020-11-26_03-29	1
AK35-47	CCB369	NOFCIBPS	0	0	0	0	0	0	0	0	_2020-11-26_04-03	1
AK35-56	CCV371	NOFCIBPS	99%	0%*	101.5%	102.7%	107.6%	99.9%	87.2%*	97.3%	_2020-11-26_06-37	1
AK35-57	CCB371	NOFCIBPS	0	0	0	0	0	0	0	0	_2020-11-26_07-11	1

Report date: 11/30/2020 11:58:44 AM
Printed by: LDip

Ident: AK35-01 CCV361
Analysis from: 11/25/2020 1:55:29 PM
File: _2020-11-25_13-55.chw Last save: 11/25/2020 2:10:26 PM

Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164150

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 1
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

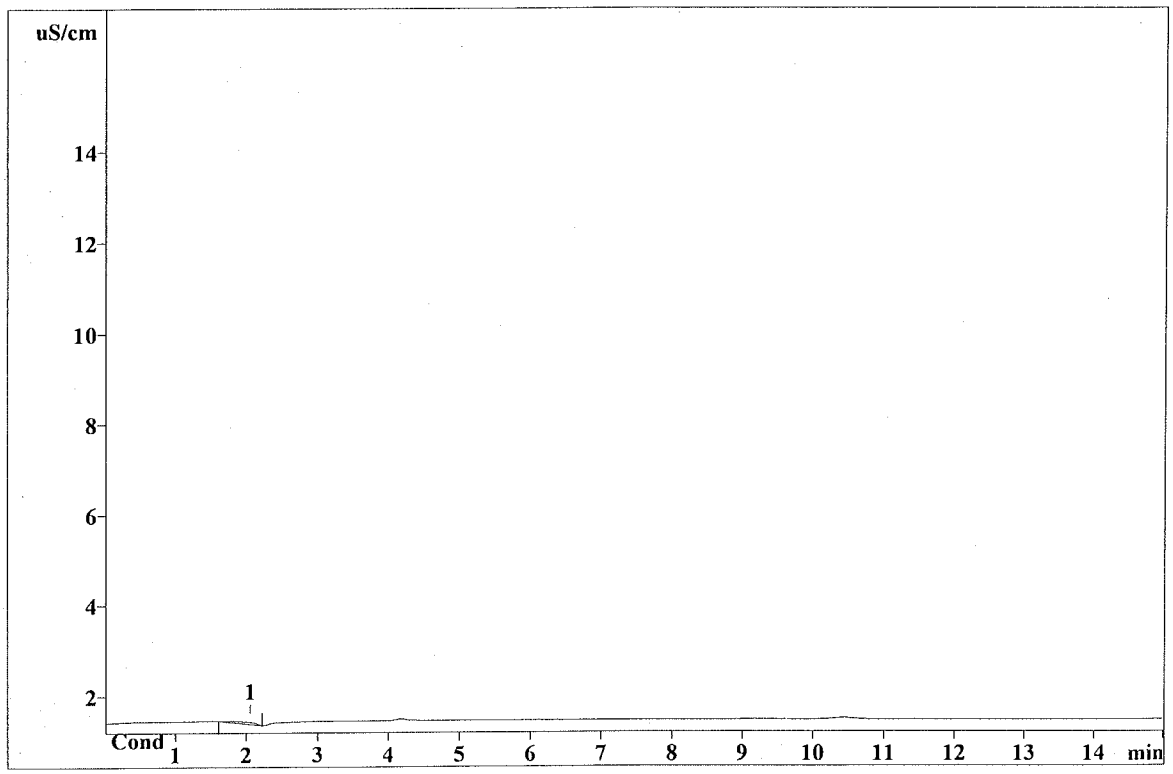
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.07	4.86	40.338	1.007	fluoride
2	4.17	2.57	22.480	1.037	chloride
3	4.82	11.83	121.455	2.155	nitrite
4	5.84	0.79	8.624	0.992	bromide
5	6.54	4.94	57.985	0.989	nitrate
6	9.15	2.57	42.281	1.807	phosphate
7	10.41	5.38	91.623	4.916	sulfate
7	15.00	32.94	384.785	12.904	

This report has been created by IC Net
METROHM LTD

Report date: 11/30/2020 11:58:54 AM
Printed by: LDip

Ident: AK35-02 CCB361
Analysis from: 11/25/2020 2:12:34 PM
File: _2020-11-25_14-12.chw Last save: 11/25/2020 2:27:31 PM
Modified!
Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164151

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 2
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.04	0.05	1.117	0.000	

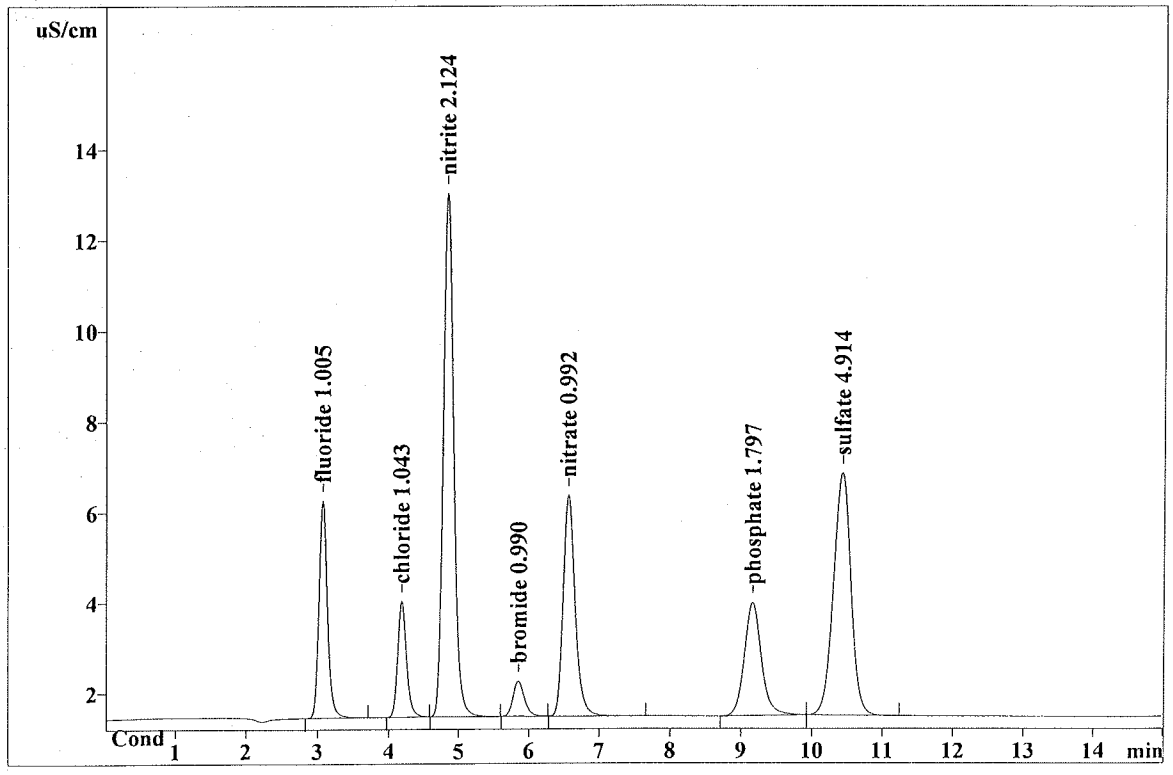
This report has been created by IC Net
METROHM LTD

Report date: 11/30/2020 11:59:20 AM
Printed by: LDip

Ident: AK35-12 CCV363
Analysis from: 11/25/2020 5:13:00 PM
File: _2020-11-25_17-13.chw Last save: 11/25/2020 5:27:57 PM

Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164161

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 12
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

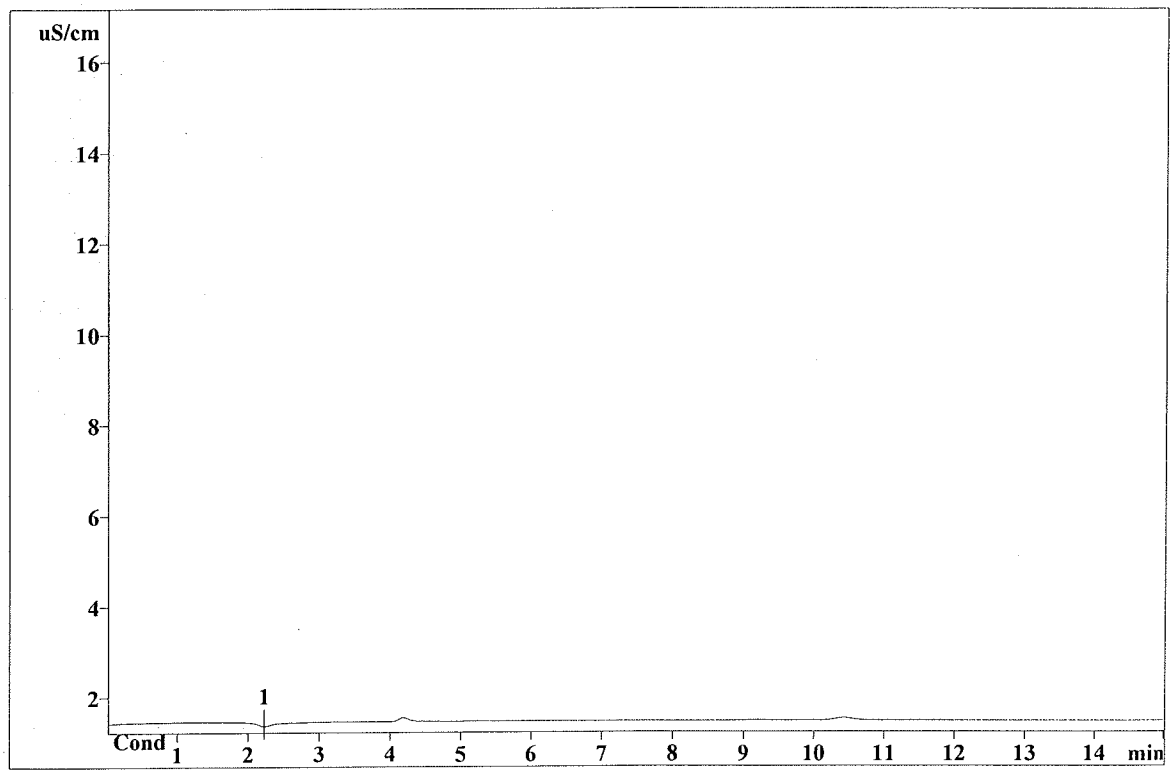
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.07	4.82	40.230	1.005	fluoride
2	4.18	2.57	22.614	1.043	chloride
3	4.83	11.58	119.670	2.124	nitrite
4	5.85	0.78	8.610	0.990	bromide
5	6.56	4.90	58.164	0.992	nitrate
6	9.16	2.51	42.016	1.797	phosphate
7	10.41	5.37	91.568	4.914	sulfate
7	15.00	32.52	382.873	12.865	

This report has been created by IC Net
METROHM LTD

Report date: 11/30/2020 11:59:34 AM
Printed by: LDip

Ident: AK35-13 CCB363
Analysis from: 11/25/2020 5:30:05 PM
File: _2020-11-25_17-30.chw Last save: 11/25/2020 5:45:02 PM
Modified!
Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164162

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.23	-0.00	-0.000	0.000	

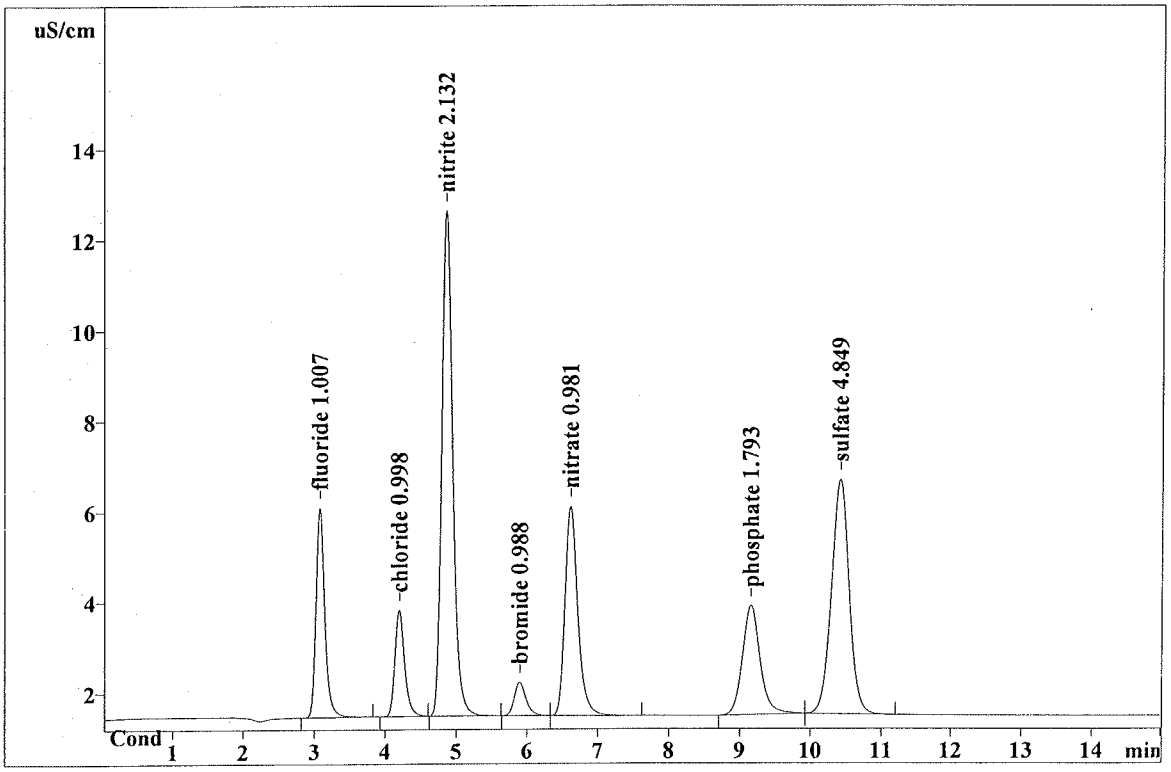
This report has been created by IC Net
METROHM LTD

Report date: 11/30/2020 12:00:44 PM
Printed by: LDip

Ident: AK35-46 CCV369
Analysis from: 11/26/2020 3:29:25 AM
File: _2020-11-26_03-29.chw Last save: 11/26/2020 3:44:22 AM

Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164197

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 46
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

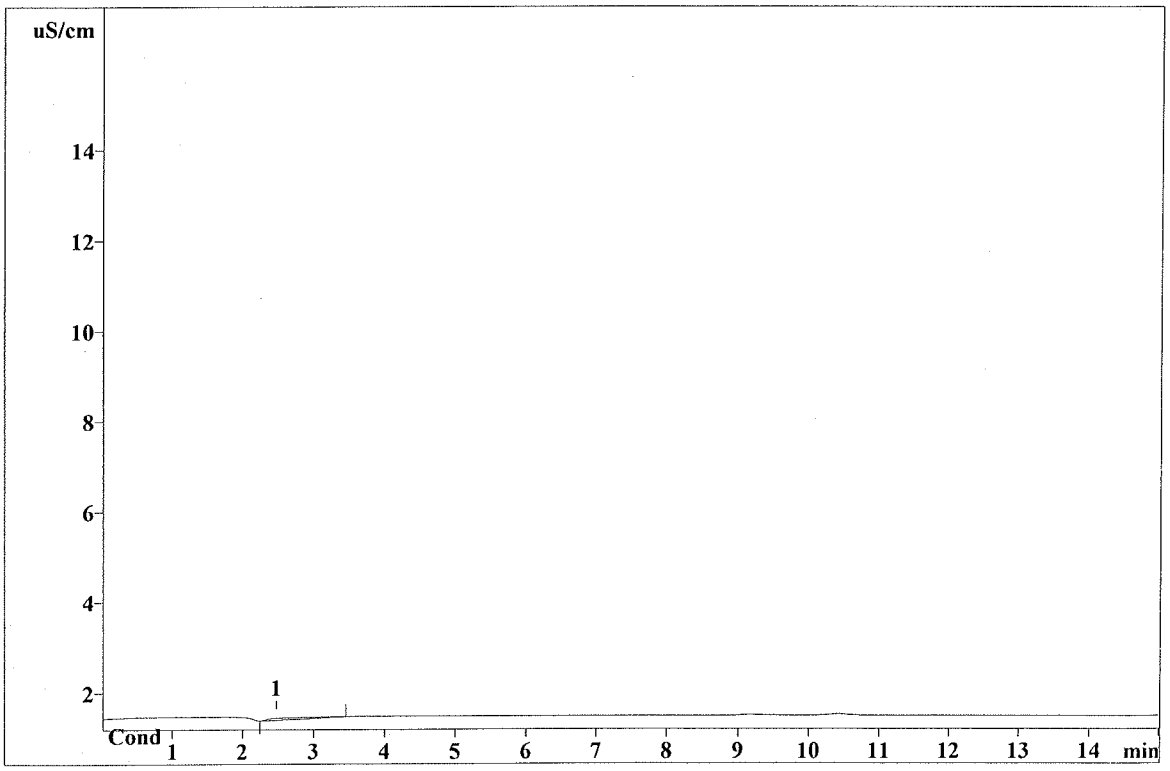
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	4.62	40.337	1.007	fluoride
2	4.19	2.35	21.583	0.998	chloride
3	4.85	11.16	120.125	2.132	nitrite
4	5.89	0.74	8.578	0.988	bromide
5	6.61	4.62	57.531	0.981	nitrate
6	9.15	2.41	41.915	1.793	phosphate
7	10.41	5.17	90.312	4.849	sulfate
7	15.00	31.07	380.382	12.748	

This report has been created by IC Net
METROHM LTD

Report date: 11/30/2020 12:00:57 PM
Printed by: LDip

Ident: AK35-47 CCB369
Analysis from: 11/26/2020 4:03:36 AM
File: _2020-11-26_04-03.chw Last save: 11/26/2020 4:18:33 AM
Modified!
Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164199

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 47
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.48	0.04	2.040	0.000	

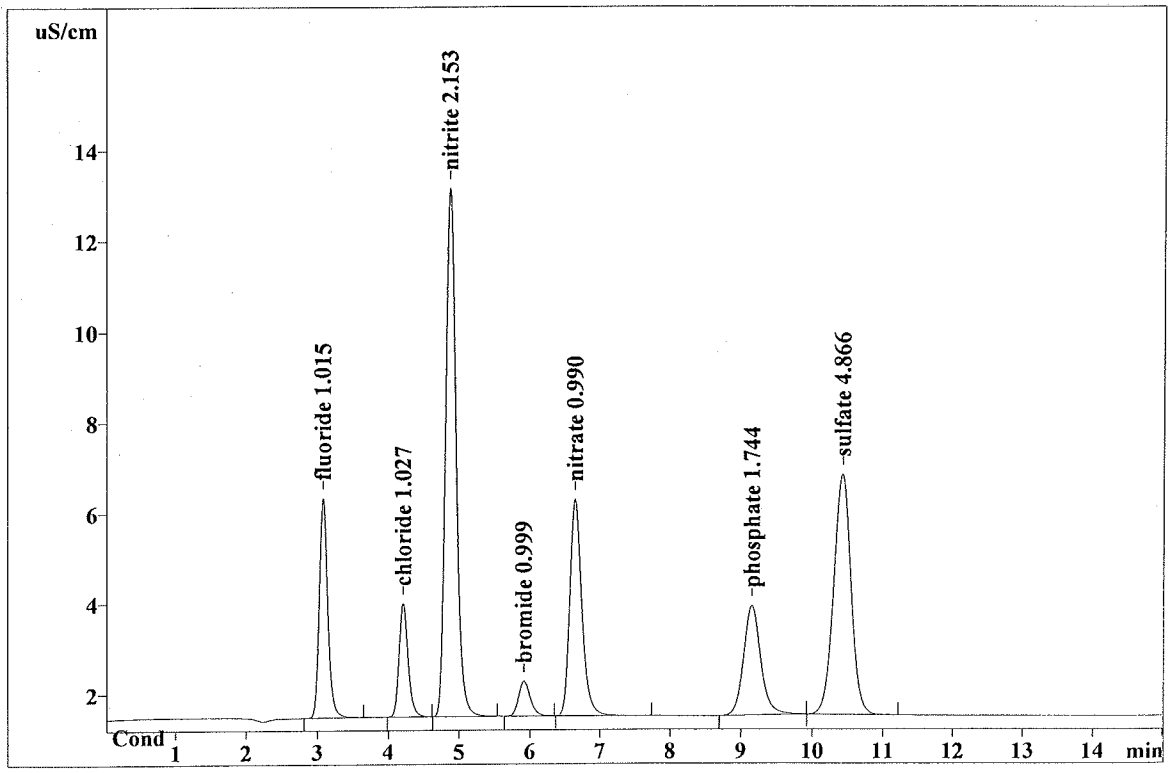
This report has been created by IC Net
METROHM LTD

Report date: 11/30/2020 12:01:08 PM
Printed by: LDip

Ident: AK35-56 CCV371
Analysis from: 11/26/2020 6:37:25 AM
File: _2020-11-26_06-37.chw Last save: 11/26/2020 6:52:22 AM

Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164208

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 56
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

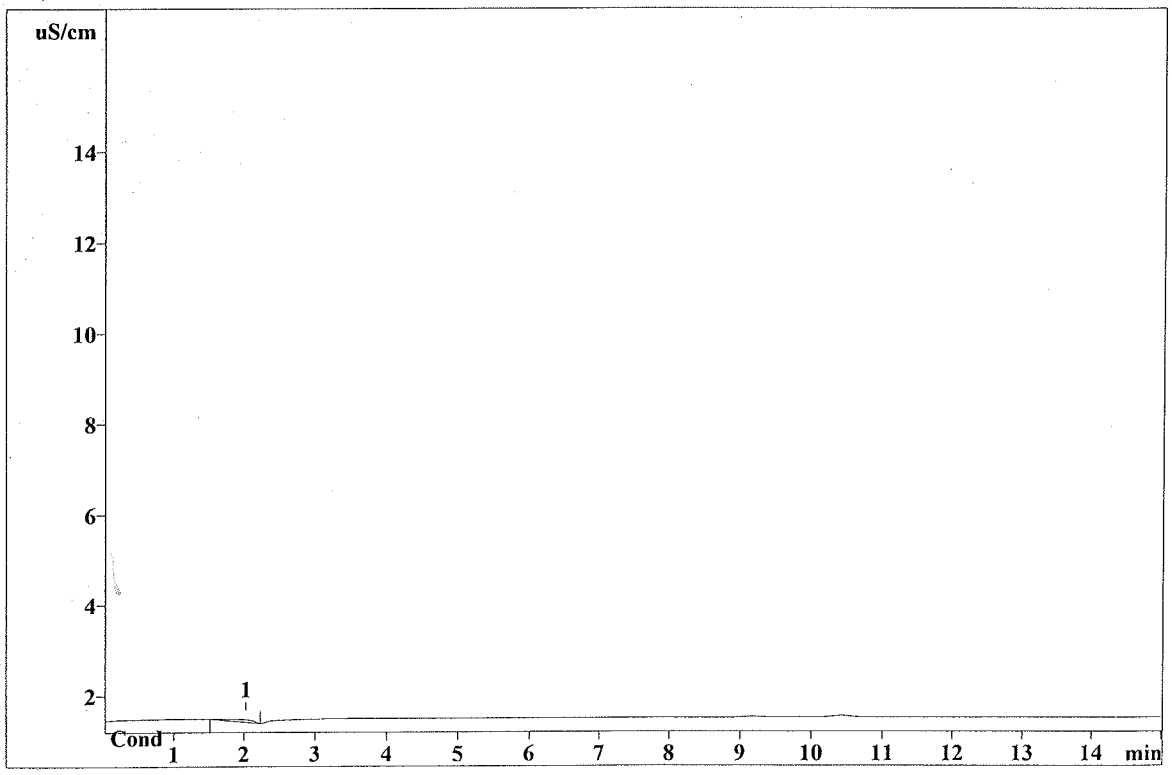
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	4.86	40.661	1.015	fluoride
2	4.21	2.51	22.257	1.027	chloride
3	4.87	11.66	121.292	2.153	nitrite
4	5.92	0.77	8.710	0.999	bromide
5	6.64	4.79	58.031	0.990	nitrate
6	9.15	2.42	40.583	1.744	phosphate
7	10.41	5.31	90.649	4.866	sulfate
7	15.00	32.33	382.184	12.794	

This report has been created by IC Net
METROHM LTD

Report date: 11/30/2020 12:01:22 PM
Printed by: LDip

Ident: AK35-57 CCB371
Analysis from: 11/26/2020 7:11:37 AM
File: _2020-11-26_07-11.chw Last save: 11/26/2020 7:26:33 AM
Modified!
Method: ICD0-J27.mtw Last save: 11/25/2020 1:56:17 PM
Run operator: LDip
Analysis number: 164210

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 57
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.02	0.05	1.429	0.000	

This report has been created by IC Net
METROHM LTD

ANALYTICAL LOG(S)

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ION CHROMATOGRAPHY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

	CONCENTRATIONS (ppm)
S1	0.05
S2	0.1
S3	0.2
S4	0.5
S5	1.0
S6	2.0
S7	5.0
S8	10.0
S9	20.0
	LINEARITY (ppm)
F	10
Cl	2
NO2	10
Br	20
NO3	2
PO4	20
SO4	20

Book #:	AD0-069
Instrument No.:	D0
Pipette ID's:	039380124
	SW3-02-02-02
	439350100
Analytical Sequence:	AJ15
Method File:	ICD0 - J27. mtw
Analytical Batch:	NA

SOP #	Rev. #
☑ EMAX-300.0	13
☑ EMAX-4110B	6
☑ EMAX-9056	9
☐ EMAX-	
STANDARDS ID	
ICAL	SW3B-14 – 21-02
ICV	SW3B-14 – 22-02
~~CCV~~ ICV1 (LO 10/28/20)	SW3B-14 – 21-03
LCS	—
MS	—

Filters Lot #:	Snap Seal Containers Lot #:
0.45 µm:	4 oz: 04119002
0.2 µm:	1.5 oz:

Column: Metrosep A Supp 5-100

Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION — Expiration Date: ~~10/26/20~~ 11/26/20 (LO 10/28/20)

Std ID	Aliquot	Final Vol*
SP2-01-24-04	20 mL	2 L

IC REGENERANT PREPARATION — Expiration Date: 11/28/20

Std ID	Aliquot	Final Vol*
SP2-01-36-03	100 mL	1 L

* Reagent Water ID: SW1A-009-07-01

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LO

Date: 10/28/20

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
2020-10-28_13-28.chw	ICD0-J27.mtw	AJ15-01 IB	1	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-10-28_13-45.chw	ICD0-J27.mtw	AJ15-02 S0	2	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-10-28_14-03.chw	ICD0-J27.mtw	AJ15-03 S1	3	1.0	1.0	1.0	100.0	1	METHOD 300/9056/4110B	0.05 PPM
2020-10-28_14-20.chw	ICD0-J27.mtw	AJ15-04 S2	4	1.0	1.0	1.0	100.0	2	METHOD 300/9056/4110B	0.1 PPM
2020-10-28_14-37.chw	ICD0-J27.mtw	AJ15-05 S3	5	1.0	1.0	1.0	100.0	3	METHOD 300/9056/4110B	0.2 PPM
2020-10-28_14-54.chw	ICD0-J27.mtw	AJ15-06 S4	6	1.0	1.0	1.0	100.0	4	METHOD 300/9056/4110B	0.5 PPM
2020-10-28_15-11.chw	ICD0-J27.mtw	AJ15-07 S5	7	1.0	1.0	1.0	100.0	5	METHOD 300/9056/4110B	1.0 PPM
2020-10-28_15-28.chw	ICD0-J27.mtw	AJ15-08 S6	8	1.0	1.0	1.0	100.0	6	METHOD 300/9056/4110B	2.0 PPM
2020-10-28_15-45.chw	ICD0-J27.mtw	AJ15-09 S7	9	1.0	1.0	1.0	100.0	7	METHOD 300/9056/4110B	5.0 PPM
2020-10-28_16-02.chw	ICD0-J27.mtw	AJ15-10 S8	10	1.0	1.0	1.0	100.0	8	METHOD 300/9056/4110B	10.0 PPM
2020-10-28_16-19.chw	ICD0-J27.mtw	AJ15-11 S9	11	1.0	1.0	1.0	100.0	9	METHOD 300/9056/4110B	20.0 PPM
2020-10-28_16-36.chw	ICD0-J27.mtw	AJ15-12 ICV	12	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-10-28_16-53.chw	ICD0-J27.mtw	AJ15-13 ICV1	13	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	1.0 PPM
2020-10-28_17-10.chw	ICD0-J27.mtw	AJ15-14 ICB	14	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	

FINAL 10/28/20

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ION CHROMATOGRAPHY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence. For dillution preparation (sample aliquot/final volume), refer to sample info

Comments:

Book #:	AD0-070
Instrument No.:	D0
Pipette ID's:	039380124
	SW3-02-02-02
	439350100
Analytical Sequence:	AK17
Method File:	ICD0-727.mtw
Analytical Batch:	~~ICK019W~~ 11/13/20 ICK021W

SOP #	Rev. #
☑ EMAX-300.0	13
☐ EMAX-4110B	6
☑ EMAX-9056	9
☐ EMAX-	
STANDARDS ID	
ICAL	—
ICV	—
CCV	SW3B-14-34-03
LCS	SW3B-14-35-01
MS	SCP refer to LCS parent ID

Filters Lot #: Snap Seal Containers Lot #:

0.45 µm: 00191103 4 oz:

0.2 µm: 00297103 1.5 oz: 17320006

Column: Metrosep A Supp 5-100

Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION Expiration Date: 12/13/20

Std ID	Aliquot	Final Vol*
SP2-01-34-01	20 mL	2 L

IC REGENERANT PREPARATION Expiration Date: 12/13/20

Std ID	Aliquot	Final Vol*
SP2-01-39-02	100 mL	1 L

* Reagent Water ID: SW1A-009-09-02

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LD

Date: 11/13/20

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
2020-11-13_12-09.chw	ICD0-J27.mtw	AK17-01 CCV157	1	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_12-58.chw	ICD0-J27.mtw	AK17-02 CCB157	2	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_13-15.chw	ICD0-J27.mtw	AK17-03 ICK021WB	3	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_13-32.chw	ICD0-J27.mtw	AK17-04 ICK021WL	4	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_13-49.chw	ICD0-J27.mtw	AK17-05 ICK021WC	5	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_14-06.chw	ICD0-J27.mtw	AK17-06 K128-01	6	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_14-23.chw	ICD0-J27.mtw	AK17-07 K128-02I DF=20	7	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-11-13_14-40.chw	ICD0-J27.mtw	AK17-08 K128-03	8	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_14-57.chw	ICD0-J27.mtw	AK17-09 K128-04	9	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_15-15.chw	ICD0-J27.mtw	AK17-10 K128-05	10	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_15-32.chw	ICD0-J27.mtw	AK17-11 J312-01J DF=200	11	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/40ml
2020-11-13_15-49.chw	ICD0-J27.mtw	AK17-12 J312-02J DF=200	12	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/40ml
2020-11-13_16-06.chw	ICD0-J27.mtw	AK17-13 CCV159	13	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_16-23.chw	ICD0-J27.mtw	AK17-14 CCB159	14	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_16-40.chw	ICD0-J27.mtw	AK17-15 K136-01	15	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_16-57.chw	ICD0-J27.mtw	AK17-16 K136-02	16	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_17-14.chw	ICD0-J27.mtw	AK17-17 K136-03	17	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_17-31.chw	ICD0-J27.mtw	AK17-18 K136-04	18	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_17-48.chw	ICD0-J27.mtw	AK17-19 K136-07	19	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_18-05.chw	ICD0-J27.mtw	AK17-20 K136-08	20	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_18-22.chw	ICD0-J27.mtw	AK17-21 J312-12I DF=40	21	1.0	40.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/40ml
2020-11-13_18-46.chw	ICD0-J27.mtw	AK17-22 K136-04M	22	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_19-03.chw	ICD0-J27.mtw	AK17-23 K136-04S	23	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_19-21.chw	ICD0-J27.mtw	AK17-24 K136-04D	24	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_20-35.chw	ICD0-J27.mtw	AK17-25 CCV161	25	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_20-53.chw	ICD0-J27.mtw	AK17-26 CCB161	26	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-13_21-14.chw	ICD0-J27.mtw	AK17-27 K136-04I DF=5	27	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	8ml/40ml
2020-11-13_21-31.chw	ICD0-J27.mtw	AK17-28 K136-04ID DF=5	28	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	8ml/40ml
2020-11-13_21-48.chw	ICD0-J27.mtw	AK17-29 K136-04IM DF=5	29	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	8ml/40ml
2020-11-13_22-05.chw	ICD0-J27.mtw	AK17-30 K136-04IS DF=5	30	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	8ml/40ml
2020-11-13_22-22.chw	ICD0-J27.mtw	AK17-31 K136-04J DF=2	31	1.0	2.0	1.0	100.0	0	METHOD 300/9056/4110B	20ml/40ml
2020-11-13_22-39.chw	ICD0-J27.mtw	AK17-32 K136-04JD DF=2	32	1.0	2.0	1.0	100.0	0	METHOD 300/9056/4110B	20ml/40ml
2020-11-13_22-56.chw	ICD0-J27.mtw	AK17-33 K136-04JM DF=2	33	1.0	2.0	1.0	100.0	0	METHOD 300/9056/4110B	20ml/40ml
2020-11-13_23-13.chw	ICD0-J27.mtw	AK17-34 K136-04JS DF=2	34	1.0	2.0	1.0	100.0	0	METHOD 300/9056/4110B	20ml/40ml
2020-11-13_23-30.chw	ICD0-J27.mtw	AK17-35 K136-01I DF=2	35	1.0	2.0	1.0	100.0	0	METHOD 300/9056/4110B	10ml/20ml
2020-11-13_23-47.chw	ICD0-J27.mtw	AK17-36 K136-01J DF=5	36	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/20ml
2020-11-14_00-05.chw	ICD0-J27.mtw	AK17-37 CCV163	37	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-14_00-39.chw	ICD0-J27.mtw	AK17-38 CCB163	38	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-14_00-56.chw	ICD0-J27.mtw	AK17-39 K136-01K DF=10	39	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/20ml
2020-11-14_01-13.chw	ICD0-J27.mtw	AK17-40 K136-02I DF=2	40	1.0	2.0	1.0	100.0	0	METHOD 300/9056/4110B	10ml/20ml
2020-11-14_01-30.chw	ICD0-J27.mtw	AK17-41 K136-02J DF=5	41	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/20ml
2020-11-14_01-47.chw	ICD0-J27.mtw	AK17-42 K136-02K DF=10	42	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/20ml
2020-11-14_02-04.chw	ICD0-J27.mtw	AK17-43 K136-03I DF=5	43	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/20ml
2020-11-14_02-21.chw	ICD0-J27.mtw	AK17-44 K136-03J DF=10	44	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/20ml
2020-11-14_02-38.chw	ICD0-J27.mtw	AK17-45 K136-03K DF=20	45	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-11-14_02-55.chw	ICD0-J27.mtw	AK17-46 K136-03T DF=40	46	1.0	40.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/40ml
2020-11-14_03-13.chw	ICD0-J27.mtw	AK17-47 K136-07I DF=5	47	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/20ml
2020-11-14_03-30.chw	ICD0-J27.mtw	AK17-48 K136-07J DF=10	48	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/20ml
2020-11-14_03-47.chw	ICD0-J27.mtw	AK17-49 CCV165	49	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-14_04-21.chw	ICD0-J27.mtw	AK17-50 CCB165	50	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-14_04-38.chw	ICD0-J27.mtw	AK17-51 K136-07K DF=20	51	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-11-14_04-55.chw	ICD0-J27.mtw	AK17-52 K136-01T DF=400	52	1.0	400.0	1.0	100.0	0	METHOD 300/9056/4110B	0.1ml/40ml
2020-11-14_05-12.chw	ICD0-J27.mtw	AK17-53 K136-02T DF=400	53	1.0	400.0	1.0	100.0	0	METHOD 300/9056/4110B	0.1ml/40ml
2020-11-14_05-29.chw	ICD0-J27.mtw	AK17-54 K136-03G DF=1000	54	1.0	1000.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/20ml intermediate, 2ml/20ml DF=1000
2020-11-14_05-46.chw	ICD0-J27.mtw	AK17-55 K136-07T DF=400	55	1.0	400.0	1.0	100.0	0	METHOD 300/9056/4110B	0.1ml/40ml
2020-11-14_06-03.chw	ICD0-J27.mtw	AK17-56 K128-01I DF=400	56	1.0	400.0	1.0	100.0	0	METHOD 300/9056/4110B	0.1ml/40ml
2020-11-14_06-20.chw	ICD0-J27.mtw	AK17-57 K128-03I DF=40	57	1.0	40.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/40ml
2020-11-14_06-38.chw	ICD0-J27.mtw	AK17-58 K128-04I DF=20	58	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-11-14_06-55.chw	ICD0-J27.mtw	AK17-59 K128-05I DF=40	59	1.0	40.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/40ml

FINAL LO 12/8/20

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
2020-11-14_07-12.chw	ICD0-J27.mtw	AK17-60 CCV167	60	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-14_07-46.chw	ICD0-J27.mtw	AK17-61 CCB167	61	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-14_08-03.chw	ICD0-J27.mtw	AK17-62 K136-04K DF=10	62	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-11-14_08-20.chw	ICD0-J27.mtw	AK17-63 K136-04KD DF=10	63	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-11-14_08-37.chw	ICD0-J27.mtw	AK17-64 K136-04KM DF=10	64	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-11-14_08-54.chw	ICD0-J27.mtw	AK17-65 K136-04KS DF=10	65	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-11-14_09-11.chw	ICD0-J27.mtw	AK17-66 K136-04T DF=800	66	1.0	800.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml intermediate, 1ml/40ml DF=800
2020-11-14_09-29.chw	ICD0-J27.mtw	AK17-67 K136-04TD DF=800	67	1.0	800.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml intermediate, 1ml/40ml DF=800
2020-11-14_09-46.chw	ICD0-J27.mtw	AK17-68 K136-04TM DF=800	68	1.0	800.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml intermediate, 1ml/40ml DF=800
2020-11-14_10-03.chw	ICD0-J27.mtw	AK17-69 K136-04TS DF=800	69	1.0	800.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml intermediate, 1ml/40ml DF=800
2020-11-14_10-20.chw	ICD0-J27.mtw	AK17-70 CCV169	70	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-14_10-54.chw	ICD0-J27.mtw	AK17-71 CCB169	71	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-14_11-11.chw	ICD0-J27.mtw	AK17-72 K136-04G DF=20	72	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/40ml
2020-11-14_11-28.chw	ICD0-J27.mtw	AK17-73 K136-04GD DF=20	73	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/40ml
2020-11-14_11-45.chw	ICD0-J27.mtw	AK17-74 K136-04GM DF=20	74	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/40ml
2020-11-14_12-02.chw	ICD0-J27.mtw	AK17-75 K136-04GS DF=20	75	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/40ml
2020-11-14_12-19.chw	ICD0-J27.mtw	AK17-76 J312-01K DF=20000	76	1.0	20000.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/40ml intermediate, 0.2ml/20ml DF=2000
2020-11-14_12-37.chw	ICD0-J27.mtw	AK17-77 J312-02K DF=20000	77	1.0	20000.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/40ml intermediate, 0.2ml/20ml DF=2000
2020-11-14_12-54.chw	ICD0-J27.mtw	AK17-78 J312-05J DF=20	78	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-11-14_13-11.chw	ICD0-J27.mtw	AK17-79 J312-05K DF=100	79	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/20ml
2020-11-14_13-28.chw	ICD0-J27.mtw	AK17-80 J312-09K DF=200	80	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/40ml
2020-11-14_13-45.chw	ICD0-J27.mtw	AK17-81 J312-09T DF=20000	81	1.0	20000.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/40ml intermediate, 0.2ml/20ml DF=2000
2020-11-14_14-19.chw	ICD0-J27.mtw	AK17-82 CCV171	82	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-14_14-36.chw	ICD0-J27.mtw	AK17-83 CCB171	83	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-14_14-53.chw	ICD0-J27.mtw	AK17-84 J312-10K DF=200	84	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/40ml
2020-11-14_15-10.chw	ICD0-J27.mtw	AK17-85 J312-10H DF=20000	85	1.0	20000.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/40ml intermediate, 0.2ml/20ml DF=2000
2020-11-14_15-27.chw	ICD0-J27.mtw	AK17-86 J312-12J DF=2000	86	1.0	2000.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/20ml intermediate, 1ml/20ml DF=2000
2020-11-14_15-45.chw	ICD0-J27.mtw	AK17-87 J312-13J DF=20	87	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-11-14_16-02.chw	ICD0-J27.mtw	AK17-88 J312-13K DF=400	88	1.0	400.0	1.0	100.0	0	METHOD 300/9056/4110B	0.1ml/40ml
2020-11-14_16-19.chw	ICD0-J27.mtw	AK17-89 J312-14J DF=200	89	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/40ml
2020-11-14_16-36.chw	ICD0-J27.mtw	AK17-90 J312-14K DF=20000	90	1.0	20000.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/40ml intermediate, 0.2ml/20ml DF=2000
2020-11-14_16-53.chw	ICD0-J27.mtw	AK17-91 J312-15J DF=200	91	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/40ml
2020-11-14_17-10.chw	ICD0-J27.mtw	AK17-92 J312-15K DF=20000	92	1.0	20000.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/40ml intermediate, 0.2ml/20ml DF=2000
2020-11-14_17-27.chw	ICD0-J27.mtw	AK17-93 CCV173	93	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-14_18-18.chw	ICD0-J27.mtw	AK17-94 CCB173	94	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ION CHROMATOGRAPHY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence. For dillution preparation (sample aliquot/final volume) refer to sample info

Comments:

Book #:	AD0-070
Instrument No.:	D0
Pipette ID's:	039380124
	SW3-02-02-02
	439350100
Analytical Sequence:	AK35
Method File:	ICD0 - 727.mtw
Analytical Batch:	ICK039W

SOP #	Rev. #
☑ EMAX-300.0	13
☐ EMAX-4110B	6
☑ EMAX-9056	9
☐ EMAX-	
STANDARDS ID	
ICAL	——
ICV	——
CCV	SW3B-14-46-01
LCS	SW3B-14-46-02
MS	SCP refer to LCS parent ID

Filters Lot #:
0.45 µm: 00191103
0.2 µm: 00297103

Snap Seal Containers Lot #:
4 oz:
1.5 oz: 1732000 6

Column: Metrosep A Supp 5-100

Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION — Expiration Date: 12/23/20

Std ID	Aliquot	Final Vol*
SP2-01-34-01	20 mL	2 L

IC REGENERANT PREPARATION — Expiration Date: 12/23/20

Std ID	Aliquot	Final Vol*
SP2-01-39-02	100 mL	1 L

* Reagent Water ID: SW1A-009-09-02

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LD

Date: 11/25/20

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
2020-11-25_13-55.chw	ICD0-J27.mtw	AK35-01 CCV361	1	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_14-12.chw	ICD0-J27.mtw	AK35-02 CCB361	2	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_14-29.chw	ICD0-J27.mtw	AK35-03 ICK039WB	3	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_14-46.chw	ICD0-J27.mtw	AK35-04 ICK039WL	4	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_15-03.chw	ICD0-J27.mtw	AK35-05 ICK039WC	5	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_15-30.chw	ICD0-J27.mtw	AK35-06 K228-02	6	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_15-47.chw	ICD0-J27.mtw	AK35-07 K228-03	7	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_16-04.chw	ICD0-J27.mtw	AK35-08 K229-02	8	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_16-21.chw	ICD0-J27.mtw	AK35-09 K229-01I DF=5	9	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/20ml
2020-11-25_16-38.chw	ICD0-J27.mtw	AK35-10 K157-01I DF=5	10	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/20ml
2020-11-25_16-55.chw	ICD0-J27.mtw	AK35-11 K157-03I DF=5	11	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/20ml
2020-11-25_17-13.chw	ICD0-J27.mtw	AK35-12 CCV363	12	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_17-30.chw	ICD0-J27.mtw	AK35-13 CCB363	13	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_17-47.chw	ICD0-J27.mtw	AK35-14 K228-03M	14	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_18-04.chw	ICD0-J27.mtw	AK35-15 K228-03I DF=5	15	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	8ml/40ml
2020-11-25_18-22.chw	ICD0-J27.mtw	AK35-16 K228-03JM DF=10	16	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-11-25_18-39.chw	ICD0-J27.mtw	AK35-17 K228-03J DF=10	17	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-11-25_18-56.chw	ICD0-J27.mtw	AK35-18 K228-03JD DF=10	18	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-11-25_19-13.chw	ICD0-J27.mtw	AK35-19 K228-03JS DF=10	19	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-11-25_19-30.chw	ICD0-J27.mtw	AK35-20 K228-03S	20	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_19-48.chw	ICD0-J27.mtw	AK35-21 K228-03D	21	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_20-22.chw	ICD0-J27.mtw	AK35-22 CCV365	22	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_20-39.chw	ICD0-J27.mtw	AK35-23 CCB365	23	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_20-56.chw	ICD0-J27.mtw	AK35-24 K229-01J DF=10	24	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/20ml
2020-11-25_21-13.chw	ICD0-J27.mtw	AK35-25 K229-01K DF=20	25	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-11-25_21-30.chw	ICD0-J27.mtw	AK35-26 K229-01T DF=100	26	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/20ml
2020-11-25_21-47.chw	ICD0-J27.mtw	AK35-27 K228-02I DF=2	27	1.0	2.0	1.0	100.0	0	METHOD 300/9056/4110B	10ml/20ml
2020-11-25_22-04.chw	ICD0-J27.mtw	AK35-28 K228-02J DF=10	28	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/20ml
2020-11-25_22-21.chw	ICD0-J27.mtw	AK35-29 K228-03K DF=100	29	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	0.4ml/40ml
2020-11-25_22-38.chw	ICD0-J27.mtw	AK35-30 K228-03KD DF=100	30	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	0.4ml/40ml
2020-11-25_22-55.chw	ICD0-J27.mtw	AK35-31 K228-03KM DF=100	31	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	0.4ml/40ml
2020-11-25_23-13.chw	ICD0-J27.mtw	AK35-32 K228-03KS DF=100	32	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	0.4ml/40ml
2020-11-25_23-30.chw	ICD0-J27.mtw	AK35-33 K157-02	33	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-25_23-47.chw	ICD0-J27.mtw	AK35-34 CCV367	34	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-26_00-21.chw	ICD0-J27.mtw	AK35-35 CCB367	35	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-26_00-38.chw	ICD0-J27.mtw	AK35-36 K157-01J DF=20	36	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/40ml
2020-11-26_00-55.chw	ICD0-J27.mtw	AK35-37 K157-01JD DF=20	37	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/40ml
2020-11-26_01-12.chw	ICD0-J27.mtw	AK35-38 K157-01JM DF=20	38	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/40ml
2020-11-26_01-29.chw	ICD0-J27.mtw	AK35-39 K157-01JS DF=20	39	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/40ml
2020-11-26_01-46.chw	ICD0-J27.mtw	AK35-40 K157-03J DF=20	40	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/40ml
2020-11-26_02-03.chw	ICD0-J27.mtw	AK35-41 K157-03JD DF=20	41	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/40ml
2020-11-26_02-21.chw	ICD0-J27.mtw	AK35-42 K157-03JM DF=20	42	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/40ml
2020-11-26_02-38.chw	ICD0-J27.mtw	AK35-43 K157-03JS DF=20	43	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/40ml
2020-11-26_02-55.chw	ICD0-J27.mtw	AK35-44 K157-04I DF=20	44	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-11-26_03-12.chw	ICD0-J27.mtw	AK35-45 K157-05I DF=20	45	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-11-26_03-29.chw	ICD0-J27.mtw	AK35-46 CCV369	46	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-26_04-03.chw	ICD0-J27.mtw	AK35-47 CCB369	47	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-26_04-20.chw	ICD0-J27.mtw	AK35-48 K157-06I DF=20	48	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-11-26_04-37.chw	ICD0-J27.mtw	AK35-49 K157-07I DF=20	49	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-11-26_04-54.chw	ICD0-J27.mtw	AK35-50 K157-08I DF=20	50	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-11-26_05-11.chw	ICD0-J27.mtw	AK35-51 K128-01I DF=400	51	1.0	400.0	1.0	100.0	0	METHOD 300/9056/4110B	0.1ml/40ml
2020-11-26_05-29.chw	ICD0-J27.mtw	AK35-52 K128-03I DF=40	52	1.0	40.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/40ml
2020-11-26_05-46.chw	ICD0-J27.mtw	AK35-53 K128-04I DF=20	53	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-11-26_06-03.chw	ICD0-J27.mtw	AK35-54 K128-05I DF=40	54	1.0	40.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/40ml
2020-11-26_06-20.chw	ICD0-J27.mtw	AK35-55 K224-09T DF=100	55	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/20ml
2020-11-26_06-37.chw	ICD0-J27.mtw	AK35-56 CCV371	56	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-11-26_07-11.chw	ICD0-J27.mtw	AK35-57 CCB371	57	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	

FINAL 12/30/20

RETENTION TIME WINDOW

TWENTY FOUR HOUR RETENTION TIME WINDOW
METHOD 300.0

Lab name:	**EMAX**	**Method:**	**EMAX-300.0**
Instrument ID:	D0 (761 IC)	**IC column:**	METROSEP A SUPP 5
		Column size:	100X4.0mm

Compound		Retention time Window
FLUORIDE	(+/-)	0.137
CHLORIDE	(+/-)	0.181
NITRITE	(+/-)	0.195
BROMIDE	(+/-)	0.238
NITRATE	(+/-)	0.335
PHOSPHATE	(+/-)	0.256
SULFATE	(+/-)	0.321
IODIDE	(+/-)	0.435

TK 07/07/20

TWENTY FOUR HOUR RETENTION TIME WINDOW
METHOD 300.0

Lab name: EMAX **Method:** EMAX-300.0

Instrument ID: D0 (761 IC) **IC column:** METROSEP A SUPP 5
Column size: 100X4.0mm

Compound	ICAL Mean RT	from	to	RTW
FLUORIDE	**3.09**	2.96	3.23	**0.137**
CHLORIDE	**4.23**	4.05	4.41	**0.181**
NITRITE	**4.90**	4.71	5.10	**0.195**
BROMIDE	**5.95**	5.71	6.19	**0.238**
NITRATE	**6.69**	6.35	7.02	**0.335**
PHOSPHATE	**9.47**	9.21	9.72	**0.256**
SULFATE	**10.86**	10.54	11.19	**0.321**

ICD0-J27.mtw

10/30/20

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20K128

METHOD SM2320-B
TOTAL ALKALINITY

A total of five(5) water samples were received on 11/13/20 to be analyzed for Total Alkalinity in accordance with Method SM2320-B and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Alkalinity was not detected in ALK011WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. ALK011WL/ALK011WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM2320-B
TOTAL ALKALINITY

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20K128
Matrix : WATER
InstrumentID : E5

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DIL. FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ALK011WB	ND	1	NA	5	5	5	11/20/2017:33	NA	20E5K1903	20E5K19	ALK011W	NA	NA
LCS1W	ALK011WL	75.1	1	NA	5	5	5	11/20/2017:41	NA	20E5K1904	20E5K19	ALK011W	NA	NA
LCD1W	ALK011WC	77.3	1	NA	5	5	5	11/20/2017:48	NA	20E5K1905	20E5K19	ALK011W	NA	NA
SS003-3-MW-15R(11102020)	K128-01	836	1	NA	5	5	5	11/20/2019:33	NA	20E5K1917	20E5K19	ALK011W	11/10/2011:10	11/13/20
SS003-3-MW-18(11102020)	K128-02	292	1	NA	5	5	5	11/20/2019:40	NA	20E5K1918	20E5K19	ALK011W	11/09/2015:20	11/13/20
SS003-3-MW-33(11102020)	K128-03	10.5	1	NA	5	5	5	11/20/2019:46	NA	20E5K1919	20E5K19	ALK011W	11/10/2014:30	11/13/20
SS003-3-MW-40(11102020)	K128-04	32.4	1	NA	5	5	5	11/20/2019:52	NA	20E5K1920	20E5K19	ALK011W	11/10/2013:30	11/13/20
SS003-DUP1(11102020)	K128-05	10.5	1	NA	5	5	5	11/20/2019:58	NA	20E5K1921	20E5K19	ALK011W	11/10/2008:00	11/13/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K128
METHOD : METHOD SM2320-B

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ALK011WB	ALK011WL	ALK011WC
LAB FILE ID :	20E5K1903	20E5K1904	20E5K1905
DATE EXTRACTED :	NA	NA	NA
DATE ANALYZED :	11/20/2017:33	11/20/2017:41	11/20/2017:48
PREP BATCH :	ALK011W	ALK011W	ALK011W
CALIBRATION REF:	20E5K19	20E5K19	20E5K19

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
ALKALINITY	ND	75.8	75.1	99	75.8	77.3	102	3	80-120	20

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ALKALINITY

Note: For samples and relevent QCs/Standards analyzed, refer to attached analytical sequence.

☑ Titration end point: pH 4.5 ± 0.04

☑ Low alkalinity: pH 4.2 ± 0.04

Micropipette ID: NA

MS/MSD amount of spike: NA

Reagent Water: RWI-20-002

Comments:

Book#: AAL-043

Instrument No.: ☐ 53 ☑ E5

Analytical Batch: 20ES K19

Analytical Sequence: ALK011 / ALK013

SOP #	Rev. #
☑ EMAX-2320B	6
☐ EMAX-	

STANDARDS ID		Conc. (mg/L)
0.02N HCL	SWRI-02-24-08	0.02 N
LCS	SWI-02-06-10	75.8
MS/MSD	NA	NA
ICV	NA	NA

pH Buffer	ID
pH 4	SWI-02-07-01
pH 7	SWI-02-07-02
pH 10	SWI-02-07-03
pH 8.0 (Check)	SWI-02-05-19
pH Strip	HC998032

Analyzed By: Lb

Date: 11/20/20

PC-TitratION PLUS

pH and Alkalinity In-Run Report

Run Number 1239 **Analytical Batch#** 20E5K19

Seq. #	SampleID	Data File Name	RunDate	RunTime	pH	Volume @pH 8.3	Volume @pH 4.5	Volume @pH 4.2	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	Review Notes
1	ICV PH7.96	20E5K19	11/20/20	5:21 PM	7.91	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
2	INSTR. CHK.	20E5K19	11/20/20	5:28 PM	8.23	.00	2.41	-1.00	.00	100.68	100.68	.00	.00	
3	ALK011WB	20E5K19	11/20/20	5:33 PM	6.35	.00	.04	.06	.00	.65	.65	.00	.00	
4	ALK011WL	20E5K19	11/20/20	5:41 PM	8.95	1.03	1.80	-1.00	42.94	75.14	.00	64.41	10.74	
5	ALK011WC	20E5K19	11/20/20	5:48 PM	8.98	1.08	1.85	-1.00	45.14	77.30	.00	64.32	12.98	
6	K091-07	20E5K19	11/20/20	5:55 PM	7.23	.00	7.43	-1.00	.00	310.72	310.72	.00	.00	
7	K091-07D	20E5K19	11/20/20	6:02 PM	7.25	.00	7.49	-1.00	.00	313.17	313.17	.00	.00	
8	K091-01	20E5K19	11/20/20	6:12 PM	7.44	.00	11.38	-1.00	.00	475.68	475.68	.00	.00	
9	K091-02	20E5K19	11/20/20	6:22 PM	7.12	.00	14.55	-1.00	.00	608.20	608.20	.00	.00	
10	K091-03	20E5K19	11/20/20	6:32 PM	7.39	.00	10.92	-1.00	.00	456.40	456.40	.00	.00	
11	K091-04	20E5K19	11/20/20	6:40 PM	7.40	.00	8.60	-1.00	.00	359.33	359.33	.00	.00	
12	K091-06	20E5K19	11/20/20	6:50 PM	7.33	.00	8.46	-1.00	.00	353.78	353.78	.00	.00	
13	K091-08	20E5K19	11/20/20	6:59 PM	7.31	.00	11.40	-1.00	.00	476.44	476.44	.00	.00	
14	K091-09	20E5K19	11/20/20	7:04 PM	6.28	.00	.08	.13	.00	1.47	1.47	.00	.00	
15	K098-01	20E5K19	11/20/20	7:15 PM	5.49	.00	9.39	-1.00	.00	392.44	392.44	.00	.00	
16	K098-02	20E5K19	11/20/20	7:20 PM	5.99	.00	.79	-1.00	.00	33.19	33.19	.00	.00	
17	K128-01	20E5K19	11/20/20	7:33 PM	7.38	.00	20.01	-1.00	.00	836.43	836.43	.00	.00	
18	K128-02	20E5K19	11/20/20	7:40 PM	7.61	.00	6.98	-1.00	.00	291.63	291.63	.00	.00	

Analyzed by: lo Reviewed by: lo Date: 11/23/20

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pH AND ALKALINITY IN-RUN REPORT.SRW

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Run Number 1239 **Analytical Batch#** 20E5K19

Seq. #	SampleID	Data File Name	RunDate	RunTime	pH	Volume @pH 8.3	Volume @pH 4.5	Volume @pH 4.2	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	Review Notes
19	K128-03	20E5K19	11/20/20	7:46 PM	5.96	.00	.32	.39	.00	10.48	10.48	.00	.00	
20	K128-04	20E5K19	11/20/20	7:52 PM	6.53	.00	.78	-1.00	.00	32.41	32.41	.00	.00	
21	K128-05	20E5K19	11/20/20	7:58 PM	5.92	.00	.32	.40	.00	10.50	10.50	.00	.00	
22	K158-01	20E5K19	11/20/20	8:06 PM	7.86	.00	6.04	-1.00	.00	252.31	252.31	.00	.00	
23	K158-02	20E5K19	11/20/20	8:17 PM	8.03	.00	11.79	-1.00	.00	492.76	492.76	.00	.00	
24	K158-03	20E5K19	11/20/20	8:26 PM	7.87	.00	10.07	-1.00	.00	420.78	420.78	.00	.00	
25	K178-01	20E5K19	11/20/20	8:32 PM	7.30	.00	4.58	-1.00	.00	191.48	191.48	.00	.00	
26	K178-02	20E5K19	11/20/20	8:39 PM	7.34	.00	4.61	-1.00	.00	192.71	192.71	.00	.00	
27	RINSE	20E5K19	11/20/20	8:48 PM	7.61	.00	.15	.20	.00	4.31	4.31	.00	.00	
28	ALK013WB	20E5K19	11/20/20	8:54 PM	6.27	.00	.07	.12	.00	1.03 ✓	1.03	.00	.00	
29	ALK013WL	20E5K19	11/20/20	9:02 PM	8.99	1.09	2.25	-1.00	45.77	94.09	2.56	91.54	.00	
30	ALK013WC	20E5K19	11/20/20	9:09 PM	8.99	3.04	3.82	-1.00	127.07	159.54	.00	64.96	94.59	
31	K159-13	20E5K19	11/20/20	9:17 PM	6.85	.00	9.30	-1.00	.00	388.67	388.67	.00	.00	FOR REANALYSIS
32	K159-13D	20E5K19	11/20/20	9:25 PM	6.84	.00	9.36	-1.00	.00	391.25	391.25	.00	.00	
33	K159-01	20E5K19	11/20/20	9:35 PM	6.85	.00	9.73	-1.00	.00	406.58	406.58	.00	.00	
34	K159-02	20E5K19	11/20/20	9:41 PM	6.78	.00	5.75	-1.00	.00	240.41	240.41	.00	.00	
35	K159-03	20E5K19	11/20/20	9:49 PM	6.83	.00	9.98	-1.00	.00	417.33	417.33	.00	.00	
36	K159-04	20E5K19	11/20/20	9:59 PM	6.80	.00	10.90	-1.00	.00	455.73	455.73	.00	.00	
37	K159-05	20E5K19	11/20/20	10:07 PM	7.16	.00	8.69	-1.00	.00	363.37	363.37	.00	.00	
38	K159-06	20E5K19	11/20/20	10:17 PM	6.74	.00	10.56	-1.00	.00	441.34	441.34	.00	.00	

Analyzed by: LD Reviewed by: L Date: 11/25/20

PC-TitratION PLUS by Man-Tech Associates, Inc.

pH AND ALKALINITY IN-RUN REPORT.SRW

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REPORT ID: 20K128

Run Number 1239 Analytical Batch# 20E5K19

Seq. #	SampleID	Data File Name	RunDate	RunTime	pH	Volume @pH 8.3	Volume @pH 4.5	Volume @pH 4.2	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	Review Notes
39	K159-07	20E5K19	11/20/20	10:24 PM	6.47	.00	6.85	-1.00	.00	286.33	286.33	.00	.00	FOR REANALYSIS
40	K159-08	20E5K19	11/20/20	10:31 PM	7.49	.00	2.90	-1.00	.00	121.23	121.23	.00	.00	
41	K159-09	20E5K19	11/20/20	10:38 PM	6.70	.00	7.14	-1.00	.00	298.41	298.41	.00	.00	
42	K159-11	20E5K19	11/20/20	10:47 PM	6.81	.00	10.22	-1.00	.00	427.36	427.36	.00	.00	
43	K159-12	20E5K19	11/20/20	10:55 PM	6.81	.00	7.58	-1.00	.00	316.67	316.67	.00	.00	
44	K136-01	20E5K19	11/20/20	11:03 PM	7.61	.00	8.55	-1.00	.00	357.53	357.53	.00	.00	
45	K136-02	20E5K19	11/20/20	11:12 PM	7.62	.00	8.54	-1.00	.00	357.05	357.05	.00	.00	
46	K136-03	20E5K19	11/20/20	11:20 PM	7.63	.00	9.16	-1.00	.00	382.75	382.75	.00	.00	
47	K136-04	20E5K19	11/20/20	11:31 PM	7.75	.00	8.79	-1.00	.00	367.34	367.34	.00	.00	
48	K136-07	20E5K19	11/20/20	11:39 PM	7.80	.00	8.94	-1.00	.00	373.54	373.54	.00	.00	
49	K136-08	20E5K19	11/20/20	11:45 PM	6.70	.00	.10	.15	.00	2.08	2.08	.00	.00	
50	RINSE	20E5K19	11/20/20	11:51 PM	6.35	.00	.07	.12	.00	1.17	1.17	.00	.00	

Analyzed by: LO

Reviewed by: LO Date: 11/23/20

PC-TitratION PLUS by Man-Tech Associates, Inc.

pH AND ALKALINITY IN-RUN REPORT.SRW

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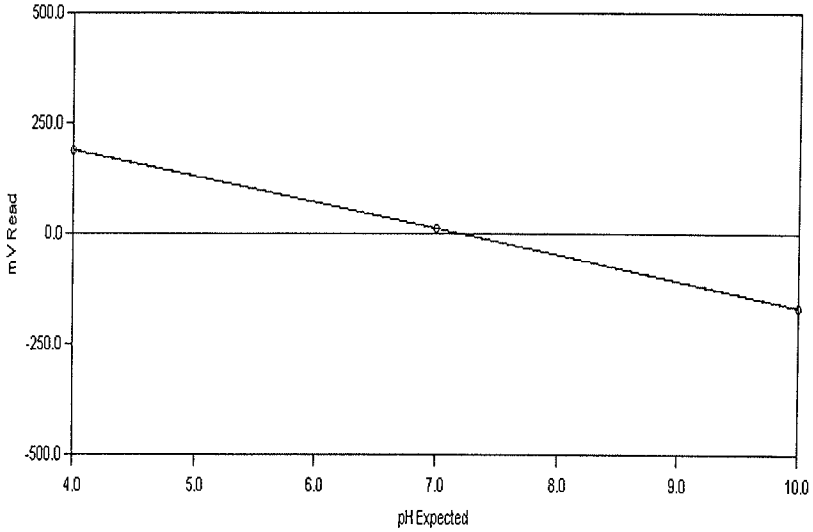
PC-TitratION PLUS
Calibration Report

Calibration Record # 895



Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	11/20/2020
Channel	1	Time	5:18 PM
Probe Type	pH	Temperature	296.83 K 23.68 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-59.670	CorrCoeff	1.0000
Intercept	10.090	Equation: Y = (-59.670) X + (10.090)	

Calibration Validity **True** Operator

	Result	Minimum	Maximum
Slope	-59.670	-65.00	-53.00
Intercept	10.090	-40.00	40.00
Correlation Coefficient	1.0000	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	Standard	Reading
	4.00	188.35
	7.00	11.59
	10.00	-169.67

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PC-Titrate For Windows

Running List Report

Order Number - 20E5K19

	Schedule	Sample Id	Vial	Weight	Volume
1	PH CAL	CAL	1	.00	25.00
2	PH ONLY	ICV PH7.96	4	.00	25.00
3	PH-ALK	INSTR. CHK.	5	.00	25.00
4	PH-ALK	ALK011WB	6	.00	25.00
5	PH-ALK	ALK011WL	7	.00	25.00
6	PH-ALK	ALK011WC	8	.00	25.00
7	PH-ALK	K091-07	9	.00	25.00
8	PH-ALK	K091-07D	10	.00	25.00
9	PH-ALK	K091-01	11	.00	25.00
10	PH-ALK	K091-02	12	.00	25.00
11	PH-ALK	K091-03	13	.00	25.00
12	PH-ALK	K091-04	14	.00	25.00
13	PH-ALK	K091-06	15	.00	25.00
14	PH-ALK	K091-08	16	.00	25.00
15	PH-ALK	K091-09	17	.00	25.00
16	PH-ALK	K098-01	18	.00	25.00
17	PH-ALK	K098-02	19	.00	25.00
18	PH-ALK	K128-01	20	.00	25.00
19	PH-ALK	K128-02	21	.00	25.00
20	PH-ALK	K128-03	22	.00	25.00
21	PH-ALK	K128-04	23	.00	25.00
22	PH-ALK	K128-05	24	.00	25.00
23	PH-ALK	K158-01	25	.00	25.00
24	PH-ALK	K158-02	26	.00	25.00
25	PH-ALK	K158-03	27	.00	25.00
26	PH-ALK	K178-01	28	.00	25.00
27	PH-ALK	K178-02	29	.00	25.00
28	PH-ALK	RINSE	30	.00	25.00
29	PH-ALK	ALK013WB	31	.00	25.00
30	PH-ALK	ALK013WL	32	.00	25.00
31	PH-ALK	ALK013WC	33	.00	25.00
32	PH-ALK	K159-13	34	.00	25.00
33	PH-ALK	K159-13D	35	.00	25.00
34	PH-ALK	K159-01	36	.00	25.00
35	PH-ALK	K159-02	37	.00	25.00
36	PH-ALK	K159-03	38	.00	25.00
37	PH-ALK	K159-04	39	.00	25.00
38	PH-ALK	K159-05	40	.00	25.00
39	PH-ALK	K159-06	41	.00	25.00
40	PH-ALK	K159-07	42	.00	25.00

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runninglist.SRW
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Running List Report

Order Number - 20E5K19

	Schedule	Sample Id	Vial	Weight	Volume
41	PH-ALK	K159-08	43	.00	25.00
42	PH-ALK	K159-09	44	.00	25.00
43	PH-ALK	K159-11	45	.00	25.00
44	PH-ALK	K159-12	46	.00	25.00
45	PH-ALK	K136-01	47	.00	25.00
46	PH-ALK	K136-02	48	.00	25.00
47	PH-ALK	K136-03	49	.00	25.00
48	PH-ALK	K136-04	50	.00	25.00
49	PH-ALK	K136-07	51	.00	25.00
50	PH-ALK	K136-08	52	.00	25.00
51	PH-ALK	RINSE	53	.00	25.00

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CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20K128

METHOD SM4500-S2-D
TOTAL SULFIDE

A total of five(5) water samples were received on 11/13/20 to be analyzed for Total Sulfide in accordance with Method SM4500-S2-D and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Sulfide was not detected in SFK004WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. SFK004WL/SFK004WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM4500-S2-D
TOTAL SULFIDE

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20K128
Matrix : WATER
InstrumentID : H9

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	SFK004WB	ND	1	NA	0.1	0.01	0.02	11/13/2014:26	NA	20SFK00410	20SFK004	SFK004W	NA	NA
LCS1W	SFK004WL	0.398	1	NA	0.1	0.01	0.02	11/13/2014:26	NA	20SFK00411	20SFK004	SFK004W	NA	NA
LCD1W	SFK004WC	0.399	1	NA	0.1	0.01	0.02	11/13/2014:26	NA	20SFK00412	20SFK004	SFK004W	NA	NA
SS003-3-MW-18(11102020)	K128-02	ND	1	NA	0.1	0.01	0.02	11/13/2014:27	NA	20SFK00422	20SFK004	SFK004W	11/09/2015:20	11/13/20
SS003-3-MW-33(11102020)	K128-03	ND	1	NA	0.1	0.01	0.02	11/13/2014:28	NA	20SFK00423	20SFK004	SFK004W	11/10/2014:30	11/13/20
SS003-3-MW-40(11102020)	K128-04	ND	1	NA	0.1	0.01	0.02	11/13/2014:28	NA	20SFK00424	20SFK004	SFK004W	11/10/2013:30	11/13/20
SS003-DUP1(11102020)	K128-05	ND	1	NA	0.1	0.01	0.02	11/13/2014:28	NA	20SFK00425	20SFK004	SFK004W	11/10/2008:00	11/13/20
SS003-3-MW-15R(11102020)	K128-01I	0.575	5	NA	0.5	0.05	0.1	11/13/2014:29	NA	20SFK00429	20SFK004	SFK004W	11/10/2011:10	11/13/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K128
METHOD : SM4500-S2-D

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: SFK004WB	SFK004WL	SFK004WC
LAB FILE ID	: 20SFK00410	20SFK00411	20SFK00412
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 11/13/2014:26	11/13/2014:26	11/13/2014:26
PREP BATCH	: SFK004W	SFK004W	SFK004W
CALIBRATION REF	: 20SFK004	20SFK004	20SFK004

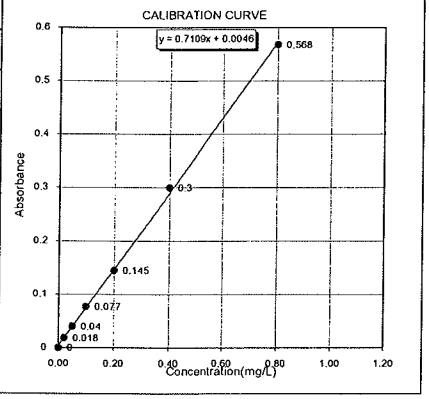
ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
SULFIDE	ND	0.400	0.398	99	0.400	0.399	100	0	80-120	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

Data File Name	Calibration ID	Conc. mg/L	WL	Abs	CalDate	FC	%Rec
20SFK00401	S0	0.00	664nm	0	11/13/20 14:25	-0.0046	ND
20SFK00402	S1	0.02	664nm	0.018	11/13/20 14:25	0.020721326	104
20SFK00403	S2	0.05	664nm	0.04	11/13/20 14:25	0.051669614	103
20SFK00404	S3	0.10	664nm	0.077	11/13/20 14:25	0.103719007	104
20SFK00405	S4	0.20	664nm	0.145	11/13/20 14:25	0.19937735	100
20SFK00406	S5	0.40	664nm	0.3	11/13/20 14:26	0.417422104	104
20SFK00407	S6	0.80	664nm	0.568	11/13/20 14:26	0.794428517	99
20SFK00408	ICV	0.40	664nm	0.293	11/13/20 14:26	0.407574922	102
20SFK00409	ICB	0.00	664nm	0	11/13/20 14:26	-0.0046	ND
20SFK00420	CCV1	0.40	664nm	0.298	11/13/20 14:27	0.414608623	104
20SFK00421	CCB1	0.00	664nm	0	11/13/20 14:27	-0.0046	ND
20SFK00426	CCV2	0.40	664nm	0.291	11/13/20 14:28	0.404761441	101
20SFK00427	CCB2	0.00	664nm	0	11/13/20 14:28	-0.0046	ND
20SFK00430	CCV3	0.40	664nm	0.291	11/13/20 14:29	0.404761441	101
20SFK00431	CCB3	0.00	664nm	0	11/13/20 14:29	-0.0046	ND

Coloring Time	$FC = [(A * CF) - Y] * DF$	InstrumentID: H9
11/13/20 14:11		
11/13/20 14:11		
11/13/20 14:11		
11/13/20 14:11		
11/13/20 14:11		
11/13/20 14:11		
11/13/20 14:11		
11/13/20 14:11		
11/13/20 14:11		



CF= 1.406740347 Y= 0.0046 r= 0.999651

DL Water(mg/L)	0.01	DL Soil(mg/Kg)	
LOD Water(mg/L)	0.02	LOD Soil(mg/Kg)	
LOQ Water(mg/L)	0.1	LOQ Soil(mg/Kg)	

SOP

☑ EMAX-4500-S2D Rev. 4

Comment:

K098-01 and K128-01 had a yellow color and were very turbid.

Standard / Reagent ID	Description	Conc.	Exp.Date
SW2B-27-18-08	Intermediate ICAL CCV Std (mg/L)	10	11/13/20
SW2B-27-18-09	Intermediate ICV LCS Std (mg/L)	10	11/13/20
SW1-02-03-12	MS Spike	1000	04/29/22
RW1-20-002	Reagent Water	NA	NA
NA	Sand	NA	NA
SWR1-03-02-02	Amine Sulfuric Acid	CRT RGT	09/01/21
SWR1-02-24-05	Ferric Chloride (%)	100	05/01/22
SWP1-57-13-03	Diammonium Phosphate	Mixed	08/05/21
SWP1-53-31-03	Sulfuric Acid,%	50	03/03/21
HC904495	pH strip	0-14	10/28/30

Standard Prep	Intermediate Std Aliquot (mg/L)	Final Vol (ml)	DateTime
S0	0	7.5	11/13/20 13:41
S1	0.015	7.5	11/13/20 13:41
S2	0.0375	7.5	11/13/20 13:41
S3	0.075	7.5	11/13/20 13:41
S4	0.15	7.5	11/13/20 13:41
S5	0.3	7.5	11/13/20 13:41
S6	0.6	7.5	11/13/20 13:41
LCS	0.3	7.5	11/13/20 13:41
ICV	0.3	7.5	11/13/20 13:41
CCV	0.3	7.5	11/13/20 13:41
MS	0.006	15	11/13/20 13:41

Balance ID: NA

Micropipette ID: 442781364 339362002 942754082

539330061

Expected Sample Amount (ml): 7.5

Snapseal Lot | 1.5oz | 4oz | 10oz |:	21520008	28619010	23620008

Analyzed by: NHando

Reviewed by: NH
Date: 11/20/20

DataFileID	LabSampleID	Result	Flag	RUnit	SampleAmt	SUnit	PDateTime	FinalVol (ml)	WL	Abs	ADateTime	Sample Bkgnd	DF	%M	Conc.	DFxPrep Factor	Notes	Analyst	ph check	Coloring Time
20SFK00410	SFK004WB	ND		mg/L	7.5	ml	NA	7.5	664nm	0.001	11/13/20 14:26	0	1		-0.00319	1		NHando		11/13/20 14:11
20SFK00411	SFK004WL	0.398		mg/L	7.5	ml	NA	7.5	664nm	0.286	11/13/20 14:26	0	1		0.397728	1		NHando		11/13/20 14:11
20SFK00412	SFK004WC	0.399		mg/L	7.5	ml	NA	7.5	664nm	0.287	11/13/20 14:26	0	1		0.399134	1		NHando		11/13/20 14:11
20SFK00413	K092-01	ND		mg/L	7.5	ml	NA	7.5	664nm	0.006	11/13/20 14:26	0	1		0.00384	1		NHando	>9	11/13/20 14:11
20SFK00414	K092-01D	ND		mg/L	7.5	ml	NA	7.5	664nm	0.006	11/13/20 14:26	0	1		0.00384	1		NHando	>9	11/13/20 14:11
20SFK00415	K092-01M	0.405		mg/L	7.5	ml	NA	7.5	664nm	0.291	11/13/20 14:26	0	1		0.404761	1		NHando	>9	11/13/20 14:11
20SFK00416	K092-01S	0.405		mg/L	7.5	ml	NA	7.5	664nm	0.291	11/13/20 14:27	0	1		0.404761	1		NHando	>9	11/13/20 14:11
20SFK00417	K098-01	2.668	DR	mg/L	7.5	ml	NA	7.5	664nm #	1.9	11/13/20 14:27	0	1		2.668207	1		NHando	>9	11/13/20 14:11
20SFK00418	K098-02	0.0474	J	mg/L	7.5	ml	NA	7.5	664nm	0.037	11/13/20 14:27	0	1		0.047449	1		NHando	>9	11/13/20 14:11
20SFK00419	K128-01	0.285	DR	mg/L	7.5	ml	NA	7.5	664nm	0.67	11/13/20 14:27	0.464	1		0.285189	1		NHando	>9	11/13/20 14:11
20SFK00420	CCV1	0.415		mg/L	7.5	ml	NA	7.5	664nm	0.298	11/13/20 14:27	0	1		0.414609	1		NHando		11/13/20 14:11
20SFK00421	CCB1	ND		mg/L	7.5	ml	NA	7.5	664nm	0	11/13/20 14:27	0	1		-0.0046	1		NHando		11/13/20 14:11
20SFK00422	K128-02	ND		mg/L	7.5	ml	NA	7.5	664nm	0.004	11/13/20 14:27	0	1		0.001027	1		NHando	>9	11/13/20 14:11
20SFK00423	K128-03	ND		mg/L	7.5	ml	NA	7.5	664nm	0.008	11/13/20 14:28	0	1		0.006654	1		NHando	>9	11/13/20 14:11
20SFK00424	K128-04	ND		mg/L	7.5	ml	NA	7.5	664nm	0.002	11/13/20 14:28	0	1		-0.00179	1		NHando	>9	11/13/20 14:11
20SFK00425	K128-05	ND		mg/L	7.5	ml	NA	7.5	664nm	0.004	11/13/20 14:28	0	1		0.001027	1		NHando	>9	11/13/20 14:11
20SFK00426	CCV2	0.405		mg/L	7.5	ml	NA	7.5	664nm	0.291	11/13/20 14:28	0	1		0.404761	1		NHando		11/13/20 14:11
20SFK00427	CCB2	ND		mg/L	7.5	ml	NA	7.5	664nm	0	11/13/20 14:28	0	1		-0.0046	1		NHando		11/13/20 14:11
20SFK00428	K098-01I	9.305		mg/L	0.375	ml	NA	7.5	664nm	0.334	11/13/20 14:29	0	1		9.305026	20		NHando		11/13/20 14:18
20SFK00429	K128-01I	0.575		mg/L	1.5	ml	NA	7.5	664nm	0.341	11/13/20 14:29	0.256	1		0.574865	5		NHando		11/13/20 14:18
20SFK00430	CCV3	0.405		mg/L	7.5	ml	NA	7.5	664nm	0.291	11/13/20 14:29	0	1		0.404761	1		NHando		11/13/20 14:18
20SFK00431	CCB3	ND		mg/L	7.5	ml	NA	7.5	664nm	0	11/13/20 14:29	0	1		-0.0046	1		NHando		11/13/20 14:18

Reviewed by: NH
Date: 11/11/20

LAB QC CHECK

DataFileID	LabSampleID	Result	Expected Value	QC Result
20SFK00410	SFK004WB	ND	ND	MB Passed
20SFK00411	SFK004WL	0.398	0.4	%R=100
20SFK00412	SFK004WC	0.399	0.4	%R=100

MS CHECK

DataFileID	LabSampleID	Result	Expected Value	QC Result
20SFK00413	K092-01	ND	0	RPD=
20SFK00415	K092-01M	0.405	0.4	%R=101
20SFK00416	K092-01S	0.405	0.4	%R=101

DUP CHECK

DataFileID	LabSampleID	Result	Expected Value	RPD
20SFK00413	K092-01	ND	0	0
20SFK00414	K092-01D	ND		

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20K128

METHOD SM5310-B
TOC

A total of five(5) water samples were received on 11/13/20 to be analyzed for TOC in accordance with Method SM5310-B and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. TOC was not detected in TCK012WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. TCK012WL/TCK012WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM5310-B
TOC

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20K128

Matrix : WATER
InstrumentID : 62

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DIL'N FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	TCK012WB	ND	1	NA	1.00	0.250	0.500	11/24/2006:08	NA	TCK007-40	TCK007-38	TCK012W	NA	NA
LCS1W	TCK012WL	24.2	1	NA	1.00	0.250	0.500	11/24/2006:23	NA	TCK007-41	TCK007-38	TCK012W	NA	NA
LCD1W	TCK012WC	24.4	1	NA	1.00	0.250	0.500	11/24/2006:39	NA	TCK007-42	TCK007-38	TCK012W	NA	NA
SS003-3-MW-15R(11102020)	K128-01	30.6	1	NA	1.00	0.250	0.500	11/24/2007:23	NA	TCK007-45	TCK007-38	TCK012W	11/10/2011:10	11/13/20
SS003-3-MW-18(11102020)	K128-02	10.3	1	NA	1.00	0.250	0.500	11/24/2007:38	NA	TCK007-46	TCK007-38	TCK012W	11/09/2015:20	11/13/20
SS003-3-MW-33(11102020)	K128-03	22.4	1	NA	1.00	0.250	0.500	11/24/2007:53	NA	TCK007-47	TCK007-38	TCK012W	11/10/2014:30	11/13/20
SS003-3-MW-40(11102020)	K128-04	10.7	1	NA	1.00	0.250	0.500	11/24/2008:08	NA	TCK007-48	TCK007-38	TCK012W	11/10/2013:30	11/13/20
SS003-DUP1(11102020)	K128-05	22.5	1	NA	1.00	0.250	0.500	11/24/2008:23	NA	TCK007-49	TCK007-38	TCK012W	11/10/2008:00	11/13/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20K128
METHOD : SM5310-B

MATRIX : WATER % MOISTURE:NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1W LCS1W LCD1W
LAB SAMPLE ID : TCK012WB TCK012WL TCK012WC
LAB FILE ID : TCK007-40 TCK007-41 TCK007-42
DATE PREPARED : NA NA NA
DATE ANALYZED : 11/24/2006:08 11/24/2006:23 11/24/2006:39
PREP BATCH : TCK012W TCK012W TCK012W
CALIBRATION REF: TCK007-38 TCK007-38 TCK007-38

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
TOC	ND	25.0	24.2	97	25.0	24.4	98	1	80-120	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
TOC

	Date	Time
Start	11/23/20	17:46
End	11/24/20	13:47

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

☐ Sample was filtered. Filter ID: NA

Comments: TCK011W: 20K091
20K098
20K118
TCK012W: 20K118
20K128
20K136
20K139

No dilutions were performed in this run. UA 11/25/20

Reagent Water ID #: RW1·20·002

pH Strips Lot #: HC904495

2 M HCl SWP1·55·26.02

Book #: A62-040

Instrument No.: 62

Micropipette ID: ☑ 439350020

Micropipette ID: ☑ 539360056

Micropipette ID: ☑ 642780221

Micropipette ID: ☐

Analytical Sequence: TCK007

Method File: TCK007

Analytical Batch: TCK011W/TCK012W

SOP #	Rev. #
☑ EMAX-5310B	4
☑ EMAX-9060	4
☐ EMAX-	

STANDARDS ID		CONC. (mg/L)
S0	RW1·20·002	0
S1	SW7B·01·21·07	1
S2		5
S3		10
S4	UA 11/25/20	~~2~~ 40
S5		80
S6	—	—
ICV/LCS	SW7B·01·21·10	25
CCV	SW7B·01·22·01	25
	—	—

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ TOC	
☐	

Analyzed By: UA

Date: 11/23/20

	Type	Analysi	Sample Name	Sample ID	Dilutio	Result	Comment
1	Standard	NPOC	ICAL - Instrum	TCK007-01	1.000		TOC METHOD 9060/5310B
2	Control	NPOC	ICV	TCK007-02	1.000	NPOC:24.78 mg/L	
3	Unknown	NPOC	ICB	TCK007-03	1.000	NPOC:0.1041 mg/L	
4	Unknown	NPOC	HCO3/CO3	TCK007-04	1.000	NPOC:0.04097 mg/	
5	Unknown	NPOC	TCK011WB	TCK007-05	1.000	NPOC:0.04093 mg/	
6	Unknown	NPOC	TCK011WL	TCK007-06	1.000	NPOC:24.75 mg/L	
7	Unknown	NPOC	TCK011WC	TCK007-07	1.000	NPOC:24.74 mg/L	
8	Unknown	NPOC	K091-01	TCK007-08	1.000	NPOC:3.816 mg/L	PH<2
9	Unknown	NPOC	K091-02	TCK007-09	1.000	NPOC:12.42 mg/L	PH<2
10	Unknown	NPOC	K091-03	TCK007-10	1.000	NPOC:2.430 mg/L	PH<2
11	Unknown	NPOC	K091-04	TCK007-11	1.000	NPOC:2.307 mg/L	PH<2
12	Unknown	NPOC	K091-06	TCK007-12	1.000	NPOC:2.955 mg/L	PH<2
13	Unknown	NPOC	K091-07	TCK007-13	1.000	NPOC:3.549 mg/L	PH<2
14	Control	NPOC	CCV1	TCK007-14	1.000	NPOC:24.27 mg/L	
15	Unknown	NPOC	CCB1	TCK007-15	1.000	NPOC:0.08413 mg/	
16	Unknown	NPOC	K091-07D	TCK007-16	1.000	NPOC:3.512 mg/L	PH<2
17	Unknown	NPOC	K091-07M	TCK007-17	1.000	NPOC:26.82 mg/L	PH<2
18	Unknown	NPOC	K091-07S	TCK007-18	1.000	NPOC:26.26 mg/L	PH<2
19	Unknown	NPOC	K091-08	TCK007-19	1.000	NPOC:2.753 mg/L	PH<2
20	Unknown	NPOC	K091-09	TCK007-20	1.000	NPOC:0.5067 mg/L	PH<2
21	Unknown	NPOC	K098-01	TCK007-21	1.000	NPOC:373.5 mg/L	PH<2
22	Unknown	NPOC	K098-02	TCK007-22	1.000	NPOC:13.68 mg/L	PH<2
23	Unknown	NPOC	K118-01	TCK007-23	1.000	NPOC:4.260 mg/L	PH<2
24	Unknown	NPOC	K118-02	TCK007-24	1.000	NPOC:3.009 mg/L	PH<2
25	Unknown	NPOC	K118-03	TCK007-25	1.000	NPOC:1.458 mg/L	PH<2
26	Control	NPOC	CCV2	TCK007-26	1.000	NPOC:24.32 mg/L	
27	Unknown	NPOC	CCB2	TCK007-27	1.000	NPOC:0.1169 mg/L	
28	Unknown	NPOC	K118-04	TCK007-28	1.000	NPOC:3.226 mg/L	PH<2
29	Unknown	NPOC	K118-05	TCK007-29	1.000	NPOC:2.943 mg/L	PH<2
30	Unknown	NPOC	K118-06	TCK007-30	1.000	NPOC:0.4780 mg/L	PH<2
31	Unknown	NPOC	K118-07	TCK007-31	1.000	NPOC:5.402 mg/L	PH<2
32	Unknown	NPOC	K118-09	TCK007-32	1.000	NPOC:4.492 mg/L	PH<2
33	Unknown	NPOC	K118-10	TCK007-33	1.000	NPOC:0.4981 mg/L	PH<2
34	Unknown	NPOC	K118-11	TCK007-34	1.000	NPOC:3.058 mg/L	PH<2
35	Unknown	NPOC	K118-11D	TCK007-35	1.000	NPOC:3.089 mg/L	PH<2
36	Unknown	NPOC	K118-11M	TCK007-36	1.000	NPOC:26.59 mg/L	PH<2
37	Unknown	NPOC	K118-11S	TCK007-37	1.000	NPOC:26.72 mg/L	PH<2
38	Control	NPOC	CCV3	TCK007-38	1.000	NPOC:24.16 mg/L	
39	Unknown	NPOC	CCB3	TCK007-39	1.000	NPOC:0.09293 mg/	
40	Unknown	NPOC	TCK012WB	TCK007-40	1.000	NPOC:0.04121 mg/	
41	Unknown	NPOC	TCK012WL	TCK007-41	1.000	NPOC:24.22 mg/L	
42	Unknown	NPOC	TCK012WC	TCK007-42	1.000	NPOC:24.41 mg/L	
43	Unknown	NPOC	K118-12	TCK007-43	1.000	NPOC:3.998 mg/L	PH<2
44	Unknown	NPOC	K118-14	TCK007-44	1.000	NPOC:8.342 mg/L	PH<2
45	Unknown	NPOC	K128-01	TCK007-45	1.000	NPOC:30.58 mg/L	PH<2
46	Unknown	NPOC	K128-02	TCK007-46	1.000	NPOC:10.28 mg/L	PH<2
47	Unknown	NPOC	K128-03	TCK007-47	1.000	NPOC:22.38 mg/L	PH<2
48	Unknown	NPOC	K128-04	TCK007-48	1.000	NPOC:10.69 mg/L	PH<2
49	Unknown	NPOC	K128-05	TCK007-49	1.000	NPOC:22.50 mg/L	PH<2
50	Control	NPOC	CCV4	TCK007-50	1.000	NPOC:24.80 mg/L	
51	Unknown	NPOC	CCB4	TCK007-51	1.000	NPOC:0.1658 mg/L	
52	Unknown	NPOC	K136-01	TCK007-52	1.000	NPOC:6.034 mg/L	PH<2
53	Unknown	NPOC	K136-02	TCK007-53	1.000	NPOC:2.035 mg/L	PH<2
54	Unknown	NPOC	K136-03	TCK007-54	1.000	NPOC:3.462 mg/L	PH<2
55	Unknown	NPOC	K136-03D	TCK007-55	1.000	NPOC:3.740 mg/L	PH<2
56	Unknown	NPOC	K136-03M	TCK007-56	1.000	NPOC:26.68 mg/L	PH<2
57	Unknown	NPOC	K136-03S	TCK007-57	1.000	NPOC:26.92 mg/L	PH<2
58	Unknown	NPOC	K136-04	TCK007-58	1.000	NPOC:21.20 mg/L	PH<2
59	Unknown	NPOC	K136-07	TCK007-59	1.000	NPOC:23.42 mg/L	PH<2
60	Unknown	NPOC	K136-08	TCK007-60	1.000	NPOC:0.8977 mg/L	PH<2
61	Unknown	NPOC	K139-08	TCK007-61	1.000	NPOC:0.4069 mg/L	PH<2
62	Control	NPOC	CCV5	TCK007-62	1.000	NPOC:24.83 mg/L	
63	Unknown	NPOC	CCB5	TCK007-63	1.000	NPOC:0.1116 mg/L	
64	Unknown	NPOC	K139-08D	TCK007-64	1.000	NPOC:0.4696 mg/L	PH<2
65	Unknown	NPOC	K139-08M	TCK007-65	1.000	NPOC:24.03 mg/L	PH<2
66	Unknown	NPOC	K139-08S	TCK007-66	1.000	NPOC:24.10 mg/L	PH<2
67	Unknown	NPOC	K139-14	TCK007-67	1.000	NPOC:0.6733 mg/L	PH<2

	Type	Analysi	Sample Name	Sample ID	Dilutio	Result	Comment
68	Control	NPOC	CCV6	TCK007-68	1.000	NPOC:24.26 mg/L	
69	Unknown	NPOC	CCB6	TCK007-69	1.000	NPOC:0.09357 mg/	
70							
71							
72							
73							
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75							
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100							

FINAL

Instr.Information

System	TOC-9060/415.1/5310B
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

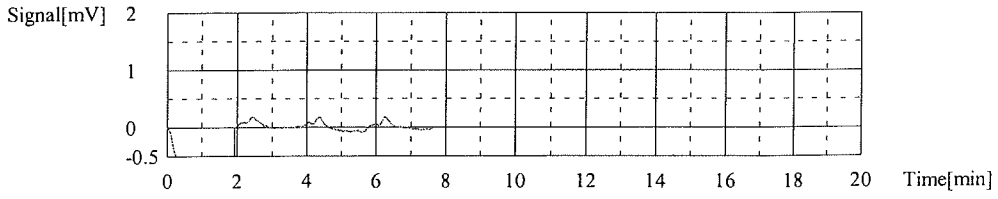
Sample Name:	ICAL - Instrument 62
Sample ID:	TCK007-01
Cal. Curve:	TCK007.2020_11_23_17_38_24.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.000	50uL	1	*******		11/23/20 05:46:47 PM
2	0.4815	50uL	1	*******		11/23/20 05:48:51 PM
3	0.4243	50uL	1	*******		11/23/20 05:50:55 PM
4	0.1571	50uL	1	*******		11/23/20 05:53:00 PM

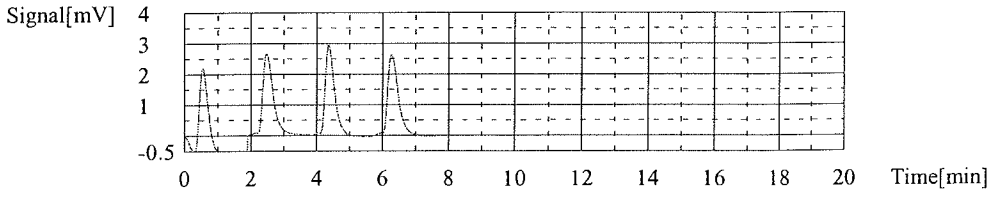
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 0.2657



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	4.964	50uL	1	*******		11/23/20 06:01:34 PM
2	5.847	50uL	1	*******		11/23/20 06:03:38 PM
3	6.072	50uL	1	*******		11/23/20 06:05:42 PM
4	6.085	50uL	1	*******		11/23/20 06:07:46 PM

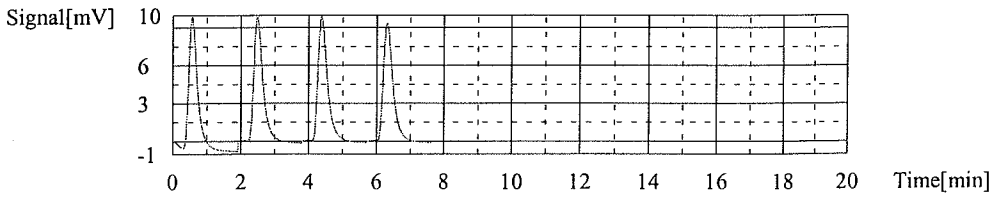
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 5.742



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	17.96	50uL	1	*******		11/23/20 06:16:21 PM
2	18.84	50uL	1	*******		11/23/20 06:18:25 PM
3	19.24	50uL	1	*******		11/23/20 06:20:29 PM
4	18.96	50uL	1	*******		11/23/20 06:22:34 PM

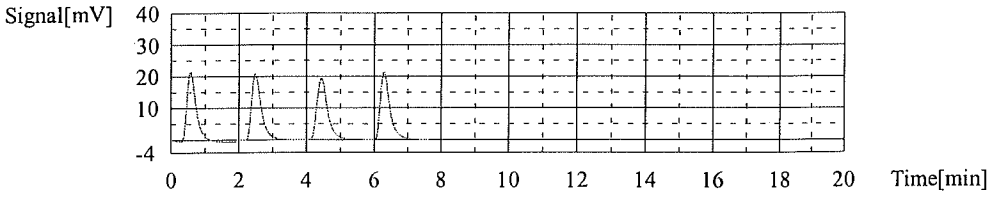
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 18.75



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	42.45	50uL	1	*******		11/23/20 06:31:10 PM
2	43.34	50uL	1	*******		11/23/20 06:33:14 PM
3	43.92	50uL	1	*******		11/23/20 06:35:18 PM
4	44.07	50uL	1	*******		11/23/20 06:37:22 PM

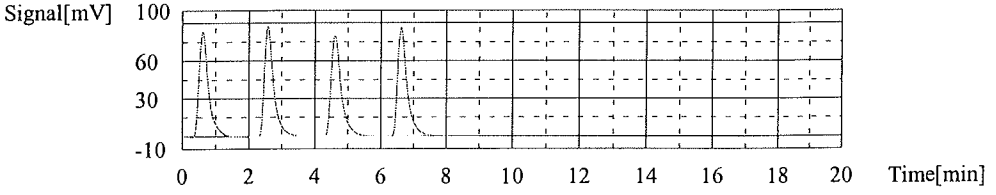
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 43.45



Conc: 40.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	173.3	50uL	1	*******		11/23/20 06:46:06 PM
2	174.4	50uL	1	*******		11/23/20 06:48:16 PM
3	175.4	50uL	1	*******		11/23/20 06:50:28 PM
4	177.7	50uL	1	*******		11/23/20 06:52:39 PM

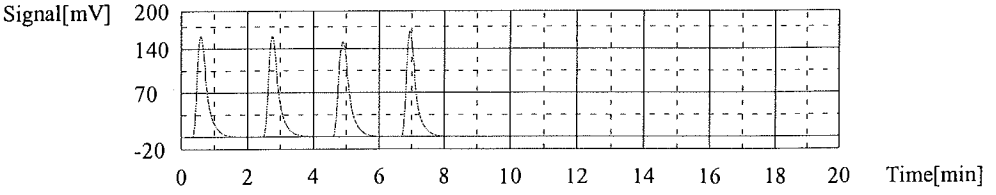
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 175.2



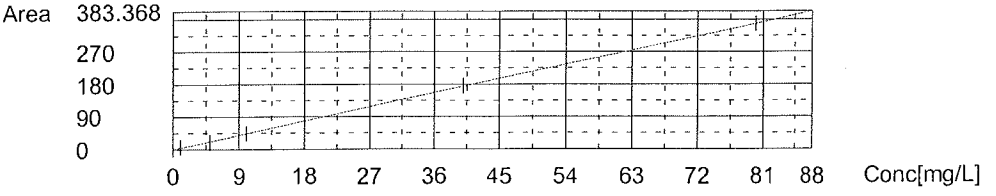
Conc: 80.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	347.1	50uL	1	*******		11/23/20 07:01:32 PM
2	345.3	50uL	1	*******		11/23/20 07:03:49 PM
3	354.5	50uL	1	*******		11/23/20 07:06:05 PM
4	344.7	50uL	1	*******		11/23/20 07:08:22 PM

Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 347.9



Slope: 4.356
Intercept 0.000
r^2 0.999872



Control Sample

Sample Name: ICV
Sample ID: TCK007-02
Method: TCK007.tpl
Chk. Result Control value: 24.78 / Control exceeds range!

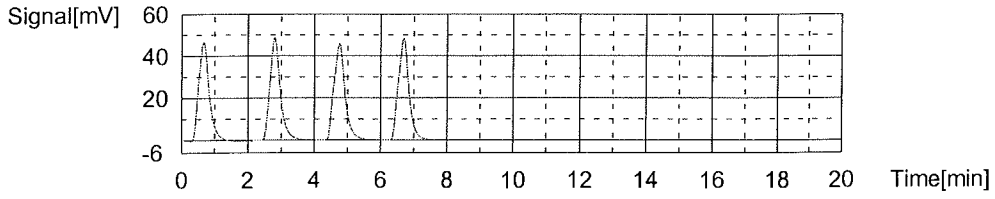
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.78 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	107.3	24.63mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 07:17:19 PM
2	107.6	24.70mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 07:19:25 PM
3	107.9	24.77mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 07:21:31 PM
4	109.0	25.02mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 07:23:35 PM

Mean Area 108.0
Mean Conc. 24.78mg/L



Sample

Sample Name: ICB
Sample ID: TCK007-03
Origin: TCK007.cal
Chk. Result

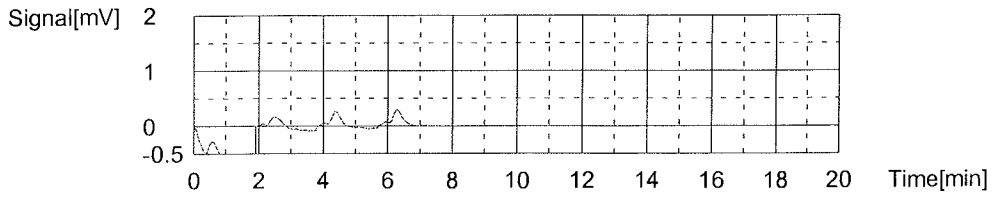
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1041 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.4405	0.1011mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 07:32:14 PM
2	0.3397	0.07798mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 07:34:18 PM
3	0.5881	0.1350mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 07:36:22 PM
4	0.4453	0.1022mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 07:38:27 PM

Mean Area 0.4534
Mean Conc. 0.1041mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCK007-04
Origin: TCK007.cal
Chk. Result

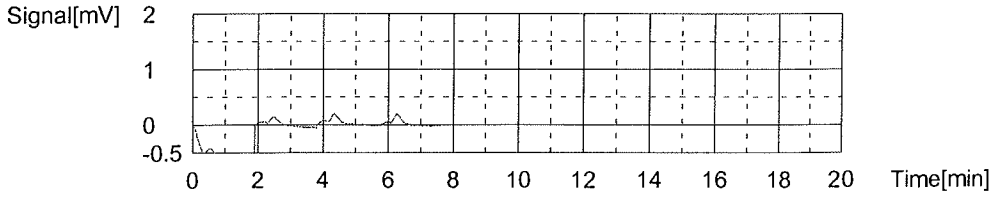
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.04097 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.1341	0.03078mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 07:59:50 PM
2	0.1506	0.03457mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 08:01:54 PM
3	0.1927	0.04423mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 08:03:58 PM
4	0.2365	0.05429mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 08:06:02 PM

Mean Area 0.1785
Mean Conc. 0.04097mg/L



Sample

Sample Name: TCK011WB
Sample ID: TCK007-05
Origin: TCK007.cal
Chk. Result

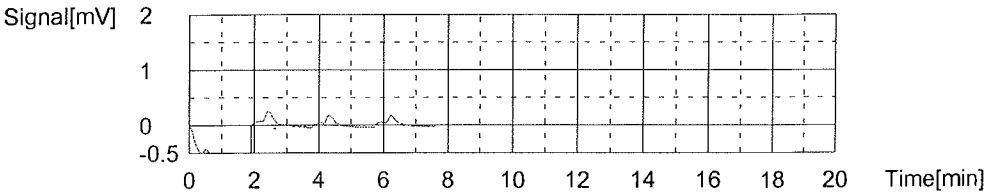
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.04093 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.000	0.000mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 08:27:24 PM
2	0.2877	0.06604mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 08:29:28 PM
3	0.2258	0.05183mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 08:31:32 PM
4	0.1998	0.04586mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 08:33:36 PM

Mean Area 0.1783
Mean Conc. 0.04093mg/L



Sample

Sample Name: TCK011WL
Sample ID: TCK007-06
Origin: TCK007.cal
Chk. Result

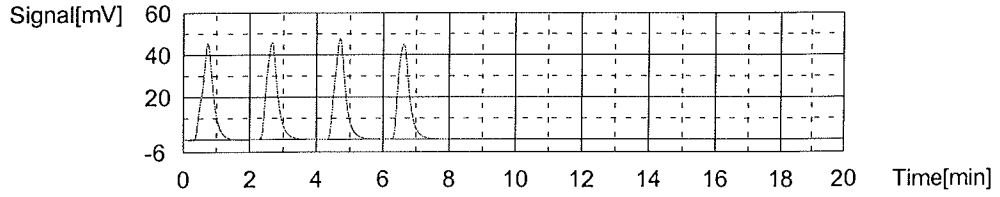
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:24.75 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	107.8	24.74mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 08:42:17 PM
2	106.9	24.54mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 08:44:29 PM
3	109.0	25.02mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 08:46:36 PM
4	107.6	24.70mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 08:48:44 PM

Mean Area 107.8
Mean Conc. 24.75mg/L



Sample

Sample Name: TCK011WC
Sample ID: TCK007-07
Origin: TCK007.cal
Chk. Result

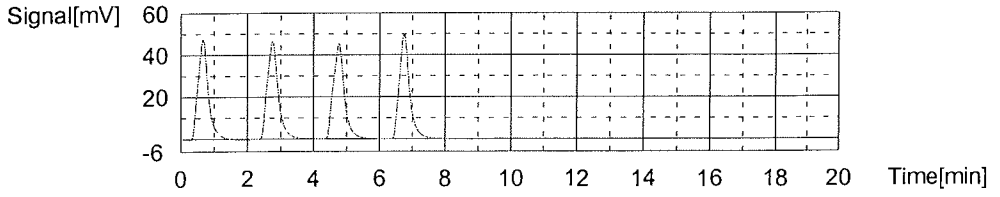
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:24.74 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	105.8	24.29mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 08:57:30 PM
2	107.6	24.70mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 08:59:40 PM
3	108.0	24.79mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:01:51 PM
4	109.8	25.20mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:04:03 PM

Mean Area 107.8
Mean Conc. 24.74mg/L



Sample

Sample Name: K091-01
Sample ID: TCK007-08
Origin: TCK007.cal
Chk. Result

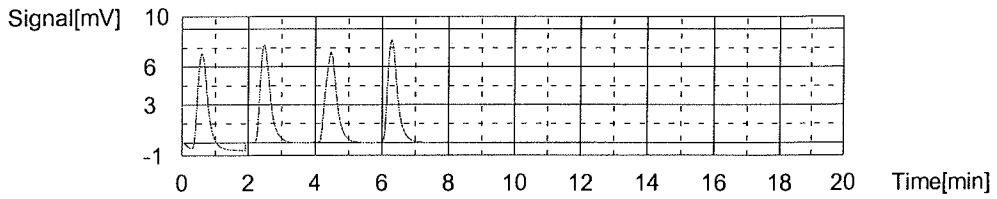
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:3.816 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	16.18	3.714mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:12:38 PM
2	16.63	3.817mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:14:42 PM
3	16.76	3.847mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:16:47 PM
4	16.93	3.886mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:18:51 PM

Mean Area 16.63
Mean Conc. 3.816mg/L



Sample

Sample Name: K091-02
Sample ID: TCK007-09
Origin: TCK007.cal
Chk. Result

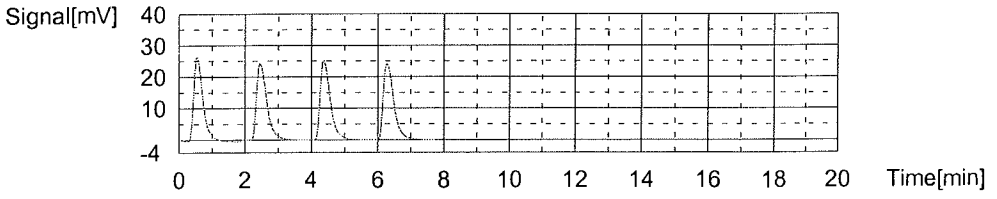
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:12.42 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	53.11	12.19mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:27:26 PM
2	53.95	12.38mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:29:31 PM
3	54.38	12.48mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:31:36 PM
4	55.05	12.64mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:33:46 PM

Mean Area 54.12
Mean Conc. 12.42mg/L



Sample

Sample Name: K091-03
Sample ID: TCK007-10
Origin: TCK007.cal
Chk. Result

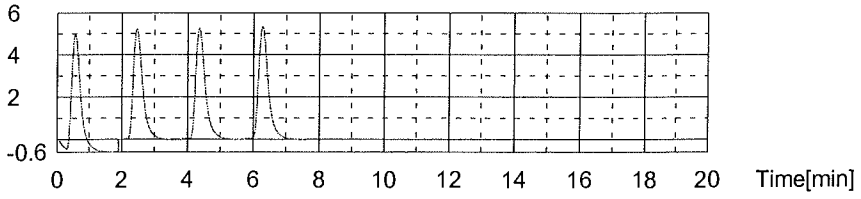
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:2.430 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	10.32	2.369mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:42:21 PM
2	10.60	2.433mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:44:25 PM
3	10.54	2.419mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:46:30 PM
4	10.88	2.497mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:48:34 PM

Mean Area 10.59
Mean Conc. 2.430mg/L



Sample

Sample Name: K091-04
Sample ID: TCK007-11
Origin: TCK007.cal
Chk. Result

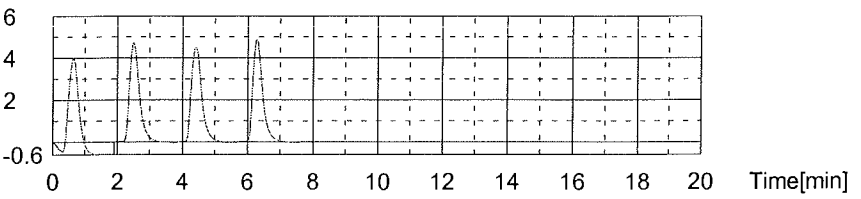
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:2.307 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.786	2.246mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:57:09 PM
2	9.951	2.284mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 09:59:13 PM
3	10.31	2.367mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:01:18 PM
4	10.15	2.330mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:03:22 PM

Mean Area 10.05
Mean Conc. 2.307mg/L



Sample

Sample Name: K091-06
Sample ID: TCK007-12
Origin: TCK007.cal
Chk. Result

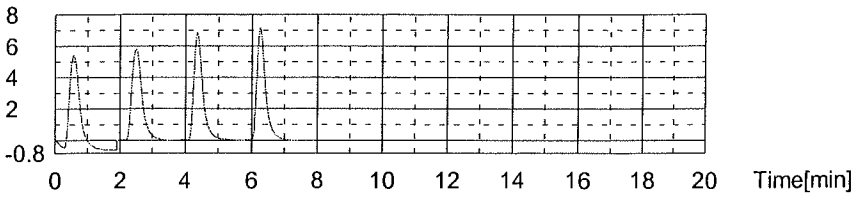
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:2.955 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	12.32	2.828mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:11:57 PM
2	12.91	2.963mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:14:01 PM
3	13.02	2.989mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:16:06 PM
4	13.25	3.041mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:18:10 PM

Mean Area 12.88
Mean Conc. 2.955mg/L



Sample

Sample Name: K091-07
Sample ID: TCK007-13
Origin: TCK007.cal
Chk. Result

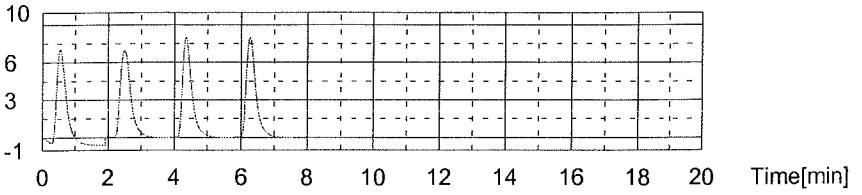
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:3.549 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	14.85	3.409mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:26:45 PM
2	15.45	3.546mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:28:49 PM
3	15.83	3.634mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:30:54 PM
4	15.71	3.606mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:32:58 PM

Mean Area 15.46
Mean Conc. 3.549mg/L



Control Sample

Sample Name: CCV1
Sample ID: TCK007-14
Method: TCK007.tpl
Chk. Result Control value: 24.27 / Control exceeds range!

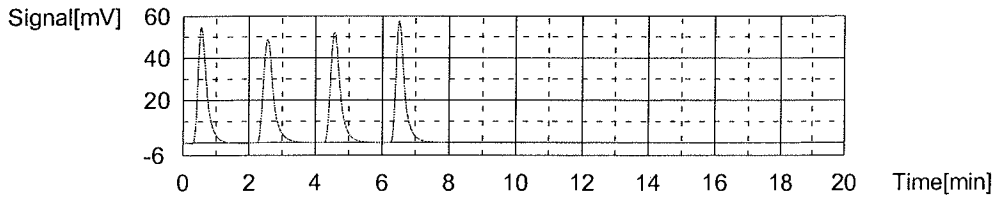
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.27 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	104.1	23.90mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:41:36 PM
2	105.4	24.19mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:43:47 PM
3	107.5	24.68mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:45:56 PM
4	105.9	24.31mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:48:01 PM

Mean Area 105.7
Mean Conc. 24.27mg/L



Sample

Sample Name: CCB1
Sample ID: TCK007-15
Origin: TCK007.cal
Chk. Result

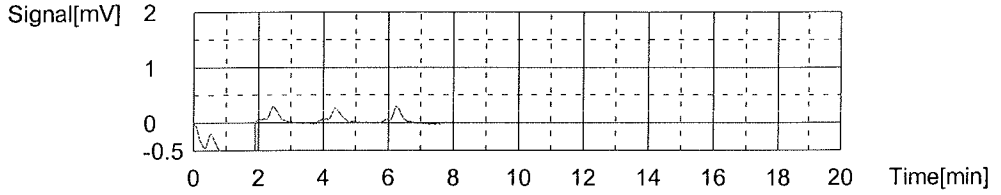
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.08413 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3538	0.08121mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:56:36 PM
2	0.3621	0.08312mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 10:58:40 PM
3	0.3513	0.08064mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 11:00:44 PM
4	0.3988	0.09154mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/23/20 11:02:49 PM

Mean Area 0.3665
Mean Conc. 0.08413mg/L



Sample

Sample Name: K091-07D
Sample ID: TCK007-16
Origin: TCK007.cal
Chk. Result

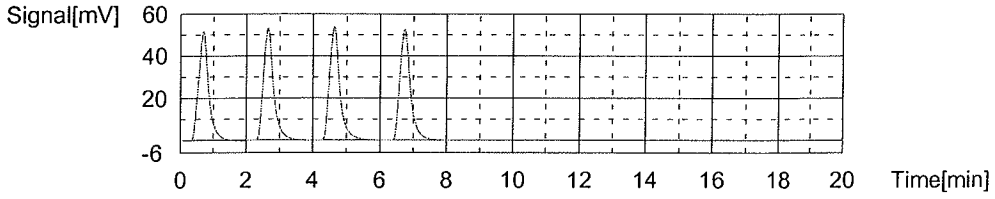
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:3.512 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	115.1	26.42mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 04:36:43 AM
2	115.8	26.58mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 04:38:52 AM
3	116.2	26.67mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 04:41:08 AM
4	116.3	26.70mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 04:43:23 AM

Mean Area 115.9
Mean Conc. 26.59mg/L



Sample

Sample Name: K118-11S
Sample ID: TCK007-37
Origin: TCK007.cal
Chk. Result

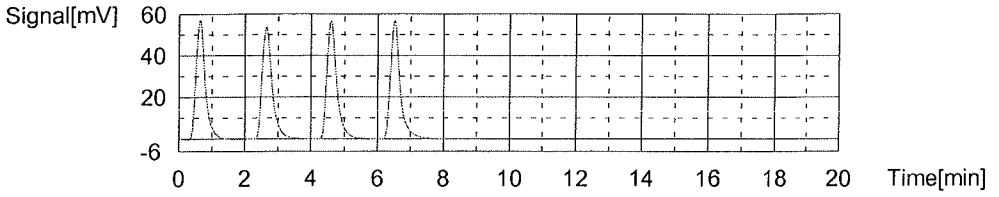
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:26.72 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	116.0	26.63mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 04:52:06 AM
2	115.1	26.42mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 04:54:13 AM
3	117.0	26.86mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 04:56:17 AM
4	117.6	26.99mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 04:58:37 AM

Mean Area 116.4
Mean Conc. 26.72mg/L



Control Sample

Sample Name: CCV3
Sample ID: TCK007-38
Method: TCK007.tpl
Chk. Result Control value: 24.16 / Control exceeds range!

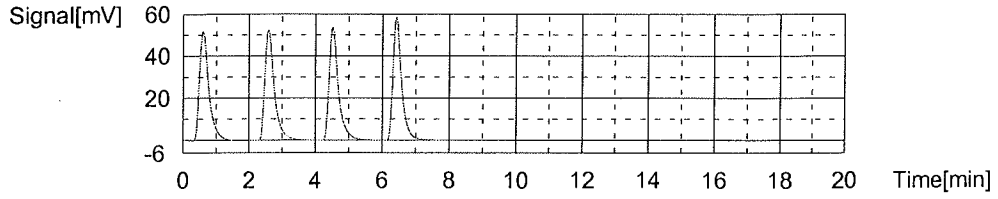
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.16 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	105.2	24.15mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 05:07:18 AM
2	105.1	24.13mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 05:09:24 AM
3	104.9	24.08mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 05:11:28 AM
4	105.8	24.29mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 05:13:32 AM

Mean Area 105.3
Mean Conc. 24.16mg/L



Sample

Sample Name: CCB3
Sample ID: TCK007-39
Origin: TCK007.cal
Chk. Result

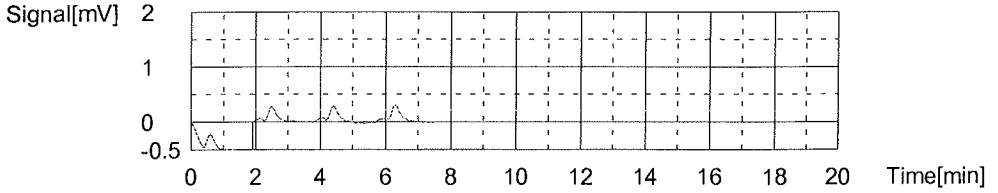
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.09293 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2961	0.06797mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 05:34:54 AM
2	0.4977	0.1142mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 05:36:59 AM
3	0.4291	0.09850mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 05:39:03 AM
4	0.3965	0.09101mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 05:41:07 AM

Mean Area 0.4049
Mean Conc. 0.09293mg/L



Sample

Sample Name: TCK012WB
Sample ID: TCK007-40
Origin: TCK007.cal
Chk. Result

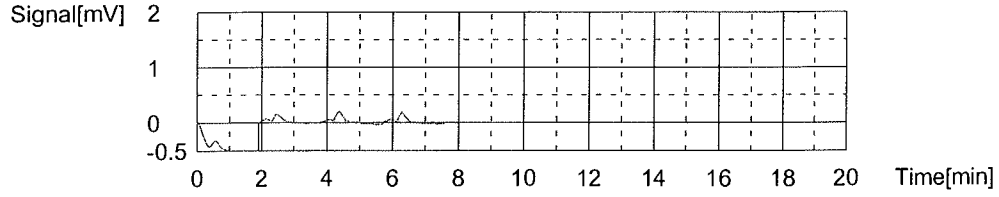
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.04121 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.1205	0.02766mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:02:29 AM
2	0.1799	0.04129mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:04:34 AM
3	0.2262	0.05192mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:06:38 AM
4	0.1915	0.04396mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:08:42 AM

Mean Area 0.1795
Mean Conc. 0.04121mg/L



Sample

Sample Name: TCK012WL
Sample ID: TCK007-41
Origin: TCK007.cal
Chk. Result

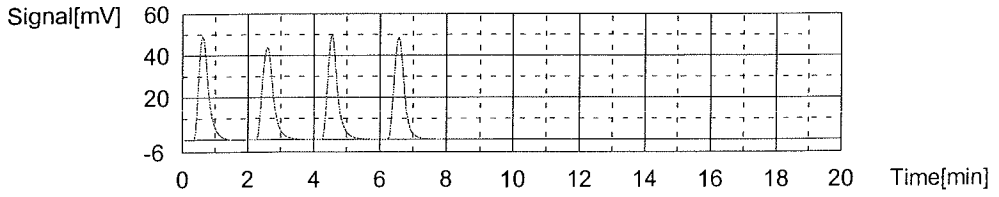
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:24.22 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	104.8	24.06mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:17:19 AM
2	105.1	24.13mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:19:29 AM
3	106.3	24.40mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:21:39 AM
4	105.8	24.29mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:23:47 AM

Mean Area 105.5
Mean Conc. 24.22mg/L



Sample

Sample Name: TCK012WC
Sample ID: TCK007-42
Origin: TCK007.cal
Chk. Result

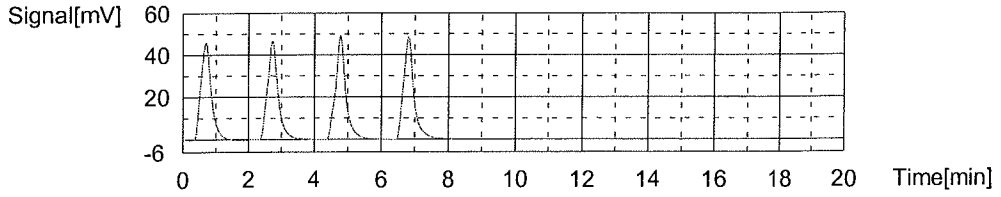
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:24.41 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	105.3	24.17mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:32:29 AM
2	106.9	24.54mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:34:40 AM
3	106.8	24.52mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:36:57 AM
4	106.3	24.40mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:39:09 AM

Mean Area 106.3
Mean Conc. 24.41mg/L



Sample

Sample Name: K118-12
Sample ID: TCK007-43
Origin: TCK007.cal
Chk. Result

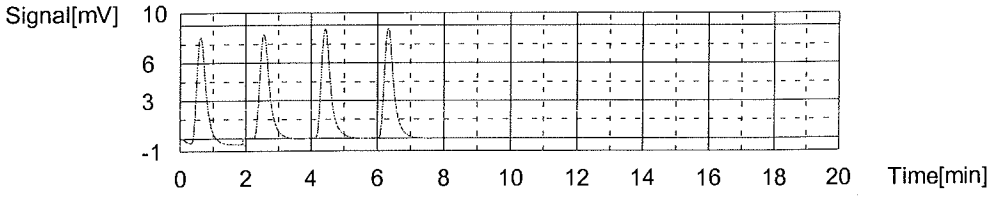
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:3.998 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	16.85	3.868mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:47:45 AM
2	17.40	3.994mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:49:49 AM
3	17.57	4.033mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:51:54 AM
4	17.84	4.095mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 06:53:58 AM

Mean Area 17.41
Mean Conc. 3.998mg/L



Sample

Sample Name: K118-14
Sample ID: TCK007-44
Origin: TCK007.cal
Chk. Result

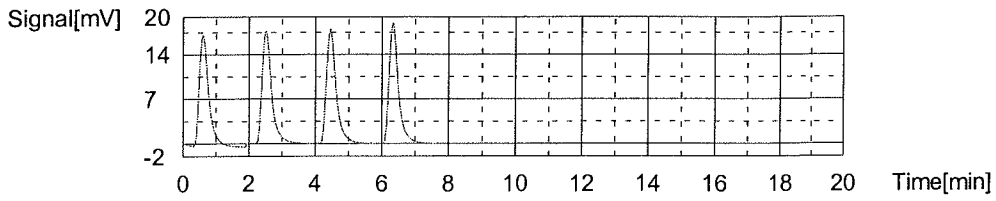
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:8.342 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	35.45	8.137mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:02:34 AM
2	36.35	8.344mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:04:39 AM
3	36.82	8.452mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:06:44 AM
4	36.74	8.433mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:08:48 AM

Mean Area 36.34
Mean Conc. 8.342mg/L



Sample

Sample Name: K128-01
Sample ID: TCK007-45
Origin: TCK007.cal
Chk. Result

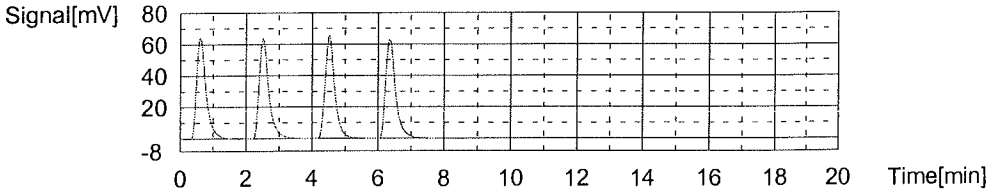
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:30.58 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	132.8	30.48mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:17:24 AM
2	131.6	30.21mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:19:31 AM
3	133.9	30.74mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:21:36 AM
4	134.5	30.87mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:23:46 AM

Mean Area 133.2
Mean Conc. 30.58mg/L



Sample

Sample Name: K128-02
Sample ID: TCK007-46
Origin: TCK007.cal
Chk. Result

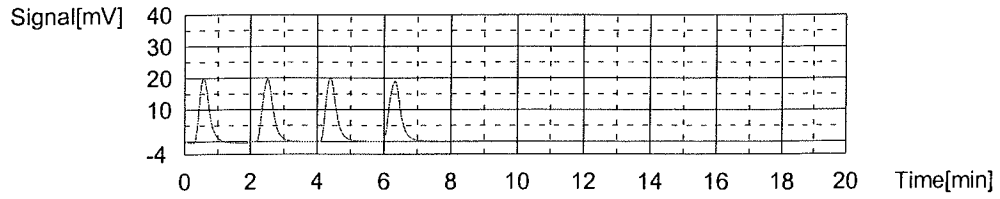
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:10.28 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	44.51	10.22mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:32:22 AM
2	44.42	10.20mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:34:26 AM
3	44.82	10.29mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:36:31 AM
4	45.32	10.40mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:38:35 AM

Mean Area 44.77
Mean Conc. 10.28mg/L



Sample

Sample Name: K128-03
Sample ID: TCK007-47
Origin: TCK007.cal
Chk. Result

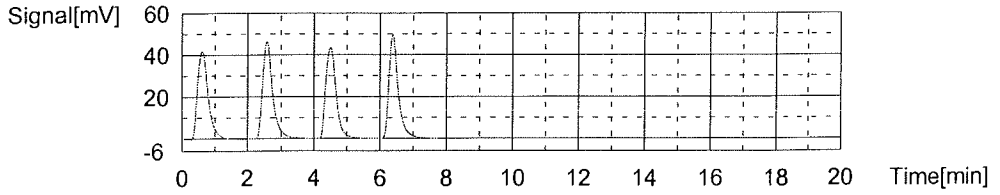
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:22.38 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	96.65	22.19mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:47:14 AM
2	97.92	22.48mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:49:19 AM
3	98.11	22.52mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:51:24 AM
4	97.33	22.34mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 07:53:30 AM

Mean Area 97.50
Mean Conc. 22.38mg/L



Sample

Sample Name: K128-04
Sample ID: TCK007-48
Origin: TCK007.cal
Chk. Result

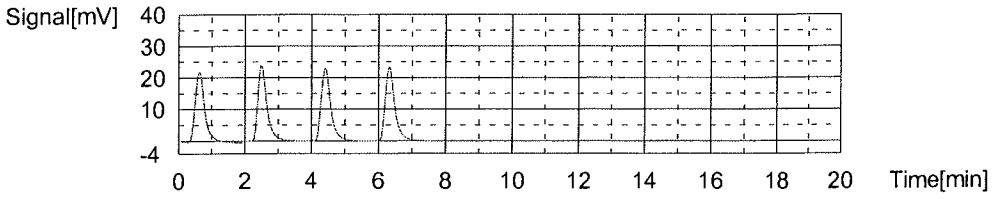
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:10.69 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	45.91	10.54mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:02:06 AM
2	46.50	10.67mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:04:10 AM
3	46.67	10.71mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:06:14 AM
4	47.21	10.84mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:08:19 AM

Mean Area 46.57
Mean Conc. 10.69mg/L



Sample

Sample Name: K128-05
Sample ID: TCK007-49
Origin: TCK007.cal
Chk. Result

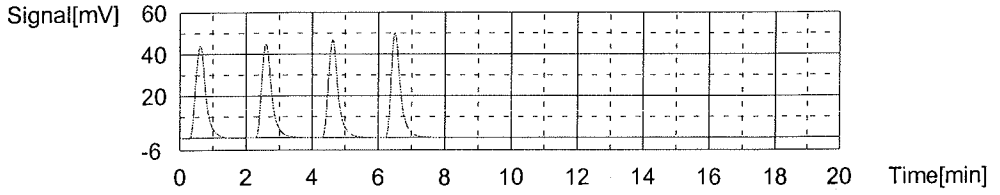
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:22.50 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	97.97	22.49mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:17:00 AM
2	97.96	22.49mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:19:10 AM
3	97.89	22.47mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:21:14 AM
4	98.28	22.56mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:23:20 AM

Mean Area 98.03
Mean Conc. 22.50mg/L



Control Sample

Sample Name: CCV4
Sample ID: TCK007-50
Method: TCK007.tpl
Chk. Result Control value: 24.80 / Control exceeds range!

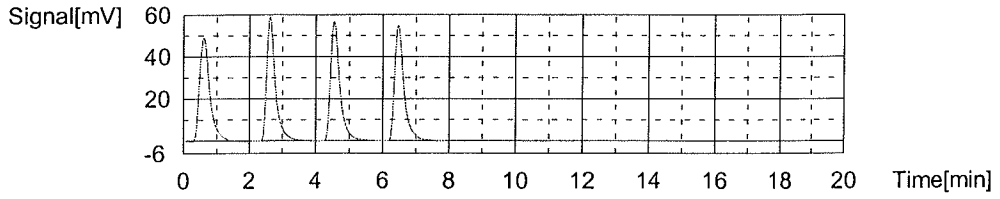
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.80 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	107.2	24.61mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:32:05 AM
2	108.4	24.88mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:34:10 AM
3	108.2	24.84mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:36:15 AM
4	108.3	24.86mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:38:24 AM

Mean Area 108.0
Mean Conc. 24.80mg/L



Sample

Sample Name: CCB4
Sample ID: TCK007-51
Origin: TCK007.cal
Chk. Result

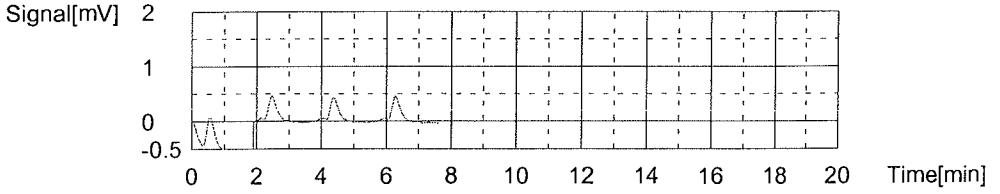
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1658 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.8128	0.1866mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:47:00 AM
2	0.7206	0.1654mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:49:04 AM
3	0.6906	0.1585mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:51:08 AM
4	0.6649	0.1526mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 08:53:13 AM

Mean Area 0.7222
Mean Conc. 0.1658mg/L



Sample

Sample Name: K136-01
Sample ID: TCK007-52
Origin: TCK007.cal
Chk. Result

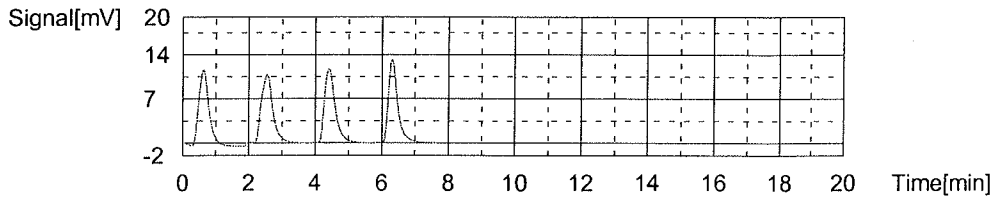
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:6.034 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	25.67	5.892mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 09:14:35 AM
2	26.46	6.074mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 09:16:39 AM
3	26.60	6.106mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 09:18:43 AM
4	26.41	6.062mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 09:20:48 AM

Mean Area 26.29
Mean Conc. 6.034mg/L



Sample

Sample Name: K136-02
Sample ID: TCK007-53
Origin: TCK007.cal
Chk. Result

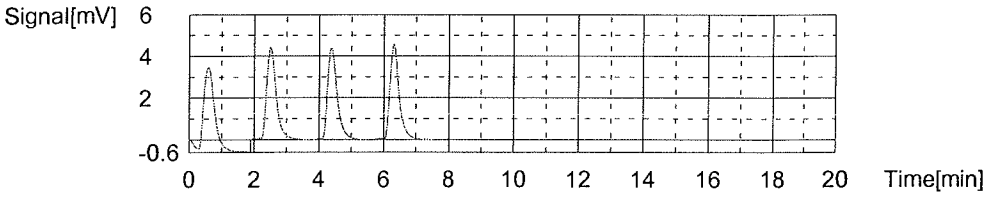
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:2.035 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.475	1.945mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 09:29:23 AM
2	8.851	2.032mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 09:31:28 AM
3	9.079	2.084mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 09:33:32 AM
4	9.050	2.077mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 09:35:37 AM

Mean Area 8.864
Mean Conc. 2.035mg/L



Sample

Sample Name: K136-03
Sample ID: TCK007-54
Origin: TCK007.cal
Chk. Result

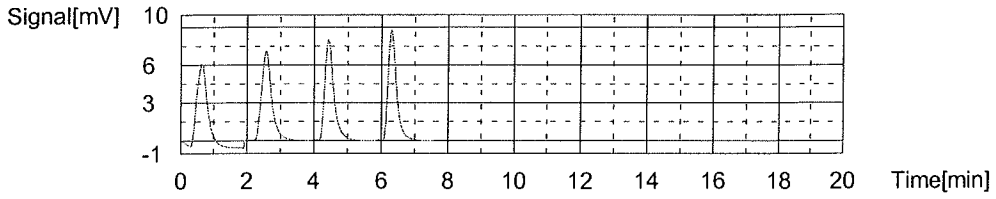
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:3.462 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	14.78	3.393mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 09:44:12 AM
2	15.04	3.452mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 09:46:17 AM
3	15.20	3.489mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 09:48:21 AM
4	15.30	3.512mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 09:50:26 AM

Mean Area 15.08
Mean Conc. 3.462mg/L



Sample

Sample Name: K136-03D
Sample ID: TCK007-55
Origin: TCK007.cal
Chk. Result

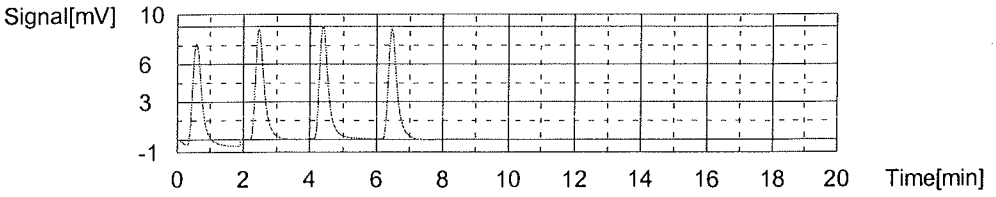
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:3.740 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	15.91	3.652mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 09:59:01 AM
2	15.95	3.661mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:01:06 AM
3	17.02	3.907mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:03:19 AM
4	16.30	3.742mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:05:23 AM

Mean Area 16.29
Mean Conc. 3.740mg/L



Sample

Sample Name: K136-03M
Sample ID: TCK007-56
Origin: TCK007.cal
Chk. Result

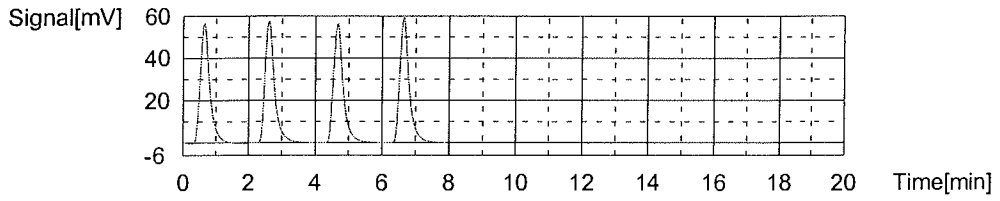
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:26.68 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	115.1	26.42mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:14:04 AM
2	116.6	26.76mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:16:17 AM
3	116.4	26.72mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:18:27 AM
4	116.9	26.83mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:20:32 AM

Mean Area 116.3
Mean Conc. 26.68mg/L



Sample

Sample Name: K136-03S
Sample ID: TCK007-57
Origin: TCK007.cal
Chk. Result

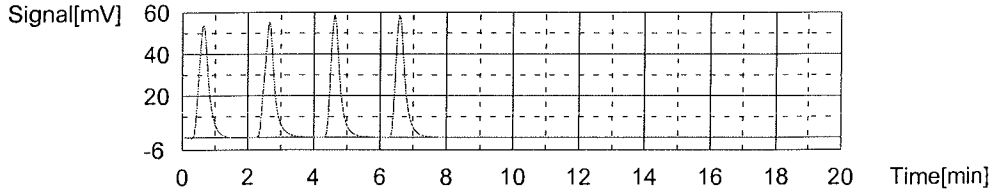
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:26.92 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	116.0	26.63mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:29:13 AM
2	116.8	26.81mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:31:24 AM
3	117.4	26.95mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:33:32 AM
4	118.9	27.29mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:35:43 AM

Mean Area 117.3
Mean Conc. 26.92mg/L



Sample

Sample Name: K136-04
Sample ID: TCK007-58
Origin: TCK007.cal
Chk. Result

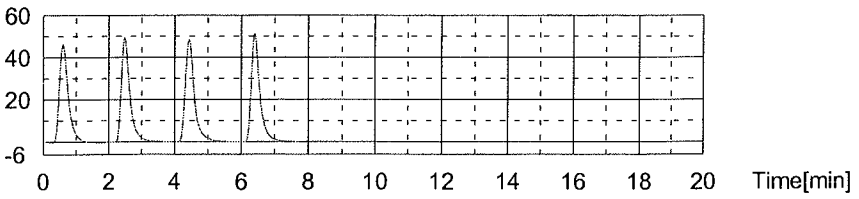
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:21.20 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	91.81	21.07mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:44:20 AM
2	92.11	21.14mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:46:25 AM
3	92.55	21.24mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:48:34 AM
4	92.95	21.34mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:50:38 AM

Mean Area 92.36
Mean Conc. 21.20mg/L



Sample

Sample Name: K136-07
Sample ID: TCK007-59
Origin: TCK007.cal
Chk. Result

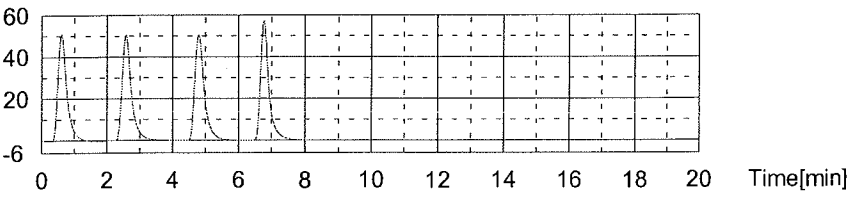
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:23.42 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	100.5	23.07mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 10:59:18 AM
2	101.6	23.32mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:01:40 AM
3	103.1	23.67mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:03:51 AM
4	103.0	23.64mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:06:02 AM

Mean Area 102.1
Mean Conc. 23.42mg/L



Sample

Sample Name: K136-08
Sample ID: TCK007-60
Origin: TCK007.cal
Chk. Result

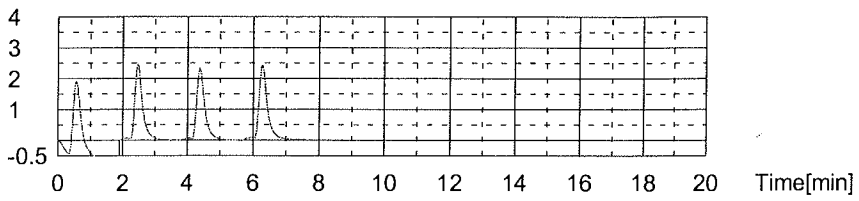
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.8977 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3.726	0.8553mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:14:39 AM
2	3.923	0.9005mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:16:43 AM
3	3.926	0.9012mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:18:48 AM
4	4.069	0.9340mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:20:52 AM

Mean Area 3.911
Mean Conc. 0.8977mg/L



Sample

Sample Name: K139-08
Sample ID: TCK007-61
Origin: TCK007.cal
Chk. Result

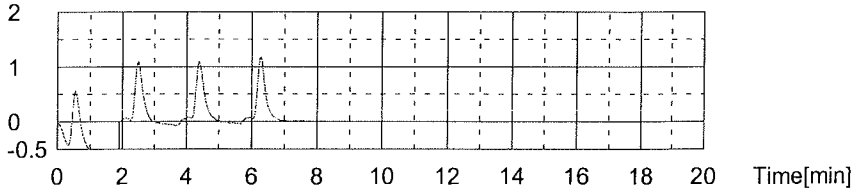
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4069 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.528	0.3507mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:29:29 AM
2	1.778	0.4081mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:31:33 AM
3	1.991	0.4570mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:33:38 AM
4	1.793	0.4116mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:35:42 AM

Mean Area 1.773
Mean Conc. 0.4069mg/L



Control Sample

Sample Name: CCV5
Sample ID: TCK007-62
Method: TCK007.tpl
Chk. Result: Control value: 24.83 / Control exceeds range!

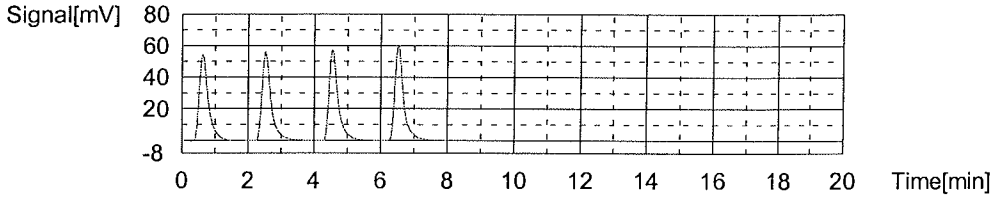
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.83 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	107.7	24.72mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:44:19 AM
2	107.5	24.68mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:46:32 AM
3	108.0	24.79mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:48:41 AM
4	109.5	25.14mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:50:53 AM

Mean Area 108.2
Mean Conc. 24.83mg/L



Sample

Sample Name: CCB5
Sample ID: TCK007-63
Origin: TCK007.cal
Chk. Result

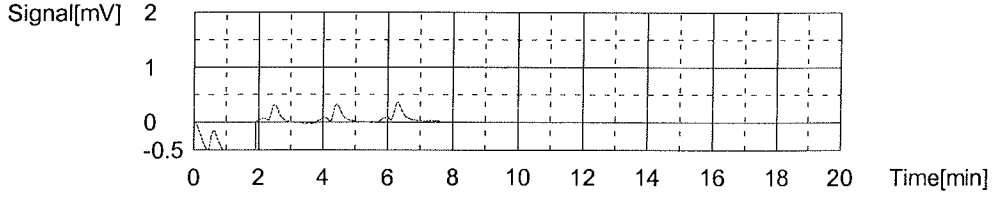
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1116 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5292	0.1215mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 11:59:30 AM
2	0.4372	0.1004mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 12:01:34 PM
3	0.4793	0.1100mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 12:03:39 PM
4	0.4998	0.1147mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 12:05:43 PM

Mean Area 0.4864
Mean Conc. 0.1116mg/L



Sample

Sample Name: K139-08D
Sample ID: TCK007-64
Origin: TCK007.cal
Chk. Result

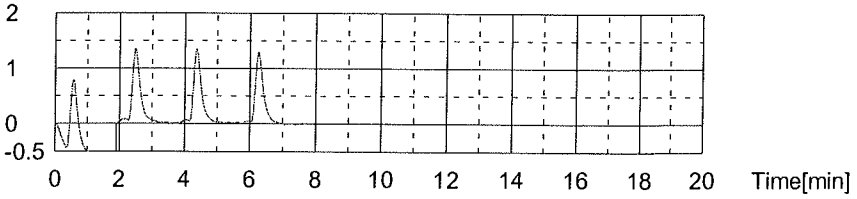
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4696 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.840	0.4224mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 12:27:07 PM
2	2.049	0.4703mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 12:29:11 PM
3	2.006	0.4605mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 12:31:16 PM
4	2.288	0.5252mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 12:33:20 PM

Mean Area 2.046
Mean Conc. 0.4696mg/L



Sample

Sample Name: K139-08M
Sample ID: TCK007-65
Origin: TCK007.cal
Chk. Result

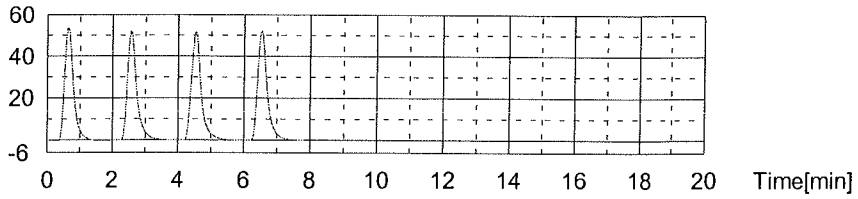
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:24.03 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	103.7	23.80mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 12:41:58 PM
2	103.3	23.71mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 12:44:04 PM
3	105.9	24.31mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 12:46:16 PM
4	105.9	24.31mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 12:48:24 PM

Mean Area 104.7
Mean Conc. 24.03mg/L



Sample

Sample Name: K139-08S
Sample ID: TCK007-66
Origin: TCK007.cal
Chk. Result

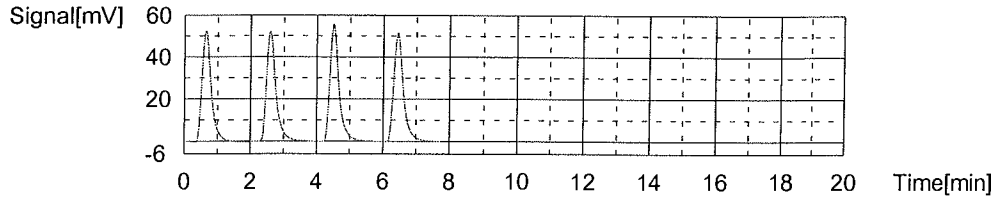
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:24.10 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	104.4	23.96mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 12:57:05 PM
2	104.0	23.87mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 12:59:10 PM
3	105.5	24.22mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:01:14 PM
4	106.0	24.33mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:03:24 PM

Mean Area 105.0
Mean Conc. 24.10mg/L



Sample

Sample Name: K139-14
Sample ID: TCK007-67
Origin: TCK007.cal
Chk. Result

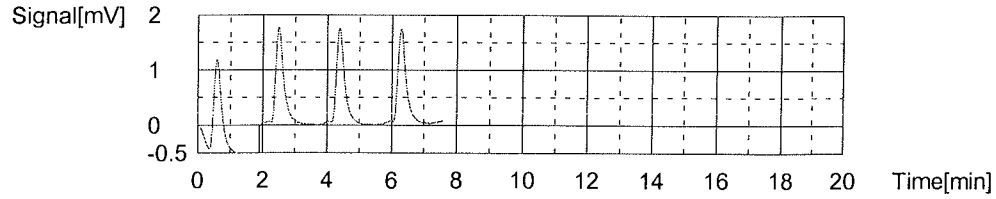
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.6733 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.645	0.6071mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:12:01 PM
2	2.859	0.6563mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:14:05 PM
3	3.156	0.7244mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:16:09 PM
4	3.073	0.7054mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:18:14 PM

Mean Area 2.933
Mean Conc. 0.6733mg/L



Control Sample

Sample Name: CCV6
Sample ID: TCK007-68
Method: TCK007.tpl
Chk. Result Control value: 24.26 / Control exceeds range!

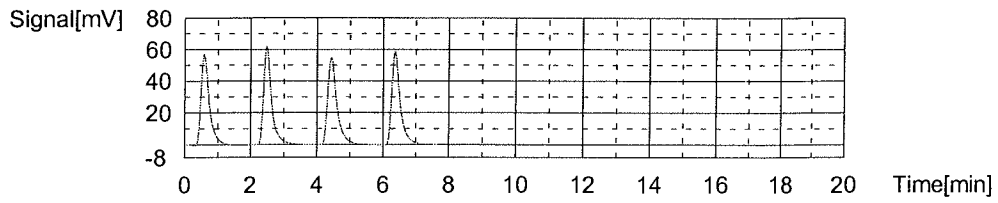
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.26 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	102.0	23.41mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:26:51 PM
2	105.0	24.10mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:28:55 PM
3	107.9	24.77mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:31:01 PM
4	107.8	24.74mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:33:07 PM

Mean Area 105.7
Mean Conc. 24.26mg/L



Sample

Sample Name: CCB6
Sample ID: TCK007-69
Origin: TCK007.cal
Chk. Result

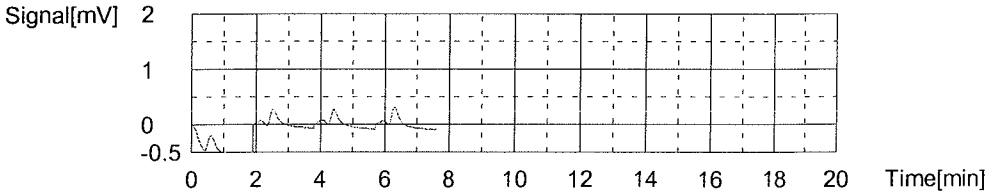
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.09357 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3526	0.08094mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:41:44 PM
2	0.4235	0.09721mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:43:48 PM
3	0.3949	0.09065mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:45:52 PM
4	0.4596	0.1055mg/L	50uL	1		TCK007.2020_11_23_17_38_24.cal	11/24/20 01:47:57 PM

Mean Area 0.4077
Mean Conc. 0.09357mg/L



CHAIN OF CUSTODY

EMAX Laboratories, Inc.
1835 W. 205th Street, Torrance, CA 90501
Tel # : 310-618-8889 FAX#: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:
SAMPLE STORAGE

EMAX CONTROL NO. 20L041
PROJECT CODE: 30013092 SS037.C

CLIENT Arcadis
PROJECT VAFB - SS003
COORDINATOR Emily Hathaway
TEL 916-865-3131 FAX EMAIL emily.hathaway@arcadis.com
SEND REPORT TO Emily Hathaway
COMPANY Arcadis
ADDRESS 735 Tank Farm Rd, Ste 150
San Luis Obispo, CA 93401
EMAX PM Richard Beauvil

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaO3
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H2SO4
O=	

ANALYSIS REQUIRED: VOCs (8260B); MS/MSD

TAT:
- ☐ Rush __24__hrs.
- ☐ Rush __48_hrs
- ☐ Rush_72_hrs
- ☐ 7 days
- ☐ 14 days
- ☒ 21 days Standard

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	SAMPLING DATE	SAMPLING TIME	CONTAINER NO.	CONTAINER SIZE	CONTAINER TYPE	MATRIX CODE	QC	PRESERVATIVE CODE	COMMENTS
1	SS003-3-MW-55(120120)TB	VAFB	12/1/2020	0700	3	40mL	VOA	GW		X	
2	3-MW-55 (120120)	↓	↓	1320	9	40mL	VOA	GW		X X	
3	3-MW-54 (120220)		12/2/2020	1158	3	40mL	VOA	GW		X	
4	3-MW-56 (120220)		↓	1430	3	40mL	VOA	GW		X	
5	SS003-DUP1 (120220)		↓	0000	3	40mL	VOA	GW		X	
6	3-MW-57 (120320)		12/3/2020	0846	3	40mL	VOA	GW		X	
7	3-MW-58 (120320)		↓	1033	3	40mL	VOA	GW		X	
8	3-MW-59 (120320)	↓	↓	1239	3	40mL	VOA	GW		X	
9											
10											

Instructions

Cooler #	Temp. (°C)	Sample #s
1	1.1	

SAMPLER Marshall Brusca / Avery Barrera

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
Marshall Brusca	12/3/20	1430	FedEx VAFB
	12/4/20	12:00	Marisa

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

Type of Delivery	Airbill / Tracking Number	ECN 20L041
☒ Fedex ☐ UPS ☐ GSO ☐ Others	772258593618	Recipient Maria Rivera
☐ EMAX Courier ☐ Client Delivery		Date 12/04/20 Time 12:00

COC INSPECTION

☒ Client Name	☒ Client PM/FC	☒ Sampler Name	☒ Sampling Date/Time	☒ Sample ID	☒ Matrix
☒ Address	☒ Tel # / Fax #	☐ Courier Signature	☒ Analysis Required	☐ Preservative (if any)	☒ TAT
Safety Issues (if any)	☐ High concentrations expected	☐ From Superfund Site	☐ Rad screening required		

Note:

PACKAGING INSPECTION

Container	☒ Cooler	☐ Box	☐ Other		
Condition	☒ Custody Seal	☐ Intact	☐ Damaged		
Packaging	☒ Bubble Pack	☐ Styrofoam	☐ Popcorn	☐ Sufficient	☐ _____
Temperatures (Cool, ≤6 °C but not frozen)	☒ Cooler 1 1.1 °C	☐ Cooler 2 _____ °C	☐ Cooler 3 _____ °C	☐ Cooler 4 _____ °C	☐ Cooler 5 _____ °C
	☐ Cooler 6 _____ °C	☐ Cooler 7 _____ °C	☐ Cooler 8 _____ °C	☐ Cooler 9 _____ °C	☐ Cooler 10 _____ °C
Thermometer:	A - S/N 19238146 4	(B) - S/N 200291755	C - S/N 200291756	D - S/N 14025267	

Comments: ☐ **Temperature is out of range. PM was informed IMMEDIATELY.**

Note:

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
1-8	1-30	D16		R1-label
2,5,6-8	4-12,19,21,22-24	D10		R1
	25-30	D10		R1

C 12/4/20

RS 12/7/20

☐ pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS:

LEGEND:

☐ **Continue to next page.**

Code	Description- Sample Management	Code	Description-Sample Management	Code	Description-Sample Management
D1	Analysis is not indicated in _____	D13	Out of Holding Time	(R1)	Proceed as indicated in ☑ COC ☐ Label
D2	Analysis mismatch COC vs label	D14	Bubble is >6mm	R2	Refer to attached instruction
D3	Sample ID mismatch COC vs label	D15	No trip blank in cooler	R3	Cancel the analysis
D4	Sample ID is not indicated in _____	(D16)	Preservation not indicated in COC	R4	Use vial with smallest bubble first
D5	Container -[improper] [leaking] [broken]	D17	Preservation mismatch COC vs label	R5	Log-in with latest sampling date and time+1 min
D6	Date/Time is not indicated in _____	D18	Insufficient chemical preservative	R6	Adjust pH as necessary
D7	Date/Time mismatch COC vs label	D19	Insufficient Sample	R7	Filter and preserved as necessary
D8	Sample listed in COC is not received	D20	No filtration info for dissolved analysis	R8	_____
D9	Sample received is not listed in COC	D21	No sample for moisture determination	R9	_____
(D10)	No initial/date on corrections in COC/label	D22	_____	R10	_____
D11	Container count mismatch COC vs received	D23	_____	R11	_____
D12	Container size mismatch COC vs received	D24	_____	R12	_____

REVIEWS:

Sample Labeling Maria Rivera
Date 12/04/20 12/4/20

SRF
Date 12/4/20

RM
Date 12/7/20

1.1 Sealed

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than LOQ/RL but greater than LOD/MDL/DL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

ARCADIS

VAFB-SS003

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

SDG#: 20L041

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20L041

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

A total of eight(8) water samples were received on 12/04/20 to be analyzed for Volatile Organics by GC/MS in accordance with Method 5030B/8260B and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Instrument Performance and Calibration
Instrument tune check was performed prior to calibration. Result was within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried out at a frequency required by the project. There were two(2)CCVs (Data file IDs: RLC077 and RLC106) associated with this SDG. All calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, two(2) method blanks were analyzed. VO67L05B - result was compliant to project requirement. Methylene Chloride(0.46J <1/2 LOQ) was detected at trace level in VO67L06B. Refer to sample result summary forms for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, two(2) sets of LCS/LCD were analyzed. VO67L05L/VO67L05C and VO67L06L/VO67L06C were within LCS limits. Refer to LCS summary forms for detail.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed and the following were noted: L041-02M/L041-02S - Percent recovery for Trichloroethene(1000X) was not within MS/MSD QC limits. Percent recovery for Cis-1,2-Dichloroethene(8X) was not within MSD QC limit. The enclosed value(#X) is the ratio of parent sample result and spike amount. Presence of matrix interference was suspected. The rest of the analytes were in control. Refer to Matrix QC summary form for details.

Surrogate
Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met with the exception of those that were discussed within the associated QC parameter. Some analytes were manually integrated in samples L041-02, -02M, -02S, -05, -06, -07 and -08. Hence, the original chromatogram was retained and corrected chromatogram was initialed and dated. The secondary reviewer concurred with the manual integrations.

LAB CHRONICLE
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS
Project : VAFB-SS003

SDG NO. : 20L041
Instrument ID : 67

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	V067L05B	1	NA	12/07/2013:18	12/07/2013:18	RLC081	RJC459	V067L05	Method Blank
LCS1W	V067L05L	1	NA	12/07/2012:01	12/07/2012:01	RLC078	RJC459	V067L05	Lab Control Sample (LCS)
LCD1W	V067L05C	1	NA	12/07/2012:27	12/07/2012:27	RLC079	RJC459	V067L05	LCS Duplicate
SS003-3-MW-55(120120)TB1	L041-01	1	NA	12/07/2013:44	12/07/2013:44	RLC082	RJC459	V067L05	Field Sample
3-MW-55(120120)	L041-02	1	NA	12/07/2014:10	12/07/2014:10	RLC083	RJC459	V067L05	Field Sample
3-MW-55(120120)MS	L041-02M	1	NA	12/07/2014:35	12/07/2014:35	RLC084	RJC459	V067L05	Matrix Spike Sample (MS)
3-MW-55(120120)MSD	L041-02S	1	NA	12/07/2015:01	12/07/2015:01	RLC085	RJC459	V067L05	MS Duplicate (MSD)
3-MW-54(120220)	L041-03	1	NA	12/07/2015:51	12/07/2015:51	RLC087	RJC459	V067L05	Field Sample
3-MW-56(120220)	L041-04	1	NA	12/07/2016:17	12/07/2016:17	RLC088	RJC459	V067L05	Field Sample
SS003-DUP1(120220)	L041-05	1	NA	12/07/2016:43	12/07/2016:43	RLC089	RJC459	V067L05	Field Sample
3-MW-57(120320)	L041-06	1	NA	12/07/2017:09	12/07/2017:09	RLC090	RJC459	V067L05	Field Sample
3-MW-58(120320)	L041-07	1	NA	12/07/2017:34	12/07/2017:34	RLC091	RJC459	V067L05	Field Sample
3-MW-59(120320)	L041-08	1	NA	12/07/2018:00	12/07/2018:00	RLC092	RJC459	V067L05	Field Sample
MBLK2W	V067L06B	1	NA	12/08/2013:01	12/08/2013:01	RLC110	RJC459	V067L06	Method Blank
LCS2W	V067L06L	1	NA	12/08/2011:45	12/08/2011:45	RLC107	RJC459	V067L06	Lab Control Sample (LCS)
LCD2W	V067L06C	1	NA	12/08/2012:10	12/08/2012:10	RLC108	RJC459	V067L06	LCS Duplicate
3-MW-55(120120)DL	L041-02I	500	NA	12/08/2013:27	12/08/2013:27	RLC111	RJC459	V067L06	Diluted Sample
3-MW-54(120220)DL	L041-03I	100	NA	12/08/2013:52	12/08/2013:52	RLC112	RJC459	V067L06	Diluted Sample
3-MW-56(120220)DL	L041-04I	250	NA	12/08/2014:17	12/08/2014:17	RLC113	RJC459	V067L06	Diluted Sample
SS003-DUP1(120220)DL	L041-05I	250	NA	12/08/2014:43	12/08/2014:43	RLC114	RJC459	V067L06	Diluted Sample
3-MW-57(120320)DL	L041-06I	250	NA	12/08/2015:08	12/08/2015:08	RLC115	RJC459	V067L06	Diluted Sample
3-MW-58(120320)DL	L041-07I	50	NA	12/08/2015:34	12/08/2015:34	RLC116	RJC459	V067L06	Diluted Sample
3-MW-59(120320)DL	L041-08I	500	NA	12/08/2015:59	12/08/2015:59	RLC117	RJC459	V067L06	Diluted Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/01/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/07/20 13:44
Sample ID: SS003-3-MW-55(120120)TB1	Date Analyzed: 12/07/20 13:44
Lab Samp ID: L041-01	Dilution Factor: 1
Lab File ID: RLC082	Matrix : WATER
Ext Btch ID: VO67L05	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	ND	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	ND	10	2.6	5.0
BENZENE	ND	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	ND	1.0	0.10	0.20
BROMOFORM	ND	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	ND	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	ND	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	ND	1.0	0.10	0.20
CHLOROMETHANE	ND	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	ND	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	ND	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	ND	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	ND	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	ND	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	ND	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.45	10.00	84.5	70-120
4-BROMOFLUOROBENZENE	9.53	10.00	95.3	75-120
TOLUENE-D8	9.19	10.00	91.9	85-120
DIBROMOFLUOROMETHANE	9.25	10.00	92.5	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC082.D Vial: 7
Acq On : 7 Dec 2020 1:44 pm Operator: VLu
Sample : 20L041-01 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:30 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

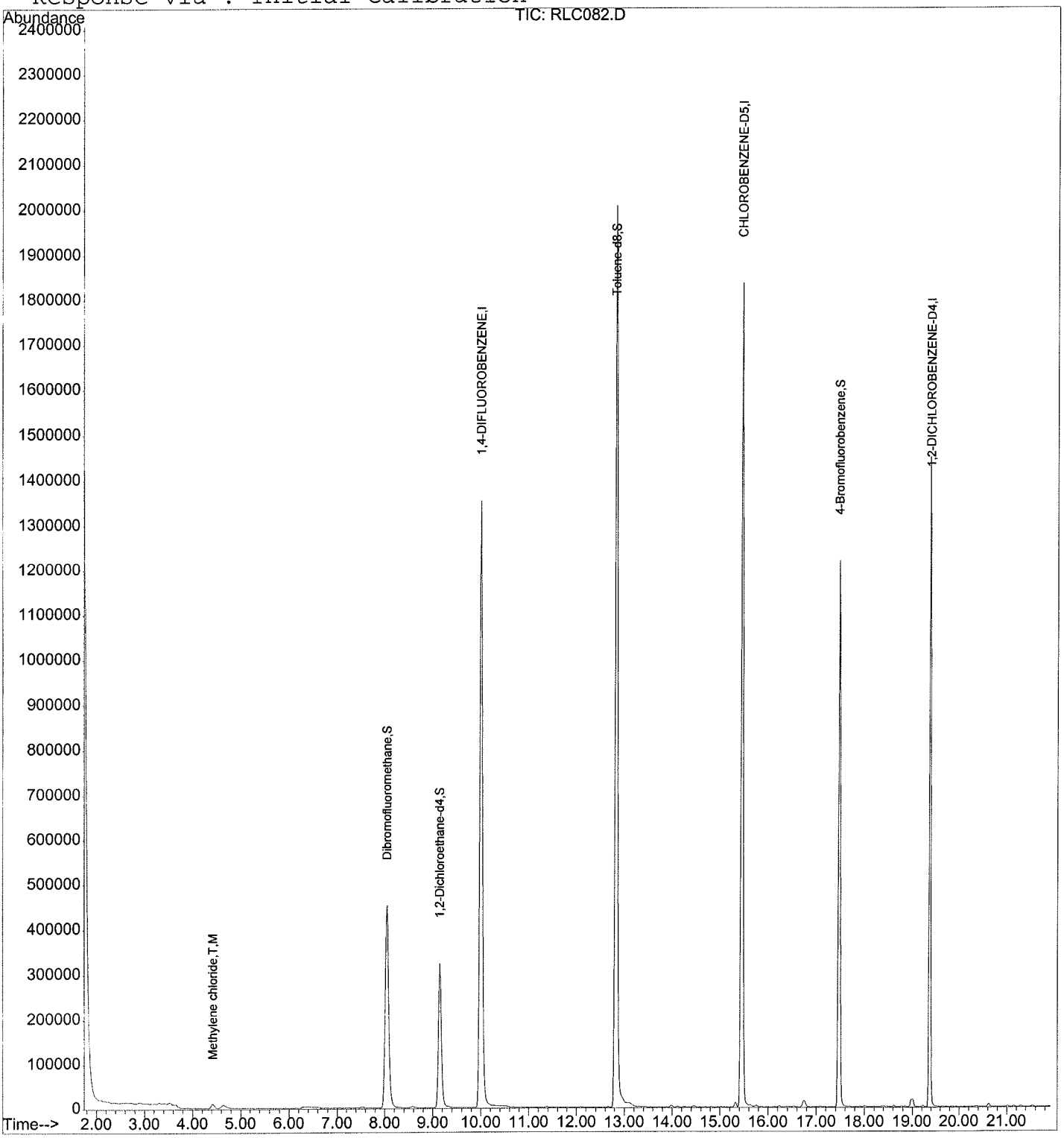
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2481080	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1863263	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	548226	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	749139	9.25	ug/l	0.01
Spiked Amount 10.000			Recovery =	92.50%		
43) 1,2-Dichloroethane-d4	9.14	65	437953	8.45	ug/l	0.00
Spiked Amount 10.000			Recovery =	84.50%		
56) Toluene-d8	12.82	98	2612855	9.19	ug/l	0.00
Spiked Amount 10.000			Recovery =	91.90%		
77) 4-Bromofluorobenzene	17.47	95	710401	9.53	ug/l	0.00
Spiked Amount 10.000			Recovery =	95.30%		
Target Compounds						Qvalue
19) Methylene chloride	4.42	49	11245	0.10	ug/l	95

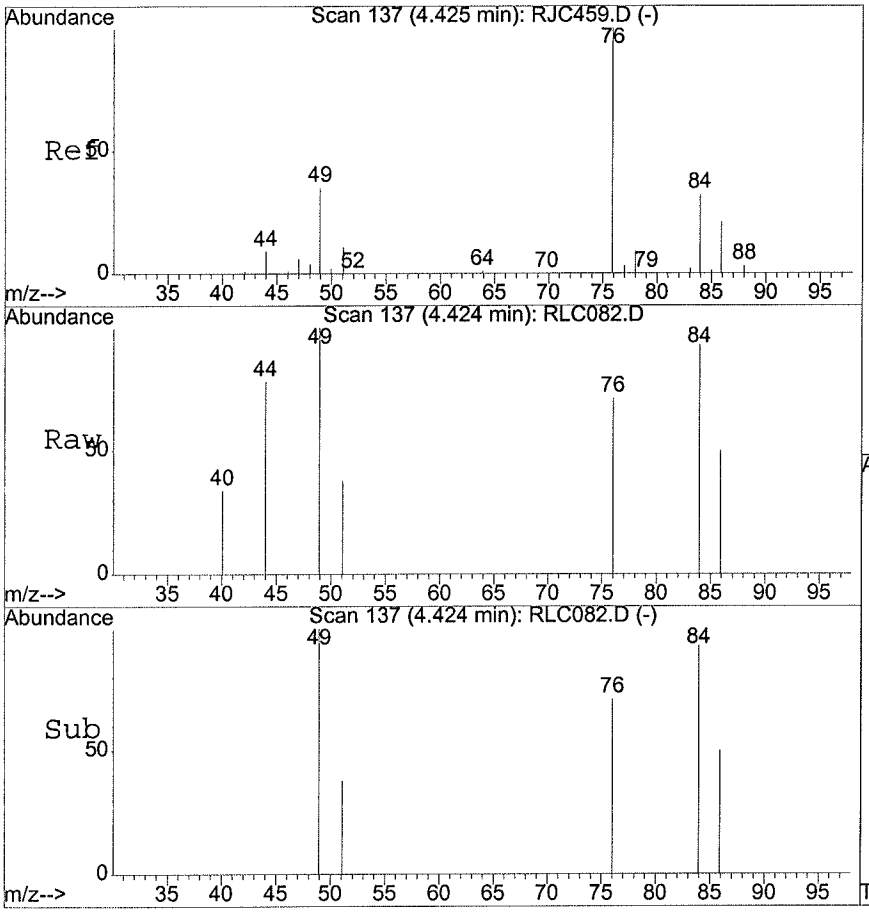
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC082.D Vial: 7
Acq On : 7 Dec 2020 1:44 pm Operator: VLu
Sample : 20L041-01 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:30 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

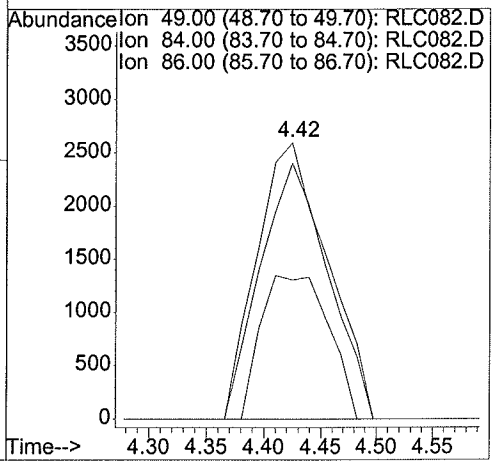




#19
Methylene chloride
Concen: 0.10 ug/l
RT: 4.42 min Scan# 137
Delta R.T. -0.00 min
Lab File: RLC082.D
Acq: 7 Dec 2020 1:44 pm

Tgt Ion: 49 Resp: 11245

Ion	Ratio	Lower	Upper
49	100		
84	89.0	60.1	120.1
86	49.7	27.5	87.5



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected	: 12/01/20
Project	: VAFB-SS003	Date Received	: 12/04/20
Batch No.	: 20L041	Date Extracted	: 12/07/20 14:10 # 12/08/20 13:27
Sample ID	: 3-MW-55(120120)	Date Analyzed	: 12/07/20 14:10 # 12/08/20 13:27
Lab Samp ID	: L041-02 #L041-02I	Dilution Factor	: 1 # 500
Lab File ID	: RLC083 #RLC111	Matrix	: WATER
Ext Btch ID	: V067L05 #V067L06	% Moisture	: NA
Calib. Ref.	: RJC459 #RJC459	Instrument ID	: 67

	PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
	1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
	1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
	1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
	1,1,2-TRICHLOROETHANE	0.75J	1.0	0.10	0.20
	1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
	1,1-DICHLOROETHENE	0.61J	1.0	0.10	0.20
	1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
	1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
	1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
	1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
	1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
	1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
	1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
	1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
	1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
	1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
	2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
	2-BUTANONE	ND	10	2.0	4.0
	2-CHLOROTOLUENE	ND	1.0	0.12	0.20
	2-HEXANONE	ND	10	2.3	4.0
	4-CHLOROTOLUENE	ND	1.0	0.11	0.20
	ACETONE	ND	10	2.6	5.0
	BENZENE	0.11J	1.0	0.10	0.20
	BROMOBENZENE	ND	1.0	0.10	0.20
	BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
	BROMODICHLOROMETHANE	0.27J	1.0	0.10	0.20
	BROMOFORM	1.2	1.0	0.15	0.30
	BROMOMETHANE	ND	1.0	0.16	0.30
	CARBON DISULFIDE	0.27J	1.0	0.10	0.20
	CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
	CHLOROBENZENE	ND	1.0	0.10	0.20
	CHLOROETHANE	ND	1.0	0.27	0.30
	CHLOROFORM	6.2	1.0	0.10	0.20
	CHLOROMETHANE	ND	1.0	0.15	0.30
	CIS-1,2-DICHLOROETHENE	75	1.0	0.10	0.20
	CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
	DIBROMOCHLOROMETHANE	0.72J	1.0	0.10	0.20
	DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
	ETHYLBENZENE	ND	1.0	0.10	0.20
	HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
	ISOPROPYL BENZENE	ND	1.0	0.10	0.20
	M,P-XYLENES	ND	2.0	0.21	0.40
	MIBK	ND	10	2.1	4.0
	METHYLENE CHLORIDE	0.64J	2.0	0.25	0.50
	MTBE	ND	1.0	0.13	0.20
	NAPHTHALENE	ND	2.0	0.25	0.50
	N-BUTYLBENZENE	ND	1.0	0.17	0.20
	N-PROPYLBENZENE	ND	1.0	0.13	0.20
	O-XYLENE	ND	1.0	0.10	0.20
	P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
	SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
	STYRENE	ND	1.0	0.10	0.20
	TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
	TETRACHLOROETHENE	1.3	1.0	0.15	0.20
	TOLUENE	ND	1.0	0.10	0.20
	TRANS-1,2-DICHLOROETHENE	1.9	1.0	0.10	0.20
	TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
#	TRICHLOROETHENE	10000	500	50	100
	TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
	VINYL CHLORIDE	0.19J	0.50	0.12	0.20
	VINYL ACETATE	ND	2.0	0.25	0.50
	FREON113	ND	1.0	0.20	0.30
	TERT-BUTANOL	ND	20	5.0	10
	DIPE	ND	1.0	0.10	0.20
	ETBE	ND	1.0	0.10	0.20
	TAME	ND	1.0	0.10	0.20

	SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
	1,2-DICHLOROETHANE-D4	8.62	10.00	86.2	70-120
	4-BROMOFLUOROBENZENE	10.3	10.00	103	75-120
	TOLUENE-D8	9.06	10.00	90.6	85-120
	DIBROMOFLUOROMETHANE	9.38	10.00	93.8	85-115
#	1,2-DICHLOROETHANE-D4	4380	5000	87.6	70-120
#	4-BROMOFLUOROBENZENE	4890	5000	97.8	75-120
#	TOLUENE-D8	4580	5000	91.6	85-120
#	DIBROMOFLUOROMETHANE	4670	5000	93.5	85-115

Members of the Associated File

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/01/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/07/20 14:10
Sample ID: 3-MW-55(120120)	Date Analyzed: 12/07/20 14:10
Lab Samp ID: L041-02	Dilution Factor: 1
Lab File ID: RLC083	Matrix : WATER
Ext Btch ID: VO67L05	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	0.75J	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	0.61J	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	ND	10	2.6	5.0
BENZENE	0.11J	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	0.27J	1.0	0.10	0.20
BROMOFORM	1.2	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	0.27J	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	ND	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	6.2	1.0	0.10	0.20
CHLOROMETHANE	ND	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	75	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	0.72J	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	0.64J	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	ND	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	1.3	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	1.9	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	780E	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	0.19J	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.62	10.00	86.2	70-120
4-BROMOFLUOROBENZENE	10.3	10.00	103	75-120
TOLUENE-D8	9.06	10.00	90.6	85-120
DIBROMOFLUOROMETHANE	9.38	10.00	93.8	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC083.D Vial: 8
Acq On : 7 Dec 2020 2:10 pm Operator: VLu
Sample : 20L041-02 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:33 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

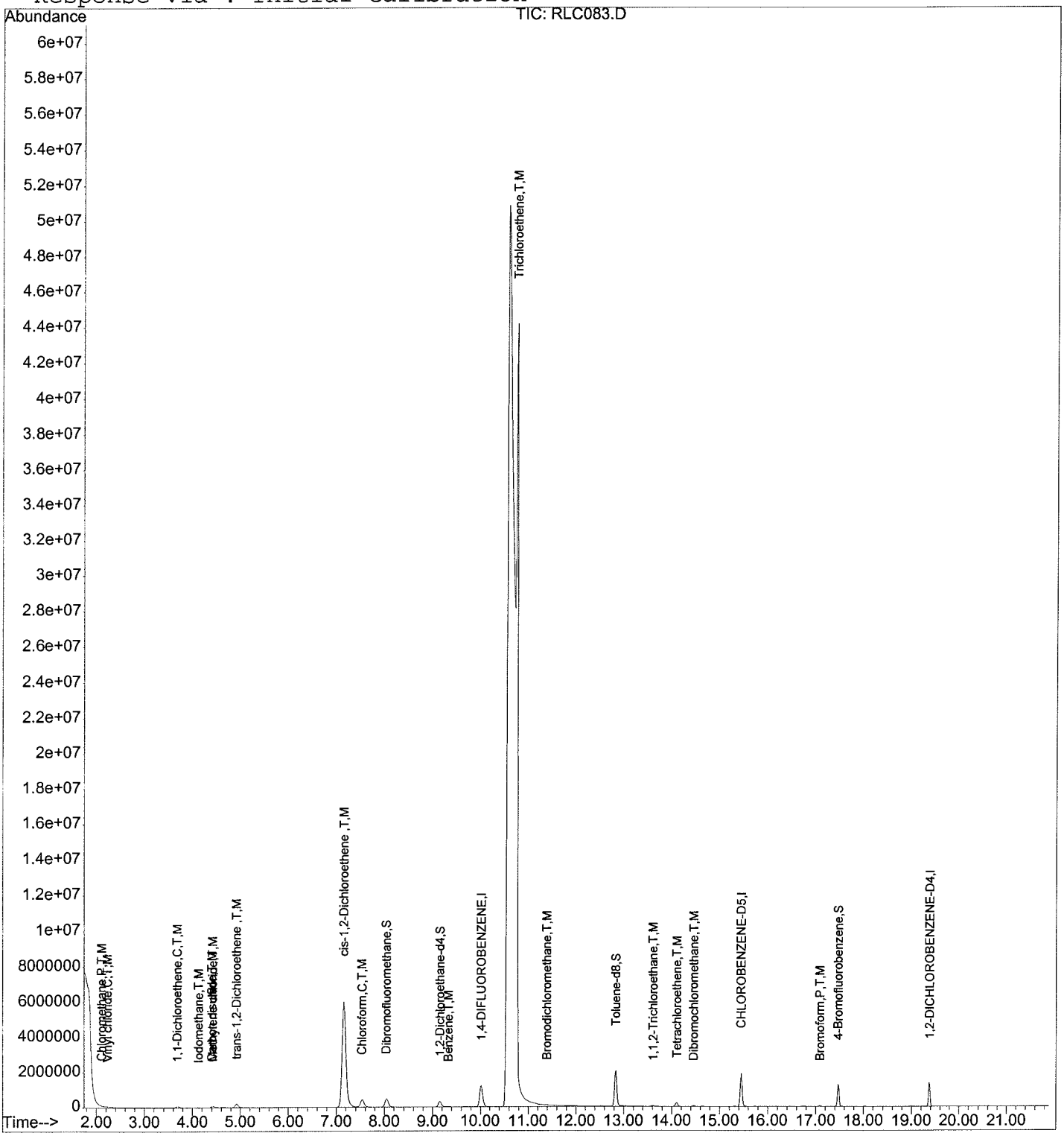
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.02	114	2599291	10.00	ug/l	0.01
55) CHLOROBENZENE-D5	15.45	117	1916714	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	524921	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	796272	9.38	ug/l	0.01
Spiked Amount 10.000			Recovery =	93.80%		
43) 1,2-Dichloroethane-d4	9.16	65	468201	8.62	ug/l	0.01
Spiked Amount 10.000			Recovery =	86.20%		
56) Toluene-d8	12.84	98	2650264	9.06	ug/l	0.01
Spiked Amount 10.000			Recovery =	90.60%		
77) 4-Bromofluorobenzene	17.47	95	731543	10.25	ug/l	0.00
Spiked Amount 10.000			Recovery =	102.50%		
Target Compounds						Qvalue
4) Chloromethane	2.11	50	15575	0.11	ug/l	84
5) Vinyl chloride	2.23	62	25121	0.19	ug/l	69
14) 1,1-Dichloroethene	3.68	61	98885	0.61	ug/l	99
17) Iodomethane	4.13	142	18429	0.13	ug/l	97
19) Methylene chloride	4.42	49	73035	0.64	ug/l	99
20) Carbon disulfide	4.41	76	107113	0.27	ug/l	99
23) trans-1,2-Dichloroethene	4.92	96	221231	1.92	ug/l	97
31) cis-1,2-Dichloroethene	7.16	96	8445907	75.35	ug/l	99
32) Chloroform	7.54	83	1021548	6.16	ug/l	97
45) Benzene	9.33	78	43090	0.11	ug/l	91
46) Trichloroethene	10.76	130	78747188m	781.41	ug/l	E
49) Bromodichloromethane	11.39	83	27480	0.27	ug/l	95
60) 1,1,2-Trichloroethane	13.61	97	34420	0.75	ug/l	91
63) Tetrachloroethene	14.11	164	96185	1.28	ug/l	100
64) Dibromochloromethane	14.46	129	39715	0.72	ug/l	100
75) Bromoform	17.09	173	29328	1.24	ug/l	98

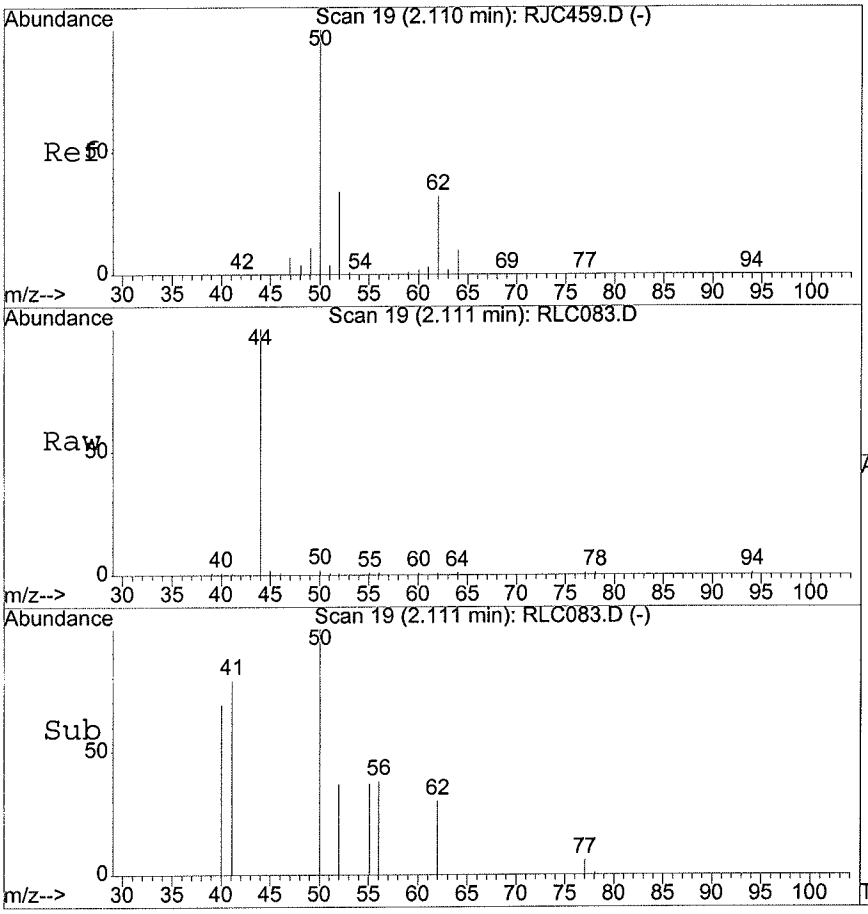
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC083.D Vial: 8
Acq On : 7 Dec 2020 2:10 pm Operator: VLu
Sample : 20L041-02 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:33 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

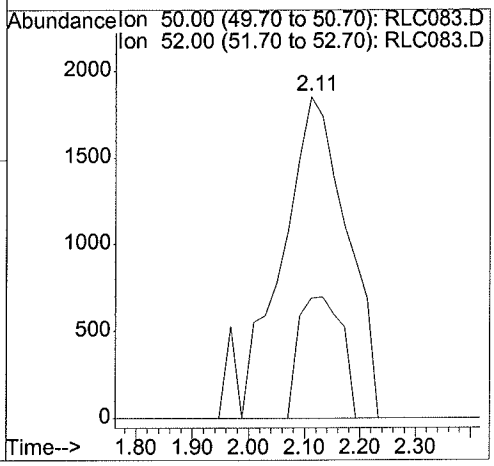


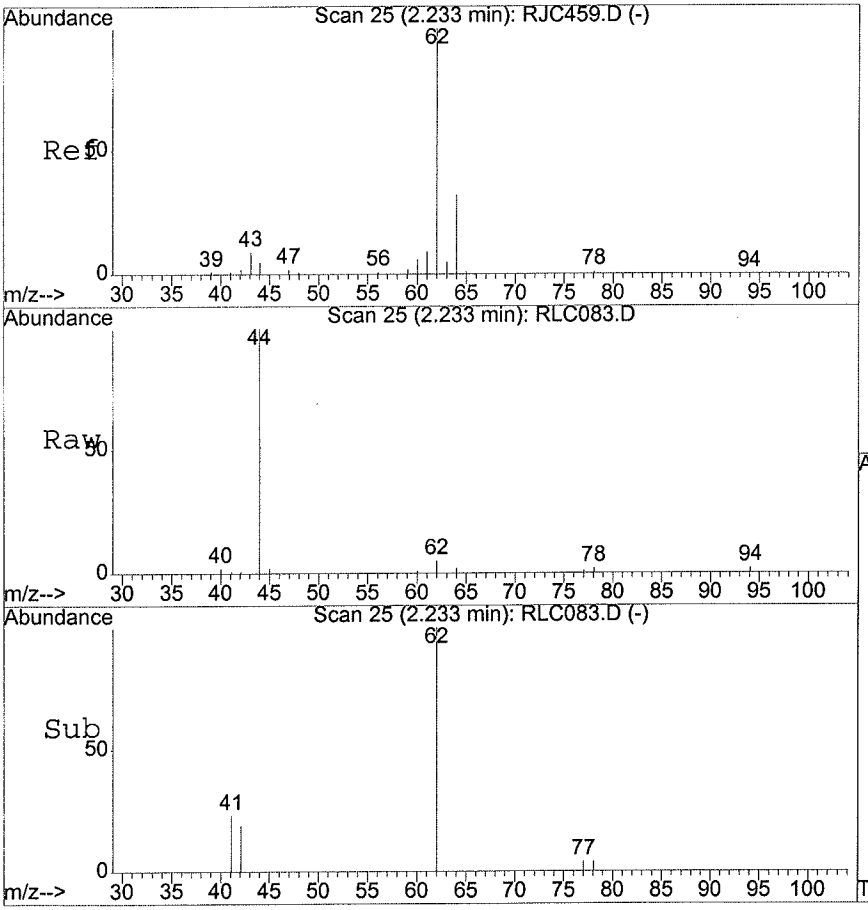


#4
Chloromethane
Concen: 0.11 ug/l
RT: 2.11 min Scan# 19
Delta R.T. 0.00 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion: 50 Resp: 15575

Ion	Ratio	Lower	Upper
50	100		
52	24.4	3.5	63.5

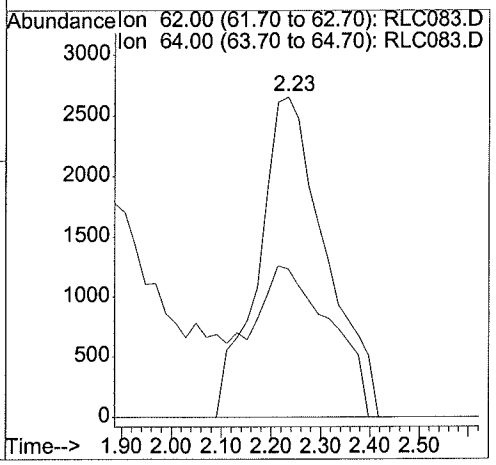


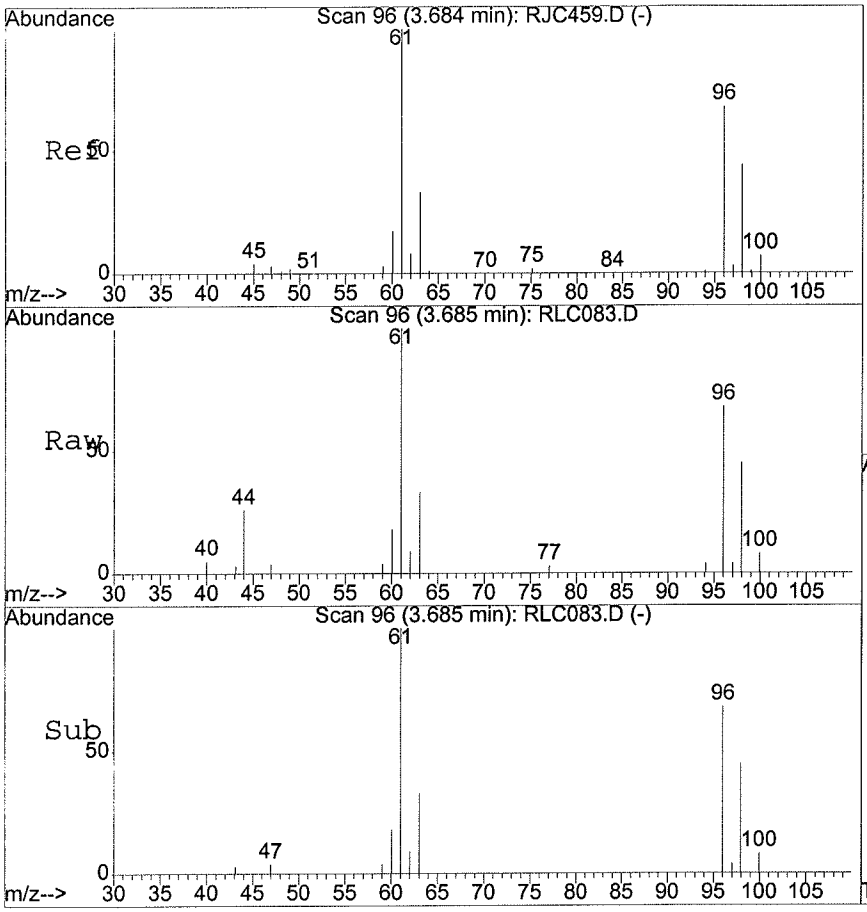


#5
Vinyl chloride
Concen: 0.19 ug/l
RT: 2.23 min Scan# 25
Delta R.T. 0.00 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion: 62 Resp: 25121

Ion	Ratio	Lower	Upper
62	100		
64	48.6	1.4	61.4

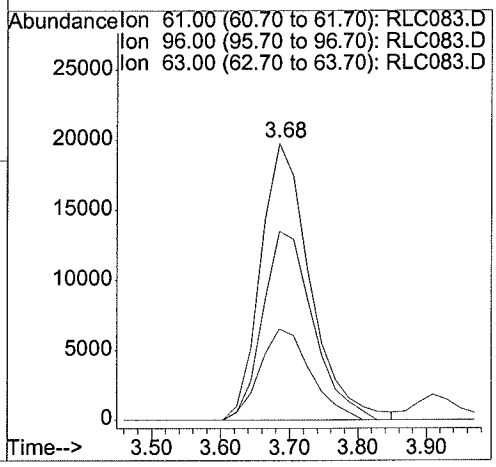


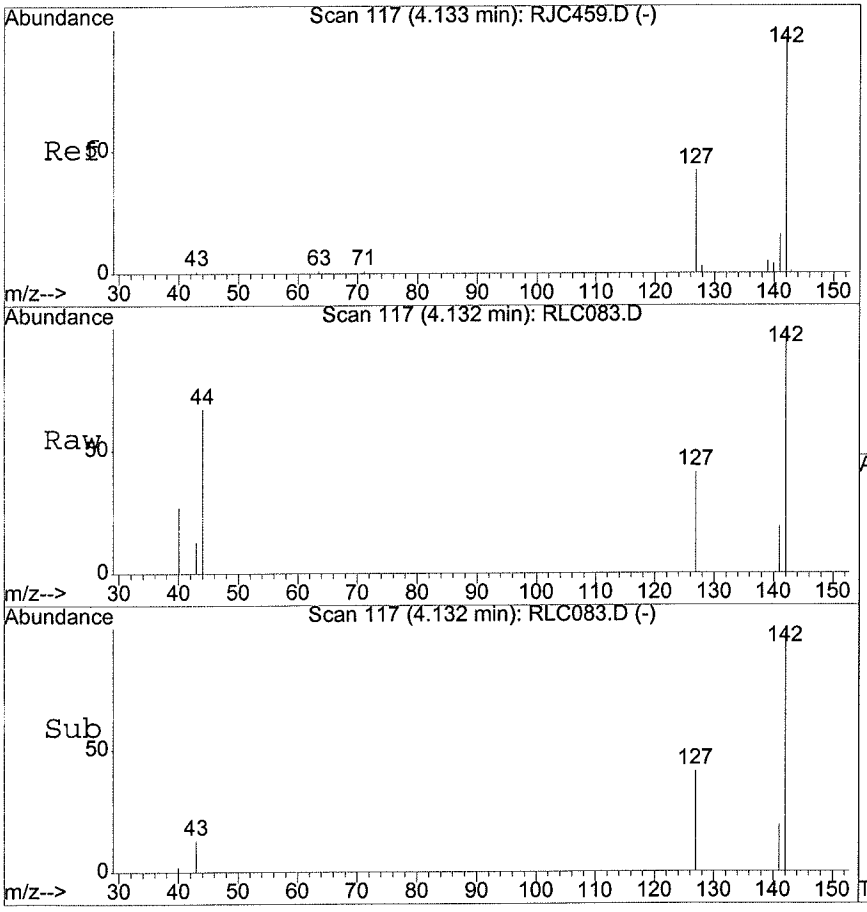


#14
1,1-Dichloroethene
Concen: 0.61 ug/l
RT: 3.68 min Scan# 96
Delta R.T. 0.00 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion: 61 Resp: 98885

Ion	Ratio	Lower	Upper
61	100		
96	69.3	38.7	98.7
63	33.9	2.9	62.9

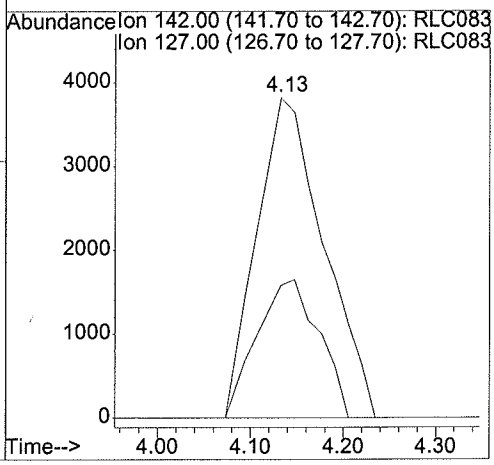


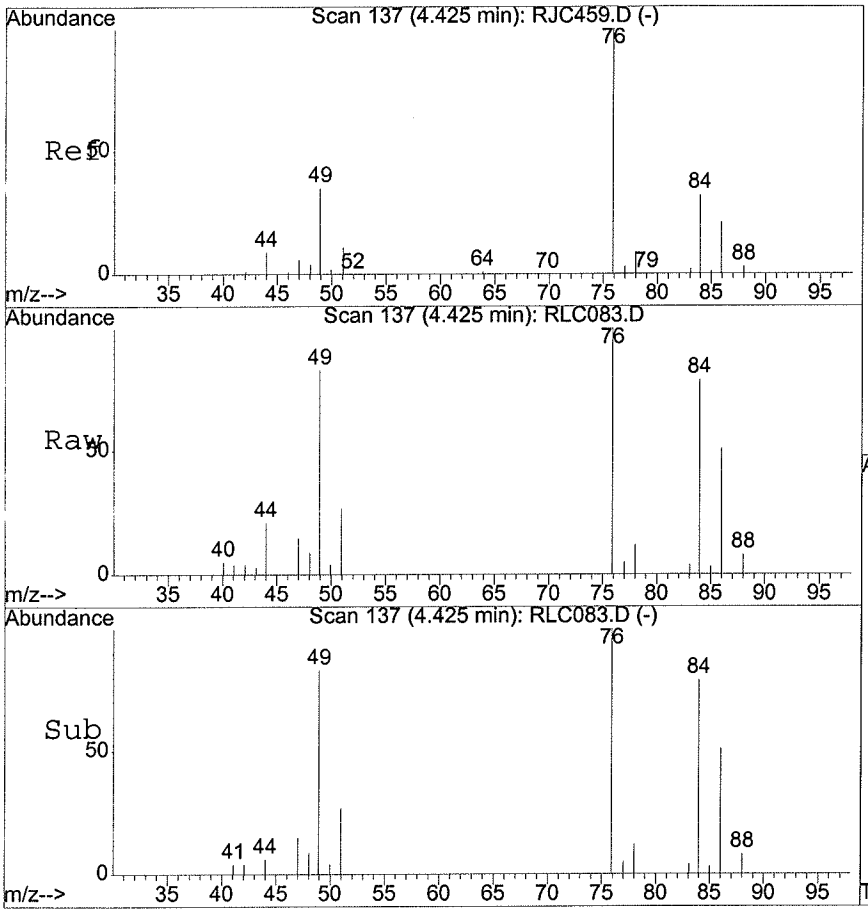


#17
Iodomethane
Concen: 0.13 ug/l
RT: 4.13 min Scan# 117
Delta R.T. -0.00 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion:142 Resp: 18429

Ion	Ratio	Lower	Upper
142	100		
127	40.5	12.5	72.5

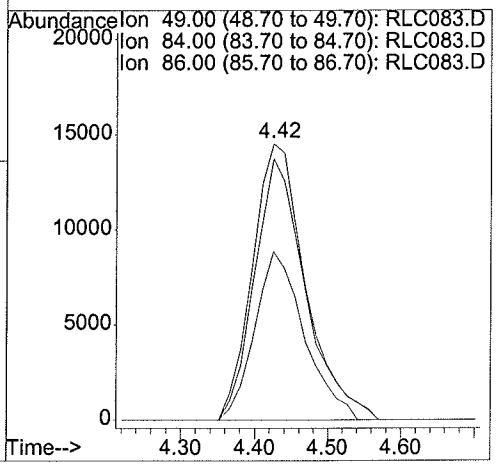


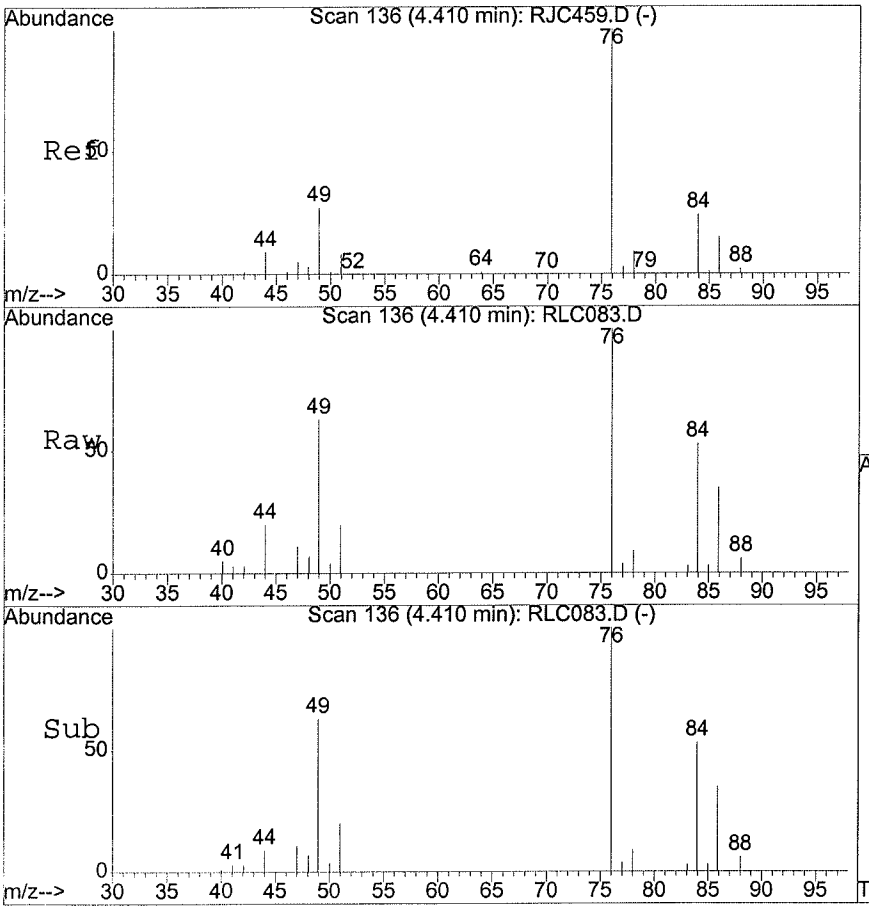


#19
Methylene chloride
Concen: 0.64 ug/l
RT: 4.42 min Scan# 137
Delta R.T. -0.00 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion: 49 Resp: 73035

Ion	Ratio	Lower	Upper
49	100		
84	90.6	60.1	120.1
86	56.8	27.5	87.5

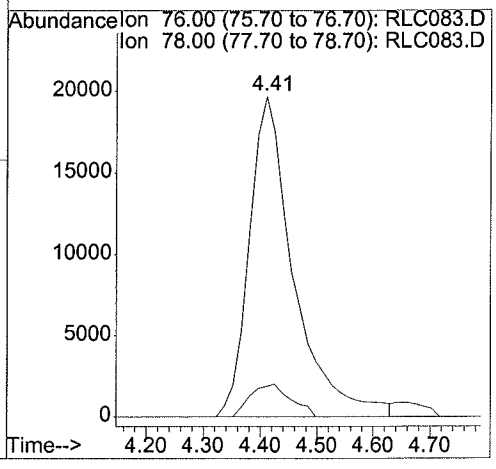


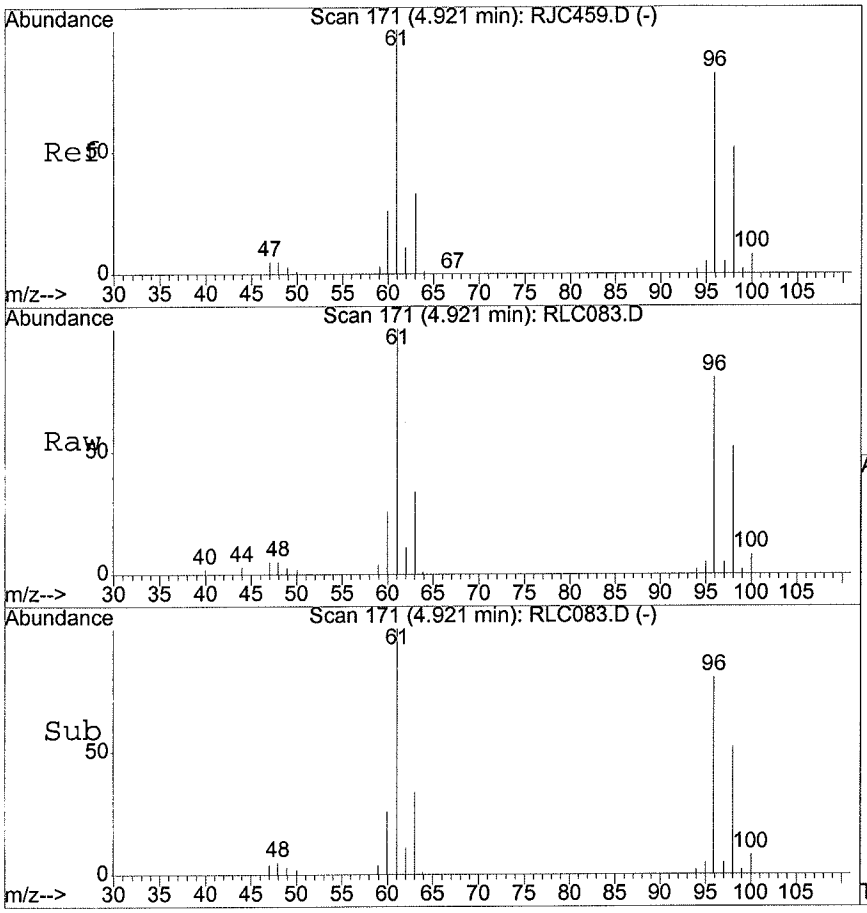


#20
Carbon disulfide
Concen: 0.27 ug/l
RT: 4.41 min Scan# 136
Delta R.T. -0.00 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion: 76 Resp: 107113

Ion	Ratio	Lower	Upper
76	100		
78	9.3	0.0	39.1

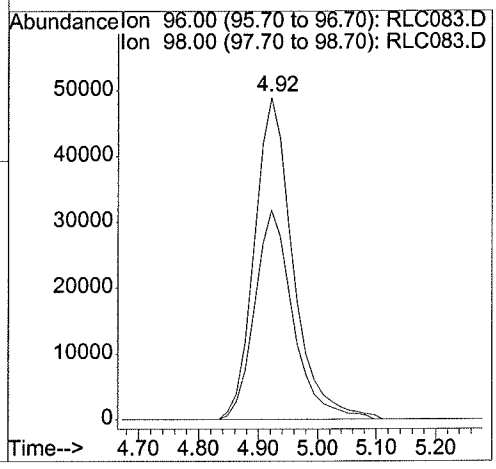


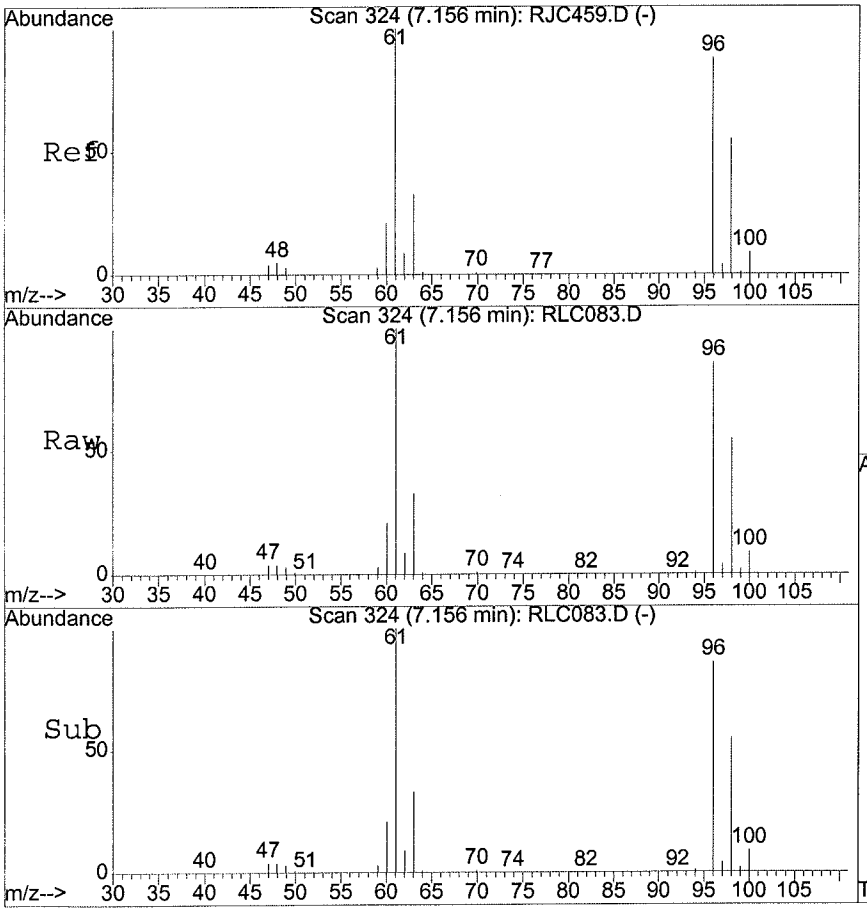


#23
trans-1,2-Dichloroethene
Concen: 1.92 ug/l
RT: 4.92 min Scan# 171
Delta R.T. -0.00 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion: 96 Resp: 221231

Ion	Ratio	Lower	Upper
96	100		
98	64.8	32.6	92.6

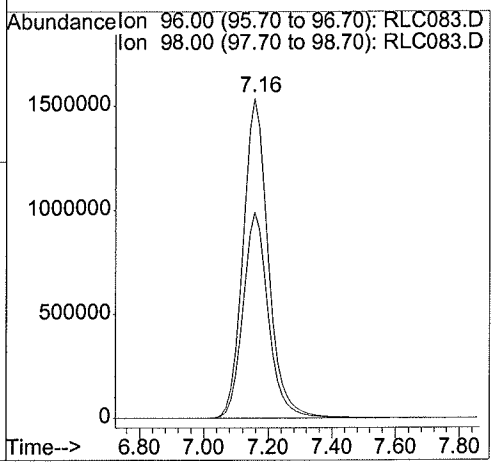


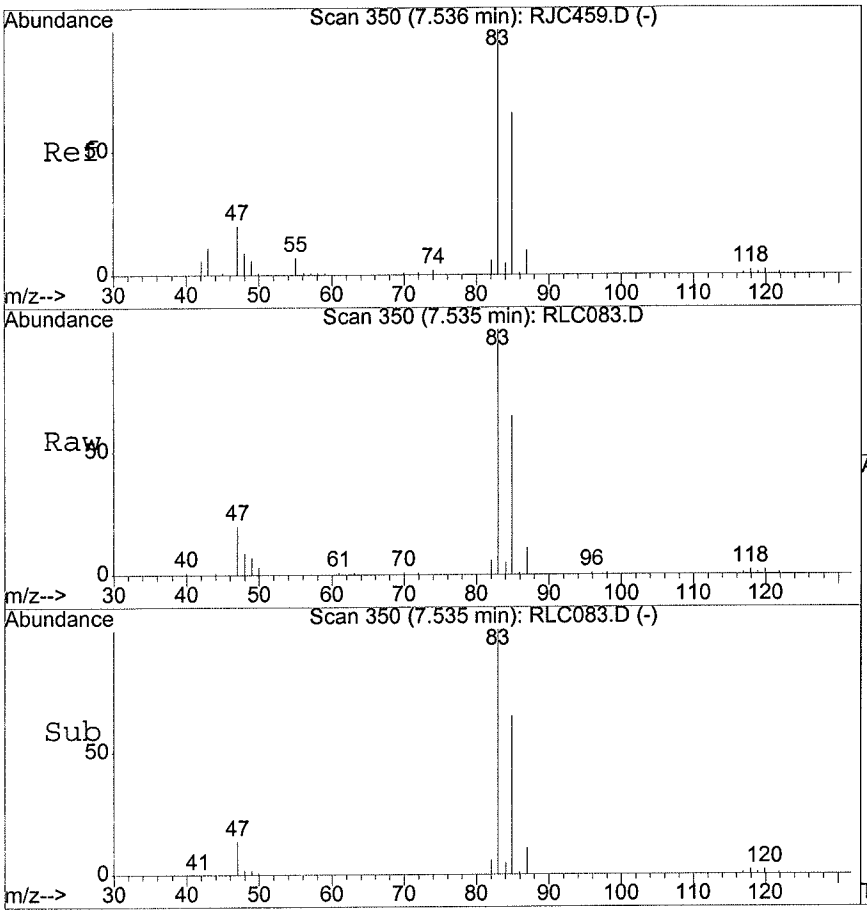


#31
cis-1,2-Dichloroethene
Concen: 75.35 ug/l
RT: 7.16 min Scan# 324
Delta R.T. -0.00 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion: 96 Resp: 8445907

Ion	Ratio	Lower	Upper
96	100		
98	64.6	33.5	93.5

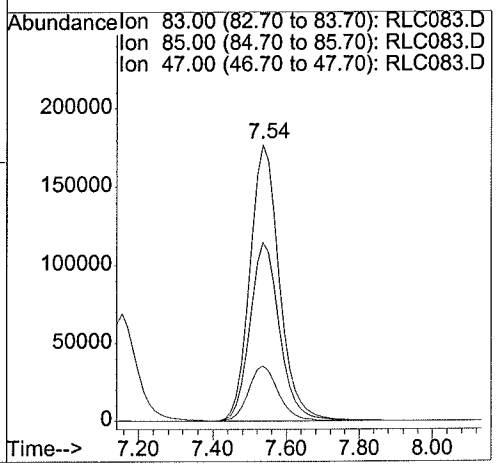


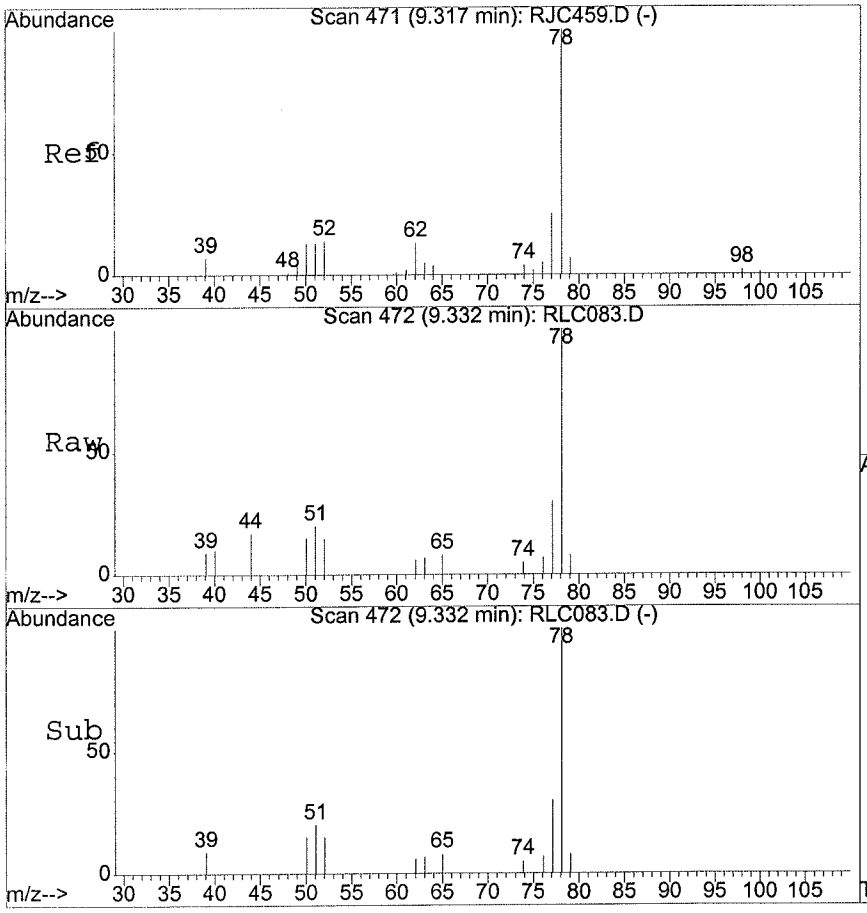


#32
Chloroform
Concen: 6.16 ug/l
RT: 7.54 min Scan# 350
Delta R.T. -0.00 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion: 83 Resp: 1021548

Ion	Ratio	Lower	Upper
83	100		
85	65.2	37.8	97.8
47	20.7	0.0	50.5

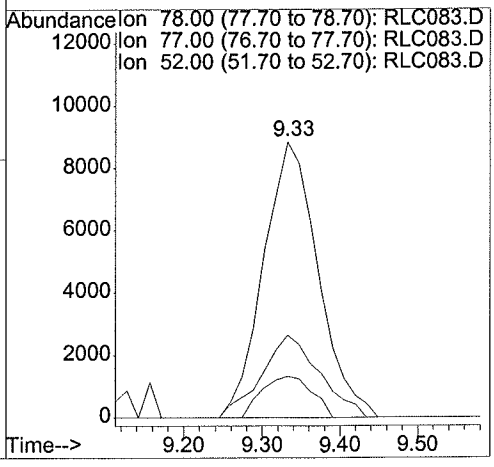


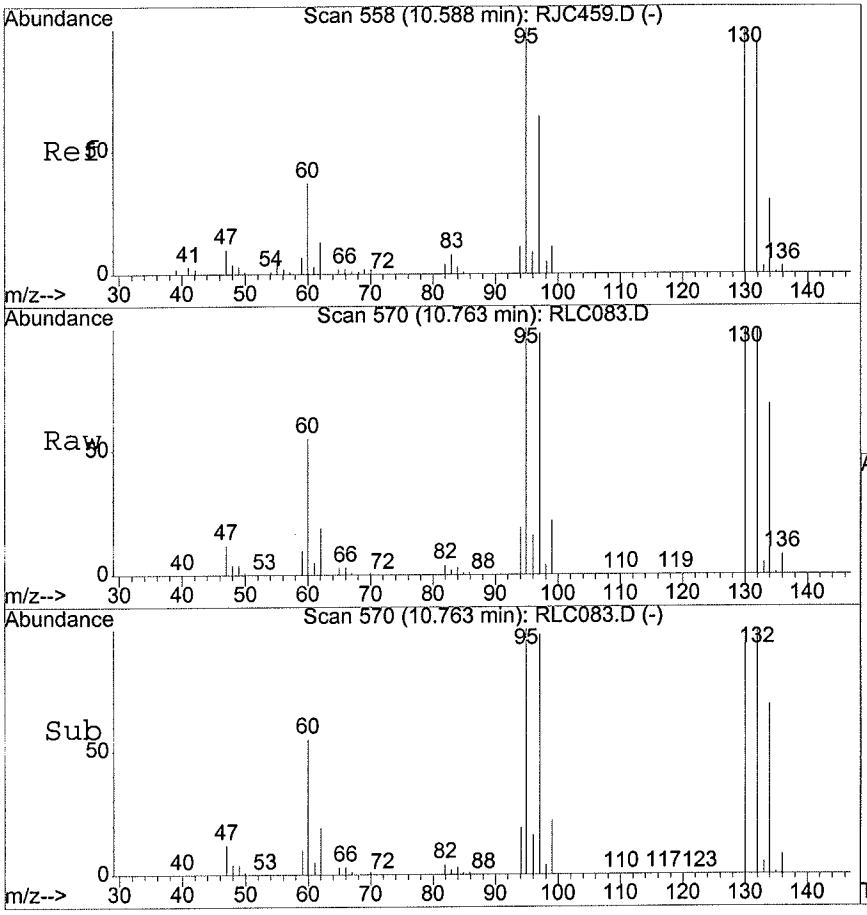


#45
Benzene
Concen: 0.11 ug/l
RT: 9.33 min Scan# 472
Delta R.T. 0.01 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion: 78 Resp: 43090

Ion	Ratio	Lower	Upper
78	100		
77	31.7	0.0	55.1
52	13.8	0.0	44.3

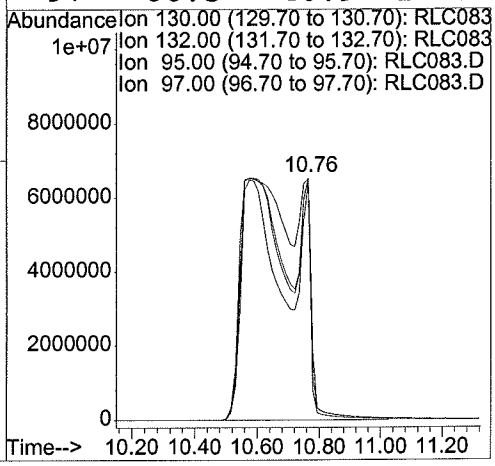


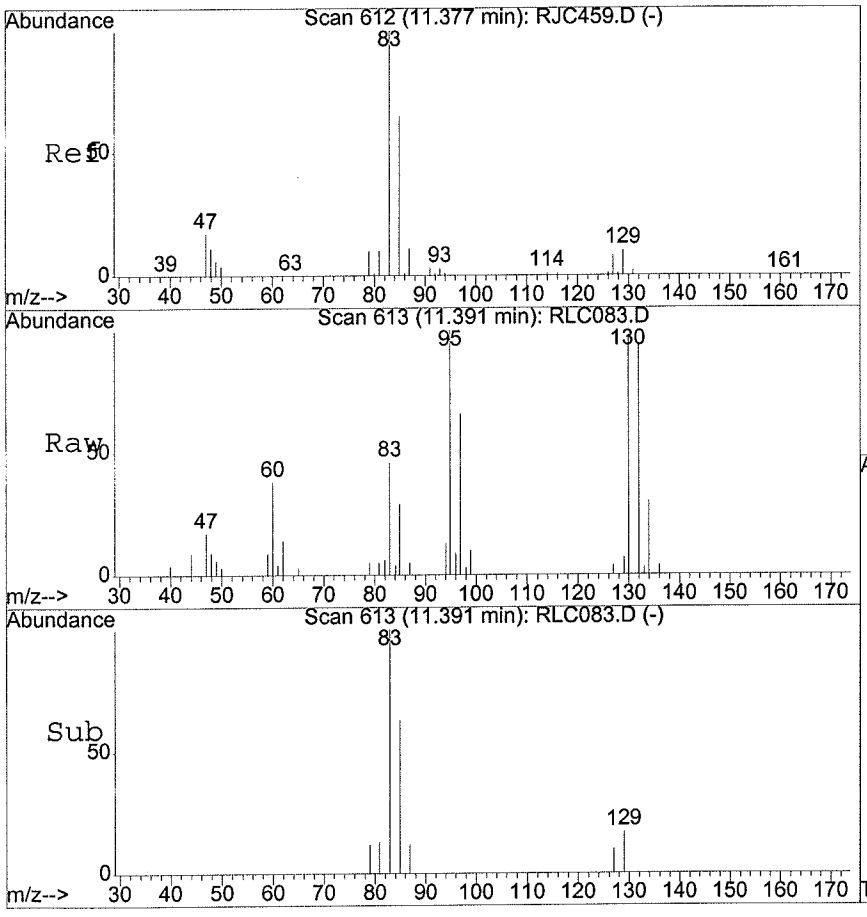


#46
Trichloroethene
Concen: 781.41 ug/l m
RT: 10.76 min Scan# 570
Delta R.T. 0.18 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion:130 Resp:78747188

Ion	Ratio	Lower	Upper
130	100		
132	75.7	65.5	125.5
95	86.1	73.3	133.3
97	66.5	40.9	100.9

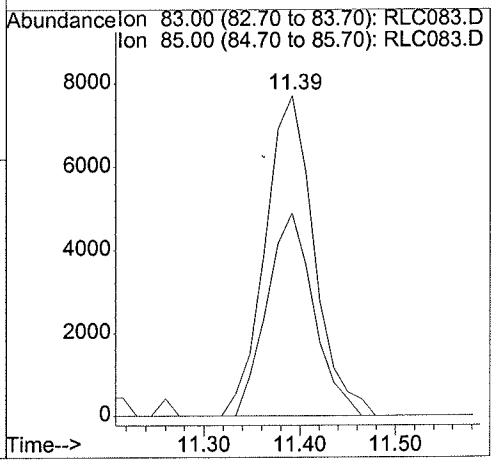


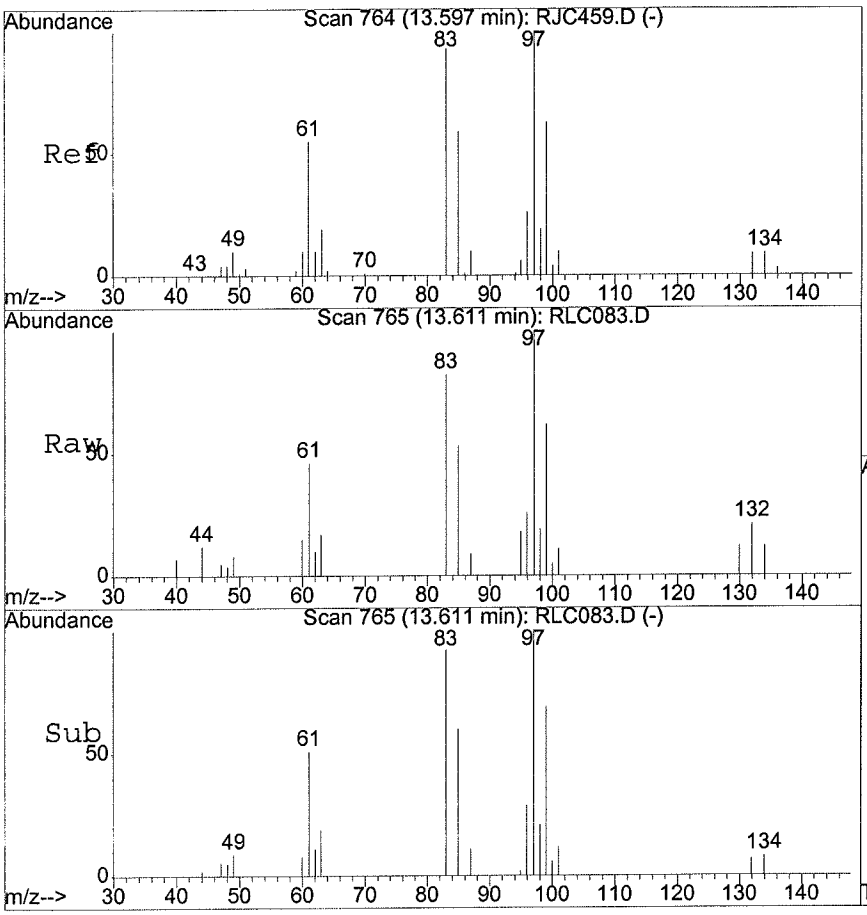


#49
Bromodichloromethane
Concen: 0.27 ug/l
RT: 11.39 min Scan# 613
Delta R.T. 0.01 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion: 83 Resp: 27480

Ion	Ratio	Lower	Upper
83	100		
85	60.7	34.3	94.3

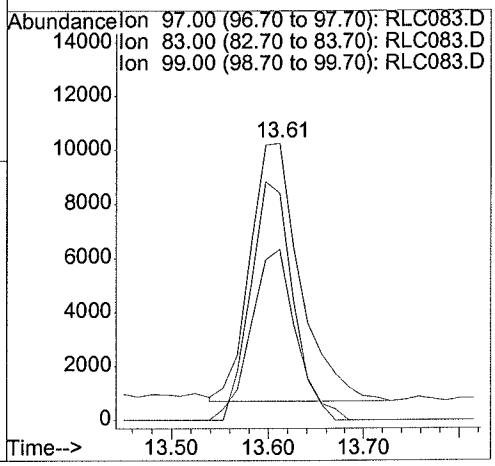


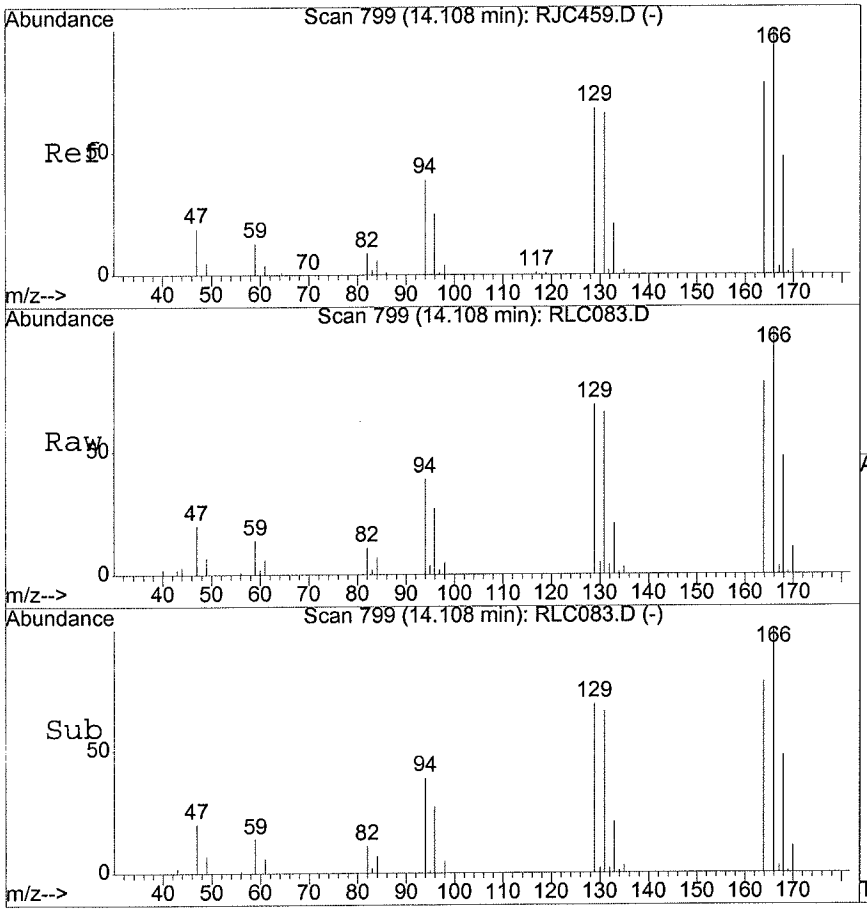


#60
1,1,2-Trichloroethane
Concen: 0.75 ug/l
RT: 13.61 min Scan# 765
Delta R.T. 0.01 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion: 97 Resp: 34420

Ion	Ratio	Lower	Upper
97	100		
83	78.1	60.6	120.6
99	60.1	33.2	93.2

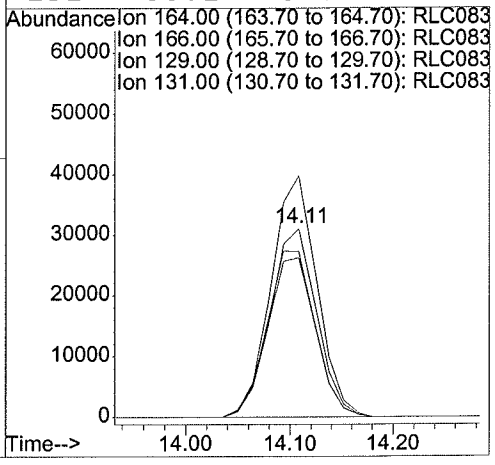


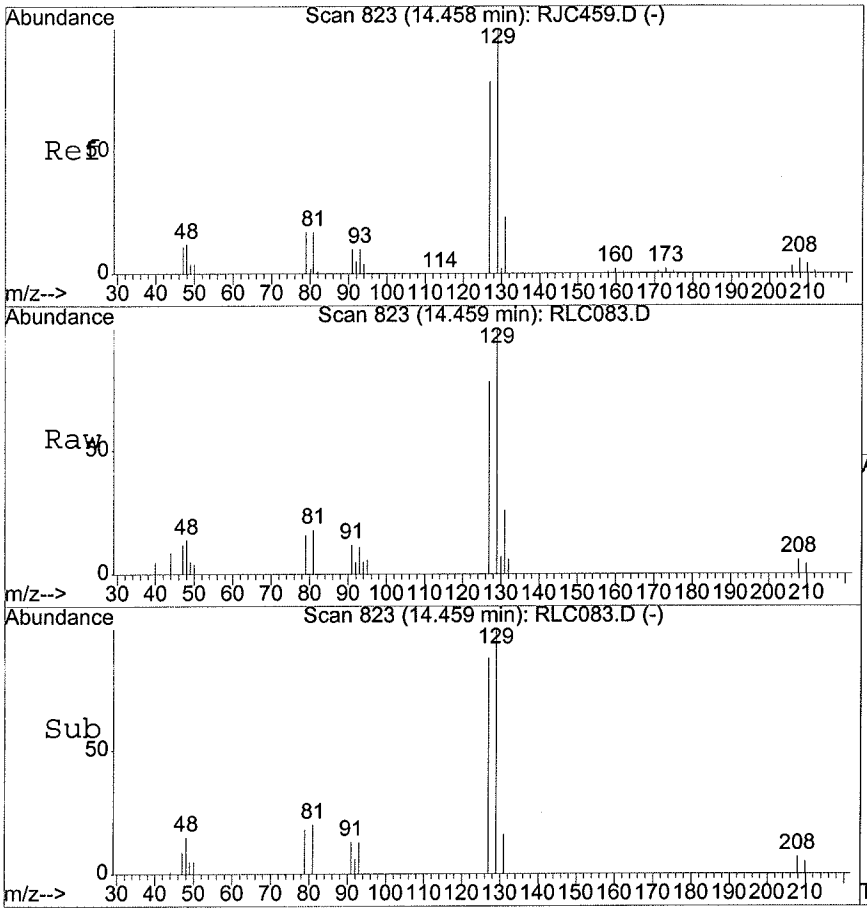


#63
Tetrachloroethene
Concen: 1.28 ug/l
RT: 14.11 min Scan# 799
Delta R.T. 0.00 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion:164 Resp: 96185

Ion	Ratio	Lower	Upper
164	100		
166	127.0	97.5	157.5
129	92.0	61.9	121.9
131	88.1	58.5	118.5

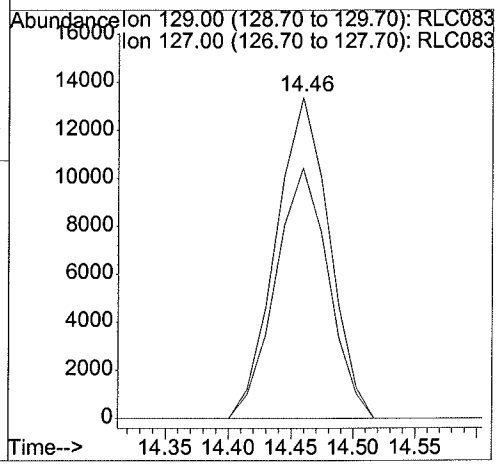


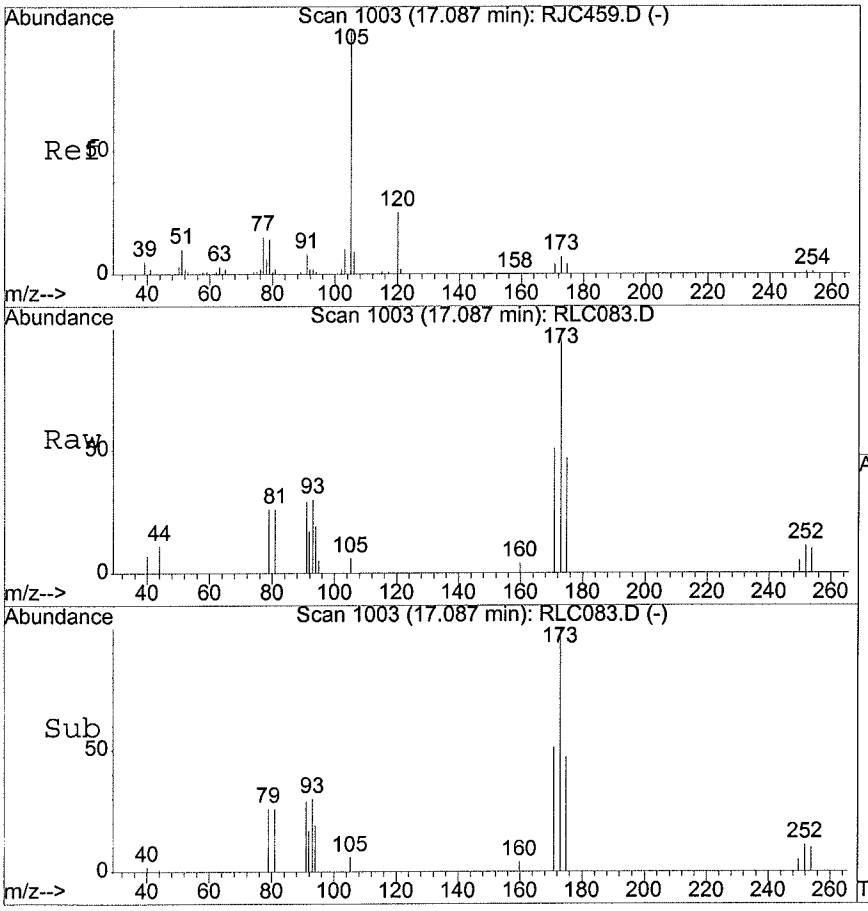


#64
Dibromochloromethane
Concen: 0.72 ug/l
RT: 14.46 min Scan# 823
Delta R.T. 0.00 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion:129 Resp: 39715

Ion	Ratio	Lower	Upper
129	100		
127	77.6	47.4	107.4

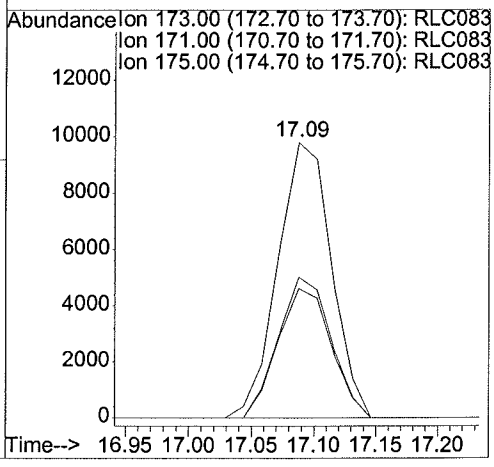




#75
Bromoform
Concen: 1.24 ug/l
RT: 17.09 min Scan# 1003
Delta R.T. 0.00 min
Lab File: RLC083.D
Acq: 7 Dec 2020 2:10 pm

Tgt Ion:173 Resp: 29328

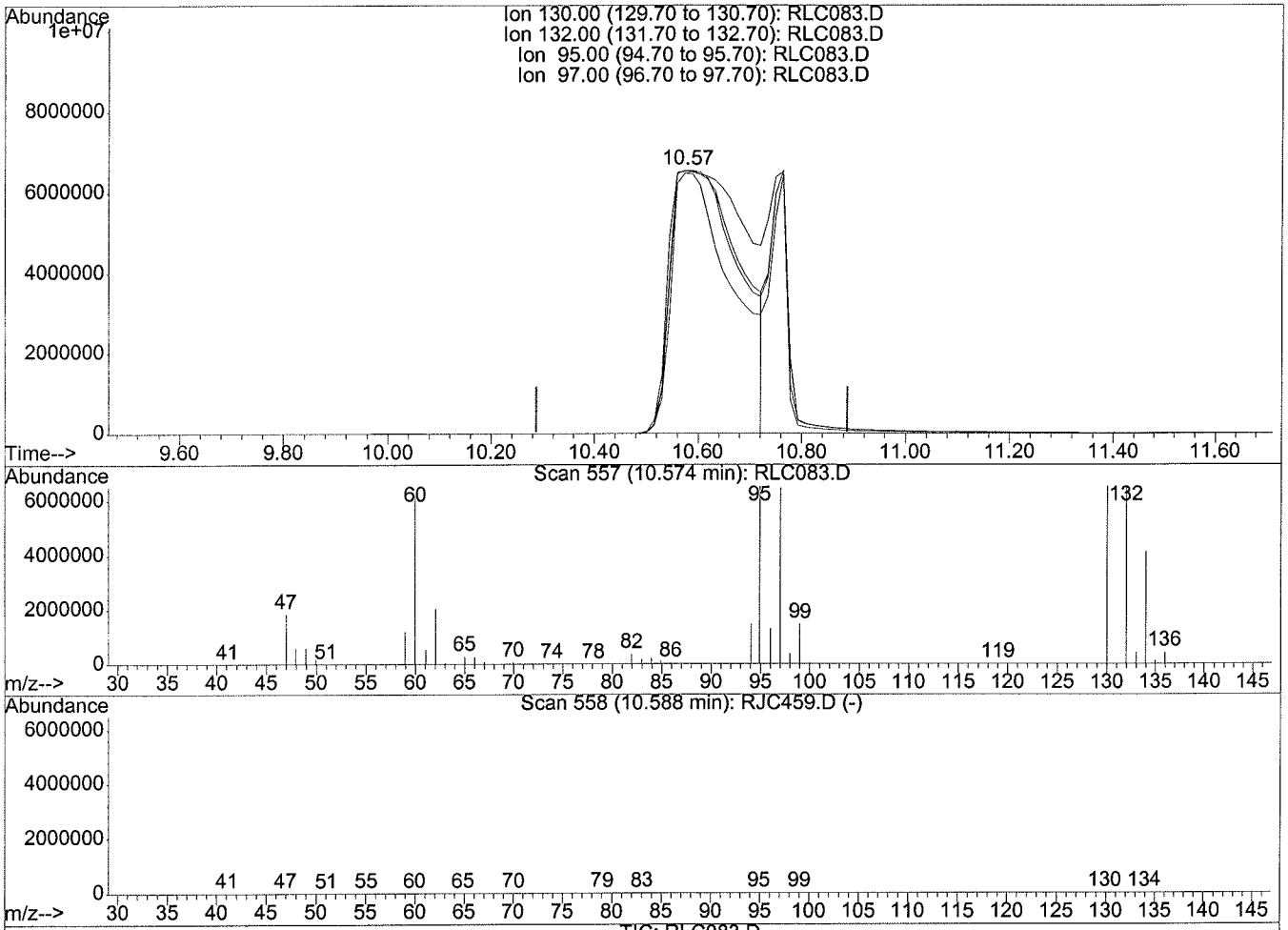
Ion	Ratio	Lower	Upper
173	100		
171	50.3	21.3	81.3
175	47.0	18.8	78.8



Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC083.D Vial: 8
Acq On : 7 Dec 2020 2:10 pm Operator: VLu
Sample : 20L041-02 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:32 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC083.D

(46) Trichloroethene (T,M)

10.57min 604.07ug/l

response 60875206

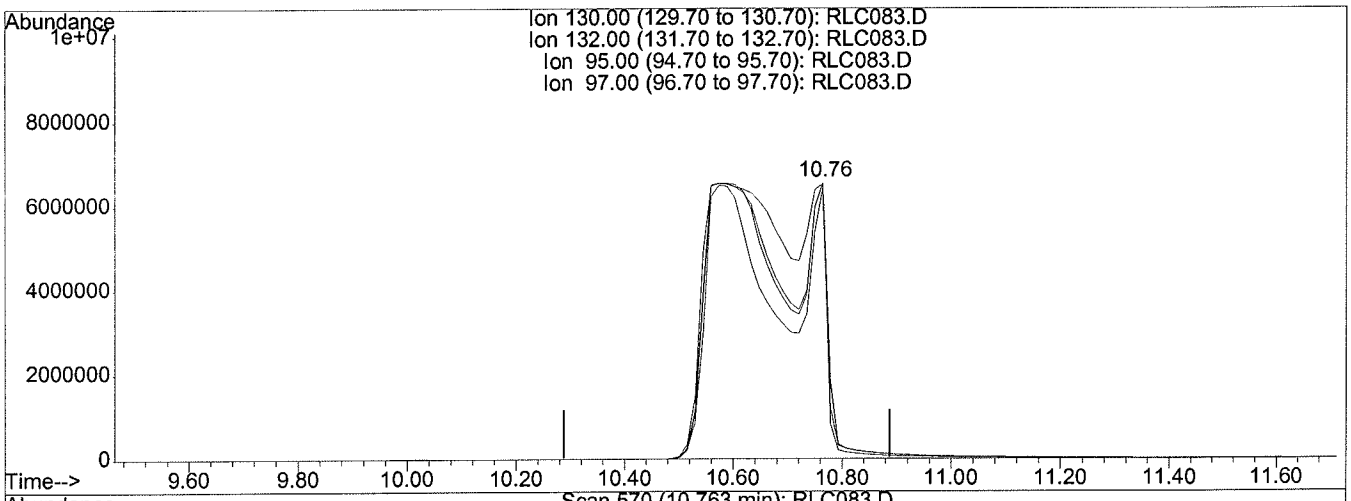
Ion	Exp%	Act%
130.00	100	100
132.00	95.50	97.91
95.00	103.30	111.33
97.00	70.90	86.07

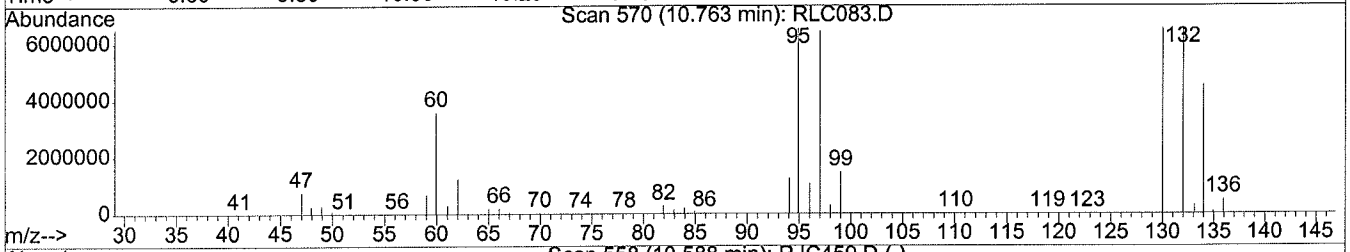
RLC083.D VO67J30.M Tue Dec 08 11:32:55 2020

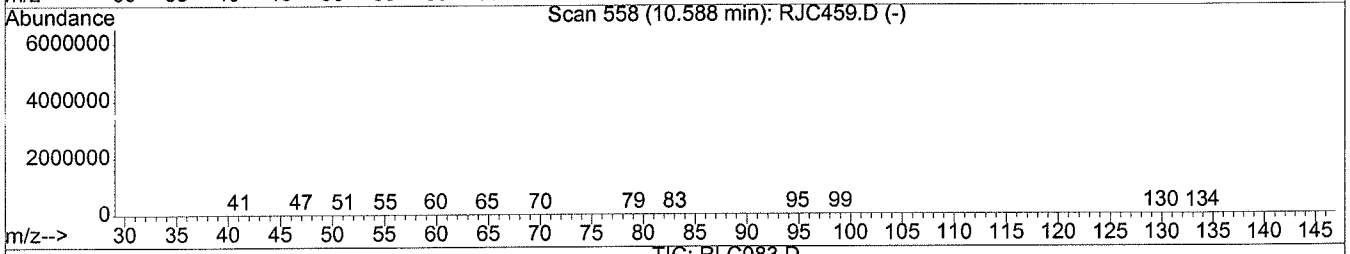
Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC083.D Vial: 8
Acq On : 7 Dec 2020 2:10 pm Operator: VLu
Sample : 20L041-02 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:32 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration







TIC: RLC083.D

(46) Trichloroethene (T,M)

10.76min 781.41ug/l m

response 78747188

Ion	Exp%	Act%
130.00	100	100
132.00	95.50	75.69
95.00	103.30	86.06
97.00	70.90	66.53

☐ Incorrect Retention Time
☐ Incorrect Baseline
☑ Incorrect Integration
☐ Other _____

Initials VL 12/8/20

12/14/20

RLC083.D VO67J30.M Tue Dec 08 11:32:59 2020

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/01/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/08/20 13:27
Sample ID: 3-MW-55(120120)DL	Date Analyzed: 12/08/20 13:27
Lab Samp ID: L041-02I	Dilution Factor: 500
Lab File ID: RLC111	Matrix : WATER
Ext Btch ID: VO67L06	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	250	50	100
1,1,1-TRICHLOROETHANE	ND	500	50	100
1,1,2,2-TETRACHLOROETHANE	ND	500	55	100
1,1,2-TRICHLOROETHANE	ND	500	50	100
1,1-DICHLOROETHANE	ND	500	50	100
1,1-DICHLOROETHENE	ND	500	50	100
1,1-DICHLOROPROPENE	ND	500	50	100
1,2,3-TRICHLOROBENZENE	ND	500	75	150
1,2,3-TRICHLOROPROPANE	ND	1000	120	250
1,2,4-TRICHLOROBENZENE	ND	500	75	150
1,2,4-TRIMETHYLBENZENE	ND	500	55	100
1,2-DIBROMO-3-CHLOROPROPANE	ND	1000	120	250
1,2-DIBROMOETHANE	ND	500	50	100
1,2-DICHLOROBENZENE	ND	500	50	100
1,2-DICHLOROETHANE	ND	250	50	100
1,2-DICHLOROPROPANE	ND	500	50	100
1,3,5-TRIMETHYLBENZENE	ND	500	65	100
1,3-DICHLOROBENZENE	ND	500	55	100
1,3-DICHLOROPROPANE	ND	500	50	100
1,4-DICHLOROBENZENE	ND	500	50	100
2,2-DICHLOROPROPANE	ND	500	80	100
2-BUTANONE	ND	5000	1000	2000
2-CHLOROTOLUENE	ND	500	60	100
2-HEXANONE	ND	5000	1100	2000
4-CHLOROTOLUENE	ND	500	55	100
ACETONE	ND	5000	1300	2500
BENZENE	ND	500	50	100
BROMOBENZENE	ND	500	50	100
BROMOCHLOROMETHANE	ND	500	55	100
BROMODICHLOROMETHANE	ND	500	50	100
BROMOFORM	ND	500	75	150
BROMOMETHANE	ND	500	80	150
CARBON DISULFIDE	ND	500	50	100
CARBON TETRACHLORIDE	ND	500	50	100
CHLOROBENZENE	ND	500	50	100
CHLOROETHANE	ND	500	130	150
CHLOROFORM	ND	500	50	100
CHLOROMETHANE	ND	500	75	150
CIS-1,2-DICHLOROETHENE	82J	500	50	100
CIS-1,3-DICHLOROPROPENE	ND	500	50	100
DIBROMOCHLOROMETHANE	ND	500	50	100
DICHLORODIFLUOROMETHANE	ND	500	75	150
ETHYLBENZENE	ND	500	50	100
HEXACHLOROBUTADIENE	ND	500	110	150
ISOPROPYL BENZENE	ND	500	50	100
M,P-XYLENES	ND	1000	100	200
MIBK	ND	5000	1000	2000
METHYLENE CHLORIDE	ND	1000	120	250
MTBE	ND	500	65	100
NAPHTHALENE	ND	1000	120	250
N-BUTYLBENZENE	ND	500	85	100
N-PROPYLBENZENE	ND	500	65	100
O-XYLENE	ND	500	50	100
P-ISOPROPYLTOLUENE	ND	500	70	100
SEC-BUTYLBENZENE	ND	500	65	100
STYRENE	ND	500	50	100
TERT-BUTYLBENZENE	ND	500	65	100
TETRACHLOROETHENE	ND	500	75	100
TOLUENE	ND	500	50	100
TRANS-1,2-DICHLOROETHENE	ND	500	50	100
TRANS-1,3-DICHLOROPROPENE	ND	500	55	100
TRICHLOROETHENE	10000	500	50	100
TRICHLOROFLUOROMETHANE	ND	500	75	150
VINYL CHLORIDE	ND	250	60	100
VINYL ACETATE	ND	1000	120	250
FREON113	ND	500	100	150
TERT-BUTANOL	ND	10000	2500	5000
DIPE	ND	500	50	100
ETBE	ND	500	50	100
TAME	ND	500	50	100

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	4380	5000	87.6	70-120
4-BROMOFLUOROBENZENE	4890	5000	97.8	75-120
TOLUENE-D8	4580	5000	91.6	85-120
DIBROMOFLUOROMETHANE	4670	5000	93.5	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC111.D Vial: 7
Acq On : 8 Dec 2020 1:27 pm Operator: VLu
Sample : 20L041-02I 50uL Inst : 67
Misc : DF=500 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:36 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

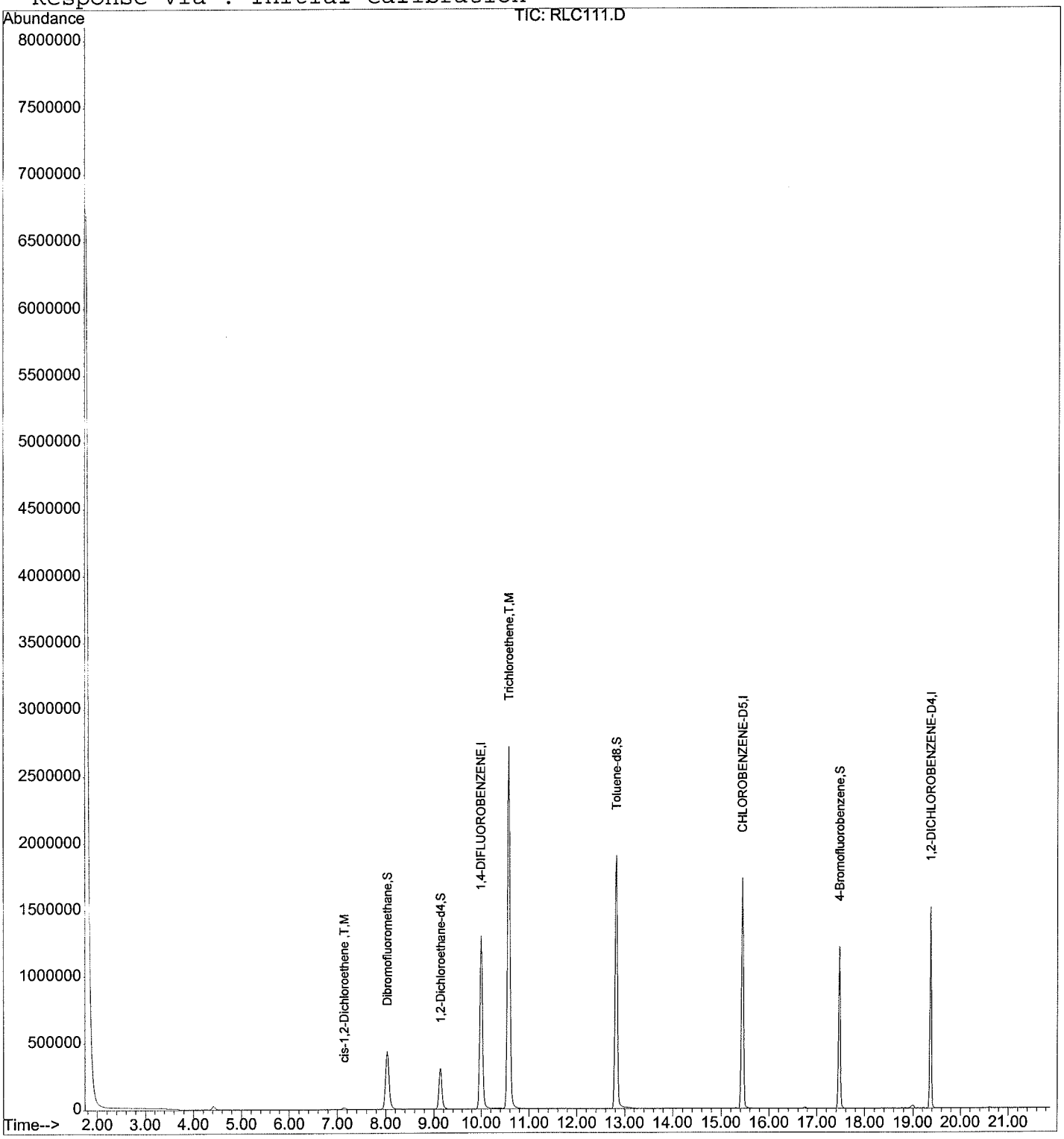
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2375476	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1767763	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	504516	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	724889	9.35	ug/l	0.00
Spiked Amount 10.000			Recovery =	93.50%		
43) 1,2-Dichloroethane-d4	9.14	65	434954	8.76	ug/l	0.00
Spiked Amount 10.000			Recovery =	87.60%		
56) Toluene-d8	12.82	98	2470663	9.16	ug/l	0.00
Spiked Amount 10.000			Recovery =	91.60%		
77) 4-Bromofluorobenzene	17.47	95	670597	9.78	ug/l	0.00
Spiked Amount 10.000			Recovery =	97.80%		
Target Compounds						Qvalue
31) cis-1,2-Dichloroethene	7.14	96	16889	0.16	ug/l	99
46) Trichloroethene	10.57	130	1869701	20.30	ug/l	98

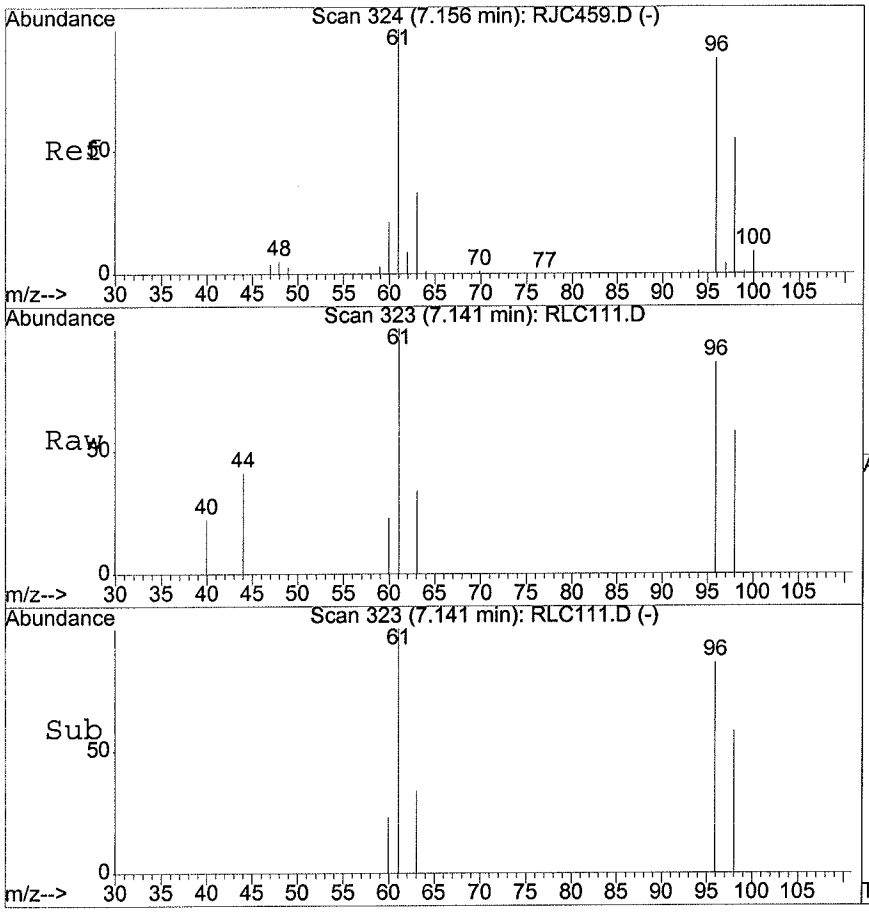
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC111.D Vial: 7
Acq On : 8 Dec 2020 1:27 pm Operator: VLu
Sample : 20L041-02I 50uL Inst : 67
Misc : DF=500 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:36 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

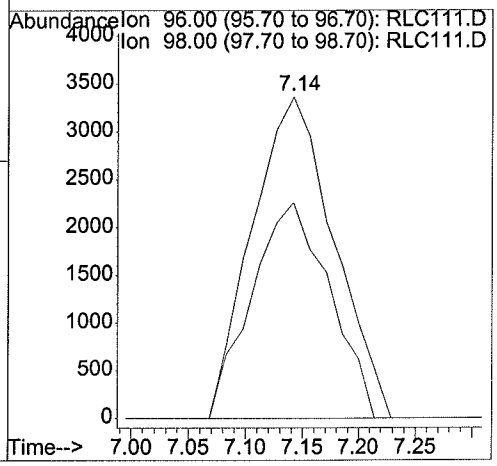


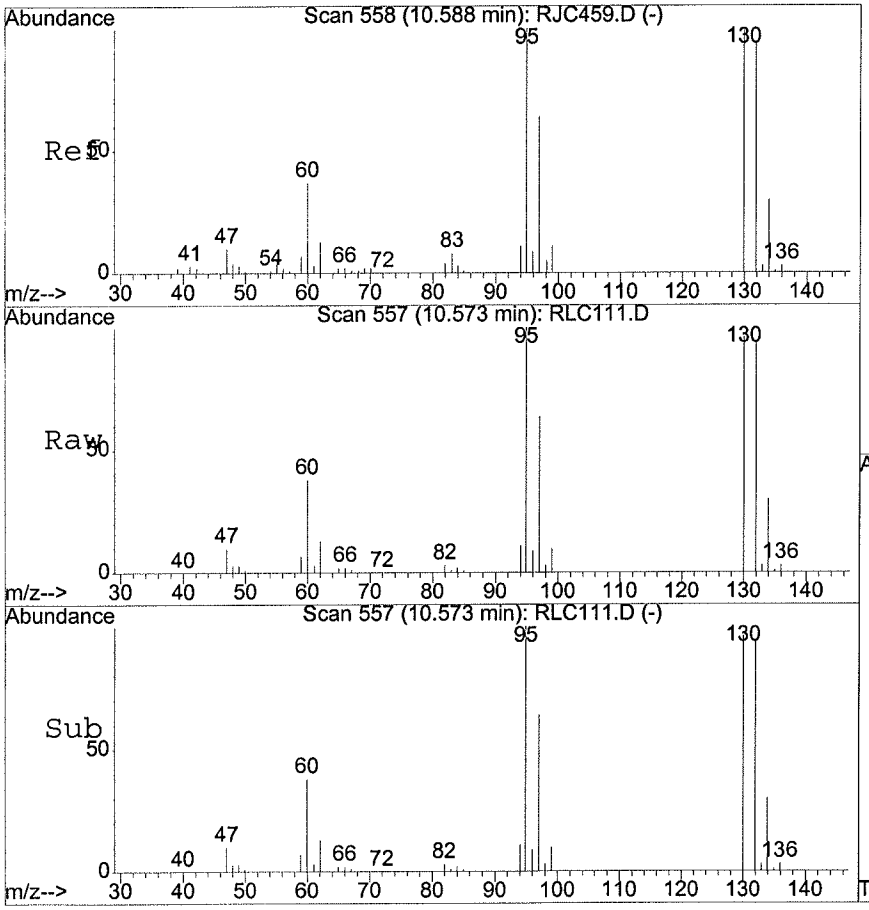


#31
cis-1,2-Dichloroethene
Concen: 0.16 ug/l
RT: 7.14 min Scan# 323
Delta R.T. -0.01 min
Lab File: RLC111.D
Acq: 8 Dec 2020 1:27 pm

Tgt Ion: 96 Resp: 16889

Ion	Ratio	Lower	Upper
96	100		
98	64.1	33.5	93.5

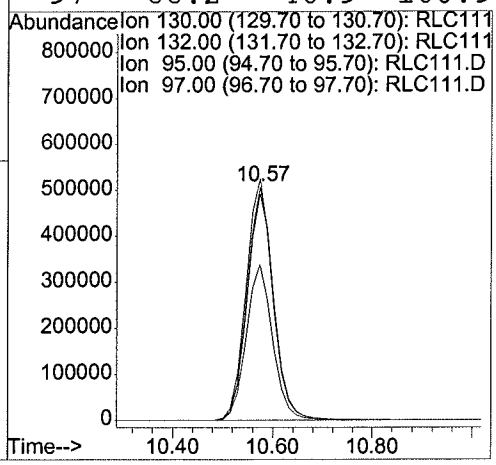




#46
Trichloroethene
Concen: 20.30 ug/l
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC111.D
Acq: 8 Dec 2020 1:27 pm

Tgt Ion:130 Resp: 1869701

Ion	Ratio	Lower	Upper
130	100		
132	97.0	65.5	125.5
95	103.5	73.3	133.3
97	66.2	40.9	100.9



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected:	12/02/20
Project	: VAFB-SS003	Date Received:	12/04/20
Batch No.	: 20L041	Date Extracted:	12/07/20 15:51 # 12/08/20 13:52
Sample ID	: 3-MW-54(120220)	Date Analyzed:	12/07/20 15:51 # 12/08/20 13:52
Lab Samp ID	: L041-03 #L041-03I	Dilution Factor:	1 # 100
Lab File ID	: RLC087 #RLC112	Matrix	: WATER
Ext Btch ID	: VO67L05 #VO67L06	% Moisture	: NA
Calib. Ref.	: RJC459 #RJC459	Instrument ID	: 67

	PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
	1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
	1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
	1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
	1,1,2-TRICHLOROETHANE	0.26J	1.0	0.10	0.20
	1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
	1,1-DICHLOROETHENE	0.22J	1.0	0.10	0.20
	1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
	1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
	1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
	1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
	1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
	1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
	1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
	1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
	1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
	1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
	2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
	2-BUTANONE	ND	10	2.0	4.0
	2-CHLOROTOLUENE	ND	1.0	0.12	0.20
	2-HEXANONE	ND	10	2.3	4.0
	4-CHLOROTOLUENE	ND	1.0	0.11	0.20
	ACETONE	ND	10	2.6	5.0
	BENZENE	ND	1.0	0.10	0.20
	BROMOBENZENE	ND	1.0	0.10	0.20
	BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
	BROMODICHLOROMETHANE	0.14J	1.0	0.10	0.20
	BROMOFORM	0.38J	1.0	0.15	0.30
	BROMOMETHANE	ND	1.0	0.16	0.30
	CARBON DISULFIDE	0.14J	1.0	0.10	0.20
	CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
	CHLOROBENZENE	ND	1.0	0.10	0.20
	CHLOROETHANE	ND	1.0	0.27	0.30
	CHLOROFORM	1.8	1.0	0.10	0.20
	CHLOROMETHANE	ND	1.0	0.15	0.30
	CIS-1,2-DICHLOROETHENE	27	1.0	0.10	0.20
	CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
	DIBROMOCHLOROMETHANE	0.29J	1.0	0.10	0.20
	DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
	ETHYLBENZENE	ND	1.0	0.10	0.20
	HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
	ISOPROPYL BENZENE	ND	1.0	0.10	0.20
	M,P-XYLENES	ND	2.0	0.21	0.40
	MIBK	ND	10	2.1	4.0
	METHYLENE CHLORIDE	0.27J	2.0	0.25	0.50
	MTBE	ND	1.0	0.13	0.20
	NAPHTHALENE	ND	2.0	0.25	0.50
	N-BUTYLBENZENE	ND	1.0	0.17	0.20
	N-PROPYLBENZENE	ND	1.0	0.13	0.20
	O-XYLENE	ND	1.0	0.10	0.20
	P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
	SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
	STYRENE	ND	1.0	0.10	0.20
	TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
	TETRACHLOROETHENE	0.79J	1.0	0.15	0.20
	TOLUENE	ND	1.0	0.10	0.20
	TRANS-1,2-DICHLOROETHENE	0.98J	1.0	0.10	0.20
	TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
#	TRICHLOROETHENE	1800	100	10	20
	TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
	VINYL CHLORIDE	0.18J	0.50	0.12	0.20
	VINYL ACETATE	ND	2.0	0.25	0.50
	FREON113	ND	1.0	0.20	0.30
	TERT-BUTANOL	ND	20	5.0	10
	DIPE	ND	1.0	0.10	0.20
	ETBE	ND	1.0	0.10	0.20
	TAME	ND	1.0	0.10	0.20

	SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
	1,2-DICHLOROETHANE-D4	8.92	10.00	89.2	70-120
	4-BROMOFLUOROBENZENE	9.62	10.00	96.2	75-120
	TOLUENE-D8	9.12	10.00	91.2	85-120
	DIBROMOFLUOROMETHANE	9.33	10.00	93.3	85-115
#	1,2-DICHLOROETHANE-D4	899	1000	89.9	70-120
#	4-BROMOFLUOROBENZENE	972	1000	97.2	75-120
#	TOLUENE-D8	910	1000	91.0	85-120
#	DIBROMOFLUOROMETHANE	951	1000	95.1	85-115

Members of the Associated File

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/02/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/07/20 15:51
Sample ID: 3-MW-54(120220)	Date Analyzed: 12/07/20 15:51
Lab Samp ID: L041-03	Dilution Factor: 1
Lab File ID: RLC087	Matrix : WATER
Ext Btch ID: V067L05	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	0.26J	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	0.22J	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	ND	10	2.6	5.0
BENZENE	ND	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	0.14J	1.0	0.10	0.20
BROMOFORM	0.38J	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	0.14J	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	ND	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	1.8	1.0	0.10	0.20
CHLOROMETHANE	ND	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	27	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	0.29J	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	0.27J	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	ND	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	0.79J	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	0.98J	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	570E	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	0.18J	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.92	10.00	89.2	70-120
4-BROMOFLUOROBENZENE	9.62	10.00	96.2	75-120
TOLUENE-D8	9.12	10.00	91.2	85-120
DIBROMOFLUOROMETHANE	9.33	10.00	93.3	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC087.D Vial: 12
Acq On : 7 Dec 2020 3:51 pm Operator: VLu
Sample : 20L041-03 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:48 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

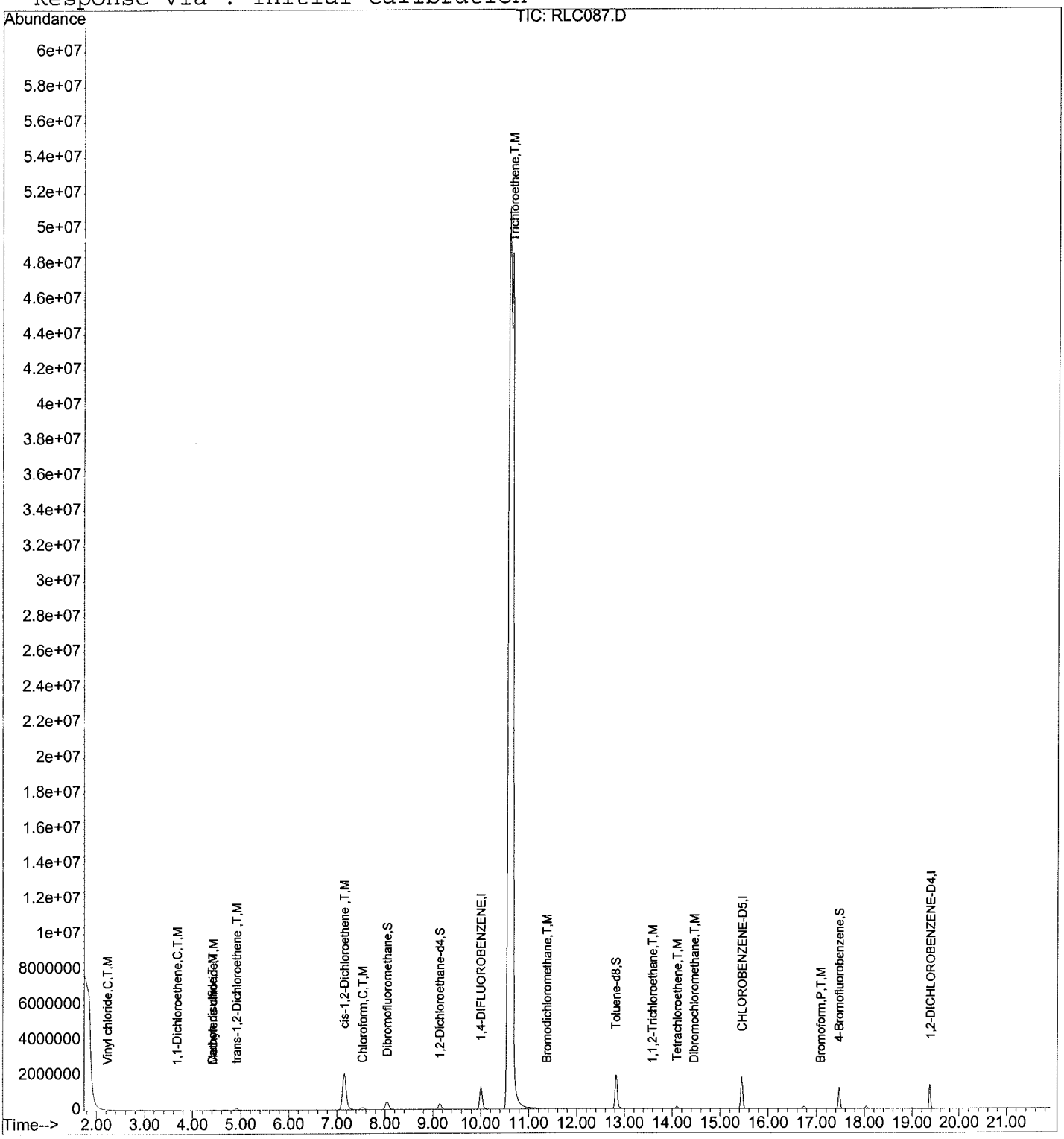
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2437661	10.00	ug/l		0.00
55) CHLOROBENZENE-D5	15.45	117	1800653	10.00	ug/l		0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	535692	10.00	ug/l		0.00
System Monitoring Compounds							
35) Dibromofluoromethane	8.05	111	742647	9.33	ug/l		0.01
Spiked Amount 10.000			Recovery = 93.30%				
43) 1,2-Dichloroethane-d4	9.14	65	454481	8.92	ug/l		0.00
Spiked Amount 10.000			Recovery = 89.20%				
56) Toluene-d8	12.82	98	2506432	9.12	ug/l		0.00
Spiked Amount 10.000			Recovery = 91.20%				
77) 4-Bromofluorobenzene	17.47	95	700156	9.62	ug/l		0.00
Spiked Amount 10.000			Recovery = 96.20%				
Target Compounds							Qvalue
5) Vinyl chloride	2.23	62	21857	0.18	ug/l		58
14) 1,1-Dichloroethene	3.68	61	32654	0.22	ug/l		98
19) Methylene chloride	4.42	49	29266	0.27	ug/l		94
20) Carbon disulfide	4.41	76	51680	0.14	ug/l		95
23) trans-1,2-Dichloroethene	4.92	96	105519	0.98	ug/l		98
31) cis-1,2-Dichloroethene	7.16	96	2889513	27.49	ug/l		98
32) Chloroform	7.54	83	276988	1.78	ug/l		97
46) Trichloroethene	10.66	130	53872291	570.02	ug/l	# E	84
49) Bromodichloromethane	11.38	83	12989	0.14	ug/l		92
60) 1,1,2-Trichloroethane	13.60	97	11400	0.26	ug/l	#	62
63) Tetrachloroethene	14.11	164	55613	0.79	ug/l		98
64) Dibromochloromethane	14.46	129	14950	0.29	ug/l		98
75) Bromoform	17.09	173	9063	0.38	ug/l		94

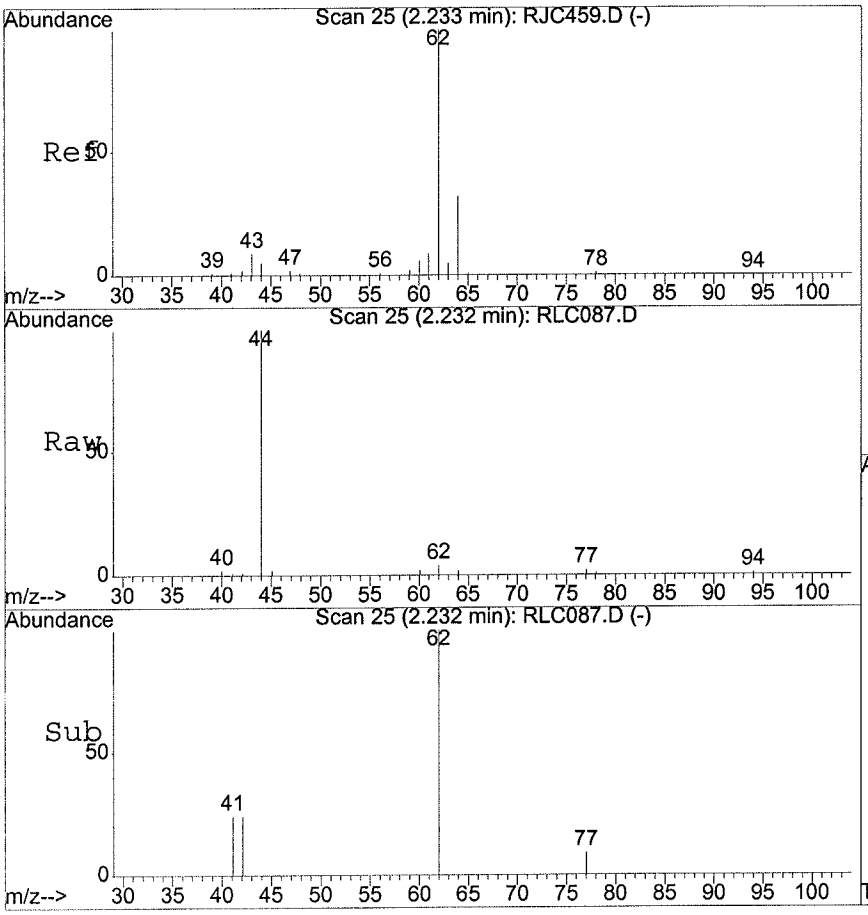
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC087.D Vial: 12
Acq On : 7 Dec 2020 3:51 pm Operator: VLu
Sample : 20L041-03 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:48 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

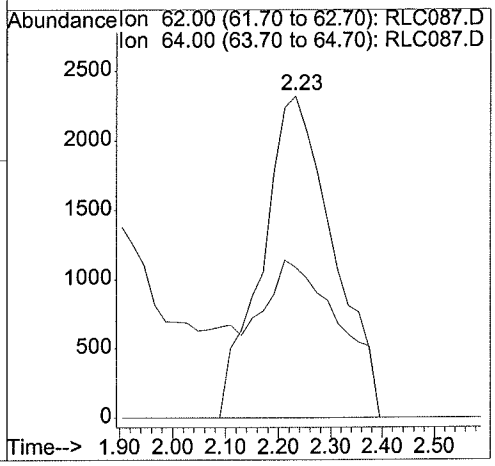


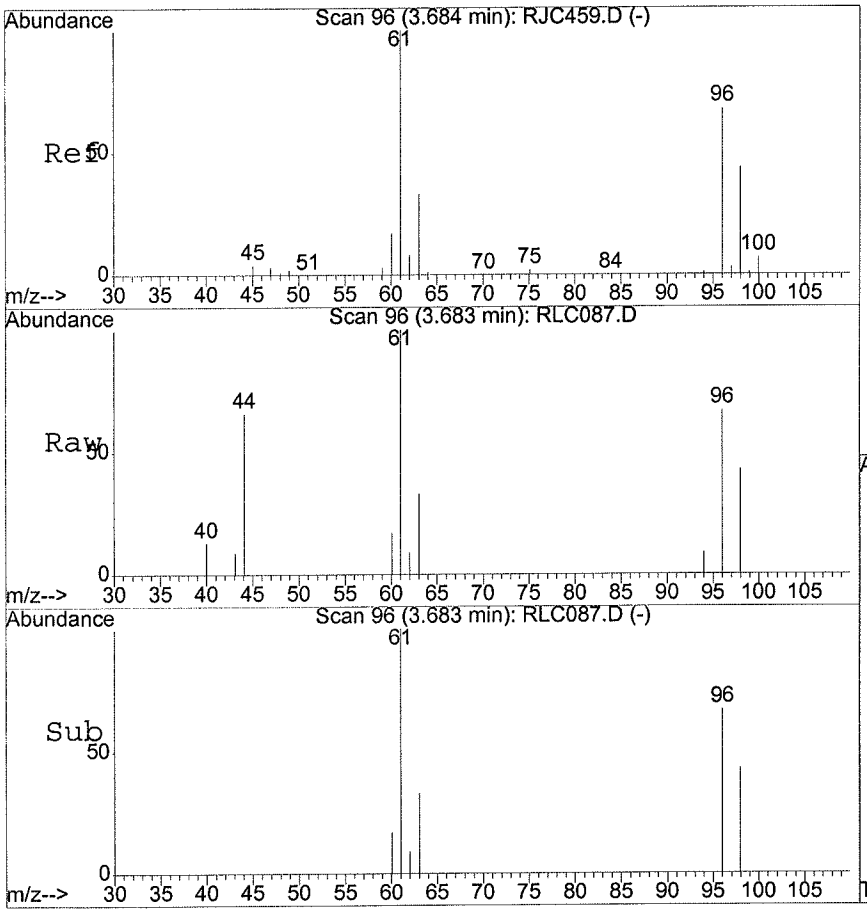


#5
Vinyl chloride
Concen: 0.18 ug/l
RT: 2.23 min Scan# 25
Delta R.T. -0.00 min
Lab File: RLC087.D
Acq: 7 Dec 2020 3:51 pm

Tgt Ion: 62 Resp: 21857

Ion	Ratio	Lower	Upper
62	100		
64	54.6	1.4	61.4

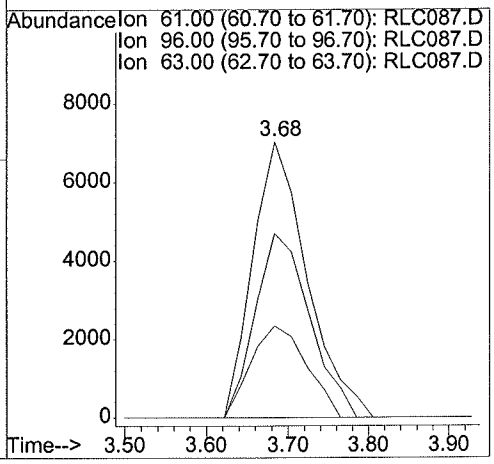


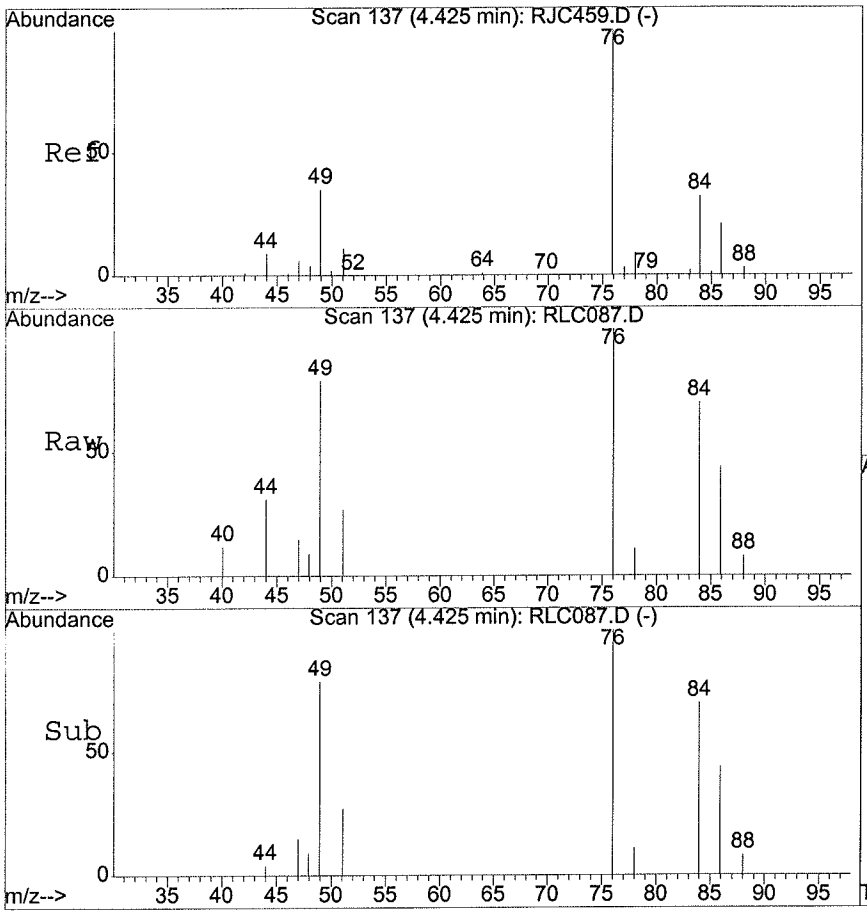


#14
1,1-Dichloroethene
Concen: 0.22 ug/l
RT: 3.68 min Scan# 96
Delta R.T. -0.00 min
Lab File: RLC087.D
Acq: 7 Dec 2020 3:51 pm

Tgt Ion: 61 Resp: 32654

Ion	Ratio	Lower	Upper
61	100		
96	67.0	38.7	98.7
63	34.1	2.9	62.9

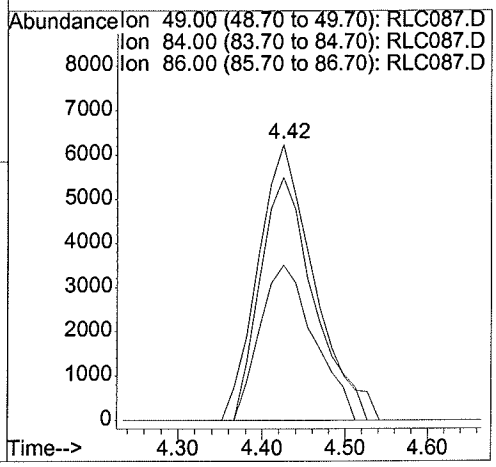


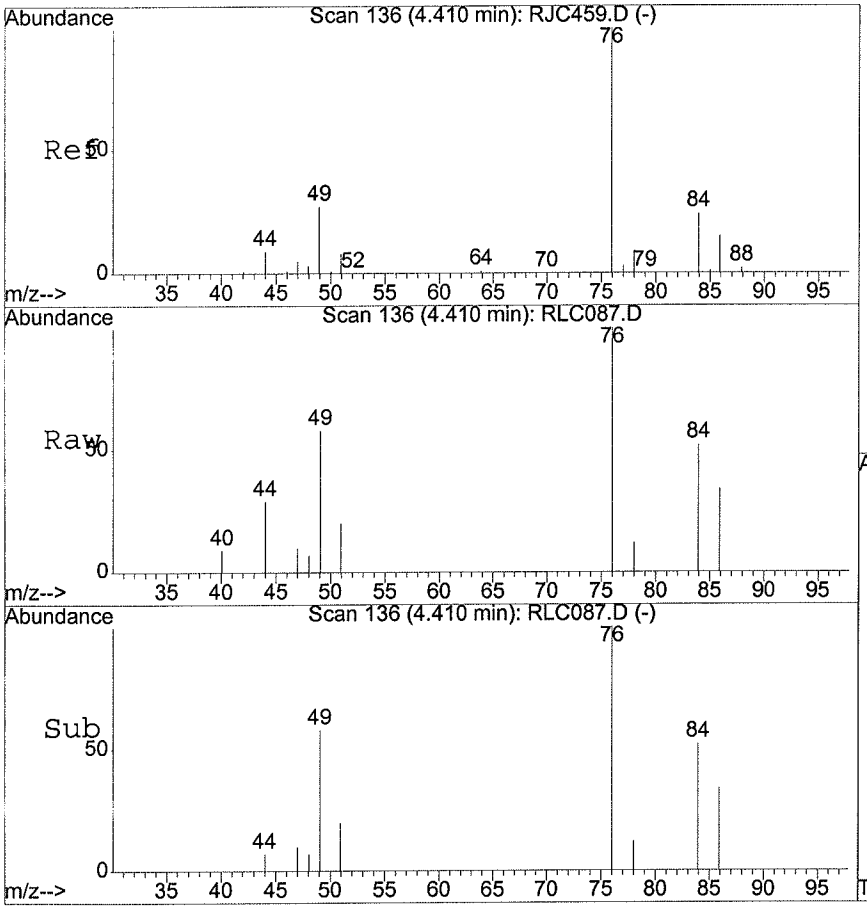


#19
Methylene chloride
Concen: 0.27 ug/l
RT: 4.42 min Scan# 137
Delta R.T. -0.00 min
Lab File: RLC087.D
Acq: 7 Dec 2020 3:51 pm

Tgt Ion: 49 Resp: 29266

Ion	Ratio	Lower	Upper
49	100		
84	84.1	60.1	120.1
86	54.3	27.5	87.5

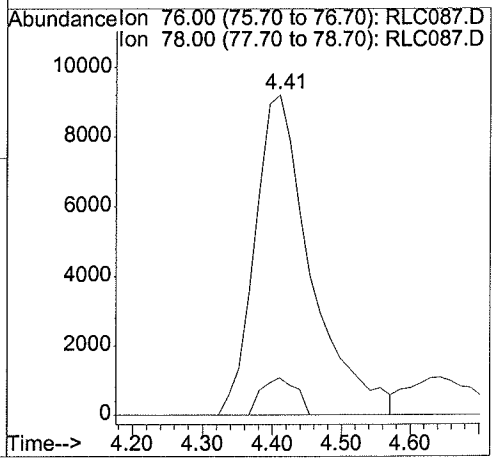


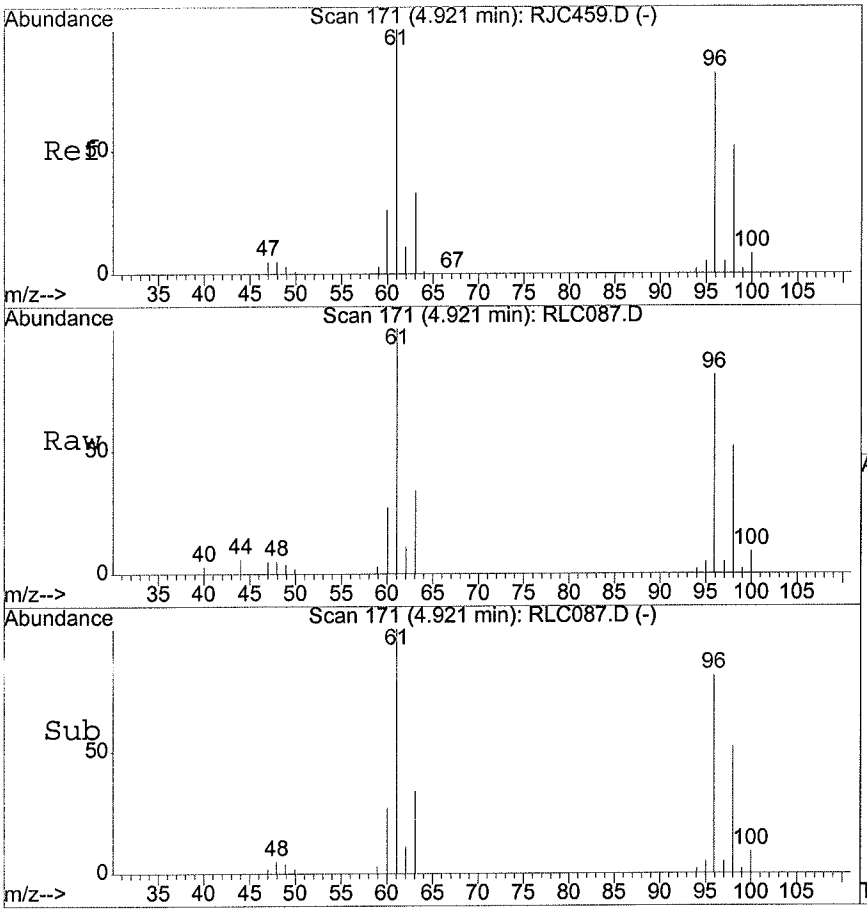


#20
Carbon disulfide
Concen: 0.14 ug/l
RT: 4.41 min Scan# 136
Delta R.T. -0.00 min
Lab File: RLC087.D
Acq: 7 Dec 2020 3:51 pm

Tgt Ion: 76 Resp: 51680

Ion	Ratio	Lower	Upper
76	100		
78	7.3	0.0	39.1

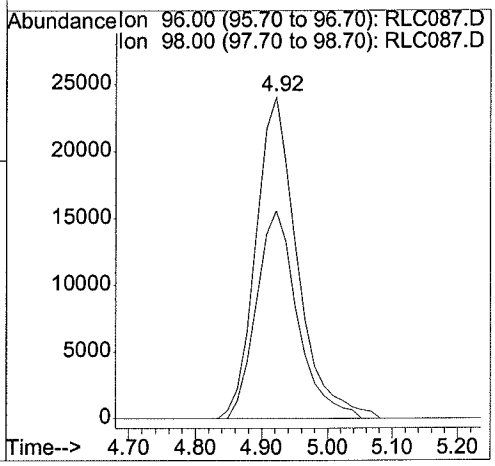


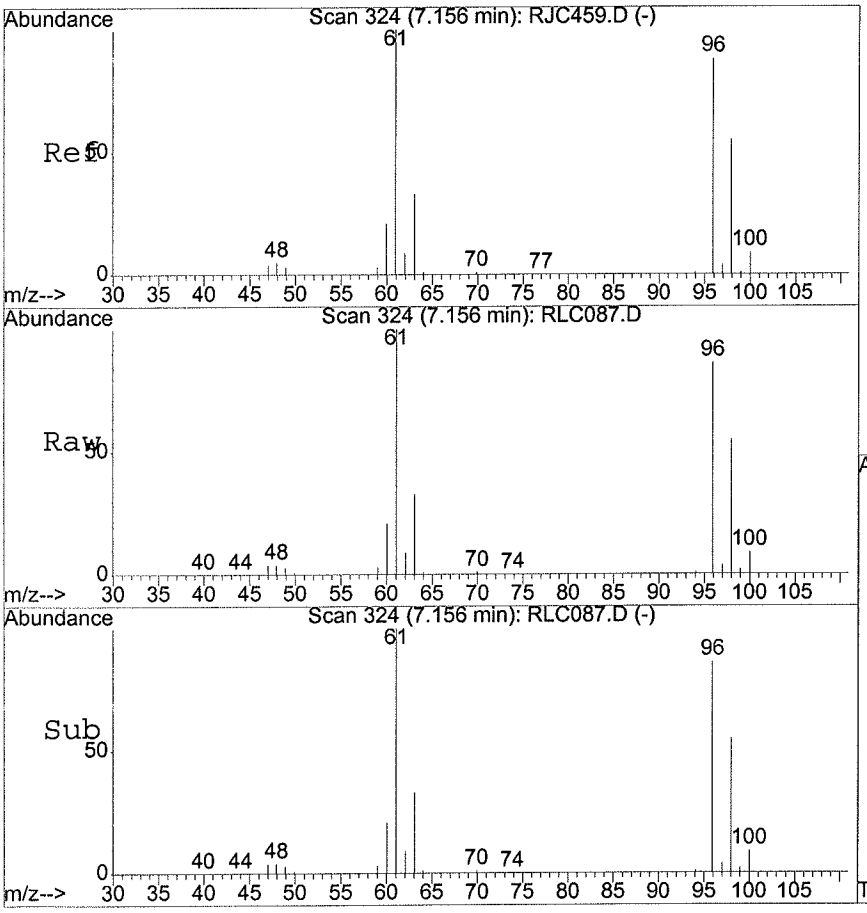


#23
trans-1,2-Dichloroethene
Concen: 0.98 ug/l
RT: 4.92 min Scan# 171
Delta R.T. -0.00 min
Lab File: RLC087.D
Acq: 7 Dec 2020 3:51 pm

Tgt Ion: 96 Resp: 105519

Ion	Ratio	Lower	Upper
96	100		
98	64.3	32.6	92.6

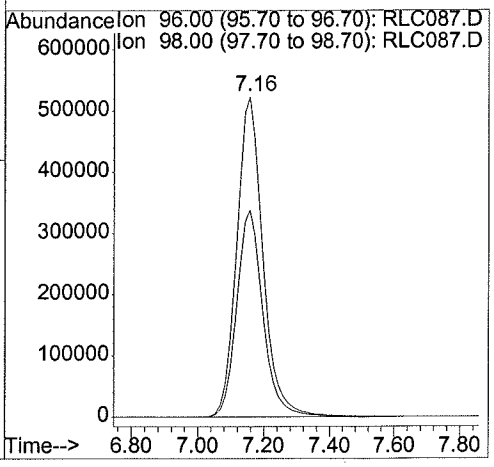


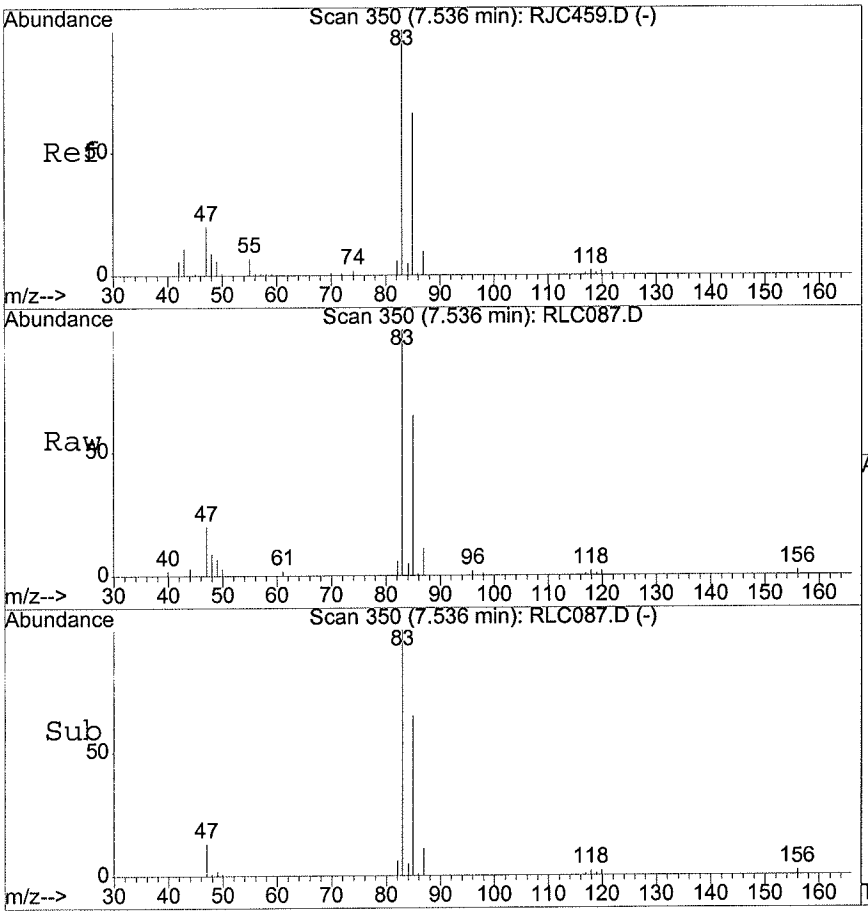


#31
cis-1,2-Dichloroethene
Concen: 27.49 ug/l
RT: 7.16 min Scan# 324
Delta R.T. -0.00 min
Lab File: RLC087.D
Acq: 7 Dec 2020 3:51 pm

Tgt Ion: 96 Resp: 2889513

Ion	Ratio	Lower	Upper
96	100		
98	64.7	33.5	93.5

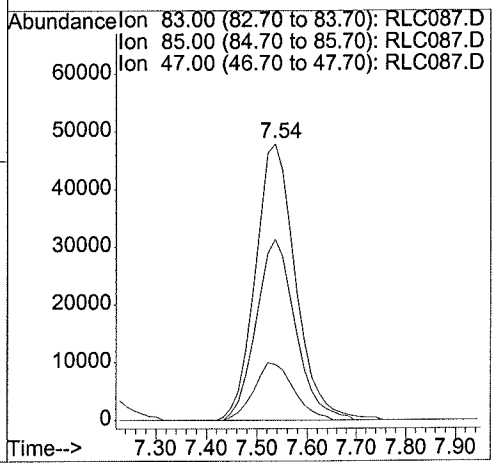


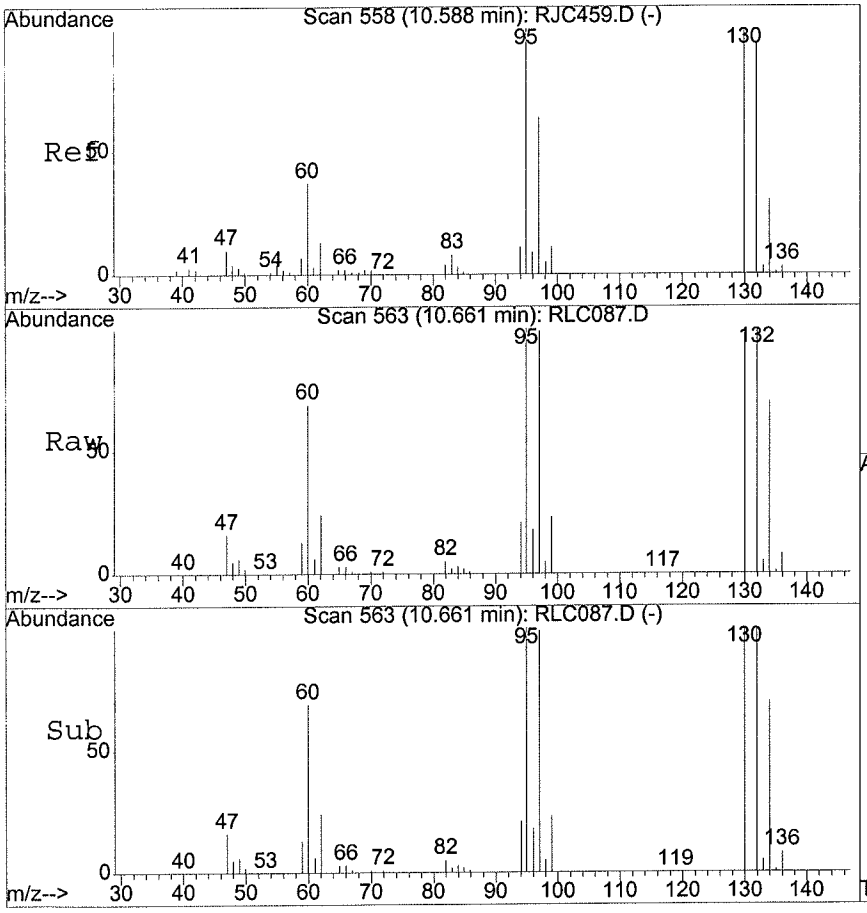


#32
Chloroform
Concen: 1.78 ug/l
RT: 7.54 min Scan# 350
Delta R.T. -0.00 min
Lab File: RLC087.D
Acq: 7 Dec 2020 3:51 pm

Tgt Ion: 83 Resp: 276988

Ion	Ratio	Lower	Upper
83	100		
85	64.7	37.8	97.8
47	19.8	0.0	50.5

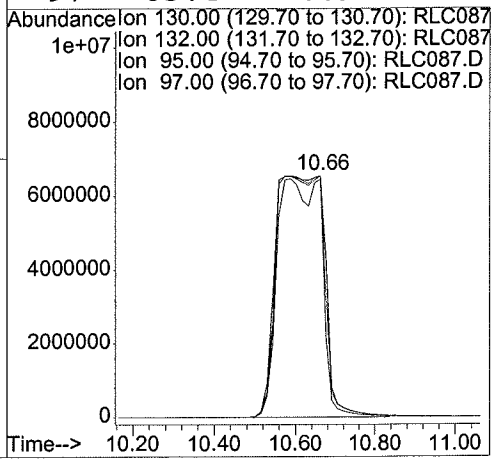


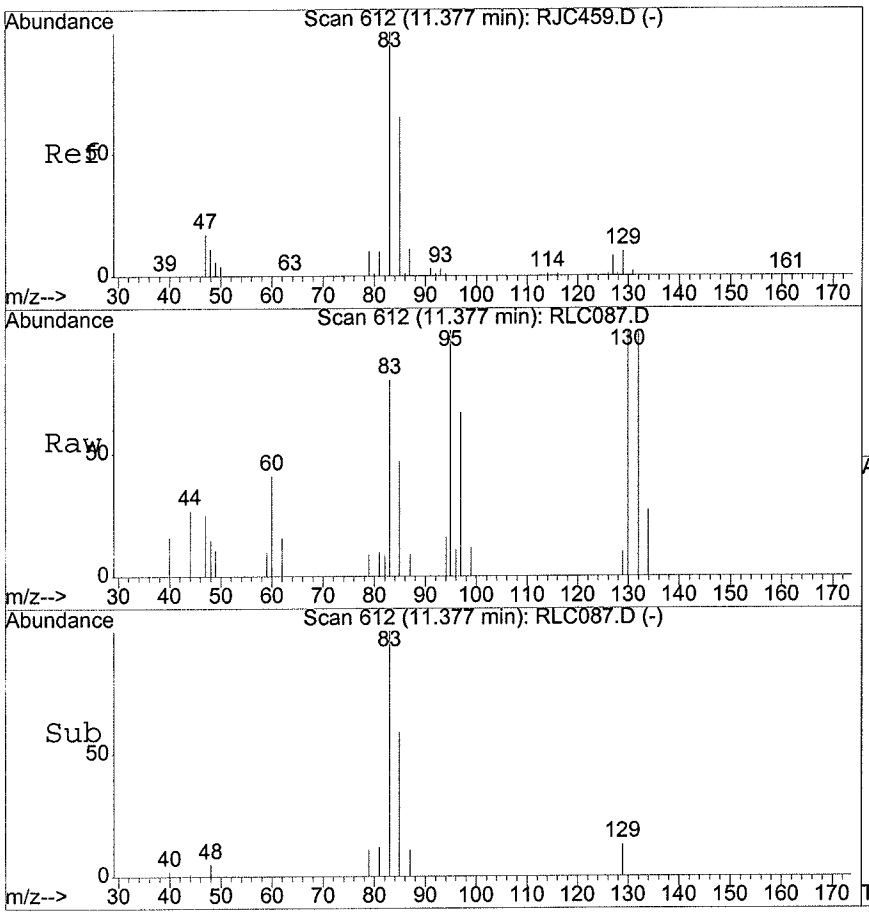


#46
Trichloroethene
Concen: 570.02 ug/l
RT: 10.66 min Scan# 563
Delta R.T. 0.07 min
Lab File: RLC087.D
Acq: 7 Dec 2020 3:51 pm

Tgt Ion:130 Resp:53872291

Ion	Ratio	Lower	Upper
130	100		
132	100.0	65.5	125.5
95	70.5	73.3	133.3#
97	63.4	40.9	100.9

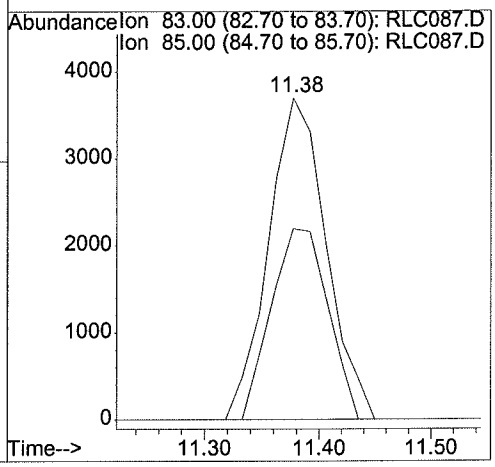


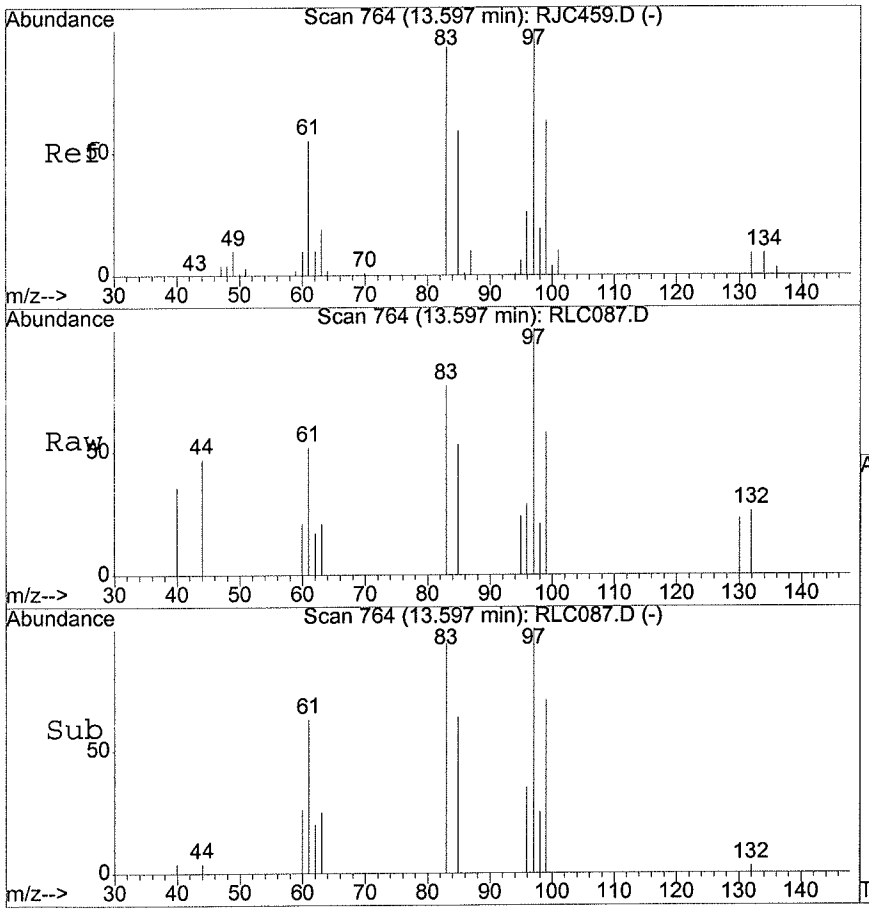


#49
Bromodichloromethane
Concen: 0.14 ug/l
RT: 11.38 min Scan# 612
Delta R.T. -0.00 min
Lab File: RLC087.D
Acq: 7 Dec 2020 3:51 pm

Tgt Ion: 83 Resp: 12989

Ion	Ratio	Lower	Upper
83	100		
85	58.3	34.3	94.3

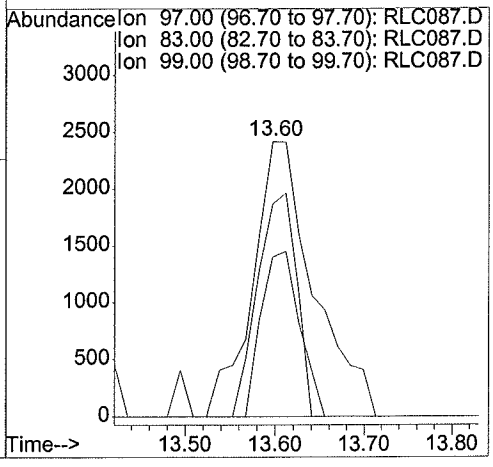


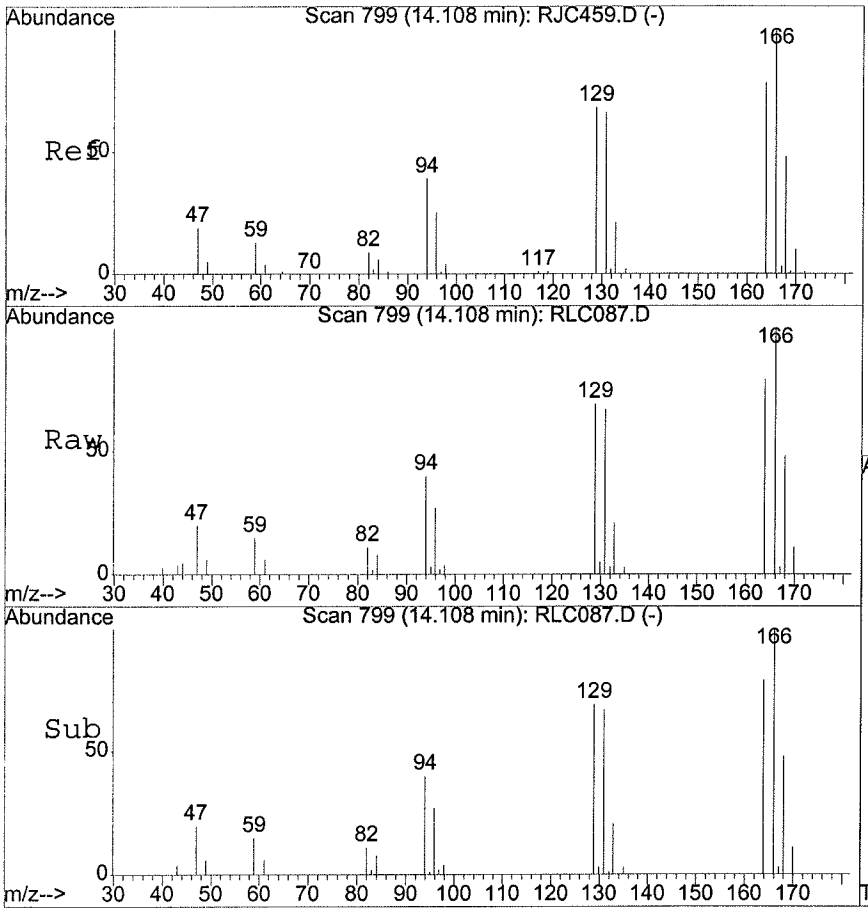


#60
1,1,2-Trichloroethane
Concen: 0.26 ug/l
RT: 13.60 min Scan# 764
Delta R.T. -0.00 min
Lab File: RLC087.D
Acq: 7 Dec 2020 3:51 pm

Tgt Ion: 97 Resp: 11400

Ion	Ratio	Lower	Upper
97	100		
83	51.6	60.6	120.6#
99	37.8	33.2	93.2

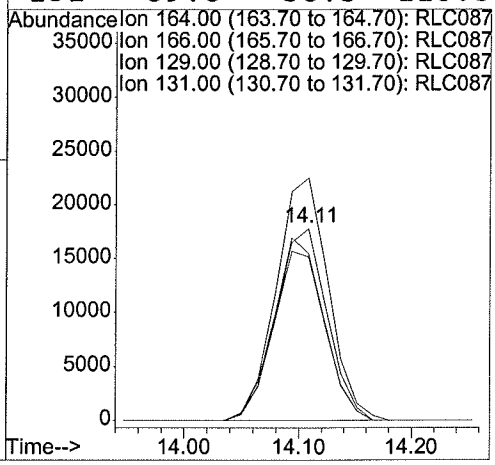


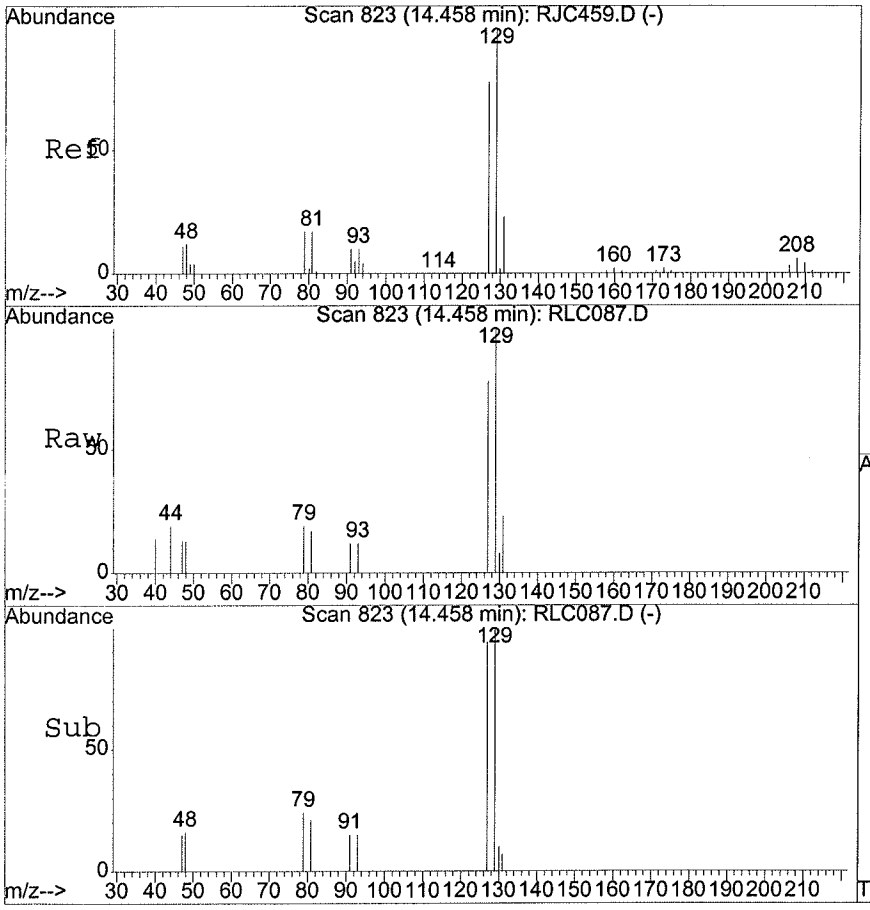


#63
Tetrachloroethene
Concen: 0.79 ug/l
RT: 14.11 min Scan# 799
Delta R.T. -0.00 min
Lab File: RLC087.D
Acq: 7 Dec 2020 3:51 pm

Tgt Ion:164 Resp: 55613

Ion	Ratio	Lower	Upper
164	100		
166	129.2	97.5	157.5
129	93.9	61.9	121.9
131	89.8	58.5	118.5

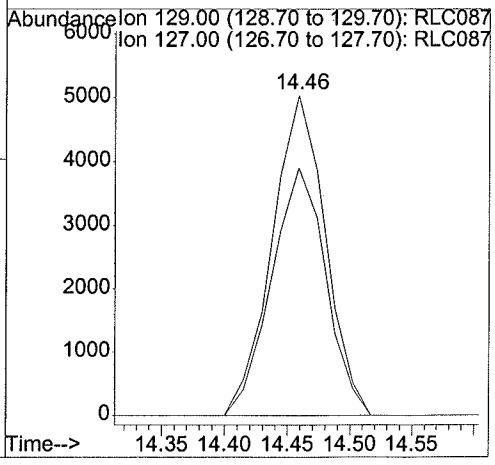


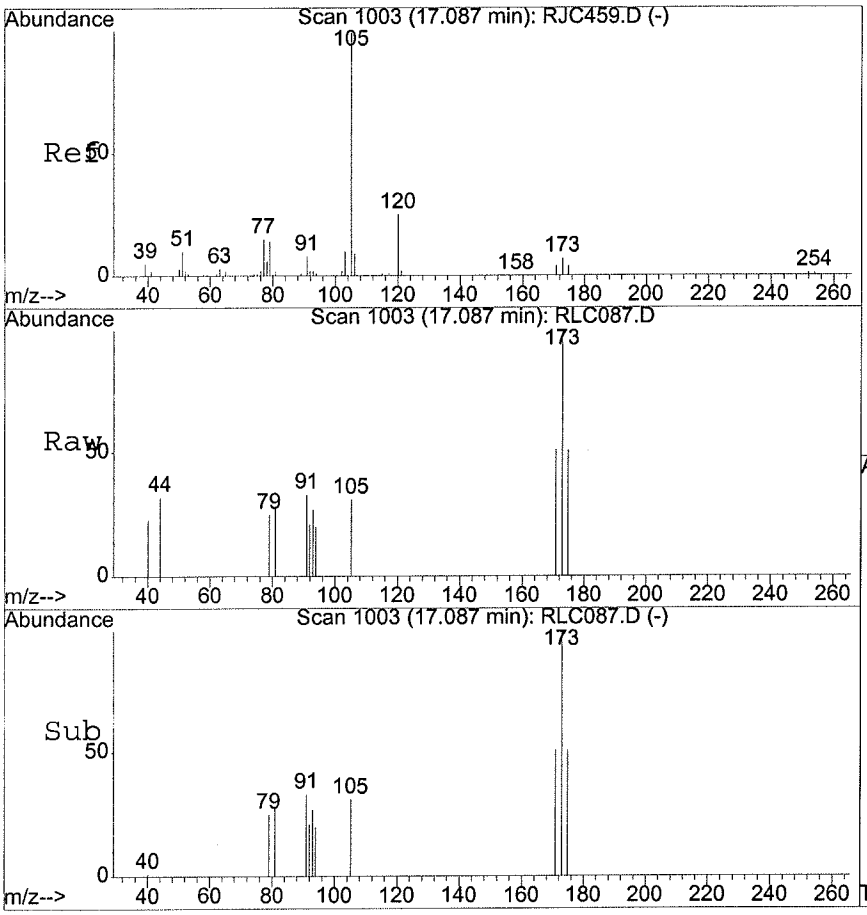


#64
Dibromochloromethane
Concen: 0.29 ug/l
RT: 14.46 min Scan# 823
Delta R.T. -0.00 min
Lab File: RLC087.D
Acq: 7 Dec 2020 3:51 pm

Tgt Ion:129 Resp: 14950

Ion	Ratio	Lower	Upper
129	100		
127	79.0	47.4	107.4

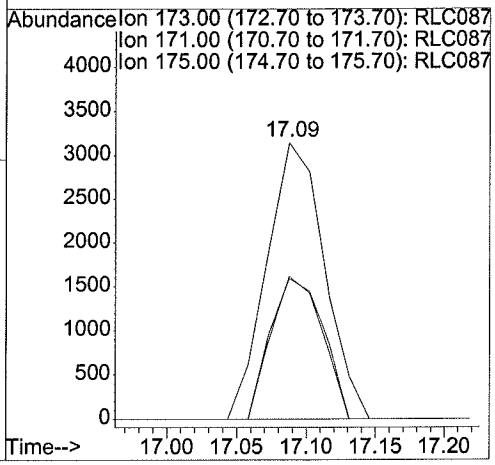




#75
Bromoform
Concen: 0.38 ug/l
RT: 17.09 min Scan# 1003
Delta R.T. -0.00 min
Lab File: RLC087.D
Acq: 7 Dec 2020 3:51 pm

Tgt Ion:173 Resp: 9063

Ion	Ratio	Lower	Upper
173	100		
171	46.8	21.3	81.3
175	45.3	18.8	78.8



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/02/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/08/20 13:52
Sample ID: 3-MW-54(120220)DL	Date Analyzed: 12/08/20 13:52
Lab Samp ID: L041-03I	Dilution Factor: 100
Lab File ID: RLC112	Matrix : WATER
Ext Btch ID: V067L06	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	50	10	20
1,1,1-TRICHLOROETHANE	ND	100	10	20
1,1,2,2-TETRACHLOROETHANE	ND	100	11	20
1,1,2-TRICHLOROETHANE	ND	100	10	20
1,1-DICHLOROETHANE	ND	100	10	20
1,1-DICHLOROETHENE	ND	100	10	20
1,1-DICHLOROPROPENE	ND	100	10	20
1,2,3-TRICHLOROBENZENE	ND	100	15	30
1,2,3-TRICHLOROPROPANE	ND	200	25	50
1,2,4-TRICHLOROBENZENE	ND	100	15	30
1,2,4-TRIMETHYLBENZENE	ND	100	11	20
1,2-DIBROMO-3-CHLOROPROPANE	ND	200	25	50
1,2-DIBROMOETHANE	ND	100	10	20
1,2-DICHLOROBENZENE	ND	100	10	20
1,2-DICHLOROETHANE	ND	50	10	20
1,2-DICHLOROPROPANE	ND	100	10	20
1,3,5-TRIMETHYLBENZENE	ND	100	13	20
1,3-DICHLOROBENZENE	ND	100	11	20
1,3-DICHLOROPROPANE	ND	100	10	20
1,4-DICHLOROBENZENE	ND	100	10	20
2,2-DICHLOROPROPANE	ND	100	16	20
2-BUTANONE	ND	1000	200	400
2-CHLOROTOLUENE	ND	100	12	20
2-HEXANONE	ND	1000	230	400
4-CHLOROTOLUENE	ND	100	11	20
ACETONE	ND	1000	260	500
BENZENE	ND	100	10	20
BROMOBENZENE	ND	100	10	20
BROMOCHLOROMETHANE	ND	100	11	20
BROMODICHLOROMETHANE	ND	100	10	20
BROMOFORM	ND	100	15	30
BROMOMETHANE	ND	100	16	30
CARBON DISULFIDE	ND	100	10	20
CARBON TETRACHLORIDE	ND	100	10	20
CHLOROBENZENE	ND	100	10	20
CHLOROETHANE	ND	100	27	30
CHLOROFORM	ND	100	10	20
CHLOROMETHANE	ND	100	15	30
CIS-1,2-DICHLOROETHENE	25J	100	10	20
CIS-1,3-DICHLOROPROPENE	ND	100	10	20
DIBROMOCHLOROMETHANE	ND	100	10	20
DICHLORODIFLUOROMETHANE	ND	100	15	30
ETHYLBENZENE	ND	100	10	20
HEXACHLOROBUTADIENE	ND	100	22	30
ISOPROPYL BENZENE	ND	100	10	20
M,P-XYLENES	ND	200	21	40
MIBK	ND	1000	210	400
METHYLENE CHLORIDE	ND	200	25	50
MTBE	ND	100	13	20
NAPHTHALENE	ND	200	25	50
N-BUTYLBENZENE	ND	100	17	20
N-PROPYLBENZENE	ND	100	13	20
O-XYLENE	ND	100	10	20
P-ISOPROPYLTOLUENE	ND	100	14	20
SEC-BUTYLBENZENE	ND	100	13	20
STYRENE	ND	100	10	20
TERT-BUTYLBENZENE	ND	100	13	20
TETRACHLOROETHENE	ND	100	15	20
TOLUENE	ND	100	10	20
TRANS-1,2-DICHLOROETHENE	ND	100	10	20
TRANS-1,3-DICHLOROPROPENE	ND	100	11	20
TRICHLOROETHENE	1800	100	10	20
TRICHLOROFLUOROMETHANE	ND	100	15	30
VINYL CHLORIDE	ND	50	12	20
VINYL ACETATE	ND	200	25	50
FREON113	ND	100	20	30
TERT-BUTANOL	ND	2000	500	1000
DIPE	ND	100	10	20
ETBE	ND	100	10	20
TAME	ND	100	10	20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	899	1000	89.9	70-120
4-BROMOFLUOROBENZENE	972	1000	97.2	75-120
TOLUENE-D8	910	1000	91.0	85-120
DIBROMOFLUOROMETHANE	951	1000	95.1	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC112.D Vial: 8
Acq On : 8 Dec 2020 1:52 pm Operator: VLu
Sample : 20L041-03I 250uL Inst : 67
Misc : DF=100 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:37 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

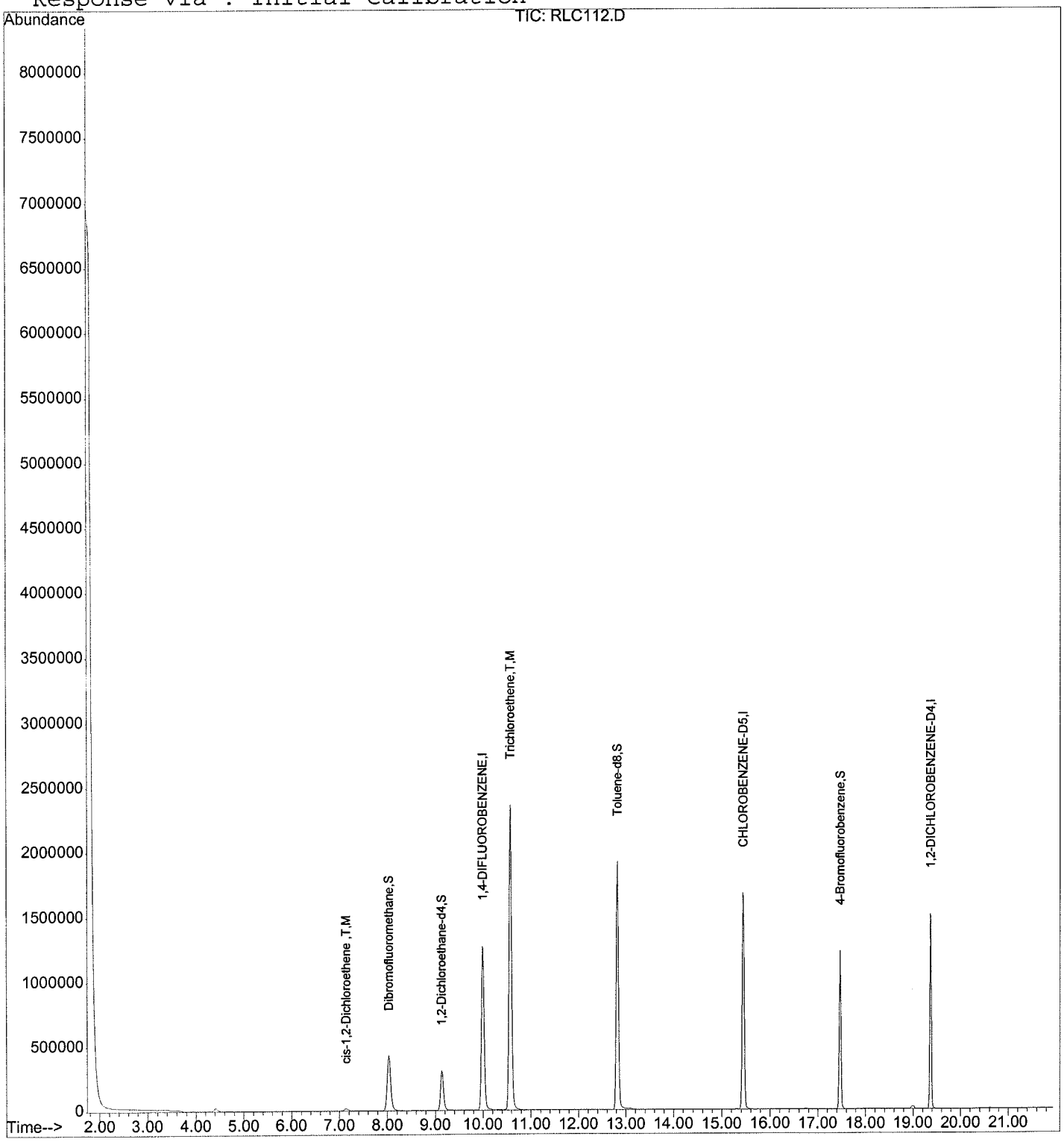
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2323412	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1746166	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	508359	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	721761	9.51	ug/l	0.00
Spiked Amount 10.000			Recovery =	95.10%		
43) 1,2-Dichloroethane-d4	9.13	65	436137	8.99	ug/l	-0.01
Spiked Amount 10.000			Recovery =	89.90%		
56) Toluene-d8	12.82	98	2425001	9.10	ug/l	0.00
Spiked Amount 10.000			Recovery =	91.00%		
77) 4-Bromofluorobenzene	17.47	95	671448	9.72	ug/l	0.00
Spiked Amount 10.000			Recovery =	97.20%		
Target Compounds						Qvalue
31) cis-1,2-Dichloroethene	7.14	96	25061	0.25	ug/l	100
46) Trichloroethene	10.57	130	1615290	17.93	ug/l	98

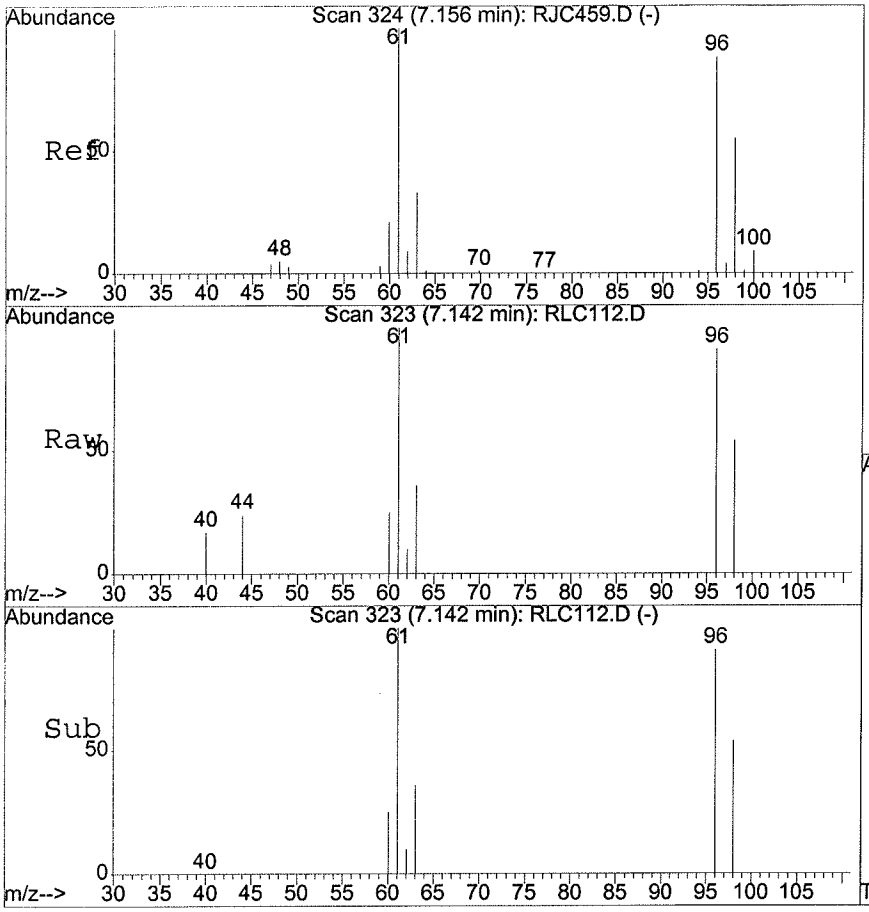
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC112.D Vial: 8
Acq On : 8 Dec 2020 1:52 pm Operator: VLu
Sample : 20L041-03I 250uL Inst : 67
Misc : DF=100 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:37 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

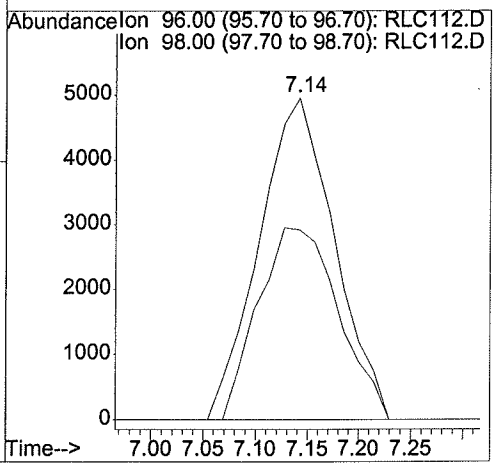


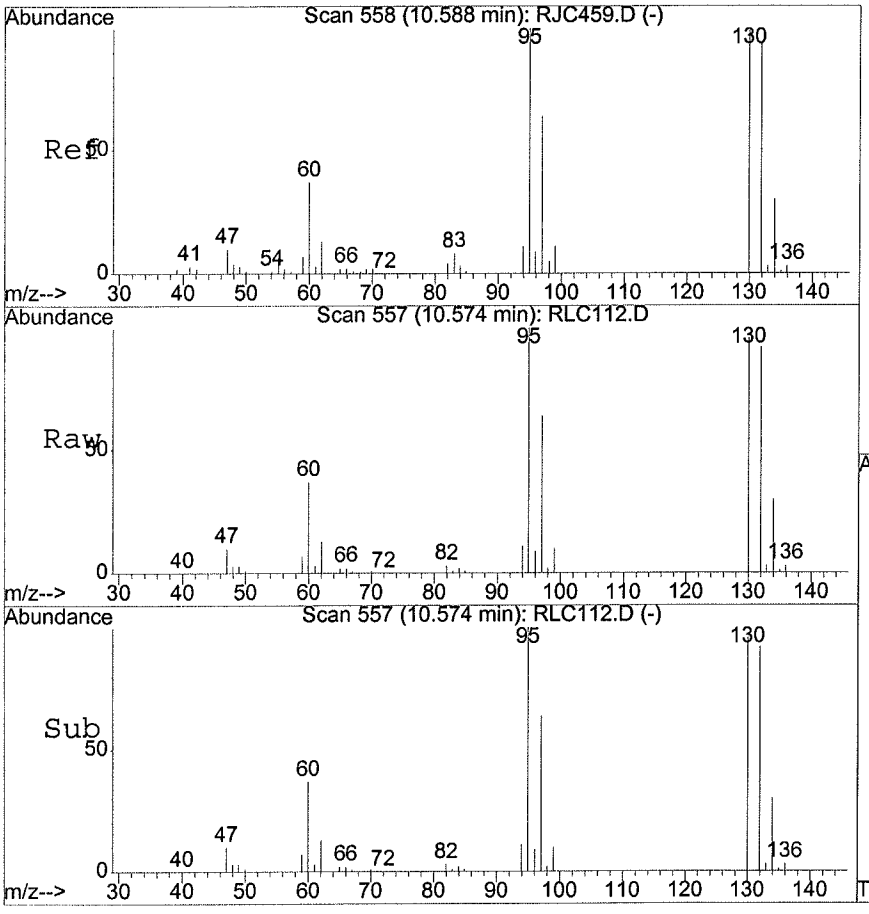


#31
cis-1,2-Dichloroethene
Concen: 0.25 ug/l
RT: 7.14 min Scan# 323
Delta R.T. -0.01 min
Lab File: RLC112.D
Acq: 8 Dec 2020 1:52 pm

Tgt Ion: 96 Resp: 25061

Ion	Ratio	Lower	Upper
96	100		
98	63.6	33.5	93.5

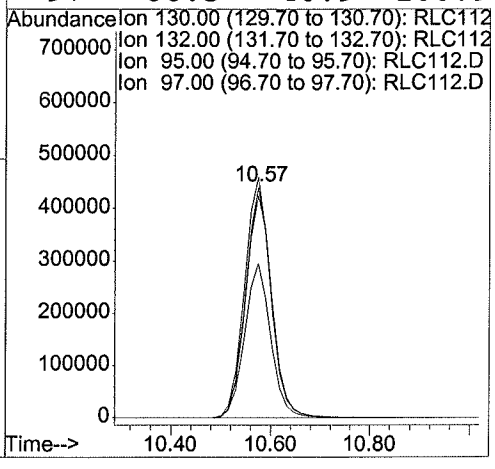




#46
Trichloroethene
Concen: 17.93 ug/l
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC112.D
Acq: 8 Dec 2020 1:52 pm

Tgt Ion:130 Resp: 1615290

Ion	Ratio	Lower	Upper
130	100		
132	97.1	65.5	125.5
95	104.1	73.3	133.3
97	66.5	40.9	100.9



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected	: 12/02/20
Project	: VAFB-SS003	Date Received	: 12/04/20
Batch No.	: 20L041	Date Extracted	: 12/07/20 16:17 # 12/08/20 14:17
Sample ID	: 3-MW-56(120220)	Date Analyzed	: 12/07/20 16:17 # 12/08/20 14:17
Lab Samp ID	: L041-04 #L041-04I	Dilution Factor	: 1 # 250
Lab File ID	: RLC088 #RLC113	Matrix	: WATER
Ext Btch ID	: V067L05 #V067L06	% Moisture	: NA
Calib. Ref.	: RJC459 #RJC459	Instrument ID	: 67

	PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
	1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
	1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
	1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
	1,1,2-TRICHLOROETHANE	0.32J	1.0	0.10	0.20
	1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
	1,1-DICHLOROETHENE	1.7	1.0	0.10	0.20
	1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
	1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
	1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
	1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
	1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
	1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
	1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
	1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
	1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
	1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
	2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
	2-BUTANONE	ND	10	2.0	4.0
	2-CHLOROTOLUENE	ND	1.0	0.12	0.20
	2-HEXANONE	ND	10	2.3	4.0
	4-CHLOROTOLUENE	ND	1.0	0.11	0.20
	ACETONE	ND	10	2.6	5.0
	BENZENE	ND	1.0	0.10	0.20
	BROMOBENZENE	ND	1.0	0.10	0.20
	BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
	BROMODICHLOROMETHANE	0.24J	1.0	0.10	0.20
	BROMOFORM	0.95J	1.0	0.15	0.30
	BROMOMETHANE	ND	1.0	0.16	0.30
	CARBON DISULFIDE	ND	1.0	0.10	0.20
	CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
	CHLOROBENZENE	ND	1.0	0.10	0.20
	CHLOROETHANE	ND	1.0	0.27	0.30
	CHLOROFORM	3.0	1.0	0.10	0.20
	CHLOROMETHANE	ND	1.0	0.15	0.30
	CIS-1,2-DICHLOROETHENE	28	1.0	0.10	0.20
	CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
	DIBROMOCHLOROMETHANE	0.63J	1.0	0.10	0.20
	DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
	ETHYLBENZENE	ND	1.0	0.10	0.20
	HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
	ISOPROPYL BENZENE	ND	1.0	0.10	0.20
	M,P-XYLENES	ND	2.0	0.21	0.40
	MIBK	ND	10	2.1	4.0
	METHYLENE CHLORIDE	ND	2.0	0.25	0.50
	MTBE	ND	1.0	0.13	0.20
	NAPHTHALENE	ND	2.0	0.25	0.50
	N-BUTYLBENZENE	ND	1.0	0.17	0.20
	N-PROPYLBENZENE	ND	1.0	0.13	0.20
	O-XYLENE	ND	1.0	0.10	0.20
	P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
	SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
	STYRENE	ND	1.0	0.10	0.20
	TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
	TETRACHLOROETHENE	5.2	1.0	0.15	0.20
	TOLUENE	ND	1.0	0.10	0.20
	TRANS-1,2-DICHLOROETHENE	1.2	1.0	0.10	0.20
	TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
#	TRICHLOROETHENE	3600	250	25	50
	TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
	VINYL CHLORIDE	0.50	0.50	0.12	0.20
	VINYL ACETATE	ND	2.0	0.25	0.50
	FREON113	ND	1.0	0.20	0.30
	TERT-BUTANOL	ND	20	5.0	10
	DIPE	ND	1.0	0.10	0.20
	ETBE	ND	1.0	0.10	0.20
	TAME	ND	1.0	0.10	0.20

	SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
	1,2-DICHLOROETHANE-D4	8.98	10.00	89.8	70-120
	4-BROMOFLUOROBENZENE	9.63	10.00	96.3	75-120
	TOLUENE-D8	9.07	10.00	90.7	85-120
	DIBROMOFLUOROMETHANE	9.41	10.00	94.1	85-115
#	1,2-DICHLOROETHANE-D4	2220	2500	88.6	70-120
#	4-BROMOFLUOROBENZENE	2450	2500	97.9	75-120
#	TOLUENE-D8	2280	2500	91.1	85-120
#	DIBROMOFLUOROMETHANE	2360	2500	94.4	85-115

Members of the Associated File

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/02/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/07/20 16:17
Sample ID: 3-MW-56(120220)	Date Analyzed: 12/07/20 16:17
Lab Samp ID: L041-04	Dilution Factor: 1
Lab File ID: RLC088	Matrix : WATER
Ext Btch ID: VO67L05	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	0.32J	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	1.7	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	ND	10	2.6	5.0
BENZENE	ND	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	0.24J	1.0	0.10	0.20
BROMOFORM	0.95J	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	ND	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	ND	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	3.0	1.0	0.10	0.20
CHLOROMETHANE	ND	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	28	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	0.63J	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	ND	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	ND	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	5.2	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	1.2	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	690E	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	0.50	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.98	10.00	89.8	70-120
4-BROMOFLUOROBENZENE	9.63	10.00	96.3	75-120
TOLUENE-D8	9.07	10.00	90.7	85-120
DIBROMOFLUOROMETHANE	9.41	10.00	94.1	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC088.D Vial: 13
Acq On : 7 Dec 2020 4:17 pm Operator: VLu
Sample : 20L041-04 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:54 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

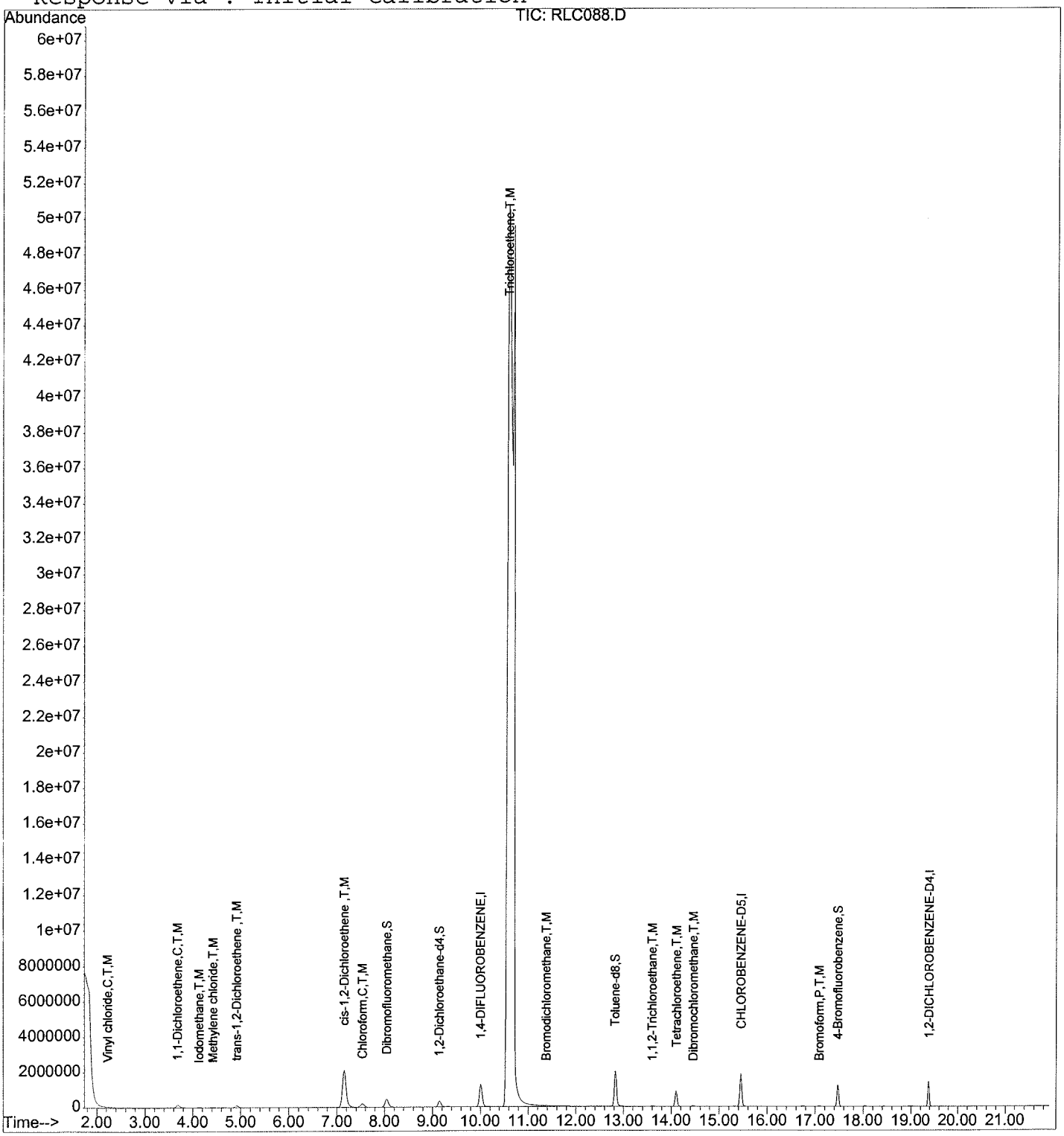
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2482612	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1850141	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	540787	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	762722	9.41	ug/l	0.02
Spiked Amount 10.000			Recovery =	94.10%		
43) 1,2-Dichloroethane-d4	9.14	65	465831	8.98	ug/l	0.00
Spiked Amount 10.000			Recovery =	89.80%		
56) Toluene-d8	12.82	98	2560418	9.07	ug/l	0.00
Spiked Amount 10.000			Recovery =	90.70%		
77) 4-Bromofluorobenzene	17.47	95	707873	9.63	ug/l	0.00
Spiked Amount 10.000			Recovery =	96.30%		
Target Compounds						Qvalue
5) Vinyl chloride	2.23	62	62345	0.50	ug/l	72
14) 1,1-Dichloroethene	3.68	61	259965	1.69	ug/l	100
17) Iodomethane	4.13	142	36481	0.26	ug/l	97
19) Methylene chloride	4.42	49	16230	0.15	ug/l	97
23) trans-1,2-Dichloroethene	4.92	96	127390	1.16	ug/l	97
31) cis-1,2-Dichloroethene	7.15	96	2962313	27.67	ug/l	99
32) Chloroform	7.53	83	476185	3.00	ug/l	97
46) Trichloroethene	10.57	130	65982803m	685.52	ug/l	E
49) Bromodichloromethane	11.38	83	23398	0.24	ug/l	98
60) 1,1,2-Trichloroethane	13.60	97	14203	0.32	ug/l	82
63) Tetrachloroethene	14.11	164	380713	5.24	ug/l	100
64) Dibromochloromethane	14.46	129	33622	0.63	ug/l	98
75) Bromoform	17.09	173	23227	0.95	ug/l	100

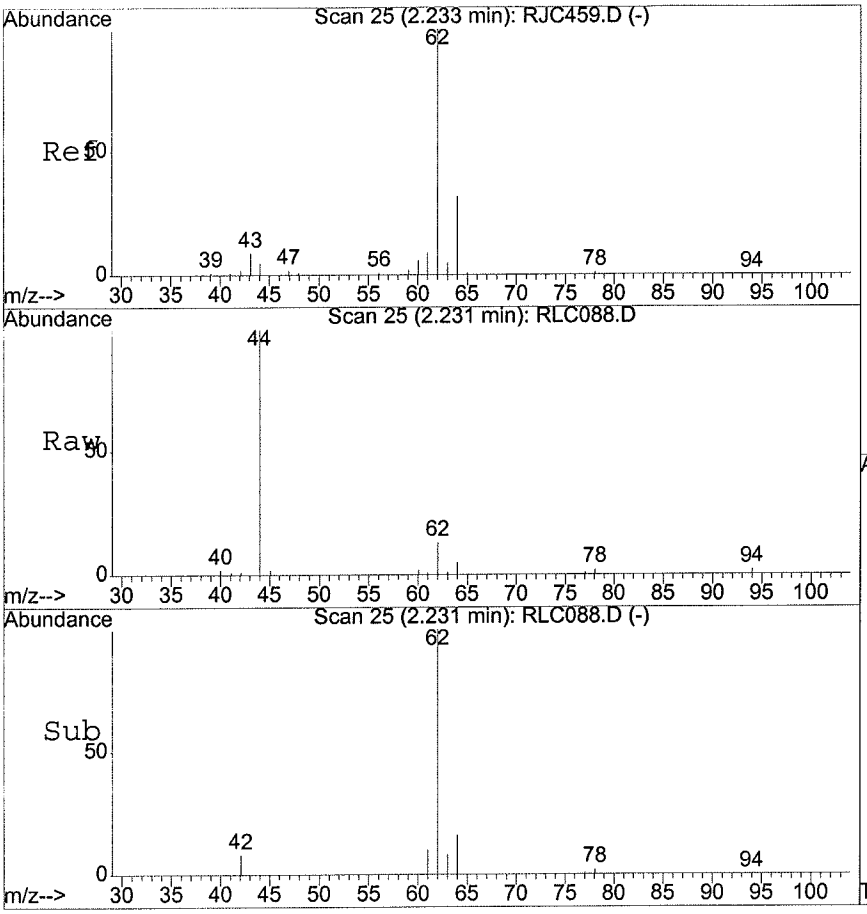
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC088.D Vial: 13
Acq On : 7 Dec 2020 4:17 pm Operator: VLu
Sample : 20L041-04 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:54 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

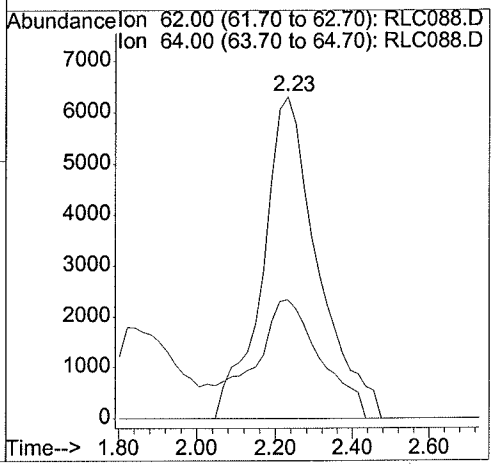


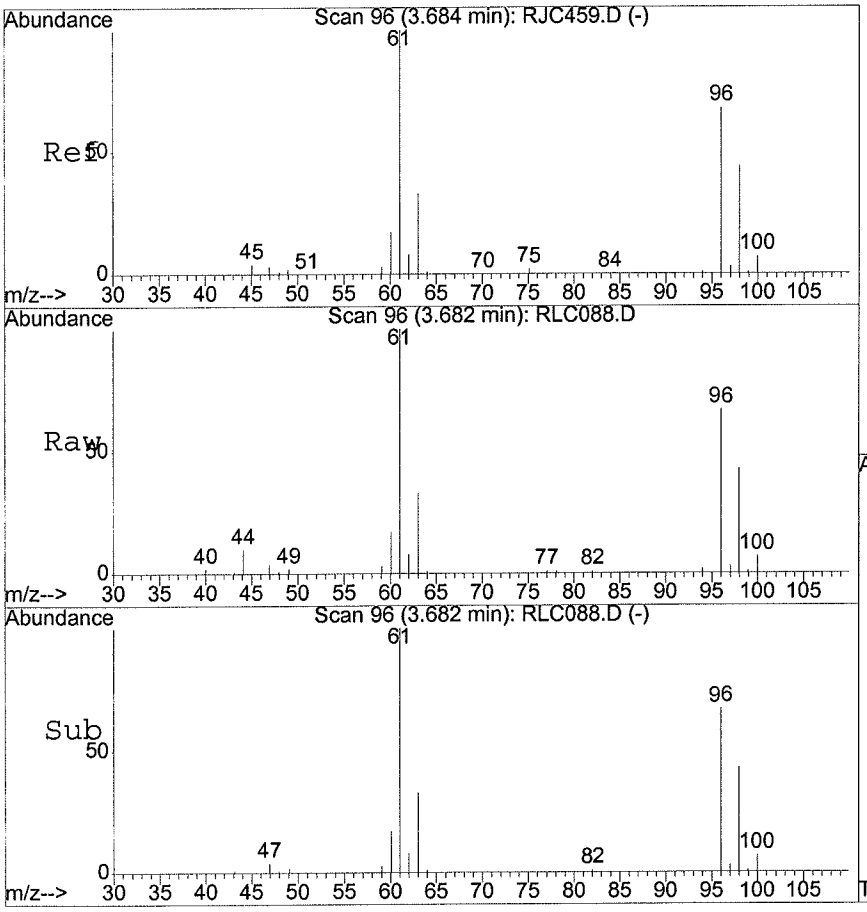


#5
Vinyl chloride
Concen: 0.50 ug/l
RT: 2.23 min Scan# 25
Delta R.T. -0.00 min
Lab File: RLC088.D
Acq: 7 Dec 2020 4:17 pm

Tgt Ion: 62 Resp: 62345

Ion	Ratio	Lower	Upper
62	100		
64	46.7	1.4	61.4

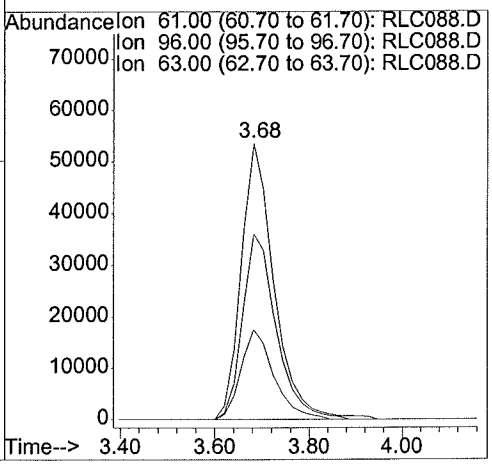


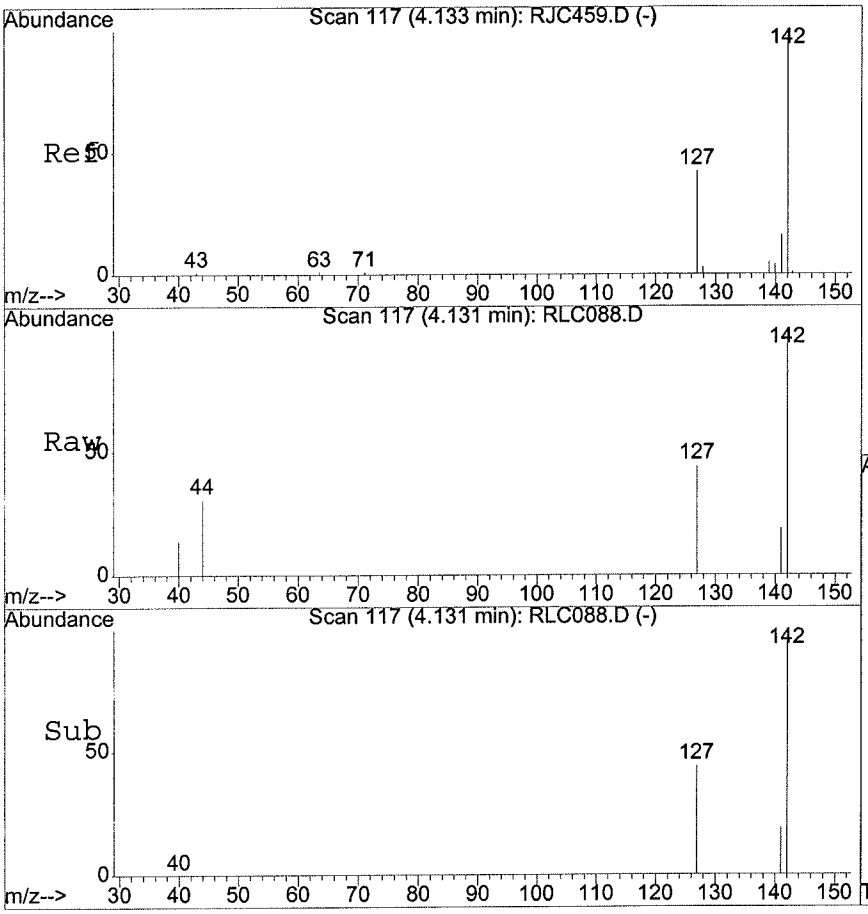


#14
1,1-Dichloroethene
Concen: 1.69 ug/l
RT: 3.68 min Scan# 96
Delta R.T. -0.00 min
Lab File: RLC088.D
Acq: 7 Dec 2020 4:17 pm

Tgt Ion: 61 Resp: 259965

Ion	Ratio	Lower	Upper
61	100		
96	68.7	38.7	98.7
63	32.8	2.9	62.9

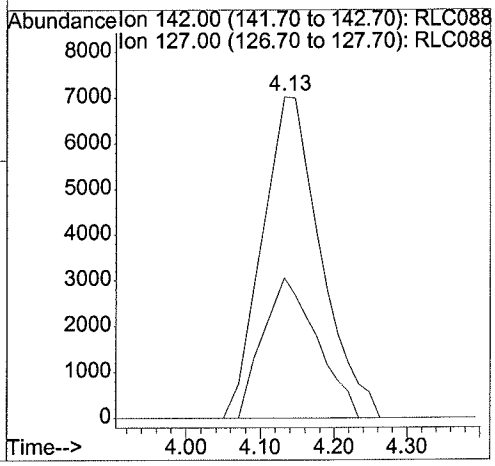


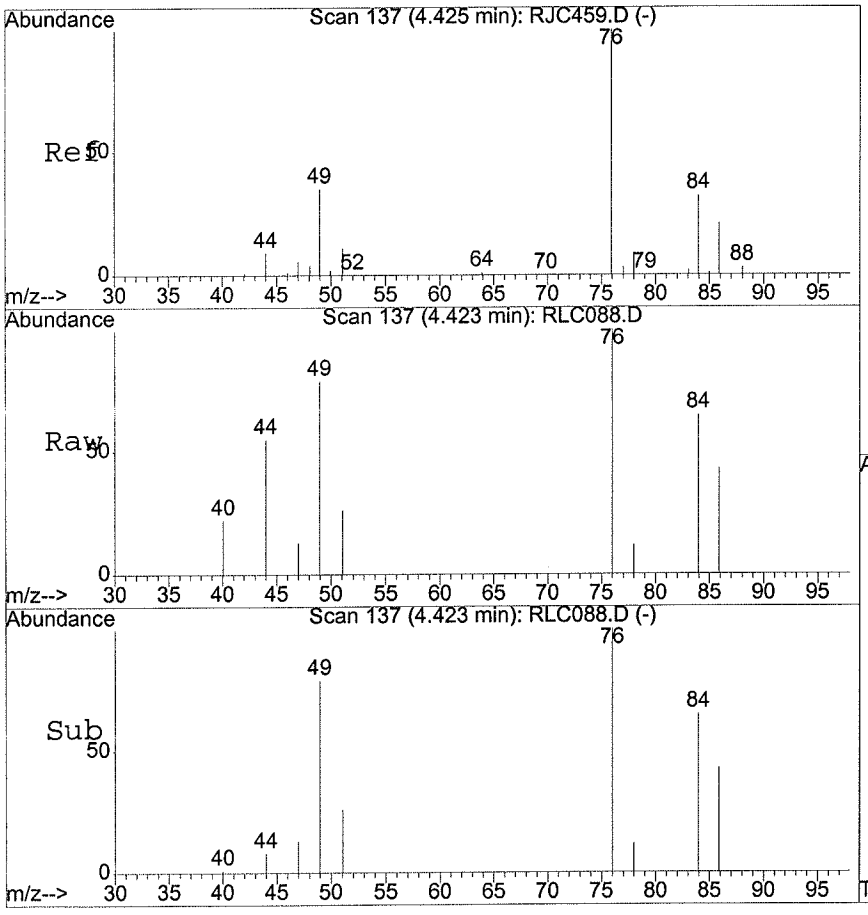


#17
Iodomethane
Concen: 0.26 ug/l
RT: 4.13 min Scan# 117
Delta R.T. -0.00 min
Lab File: RLC088.D
Acq: 7 Dec 2020 4:17 pm

Tgt Ion:142 Resp: 36481

Ion	Ratio	Lower	Upper
142	100		
127	40.4	12.5	72.5

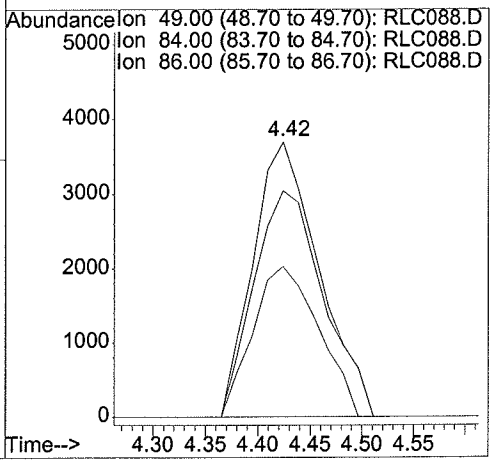


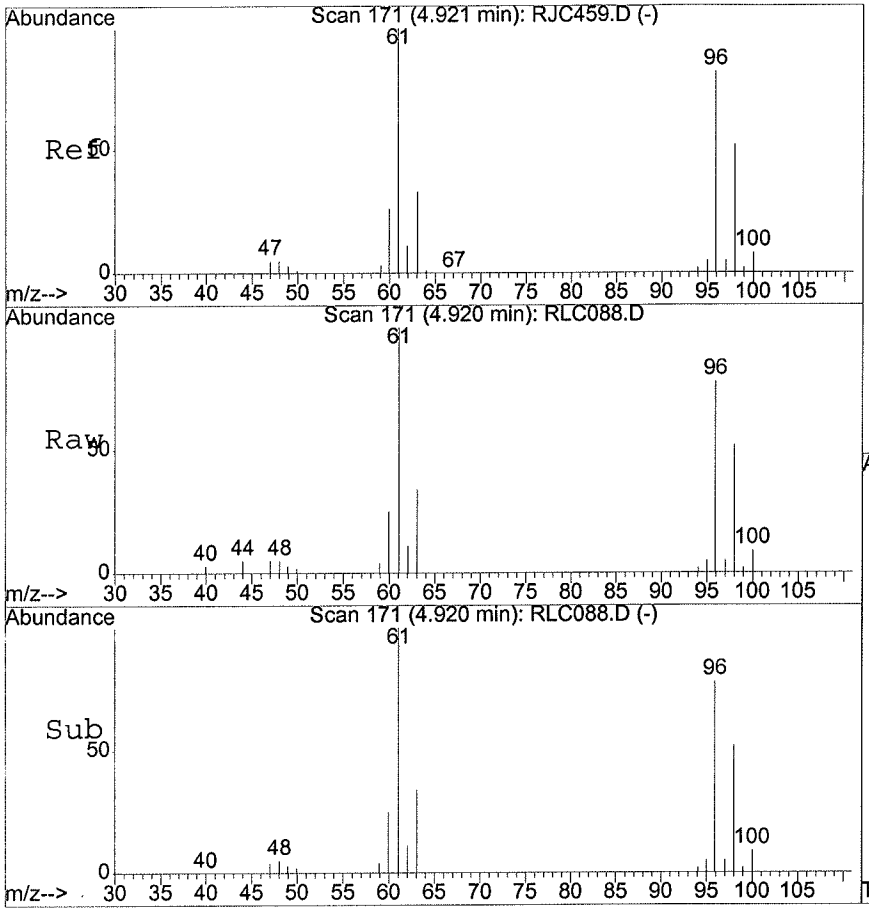


#19
Methylene chloride
Concen: 0.15 ug/l
RT: 4.42 min Scan# 137
Delta R.T. -0.00 min
Lab File: RLC088.D
Acq: 7 Dec 2020 4:17 pm

Tgt Ion: 49 Resp: 16230

Ion	Ratio	Lower	Upper
49	100		
84	86.9	60.1	120.1
86	54.9	27.5	87.5

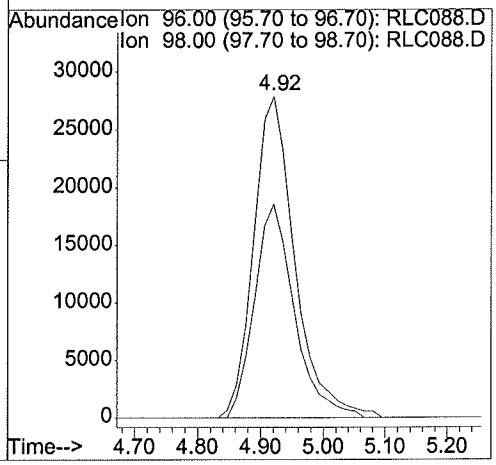


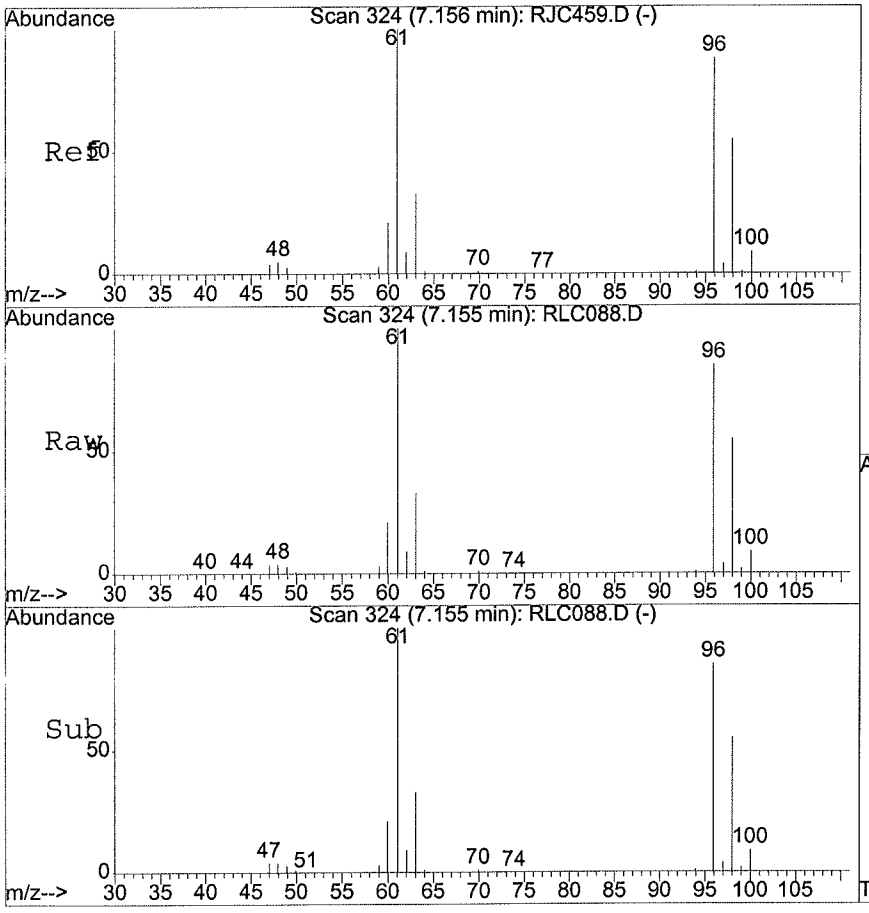


#23
trans-1,2-Dichloroethene
Concen: 1.16 ug/l
RT: 4.92 min Scan# 171
Delta R.T. -0.00 min
Lab File: RLC088.D
Acq: 7 Dec 2020 4:17 pm

Tgt Ion: 96 Resp: 127390

Ion	Ratio	Lower	Upper
96	100		
98	64.7	32.6	92.6

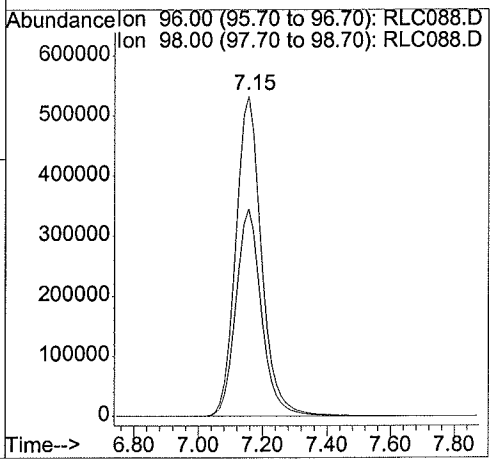


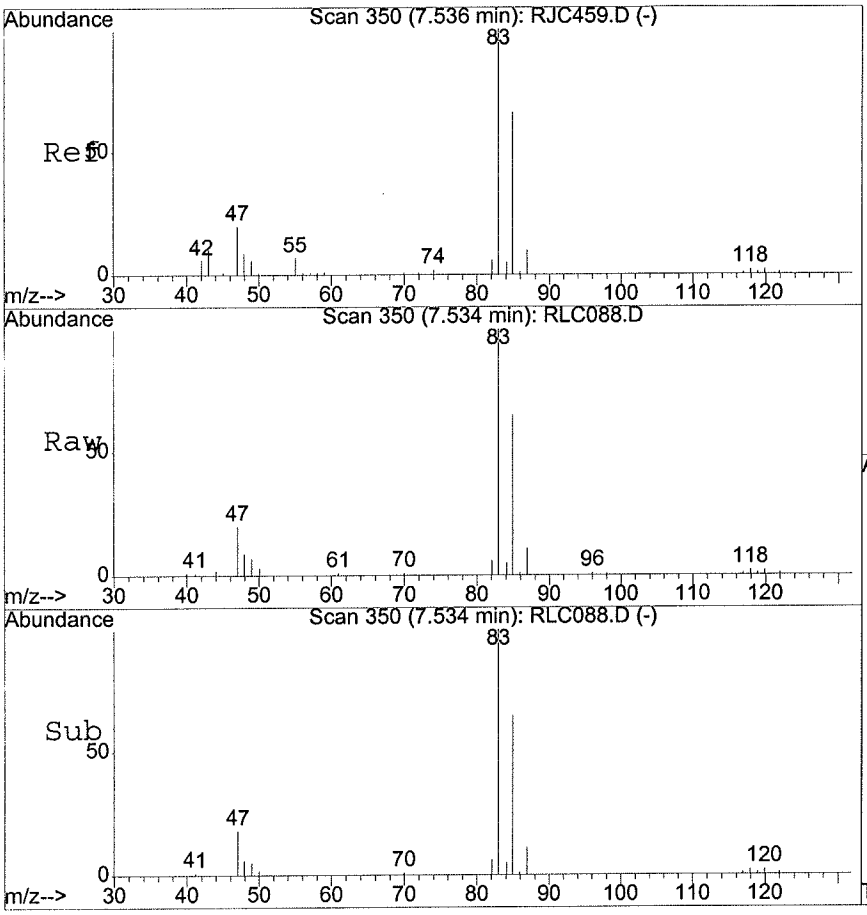


#31
cis-1,2-Dichloroethene
Concen: 27.67 ug/l
RT: 7.15 min Scan# 324
Delta R.T. -0.00 min
Lab File: RLC088.D
Acq: 7 Dec 2020 4:17 pm

Tgt Ion: 96 Resp: 2962313

Ion	Ratio	Lower	Upper
96	100		
98	64.5	33.5	93.5

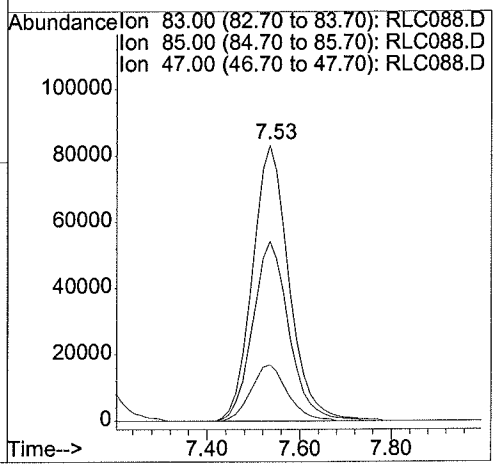


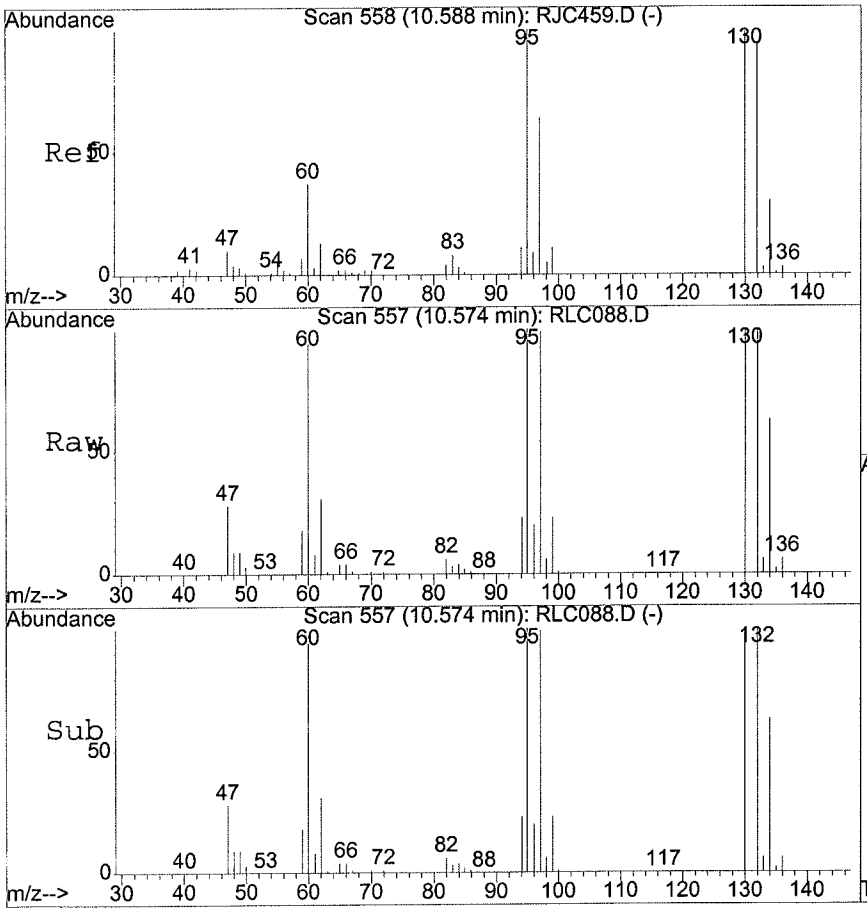


#32
Chloroform
Concen: 3.00 ug/l
RT: 7.53 min Scan# 350
Delta R.T. -0.00 min
Lab File: RLC088.D
Acq: 7 Dec 2020 4:17 pm

Tgt Ion: 83 Resp: 476185

Ion	Ratio	Lower	Upper
83	100		
85	64.7	37.8	97.8
47	19.5	0.0	50.5

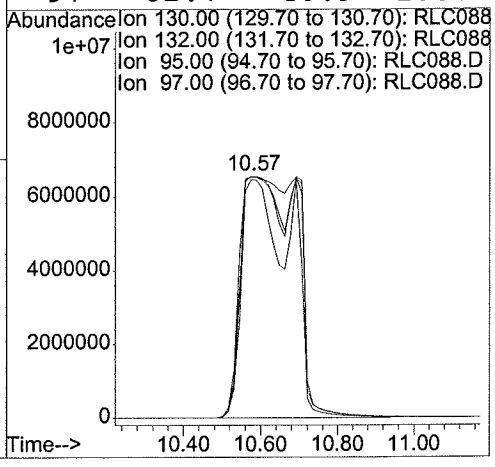


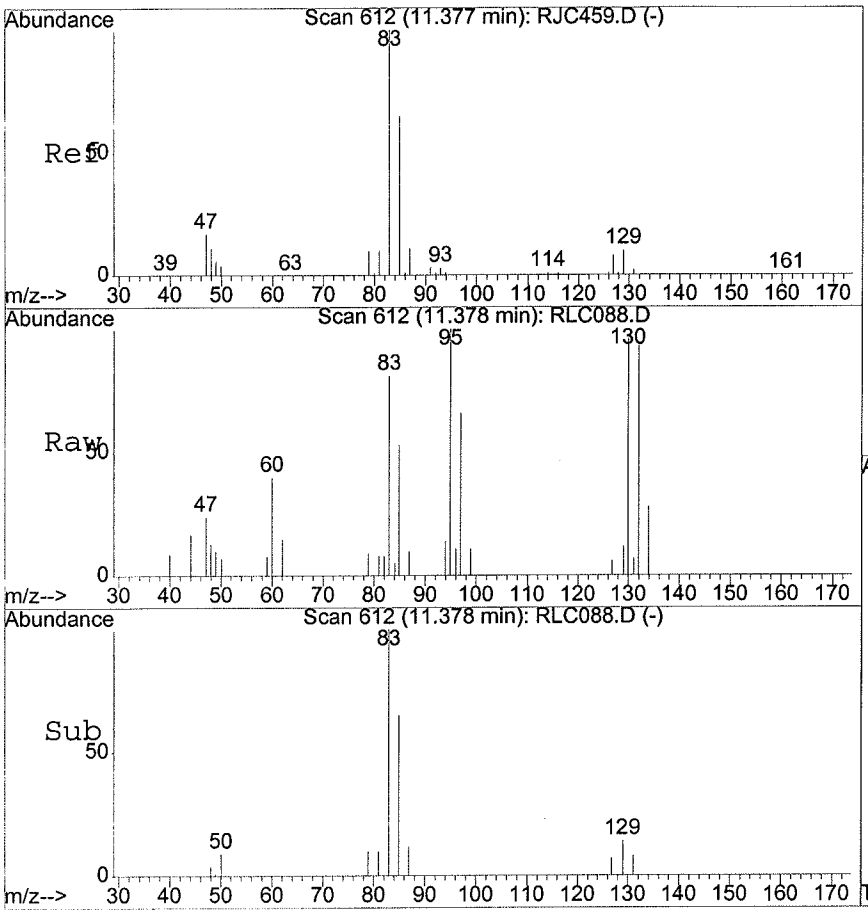


#46
Trichloroethene
Concen: 685.52 ug/l m
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC088.D
Acq: 7 Dec 2020 4:17 pm

Tgt Ion:130 Resp:65982803

Ion	Ratio	Lower	Upper
130	100		
132	70.4	65.5	125.5
95	75.8	73.3	133.3
97	62.7	40.9	100.9

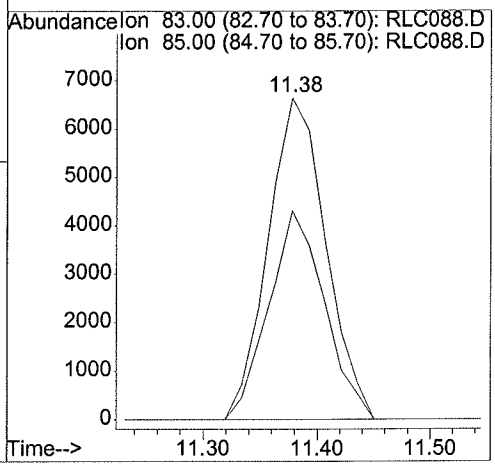


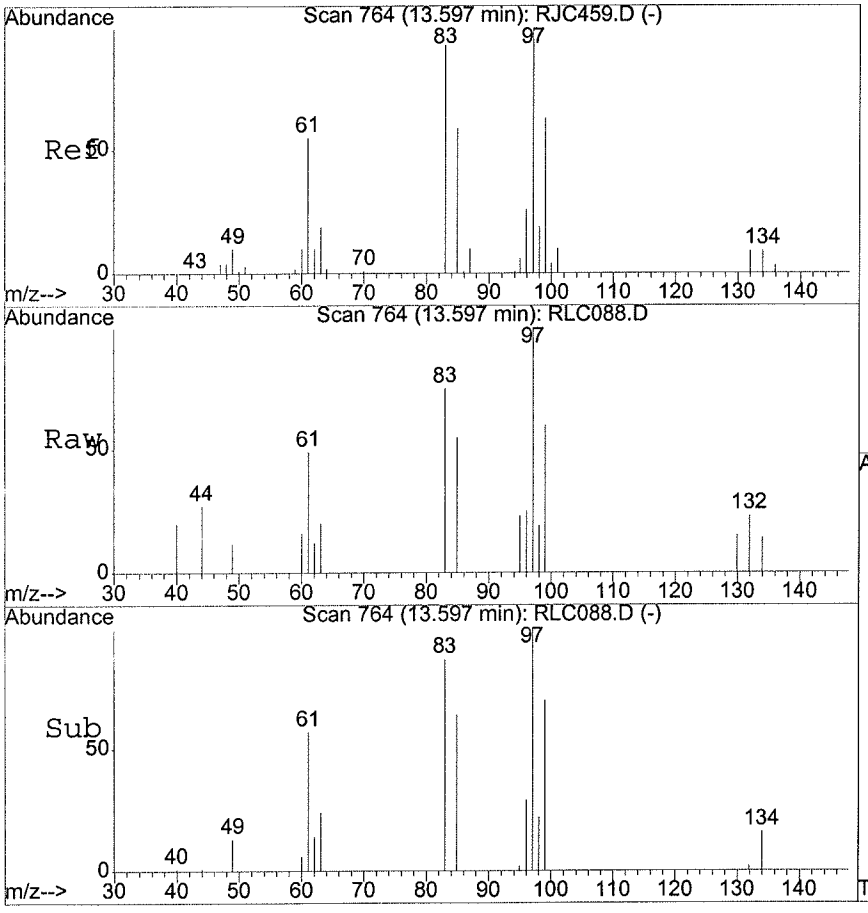


#49
Bromodichloromethane
Concen: 0.24 ug/l
RT: 11.38 min Scan# 612
Delta R.T. 0.00 min
Lab File: RLC088.D
Acq: 7 Dec 2020 4:17 pm

Tgt Ion: 83 Resp: 23398

Ion	Ratio	Lower	Upper
83	100		
85	62.6	34.3	94.3

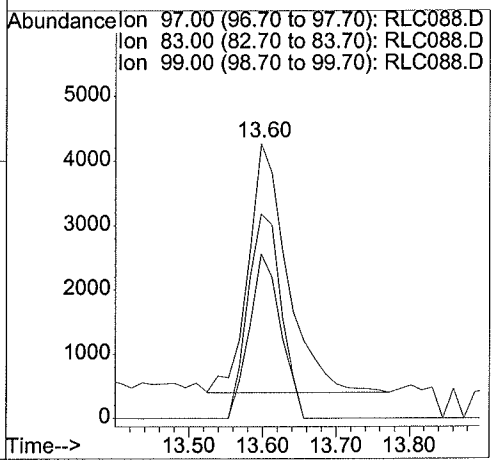


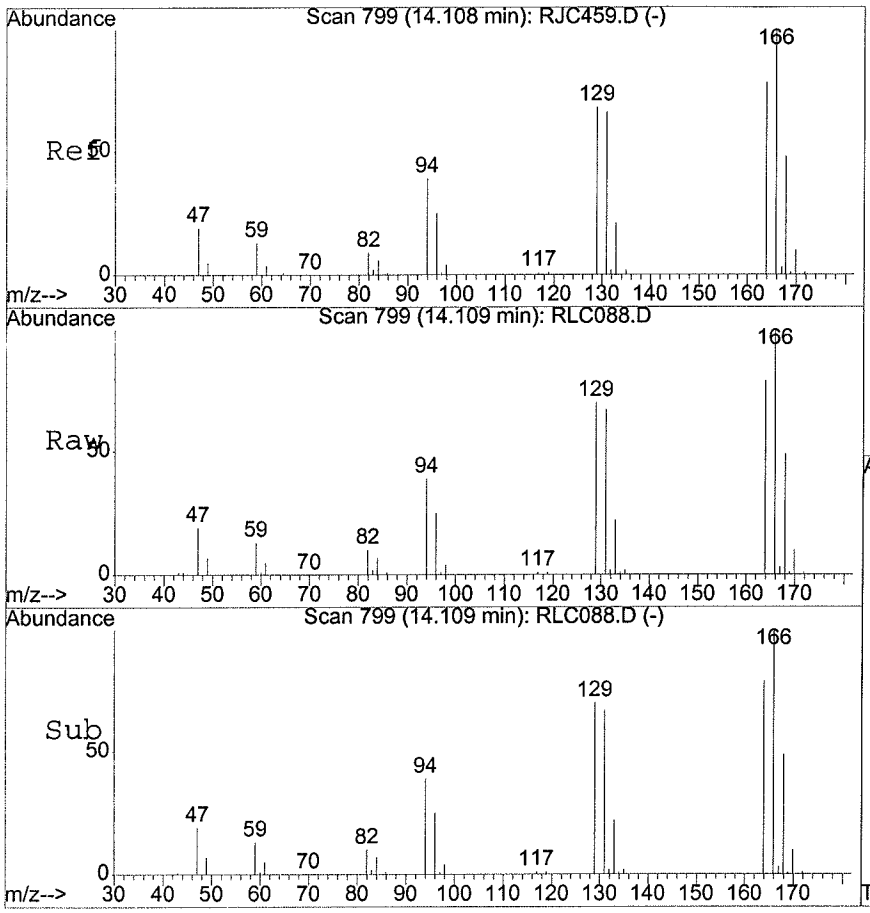


#60
1,1,2-Trichloroethane
Concen: 0.32 ug/l
RT: 13.60 min Scan# 764
Delta R.T. 0.00 min
Lab File: RLC088.D
Acq: 7 Dec 2020 4:17 pm

Tgt Ion: 97 Resp: 14203

Ion	Ratio	Lower	Upper
97	100		
83	70.4	60.6	120.6
99	53.5	33.2	93.2

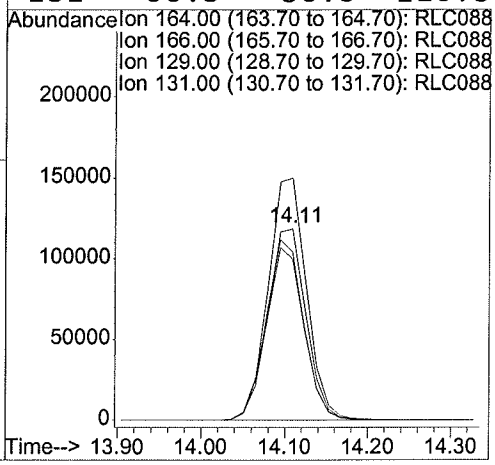


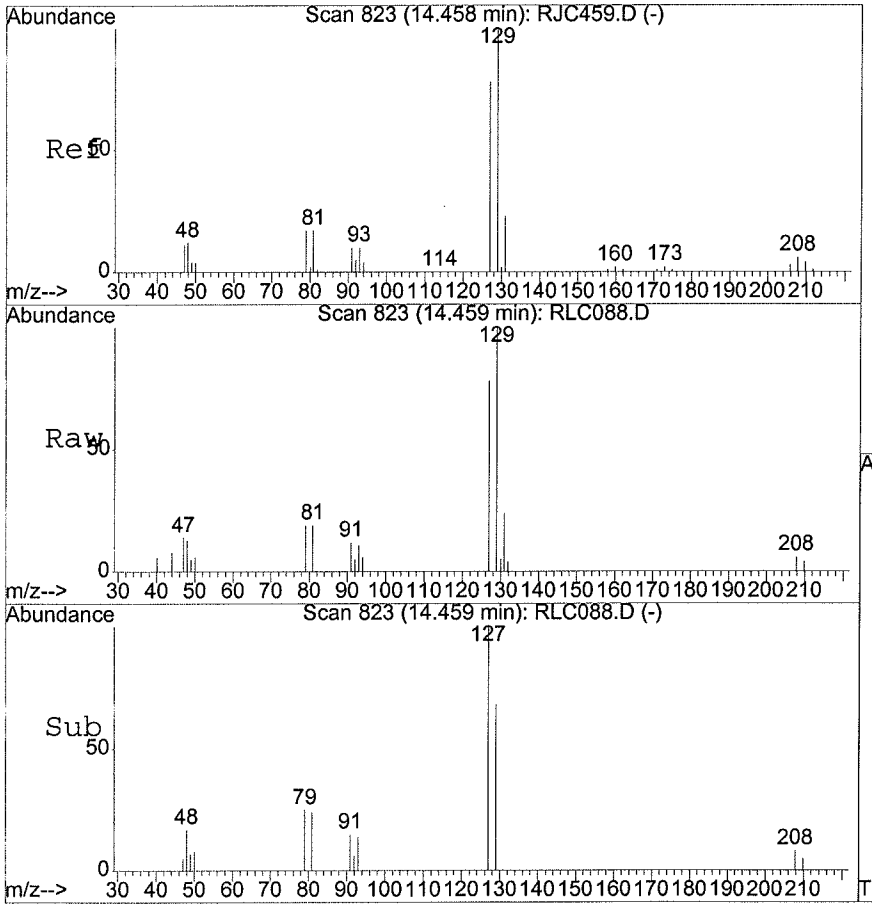


#63
Tetrachloroethene
Concen: 5.24 ug/l
RT: 14.11 min Scan# 799
Delta R.T. 0.00 min
Lab File: RLC088.D
Acq: 7 Dec 2020 4:17 pm

Tgt Ion:164 Resp: 380713

Ion	Ratio	Lower	Upper
164	100		
166	126.8	97.5	157.5
129	92.5	61.9	121.9
131	88.3	58.5	118.5

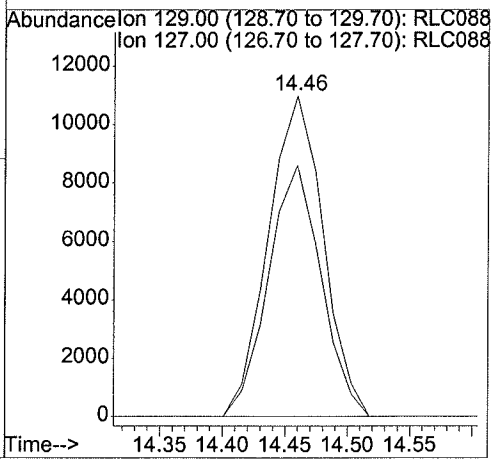


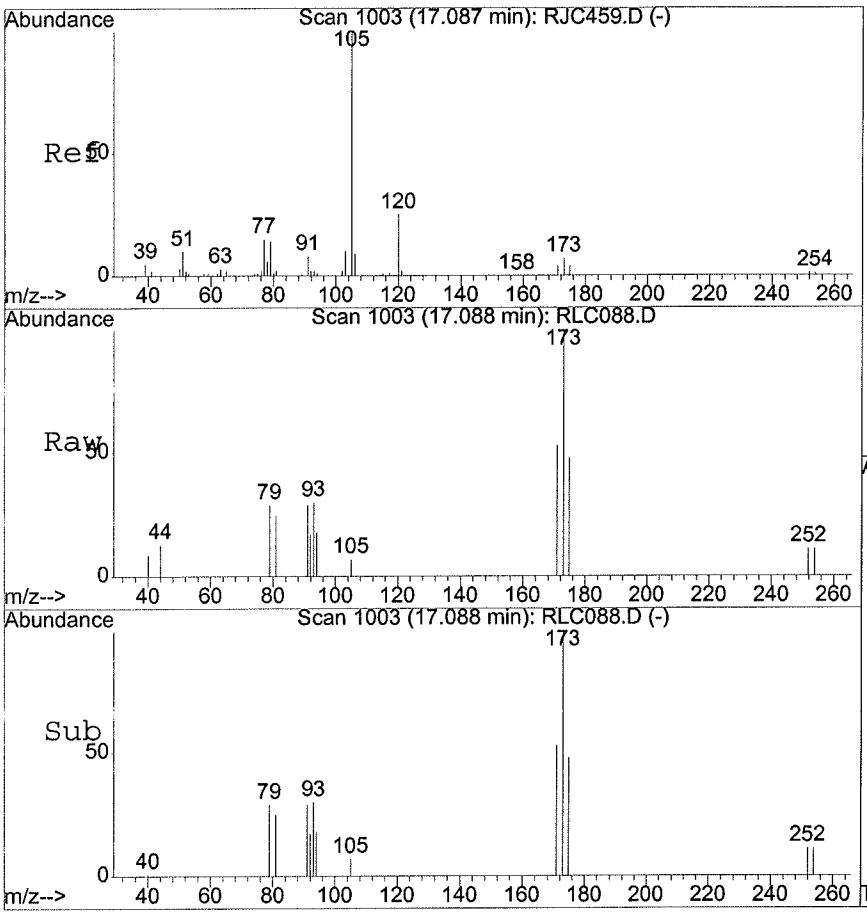


#64
Dibromochloromethane
Concen: 0.63 ug/l
RT: 14.46 min Scan# 823
Delta R.T. 0.00 min
Lab File: RLC088.D
Acq: 7 Dec 2020 4:17 pm

Tgt Ion:129 Resp: 33622

Ion	Ratio	Lower	Upper
129	100		
127	75.4	47.4	107.4

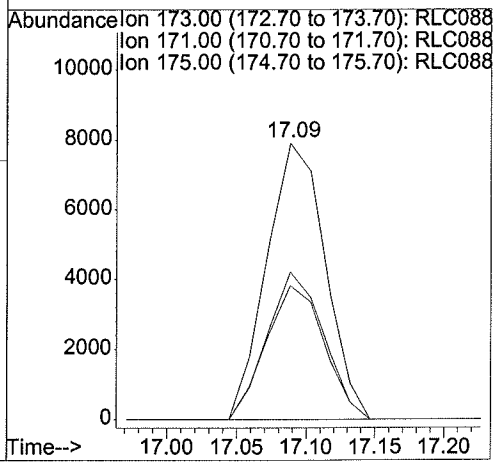




#75
Bromoform
Concen: 0.95 ug/l
RT: 17.09 min Scan# 1003
Delta R.T. 0.00 min
Lab File: RLC088.D
Acq: 7 Dec 2020 4:17 pm

Tgt Ion:173 Resp: 23227

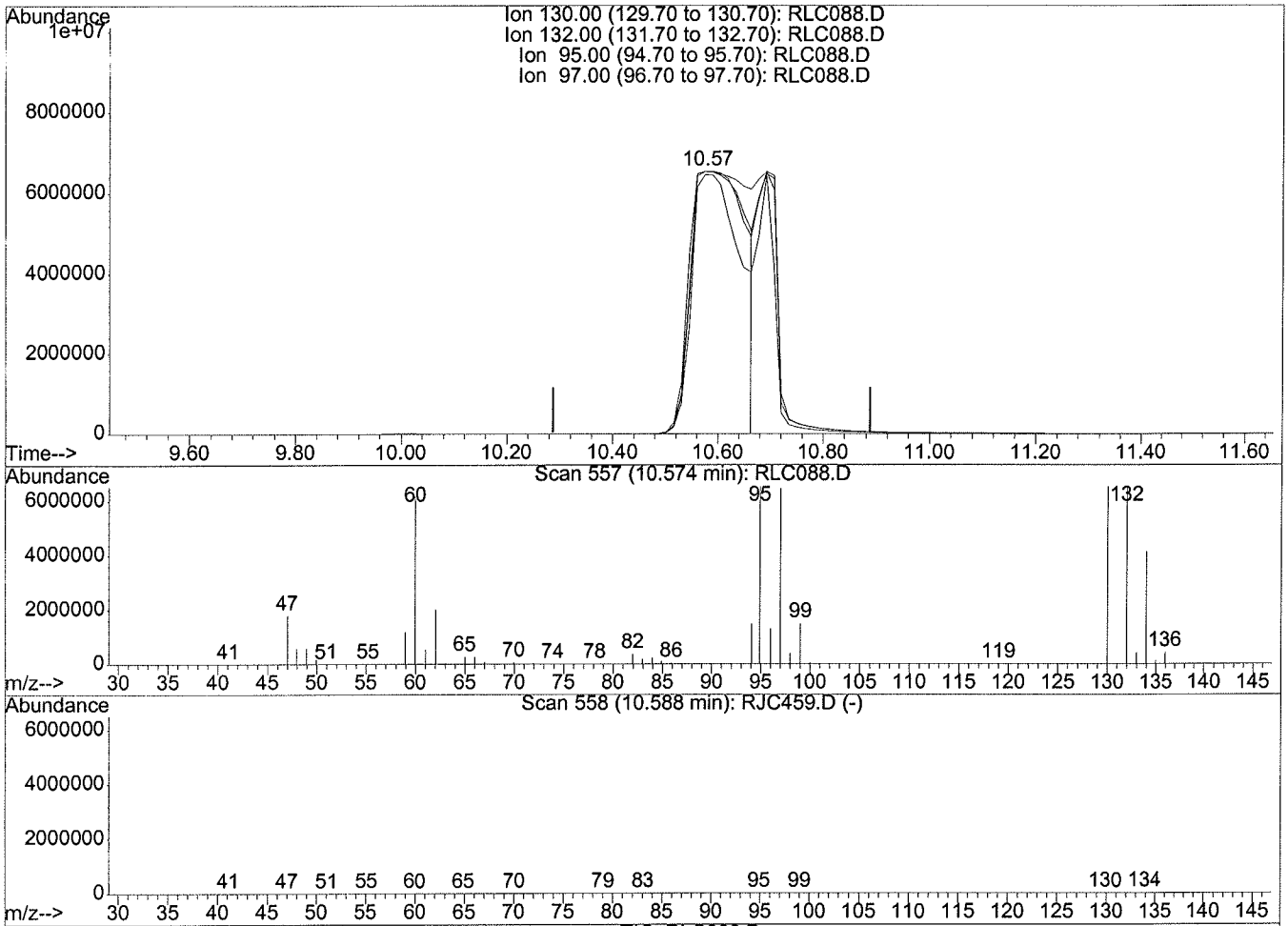
Ion	Ratio	Lower	Upper
173	100		
171	51.3	21.3	81.3
175	48.2	18.8	78.8



Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC088.D Vial: 13
Acq On : 7 Dec 2020 4:17 pm Operator: VLu
Sample : 20L041-04 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:53 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC088.D

(46) Trichloroethene (T,M)

10.57min 489.33ug/l

response 47098319

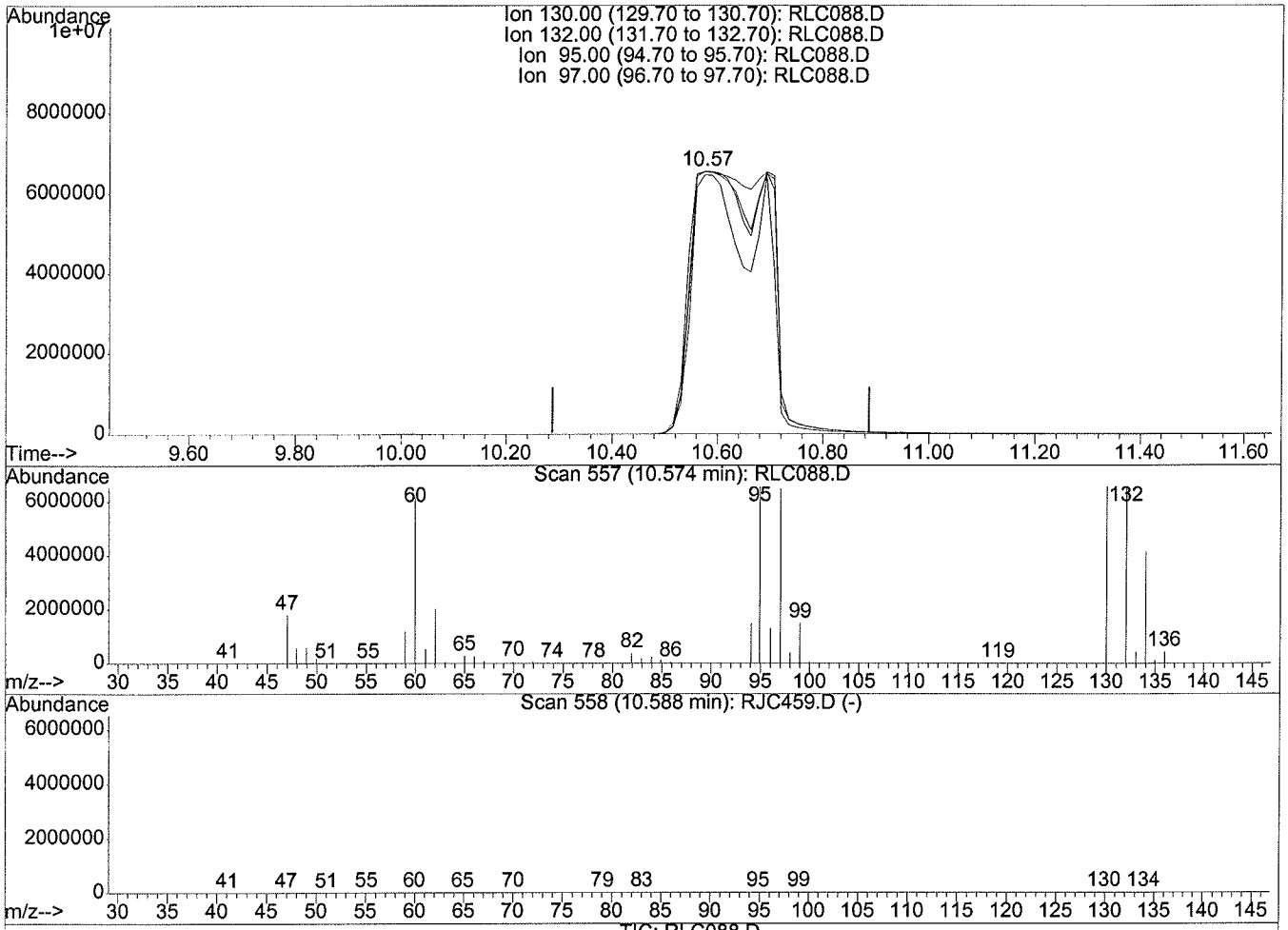
Ion	Exp%	Act%
130.00	100	100
132.00	95.50	98.66
95.00	103.30	106.25
97.00	70.90	87.88

RLC088.D VO67J30.M Tue Dec 08 11:53:09 2020

Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC088.D Vial: 13
Acq On : 7 Dec 2020 4:17 pm Operator: VLu
Sample : 20L041-04 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:53 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC088.D

(46) Trichloroethene (T,M)

10.57min 685.52ug/l m

response 65982803

Ion	Exp%	Act%
130.00	100	100
132.00	95.50	70.43
95.00	103.30	75.84
97.00	70.90	62.73

☐ Incorrect Retention Time
☐ Incorrect Baseline
☑ Incorrect Integration
☐ Other _____

Initials VL 12/8/20

12/8/20

RLC088.D VO67J30.M Tue Dec 08 11:53:13 2020

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/02/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/08/20 14:17
Sample ID: 3-MW-56(120220)DL	Date Analyzed: 12/08/20 14:17
Lab Samp ID: L041-04I	Dilution Factor: 250
Lab File ID: RLC113	Matrix : WATER
Ext Btch ID: V067L06	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	120	25	50
1,1,1-TRICHLOROETHANE	ND	250	25	50
1,1,2,2-TETRACHLOROETHANE	ND	250	28	50
1,1,2-TRICHLOROETHANE	ND	250	25	50
1,1-DICHLOROETHANE	ND	250	25	50
1,1-DICHLOROETHENE	ND	250	25	50
1,1-DICHLOROPROPENE	ND	250	25	50
1,2,3-TRICHLOROBENZENE	ND	250	37	75
1,2,3-TRICHLOROPROPANE	ND	500	62	120
1,2,4-TRICHLOROBENZENE	ND	250	37	75
1,2,4-TRIMETHYLBENZENE	ND	250	28	50
1,2-DIBROMO-3-CHLOROPROPANE	ND	500	62	120
1,2-DIBROMOETHANE	ND	250	25	50
1,2-DICHLOROBENZENE	ND	250	25	50
1,2-DICHLOROETHANE	ND	120	25	50
1,2-DICHLOROPROPANE	ND	250	25	50
1,3,5-TRIMETHYLBENZENE	ND	250	33	50
1,3-DICHLOROBENZENE	ND	250	28	50
1,3-DICHLOROPROPANE	ND	250	25	50
1,4-DICHLOROBENZENE	ND	250	25	50
2,2-DICHLOROPROPANE	ND	250	40	50
2-BUTANONE	ND	2500	500	1000
2-CHLOROTOLUENE	ND	250	30	50
2-HEXANONE	ND	2500	580	1000
4-CHLOROTOLUENE	ND	250	28	50
ACETONE	ND	2500	650	1200
BENZENE	ND	250	25	50
BROMOBENZENE	ND	250	25	50
BROMOCHLOROMETHANE	ND	250	28	50
BROMODICHLOROMETHANE	ND	250	25	50
BROMOFORM	ND	250	37	75
BROMOMETHANE	ND	250	40	75
CARBON DISULFIDE	ND	250	25	50
CARBON TETRACHLORIDE	ND	250	25	50
CHLOROBENZENE	ND	250	25	50
CHLOROETHANE	ND	250	67	75
CHLOROFORM	ND	250	25	50
CHLOROMETHANE	ND	250	37	75
CIS-1,2-DICHLOROETHENE	ND	250	25	50
CIS-1,3-DICHLOROPROPENE	ND	250	25	50
DIBROMOCHLOROMETHANE	ND	250	25	50
DICHLORODIFLUOROMETHANE	ND	250	37	75
ETHYLBENZENE	ND	250	25	50
HEXACHLOROBUTADIENE	ND	250	55	75
ISOPROPYL BENZENE	ND	250	25	50
M,P-XYLENES	ND	500	52	100
MIBK	ND	2500	520	1000
METHYLENE CHLORIDE	ND	500	62	120
MTBE	ND	250	33	50
NAPHTHALENE	ND	500	62	120
N-BUTYLBENZENE	ND	250	42	50
N-PROPYLBENZENE	ND	250	33	50
O-XYLENE	ND	250	25	50
P-ISOPROPYLTOLUENE	ND	250	35	50
SEC-BUTYLBENZENE	ND	250	33	50
STYRENE	ND	250	25	50
TERT-BUTYLBENZENE	ND	250	33	50
TETRACHLOROETHENE	ND	250	37	50
TOLUENE	ND	250	25	50
TRANS-1,2-DICHLOROETHENE	ND	250	25	50
TRANS-1,3-DICHLOROPROPENE	ND	250	28	50
TRICHLOROETHENE	3600	250	25	50
TRICHLOROFLUOROMETHANE	ND	250	37	75
VINYL CHLORIDE	ND	120	30	50
VINYL ACETATE	ND	500	62	120
FREON113	ND	250	50	75
TERT-BUTANOL	ND	5000	1200	2500
DIPE	ND	250	25	50
ETBE	ND	250	25	50
TAME	ND	250	25	50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	2220	2500	88.6	70-120
4-BROMOFLUOROBENZENE	2450	2500	97.9	75-120
TOLUENE-D8	2280	2500	91.1	85-120
DIBROMOFLUOROMETHANE	2360	2500	94.4	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC113.D Vial: 9
Acq On : 8 Dec 2020 2:17 pm Operator: VLu
Sample : 20L041-04I 100uL Inst : 67
Misc : DF=250 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:37 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

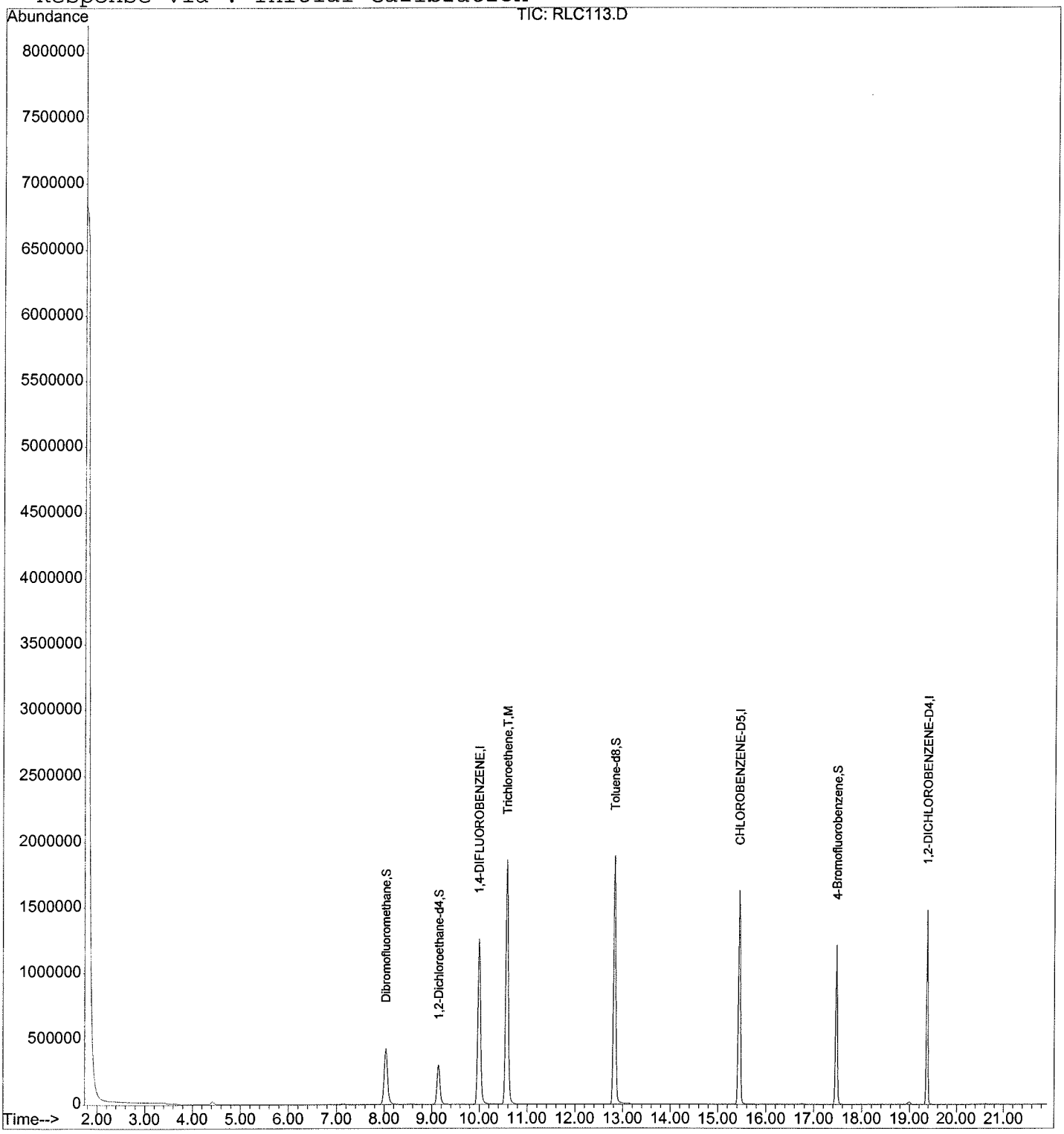
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2313170	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1732916	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	498961	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	713084	9.44	ug/l	0.00
Spiked Amount 10.000			Recovery =	94.40%		
43) 1,2-Dichloroethane-d4	9.14	65	428270	8.86	ug/l	0.00
Spiked Amount 10.000			Recovery =	88.60%		
56) Toluene-d8	12.82	98	2408828	9.11	ug/l	0.00
Spiked Amount 10.000			Recovery =	91.10%		
77) 4-Bromofluorobenzene	17.47	95	663914	9.79	ug/l	0.00
Spiked Amount 10.000			Recovery =	97.90%		
Target Compounds						Qvalue
46) Trichloroethene	10.57	130	1285148	14.33	ug/l	98

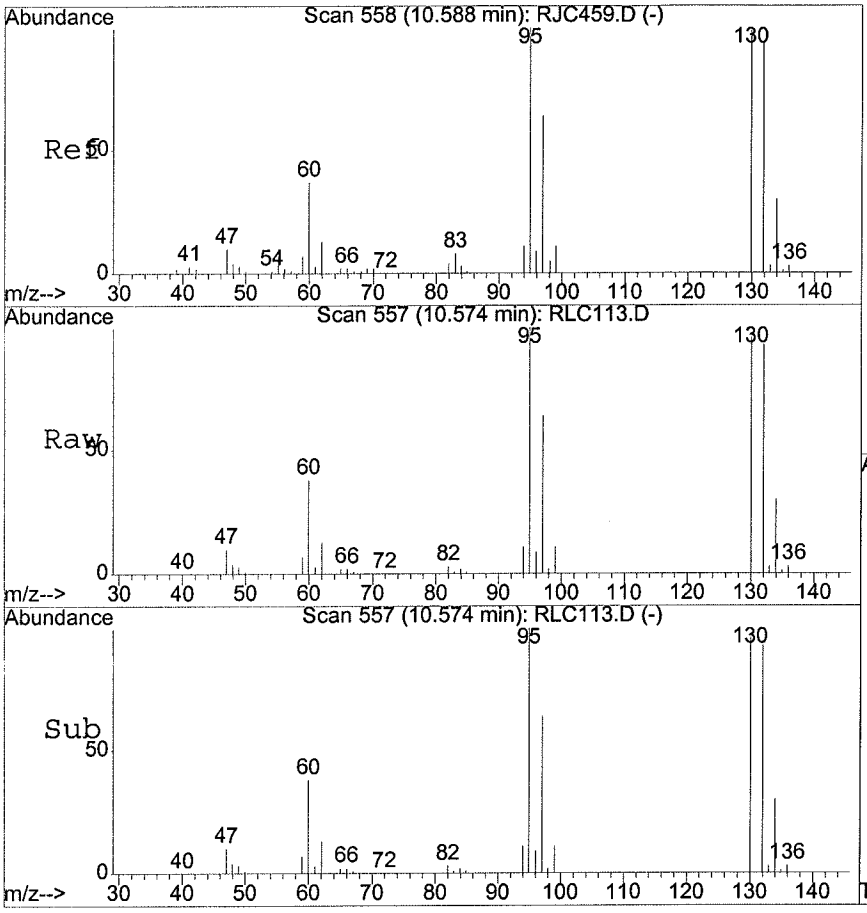
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC113.D Vial: 9
Acq On : 8 Dec 2020 2:17 pm Operator: VLu
Sample : 20L041-04I 100uL Inst : 67
Misc : DF=250 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:37 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

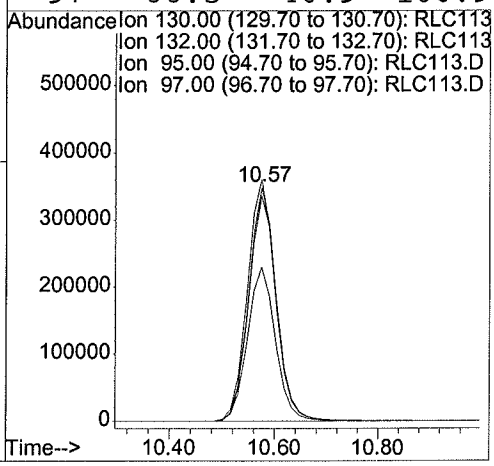




#46
Trichloroethene
Concen: 14.33 ug/l
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC113.D
Acq: 8 Dec 2020 2:17 pm

Tgt Ion:130 Resp: 1285148

Ion	Ratio	Lower	Upper
130	100		
132	97.0	65.5	125.5
95	104.1	73.3	133.3
97	66.5	40.9	100.9



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected	: 12/02/20
Project	: VAFB-SS003	Date Received	: 12/04/20
Batch No.	: 20L041	Date Extracted	: 12/07/20 16:43 # 12/08/20 14:43
Sample ID	: SS003-DUP1(120220)	Date Analyzed	: 12/07/20 16:43 # 12/08/20 14:43
Lab Samp ID	: L041-05 #L041-05I	Dilution Factor	: 1 # 250
Lab File ID	: RLC089 #RLC114	Matrix	: WATER
Ext Btch ID	: VO67L05 #VO67L06	% Moisture	: NA
Calib. Ref.	: RJC459 #RJC459	Instrument ID	: 67

	PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
	1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
	1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
	1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
	1,1,2-TRICHLOROETHANE	0.30J	1.0	0.10	0.20
	1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
	1,1-DICHLOROETHENE	1.7	1.0	0.10	0.20
	1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
	1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
	1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
	1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
	1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
	1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
	1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
	1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
	1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
	1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
	2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
	2-BUTANONE	ND	10	2.0	4.0
	2-CHLOROTOLUENE	ND	1.0	0.12	0.20
	2-HEXANONE	ND	10	2.3	4.0
	4-CHLOROTOLUENE	ND	1.0	0.11	0.20
	ACETONE	ND	10	2.6	5.0
	BENZENE	ND	1.0	0.10	0.20
	BROMOBENZENE	ND	1.0	0.10	0.20
	BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
	BROMODICHLOROMETHANE	0.25J	1.0	0.10	0.20
	BROMOFORM	1.0	1.0	0.15	0.30
	BROMOMETHANE	ND	1.0	0.16	0.30
	CARBON DISULFIDE	ND	1.0	0.10	0.20
	CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
	CHLOROBENZENE	ND	1.0	0.10	0.20
	CHLOROETHANE	ND	1.0	0.27	0.30
	CHLOROFORM	3.0	1.0	0.10	0.20
	CHLOROMETHANE	ND	1.0	0.15	0.30
	CIS-1,2-DICHLOROETHENE	28	1.0	0.10	0.20
	CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
	DIBROMOCHLOROMETHANE	0.66J	1.0	0.10	0.20
	DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
	ETHYLBENZENE	ND	1.0	0.10	0.20
	HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
	ISOPROPYL BENZENE	ND	1.0	0.10	0.20
	M,P-XYLENES	ND	2.0	0.21	0.40
	MIBK	ND	10	2.1	4.0
	METHYLENE CHLORIDE	ND	2.0	0.25	0.50
	MTBE	ND	1.0	0.13	0.20
	NAPHTHALENE	ND	2.0	0.25	0.50
	N-BUTYLBENZENE	ND	1.0	0.17	0.20
	N-PROPYLBENZENE	ND	1.0	0.13	0.20
	O-XYLENE	ND	1.0	0.10	0.20
	P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
	SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
	STYRENE	ND	1.0	0.10	0.20
	TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
	TETRACHLOROETHENE	5.2	1.0	0.15	0.20
	TOLUENE	ND	1.0	0.10	0.20
	TRANS-1,2-DICHLOROETHENE	1.2	1.0	0.10	0.20
	TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
#	TRICHLOROETHENE	3600	250	25	50
	TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
	VINYL CHLORIDE	0.49J	0.50	0.12	0.20
	VINYL ACETATE	ND	2.0	0.25	0.50
	FREON113	ND	1.0	0.20	0.30
	TERT-BUTANOL	ND	20	5.0	10
	DIPE	ND	1.0	0.10	0.20
	ETBE	ND	1.0	0.10	0.20
	TAME	ND	1.0	0.10	0.20

	SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
	1,2-DICHLOROETHANE-D4	8.88	10.00	88.8	70-120
	4-BROMOFLUOROBENZENE	9.66	10.00	96.6	75-120
	TOLUENE-D8	9.00	10.00	90.0	85-120
	DIBROMOFLUOROMETHANE	9.33	10.00	93.3	85-115
#	1,2-DICHLOROETHANE-D4	2210	2500	88.3	70-120
#	4-BROMOFLUOROBENZENE	2440	2500	97.5	75-120
#	TOLUENE-D8	2290	2500	91.5	85-120
#	DIBROMOFLUOROMETHANE	2340	2500	93.7	85-115

Members of the Associated File

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/02/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/07/20 16:43
Sample ID: SS003-DUP1(120220)	Date Analyzed: 12/07/20 16:43
Lab Samp ID: L041-05	Dilution Factor: 1
Lab File ID: RLC0B9	Matrix : WATER
Ext Btch ID: V067L05	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	0.30J	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	1.7	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	ND	10	2.6	5.0
BENZENE	ND	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	0.25J	1.0	0.10	0.20
BROMOFORM	1.0	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	ND	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	ND	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	3.0	1.0	0.10	0.20
CHLOROMETHANE	NO	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	28	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	0.66J	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	ND	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	ND	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	5.2	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	1.2	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	680E	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	0.49J	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.88	10.00	88.8	70-120
4-BROMOFLUOROBENZENE	9.66	10.00	96.6	75-120
TOLUENE-D8	9.00	10.00	90.0	85-120
DIBROMOFLUOROMETHANE	9.33	10.00	93.3	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC089.D Vial: 14
Acq On : 7 Dec 2020 4:43 pm Operator: VLu
Sample : 20L041-05 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:57 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

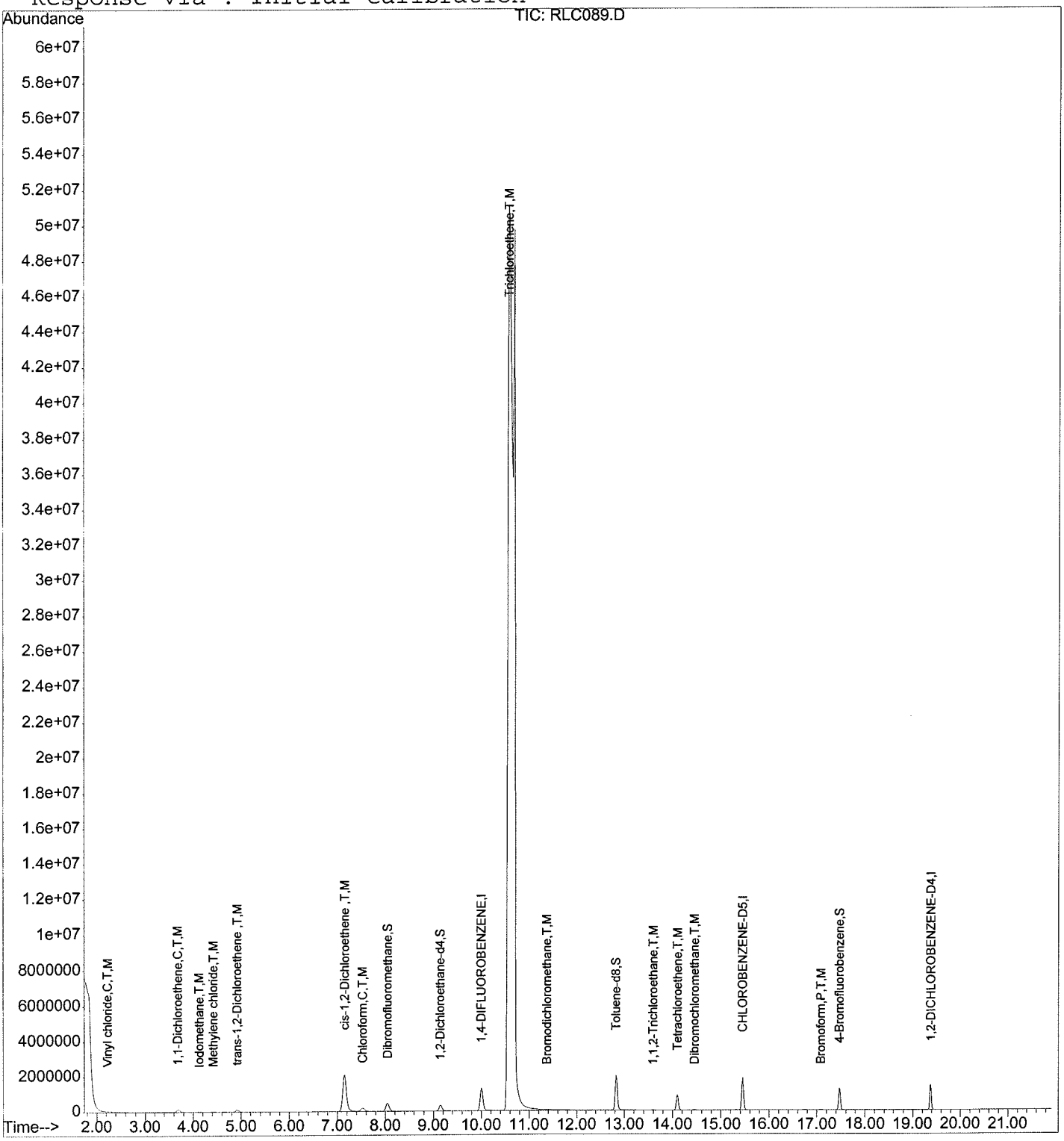
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2497985	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1859292	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	540469	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	761076	9.33	ug/l	0.01
Spiked Amount 10.000			Recovery =	93.30%		
43) 1,2-Dichloroethane-d4	9.14	65	463590	8.88	ug/l	0.00
Spiked Amount 10.000			Recovery =	88.80%		
56) Toluene-d8	12.82	98	2555012	9.00	ug/l	0.00
Spiked Amount 10.000			Recovery =	90.00%		
77) 4-Bromofluorobenzene	17.47	95	709532	9.66	ug/l	0.00
Spiked Amount 10.000			Recovery =	96.60%		
Target Compounds						Qvalue
5) Vinyl chloride	2.23	62	61321	0.49	ug/l	69
14) 1,1-Dichloroethene	3.68	61	262197	1.69	ug/l	99
17) Iodomethane	4.13	142	37995	0.27	ug/l	96
19) Methylene chloride	4.42	49	16979	0.16	ug/l	94
23) trans-1,2-Dichloroethene	4.92	96	127918	1.16	ug/l	98
31) cis-1,2-Dichloroethene	7.16	96	2980932	27.67	ug/l	99
32) Chloroform	7.54	83	480579	3.01	ug/l	97
46) Trichloroethene	10.57	130	65876615m	680.21	ug/l E	
49) Bromodichloromethane	11.38	83	24127	0.25	ug/l	98
60) 1,1,2-Trichloroethane	13.60	97	13537	0.30	ug/l	86
63) Tetrachloroethene	14.11	164	380610	5.21	ug/l	100
64) Dibromochloromethane	14.46	129	35415	0.66	ug/l	99
75) Bromoform	17.09	173	24539	1.01	ug/l	99

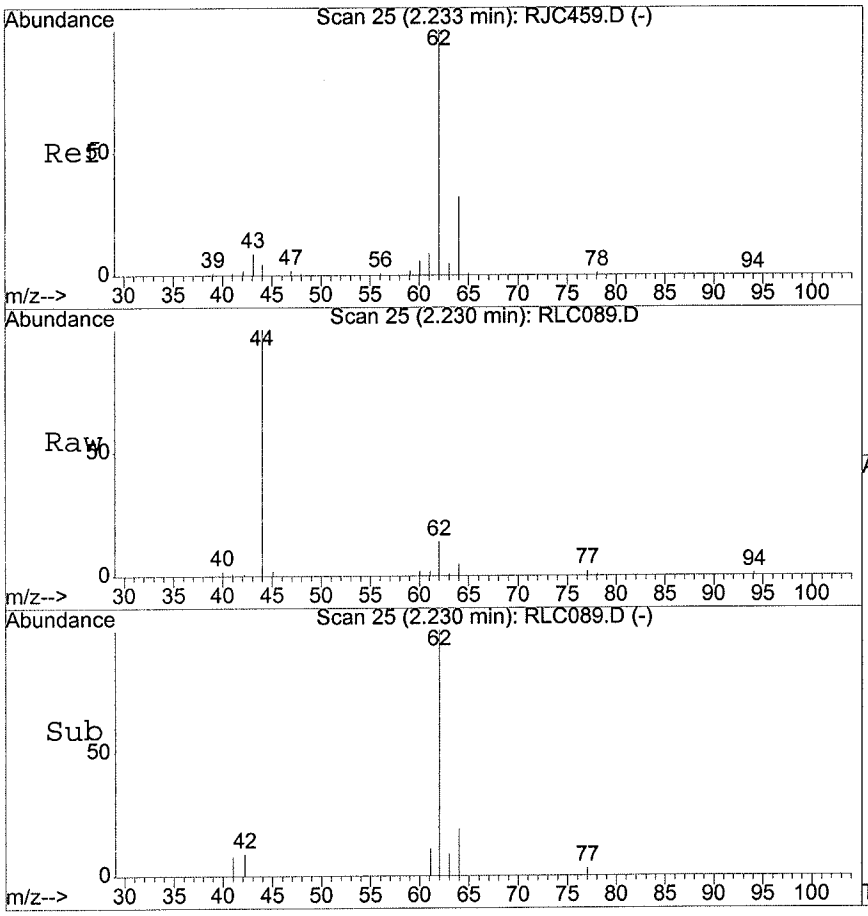
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC089.D Vial: 14
Acq On : 7 Dec 2020 4:43 pm Operator: VLu
Sample : 20L041-05 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:57 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

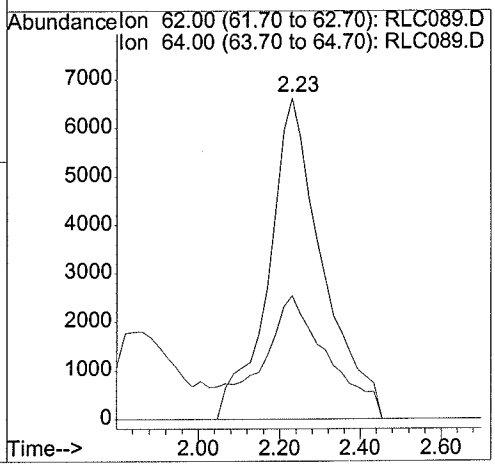


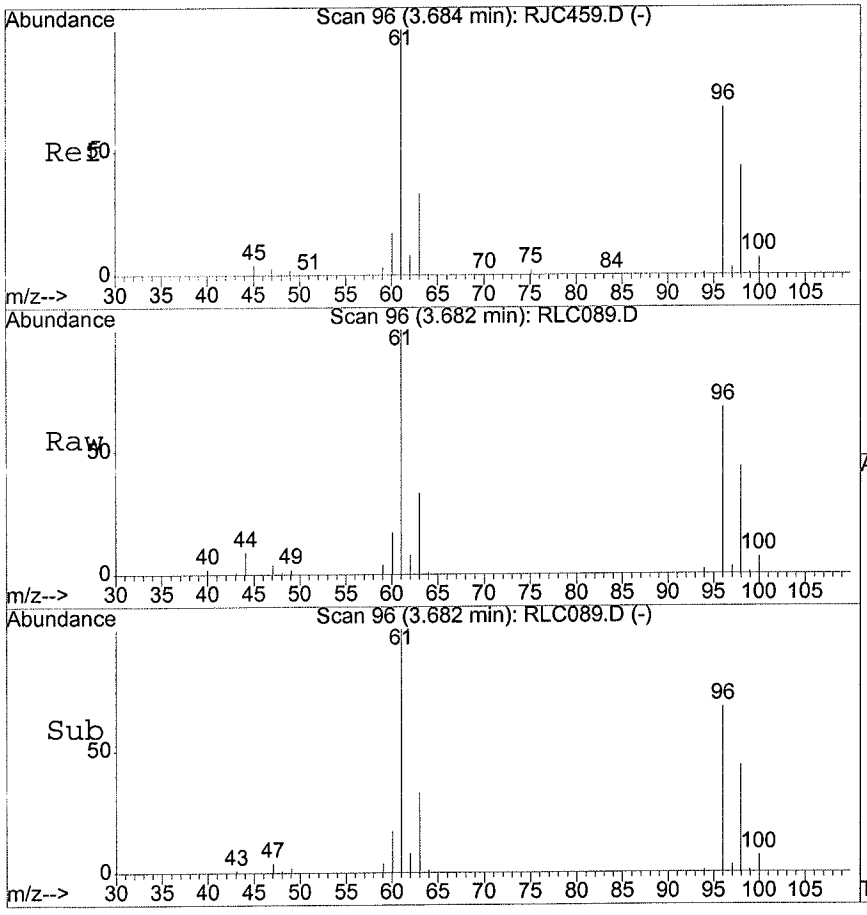


#5
Vinyl chloride
Concen: 0.49 ug/l
RT: 2.23 min Scan# 25
Delta R.T. -0.00 min
Lab File: RLC089.D
Acq: 7 Dec 2020 4:43 pm

Tgt Ion: 62 Resp: 61321

Ion	Ratio	Lower	Upper
62	100		
64	48.4	1.4	61.4

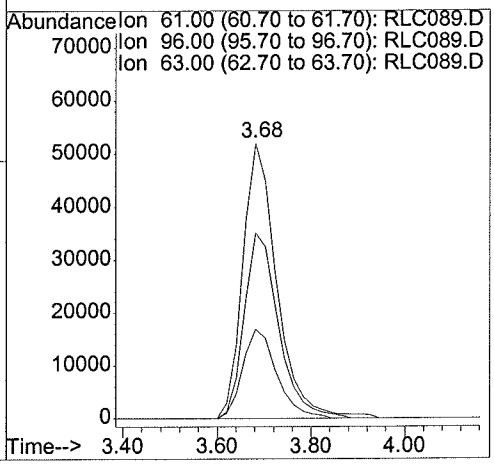


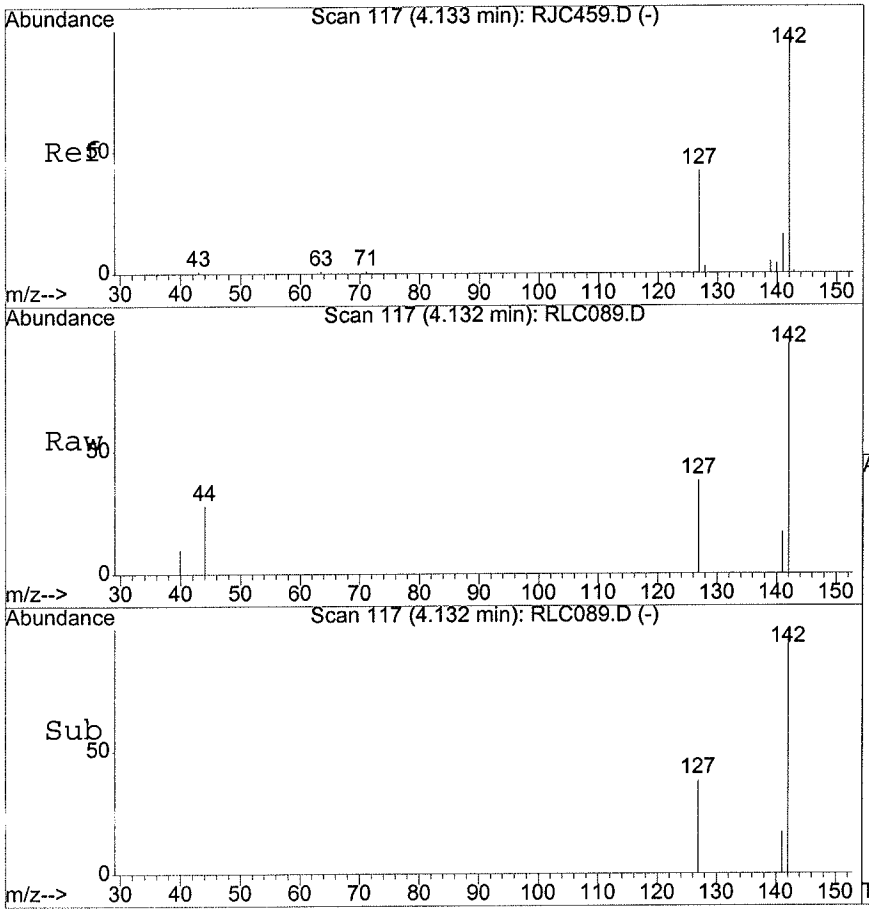


#14
1,1-Dichloroethene
Concen: 1.69 ug/l
RT: 3.68 min Scan# 96
Delta R.T. -0.00 min
Lab File: RLC089.D
Acq: 7 Dec 2020 4:43 pm

Tgt Ion: 61 Resp: 262197

Ion	Ratio	Lower	Upper
61	100		
96	68.2	38.7	98.7
63	32.6	2.9	62.9

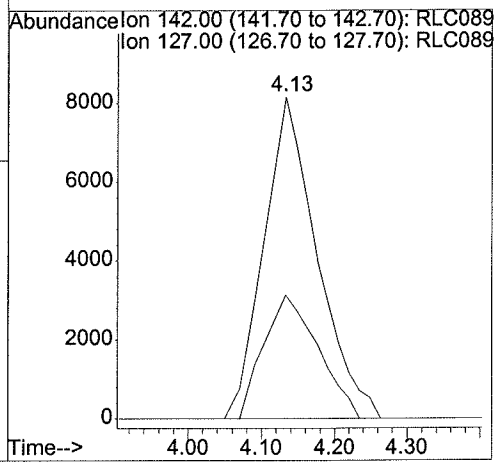


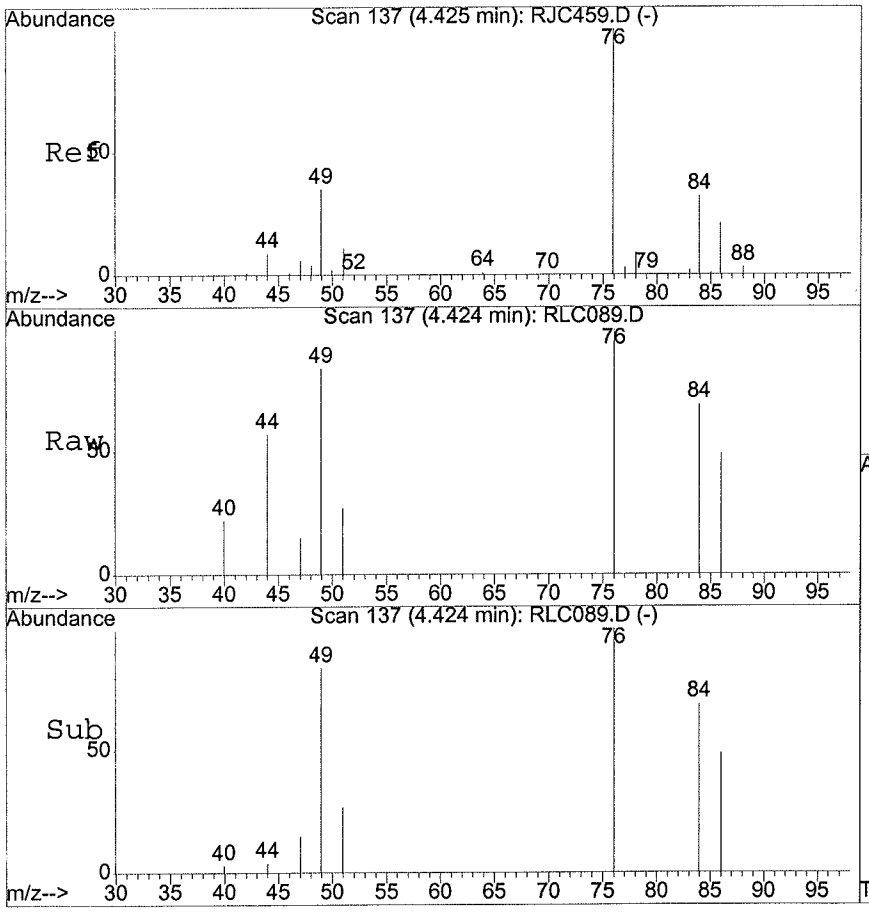


#17
Iodomethane
Concen: 0.27 ug/l
RT: 4.13 min Scan# 117
Delta R.T. -0.00 min
Lab File: RLC089.D
Acq: 7 Dec 2020 4:43 pm

Tgt Ion:142 Resp: 37995

Ion	Ratio	Lower	Upper
142	100		
127	40.2	12.5	72.5

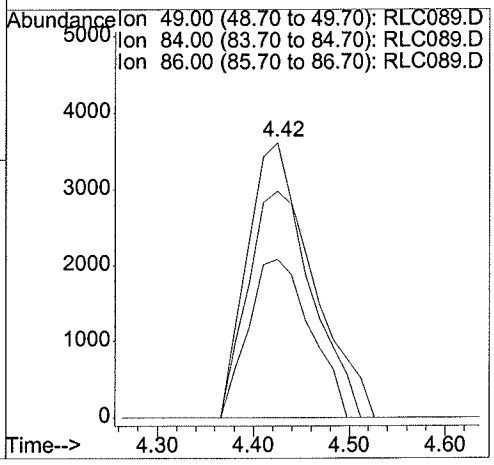


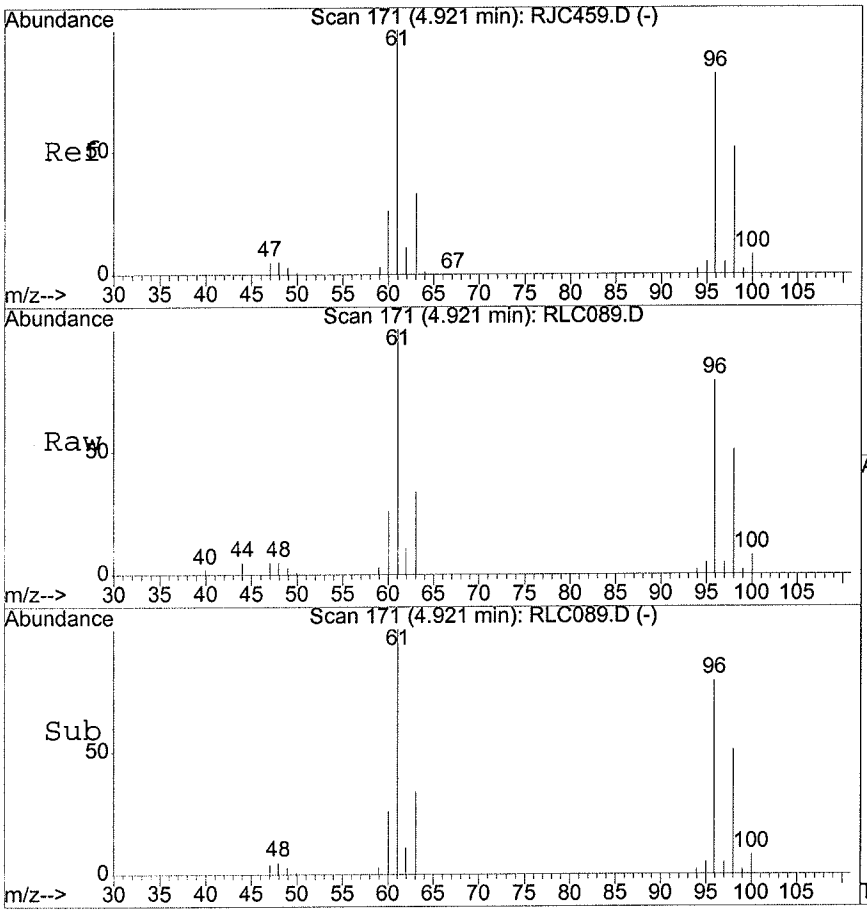


#19
Methylene chloride
Concen: 0.16 ug/l
RT: 4.42 min Scan# 137
Delta R.T. -0.00 min
Lab File: RLC089.D
Acq: 7 Dec 2020 4:43 pm

Tgt Ion: 49 Resp: 16979

Ion	Ratio	Lower	Upper
49	100		
84	82.8	60.1	120.1
86	54.9	27.5	87.5

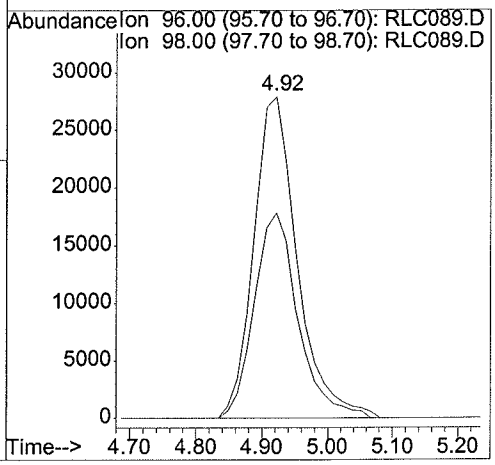


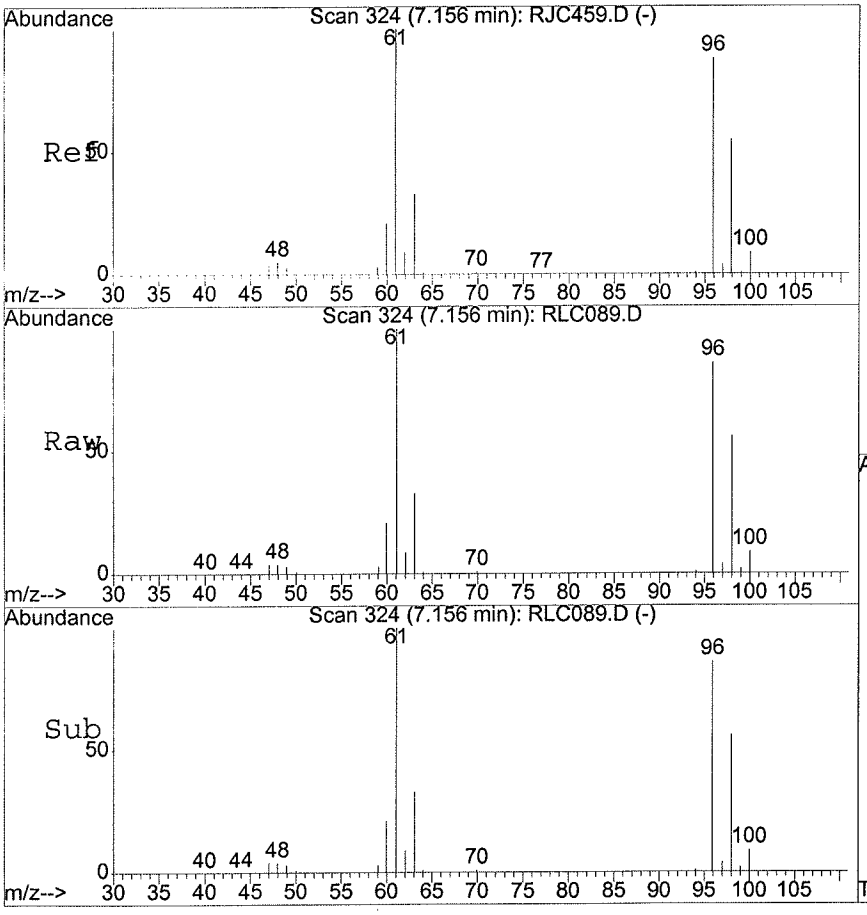


#23
trans-1,2-Dichloroethene
Concen: 1.16 ug/l
RT: 4.92 min Scan# 171
Delta R.T. -0.00 min
Lab File: RLC089.D
Acq: 7 Dec 2020 4:43 pm

Tgt Ion: 96 Resp: 127918

Ion	Ratio	Lower	Upper
96	100		
98	64.5	32.6	92.6

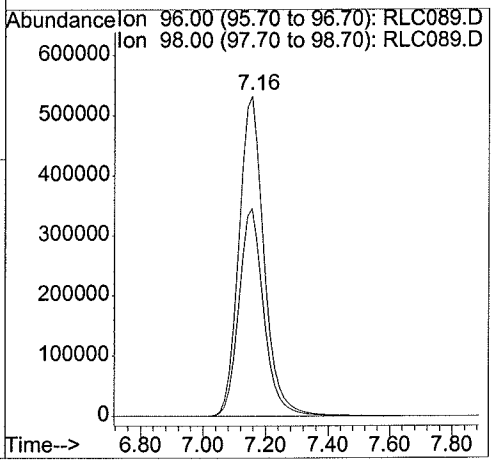


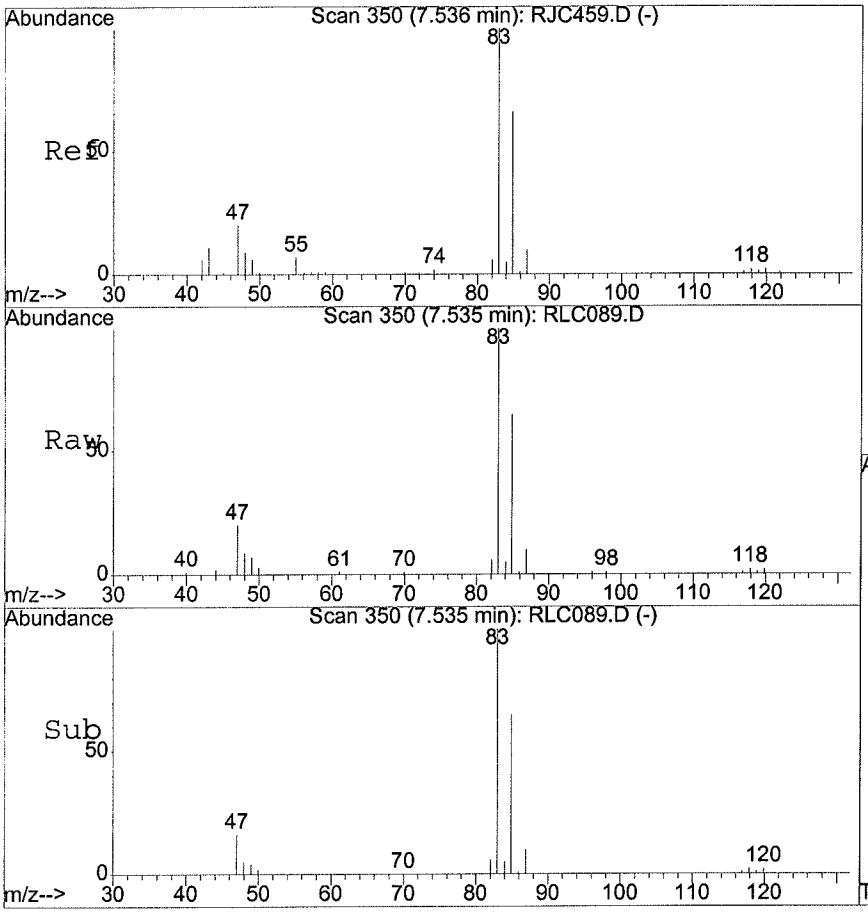


#31
cis-1,2-Dichloroethene
Concen: 27.67 ug/l
RT: 7.16 min Scan# 324
Delta R.T. -0.00 min
Lab File: RLC089.D
Acq: 7 Dec 2020 4:43 pm

Tgt Ion: 96 Resp: 2980932

Ion	Ratio	Lower	Upper
96	100		
98	64.4	33.5	93.5

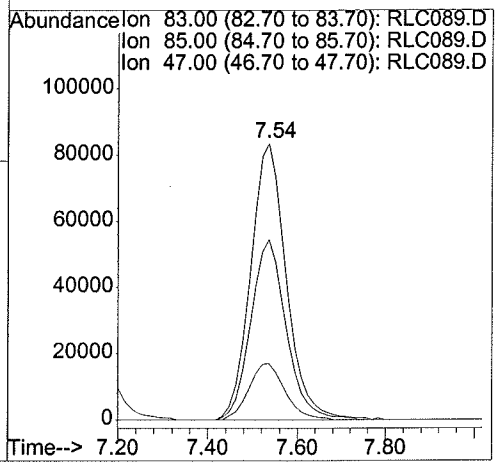


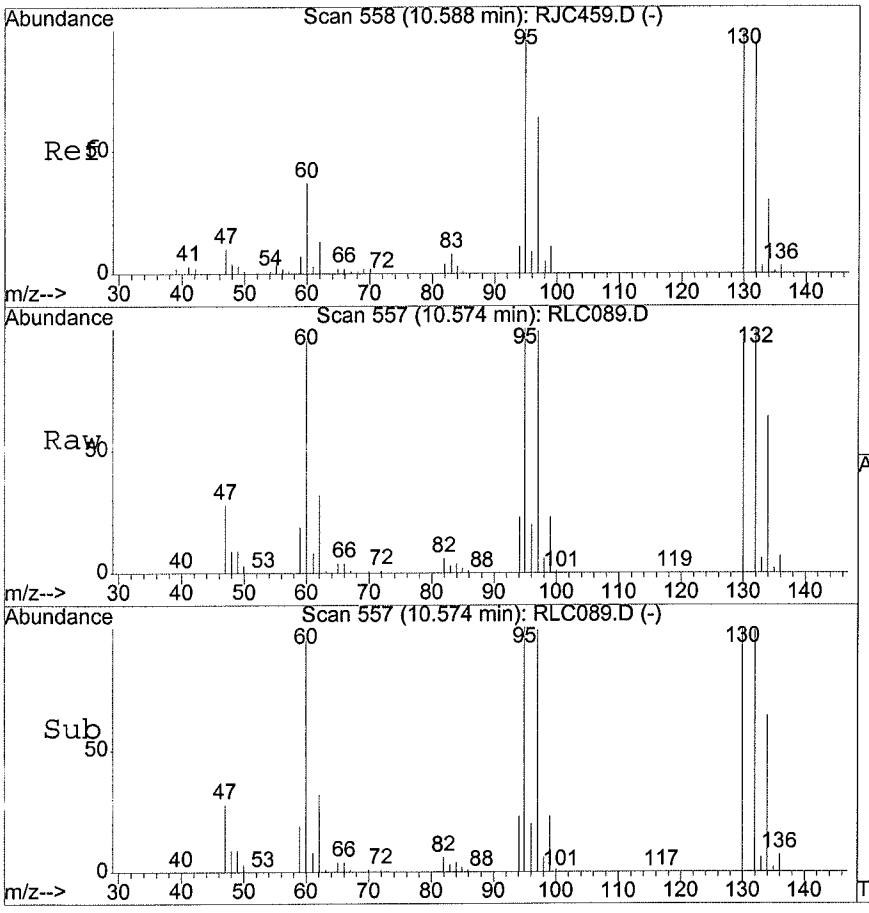


#32
Chloroform
Concen: 3.01 ug/l
RT: 7.54 min Scan# 350
Delta R.T. -0.00 min
Lab File: RLC089.D
Acq: 7 Dec 2020 4:43 pm

Tgt Ion: 83 Resp: 480579

Ion	Ratio	Lower	Upper
83	100		
85	64.9	37.8	97.8
47	19.8	0.0	50.5

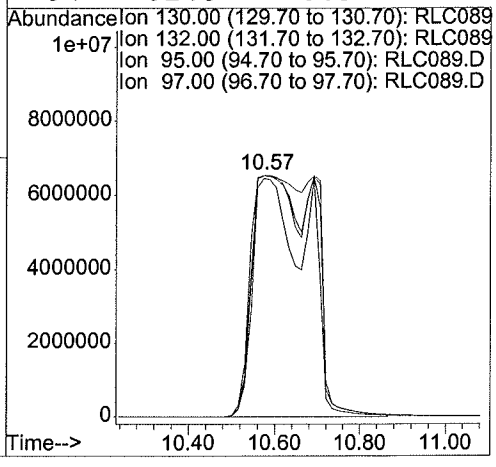


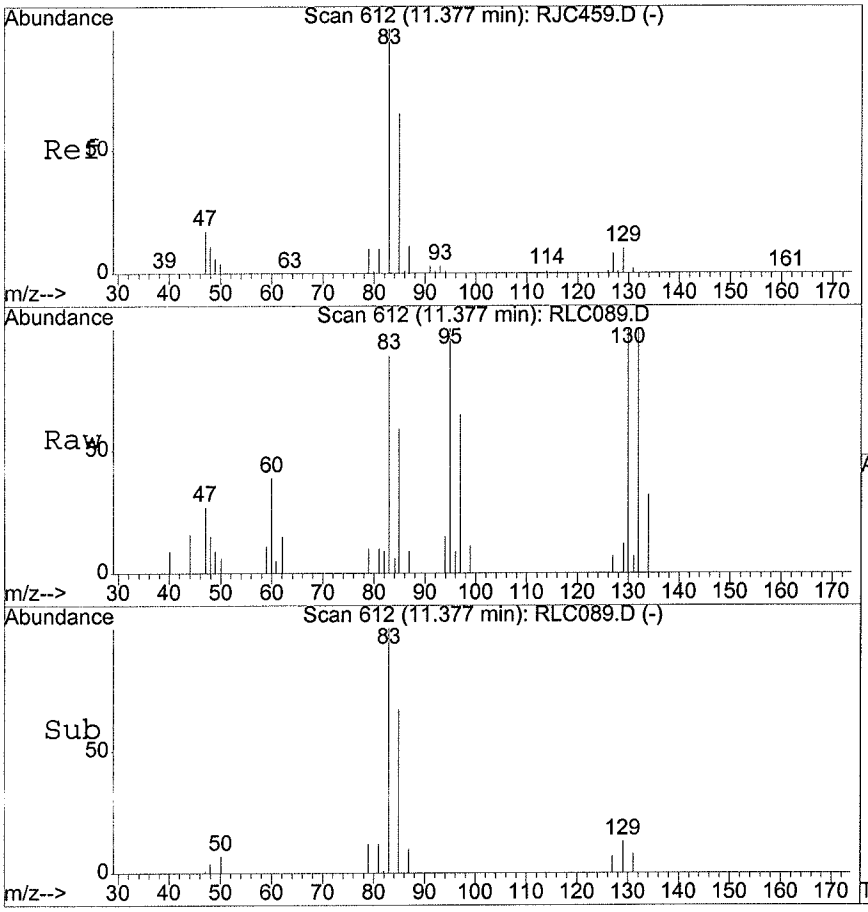


#46
Trichloroethene
Concen: 680.21 ug/l m
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC089.D
Acq: 7 Dec 2020 4:43 pm

Tgt Ion:130 Resp:65876615

Ion	Ratio	Lower	Upper
130	100		
132	70.7	65.5	125.5
95	76.6	73.3	133.3
97	62.9	40.9	100.9

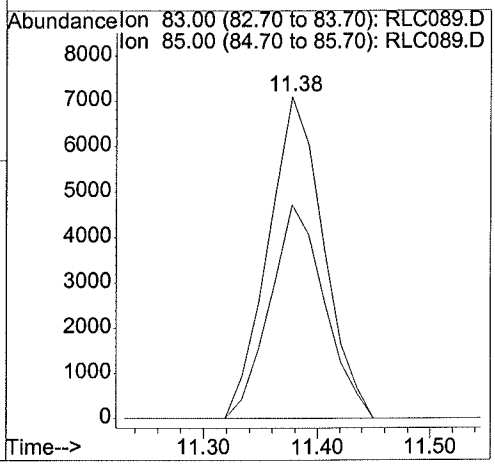


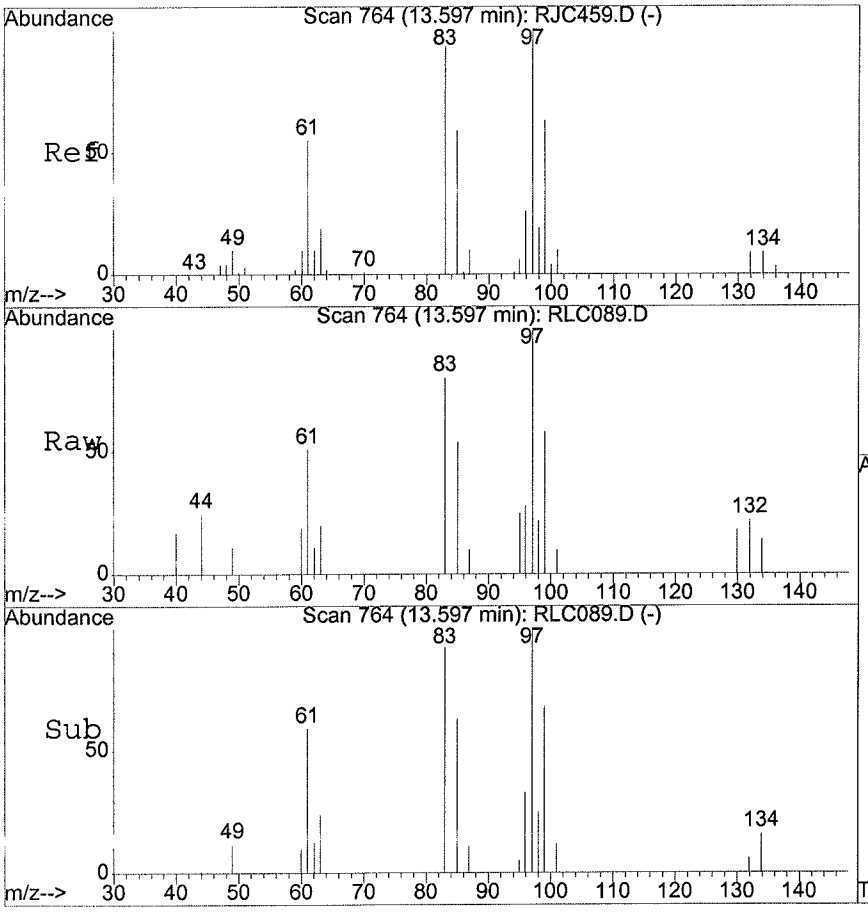


#49
Bromodichloromethane
Concen: 0.25 ug/l
RT: 11.38 min Scan# 612
Delta R.T. 0.00 min
Lab File: RLC089.D
Acq: 7 Dec 2020 4:43 pm

Tgt Ion: 83 Resp: 24127

Ion	Ratio	Lower	Upper
83	100		
85	65.9	34.3	94.3

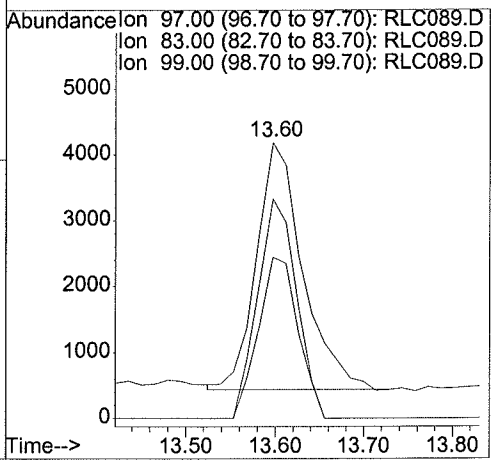


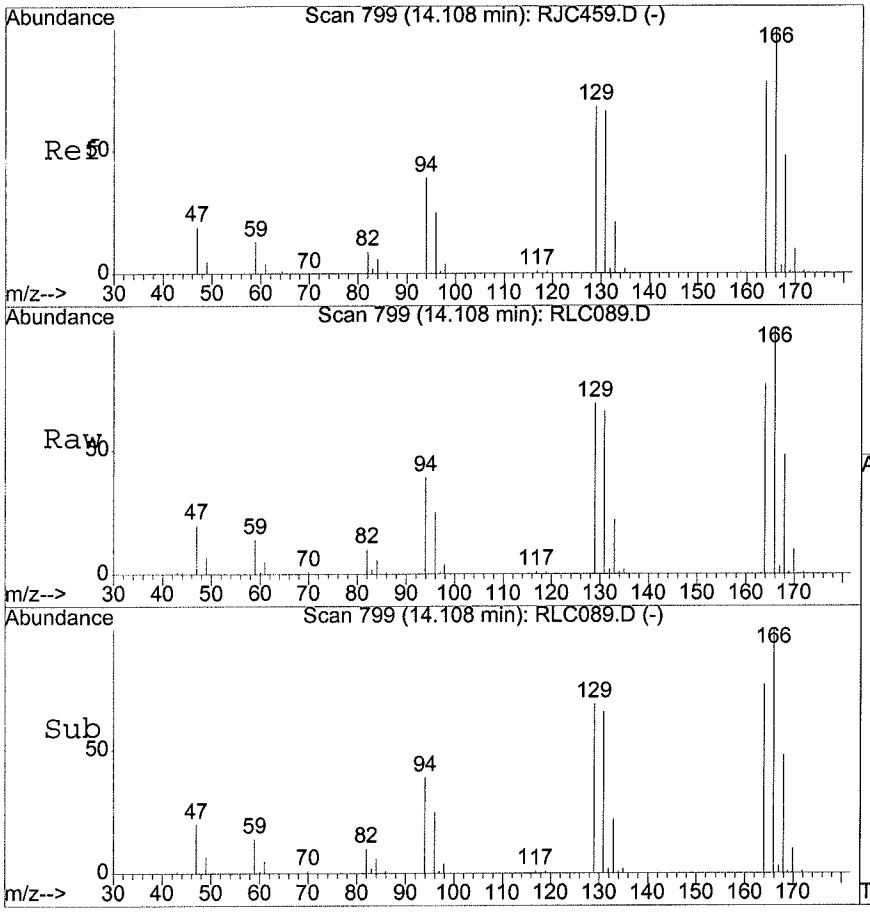


#60
1,1,2-Trichloroethane
Concen: 0.30 ug/l
RT: 13.60 min Scan# 764
Delta R.T. 0.00 min
Lab File: RLC089.D
Acq: 7 Dec 2020 4:43 pm

Tgt Ion: 97 Resp: 13537

Ion	Ratio	Lower	Upper
97	100		
83	74.4	60.6	120.6
99	55.9	33.2	93.2

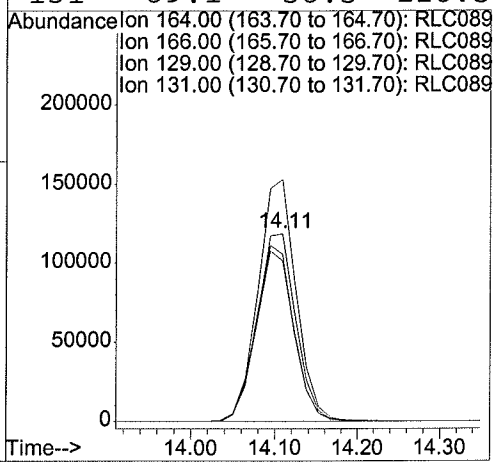


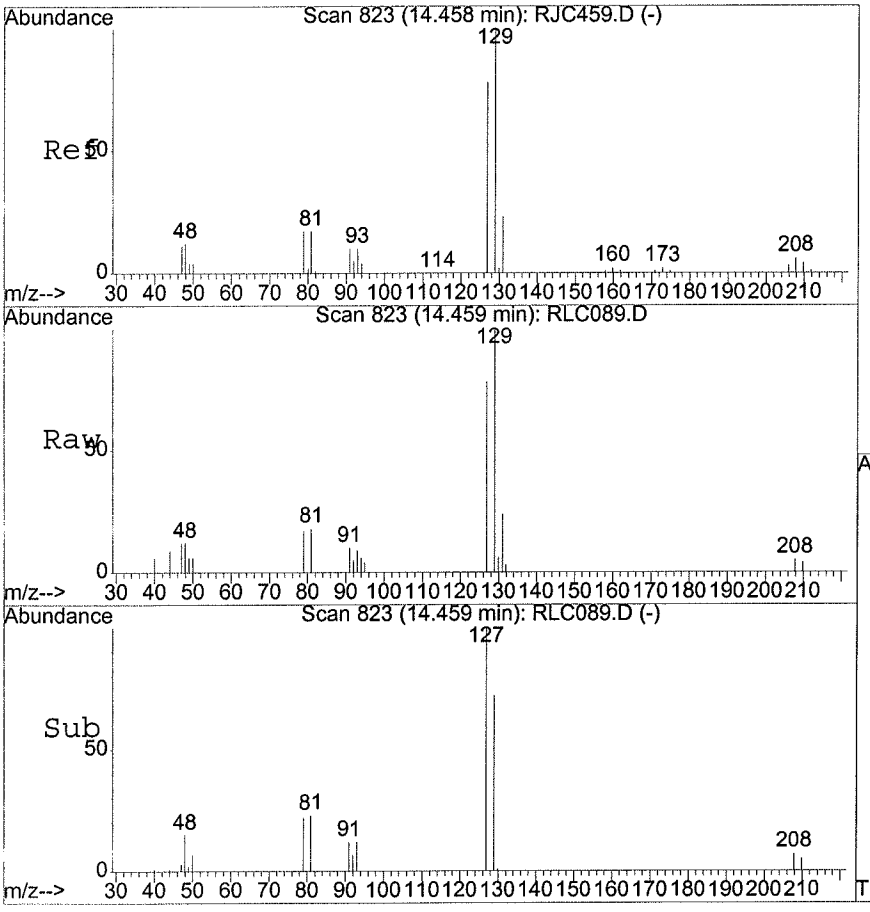


#63
Tetrachloroethene
Concen: 5.21 ug/l
RT: 14.11 min Scan# 799
Delta R.T. 0.00 min
Lab File: RLC089.D
Acq: 7 Dec 2020 4:43 pm

Tgt Ion:164 Resp: 380610

Ion	Ratio	Lower	Upper
164	100		
166	127.2	97.5	157.5
129	92.3	61.9	121.9
131	89.1	58.5	118.5

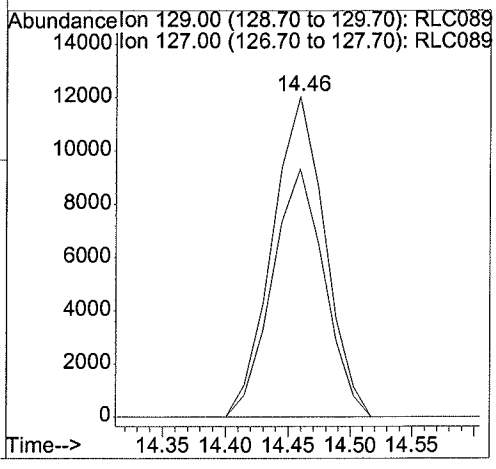


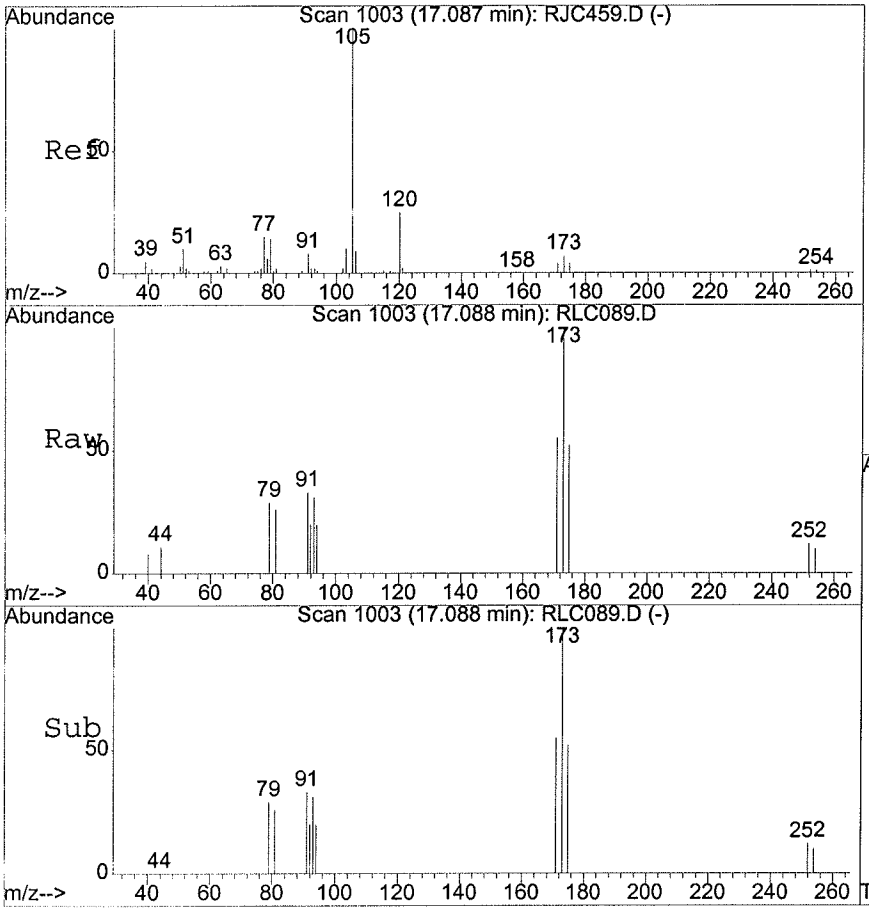


#64
Dibromochloromethane
Concen: 0.66 ug/l
RT: 14.46 min Scan# 823
Delta R.T. 0.00 min
Lab File: RLC089.D
Acq: 7 Dec 2020 4:43 pm

Tgt Ion:129 Resp: 35415

Ion	Ratio	Lower	Upper
129	100		
127	76.9	47.4	107.4

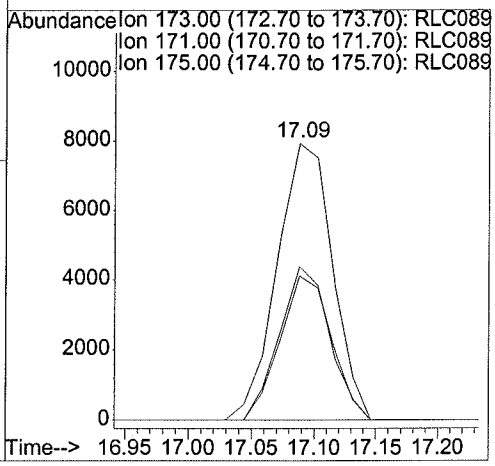




#75
Bromoform
Concen: 1.01 ug/l
RT: 17.09 min Scan# 1003
Delta R.T. 0.00 min
Lab File: RLC089.D
Acq: 7 Dec 2020 4:43 pm

Tgt Ion:173 Resp: 24539

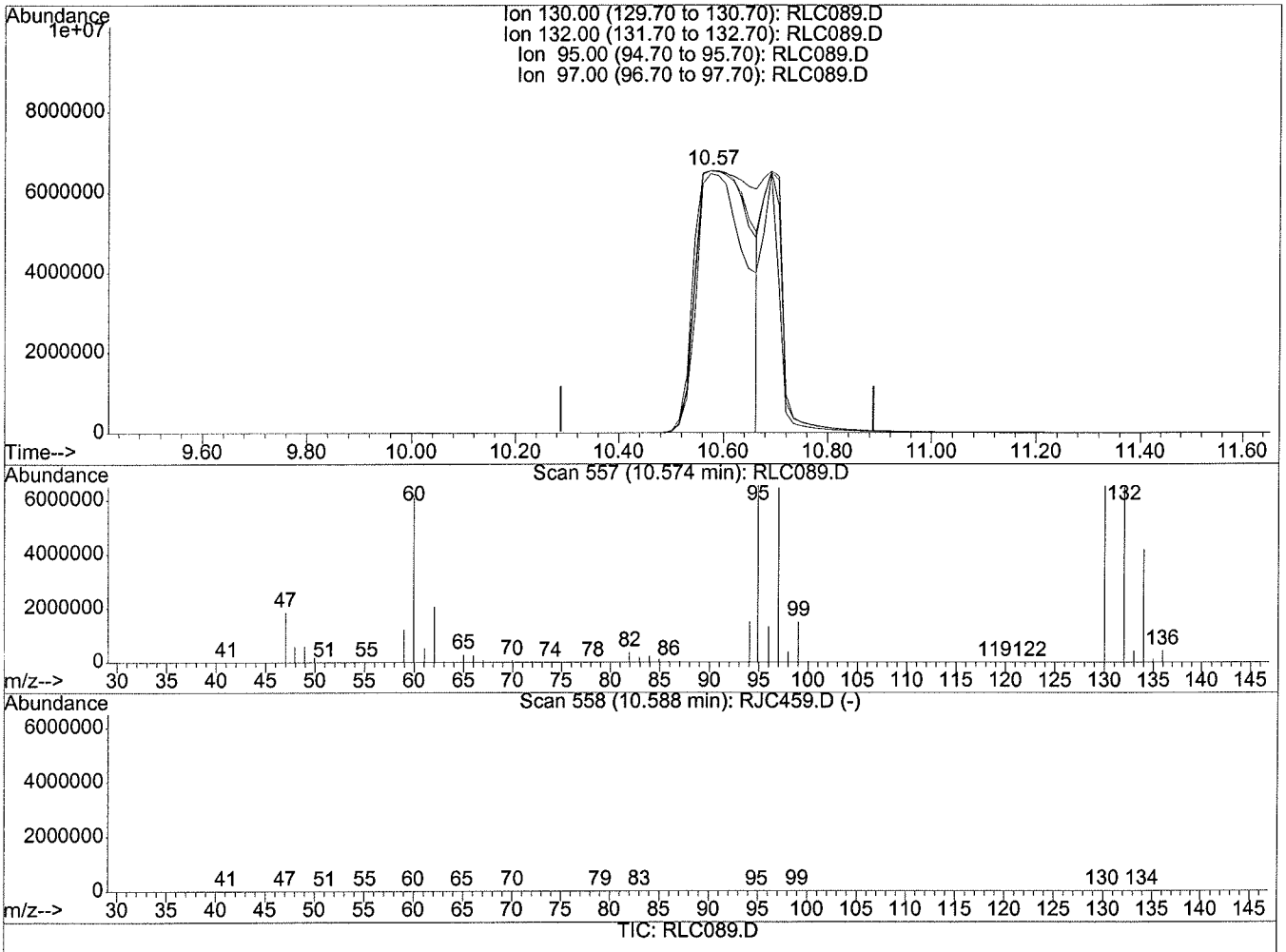
Ion	Ratio	Lower	Upper
173	100		
171	50.2	21.3	81.3
175	48.4	18.8	78.8



Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC089.D Vial: 14
Acq On : 7 Dec 2020 4:43 pm Operator: VLu
Sample : 20L041-05 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:56 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC089.D

(46) Trichloroethene (T,M)

10.57min 488.12ug/l

response 47272993

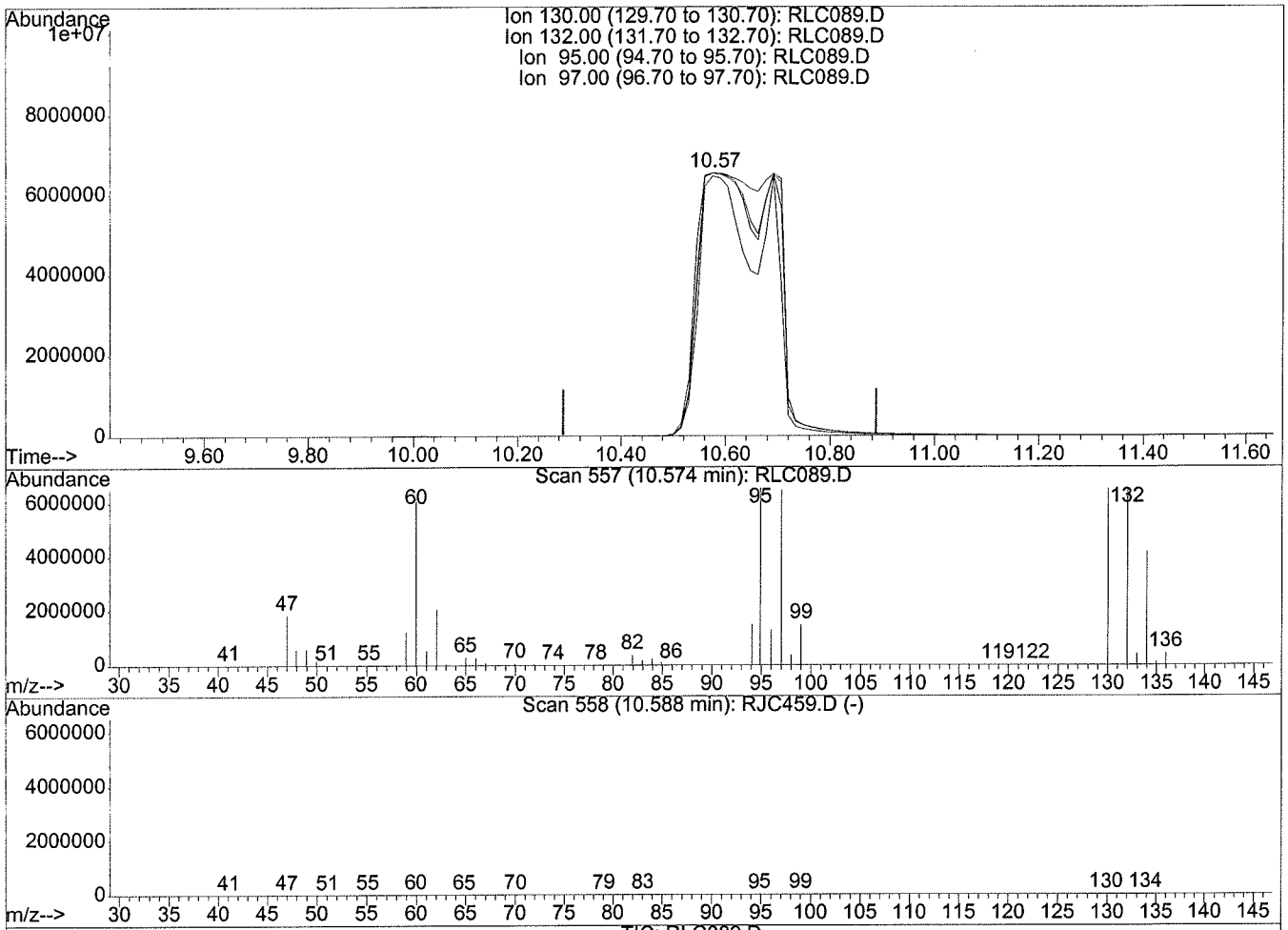
Ion	Exp%	Act%
130.00	100	100
132.00	95.50	98.53
95.00	103.30	106.69
97.00	70.90	87.69

RLC089.D VO67J30.M Tue Dec 08 11:56:59 2020

Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC089.D Vial: 14
Acq On : 7 Dec 2020 4:43 pm Operator: VLu
Sample : 20L041-05 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:57 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC089.D

(46) Trichloroethene (T,M)

10.57min 680.21ug/l m

response 65876615

Ion	Exp%	Act%
130.00	100	100
132.00	95.50	70.71
95.00	103.30	76.56
97.00	70.90	62.93

☐ Incorrect Retention Time
☐ Incorrect Baseline
☑ Incorrect Integration ✓
☐ Other

Initials VL 12/8/20

Sig 12/14/20

RLC089.D VO67J30.M Tue Dec 08 11:57:02 2020

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected:	12/02/20
Project	: VAFB-SS003	Date Received:	12/04/20
Batch No.	: 20L041	Date Extracted:	12/08/20 14:43
Sample ID:	SS003-DUP1(120220)DL	Date Analyzed:	12/08/20 14:43
Lab Samp ID:	L041-05I	Dilution Factor:	250
Lab File ID:	RLC114	Matrix	: WATER
Ext Btch ID:	V067L06	% Moisture	: NA
Calib. Ref.:	RJC459	Instrument ID	: 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	120	25	50
1,1,1-TRICHLOROETHANE	ND	250	25	50
1,1,2,2-TETRACHLOROETHANE	ND	250	2B	50
1,1,2-TRICHLOROETHANE	ND	250	25	50
1,1-DICHLOROETHANE	ND	250	25	50
1,1-DICHLOROETHENE	ND	250	25	50
1,1-DICHLOROPROPENE	ND	250	25	50
1,2,3-TRICHLOROBENZENE	ND	250	37	75
1,2,3-TRICHLOROPROPANE	ND	500	62	120
1,2,4-TRICHLOROBENZENE	ND	250	37	75
1,2,4-TRIMETHYLBENZENE	ND	250	28	50
1,2-DIBROMO-3-CHLOROPROPANE	ND	500	62	120
1,2-DIBROMOETHANE	ND	250	25	50
1,2-DICHLOROBENZENE	ND	250	25	50
1,2-DICHLOROETHANE	ND	120	25	50
1,2-DICHLOROPROPANE	ND	250	25	50
1,3,5-TRIMETHYLBENZENE	ND	250	33	50
1,3-DICHLOROBENZENE	ND	250	28	50
1,3-DICHLOROPROPANE	ND	250	25	50
1,4-DICHLOROBENZENE	ND	250	25	50
2,2-DICHLOROPROPANE	ND	250	40	50
2-BUTANONE	ND	2500	500	1000
2-CHLOROTOLUENE	ND	250	30	50
2-HEXANONE	ND	2500	5B0	1000
4-CHLOROTOLUENE	ND	250	28	50
ACETONE	ND	2500	650	1200
BENZENE	ND	250	25	50
BROMOBENZENE	ND	250	25	50
BROMOCHLOROMETHANE	ND	250	28	50
BROMODICHLOROMETHANE	ND	250	25	50
BROMOFORM	ND	250	37	75
BROMOMETHANE	ND	250	40	75
CARBON DISULFIDE	ND	250	25	50
CARBON TETRACHLORIDE	ND	250	25	50
CHLOROBENZENE	ND	250	25	50
CHLOROETHANE	ND	250	67	75
CHLOROFORM	ND	250	25	50
CHLOROMETHANE	ND	250	37	75
CIS-1,2-DICHLOROETHENE	ND	250	25	50
CIS-1,3-DICHLOROPROPENE	ND	250	25	50
DIBROMOCHLOROMETHANE	ND	250	25	50
DICHLORODIFLUOROMETHANE	ND	250	37	75
ETHYLBENZENE	ND	250	25	50
HEXACHLOROBUTADIENE	ND	250	55	75
ISOPROPYL BENZENE	ND	250	25	50
M,P-XYLENES	ND	500	52	100
MIBK	ND	2500	520	1000
METHYLENE CHLORIDE	ND	500	62	120
MTBE	ND	250	33	50
NAPHTHALENE	ND	500	62	120
N-BUTYLBENZENE	ND	250	42	50
N-PROPYLBENZENE	ND	250	33	50
O-XYLENE	ND	250	25	50
P-ISOPROPYLTOLUENE	ND	250	35	50
SEC-BUTYLBENZENE	ND	250	33	50
STYRENE	ND	250	25	50
TERT-BUTYLBENZENE	ND	250	33	50
TETRACHLOROETHENE	ND	250	37	50
TOLUENE	ND	250	25	50
TRANS-1,2-DICHLOROETHENE	ND	250	25	50
TRANS-1,3-DICHLOROPROPENE	ND	250	28	50
TRICHLOROETHENE	3600	250	25	50
TRICHLOROFLUOROMETHANE	ND	250	37	75
VINYL CHLORIDE	ND	120	30	50
VINYL ACETATE	ND	500	62	120
FREON113	ND	250	50	75
TERT-BUTANOL	ND	5000	1200	2500
DIPE	ND	250	25	50
ETBE	ND	250	25	50
TAME	ND	250	25	50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	2210	2500	88.3	70-120
4-BROMOFLUOROBENZENE	2440	2500	97.5	75-120
TOLUENE-D8	2290	2500	91.5	85-120
DIBROMOFLUOROMETHANE	2340	2500	93.7	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC114.D Vial: 10
Acq On : 8 Dec 2020 2:43 pm Operator: VLu
Sample : 20L041-05I 100uL Inst : 67
Misc : DF=250 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:38 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

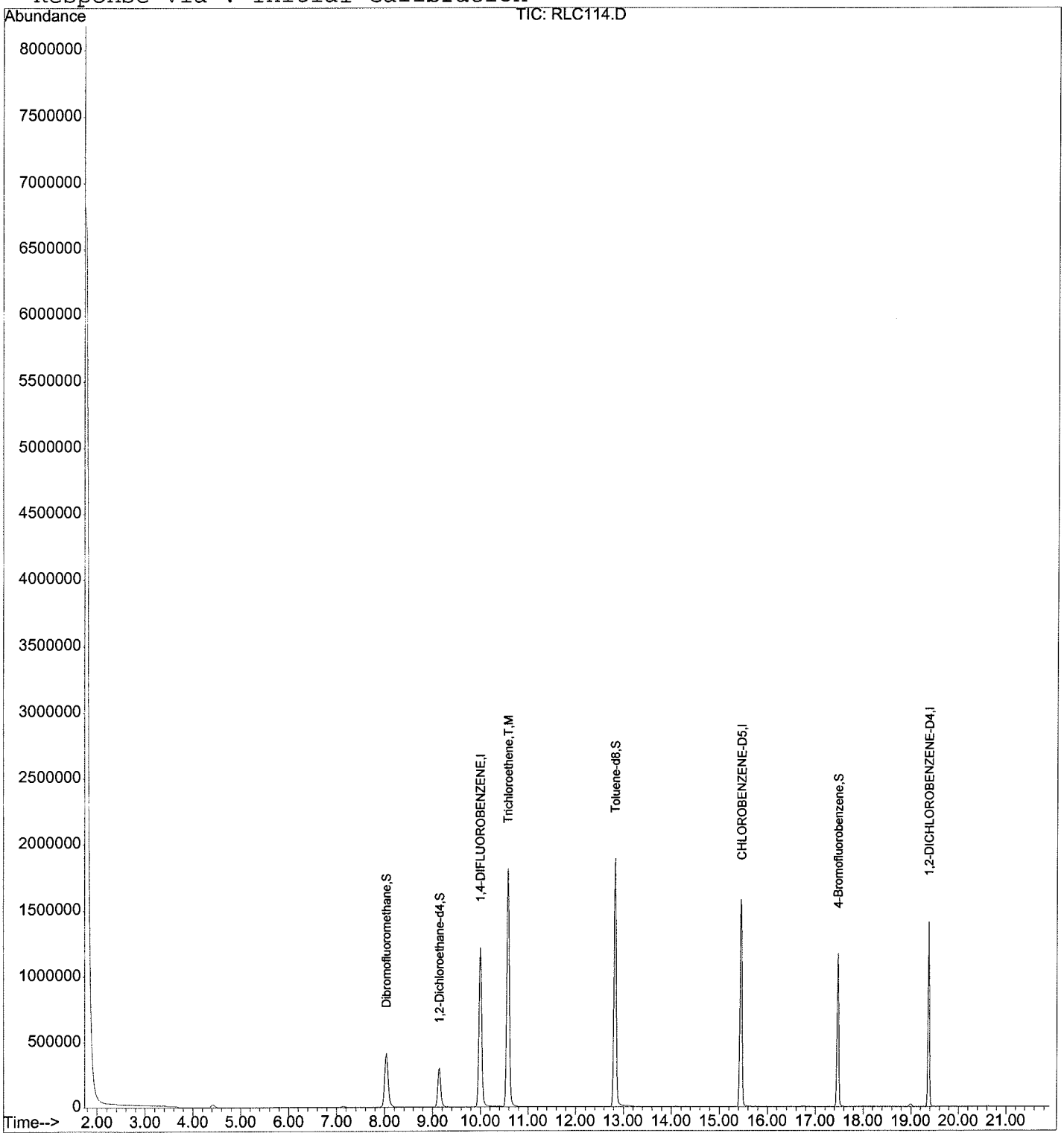
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2264986	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.45	117	1687725	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	483456	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	692812	9.37	ug/l	0.00
Spiked Amount 10.000			Recovery = 93.70%			
43) 1,2-Dichloroethane-d4	9.14	65	417679	8.83	ug/l	0.00
Spiked Amount 10.000			Recovery = 88.30%			
56) Toluene-d8	12.82	98	2357284	9.15	ug/l	0.00
Spiked Amount 10.000			Recovery = 91.50%			
77) 4-Bromofluorobenzene	17.47	95	640476	9.75	ug/l	0.00
Spiked Amount 10.000			Recovery = 97.50%			
Target Compounds						Qvalue
46) Trichloroethene	10.57	130	1261298	14.36	ug/l	98

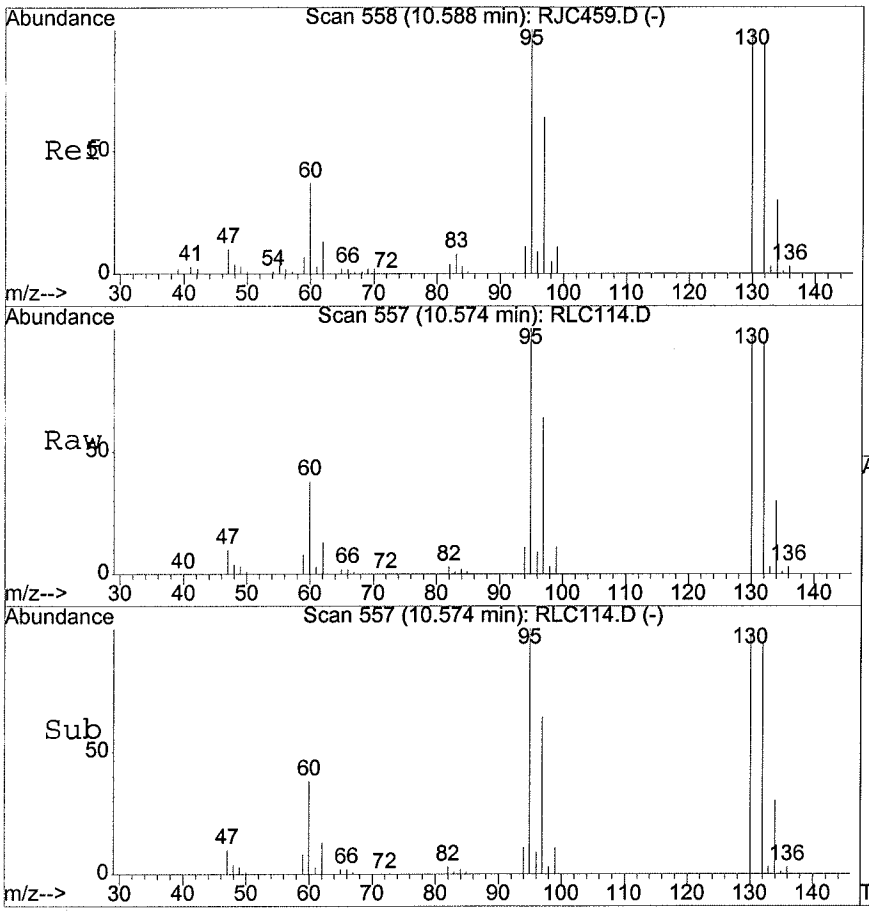
(#) = qualifier out of range (m) = manual integration
RLC114.D VO67J30.M Wed Dec 09 11:38:32 2020 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC114.D Vial: 10
Acq On : 8 Dec 2020 2:43 pm Operator: VLu
Sample : 20L041-05I 100uL Inst : 67
Misc : DF=250 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:38 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

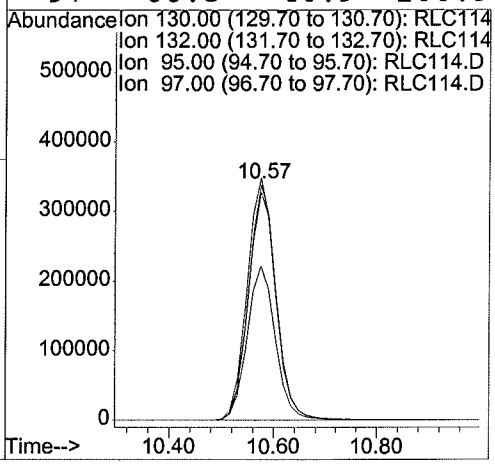




#46
Trichloroethene
Concen: 14.36 ug/l
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC114.D
Acq: 8 Dec 2020 2:43 pm

Tgt Ion:130 Resp: 1261298

Ion	Ratio	Lower	Upper
130	100		
132	97.3	65.5	125.5
95	104.0	73.3	133.3
97	66.3	40.9	100.9



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected	: 12/03/20
Project	: VAFB-SS003	Date Received	: 12/04/20
Batch No.	: 20L041	Date Extracted	: 12/07/20 17:09 # 12/08/20 15:08
Sample ID	: 3-MW-57(120320)	Date Analyzed	: 12/07/20 17:09 # 12/08/20 15:08
Lab Samp ID	: L041-06 #L041-06I	Dilution Factor	: 1 # 250
Lab File ID	: RLC090 #RLC115	Matrix	: WATER
Ext Btch ID	: V067L05 #V067L06	% Moisture	: NA
Calib. Ref.	: RJC459 #RJC459	Instrument ID	: 67

	PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
	1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
	1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
	1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
	1,1,2-TRICHLOROETHANE	0.46J	1.0	0.10	0.20
	1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
	1,1-DICHLOROETHENE	0.56J	1.0	0.10	0.20
	1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
	1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
	1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
	1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
	1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
	1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
	1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
	1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
	1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
	1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
	2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
	2-BUTANONE	ND	10	2.0	4.0
	2-CHLOROTOLUENE	ND	1.0	0.12	0.20
	2-HEXANONE	ND	10	2.3	4.0
	4-CHLOROTOLUENE	ND	1.0	0.11	0.20
	ACETONE	ND	10	2.6	5.0
	BENZENE	ND	1.0	0.10	0.20
	BROMOBENZENE	ND	1.0	0.10	0.20
	BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
	BROMODICHLOROMETHANE	ND	1.0	0.10	0.20
	BROMOFORM	ND	1.0	0.15	0.30
	BROMOMETHANE	ND	1.0	0.16	0.30
	CARBON DISULFIDE	0.14J	1.0	0.10	0.20
	CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
	CHLOROBENZENE	0.25J	1.0	0.10	0.20
	CHLOROETHANE	ND	1.0	0.27	0.30
	CHLOROFORM	0.71J	1.0	0.10	0.20
	CHLOROMETHANE	ND	1.0	0.15	0.30
	CIS-1,2-DICHLOROETHENE	6.4	1.0	0.10	0.20
	CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
	DIBROMOCHLOROMETHANE	ND	1.0	0.10	0.20
	DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
	ETHYLBENZENE	ND	1.0	0.10	0.20
	HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
	ISOPROPYL BENZENE	ND	1.0	0.10	0.20
	M,P-XYLENES	ND	2.0	0.21	0.40
	MIBK	ND	10	2.1	4.0
	METHYLENE CHLORIDE	ND	2.0	0.25	0.50
	MTBE	ND	1.0	0.13	0.20
	NAPHTHALENE	ND	2.0	0.25	0.50
	N-BUTYLBENZENE	ND	1.0	0.17	0.20
	N-PROPYLBENZENE	ND	1.0	0.13	0.20
	O-XYLENE	ND	1.0	0.10	0.20
	P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
	SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
	STYRENE	ND	1.0	0.10	0.20
	TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
	TETRACHLOROETHENE	1.2	1.0	0.15	0.20
	TOLUENE	ND	1.0	0.10	0.20
	TRANS-1,2-DICHLOROETHENE	0.17J	1.0	0.10	0.20
	TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
#	TRICHLOROETHENE	2700	250	25	50
	TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
	VINYL CHLORIDE	ND	0.50	0.12	0.20
	VINYL ACETATE	ND	2.0	0.25	0.50
	FREON113	ND	1.0	0.20	0.30
	TERT-BUTANOL	ND	20	5.0	10
	DIPE	ND	1.0	0.10	0.20
	ETBE	ND	1.0	0.10	0.20
	TAME	ND	1.0	0.10	0.20

	SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
	1,2-DICHLOROETHANE-D4	8.89	10.00	88.9	70-120
	4-BROMOFLUOROBENZENE	9.54	10.00	95.4	75-120
	TOLUENE-D8	9.07	10.00	90.7	85-120
	DIBROMOFLUOROMETHANE	9.37	10.00	93.7	85-115
#	1,2-DICHLOROETHANE-D4	2190	2500	87.8	70-120
#	4-BROMOFLUOROBENZENE	2460	2500	98.5	75-120
#	TOLUENE-D8	2290	2500	91.7	85-120
#	DIBROMOFLUOROMETHANE	2350	2500	93.9	85-115

Members of the Associated File

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/03/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/07/20 17:09
Sample ID: 3-MW-57(120320)	Date Analyzed: 12/07/20 17:09
Lab Samp ID: L041-06	Dilution Factor: 1
Lab File ID: RLC090	Matrix : WATER
Ext Btch ID: V067L05	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	0.46J	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	0.56J	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	ND	10	2.6	5.0
BENZENE	ND	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	ND	1.0	0.10	0.20
BROMOFORM	ND	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	0.14J	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	0.25J	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	0.71J	1.0	0.10	0.20
CHLOROMETHANE	ND	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	6.4	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	ND	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	ND	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	ND	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	1.2	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	0.17J	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	650E	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	ND	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.89	10.00	88.9	70-120
4-BROMOFLUOROBENZENE	9.54	10.00	95.4	75-120
TOLUENE-D8	9.07	10.00	90.7	85-120
DIBROMOFLUOROMETHANE	9.37	10.00	93.7	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC090.D Vial: 15
Acq On : 7 Dec 2020 5:09 pm Operator: VLu
Sample : 20L041-06 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:59 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

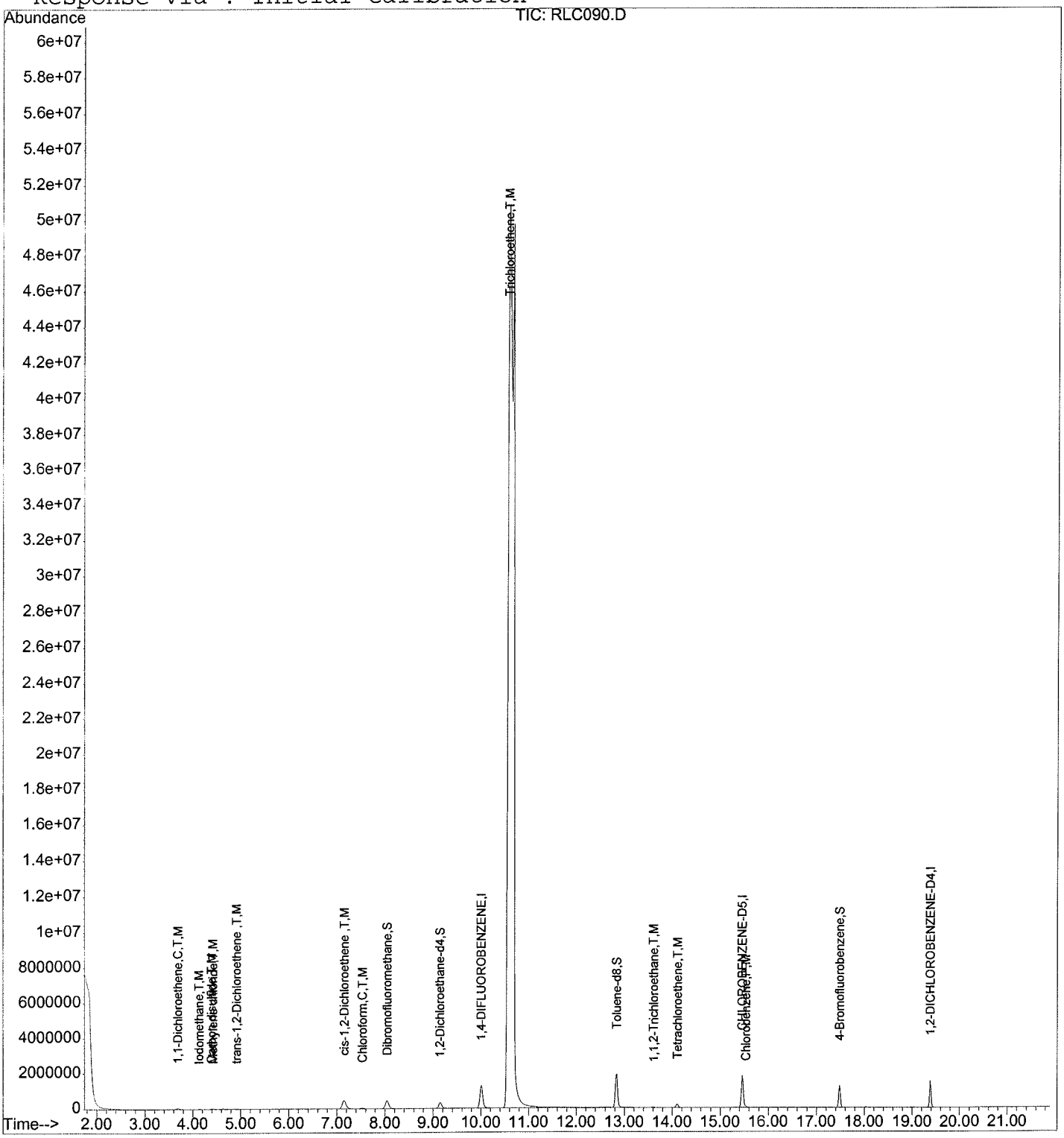
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2422878	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1803676	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	531503	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	741713	9.37	ug/l	0.02
Spiked Amount 10.000			Recovery =	93.70%		
43) 1,2-Dichloroethane-d4	9.14	65	450207	8.89	ug/l	0.00
Spiked Amount 10.000			Recovery =	88.90%		
56) Toluene-d8	12.84	98	2497379	9.07	ug/l	0.02
Spiked Amount 10.000			Recovery =	90.70%		
77) 4-Bromofluorobenzene	17.48	95	689410	9.54	ug/l	0.02
Spiked Amount 10.000			Recovery =	95.40%		
Target Compounds						Qvalue
14) 1,1-Dichloroethene	3.69	61	83910	0.56	ug/l	98
17) Iodomethane	4.13	142	18334	0.14	ug/l	94
19) Methylene chloride	4.42	49	23889	0.23	ug/l	94
20) Carbon disulfide	4.39	76	53215	0.14	ug/l	98
23) trans-1,2-Dichloroethene	4.92	96	18229	0.17	ug/l	96
31) cis-1,2-Dichloroethene	7.16	96	664066	6.36	ug/l	99
32) Chloroform	7.53	83	109943	0.71	ug/l	96
46) Trichloroethene	10.57	130	61089682m	650.34	ug/l E	
60) 1,1,2-Trichloroethane	13.61	97	19758	0.46	ug/l #	64
63) Tetrachloroethene	14.11	164	84136	1.19	ug/l	99
67) Chlorobenzene	15.53	112	49825	0.25	ug/l	99

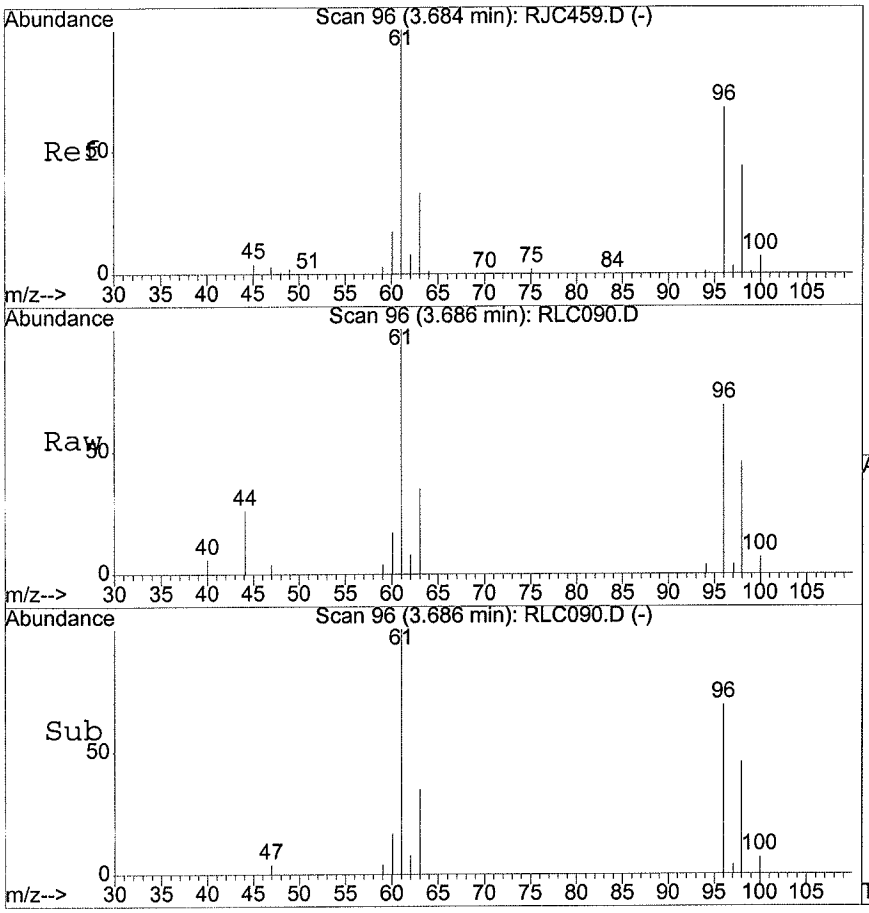
(#) = qualifier out of range (m) = manual integration
RLC090.D VO67J30.M Tue Dec 08 11:59:49 2020 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC090.D Vial: 15
Acq On : 7 Dec 2020 5:09 pm Operator: VLu
Sample : 20L041-06 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:59 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

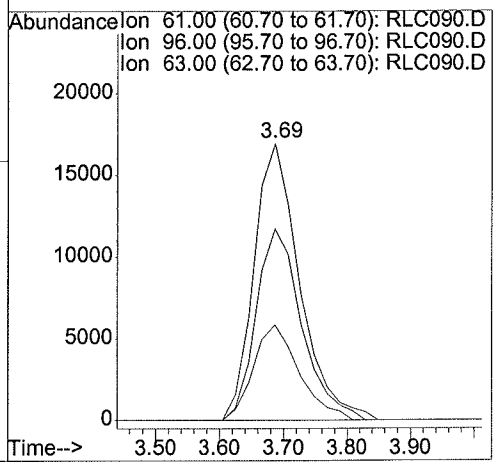


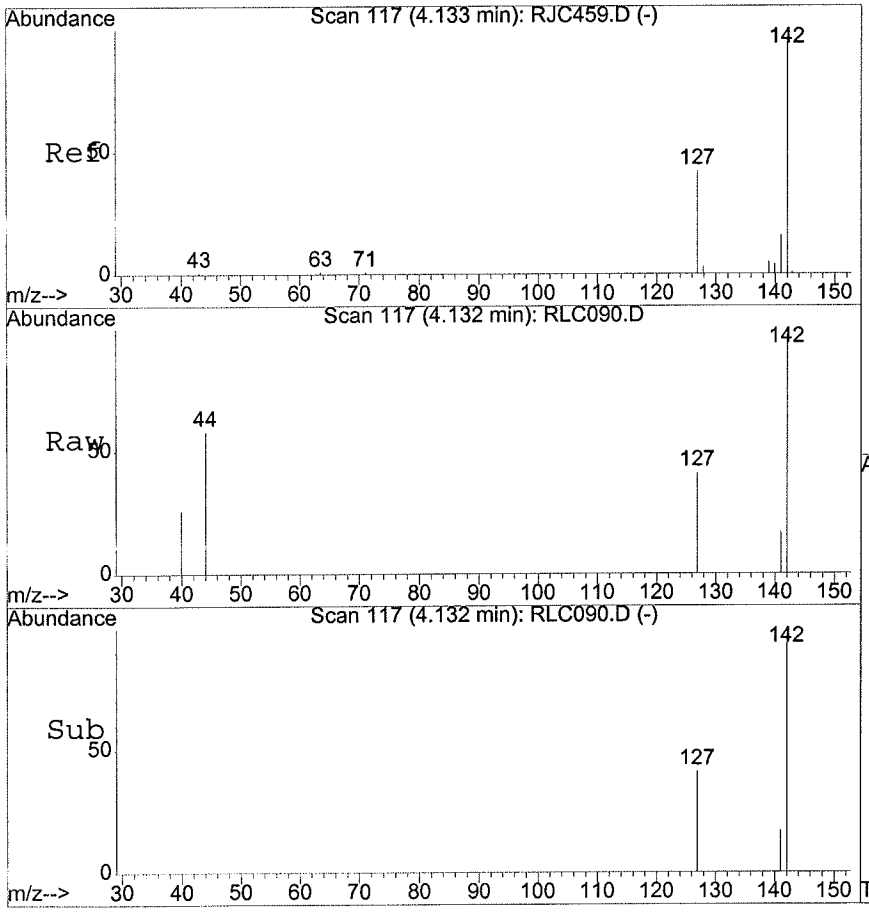


#14
1,1-Dichloroethene
Concen: 0.56 ug/l
RT: 3.69 min Scan# 96
Delta R.T. 0.00 min
Lab File: RLC090.D
Acq: 7 Dec 2020 5:09 pm

Tgt Ion: 61 Resp: 83910

Ion	Ratio	Lower	Upper
61	100		
96	69.4	38.7	98.7
63	34.8	2.9	62.9

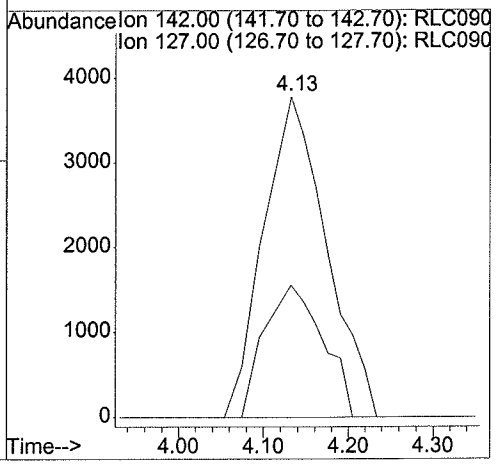


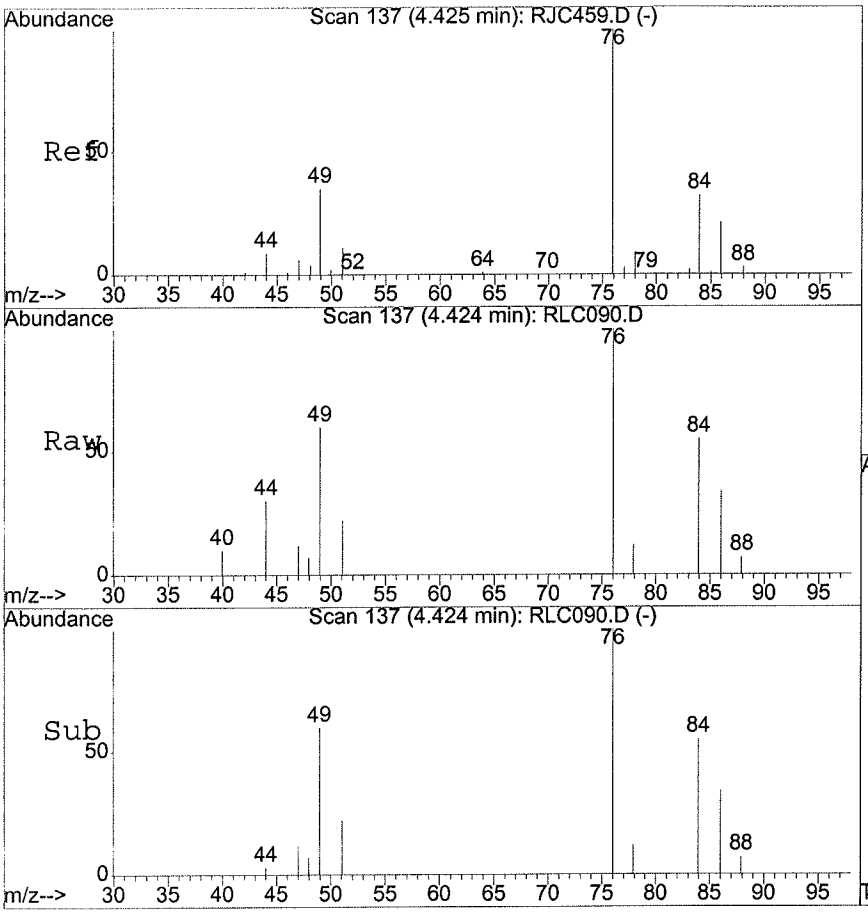


#17
Iodomethane
Concen: 0.14 ug/l
RT: 4.13 min Scan# 117
Delta R.T. -0.00 min
Lab File: RLC090.D
Acq: 7 Dec 2020 5:09 pm

Tgt Ion:142 Resp: 18334

Ion	Ratio	Lower	Upper
142	100		
127	38.4	12.5	72.5

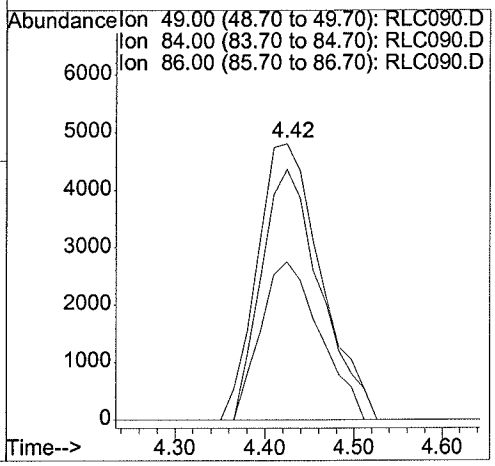


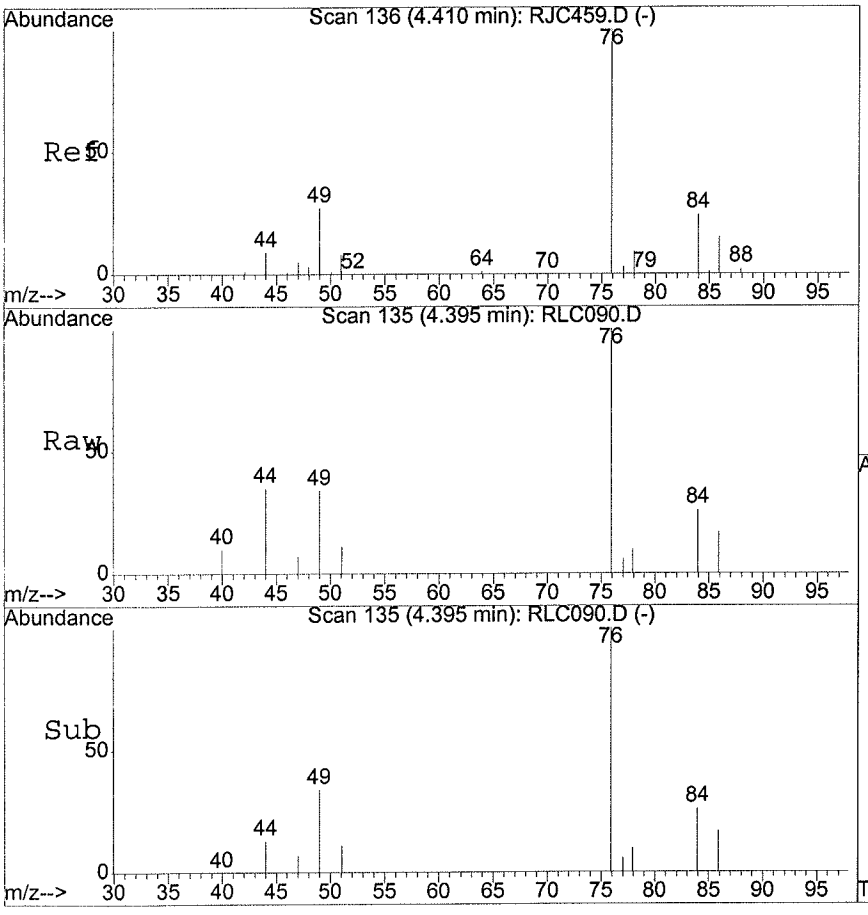


#19
Methylene chloride
Concen: 0.23 ug/l
RT: 4.42 min Scan# 137
Delta R.T. -0.00 min
Lab File: RLC090.D
Acq: 7 Dec 2020 5:09 pm

Tgt Ion: 49 Resp: 23889

Ion	Ratio	Lower	Upper
49	100		
84	84.1	60.1	120.1
86	53.1	27.5	87.5

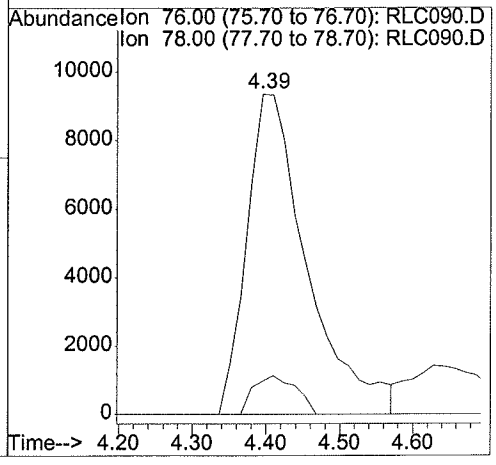


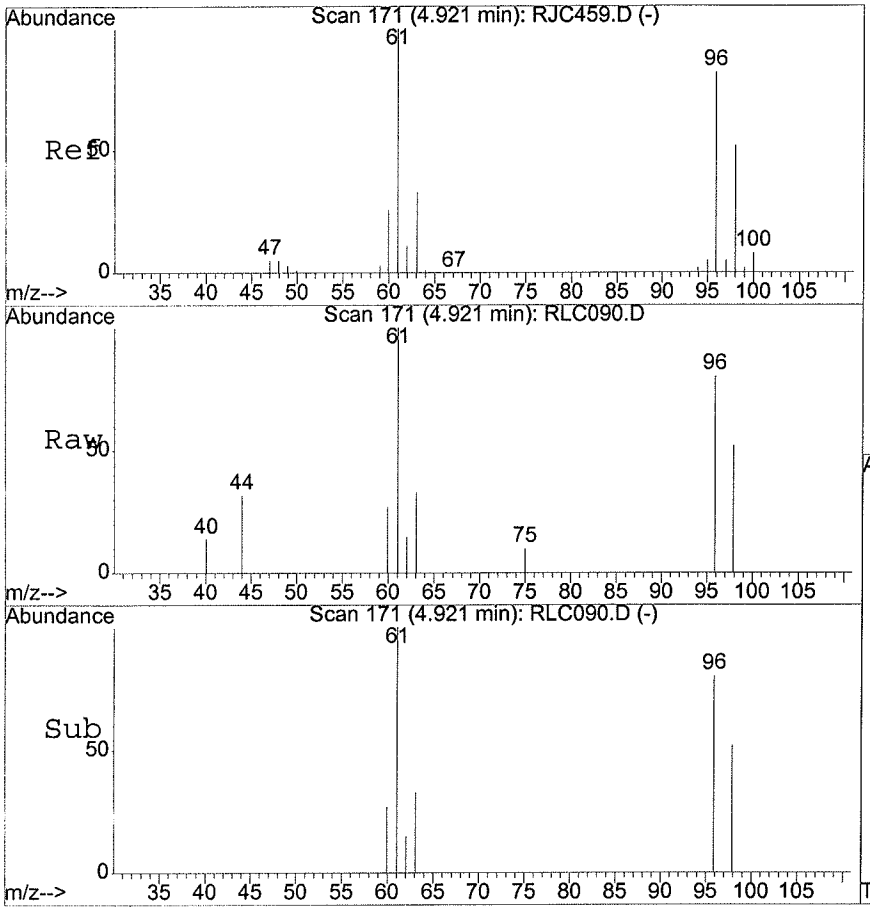


#20
Carbon disulfide
Concen: 0.14 ug/l
RT: 4.39 min Scan# 135
Delta R.T. -0.02 min
Lab File: RLC090.D
Acq: 7 Dec 2020 5:09 pm

Tgt Ion: 76 Resp: 53215

Ion	Ratio	Lower	Upper
76	100		
78	8.5	0.0	39.1

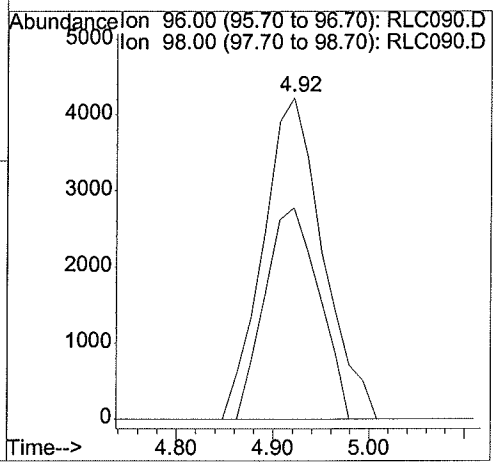


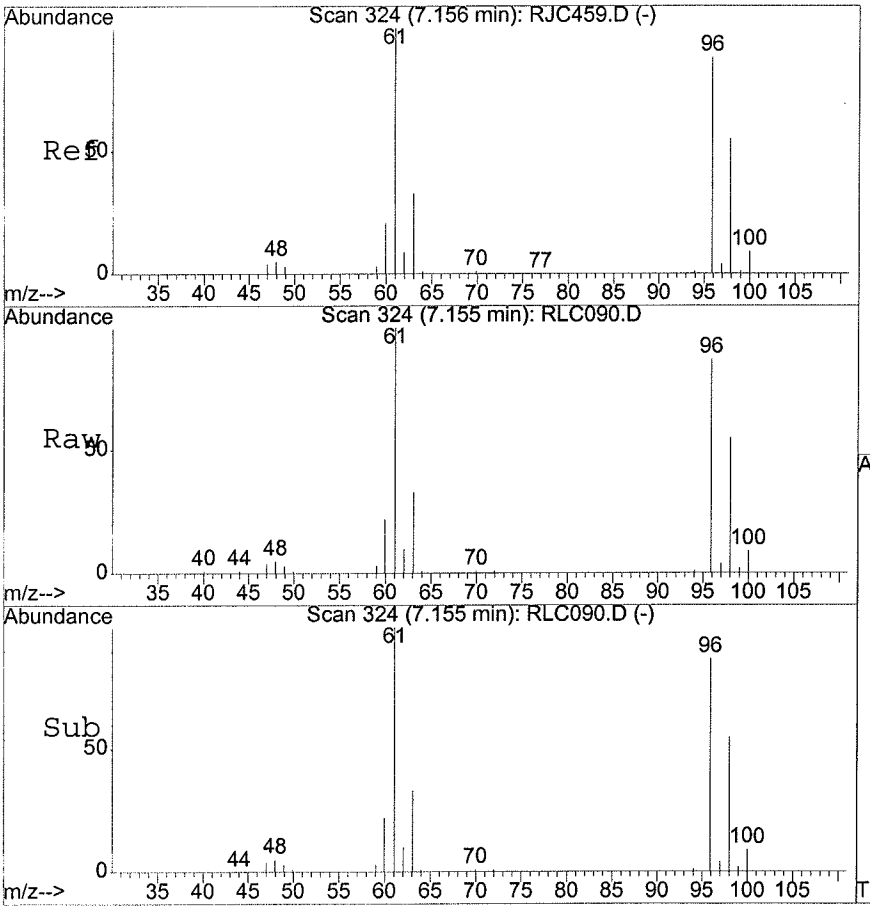


#23
trans-1,2-Dichloroethene
Concen: 0.17 ug/l
RT: 4.92 min Scan# 171
Delta R.T. -0.00 min
Lab File: RLC090.D
Acq: 7 Dec 2020 5:09 pm

Tgt Ion: 96 Resp: 18229

Ion	Ratio	Lower	Upper
96	100		
98	59.7	32.6	92.6

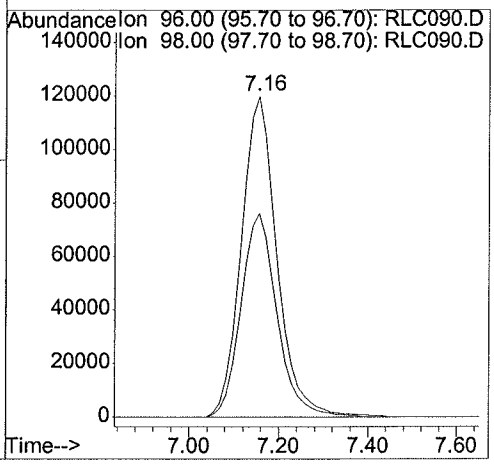


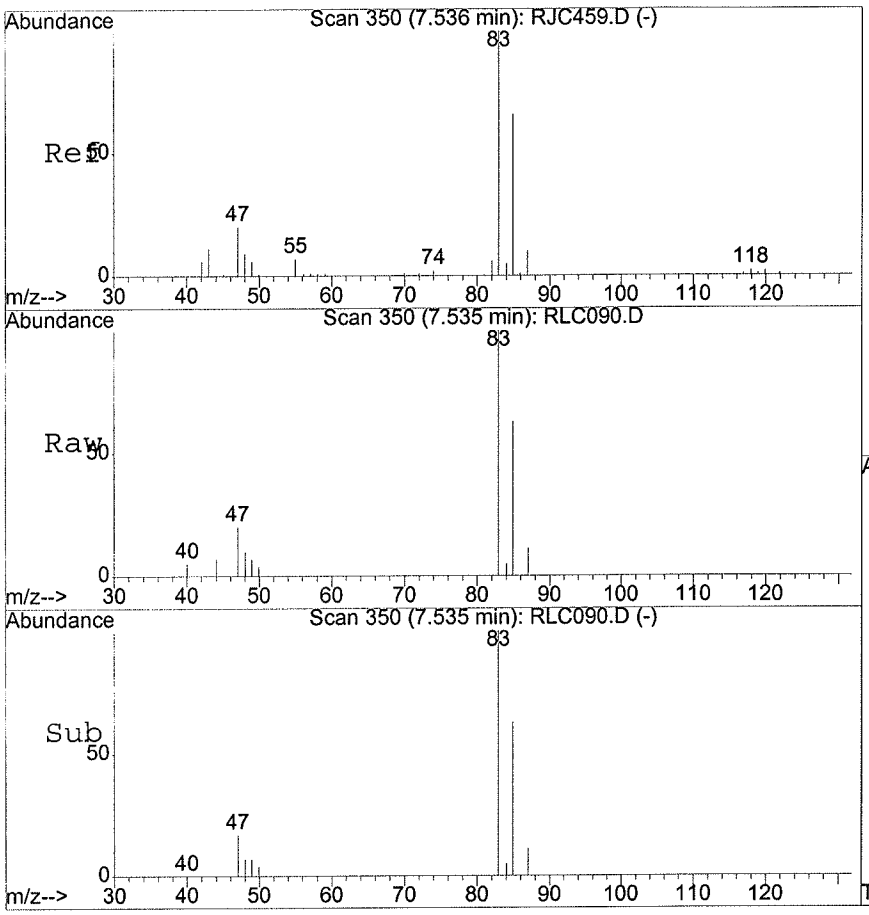


#31
cis-1,2-Dichloroethene
Concen: 6.36 ug/l
RT: 7.16 min Scan# 324
Delta R.T. -0.00 min
Lab File: RLC090.D
Acq: 7 Dec 2020 5:09 pm

Tgt Ion: 96 Resp: 664066

Ion	Ratio	Lower	Upper
96	100		
98	64.0	33.5	93.5

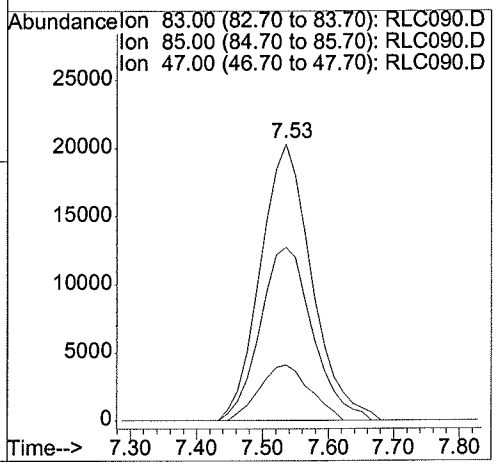


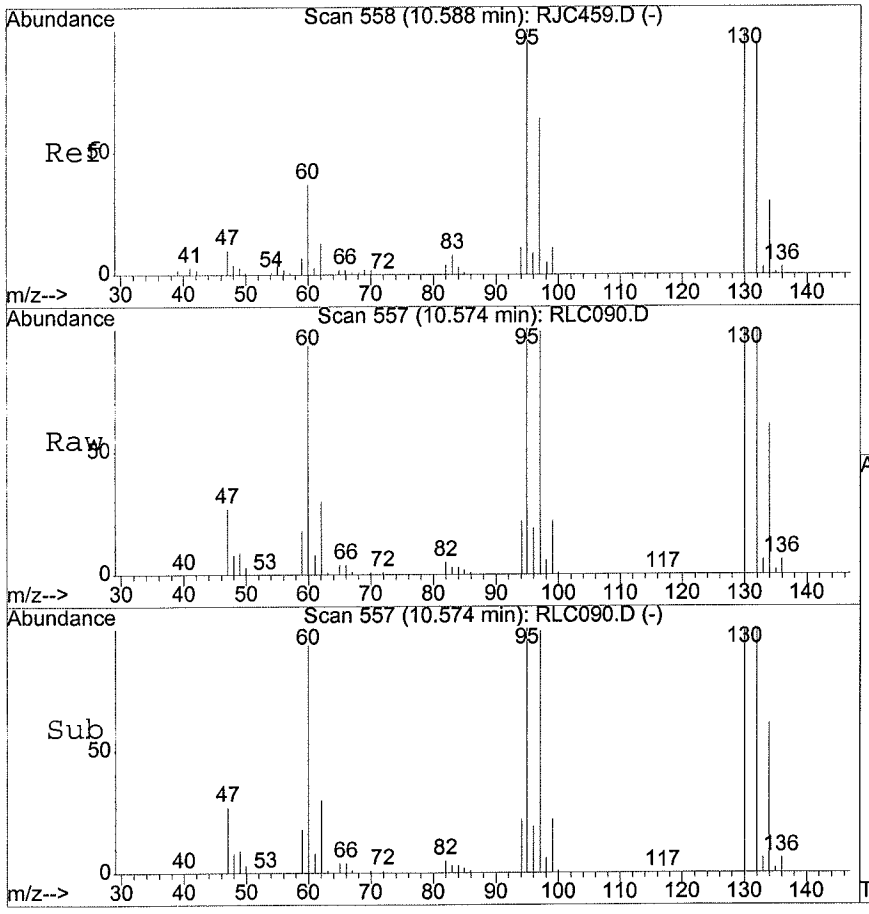


#32
Chloroform
Concen: 0.71 ug/l
RT: 7.53 min Scan# 350
Delta R.T. -0.00 min
Lab File: RLC090.D
Acq: 7 Dec 2020 5:09 pm

Tgt Ion: 83 Resp: 109943

Ion	Ratio	Lower	Upper
83	100		
85	64.2	37.8	97.8
47	19.9	0.0	50.5

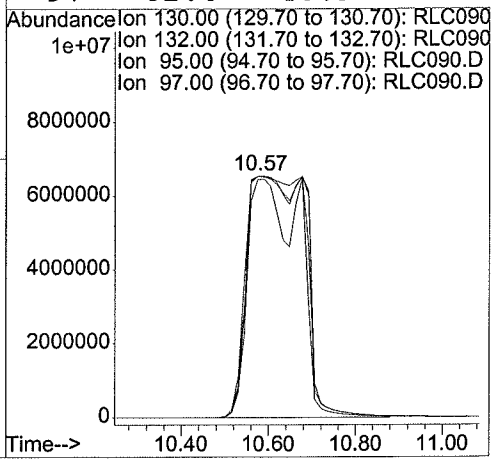


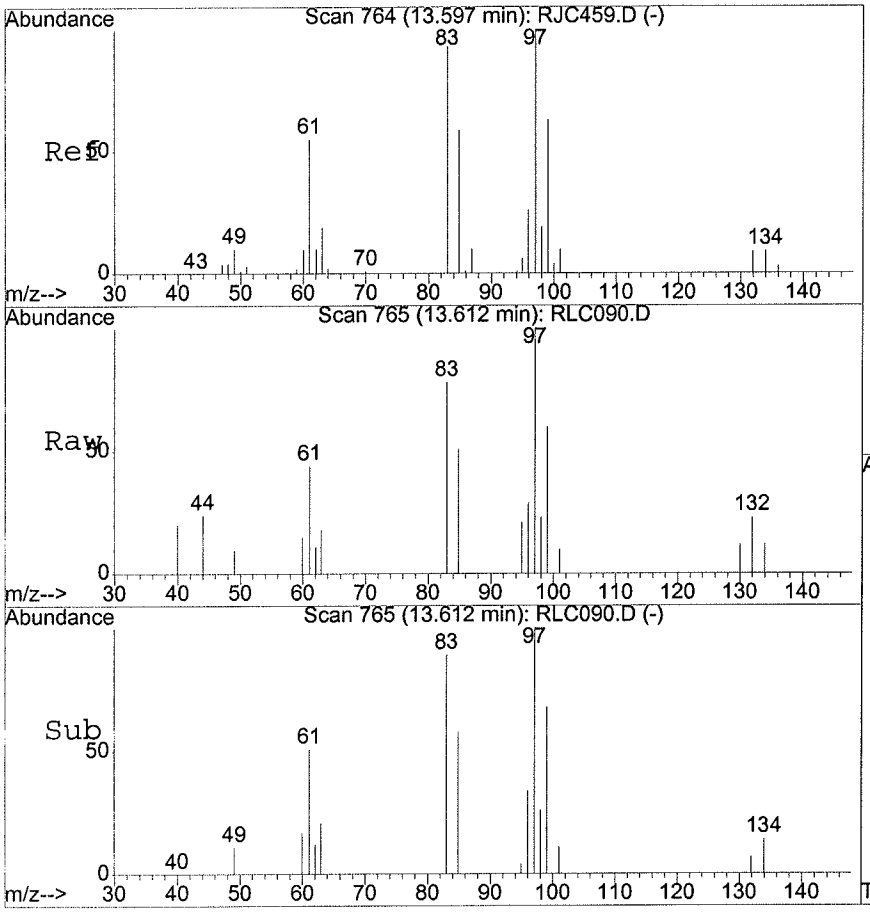


#46
Trichloroethene
Concen: 650.34 ug/l m
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC090.D
Acq: 7 Dec 2020 5:09 pm

Tgt Ion:130 Resp:61089682

Ion	Ratio	Lower	Upper
130	100		
132	68.9	65.5	125.5
95	72.1	73.3	133.3#
97	62.0	40.9	100.9

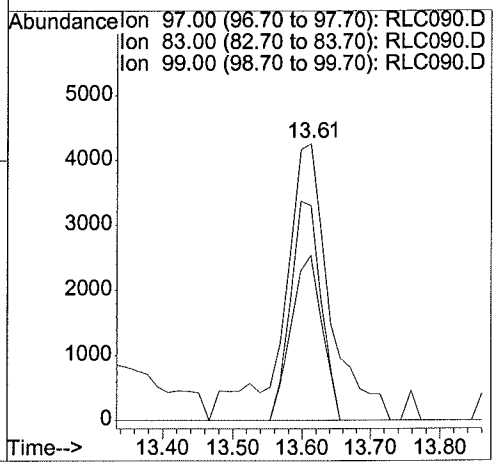


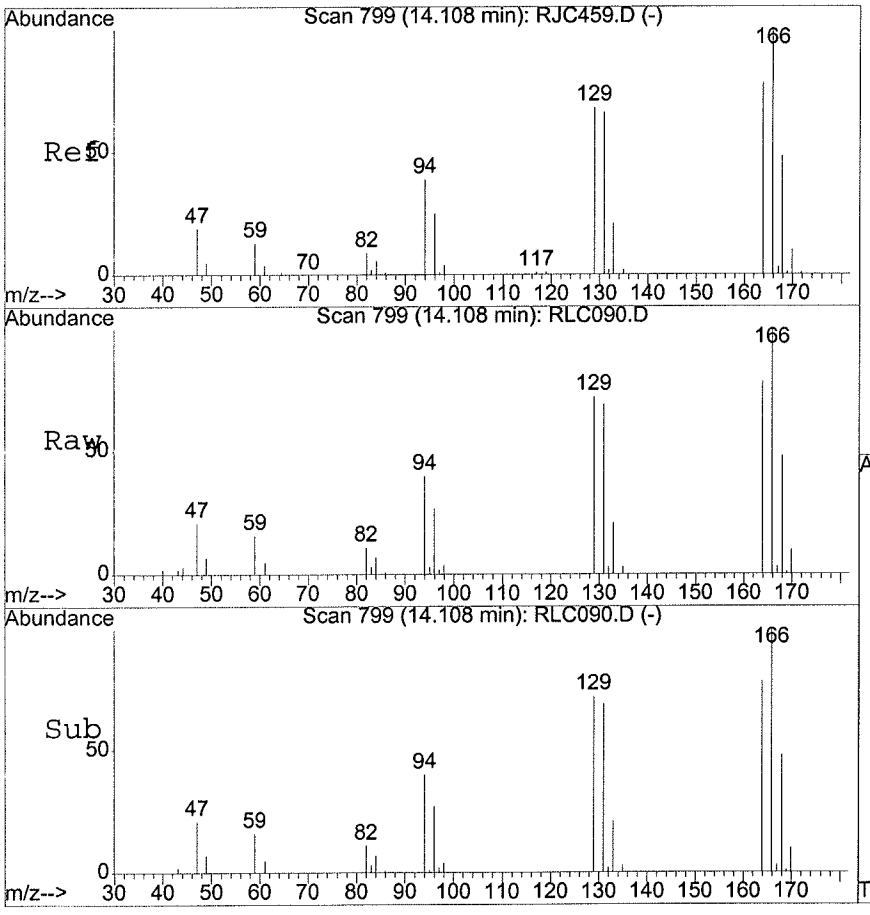


#60
1,1,2-Trichloroethane
Concen: 0.46 ug/l
RT: 13.61 min Scan# 765
Delta R.T. 0.02 min
Lab File: RLC090.D
Acq: 7 Dec 2020 5:09 pm

Tgt Ion: 97 Resp: 19758

Ion	Ratio	Lower	Upper
97	100		
83	52.4	60.6	120.6#
99	40.4	33.2	93.2

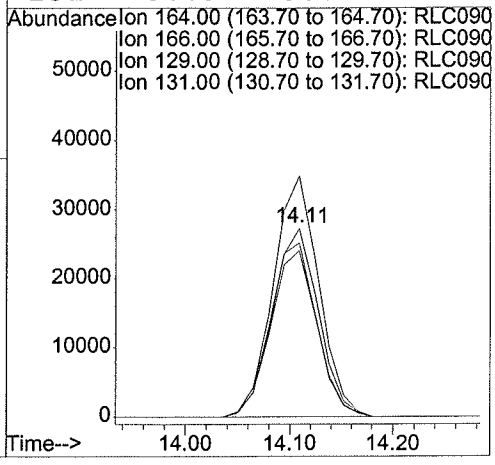


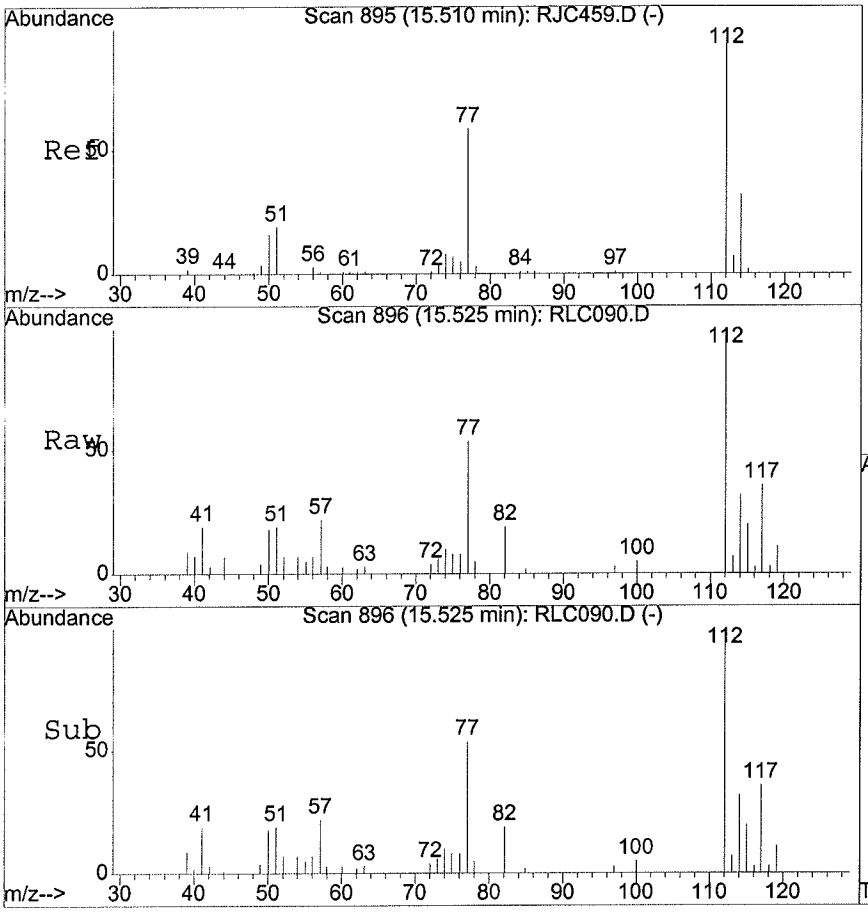


#63
Tetrachloroethene
Concen: 1.19 ug/l
RT: 14.11 min Scan# 799
Delta R.T. 0.00 min
Lab File: RLC090.D
Acq: 7 Dec 2020 5:09 pm

Tgt Ion:164 Resp: 84136

Ion	Ratio	Lower	Upper
164	100		
166	126.8	97.5	157.5
129	93.6	61.9	121.9
131	88.9	58.5	118.5

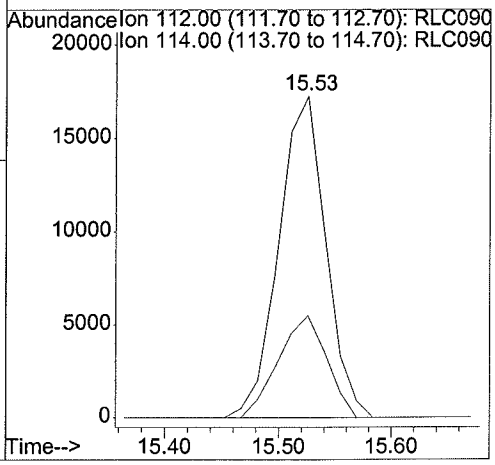




#67
Chlorobenzene
Concen: 0.25 ug/l
RT: 15.53 min Scan# 896
Delta R.T. 0.02 min
Lab File: RLC090.D
Acq: 7 Dec 2020 5:09 pm

Tgt Ion:112 Resp: 49825

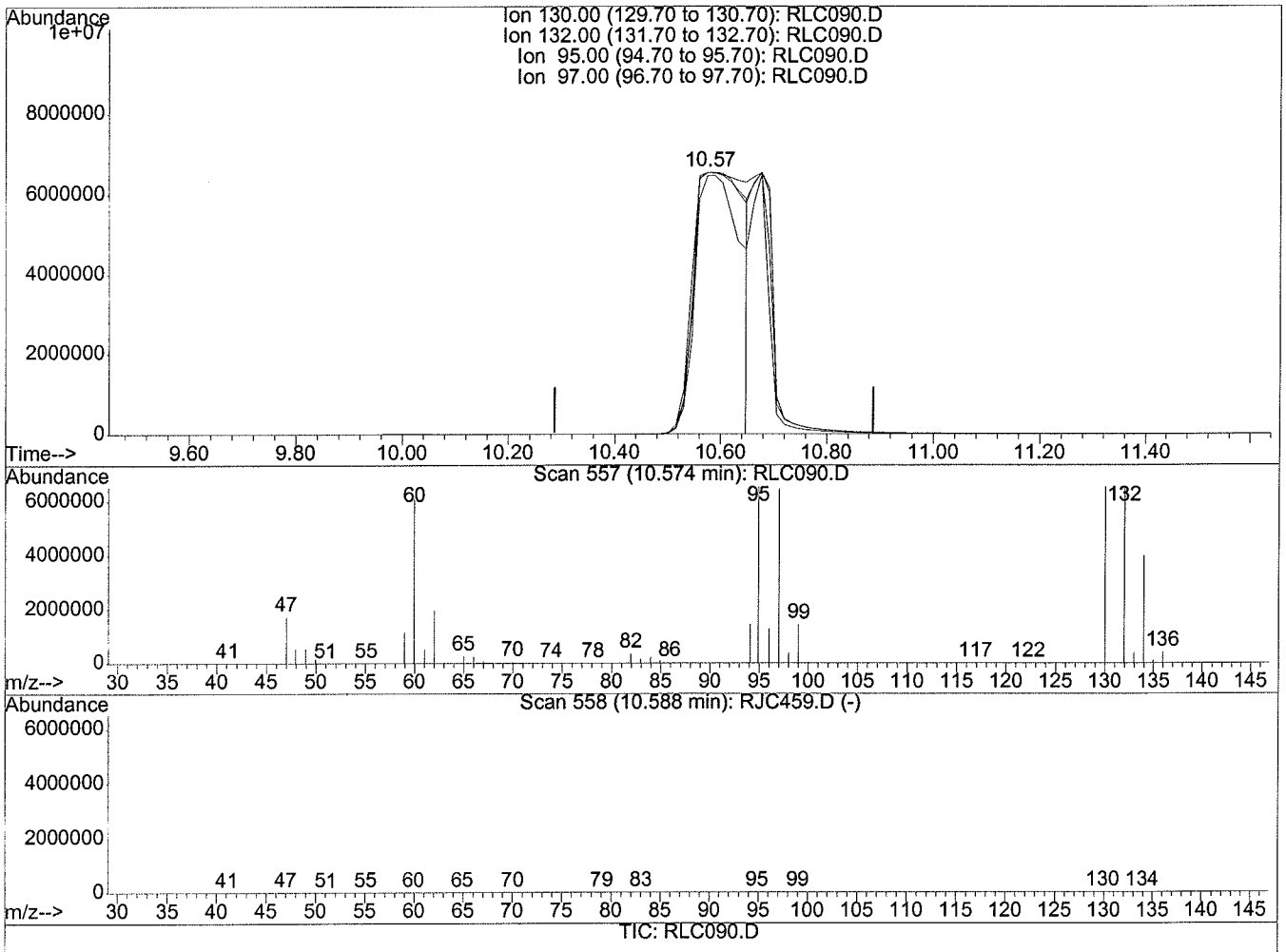
Ion	Ratio	Lower	Upper
112	100		
114	32.6	2.2	62.2



Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC090.D Vial: 15
Acq On : 7 Dec 2020 5:09 pm Operator: VLu
Sample : 20L041-06 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:59 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC090.D

(46) Trichloroethene (T,M)

10.57min 451.23ug/l

response 42386530

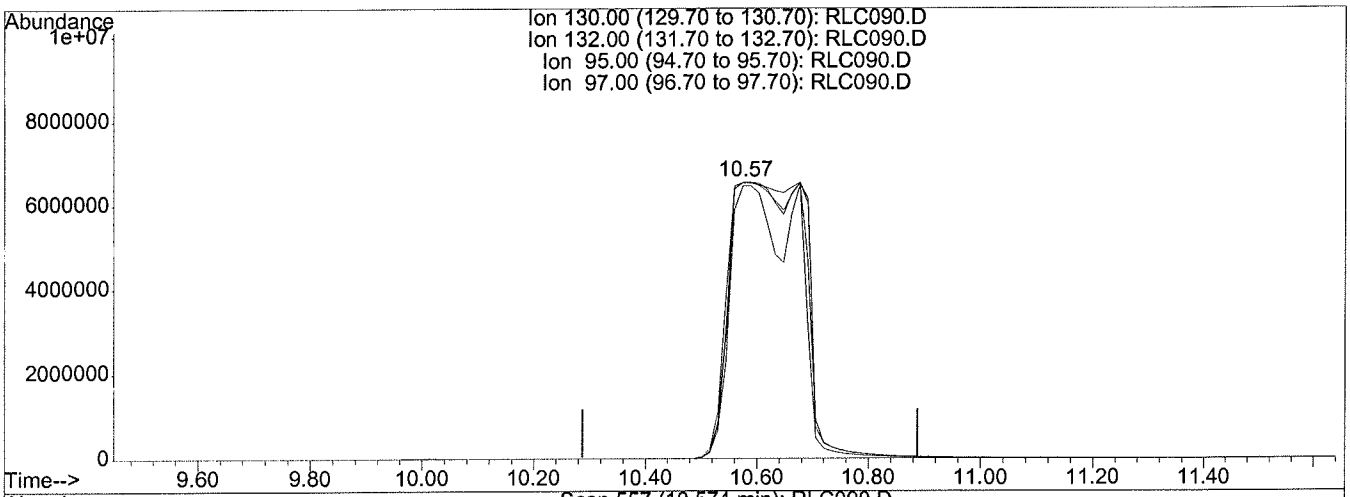
Ion	Exp%	Act%
130.00	100	100
132.00	95.50	99.24
95.00	103.30	103.87
97.00	70.90	89.32

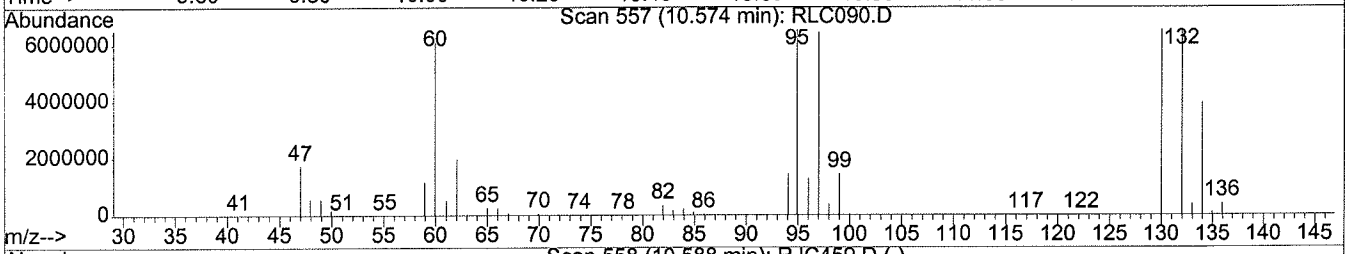
RLC090.D VO67J30.M Tue Dec 08 11:59:30 2020

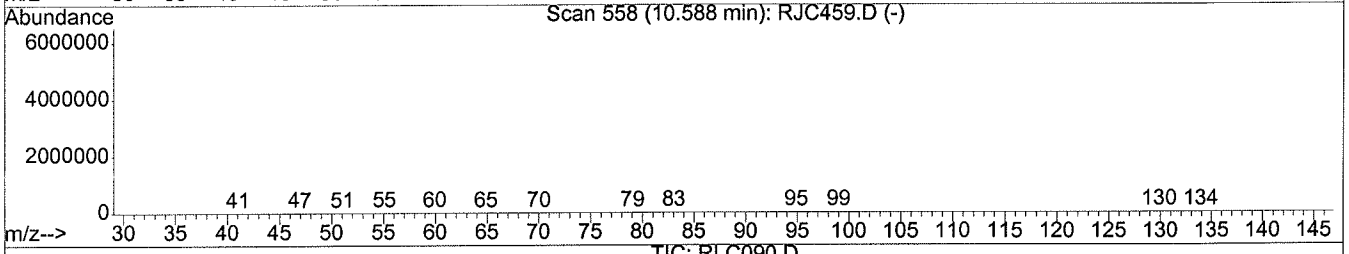
Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC090.D Vial: 15
Acq On : 7 Dec 2020 5:09 pm Operator: VLu
Sample : 20L041-06 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:59 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration







TIC: RLC090.D

(46) Trichloroethene (T,M)

10.57min 650.34ug/l m

response 61089682

Ion	Exp%	Act%
130.00	100	100
132.00	95.50	68.86
95.00	103.30	72.07#
97.00	70.90	61.98

☐ Incorrect Retention Time
☐ Incorrect Baseline
☑ Incorrect Integration
☐ Other _____

Initials VL 12/8/20

12/8/20

RLC090.D VO67J30.M Tue Dec 08 11:59:33 2020

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/03/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/08/20 15:08
Sample ID: 3-MW-57(120320)DL	Date Analyzed: 12/08/20 15:08
Lab Samp ID: L041-06I	Dilution Factor: 250
Lab File ID: RLC115	Matrix : WATER
Ext Btch ID: V067L06	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	120	25	50
1,1,1-TRICHLOROETHANE	ND	250	25	50
1,1,2,2-TETRACHLOROETHANE	ND	250	28	50
1,1,2-TRICHLOROETHANE	ND	250	25	50
1,1-DICHLOROETHANE	ND	250	25	50
1,1-DICHLOROETHENE	ND	250	25	50
1,1-DICHLOROPROPENE	ND	250	25	50
1,2,3-TRICHLOROBENZENE	ND	250	37	75
1,2,3-TRICHLOROPROPANE	ND	500	62	120
1,2,4-TRICHLOROBENZENE	ND	250	37	75
1,2,4-TRIMETHYLBENZENE	ND	250	28	50
1,2-DIBROMO-3-CHLOROPROPANE	ND	500	62	120
1,2-DIBROMOETHANE	ND	250	25	50
1,2-DICHLOROBENZENE	ND	250	25	50
1,2-DICHLOROETHANE	ND	120	25	50
1,2-DICHLOROPROPANE	ND	250	25	50
1,3,5-TRIMETHYLBENZENE	ND	250	33	50
1,3-DICHLOROBENZENE	ND	250	28	50
1,3-DICHLOROPROPANE	ND	250	25	50
1,4-DICHLOROBENZENE	ND	250	25	50
2,2-DICHLOROPROPANE	ND	250	40	50
2-BUTANONE	ND	2500	500	1000
2-CHLOROTOLUENE	ND	250	30	50
2-HEXANONE	ND	2500	580	1000
4-CHLOROTOLUENE	ND	250	28	50
ACETONE	ND	2500	650	1200
BENZENE	ND	250	25	50
BROMOBENZENE	ND	250	25	50
BROMOCHLOROMETHANE	ND	250	28	50
BROMODICHLOROMETHANE	ND	250	25	50
BROMOFORM	ND	250	37	75
BROMOMETHANE	ND	250	40	75
CARBON DISULFIDE	ND	250	25	50
CARBON TETRACHLORIDE	ND	250	25	50
CHLOROBENZENE	ND	250	25	50
CHLOROETHANE	ND	250	67	75
CHLOROFORM	ND	250	25	50
CHLOROMETHANE	ND	250	37	75
CIS-1,2-DICHLOROETHENE	ND	250	25	50
CIS-1,3-DICHLOROPROPENE	ND	250	25	50
DIBROMOCHLOROMETHANE	ND	250	25	50
DICHLORODIFLUOROMETHANE	ND	250	37	75
ETHYLBENZENE	ND	250	25	50
HEXACHLOROBUTADIENE	ND	250	55	75
ISOPROPYL BENZENE	ND	250	25	50
M,P-XYLENES	ND	500	52	100
MIBK	ND	2500	520	1000
METHYLENE CHLORIDE	ND	500	62	120
MTBE	ND	250	33	50
NAPHTHALENE	ND	500	62	120
N-BUTYLBENZENE	ND	250	42	50
N-PROPYLBENZENE	ND	250	33	50
O-XYLENE	ND	250	25	50
P-ISOPROPYLTOLUENE	ND	250	35	50
SEC-BUTYLBENZENE	ND	250	33	50
STYRENE	ND	250	25	50
TERT-BUTYLBENZENE	ND	250	33	50
TETRACHLOROETHENE	ND	250	37	50
TOLUENE	ND	250	25	50
TRANS-1,2-DICHLOROETHENE	ND	250	25	50
TRANS-1,3-DICHLOROPROPENE	ND	250	28	50
TRICHLOROETHENE	2700	250	25	50
TRICHLOROFLUOROMETHANE	ND	250	37	75
VINYL CHLORIDE	ND	120	30	50
VINYL ACETATE	ND	500	62	120
FREON113	ND	250	50	75
TERT-BUTANOL	ND	5000	1200	2500
DIPE	ND	250	25	50
ETBE	ND	250	25	50
TAME	ND	250	25	50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	2190	2500	87.8	70-120
4-BROMOFLUOROBENZENE	2460	2500	98.5	75-120
TOLUENE-D8	2290	2500	91.7	85-120
DIBROMOFLUOROMETHANE	2350	2500	93.9	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC115.D Vial: 11
Acq On : 8 Dec 2020 3:08 pm Operator: VLu
Sample : 20L041-06I 100uL Inst : 67
Misc : DF=250 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:41 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

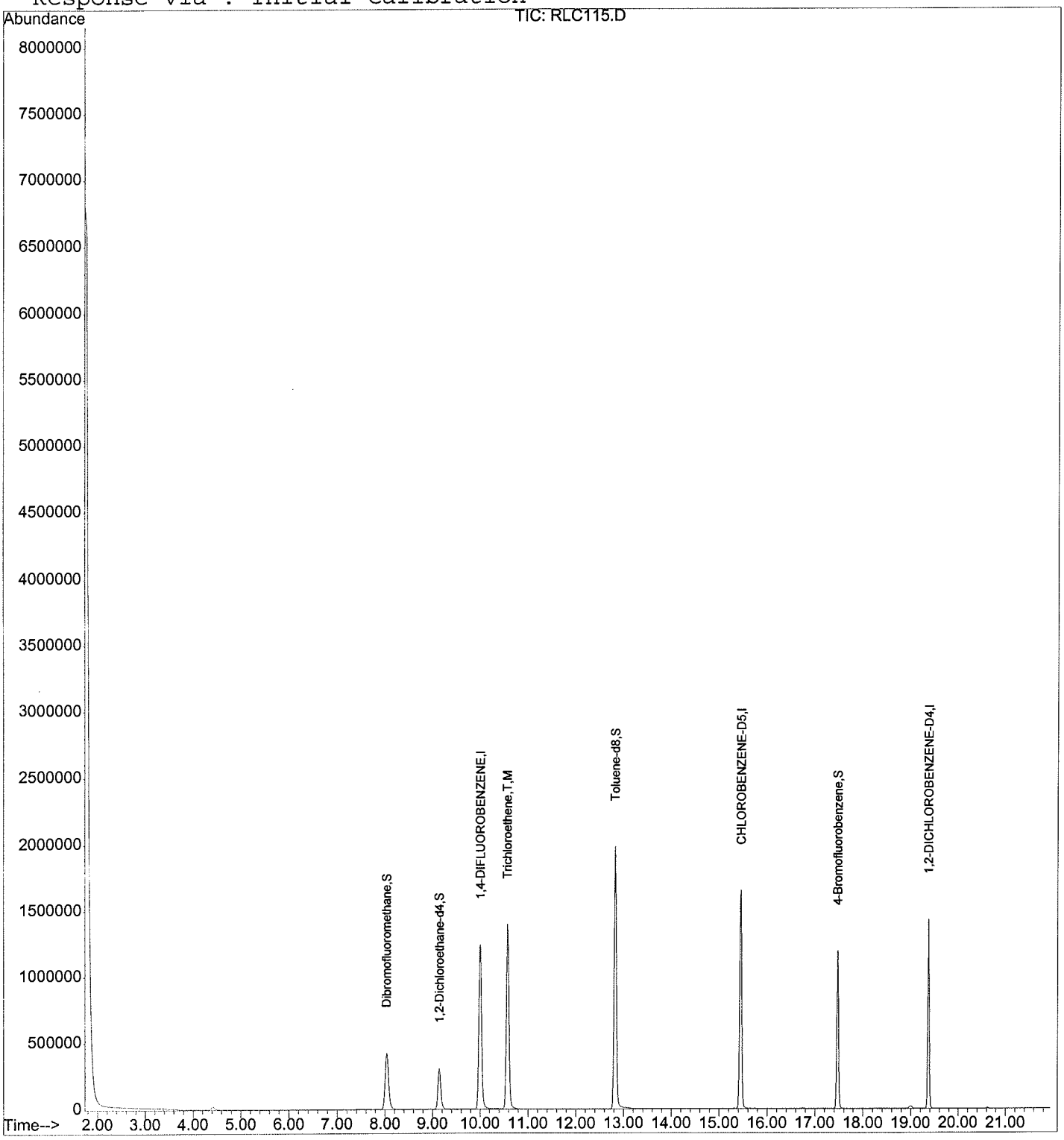
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2343481	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1758049	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	492640	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	718224	9.39	ug/l	0.00
Spiked Amount 10.000			Recovery =	93.90%		
43) 1,2-Dichloroethane-d4	9.14	65	429681	8.78	ug/l	0.00
Spiked Amount 10.000			Recovery =	87.80%		
56) Toluene-d8	12.82	98	2459626	9.17	ug/l	0.00
Spiked Amount 10.000			Recovery =	91.70%		
77) 4-Bromofluorobenzene	17.47	95	659887	9.85	ug/l	0.00
Spiked Amount 10.000			Recovery =	98.50%		
Target Compounds						Qvalue
46) Trichloroethene	10.57	130	969913	10.68	ug/l	97

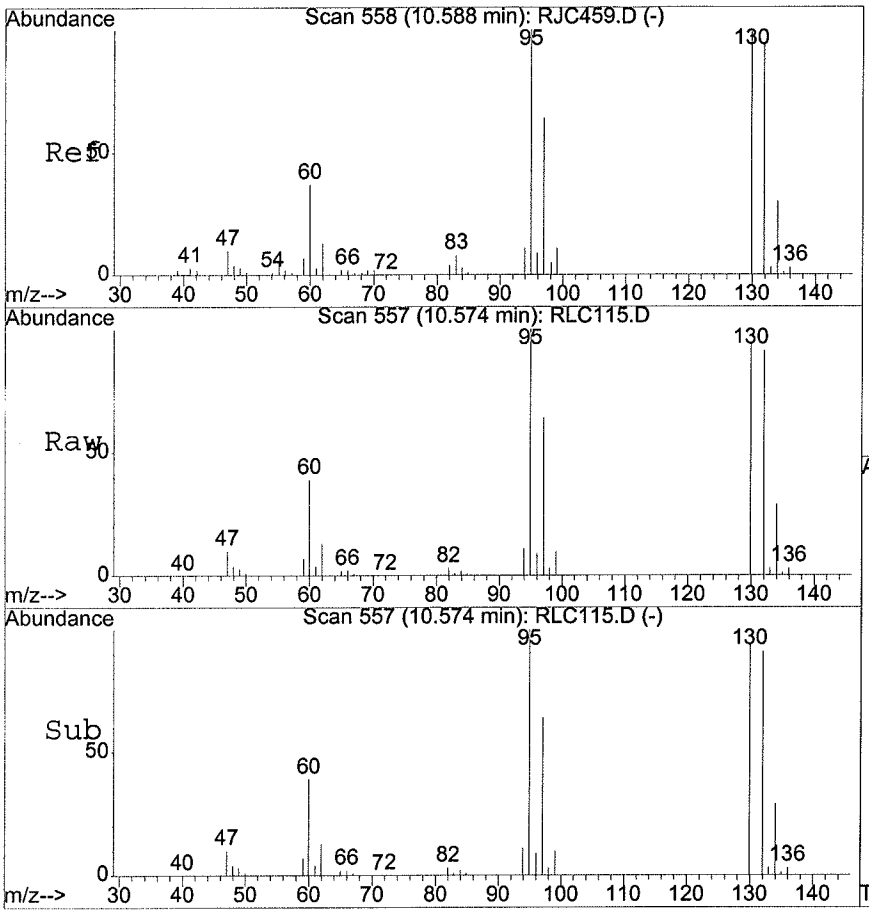
(#) = qualifier out of range (m) = manual integration
RLC115.D VO67J30.M Wed Dec 09 11:41:55 2020 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC115.D Vial: 11
Acq On : 8 Dec 2020 3:08 pm Operator: VLu
Sample : 20L041-06I 100uL Inst : 67
Misc : DF=250 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:41 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

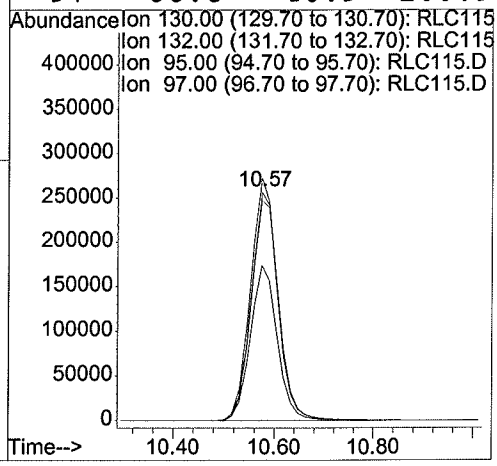




#46
Trichloroethene
Concen: 10.68 ug/l
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC115.D
Acq: 8 Dec 2020 3:08 pm

Tgt Ion:130 Resp: 969913

Ion	Ratio	Lower	Upper
130	100		
132	97.7	65.5	125.5
95	104.7	73.3	133.3
97	66.8	40.9	100.9



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected:	12/03/20
Project	: VAFB-SS003	Date Received:	12/04/20
Batch No.	: 20L041	Date Extracted:	12/07/20 17:34 # 12/08/20 15:34
Sample ID:	3-MW-58(120320)	Date Analyzed:	12/07/20 17:34 # 12/08/20 15:34
Lab Samp ID:	L041-07 #L041-07I	Dilution Factor:	1 # 50
Lab File ID:	RLC091 #RLC116	Matrix	: WATER
Ext Btch ID:	VO67L05 #VO67L06	% Moisture	: NA
Calib. Ref.:	RJC459 #RJC459	Instrument ID	: 67

	PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
	1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
	1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
	1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
	1,1,2-TRICHLOROETHANE	0.22J	1.0	0.10	0.20
	1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
	1,1-DICHLOROETHENE	0.32J	1.0	0.10	0.20
	1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
	1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
	1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
	1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
	1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
	1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
	1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
	1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
	1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
	1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
	2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
	2-BUTANONE	ND	10	2.0	4.0
	2-CHLOROTOLUENE	ND	1.0	0.12	0.20
	2-HEXANONE	ND	10	2.3	4.0
	4-CHLOROTOLUENE	ND	1.0	0.11	0.20
	ACETONE	ND	10	2.6	5.0
	BENZENE	ND	1.0	0.10	0.20
	BROMOBENZENE	ND	1.0	0.10	0.20
	BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
	BROMODICHLOROMETHANE	0.21J	1.0	0.10	0.20
	BROMOFORM	1.0	1.0	0.15	0.30
	BROMOMETHANE	ND	1.0	0.16	0.30
	CARBON DISULFIDE	ND	1.0	0.10	0.20
	CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
	CHLOROBENZENE	0.14J	1.0	0.10	0.20
	CHLOROETHANE	ND	1.0	0.27	0.30
	CHLOROFORM	0.40J	1.0	0.10	0.20
	CHLOROMETHANE	ND	1.0	0.15	0.30
	CIS-1,2-DICHLOROETHENE	3.2	1.0	0.10	0.20
	CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
	DIBROMOCHLOROMETHANE	0.62J	1.0	0.10	0.20
	DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
	ETHYLBENZENE	ND	1.0	0.10	0.20
	HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
	ISOPROPYL BENZENE	ND	1.0	0.10	0.20
	M,P-XYLENES	ND	2.0	0.21	0.40
	MIBK	ND	10	2.1	4.0
	METHYLENE CHLORIDE	ND	2.0	0.25	0.50
	MTBE	ND	1.0	0.13	0.20
	NAPHTHALENE	ND	2.0	0.25	0.50
	N-BUTYLBENZENE	ND	1.0	0.17	0.20
	N-PROPYLBENZENE	ND	1.0	0.13	0.20
	O-XYLENE	ND	1.0	0.10	0.20
	P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
	SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
	STYRENE	ND	1.0	0.10	0.20
	TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
	TETRACHLOROETHENE	0.43J	1.0	0.15	0.20
	TOLUENE	ND	1.0	0.10	0.20
	TRANS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
	TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
#	TRICHLOROETHENE	900	50	5.0	10
	TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
	VINYL CHLORIDE	ND	0.50	0.12	0.20
	VINYL ACETATE	ND	2.0	0.25	0.50
	FREON113	ND	1.0	0.20	0.30
	TERT-BUTANOL	ND	20	5.0	10
	DIPE	ND	1.0	0.10	0.20
	ETBE	ND	1.0	0.10	0.20
	TAME	ND	1.0	0.10	0.20

	SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
	1,2-DICHLOROETHANE-D4	8.86	10.00	88.6	70-120
	4-BROMOFLUOROBENZENE	9.70	10.00	97.0	75-120
	TOLUENE-D8	9.01	10.00	90.1	85-120
	DIBROMOFLUOROMETHANE	9.45	10.00	94.5	85-115
#	1,2-DICHLOROETHANE-D4	443	500.0	88.7	70-120
#	4-BROMOFLUOROBENZENE	489	500.0	97.8	75-120
#	TOLUENE-D8	459	500.0	91.7	85-120
#	DIBROMOFLUOROMETHANE	475	500.0	95.0	85-115

Members of the Associated File

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/03/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/07/20 17:34
Sample ID: 3-MW-58(120320)	Date Analyzed: 12/07/20 17:34
Lab Samp ID: L041-07	Dilution Factor: 1
Lab File ID: RLC091	Matrix : WATER
Ext Btch ID: VO67L05	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	0.22J	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	0.32J	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	ND	10	2.6	5.0
BENZENE	ND	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	0.21J	1.0	0.10	0.20
BROMOFORM	1.0	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	ND	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	0.14J	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	0.40J	1.0	0.10	0.20
CHLOROMETHANE	ND	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	3.2	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	0.62J	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	ND	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	ND	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	0.43J	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	490E	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	ND	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.86	10.00	88.6	70-120
4-BROMOFLUOROBENZENE	9.70	10.00	97.0	75-120
TOLUENE-D8	9.01	10.00	90.1	85-120
DIBROMOFLUOROMETHANE	9.45	10.00	94.5	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC091.D Vial: 16
Acq On : 7 Dec 2020 5:34 pm Operator: VLu
Sample : 20L041-07 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 12:46 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

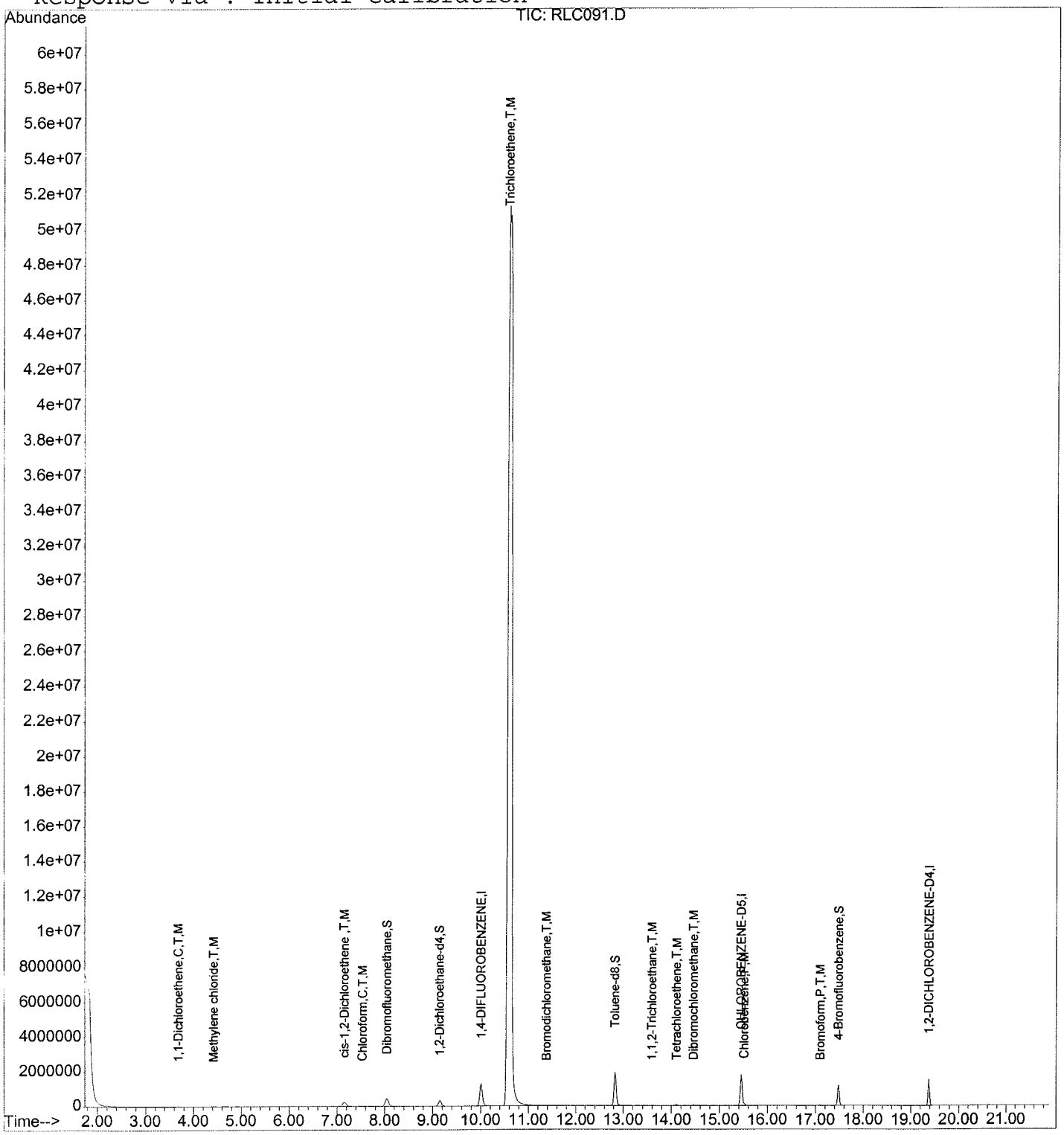
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2372633	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1790263	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	518027	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	732287	9.45	ug/l	0.01
Spiked Amount 10.000			Recovery =	94.50%		
43) 1,2-Dichloroethane-d4	9.14	65	438968	8.86	ug/l	0.00
Spiked Amount 10.000			Recovery =	88.60%		
56) Toluene-d8	12.82	98	2461633	9.01	ug/l	0.00
Spiked Amount 10.000			Recovery =	90.10%		
77) 4-Bromofluorobenzene	17.48	95	683115	9.70	ug/l	0.01
Spiked Amount 10.000			Recovery =	97.00%		
Target Compounds						Qvalue
14) 1,1-Dichloroethene	3.69	61	46369	0.32	ug/l	99
19) Methylene chloride	4.42	49	13227	0.13	ug/l	96
31) cis-1,2-Dichloroethene	7.16	96	326835	3.19	ug/l	99
32) Chloroform	7.54	83	59986	0.40	ug/l	96
46) Trichloroethene	10.57	130	44821900m	487.26	ug/l	E
49) Bromodichloromethane	11.38	83	19197	0.21	ug/l	98
60) 1,1,2-Trichloroethane	13.60	97	9479	0.22	ug/l #	55
63) Tetrachloroethene	14.11	164	30418	0.43	ug/l	98
64) Dibromochloromethane	14.46	129	32093	0.62	ug/l	98
67) Chlorobenzene	15.51	112	26854	0.14	ug/l	95
75) Bromoform	17.10	173	24422	1.05	ug/l	97

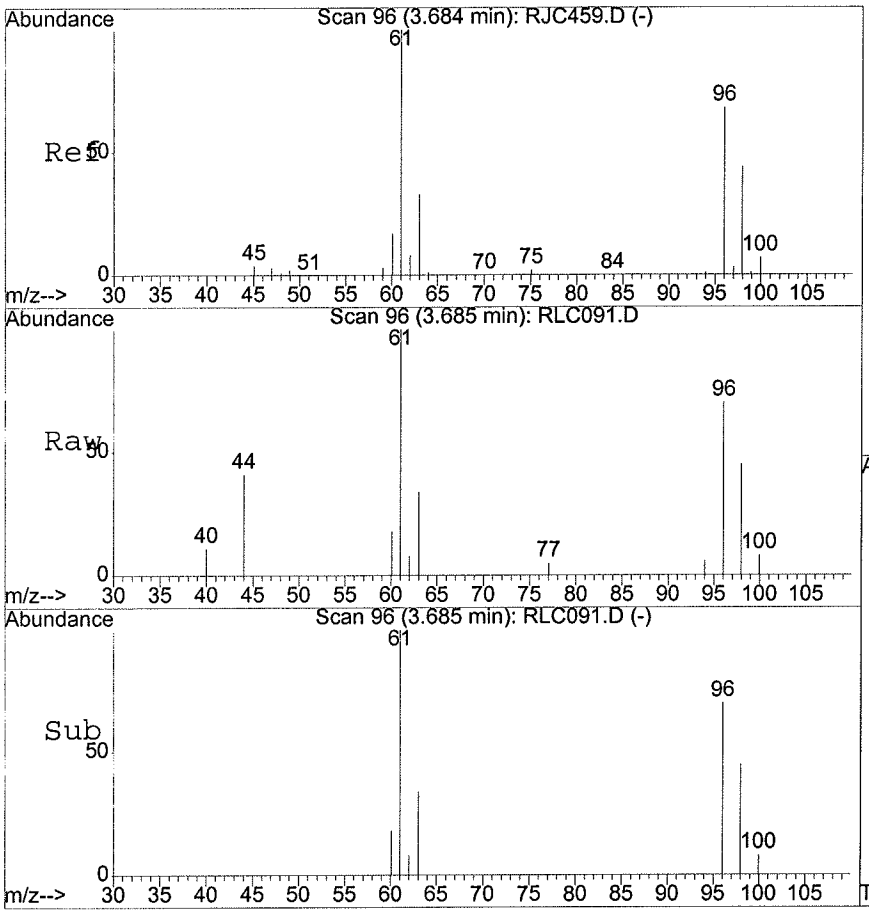
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC091.D Vial: 16
Acq On : 7 Dec 2020 5:34 pm Operator: VLu
Sample : 20L041-07 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 12:46 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

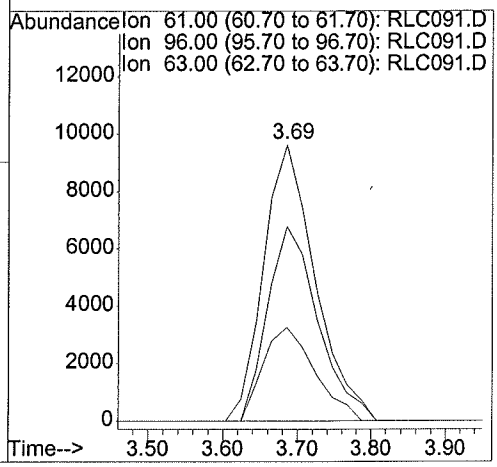


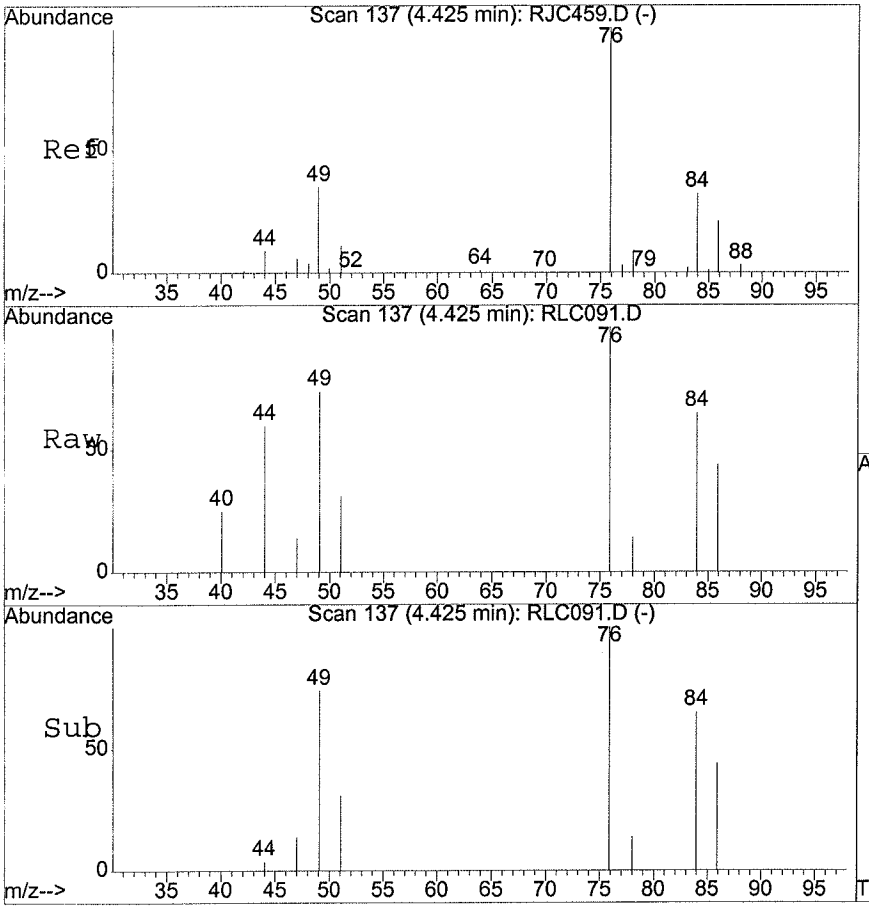


#14
1,1-Dichloroethene
Concen: 0.32 ug/l
RT: 3.69 min Scan# 96
Delta R.T. 0.00 min
Lab File: RLC091.D
Acq: 7 Dec 2020 5:34 pm

Tgt Ion: 61 Resp: 46369

Ion	Ratio	Lower	Upper
61	100		
96	69.0	38.7	98.7
63	34.0	2.9	62.9

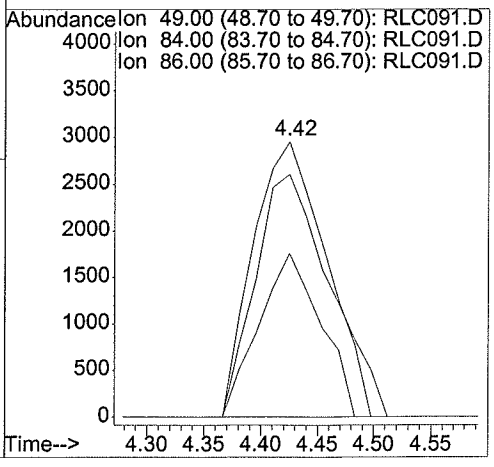


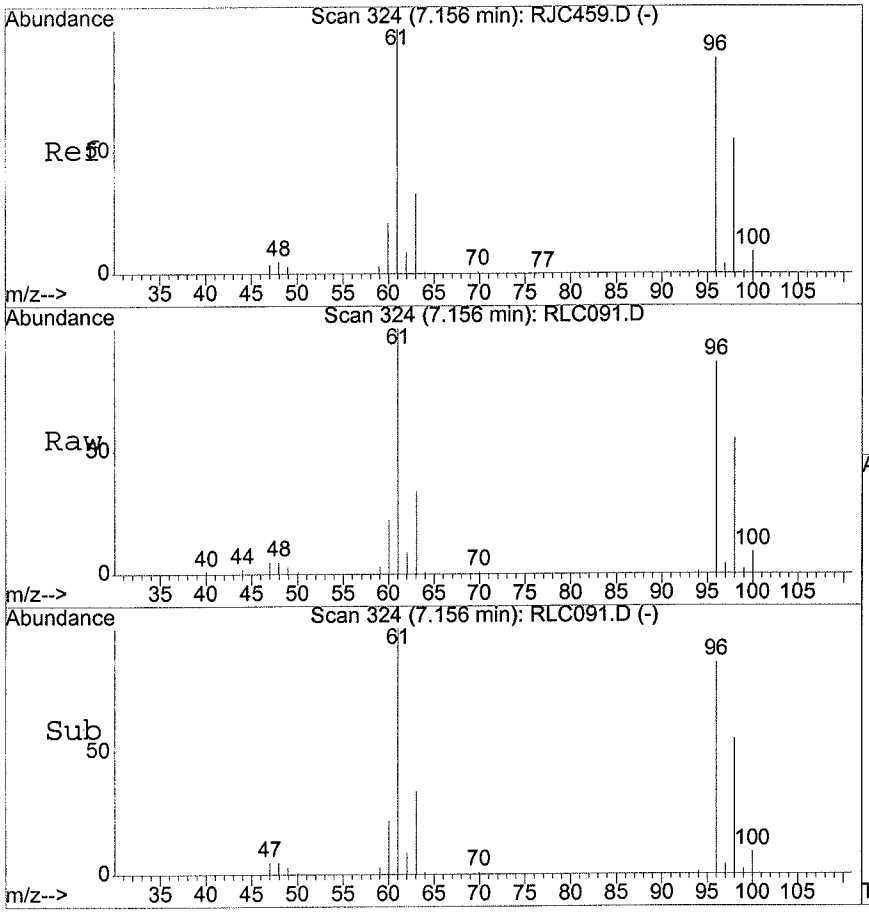


#19
Methylene chloride
Concen: 0.13 ug/l
RT: 4.42 min Scan# 137
Delta R.T. -0.00 min
Lab File: RLC091.D
Acq: 7 Dec 2020 5:34 pm

Tgt Ion: 49 Resp: 13227

Ion	Ratio	Lower	Upper
49	100		
84	90.4	60.1	120.1
86	50.4	27.5	87.5

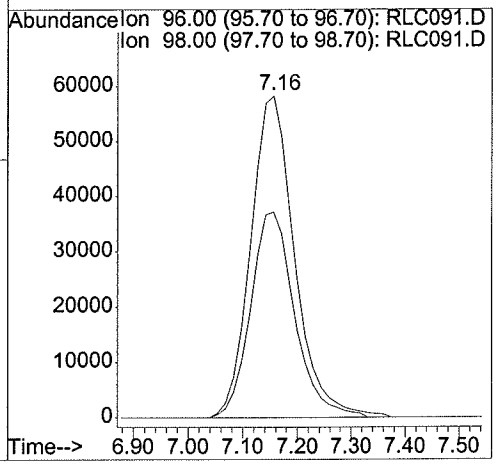


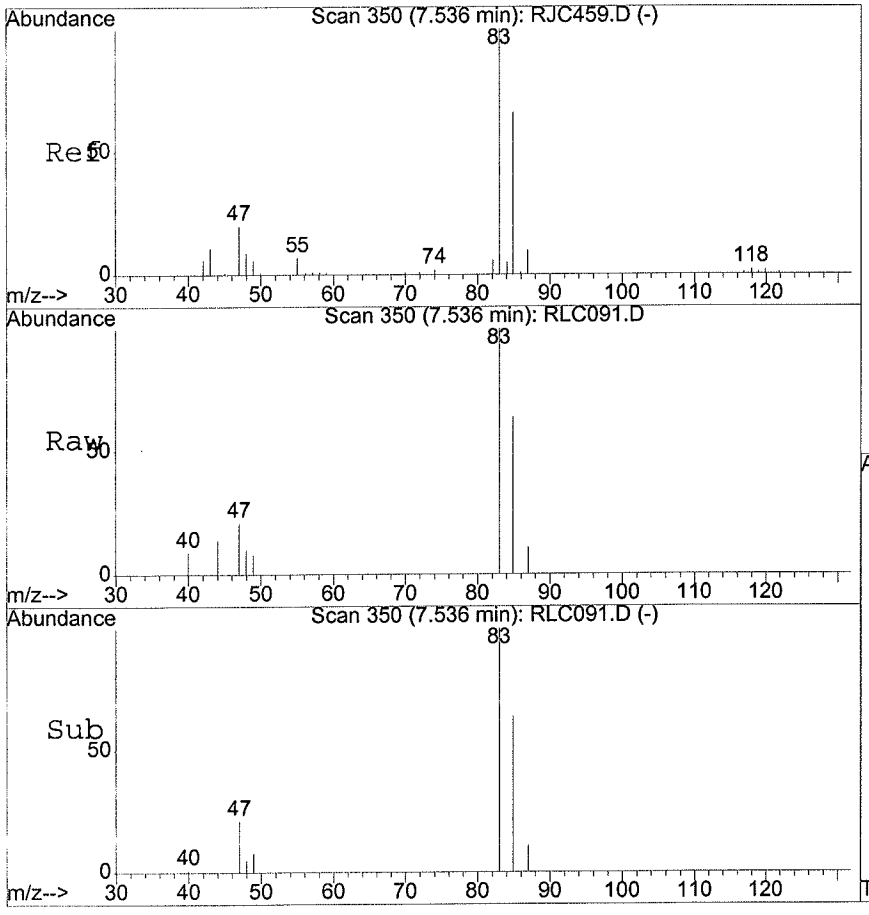


#31
cis-1,2-Dichloroethene
Concen: 3.19 ug/l
RT: 7.16 min Scan# 324
Delta R.T. -0.00 min
Lab File: RLC091.D
Acq: 7 Dec 2020 5:34 pm

Tgt Ion: 96 Resp: 326835

Ion	Ratio	Lower	Upper
96	100		
98	64.1	33.5	93.5

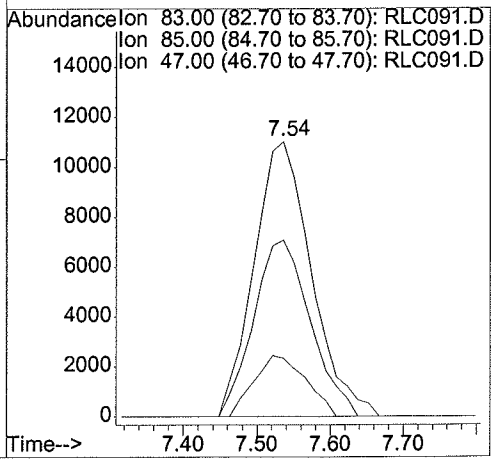


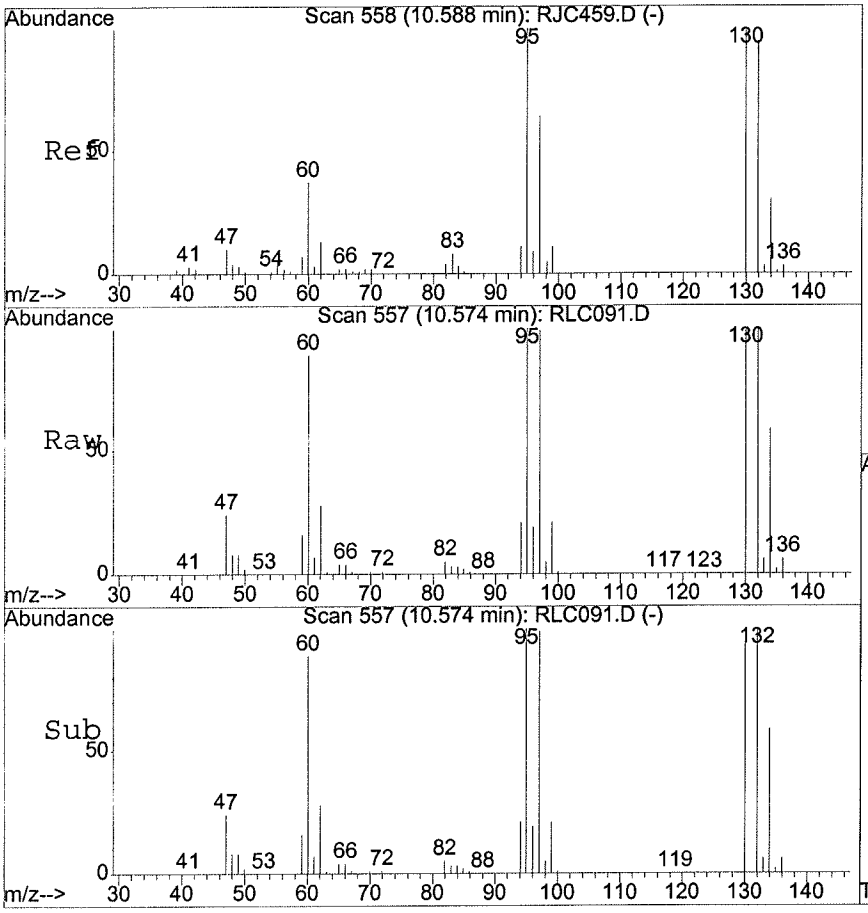


#32
Chloroform
Concen: 0.40 ug/l
RT: 7.54 min Scan# 350
Delta R.T. -0.00 min
Lab File: RLC091.D
Acq: 7 Dec 2020 5:34 pm

Tgt Ion: 83 Resp: 59986

Ion	Ratio	Lower	Upper
83	100		
85	63.5	37.8	97.8
47	20.1	0.0	50.5

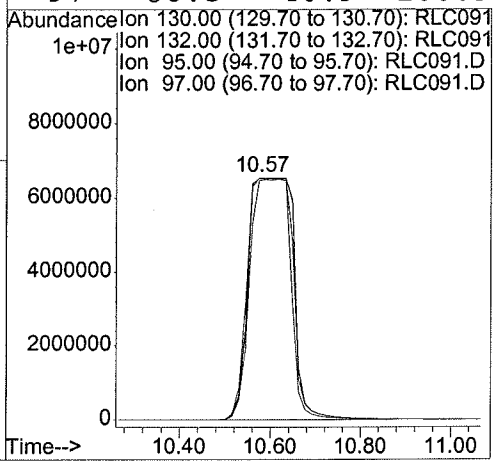


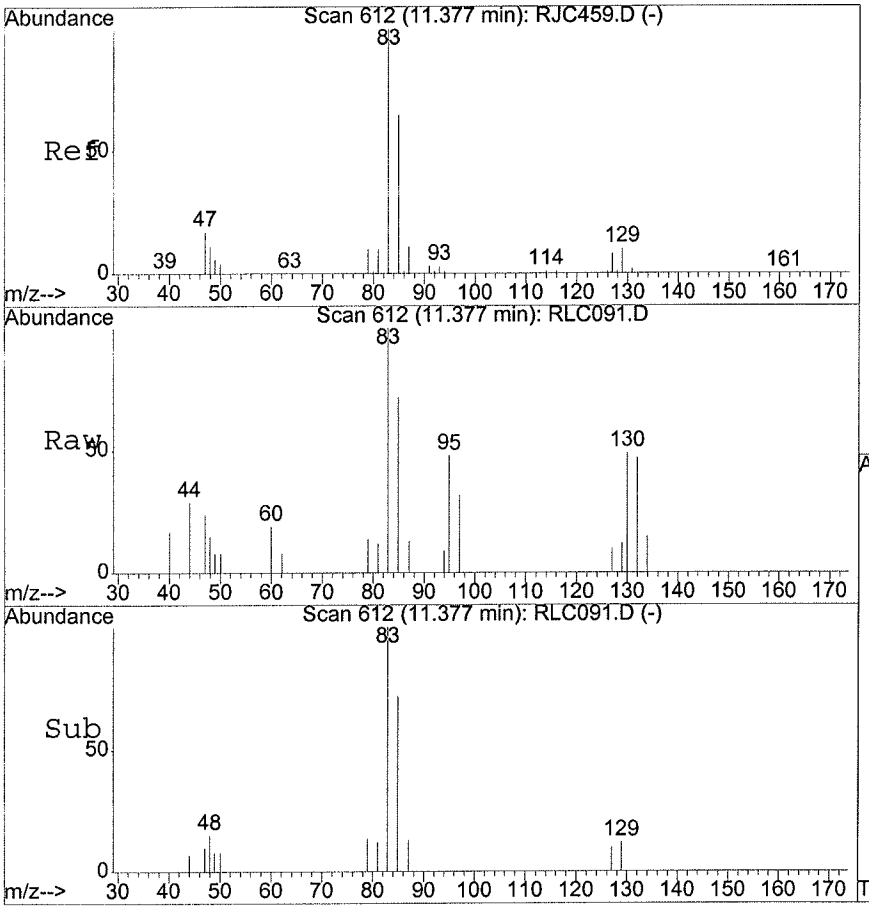


#46
Trichloroethene
Concen: 487.26 ug/l m
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC091.D
Acq: 7 Dec 2020 5:34 pm

Tgt Ion:130 Resp:44821900

Ion	Ratio	Lower	Upper
130	100		
132	0.0	65.5	125.5#
95	98.9	73.3	133.3
97	88.5	40.9	100.9

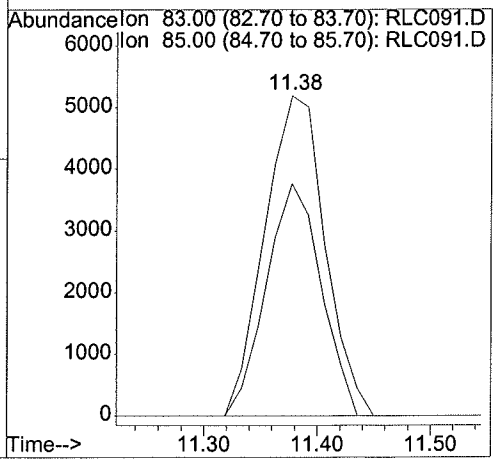


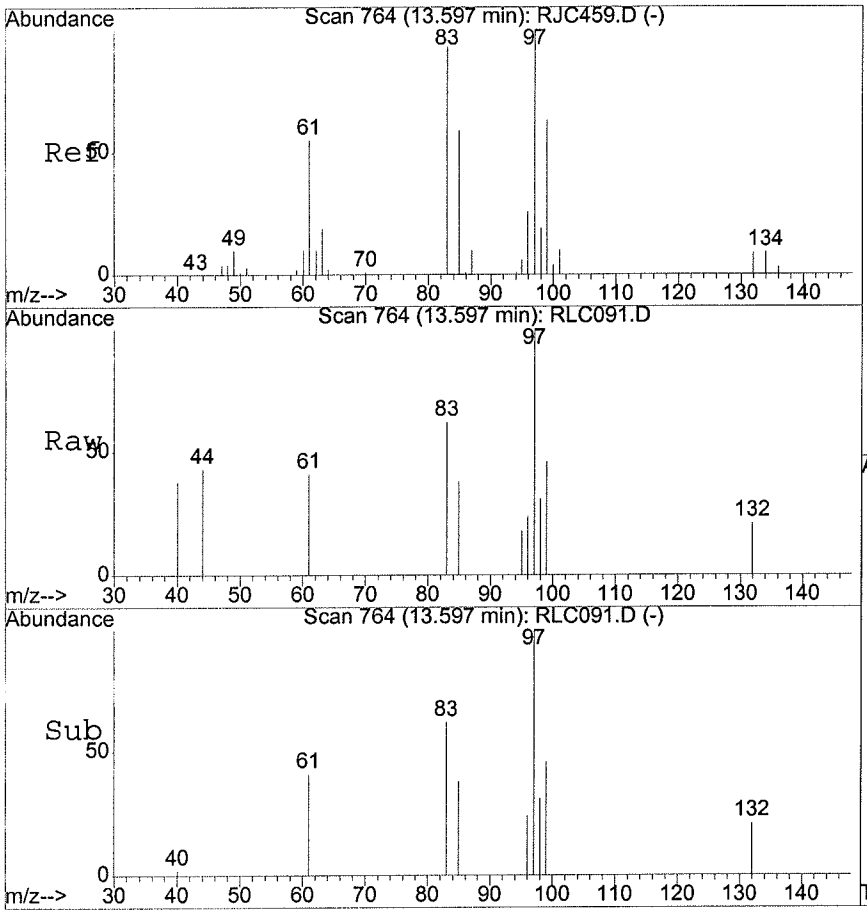


#49
Bromodichloromethane
Concen: 0.21 ug/l
RT: 11.38 min Scan# 612
Delta R.T. 0.00 min
Lab File: RLC091.D
Acq: 7 Dec 2020 5:34 pm

Tgt Ion: 83 Resp: 19197

Ion	Ratio	Lower	Upper
83	100		
85	66.0	34.3	94.3

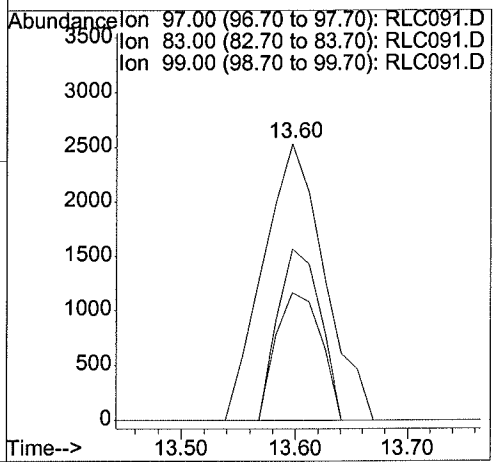


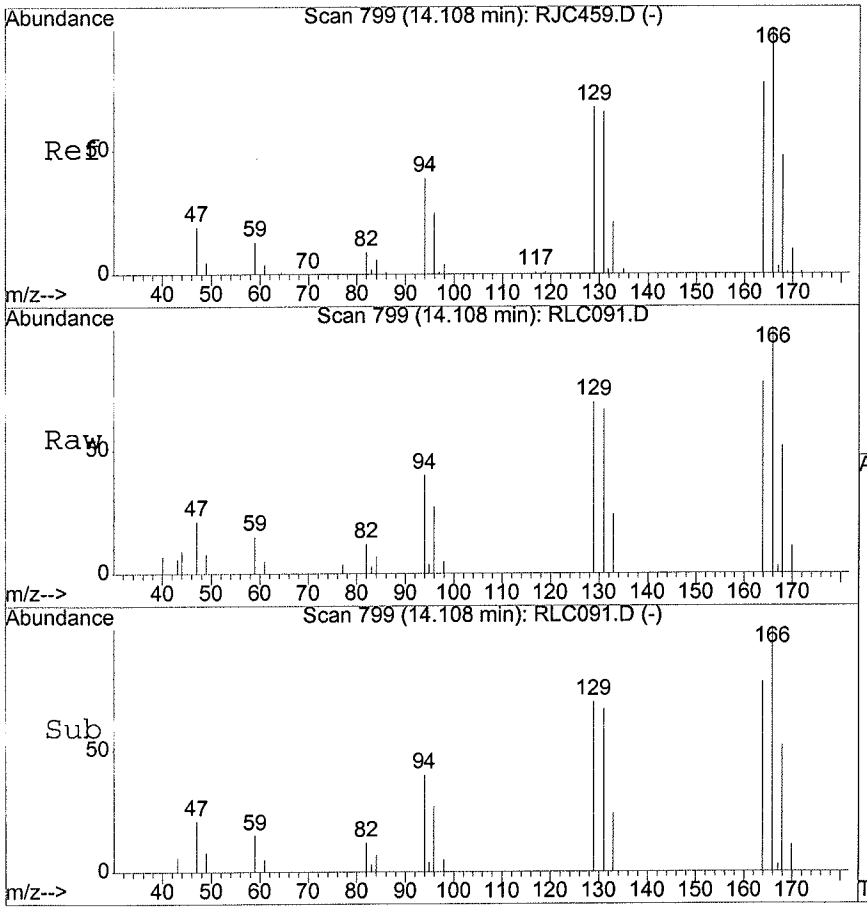


#60
1,1,2-Trichloroethane
Concen: 0.22 ug/l
RT: 13.60 min Scan# 764
Delta R.T. 0.00 min
Lab File: RLC091.D
Acq: 7 Dec 2020 5:34 pm

Tgt Ion: 97 Resp: 9479

Ion	Ratio	Lower	Upper
97	100		
83	43.3	60.6	120.6#
99	33.9	33.2	93.2

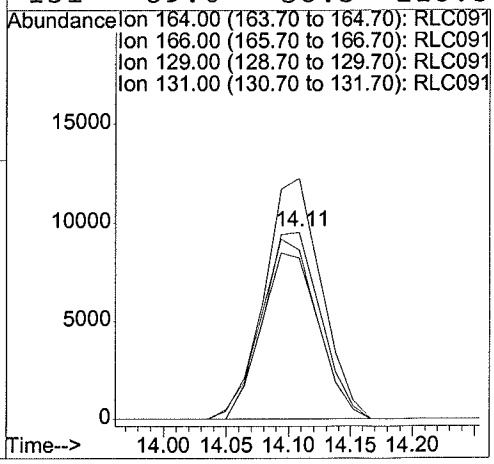


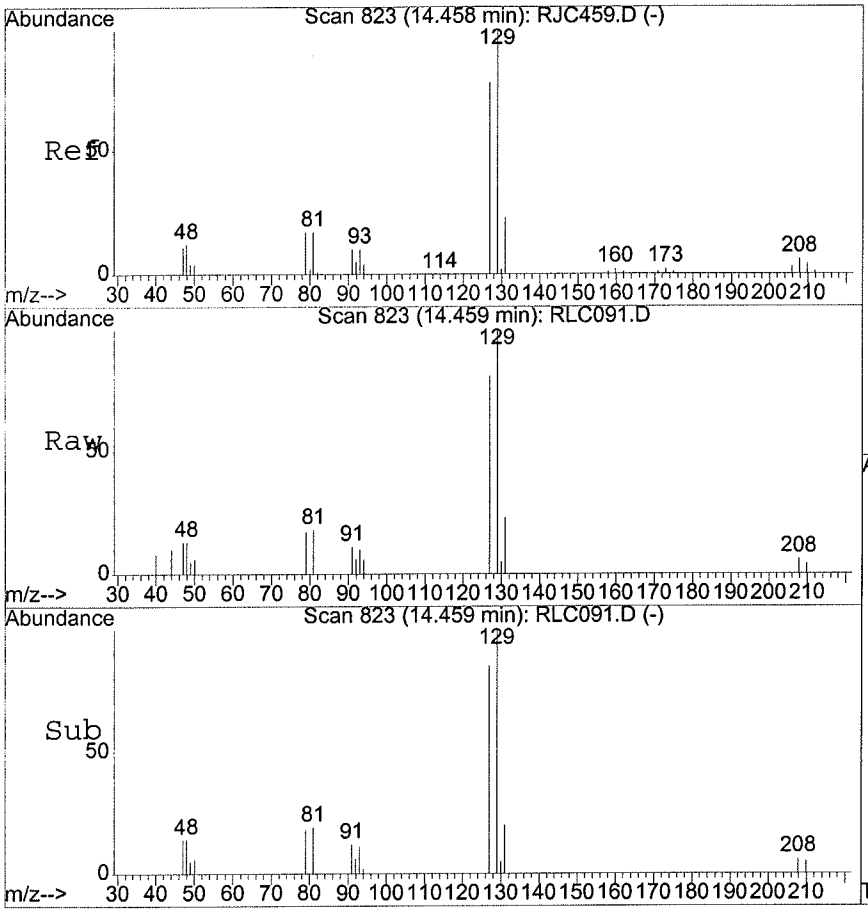


#63
Tetrachloroethene
Concen: 0.43 ug/l
RT: 14.11 min Scan# 799
Delta R.T. 0.00 min
Lab File: RLC091.D
Acq: 7 Dec 2020 5:34 pm

Tgt Ion:164 Resp: 30418

Ion	Ratio	Lower	Upper
164	100		
166	128.2	97.5	157.5
129	95.5	61.9	121.9
131	89.0	58.5	118.5

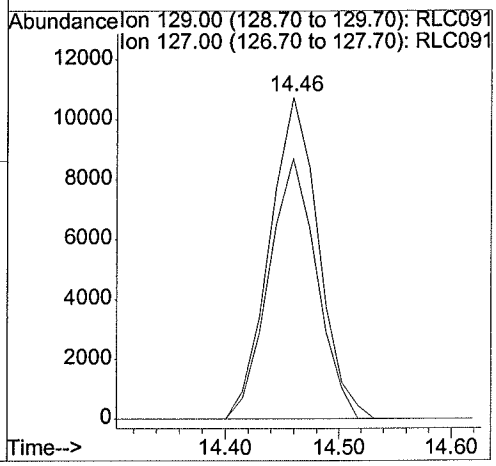


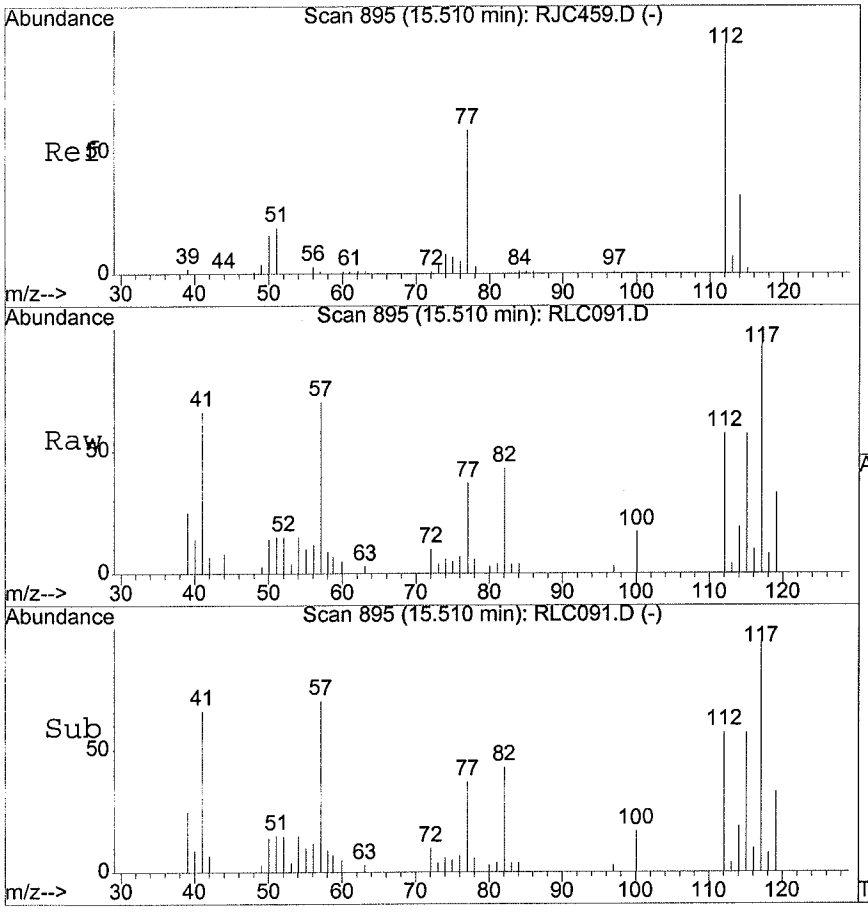


#64
Dibromochloromethane
Concen: 0.62 ug/l
RT: 14.46 min Scan# 823
Delta R.T. 0.00 min
Lab File: RLC091.D
Acq: 7 Dec 2020 5:34 pm

Tgt Ion:129 Resp: 32093

Ion	Ratio	Lower	Upper
129	100		
127	79.5	47.4	107.4

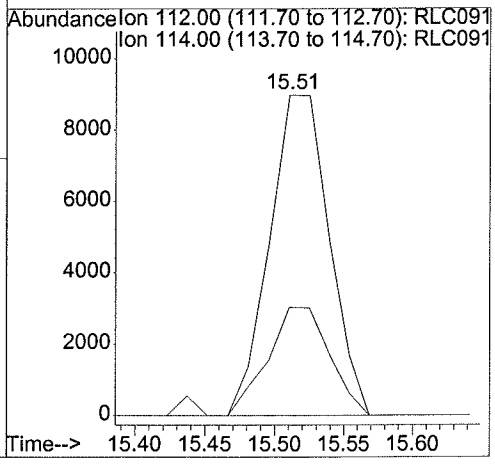


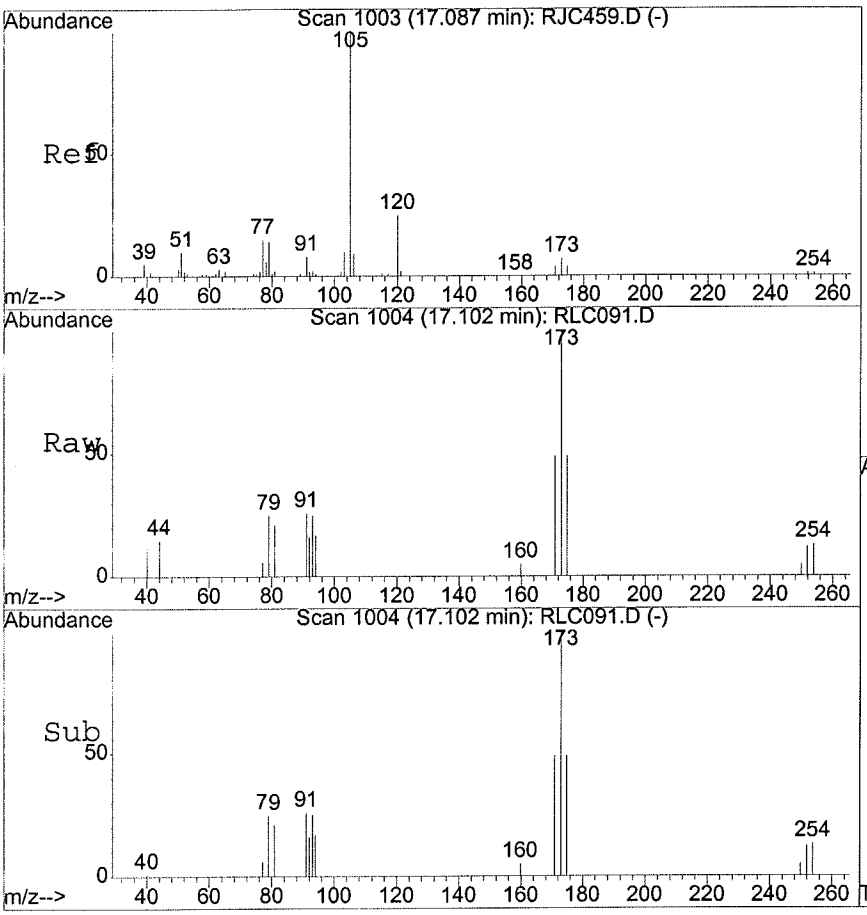


#67
Chlorobenzene
Concen: 0.14 ug/l
RT: 15.51 min Scan# 895
Delta R.T. 0.00 min
Lab File: RLC091.D
Acq: 7 Dec 2020 5:34 pm

Tgt Ion:112 Resp: 26854

Ion	Ratio	Lower	Upper
112	100		
114	35.0	2.2	62.2

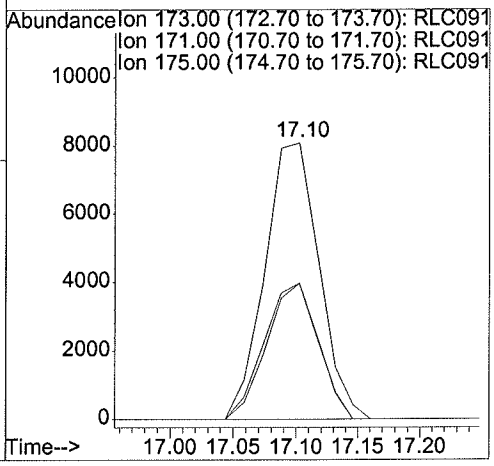




#75
Bromoform
Concen: 1.05 ug/l
RT: 17.10 min Scan# 1004
Delta R.T. 0.01 min
Lab File: RLC091.D
Acq: 7 Dec 2020 5:34 pm

Tgt Ion:173 Resp: 24422

Ion	Ratio	Lower	Upper
173	100		
171	48.9	21.3	81.3
175	46.8	18.8	78.8



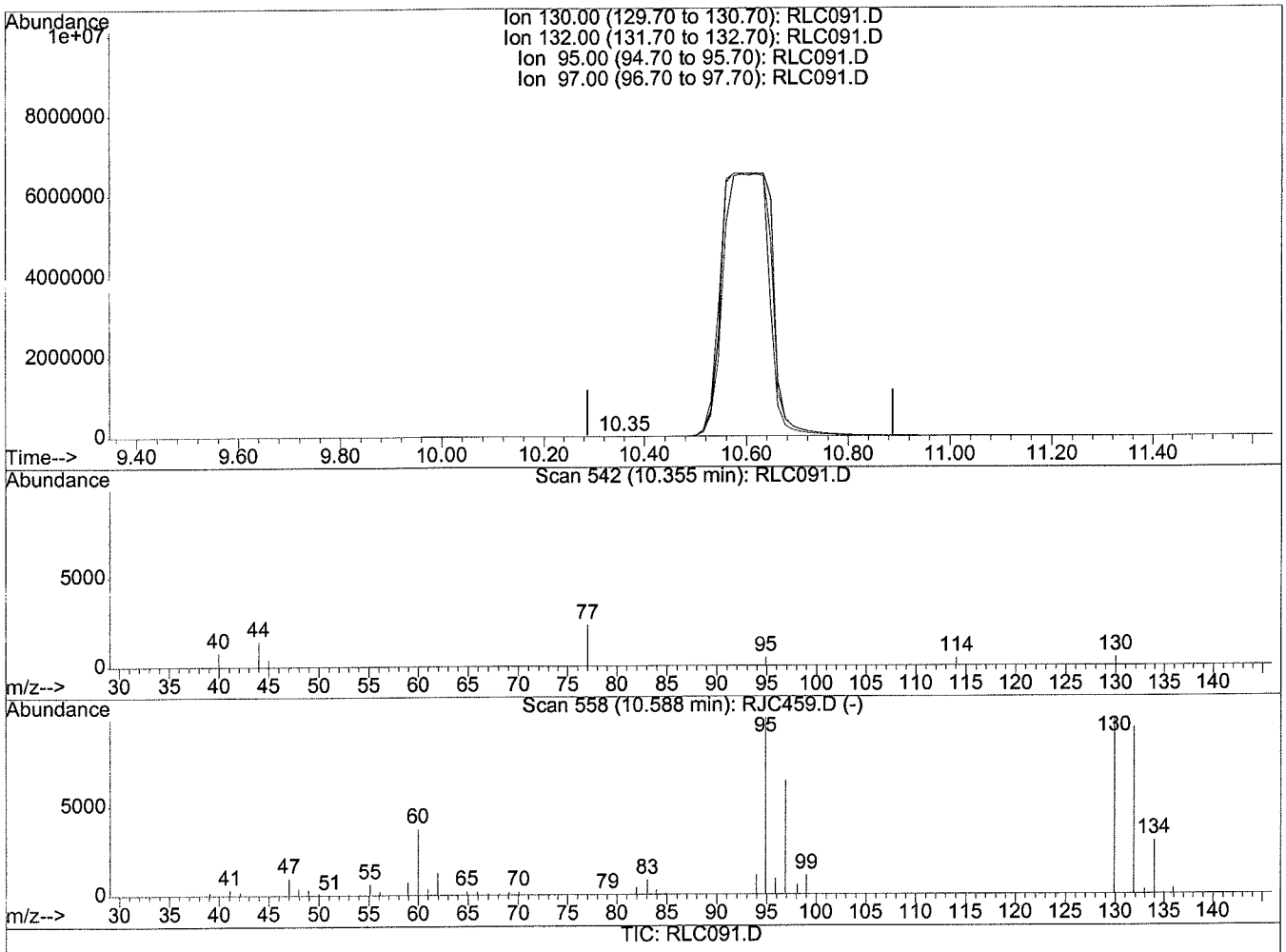
Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC091.D
Acq On : 7 Dec 2020 5:34 pm
Sample : 20L041-07 25mL
Misc : DF=1.0
MS Integration Params: RTE.P
Quant Time: Dec 8 12:46 2020

Vial: 16
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



(46) Trichloroethene (T,M)

10.35min 0.01ug/l

response 1158

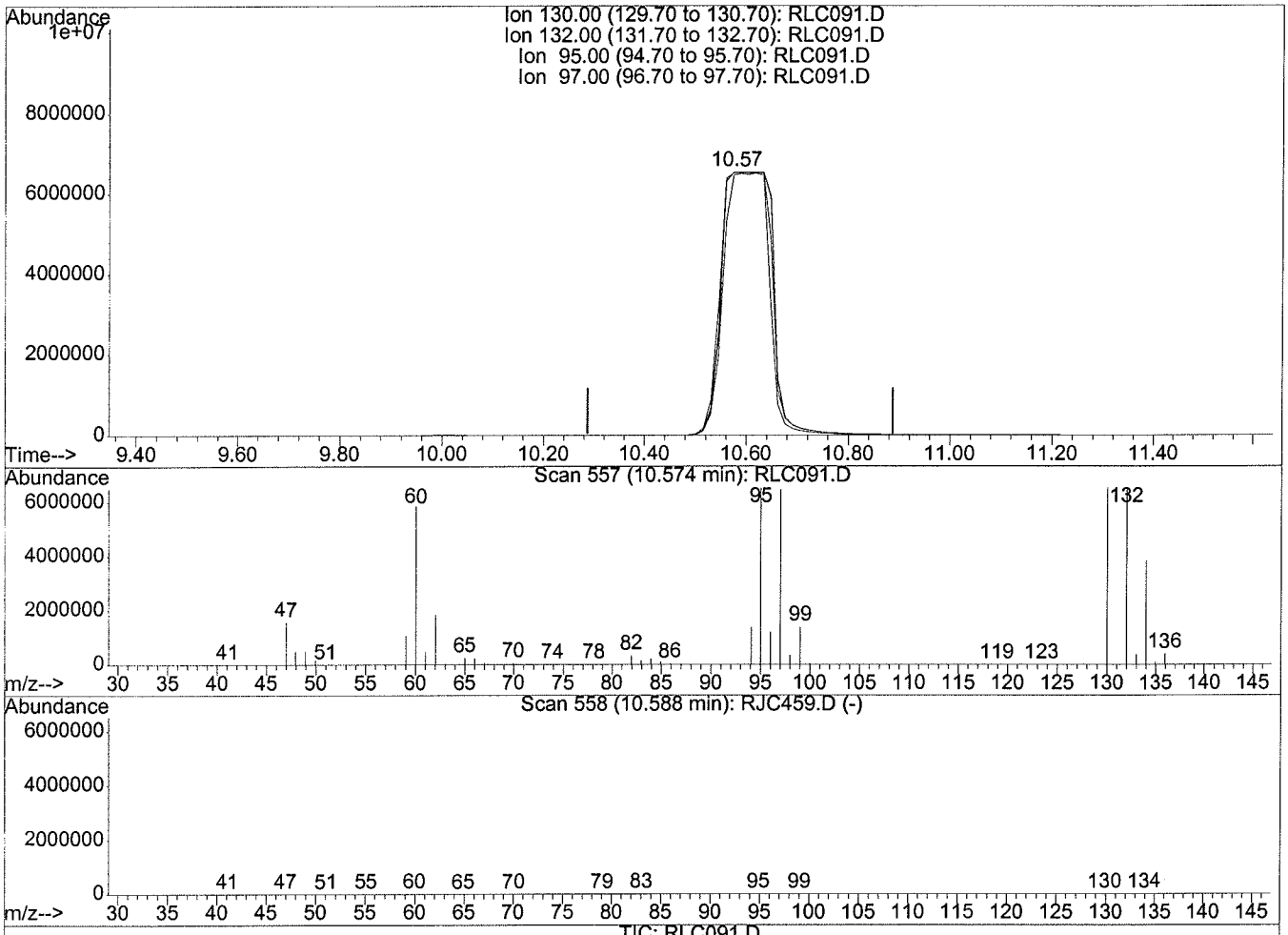
Ion	Exp%	Act%
130.00	100	100
132.00	95.50	0.00#
95.00	103.30	3829295.25#
97.00	70.90	3423724.78#

RLC091.D VO67J30.M Tue Dec 08 12:46:22 2020

Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC091.D Vial: 16
Acq On : 7 Dec 2020 5:34 pm Operator: VLu
Sample : 20L041-07 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 12:46 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



(46) Trichloroethene (T,M)

10.57min 487.26ug/l m

response 44821900

Ion	Exp%	Act%
130.00	100	100
132.00	95.50	0.00#
95.00	103.30	98.93
97.00	70.90	88.45

✓ Incorrect Retention Time
☐ Incorrect Baseline
☐ Incorrect Integration
☐ Other _____

Initials VL 12/8/20

SL 12/14/20

RLC091.D VO67J30.M Tue Dec 08 12:46:25 2020

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/03/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/08/20 15:34
Sample ID: 3-MW-58(120320)DL	Date Analyzed: 12/08/20 15:34
Lab Samp ID: L041-07I	Dilution Factor: 50
Lab File ID: RLC116	Matrix : WATER
Ext Btch ID: V067L06	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	25	5.0	10
1,1,1-TRICHLOROETHANE	ND	50	5.0	10
1,1,2,2-TETRACHLOROETHANE	ND	50	5.5	10
1,1,2-TRICHLOROETHANE	ND	50	5.0	10
1,1-DICHLOROETHANE	ND	50	5.0	10
1,1-DICHLOROETHENE	ND	50	5.0	10
1,1-DICHLOROPROPENE	ND	50	5.0	10
1,2,3-TRICHLOROBENZENE	ND	50	7.5	15
1,2,3-TRICHLOROPROPANE	ND	100	12	25
1,2,4-TRICHLOROBENZENE	ND	50	7.5	15
1,2,4-TRIMETHYLBENZENE	ND	50	5.5	10
1,2-DIBROMO-3-CHLOROPROPANE	ND	100	12	25
1,2-DIBROMOETHANE	ND	50	5.0	10
1,2-DICHLOROBENZENE	ND	50	5.0	10
1,2-DICHLOROETHANE	ND	25	5.0	10
1,2-DICHLOROPROPANE	ND	50	5.0	10
1,3,5-TRIMETHYLBENZENE	ND	50	6.5	10
1,3-DICHLOROBENZENE	ND	50	5.5	10
1,3-DICHLOROPROPANE	ND	50	5.0	10
1,4-DICHLOROBENZENE	ND	50	5.0	10
2,2-DICHLOROPROPANE	ND	50	8.0	10
2-BUTANONE	ND	500	100	200
2-CHLOROTOLUENE	ND	50	6.0	10
2-HEXANONE	ND	500	110	200
4-CHLOROTOLUENE	ND	50	5.5	10
ACETONE	ND	500	130	250
BENZENE	ND	50	5.0	10
BROMOBENZENE	ND	50	5.0	10
BROMOCHLOROMETHANE	ND	50	5.5	10
BROMODICHLOROMETHANE	ND	50	5.0	10
BROMOFORM	ND	50	7.5	15
BROMOMETHANE	ND	50	8.0	15
CARBON DISULFIDE	ND	50	5.0	10
CARBON TETRACHLORIDE	ND	50	5.0	10
CHLOROBENZENE	ND	50	5.0	10
CHLOROETHANE	ND	50	14	15
CHLOROFORM	ND	50	5.0	10
CHLOROMETHANE	ND	50	7.5	15
CIS-1,2-DICHLOROETHENE	ND	50	5.0	10
CIS-1,3-DICHLOROPROPENE	ND	50	5.0	10
DIBROMOCHLOROMETHANE	ND	50	5.0	10
DICHLORODIFLUOROMETHANE	ND	50	7.5	15
ETHYLBENZENE	ND	50	5.0	10
HEXACHLOROBUTADIENE	ND	50	11	15
ISOPROPYL BENZENE	ND	50	5.0	10
M,P-XYLENES	ND	100	11	20
MIBK	ND	500	100	200
METHYLENE CHLORIDE	ND	100	12	25
MTBE	ND	50	6.5	10
NAPHTHALENE	ND	100	12	25
N-BUTYLBENZENE	ND	50	8.5	10
N-PROPYLBENZENE	ND	50	6.5	10
O-XYLENE	ND	50	5.0	10
P-ISOPROPYLTOLUENE	ND	50	7.0	10
SEC-BUTYLBENZENE	ND	50	6.5	10
STYRENE	ND	50	5.0	10
TERT-BUTYLBENZENE	ND	50	6.5	10
TETRACHLOROETHENE	ND	50	7.5	10
TOLUENE	ND	50	5.0	10
TRANS-1,2-DICHLOROETHENE	ND	50	5.0	10
TRANS-1,3-DICHLOROPROPENE	ND	50	5.5	10
TRICHLOROETHENE	900	50	5.0	10
TRICHLOROFLUOROMETHANE	ND	50	7.5	15
VINYL CHLORIDE	ND	25	6.0	10
VINYL ACETATE	ND	100	12	25
FREON113	ND	50	10	15
TERT-BUTANOL	ND	1000	250	500
DIPE	ND	50	5.0	10
ETBE	ND	50	5.0	10
TAME	ND	50	5.0	10

SURROGATE PARAMETERS	RESULTS	SPK AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	443	500.0	88.7	70-120
4-BROMOFLUOROBENZENE	489	500.0	97.8	75-120
TOLUENE-D8	459	500.0	91.7	85-120
DIBROMOFLUOROMETHANE	475	500.0	95.0	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC116.D Vial: 12
Acq On : 8 Dec 2020 3:34 pm Operator: VLu
Sample : 20L041-07I 0.5mL Inst : 67
Misc : DF=50 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:42 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

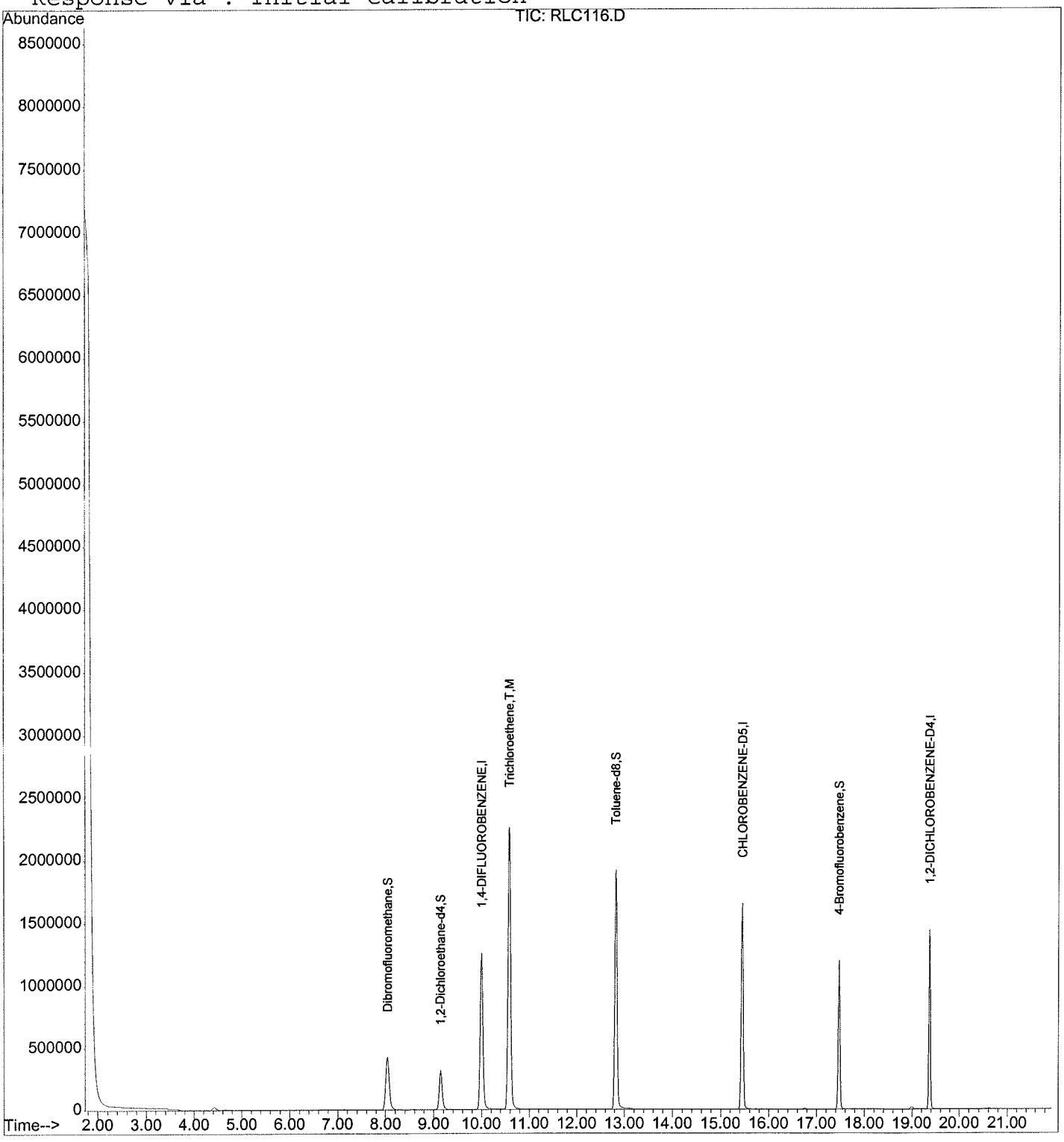
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2317073	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1730242	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	495677	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	718868	9.50	ug/l	0.01
Spiked Amount 10.000			Recovery =	95.00%		
43) 1,2-Dichloroethane-d4	9.14	65	429167	8.87	ug/l	0.00
Spiked Amount 10.000			Recovery =	88.70%		
56) Toluene-d8	12.82	98	2422976	9.17	ug/l	0.00
Spiked Amount 10.000			Recovery =	91.70%		
77) 4-Bromofluorobenzene	17.47	95	659065	9.78	ug/l	0.00
Spiked Amount 10.000			Recovery =	97.80%		
Target Compounds						Qvalue
46) Trichloroethene	10.59	130	1624949	18.09	ug/l	98

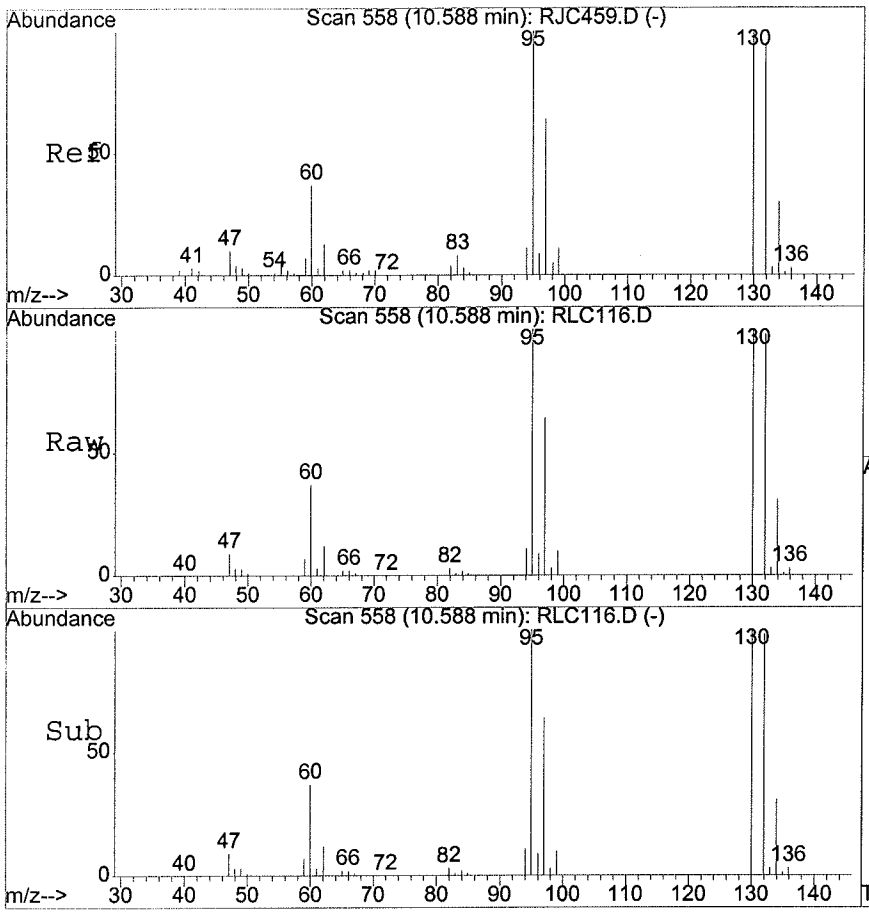
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC116.D Vial: 12
Acq On : 8 Dec 2020 3:34 pm Operator: VLu
Sample : 20L041-07I 0.5mL Inst : 67
Misc : DF=50 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:42 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

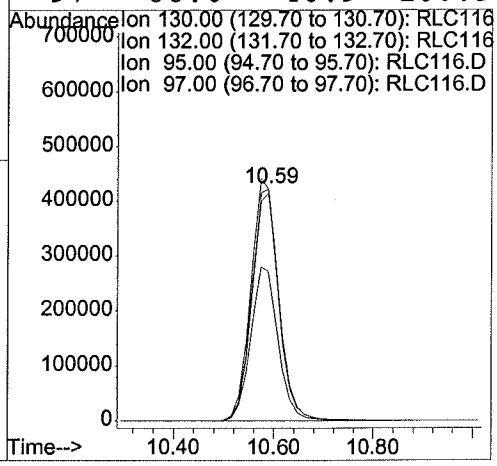




#46
Trichloroethene
Concen: 18.09 ug/l
RT: 10.59 min Scan# 558
Delta R.T. -0.00 min
Lab File: RLC116.D
Acq: 8 Dec 2020 3:34 pm

Tgt Ion:130 Resp: 1624949

Ion	Ratio	Lower	Upper
130	100		
132	97.1	65.5	125.5
95	103.5	73.3	133.3
97	66.0	40.9	100.9



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected	: 12/03/20
Project	: VAFB-SS003	Date Received	: 12/04/20
Batch No.	: 20L041	Date Extracted	: 12/07/20 18:00 # 12/08/20 15:59
Sample ID	: 3-MW-59(120320)	Date Analyzed	: 12/07/20 18:00 # 12/08/20 15:59
Lab Samp ID	: L041-08 #L041-08I	Dilution Factor	: 1 # 500
Lab File ID	: RLC092 #RLC117	Matrix	: WATER
Ext Btch ID	: VO67L05 #VO67L06	% Moisture	: NA
Calib. Ref.	: RJC459 #RJC459	Instrument ID	: 67

	PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
	1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
	1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
	1,1,2,2-TETRACHLOROETHANE	13	1.0	0.11	0.20
	1,1,2-TRICHLOROETHANE	1.4	1.0	0.10	0.20
	1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
	1,1-DICHLOROETHENE	3.0	1.0	0.10	0.20
	1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
	1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
	1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
	1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
	1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
	1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
	1,2-DICHLOROETHANE	0.28J	0.50	0.10	0.20
	1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
	1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
	1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
	2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
	2-BUTANONE	ND	10	2.0	4.0
	2-CHLOROTOLUENE	ND	1.0	0.12	0.20
	2-HEXANONE	ND	10	2.3	4.0
	4-CHLOROTOLUENE	ND	1.0	0.11	0.20
	ACETONE	ND	10	2.6	5.0
	BENZENE	4.9	1.0	0.10	0.20
	BROMOBENZENE	ND	1.0	0.10	0.20
	BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
	BROMODICHLOROMETHANE	0.76J	1.0	0.10	0.20
	BROMOFORM	2.4	1.0	0.15	0.30
	BROMOMETHANE	ND	1.0	0.16	0.30
	CARBON DISULFIDE	0.19J	1.0	0.10	0.20
	CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
	CHLOROBENZENE	ND	1.0	0.10	0.20
	CHLOROETHANE	ND	1.0	0.27	0.30
	CHLOROFORM	5.3	1.0	0.10	0.20
	CHLOROMETHANE	0.93J	1.0	0.15	0.30
	CIS-1,2-DICHLOROETHENE	53	1.0	0.10	0.20
	CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
	DIBROMOCHLOROMETHANE	1.3	1.0	0.10	0.20
	DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
	ETHYLBENZENE	ND	1.0	0.10	0.20
	HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
	ISOPROPYL BENZENE	ND	1.0	0.10	0.20
	M,P-XYLENES	ND	2.0	0.21	0.40
	MIBK	ND	10	2.1	4.0
	METHYLENE CHLORIDE	12	2.0	0.25	0.50
	MTBE	ND	1.0	0.13	0.20
	NAPHTHALENE	0.45J	2.0	0.25	0.50
	N-BUTYLBENZENE	ND	1.0	0.17	0.20
	N-PROPYLBENZENE	ND	1.0	0.13	0.20
	O-XYLENE	ND	1.0	0.10	0.20
	P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
	SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
	STYRENE	ND	1.0	0.10	0.20
	TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
	TETRACHLOROETHENE	6.3	1.0	0.15	0.20
	TOLUENE	ND	1.0	0.10	0.20
	TRANS-1,2-DICHLOROETHENE	38	1.0	0.10	0.20
	TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
#	TRICHLOROETHENE	7400	500	50	100
	TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
	VINYL CHLORIDE	0.95	0.50	0.12	0.20
	VINYL ACETATE	ND	2.0	0.25	0.50
	FREON113	ND	1.0	0.20	0.30
	TERT-BUTANOL	37	20	5.0	10
	DIPE	ND	1.0	0.10	0.20
	ETBE	ND	1.0	0.10	0.20
	TAME	ND	1.0	0.10	0.20

	SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
	1,2-DICHLOROETHANE-D4	8.96	10.00	89.6	70-120
	4-BROMOFLUOROBENZENE	9.43	10.00	94.3	75-120
	TOLUENE-D8	8.81	10.00	88.1	85-120
	DIBROMOFLUOROMETHANE	9.54	10.00	95.4	85-115
#	1,2-DICHLOROETHANE-D4	4320	5000	86.4	70-120
#	4-BROMOFLUOROBENZENE	4930	5000	98.5	75-120
#	TOLUENE-D8	4650	5000	93.0	85-120
#	DIBROMOFLUOROMETHANE	4640	5000	92.8	85-115

Members of the Associated File

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/03/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/07/20 18:00
Sample ID: 3-MW-59(120320)	Date Analyzed: 12/07/20 18:00
Lab Samp ID: L041-08	Dilution Factor: 1
Lab File ID: RLC092	Matrix : WATER
Ext Btch ID: VO67L05	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	13	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	1.4	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	3.0	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	0.28J	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	ND	10	2.6	5.0
BENZENE	4.9	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	0.76J	1.0	0.10	0.20
BROMOFORM	2.4	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	0.19J	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	ND	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	5.3	1.0	0.10	0.20
CHLOROMETHANE	0.93J	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	53	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	1.3	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	12	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	0.45J	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	6.3	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	38	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	820E	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	0.95	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	37	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.96	10.00	89.6	70-120
4-BROMOFLUOROBENZENE	9.43	10.00	94.3	75-120
TOLUENE-D8	8.81	10.00	88.1	85-120
DIBROMOFLUOROMETHANE	9.54	10.00	95.4	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC092.D Vial: 17
Acq On : 7 Dec 2020 6:00 pm Operator: VLu
Sample : 20L041-08 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 12:58 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

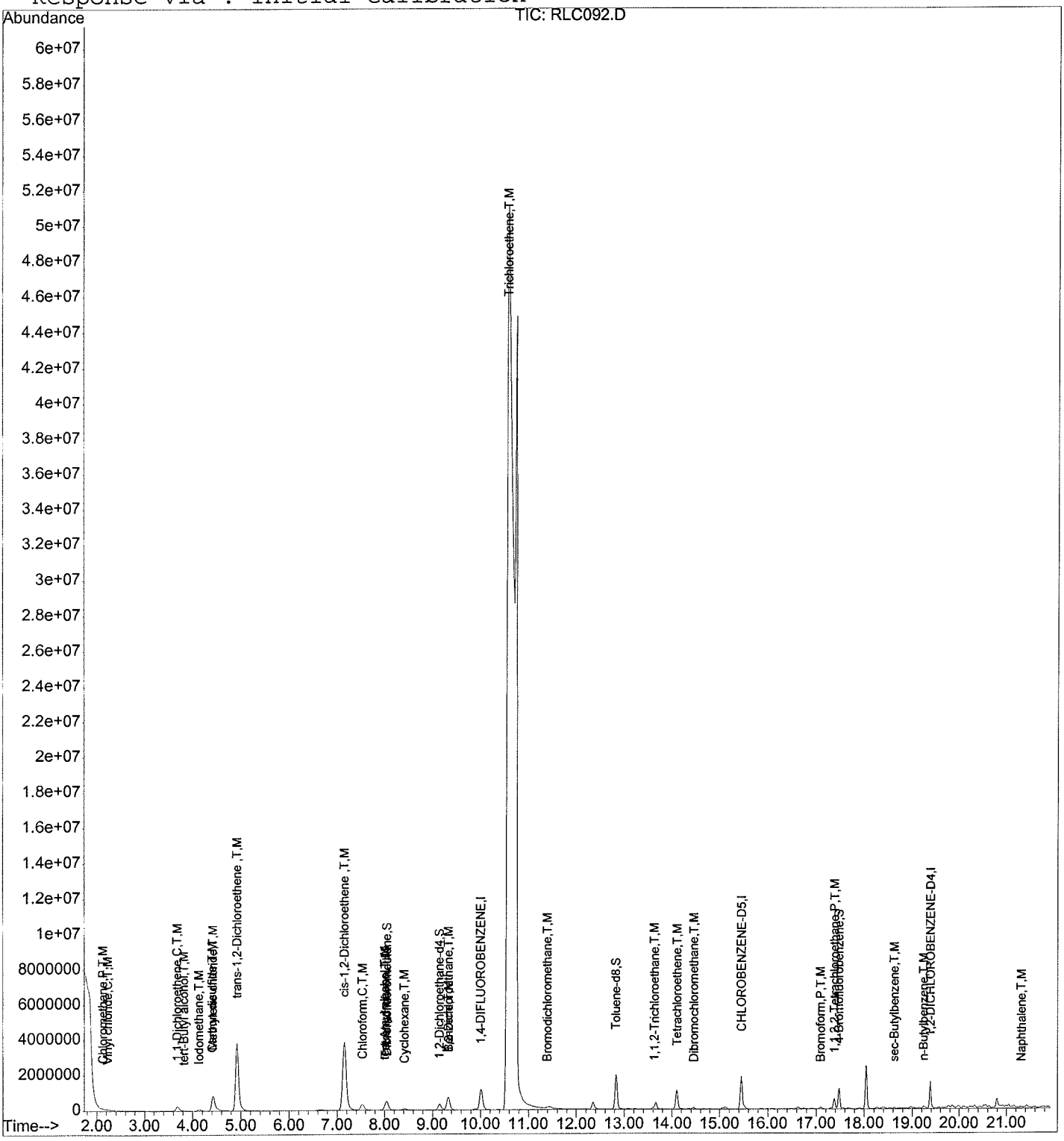
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.01	114	2414885	10.00	ug/l		0.00
55) CHLOROBENZENE-D5	15.45	117	1826162	10.00	ug/l		0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	537935	10.00	ug/l		0.00
System Monitoring Compounds							
35) Dibromofluoromethane	8.05	111	752082	9.54	ug/l		0.02
Spiked Amount 10.000			Recovery =	95.40%			
43) 1,2-Dichloroethane-d4	9.14	65	452238	8.96	ug/l		0.00
Spiked Amount 10.000			Recovery =	89.60%			
56) Toluene-d8	12.82	98	2455061	8.81	ug/l		0.00
Spiked Amount 10.000			Recovery =	88.10%			
77) 4-Bromofluorobenzene	17.47	95	689294	9.43	ug/l		0.00
Spiked Amount 10.000			Recovery =	94.30%			
Target Compounds							Qvalue
4) Chloromethane	2.13	50	119437	0.93	ug/l		99
5) Vinyl chloride	2.23	62	115015	0.95	ug/l		90
14) 1,1-Dichloroethene	3.68	61	449794	3.00	ug/l		99
15) tert-Butyl alcohol	3.83	59	96020	37.21	ug/l		100
17) Iodomethane	4.13	142	231722	1.72	ug/l		98
19) Methylene chloride	4.42	49	1284370	12.15	ug/l		99
20) Carbon disulfide	4.41	76	71022	0.19	ug/l		99
23) trans-1,2-Dichloroethene	4.92	96	4098022	38.36	ug/l		98
31) cis-1,2-Dichloroethene	7.16	96	5513454	52.95	ug/l		99
32) Chloroform	7.54	83	812127	5.27	ug/l		97
34) tert-Amyl alcohol	8.00	59	151649	70.73	ug/l		97
36) Tetrahydrofuran	8.02	42	15437	1.97	ug/l	#	65
38) Cyclohexane	8.41	84	103845	0.71	ug/l		99
44) 1,2-Dichloroethane	9.33	62	17399	0.28	ug/l		96
45) Benzene	9.33	78	1723081	4.87	ug/l		99
46) Trichloroethene	10.57	130	76557548m	817.70	ug/l	E	
49) Bromodichloromethane	11.39	83	71125	0.76	ug/l		96
60) 1,1,2-Trichloroethane	13.63	97	62056m	1.42	ug/l		
63) Tetrachloroethene	14.11	164	451632	6.30	ug/l		98
64) Dibromochloromethane	14.46	129	70013	1.32	ug/l		99
75) Bromoform	17.09	173	58187	2.40	ug/l		98
76) 1,1,2,2-Tetrachloroethane	17.38	83	518119	13.14	ug/l		100
87) sec-Butylbenzene	18.62	105	35928	0.10	ug/l		99
91) n-Butylbenzene	19.24	91	35202	0.13	ug/l		77
96) Naphthalene	21.31	128	24745	0.45	ug/l		57

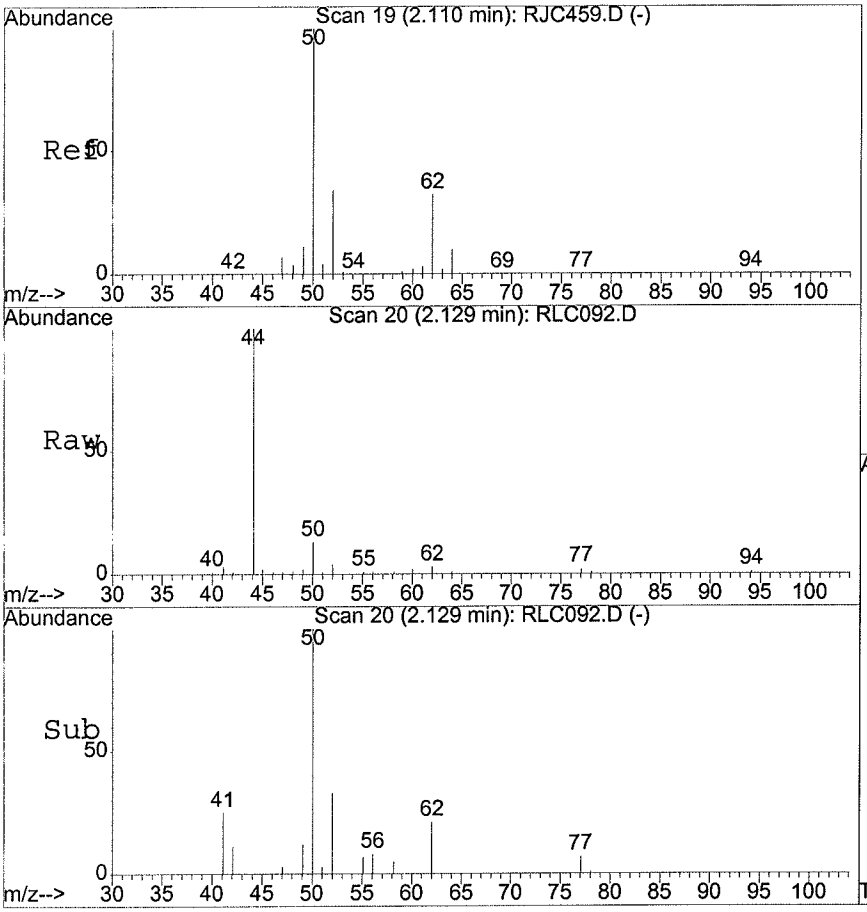
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC092.D Vial: 17
Acq On : 7 Dec 2020 6:00 pm Operator: VLu
Sample : 20L041-08 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 12:58 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

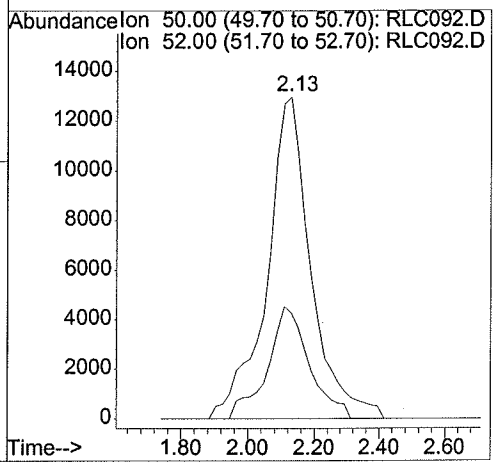


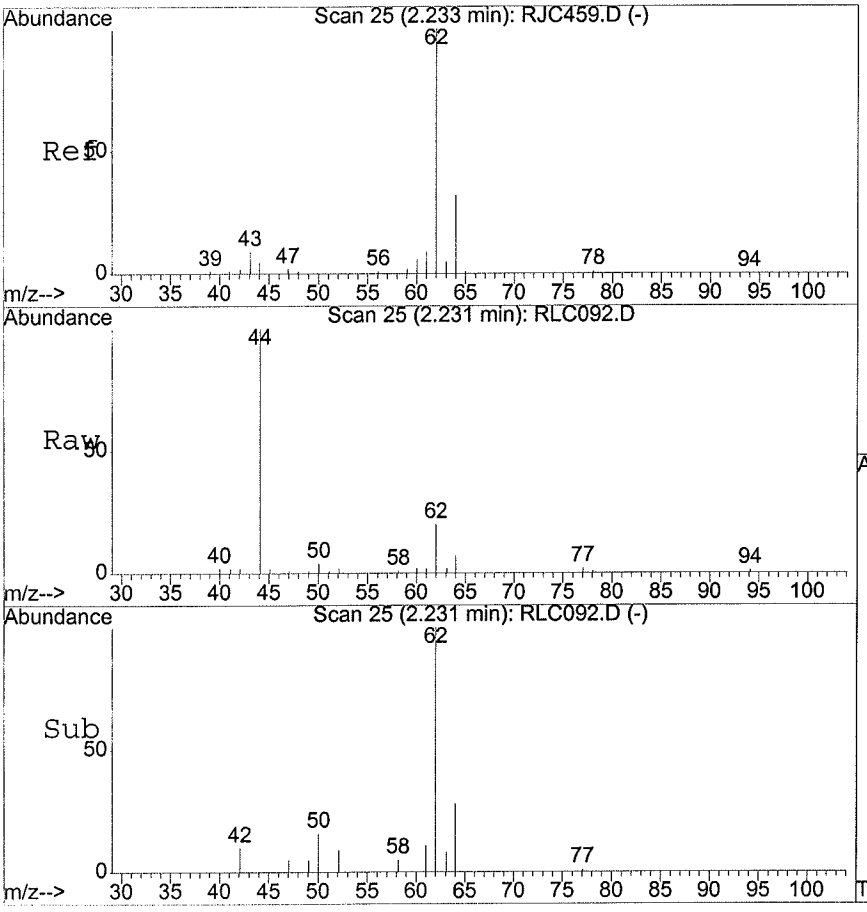


#4
Chloromethane
Concen: 0.93 ug/l
RT: 2.13 min Scan# 20
Delta R.T. 0.02 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 50 Resp: 119437

Ion	Ratio	Lower	Upper
50	100		
52	33.2	3.5	63.5

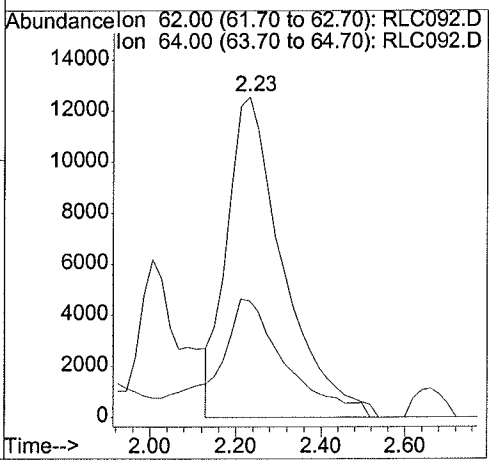


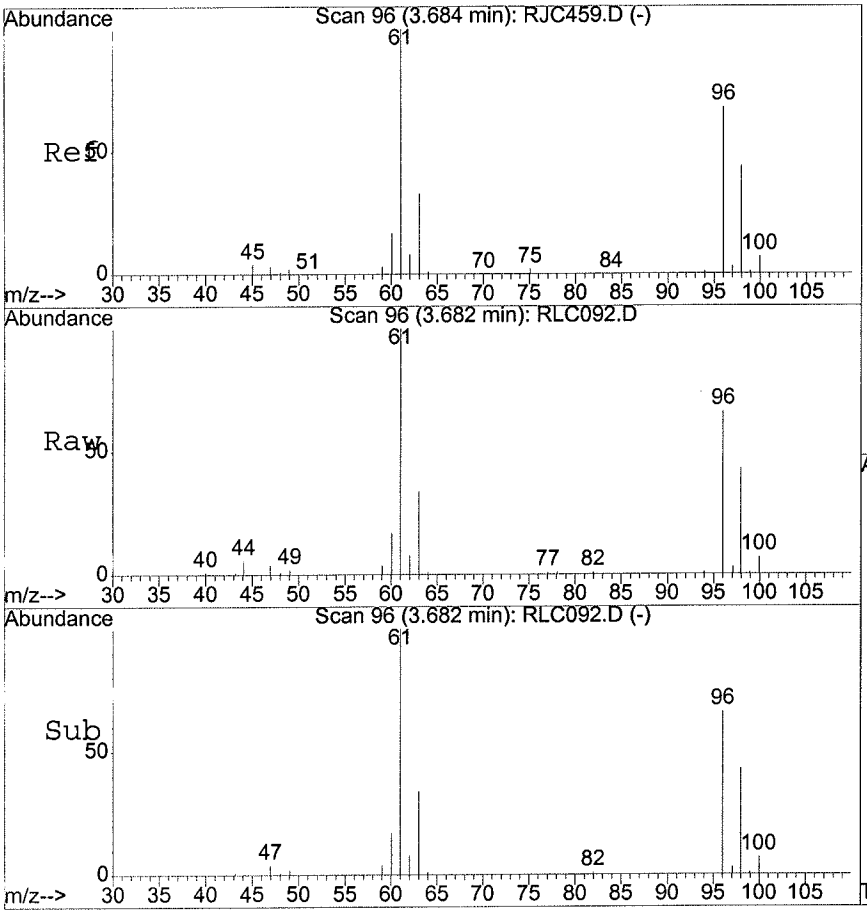


#5
Vinyl chloride
Concen: 0.95 ug/l
RT: 2.23 min Scan# 25
Delta R.T. -0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 62 Resp: 115015

Ion	Ratio	Lower	Upper
62	100		
64	37.1	1.4	61.4

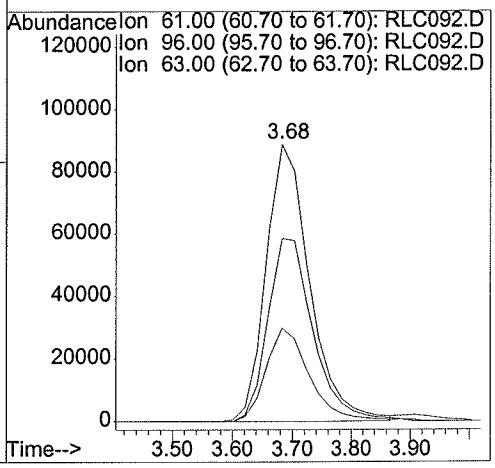


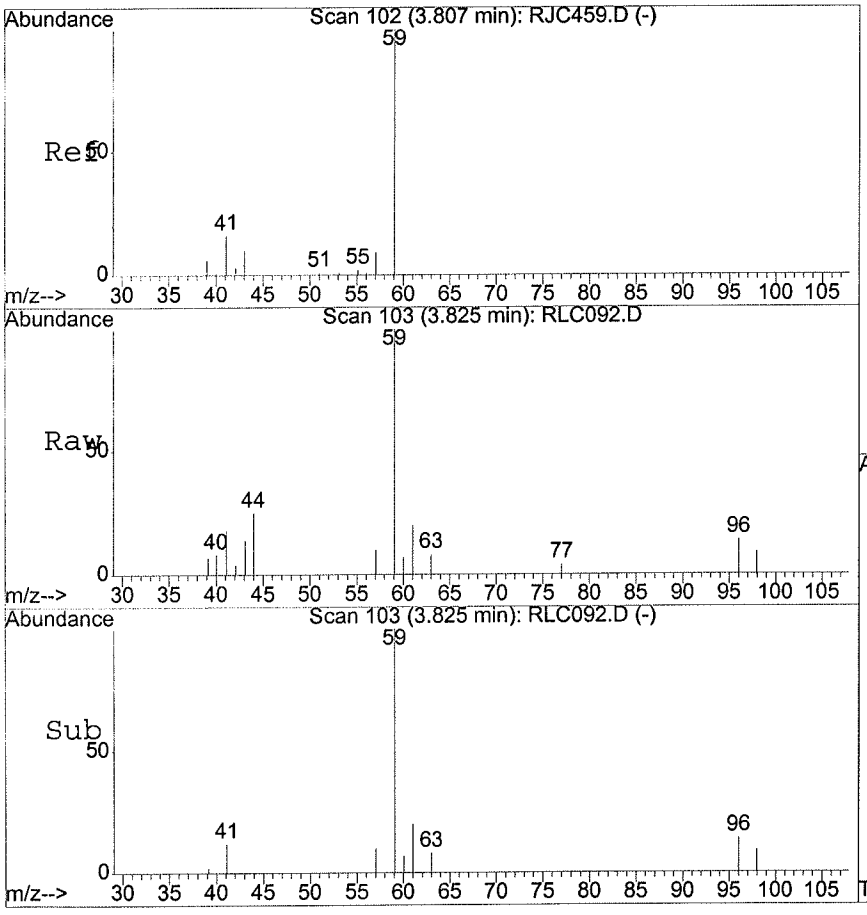


#14
1,1-Dichloroethene
Concen: 3.00 ug/l
RT: 3.68 min Scan# 96
Delta R.T. -0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 61 Resp: 449794

Ion	Ratio	Lower	Upper
61	100		
96	68.3	38.7	98.7
63	33.6	2.9	62.9

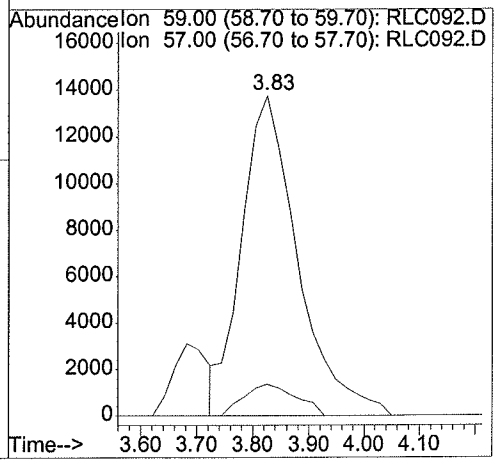


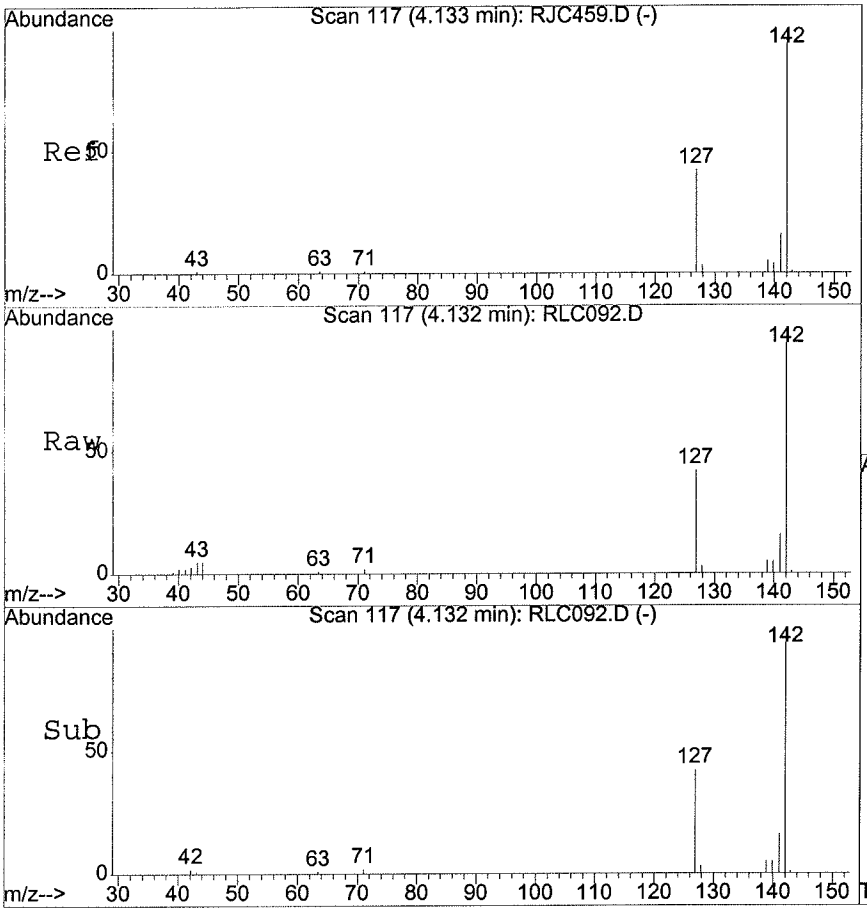


#15
tert-Butyl alcohol
Concen: 37.21 ug/l
RT: 3.83 min Scan# 103
Delta R.T. 0.02 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 59 Resp: 96020

Ion	Ratio	Lower	Upper
59	100		
57	9.2	0.0	39.2

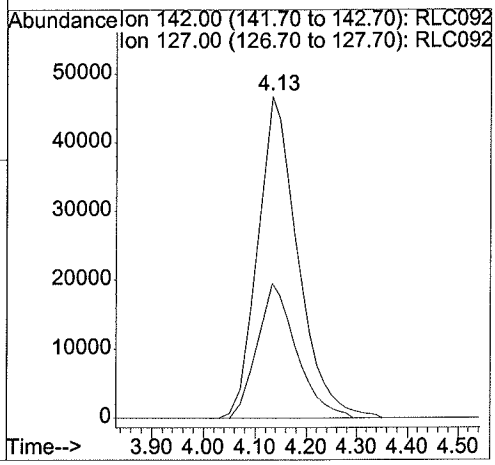


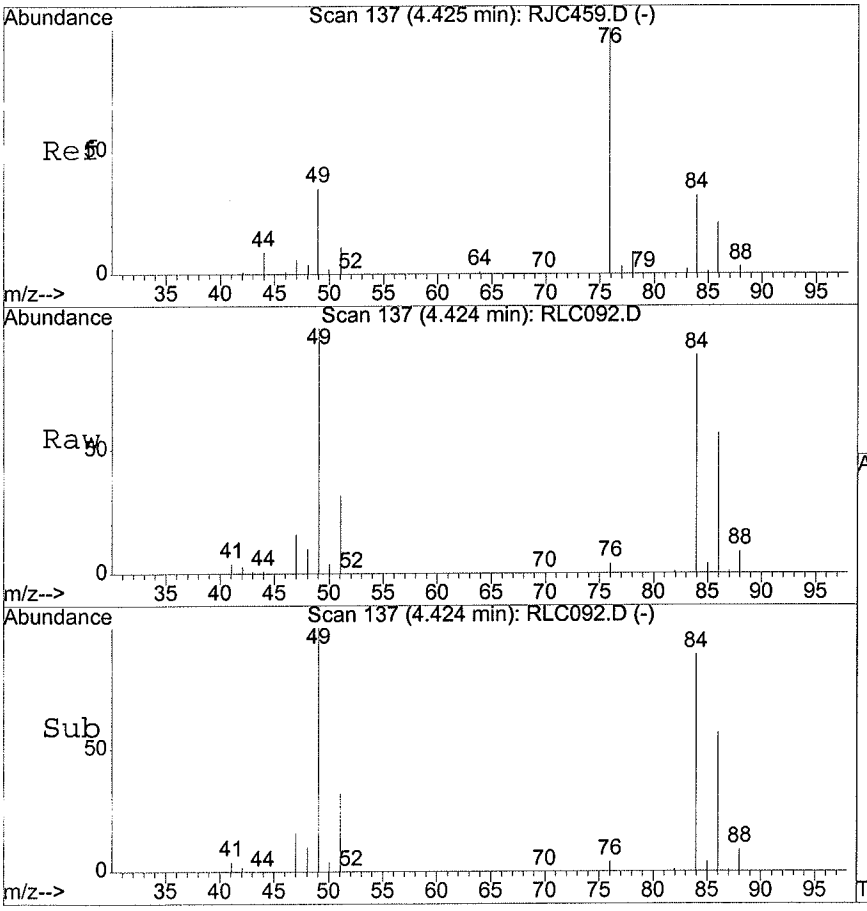


#17
Iodomethane
Concen: 1.72 ug/l
RT: 4.13 min Scan# 117
Delta R.T. -0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion:142 Resp: 231722

Ion	Ratio	Lower	Upper
142	100		
127	41.5	12.5	72.5

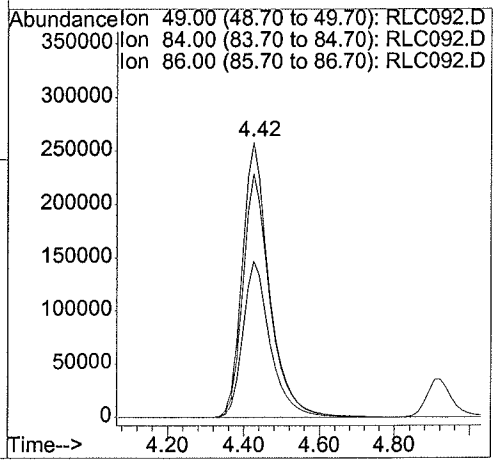


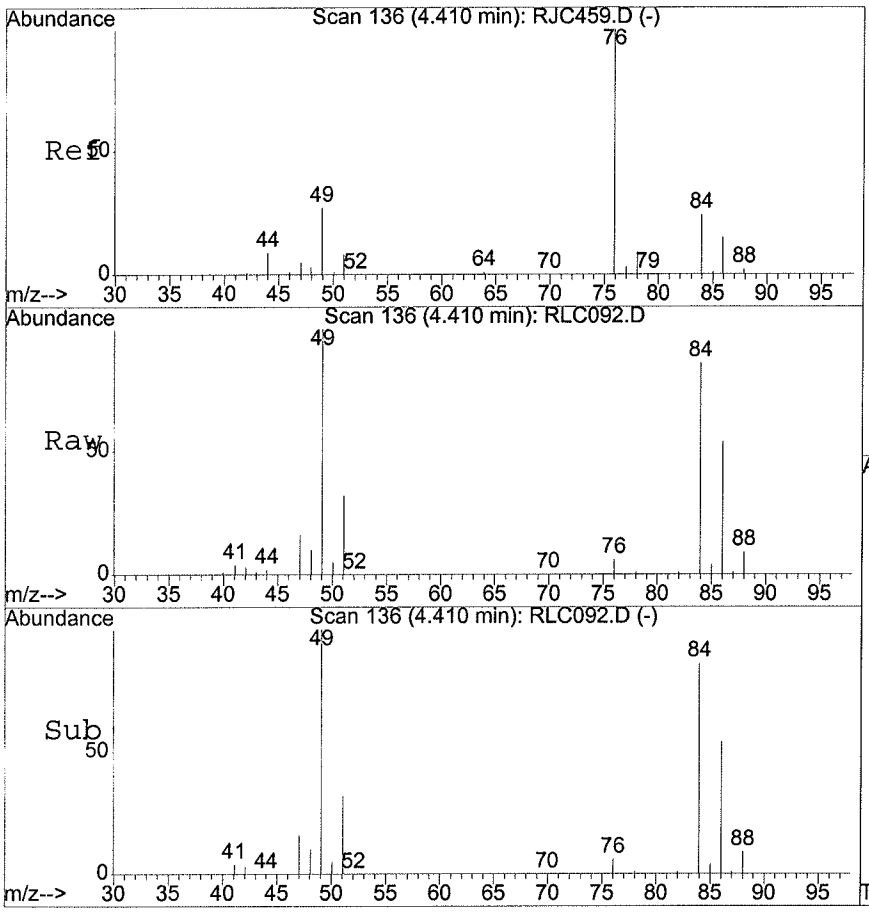


#19
Methylene chloride
Concen: 12.15 ug/l
RT: 4.42 min Scan# 137
Delta R.T. -0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 49 Resp: 1284370

Ion	Ratio	Lower	Upper
49	100		
84	88.6	60.1	120.1
86	57.0	27.5	87.5

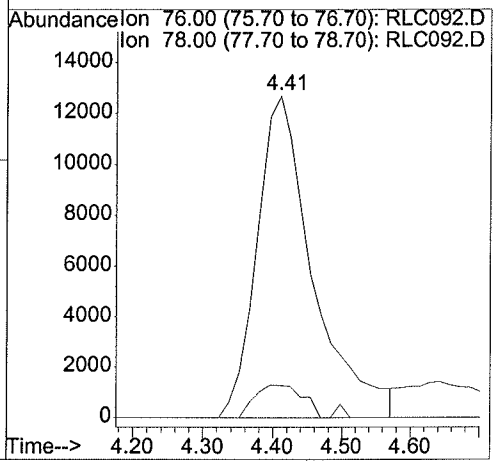


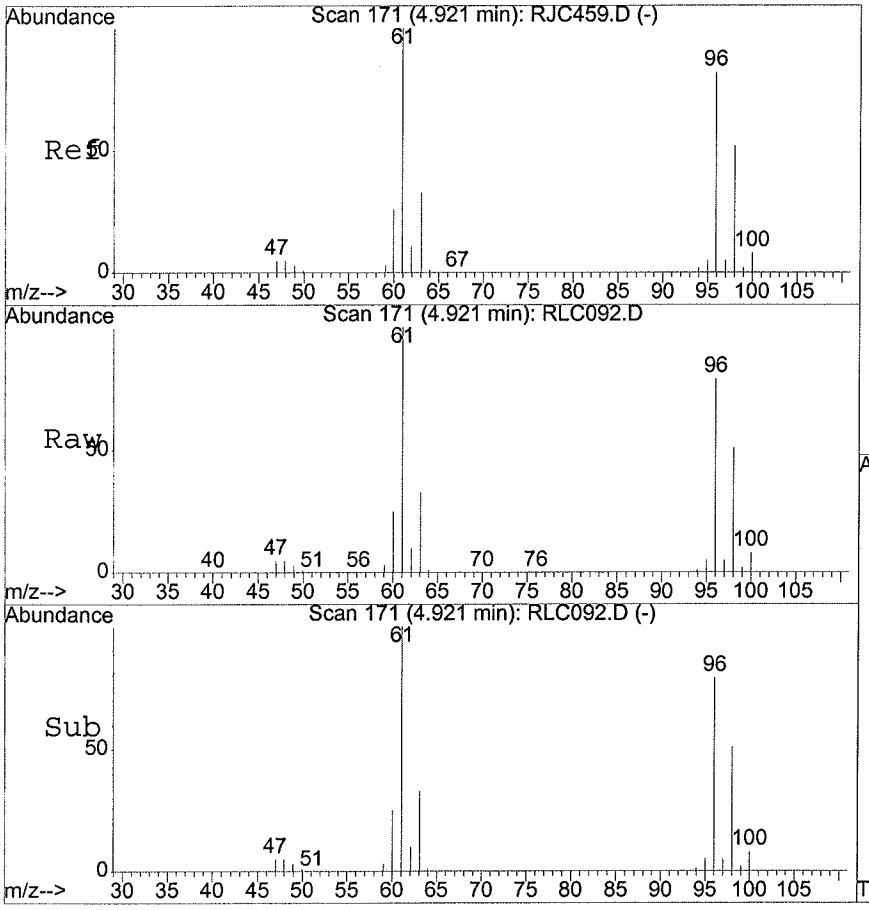


#20
Carbon disulfide
Concen: 0.19 ug/l
RT: 4.41 min Scan# 136
Delta R.T. -0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 76 Resp: 71022

Ion	Ratio	Lower	Upper
76	100		
78	8.7	0.0	39.1

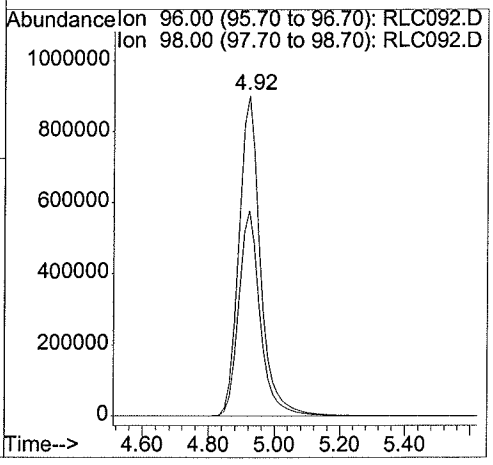


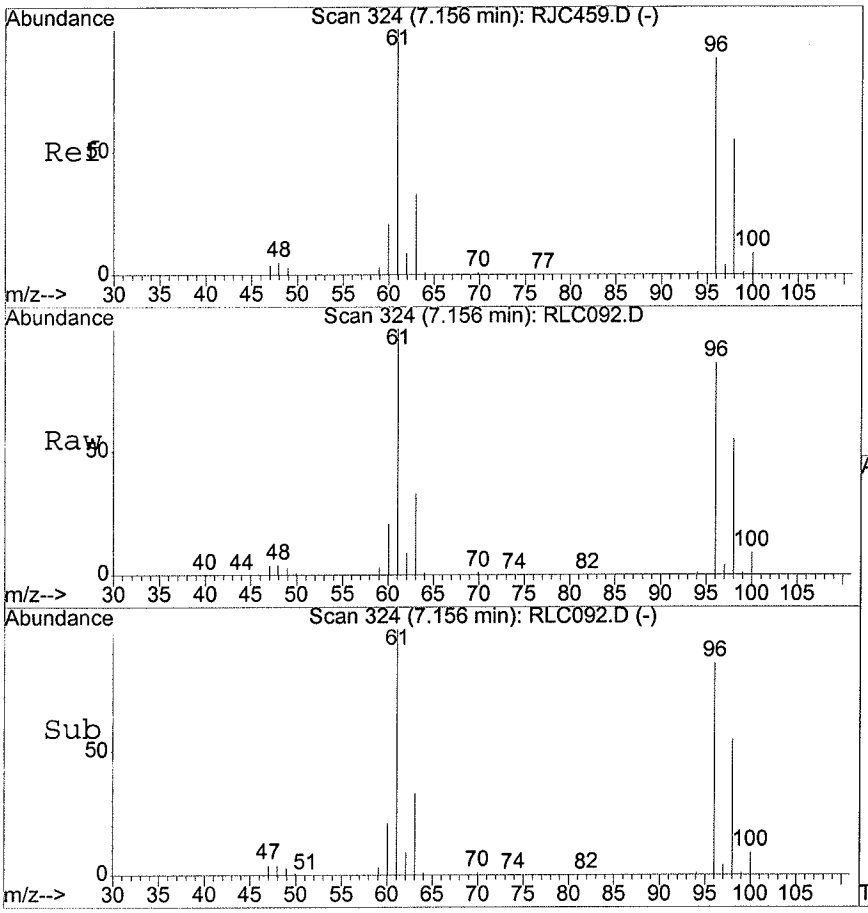


#23
trans-1,2-Dichloroethene
Concen: 38.36 ug/l
RT: 4.92 min Scan# 171
Delta R.T. -0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 96 Resp: 4098022

Ion	Ratio	Lower	Upper
96	100		
98	64.1	32.6	92.6

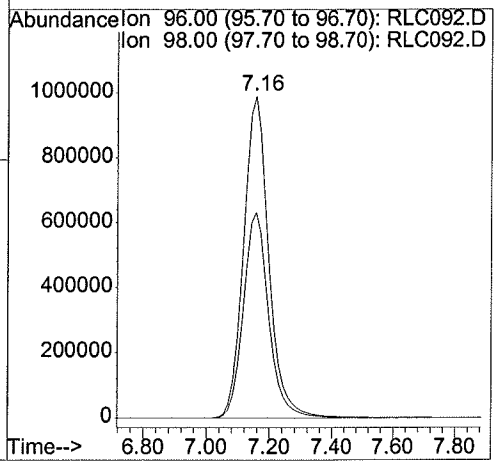


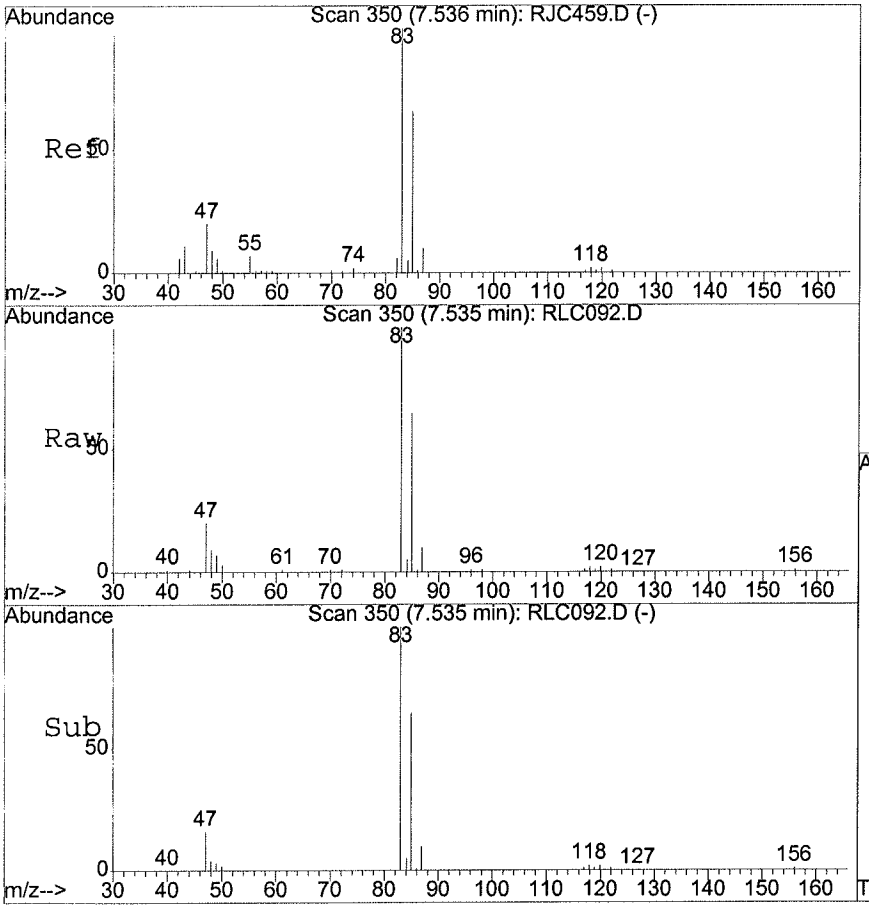


#31
cis-1,2-Dichloroethene
Concen: 52.95 ug/l
RT: 7.16 min Scan# 324
Delta R.T. -0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 96 Resp: 5513454

Ion	Ratio	Lower	Upper
96	100		
98	64.3	33.5	93.5

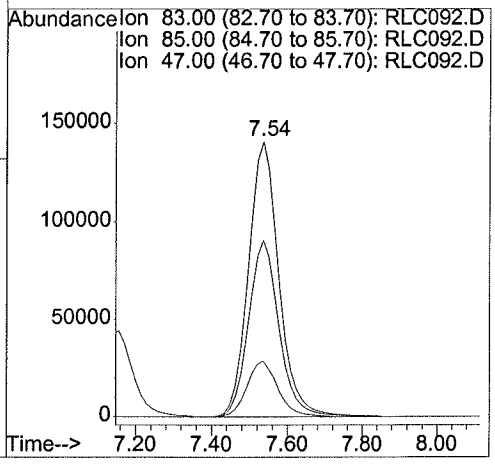


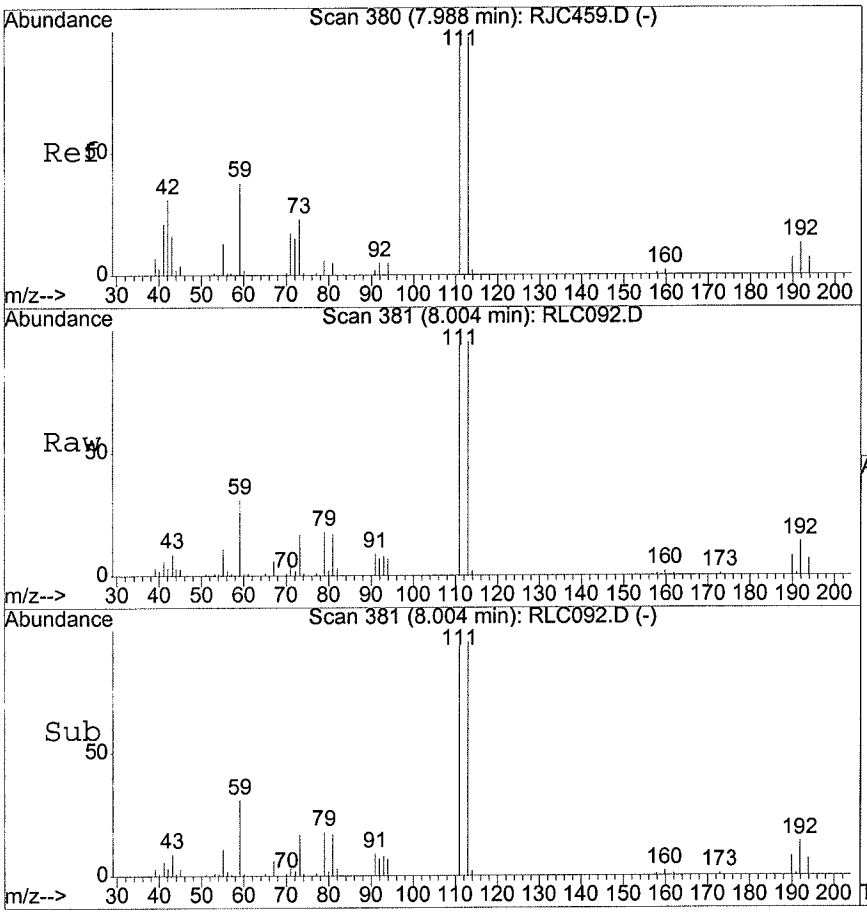


#32
Chloroform
Concen: 5.27 ug/l
RT: 7.54 min Scan# 350
Delta R.T. -0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 83 Resp: 812127

Ion	Ratio	Lower	Upper
83	100		
85	64.6	37.8	97.8
47	20.8	0.0	50.5

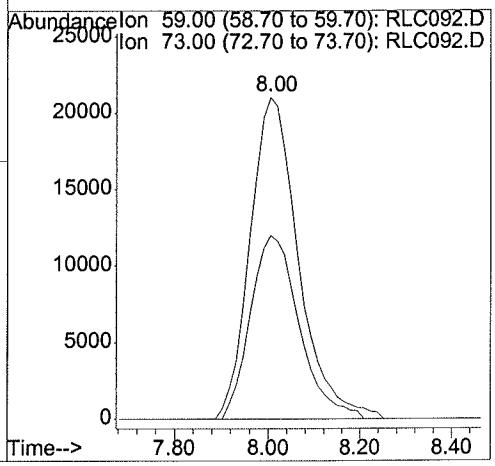


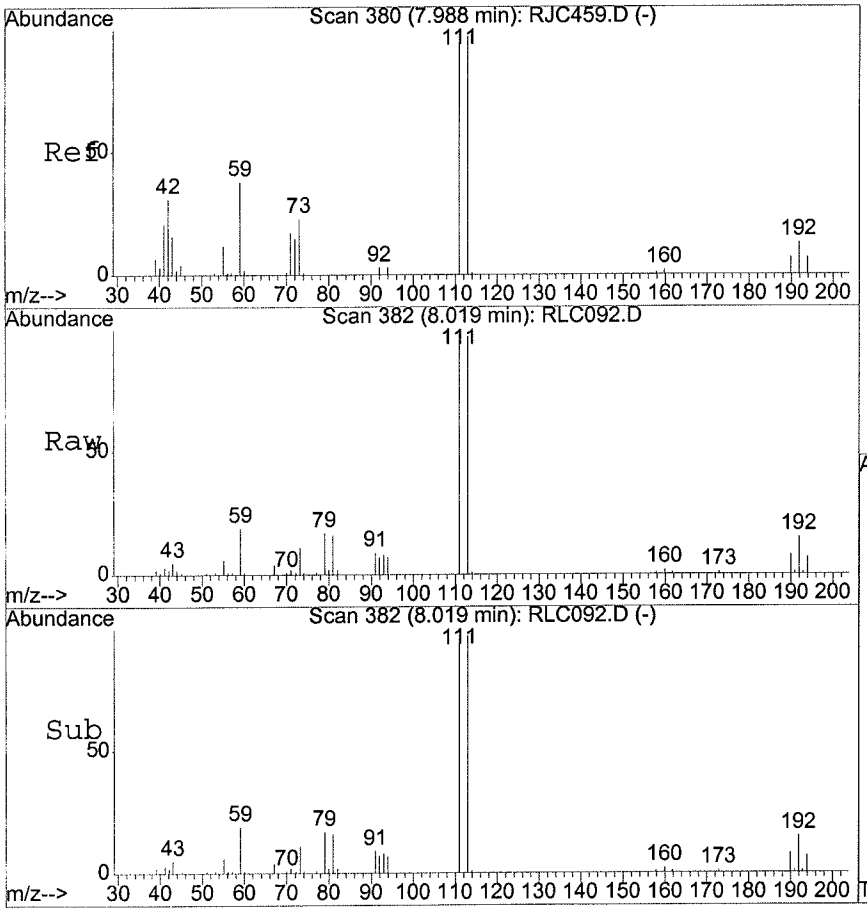


#34
tert-Amyl alcohol
Concen: 70.73 ug/l
RT: 8.00 min Scan# 381
Delta R.T. 0.02 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 59 Resp: 151649

Ion	Ratio	Lower	Upper
59	100		
73	57.7	29.7	89.7

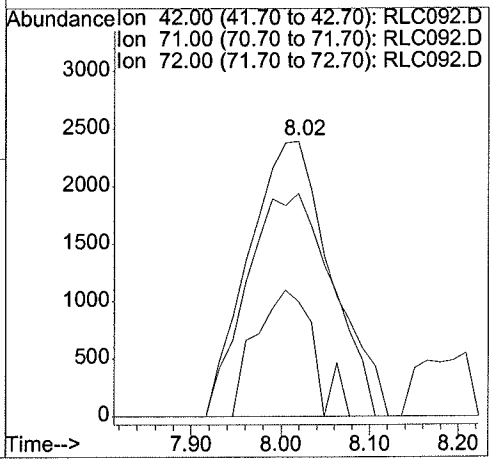


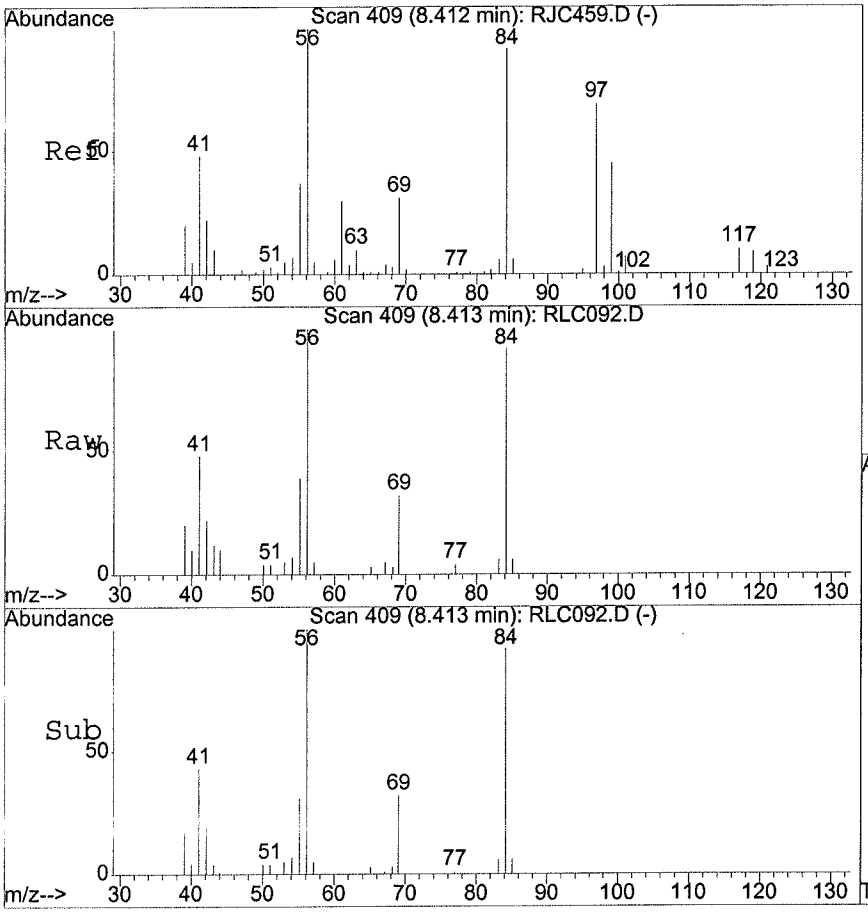


#36
Tetrahydrofuran
Concen: 1.97 ug/l
RT: 8.02 min Scan# 382
Delta R.T. 0.03 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 42 Resp: 15437

Ion	Ratio	Lower	Upper
42	100		
71	83.6	22.5	82.5#
72	29.7	15.9	75.9

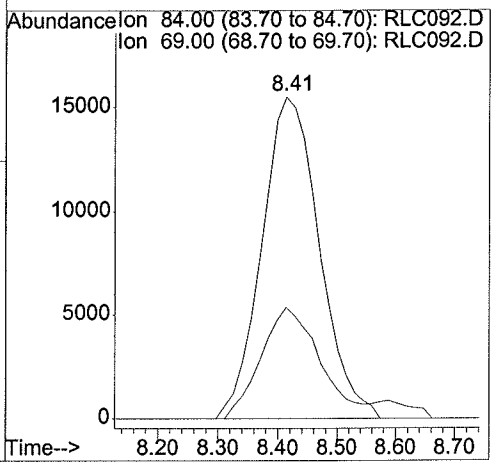


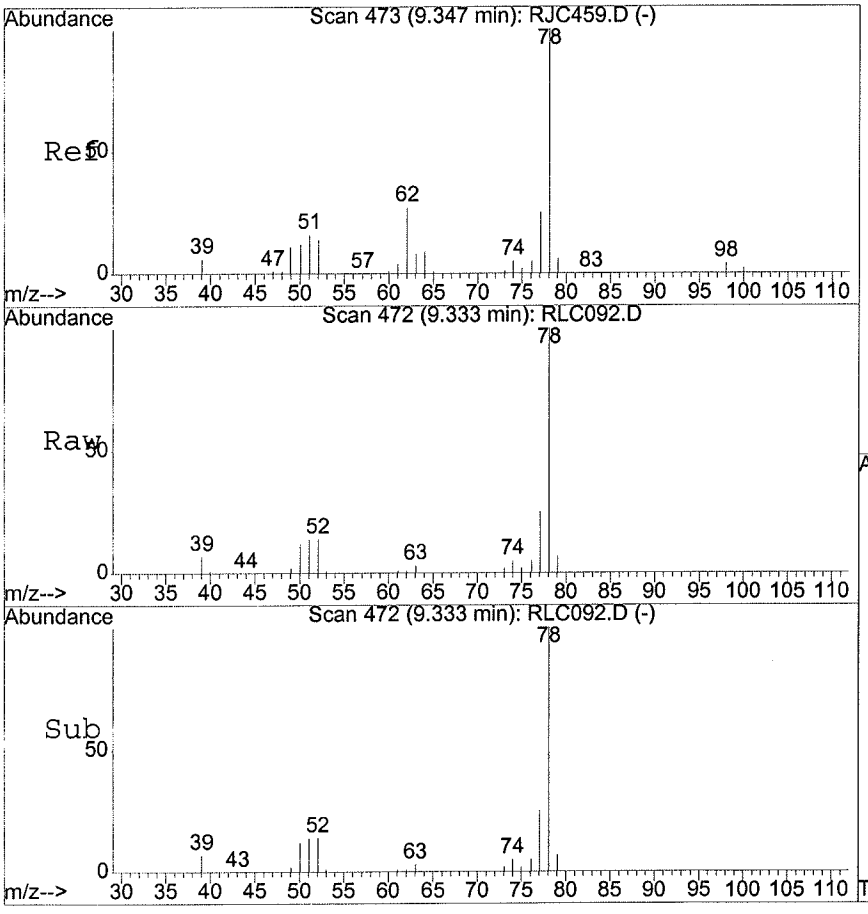


#38
Cyclohexane
Concen: 0.71 ug/l
RT: 8.41 min Scan# 409
Delta R.T. 0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 84 Resp: 103845

Ion	Ratio	Lower	Upper
84	100		
69	35.4	6.0	66.0

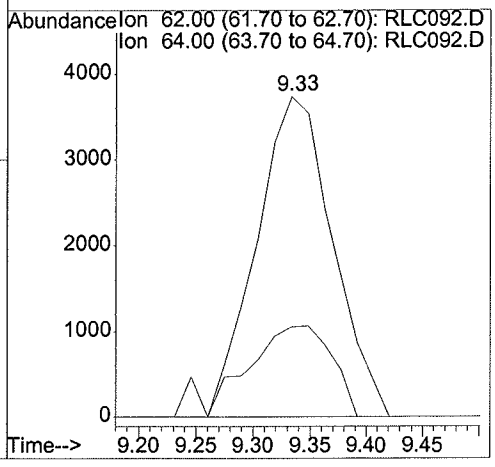


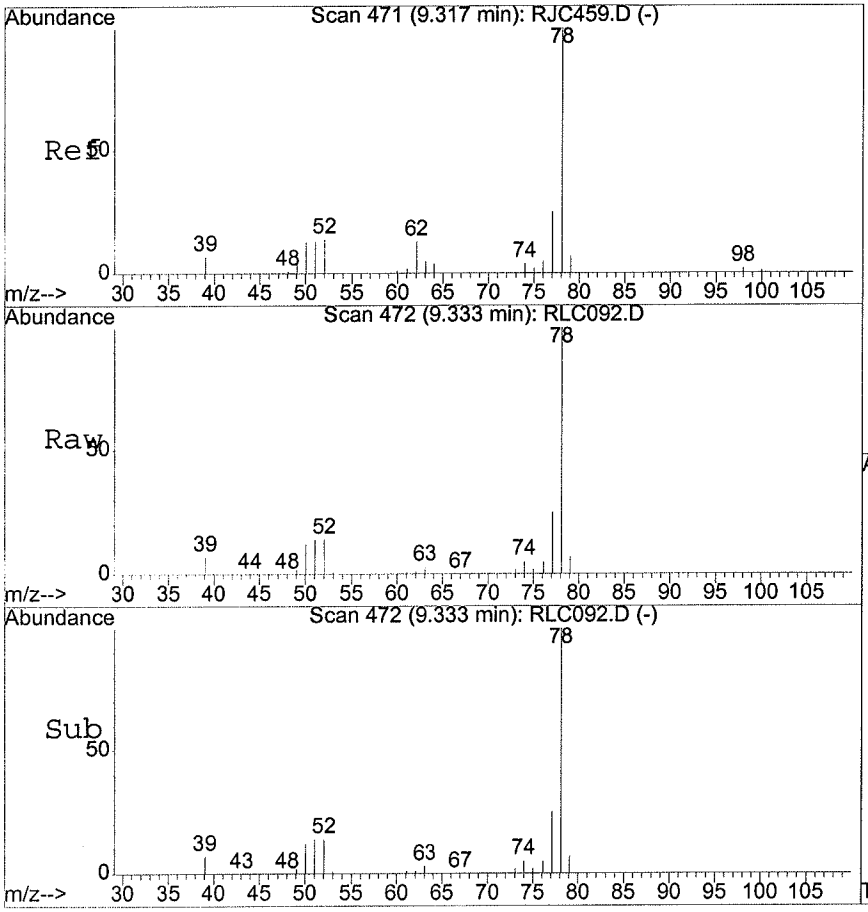


#44
1,2-Dichloroethane
Concen: 0.28 ug/l
RT: 9.33 min Scan# 472
Delta R.T. -0.01 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 62 Resp: 17399

Ion	Ratio	Lower	Upper
62	100		
64	30.6	3.1	63.1

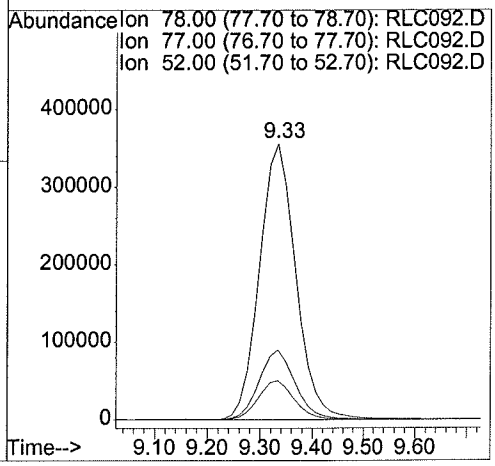


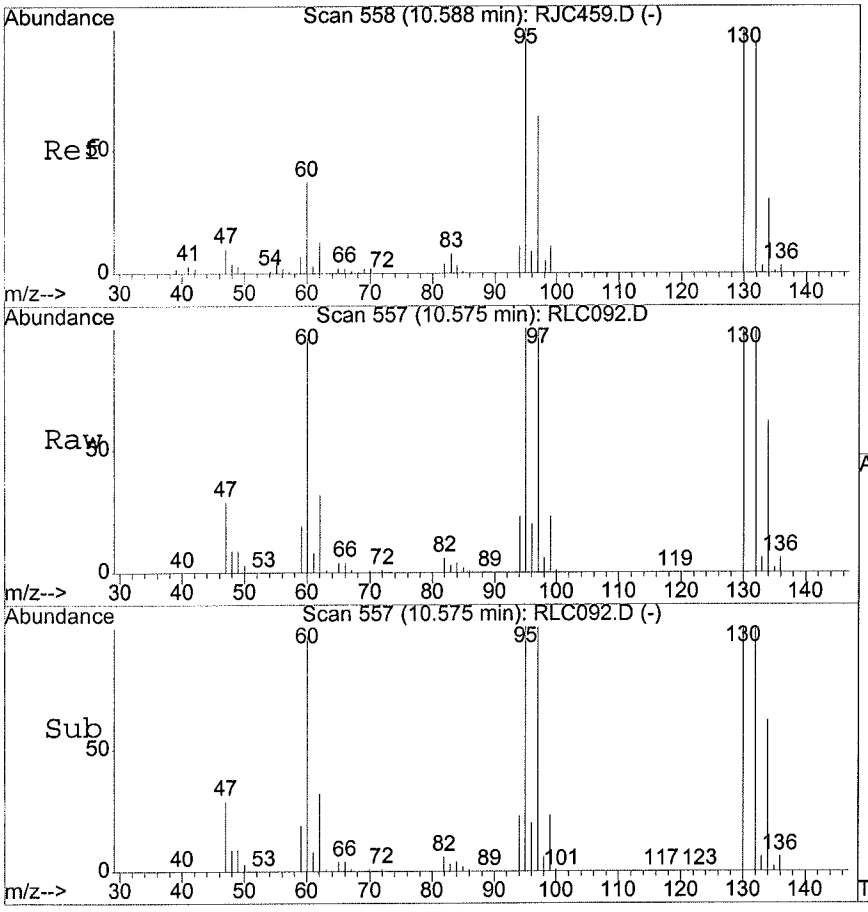


#45
Benzene
Concen: 4.87 ug/l
RT: 9.33 min Scan# 472
Delta R.T. 0.02 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 78 Resp: 1723081

Ion	Ratio	Lower	Upper
78	100		
77	24.7	0.0	55.1
52	14.1	0.0	44.3

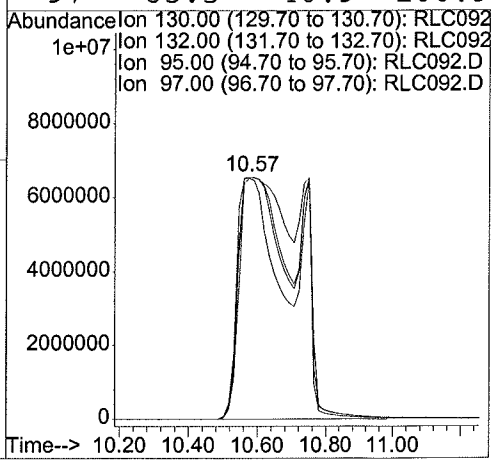


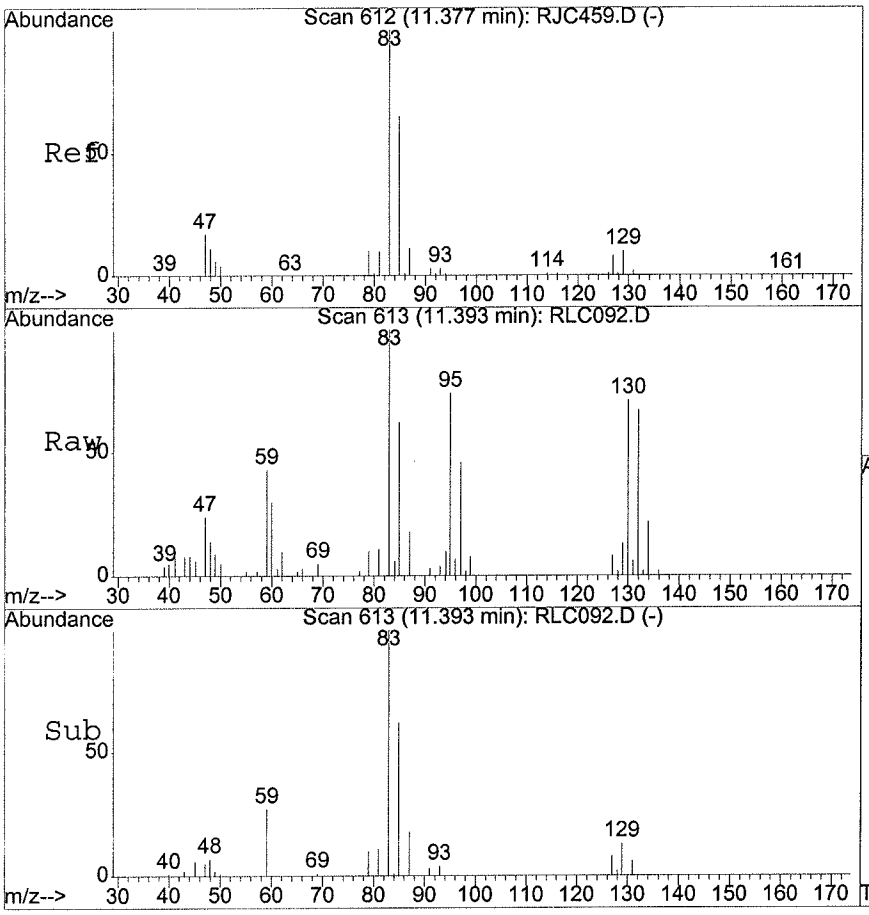


#46
Trichloroethene
Concen: 817.70 ug/l m
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion:130 Resp:76557548

Ion	Ratio	Lower	Upper
130	100		
132	74.2	65.5	125.5
95	84.1	73.3	133.3
97	65.3	40.9	100.9

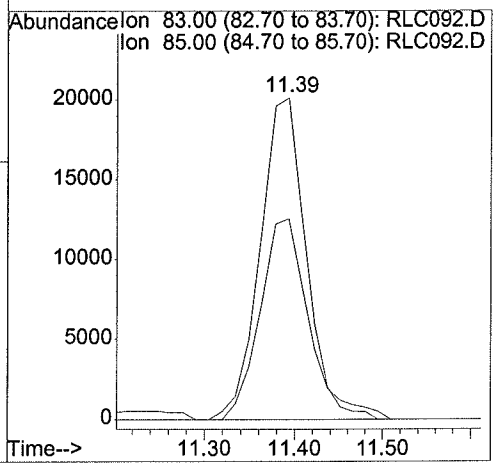


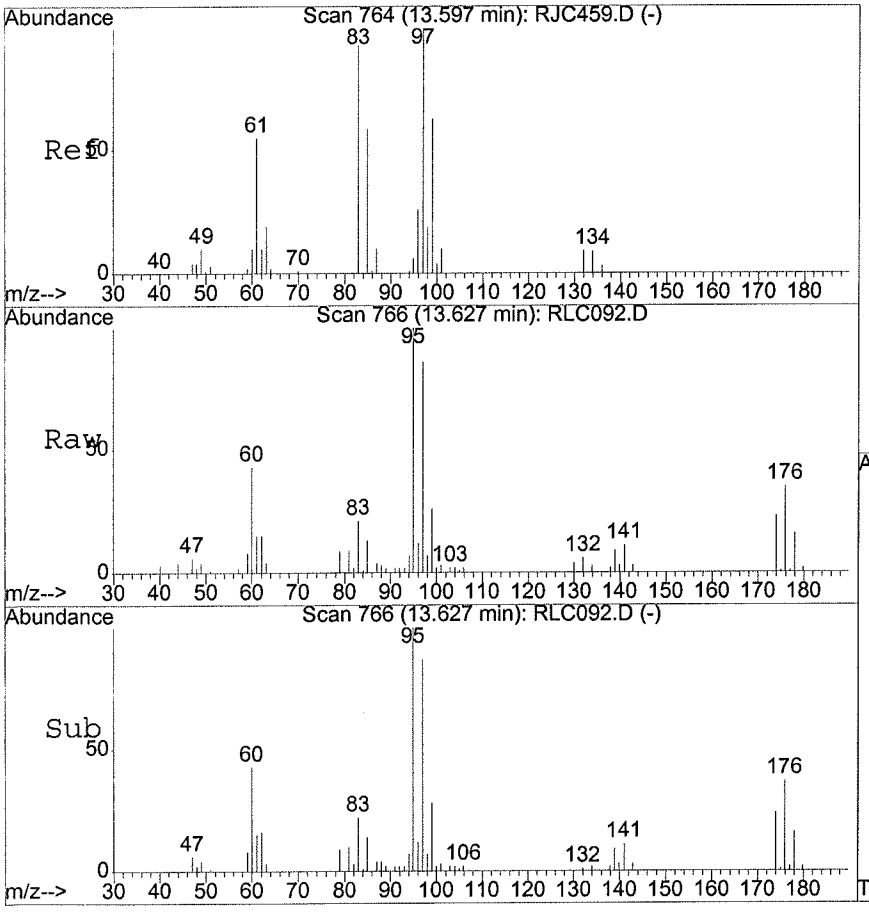


#49
Bromodichloromethane
Concen: 0.76 ug/l
RT: 11.39 min Scan# 613
Delta R.T. 0.02 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 83 Resp: 71125

Ion	Ratio	Lower	Upper
83	100		
85	67.2	34.3	94.3

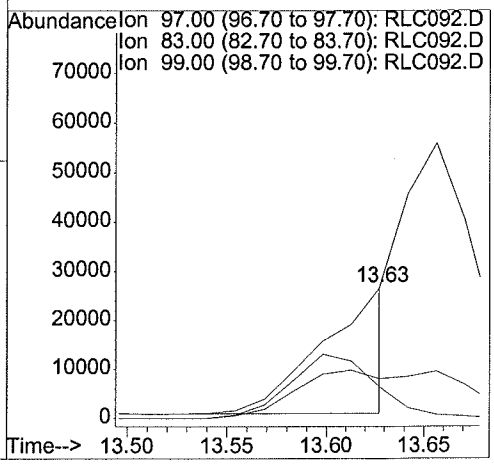


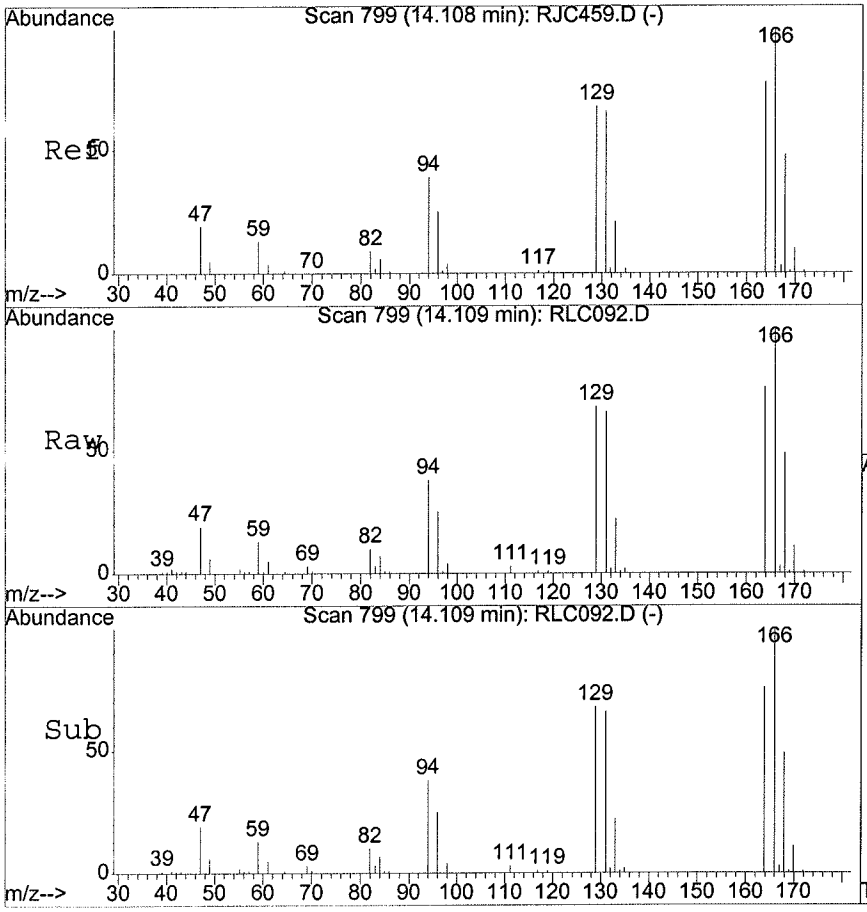


#60
1,1,2-Trichloroethane
Concen: 1.42 ug/l m
RT: 13.63 min Scan# 766
Delta R.T. 0.03 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 97 Resp: 62056

Ion	Ratio	Lower	Upper
97	100		
83	64.7	60.6	120.6
99	90.9	33.2	93.2

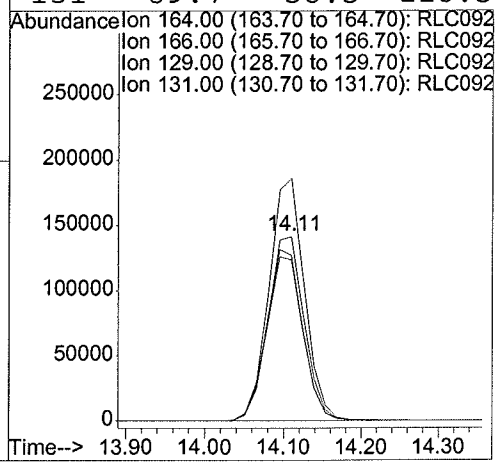


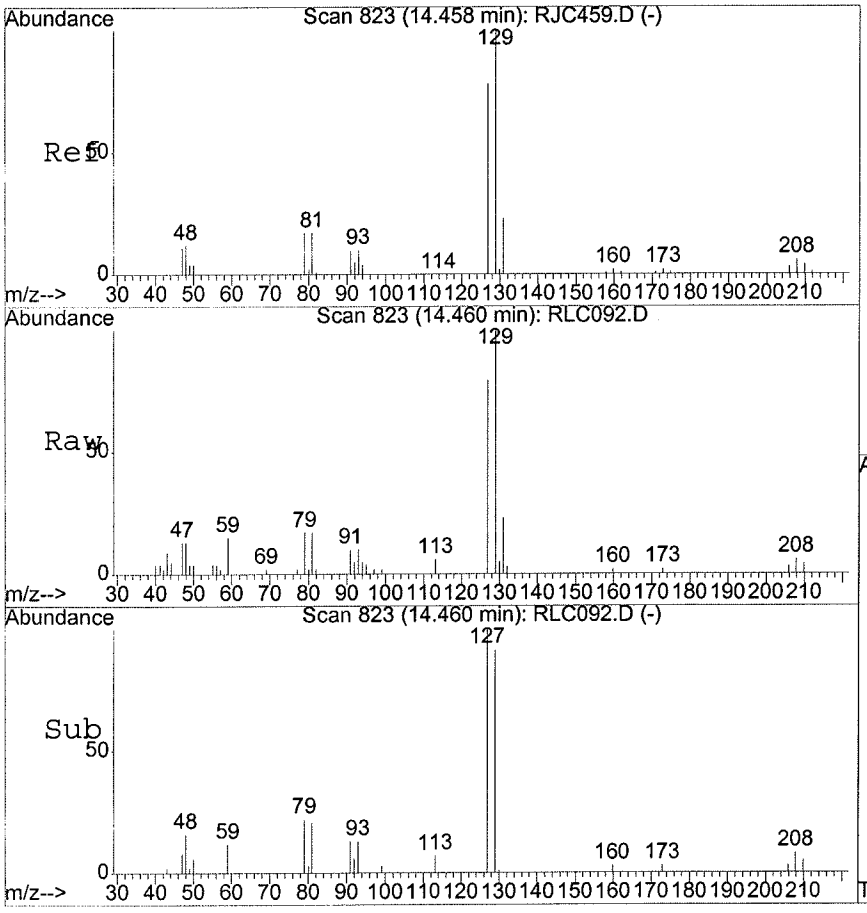


#63
Tetrachloroethene
Concen: 6.30 ug/l
RT: 14.11 min Scan# 799
Delta R.T. 0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion:164 Resp: 451632

Ion	Ratio	Lower	Upper
164	100		
166	129.7	97.5	157.5
129	93.2	61.9	121.9
131	89.7	58.5	118.5

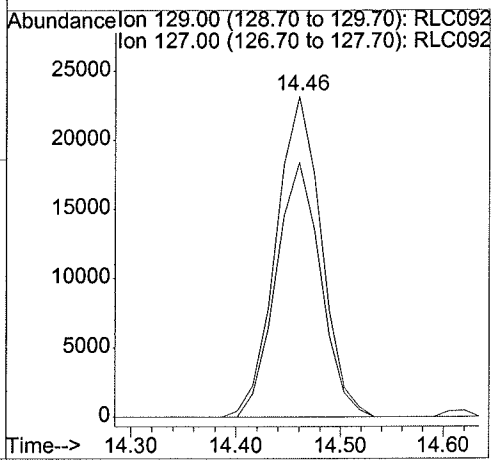


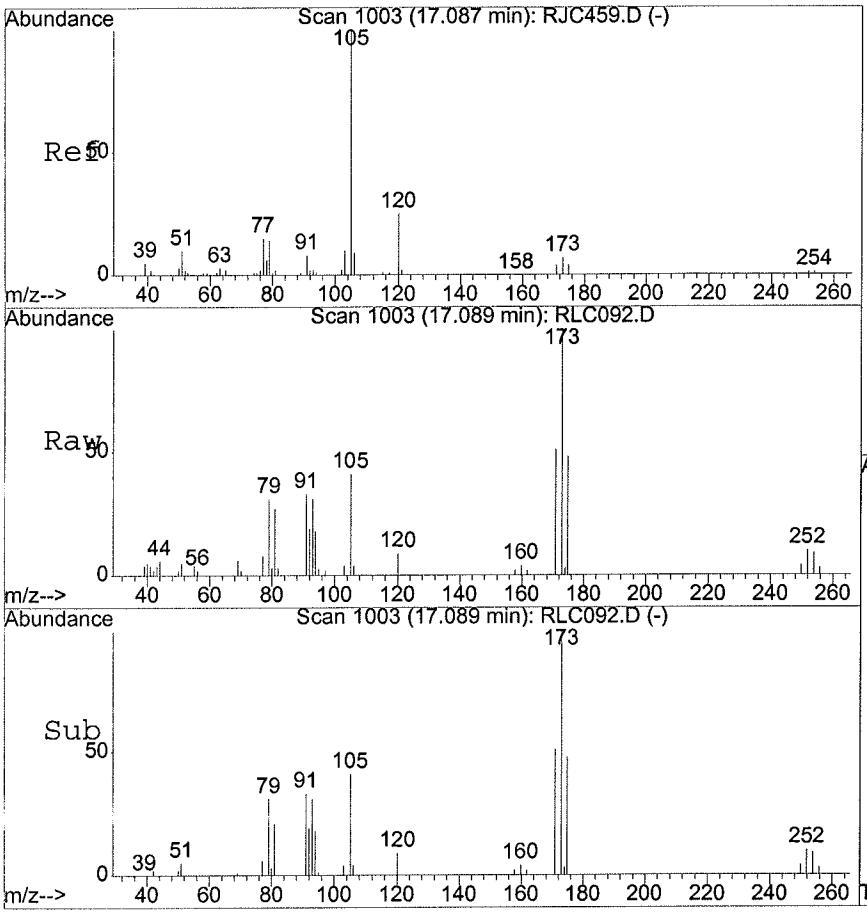


#64
Dibromochloromethane
Concen: 1.32 ug/l
RT: 14.46 min Scan# 823
Delta R.T. 0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion:129 Resp: 70013

Ion	Ratio	Lower	Upper
129	100		
127	78.5	47.4	107.4

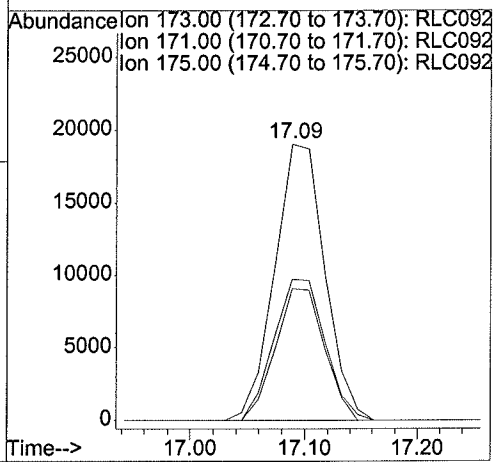


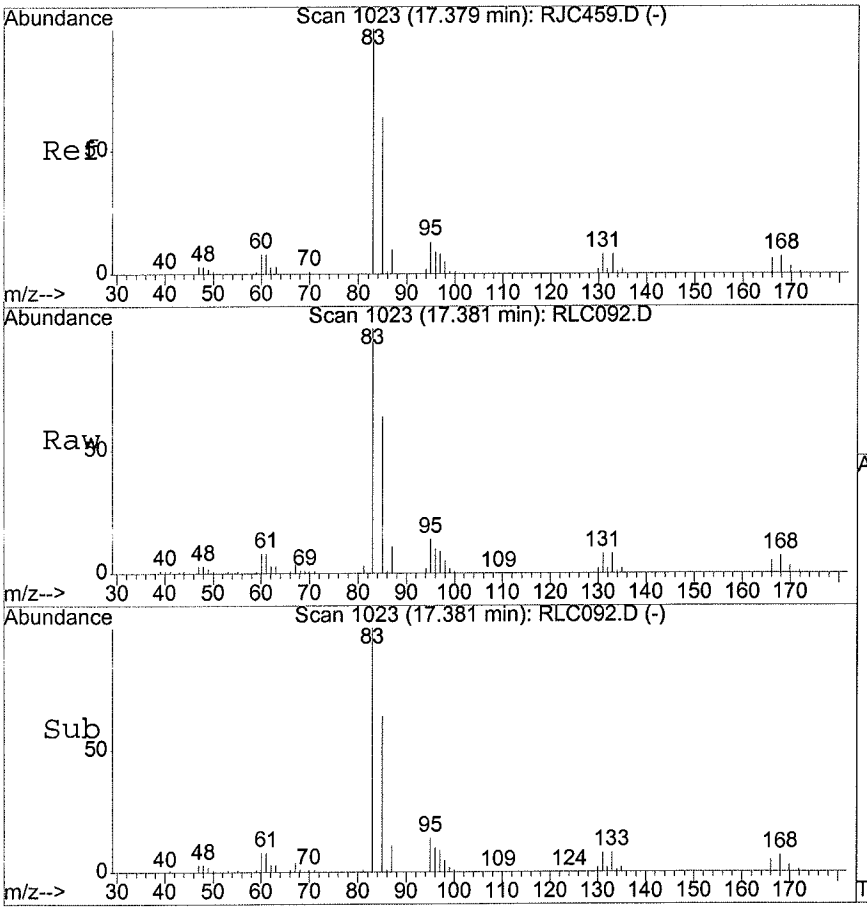


#75
Bromoform
Concen: 2.40 ug/l
RT: 17.09 min Scan# 1003
Delta R.T. 0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion:173 Resp: 58187

Ion	Ratio	Lower	Upper
173	100		
171	52.1	21.3	81.3
175	46.5	18.8	78.8

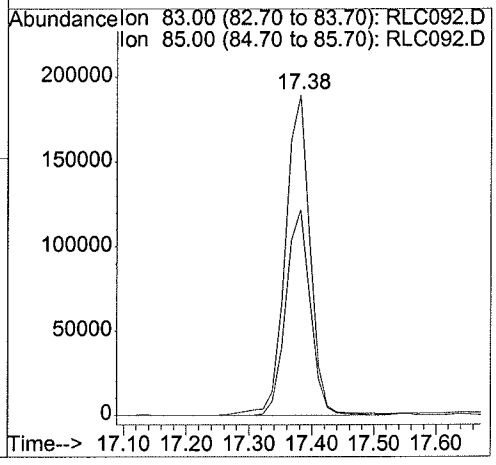


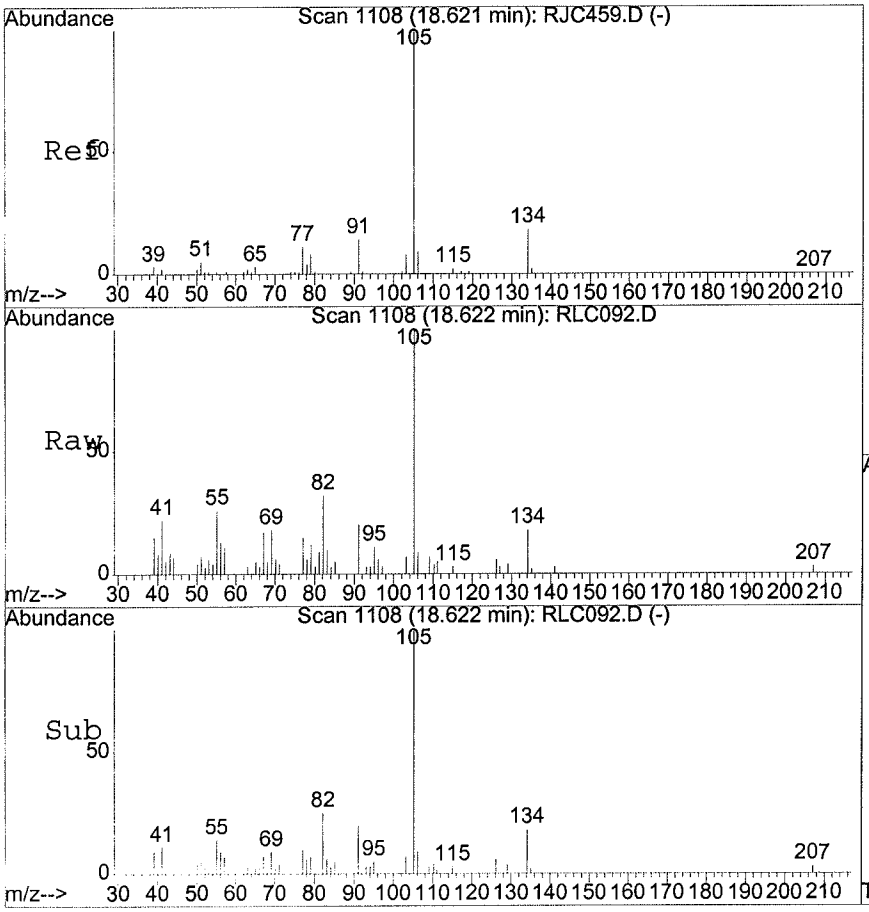


#76
1,1,2,2-Tetrachloroethane
Concen: 13.14 ug/l
RT: 17.38 min Scan# 1023
Delta R.T. 0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 83 Resp: 518119

Ion	Ratio	Lower	Upper
83	100		
85	63.6	33.6	93.6

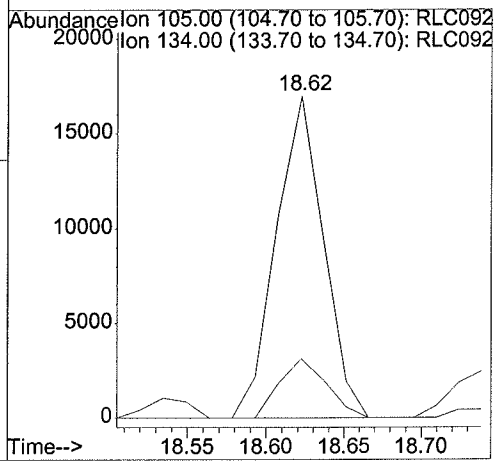


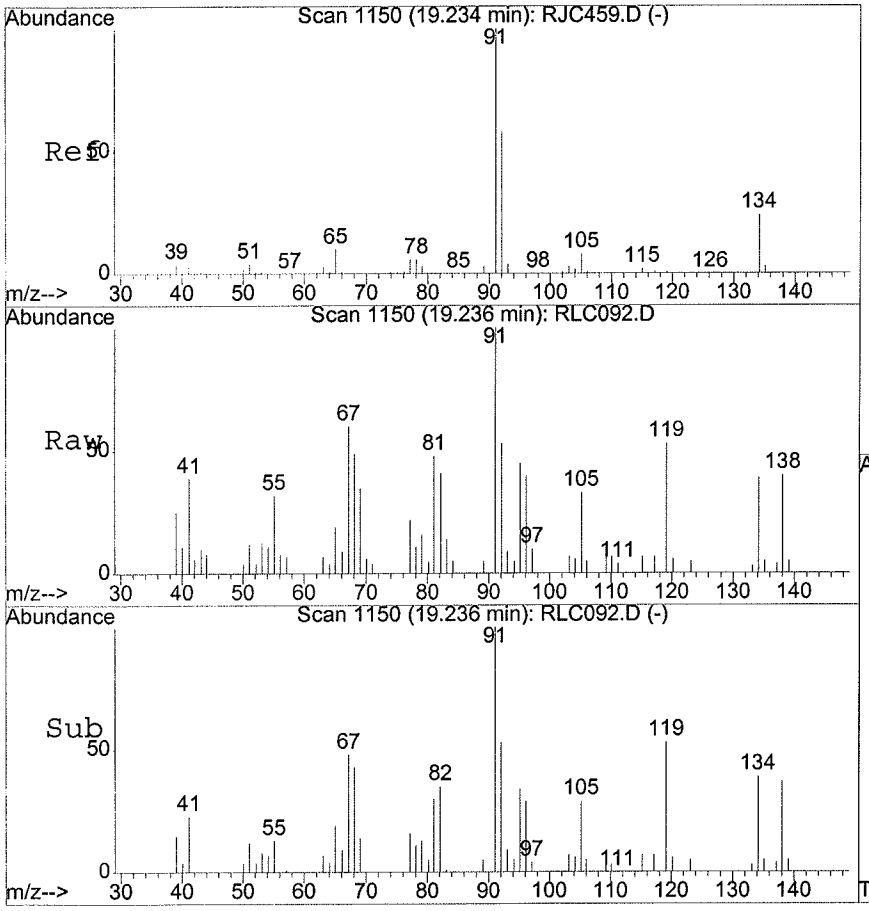


#87
sec-Butylbenzene
Concen: 0.10 ug/l
RT: 18.62 min Scan# 1108
Delta R.T. 0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion:105 Resp: 35928

Ion	Ratio	Lower	Upper
105	100		
134	18.2	0.0	47.9

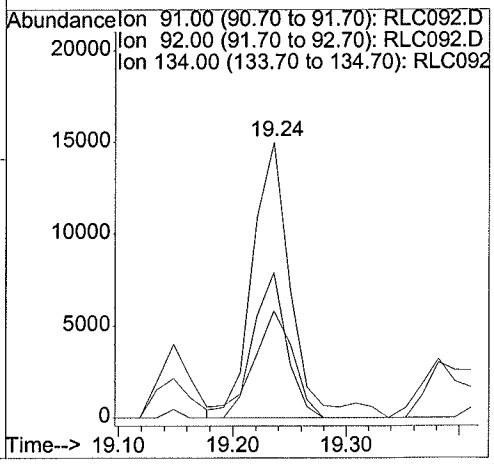


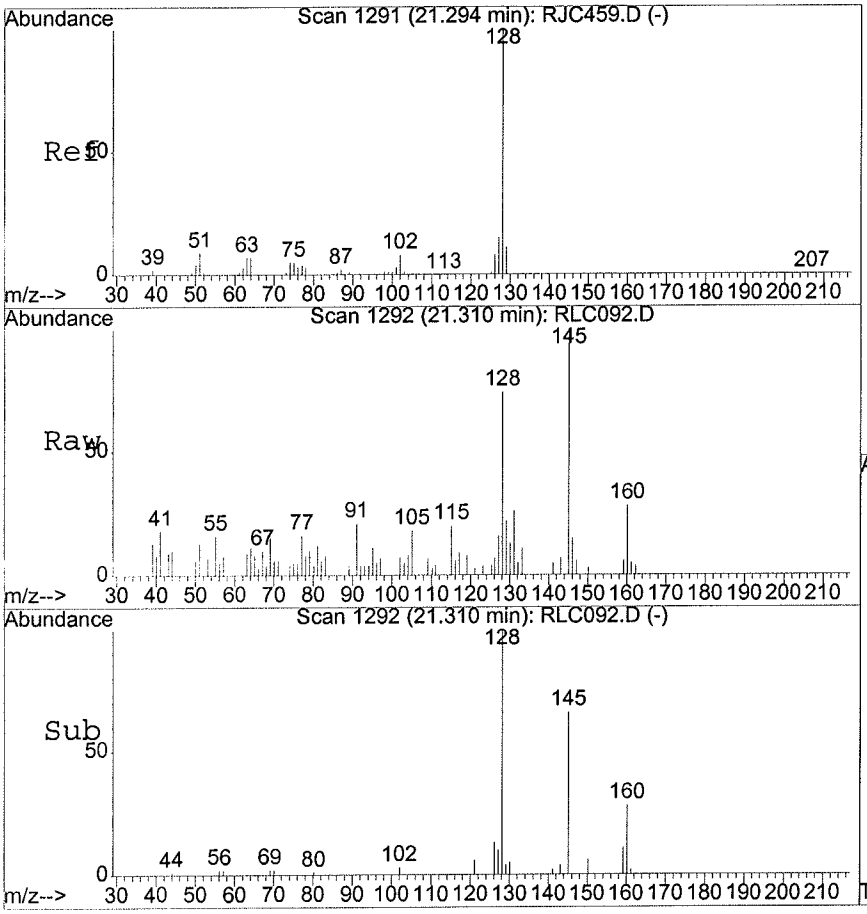


#91
n-Butylbenzene
Concen: 0.13 ug/l
RT: 19.24 min Scan# 1150
Delta R.T. 0.00 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion: 91 Resp: 35202

Ion	Ratio	Lower	Upper
91	100		
92	45.1	28.2	88.2
134	40.4	0.0	52.3

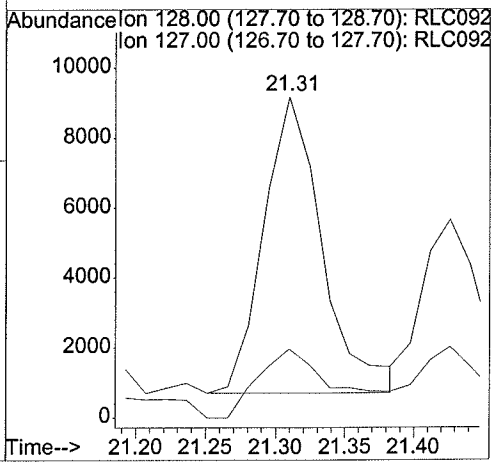




#96
Naphthalene
Concen: 0.45 ug/l
RT: 21.31 min Scan# 1292
Delta R.T. 0.02 min
Lab File: RLC092.D
Acq: 7 Dec 2020 6:00 pm

Tgt Ion:128 Resp: 24745

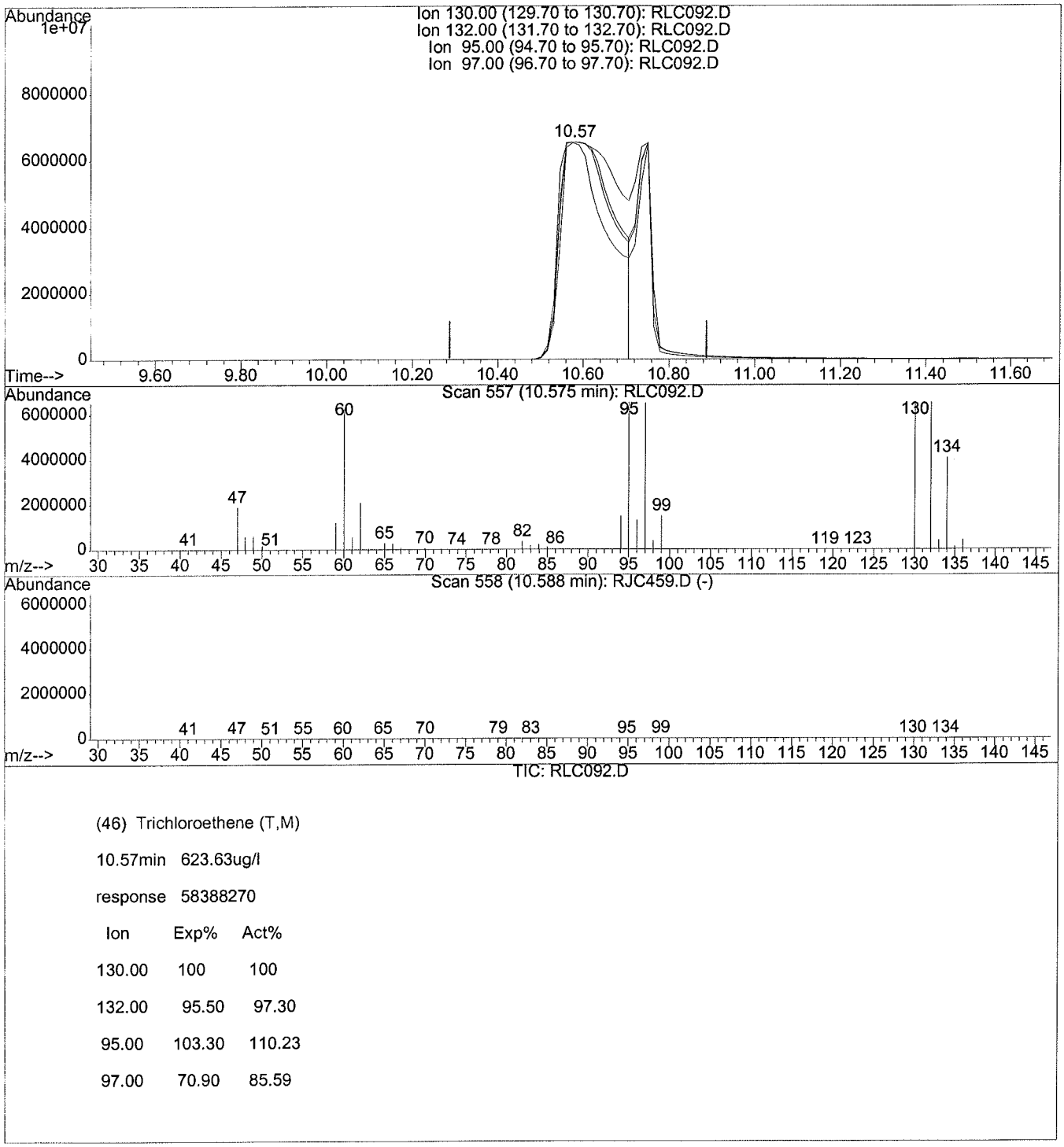
Ion	Ratio	Lower	Upper
128	100		
127	32.0	0.0	44.4



Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC092.D Vial: 17
Acq On : 7 Dec 2020 6:00 pm Operator: VLu
Sample : 20L041-08 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 12:52 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC092.D

(46) Trichloroethene (T,M)

10.57min 623.63ug/l

response 58388270

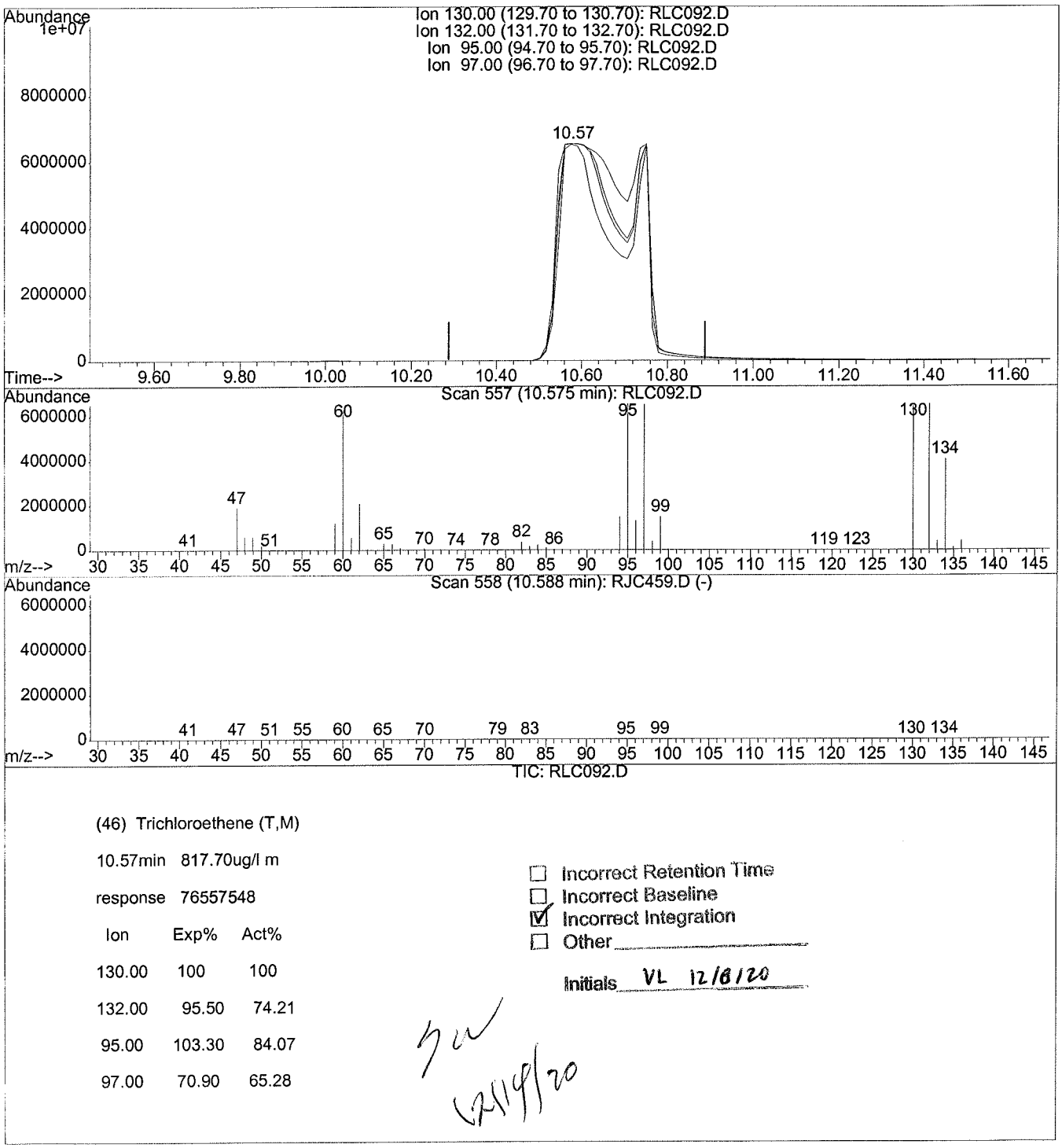
Ion	Exp%	Act%
130.00	100	100
132.00	95.50	97.30
95.00	103.30	110.23
97.00	70.90	85.59

RLC092.D VO67J30.M Tue Dec 08 12:53:00 2020

Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC092.D Vial: 17
Acq On : 7 Dec 2020 6:00 pm Operator: VLu
Sample : 20L041-08 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 12:53 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



(46) Trichloroethene (T,M)

10.57min 817.70ug/l m

response 76557548

Ion	Exp%	Act%
130.00	100	100
132.00	95.50	74.21
95.00	103.30	84.07
97.00	70.90	65.28

☐ Incorrect Retention Time
☐ Incorrect Baseline
☑ Incorrect Integration
☐ Other _____

Initials VL 12/8/20

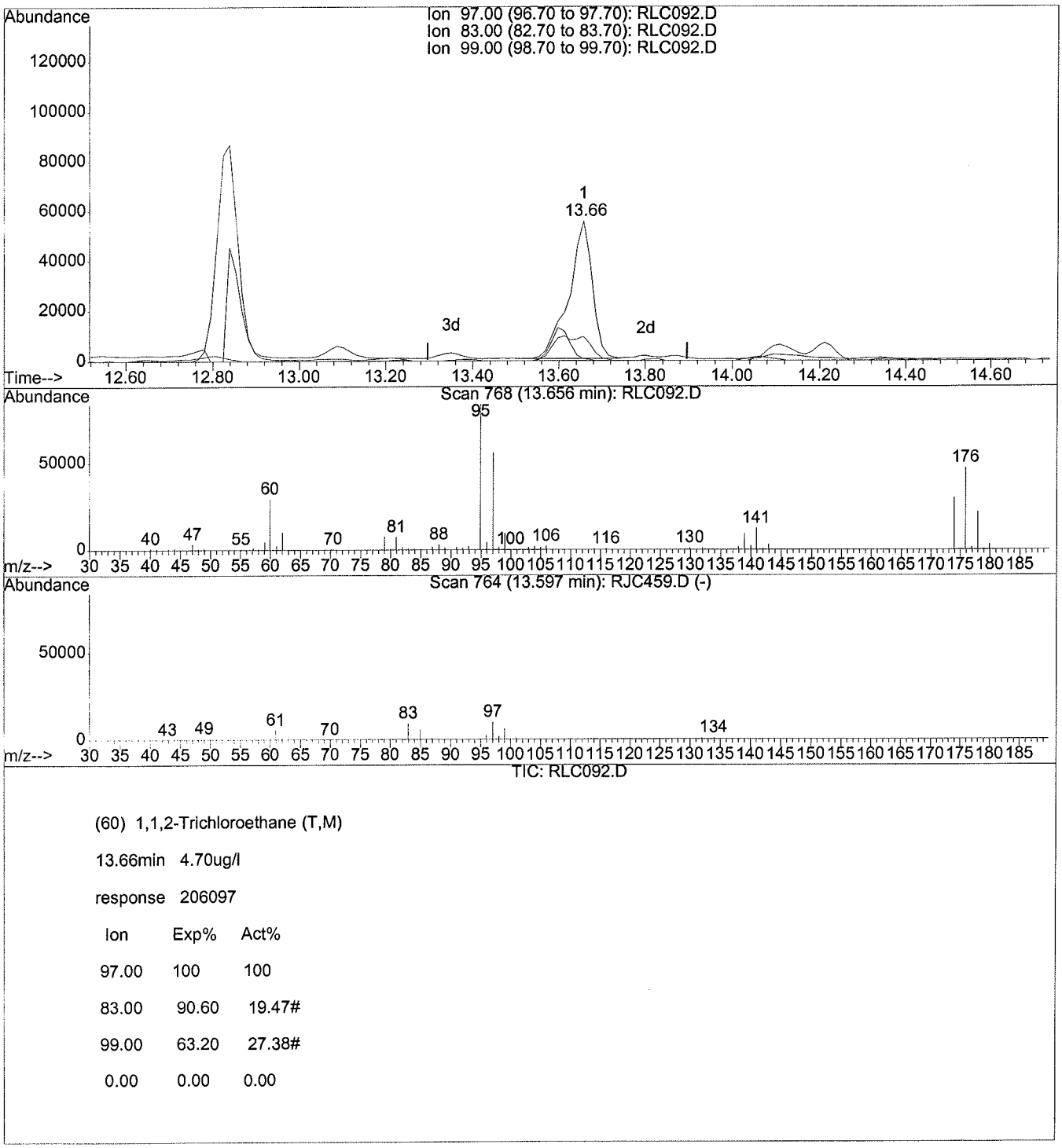
12/14/20

RLC092.D VO67J30.M Tue Dec 08 12:53:04 2020

Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC092.D Vial: 17
Acq On : 7 Dec 2020 6:00 pm Operator: VLu
Sample : 20L041-08 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 12:55 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC092.D

(60) 1,1,2-Trichloroethane (T,M)

13.66min 4.70ug/l

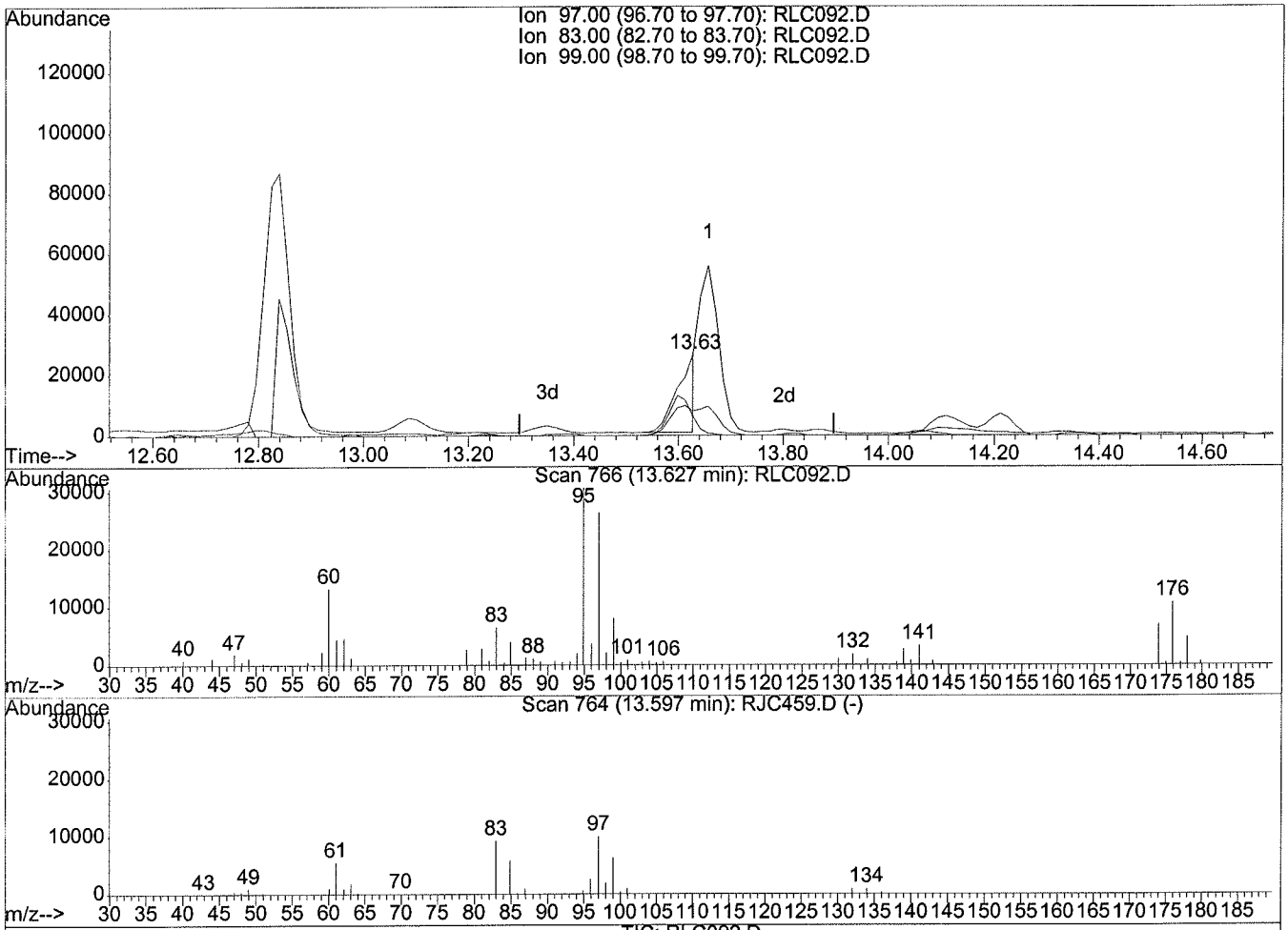
response 206097

Ion	Exp%	Act%
97.00	100	100
83.00	90.60	19.47#
99.00	63.20	27.38#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC092.D Vial: 17
Acq On : 7 Dec 2020 6:00 pm Operator: VLu
Sample : 20L041-08 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 12:57 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



(60) 1,1,2-Trichloroethane (T,M)

13.63min 1.42ug/l m

response 62056

Ion	Exp%	Act%
97.00	100	100
83.00	90.60	64.67
99.00	63.20	90.92
0.00	0.00	0.00

✓ [illegible] Retention Time
☐ Incorrect Analyte
☐ Incorrect Integration
☐ Other

Initials VL 12/8/20

SM 2/4/20

RLC092.D VO67J30.M Tue Dec 08 12:57:22 2020

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/03/20
Project : VAFB-SS003	Date Received: 12/04/20
Batch No. : 20L041	Date Extracted: 12/08/20 15:59
Sample ID: 3-MW-59(120320)DL	Date Analyzed: 12/08/20 15:59
Lab Samp ID: L041-08I	Dilution Factor: 500
Lab File ID: RLC117	Matrix : WATER
Ext Btch ID: V067L06	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	250	50	100
1,1,1-TRICHLOROETHANE	ND	500	50	100
1,1,2,2-TETRACHLOROETHANE	ND	500	55	100
1,1,2-TRICHLOROETHANE	ND	500	50	100
1,1-DICHLOROETHANE	ND	500	50	100
1,1-DICHLOROETHENE	ND	500	50	100
1,1-DICHLOROPROPENE	ND	500	50	100
1,2,3-TRICHLOROBENZENE	ND	500	75	150
1,2,3-TRICHLOROPROPANE	ND	1000	120	250
1,2,4-TRICHLOROBENZENE	ND	500	75	150
1,2,4-TRIMETHYLBENZENE	ND	500	55	100
1,2-DIBROMO-3-CHLOROPROPANE	ND	1000	120	250
1,2-DIBROMOETHANE	ND	500	50	100
1,2-DICHLOROBENZENE	ND	500	50	100
1,2-DICHLOROETHANE	ND	250	50	100
1,2-DICHLOROPROPANE	ND	500	50	100
1,3,5-TRIMETHYLBENZENE	ND	500	65	100
1,3-DICHLOROBENZENE	ND	500	55	100
1,3-DICHLOROPROPANE	ND	500	50	100
1,4-DICHLOROBENZENE	ND	500	50	100
2,2-DICHLOROPROPANE	ND	500	80	100
2-BUTANONE	ND	5000	1000	2000
2-CHLOROTOLUENE	ND	500	60	100
2-HEXANONE	ND	5000	1100	2000
4-CHLOROTOLUENE	ND	500	55	100
ACETONE	ND	5000	1300	2500
BENZENE	ND	500	50	100
BROMOBENZENE	ND	500	50	100
BROMOCHLOROMETHANE	ND	500	55	100
BROMODICHLOROMETHANE	ND	500	50	100
BROMOFORM	ND	500	75	150
BROMOMETHANE	ND	500	80	150
CARBON DISULFIDE	ND	500	50	100
CARBON TETRACHLORIDE	ND	500	50	100
CHLOROBENZENE	ND	500	50	100
CHLOROETHANE	ND	500	130	150
CHLOROFORM	ND	500	50	100
CHLOROMETHANE	ND	500	75	150
CIS-1,2-DICHLOROETHENE	ND	500	50	100
CIS-1,3-DICHLOROPROPENE	ND	500	50	100
DIBROMOCHLOROMETHANE	ND	500	50	100
DICHLORODIFLUOROMETHANE	ND	500	75	150
ETHYLBENZENE	ND	500	50	100
HEXACHLOROBUTADIENE	ND	500	110	150
ISOPROPYL BENZENE	ND	500	50	100
M,P-XYLENES	ND	1000	100	200
MIBK	ND	5000	1000	2000
METHYLENE CHLORIDE	ND	1000	120	250
MTBE	ND	500	65	100
NAPHTHALENE	ND	1000	120	250
N-BUTYLBENZENE	ND	500	85	100
N-PROPYLBENZENE	ND	500	65	100
O-XYLENE	ND	500	50	100
P-ISOPROPYLTOLUENE	ND	500	70	100
SEC-BUTYLBENZENE	ND	500	65	100
STYRENE	ND	500	50	100
TERT-BUTYLBENZENE	ND	500	65	100
TETRACHLOROETHENE	ND	500	75	100
TOLUENE	ND	500	50	100
TRANS-1,2-DICHLOROETHENE	ND	500	50	100
TRANS-1,3-DICHLOROPROPENE	ND	500	55	100
TRICHLOROETHENE	7400	500	50	100
TRICHLOROFLUOROMETHANE	ND	500	75	150
VINYL CHLORIDE	ND	250	60	100
VINYL ACETATE	ND	1000	120	250
FREON113	ND	500	100	150
TERT-BUTANOL	ND	10000	2500	5000
DIPE	ND	500	50	100
ETBE	ND	500	50	100
TAME	ND	500	50	100

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	4320	5000	86.4	70-120
4-BROMOFLUOROBENZENE	4930	5000	98.5	75-120
TOLUENE-D8	4650	5000	93.0	85-120
DIBROMOFLUOROMETHANE	4640	5000	92.8	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC117.D Vial: 13
Acq On : 8 Dec 2020 3:59 pm Operator: VLu
Sample : 20L041-08I 50uL Inst : 67
Misc : DF=500 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:42 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

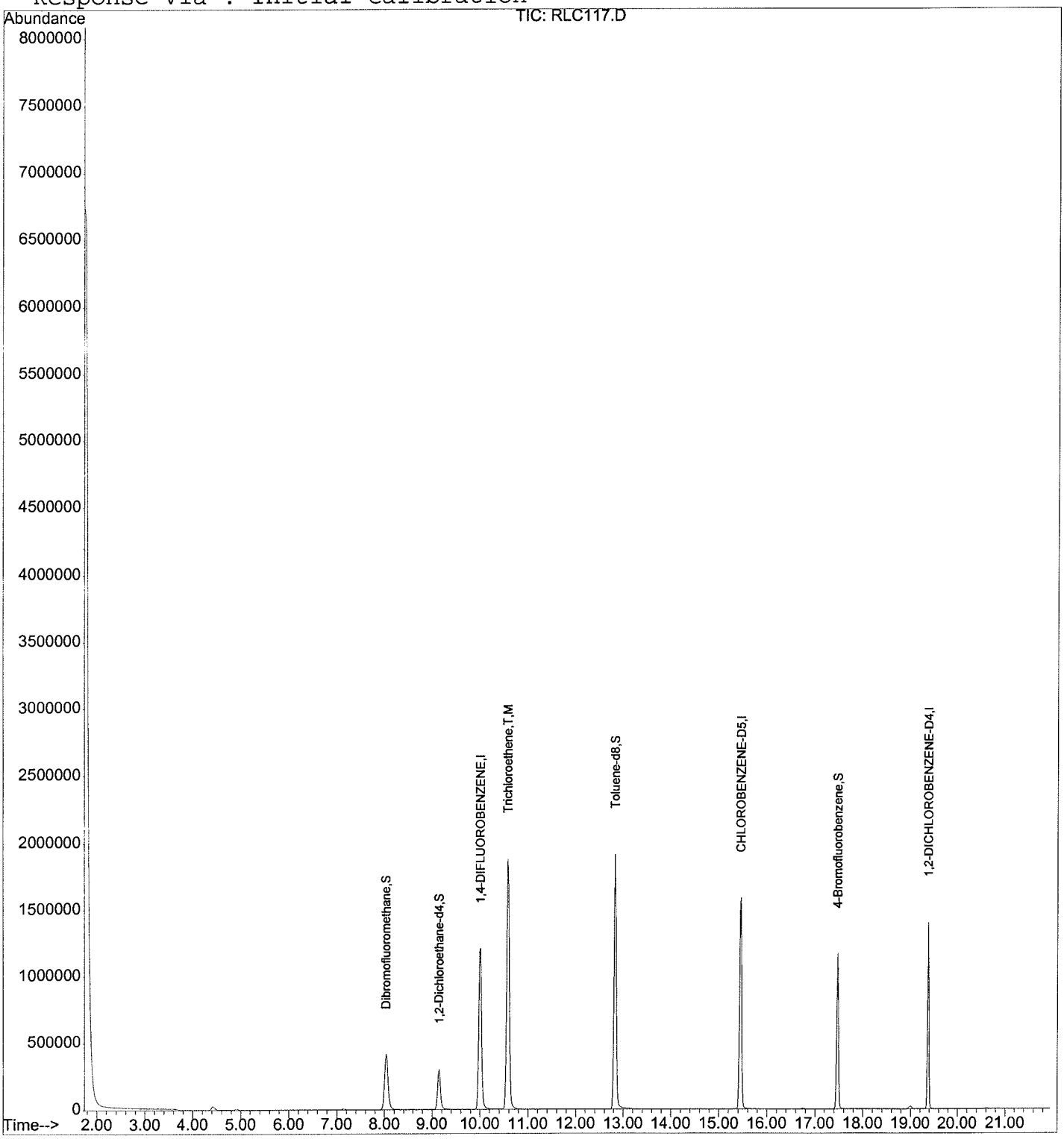
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2295535	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1684665	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	480996	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	695507	9.28	ug/l	0.00
Spiked Amount 10.000			Recovery = 92.80%			
43) 1,2-Dichloroethane-d4	9.14	65	414208	8.64	ug/l	0.00
Spiked Amount 10.000			Recovery = 86.40%			
56) Toluene-d8	12.82	98	2391475	9.30	ug/l	0.00
Spiked Amount 10.000			Recovery = 93.00%			
77) 4-Bromofluorobenzene	17.47	95	644034	9.85	ug/l	0.00
Spiked Amount 10.000			Recovery = 98.50%			
Target Compounds						Qvalue
46) Trichloroethene	10.57	130	1311398	14.74	ug/l	98

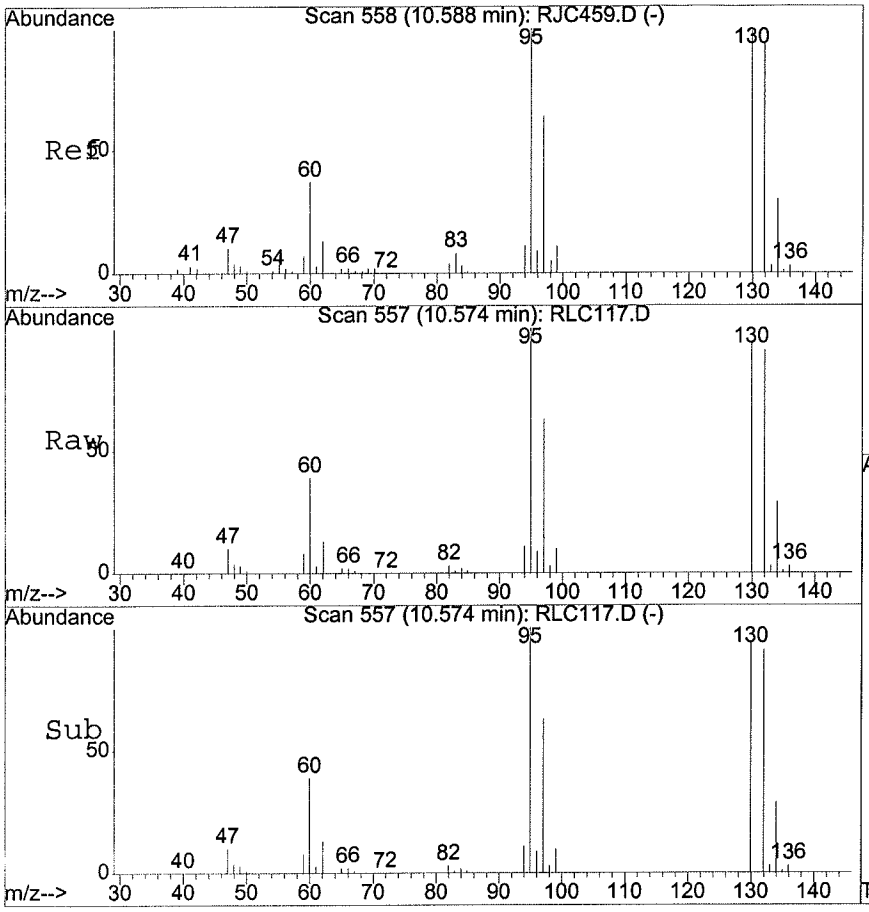
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC117.D Vial: 13
Acq On : 8 Dec 2020 3:59 pm Operator: VLu
Sample : 20L041-08I 50uL Inst : 67
Misc : DF=500 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:42 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

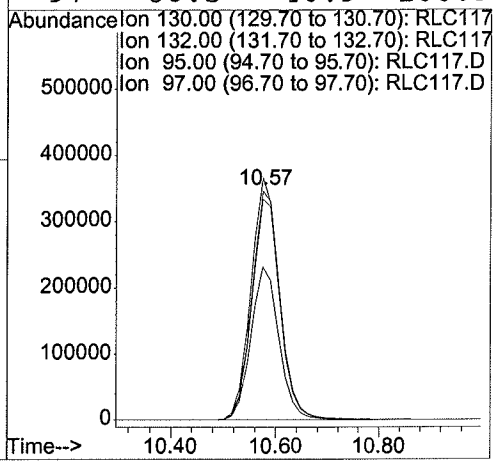




#46
Trichloroethene
Concen: 14.74 ug/l
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC117.D
Acq: 8 Dec 2020 3:59 pm

Tgt Ion:130 Resp: 1311398

Ion	Ratio	Lower	Upper
130	100		
132	96.8	65.5	125.5
95	104.1	73.3	133.3
97	66.3	40.9	100.9



QC SUMMARIES

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: NA
Project : VAFB-SS003	Date Received: 12/07/20
Batch No. : 20L041	Date Extracted: 12/07/20 13:18
Sample ID: MBLK1W	Date Analyzed: 12/07/20 13:18
Lab Samp ID: VO67L05B	Dilution Factor: 1
Lab File ID: RLC081	Matrix : WATER
Ext Btch ID: VO67L05	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	ND	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	ND	10	2.6	5.0
BENZENE	ND	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	ND	1.0	0.10	0.20
BROMOFORM	ND	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	ND	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	ND	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	ND	1.0	0.10	0.20
CHLOROMETHANE	ND	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	ND	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	ND	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	ND	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	ND	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	ND	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	ND	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.03	10.00	90.3	70-120
4-BROMOFLUOROBENZENE	9.52	10.00	95.2	75-120
TOLUENE-D8	9.12	10.00	91.2	85-120
DIBROMOFLUOROMETHANE	9.35	10.00	93.5	85-115

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: ARCADIS
PROJECT: VAF8-SS003
BATCH NO.: 20L041
METHOD: METHOD 5030B/8260B

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: V067L05B V067L05L V067L05C
LAB FILE ID: RLC081 RLC078 RLC079
DATE EXTRACTED: 12/07/2013:18 12/07/2012:01 12/07/2012:27 DATE COLLECTED: NA
DATE ANALYZED: 12/07/2013:18 12/07/2012:01 12/07/2012:27 DATE RECEIVED: 12/07/20
PREP. BATCH: V067L05 V067L05 V067L05
CALIB. REF: RJC459 RJC459 RJC459

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1,1,2-Tetrachloroethane	ND	10.0	9.08	91	10.0	9.25	93	2	80-130	20
1,1,1-Trichloroethane	ND	10.0	8.61	86	10.0	8.85	89	3	65-130	20
1,1,2,2-Tetrachloroethane	ND	10.0	9.60	96	10.0	9.83	98	2	65-130	20
1,1,2-Trichloroethane	ND	10.0	9.00	90	10.0	9.31	93	3	75-125	20
1,1-Dichloroethane	ND	10.0	8.93	89	10.0	9.09	91	2	70-135	20
1,1-Dichloroethene	ND	10.0	8.31	83	10.0	8.59	86	3	70-130	20
1,1-Dichloropropene	ND	10.0	8.65	86	10.0	8.97	90	4	75-130	20
1,2,3-Trichlorobenzene	ND	10.0	9.69	97	10.0	9.93	99	3	55-140	20
1,2,3-Trichloropropane	ND	10.0	9.64	96	10.0	9.78	98	1	75-125	20
1,2,4-Trichlorobenzene	ND	10.0	9.32	93	10.0	9.48	95	2	65-135	20
1,2,4-Trimethylbenzene	ND	10.0	9.06	91	10.0	9.22	92	2	75-130	20
1,2-Dibromo-3-chloropropane	ND	10.0	10.6	106	10.0	11.2	112	6	50-130	20
1,2-Dibromoethane	ND	10.0	9.34	93	10.0	9.49	95	2	80-120	20
1,2-Dichlorobenzene	ND	10.0	8.55	86	10.0	8.75	87	2	70-120	20
1,2-Dichloroethane	ND	10.0	8.92	89	10.0	9.07	91	2	70-130	20
1,2-Dichloropropane	ND	10.0	9.32	93	10.0	9.47	95	2	75-125	20
1,3,5-Trimethylbenzene	ND	10.0	8.78	88	10.0	8.98	90	2	75-130	20
1,3-Dichlorobenzene	ND	10.0	8.54	85	10.0	8.70	87	2	75-125	20
1,3-Dichloropropane	ND	10.0	8.90	89	10.0	9.15	91	3	75-125	20
1,4-Dichlorobenzene	ND	10.0	8.52	85	10.0	8.63	86	1	75-125	20
2,2-Dichloropropane	ND	10.0	8.83	88	10.0	8.98	90	2	70-135	20
2-Butanone	ND	50.0	49.6	99	50.0	49.5	99	0	30-150	20
2-Chlorotoluene	ND	10.0	8.12	81	10.0	8.32	83	2	75-125	20
2-Hexanone	ND	50.0	46.3	93	50.0	47.0	94	2	55-130	20
4-Chlorotoluene	ND	10.0	8.56	86	10.0	8.62	86	1	75-130	20
Acetone	ND	50.0	44.5	89	50.0	45.0	90	1	40-140	20
Benzene	ND	10.0	9.12	91	10.0	9.30	93	2	80-120	20
Bromobenzene	ND	10.0	8.95	89	10.0	9.09	91	2	75-125	20
Bromochloromethane	ND	10.0	9.44	94	10.0	9.58	96	1	65-130	20
Bromodichloromethane	ND	10.0	9.38	94	10.0	9.55	95	2	75-120	20
Bromoform	ND	10.0	9.60	96	10.0	9.64	96	0	70-130	20
Bromomethane	ND	10.0	8.36	84	10.0	8.60	86	3	30-145	20
Carbon Disulfide	ND	10.0	8.54	85	10.0	8.69	87	2	35-160	20
Carbon Tetrachloride	ND	10.0	8.59	86	10.0	8.96	90	4	65-140	20
Chlorobenzene	ND	10.0	8.74	87	10.0	8.96	90	2	80-120	20
Chloroethane	ND	10.0	9.20	92	10.0	9.46	95	3	60-135	20
Chloroform	ND	10.0	8.92	89	10.0	9.08	91	2	65-135	20
Chloromethane	ND	10.0	10.5	105	10.0	10.9	109	4	40-125	20
cis-1,2-Dichloroethene	ND	10.0	8.72	87	10.0	8.89	89	2	70-125	20
cis-1,3-Dichloropropene	ND	10.0	9.37	94	10.0	9.56	96	2	70-130	20
Dibromochloromethane	ND	10.0	9.38	94	10.0	9.67	97	3	60-135	20
Dichlorodifluoromethane	ND	10.0	7.85	79	10.0	8.56	86	9	30-155	20
Ethylbenzene	ND	10.0	8.49	85	10.0	8.71	87	3	75-125	20
Hexachlorobutadiene	ND	10.0	8.53	85	10.0	8.75	87	3	50-140	20
Isopropyl Benzene	ND	10.0	8.76	88	10.0	9.01	90	3	75-125	20
m,p-Xylenes	ND	20.0	17.2	86	20.0	17.6	88	2	75-130	20
MIBK	ND	50.0	47.0	94	50.0	47.8	96	2	60-135	20
Methylene Chloride	ND	10.0	8.76	88	10.0	8.78	88	0	55-140	20
MTBE	ND	10.0	9.33	93	10.0	9.48	95	2	65-125	20
Naphthalene	ND	10.0	10.1	101	10.0	10.6	106	5	55-140	20
n-Butylbenzene	ND	10.0	8.99	90	10.0	9.21	92	2	70-135	20
n-Propylbenzene	ND	10.0	8.65	86	10.0	8.89	89	3	70-130	20
o-Xylene	ND	10.0	8.61	86	10.0	8.80	88	2	80-120	20
p-Isopropyltoluene	ND	10.0	9.12	91	10.0	9.36	94	3	75-130	20
Sec-Butylbenzene	ND	10.0	8.96	90	10.0	9.07	91	1	70-125	20
Styrene	ND	10.0	8.68	87	10.0	8.86	89	2	65-135	20
Tert-Butylbenzene	ND	10.0	8.85	88	10.0	8.95	90	1	70-130	20
Tetrachloroethene	ND	10.0	7.94	79	10.0	8.21	82	3	45-150	20
Toluene	ND	10.0	8.68	87	10.0	8.85	89	2	75-120	20
Trans-1,2-Dichloroethene	ND	10.0	8.61	86	10.0	8.77	88	2	60-140	20
Trans-1,3-Dichloropropene	ND	10.0	8.88	89	10.0	9.06	91	2	55-140	20
Trichloroethene	ND	10.0	8.76	88	10.0	9.05	90	3	70-125	20
Trichlorofluoromethane	ND	10.0	9.35	93	10.0	9.85	98	5	60-145	20
Vinyl Chloride	ND	10.0	10.1	101	10.0	10.7	107	5	50-145	20
Vinyl Acetate	ND	10.0	9.88	99	10.0	9.86	99	0	20-160	20
Freon113	ND	10.0	8.62	86	10.0	9.01	90	5	70-140	20
tert-Butanol	ND	250	263	105	250	263	105	0	60-150	20
DIPE	ND	10.0	9.43	94	10.0	9.53	95	1	70-140	20
ETBE	ND	10.0	9.52	95	10.0	9.64	96	1	60-140	20
TAME	ND	10.0	9.75	97	10.0	9.97	100	2	60-140	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10.0	8.82	88	10.0	8.81	88	70-120
4-Bromofluorobenzene	10.0	8.80	88	10.0	8.88	89	75-120
Toluene-d8	10.0	8.90	89	10.0	8.94	89	85-120
Dibromofluoromethane	10.0	9.38	94	10.0	9.32	93	85-115

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: NA
Project : VAFB-SS003	Date Received: 12/08/20
Batch No. : 20L041	Date Extracted: 12/08/20 13:01
Sample ID: MBLK2W	Date Analyzed: 12/08/20 13:01
Lab Samp ID: VO67L06B	Dilution Factor: 1
Lab File ID: RLC110	Matrix : WATER
Ext Btch ID: VO67L06	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	ND	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	ND	10	2.6	5.0
BENZENE	ND	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	ND	1.0	0.10	0.20
BROMOFORM	ND	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	ND	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	ND	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	ND	1.0	0.10	0.20
CHLOROMETHANE	ND	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	ND	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	0.46J	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	ND	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	ND	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	ND	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	ND	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.95	10.00	89.5	70-120
4-BROMOFLUOROBENZENE	9.65	10.00	96.5	75-120
TOLUENE-D8	9.08	10.00	90.8	85-120
DIBROMOFLUOROMETHANE	9.41	10.00	94.1	85-115

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: ARCADIS
PROJECT: VAFB-SS003
BATCH NO.: 20L041
METHOD: METHOD 5030B/8260B

MATRIX: WATER
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK2W
LAB SAMP ID: VO67L06B VO67L06L VO67L06C
LAB FILE ID: RLC110 RLC107 RLC108
DATE EXTRACTED: 12/08/2013:01 12/08/2011:45 12/08/2012:10
DATE ANALYZED: 12/08/2013:01 12/08/2011:45 12/08/2012:10
PREP. BATCH: VO67L06 VO67L06 VO67L06
CALIB. REF: RJC459 RJC459 RJC459

% MOISTURE: NA
DATE COLLECTED: NA
DATE RECEIVED: 12/08/20

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1,1,2-Tetrachloroethane	ND	10.0	9.37	94	10.0	9.61	96	2	80-130	20
1,1,1-Trichloroethane	ND	10.0	9.10	91	10.0	9.09	91	0	65-130	20
1,1,2,2-Tetrachloroethane	ND	10.0	9.62	96	10.0	10.1	101	5	65-130	20
1,1,2-Trichloroethane	ND	10.0	9.07	91	10.0	9.52	95	5	75-125	20
1,1-Dichloroethane	ND	10.0	9.37	94	10.0	9.47	95	1	70-135	20
1,1-Dichloroethene	ND	10.0	8.94	89	10.0	8.82	88	1	70-130	20
1,1-Dichloropropene	ND	10.0	9.07	91	10.0	8.97	90	1	75-130	20
1,2,3-Trichlorobenzene	ND	10.0	9.69	97	10.0	10.0	100	4	55-140	20
1,2,3-Trichloropropane	ND	10.0	9.80	98	10.0	10.2	102	4	75-125	20
1,2,4-Trichlorobenzene	ND	10.0	9.47	95	10.0	9.71	97	2	65-135	20
1,2,4-Trimethylbenzene	ND	10.0	9.53	95	10.0	9.43	94	1	75-130	20
1,2-Dibromo-3-chloropropane	ND	10.0	10.5	105	10.0	11.0	110	5	50-130	20
1,2-Dibromoethane	ND	10.0	9.30	93	10.0	9.69	97	4	80-120	20
1,2-Dichlorobenzene	ND	10.0	8.82	88	10.0	9.02	90	2	70-120	20
1,2-Dichloroethane	ND	10.0	9.13	91	10.0	9.49	95	4	70-130	20
1,2-Dichloropropane	ND	10.0	9.51	95	10.0	9.82	98	3	75-125	20
1,3,5-Trimethylbenzene	ND	10.0	9.31	93	10.0	9.30	93	0	75-130	20
1,3-Dichlorobenzene	ND	10.0	8.99	90	10.0	9.03	90	1	75-125	20
1,3-Dichloropropane	ND	10.0	9.01	90	10.0	9.43	94	4	75-125	20
1,4-Dichlorobenzene	ND	10.0	8.92	89	10.0	8.97	90	1	75-125	20
2,2-Dichloropropane	ND	10.0	9.44	94	10.0	9.33	93	1	70-135	20
2-Butanone	ND	50.0	48.4	97	50.0	51.8	104	7	30-150	20
2-Chlorotoluene	ND	10.0	8.95	89	10.0	8.87	89	1	75-125	20
2-Hexanone	ND	50.0	45.6	91	50.0	49.2	98	7	55-130	20
4-Chlorotoluene	ND	10.0	8.53	85	10.0	8.69	87	2	75-130	20
Acetone	ND	50.0	44.0	88	50.0	46.8	94	6	40-140	20
Benzene	ND	10.0	9.49	95	10.0	9.53	95	0	80-120	20
Bromobenzene	ND	10.0	9.37	94	10.0	9.41	94	0	75-125	20
Bromochloromethane	ND	10.0	9.56	96	10.0	9.86	99	3	65-130	20
Bromodichloromethane	ND	10.0	9.59	96	10.0	9.89	99	3	75-120	20
Bromoform	ND	10.0	9.64	96	10.0	10.0	100	4	70-130	20
Bromomethane	ND	10.0	8.64	86	10.0	8.85	89	2	30-145	20
Carbon Disulfide	ND	10.0	8.79	88	10.0	8.92	89	1	35-160	20
Carbon Tetrachloride	ND	10.0	9.08	91	10.0	9.04	90	0	65-140	20
Chlorobenzene	ND	10.0	9.00	90	10.0	9.11	91	1	80-120	20
Chloroethane	ND	10.0	9.71	97	10.0	9.80	98	1	60-135	20
Chloroform	ND	10.0	9.39	94	10.0	9.55	96	2	65-135	20
Chloromethane	ND	10.0	11.3	113	10.0	11.4	114	1	40-125	20
cis-1,2-Dichloroethene	ND	10.0	9.18	92	10.0	9.29	93	1	70-125	20
cis-1,3-Dichloropropene	ND	10.0	9.56	96	10.0	9.91	99	4	70-130	20
Dibromochloromethane	ND	10.0	9.46	95	10.0	9.84	98	4	60-135	20
Dichlorodifluoromethane	ND	10.0	8.35	84	10.0	8.75	87	5	30-155	20
Ethylbenzene	ND	10.0	8.79	88	10.0	8.88	89	1	75-125	20
Hexachlorobutadiene	ND	10.0	8.79	88	10.0	8.70	87	1	50-140	20
Isopropyl Benzene	ND	10.0	9.24	92	10.0	9.30	93	1	75-125	20
m,p-Xylenes	ND	20.0	17.8	89	20.0	18.0	90	1	75-130	20
MIBK	ND	50.0	46.5	93	50.0	49.6	99	7	60-135	20
Methylene Chloride	0.455J	10.0	9.45	95	10.0	9.67	98	2	55-140	20
MTBE	ND	10.0	9.54	95	10.0	10.0	100	5	65-125	20
Naphthalene	ND	10.0	9.96	100	10.0	10.6	106	6	55-140	20
n-Butylbenzene	ND	10.0	9.35	94	10.0	9.28	93	1	70-135	20
n-Propylbenzene	ND	10.0	9.08	91	10.0	9.03	90	0	70-130	20
o-Xylene	ND	10.0	8.86	89	10.0	8.99	90	1	80-120	20
p-Isopropyltoluene	ND	10.0	9.62	96	10.0	9.52	95	1	75-130	20
Sec-Butylbenzene	ND	10.0	9.46	95	10.0	9.32	93	2	70-125	20
Styrene	ND	10.0	8.65	86	10.0	8.86	89	2	65-135	20
Tert-Butylbenzene	ND	10.0	9.34	93	10.0	9.26	93	1	70-130	20
Tetrachloroethene	ND	10.0	8.16	82	10.0	8.14	81	0	45-150	20
Toluene	ND	10.0	8.96	90	10.0	9.03	90	1	75-120	20
Trans-1,2-Dichloroethene	ND	10.0	9.02	90	10.0	9.03	90	0	60-140	20
Trans-1,3-Dichloropropene	ND	10.0	9.01	90	10.0	9.40	94	4	55-140	20
Trichloroethene	ND	10.0	9.12	91	10.0	9.19	92	1	70-125	20
Trichlorofluoromethane	ND	10.0	9.72	97	10.0	9.84	98	1	60-145	20
Vinyl Chloride	ND	10.0	10.8	108	10.0	11.0	110	1	50-145	20
Vinyl Acetate	ND	10.0	10.4	104	10.0	10.9	109	5	20-160	20
Freon113	ND	10.0	8.98	90	10.0	8.96	90	0	70-140	20
tert-Butanol	ND	250	238	95	250	255	102	7	60-150	20
DIPE	ND	10.0	9.90	99	10.0	10.2	102	3	70-140	20
ETBE	ND	10.0	9.75	98	10.0	10.2	102	4	60-140	20
TAME	ND	10.0	9.85	98	10.0	10.3	103	5	60-140	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10.0	8.80	88	10.0	9.03	90	70-120
4-Bromofluorobenzene	10.0	8.92	89	10.0	8.89	89	75-120
Toluene-d8	10.0	8.94	89	10.0	8.88	89	85-120
Dibromofluoromethane	10.0	9.50	95	10.0	9.56	96	85-115

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: ARCADIS
PROJECT: VAFB-SS003
BATCH NO.: 20L041
METHOD: METHOD 5030B/8260B

MATRIX: WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID:	3-MW-55(120120)		
LAB SAMP ID:	L041-02	L041-02M	L041-02S
LAB FILE ID:	RLC083	RLC084	RLC085
DATE EXTRACTED:	12/07/2014:10	12/07/2014:35	12/07/2015:01
DATE ANALYZED:	12/07/2014:10	12/07/2014:35	12/07/2015:01
PREP. BATCH:	VO67L05	VO67L05	VO67L05
CALIB. REF:	RJC459	RJC459	RJC459

DATE COLLECTED: 12/01/20
DATE RECEIVED: 12/04/20

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1,1,2-Tetrachloroethane	ND	10.0	9.28	93	10.0	9.08	91	2	80-130	20
1,1,1-Trichloroethane	ND	10.0	8.66	87	10.0	8.49	85	2	65-130	20
1,1,2,2-Tetrachloroethane	ND	10.0	9.91	99	10.0	10.0	100	1	65-130	20
1,1,2-Trichloroethane	0.748J	10.0	9.81	91	10.0	9.92	92	1	75-125	20
1,1-Dichloroethane	ND	10.0	9.22	92	10.0	9.00	90	2	70-135	20
1,1-Dichloroethene	0.613J	10.0	9.18	86	10.0	9.13	85	1	70-130	20
1,1-Dichloropropene	ND	10.0	8.98	90	10.0	8.76	88	2	75-130	20
1,2,3-Trichlorobenzene	ND	10.0	8.56	86	10.0	8.44	84	1	55-140	20
1,2,3-Trichloropropane	ND	10.0	9.68	97	10.0	9.92	99	3	75-125	20
1,2,4-Trichlorobenzene	ND	10.0	8.51	85	10.0	8.15	82	4	65-135	20
1,2,4-Trimethylbenzene	ND	10.0	9.06	91	10.0	8.87	89	2	75-130	20
1,2-Dibromo-3-chloropropane	ND	10.0	9.93	99	10.0	9.93	99	0	50-130	20
1,2-Dibromoethane	ND	10.0	9.19	92	10.0	9.16	92	0	80-120	20
1,2-Dichlorobenzene	ND	10.0	8.57	86	10.0	8.42	84	2	70-120	20
1,2-Dichloroethane	ND	10.0	9.03	90	10.0	8.88	89	2	70-130	20
1,2-Dichloropropane	ND	10.0	8.97	90	10.0	8.59	86	4	75-125	20
1,3,5-Trimethylbenzene	ND	10.0	9.07	91	10.0	8.94	89	1	75-130	20
1,3-Dichlorobenzene	ND	10.0	8.72	87	10.0	8.50	85	3	75-125	20
1,3-Dichloropropane	ND	10.0	9.12	91	10.0	9.01	90	1	75-125	20
1,4-Dichlorobenzene	ND	10.0	8.67	87	10.0	8.43	84	3	75-125	20
2,2-Dichloropropane	ND	10.0	8.57	86	10.0	8.33	83	3	70-135	20
2-Butanone	ND	50.0	46.4	93	50.0	45.4	91	2	30-150	20
2-Chlorotoluene	ND	10.0	8.52	85	10.0	8.27	83	3	75-125	20
2-Hexanone	ND	50.0	43.5	87	50.0	43.6	87	0	55-130	20
4-Chlorotoluene	ND	10.0	9.13	91	10.0	8.99	90	2	75-130	20
Acetone	ND	50.0	39.2	78	50.0	37.9	76	4	40-140	20
Benzene	0.113J	10.0	9.55	94	10.0	9.29	92	3	80-120	20
Bromobenzene	ND	10.0	9.64	96	10.0	9.55	95	1	75-125	20
Bromochloromethane	ND	10.0	9.65	97	10.0	9.52	95	1	65-130	20
Bromodichloromethane	0.273J	10.0	9.22	89	10.0	8.80	85	5	75-120	20
Bromoform	1.24	10.0	11.2	99	10.0	11.0	97	2	70-130	20
Bromomethane	ND	10.0	8.40	84	10.0	8.18	82	3	30-145	20
Carbon Disulfide	0.272J	10.0	8.99	87	10.0	8.69	84	3	35-160	20
Carbon Tetrachloride	ND	10.0	8.82	88	10.0	8.70	87	1	65-140	20
Chlorobenzene	ND	10.0	9.06	91	10.0	8.80	88	3	80-120	20
Chloroethane	ND	10.0	9.61	96	10.0	9.40	94	2	60-135	20
Chloroform	6.16	10.0	15.4	93	10.0	15.7	95	2	65-135	20
Chloromethane	ND	10.0	11.0	110	10.0	11.0	110	0	40-125	20
cis-1,2-Dichloroethene	75.4	10.0	84.6	92	10.0	99.9	246*	17	70-125	20
cis-1,3-Dichloropropene	ND	10.0	9.11	91	10.0	8.67	87	5	70-130	20
Dibromochloromethane	0.715J	10.0	10.4	97	10.0	10.1	94	3	60-135	20
Dichlorodifluoromethane	ND	10.0	8.57	86	10.0	8.28	83	3	30-155	20
Ethylbenzene	ND	10.0	8.76	88	10.0	8.51	85	3	75-125	20
Hexachlorobutadiene	ND	10.0	7.95	79	10.0	7.66	77	4	50-140	20
Isopropyl Benzene	ND	10.0	8.90	89	10.0	8.63	86	3	75-125	20
m,p-Xylenes	ND	20.0	17.7	89	20.0	17.2	86	3	75-130	20
MIBK	ND	50.0	40.8	82	50.0	40.1	80	2	60-135	20
Methylene Chloride	0.642J	10.0	9.38	87	10.0	9.32	87	1	55-140	20
MTBE	ND	10.0	9.36	94	10.0	9.05	91	3	65-125	20
Naphthalene	ND	10.0	8.80	88	10.0	8.94	89	2	55-140	20
n-Butylbenzene	ND	10.0	8.83	88	10.0	8.63	86	2	70-135	20
n-Propylbenzene	ND	10.0	9.14	91	10.0	8.97	90	2	70-130	20
o-Xylene	ND	10.0	8.78	88	10.0	8.53	85	3	80-120	20
p-Isopropyltoluene	ND	10.0	9.24	92	10.0	9.09	91	2	75-130	20
Sec-Butylbenzene	ND	10.0	9.11	91	10.0	8.90	89	2	70-125	20
Styrene	ND	10.0	8.72	87	10.0	8.39	84	4	65-135	20
Tert-Butylbenzene	ND	10.0	9.10	91	10.0	8.97	90	1	70-130	20
Tetrachloroethene	1.28	10.0	9.84	86	10.0	9.74	85	1	45-150	20
Toluene	ND	10.0	9.05	91	10.0	8.91	89	2	75-120	20
Trans-1,2-Dichloroethene	1.92	10.0	10.8	89	10.0	10.7	87	2	60-140	20
Trans-1,3-Dichloropropene	ND	10.0	9.01	90	10.0	8.93	89	1	55-140	20
Trichloroethene	10000	10.0	807E	-91930*	10.0	841E	-91590*	2	70-125	20
Trichlorofluoromethane	ND	10.0	9.70	97	10.0	9.47	95	2	60-145	20
Vinyl Chloride	0.194J	10.0	10.8	106	10.0	10.7	105	1	50-145	20
Vinyl Acetate	ND	10.0	10.2	102	10.0	9.89	99	3	20-160	20
Freon113	ND	10.0	8.59	86	10.0	8.52	85	1	70-140	30
tert-Butanol	ND	250	255	102	250	245	98	4	60-150	20
DIPE	ND	10.0	9.63	96	10.0	9.35	94	3	70-140	20
ETBE	ND	10.0	9.56	96	10.0	9.36	94	2	60-140	20
TAME	ND	10.0	9.75	98	10.0	9.43	94	3	60-140	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10.0	8.68	87	10.0	8.68	87	70-120
4-Bromofluorobenzene	10.0	9.17	92	10.0	9.17	92	75-120
Toluene-d8	10.0	8.99	90	10.0	9.08	91	85-120
Dibromofluoromethane	10.0	9.39	94	10.0	9.34	93	85-115

Client Sample ID: 3-MW-55(120120)DL
Laboratory Sample ID: L041-02I
Parameters: Trichloroethene
Dilution Factor: 500
Analysis DateTime: 12/08/20 13:27
Extraction DateTime: 12/08/20 13:27
Sample Data FN: RLC111
Calibration Data FN: RJC459
Prep. Batch: VO67L06

QC DATA

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC081.D Vial: 6
Acq On : 7 Dec 2020 1:18 pm Operator: VLu
Sample : VO67L05B 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:26 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

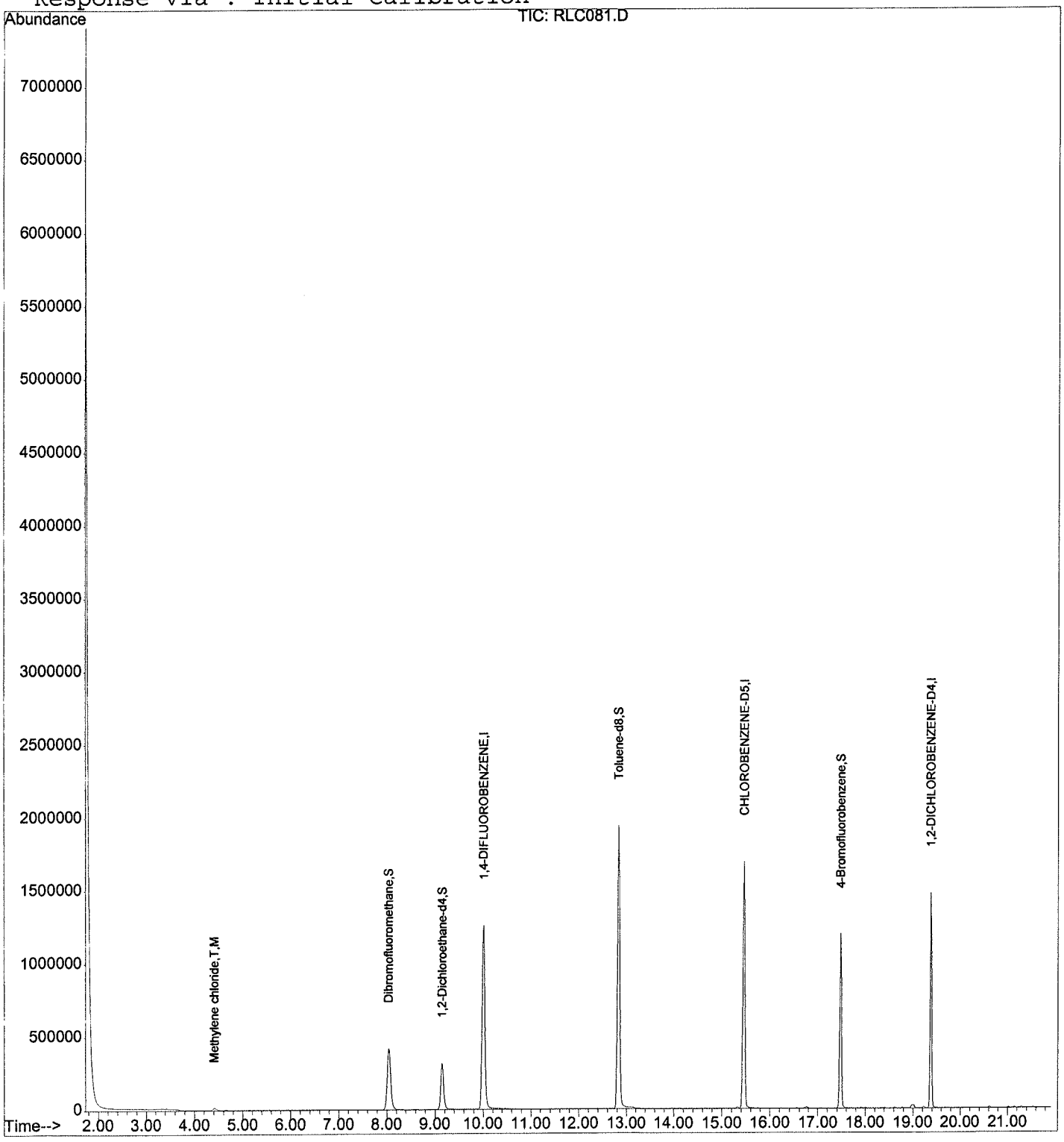
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2331256	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1753496	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	527865	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	711470	9.35	ug/l	0.00
Spiked Amount 10.000			Recovery =	93.50%		
43) 1,2-Dichloroethane-d4	9.14	65	439641	9.03	ug/l	0.00
Spiked Amount 10.000			Recovery =	90.30%		
56) Toluene-d8	12.82	98	2441693	9.12	ug/l	0.00
Spiked Amount 10.000			Recovery =	91.20%		
77) 4-Bromofluorobenzene	17.47	95	683314	9.52	ug/l	0.00
Spiked Amount 10.000			Recovery =	95.20%		
Target Compounds						Qvalue
19) Methylene chloride	4.41	49	22298	0.22	ug/l	96

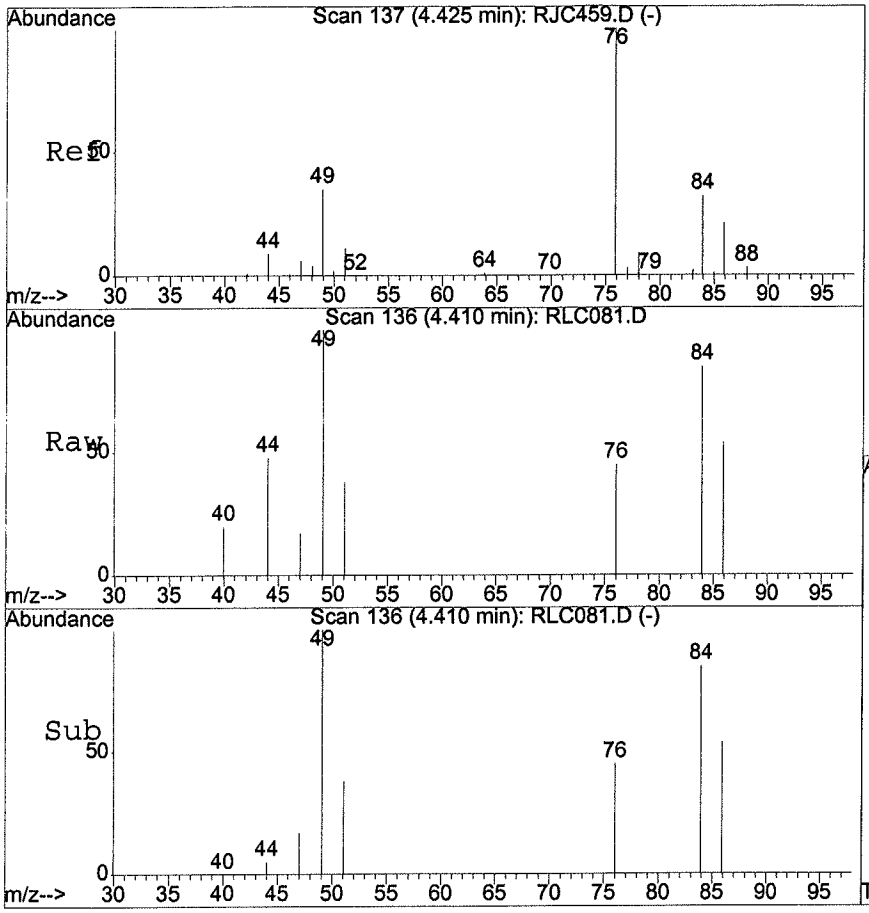
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC081.D Vial: 6
Acq On : 7 Dec 2020 1:18 pm Operator: VLu
Sample : VO67L05B 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:26 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

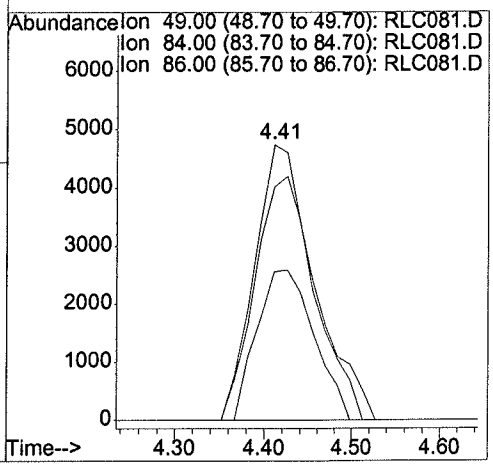




#19
Methylene chloride
Concen: 0.22 ug/l
RT: 4.41 min Scan# 136
Delta R.T. -0.01 min
Lab File: RLC081.D
Acq: 7 Dec 2020 1:18 pm

Tgt Ion: 49 Resp: 22298

Ion	Ratio	Lower	Upper
49	100		
84	88.8	60.1	120.1
86	52.0	27.5	87.5



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC078.D Vial: 3
Acq On : 7 Dec 2020 12:01 pm Operator: VLu
Sample : VO67L05L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:27 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2426742	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1878124	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	607235	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	743368	9.38	ug/l	0.00
Spiked Amount 10.000			Recovery =	93.80%		
43) 1,2-Dichloroethane-d4	9.14	65	447244	8.82	ug/l	0.00
Spiked Amount 10.000			Recovery =	88.20%		
56) Toluene-d8	12.82	98	2550139	8.89	ug/l	0.00
Spiked Amount 10.000			Recovery =	88.90%		
77) 4-Bromofluorobenzene	17.47	95	725936	8.80	ug/l	0.00
Spiked Amount 10.000			Recovery =	88.00%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	658596	7.85	ug/l	100
4) Chloromethane	2.11	50	1348159	10.49	ug/l	100
5) Vinyl chloride	2.21	62	1228882	10.15	ug/l	98
6) Bromomethane	2.64	94	880774	8.36	ug/l	98
7) Chloroethane	2.64	64	816280	9.20	ug/l	100
8) Dichlorofluoromethane	2.70	67	1606646	8.55	ug/l	100
9) Trichlorofluoromethane	2.90	101	1170493	9.35	ug/l	100
11) Acrolein	3.44	56	230927	43.96	ug/l	98
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	573738	8.62	ug/l	99
13) Acetone	3.52	43	332904	44.48	ug/l	100
14) 1,1-Dichloroethene	3.68	61	1250374	8.31	ug/l	98
15) tert-Butyl alcohol	3.80	59	681556	262.81	ug/l	99
17) Iodomethane	4.13	142	1125425	8.30	ug/l	98
18) Acetonitrile	4.22	41	1079601	89.93	ug/l	100
19) Methylene chloride	4.41	49	930158	8.76	ug/l	100
20) Carbon disulfide	4.40	76	3145669	8.54	ug/l	99
21) Acrylonitrile	4.64	53	514019	46.48	ug/l	99
22) tert-Butyl methyl ether (M	4.69	73	1134137	9.33	ug/l	99
23) trans-1,2-Dichloroethene	4.91	96	923943	8.61	ug/l	98
24) Isopropyl ether (DIPE)	5.56	45	2150829	9.43	ug/l	98
25) 1,1-Dichloroethane	5.74	63	1481396	8.93	ug/l	99
26) Vinyl acetate	5.80	43	817286	9.88	ug/l	99
28) tert-Butyl ethyl ether (ET	6.47	59	1675888	9.52	ug/l	100
29) 2-Butanone	6.75	72	155446	49.60	ug/l	99
30) 2,2-Dichloropropane	7.02	77	1005121	8.83	ug/l	99
31) cis-1,2-Dichloroethene	7.14	96	912456	8.72	ug/l	98
32) Chloroform	7.52	83	1382224	8.92	ug/l	100

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC078.D Vial: 3
Acq On : 7 Dec 2020 12:01 pm Operator: VLu
Sample : VO67L05L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:27 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
33)	Bromochloromethane	7.90	130	433539	9.44	ug/l		99
36)	Tetrahydrofuran	7.97	42	72548	9.19	ug/l		95
37)	1,1,1-Trichloroethane	8.43	97	1086597	8.61	ug/l		99
40)	1,1-Dichloropropene	8.76	110	418456	8.65	ug/l		100
41)	Carbon tetrachloride	8.94	119	889408	8.59	ug/l		100
42)	tert-Amyl methyl ether (TA	9.10	87	300472	9.75	ug/l		99
44)	1,2-Dichloroethane	9.33	62	558578	8.92	ug/l		99
45)	Benzene	9.32	78	3241716	9.12	ug/l		99
46)	Trichloroethene	10.57	130	823749	8.76	ug/l		98
48)	1,2-Dichloropropane	10.94	63	727403	9.32	ug/l		97
49)	Bromodichloromethane	11.38	83	880599	9.38	ug/l		100
50)	1,4-Dioxane	11.46	88	53688	188.47	ug/l		100
51)	Dibromomethane	11.45	93	335777	9.25	ug/l		100
53)	4-Methyl-2-pentanone	12.09	43	1358101	47.03	ug/l		97
54)	cis-1,3-Dichloropropene	12.43	75	1067657	9.37	ug/l		99
57)	Toluene	12.97	91	3210440	8.68	ug/l		100
58)	Ethyl methacrylate	13.38	69	514131	9.59	ug/l		96
59)	trans-1,3-Dichloropropene	13.35	75	758009	8.88	ug/l		98
60)	1,1,2-Trichloroethane	13.60	97	405700	9.00	ug/l		99
61)	2-Hexanone	13.66	43	861892	46.32	ug/l		97
62)	1,3-Dichloropropane	14.05	76	731344	8.90	ug/l		99
63)	Tetrachloroethene	14.09	164	585441	7.94	ug/l		99
64)	Dibromochloromethane	14.46	129	510695	9.38	ug/l		100
65)	1,2-Dibromoethane	14.79	107	398254	9.34	ug/l		100
66)	1-Chlorohexane	15.13	91	1303105	8.86	ug/l		100
67)	Chlorobenzene	15.51	112	1818105	8.74	ug/l		99
68)	1,1,1,2-Tetrachloroethane	15.60	131	589515	9.08	ug/l		100
69)	Ethylbenzene	15.61	91	3494377	8.49	ug/l		99
70)	m-Xylene & p-Xylene	15.74	91	5189285	17.22	ug/l		98
71)	o-Xylene	16.47	91	2454569	8.61	ug/l		99
72)	Styrene	16.55	104	1926250	8.68	ug/l	#	78
73)	Isopropylbenzene	17.09	105	3247074	8.76	ug/l		99
75)	Bromoform	17.09	173	263053	9.60	ug/l		99
76)	1,1,2,2-Tetrachloroethane	17.36	83	427333	9.60	ug/l		100
78)	1,2,3-Trichloropropane	17.58	110	104421	9.64	ug/l		99
79)	trans-1,4-Dichloro-2-buten	17.19	53	80157	7.27	ug/l		99
80)	n-Propylbenzene	17.69	91	4082656	8.65	ug/l		100
81)	Bromobenzene	17.73	156	597725	8.95	ug/l		99
82)	1,3,5-Trimethylbenzene	17.91	105	2468109	8.78	ug/l		100
83)	2-Chlorotoluene	17.92	91	2352732	8.12	ug/l		99
84)	4-Chlorotoluene	17.98	91	2080452	8.56	ug/l		100

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC078.D Vial: 3
Acq On : 7 Dec 2020 12:01 pm Operator: VLu
Sample : VO67L05L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:27 2020 Quant Results File: VO67J30.RES

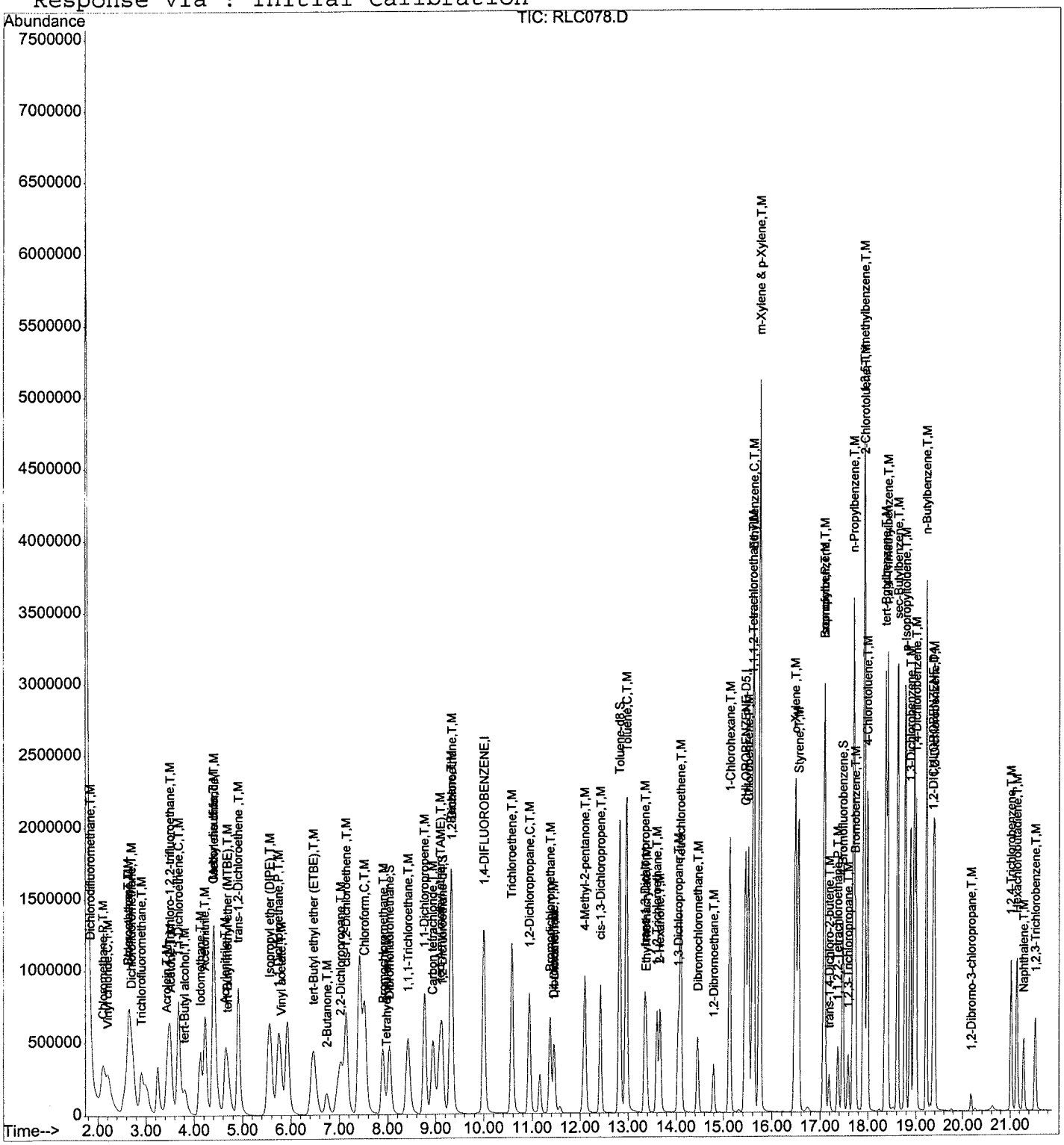
Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
85) tert-Butylbenzene	18.36	134	545896	8.85	ug/l	96
86) 1,2,4-Trimethylbenzene	18.40	105	2388794	9.06	ug/l	99
87) sec-Butylbenzene	18.62	105	3558583	8.96	ug/l	100
88) p-Isopropyltoluene	18.78	119	2744749	9.12	ug/l	99
89) 1,3-Dichlorobenzene	18.88	146	1169836	8.54	ug/l	99
90) 1,4-Dichlorobenzene	19.00	146	1141737	8.52	ug/l	99
91) n-Butylbenzene	19.22	91	2780658	8.99	ug/l	99
92) 1,2-Dichlorobenzene	19.39	146	935033	8.55	ug/l	99
93) 1,2-Dibromo-3-chloropropan	20.18	157	49977	10.58	ug/l	100
94) 1,2,4-Trichlorobenzene	21.02	180	481574	9.32	ug/l	99
95) Hexachlorobutadiene	21.15	225	363240	8.53	ug/l	100
96) Naphthalene	21.29	128	622589	10.10	ug/l	99
97) 1,2,3-Trichlorobenzene	21.54	180	340550	9.69	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\20L07\RLC078.D Vial: 3
Acq On : 7 Dec 2020 12:01 pm Operator: VLu
Sample : VO67L05L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:27 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC079.D Vial: 4
Acq On : 7 Dec 2020 12:27 pm Operator: VLu
Sample : VO67L05C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:29 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.01	114	2380269	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1837010	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	598301	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	724228	9.32	ug/l	0.00
Spiked Amount 10.000			Recovery =	93.20%		
43) 1,2-Dichloroethane-d4	9.14	65	437908	8.81	ug/l	0.00
Spiked Amount 10.000			Recovery =	88.10%		
56) Toluene-d8	12.82	98	2508298	8.94	ug/l	0.00
Spiked Amount 10.000			Recovery =	89.40%		
77) 4-Bromofluorobenzene	17.47	95	722524	8.88	ug/l	0.00
Spiked Amount 10.000			Recovery =	88.80%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	703736	8.56	ug/l	98
4) Chloromethane	2.11	50	1374663	10.91	ug/l	100
5) Vinyl chloride	2.23	62	1268894	10.68	ug/l	99
6) Bromomethane	2.64	94	888012	8.60	ug/l	98
7) Chloroethane	2.64	64	823754	9.46	ug/l	100
8) Dichlorofluoromethane	2.72	67	1619506	8.79	ug/l	99
9) Trichlorofluoromethane	2.90	101	1209421	9.85	ug/l	99
11) Acrolein	3.44	56	223224	43.32	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	588806	9.01	ug/l	99
13) Acetone	3.52	43	330089	44.97	ug/l	100
14) 1,1-Dichloroethene	3.68	61	1268649	8.59	ug/l	98
15) tert-Butyl alcohol	3.80	59	669693	263.28	ug/l	99
17) Iodomethane	4.13	142	1164428	8.76	ug/l	98
18) Acetonitrile	4.23	41	1089852	92.56	ug/l	100
19) Methylene chloride	4.41	49	915101	8.78	ug/l	99
20) Carbon disulfide	4.39	76	3137431	8.69	ug/l	100
21) Acrylonitrile	4.64	53	500475	46.14	ug/l	99
22) tert-Butyl methyl ether (M	4.69	73	1129503	9.48	ug/l	99
23) trans-1,2-Dichloroethene	4.91	96	923717	8.77	ug/l	98
24) Isopropyl ether (DIPE)	5.56	45	2133824	9.53	ug/l	100
25) 1,1-Dichloroethane	5.74	63	1478980	9.09	ug/l	99
26) Vinyl acetate	5.80	43	800031	9.86	ug/l	99
28) tert-Butyl ethyl ether (ET	6.47	59	1664587	9.64	ug/l	100
29) 2-Butanone	6.75	72	152071	49.47	ug/l	99
30) 2,2-Dichloropropane	7.04	77	1002853	8.98	ug/l	99
31) cis-1,2-Dichloroethene	7.14	96	912336	8.89	ug/l	98
32) Chloroform	7.52	83	1379705	9.08	ug/l	99

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC079.D Vial: 4
Acq On : 7 Dec 2020 12:27 pm Operator: VLu
Sample : VO67L05C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:29 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
33)	Bromochloromethane	7.90	130	431302	9.58 ug/l		99
36)	Tetrahydrofuran	7.99	42	73819	9.54 ug/l		94
37)	1,1,1-Trichloroethane	8.43	97	1095741	8.85 ug/l		99
40)	1,1-Dichloropropene	8.78	110	425782	8.97 ug/l		100
41)	Carbon tetrachloride	8.95	119	910410	8.96 ug/l		100
42)	tert-Amyl methyl ether (TA	9.10	87	301249	9.97 ug/l		100
44)	1,2-Dichloroethane	9.33	62	557089	9.07 ug/l		100
45)	Benzene	9.32	78	3241422	9.30 ug/l		99
46)	Trichloroethene	10.57	130	834895	9.05 ug/l		98
48)	1,2-Dichloropropane	10.94	63	724754	9.47 ug/l		97
49)	Bromodichloromethane	11.38	83	879143	9.55 ug/l		99
50)	1,4-Dioxane	11.47	88	55441	198.42 ug/l		98
51)	Dibromomethane	11.45	93	338251	9.50 ug/l		99
53)	4-Methyl-2-pentanone	12.09	43	1352875	47.76 ug/l		97
54)	cis-1,3-Dichloropropene	12.43	75	1067468	9.56 ug/l		99
57)	Toluene	12.97	91	3202525	8.85 ug/l		100
58)	Ethyl methacrylate	13.38	69	518007	9.88 ug/l		96
59)	trans-1,3-Dichloropropene	13.35	75	756449	9.06 ug/l		98
60)	1,1,2-Trichloroethane	13.60	97	410702	9.31 ug/l		99
61)	2-Hexanone	13.66	43	856300	47.05 ug/l		97
62)	1,3-Dichloropropane	14.05	76	735409	9.15 ug/l		100
63)	Tetrachloroethene	14.09	164	592040	8.21 ug/l		99
64)	Dibromochloromethane	14.46	129	514736	9.67 ug/l		99
65)	1,2-Dibromoethane	14.80	107	395566	9.49 ug/l		99
66)	1-Chlorohexane	15.13	91	1331446	9.25 ug/l		99
67)	Chlorobenzene	15.51	112	1822046	8.96 ug/l		99
68)	1,1,1,2-Tetrachloroethane	15.60	131	587634	9.25 ug/l		100
69)	Ethylbenzene	15.61	91	3506870	8.71 ug/l		99
70)	m-Xylene & p-Xylene	15.74	91	5181670	17.57 ug/l		98
71)	o-Xylene	16.48	91	2454784	8.80 ug/l		99
72)	Styrene	16.55	104	1922993	8.86 ug/l	#	78
73)	Isopropylbenzene	17.09	105	3265212	9.01 ug/l		99
75)	Bromoform	17.09	173	260114	9.64 ug/l		99
76)	1,1,2,2-Tetrachloroethane	17.37	83	431225	9.83 ug/l		100
78)	1,2,3-Trichloropropane	17.59	110	104405	9.78 ug/l		99
79)	trans-1,4-Dichloro-2-buten	17.19	53	81632	7.51 ug/l		100
80)	n-Propylbenzene	17.69	91	4134772	8.89 ug/l		100
81)	Bromobenzene	17.73	156	598539	9.09 ug/l		98
82)	1,3,5-Trimethylbenzene	17.91	105	2486714	8.98 ug/l		99
83)	2-Chlorotoluene	17.92	91	2375236	8.32 ug/l		99
84)	4-Chlorotoluene	17.98	91	2064605	8.62 ug/l		100

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC079.D Vial: 4
Acq On : 7 Dec 2020 12:27 pm Operator: VLu
Sample : VO67L05C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:29 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

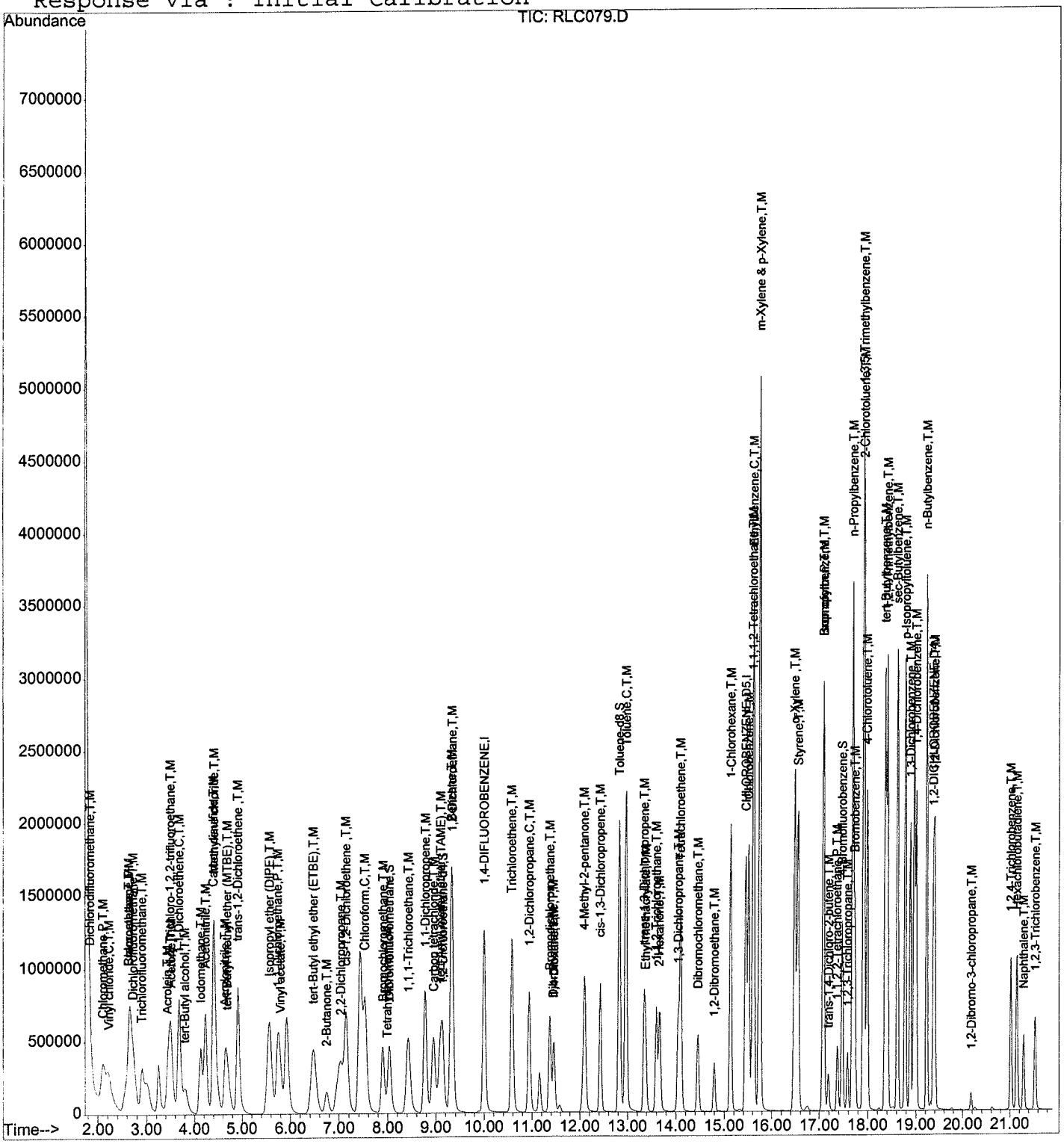
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
85)	tert-Butylbenzene	18.36	134	544391	8.96	ug/l	95
86)	1,2,4-Trimethylbenzene	18.40	105	2394365	9.22	ug/l	99
87)	sec-Butylbenzene	18.61	105	3550414	9.07	ug/l	100
88)	p-Isopropyltoluene	18.78	119	2775683	9.36	ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	1173465	8.70	ug/l	99
90)	1,4-Dichlorobenzene	19.00	146	1139610	8.63	ug/l	99
91)	n-Butylbenzene	19.22	91	2807618	9.21	ug/l	100
92)	1,2-Dichlorobenzene	19.40	146	942417	8.75	ug/l	100
93)	1,2-Dibromo-3-chloropropan	20.18	157	52334	11.24	ug/l	99
94)	1,2,4-Trichlorobenzene	21.02	180	482925	9.48	ug/l	99
95)	Hexachlorobutadiene	21.15	225	367039	8.75	ug/l	100
96)	Naphthalene	21.29	128	642820	10.58	ug/l	99
97)	1,2,3-Trichlorobenzene	21.54	180	344046	9.93	ug/l	99

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC079.D Vial: 4
Acq On : 7 Dec 2020 12:27 pm Operator: VLu
Sample : VO67L05C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:29 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC110.D Vial: 6
Acq On : 8 Dec 2020 1:01 pm Operator: VLu
Sample : VO67L06B 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:32 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

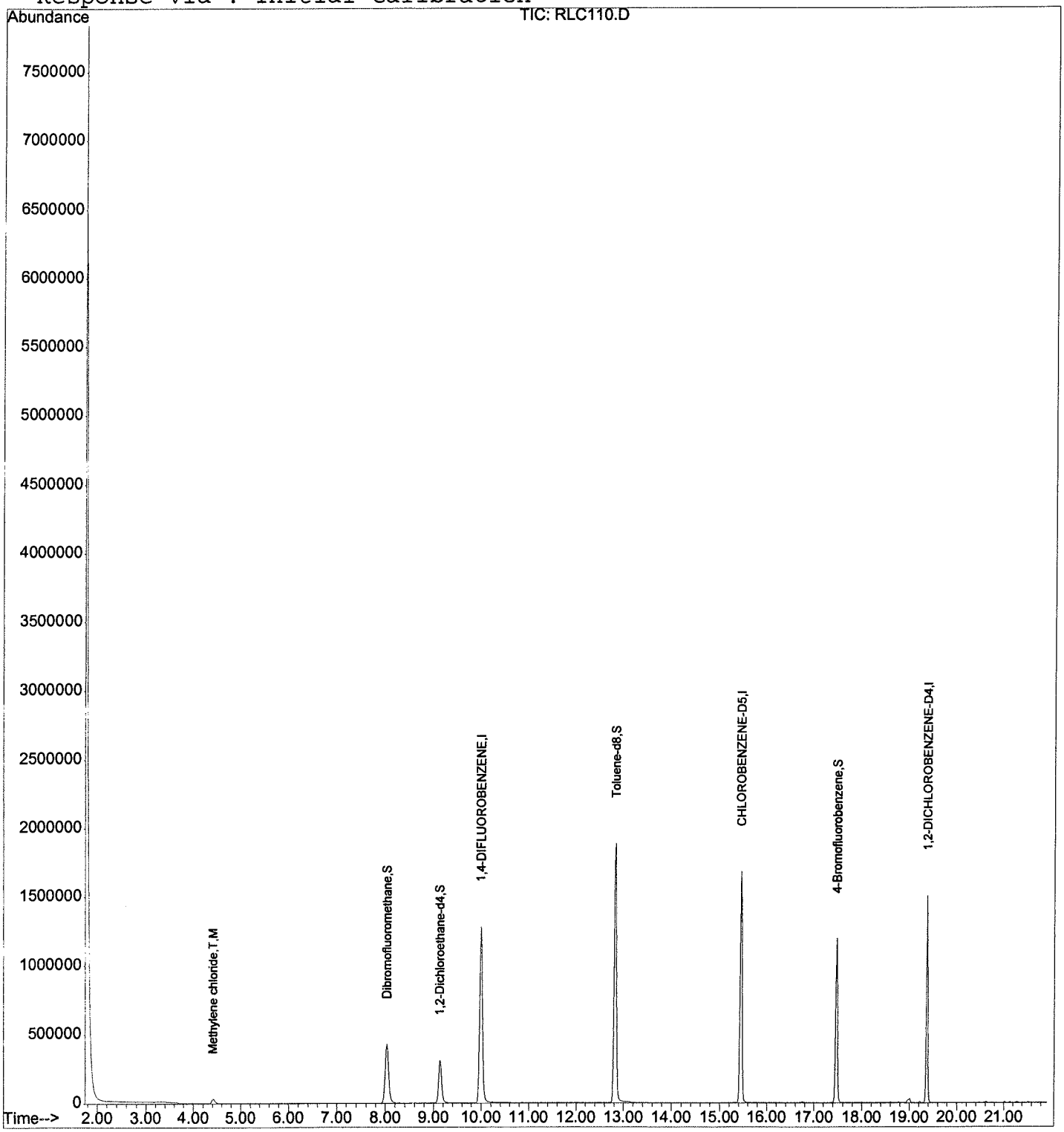
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2339998	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1757178	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	508853	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	718858	9.41	ug/l	0.00
Spiked Amount 10.000			Recovery = 94.10%			
43) 1,2-Dichloroethane-d4	9.13	65	437747	8.95	ug/l	-0.01
Spiked Amount 10.000			Recovery = 89.50%			
56) Toluene-d8	12.82	98	2435457	9.08	ug/l	0.00
Spiked Amount 10.000			Recovery = 90.80%			
77) 4-Bromofluorobenzene	17.47	95	667323	9.65	ug/l	0.00
Spiked Amount 10.000			Recovery = 96.50%			
Target Compounds						Qvalue
19) Methylene chloride	4.41	49	46610	0.45	ug/l	98

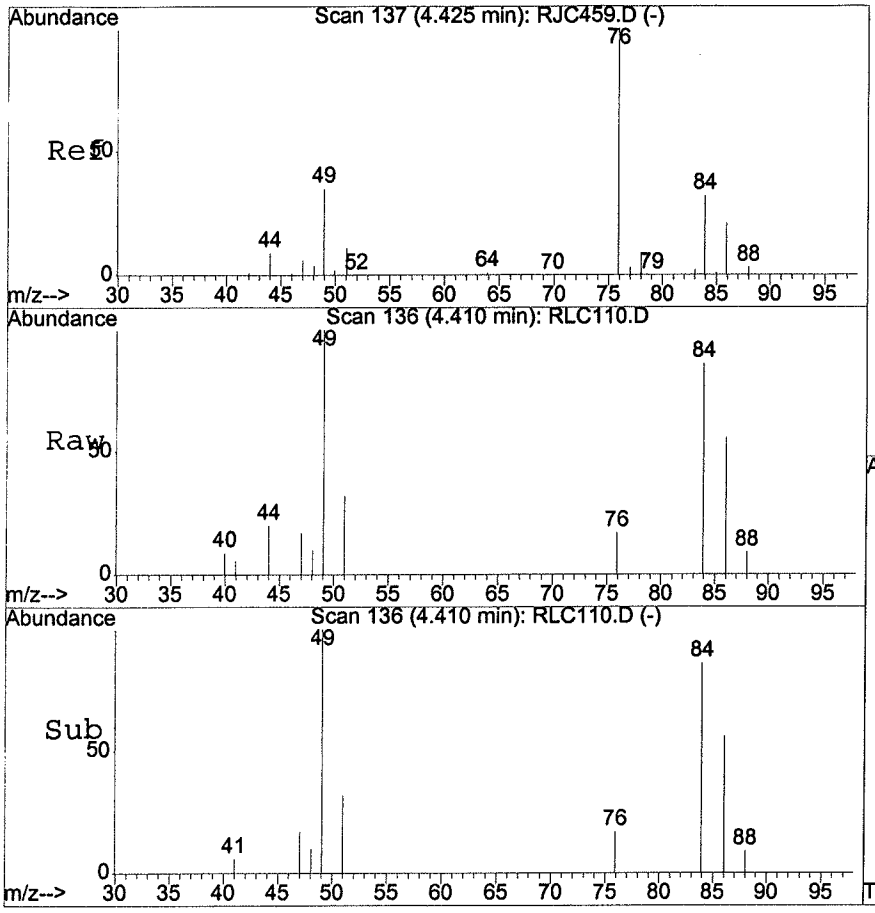
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC110.D Vial: 6
Acq On : 8 Dec 2020 1:01 pm Operator: VLu
Sample : VO67L06B 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:32 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

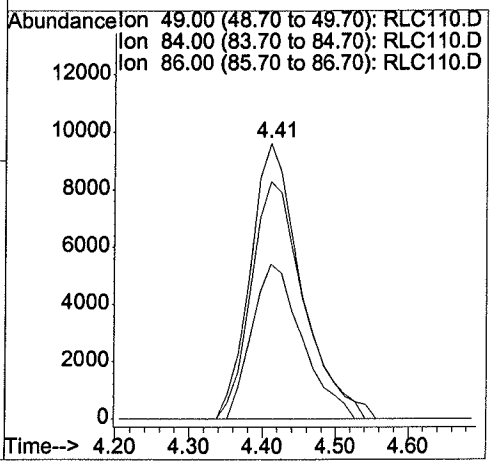




#19
Methylene chloride
Concen: 0.45 ug/l
RT: 4.41 min Scan# 136
Delta R.T. -0.01 min
Lab File: RLC110.D
Acq: 8 Dec 2020 1:01 pm

Tgt Ion: 49 Resp: 46610

Ion	Ratio	Lower	Upper
49	100		
84	89.1	60.1	120.1
86	55.6	27.5	87.5



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC107.D Vial: 3
Acq On : 8 Dec 2020 11:45 am Operator: VLu
Sample : VO67L06L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:32 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2351868	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1810666	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	575887	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.02	111	729300	9.50	ug/l	-0.01
Spiked Amount 10.000			Recovery =	95.00%		
43) 1,2-Dichloroethane-d4	9.13	65	432432	8.80	ug/l	-0.01
Spiked Amount 10.000			Recovery =	88.00%		
56) Toluene-d8	12.81	98	2469929	8.94	ug/l	-0.01
Spiked Amount 10.000			Recovery =	89.40%		
77) 4-Bromofluorobenzene	17.47	95	698358	8.92	ug/l	0.00
Spiked Amount 10.000			Recovery =	89.20%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	678991	8.35	ug/l	100
4) Chloromethane	2.11	50	1403384	11.27	ug/l	100
5) Vinyl chloride	2.23	62	1267679	10.80	ug/l	98
6) Bromomethane	2.64	94	881850	8.64	ug/l	98
7) Chloroethane	2.64	64	835212	9.71	ug/l	100
8) Dichlorofluoromethane	2.72	67	1627193	8.93	ug/l	100
9) Trichlorofluoromethane	2.90	101	1179394	9.72	ug/l	100
11) Acrolein	3.42	56	225384	44.27	ug/l	98
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	579493	8.98	ug/l	99
13) Acetone	3.50	43	319306	44.02	ug/l	99
14) 1,1-Dichloroethene	3.68	61	1303911	8.94	ug/l	99
15) tert-Butyl alcohol	3.80	59	599062	238.36	ug/l	99
17) Iodomethane	4.13	142	1101773	8.38	ug/l	99
18) Acetonitrile	4.22	41	1103589	94.86	ug/l	100
19) Methylene chloride	4.41	49	973261	9.45	ug/l	99
20) Carbon disulfide	4.40	76	3136948	8.79	ug/l	99
21) Acrylonitrile	4.63	53	498321	46.49	ug/l	100
22) tert-Butyl methyl ether (M	4.67	73	1122964	9.54	ug/l	99
23) trans-1,2-Dichloroethene	4.89	96	937946	9.02	ug/l	98
24) Isopropyl ether (DIPE)	5.55	45	2188869	9.90	ug/l	98
25) 1,1-Dichloroethane	5.73	63	1506100	9.37	ug/l	99
26) Vinyl acetate	5.78	43	833004	10.39	ug/l	99
28) tert-Butyl ethyl ether (ET	6.46	59	1663841	9.75	ug/l	100
29) 2-Butanone	6.73	72	146953	48.38	ug/l	99
30) 2,2-Dichloropropane	7.03	77	1040727	9.44	ug/l	99
31) cis-1,2-Dichloroethene	7.13	96	931102	9.18	ug/l	98
32) Chloroform	7.51	83	1408969	9.39	ug/l	100

(#) = qualifier out of range (m) = manual integration
RLC107.D VO67J30.M Wed Dec 09 11:33:03 2020 Page 1

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC107.D Vial: 3
Acq On : 8 Dec 2020 11:45 am Operator: VLu
Sample : VO67L06L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:32 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
33)	Bromochloromethane	7.89	130	425230	9.56 ug/l	100
36)	Tetrahydrofuran	7.97	42	72746	9.51 ug/l	93
37)	1,1,1-Trichloroethane	8.41	97	1112994	9.10 ug/l	99
40)	1,1-Dichloropropene	8.76	110	425100	9.07 ug/l	100
41)	Carbon tetrachloride	8.94	119	911126	9.08 ug/l	100
42)	tert-Amyl methyl ether (TA	9.08	87	294099	9.85 ug/l	99
44)	1,2-Dichloroethane	9.33	62	554472	9.13 ug/l	100
45)	Benzene	9.30	78	3267030	9.49 ug/l	100
46)	Trichloroethene	10.57	130	831371	9.12 ug/l	97
48)	1,2-Dichloropropane	10.92	63	719191	9.51 ug/l	98
49)	Bromodichloromethane	11.36	83	872284	9.59 ug/l	99
50)	1,4-Dioxane	11.45	88	46876	169.80 ug/l	93
51)	Dibromomethane	11.45	93	327898	9.32 ug/l	99
53)	4-Methyl-2-pentanone	12.09	43	1300213	46.45 ug/l	97
54)	cis-1,3-Dichloropropene	12.41	75	1055266	9.56 ug/l	99
57)	Toluene	12.95	91	3193562	8.96 ug/l	100
58)	Ethyl methacrylate	13.38	69	492132	9.52 ug/l	97
59)	trans-1,3-Dichloropropene	13.33	75	741894	9.01 ug/l	99
60)	1,1,2-Trichloroethane	13.58	97	394498	9.07 ug/l	99
61)	2-Hexanone	13.66	43	818621	45.63 ug/l	97
62)	1,3-Dichloropropane	14.04	76	714302	9.01 ug/l	99
63)	Tetrachloroethene	14.09	164	580134	8.16 ug/l	99
64)	Dibromochloromethane	14.44	129	496147	9.46 ug/l	100
65)	1,2-Dibromoethane	14.78	107	382196	9.30 ug/l	100
66)	1-Chlorohexane	15.12	91	1325860	9.35 ug/l	99
67)	Chlorobenzene	15.50	112	1803978	9.00 ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.60	131	586505	9.37 ug/l	100
69)	Ethylbenzene	15.61	91	3487604	8.79 ug/l	99
70)	m-Xylene & p-Xylene	15.74	91	5167601	17.78 ug/l	98
71)	o-Xylene	16.46	91	2436231	8.86 ug/l	98
72)	Styrene	16.53	104	1850360	8.65 ug/l	99
73)	Isopropylbenzene	17.07	105	3299190	9.24 ug/l	99
75)	Bromoform	17.07	173	250449	9.64 ug/l	99
76)	1,1,2,2-Tetrachloroethane	17.37	83	406166	9.62 ug/l	100
78)	1,2,3-Trichloropropane	17.57	110	100619	9.80 ug/l	98
79)	trans-1,4-Dichloro-2-buten	17.18	53	78700	7.53 ug/l	98
80)	n-Propylbenzene	17.69	91	4064542	9.08 ug/l	100
81)	Bromobenzene	17.73	156	593621	9.37 ug/l	98
82)	1,3,5-Trimethylbenzene	17.91	105	2480230	9.31 ug/l	100
83)	2-Chlorotoluene	17.91	91	2459690	8.95 ug/l	100
84)	4-Chlorotoluene	17.98	91	1966473	8.53 ug/l	100

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC107.D Vial: 3
Acq On : 8 Dec 2020 11:45 am Operator: VLu
Sample : VO67L06L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:32 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

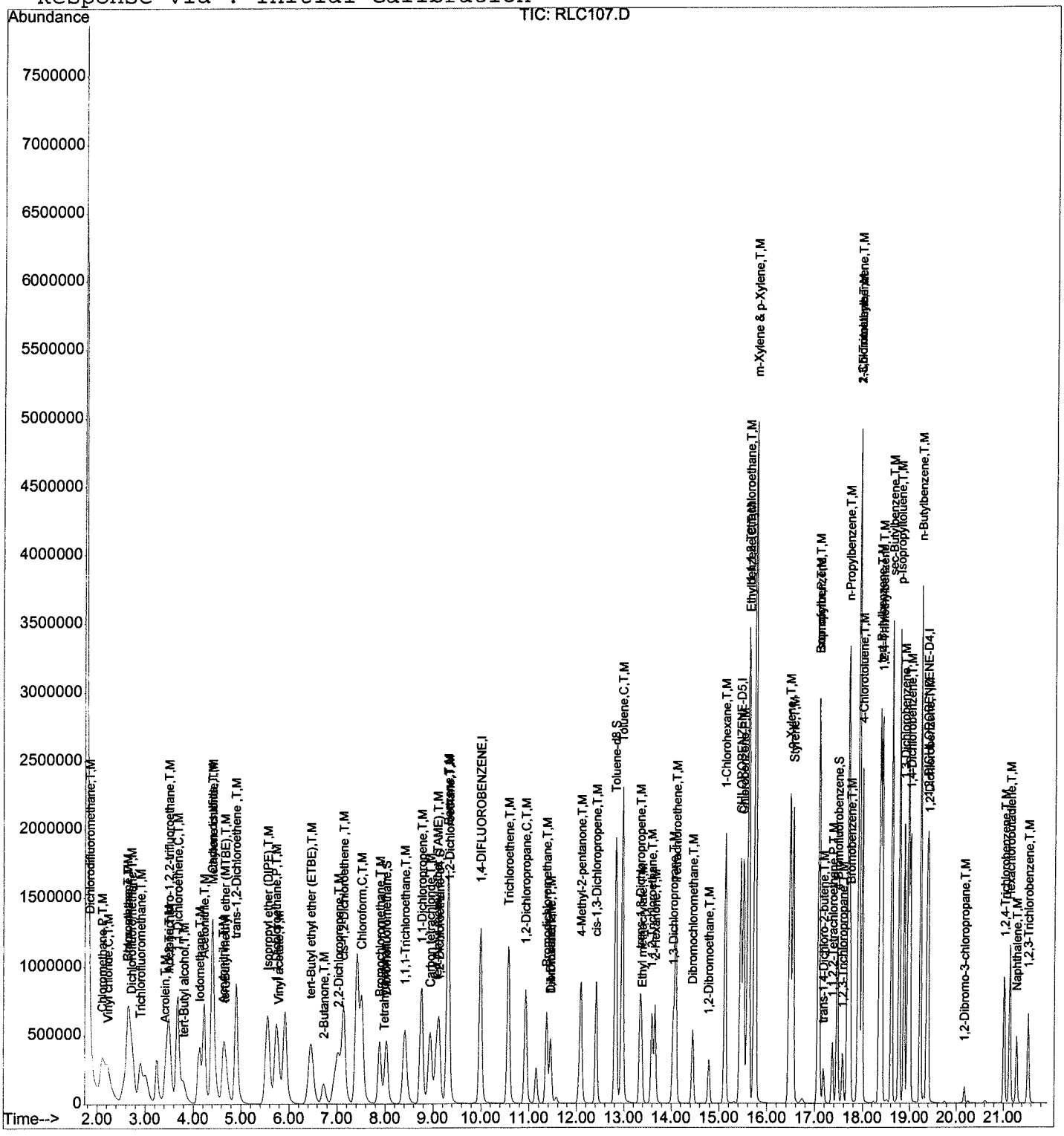
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
85)	tert-Butylbenzene	18.36	134	546282	9.34	ug/l	96
86)	1,2,4-Trimethylbenzene	18.40	105	2382308	9.53	ug/l	99
87)	sec-Butylbenzene	18.61	105	3564341	9.46	ug/l	100
88)	p-Isopropyltoluene	18.77	119	2745095	9.62	ug/l	99
89)	1,3-Dichlorobenzene	18.87	146	1167068	8.99	ug/l	99
90)	1,4-Dichlorobenzene	19.00	146	1134175	8.92	ug/l	99
91)	n-Butylbenzene	19.22	91	2744743	9.35	ug/l	100
92)	1,2-Dichlorobenzene	19.40	146	915180	8.82	ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.17	157	46861	10.46	ug/l	98
94)	1,2,4-Trichlorobenzene	21.02	180	464369	9.47	ug/l	99
95)	Hexachlorobutadiene	21.13	225	354933	8.79	ug/l	99
96)	Naphthalene	21.28	128	582479	9.96	ug/l	99
97)	1,2,3-Trichlorobenzene	21.53	180	322913	9.69	ug/l	98

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC107.D Vial: 3
Acq On : 8 Dec 2020 11:45 am Operator: VLu
Sample : VO67L06L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:32 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC108.D Vial: 4
Acq On : 8 Dec 2020 12:10 pm Operator: VLu
Sample : VO67L06C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:33 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2339880	10.00 ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1807445	10.00 ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	585286	10.00 ug/l	-0.01
System Monitoring Compounds					
35) Dibromofluoromethane	8.03	111	730548	9.56 ug/l	0.00
Spiked Amount 10.000			Recovery =	95.60%	
43) 1,2-Dichloroethane-d4	9.13	65	441313	9.03 ug/l	-0.01
Spiked Amount 10.000			Recovery =	90.30%	
56) Toluene-d8	12.81	98	2450694	8.88 ug/l	-0.01
Spiked Amount 10.000			Recovery =	88.80%	
77) 4-Bromofluorobenzene	17.47	95	707596	8.89 ug/l	0.00
Spiked Amount 10.000			Recovery =	88.90%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.84	85	707241	8.75 ug/l	100
4) Chloromethane	2.11	50	1415474	11.43 ug/l	100
5) Vinyl chloride	2.23	62	1279780	10.96 ug/l	99
6) Bromomethane	2.64	94	898996	8.85 ug/l	99
7) Chloroethane	2.64	64	838525	9.80 ug/l	100
8) Dichlorofluoromethane	2.72	67	1619494	8.94 ug/l	100
9) Trichlorofluoromethane	2.90	101	1187980	9.84 ug/l	99
11) Acrolein	3.44	56	232581	45.92 ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	575388	8.96 ug/l	100
13) Acetone	3.52	43	337438	46.76 ug/l	100
14) 1,1-Dichloroethene	3.68	61	1280608	8.82 ug/l	99
15) tert-Butyl alcohol	3.80	59	638300	255.27 ug/l	99
17) Iodomethane	4.13	142	1138293	8.71 ug/l	99
18) Acetonitrile	4.22	41	1118478	96.63 ug/l	100
19) Methylene chloride	4.41	49	991002	9.67 ug/l	99
20) Carbon disulfide	4.39	76	3168068	8.92 ug/l	100
21) Acrylonitrile	4.64	53	520646	48.83 ug/l	100
22) tert-Butyl methyl ether (M	4.69	73	1175969	10.04 ug/l	99
23) trans-1,2-Dichloroethene	4.91	96	934958	9.03 ug/l	98
24) Isopropyl ether (DIPE)	5.55	45	2240514	10.18 ug/l	98
25) 1,1-Dichloroethane	5.74	63	1514073	9.47 ug/l	99
26) Vinyl acetate	5.80	43	870997	10.92 ug/l	100
28) tert-Butyl ethyl ether (ET	6.45	59	1729412	10.19 ug/l	100
29) 2-Butanone	6.73	72	156594	51.82 ug/l	99
30) 2,2-Dichloropropane	7.02	77	1023823	9.33 ug/l	99
31) cis-1,2-Dichloroethene	7.13	96	937828	9.29 ug/l	98
32) Chloroform	7.52	83	1426527	9.55 ug/l	100

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC108.D Vial: 4
Acq On : 8 Dec 2020 12:10 pm Operator: VLu
Sample : VO67L06C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:33 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
33)	Bromochloromethane	7.89	130	436533	9.86 ug/l	100
36)	Tetrahydrofuran	7.97	42	71633	9.42 ug/l	95
37)	1,1,1-Trichloroethane	8.41	97	1106174	9.09 ug/l	99
40)	1,1-Dichloropropene	8.76	110	418595	8.97 ug/l	100
41)	Carbon tetrachloride	8.94	119	903015	9.04 ug/l	100
42)	tert-Amyl methyl ether (TA	9.08	87	307082	10.33 ug/l	99
44)	1,2-Dichloroethane	9.33	62	573109	9.49 ug/l	99
45)	Benzene	9.32	78	3265186	9.53 ug/l	100
46)	Trichloroethene	10.57	130	833366	9.19 ug/l	97
48)	1,2-Dichloropropane	10.92	63	738874	9.82 ug/l	98
49)	Bromodichloromethane	11.36	83	895199	9.89 ug/l	100
50)	1,4-Dioxane	11.45	88	49169	179.01 ug/l	96
51)	Dibromomethane	11.45	93	335758	9.60 ug/l	100
53)	4-Methyl-2-pentanone	12.09	43	1381708	49.62 ug/l	97
54)	cis-1,3-Dichloropropene	12.41	75	1087859	9.91 ug/l	99
57)	Toluene	12.95	91	3213286	9.03 ug/l	100
58)	Ethyl methacrylate	13.38	69	521950	10.12 ug/l	97
59)	trans-1,3-Dichloropropene	13.33	75	772220	9.40 ug/l	99
60)	1,1,2-Trichloroethane	13.60	97	412976	9.52 ug/l	99
61)	2-Hexanone	13.65	43	880465	49.17 ug/l	97
62)	1,3-Dichloropropane	14.03	76	745851	9.43 ug/l	100
63)	Tetrachloroethene	14.09	164	577933	8.14 ug/l	99
64)	Dibromochloromethane	14.44	129	515379	9.84 ug/l	99
65)	1,2-Dibromoethane	14.78	107	397360	9.69 ug/l	100
66)	1-Chlorohexane	15.12	91	1322088	9.34 ug/l	99
67)	Chlorobenzene	15.51	112	1823405	9.11 ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.60	131	600192	9.61 ug/l	98
69)	Ethylbenzene	15.61	91	3515075	8.88 ug/l	99
70)	m-Xylene & p-Xylene	15.74	91	5216681	17.98 ug/l	98
71)	o-Xylene	16.47	91	2466085	8.99 ug/l	99
72)	Styrene	16.53	104	1891779	8.86 ug/l	99
73)	Isopropylbenzene	17.07	105	3314030	9.30 ug/l	99
75)	Bromoform	17.09	173	265262	10.05 ug/l	99
76)	1,1,2,2-Tetrachloroethane	17.36	83	433973	10.11 ug/l	100
78)	1,2,3-Trichloropropane	17.58	110	106236	10.18 ug/l	100
79)	trans-1,4-Dichloro-2-buten	17.17	53	86477	8.14 ug/l	100
80)	n-Propylbenzene	17.69	91	4110602	9.03 ug/l	100
81)	Bromobenzene	17.73	156	605814	9.41 ug/l	99
82)	1,3,5-Trimethylbenzene	17.90	105	2517996	9.30 ug/l	99
83)	2-Chlorotoluene	17.90	91	2478573	8.87 ug/l	100
84)	4-Chlorotoluene	17.98	91	2035486	8.69 ug/l	99

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC108.D Vial: 4
Acq On : 8 Dec 2020 12:10 pm Operator: VLu
Sample : VO67L06C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:33 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

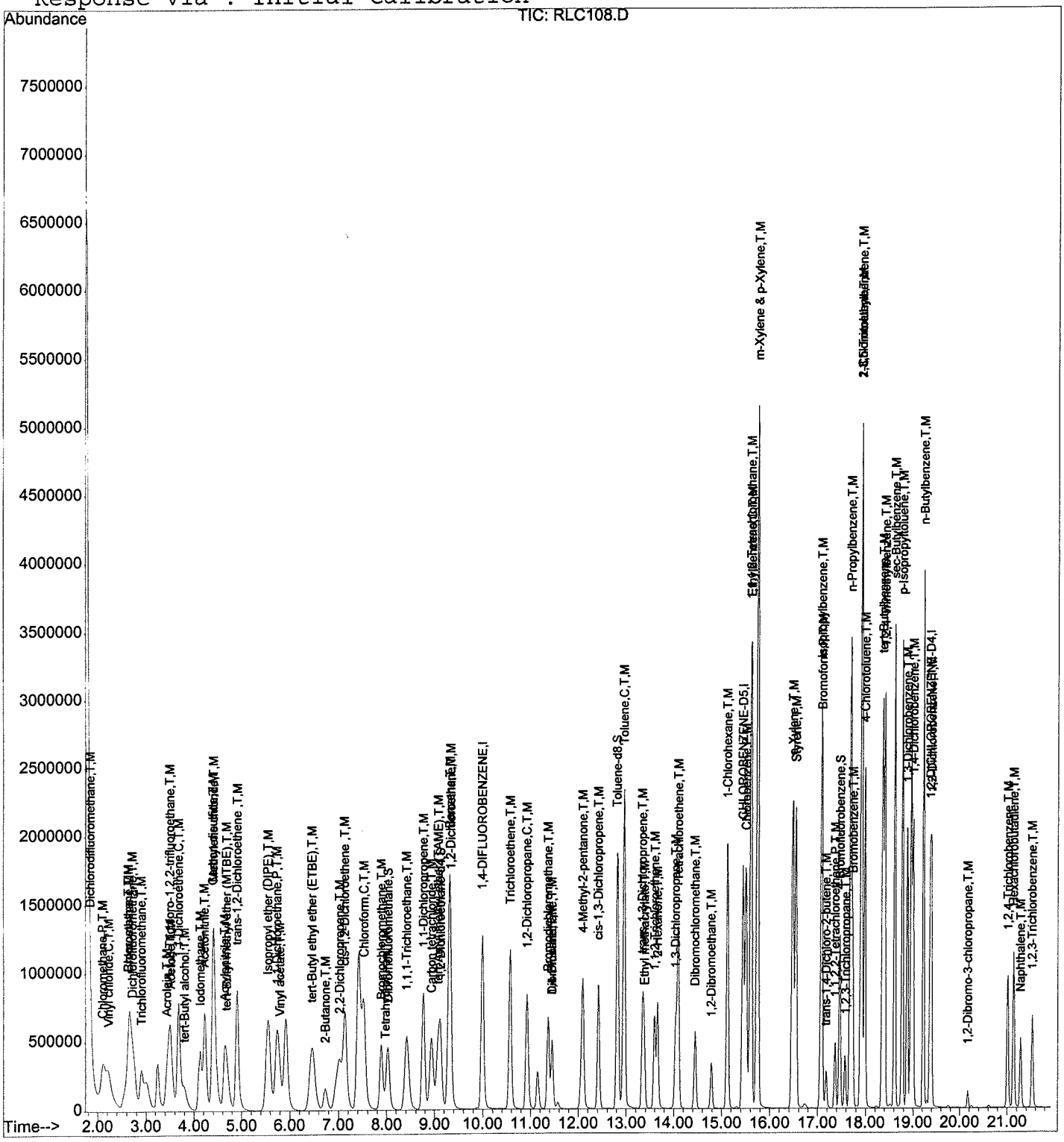
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
85)	tert-Butylbenzene	18.36	134	550454	9.26	ug/l	94
86)	1,2,4-Trimethylbenzene	18.40	105	2396291	9.43	ug/l	98
87)	sec-Butylbenzene	18.61	105	3566918	9.32	ug/l	100
88)	p-Isopropyltoluene	18.77	119	2761750	9.52	ug/l	99
89)	1,3-Dichlorobenzene	18.87	146	1192283	9.03	ug/l	99
90)	1,4-Dichlorobenzene	19.00	146	1159373	8.97	ug/l	99
91)	n-Butylbenzene	19.22	91	2767740	9.28	ug/l	100
92)	1,2-Dichlorobenzene	19.39	146	951288	9.02	ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.17	157	50187	11.02	ug/l	97
94)	1,2,4-Trichlorobenzene	21.02	180	483862	9.71	ug/l	99
95)	Hexachlorobutadiene	21.13	225	356850	8.70	ug/l	99
96)	Naphthalene	21.28	128	628906	10.58	ug/l	99
97)	1,2,3-Trichlorobenzene	21.53	180	339928	10.03	ug/l	98

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC108.D Vial: 4
Acq On : 8 Dec 2020 12:10 pm Operator: VLu
Sample : VO67L06C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:33 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC084.D Vial: 9
Acq On : 7 Dec 2020 2:35 pm Operator: VLu
Sample : 20L041-02M 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:44 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.02	114	2527459	10.00	ug/l		0.02
55) CHLOROBENZENE-D5	15.45	117	1855972	10.00	ug/l		0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	573073	10.00	ug/l		0.00
System Monitoring Compounds							
35) Dibromofluoromethane	8.05	111	774651	9.39	ug/l		0.02
Spiked Amount 10.000			Recovery = 93.90%				
43) 1,2-Dichloroethane-d4	9.16	65	458354	8.68	ug/l		0.02
Spiked Amount 10.000			Recovery = 86.80%				
56) Toluene-d8	12.84	98	2547228	8.99	ug/l		0.02
Spiked Amount 10.000			Recovery = 89.90%				
77) 4-Bromofluorobenzene	17.47	95	713914	9.17	ug/l		0.00
Spiked Amount 10.000			Recovery = 91.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.84	85	748577	8.57	ug/l		99
4) Chloromethane	2.13	50	1476203	11.03	ug/l		100
5) Vinyl chloride	2.23	62	1356378	10.76	ug/l		99
6) Bromomethane	2.66	94	921853	8.40	ug/l		99
7) Chloroethane	2.66	64	888268	9.61	ug/l		99
8) Dichlorofluoromethane	2.74	67	1673027	8.55	ug/l		99
9) Trichlorofluoromethane	2.91	101	1265044	9.70	ug/l		100
11) Acrolein	3.44	56	212281	38.80	ug/l		99
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	595943	8.59	ug/l		99
13) Acetone	3.52	43	305750	39.23	ug/l		100
14) 1,1-Dichloroethene	3.68	61	1439147	9.18	ug/l		99
15) tert-Butyl alcohol	3.83	59	689865	255.42	ug/l		99
17) Iodomethane	4.13	142	1341476	9.50	ug/l		99
18) Acetonitrile	4.24	41	1180012	94.38	ug/l		100
19) Methylene chloride	4.43	49	1037861	9.38	ug/l		100
20) Carbon disulfide	4.41	76	3445910	8.99	ug/l		100
21) Acrylonitrile	4.66	53	516841	44.87	ug/l		100
22) tert-Butyl methyl ether (M	4.70	73	1184115	9.36	ug/l		99
23) trans-1,2-Dichloroethene	4.92	96	1210117	10.82	ug/l		98
24) Isopropyl ether (DIPE)	5.58	45	2288940	9.63	ug/l		98
25) 1,1-Dichloroethane	5.75	63	1591559	9.22	ug/l		99
26) Vinyl acetate	5.81	43	878808	10.20	ug/l		100
28) tert-Butyl ethyl ether (ET	6.48	59	1753120	9.56	ug/l		100
29) 2-Butanone	6.76	72	151590	46.44	ug/l		100
30) 2,2-Dichloropropane	7.05	77	1016080	8.57	ug/l	#	65
31) cis-1,2-Dichloroethene	7.16	96	9220206	84.60	ug/l		99
32) Chloroform	7.54	83	2491217	15.44	ug/l		99

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC084.D
Acq On : 7 Dec 2020 2:35 pm
Sample : 20L041-02M 25mL
Misc : DF=1.0
MS Integration Params: RTE.P
Quant Time: Dec 8 11:44 2020

Vial: 9
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Bromochloromethane	7.90	130	461397	9.65	ug/l	100
36)	Tetrahydrofuran	8.00	42	75832	9.23	ug/l	95
37)	1,1,1-Trichloroethane	8.44	97	1138048	8.66	ug/l	99
40)	1,1-Dichloropropene	8.78	110	452385	8.98	ug/l	100
41)	Carbon tetrachloride	8.97	119	951419	8.82	ug/l	100
42)	tert-Amyl methyl ether (TA	9.13	87	313103	9.75	ug/l	99
44)	1,2-Dichloroethane	9.35	62	588971	9.03	ug/l	100
45)	Benzene	9.33	78	3532392	9.55	ug/l	100
46)	Trichloroethene	10.57	130	79030447m	806.51	ug/l	
48)	1,2-Dichloropropane	10.97	63	729421	8.97	ug/l	95
49)	Bromodichloromethane	11.39	83	900939	9.22	ug/l	99
50)	1,4-Dioxane	11.48	88	49499	166.84	ug/l	98
51)	Dibromomethane	11.46	93	329358	8.71	ug/l	90
53)	4-Methyl-2-pentanone	12.11	43	1226436	40.77	ug/l	95
54)	cis-1,3-Dichloropropene	12.43	75	1080171	9.11	ug/l	99
57)	Toluene	12.97	91	3308596	9.05	ug/l	100
58)	Ethyl methacrylate	13.38	69	512986	9.69	ug/l	96
59)	trans-1,3-Dichloropropene	13.35	75	760505	9.01	ug/l	97
60)	1,1,2-Trichloroethane	13.60	97	437311	9.81	ug/l	99
61)	2-Hexanone	13.67	43	799632	43.49	ug/l	97
62)	1,3-Dichloropropane	14.05	76	740940	9.12	ug/l	100
63)	Tetrachloroethene	14.11	164	717198	9.84	ug/l	99
64)	Dibromochloromethane	14.46	129	560758	10.43	ug/l	100
65)	1,2-Dibromoethane	14.79	107	387031	9.19	ug/l	99
66)	1-Chlorohexane	15.13	91	1327518	9.13	ug/l	99
67)	Chlorobenzene	15.51	112	1862468	9.06	ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.61	131	595632	9.28	ug/l	100
69)	Ethylbenzene	15.63	91	3562365	8.76	ug/l	99
70)	m-Xylene & p-Xylene	15.76	91	5279089	17.72	ug/l	99
71)	o-Xylene	16.47	91	2473656	8.78	ug/l	99
72)	Styrene	16.55	104	1912378	8.72	ug/l	99
73)	Isopropylbenzene	17.09	105	3258671	8.90	ug/l	100
75)	Bromoform	17.09	173	288537	11.16	ug/l	100
76)	1,1,2,2-Tetrachloroethane	17.38	83	416460	9.91	ug/l	100
78)	1,2,3-Trichloropropane	17.58	110	98919	9.68	ug/l	95
79)	trans-1,4-Dichloro-2-buten	17.19	53	78542	7.55	ug/l	100
80)	n-Propylbenzene	17.69	91	4074022	9.14	ug/l	100
81)	Bromobenzene	17.73	156	607917	9.64	ug/l	100
82)	1,3,5-Trimethylbenzene	17.91	105	2405170	9.07	ug/l	99
83)	2-Chlorotoluene	17.92	91	2330047	8.52	ug/l	94
84)	4-Chlorotoluene	17.99	91	2095776	9.13	ug/l	94

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC084.D Vial: 9
Acq On : 7 Dec 2020 2:35 pm Operator: VLu
Sample : 20L041-02M 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:44 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

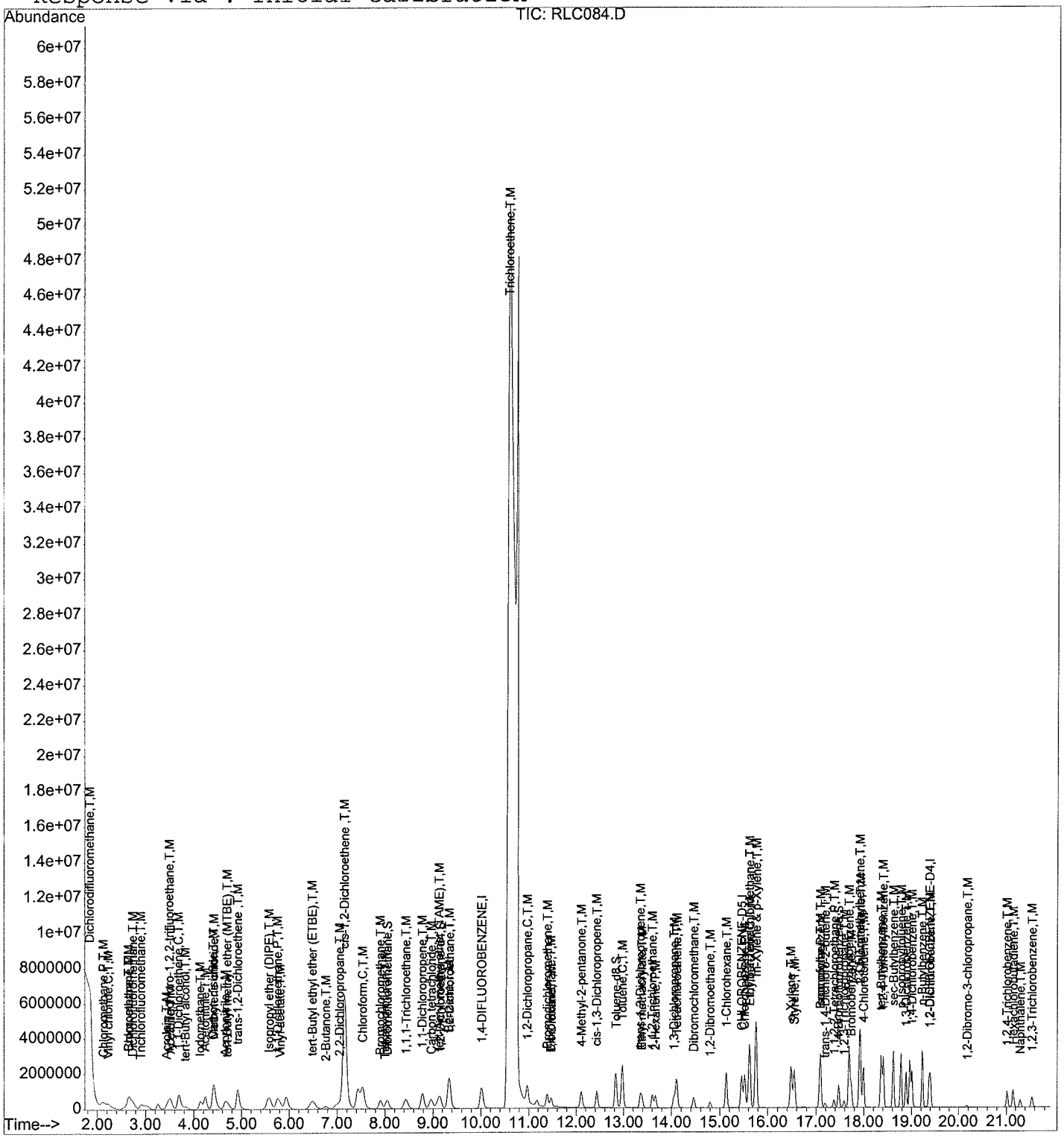
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
85)	tert-Butylbenzene	18.36	134	530065	9.10	ug/l	98
86)	1,2,4-Trimethylbenzene	18.40	105	2254147	9.06	ug/l	100
87)	sec-Butylbenzene	18.62	105	3414794	9.11	ug/l	99
88)	p-Isopropyltoluene	18.78	119	2624102	9.24	ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	1126836	8.72	ug/l	98
90)	1,4-Dichlorobenzene	19.00	146	1097157	8.67	ug/l	98
91)	n-Butylbenzene	19.22	91	2579760	8.83	ug/l	99
92)	1,2-Dichlorobenzene	19.40	146	884921	8.57	ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.18	157	44294	9.93	ug/l	99
94)	1,2,4-Trichlorobenzene	21.02	180	415070	8.51	ug/l	99
95)	Hexachlorobutadiene	21.15	225	319318	7.95	ug/l	99
96)	Naphthalene	21.29	128	512225	8.80	ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	284007	8.56	ug/l	99

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC084.D Vial: 9
Acq On : 7 Dec 2020 2:35 pm Operator: VLu
Sample : 20L041-02M 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:44 2020 Quant Results File: VO67J30.RES

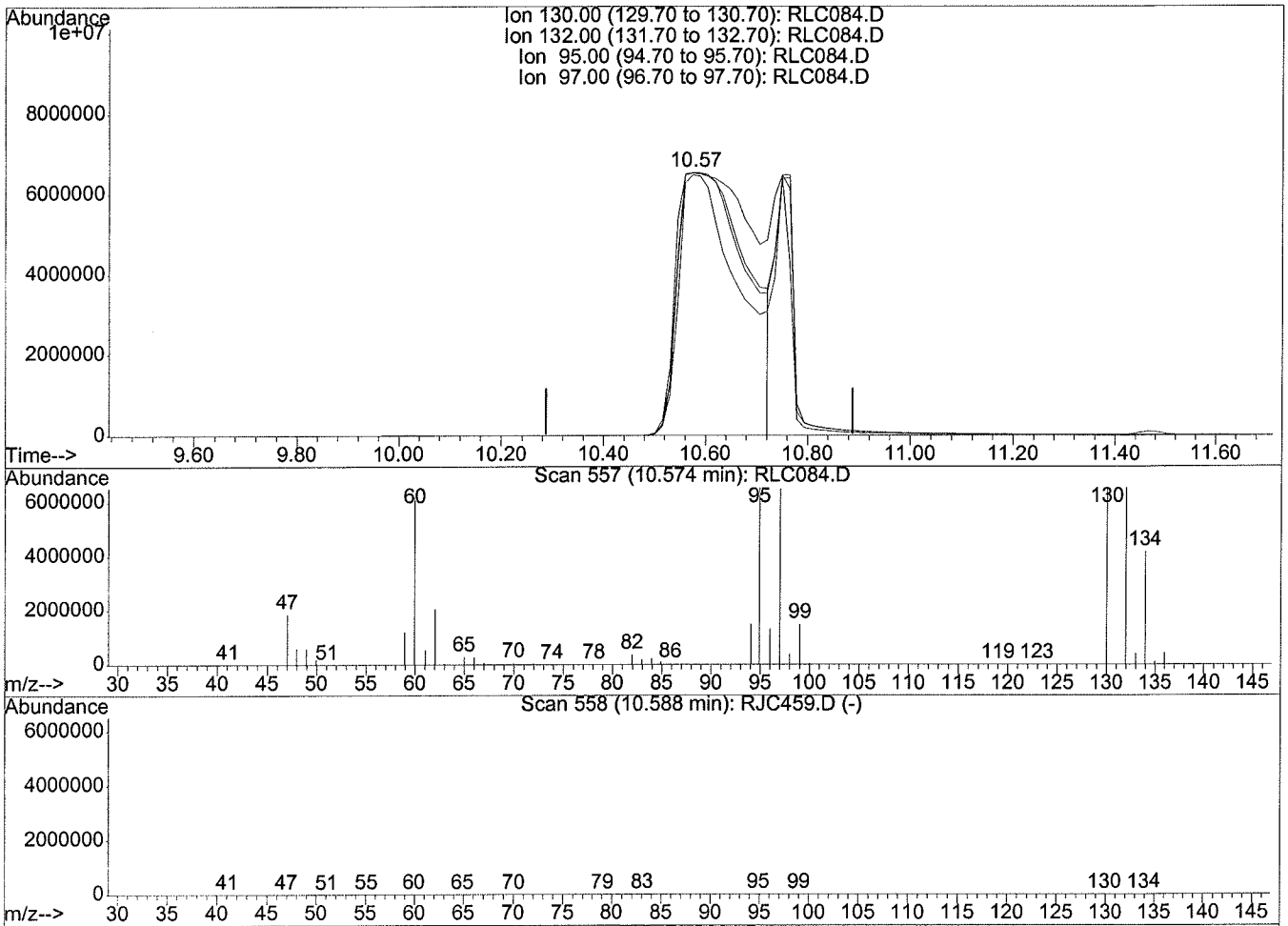
Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC084.D Vial: 9
Acq On : 7 Dec 2020 2:35 pm Operator: VLu
Sample : 20L041-02M 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:44 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC084.D

(46) Trichloroethene (T,M)

10.57min 627.92ug/l

response 61529717

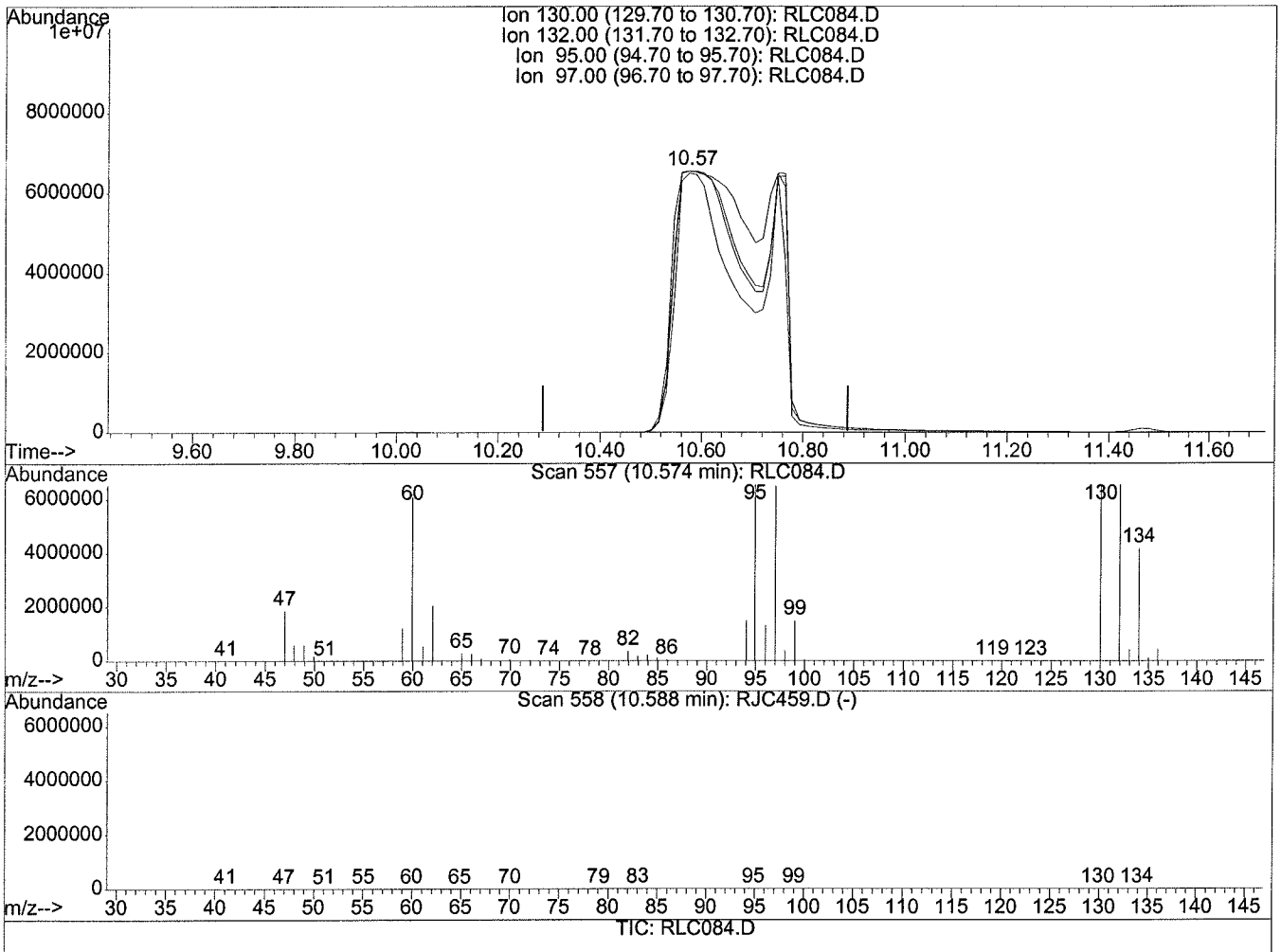
Ion	Exp%	Act%
130.00	100	100
132.00	95.50	97.81
95.00	103.30	104.50
97.00	70.90	81.44

RLC084.D VO67J30.M Tue Dec 08 11:44:41 2020

Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC084.D Vial: 9
Acq On : 7 Dec 2020 2:35 pm Operator: VLu
Sample : 20L041-02M 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:44 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



(46) Trichloroethene (T,M)

10.57min 806.51ug/l m

response 79030447

Ion	Exp%	Act%
130.00	100	100
132.00	95.50	76.15
95.00	103.30	81.36
97.00	70.90	63.41

☐ Incorrect Retention Time
☐ Incorrect Baseline
☑ Incorrect Integration
☐ Other _____

Initials VL 12/8/20

12/14/20

RLC084.D VO67J30.M Tue Dec 08 11:44:44 2020

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC085.D Vial: 10
Acq On : 7 Dec 2020 3:01 pm Operator: VLu
Sample : 20L041-02S 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:45 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.02	114	2518797	10.00	ug/l	0.01
55) CHLOROBENZENE-D5	15.45	117	1797983	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	545097	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	768202	9.34	ug/l	0.01
Spiked Amount 10.000			Recovery = 93.40%			
43) 1,2-Dichloroethane-d4	9.16	65	456719	8.68	ug/l	0.01
Spiked Amount 10.000			Recovery = 86.80%			
56) Toluene-d8	12.84	98	2491945	9.08	ug/l	0.01
Spiked Amount 10.000			Recovery = 90.80%			
77) 4-Bromofluorobenzene	17.47	95	679221	9.17	ug/l	0.00
Spiked Amount 10.000			Recovery = 91.70%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	720349	8.28	ug/l	99
4) Chloromethane	2.13	50	1466440	11.00	ug/l	99
5) Vinyl chloride	2.23	62	1344724	10.70	ug/l	99
6) Bromomethane	2.66	94	893988	8.18	ug/l	99
7) Chloroethane	2.66	64	866261	9.40	ug/l	99
8) Dichlorofluoromethane	2.74	67	1631559	8.36	ug/l	99
9) Trichlorofluoromethane	2.92	101	1231326	9.47	ug/l	100
11) Acrolein	3.44	56	208562	38.25	ug/l	100
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	588760	8.52	ug/l	100
13) Acetone	3.52	43	294178	37.87	ug/l	99
14) 1,1-Dichloroethene	3.68	61	1426247	9.13	ug/l	99
15) tert-Butyl alcohol	3.82	59	658482	244.64	ug/l	99
17) Iodomethane	4.13	142	1333038	9.47	ug/l	98
18) Acetonitrile	4.23	41	1139618	91.46	ug/l	99
19) Methylene chloride	4.42	49	1027770	9.32	ug/l	99
20) Carbon disulfide	4.41	76	3321015	8.69	ug/l	99
21) Acrylonitrile	4.66	53	508292	44.28	ug/l	100
22) tert-Butyl methyl ether (M	4.70	73	1141300	9.05	ug/l	99
23) trans-1,2-Dichloroethene	4.92	96	1187858	10.66	ug/l	98
24) Isopropyl ether (DIPE)	5.58	45	2215645	9.35	ug/l	98
25) 1,1-Dichloroethane	5.75	63	1548181	9.00	ug/l	99
26) Vinyl acetate	5.81	43	849271	9.89	ug/l	100
28) tert-Butyl ethyl ether (ET	6.48	59	1710000	9.36	ug/l	99
29) 2-Butanone	6.76	72	147651	45.39	ug/l	98
30) 2,2-Dichloropropane	7.05	77	983994	8.33	ug/l #	57
31) cis-1,2-Dichloroethene	7.16	96	10853047	99.92	ug/l	99
32) Chloroform	7.54	83	2521847	15.68	ug/l	99

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC085.D Vial: 10
Acq On : 7 Dec 2020 3:01 pm Operator: VLu
Sample : 20L041-02S 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:45 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Bromochloromethane	7.92	130	453344	9.51	ug/l	100
36)	Tetrahydrofuran	8.00	42	72725	8.88	ug/l	95
37)	1,1,1-Trichloroethane	8.44	97	1111912	8.49	ug/l	99
40)	1,1-Dichloropropene	8.79	110	440038	8.76	ug/l	100
41)	Carbon tetrachloride	8.97	119	935583	8.70	ug/l	100
42)	tert-Amyl methyl ether (TA	9.13	87	301804	9.43	ug/l	99
44)	1,2-Dichloroethane	9.35	62	577335	8.88	ug/l	100
45)	Benzene	9.33	78	3424458	9.29	ug/l	100
46)	Trichloroethene	10.57	130	82137111m	841.10	ug/l	
48)	1,2-Dichloropropane	10.98	63	695927	8.59	ug/l	95
49)	Bromodichloromethane	11.39	83	857006	8.80	ug/l	100
50)	1,4-Dioxane	11.48	88	47736	161.45	ug/l	97
51)	Dibromomethane	11.48	93	321585	8.54	ug/l	89
53)	4-Methyl-2-pentanone	12.11	43	1201370	40.08	ug/l	95
54)	cis-1,3-Dichloropropene	12.43	75	1024769	8.67	ug/l	99
57)	Toluene	12.97	91	3155429	8.91	ug/l	100
58)	Ethyl methacrylate	13.39	69	486654	9.48	ug/l	97
59)	trans-1,3-Dichloropropene	13.35	75	730071	8.93	ug/l	97
60)	1,1,2-Trichloroethane	13.61	97	428418	9.92	ug/l	99
61)	2-Hexanone	13.67	43	777468	43.64	ug/l	97
62)	1,3-Dichloropropane	14.05	76	708985	9.01	ug/l	100
63)	Tetrachloroethene	14.11	164	687805	9.74	ug/l	99
64)	Dibromochloromethane	14.46	129	526687	10.11	ug/l	100
65)	1,2-Dibromoethane	14.79	107	373841	9.16	ug/l	100
66)	1-Chlorohexane	15.13	91	1260877	8.95	ug/l	99
67)	Chlorobenzene	15.51	112	1752249	8.80	ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.61	131	564535	9.08	ug/l	100
69)	Ethylbenzene	15.63	91	3351268	8.51	ug/l	99
70)	m-Xylene & p-Xylene	15.76	91	4954892	17.17	ug/l	99
71)	o-Xylene	16.47	91	2328065	8.53	ug/l	99
72)	Styrene	16.55	104	1783330	8.39	ug/l	99
73)	Isopropylbenzene	17.09	105	3060407	8.63	ug/l	100
75)	Bromoform	17.09	173	269923	10.98	ug/l	99
76)	1,1,2,2-Tetrachloroethane	17.38	83	401165	10.04	ug/l	100
78)	1,2,3-Trichloropropane	17.58	110	96492	9.92	ug/l	98
79)	trans-1,4-Dichloro-2-buten	17.19	53	74096	7.49	ug/l	100
80)	n-Propylbenzene	17.69	91	3804008	8.97	ug/l	100
81)	Bromobenzene	17.74	156	572629	9.55	ug/l	100
82)	1,3,5-Trimethylbenzene	17.91	105	2254406	8.94	ug/l	100
83)	2-Chlorotoluene	17.92	91	2151747	8.27	ug/l	94
84)	4-Chlorotoluene	17.99	91	1961606	8.99	ug/l	95

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC085.D Vial: 10
Acq On : 7 Dec 2020 3:01 pm Operator: VLu
Sample : 20L041-02S 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:45 2020 Quant Results File: VO67J30.RES

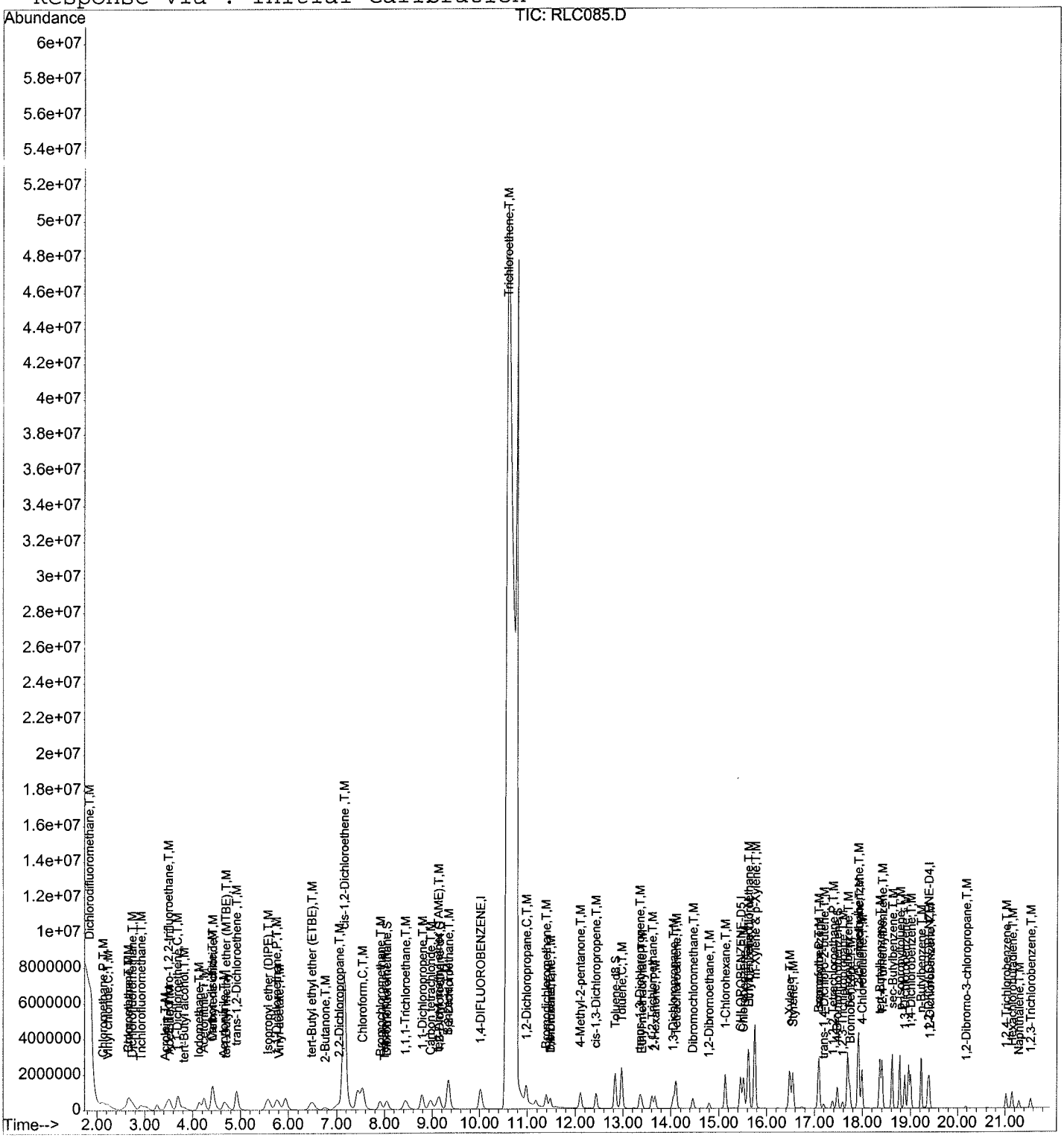
Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
85)	tert-Butylbenzene	18.36	134	497022	8.97	ug/l	99
86)	1,2,4-Trimethylbenzene	18.40	105	2098889	8.87	ug/l	100
87)	sec-Butylbenzene	18.62	105	3175220	8.90	ug/l	99
88)	p-Isopropyltoluene	18.78	119	2454865	9.09	ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	1045295	8.50	ug/l	99
90)	1,4-Dichlorobenzene	19.00	146	1013915	8.43	ug/l	98
91)	n-Butylbenzene	19.22	91	2397853	8.63	ug/l	100
92)	1,2-Dichlorobenzene	19.41	146	826690	8.42	ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.18	157	42105	9.93	ug/l	98
94)	1,2,4-Trichlorobenzene	21.02	180	378206	8.15	ug/l	100
95)	Hexachlorobutadiene	21.15	225	292928	7.66	ug/l	100
96)	Naphthalene	21.29	128	494889	8.94	ug/l	99
97)	1,2,3-Trichlorobenzene	21.54	180	266215	8.44	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\20L07\RLC085.D Vial: 10
Acq On : 7 Dec 2020 3:01 pm Operator: VLu
Sample : 20L041-02S 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:45 2020 Quant Results File: VO67J30.RES

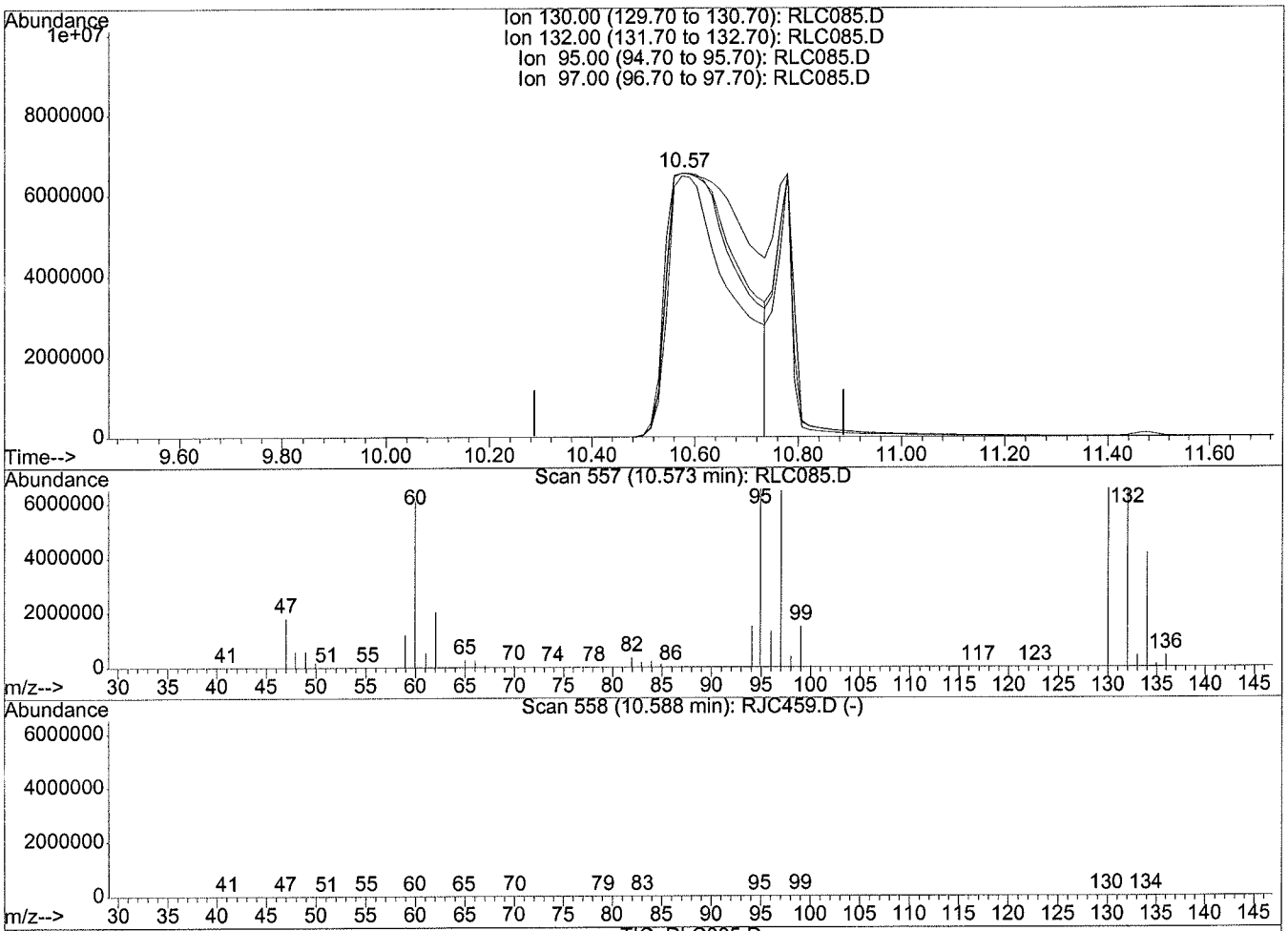
Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC085.D Vial: 10
Acq On : 7 Dec 2020 3:01 pm Operator: VLu
Sample : 20L041-02S 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:45 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC085.D

(46) Trichloroethene (T,M)

10.57min 655.74ug/l

response 64035927

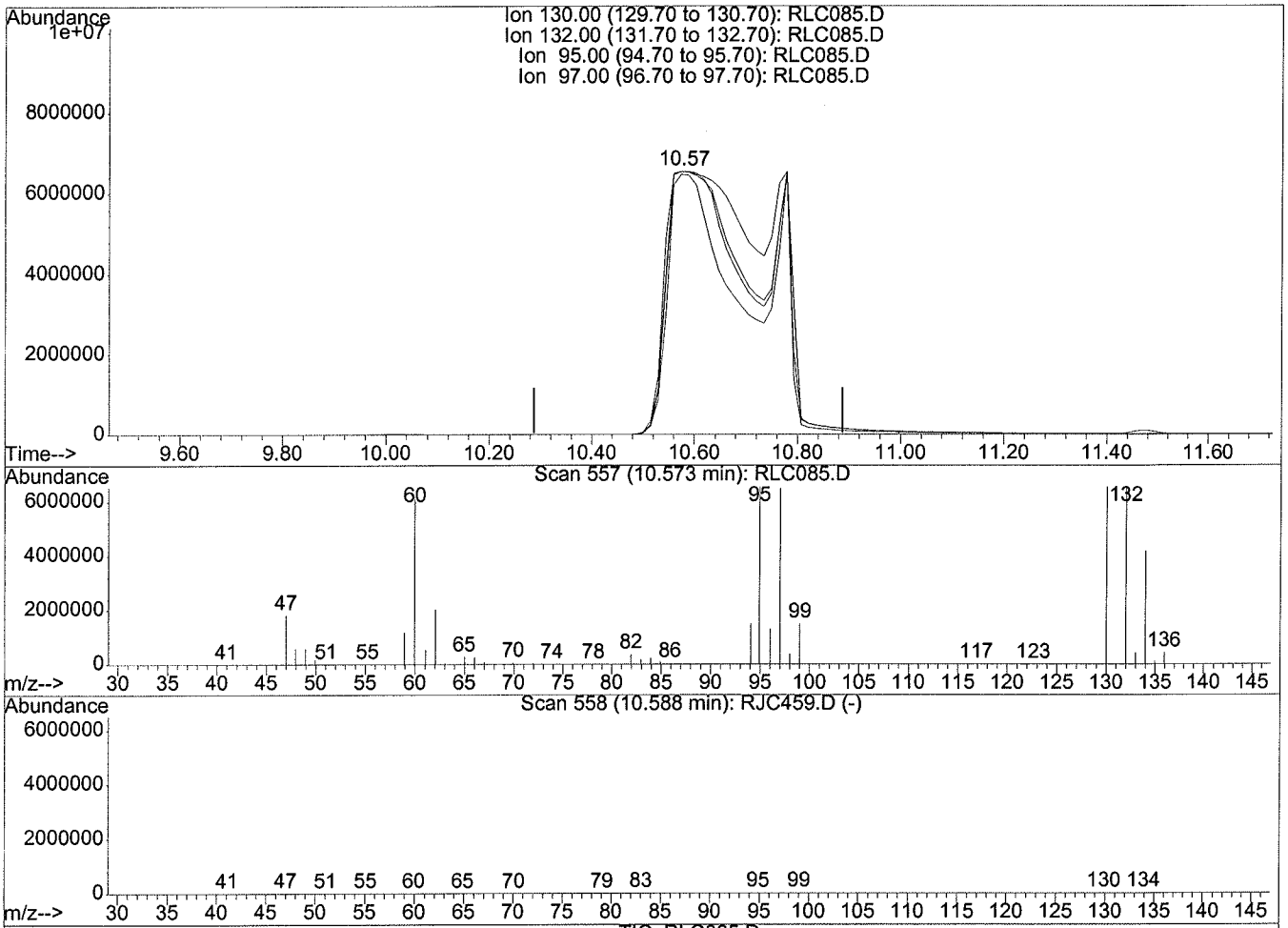
Ion	Exp%	Act%
130.00	100	100
132.00	95.50	97.66
95.00	103.30	112.22
97.00	70.90	85.62

RLC085.D VO67J30.M Tue Dec 08 11:45:31 2020

Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L07\RLC085.D Vial: 10
Acq On : 7 Dec 2020 3:01 pm Operator: VLu
Sample : 20L041-02S 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:45 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC085.D

(46) Trichloroethene (T,M)

10.57min 841.10ug/l m

response 82137111

Ion	Exp%	Act%
130.00	100	100
132.00	95.50	76.14
95.00	103.30	87.49
97.00	70.90	66.75

☐ Incorrect Retention Time
☐ Incorrect Baseline
☑ Incorrect Integration
☐ Other

Initials VL 12/8/20

12/14/20

RLC085.D VO67J30.M Tue Dec 08 11:45:35 2020

INITIAL CALIBRATIONS

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc
Lab Code: EMXT Case No.:
Lab File ID: RJC453
Instrument ID: 67
GC Column: RTX502.2 ID:0.25mm (mm)

Contract: ICAL
SAS No.: SDG No.: ICAL
BFB Injection Date : 10/30/20
BFB Injection Time : 10:46
Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.73
75	30.0 - 60.0% of mass 95	46.50
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.92
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	70.04
175	5.0 - 9.0% of mass 174	6.17(8.8)1
176	95.0 - 101.0% of mass 174	68.44(97.7)1
177	5.0 - 9.0% of mass 176	4.68(6.8)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD,BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD0.3	V067J301	RJC454	10/30/20	11:33
2	VSTD0.5	V067J302	RJC455	10/30/20	11:59
3	VSTD01	V067J303	RJC456	10/30/20	12:24
4	VSTD02	V067J304	RJC457	10/30/20	12:50
5	VSTD05	V067J305	RJC458	10/30/20	13:16
6	VSTD010	V067J306	RJC459	10/30/20	13:41
7	VSTD020	V067J307	RJC461	10/30/20	14:07
8	VSTD030	V067J308	RJC462	10/30/20	14:33
9	VSTD050	V067J309	RJC463	10/30/20	14:59
10	VSTD100	V067J3010	RJC464	10/30/20	15:24
11	VSTD010	IV067J3001	RJC467	10/30/20	16:41

FORM V VOA OLM02.0

5a
11/04/20

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR

Instrument ID :67
Beginning DateTime :10/30/20 11:33
Spike Units :PPB
IC File :RJC459

Column Spec :RTX502.2 ID :0.25MM
Ending DateTime :10/30/20 15:24
HPChem Method :V067J30

M	IDX	Parameters	.3 11:33 RJC454	.5 11:59 RJC455	1 12:24 RJC456	2 12:50 RJC457	5 13:16 RJC458	10 13:41 RJC459	20 14:07 RJC461	30 14:33 RJC462	50 14:59 RJC463	100 15:24 RJC464	Av_RRF	%_RSD	Av_Rt_M
	1	1,4-DIFLUOROBENZENE	1	1	1	1	1	1	1	1	1	1	1	0	10.0028
	2	Dichlorodifluoromethane	0.324	0.373	0.330	0.337	0.356	0.348	0.352	0.339	0.342	0.353	0.346	4.09	1.8426
	3	Dichlorotetrafluoroethane	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	4	Chloromethane	------	0.568	0.596	0.550	0.553	0.539	0.513	0.474	0.442	------	0.529	9.60	2.1132
	5	Vinyl chloride	0.409	0.490	0.537	0.513	0.560	0.547	0.527	0.477	0.429	------	0.499	10.49	2.2260
	6	Bromomethane	------	0.379	0.422	0.419	0.460	0.453	0.459	0.444	0.432	0.438	0.434	5.86	2.6241
	7	Chloroethane	0.337	0.358	0.391	0.364	0.391	0.371	0.375	0.362	0.353	0.355	0.366	4.63	2.6398
	8	Dichlorofluoromethane	0.828	0.807	0.718	0.776	0.770	0.734	0.791	0.793	0.768	0.760	0.774	4.22	2.7134
	9	Trichlorofluoromethane	------	0.476	0.533	0.510	0.536	0.531	0.540	0.509	0.495	0.516	0.516	4.10	2.9035
	10	sec-Propyl alcohol	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
5	11	Acrolein	------	------	0.024	0.023	0.022	0.020	0.021	0.022	0.020	0.020	0.022	6.11	3.4369
	12	1,1,2-Trichloro-1,2,2-trifluoroethane	0.280	0.279	0.246	0.269	0.276	0.266	0.284	0.287	0.278	0.278	0.274	4.23	3.4942
5	13	Acetone	------	------	------	0.039	0.031	0.029	0.030	0.030	0.029	0.029	0.031	12.15	3.5189
	14	1,1-Dichloroethene	0.615	0.596	0.552	0.606	0.609	0.592	0.660	0.668	0.650	0.655	0.620	5.98	3.6803
25	15	tert-Butyl alcohol	0.010	0.011	0.010	0.011	0.011	0.010	0.011	0.011	0.011	0.011	0.011	3.92	3.8131
	16	Methyl acetate	------	------	------	0.111	0.102	0.101	0.098	0.100	0.099	0.101	0.102	4.46	4.1930
	17	Iodomethane	0.548	0.574	0.550	0.574	0.537	0.534	0.555	0.571	0.555	0.590	0.559	3.19	4.1322
10	18	Acetonitrile	0.052	0.050	0.046	0.049	0.049	0.047	0.050	0.051	0.050	0.051	0.049	3.84	4.2330
	19	Methylene chloride	0.515	0.474	0.416	0.432	0.420	0.404	0.427	0.434	0.422	0.434	0.438	7.48	4.4229
	20	Carbon disulfide	------	1.395	1.532	1.417	1.512	1.523	1.566	1.555	1.568	1.585	1.517	4.44	4.4017
5	21	Acrylonitrile	------	0.042	0.042	0.044	0.045	0.045	0.047	0.049	0.047	0.049	0.046	6.52	4.6532
	22	tert-Butyl methyl ether (MTBE)	0.486	0.492	0.468	0.506	0.502	0.486	0.512	0.529	0.512	0.515	0.501	3.56	4.6930
	23	trans-1,2-Dichloroethene	0.449	0.434	0.399	0.436	0.438	0.427	0.458	0.464	0.452	0.468	0.442	4.61	4.9121
	24	Isopropyl ether (DIPE)	0.961	0.966	0.887	0.957	0.930	0.891	0.944	0.964	0.943	0.960	0.940	3.11	5.5635
	25	1,1-Dichloroethane	0.682	0.683	0.632	0.690	0.678	0.655	0.701	0.706	0.691	0.714	0.683	3.55	5.7505
	26	Vinyl acetate	0.311	0.336	0.352	0.339	0.332	0.335	0.347	0.353	0.337	0.367	0.341	4.45	5.8045
25	27	2-Butanol	------	0.009	0.009	0.009	0.010	0.010	0.010	0.010	0.009	0.010	0.009	4.80	6.2857
	28	tert-Butyl ethyl ether (ETBE)	0.712	0.735	0.684	0.752	0.735	0.698	0.733	0.747	0.728	0.731	0.726	2.97	6.4763
5	29	2-Butanone	------	0.011	0.011	0.013	0.013	0.013	0.014	0.014	0.014	0.014	0.013	7.77	6.7515
	30	2,2-Dichloropropane	0.560	0.490	0.456	0.479	0.466	0.446	0.477	0.455	0.433	0.427	0.469	8.03	7.0386
	31	cis-1,2-Dichloroethene	0.425	0.421	0.395	0.430	0.427	0.417	0.445	0.454	0.442	0.455	0.431	4.27	7.1496
	32	Chloroform	0.631	0.614	0.606	0.655	0.638	0.613	0.655	0.663	0.644	0.665	0.638	3.40	7.5323
	33	Bromochloromethane	0.181	0.181	0.173	0.188	0.189	0.184	0.197	0.202	0.196	0.200	0.189	4.96	7.8996
5	34	tert-Amyl alcohol	------	------	0.008	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	5.02	7.9978
	35	Dibromofluoromethane	0.286	0.297	0.300	0.330	0.332	0.351	0.339	0.352	0.332	0.348	0.327	7.33	8.0413
	36	Tetrahydrofuran	------	0.032	0.032	0.033	0.033	0.033	0.033	0.033	0.032	0.032	0.033	1.34	7.9919
	37	1,1,1-Trichloroethane	0.533	0.526	0.478	0.519	0.515	0.500	0.532	0.539	0.523	0.535	0.520	3.60	8.4283
	38	Cyclohexane	0.495	0.484	0.588	0.596	0.635	0.639	0.646	0.643	0.634	0.677	0.604	10.83	8.4137
	39	2,2,4-Trimethylpentane	------	1.528	1.705	1.722	1.801	1.819	1.761	1.760	1.738	1.816	1.739	5.11	8.5940
	40	1,1-Dichloropropene	0.195	0.187	0.178	0.201	0.200	0.194	0.208	0.211	0.206	0.213	0.199	5.50	8.7759
	41	Carbon tetrachloride	0.425	0.427	0.386	0.428	0.429	0.413	0.443	0.445	0.433	0.440	0.427	4.00	8.9512
	42	tert-Amyl methyl ether (TAME)	0.120	0.127	0.118	0.130	0.128	0.125	0.131	0.134	0.128	0.129	0.127	3.90	9.1002
	43	1,2-Dichloroethane-d4	0.187	0.197	0.194	0.217	0.211	0.222	0.214	0.222	0.208	0.217	0.209	5.86	9.1426
	44	1,2-Dichloroethane	0.254	0.260	0.244	0.260	0.255	0.250	0.265	0.269	0.259	0.266	0.258	2.93	9.3441
	45	Benzene	1.501	1.449	1.344	1.466	1.449	1.409	1.522	1.557	1.542	1.400	1.464	4.63	9.3222
	46	Trichloroethene	0.394	0.379	0.345	0.377	0.378	0.372	0.394	0.407	0.401	0.429	0.388	5.88	10.5855
	47	Methylcyclohexane	0.609	0.570	0.648	0.666	0.700	0.705	0.711	0.717	0.718	0.775	0.682	8.78	10.6629
	48	1,2-Dichloropropane	0.317	0.312	0.295	0.323	0.318	0.309	0.330	0.337	0.331	0.345	0.322	4.61	10.9390

SC 11/4/20

	49	Bromodichloromethane	0.373	0.378	0.360	0.386	0.383	0.373	0.400	0.408	0.397	0.410	0.387	4.30	11.3771
20	50	1,4-Dioxane	------	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	3.76	11.4680
	51	Dibromomethane	0.145	0.143	0.140	0.148	0.149	0.146	0.156	0.158	0.153	0.157	0.150	4.21	11.4604
	52	2-Chloroethyl vinyl ether	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
5	53	4-Methyl-2-pentanone	0.109	0.115	0.108	0.115	0.117	0.116	0.123	0.130	0.125	0.130	0.119	6.59	12.1001
	54	cis-1,3-Dichloropropene	0.458	0.451	0.424	0.458	0.460	0.450	0.486	0.498	0.491	0.516	0.469	5.89	12.4301
	55	CHLOROBENZENE-D5	1	1	1	1	1	1	1	1	1	1	1	0	15.4534
	56	Toluene-d8	1.337	1.410	1.410	1.544	1.556	1.659	1.610	1.685	1.628	1.426	1.526	8.00	12.8274
	57	Toluene	1.990	1.959	1.820	1.939	1.925	1.880	2.044	2.088	2.080	------	1.969	4.61	12.9675
	58	Ethyl methacrylate	0.260	0.271	0.265	0.278	0.280	0.277	0.296	0.310	0.301	0.315	0.285	6.68	13.3824
	59	trans-1,3-Dichloropropene	0.423	0.431	0.416	0.444	0.450	0.437	0.475	0.489	0.479	0.502	0.455	6.53	13.3503
	60	1,1,2-Trichloroethane	0.237	0.237	0.224	0.238	0.234	0.231	0.246	0.253	0.245	0.256	0.240	4.12	13.6015
5	61	2-Hexanone	0.094	0.097	0.094	0.098	0.098	0.097	0.101	0.106	0.102	0.104	0.099	4.26	13.6701
	62	1,3-Dichloropropane	0.417	0.420	0.407	0.427	0.432	0.421	0.450	0.465	0.454	0.483	0.438	5.55	14.0499
	63	Tetrachloroethene	0.398	0.381	0.349	0.373	0.379	0.368	0.402	0.411	0.413	0.455	0.393	7.60	14.1010
	64	Dibromochloromethane	0.269	0.287	0.269	0.285	0.287	0.280	0.301	0.309	0.299	0.313	0.290	5.36	14.4573
	65	1,2-Dibromoethane	0.205	0.221	0.219	0.226	0.227	0.221	0.234	0.243	0.234	0.241	0.227	4.99	14.7962
	66	1-Chlorohexane	0.775	0.749	0.706	0.759	0.770	0.746	0.810	0.823	0.820	0.876	0.783	6.26	15.1350
	67	Chlorobenzene	1.111	1.088	1.017	1.097	1.086	1.056	1.149	1.175	1.177	1.116	1.107	4.55	15.5162
	68	1,1,1,2-Tetrachloroethane	0.321	0.340	0.311	0.332	0.335	0.326	0.355	0.368	0.372	0.395	0.346	7.64	15.6053
	69	Ethylbenzene	2.212	2.177	1.997	2.158	2.152	2.099	2.314	2.388	2.219	------	2.191	5.21	15.6224
2	70	m-Xylene & p-Xylene	1.622	1.584	1.443	1.577	1.577	1.557	1.745	1.735	------	------	1.605	6.11	15.7496
	71	o-Xylene	1.503	1.476	1.408	1.505	1.497	1.451	1.586	1.621	1.614	------	1.518	4.86	16.4793
	72	Styrene	1.222	1.176	1.074	1.168	1.162	1.144	1.213	1.244	1.240	1.174	1.182	4.33	16.5488
	73	Isopropylbenzene	1.948	1.917	1.783	1.943	1.964	1.904	2.097	2.174	2.023	------	1.973	5.78	17.0894
	74	1,2-DICHLOROBENZENE-D4	1	1	1	1	1	1	1	1	1	1	1	0	19.3807
	75	Bromoform	0.410	0.430	0.419	0.436	0.441	0.440	0.478	0.497	0.510	------	0.451	7.82	17.0910
	76	1,1,2,2-Tetrachloroethane	0.749	0.744	0.707	0.733	0.717	0.707	0.738	0.749	0.728	0.760	0.733	2.50	17.3769
	77	4-Bromofluorobenzene	1.330	1.278	1.333	1.344	1.333	1.402	1.342	1.385	1.340	1.505	1.359	4.49	17.4733
	78	1,2,3-Trichloropropane	0.160	0.183	0.176	0.188	0.177	0.174	0.181	0.186	0.178	0.181	0.178	4.41	17.5887
	79	trans-1,4-Dichloro-2-butene	------	0.186	0.171	0.179	0.179	0.174	0.186	0.187	0.184	0.190	0.182	3.52	17.1916
	80	n-Propylbenzene	8.148	7.745	7.167	7.723	7.644	7.453	8.191	8.146	------	------	7.777	4.72	17.6885
	81	Bromobenzene	1.113	1.055	1.023	1.060	1.055	1.031	1.112	1.134	1.151	1.270	1.100	6.72	17.7391
	82	1,3,5-Trimethylbenzene	4.869	4.575	4.258	4.508	4.483	4.390	4.801	4.957	4.805	------	4.627	5.18	17.9089
	83	2-Chlorotoluene	4.827	4.572	4.346	4.549	4.440	4.719	5.133	5.166	5.200	------	4.772	6.86	17.9219
	84	4-Chlorotoluene	4.432	4.188	3.841	4.014	4.020	3.530	3.899	4.014	4.100	------	4.004	6.18	17.9933
	85	tert-Butylbenzene	1.045	0.984	0.918	0.992	0.981	0.959	1.027	1.035	1.063	1.158	1.016	6.51	18.3657
	86	1,2,4-Trimethylbenzene	4.692	4.342	4.064	4.293	4.215	4.127	4.444	4.475	4.411	------	4.340	4.44	18.4071
	87	sec-Butylbenzene	6.940	6.605	6.060	6.441	6.395	6.243	6.823	6.830	------	------	6.542	4.75	18.6214
	88	p-Isopropyltoluene	5.231	4.909	4.609	4.967	4.841	4.794	5.199	5.275	4.774	------	4.955	4.69	18.7820
	89	1,3-Dichlorobenzene	2.350	2.229	2.058	2.202	2.159	2.114	2.310	2.338	2.379	2.408	2.255	5.32	18.8856
	90	1,4-Dichlorobenzene	2.232	2.169	2.036	2.173	2.133	2.083	2.261	2.323	2.354	2.312	2.208	4.84	19.0068
	91	n-Butylbenzene	5.499	5.055	4.722	5.088	5.039	5.004	5.412	5.401	4.640	------	5.096	5.87	19.2283
	92	1,2-Dichlorobenzene	1.910	1.784	1.672	1.758	1.751	1.704	1.813	1.838	1.841	1.939	1.801	4.72	19.4070
	93	1,2-Dibromo-3-chloropropane	0.063	0.076	0.069	0.079	0.080	0.080	0.084	0.086	0.081	0.081	0.078	8.92	20.1840
	94	1,2,4-Trichlorobenzene	0.944	0.854	0.780	0.843	0.827	0.819	0.863	0.869	0.857	0.857	0.851	4.94	21.0223
	95	Hexachlorobutadiene	0.797	0.714	0.663	0.702	0.688	0.671	0.702	0.694	0.685	0.693	0.701	5.28	21.1479
	96	Naphthalene	1.055	0.991	0.968	1.012	1.008	1.020	1.039	1.066	1.012	0.983	1.015	3.05	21.2940
	97	1,2,3-Trichlorobenzene	0.628	0.575	0.531	0.585	0.571	0.571	0.586	0.594	0.578	0.570	0.579	4.16	21.5423

Spike Amount = Nominal Amount * M

Ave_%RSD : 5.4 Max_%RSD : 12.2

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Compound List Report 67

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
Total Cpnds : 97

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	1,4-DIFLUOROBENZENE	114	10.00	1.000	A	1	A	B
2	T	Dichlorodifluoromethane	85	1.84	0.184	A	1	A	B
3	T	Dichlorotetrafluoroethane	85	0.00	0.000	A	2	A	B
4	T	Chloromethane	50	2.11	0.211	A	1	A	B
5	T	Vinyl chloride	62	2.23	0.223	A	1	A	B
6	T	Bromomethane	94	2.62	0.262	A	1	A	B
7	T	Chloroethane	64	2.64	0.264	A	1	A	B
8	T	Dichlorofluoromethane	67	2.72	0.272	A	1	A	B
9	T	Trichlorofluoromethane	101	2.91	0.291	A	1	A	B
10	T	sec-Propyl alcohol	45	0.00	0.000	A	1	A	B
11	T	Acrolein	56	3.44	0.344	A	1	A	B
12	T	1,1,2-Trichloro-1,2,2-trifluor	151	3.50	0.350	A	1	A	B
13	T	Acetone	43	3.52	0.352	A	1	A	B
14	T	1,1-Dichloroethene	61	3.68	0.368	A	2	A	B
15	T	tert-Butyl alcohol	59	3.81	0.381	A	1	A	B
16	T	Methyl acetate	43	4.19	0.419	A	1	A	B
17	T	Iodomethane	142	4.13	0.413	A	1	A	B
18	T	Acetonitrile	41	4.23	0.423	A	1	A	B
19	T	Methylene chloride	49	4.42	0.442	A	2	A	B
20	T	Carbon disulfide	76	4.41	0.441	A	1	A	B
21	T	Acrylonitrile	53	4.66	0.466	A	2	A	B
22	T	tert-Butyl methyl ether (MTBE)	73	4.69	0.469	A	1	A	B
23	T	trans-1,2-Dichloroethene	96	4.92	0.492	A	1	A	B
24	T	Isopropyl ether (DIPE)	45	5.56	0.556	A	1	A	B
25	T	1,1-Dichloroethane	63	5.75	0.575	A	2	A	B
26	T	Vinyl acetate	43	5.81	0.581	A	1	A	B
27	T	2-Butanol	45	6.28	0.628	A	1	A	B
28	T	tert-Butyl ethyl ether (ETBE)	59	6.47	0.647	A	1	A	B
29	T	2-Butanone	72	6.75	0.674	A	1	A	B
30	T	2,2-Dichloropropane	77	7.04	0.704	A	2	A	B
31	T	cis-1,2-Dichloroethene	96	7.16	0.715	A	1	A	B
32	T	Chloroform	83	7.54	0.753	A	2	A	B
33	T	Bromochloromethane	130	7.90	0.790	A	1	A	B
34	T	tert-Amyl alcohol	59	7.99	0.799	A	1	A	B
35	S	Dibromofluoromethane	111	8.03	0.803	A	1	A	B
36	T	Tetrahydrofuran	42	7.99	0.799	A	2	A	B
37	T	1,1,1-Trichloroethane	97	8.43	0.842	A	2	A	B
38	T	Cyclohexane	84	8.41	0.841	A	1	A	B
39	T	2,2,4-Trimethylpentane	57	8.59	0.858	A	1	A	B
40	T	1,1-Dichloropropene	110	8.78	0.877	A	1	A	B
41	T	Carbon tetrachloride	119	8.95	0.895	A	1	A	B
42	T	tert-Amyl methyl ether (TAME)	87	9.10	0.909	A	1	A	B
43	S	1,2-Dichloroethane-d4	65	9.14	0.914	A	1	A	B
44	T	1,2-Dichloroethane	62	9.35	0.934	A	1	A	B
45	T	Benzene	78	9.32	0.931	A	2	A	B
46	T	Trichloroethene	130	10.59	1.058	A	3	A	B
47	T	Methylcyclohexane	83	10.66	1.066	A	2	A	B
48	T	1,2-Dichloropropane	63	10.94	1.093	A	1	A	B
49	T	Bromodichloromethane	83	11.38	1.137	A	1	A	B
50	T	1,4-Dioxane	88	11.46	1.146	A	1	A	B
51	T	Dibromomethane	93	11.46	1.146	A	2	A	B
52	T	2-Chloroethyl vinyl ether	63	12.05	1.204	A	1	A	B
53	T	4-Methyl-2-pentanone	43	12.09	1.209	A	3	A	B

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54		T	cis-1,3-Dichloropropene	75	12.43	1.242	A	3	A	B
55	I		CHLOROBENZENE-D5	117	15.45	1.000	A	2	A	B
56		S	Toluene-d8	98	12.82	0.830	A	1	A	B
57		T	Toluene	91	12.97	0.839	A	1	A	B
58		T	Ethyl methacrylate	69	13.38	0.866	A	1	A	B
59		T	trans-1,3-Dichloropropene	75	13.35	0.864	A	1	A	B
60		T	1,1,2-Trichloroethane	97	13.60	0.880	A	2	A	B
61		T	2-Hexanone	43	13.67	0.885	A	1	A	B
62		T	1,3-Dichloropropane	76	14.05	0.909	A	1	A	B
63		T	Tetrachloroethene	164	14.11	0.913	A	3	A	B
64		T	Dibromochloromethane	129	14.46	0.936	A	1	A	B
65		T	1,2-Dibromoethane	107	14.79	0.957	A	1	A	B
66		T	1-Chlorohexane	91	15.13	0.979	A	1	A	B
67	P,M		Chlorobenzene	112	15.51	1.004	A	1	A	B
68		T	1,1,1,2-Tetrachloroethane	131	15.61	1.010	A	1	A	B
69		T	Ethylbenzene	91	15.63	1.011	A	1	A	B
70		T	m-Xylene & p-Xylene	91	15.76	1.020	A	1	A	B
71		T	o-Xylene	91	16.47	1.066	A	1	A	B
72		T	Styrene	104	16.55	1.071	A	2	A	B
73		T	Isopropylbenzene	105	17.09	1.106	A	3	A	B
74	I		1,2-DICHLOROBENZENE-D4	152	19.38	1.000	A	1	A	B
75		T	Bromoform	173	17.09	0.882	A	2	A	B
76		T	1,1,2,2-Tetrachloroethane	83	17.38	0.897	A	1	A	B
77		S	4-Bromofluorobenzene	95	17.47	0.901	A	2	A	B
78		T	1,2,3-Trichloropropane	110	17.58	0.907	A	1	A	B
79		T	trans-1,4-Dichloro-2-butene	53	17.19	0.887	A	1	A	B
80		T	n-Propylbenzene	91	17.69	0.913	A	2	A	B
81		T	Bromobenzene	156	17.74	0.916	A	1	A	B
82		T	1,3,5-Trimethylbenzene	105	17.91	0.924	A	2	A	B
83		T	2-Chlorotoluene	91	17.92	0.925	A	1	A	B
84		T	4-Chlorotoluene	91	17.99	0.928	A	1	A	B
85		T	tert-Butylbenzene	134	18.37	0.948	A	1	A	B
86		T	1,2,4-Trimethylbenzene	105	18.40	0.950	A	1	A	B
87		T	sec-Butylbenzene	105	18.62	0.961	A	1	A	B
88		T	p-Isopropyltoluene	119	18.78	0.969	A	2	A	B
89		T	1,3-Dichlorobenzene	146	18.88	0.974	A	2	A	B
90		T	1,4-Dichlorobenzene	146	19.00	0.980	A	2	A	B
91		T	n-Butylbenzene	91	19.23	0.992	A	2	A	B
92		T	1,2-Dichlorobenzene	146	19.41	1.002	A	1	A	B
93		T	1,2-Dibromo-3-chloropropane	157	20.18	1.041	A	1	A	B
94		T	1,2,4-Trichlorobenzene	180	21.02	1.084	A	2	A	B
95		T	Hexachlorobutadiene	225	21.15	1.091	A	2	A	B
96		T	Naphthalene	128	21.29	1.099	A	1	A	B
97		T	1,2,3-Trichlorobenzene	180	21.54	1.112	A	2	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

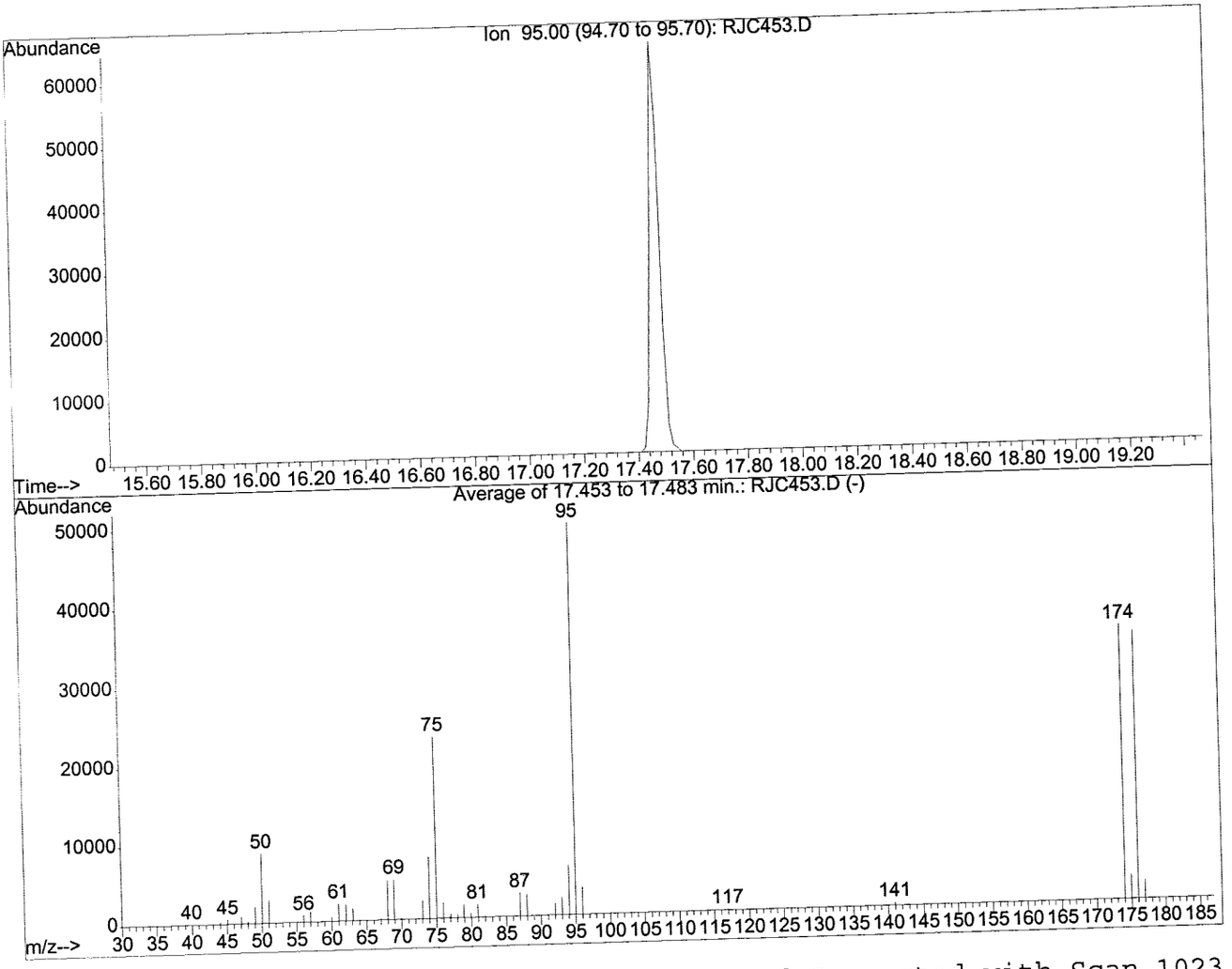
VO67J30.M Mon Nov 02 18:53:51 2020

SA 11/4/20

BFB

Data File : D:\HPCHEM\1\DATA\20J30\RJC453.D
Acq On : 30 Oct 2020 10:46 am
Sample : BFB67J20
Misc : T/CHK
MS Integration Params: RTE.P
Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B

Vial: 1
Operator: VLu
Inst : 67
Multiplr: 1.00



AutoFind: Scans 1028, 1029, 1030; Background Corrected with Scan 1023

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.7	8807	PASS
75	95	30	60	46.5	23099	PASS
95	95	100	100	100.0	49672	PASS
96	95	5	9	6.9	3438	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	70.0	34792	PASS
175	174	5	9	8.8	3063	PASS
176	174	95	101	97.7	33996	PASS
177	176	5	9	6.8	2323	PASS

RJC453.D VO67J30.M Mon Nov 02 11:19:27 2020 SU 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC454.D Vial: 2
Acq On : 30 Oct 2020 11:33 am Operator: VLu
Sample : VO67J301 Inst : 67
Misc : 0.3ppb 8260/1.5ppb KET-AA/7.5ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 17:51 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2538415	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.45	117	1867023	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	566233	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	21746	0.26	ug/l	0.00
Spiked Amount 10.000			Recovery =	2.60%		
43) 1,2-Dichloroethane-d4	9.13	65	14243	0.27	ug/l	-0.01
Spiked Amount 10.000			Recovery =	2.70%		
56) Toluene-d8	12.82	98	74898	0.26	ug/l	0.00
Spiked Amount 10.000			Recovery =	2.60%		
77) 4-Bromofluorobenzene	17.47	95	22587	0.29	ug/l	0.00
Spiked Amount 10.000			Recovery =	2.90%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	24688	0.28	ug/l	88
4) Chloromethane	2.11	50	47396	0.35	ug/l	86
5) Vinyl chloride	2.23	62	31170	0.25	ug/l	78
6) Bromomethane	2.64	94	26933	0.24	ug/l	99
7) Chloroethane	2.64	64	25647	0.28	ug/l	87
8) Dichlorofluoromethane	2.72	67	63057	0.32	ug/l	87
9) Trichlorofluoromethane	2.90	101	31026	0.24	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	21292	0.31	ug/l	99
13) Acetone	3.50	43	31840	4.07	ug/l	75
14) 1,1-Dichloroethene	3.66	61	46813	0.30	ug/l	99
17) Iodomethane	4.13	142	41741	0.29	ug/l	99
18) Acetonitrile	4.22	41	39435	3.14	ug/l	96
19) Methylene chloride	4.41	49	39253	0.35	ug/l	99
20) Carbon disulfide	4.39	76	89999	0.23	ug/l	98
21) Acrylonitrile	4.64	53	14657	1.27	ug/l	93
22) tert-Butyl methyl ether (M	4.69	73	36999	0.29	ug/l	99
23) trans-1,2-Dichloroethene	4.89	96	34165	0.30	ug/l	98
24) Isopropyl ether (DIPE)	5.55	45	73220	0.31	ug/l	96
25) 1,1-Dichloroethane	5.72	63	51937	0.30	ug/l	98
26) Vinyl acetate	5.78	43	23664	0.27	ug/l #	70
28) tert-Butyl ethyl ether (ET	6.45	59	54193	0.29	ug/l	97
30) 2,2-Dichloropropane	7.02	77	42647	0.36	ug/l	90
31) cis-1,2-Dichloroethene	7.13	96	32372	0.30	ug/l	98
32) Chloroform	7.51	83	48041	0.30	ug/l	98
33) Bromochloromethane	7.89	130	13778	0.29	ug/l	97
37) 1,1,1-Trichloroethane	8.41	97	40592	0.31	ug/l	97
38) Cyclohexane	8.40	84	37696	0.25	ug/l	98

(#) = qualifier out of range (m) = manual integration
RJC454.D VO67J30.M Mon Nov 02 18:51:35 2020 Page 1

SA 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC454.D
Acq On : 30 Oct 2020 11:33 am
Sample : VO67J301
Misc : 0.3ppb 8260/1.5ppb KET-AA/7.5ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 17:51 2020

Vial: 2
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit		Qvalue
39) 2,2,4-Trimethylpentane	8.56	57	69718	0.16 ug/l		95
40) 1,1-Dichloropropene	8.76	110	14830	0.29 ug/l		100
41) Carbon tetrachloride	8.94	119	32392	0.30 ug/l		99
42) tert-Amyl methyl ether (TA	9.08	87	9119	0.28 ug/l		98
44) 1,2-Dichloroethane	9.32	62	19306	0.29 ug/l		95
45) Benzene	9.32	78	114331	0.31 ug/l		96
46) Trichloroethene	10.57	130	30034	0.31 ug/l		97
47) Methylcyclohexane	10.65	83	46342	0.27 ug/l		99
48) 1,2-Dichloropropane	10.92	63	24125	0.30 ug/l		92
49) Bromodichloromethane	11.36	83	28391	0.29 ug/l		99
51) Dibromomethane	11.45	93	11022	0.29 ug/l		95
53) 4-Methyl-2-pentanone	12.09	43	41534	1.37 ug/l		97
54) cis-1,3-Dichloropropene	12.43	75	34910	0.29 ug/l		94
57) Toluene	12.95	91	111452	0.30 ug/l		100
58) Ethyl methacrylate	13.38	69	14577	0.27 ug/l		86
59) trans-1,3-Dichloropropene	13.35	75	23683	0.28 ug/l		96
60) 1,1,2-Trichloroethane	13.60	97	13256	0.30 ug/l		96
61) 2-Hexanone	13.67	43	26296	1.42 ug/l		96
62) 1,3-Dichloropropane	14.05	76	23363	0.29 ug/l		96
63) Tetrachloroethene	14.09	164	22287	0.30 ug/l		99
64) Dibromochloromethane	14.44	129	15051	0.28 ug/l		99
65) 1,2-Dibromoethane	14.80	107	11486	0.27 ug/l		98
66) 1-Chlorohexane	15.13	91	43434	0.30 ug/l		99
67) Chlorobenzene	15.51	112	62203	0.30 ug/l		100
68) 1,1,1,2-Tetrachloroethane	15.60	131	17986	0.28 ug/l	#	66
69) Ethylbenzene	15.61	91	123907	0.30 ug/l		99
70) m-Xylene & p-Xylene	15.74	91	181727	0.61 ug/l		99
71) o-Xylene	16.47	91	84177	0.30 ug/l		98
72) Styrene	16.55	104	68457	0.31 ug/l		99
73) Isopropylbenzene	17.09	105	109115	0.30 ug/l		100
75) Bromoform	17.09	173	6957	0.27 ug/l		99
76) 1,1,2,2-Tetrachloroethane	17.38	83	12716	0.31 ug/l		99
78) 1,2,3-Trichloropropane	17.58	110	2714	0.27 ug/l		84
79) trans-1,4-Dichloro-2-buten	17.19	53	2442	0.24 ug/l		98
80) n-Propylbenzene	17.69	91	138415	0.31 ug/l		99
81) Bromobenzene	17.73	156	18911	0.30 ug/l		99
82) 1,3,5-Trimethylbenzene	17.91	105	82715	0.32 ug/l		99
83) 2-Chlorotoluene	17.92	91	81990	0.30 ug/l		95
84) 4-Chlorotoluene	17.99	91	75280	0.33 ug/l		93
85) tert-Butylbenzene	18.36	134	17743	0.31 ug/l		92
86) 1,2,4-Trimethylbenzene	18.40	105	79696	0.32 ug/l		97

(#) = qualifier out of range (m) = manual integration SH 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC454.D Vial: 2
Acq On : 30 Oct 2020 11:33 am Operator: VLu
Sample : VO67J301 Inst : 67
Misc : 0.3ppb 8260/1.5ppb KET-AA/7.5ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 17:51 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
87)	sec-Butylbenzene	18.62	105	117887	0.32 ug/l	99
88)	p-Isopropyltoluene	18.78	119	88851	0.32 ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	39914	0.31 ug/l	99
90)	1,4-Dichlorobenzene	19.00	146	37910	0.30 ug/l	97
91)	n-Butylbenzene	19.24	91	93411	0.32 ug/l	99
92)	1,2-Dichlorobenzene	19.41	146	32448	0.32 ug/l	93
94)	1,2,4-Trichlorobenzene	21.03	180	16031	0.33 ug/l	95
95)	Hexachlorobutadiene	21.15	225	13545	0.34 ug/l	95
96)	Naphthalene	21.29	128	17924	0.31 ug/l	96
97)	1,2,3-Trichlorobenzene	21.54	180	10665	0.33 ug/l	94

SA 11/4/20

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

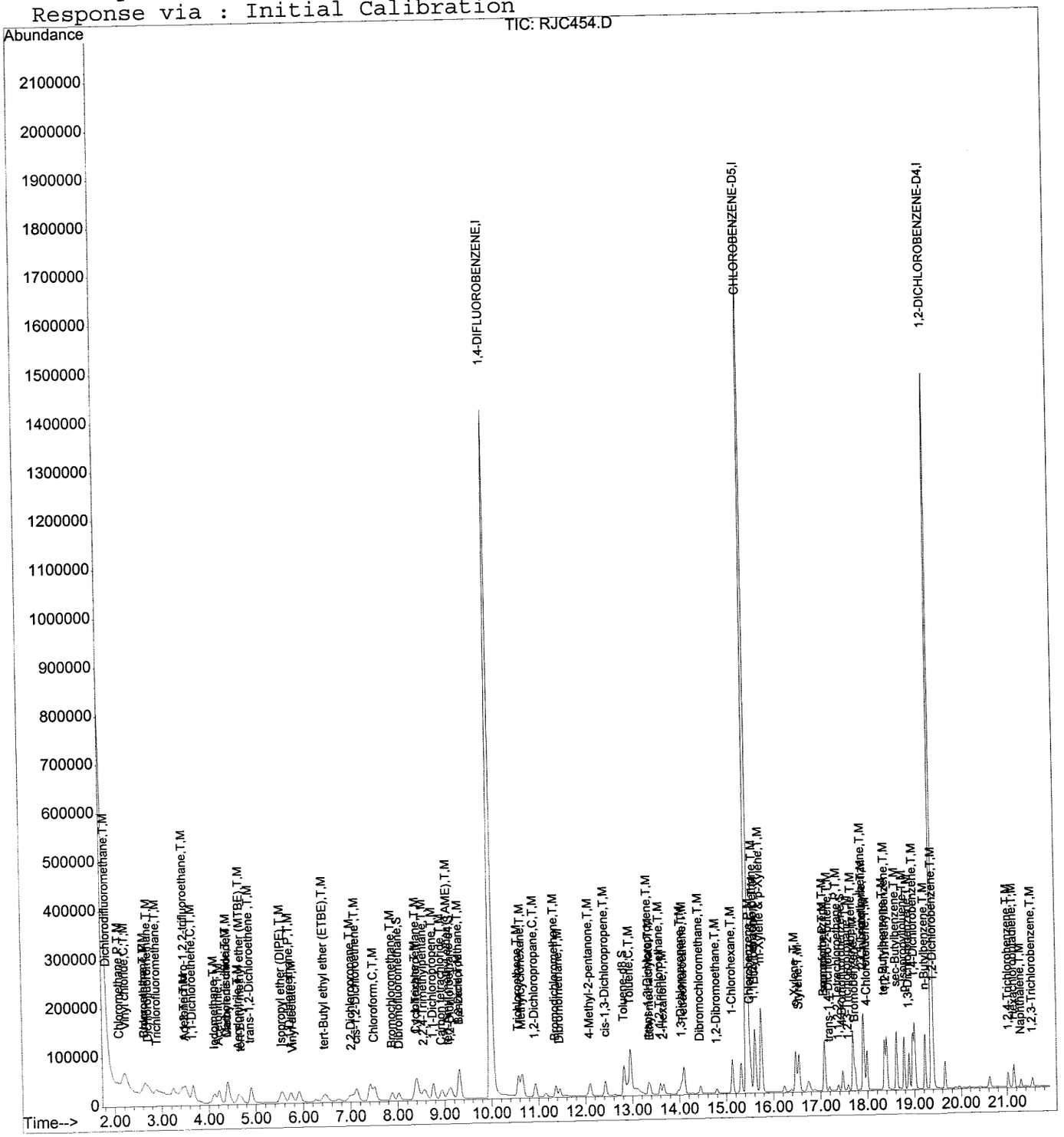
Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC454.D
Acq On : 30 Oct 2020 11:33 am
Sample : VO67J301
Misc : 0.3ppb 8260/1.5ppb KET-AA/7.5ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 17:51 2020

Vial: 2
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC454.D VO67J30.M Mon Nov 02 18:51:38 2020

SA 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC455.D Vial: 3
Acq On : 30 Oct 2020 11:59 am Operator: VLu
Sample : VO67J302 Inst : 67
Misc : 0.5ppb 8260/2.5ppb KET-AA/12.5ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2547933	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1859780	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	579038	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	37874	0.46	ug/l	0.02
Spiked Amount 10.000			Recovery =	4.60%		
43) 1,2-Dichloroethane-d4	9.14	65	25152	0.47	ug/l	0.00
Spiked Amount 10.000			Recovery =	4.70%		
56) Toluene-d8	12.82	98	131093	0.46	ug/l	0.00
Spiked Amount 10.000			Recovery =	4.60%		
77) 4-Bromofluorobenzene	17.47	95	36998	0.47	ug/l	0.00
Spiked Amount 10.000			Recovery =	4.70%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.85	85	47542	0.54	ug/l	90
4) Chloromethane	2.11	50	72422	0.54	ug/l	99
5) Vinyl chloride	2.21	62	62415	0.49	ug/l	70
6) Bromomethane	2.62	94	48282	0.44	ug/l	93
7) Chloroethane	2.64	64	45622	0.49	ug/l	96
8) Dichlorofluoromethane	2.70	67	102754	0.52	ug/l	92
9) Trichlorofluoromethane	2.91	101	60660	0.46	ug/l	100
11) Acrolein	3.44	56	17181	3.11	ug/l	74
12) 1,1,2-Trichloro-1,2,2-trif	3.48	151	35548	0.51	ug/l	97
13) Acetone	3.52	43	39936	5.08	ug/l	82
14) 1,1-Dichloroethene	3.69	61	75944	0.48	ug/l	98
15) tert-Butyl alcohol	3.81	59	33866	12.44	ug/l	93
16) Methyl acetate	4.19	43	12810	0.49	ug/l	77
17) Iodomethane	4.13	142	73091	0.51	ug/l	99
18) Acetonitrile	4.23	41	63113	5.01	ug/l	100
19) Methylene chloride	4.42	49	60339	0.54	ug/l	99
20) Carbon disulfide	4.41	76	177683	0.46	ug/l	97
21) Acrylonitrile	4.66	53	26540	2.29	ug/l	94
22) tert-Butyl methyl ether (M	4.70	73	62676	0.49	ug/l	98
23) trans-1,2-Dichloroethene	4.92	96	55279	0.49	ug/l	99
24) Isopropyl ether (DIPE)	5.56	45	123057	0.51	ug/l	96
25) 1,1-Dichloroethane	5.75	63	87026	0.50	ug/l	100
26) Vinyl acetate	5.81	43	42830	0.49	ug/l	91
27) 2-Butanol	6.31	45	27126	11.28	ug/l #	1
28) tert-Butyl ethyl ether (ET	6.47	59	93641	0.51	ug/l	95
29) 2-Butanone	6.75	72	7120	2.16	ug/l	77
30) 2,2-Dichloropropane	7.04	77	62391	0.52	ug/l	96

(#) = qualifier out of range (m) = manual integration
RJC455.D VO67J30.M Mon Nov 02 18:52:52 2020 Page 1

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Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC455.D Vial: 3
Acq On : 30 Oct 2020 11:59 am Operator: VLu
Sample : VO67J302 Inst : 67
Misc : 0.5ppb 8260/2.5ppb KET-AA/12.5ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	cis-1,2-Dichloroethene	7.15	96	53648	0.49 ug/l	99
32)	Chloroform	7.53	83	78241	0.48 ug/l	99
33)	Bromochloromethane	7.90	130	23093	0.48 ug/l	100
34)	tert-Amyl alcohol	8.00	59	4534	2.00 ug/l	82
36)	Tetrahydrofuran	8.02	42	4057	0.49 ug/l	77
37)	1,1,1-Trichloroethane	8.43	97	67050	0.51 ug/l	99
38)	Cyclohexane	8.41	84	61598	0.40 ug/l	100
39)	2,2,4-Trimethylpentane	8.59	57	194623	0.44 ug/l	99
40)	1,1-Dichloropropene	8.78	110	23886	0.47 ug/l	98
41)	Carbon tetrachloride	8.95	119	54346	0.50 ug/l	100
42)	tert-Amyl methyl ether (TA	9.10	87	16180	0.50 ug/l	91
44)	1,2-Dichloroethane	9.35	62	33141	0.50 ug/l	98
45)	Benzene	9.32	78	184572	0.49 ug/l	96
46)	Trichloroethene	10.59	130	48274	0.49 ug/l	99
47)	Methylcyclohexane	10.66	83	72596	0.42 ug/l	98
48)	1,2-Dichloropropane	10.94	63	39738	0.48 ug/l	97
49)	Bromodichloromethane	11.38	83	48174	0.49 ug/l	99
50)	1,4-Dioxane	11.47	88	2812	9.40 ug/l	80
51)	Dibromomethane	11.45	93	18258	0.48 ug/l	98
53)	4-Methyl-2-pentanone	12.11	43	73406	2.42 ug/l	98
54)	cis-1,3-Dichloropropene	12.43	75	57469	0.48 ug/l	94
57)	Toluene	12.97	91	182122	0.50 ug/l	100
58)	Ethyl methacrylate	13.38	69	25245	0.48 ug/l	93
59)	trans-1,3-Dichloropropene	13.35	75	40040	0.47 ug/l	95
60)	1,1,2-Trichloroethane	13.60	97	22006	0.49 ug/l	98
61)	2-Hexanone	13.67	43	45010	2.44 ug/l	95
62)	1,3-Dichloropropane	14.05	76	39081	0.48 ug/l	95
63)	Tetrachloroethene	14.09	164	35405	0.48 ug/l	99
64)	Dibromochloromethane	14.46	129	26684	0.50 ug/l	98
65)	1,2-Dibromoethane	14.80	107	20570	0.49 ug/l	99
66)	1-Chlorohexane	15.13	91	69611	0.48 ug/l	99
67)	Chlorobenzene	15.51	112	101196	0.49 ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.60	131	31646	0.49 ug/l	88
69)	Ethylbenzene	15.63	91	202474	0.50 ug/l	99
70)	m-Xylene & p-Xylene	15.74	91	294627	0.99 ug/l	100
71)	o-Xylene	16.47	91	137261	0.49 ug/l	98
72)	Styrene	16.55	104	109387	0.50 ug/l	80
73)	Isopropylbenzene	17.09	105	178229	0.49 ug/l	100
75)	Bromoform	17.09	173	12440	0.48 ug/l	98
76)	1,1,2,2-Tetrachloroethane	17.37	83	21540	0.51 ug/l	100
78)	1,2,3-Trichloropropane	17.58	110	5284	0.51 ug/l	92

(#) = qualifier out of range (m) = manual integration
RJC455.D VO67J30.M Mon Nov 02 18:52:53 2020 Page 2

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Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC455.D Vial: 3
Acq On : 30 Oct 2020 11:59 am Operator: VLu
Sample : VO67J302 Inst : 67
Misc : 0.5ppb 8260/2.5ppb KET-AA/12.5ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.19	53	5373	0.51 ug/l	88
80)	n-Propylbenzene	17.69	91	224220	0.50 ug/l	99
81)	Bromobenzene	17.73	156	30535	0.48 ug/l	100
82)	1,3,5-Trimethylbenzene	17.91	105	132446	0.49 ug/l	99
83)	2-Chlorotoluene	17.92	91	132375	0.48 ug/l	95
84)	4-Chlorotoluene	17.99	91	121259	0.52 ug/l	94
85)	tert-Butylbenzene	18.36	134	28494	0.48 ug/l	93
86)	1,2,4-Trimethylbenzene	18.40	105	125708	0.50 ug/l	100
87)	sec-Butylbenzene	18.62	105	191230	0.50 ug/l	99
88)	p-Isopropyltoluene	18.78	119	142119	0.50 ug/l	97
89)	1,3-Dichlorobenzene	18.88	146	64544	0.49 ug/l	100
90)	1,4-Dichlorobenzene	19.00	146	62794	0.49 ug/l	100
91)	n-Butylbenzene	19.22	91	146353	0.50 ug/l	99
92)	1,2-Dichlorobenzene	19.41	146	51646	0.50 ug/l	93
93)	1,2-Dibromo-3-chloropropan	20.18	157	2200	0.49 ug/l	84
94)	1,2,4-Trichlorobenzene	21.02	180	24732	0.50 ug/l	99
95)	Hexachlorobutadiene	21.15	225	20680	0.51 ug/l	98
96)	Naphthalene	21.29	128	28690	0.49 ug/l	97
97)	1,2,3-Trichlorobenzene	21.54	180	16644	0.50 ug/l	99

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(#) = qualifier out of range (m) = manual integration
RJC455.D VO67J30.M Mon Nov 02 18:52:53 2020 Page 3

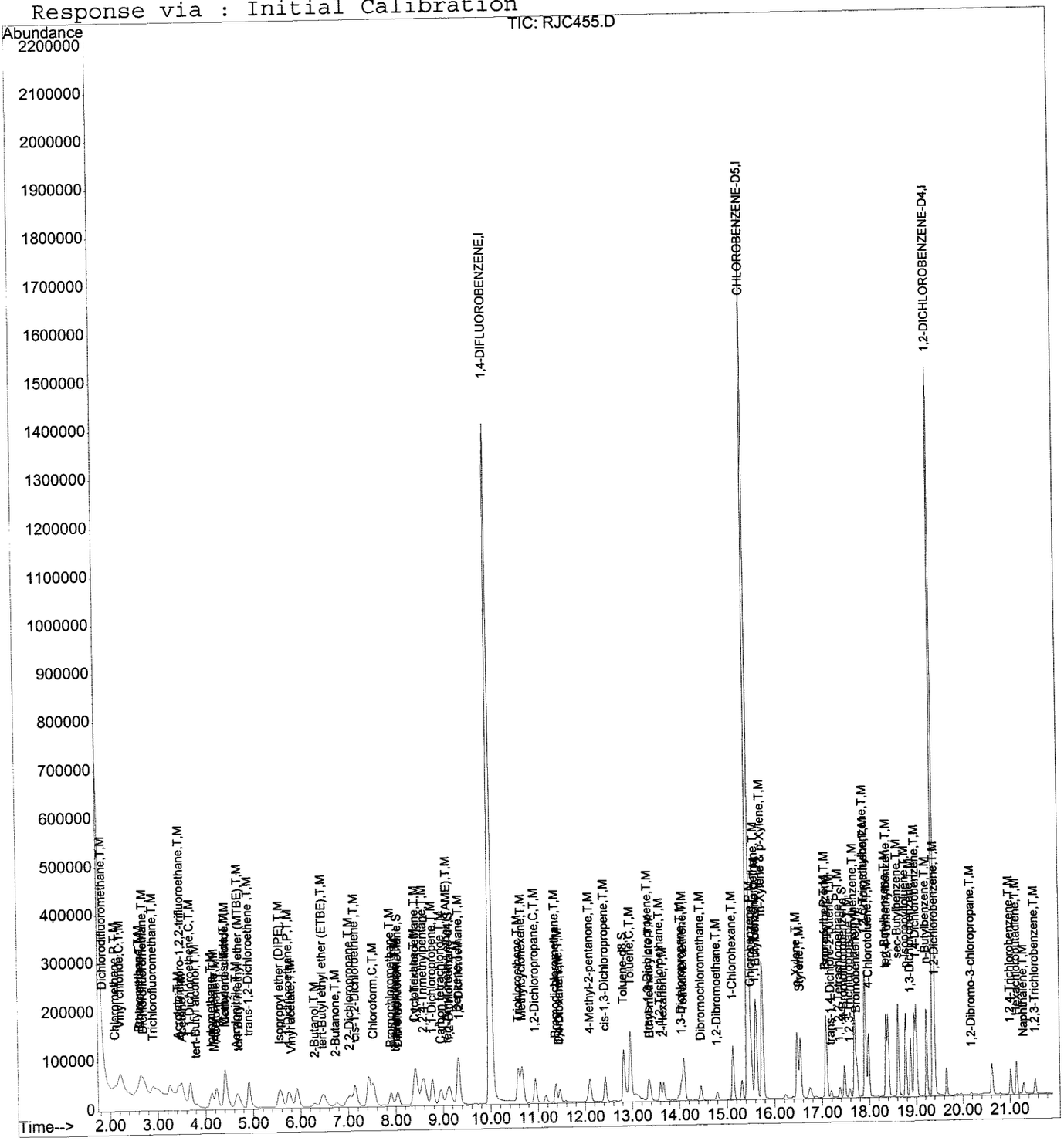
Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC455.D
Acq On : 30 Oct 2020 11:59 am
Sample : VO67J302
Misc : 0.5ppb 8260/2.5ppb KET-AA/12.5ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020

Vial: 3
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC455.D VO67J30.M Mon Nov 02 18:52:55 2020 Su 11/4/20 Page 4

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC456.D Vial: 4
Acq On : 30 Oct 2020 12:24 pm Operator: VLu
Sample : VO67J303 Inst : 67
Misc : 1.0ppb 8260/5.0ppb KET-AA/25ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2591758	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1876998	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	585378	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	77634	0.92	ug/l	0.00
Spiked Amount 10.000			Recovery =	9.20%		
43) 1,2-Dichloroethane-d4	9.14	65	50192	0.93	ug/l	0.00
Spiked Amount 10.000			Recovery =	9.30%		
56) Toluene-d8	12.82	98	264721	0.92	ug/l	0.00
Spiked Amount 10.000			Recovery =	9.20%		
77) 4-Bromofluorobenzene	17.47	95	78048	0.98	ug/l	0.00
Spiked Amount 10.000			Recovery =	9.80%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	85560	0.96	ug/l	90
4) Chloromethane	2.13	50	154576	1.13	ug/l	99
5) Vinyl chloride	2.23	62	139197	1.08	ug/l	95
6) Bromomethane	2.64	94	109474	0.97	ug/l	94
7) Chloroethane	2.66	64	101327	1.07	ug/l	96
8) Dichlorofluoromethane	2.72	67	186097	0.93	ug/l	95
9) Trichlorofluoromethane	2.90	101	138025	1.03	ug/l	98
11) Acrolein	3.44	56	30532	5.44	ug/l	68
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	63854	0.90	ug/l	100
13) Acetone	3.52	43	60745	7.60	ug/l	85
14) 1,1-Dichloroethene	3.68	61	143078	0.89	ug/l	99
15) tert-Butyl alcohol	3.82	59	65065	23.49	ug/l	97
16) Methyl acetate	4.20	43	46162	1.75	ug/l	68
17) Iodomethane	4.13	142	142622	0.98	ug/l	100
18) Acetonitrile	4.23	41	118677	9.26	ug/l	97
19) Methylene chloride	4.42	49	107822	0.95	ug/l	99
20) Carbon disulfide	4.41	76	397173	1.01	ug/l	96
21) Acrylonitrile	4.66	53	54102	4.58	ug/l	96
22) tert-Butyl methyl ether (M	4.70	73	121245	0.93	ug/l	100
23) trans-1,2-Dichloroethene	4.92	96	103333	0.90	ug/l	100
24) Isopropyl ether (DIPE)	5.56	45	229923	0.94	ug/l	99
25) 1,1-Dichloroethane	5.75	63	163909	0.93	ug/l	100
26) Vinyl acetate	5.81	43	91313	1.03	ug/l	93
27) 2-Butanol	6.29	45	57564	23.53	ug/l	98
28) tert-Butyl ethyl ether (ET	6.48	59	177197	0.94	ug/l	99
29) 2-Butanone	6.76	72	14888	4.45	ug/l	93
30) 2,2-Dichloropropane	7.04	77	118293	0.97	ug/l	98

(#) = qualifier out of range (m) = manual integration
RJC456.D VO67J30.M Mon Nov 02 18:53:25 2020 Su 11/4/20 Page 1

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC456.D Vial: 4
Acq On : 30 Oct 2020 12:24 pm Operator: VLu
Sample : VO67J303 Inst : 67
Misc : 1.0ppb 8260/5.0ppb KET-AA/25ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	cis-1,2-Dichloroethene	7.15	96	102426	0.92 ug/l	100
32)	Chloroform	7.53	83	157042	0.95 ug/l	96
33)	Bromochloromethane	7.90	130	44863	0.92 ug/l	97
34)	tert-Amyl alcohol	8.00	59	10368	4.51 ug/l	97
36)	Tetrahydrofuran	7.99	42	8419	1.00 ug/l	88
37)	1,1,1-Trichloroethane	8.43	97	123792	0.92 ug/l	98
38)	Cyclohexane	8.41	84	152271	0.97 ug/l	100
39)	2,2,4-Trimethylpentane	8.59	57	441868	0.98 ug/l	100
40)	1,1-Dichloropropene	8.78	110	46190	0.89 ug/l	98
41)	Carbon tetrachloride	8.95	119	100137	0.91 ug/l	99
42)	tert-Amyl methyl ether (TA	9.10	87	30537	0.93 ug/l	96
44)	1,2-Dichloroethane	9.35	62	63259	0.95 ug/l	98
45)	Benzene	9.32	78	348459	0.92 ug/l	98
46)	Trichloroethene	10.59	130	89513	0.89 ug/l	99
47)	Methylcyclohexane	10.66	83	167887	0.95 ug/l	97
48)	1,2-Dichloropropane	10.94	63	76359	0.92 ug/l	99
49)	Bromodichloromethane	11.38	83	93175	0.93 ug/l	98
50)	1,4-Dioxane	11.48	88	6122	20.12 ug/l	98
51)	Dibromomethane	11.47	93	36169	0.93 ug/l	99
53)	4-Methyl-2-pentanone	12.11	43	140502	4.56 ug/l	99
54)	cis-1,3-Dichloropropene	12.43	75	109857	0.90 ug/l	95
57)	Toluene	12.97	91	341568	0.92 ug/l	100
58)	Ethyl methacrylate	13.38	69	49714	0.93 ug/l	97
59)	trans-1,3-Dichloropropene	13.35	75	78137	0.92 ug/l	96
60)	1,1,2-Trichloroethane	13.60	97	42065	0.93 ug/l	99
61)	2-Hexanone	13.67	43	87929	4.73 ug/l	95
62)	1,3-Dichloropropane	14.05	76	76457	0.93 ug/l	99
63)	Tetrachloroethene	14.09	164	65525	0.89 ug/l	99
64)	Dibromochloromethane	14.46	129	50405	0.93 ug/l	98
65)	1,2-Dibromoethane	14.80	107	41024	0.96 ug/l	98
66)	1-Chlorohexane	15.13	91	132435	0.90 ug/l	99
67)	Chlorobenzene	15.51	112	190941	0.92 ug/l	100
68)	1,1,1,2-Tetrachloroethane	15.60	131	58389	0.90 ug/l	91
69)	Ethylbenzene	15.61	91	374784	0.91 ug/l	100
70)	m-Xylene & p-Xylene	15.74	91	541619	1.80 ug/l	99
71)	o-Xylene	16.48	91	264277	0.93 ug/l	98
72)	Styrene	16.55	104	201603	0.91 ug/l	79
73)	Isopropylbenzene	17.09	105	334693	0.90 ug/l	100
75)	Bromoform	17.09	173	24517	0.93 ug/l	100
76)	1,1,2,2-Tetrachloroethane	17.38	83	41357	0.96 ug/l	99
78)	1,2,3-Trichloropropane	17.59	110	10327	0.99 ug/l	97

(#) = qualifier out of range (m) = manual integration
RJC456.D VO67J30.M Mon Nov 02 18:53:26 2020 Page 2

SA 11/4/20

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC456.D Vial: 4
Acq On : 30 Oct 2020 12:24 pm Operator: VLu
Sample : VO67J303 Inst : 67
Misc : 1.0ppb 8260/5.0ppb KET-AA/25ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.19	53	10015	0.94 ug/l	96
80)	n-Propylbenzene	17.69	91	419538	0.92 ug/l	100
81)	Bromobenzene	17.73	156	59899	0.93 ug/l	100
82)	1,3,5-Trimethylbenzene	17.91	105	249227	0.92 ug/l	99
83)	2-Chlorotoluene	17.92	91	254402	0.91 ug/l	99
84)	4-Chlorotoluene	17.99	91	224857	0.96 ug/l	100
85)	tert-Butylbenzene	18.36	134	53717	0.90 ug/l	93
86)	1,2,4-Trimethylbenzene	18.40	105	237886	0.94 ug/l	98
87)	sec-Butylbenzene	18.62	105	354756	0.93 ug/l	99
88)	p-Isopropyltoluene	18.78	119	269783	0.93 ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	120460	0.91 ug/l	100
90)	1,4-Dichlorobenzene	19.00	146	119195	0.92 ug/l	99
91)	n-Butylbenzene	19.22	91	276410	0.93 ug/l	99
92)	1,2-Dichlorobenzene	19.40	146	97854	0.93 ug/l	96
93)	1,2-Dibromo-3-chloropropan	20.18	157	4041	0.89 ug/l	82
94)	1,2,4-Trichlorobenzene	21.02	180	45642	0.92 ug/l	99
95)	Hexachlorobutadiene	21.15	225	38813	0.95 ug/l	99
96)	Naphthalene	21.29	128	56691	0.95 ug/l	99
97)	1,2,3-Trichlorobenzene	21.54	180	31076	0.92 ug/l	99

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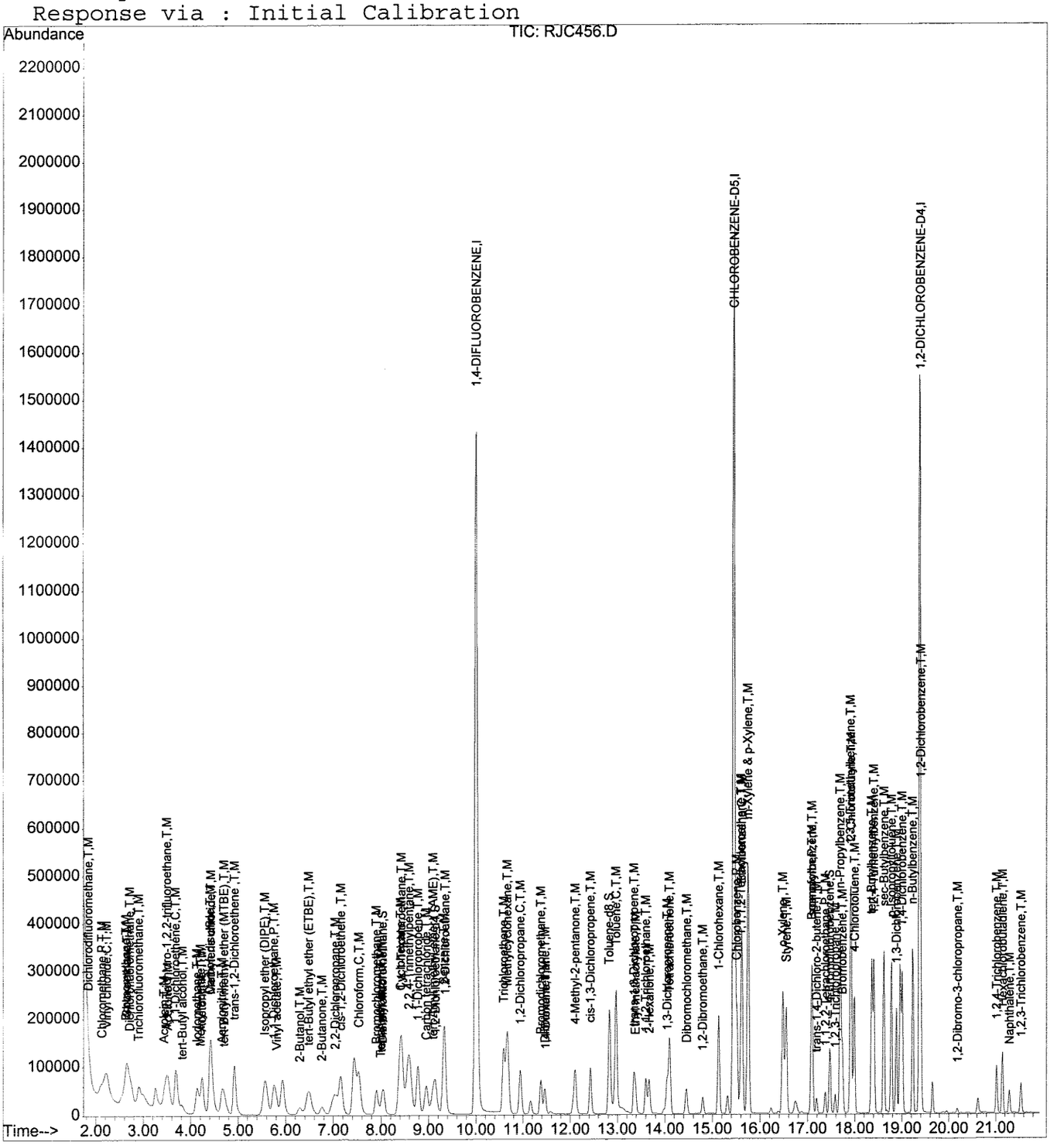
(#) = qualifier out of range (m) = manual integration
RJC456.D VO67J30.M Mon Nov 02 18:53:26 2020 Page 3

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC456.D Vial: 4
Acq On : 30 Oct 2020 12:24 pm Operator: VLu
Sample : VO67J303 Inst : 67
Misc : 1.0ppb 8260/5.0ppb KET-AA/25ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC456.D VO67J30.M Mon Nov 02 18:53:29 2020 Page 4

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Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC457.D Vial: 5
Acq On : 30 Oct 2020 12:50 pm Operator: VLu
Sample : VO67J304 Inst : 67
Misc : 2.0ppb 8260/10ppb KET-AA/50ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2504411	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1857262	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	600494	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	165144	2.02	ug/l	0.02
Spiked Amount 10.000			Recovery =	20.20%		
43) 1,2-Dichloroethane-d4	9.14	65	108722	2.08	ug/l	0.00
Spiked Amount 10.000			Recovery =	20.80%		
56) Toluene-d8	12.82	98	573410	2.02	ug/l	0.00
Spiked Amount 10.000			Recovery =	20.20%		
77) 4-Bromofluorobenzene	17.47	95	161385	1.98	ug/l	0.00
Spiked Amount 10.000			Recovery =	19.80%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	168957	1.95	ug/l	99
4) Chloromethane	2.13	50	275240	2.08	ug/l	100
5) Vinyl chloride	2.23	62	257153	2.06	ug/l	97
6) Bromomethane	2.64	94	209725	1.93	ug/l	97
7) Chloroethane	2.64	64	182567	1.99	ug/l	99
8) Dichlorofluoromethane	2.72	67	388846	2.00	ug/l	97
9) Trichlorofluoromethane	2.90	101	255323	1.98	ug/l	100
11) Acrolein	3.43	56	58515	10.79	ug/l	86
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	134972	1.96	ug/l	98
13) Acetone	3.52	43	97911	12.68	ug/l	93
14) 1,1-Dichloroethene	3.68	61	303420	1.95	ug/l	99
15) tert-Butyl alcohol	3.82	59	132262	49.42	ug/l	100
16) Methyl acetate	4.20	43	55820	2.19	ug/l	88
17) Iodomethane	4.13	142	287514	2.05	ug/l	100
18) Acetonitrile	4.23	41	246373	19.89	ug/l	99
19) Methylene chloride	4.42	49	216383	1.97	ug/l	100
20) Carbon disulfide	4.41	76	709975	1.87	ug/l	98
21) Acrylonitrile	4.66	53	109599	9.60	ug/l	97
22) tert-Butyl methyl ether (M	4.69	73	253453	2.02	ug/l	100
23) trans-1,2-Dichloroethene	4.92	96	218546	1.97	ug/l	100
24) Isopropyl ether (DIPE)	5.56	45	479134	2.03	ug/l	98
25) 1,1-Dichloroethane	5.75	63	345548	2.02	ug/l	100
26) Vinyl acetate	5.81	43	169755	1.99	ug/l	98
27) 2-Butanol	6.28	45	118958	50.32	ug/l	96
28) tert-Butyl ethyl ether (ET	6.48	59	376886	2.07	ug/l	99
29) 2-Butanone	6.75	72	31814	9.84	ug/l	97
30) 2,2-Dichloropropane	7.04	77	239968	2.04	ug/l	99

(#) = qualifier out of range (m) = manual integration SU 11/4/20
RJC457.D VO67J30.M Mon Nov 02 18:55:01 2020 Page 1

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC457.D Vial: 5
Acq On : 30 Oct 2020 12:50 pm Operator: VLu
Sample : VO67J304 Inst : 67
Misc : 2.0ppb 8260/10ppb KET-AA/50ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	cis-1,2-Dichloroethene	7.15	96	215312	1.99 ug/l	100
32)	Chloroform	7.53	83	328206	2.05 ug/l	99
33)	Bromochloromethane	7.90	130	94409	1.99 ug/l	98
34)	tert-Amyl alcohol	8.00	59	21538	9.69 ug/l	99
36)	Tetrahydrofuran	7.99	42	16499	2.03 ug/l	98
37)	1,1,1-Trichloroethane	8.43	97	259756	2.00 ug/l	100
38)	Cyclohexane	8.41	84	298419	1.97 ug/l	99
39)	2,2,4-Trimethylpentane	8.59	57	862530	1.98 ug/l	100
40)	1,1-Dichloropropene	8.78	110	100590	2.01 ug/l	97
41)	Carbon tetrachloride	8.95	119	214329	2.00 ug/l	99
42)	tert-Amyl methyl ether (TA	9.10	87	65167	2.05 ug/l	98
44)	1,2-Dichloroethane	9.35	62	130248	2.01 ug/l	98
45)	Benzene	9.32	78	734451	2.00 ug/l	100
46)	Trichloroethene	10.57	130	189020	1.95 ug/l	99
47)	Methylcyclohexane	10.66	83	333388	1.95 ug/l	100
48)	1,2-Dichloropropane	10.94	63	161740	2.01 ug/l	99
49)	Bromodichloromethane	11.38	83	193202	1.99 ug/l	100
50)	1,4-Dioxane	11.47	88	11315	38.49 ug/l	92
51)	Dibromomethane	11.45	93	74057	1.98 ug/l	99
53)	4-Methyl-2-pentanone	12.09	43	289204	9.70 ug/l	99
54)	cis-1,3-Dichloropropene	12.43	75	229593	1.95 ug/l	98
57)	Toluene	12.97	91	720301	1.97 ug/l	100
58)	Ethyl methacrylate	13.38	69	103079	1.94 ug/l	97
59)	trans-1,3-Dichloropropene	13.35	75	164990	1.95 ug/l	98
60)	1,1,2-Trichloroethane	13.60	97	88372	1.98 ug/l	100
61)	2-Hexanone	13.67	43	181972	9.89 ug/l	97
62)	1,3-Dichloropropane	14.05	76	158621	1.95 ug/l	99
63)	Tetrachloroethene	14.09	164	138422	1.90 ug/l	99
64)	Dibromochloromethane	14.46	129	105838	1.97 ug/l	99
65)	1,2-Dibromoethane	14.80	107	83962	1.99 ug/l	98
66)	1-Chlorohexane	15.13	91	281755	1.94 ug/l	99
67)	Chlorobenzene	15.51	112	407503	1.98 ug/l	100
68)	1,1,1,2-Tetrachloroethane	15.60	131	123195	1.92 ug/l	96
69)	Ethylbenzene	15.61	91	801466	1.97 ug/l	100
70)	m-Xylene & p-Xylene	15.74	91	1171853	3.93 ug/l	99
71)	o-Xylene	16.47	91	558884	1.98 ug/l	100
72)	Styrene	16.55	104	433967	1.98 ug/l	80
73)	Isopropylbenzene	17.09	105	721598	1.97 ug/l	100
75)	Bromoform	17.09	173	52407	1.93 ug/l	99
76)	1,1,2,2-Tetrachloroethane	17.37	83	88055	2.00 ug/l	99
78)	1,2,3-Trichloropropane	17.58	110	22610	2.11 ug/l	99

(#) = qualifier out of range (m) = manual integration
RJC457.D VO67J30.M Mon Nov 02 18:55:02 2020 11/4/20 Page 2

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC457.D
Acq On : 30 Oct 2020 12:50 pm
Sample : VO67J304
Misc : 2.0ppb 8260/10ppb KET-AA/50ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020

Vial: 5
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) trans-1,4-Dichloro-2-buten	17.19	53	21468	1.97 ug/l	98
80) n-Propylbenzene	17.69	91	927536	1.99 ug/l	100
81) Bromobenzene	17.73	156	127337	1.93 ug/l	100
82) 1,3,5-Trimethylbenzene	17.91	105	541374	1.95 ug/l	100
83) 2-Chlorotoluene	17.92	91	546331	1.91 ug/l	100
84) 4-Chlorotoluene	17.99	91	482130	2.01 ug/l	100
85) tert-Butylbenzene	18.36	134	119157	1.95 ug/l	95
86) 1,2,4-Trimethylbenzene	18.40	105	515535	1.98 ug/l	99
87) sec-Butylbenzene	18.62	105	773526	1.97 ug/l	100
88) p-Isopropyltoluene	18.78	119	596549	2.00 ug/l	99
89) 1,3-Dichlorobenzene	18.88	146	264423	1.95 ug/l	100
90) 1,4-Dichlorobenzene	19.00	146	261014	1.97 ug/l	100
91) n-Butylbenzene	19.22	91	611006	2.00 ug/l	100
92) 1,2-Dichlorobenzene	19.40	146	211130	1.95 ug/l	99
93) 1,2-Dibromo-3-chloropropan	20.18	157	9435	2.02 ug/l	96
94) 1,2,4-Trichlorobenzene	21.02	180	101214	1.98 ug/l	99
95) Hexachlorobutadiene	21.15	225	84368	2.00 ug/l	100
96) Naphthalene	21.29	128	121505	1.99 ug/l	99
97) 1,2,3-Trichlorobenzene	21.54	180	70243	2.02 ug/l	98

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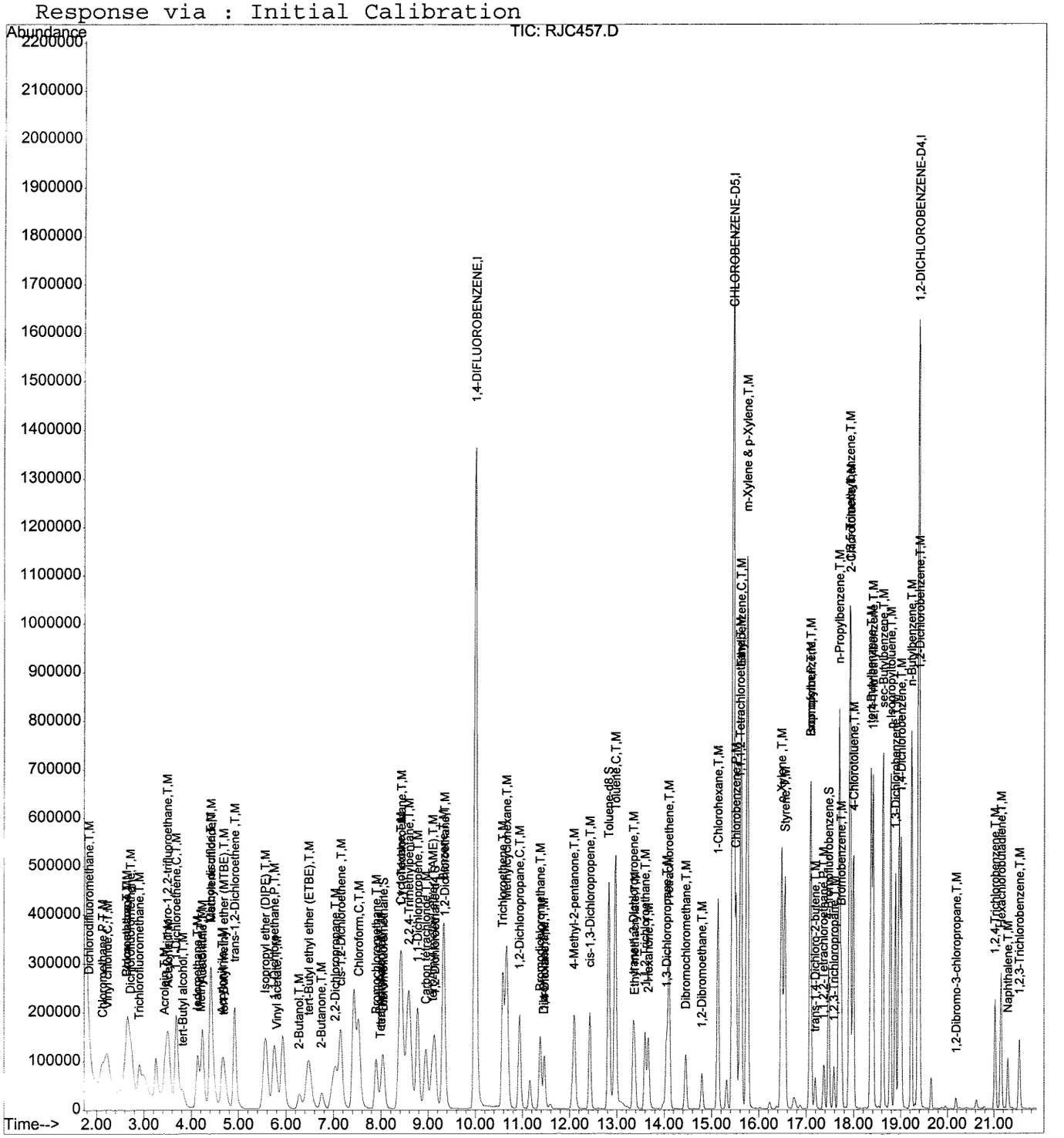
(#) = qualifier out of range (m) = manual integration
RJC457.D VO67J30.M Mon Nov 02 18:55:02 2020 Page 3

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC457.D Vial: 5
Acq On : 30 Oct 2020 12:50 pm Operator: VLu
Sample : VO67J304 Inst : 67
Misc : 2.0ppb 8260/10ppb KET-AA/50ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC457.D VO67J30.M Mon Nov 02 18:55:05 2020 Sa 11/4/20 Page 4

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC458.D Vial: 6
Acq On : 30 Oct 2020 1:16 pm Operator: VLu
Sample : VO67J305 Inst : 67
Misc : 5.0ppb 8260/25ppb KET-AA/125ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2469907	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1828509	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	603772	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	410475	5.09	ug/l	0.00
Spiked Amount 10.000			Recovery =	50.90%		
43) 1,2-Dichloroethane-d4	9.14	65	260489	5.05	ug/l	0.00
Spiked Amount 10.000			Recovery =	50.50%		
56) Toluene-d8	12.82	98	1422242	5.10	ug/l	0.00
Spiked Amount 10.000			Recovery =	51.00%		
77) 4-Bromofluorobenzene	17.47	95	402349	4.90	ug/l	0.00
Spiked Amount 10.000			Recovery =	49.00%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	439761	5.15	ug/l	100
4) Chloromethane	2.11	50	683395	5.23	ug/l	100
5) Vinyl chloride	2.23	62	691058	5.61	ug/l	99
6) Bromomethane	2.64	94	567866	5.30	ug/l	100
7) Chloroethane	2.64	64	482780	5.34	ug/l	99
8) Dichlorofluoromethane	2.72	67	950336	4.97	ug/l	99
9) Trichlorofluoromethane	2.90	101	661903	5.19	ug/l	96
11) Acrolein	3.44	56	136007	25.44	ug/l	96
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	340960	5.03	ug/l	100
13) Acetone	3.52	43	190873	25.06	ug/l	99
14) 1,1-Dichloroethene	3.68	61	752641	4.91	ug/l	100
15) tert-Butyl alcohol	3.80	59	338973	128.43	ug/l	99
16) Methyl acetate	4.19	43	126334	5.03	ug/l	93
17) Iodomethane	4.13	142	663249	4.81	ug/l	99
18) Acetonitrile	4.24	41	600346	49.14	ug/l	99
19) Methylene chloride	4.43	49	518693	4.80	ug/l	100
20) Carbon disulfide	4.40	76	1867137	4.98	ug/l	99
21) Acrylonitrile	4.64	53	276273	24.54	ug/l	99
22) tert-Butyl methyl ether (M	4.69	73	619771	5.01	ug/l	100
23) trans-1,2-Dichloroethene	4.91	96	540677	4.95	ug/l	100
24) Isopropyl ether (DIPE)	5.56	45	1148003	4.94	ug/l	97
25) 1,1-Dichloroethane	5.75	63	837778	4.96	ug/l	100
26) Vinyl acetate	5.80	43	410422	4.87	ug/l	99
27) 2-Butanol	6.28	45	297149	127.46	ug/l	99
28) tert-Butyl ethyl ether (ET	6.47	59	907331	5.06	ug/l	99
29) 2-Butanone	6.75	72	80459	25.22	ug/l	99
30) 2,2-Dichloropropane	7.04	77	575898	4.97	ug/l	100

(#) = qualifier out of range (m) = manual integration
RJC458.D VO67J30.M Mon Nov 02 18:55:21 2020 Page 1

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Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC458.D Vial: 6
Acq On : 30 Oct 2020 1:16 pm Operator: VLu
Sample : VO67J305 Inst : 67
Misc : 5.0ppb 8260/25ppb KET-AA/125ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	cis-1,2-Dichloroethene	7.14	96	527469	4.95 ug/l	100
32)	Chloroform	7.52	83	787770	5.00 ug/l	100
33)	Bromochloromethane	7.90	130	233224	4.99 ug/l	99
34)	tert-Amyl alcohol	7.99	59	55131	25.14 ug/l	99
36)	Tetrahydrofuran	7.99	42	40171	5.00 ug/l	99
37)	1,1,1-Trichloroethane	8.43	97	636005	4.95 ug/l	99
38)	Cyclohexane	8.41	84	783948	5.26 ug/l	99
39)	2,2,4-Trimethylpentane	8.59	57	2224554	5.18 ug/l	100
40)	1,1-Dichloropropene	8.78	110	247180	5.02 ug/l	99
41)	Carbon tetrachloride	8.95	119	529707	5.02 ug/l	100
42)	tert-Amyl methyl ether (TA	9.10	87	157703	5.03 ug/l	98
44)	1,2-Dichloroethane	9.35	62	315223	4.94 ug/l	99
45)	Benzene	9.32	78	1789127	4.95 ug/l	100
46)	Trichloroethene	10.59	130	466210	4.87 ug/l	99
47)	Methylcyclohexane	10.66	83	865023	5.14 ug/l	100
48)	1,2-Dichloropropane	10.94	63	392252	4.94 ug/l	99
49)	Bromodichloromethane	11.38	83	473595	4.96 ug/l	100
50)	1,4-Dioxane	11.47	88	28093	96.90 ug/l	99
51)	Dibromomethane	11.47	93	184454	4.99 ug/l	99
53)	4-Methyl-2-pentanone	12.09	43	720546	24.51 ug/l	99
54)	cis-1,3-Dichloropropene	12.43	75	568069	4.90 ug/l	99
57)	Toluene	12.97	91	1759659	4.89 ug/l	99
58)	Ethyl methacrylate	13.38	69	255774	4.90 ug/l	100
59)	trans-1,3-Dichloropropene	13.35	75	411095	4.95 ug/l	99
60)	1,1,2-Trichloroethane	13.60	97	213869	4.87 ug/l	99
61)	2-Hexanone	13.67	43	448485	24.76 ug/l	99
62)	1,3-Dichloropropane	14.05	76	395346	4.94 ug/l	100
63)	Tetrachloroethene	14.09	164	346173	4.82 ug/l	99
64)	Dibromochloromethane	14.46	129	261992	4.94 ug/l	100
65)	1,2-Dibromoethane	14.80	107	207798	5.01 ug/l	100
66)	1-Chlorohexane	15.13	91	703854	4.91 ug/l	100
67)	Chlorobenzene	15.51	112	992986	4.90 ug/l	100
68)	1,1,1,2-Tetrachloroethane	15.60	131	306625	4.85 ug/l	99
69)	Ethylbenzene	15.63	91	1967804	4.91 ug/l	99
70)	m-Xylene & p-Xylene	15.74	91	2883100	9.82 ug/l	100
71)	o-Xylene	16.47	91	1369082	4.93 ug/l	100
72)	Styrene	16.55	104	1062149	4.92 ug/l	100
73)	Isopropylbenzene	17.09	105	1795687	4.98 ug/l	100
75)	Bromoform	17.09	173	133032	4.88 ug/l	100
76)	1,1,2,2-Tetrachloroethane	17.38	83	216454	4.89 ug/l	100
78)	1,2,3-Trichloropropane	17.58	110	53431	4.96 ug/l	99

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

SG 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC458.D Vial: 6
Acq On : 30 Oct 2020 1:16 pm Operator: VLu
Sample : VO67J305 Inst : 67
Misc : 5.0ppb 8260/25ppb KET-AA/125ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.19	53	53974	4.92	ug/l	98
80)	n-Propylbenzene	17.69	91	2307651	4.91	ug/l	100
81)	Bromobenzene	17.75	156	318526	4.79	ug/l	100
82)	1,3,5-Trimethylbenzene	17.91	105	1353397	4.84	ug/l	100
83)	2-Chlorotoluene	17.92	91	1340304	4.65	ug/l	94
84)	4-Chlorotoluene	17.99	91	1213621	5.02	ug/l	93
85)	tert-Butylbenzene	18.36	134	296089	4.83	ug/l	96
86)	1,2,4-Trimethylbenzene	18.40	105	1272319	4.86	ug/l	100
87)	sec-Butylbenzene	18.62	105	1930466	4.89	ug/l	100
88)	p-Isopropyltoluene	18.78	119	1461317	4.88	ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	651778	4.79	ug/l	100
90)	1,4-Dichlorobenzene	19.00	146	643777	4.83	ug/l	100
91)	n-Butylbenzene	19.22	91	1521316	4.94	ug/l	100
92)	1,2-Dichlorobenzene	19.41	146	528511	4.86	ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.18	157	24220	5.16	ug/l	99
94)	1,2,4-Trichlorobenzene	21.02	180	249580	4.86	ug/l	99
95)	Hexachlorobutadiene	21.15	225	207717	4.91	ug/l	99
96)	Naphthalene	21.29	128	304386	4.96	ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	172518	4.94	ug/l	100

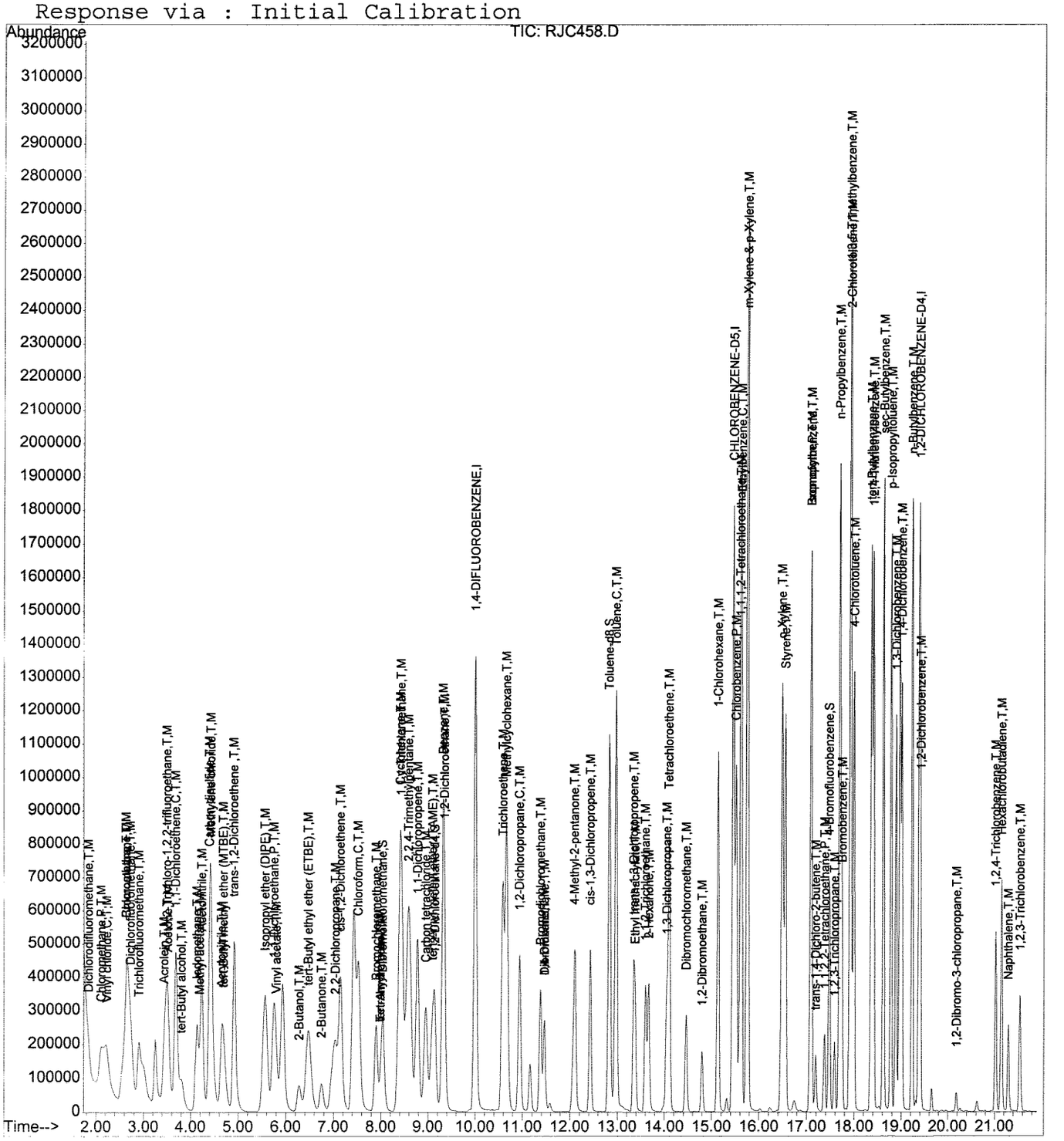
(#) = qualifier out of range (m) = manual integration
RJC458.D VO67J30.M Mon Nov 02 18:55:22 2020 Page 3

Sq 11/4/20

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC458.D Vial: 6
Acq On : 30 Oct 2020 1:16 pm Operator: VLu
Sample : VO67J305 Inst : 67
Misc : 5.0ppb 8260/25ppb KET-AA/125ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC459.D
Acq On : 30 Oct 2020 1:41 pm
Sample : VO67J306
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020

Vial: 7
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2484539	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1854704	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	612676	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	871140	10.74	ug/l	0.00
Spiked Amount 10.000			Recovery =	107.40%		
43) 1,2-Dichloroethane-d4	9.14	65	551928	10.63	ug/l	0.00
Spiked Amount 10.000			Recovery =	106.30%		
56) Toluene-d8	12.82	98	3077049	10.87	ug/l	0.00
Spiked Amount 10.000			Recovery =	108.70%		
77) 4-Bromofluorobenzene	17.47	95	859025	10.32	ug/l	0.00
Spiked Amount 10.000			Recovery =	103.20%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	864860	10.07	ug/l	100
4) Chloromethane	2.11	50	1339060	10.18	ug/l	100
5) Vinyl chloride	2.23	62	1359809	10.97	ug/l	100
6) Bromomethane	2.62	94	1125147	10.44	ug/l	100
7) Chloroethane	2.64	64	921172	10.14	ug/l	100
8) Dichlorofluoromethane	2.72	67	1824113	9.48	ug/l	100
9) Trichlorofluoromethane	2.91	101	1318218	10.28	ug/l	100
11) Acrolein	3.44	56	252879	47.02	ug/l	100
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	661586	9.70	ug/l	100
13) Acetone	3.52	43	357543	46.66	ug/l	100
14) 1,1-Dichloroethene	3.68	61	1470648	9.54	ug/l	100
15) tert-Butyl alcohol	3.81	59	647555	243.89	ug/l	100
16) Methyl acetate	4.19	43	251186	9.93	ug/l	100
17) Iodomethane	4.13	142	1326205	9.55	ug/l	100
18) Acetonitrile	4.23	41	1172204	95.38	ug/l	100
19) Methylene chloride	4.42	49	1004181	9.23	ug/l	100
20) Carbon disulfide	4.41	76	3783442	10.04	ug/l	100
21) Acrylonitrile	4.66	53	553984	48.93	ug/l	100
22) tert-Butyl methyl ether (M	4.69	73	1207663	9.71	ug/l	100
23) trans-1,2-Dichloroethene	4.92	96	1060946	9.65	ug/l	100
24) Isopropyl ether (DIPE)	5.56	45	2214406	9.48	ug/l	100
25) 1,1-Dichloroethane	5.75	63	1627506	9.59	ug/l	100
26) Vinyl acetate	5.81	43	832217	9.82	ug/l	100
27) 2-Butanol	6.28	45	606198	258.49	ug/l	100
28) tert-Butyl ethyl ether (ET	6.47	59	1733632	9.62	ug/l	100
29) 2-Butanone	6.75	72	160108	49.90	ug/l	100
30) 2,2-Dichloropropane	7.04	77	1107482	9.50	ug/l	100

(#) = qualifier out of range (m) = manual integration
RJC459.D VO67J30.M Mon Nov 02 18:55:33 2020

SA 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC459.D Vial: 7
Acq On : 30 Oct 2020 1:41 pm Operator: VLu
Sample : VO67J306 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
31)	cis-1,2-Dichloroethene	7.16	96	1036251	9.67	ug/l	100
32)	Chloroform	7.54	83	1522086	9.60	ug/l	100
33)	Bromochloromethane	7.90	130	457936	9.74	ug/l	100
34)	tert-Amyl alcohol	7.99	59	115273	52.26	ug/l	100
36)	Tetrahydrofuran	7.99	42	80901	10.01	ug/l	100
37)	1,1,1-Trichloroethane	8.43	97	1242169	9.62	ug/l	100
38)	Cyclohexane	8.41	84	1588144	10.59	ug/l	100
39)	2,2,4-Trimethylpentane	8.59	57	4518615	10.46	ug/l	100
40)	1,1-Dichloropropene	8.78	110	482428	9.74	ug/l	100
41)	Carbon tetrachloride	8.95	119	1026153	9.68	ug/l	100
42)	tert-Amyl methyl ether (TA	9.10	87	311724	9.88	ug/l	100
44)	1,2-Dichloroethane	9.35	62	621479	9.69	ug/l	100
45)	Benzene	9.32	78	3499564	9.62	ug/l	100
46)	Trichloroethene	10.59	130	924026	9.59	ug/l	100
47)	Methylcyclohexane	10.66	83	1750950	10.34	ug/l	100
48)	1,2-Dichloropropane	10.94	63	767908	9.61	ug/l	100
49)	Bromodichloromethane	11.38	83	927367	9.65	ug/l	100
50)	1,4-Dioxane	11.46	88	58214	199.61	ug/l	100
51)	Dibromomethane	11.46	93	363892	9.79	ug/l	100
53)	4-Methyl-2-pentanone	12.09	43	1446041	48.91	ug/l	100
54)	cis-1,3-Dichloropropene	12.43	75	1117330	9.58	ug/l	100
57)	Toluene	12.97	91	3486966	9.55	ug/l	100
58)	Ethyl methacrylate	13.38	69	514155	9.71	ug/l	100
59)	trans-1,3-Dichloropropene	13.35	75	811310	9.62	ug/l	100
60)	1,1,2-Trichloroethane	13.60	97	429243	9.64	ug/l	100
61)	2-Hexanone	13.67	43	896971	48.81	ug/l	100
62)	1,3-Dichloropropane	14.05	76	780116	9.61	ug/l	100
63)	Tetrachloroethene	14.11	164	681988	9.36	ug/l	100
64)	Dibromochloromethane	14.46	129	518695	9.65	ug/l	100
65)	1,2-Dibromoethane	14.79	107	409112	9.72	ug/l	100
66)	1-Chlorohexane	15.13	91	1383571	9.52	ug/l	100
67)	Chlorobenzene	15.51	112	1958231	9.54	ug/l	100
68)	1,1,1,2-Tetrachloroethane	15.61	131	604596	9.43	ug/l	100
69)	Ethylbenzene	15.63	91	3892605	9.58	ug/l	100
70)	m-Xylene & p-Xylene	15.76	91	5774124	19.40	ug/l	100
71)	o-Xylene	16.47	91	2691866	9.56	ug/l	100
72)	Styrene	16.55	104	2121322	9.68	ug/l	100
73)	Isopropylbenzene	17.09	105	3530704	9.65	ug/l	100
75)	Bromoform	17.09	173	269549	9.75	ug/l	100
76)	1,1,2,2-Tetrachloroethane	17.38	83	433400	9.65	ug/l	100
78)	1,2,3-Trichloropropane	17.58	110	106461	9.74	ug/l	100

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

SU 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC459.D Vial: 7
Acq On : 30 Oct 2020 1:41 pm Operator: VLu
Sample : VO67J306 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) trans-1,4-Dichloro-2-buten	17.19	53	106382	9.56 ug/l	100
80) n-Propylbenzene	17.69	91	4566315	9.58 ug/l	100
81) Bromobenzene	17.74	156	631455	9.37 ug/l	100
82) 1,3,5-Trimethylbenzene	17.91	105	2689741	9.49 ug/l	100
83) 2-Chlorotoluene	17.92	91	2890950	9.89 ug/l	100
84) 4-Chlorotoluene	17.99	91	2162562	8.81 ug/l	100
85) tert-Butylbenzene	18.37	134	587277	9.43 ug/l	100
86) 1,2,4-Trimethylbenzene	18.40	105	2528257	9.51 ug/l	100
87) sec-Butylbenzene	18.62	105	3824943	9.54 ug/l	100
88) p-Isopropyltoluene	18.78	119	2937300	9.67 ug/l	100
89) 1,3-Dichlorobenzene	18.88	146	1295344	9.38 ug/l	100
90) 1,4-Dichlorobenzene	19.00	146	1276141	9.43 ug/l	100
91) n-Butylbenzene	19.23	91	3065647	9.82 ug/l	100
92) 1,2-Dichlorobenzene	19.41	146	1043939	9.46 ug/l	100
93) 1,2-Dibromo-3-chloropropan	20.18	157	48889	10.25 ug/l	100
94) 1,2,4-Trichlorobenzene	21.02	180	501862	9.62 ug/l	100
95) Hexachlorobutadiene	21.15	225	411131	9.57 ug/l	100
96) Naphthalene	21.29	128	624796	10.04 ug/l	100
97) 1,2,3-Trichlorobenzene	21.54	180	349857	9.86 ug/l	100

SA
11/4/20

(#) = qualifier out of range (m) = manual integration
RJC459.D VO67J30.M Mon Nov 02 18:55:34 2020 Page 3

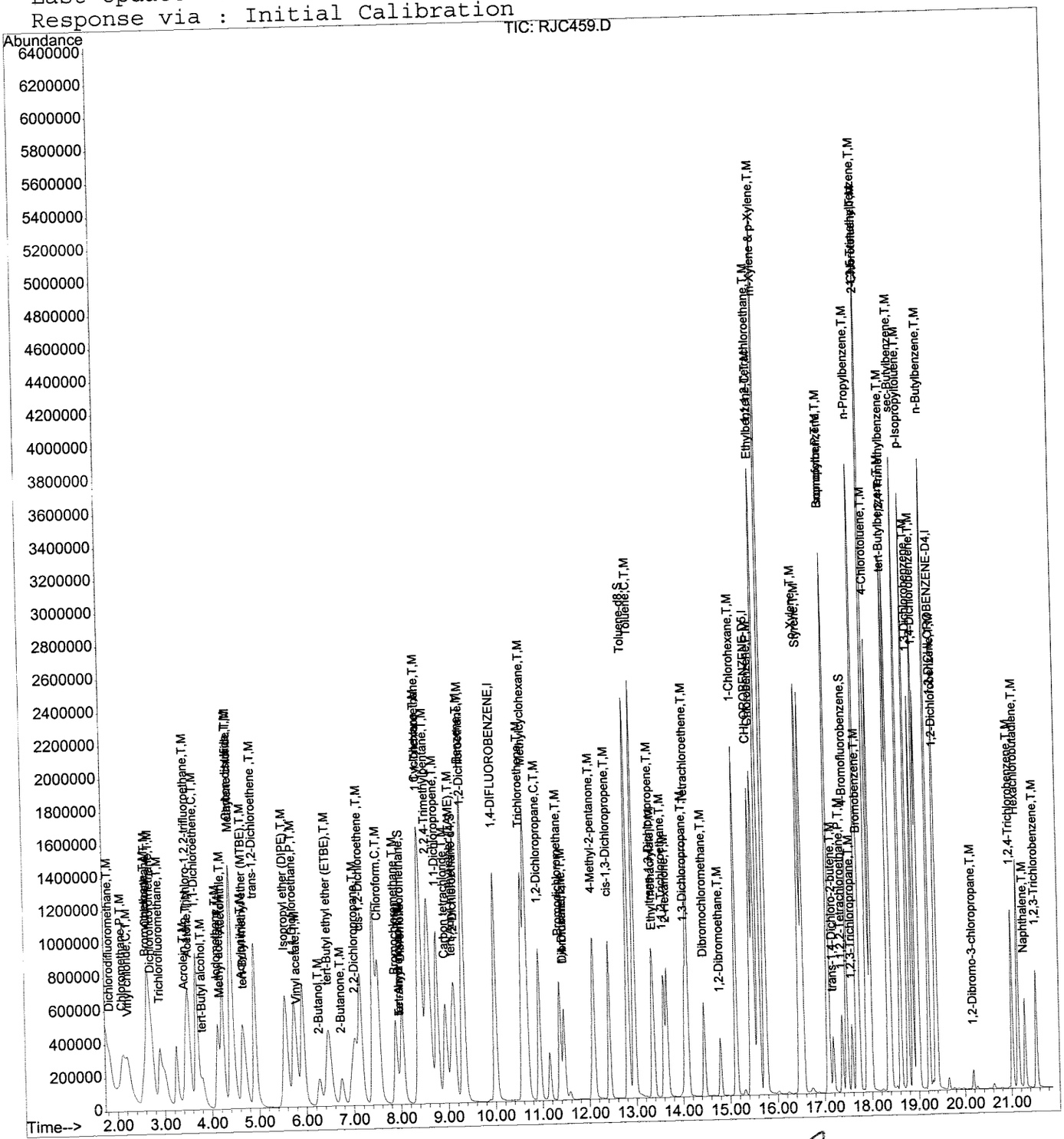
Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC459.D
Acq On : 30 Oct 2020 1:41 pm
Sample : VO67J306
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020

Vial: 7
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



SU 11/4/20

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC461.D Vial: 9
Acq On : 30 Oct 2020 2:07 pm Operator: VLu
Sample : VO67J307 Inst : 67
Misc : 20ppb 8260/100ppb KET-AA/500ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2393433	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1789811	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	600078	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	1620905	20.74	ug/l	0.01
Spiked Amount 10.000			Recovery =	207.40%		
43) 1,2-Dichloroethane-d4	9.14	65	1022657	20.45	ug/l	0.00
Spiked Amount 10.000			Recovery =	204.50%		
56) Toluene-d8	12.82	98	5764380	21.10	ug/l	0.00
Spiked Amount 10.000			Recovery =	211.00%		
77) 4-Bromofluorobenzene	17.48	95	1611039	19.75	ug/l	0.01
Spiked Amount 10.000			Recovery =	197.50%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	1685434	20.38	ug/l	99
4) Chloromethane	2.11	50	2457473	19.39	ug/l	100
5) Vinyl chloride	2.23	62	2523227	21.13	ug/l	100
6) Bromomethane	2.62	94	2197105	21.15	ug/l	100
7) Chloroethane	2.64	64	1797094	20.53	ug/l	100
8) Dichlorofluoromethane	2.70	67	3787360	20.43	ug/l	99
9) Trichlorofluoromethane	2.91	101	2583423	20.92	ug/l	100
11) Acrolein	3.44	56	513613	99.13	ug/l	100
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	1360073	20.71	ug/l	100
13) Acetone	3.52	43	706811	95.76	ug/l	100
14) 1,1-Dichloroethene	3.68	61	3160070	21.28	ug/l	99
15) tert-Butyl alcohol	3.80	59	1296061	506.73	ug/l	99
16) Methyl acetate	4.19	43	467481	19.19	ug/l	97
17) Iodomethane	4.13	142	2655813	19.86	ug/l	98
18) Acetonitrile	4.24	41	2399227	202.64	ug/l	99
19) Methylene chloride	4.43	49	2045841	19.52	ug/l	99
20) Carbon disulfide	4.40	76	7493978	20.64	ug/l	100
21) Acrylonitrile	4.64	53	1135559	104.11	ug/l	99
22) tert-Butyl methyl ether (M	4.69	73	2450048	20.45	ug/l	99
23) trans-1,2-Dichloroethene	4.91	96	2190210	20.69	ug/l	99
24) Isopropyl ether (DIPE)	5.56	45	4518468	20.08	ug/l	100
25) 1,1-Dichloroethane	5.75	63	3354263	20.51	ug/l	100
26) Vinyl acetate	5.80	43	1661049	20.36	ug/l	99
27) 2-Butanol	6.28	45	1141724	505.37	ug/l	98
28) tert-Butyl ethyl ether (ET	6.47	59	3509621	20.21	ug/l	99
29) 2-Butanone	6.75	72	327462	105.94	ug/l	96
30) 2,2-Dichloropropane	7.04	77	2281819	20.33	ug/l	99

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

Su 11/4/20

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC461.D Vial: 9
Acq On : 30 Oct 2020 2:07 pm Operator: VLu
Sample : VO67J307 Inst : 67
Misc : 20ppb 8260/100ppb KET-AA/500ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31) cis-1,2-Dichloroethene	7.14	96	2132109	20.66 ug/l	99
32) Chloroform	7.54	83	3134822	20.52 ug/l	100
33) Bromochloromethane	7.90	130	943465	20.84 ug/l	100
34) tert-Amyl alcohol	7.99	59	210199	98.92 ug/l	99
36) Tetrahydrofuran	7.99	42	155721	20.01 ug/l	97
37) 1,1,1-Trichloroethane	8.43	97	2544961	20.45 ug/l	99
38) Cyclohexane	8.41	84	3090170	21.39 ug/l	100
39) 2,2,4-Trimethylpentane	8.59	57	8431974	20.26 ug/l	100
40) 1,1-Dichloropropene	8.78	110	994671	20.85 ug/l	99
41) Carbon tetrachloride	8.95	119	2120451	20.76 ug/l	99
42) tert-Amyl methyl ether (TA	9.10	87	627665	20.65 ug/l	100
44) 1,2-Dichloroethane	9.35	62	1266564	20.50 ug/l	100
45) Benzene	9.32	78	7286706	20.80 ug/l	99
46) Trichloroethene	10.59	130	1886335	20.33 ug/l	100
47) Methylcyclohexane	10.66	83	3402751	20.85 ug/l	100
48) 1,2-Dichloropropane	10.94	63	1577966	20.50 ug/l	100
49) Bromodichloromethane	11.38	83	1914196	20.68 ug/l	100
50) 1,4-Dioxane	11.46	88	118248	420.88 ug/l	98
51) Dibromomethane	11.46	93	747657	20.89 ug/l	100
53) 4-Methyl-2-pentanone	12.09	43	2955733	103.77 ug/l	99
54) cis-1,3-Dichloropropene	12.43	75	2328630	20.73 ug/l	100
57) Toluene	12.97	91	7315921	20.76 ug/l	100
58) Ethyl methacrylate	13.38	69	1061044	20.77 ug/l	99
59) trans-1,3-Dichloropropene	13.35	75	1700269	20.90 ug/l	99
60) 1,1,2-Trichloroethane	13.60	97	880384	20.49 ug/l	99
61) 2-Hexanone	13.67	43	1810946	102.12 ug/l	99
62) 1,3-Dichloropropane	14.05	76	1609986	20.55 ug/l	99
63) Tetrachloroethene	14.11	164	1438363	20.46 ug/l	99
64) Dibromochloromethane	14.46	129	1077258	20.77 ug/l	100
65) 1,2-Dibromoethane	14.79	107	837014	20.60 ug/l	100
66) 1-Chlorohexane	15.13	91	2900802	20.69 ug/l	100
67) Chlorobenzene	15.52	112	4111601	20.75 ug/l	100
68) 1,1,1,2-Tetrachloroethane	15.61	131	1272414	20.57 ug/l	100
69) Ethylbenzene	15.63	91	8281616	21.12 ug/l	100
70) m-Xylene & p-Xylene	15.76	91	12489339	43.48 ug/l	99
71) o-Xylene	16.49	91	5677055	20.90 ug/l	99
72) Styrene	16.55	104	4343860	20.54 ug/l	98
73) Isopropylbenzene	17.09	105	7507004	21.26 ug/l	100
75) Bromoform	17.09	173	573810	21.20 ug/l	100
76) 1,1,2,2-Tetrachloroethane	17.38	83	886296	20.14 ug/l	100
78) 1,2,3-Trichloropropane	17.58	110	216866	20.26 ug/l	100

(#) = qualifier out of range (m) = manual integration
RJC461.D VO67J30.M Mon Nov 02 18:55:43 2020 Page 2

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Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC461.D Vial: 9
Acq On : 30 Oct 2020 2:07 pm Operator: VLu
Sample : VO67J307 Inst : 67
Misc : 20ppb 8260/100ppb KET-AA/500ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.19	53	223469	20.51 ug/l	99
80)	n-Propylbenzene	17.69	91	9830146	21.06 ug/l	99
81)	Bromobenzene	17.74	156	1335055	20.22 ug/l	100
82)	1,3,5-Trimethylbenzene	17.91	105	5761496	20.75 ug/l	99
83)	2-Chlorotoluene	17.92	91	6160728	21.51 ug/l	100
84)	4-Chlorotoluene	17.99	91	4678888	19.47 ug/l	100
85)	tert-Butylbenzene	18.37	134	1233022	20.22 ug/l	98
86)	1,2,4-Trimethylbenzene	18.42	105	5332944	20.48 ug/l	100
87)	sec-Butylbenzene	18.62	105	8188325	20.86 ug/l	99
88)	p-Isopropyltoluene	18.78	119	6239859	20.98 ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	2772788	20.49 ug/l	99
90)	1,4-Dichlorobenzene	19.02	146	2713415	20.48 ug/l	99
91)	n-Butylbenzene	19.23	91	6495798	21.24 ug/l	99
92)	1,2-Dichlorobenzene	19.41	146	2176476	20.14 ug/l	98
93)	1,2-Dibromo-3-chloropropan	20.18	157	100290	21.48 ug/l	99
94)	1,2,4-Trichlorobenzene	21.02	180	1035588	20.27 ug/l	100
95)	Hexachlorobutadiene	21.15	225	842820	20.03 ug/l	99
96)	Naphthalene	21.29	128	1246400	20.45 ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	703280	20.24 ug/l	99

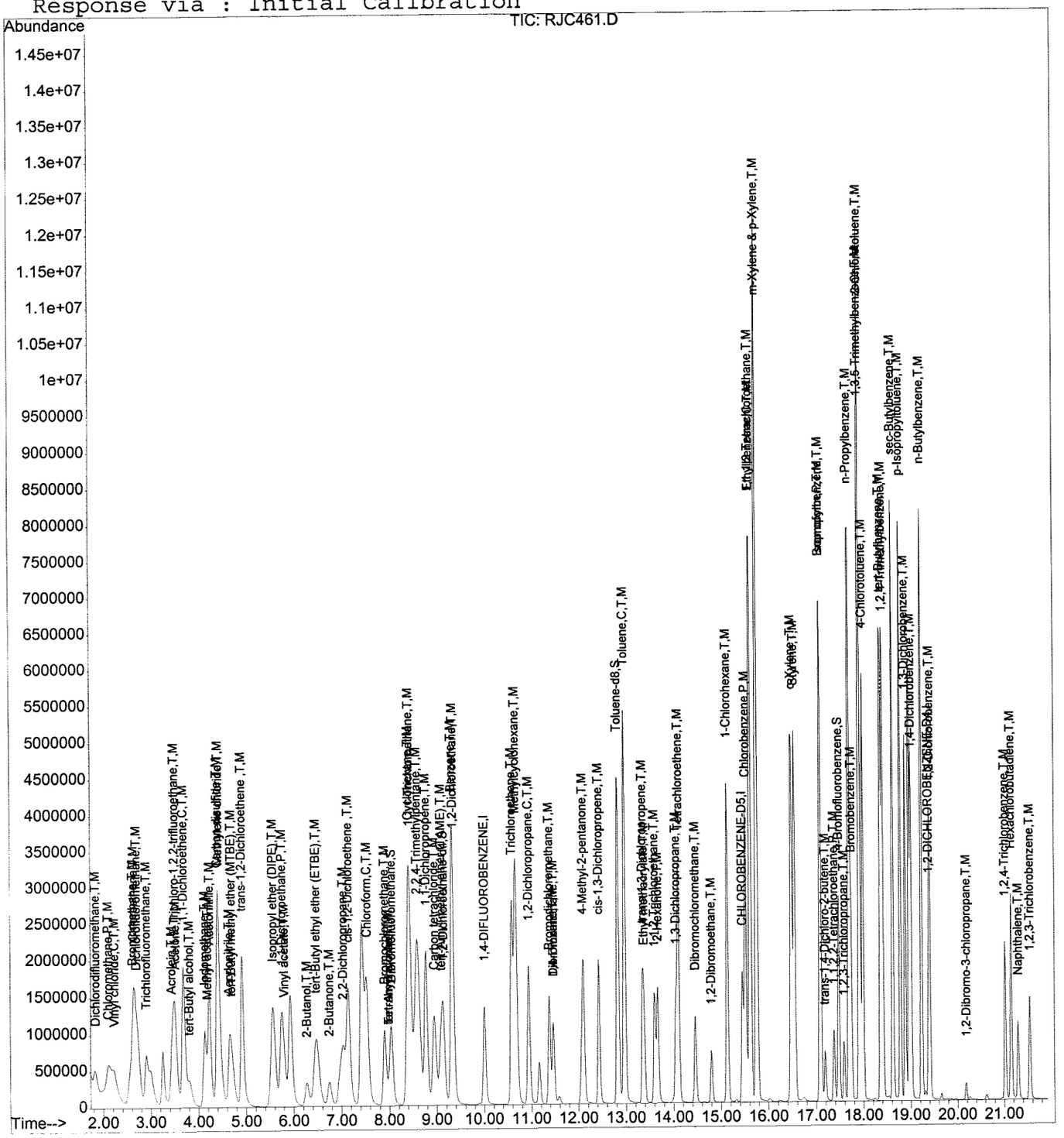
Sa 11/4/20

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC461.D Vial: 9
Acq On : 30 Oct 2020 2:07 pm Operator: VLu
Sample : VO67J307 Inst : 67
Misc : 20ppb 8260/100ppb KET-AA/500ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



SG 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC462.D Vial: 10
Acq On : 30 Oct 2020 2:33 pm Operator: VLu
Sample : VO67J308 Inst : 67
Misc : 30ppb 8260/150ppb KET-AA/750ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2430537	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1826539	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	621291	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	2564147	32.31	ug/l	0.01
Spiked Amount 10.000			Recovery = 323.10%			
43) 1,2-Dichloroethane-d4	9.14	65	1618650	31.88	ug/l	0.00
Spiked Amount 10.000			Recovery = 318.80%			
56) Toluene-d8	12.84	98	9233072	33.11	ug/l	0.01
Spiked Amount 10.000			Recovery = 331.10%			
77) 4-Bromofluorobenzene	17.48	95	2580726	30.56	ug/l	0.01
Spiked Amount 10.000			Recovery = 305.60%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	2473734	29.45	ug/l	99
4) Chloromethane	2.11	50	3453384	26.83	ug/l	99
5) Vinyl chloride	2.21	62	3481437	28.71	ug/l	99
6) Bromomethane	2.62	94	3240622	30.72	ug/l	99
7) Chloroethane	2.64	64	2636462	29.66	ug/l	100
8) Dichlorofluoromethane	2.70	67	5780313	30.71	ug/l	99
9) Trichlorofluoromethane	2.91	101	3714380	29.61	ug/l	99
11) Acrolein	3.44	56	796579	151.39	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	2094299	31.40	ug/l	100
13) Acetone	3.52	43	1106024	147.55	ug/l	100
14) 1,1-Dichloroethene	3.68	61	4872158	32.31	ug/l	99
15) tert-Butyl alcohol	3.80	59	2084424	802.52	ug/l	100
16) Methyl acetate	4.19	43	728607	29.45	ug/l	97
17) Iodomethane	4.13	142	4160706	30.64	ug/l	98
18) Acetonitrile	4.23	41	3740158	311.08	ug/l	99
19) Methylene chloride	4.42	49	3161116	29.71	ug/l	99
20) Carbon disulfide	4.39	76	11340770	30.76	ug/l	100
21) Acrylonitrile	4.64	53	1802684	162.75	ug/l	100
22) tert-Butyl methyl ether (M	4.69	73	3855083	31.68	ug/l	100
23) trans-1,2-Dichloroethene	4.91	96	3382785	31.46	ug/l	100
24) Isopropyl ether (DIPE)	5.56	45	7025974	30.74	ug/l	98
25) 1,1-Dichloroethane	5.75	63	5147230	30.99	ug/l	100
26) Vinyl acetate	5.80	43	2573747	31.06	ug/l	99
27) 2-Butanol	6.28	45	1795946	782.82	ug/l	99
28) tert-Butyl ethyl ether (ET	6.48	59	5450180	30.91	ug/l	100
29) 2-Butanone	6.75	72	515771	164.31	ug/l	92
30) 2,2-Dichloropropane	7.04	77	3320547	29.13	ug/l	99

(#) = qualifier out of range (m) = manual integration
RJC462.D VO67J30.M Mon Nov 02 18:57:56 2020 Page 1

SU 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC462.D
Acq On : 30 Oct 2020 2:33 pm
Sample : VO67J308
Misc : 30ppb 8260/150ppb KET-AA/750ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020

Vial: 10
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31) cis-1,2-Dichloroethene	7.16	96	3310183	31.58 ug/l	99
32) Chloroform	7.54	83	4831648	31.14 ug/l	100
33) Bromochloromethane	7.90	130	1470481	31.98 ug/l	100
34) tert-Amyl alcohol	7.99	59	345018	159.88 ug/l	100
36) Tetrahydrofuran	7.99	42	242935	30.74 ug/l	95
37) 1,1,1-Trichloroethane	8.43	97	3929756	31.10 ug/l	100
38) Cyclohexane	8.41	84	4691286	31.98 ug/l	100
39) 2,2,4-Trimethylpentane	8.60	57	12831005	30.36 ug/l	100
40) 1,1-Dichloropropene	8.78	110	1534886	31.68 ug/l	99
41) Carbon tetrachloride	8.95	119	3245543	31.28 ug/l	99
42) tert-Amyl methyl ether (TA	9.10	87	977681	31.67 ug/l	100
44) 1,2-Dichloroethane	9.35	62	1959636	31.23 ug/l	99
45) Benzene	9.33	78	11352428	31.90 ug/l	99
46) Trichloroethene	10.59	130	2968051	31.50 ug/l	99
47) Methylcyclohexane	10.66	83	5225730	31.54 ug/l	99
48) 1,2-Dichloropropane	10.94	63	2459178	31.46 ug/l	99
49) Bromodichloromethane	11.38	83	2974836	31.64 ug/l	100
50) 1,4-Dioxane	11.46	88	177875	623.45 ug/l	98
51) Dibromomethane	11.46	93	1149675	31.63 ug/l	98
53) 4-Methyl-2-pentanone	12.11	43	4731524	163.58 ug/l	100
54) cis-1,3-Dichloropropene	12.43	75	3630151	31.82 ug/l	100
57) Toluene	12.97	91	11443878	31.81 ug/l	100
58) Ethyl methacrylate	13.39	69	1699608	32.61 ug/l	99
59) trans-1,3-Dichloropropene	13.35	75	2681106	32.29 ug/l	99
60) 1,1,2-Trichloroethane	13.61	97	1384595	31.57 ug/l	99
61) 2-Hexanone	13.67	43	2911471	160.88 ug/l	99
62) 1,3-Dichloropropane	14.05	76	2546423	31.85 ug/l	100
63) Tetrachloroethene	14.11	164	2252823	31.40 ug/l	99
64) Dibromochloromethane	14.46	129	1695922	32.04 ug/l	100
65) 1,2-Dibromoethane	14.79	107	1329340	32.06 ug/l	99
66) 1-Chlorohexane	15.14	91	4509681	31.52 ug/l	100
67) Chlorobenzene	15.52	112	6439375	31.84 ug/l	99
68) 1,1,1,2-Tetrachloroethane	15.61	131	2018646	31.97 ug/l	98
69) Ethylbenzene	15.63	91	13088003	32.71 ug/l	99
70) m-Xylene & p-Xylene	15.76	91	19017849	64.87 ug/l	98
71) o-Xylene	16.49	91	8881127	32.03 ug/l	99
72) Styrene	16.55	104	6814548	31.57 ug/l	98
73) Isopropylbenzene	17.09	105	11911780	33.06 ug/l	99
75) Bromoform	17.10	173	926534	33.06 ug/l	99
76) 1,1,2,2-Tetrachloroethane	17.38	83	1396071	30.65 ug/l	99
78) 1,2,3-Trichloropropane	17.60	110	346379	31.26 ug/l	99

(#) = qualifier out of range (m) = manual integration
RJC462.D VO67J30.M Mon Nov 02 18:57:57 2020

SU 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC462.D
Acq On : 30 Oct 2020 2:33 pm
Sample : VO67J308
Misc : 30ppb 8260/150ppb KET-AA/750ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020

Vial: 10
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.19	53	348107	30.85	ug/l	98
80)	n-Propylbenzene	17.70	91	15183018	31.42	ug/l	100
81)	Bromobenzene	17.74	156	2112787	30.90	ug/l	100
82)	1,3,5-Trimethylbenzene	17.92	105	9239857	32.14	ug/l	100
83)	2-Chlorotoluene	17.92	91	9629153	32.48	ug/l	99
84)	4-Chlorotoluene	17.99	91	7481359	30.07	ug/l	100
85)	tert-Butylbenzene	18.37	134	1928183	30.54	ug/l	96
86)	1,2,4-Trimethylbenzene	18.42	105	8341401	30.93	ug/l	100
87)	sec-Butylbenzene	18.62	105	12729349	31.32	ug/l	99
88)	p-Isopropyltoluene	18.78	119	9832273	31.94	ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	4358265	31.11	ug/l	99
90)	1,4-Dichlorobenzene	19.01	146	4330460	31.57	ug/l	99
91)	n-Butylbenzene	19.23	91	10067039	31.80	ug/l	100
92)	1,2-Dichlorobenzene	19.41	146	3426704	30.62	ug/l	98
93)	1,2-Dibromo-3-chloropropan	20.18	157	160470	33.19	ug/l	99
94)	1,2,4-Trichlorobenzene	21.03	180	1619511	30.62	ug/l	100
95)	Hexachlorobutadiene	21.15	225	1293959	29.71	ug/l	99
96)	Naphthalene	21.29	128	1987525	31.50	ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	1107056	30.78	ug/l	100

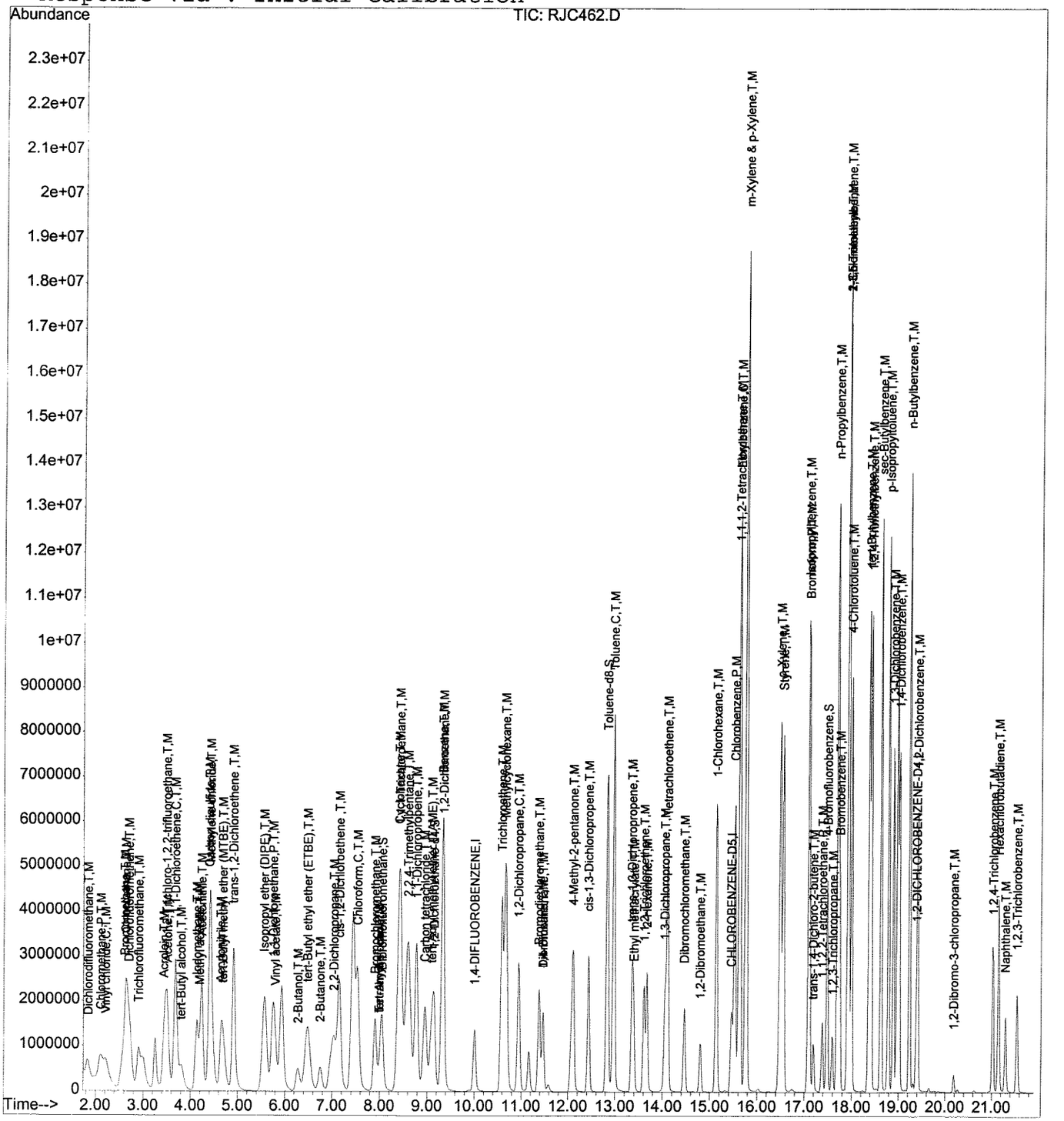
5-6-11/1/20

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC462.D Vial: 10
Acq On : 30 Oct 2020 2:33 pm Operator: VLu
Sample : VO67J308 Inst : 67
Misc : 30ppb 8260/150ppb KET-AA/750ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC462.D VO67J30.M Mon Nov 02 18:58:00 2020 Page 4

11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC463.D
Acq On : 30 Oct 2020 2:59 pm
Sample : VO67J309
Misc : 50ppb 8260/250ppb KET-AA/1250ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:48 2020

Vial: 11
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2521775	10.00 ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1898899	10.00 ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	630417	10.00 ug/l	0.00
System Monitoring Compounds					
35) Dibromofluoromethane	8.05	111	4187506	50.85 ug/l	0.01
Spiked Amount 10.000			Recovery =	508.50%	
43) 1,2-Dichloroethane-d4	9.14	65	2624947	49.83 ug/l	0.00
Spiked Amount 10.000			Recovery =	498.30%	
56) Toluene-d8	12.84	98	15459405	53.33 ug/l	0.01
Spiked Amount 10.000			Recovery =	533.30%	
77) 4-Bromofluorobenzene	17.48	95	4225272	49.31 ug/l	0.01
Spiked Amount 10.000			Recovery =	493.10%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.84	85	4313577	49.50 ug/l	99
4) Chloromethane	2.11	50	5574563	41.75 ug/l	99
5) Vinyl chloride	2.23	62	5412407	43.02 ug/l	100
6) Bromomethane	2.62	94	5445155	49.76 ug/l	99
7) Chloroethane	2.64	64	4455704	48.31 ug/l	100
8) Dichlorofluoromethane	2.72	67	9682216	49.57 ug/l	99
9) Trichlorofluoromethane	2.90	101	6235516	47.91 ug/l	100
11) Acrolein	3.44	56	1270643	232.75 ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	3500474	50.58 ug/l	100
13) Acetone	3.52	43	1804591	232.04 ug/l	100
14) 1,1-Dichloroethene	3.68	61	8195599	52.39 ug/l	98
15) tert-Butyl alcohol	3.82	59	3463416	1285.19 ug/l	99
16) Methyl acetate	4.19	43	1246481	48.56 ug/l	98
17) Iodomethane	4.13	142	6996865	49.66 ug/l	97
18) Acetonitrile	4.24	41	6279459	503.38 ug/l	99
19) Methylene chloride	4.42	49	5319649	48.18 ug/l	99
20) Carbon disulfide	4.40	76	19767416	51.67 ug/l	100
21) Acrylonitrile	4.66	53	2991128	260.27 ug/l	99
22) tert-Butyl methyl ether (M	4.70	73	6451780	51.10 ug/l	99
23) trans-1,2-Dichloroethene	4.92	96	5696216	51.06 ug/l	100
24) Isopropyl ether (DIPE)	5.56	45	11895297	50.16 ug/l	98
25) 1,1-Dichloroethane	5.75	63	8714950	50.58 ug/l	99
26) Vinyl acetate	5.81	43	4244236	49.37 ug/l	99
27) 2-Butanol	6.28	45	2974285	1249.53 ug/l	100
28) tert-Butyl ethyl ether (ET	6.48	59	9184788	50.20 ug/l	100
29) 2-Butanone	6.76	72	852741	261.83 ug/l	97
30) 2,2-Dichloropropane	7.04	77	5462358	46.18 ug/l	98

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

SU 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC463.D Vial: 11
Acq On : 30 Oct 2020 2:59 pm Operator: VLu
Sample : VO67J309 Inst : 67
Misc : 50ppb 8260/250ppb KET-AA/1250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:48 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	cis-1,2-Dichloroethene	7.16	96	5579090	51.31 ug/l	100
32)	Chloroform	7.54	83	8125611	50.48 ug/l	99
33)	Bromochloromethane	7.90	130	2472891	51.84 ug/l	99
34)	tert-Amyl alcohol	8.00	59	562903	251.41 ug/l	100
36)	Tetrahydrofuran	7.99	42	403831	49.25 ug/l	95
37)	1,1,1-Trichloroethane	8.44	97	6593697	50.30 ug/l	99
38)	Cyclohexane	8.43	84	7998845	52.55 ug/l	100
39)	2,2,4-Trimethylpentane	8.60	57	21912115	49.97 ug/l	100
40)	1,1-Dichloropropene	8.78	110	2600461	51.73 ug/l	99
41)	Carbon tetrachloride	8.95	119	5454932	50.68 ug/l	99
42)	tert-Amyl methyl ether (TA	9.11	87	1615243	50.43 ug/l	99
44)	1,2-Dichloroethane	9.35	62	3262222	50.12 ug/l	100
45)	Benzene	9.33	78	19445686	52.67 ug/l	99
46)	Trichloroethene	10.59	130	5062088	51.78 ug/l	99
47)	Methylcyclohexane	10.68	83	9051510	52.65 ug/l	99
48)	1,2-Dichloropropane	10.94	63	4173560	51.46 ug/l	99
49)	Bromodichloromethane	11.38	83	5008264	51.34 ug/l	100
50)	1,4-Dioxane	11.46	88	296126	1000.37 ug/l	98
51)	Dibromomethane	11.46	93	1928444	51.14 ug/l	98
53)	4-Methyl-2-pentanone	12.11	43	7880495	262.59 ug/l	99
54)	cis-1,3-Dichloropropene	12.43	75	6193103	52.33 ug/l	99
57)	Toluene	12.97	91	19750587	52.81 ug/l	100
58)	Ethyl methacrylate	13.39	69	2855973	52.70 ug/l	98
59)	trans-1,3-Dichloropropene	13.35	75	4545432	52.66 ug/l	97
60)	1,1,2-Trichloroethane	13.61	97	2329066	51.08 ug/l	99
61)	2-Hexanone	13.67	43	4826970	256.57 ug/l	99
62)	1,3-Dichloropropane	14.05	76	4315162	51.92 ug/l	99
63)	Tetrachloroethene	14.11	164	3918313	52.54 ug/l	99
64)	Dibromochloromethane	14.46	129	2838840	51.59 ug/l	100
65)	1,2-Dibromoethane	14.79	107	2218739	51.48 ug/l	99
66)	1-Chlorohexane	15.15	91	7787171	52.35 ug/l	99
67)	Chlorobenzene	15.52	112	11170981	53.13 ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.61	131	3535896	53.87 ug/l	98
69)	Ethylbenzene	15.63	91	21065862	50.64 ug/l	95
70)	m-Xylene & p-Xylene	15.76	91	24432286	80.17 ug/l	70
71)	o-Xylene	16.49	91	15328222	53.18 ug/l	99
72)	Styrene	16.55	104	11774638	52.47 ug/l	98
73)	Isopropylbenzene	17.10	105	19210223	51.29 ug/l	98
75)	Bromoform	17.10	173	1606542	56.49 ug/l	99
76)	1,1,2,2-Tetrachloroethane	17.38	83	2294559	49.64 ug/l	99
78)	1,2,3-Trichloropropane	17.60	110	562008	49.98 ug/l	100

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

SA
11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC463.D
Acq On : 30 Oct 2020 2:59 pm
Sample : VO67J309
Misc : 50ppb 8260/250ppb KET-AA/1250ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:48 2020

Vial: 11
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) trans-1,4-Dichloro-2-buten	17.19	53	579007	50.58 ug/l	99
80) n-Propylbenzene	17.70	91	20135889	41.07 ug/l	89
81) Bromobenzene	17.74	156	3627207	52.29 ug/l	100
82) 1,3,5-Trimethylbenzene	17.92	105	15145942	51.92 ug/l	95
83) 2-Chlorotoluene	17.93	91	16392046	54.48 ug/l	100
84) 4-Chlorotoluene	17.99	91	12924116	51.20 ug/l	100
85) tert-Butylbenzene	18.37	134	3352098	52.33 ug/l	93
86) 1,2,4-Trimethylbenzene	18.42	105	13903010	50.81 ug/l	96
87) sec-Butylbenzene	18.62	105	17504184	42.44 ug/l	91
88) p-Isopropyltoluene	18.78	119	15049129	48.17 ug/l	96
89) 1,3-Dichlorobenzene	18.88	146	7499414	52.76 ug/l	98
90) 1,4-Dichlorobenzene	19.02	146	7420647	53.32 ug/l	98
91) n-Butylbenzene	19.23	91	14627067	45.53 ug/l	89
92) 1,2-Dichlorobenzene	19.41	146	5801565	51.10 ug/l	98
93) 1,2-Dibromo-3-chloropropan	20.18	157	255921	52.17 ug/l	99
94) 1,2,4-Trichlorobenzene	21.03	180	2702023	50.35 ug/l	99
95) Hexachlorobutadiene	21.15	225	2160287	48.88 ug/l	99
96) Naphthalene	21.29	128	3190264	49.84 ug/l	99
97) 1,2,3-Trichlorobenzene	21.54	180	1822412	49.93 ug/l	100

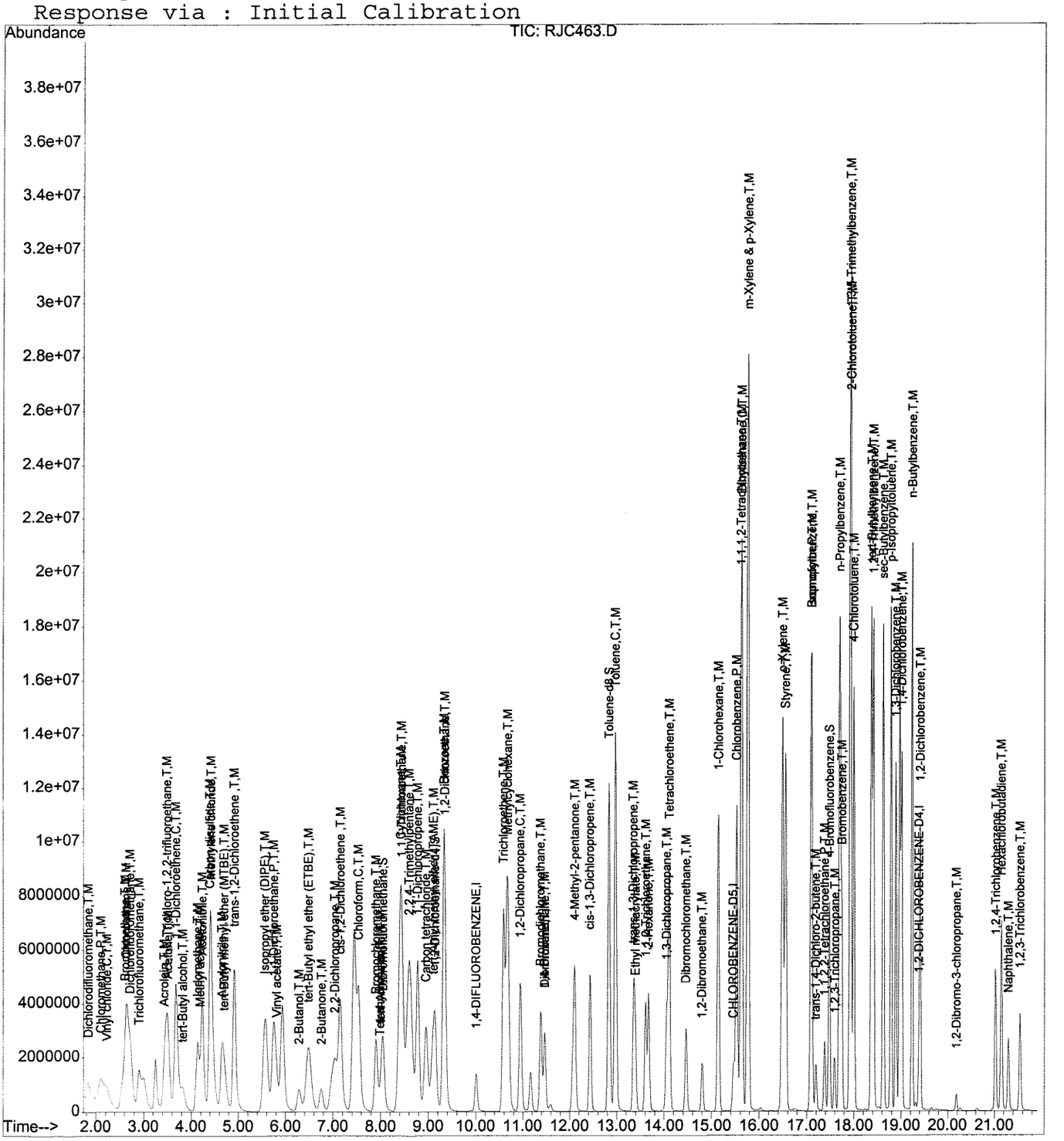
SA 11/4/20

(#) = qualifier out of range (m) = manual integration
RJC463.D VO67J30.M Mon Nov 02 18:58:16 2020

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC463.D Vial: 11
Acq On : 30 Oct 2020 2:59 pm Operator: VLu
Sample : VO67J309 Inst : 67
Misc : 50ppb 8260/250ppb KET-AA/1250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:48 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC463.D VO67J30.M Mon Nov 02 18:58:18 2020 Page 4

SA 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC464.D
Acq On : 30 Oct 2020 3:24 pm
Sample : VO67J3010
Misc : 100ppb 8260/500ppb KET-AA/2500ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 17:58 2020

Vial: 12
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2527431	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.47	117	1874376	10.00	ug/l	0.01
74) 1,2-DICHLOROBENZENE-D4	19.38	152	593895	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	8793189	106.54	ug/l	0.01
Spiked Amount 10.000			Recovery	= 1065.40%		
43) 1,2-Dichloroethane-d4	9.16	65	5484038	103.87	ug/l	0.01
Spiked Amount 10.000			Recovery	= 1038.70%		
56) Toluene-d8	12.84	98	26722977	93.40	ug/l	0.01
Spiked Amount 10.000			Recovery	= 934.00%		
77) 4-Bromofluorobenzene	17.48	95	8939992	110.75	ug/l	0.01
Spiked Amount 10.000			Recovery	= 1107.50%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.85	85	8928459	102.23	ug/l	100
4) Chloromethane	2.09	50	10479034	78.31	ug/l	98
5) Vinyl chloride	2.21	62	8413047	66.72	ug/l	80
6) Bromomethane	2.60	94	11061015	100.85	ug/l	99
7) Chloroethane	2.62	64	8968531	97.03	ug/l	98
8) Dichlorofluoromethane	2.71	67	19216996	98.17	ug/l	98
9) Trichlorofluoromethane	2.89	101	13039952	99.98	ug/l	100
11) Acrolein	3.44	56	2579765	471.50	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.48	151	7037620	101.47	ug/l	100
13) Acetone	3.52	43	3614105	463.67	ug/l	99
14) 1,1-Dichloroethene	3.69	61	16558803	105.61	ug/l	98
15) tert-Butyl alcohol	3.83	59	6844914	2534.31	ug/l	99
16) Methyl acetate	4.19	43	2558540	99.45	ug/l	98
17) Iodomethane	4.13	142	14904346	105.55	ug/l	96
18) Acetonitrile	4.23	41	12982142	1038.35	ug/l	100
19) Methylene chloride	4.42	49	10966835	99.11	ug/l	99
20) Carbon disulfide	4.39	76	40069011	104.50	ug/l	100
21) Acrylonitrile	4.66	53	6230045	540.90	ug/l	100
22) tert-Butyl methyl ether (M	4.70	73	13013992	102.84	ug/l	99
23) trans-1,2-Dichloroethene	4.91	96	11823460	105.76	ug/l	100
24) Isopropyl ether (DIPE)	5.58	45	24270340	102.12	ug/l	98
25) 1,1-Dichloroethane	5.75	63	18052478	104.53	ug/l	99
26) Vinyl acetate	5.81	43	9282970	107.73	ug/l	100
27) 2-Butanol	6.29	45	6216303	2605.70	ug/l	100
28) tert-Butyl ethyl ether (ET	6.50	59	18470234	100.73	ug/l	99
29) 2-Butanone	6.76	72	1717374	526.14	ug/l	99
30) 2,2-Dichloropropane	7.05	77	10801623	91.12	ug/l	98

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

SK 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC464.D
Acq On : 30 Oct 2020 3:24 pm
Sample : VO67J3010
Misc : 100ppb 8260/500ppb KET-AA/2500ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 17:58 2020

Vial: 12
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31) cis-1,2-Dichloroethene	7.16	96	11494146	105.47 ug/l	100
32) Chloroform	7.55	83	16799688	104.13 ug/l	100
33) Bromochloromethane	7.90	130	5048679	105.60 ug/l	100
34) tert-Amyl alcohol	8.02	59	1143171	509.43 ug/l	100
36) Tetrahydrofuran	7.99	42	818717	99.63 ug/l	94
37) 1,1,1-Trichloroethane	8.44	97	13512651	102.84 ug/l	99
38) Cyclohexane	8.43	84	17109863	112.15 ug/l	100
39) 2,2,4-Trimethylpentane	8.62	57	45890383	104.42 ug/l	100
40) 1,1-Dichloropropene	8.78	110	5395162	107.07 ug/l	99
41) Carbon tetrachloride	8.95	119	11110791	102.99 ug/l	99
42) tert-Amyl methyl ether (TA	9.11	87	3256261	101.45 ug/l	98
44) 1,2-Dichloroethane	9.35	62	6723897	103.06 ug/l	100
45) Benzene	9.33	78	35391088	95.65 ug/l	95
46) Trichloroethene	10.59	130	10841424	110.64 ug/l	99
47) Methylcyclohexane	10.68	83	19592819	113.71 ug/l	98
48) 1,2-Dichloropropane	10.95	63	8725483	107.34 ug/l	97
49) Bromodichloromethane	11.39	83	10366886	106.04 ug/l	99
50) 1,4-Dioxane	11.48	88	612809	2065.55 ug/l	97
51) Dibromomethane	11.46	93	3976858	105.22 ug/l	97
53) 4-Methyl-2-pentanone	12.11	43	16489976	548.23 ug/l	99
54) cis-1,3-Dichloropropene	12.44	75	13044608	109.97 ug/l	98
57) Toluene	12.97	91	28921390	78.35 ug/l	75
58) Ethyl methacrylate	13.39	69	5909558	110.48 ug/l	96
59) trans-1,3-Dichloropropene	13.36	75	9408517	110.42 ug/l	95
60) 1,1,2-Trichloroethane	13.61	97	4805091	106.77 ug/l	99
61) 2-Hexanone	13.67	43	9787382	527.03 ug/l	97
62) 1,3-Dichloropropane	14.05	76	9055883	110.38 ug/l	99
63) Tetrachloroethene	14.11	164	8529691	115.87 ug/l	99
64) Dibromochloromethane	14.46	129	5863044	107.95 ug/l	100
65) 1,2-Dibromoethane	14.81	107	4515215	106.13 ug/l	99
66) 1-Chlorohexane	15.14	91	16411161	111.78 ug/l	99
67) Chlorobenzene	15.52	112	20926248	100.84 ug/l	94
68) 1,1,1,2-Tetrachloroethane	15.61	131	7405021	114.28 ug/l	98
69) Ethylbenzene	15.63	91	27565384	67.13 ug/l	57
71) o-Xylene	16.49	91	24453099	85.95 ug/l	79
72) Styrene	16.56	104	21998435	99.32 ug/l	91
73) Isopropylbenzene	17.10	105	25857553	69.94 ug/l	74
75) Bromoform	17.10	173	3334888	124.48 ug/l	99
76) 1,1,2,2-Tetrachloroethane	17.38	83	4513533	103.65 ug/l	100
78) 1,2,3-Trichloropropane	17.60	110	1075433	101.52 ug/l	99
79) trans-1,4-Dichloro-2-buten	17.20	53	1127545	104.55 ug/l	100

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

SU 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC464.D Vial: 12
Acq On : 30 Oct 2020 3:24 pm Operator: VLu
Sample : VO67J3010 Inst : 67
Misc : 100ppb 8260/500ppb KET-AA/2500ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 17:58 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
80)	n-Propylbenzene	17.69	91	24395613	52.82	ug/l	54
81)	Bromobenzene	17.74	156	7542578	115.41	ug/l	100
82)	1,3,5-Trimethylbenzene	17.92	105	20703081	75.34	ug/l	68
83)	2-Chlorotoluene	17.92	91	21550470	76.03	ug/l	71
84)	4-Chlorotoluene	17.99	91	18717433	78.71	ug/l	74
85)	tert-Butylbenzene	18.37	134	6874461	113.92	ug/l	100
86)	1,2,4-Trimethylbenzene	18.42	105	19656401	76.26	ug/l	65
87)	sec-Butylbenzene	18.62	105	22434424	57.74	ug/l	61
88)	p-Isopropyltoluene	18.78	119	19064669	64.78	ug/l	67
89)	1,3-Dichlorobenzene	18.90	146	14303443	106.81	ug/l	97
90)	1,4-Dichlorobenzene	19.01	146	13733780	104.75	ug/l	95
91)	n-Butylbenzene	19.23	91	19344129	63.92	ug/l	67
92)	1,2-Dichlorobenzene	19.41	146	11515039	107.66	ug/l	97
93)	1,2-Dibromo-3-chloropropan	20.18	157	479470	103.75	ug/l	100
94)	1,2,4-Trichlorobenzene	21.03	180	5091068	100.70	ug/l	100
95)	Hexachlorobutadiene	21.15	225	4115584	98.84	ug/l	99
96)	Naphthalene	21.29	128	5839670	96.83	ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	3386865	98.51	ug/l	99

SU 11/4/20

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

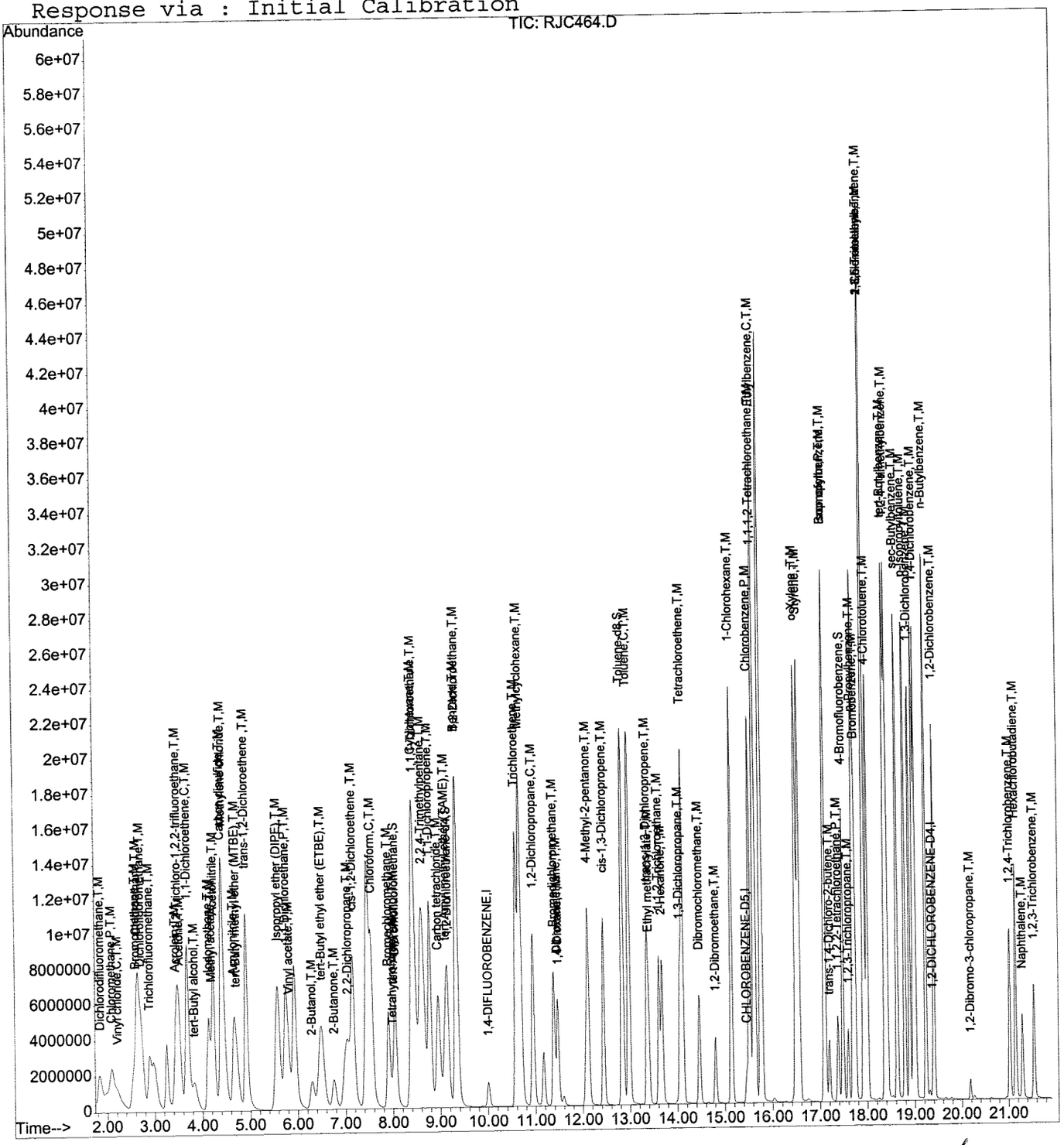
Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC464.D
Acq On : 30 Oct 2020 3:24 pm
Sample : VO67J3010
Misc : 100ppb 8260/500ppb KET-AA/2500ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 17:58 2020

Vial: 12
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC464.D VO67J30.M Mon Nov 02 18:59:07 2020 Page 4

SA 11/4/20

SECOND SOURCE VERIFICATION

CONTINUE_CALIBRATION - CALIBRATION VERIFICATION

Instrument ID :67
IC Beginning DateTime :10/30/20 11:33
Spike Amount :10 PPB
CC/CV File :RJC467
IC File :RJC459

Column Spec :RTX502.2 ID :0.25MM
IC Ending DateTime :10/30/20 15:24
HPChem Method :V067J30
Date_Time :10/30/20 16:41

M	IDX	Parameters	CC Con	CC% D	CC Resp	CCRRF	AVRRF	CC Rtm	AVRtm	% RSD	Co X0	Co X1	Co X2	Co Cor
	1	1,4-DIFLUOROBENZENE	10.000	0	2673175	1	1	10.005	10.003	0				
	2	Dichlorodifluoromethane	8.886	-11.1	820888	0.307	0.346	1.841	1.843	4.09				
	3	Dichlorotetrafluoroethane												
	4	Chloromethane	10.128	1.3	1433471	0.536	0.529	2.106	2.113	9.60				
	5	Vinyl chloride	10.643	6.4	1419504	0.531	0.499	2.229	2.226	10.49				
	6	Bromomethane	10.020	0.2	1162402	0.435	0.434	2.638	2.624	5.86				
	7	Chloroethane	11.002	10.0	1075560	0.402	0.366	2.638	2.640	4.63				
	8	Dichlorofluoromethane	10.183	1.8	2108128	0.789	0.774	2.720	2.713	4.22				
	9	Trichlorofluoromethane	11.423	14.2	1575813	0.589	0.516	2.904	2.904	4.10				
	10	sec-Propyl alcohol												
5	11	Acrolein	44.650	-10.7	258386	0.019	0.022	3.435	3.437	6.11				
	12	1,1,2-Trichloro-1,2,2-trifluoroethane	9.977	-0.2	731893	0.274	0.274	3.497	3.494	4.23				
5	13	Acetone	42.005	-16.0	346288	0.026	0.031	3.517	3.519	12.15				
	14	1,1-Dichloroethene	9.859	-1.4	1634976	0.612	0.620	3.681	3.680	5.98				
25	15	tert-Butyl alcohol	242.085	-3.2	691551	0.010	0.011	3.824	3.813	3.92				
	16	Methyl acetate	9.337	-6.6	254061	0.095	0.102	4.205	4.193	4.46				
	17	Iodomethane	10.668	6.7	1593302	0.596	0.559	4.132	4.132	3.19				
10	18	Acetonitrile	109.625	9.6	1449639	0.054	0.049	4.234	4.233	3.84				
	19	Methylene chloride	9.534	-4.7	1115789	0.417	0.438	4.424	4.423	7.48				
	20	Carbon disulfide	10.400	4.0	4217344	1.578	1.517	4.409	4.402	4.44				
5	21	Acrylonitrile	45.563	-8.9	555056	0.042	0.046	4.658	4.653	6.52				
	22	tert-Butyl methyl ether (MTBE)	9.535	-4.6	1276178	0.477	0.501	4.701	4.693	3.56				
	23	trans-1,2-Dichloroethene	9.969	-0.3	1178794	0.441	0.442	4.921	4.912	4.61				
	24	Isopropyl ether (DIPE)	10.023	0.2	2519285	0.942	0.940	5.578	5.563	3.11				
	25	1,1-Dichloroethane	9.816	-1.8	1792856	0.671	0.683	5.753	5.751	3.55				
	26	Vinyl acetate	10.588	5.9	964988	0.361	0.341	5.811	5.805	4.45				
25	27	2-Butanol	238.357	-4.7	601428	0.009	0.009	6.293	6.286	4.80				
	28	tert-Butyl ethyl ether (ETBE)	9.804	-2.0	1901481	0.711	0.726	6.483	6.476	2.97				
5	29	2-Butanone	46.092	-7.8	159124	0.012	0.013	6.761	6.752	7.77				
	30	2,2-Dichloropropane	9.824	-1.8	1231699	0.461	0.469	7.053	7.039	8.03				
	31	cis-1,2-Dichloroethene	9.665	-3.3	1114144	0.417	0.431	7.155	7.150	4.27				
	32	Chloroform	9.986	-0.1	1704070	0.637	0.638	7.535	7.532	3.40				
	33	Bromochloromethane	9.903	-1.0	500726	0.187	0.189	7.917	7.900	4.96				
5	34	tert-Amyl alcohol	49.006	-2.0	116312	0.009	0.009	7.990	7.998	5.02				
	35	Dibromofluoromethane	10.758	7.6	939086	0.351	0.327	8.048	8.041	7.33				
	36	Tetrahydrofuran	9.646	-3.5	83841	0.031	0.033	7.990	7.992	1.34				
	37	1,1,1-Trichloroethane	9.937	-0.6	1380937	0.517	0.520	8.442	8.428	3.60				
	38	Cyclohexane	10.200	2.0	1645761	0.616	0.604	8.413	8.414	10.83				
	39	2,2,4-Trimethylpentane	9.555	-4.4	4441472	1.661	1.739	8.603	8.594	5.11				
	40	1,1-Dichloropropene	9.952	-0.5	530384	0.198	0.199	8.778	8.776	5.50				
	41	Carbon tetrachloride	10.143	1.4	1157384	0.433	0.427	8.953	8.951	4.00				
	42	tert-Amyl methyl ether (TAME)	9.786	-2.1	332229	0.124	0.127	9.114	9.100	3.90				
	43	1,2-Dichloroethane-d4	10.282	2.8	574184	0.215	0.209	9.158	9.143	5.86				
	44	1,2-Dichloroethane	9.592	-4.1	661857	0.248	0.258	9.348	9.344	2.93				
	45	Benzene	9.938	-0.6	3889243	1.455	1.464	9.333	9.322	4.63				
	46	Trichloroethene	9.956	-0.4	1031839	0.386	0.388	10.589	10.585	5.88				
	47	Methylcyclohexane	11.598	16.0	2113650	0.791	0.682	10.677	10.663	8.78				
	48	1,2-Dichloropropane	9.770	-2.3	839948	0.314	0.322	10.955	10.939	4.61				
	49	Bromodichloromethane	9.880	-1.2	1021576	0.382	0.387	11.378	11.377	4.30				
20	50	1,4-Dioxane	182.993	-8.5	57421	0.001	0.001	11.480	11.468	3.76				
	51	Dibromomethane	9.257	-7.4	370067	0.138	0.150	11.466	11.460	4.21				
	52	2-Chloroethyl vinyl ether												
5	53	4-Methyl-2-pentanone	46.330	-7.3	1473898	0.110	0.119	12.108	12.100	6.59				
	54	cis-1,3-Dichloropropene	9.855	-1.5	1236297	0.462	0.469	12.430	12.430	5.89				
	55	CHLOROBENZENE-D5	10.000	0	2007201	1	1	15.453	15.453	0				
	56	Toluene-d8	10.973	9.7	3362053	1.675	1.526	12.839	12.827	8.00				
	57	Toluene	9.914	-0.9	3918855	1.952	1.969	12.970	12.967	4.61				
	58	Ethyl methacrylate	9.552	-4.5	547127	0.273	0.285	13.394	13.382	6.68				
	59	trans-1,3-Dichloropropene	9.591	-4.1	875112	0.436	0.455	13.350	13.350	6.53				
	60	1,1,2-Trichloroethane	8.968	-10.3	432175	0.215	0.240	13.613	13.601	4.12				
5	61	2-Hexanone	45.152	-9.7	897913	0.089	0.099	13.671	13.670	4.26				
	62	1,3-Dichloropropane	9.255	-7.5	813060	0.405	0.438	14.051	14.050	5.55				
	63	Tetrachloroethene	9.639	-3.6	759854	0.379	0.393	14.109	14.101	7.60				
	64	Dibromochloromethane	9.640	-3.6	560689	0.279	0.290	14.460	14.457	5.36				
	65	1,2-Dibromoethane	9.374	-6.3	427082	0.213	0.227	14.810	14.796	4.99				
	66	1-Chlorohexane	10.344	3.4	1626382	0.810	0.783	15.146	15.135	6.26				
	67	Chlorobenzene	9.605	-3.9	2134642	1.063	1.107	15.526	15.516	4.55				
	68	1,1,1,2-Tetrachloroethane	9.737	-2.6	675645	0.337	0.346	15.613	15.605	7.64				
	69	Ethylbenzene	9.814	-1.9	4315485	2.150	2.191	15.628	15.622	5.21				
2	70	m-Xylene & p-Xylene	20.116	0.6	6480339	1.614	1.605	15.759	15.750	6.11				
	71	o-Xylene	9.741	-2.6	2967943	1.479	1.518	16.490	16.479	4.86				
	72	Styrene	9.509	-4.9	2255634	1.124	1.182	16.548	16.549	4.33				
	73	Isopropylbenzene	10.101	1.0	3999250	1.992	1.973	17.089	17.089	5.78				
	74	1,2-DICHLOROBENZENE-D4	10.000	0	662078	1	1	19.382	19.381	0				
	75	Bromoform	9.174	-8.3	274002	0.414	0.451	17.103	17.091	7.82				
	76	1,1,2,2-Tetrachloroethane	9.173	-8.3	445281	0.673	0.733	17.381	17.377	2.50				
	77	4-Bromofluorobenzene	10.492	4.9	944226	1.426	1.359	17.483	17.473	4.49				
	78	1,2,3-Trichloropropane	9.317	-6.8	110025	0.166	0.178	17.600	17.589	4.41				
	79	trans-1,4-Dichloro-2-butene	9.592	-4.1	115324	0.174	0.182	17.191	17.192	3.52				
	80	n-Propylbenzene	9.942	-0.6	5119204	7.732	7.777	17.702	17.688	4.72				
	81	Bromobenzene	9.796	-2.0	713700	1.078	1.100	17.746	17.739	6.75				
	82	1,3,5-Trimethylbenzene	9.995	-0.1	3062097	4.625	4.627	17.921	17.909	5.18				
	83	2-Chlorotoluene	9.509	-4.9	3004757	4.538	4.772	17.921	17.922	6.86				
	84	4-Chlorotoluene	9.227	-7.7	2446303	3.695	4.004	17.994	17.993	6.18				
	85	tert-Butylbenzene	9.608	-3.9	646383	0.976	1.016	18.374	18.366	6.51				
	86	1,2,4-Trimethylbenzene	10.073	0.7	2894538	4.372	4.340	18.418	18.407	4.44				
	87	sec-Butylbenzene	10.047	0.5	4351814	6.573	6.542	18.622	18.621	4.75				
	88	p-Isopropyltoluene	10.538	5.4	3457451	5.222	4.955	18.783	18.782	4.69				
	89	1,3-Dichlorobenzene	9.398	-6.0	1402953	2.119	2.255	18.885	18.886	5.32				
	90	1,4-Dichlorobenzene	9.177	-8.2	1341325	2.026	2.208	19.017	19.007	4.84				
	91	n-Butylbenzene	10.368	3.7	3427676	5.283	5.096	19.236	19.228	5.87				
	92	1,2-Dichlorobenzene	8.986	-10.1	1071440	1.618	1.801	19.411	19.407	4.72				
	93	1,2-Dibromo-3-chloropropane	9.983	-0.2	51430	0.078	0.078	20.185	20.184	8.92				
	94	1,2,4-Trichlorobenzene	10.129	1.3	570859	0.862	0.851	21.032	21.022	4.94				
	95	Hexachlorobutadiene	9.939	-0.6	461380	0.697	0.701	21.149	21.148	5.28				
	96	Naphthalene	9.885	-1.1	664613	1.004	1.015	21.295	21.294	3.05				
	97	1,2,3-Trichlorobenzene	10.180	1.8	390205	0.589	0.579	21.543	21.542	4.16				

Spike Amount = Nominal Amount * M

SA 11/4/20

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	108	0.00
2	T,M	Dichlorodifluoromethane	10.000	8.886	11.1	95	0.00
3	T,M	Dichlorotetrafluoroethane	-1.000	0.000	0.0	0	0.00
4	P,T,M	Chloromethane	10.000	10.128	-1.3	107	0.00
5	C,T,M	Vinyl chloride	10.000	10.643	-6.4	104	0.00
6	T,M	Bromomethane	10.000	10.020	-0.2	103	0.02
7	T,M	Chloroethane	10.000	11.001	-10.0	117	0.00
8	T,M	Dichlorofluoromethane	10.000	10.183	-1.8	116	0.00
9	T,M	Trichlorofluoromethane	10.000	11.423	-14.2	120	0.00
10	T,M	sec-Propyl alcohol	-1.000	0.000	0.0	0	0.00
11	T,M	Acrolein	50.000	44.650	10.7	102	0.00
12	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	9.977	0.2	111	0.00
13	T,M	Acetone	50.000	42.004	16.0	97	0.00
14	C,T,M	1,1-Dichloroethene	10.000	9.859	1.4	111	0.00
15	T,M	tert-Butyl alcohol	250.000	242.085	3.2	107	0.02
16	T,M	Methyl acetate	10.000	9.337	6.6	101	0.01
17	T,M	Iodomethane	10.000	10.668	-6.7	120	0.00
18	T,M	Acetonitrile	100.000	109.625	-9.6	124	0.00
19	T,M	Methylene chloride	10.000	9.534	4.7	111	0.00
20	T,M	Carbon disulfide	10.000	10.400	-4.0	111	0.00
21	T,M	Acrylonitrile	50.000	45.563	8.9	100	0.00
22	T,M	tert-Butyl methyl ether (MT	10.000	9.535	4.6	106	0.01
23	T,M	trans-1,2-Dichloroethene	10.000	9.969	0.3	111	0.00
24	T,M	Isopropyl ether (DIPE)	10.000	10.022	-0.2	114	0.01
25	P,T,M	1,1-Dichloroethane	10.000	9.815	1.9	110	0.00
26	T,M	Vinyl acetate	10.000	10.588	-5.9	116	0.00
27	T,M	2-Butanol	250.000	238.357	4.7	99	0.01
28	T,M	tert-Butyl ethyl ether (ETB	10.000	9.804	2.0	110	0.01
29	T,M	2-Butanone	50.000	46.092	7.8	99	0.01
30	T,M	2,2-Dichloropropane	10.000	9.824	1.8	111	0.01
31	T,M	cis-1,2-Dichloroethene	10.000	9.666	3.3	108	0.00
32	C,T,M	Chloroform	10.000	9.986	0.1	112	0.00
33	T,M	Bromochloromethane	10.000	9.903	1.0	109	0.02
34	T,M	tert-Amyl alcohol	50.000	49.006	2.0	101	0.00
35	S	Dibromofluoromethane	10.000	10.758	-7.6	108	0.02
36	T,M	Tetrahydrofuran	10.000	9.646	3.5	104	0.00
37	T,M	1,1,1-Trichloroethane	10.000	9.937	0.6	111	0.02
38	T,M	Cyclohexane	10.000	10.200	-2.0	104	0.00
39	T,M	2,2,4-Trimethylpentane	10.000	9.555	4.5	98	0.02
40	T,M	1,1-Dichloropropene	10.000	9.952	0.5	110	0.00
41	T,M	Carbon tetrachloride	10.000	10.143	-1.4	113	0.00

(#) = Out of Range

11/4/20

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	10.000	9.786	2.1	107	0.02
43	S	1,2-Dichloroethane-d4	10.000	10.282	-2.8	104	0.02
44	T,M	1,2-Dichloroethane	10.000	9.592	4.1	106	0.00
45	T,M	Benzene	10.000	9.938	0.6	111	0.02
46	T,M	Trichloroethene	10.000	9.956	0.4	112	0.00
47	T,M	Methylcyclohexane	10.000	11.598	-16.0	121	0.02
48	C,T,M	1,2-Dichloropropane	10.000	9.770	2.3	109	0.02
49	T,M	Bromodichloromethane	10.000	9.880	1.2	110	0.00
50	T,M	1,4-Dioxane	200.000	182.993	8.5	99	0.02
51	T,M	Dibromomethane	10.000	9.257	7.4	102	0.00
52	T,M	2-Chloroethyl vinyl ether	10.000	0.000	100.0#	0	0.02
53	T,M	4-Methyl-2-pentanone	50.000	46.330	7.3	102	0.02
54	T,M	cis-1,3-Dichloropropene	10.000	9.855	1.4	111	0.00
55	I	CHLOROBENZENE-D5	10.000	10.000	0.0	108	0.00
56	S	Toluene-d8	10.000	10.973	-9.7	109	0.02
57	C,T,M	Toluene	10.000	9.914	0.9	112	0.00
58	T,M	Ethyl methacrylate	10.000	9.552	4.5	106	0.02
59	T,M	trans-1,3-Dichloropropene	10.000	9.591	4.1	108	0.00
60	T,M	1,1,2-Trichloroethane	10.000	8.968	10.3	101	0.02
61	T,M	2-Hexanone	50.000	45.152	9.7	100	0.00
62	T,M	1,3-Dichloropropane	10.000	9.255	7.4	104	0.00
63	T,M	Tetrachloroethene	10.000	9.639	3.6	111	0.00
64	T,M	Dibromochloromethane	10.000	9.640	3.6	108	0.00
65	T,M	1,2-Dibromoethane	10.000	9.374	6.3	104	0.02
66	T,M	1-Chlorohexane	10.000	10.344	-3.4	118	0.02
67	P,M	Chlorobenzene	10.000	9.605	3.9	109	0.02
68	T,M	1,1,1,2-Tetrachloroethane	10.000	9.737	2.6	112	0.00
69	C,T,M	Ethylbenzene	10.000	9.814	1.9	111	0.00
70	T,M	m-Xylene & p-Xylene	20.000	20.116	-0.6	112	0.00
71	T,M	o-Xylene	10.000	9.741	2.6	110	0.02
72	T,M	Styrene	10.000	9.509	4.9	106	0.00
73	T,M	Isopropylbenzene	10.000	10.101	-1.0	113	0.00
74	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	108	0.00
75	P,T,M	Bromoform	10.000	9.174	8.3	102	0.02
76	P,T,M	1,1,2,2-Tetrachloroethane	10.000	9.173	8.3	103	0.00
77	S	4-Bromofluorobenzene	10.000	10.492	-4.9	110	0.02
78	T,M	1,2,3-Trichloropropane	10.000	9.317	6.8	103	0.02
79	T,M	trans-1,4-Dichloro-2-butene	10.000	9.592	4.1	108	0.00
80	T,M	n-Propylbenzene	10.000	9.942	0.6	112	0.02

(#) = Out of Range

SA 11/4/20

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	10.000	9.796	2.0	113	0.00
82	T,M	1,3,5-Trimethylbenzene	10.000	9.995	0.1	114	0.02
83	T,M	2-Chlorotoluene	10.000	9.510	4.9	104	0.00
84	T,M	4-Chlorotoluene	10.000	9.227	7.7	113	0.00
85	T,M	tert-Butylbenzene	10.000	9.609	3.9	110	0.00
86	T,M	1,2,4-Trimethylbenzene	10.000	10.073	-0.7	114	0.02
87	T,M	sec-Butylbenzene	10.000	10.047	-0.5	114	0.00
88	T,M	p-Isopropyltoluene	10.000	10.538	-5.4	118	0.00
89	T,M	1,3-Dichlorobenzene	10.000	9.398	6.0	108	0.00
90	T,M	1,4-Dichlorobenzene	10.000	9.177	8.2	105	0.02
91	T,M	n-Butylbenzene	10.000	10.367	-3.7	114	0.00
92	T,M	1,2-Dichlorobenzene	10.000	8.986	10.1	103	0.00
93	T,M	1,2-Dibromo-3-chloropropane	10.000	9.983	0.2	105	0.00
94	T,M	1,2,4-Trichlorobenzene	10.000	10.129	-1.3	114	0.02
95	T,M	Hexachlorobutadiene	10.000	9.939	0.6	112	0.00
96	T,M	Naphthalene	10.000	9.885	1.2	106	0.00
97	T,M	1,2,3-Trichlorobenzene	10.000	10.180	-1.8	112	0.00

SV 11/4/20

(#) = Out of Range SPCC's out = 0 CCC's out = 0
RJC467.D VO67J30.M Mon Nov 02 19:00:18 2020 Page 3

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	108	0.00
2	T,M	Dichlorodifluoromethane	0.346	0.307	11.3	95	0.00
3	T,M	Dichlorotetrafluoroethane	0.000	0.000	0.0	0#	0.00
4	P,T,M	Chloromethane	0.529	0.536	-1.3	107	0.00
5	C,T,M	Vinyl chloride	0.499	0.531	-6.4	104	0.00
6	T,M	Bromomethane	0.434	0.435	-0.2	103	0.02
7	T,M	Chloroethane	0.366	0.402	-9.8	117	0.00
8	T,M	Dichlorofluoromethane	0.774	0.789	-1.9	116	0.00
9	T,M	Trichlorofluoromethane	0.516	0.589	-14.1	120	0.00
10	T,M	sec-Propyl alcohol	0.000	0.000	0.0	0#	0.00
11	T,M	Acrolein	0.022	0.019	13.6	102	0.00
12	T,M	1,1,2-Trichloro-1,2,2-trifl	0.274	0.274	0.0	111	0.00
13	T,M	Acetone	0.031	0.026	16.1	97	0.00
14	C,T,M	1,1-Dichloroethene	0.620	0.612	1.3	111	0.00
15	T,M	tert-Butyl alcohol	0.011	0.010	9.1	107	0.02
16	T,M	Methyl acetate	0.102	0.095	6.9	101	0.01
17	T,M	Iodomethane	0.559	0.596	-6.6	120	0.00
18	T,M	Acetonitrile	0.049	0.054	-10.2	124	0.00
19	T,M	Methylene chloride	0.438	0.417	4.8	111	0.00
20	T,M	Carbon disulfide	1.517	1.578	-4.0	111	0.00
21	T,M	Acrylonitrile	0.046	0.042	8.7	100	0.00
22	T,M	tert-Butyl methyl ether (MT	0.501	0.477	4.8	106	0.01
23	T,M	trans-1,2-Dichloroethene	0.442	0.441	0.2	111	0.00
24	T,M	Isopropyl ether (DIPE)	0.940	0.942	-0.2	114	0.01
25	P,T,M	1,1-Dichloroethane	0.683	0.671	1.8	110	0.00
26	T,M	Vinyl acetate	0.341	0.361	-5.9	116	0.00
27	T,M	2-Butanol	0.009	0.009	0.0	99	0.01
28	T,M	tert-Butyl ethyl ether (ETB	0.726	0.711	2.1	110	0.01
29	T,M	2-Butanone	0.013	0.012	7.7	99	0.01
30	T,M	2,2-Dichloropropane	0.469	0.461	1.7	111	0.01
31	T,M	cis-1,2-Dichloroethene	0.431	0.417	3.2	108	0.00
32	C,T,M	Chloroform	0.638	0.637	0.2	112	0.00
33	T,M	Bromochloromethane	0.189	0.187	1.1	109	0.02
34	T,M	tert-Amyl alcohol	0.009	0.009	0.0	101	0.00
35	S	Dibromofluoromethane	0.327	0.351	-7.3	108	0.02
36	T,M	Tetrahydrofuran	0.033	0.031	6.1	104	0.00
37	T,M	1,1,1-Trichloroethane	0.520	0.517	0.6	111	0.02
38	T,M	Cyclohexane	0.604	0.616	-2.0	104	0.00
39	T,M	2,2,4-Trimethylpentane	1.739	1.661	4.5	98	0.02
40	T,M	1,1-Dichloropropene	0.199	0.198	0.5	110	0.00
41	T,M	Carbon tetrachloride	0.427	0.433	-1.4	113	0.00

(#) = Out of Range
RJC467.D VO67J30.M Mon Nov 02 19:00:22 2020 Su 11/4/20 Page 1

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	0.127	0.124	2.4	107	0.02
43	S	1,2-Dichloroethane-d4	0.209	0.215	-2.9	104	0.02
44	T,M	1,2-Dichloroethane	0.258	0.248	3.9	106	0.00
45	T,M	Benzene	1.464	1.455	0.6	111	0.02
46	T,M	Trichloroethene	0.388	0.386	0.5	112	0.00
47	T,M	Methylcyclohexane	0.682	0.791	-16.0	121	0.02
48	C,T,M	1,2-Dichloropropane	0.322	0.314	2.5	109	0.02
49	T,M	Bromodichloromethane	0.387	0.382	1.3	110	0.00
50	T,M	1,4-Dioxane	0.001	0.001	0.0	99	0.02
51	T,M	Dibromomethane	0.150	0.138	8.0	102	0.00
52	T,M	2-Chloroethyl vinyl ether	0.000	0.077	0.0	0#	0.02
53	T,M	4-Methyl-2-pentanone	0.119	0.110	7.6	102	0.02
54	T,M	cis-1,3-Dichloropropene	0.469	0.462	1.5	111	0.00
55	I	CHLOROBENZENE-D5	1.000	1.000	0.0	108	0.00
56	S	Toluene-d8	1.526	1.675	-9.8	109	0.02
57	C,T,M	Toluene	1.969	1.952	0.9	112	0.00
58	T,M	Ethyl methacrylate	0.285	0.273	4.2	106	0.02
59	T,M	trans-1,3-Dichloropropene	0.455	0.436	4.2	108	0.00
60	T,M	1,1,2-Trichloroethane	0.240	0.215	10.4	101	0.02
61	T,M	2-Hexanone	0.099	0.089	10.1	100	0.00
62	T,M	1,3-Dichloropropane	0.438	0.405	7.5	104	0.00
63	T,M	Tetrachloroethene	0.393	0.379	3.6	111	0.00
64	T,M	Dibromochloromethane	0.290	0.279	3.8	108	0.00
65	T,M	1,2-Dibromoethane	0.227	0.213	6.2	104	0.02
66	T,M	1-Chlorohexane	0.783	0.810	-3.4	118	0.02
67	P,M	Chlorobenzene	1.107	1.063	4.0	109	0.02
68	T,M	1,1,1,2-Tetrachloroethane	0.346	0.337	2.6	112	0.00
69	C,T,M	Ethylbenzene	2.191	2.150	1.9	111	0.00
70	T,M	m-Xylene & p-Xylene	1.605	1.614	-0.6	112	0.00
71	T,M	o-Xylene	1.518	1.479	2.6	110	0.02
72	T,M	Styrene	1.182	1.124	4.9	106	0.00
73	T,M	Isopropylbenzene	1.973	1.992	-1.0	113	0.00
74	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	108	0.00
75	P,T,M	Bromoform	0.451	0.414	8.2	102	0.02
76	P,T,M	1,1,2,2-Tetrachloroethane	0.733	0.673	8.2	103	0.00
77	S	4-Bromofluorobenzene	1.359	1.426	-4.9	110	0.02
78	T,M	1,2,3-Trichloropropane	0.178	0.166	6.7	103	0.02
79	T,M	trans-1,4-Dichloro-2-butene	0.182	0.174	4.4	108	0.00
80	T,M	n-Propylbenzene	7.777	7.732	0.6	112	0.02

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D
Acq On : 30 Oct 2020 4:41 pm
Sample : IVO67J3001
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA
MS Integration Params: RTE.P

Vial: 15
Operator: VLu
Inst : 67
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	1.100	1.078	2.0	113	0.00
82	T,M	1,3,5-Trimethylbenzene	4.627	4.625	0.0	114	0.02
83	T,M	2-Chlorotoluene	4.772	4.538	4.9	104	0.00
84	T,M	4-Chlorotoluene	4.004	3.695	7.7	113	0.00
85	T,M	tert-Butylbenzene	1.016	0.976	3.9	110	0.00
86	T,M	1,2,4-Trimethylbenzene	4.340	4.372	-0.7	114	0.02
87	T,M	sec-Butylbenzene	6.542	6.573	-0.5	114	0.00
88	T,M	p-Isopropyltoluene	4.955	5.222	-5.4	118	0.00
89	T,M	1,3-Dichlorobenzene	2.255	2.119	6.0	108	0.00
90	T,M	1,4-Dichlorobenzene	2.208	2.026	8.2	105	0.02
91	T,M	n-Butylbenzene	5.096	5.283	-3.7	114	0.00
92	T,M	1,2-Dichlorobenzene	1.801	1.618	10.2	103	0.00
93	T,M	1,2-Dibromo-3-chloropropane	0.078	0.078	0.0	105	0.00
94	T,M	1,2,4-Trichlorobenzene	0.851	0.862	-1.3	114	0.02
95	T,M	Hexachlorobutadiene	0.701	0.697	0.6	112	0.00
96	T,M	Naphthalene	1.015	1.004	1.1	106	0.00
97	T,M	1,2,3-Trichlorobenzene	0.579	0.589	-1.7	112	0.00

11/4/20

(#) = Out of Range SPCC's out = 0 CCC's out = 0
RJC467.D VO67J30.M Mon Nov 02 19:00:25 2020 Page 3

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:49 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.01	114	2673175	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	2007201	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	662078	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	939086	10.76	ug/l	0.02
Spiked Amount 10.000			Recovery =	107.60%		
43) 1,2-Dichloroethane-d4	9.16	65	574184	10.28	ug/l	0.02
Spiked Amount 10.000			Recovery =	102.80%		
56) Toluene-d8	12.84	98	3362053	10.97	ug/l	0.02
Spiked Amount 10.000			Recovery =	109.70%		
77) 4-Bromofluorobenzene	17.48	95	944226	10.49	ug/l	0.02
Spiked Amount 10.000			Recovery =	104.90%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	820888	8.89	ug/l	100
4) Chloromethane	2.11	50	1433471	10.13	ug/l	100
5) Vinyl chloride	2.23	62	1419504	10.64	ug/l	100
6) Bromomethane	2.64	94	1162402	10.02	ug/l	100
7) Chloroethane	2.64	64	1075560	11.00	ug/l	100
8) Dichlorofluoromethane	2.72	67	2108128	10.18	ug/l	100
9) Trichlorofluoromethane	2.90	101	1575813	11.42	ug/l	100
11) Acrolein	3.44	56	258386	44.65	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	731893	9.98	ug/l	99
13) Acetone	3.52	43	346288	42.00	ug/l	100
14) 1,1-Dichloroethene	3.68	61	1634976	9.86	ug/l	99
15) tert-Butyl alcohol	3.82	59	691551	242.08	ug/l	99
16) Methyl acetate	4.20	43	254061	9.34	ug/l	94
17) Iodomethane	4.13	142	1593302	10.67	ug/l	99
18) Acetonitrile	4.23	41	1449639	109.63	ug/l	99
19) Methylene chloride	4.42	49	1115789	9.53	ug/l	99
20) Carbon disulfide	4.41	76	4217344	10.40	ug/l	100
21) Acrylonitrile	4.66	53	555056	45.56	ug/l	100
22) tert-Butyl methyl ether (M	4.70	73	1276178	9.54	ug/l	100
23) trans-1,2-Dichloroethene	4.92	96	1178794	9.97	ug/l	100
24) Isopropyl ether (DIPE)	5.58	45	2519285	10.02	ug/l	99
25) 1,1-Dichloroethane	5.75	63	1792856	9.82	ug/l	100
26) Vinyl acetate	5.81	43	964988	10.59	ug/l	100
27) 2-Butanol	6.29	45	601428	238.36	ug/l	100
28) tert-Butyl ethyl ether (ET	6.48	59	1901481	9.80	ug/l	100
29) 2-Butanone	6.76	72	159124	46.09	ug/l	94
30) 2,2-Dichloropropane	7.05	77	1231699	9.82	ug/l	100

(#) = qualifier out of range (m) = manual integration
RJC467.D VO67J30.M Mon Nov 02 19:00:30 2020 11/4/20 Page 1

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:49 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	cis-1,2-Dichloroethene	7.16	96	1114144	9.67 ug/l	100
32)	Chloroform	7.53	83	1704070	9.99 ug/l	99
33)	Bromochloromethane	7.92	130	500726	9.90 ug/l	100
34)	tert-Amyl alcohol	7.99	59	116312	49.01 ug/l	100
36)	Tetrahydrofuran	7.99	42	83841	9.65 ug/l	98
37)	1,1,1-Trichloroethane	8.44	97	1380937	9.94 ug/l	100
38)	Cyclohexane	8.41	84	1645761	10.20 ug/l	99
39)	2,2,4-Trimethylpentane	8.60	57	4441472	9.56 ug/l	100
40)	1,1-Dichloropropene	8.78	110	530384	9.95 ug/l	100
41)	Carbon tetrachloride	8.95	119	1157384	10.14 ug/l	100
42)	tert-Amyl methyl ether (TA	9.11	87	332229	9.79 ug/l	98
44)	1,2-Dichloroethane	9.35	62	661857	9.59 ug/l	100
45)	Benzene	9.33	78	3889243	9.94 ug/l	100
46)	Trichloroethene	10.59	130	1031839	9.96 ug/l	100
47)	Methylcyclohexane	10.68	83	2113650	11.60 ug/l	99
48)	1,2-Dichloropropane	10.95	63	839948	9.77 ug/l	100
49)	Bromodichloromethane	11.38	83	1021576	9.88 ug/l	100
50)	1,4-Dioxane	11.48	88	57421	182.99 ug/l	100
51)	Dibromomethane	11.47	93	370067	9.26 ug/l	99
53)	4-Methyl-2-pentanone	12.11	43	1473898	46.33 ug/l	99
54)	cis-1,3-Dichloropropene	12.43	75	1236297	9.85 ug/l	99
57)	Toluene	12.97	91	3918855	9.91 ug/l	100
58)	Ethyl methacrylate	13.39	69	547127	9.55 ug/l	99
59)	trans-1,3-Dichloropropene	13.35	75	875112	9.59 ug/l	100
60)	1,1,2-Trichloroethane	13.61	97	432175	8.97 ug/l	99
61)	2-Hexanone	13.67	43	897913	45.15 ug/l	99
62)	1,3-Dichloropropane	14.05	76	813060	9.25 ug/l	100
63)	Tetrachloroethene	14.11	164	759854	9.64 ug/l	100
64)	Dibromochloromethane	14.46	129	560689	9.64 ug/l	99
65)	1,2-Dibromoethane	14.81	107	427082	9.37 ug/l	99
66)	1-Chlorohexane	15.15	91	1626382	10.34 ug/l	100
67)	Chlorobenzene	15.53	112	2134642	9.61 ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.61	131	675645	9.74 ug/l	99
69)	Ethylbenzene	15.63	91	4315485	9.81 ug/l	100
70)	m-Xylene & p-Xylene	15.76	91	6480339	20.12 ug/l	99
71)	o-Xylene	16.49	91	2967943	9.74 ug/l	99
72)	Styrene	16.55	104	2255634	9.51 ug/l	97
73)	Isopropylbenzene	17.09	105	3999250	10.10 ug/l	100
75)	Bromoform	17.10	173	274002	9.17 ug/l	99
76)	1,1,2,2-Tetrachloroethane	17.38	83	445281	9.17 ug/l	100
78)	1,2,3-Trichloropropane	17.60	110	110025	9.32 ug/l	99

(#) = qualifier out of range (m) = manual integration
RJC467.D VO67J30.M Mon Nov 02 19:00:31 2020 11/4/20 Page 2

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:49 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.19	53	115324	9.59	ug/l	100
80)	n-Propylbenzene	17.70	91	5119204	9.94	ug/l	100
81)	Bromobenzene	17.75	156	713700	9.80	ug/l	99
82)	1,3,5-Trimethylbenzene	17.92	105	3062097	10.00	ug/l	100
83)	2-Chlorotoluene	17.92	91	3004757	9.51	ug/l	100
84)	4-Chlorotoluene	17.99	91	2446303	9.23	ug/l	98
85)	tert-Butylbenzene	18.37	134	646383	9.61	ug/l	98
86)	1,2,4-Trimethylbenzene	18.42	105	2894538	10.07	ug/l	100
87)	sec-Butylbenzene	18.62	105	4351814	10.05	ug/l	99
88)	p-Isopropyltoluene	18.78	119	3457451	10.54	ug/l	100
89)	1,3-Dichlorobenzene	18.89	146	1402953	9.40	ug/l	99
90)	1,4-Dichlorobenzene	19.02	146	1341325	9.18	ug/l	100
91)	n-Butylbenzene	19.24	91	3497676	10.37	ug/l	100
92)	1,2-Dichlorobenzene	19.41	146	1071440	8.99	ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.18	157	51430	9.98	ug/l	99
94)	1,2,4-Trichlorobenzene	21.03	180	570859	10.13	ug/l	100
95)	Hexachlorobutadiene	21.15	225	461380	9.94	ug/l	100
96)	Naphthalene	21.29	128	664613	9.89	ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	390205	10.18	ug/l	100

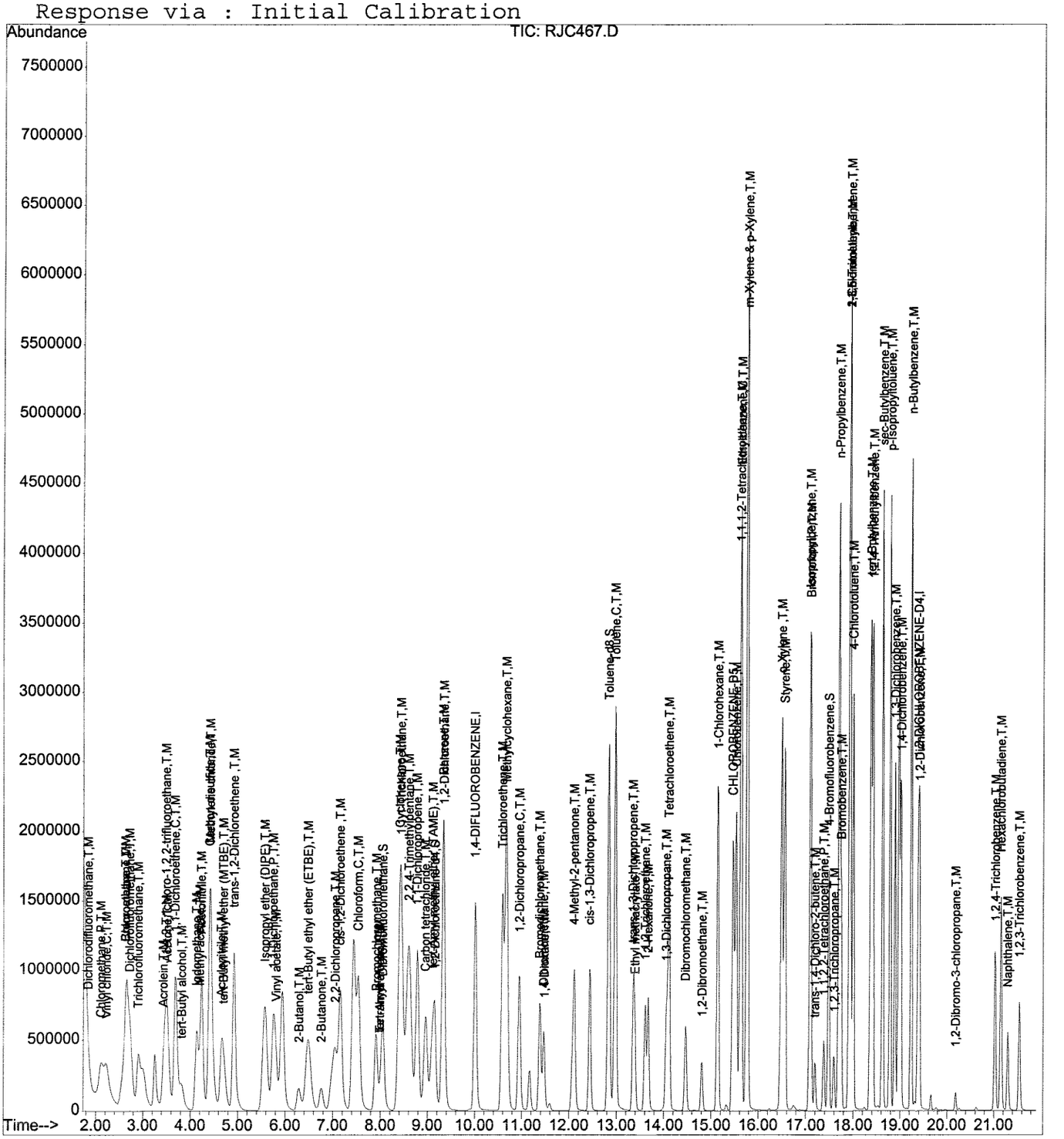
Su 11/4/20

(#) = qualifier out of range (m) = manual integration
RJC467.D VO67J30.M Mon Nov 02 19:00:31 2020 Page 3

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:49 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC467.D VO67J30.M Mon Nov 02 19:00:34 2020 11/4/20 Page 4

DAILY CALIBRATIONS

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc Contract: VAFB-SS003

Lab Code: EMXT Case No.: SAS No.: SDG No.: 20L041

Lab File ID: RLC076 BFB Injection Date : 12/07/20

Instrument ID: 67 BFB Injection Time : 10:46

GC Column:RTX502.2ID:0.25mm (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.20
75	30.0 - 60.0% of mass 95	46.01
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.80
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	74.37
175	5.0 - 9.0% of mass 174	6.59(8.9)1
176	95.0 - 101.0% of mass 174	70.86(95.3)1
177	5.0 - 9.0% of mass 176	4.68(6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD,BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD010	CV067J3022	RLC077	12/07/20	11:36
2	MBLK1W	V067L05B	RLC081	12/07/20	13:18
3	LCS1W	V067L05L	RLC078	12/07/20	12:01
4	LCD1W	V067L05C	RLC079	12/07/20	12:27
5	SS003-3-MW-55(120120)TB1	L041-01	RLC082	12/07/20	13:44
6	3-MW-55(120120)	L041-02	RLC083	12/07/20	14:10
7	3-MW-55(120120)MS	L041-02M	RLC084	12/07/20	14:35
8	3-MW-55(120120)MSD	L041-02S	RLC085	12/07/20	15:01
9	3-MW-54(120220)	L041-03	RLC087	12/07/20	15:51
10	3-MW-56(120220)	L041-04	RLC088	12/07/20	16:17
11	SS003-DUP1(120220)	L041-05	RLC089	12/07/20	16:43
12	3-MW-57(120320)	L041-06	RLC090	12/07/20	17:09
13	3-MW-58(120320)	L041-07	RLC091	12/07/20	17:34
14	3-MW-59(120320)	L041-08	RLC092	12/07/20	18:00

FORM 8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : EMAX Inc
Lab Code : EMXT
Lab File ID : RJC459
Instrument ID: 67
GC Column : RTX502.2ID:0.25mm (mm)

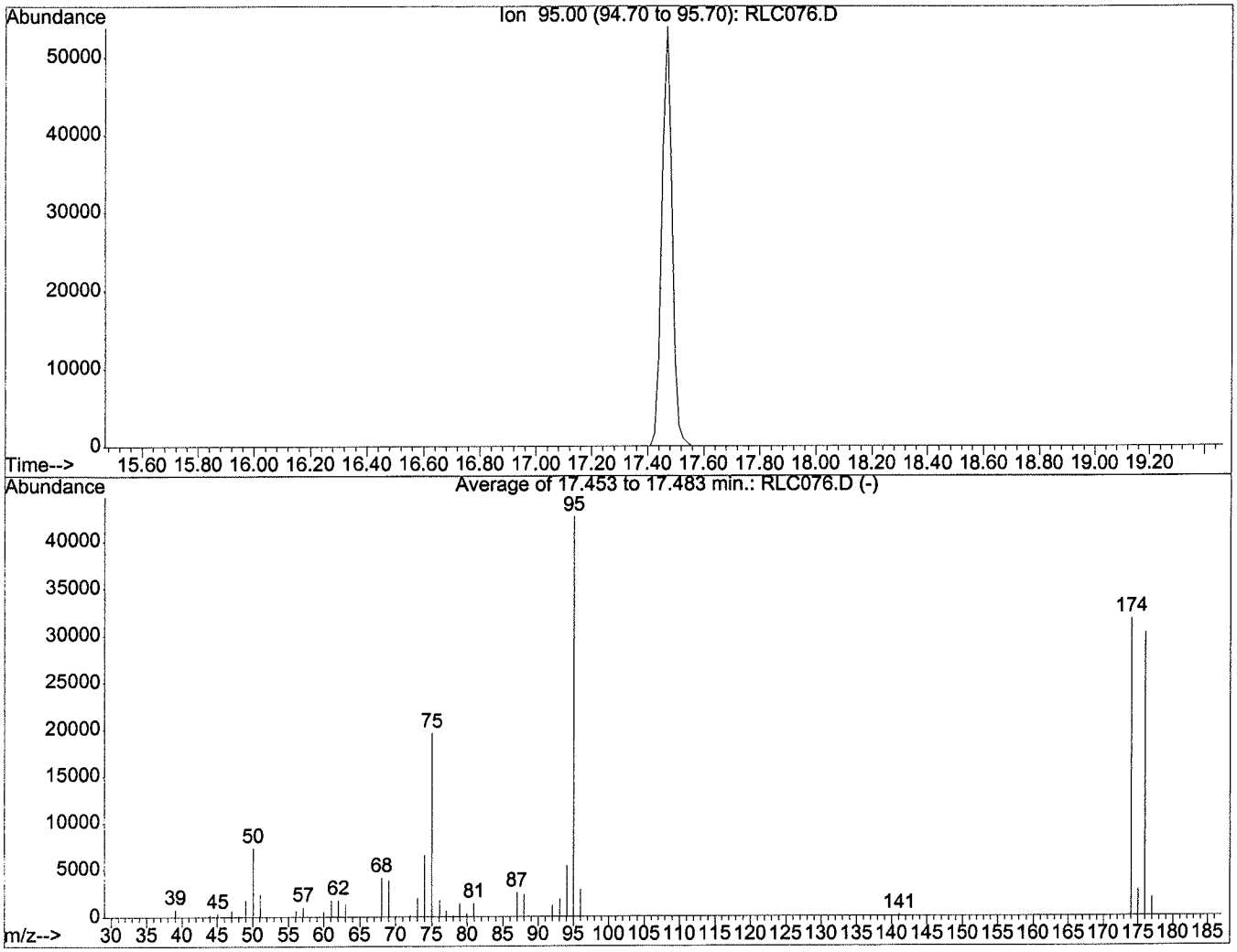
Project: VAFB-SS003
SDG No: 20L041
Date Analyzed: 10/30/2020
Time Analyzed: 13:41
Heated Purge (Y/N): N

		1,4-DIFLUOROBENZENE		CHLOROBENZENE-D5		1,2-DICHLOROBENZENE-D4	
		AREA #	RT(min)	AREA #	RT(min)	AREA #	RT(min)
	12 HOUR STD	2484539	10.00	1854704	15.45	612676	19.38
	UPPER LIMIT	4969078	10.50	3709408	15.95	1225352	19.88
	LOWER LIMIT	1242270	9.50	927352	14.95	306338	18.88
	SAMPLE ID						
1	VSTD010	2446663	9.99	1838997	15.44	573134	19.37
2	MBLK1W	2331256	10.00	1753496	15.45	527865	19.37
3	LCS1W	2426742	10.00	1878124	15.45	607235	19.37
4	LCD1W	2380269	10.01	1837010	15.45	598301	19.37
5	SS003-3-MW-55(120120)TB1	2481080	10.00	1863263	15.45	548226	19.38
6	3-MW-55(120120)	2599291	10.02	1916714	15.45	524921	19.38
7	3-MW-55(120120)MS	2527459	10.02	1855972	15.45	573073	19.38
8	3-MW-55(120120)MSD	2518797	10.02	1797983	15.45	545097	19.38
9	3-MW-54(120220)	2437661	10.00	1800653	15.45	535692	19.38
10	3-MW-56(120220)	2482612	10.00	1850141	15.45	540787	19.38
11	SS003-DUP1(120220)	2497985	10.00	1859292	15.45	540469	19.38
12	3-MW-57(120320)	2422878	10.00	1803676	15.45	531503	19.38
13	3-MW-58(120320)	2372633	10.00	1790263	15.45	518027	19.38
14	3-MW-59(120320)	2414885	10.01	1826162	15.45	537935	19.38

Area Upper Limit = + 100% of internal standard area
Area Lower Limit = - 50% of internal standard area
RT Upper Limit = + 0.5 min. (30 sec.) of internal standard RT
RT Lower Limit = - 0.5 min. (30 sec.) of internal standard RT

Data File : D:\HPCHEM\1\DATA\20L07\RLC076.D
Acq On : 7 Dec 2020 10:46 am
Sample : BFB67L05
Misc : T/CHK
MS Integration Params: RTE.P
Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B

Vial: 1
Operator: VLu
Inst : 67
Multiplr: 1.00



AutoFind: Scans 1028, 1029, 1030; Background Corrected with Scan 1023

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.2	7343	PASS
75	95	30	60	46.0	19639	PASS
95	95	100	100	100.0	42680	PASS
96	95	5	9	6.8	2901	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	74.4	31741	PASS
175	174	5	9	8.9	2811	PASS
176	174	95	101	95.3	30245	PASS
177	176	5	9	6.6	1998	PASS

RLC076.D VO67J30.M Tue Dec 08 11:22:42 2020

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC077.D Vial: 2
Acq On : 7 Dec 2020 11:36 am Operator: VLu
Sample : CVO67J3022 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	98	-0.01
2	T,M	Dichlorodifluoromethane	10.000	8.785	12.1	86	0.00
3	T,M	Dichlorotetrafluoroethane	-1.000	0.000	0.0	0	0.00
4	P,T,M	Chloromethane	10.000	8.944	10.6	87	0.00
5	C,T,M	Vinyl chloride	10.000	9.496	5.0	85	-0.02
6	T,M	Bromomethane	10.000	9.379	6.2	89	0.00
7	T,M	Chloroethane	10.000	9.503	5.0	92	0.00
8	T,M	Dichlorofluoromethane	10.000	9.120	8.8	95	0.00
9	T,M	Trichlorofluoromethane	10.000	9.434	5.7	90	-0.02
10	T,M	sec-Propyl alcohol	-1.000	0.000	0.0	0	0.00
11	T,M	Acrolein	50.000	45.008	10.0	94	-0.02
12	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	9.185	8.1	93	-0.02
13	T,M	Acetone	50.000	40.854	18.3	86	-0.02
14	C,T,M	1,1-Dichloroethene	10.000	9.147	8.5	94	-0.02
15	T,M	tert-Butyl alcohol	250.000	223.607	10.6	90	0.00
16	T,M	Methyl acetate	10.000	0.000	100.0#	0	-4.19#
17	T,M	Iodomethane	10.000	8.084	19.2	83	-0.04
18	T,M	Acetonitrile	100.000	80.877	19.1	84	-0.03
19	T,M	Methylene chloride	10.000	9.099	9.0	97	-0.03
20	T,M	Carbon disulfide	10.000	8.770	12.3	86	-0.03
21	T,M	Acrylonitrile	50.000	46.614	6.8	94	-0.03
22	T,M	tert-Butyl methyl ether (MT	10.000	9.054	9.5	92	-0.01
23	T,M	trans-1,2-Dichloroethene	10.000	9.340	6.6	95	-0.03
24	T,M	Isopropyl ether (DIPE)	10.000	9.491	5.1	99	-0.03
25	P,T,M	1,1-Dichloroethane	10.000	9.348	6.5	96	-0.03
26	T,M	Vinyl acetate	10.000	10.079	-0.8	101	-0.03
27	T,M	2-Butanol	250.000	0.000	100.0#	0	-6.28#
28	T,M	tert-Butyl ethyl ether (ETB	10.000	9.331	6.7	96	-0.03
29	T,M	2-Butanone	50.000	46.262	7.5	91	-0.03
30	T,M	2,2-Dichloropropane	10.000	9.597	4.0	99	-0.03
31	T,M	cis-1,2-Dichloroethene	10.000	9.440	5.6	96	-0.04
32	C,T,M	Chloroform	10.000	9.277	7.2	95	-0.03
33	T,M	Bromochloromethane	10.000	9.207	7.9	93	-0.03
34	T,M	tert-Amyl alcohol	50.000	0.000	100.0#	0	-7.99#
35	S	Dibromofluoromethane	10.000	9.232	7.7	85	-0.01
36	T,M	Tetrahydrofuran	10.000	8.201	18.0	81	-0.03
37	T,M	1,1,1-Trichloroethane	10.000	8.998	10.0	92	-0.01
38	T,M	Cyclohexane	10.000	0.000	100.0#	0	-8.41#
39	T,M	2,2,4-Trimethylpentane	10.000	0.000	100.0#	0	-8.59#
40	T,M	1,1-Dichloropropene	10.000	9.339	6.6	94	-0.03
41	T,M	Carbon tetrachloride	10.000	9.034	9.7	92	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC077.D Vial: 2
Acq On : 7 Dec 2020 11:36 am Operator: VLu
Sample : CVO67J3022 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	10.000	9.178	8.2	91	-0.01
43	S	1,2-Dichloroethane-d4	10.000	8.364	16.4	77	-0.01
44	T,M	1,2-Dichloroethane	10.000	8.844	11.6	90	-0.03
45	T,M	Benzene	10.000	9.490	5.1	97	-0.01
46	T,M	Trichloroethene	10.000	9.208	7.9	95	-0.03
47	T,M	Methylcyclohexane	10.000	0.000	100.0#	0	-10.66#
48	C,T,M	1,2-Dichloropropane	10.000	9.501	5.0	97	-0.01
49	T,M	Bromodichloromethane	10.000	9.048	9.5	92	-0.01
50	T,M	1,4-Dioxane	200.000	175.690	12.2	87	-0.01
51	T,M	Dibromomethane	10.000	9.127	8.7	92	-0.01
52	T,M	2-Chloroethyl vinyl ether	10.000	0.000	100.0#	0	0.00
53	T,M	4-Methyl-2-pentanone	50.000	42.956	14.1	86	0.00
54	T,M	cis-1,3-Dichloropropene	10.000	9.102	9.0	94	-0.01
55	I	CHLOROBENZENE-D5	10.000	10.000	0.0	99	-0.01
56	S	Toluene-d8	10.000	9.121	8.8	83	-0.01
57	C,T,M	Toluene	10.000	9.094	9.1	94	-0.01
58	T,M	Ethyl methacrylate	10.000	8.994	10.1	92	0.00
59	T,M	trans-1,3-Dichloropropene	10.000	8.724	12.8	90	-0.01
60	T,M	1,1,2-Trichloroethane	10.000	8.872	11.3	91	0.00
61	T,M	2-Hexanone	50.000	42.919	14.2	87	-0.01
62	T,M	1,3-Dichloropropane	10.000	8.780	12.2	91	-0.01
63	T,M	Tetrachloroethene	10.000	8.604	14.0	91	-0.01
64	T,M	Dibromochloromethane	10.000	9.036	9.6	93	-0.01
65	T,M	1,2-Dibromoethane	10.000	8.999	10.0	92	-0.01
66	T,M	1-Chlorohexane	10.000	9.076	9.2	94	0.00
67	P,M	Chlorobenzene	10.000	9.268	7.3	96	0.00
68	T,M	1,1,1,2-Tetrachloroethane	10.000	9.278	7.2	98	-0.01
69	C,T,M	Ethylbenzene	10.000	9.017	9.8	93	-0.01
70	T,M	m-Xylene & p-Xylene	20.000	18.298	8.5	94	-0.01
71	T,M	o-Xylene	10.000	9.057	9.4	94	0.00
72	T,M	Styrene	10.000	8.677	13.2	89	-0.01
73	T,M	Isopropylbenzene	10.000	9.281	7.2	95	0.00
74	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	94	-0.01
75	P,T,M	Bromoform	10.000	9.046	9.5	87	0.00
76	P,T,M	1,1,2,2-Tetrachloroethane	10.000	9.320	6.8	90	-0.01
77	S	4-Bromofluorobenzene	10.000	9.105	8.9	83	0.00
78	T,M	1,2,3-Trichloropropane	10.000	9.307	6.9	89	0.00
79	T,M	trans-1,4-Dichloro-2-butene	10.000	6.620	33.8#	65	0.00
80	T,M	n-Propylbenzene	10.000	9.702	3.0	95	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC077.D Vial: 2
Acq On : 7 Dec 2020 11:36 am Operator: VLu
Sample : CVO67J3022 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	10.000	9.336	6.6	93	-0.01
82	T,M	1,3,5-Trimethylbenzene	10.000	9.963	0.4	98	0.00
83	T,M	2-Chlorotoluene	10.000	9.391	6.1	89	0.00
84	T,M	4-Chlorotoluene	10.000	9.410	5.9	100	-0.01
85	T,M	tert-Butylbenzene	10.000	9.644	3.6	96	-0.01
86	T,M	1,2,4-Trimethylbenzene	10.000	9.714	2.9	96	0.00
87	T,M	sec-Butylbenzene	10.000	9.696	3.0	95	-0.01
88	T,M	p-Isopropyltoluene	10.000	10.099	-1.0	98	-0.01
89	T,M	1,3-Dichlorobenzene	10.000	9.473	5.3	95	0.00
90	T,M	1,4-Dichlorobenzene	10.000	9.338	6.6	93	0.00
91	T,M	n-Butylbenzene	10.000	9.803	2.0	93	-0.01
92	T,M	1,2-Dichlorobenzene	10.000	9.384	6.2	93	-0.01
93	T,M	1,2-Dibromo-3-chloropropane	10.000	9.759	2.4	89	-0.01
94	T,M	1,2,4-Trichlorobenzene	10.000	9.368	6.3	91	0.00
95	T,M	Hexachlorobutadiene	10.000	9.893	1.1	97	0.00
96	T,M	Naphthalene	10.000	9.304	7.0	87	0.00
97	T,M	1,2,3-Trichlorobenzene	10.000	9.453	5.5	90	0.00

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC077.D Vial: 2
Acq On : 7 Dec 2020 11:36 am Operator: VLu
Sample : CVO67J3022 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	98	-0.01
2	T,M	Dichlorodifluoromethane	0.346	0.304	12.1	86	0.00
3	T,M	Dichlorotetrafluoroethane	0.000	0.000	0.0	0#	0.00
4	P,T,M	Chloromethane	0.529	0.474	10.4	87	0.00
5	C,T,M	Vinyl chloride	0.499	0.474	5.0	85	-0.02
6	T,M	Bromomethane	0.434	0.407	6.2	89	0.00
7	T,M	Chloroethane	0.366	0.348	4.9	92	0.00
8	T,M	Dichlorofluoromethane	0.774	0.706	8.8	95	0.00
9	T,M	Trichlorofluoromethane	0.516	0.487	5.6	90	-0.02
10	T,M	sec-Propyl alcohol	0.000	0.000	0.0	0#	0.00
11	T,M	Acrolein	0.022	0.019	13.6	94	-0.02
12	T,M	1,1,2-Trichloro-1,2,2-trifl	0.274	0.252	8.0	93	-0.02
13	T,M	Acetone	0.031	0.025	19.4	86	-0.02
14	C,T,M	1,1-Dichloroethene	0.620	0.567	8.5	94	-0.02
15	T,M	tert-Butyl alcohol	0.011	0.010	9.1	90	0.00
16	T,M	Methyl acetate	0.102	0.000	100.0#	0#	-4.19#
17	T,M	Iodomethane	0.559	0.452	19.1	83	-0.04
18	T,M	Acetonitrile	0.049	0.040	18.4	84	-0.03
19	T,M	Methylene chloride	0.438	0.398	9.1	97	-0.03
20	T,M	Carbon disulfide	1.517	1.330	12.3	86	-0.03
21	T,M	Acrylonitrile	0.046	0.042	8.7	94	-0.03
22	T,M	tert-Butyl methyl ether (MT	0.501	0.453	9.6	92	-0.01
23	T,M	trans-1,2-Dichloroethene	0.442	0.413	6.6	95	-0.03
24	T,M	Isopropyl ether (DIPE)	0.940	0.892	5.1	99	-0.03
25	P,T,M	1,1-Dichloroethane	0.683	0.639	6.4	96	-0.03
26	T,M	Vinyl acetate	0.341	0.344	-0.9	101	-0.03
27	T,M	2-Butanol	0.009	0.000	100.0#	0#	-6.28#
28	T,M	tert-Butyl ethyl ether (ETB	0.726	0.677	6.7	96	-0.03
29	T,M	2-Butanone	0.013	0.012	7.7	91	-0.03
30	T,M	2,2-Dichloropropane	0.469	0.450	4.1	99	-0.03
31	T,M	cis-1,2-Dichloroethene	0.431	0.407	5.6	96	-0.04
32	C,T,M	Chloroform	0.638	0.592	7.2	95	-0.03
33	T,M	Bromochloromethane	0.189	0.174	7.9	93	-0.03
34	T,M	tert-Amyl alcohol	0.009	0.000	100.0#	0#	-7.99#
35	S	Dibromofluoromethane	0.327	0.301	8.0	85	-0.01
36	T,M	Tetrahydrofuran	0.033	0.027	18.2	81	-0.03
37	T,M	1,1,1-Trichloroethane	0.520	0.468	10.0	92	-0.01
38	T,M	Cyclohexane	0.604	0.000	100.0#	0#	-8.41#
39	T,M	2,2,4-Trimethylpentane	1.739	0.000	100.0#	0#	-8.59#
40	T,M	1,1-Dichloropropene	0.199	0.186	6.5	94	-0.03
41	T,M	Carbon tetrachloride	0.427	0.386	9.6	92	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC077.D Vial: 2
Acq On : 7 Dec 2020 11:36 am Operator: VLu
Sample : CVO67J3022 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	0.127	0.117	7.9	91	-0.01
43	S	1,2-Dichloroethane-d4	0.209	0.175	16.3	77	-0.01
44	T,M	1,2-Dichloroethane	0.258	0.228	11.6	90	-0.03
45	T,M	Benzene	1.464	1.389	5.1	97	-0.01
46	T,M	Trichloroethene	0.388	0.357	8.0	95	-0.03
47	T,M	Methylcyclohexane	0.682	0.000	100.0#	0#	-10.66#
48	C,T,M	1,2-Dichloropropane	0.322	0.306	5.0	97	-0.01
49	T,M	Bromodichloromethane	0.387	0.350	9.6	92	-0.01
50	T,M	1,4-Dioxane	0.001	0.001	0.0	87	-0.01
51	T,M	Dibromomethane	0.150	0.136	9.3	92	-0.01
52	T,M	2-Chloroethyl vinyl ether	0.000	0.040	0.0	0#	0.00
53	T,M	4-Methyl-2-pentanone	0.119	0.102	14.3	86	0.00
54	T,M	cis-1,3-Dichloropropene	0.469	0.427	9.0	94	-0.01
55	I	CHLOROBENZENE-D5	1.000	1.000	0.0	99	-0.01
56	S	Toluene-d8	1.526	1.392	8.8	83	-0.01
57	C,T,M	Toluene	1.969	1.791	9.0	94	-0.01
58	T,M	Ethyl methacrylate	0.285	0.257	9.8	92	0.00
59	T,M	trans-1,3-Dichloropropene	0.455	0.397	12.7	90	-0.01
60	T,M	1,1,2-Trichloroethane	0.240	0.213	11.2	91	0.00
61	T,M	2-Hexanone	0.099	0.085	14.1	87	-0.01
62	T,M	1,3-Dichloropropane	0.438	0.384	12.3	91	-0.01
63	T,M	Tetrachloroethene	0.393	0.338	14.0	91	-0.01
64	T,M	Dibromochloromethane	0.290	0.262	9.7	93	-0.01
65	T,M	1,2-Dibromoethane	0.227	0.204	10.1	92	-0.01
66	T,M	1-Chlorohexane	0.783	0.711	9.2	94	0.00
67	P,M	Chlorobenzene	1.107	1.026	7.3	96	0.00
68	T,M	1,1,1,2-Tetrachloroethane	0.346	0.321	7.2	98	-0.01
69	C,T,M	Ethylbenzene	2.191	1.975	9.9	93	-0.01
70	T,M	m-Xylene & p-Xylene	1.605	1.468	8.5	94	-0.01
71	T,M	o-Xylene	1.518	1.375	9.4	94	0.00
72	T,M	Styrene	1.182	1.025	13.3	89	-0.01
73	T,M	Isopropylbenzene	1.973	1.831	7.2	95	0.00
74	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	94	-0.01
75	P,T,M	Bromoform	0.451	0.408	9.5	87	0.00
76	P,T,M	1,1,2,2-Tetrachloroethane	0.733	0.683	6.8	90	-0.01
77	S	4-Bromofluorobenzene	1.359	1.238	8.9	83	0.00
78	T,M	1,2,3-Trichloropropane	0.178	0.166	6.7	89	0.00
79	T,M	trans-1,4-Dichloro-2-butene	0.182	0.120	34.1#	65	0.00
80	T,M	n-Propylbenzene	7.777	7.545	3.0	95	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L07\RLC077.D Vial: 2
Acq On : 7 Dec 2020 11:36 am Operator: VLu
Sample : CVO67J3022 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	1.100	1.027	6.6	93	-0.01
82	T,M	1,3,5-Trimethylbenzene	4.627	4.610	0.4	98	0.00
83	T,M	2-Chlorotoluene	4.772	4.482	6.1	89	0.00
84	T,M	4-Chlorotoluene	4.004	3.768	5.9	100	-0.01
85	T,M	tert-Butylbenzene	1.016	0.980	3.5	96	-0.01
86	T,M	1,2,4-Trimethylbenzene	4.340	4.216	2.9	96	0.00
87	T,M	sec-Butylbenzene	6.542	6.343	3.0	95	-0.01
88	T,M	p-Isopropyltoluene	4.955	5.004	-1.0	98	-0.01
89	T,M	1,3-Dichlorobenzene	2.255	2.136	5.3	95	0.00
90	T,M	1,4-Dichlorobenzene	2.208	2.062	6.6	93	0.00
91	T,M	n-Butylbenzene	5.096	4.995	2.0	93	-0.01
92	T,M	1,2-Dichlorobenzene	1.801	1.690	6.2	93	-0.01
93	T,M	1,2-Dibromo-3-chloropropane	0.078	0.076	2.6	89	-0.01
94	T,M	1,2,4-Trichlorobenzene	0.851	0.797	6.3	91	0.00
95	T,M	Hexachlorobutadiene	0.701	0.694	1.0	97	0.00
96	T,M	Naphthalene	1.015	0.945	6.9	87	0.00
97	T,M	1,2,3-Trichlorobenzene	0.579	0.547	5.5	90	0.00

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC077.D Vial: 2
Acq On : 7 Dec 2020 11:36 am Operator: VLu
Sample : CVO67J3022 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:23 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2446663	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1838997	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	573134	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.02	111	737551	9.23	ug/l	-0.01
Spiked Amount 10.000			Recovery =	92.30%		
43) 1,2-Dichloroethane-d4	9.13	65	427500	8.36	ug/l	-0.01
Spiked Amount 10.000			Recovery =	83.60%		
56) Toluene-d8	12.81	98	2560595	9.12	ug/l	-0.01
Spiked Amount 10.000			Recovery =	91.20%		
77) 4-Bromofluorobenzene	17.47	95	709258	9.10	ug/l	0.00
Spiked Amount 10.000			Recovery =	91.00%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	742784	8.79	ug/l	99
4) Chloromethane	2.11	50	1158618	8.94	ug/l	100
5) Vinyl chloride	2.21	62	1159186	9.50	ug/l	98
6) Bromomethane	2.62	94	995878	9.38	ug/l	98
7) Chloroethane	2.64	64	850375	9.50	ug/l	99
8) Dichlorofluoromethane	2.72	67	1728118	9.12	ug/l	99
9) Trichlorofluoromethane	2.88	101	1191180	9.43	ug/l	100
11) Acrolein	3.42	56	238389	45.01	ug/l	94
12) 1,1,2-Trichloro-1,2,2-trif	3.48	151	616711	9.19	ug/l	100
13) Acetone	3.50	43	308266	40.85	ug/l	100
14) 1,1-Dichloroethene	3.66	61	1388378	9.15	ug/l	99
15) tert-Butyl alcohol	3.80	59	584641	223.61	ug/l	99
17) Iodomethane	4.09	142	1105063	8.08	ug/l	99
18) Acetonitrile	4.21	41	978856	80.88	ug/l	99
19) Methylene chloride	4.40	49	974655	9.10	ug/l	100
20) Carbon disulfide	4.38	76	3255052	8.77	ug/l	100
21) Acrylonitrile	4.63	53	519745	46.61	ug/l	99
22) tert-Butyl methyl ether (M	4.67	73	1109130	9.05	ug/l	100
23) trans-1,2-Dichloroethene	4.89	96	1010843	9.34	ug/l	98
24) Isopropyl ether (DIPE)	5.53	45	2183440	9.49	ug/l	100
25) 1,1-Dichloroethane	5.72	63	1562712	9.35	ug/l	100
26) Vinyl acetate	5.78	43	840729	10.08	ug/l	99
28) tert-Butyl ethyl ether (ET	6.44	59	1656291	9.33	ug/l	100
29) 2-Butanone	6.72	72	146178	46.26	ug/l	99
30) 2,2-Dichloropropane	7.01	77	1101207	9.60	ug/l	99
31) cis-1,2-Dichloroethene	7.11	96	995925	9.44	ug/l	98
32) Chloroform	7.51	83	1448897	9.28	ug/l	100

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC077.D Vial: 2
Acq On : 7 Dec 2020 11:36 am Operator: VLu
Sample : CVO67J3022 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:23 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
33) Bromochloromethane	7.87	130	426117	9.21 ug/l	99
36) Tetrahydrofuran	7.96	42	65244	8.20 ug/l	95
37) 1,1,1-Trichloroethane	8.41	97	1144519	9.00 ug/l	99
40) 1,1-Dichloropropene	8.75	110	455542	9.34 ug/l	100
41) Carbon tetrachloride	8.94	119	943506	9.03 ug/l	100
42) tert-Amyl methyl ether (TA	9.08	87	285186	9.18 ug/l	99
44) 1,2-Dichloroethane	9.32	62	558557	8.84 ug/l	100
45) Benzene	9.30	78	3399230	9.49 ug/l	99
46) Trichloroethene	10.56	130	873474	9.21 ug/l	97
48) 1,2-Dichloropropane	10.92	63	747603	9.50 ug/l	98
49) Bromodichloromethane	11.36	83	856343	9.05 ug/l	100
50) 1,4-Dioxane	11.45	88	50458	175.69 ug/l	97
51) Dibromomethane	11.45	93	333956	9.13 ug/l	99
53) 4-Methyl-2-pentanone	12.09	43	1250767	42.96 ug/l	97
54) cis-1,3-Dichloropropene	12.41	75	1045161	9.10 ug/l	99
57) Toluene	12.95	91	3293656	9.09 ug/l	100
58) Ethyl methacrylate	13.38	69	472022	8.99 ug/l	97
59) trans-1,3-Dichloropropene	13.33	75	729348	8.72 ug/l	97
60) 1,1,2-Trichloroethane	13.60	97	391714	8.87 ug/l	99
61) 2-Hexanone	13.66	43	781986	42.92 ug/l	97
62) 1,3-Dichloropropane	14.03	76	706720	8.78 ug/l	100
63) Tetrachloroethene	14.09	164	621401	8.60 ug/l	100
64) Dibromochloromethane	14.44	129	481495	9.04 ug/l	99
65) 1,2-Dibromoethane	14.78	107	375611	9.00 ug/l	99
66) 1-Chlorohexane	15.13	91	1307392	9.08 ug/l	100
67) Chlorobenzene	15.51	112	1887140	9.27 ug/l	100
68) 1,1,1,2-Tetrachloroethane	15.60	131	589795	9.28 ug/l	100
69) Ethylbenzene	15.61	91	3632758	9.02 ug/l	99
70) m-Xylene & p-Xylene	15.74	91	5400851	18.30 ug/l	98
71) o-Xylene	16.47	91	2528305	9.06 ug/l	99
72) Styrene	16.53	104	1885769	8.68 ug/l	97
73) Isopropylbenzene	17.09	105	3366714	9.28 ug/l	99
75) Bromoform	17.09	173	233880	9.05 ug/l	100
76) 1,1,2,2-Tetrachloroethane	17.36	83	391652	9.32 ug/l	100
78) 1,2,3-Trichloropropane	17.58	110	95143	9.31 ug/l	98
79) trans-1,4-Dichloro-2-buten	17.19	53	68898	6.62 ug/l	100
80) n-Propylbenzene	17.69	91	4324462	9.70 ug/l	100
81) Bromobenzene	17.73	156	588790	9.34 ug/l	98
82) 1,3,5-Trimethylbenzene	17.91	105	2642371	9.96 ug/l	100
83) 2-Chlorotoluene	17.92	91	2568781	9.39 ug/l	100
84) 4-Chlorotoluene	17.98	91	2159551	9.41 ug/l	99

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L07\RLC077.D Vial: 2
Acq On : 7 Dec 2020 11:36 am Operator: VLu
Sample : CVO67J3022 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:23 2020 Quant Results File: VO67J30.RES

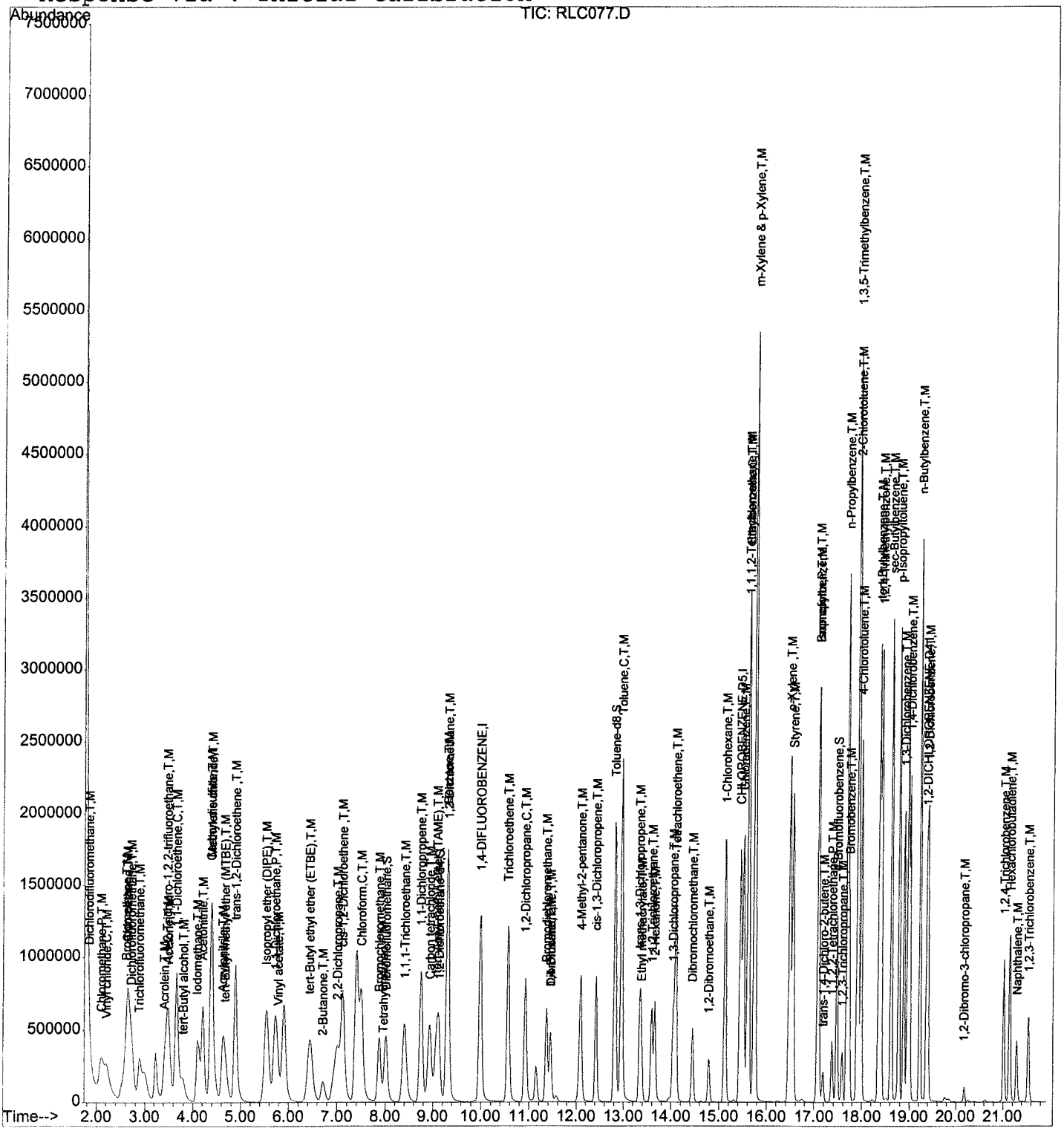
Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
85)	tert-Butylbenzene	18.36	134	561625	9.64	ug/l	91
86)	1,2,4-Trimethylbenzene	18.40	105	2416317	9.71	ug/l	99
87)	sec-Butylbenzene	18.61	105	3635265	9.70	ug/l	100
88)	p-Isopropyltoluene	18.77	119	2868149	10.10	ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	1224189	9.47	ug/l	99
90)	1,4-Dichlorobenzene	19.00	146	1181539	9.34	ug/l	99
91)	n-Butylbenzene	19.22	91	2862977	9.80	ug/l	100
92)	1,2-Dichlorobenzene	19.40	146	968596	9.38	ug/l	100
93)	1,2-Dibromo-3-chloropropan	20.17	157	43520	9.76	ug/l	98
94)	1,2,4-Trichlorobenzene	21.02	180	457053	9.37	ug/l	99
95)	Hexachlorobutadiene	21.15	225	397513	9.89	ug/l	99
96)	Naphthalene	21.29	128	541480	9.30	ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	313648	9.45	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\20L07\RLC077.D Vial: 2
Acq On : 7 Dec 2020 11:36 am Operator: VLu
Sample : CVO67J3022 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 8 11:23 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc Contract: VAFB-SS003
Lab Code: EMXT Case No.: SAS No.: SDG No.: 20L041
Lab File ID: RLC105 BFB Injection Date : 12/08/20
Instrument ID: 67 BFB Injection Time : 10:32
GC Column:RTX502.2ID:0.25mm (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.72
75	30.0 - 60.0% of mass 95	44.67
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.96
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	75.78
175	5.0 - 9.0% of mass 174	6.72(8.9)1
176	95.0 - 101.0% of mass 174	72.45(95.6)1
177	5.0 - 9.0% of mass 176	4.63(6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD,BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD010	CV067J3023	RLC106	12/08/20	11:19
2	MBLK2W	V067L06B	RLC110	12/08/20	13:01
3	LCS2W	V067L06L	RLC107	12/08/20	11:45
4	LCD2W	V067L06C	RLC108	12/08/20	12:10
5	3-MW-55(120120)DL	L041-02I	RLC111	12/08/20	13:27
6	3-MW-54(120220)DL	L041-03I	RLC112	12/08/20	13:52
7	3-MW-56(120220)DL	L041-04I	RLC113	12/08/20	14:17
8	SS003-DUP1(120220)DL	L041-05I	RLC114	12/08/20	14:43
9	3-MW-57(120320)DL	L041-06I	RLC115	12/08/20	15:08
10	3-MW-58(120320)DL	L041-07I	RLC116	12/08/20	15:34
11	3-MW-59(120320)DL	L041-08I	RLC117	12/08/20	15:59

FORM 8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : EMAX Inc
Lab Code : EMXT
Lab File ID : RJC459
Instrument ID: 67
GC Column : RTX502.2ID:0.25mm (mm)

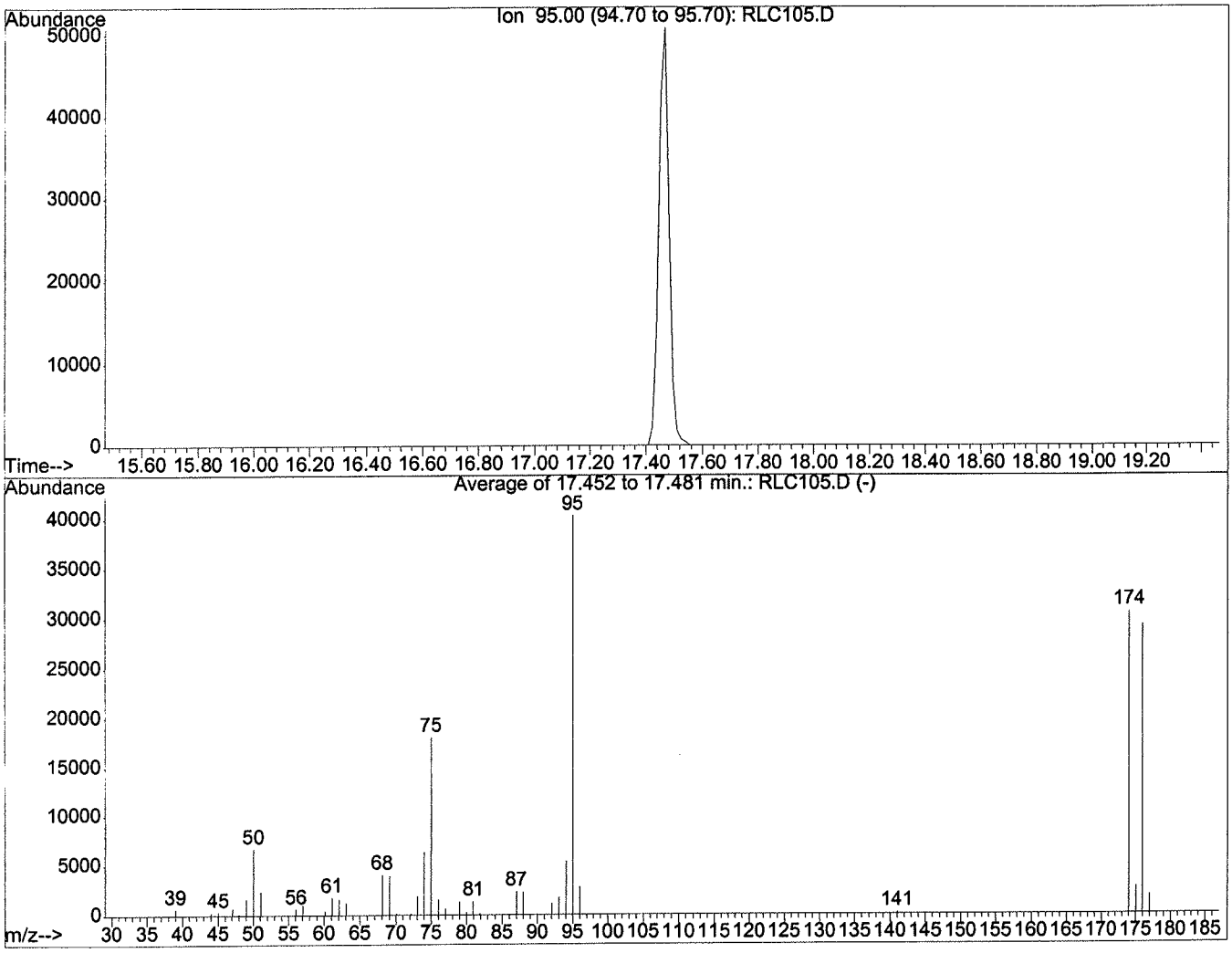
Project: VAFB-SS003
SDG No: 20L041
Date Analyzed: 10/30/2020
Time Analyzed: 13:41
Heated Purge (Y/N): N

		1,4-DIFLUOROBENZENE		CHLOROBENZENE-D5		1,2-DICHLOROBENZENE-D4	
		AREA #	RT(min)	AREA #	RT(min)	AREA #	RT(min)
	12 HOUR STD	2484539	10.00	1854704	15.45	612676	19.38
	UPPER LIMIT	4969078	10.50	3709408	15.95	1225352	19.88
	LOWER LIMIT	1242270	9.50	927352	14.95	306338	18.88
	SAMPLE ID						
1	VSTD010	2466298	9.98	1858613	15.44	583024	19.37
2	MBLK2W	2339998	9.99	1757178	15.44	508853	19.37
3	LCS2W	2351868	9.99	1810666	15.44	575887	19.37
4	LCD2W	2339880	9.99	1807445	15.44	585286	19.37
5	3-MW-55(120120)DL	2375476	9.99	1767763	15.44	504516	19.37
6	3-MW-54(120220)DL	2323412	9.99	1746166	15.44	508359	19.37
7	3-MW-56(120220)DL	2313170	9.99	1732916	15.44	498961	19.37
8	SS003-DUP1(120220)DL	2264986	9.99	1687725	15.45	483456	19.37
9	3-MW-57(120320)DL	2343481	10.00	1758049	15.45	492640	19.37
10	3-MW-58(120320)DL	2317073	10.00	1730242	15.45	495677	19.37
11	3-MW-59(120320)DL	2295535	10.00	1684665	15.45	480996	19.37

Area Upper Limit = + 100% of internal standard area
Area Lower Limit = - 50% of internal standard area
RT Upper Limit = + 0.5 min. (30 sec.) of internal standard RT
RT Lower Limit = - 0.5 min. (30 sec.) of internal standard RT

Data File : D:\HPCHEM\1\DATA\20L08\RLC105.D
Acq On : 8 Dec 2020 10:32 am
Sample : BFB67L06
Misc : T/CHK
MS Integration Params: RTE.P
Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B

Vial: 1
Operator: VLu
Inst : 67
Multiplr: 1.00



AutoFind: Scans 1028, 1029, 1030; Background Corrected with Scan 1023

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.7	6744	PASS
75	95	30	60	44.7	18022	PASS
95	95	100	100	100.0	40341	PASS
96	95	5	9	7.0	2809	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	75.8	30571	PASS
175	174	5	9	8.9	2711	PASS
176	174	95	101	95.6	29227	PASS
177	176	5	9	6.4	1868	PASS

RLC105.D VO67J30.M Wed Dec 09 11:23:46 2020

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC106.D Vial: 2
Acq On : 8 Dec 2020 11:19 am Operator: VLu
Sample : CVO67J3023 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	99	-0.03
2	T,M	Dichlorodifluoromethane	10.000	8.784	12.2	87	0.00
3	T,M	Dichlorotetrafluoroethane	-1.000	0.000	0.0	0	0.00
4	P,T,M	Chloromethane	10.000	9.082	9.2	89	0.00
5	C,T,M	Vinyl chloride	10.000	9.455	5.4	86	-0.02
6	T,M	Bromomethane	10.000	9.219	7.8	88	0.02
7	T,M	Chloroethane	10.000	9.663	3.4	95	0.00
8	T,M	Dichlorofluoromethane	10.000	9.378	6.2	98	0.00
9	T,M	Trichlorofluoromethane	10.000	9.343	6.6	90	-0.02
10	T,M	sec-Propyl alcohol	-1.000	0.000	0.0	0	0.00
11	T,M	Acrolein	50.000	50.891	-1.8	107	-0.02
12	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	9.467	5.3	97	-0.02
13	T,M	Acetone	50.000	45.955	8.1	98	-0.02
14	C,T,M	1,1-Dichloroethene	10.000	9.547	4.5	99	-0.02
15	T,M	tert-Butyl alcohol	250.000	248.765	0.5	101	-0.02
16	T,M	Methyl acetate	10.000	0.000	100.0#	0	-4.19#
17	T,M	Iodomethane	10.000	8.150	18.5	85	-0.04
18	T,M	Acetonitrile	100.000	81.489	18.5	85	-0.03
19	T,M	Methylene chloride	10.000	9.756	2.4	105	-0.03
20	T,M	Carbon disulfide	10.000	8.629	13.7	85	-0.03
21	T,M	Acrylonitrile	50.000	51.522	-3.0	105	-0.04
22	T,M	tert-Butyl methyl ether (MT	10.000	9.950	0.5	102	-0.03
23	T,M	trans-1,2-Dichloroethene	10.000	9.491	5.1	98	-0.04
24	T,M	Isopropyl ether (DIPE)	10.000	10.159	-1.6	106	-0.03
25	P,T,M	1,1-Dichloroethane	10.000	9.609	3.9	99	-0.04
26	T,M	Vinyl acetate	10.000	10.631	-6.3	107	-0.04
27	T,M	2-Butanol	250.000	0.000	100.0#	0	-6.28#
28	T,M	tert-Butyl ethyl ether (ETB	10.000	10.086	-0.9	104	-0.03
29	T,M	2-Butanone	50.000	51.643	-3.3	103	-0.04
30	T,M	2,2-Dichloropropane	10.000	9.806	1.9	102	-0.04
31	T,M	cis-1,2-Dichloroethene	10.000	9.702	3.0	100	-0.04
32	C,T,M	Chloroform	10.000	9.611	3.9	99	-0.04
33	T,M	Bromochloromethane	10.000	9.570	4.3	97	-0.03
34	T,M	tert-Amyl alcohol	50.000	0.000	100.0#	0	-7.99#
35	S	Dibromofluoromethane	10.000	9.494	5.1	88	-0.03
36	T,M	Tetrahydrofuran	10.000	9.472	5.3	94	-0.03
37	T,M	1,1,1-Trichloroethane	10.000	9.190	8.1	95	-0.03
38	T,M	Cyclohexane	10.000	0.000	100.0#	0	-8.41#
39	T,M	2,2,4-Trimethylpentane	10.000	0.000	100.0#	0	-8.59#
40	T,M	1,1-Dichloropropene	10.000	9.340	6.6	95	-0.03
41	T,M	Carbon tetrachloride	10.000	9.263	7.4	95	-0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC106.D Vial: 2
Acq On : 8 Dec 2020 11:19 am Operator: VLu
Sample : CVO67J3023 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	10.000	9.867	1.3	99	-0.03
43	S	1,2-Dichloroethane-d4	10.000	8.674	13.3	81	-0.03
44	T,M	1,2-Dichloroethane	10.000	9.499	5.0	97	-0.03
45	T,M	Benzene	10.000	9.690	3.1	100	-0.03
46	T,M	Trichloroethene	10.000	9.324	6.8	96	-0.03
47	T,M	Methylcyclohexane	10.000	0.000	100.0#	0	-10.66#
48	C,T,M	1,2-Dichloropropane	10.000	9.683	3.2	100	-0.03
49	T,M	Bromodichloromethane	10.000	9.414	5.9	97	-0.03
50	T,M	1,4-Dioxane	200.000	172.391	13.8	86	-0.01
51	T,M	Dibromomethane	10.000	9.434	5.7	96	-0.03
52	T,M	2-Chloroethyl vinyl ether	10.000	0.000	100.0#	0	-0.01
53	T,M	4-Methyl-2-pentanone	50.000	48.371	3.3	98	-0.01
54	T,M	cis-1,3-Dichloropropene	10.000	9.382	6.2	97	-0.01
55	I	CHLOROBENZENE-D5	10.000	10.000	0.0	100	-0.01
56	S	Toluene-d8	10.000	9.030	9.7	83	-0.01
57	C,T,M	Toluene	10.000	9.114	8.9	96	-0.01
58	T,M	Ethyl methacrylate	10.000	9.656	3.4	100	-0.01
59	T,M	trans-1,3-Dichloropropene	10.000	9.237	7.6	96	-0.01
60	T,M	1,1,2-Trichloroethane	10.000	9.385	6.2	98	-0.01
61	T,M	2-Hexanone	50.000	48.155	3.7	99	-0.03
62	T,M	1,3-Dichloropropane	10.000	9.240	7.6	96	-0.01
63	T,M	Tetrachloroethene	10.000	8.564	14.4	92	-0.03
64	T,M	Dibromochloromethane	10.000	9.495	5.1	99	-0.01
65	T,M	1,2-Dibromoethane	10.000	9.536	4.6	98	-0.01
66	T,M	1-Chlorohexane	10.000	9.176	8.2	97	-0.01
67	P,M	Chlorobenzene	10.000	9.455	5.4	99	-0.01
68	T,M	1,1,1,2-Tetrachloroethane	10.000	9.501	5.0	101	-0.03
69	C,T,M	Ethylbenzene	10.000	9.073	9.3	95	-0.03
70	T,M	m-Xylene & p-Xylene	20.000	18.524	7.4	96	-0.03
71	T,M	o-Xylene	10.000	9.113	8.9	96	-0.01
72	T,M	Styrene	10.000	8.898	11.0	92	-0.01
73	T,M	Isopropylbenzene	10.000	9.371	6.3	97	-0.01
74	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	95	-0.01
75	P,T,M	Bromoform	10.000	9.543	4.6	93	-0.01
76	P,T,M	1,1,2,2-Tetrachloroethane	10.000	9.885	1.2	98	-0.01
77	S	4-Bromofluorobenzene	10.000	8.946	10.5	83	-0.01
78	T,M	1,2,3-Trichloropropane	10.000	10.131	-1.3	99	-0.01
79	T,M	trans-1,4-Dichloro-2-butene	10.000	8.227	17.7	82	-0.01
80	T,M	n-Propylbenzene	10.000	9.653	3.5	96	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC106.D Vial: 2
Acq On : 8 Dec 2020 11:19 am Operator: VLu
Sample : CVO67J3023 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	10.000	9.651	3.5	98	-0.01
82	T,M	1,3,5-Trimethylbenzene	10.000	9.964	0.4	100	-0.01
83	T,M	2-Chlorotoluene	10.000	9.775	2.2	94	-0.01
84	T,M	4-Chlorotoluene	10.000	8.974	10.3	97	-0.01
85	T,M	tert-Butylbenzene	10.000	9.711	2.9	98	-0.01
86	T,M	1,2,4-Trimethylbenzene	10.000	9.790	2.1	98	0.00
87	T,M	sec-Butylbenzene	10.000	9.761	2.4	97	-0.01
88	T,M	p-Isopropyltoluene	10.000	10.015	-0.2	99	-0.01
89	T,M	1,3-Dichlorobenzene	10.000	9.638	3.6	98	-0.01
90	T,M	1,4-Dichlorobenzene	10.000	9.495	5.1	96	0.00
91	T,M	n-Butylbenzene	10.000	9.639	3.6	93	-0.01
92	T,M	1,2-Dichlorobenzene	10.000	9.534	4.7	96	-0.01
93	T,M	1,2-Dibromo-3-chloropropane	10.000	10.326	-3.3	96	-0.01
94	T,M	1,2,4-Trichlorobenzene	10.000	9.520	4.8	94	0.00
95	T,M	Hexachlorobutadiene	10.000	9.622	3.8	96	-0.01
96	T,M	Naphthalene	10.000	9.659	3.4	92	-0.01
97	T,M	1,2,3-Trichlorobenzene	10.000	9.697	3.0	94	-0.01

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC106.D Vial: 2
Acq On : 8 Dec 2020 11:19 am Operator: VLu
Sample : CVO67J3023 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	99	-0.03
2	T,M	Dichlorodifluoromethane	0.346	0.304	12.1	87	0.00
3	T,M	Dichlorotetrafluoroethane	0.000	0.000	0.0	0#	0.00
4	P,T,M	Chloromethane	0.529	0.481	9.1	89	0.00
5	C,T,M	Vinyl chloride	0.499	0.472	5.4	86	-0.02
6	T,M	Bromomethane	0.434	0.400	7.8	88	0.02
7	T,M	Chloroethane	0.366	0.353	3.6	95	0.00
8	T,M	Dichlorofluoromethane	0.774	0.726	6.2	98	0.00
9	T,M	Trichlorofluoromethane	0.516	0.482	6.6	90	-0.02
10	T,M	sec-Propyl alcohol	0.000	0.000	0.0	0#	0.00
11	T,M	Acrolein	0.022	0.022	0.0	107	-0.02
12	T,M	1,1,2-Trichloro-1,2,2-trifl	0.274	0.260	5.1	97	-0.02
13	T,M	Acetone	0.031	0.028	9.7	98	-0.02
14	C,T,M	1,1-Dichloroethene	0.620	0.592	4.5	99	-0.02
15	T,M	tert-Butyl alcohol	0.011	0.011	0.0	101	-0.02
16	T,M	Methyl acetate	0.102	0.000	100.0#	0#	-4.19#
17	T,M	Iodomethane	0.559	0.455	18.6	85	-0.04
18	T,M	Acetonitrile	0.049	0.040	18.4	85	-0.03
19	T,M	Methylene chloride	0.438	0.427	2.5	105	-0.03
20	T,M	Carbon disulfide	1.517	1.309	13.7	85	-0.03
21	T,M	Acrylonitrile	0.046	0.047	-2.2	105	-0.04
22	T,M	tert-Butyl methyl ether (MT	0.501	0.498	0.6	102	-0.03
23	T,M	trans-1,2-Dichloroethene	0.442	0.420	5.0	98	-0.04
24	T,M	Isopropyl ether (DIPE)	0.940	0.955	-1.6	106	-0.03
25	P,T,M	1,1-Dichloroethane	0.683	0.657	3.8	99	-0.04
26	T,M	Vinyl acetate	0.341	0.362	-6.2	107	-0.04
27	T,M	2-Butanol	0.009	0.000	100.0#	0#	-6.28#
28	T,M	tert-Butyl ethyl ether (ETB	0.726	0.732	-0.8	104	-0.03
29	T,M	2-Butanone	0.013	0.013	0.0	103	-0.04
30	T,M	2,2-Dichloropropane	0.469	0.460	1.9	102	-0.04
31	T,M	cis-1,2-Dichloroethene	0.431	0.418	3.0	100	-0.04
32	C,T,M	Chloroform	0.638	0.614	3.8	99	-0.04
33	T,M	Bromochloromethane	0.189	0.181	4.2	97	-0.03
34	T,M	tert-Amyl alcohol	0.009	0.000	100.0#	0#	-7.99#
35	S	Dibromofluoromethane	0.327	0.310	5.2	88	-0.03
36	T,M	Tetrahydrofuran	0.033	0.031	6.1	94	-0.03
37	T,M	1,1,1-Trichloroethane	0.520	0.478	8.1	95	-0.03
38	T,M	Cyclohexane	0.604	0.000	100.0#	0#	-8.41#
39	T,M	2,2,4-Trimethylpentane	1.739	0.000	100.0#	0#	-8.59#
40	T,M	1,1-Dichloropropene	0.199	0.186	6.5	95	-0.03
41	T,M	Carbon tetrachloride	0.427	0.395	7.5	95	-0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC106.D Vial: 2
Acq On : 8 Dec 2020 11:19 am Operator: VLu
Sample : CVO67J3023 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	0.127	0.125	1.6	99	-0.03
43	S	1,2-Dichloroethane-d4	0.209	0.181	13.4	81	-0.03
44	T,M	1,2-Dichloroethane	0.258	0.245	5.0	97	-0.03
45	T,M	Benzene	1.464	1.419	3.1	100	-0.03
46	T,M	Trichloroethene	0.388	0.361	7.0	96	-0.03
47	T,M	Methylcyclohexane	0.682	0.000	100.0#	0#	-10.66#
48	C,T,M	1,2-Dichloropropane	0.322	0.311	3.4	100	-0.03
49	T,M	Bromodichloromethane	0.387	0.364	5.9	97	-0.03
50	T,M	1,4-Dioxane	0.001	0.001	0.0	86	-0.01
51	T,M	Dibromomethane	0.150	0.141	6.0	96	-0.03
52	T,M	2-Chloroethyl vinyl ether	0.000	0.043	0.0	0#	-0.01
53	T,M	4-Methyl-2-pentanone	0.119	0.115	3.4	98	-0.01
54	T,M	cis-1,3-Dichloropropene	0.469	0.440	6.2	97	-0.01
55	I	CHLOROBENZENE-D5	1.000	1.000	0.0	100	-0.01
56	S	Toluene-d8	1.526	1.378	9.7	83	-0.01
57	C,T,M	Toluene	1.969	1.795	8.8	96	-0.01
58	T,M	Ethyl methacrylate	0.285	0.276	3.2	100	-0.01
59	T,M	trans-1,3-Dichloropropene	0.455	0.420	7.7	96	-0.01
60	T,M	1,1,2-Trichloroethane	0.240	0.225	6.2	98	-0.01
61	T,M	2-Hexanone	0.099	0.095	4.0	99	-0.03
62	T,M	1,3-Dichloropropane	0.438	0.404	7.8	96	-0.01
63	T,M	Tetrachloroethene	0.393	0.336	14.5	92	-0.03
64	T,M	Dibromochloromethane	0.290	0.275	5.2	99	-0.01
65	T,M	1,2-Dibromoethane	0.227	0.216	4.8	98	-0.01
66	T,M	1-Chlorohexane	0.783	0.719	8.2	97	-0.01
67	P,M	Chlorobenzene	1.107	1.047	5.4	99	-0.01
68	T,M	1,1,1,2-Tetrachloroethane	0.346	0.328	5.2	101	-0.03
69	C,T,M	Ethylbenzene	2.191	1.988	9.3	95	-0.03
70	T,M	m-Xylene & p-Xylene	1.605	1.487	7.4	96	-0.03
71	T,M	o-Xylene	1.518	1.383	8.9	96	-0.01
72	T,M	Styrene	1.182	1.052	11.0	92	-0.01
73	T,M	Isopropylbenzene	1.973	1.848	6.3	97	-0.01
74	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	95	-0.01
75	P,T,M	Bromoform	0.451	0.430	4.7	93	-0.01
76	P,T,M	1,1,2,2-Tetrachloroethane	0.733	0.725	1.1	98	-0.01
77	S	4-Bromofluorobenzene	1.359	1.216	10.5	83	-0.01
78	T,M	1,2,3-Trichloropropane	0.178	0.181	-1.7	99	-0.01
79	T,M	trans-1,4-Dichloro-2-butene	0.182	0.149	18.1	82	-0.01
80	T,M	n-Propylbenzene	7.777	7.507	3.5	96	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC106.D Vial: 2
Acq On : 8 Dec 2020 11:19 am Operator: VLu
Sample : CVO67J3023 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	1.100	1.062	3.5	98	-0.01
82	T,M	1,3,5-Trimethylbenzene	4.627	4.610	0.4	100	-0.01
83	T,M	2-Chlorotoluene	4.772	4.665	2.2	94	-0.01
84	T,M	4-Chlorotoluene	4.004	3.593	10.3	97	-0.01
85	T,M	tert-Butylbenzene	1.016	0.987	2.9	98	-0.01
86	T,M	1,2,4-Trimethylbenzene	4.340	4.249	2.1	98	0.00
87	T,M	sec-Butylbenzene	6.542	6.386	2.4	97	-0.01
88	T,M	p-Isopropyltoluene	4.955	4.963	-0.2	99	-0.01
89	T,M	1,3-Dichlorobenzene	2.255	2.173	3.6	98	-0.01
90	T,M	1,4-Dichlorobenzene	2.208	2.096	5.1	96	0.00
91	T,M	n-Butylbenzene	5.096	4.912	3.6	93	-0.01
92	T,M	1,2-Dichlorobenzene	1.801	1.717	4.7	96	-0.01
93	T,M	1,2-Dibromo-3-chloropropane	0.078	0.080	-2.6	96	-0.01
94	T,M	1,2,4-Trichlorobenzene	0.851	0.810	4.8	94	0.00
95	T,M	Hexachlorobutadiene	0.701	0.675	3.7	96	-0.01
96	T,M	Naphthalene	1.015	0.981	3.3	92	-0.01
97	T,M	1,2,3-Trichlorobenzene	0.579	0.561	3.1	94	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0
RLC106.D VO67J30.M Wed Dec 09 11:27:49 2020 Page 3

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC106.D Vial: 2
Acq On : 8 Dec 2020 11:19 am Operator: VLu
Sample : CVO67J3023 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:27 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.98	114	2466298	10.00	ug/l	-0.03
55) CHLOROBENZENE-D5	15.44	117	1858613	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	583024	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.00	111	764583	9.49	ug/l	-0.03
Spiked Amount 10.000			Recovery =	94.90%		
43) 1,2-Dichloroethane-d4	9.11	65	446903	8.67	ug/l	-0.03
Spiked Amount 10.000			Recovery =	86.70%		
56) Toluene-d8	12.81	98	2562096	9.03	ug/l	-0.01
Spiked Amount 10.000			Recovery =	90.30%		
77) 4-Bromofluorobenzene	17.45	95	708924	8.95	ug/l	-0.01
Spiked Amount 10.000			Recovery =	89.50%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	748637	8.78	ug/l	100
4) Chloromethane	2.11	50	1186006	9.08	ug/l	100
5) Vinyl chloride	2.21	62	1163470	9.46	ug/l	98
6) Bromomethane	2.64	94	986718	9.22	ug/l	98
7) Chloroethane	2.64	64	871569	9.66	ug/l	99
8) Dichlorofluoromethane	2.72	67	1791244	9.38	ug/l	99
9) Trichlorofluoromethane	2.88	101	1189089	9.34	ug/l	99
11) Acrolein	3.42	56	271711	50.89	ug/l	97
12) 1,1,2-Trichloro-1,2,2-trif	3.48	151	640768	9.47	ug/l	99
13) Acetone	3.50	43	349535	45.95	ug/l	99
14) 1,1-Dichloroethene	3.66	61	1460739	9.55	ug/l	99
15) tert-Butyl alcohol	3.78	59	655639	248.77	ug/l	99
17) Iodomethane	4.09	142	1123033	8.15	ug/l	99
18) Acetonitrile	4.21	41	994181	81.49	ug/l	98
19) Methylene chloride	4.40	49	1053377	9.76	ug/l	99
20) Carbon disulfide	4.38	76	3228604	8.63	ug/l	98
21) Acrylonitrile	4.61	53	579072	51.52	ug/l	100
22) tert-Butyl methyl ether (M	4.66	73	1228650	9.95	ug/l	100
23) trans-1,2-Dichloroethene	4.88	96	1035390	9.49	ug/l	98
24) Isopropyl ether (DIPE)	5.53	45	2356008	10.16	ug/l	98
25) 1,1-Dichloroethane	5.71	63	1619294	9.61	ug/l	99
26) Vinyl acetate	5.77	43	893934	10.63	ug/l	100
28) tert-Butyl ethyl ether (ET	6.44	59	1804672	10.09	ug/l	100
29) 2-Butanone	6.70	72	164493	51.64	ug/l	98
30) 2,2-Dichloropropane	7.00	77	1134291	9.81	ug/l	99
31) cis-1,2-Dichloroethene	7.11	96	1031830	9.70	ug/l	97
32) Chloroform	7.49	83	1513080	9.61	ug/l	99

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC106.D Vial: 2
Acq On : 8 Dec 2020 11:19 am Operator: VLu
Sample : CVO67J3023 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:27 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Bromochloromethane	7.87	130	446439	9.57	ug/l	99
36)	Tetrahydrofuran	7.96	42	75959	9.47	ug/l	95
37)	1,1,1-Trichloroethane	8.40	97	1178276	9.19	ug/l	99
40)	1,1-Dichloropropene	8.75	110	459251	9.34	ug/l	100
41)	Carbon tetrachloride	8.92	119	975191	9.26	ug/l	100
42)	tert-Amyl methyl ether (TA	9.07	87	309050	9.87	ug/l	99
44)	1,2-Dichloroethane	9.32	62	604711	9.50	ug/l	99
45)	Benzene	9.29	78	3498804	9.69	ug/l	99
46)	Trichloroethene	10.56	130	891531	9.32	ug/l	97
48)	1,2-Dichloropropane	10.91	63	768073	9.68	ug/l	100
49)	Bromodichloromethane	11.35	83	898086	9.41	ug/l	99
50)	1,4-Dioxane	11.45	88	49908	172.39	ug/l	95
51)	Dibromomethane	11.44	93	347932	9.43	ug/l	99
53)	4-Methyl-2-pentanone	12.08	43	1419717	48.37	ug/l	97
54)	cis-1,3-Dichloropropene	12.41	75	1085973	9.38	ug/l	99
57)	Toluene	12.95	91	3335930	9.11	ug/l	99
58)	Ethyl methacrylate	13.36	69	512169	9.66	ug/l	98
59)	trans-1,3-Dichloropropene	13.33	75	780423	9.24	ug/l	99
60)	1,1,2-Trichloroethane	13.58	97	418827	9.39	ug/l	99
61)	2-Hexanone	13.64	43	886749	48.15	ug/l	97
62)	1,3-Dichloropropane	14.04	76	751658	9.24	ug/l	100
63)	Tetrachloroethene	14.08	164	625116	8.56	ug/l	99
64)	Dibromochloromethane	14.44	129	511366	9.50	ug/l	100
65)	1,2-Dibromoethane	14.78	107	402291	9.54	ug/l	99
66)	1-Chlorohexane	15.12	91	1335953	9.18	ug/l	100
67)	Chlorobenzene	15.50	112	1945644	9.45	ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.58	131	610461	9.50	ug/l	100
69)	Ethylbenzene	15.60	91	3694306	9.07	ug/l	99
70)	m-Xylene & p-Xylene	15.73	91	5525868	18.52	ug/l	98
71)	o-Xylene	16.46	91	2570847	9.11	ug/l	99
72)	Styrene	16.53	104	1954431	8.90	ug/l	99
73)	Isopropylbenzene	17.07	105	3435482	9.37	ug/l	99
75)	Bromoform	17.07	173	250991	9.54	ug/l	99
76)	1,1,2,2-Tetrachloroethane	17.37	83	422579	9.89	ug/l	100
78)	1,2,3-Trichloropropane	17.57	110	105348	10.13	ug/l	98
79)	trans-1,4-Dichloro-2-buten	17.18	53	87105	8.23	ug/l	99
80)	n-Propylbenzene	17.67	91	4376917	9.65	ug/l	99
81)	Bromobenzene	17.73	156	619151	9.65	ug/l	98
82)	1,3,5-Trimethylbenzene	17.89	105	2687997	9.96	ug/l	100
83)	2-Chlorotoluene	17.91	91	2719909	9.78	ug/l	100
84)	4-Chlorotoluene	17.98	91	2095048	8.97	ug/l	98

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L08\RLC106.D Vial: 2
Acq On : 8 Dec 2020 11:19 am Operator: VLu
Sample : CVO67J3023 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:27 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

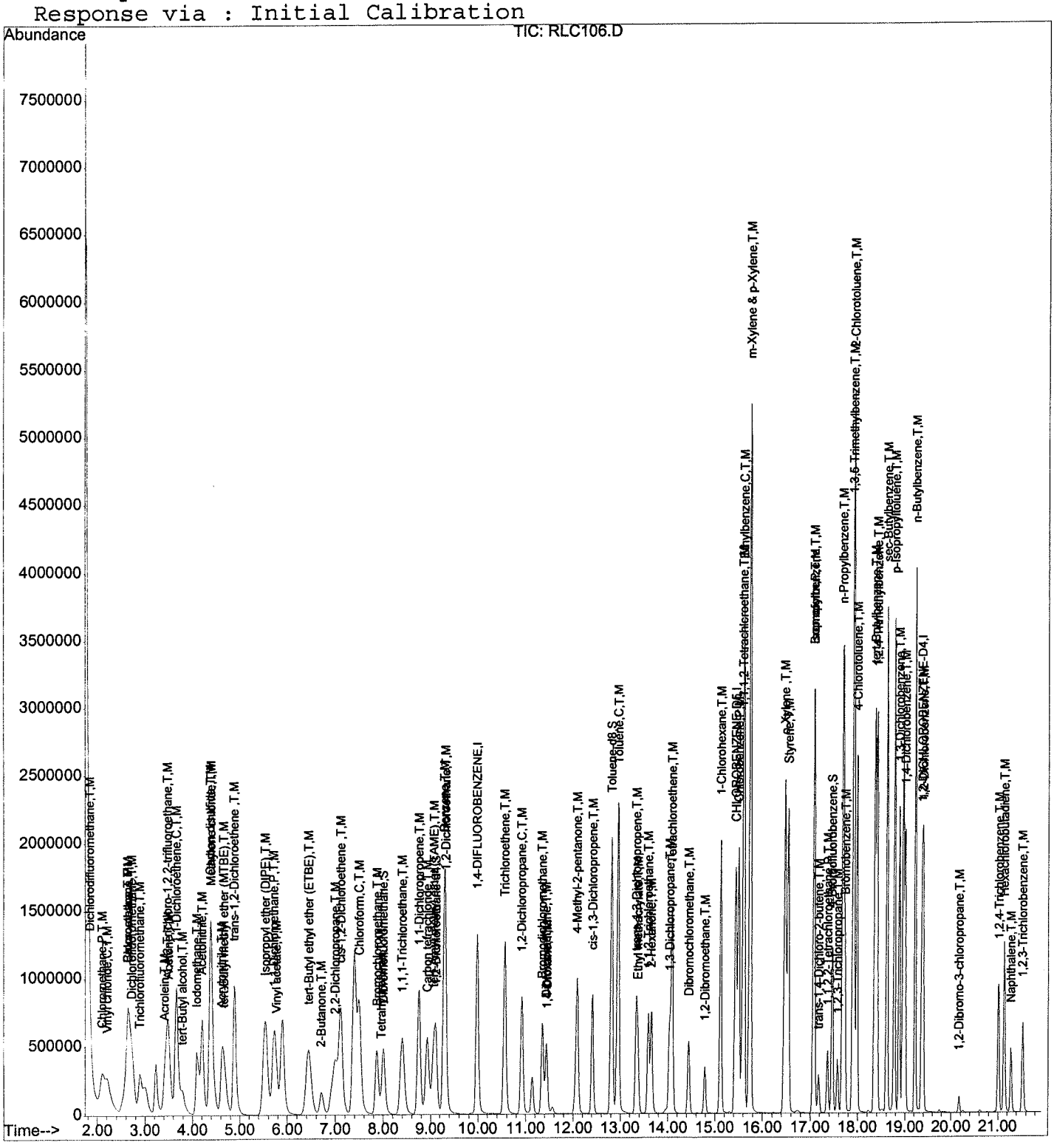
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
85)	tert-Butylbenzene	18.36	134	575295	9.71	ug/l	95
86)	1,2,4-Trimethylbenzene	18.40	105	2477116	9.79	ug/l	100
87)	sec-Butylbenzene	18.61	105	3723059	9.76	ug/l	100
88)	p-Isopropyltoluene	18.77	119	2893419	10.01	ug/l	99
89)	1,3-Dichlorobenzene	18.87	146	1267022	9.64	ug/l	99
90)	1,4-Dichlorobenzene	19.00	146	1222162	9.50	ug/l	99
91)	n-Butylbenzene	19.22	91	2863596	9.64	ug/l	99
92)	1,2-Dichlorobenzene	19.40	146	1001113	9.53	ug/l	100
93)	1,2-Dibromo-3-chloropropan	20.17	157	46843	10.33	ug/l	99
94)	1,2,4-Trichlorobenzene	21.02	180	472469	9.52	ug/l	99
95)	Hexachlorobutadiene	21.13	225	393323	9.62	ug/l	99
96)	Naphthalene	21.28	128	571842	9.66	ug/l	99
97)	1,2,3-Trichlorobenzene	21.53	180	327291	9.70	ug/l	99

(#) = qualifier out of range (m) = manual integration
RLC106.D VO67J30.M Wed Dec 09 11:27:55 2020 Page 3

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L08\RLC106.D Vial: 2
Acq On : 8 Dec 2020 11:19 am Operator: VLu
Sample : CVO67J3023 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 9 11:27 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



ANALYTICAL LOG(S)

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☑ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 5 ☐ EMAX-624.1 Rev.No. 0

Start Date: 10/30/20 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge

Book #: A67-071

BATCH VO67J306

	Sample Prep ID	Data File Name	Lab Sample ID	(*) Sample Amount (mL)	DF	Matrix W pH < 2	Matrix W Cl_2 < 5ppm	Matrix S	Notes
01		RJC453	BFB67J20 ✓	A / B	NA	NA	NA		8260 Ket-AA TBA 10:46
02		54	VO67J301 ✓						0.3 1.5 7.5 ppb
03		55	2 ✓						0.5 2.5 12.5
04		56	3 ✓						1.0 5.0 25
05		57	4 ✓						2.0 10 50
06		58	5 ✓						5.0 25 125
07		59	6 ✓						10 50 250
08		61	7 ✓						20 100 500
09		62	8 ✓						30 150 750
10		63	9 ✓						50 250 1250
11		64	10 ✓						100 500 2500 ppb
12		65	RINSE						
13		66	↓						
14		67	IVO67J3001 ✓						10 50 250 ppb
15		68	RINSE						17:32
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									VL 11/2/20
30									

Instrument No.	67
INITIAL CALIBRATION REFERENCE	
DATE	10/30/20
ICAL ID	VO67J30

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC 8260 Ket-AA	SVI-35-33-01	*	50/1250
	-32-01		250
DCC 4add	-03-02		250/6250
DCC GAS CS_2	-33-03		250
	-29-03		250
DCC TAA-224	-35-02		250/1250
BFB	SVI-34-99-01	1	50
IS/SURR. IS	-34-55-01	5	50
SS	-35-16-01	*	250
ICV/LCS 8260 Ket-AA	SVI-35-19-01	5	50/1250
	-08-02	5	250
ICV/LCS 3add 2but	-07-01	5	50
	-34-01	12.5	500
ICV/LCS GAS CS_2	-16-02	1	250
	-21-03	1	250
ICV/LCS TAA 224MP	SVI-34-78-03	5	250
	-35-11-02	5	50
Data File Folder	20J30		

	LOT #	Syringe Lot #
pH strip		MSV-02-01-07-5
Chlorine strip		-02-01-08-2
Methanol		-01-04-16
$NaHSO_4$		-01-05-08
Reagent Water	RWS-20-001	-02-01-02
Sand		N01-C5916

Electronic Data Archival Location	Date
HPCHEM_VOA/TO67	

Comments:

Analyzed By: VL

Date Disposed: 11/2/20 Disposed By: VL

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☐ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 5 ☐ EMAX-624.1 Rev.No. 0

Start Date: 12/7/20 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge

Book #: A67-071

BATCH CV067J3022

	Sample Prep ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix W pH<2	Matrix W Cl_2<5ppm	Matrix S	Notes
01	RLC076		BFB67L05 ✓						10:46
02	"	77	CV067J3022 ✓						
03	"	78	V067L05L ✓						
04	"	79	↓ C ✓						
05	"	80	RINSE						
06	"	81	V067L05B ✓	25mL					
07	"	82	20L041-01 ✓	"	1.0	✓	✓		TB-005-03-09
08	"	83	-02 ✓	"	"	✓	✓		500X
09	"	84	-02M ✓	"	"	✓	✓		
10	"	85	-02S ✓	"	"	✓	✓		
11	"	86	RINSE						
12	"	87	20L041-03 ✓	25mL	1.0	✓	✓		100X
13	"	88	-04 ✓	"	"	✓	✓		250X
14	"	89	-05 ✓	"	"	✓	✓		250X
15	"	90	-06 ✓	"	"	✓	✓		250X
16	"	91	-07 ✓	"	"	✓	✓		50X
17	"	92	-08 ✓	"	"	✓	✓		500X
18	"	93	20L040-01	25mL	1.0	✓	✓		C10
19	"	94	-02	"	"	✓	✓		C10
20	"	95	-03	"	"	✓	✓		C10
21	"	96	-04 ✓	"	"	✓	✓		
22	"	97	-05 ✓	"	"	✓	✓		
23	"	98	-06 ✓	"	"	✓	✓		
24	"	99	-07 ✓	"	"	✓	✓		
25	"	100	EV067J3022 ✓						21:24
26	"	01	↓ A						
27	"	02	↓ B						
28	"	03	RINSE						
29	"	04	↓						
30									VL 12/8/20

Instrument No.	67
INITIAL CALIBRATION REFERENCE	
DATE	10/30/20
ICAL ID	V067J30

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC 8260	SV1-35-48-03	5	
DCC Ket-AA	-59-01	5	
DCC GAS	-44-01	1	
DCC CS_2	-21-01	1	
BFB	SV1-34-99-01	1	50/250/1250
IS/SURR.	SV1-35-39-03	5	
ICV/LCS 8260	-19-01	5	
ICV/LCS Ket-AA	-38-02	5	
ICV/LCS GAS	-16-02	1	
ICV/LCS CS_2	-44-03	1	
Data File Folder	20L07		

	LOT #	Syringe Lot #
pH strip	HC904495	MSV-02-01-07-5
Chlorine strip	014802	-02-01-08-2
Methanol		-01-04-16
$NaHSO_4$		
Reagent Water	RWS-20-001	
Sand		

Electronic Data Archival Location	Date
HPCHEM_VOA/TO67	

Comments:

Analyzed By: VL

Date Disposed: 12/8/20 Disposed By: VL

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☐ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCP5IM Rev.No. 2 ☐ EMAX-624 Rev.No. 5 ☐ EMAX-624.1 Rev.No. 0

Start Date: 12/8/20 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge Book #: A67-071

BATCH CV067J3023

	Sample Prep ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix W pH <2	Matrix W Cl_2 <5ppm	Matrix S	Notes
01	BLC105		BFB67L06 ✓						10:32
02		06	CV067J3023 ✓						
03		07	V067L06L ✓						
04		08	↓ C ✓						
05		09	RINSE						
06		10	V067L06B ✓	25mL					
07		11	20L041-02I ✓	50 mL	500	✓	✓		
08		12	-03I ✓	25 mL	100	✓	✓		
09		13	-04I ✓	100 mL	250	✓	✓		
10		14	-05I ✓	↓	↓	✓	✓		
11		15	-06I ✓	↓	↓	✓	✓		
12		16	-07I ✓	0.5mL	50	✓	✓		
13		17	-08I ✓	50 mL	500	✓	✓		
14		18	20L070-01 ✓	25mL	1.0	✓	✓		TB-005-03-15
15		19	-02 ✓	↓	↓	✓	✓		5x
16		20	-03 ✓	↓	↓	✓	✓		
17		21	-04 ✓	↓	↓	✓	✓		5x
18		22	-05 ✓	↓	↓	✓	✓		
19		23	-06 ✓	↓	↓	✓	✓		5x
20		24	-07 ✓	↓	↓	✓	✓		
21		25	-08 ✓	↓	↓	✓	✓		
22		26	-09 ✓	↓	↓	✓	✓		
23		27	-10 ✓	↓	↓	✓	✓		
24		28	-11 ✓	↓	↓	✓	✓		
25		29	-12 ✓	↓	↓	✓	✓		
26		30	-13 ✓	↓	↓	✓	✓		
27		31	EV067J3023 ✓						21:57
28		32	↓ A						
29		33	↓ B						
30		34	RINSE						

Instrument No.	67
INITIAL CALIBRATION REFERENCE	
DATE	10/30/20
ICAL ID	V067J30

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC 8260	SV1-35-48-03	5	
DCC Ket-MA	-59-01	5	
DCC GAS	-44-01	1	
DCC CS_2	-21-01	1	
BFB	SV1-34-99-01	1	
IS/SURR.	SV1-35-39-03	5	SD12501
ICV/LCS 8260	-19-01	5	1250
ICV/LCS Ket-MA	-38-02	5	
ICV/LCS GAS	-45-01	1	
ICV/LCS CS_2	-44-03	1	

Data File Folder	20L08	
	LOT #	Syringe Lot #
pH strip	HC904495	MSV-02-01-07-5
Chlorine strip	014802	-02-01-08-2
Methanol		-01-04-16
$NaHSO_4$		
Reagent Water	RW5-20-001	
Sand		
Electronic Data Archival Location		Date
HPCHEM_VOA/TO67		

Comments:

Analyzed By: VL

Date Disposed: 12/18/20 Disposed By: VL

9 VL 12/19/20

CHAIN OF CUSTODY

Laboratories, Inc.	1835 W. 205th Street, Torrance, CA 90501 Tel # : 310-618-8889 FAX#: 310-618-0818 Email: info@emaxlabs.com	PO NUMBER: 30028451 SAMPLE STORAGE	EMAX CONTROL NO. 20L042

PROJECT ESTCP Min Trap Baseline Sampling
COORDINATOR Craig Divine
TEL 720-308-5367 FAX EMAIL craig.divine@arcadis.com
SEND REPORT TO craig.divine@arcadis.com
COMPANY Arcadis
ADDRESS 735 Tank Farm Road, Ste. 150
San Luis Obispo, CA 93405
EMAX PM Richard Beauvil

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaO3
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes ?P=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H2SO4
O=	

TAT:
- ☐ ~~Rush 24 hrs.~~
- ☐ ~~Rush 48 hrs~~
- ☐ ~~Rush 72 hrs~~
- ☐ ~~7 days~~
- ☐ ~~14 days~~
- ☒ ~~21 days~~ Standard

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	SAMPLING DATE	SAMPLING TIME	CONTAINER NO.	CONTAINER SIZE	CONTAINER TYPE	MATRIX CODE	QC	Sulfides	Diss. Fe & Mn	Total Fe & Mn	Methane (RSK175)	TOC (5310)	Anions/Alkalinity	COMMENTS
* 1	SS003-3-MW-55(120120)	VAFB	12/1/2020	1320	8	var.	var.	GW		X	X	X	X	X	X	Preservatives Vary
* 2	SS003-3-MW-57(120320)	VAFB	12/3/2020	0846	8	var.	var.	GW		X	X	X	X	X	X	Preservatives Vary
* 3																
* 4																
* 5																
* 6																
* 7																
* 8																
* 9																
10																

Instructions: STD TAT, please adhere to appropriate hold times
Level 2 Reporting requested, Please submit to Equis/EDD

Cooler #	Temp. (°C)	Sample #s
1	1.1	

SAMPLER Marshall Brusca
COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
Marshall Brusca	12/3/20	1430	FedEx VAFB
	12/4/20	12:00	Marcia

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

Type of Delivery	Airbill / Tracking Number	ECN 20L042
☒ Fedex ☐ UPS ☐ GSO ☐ Others	7722 5859 3618	Recipient Maria Rivera
☐ EMAX Courier ☐ Client Delivery		Date 12/04/20 Time 12:00

COC INSPECTION

☒ Client Name	☒ Client PM/FC	☒ Sampler Name	☒ Sampling Date/Time	☒ Sample ID	☒ Matrix
☒ Address	☒ Tel # / Fax #	☐ Courier Signature	☒ Analysis Required	☐ Preservative (if any)	☒ TAT
Safety Issues (if any)	☐ High concentrations expected	☐ From Superfund Site	☐ Rad screening required		

Note:

PACKAGING INSPECTION

Container	☒ Cooler	☐ Box	☐ Other		
Condition	☒ Custody Seal	☐ Intact	☐ Damaged		
Packaging	☒ Bubble Pack	☐ Styrofoam	☐ Popcorn	☐ Sufficient	☐ _____
Temperatures (Cool, ≤6 °C but not frozen)	☒ Cooler 1 1.1 °C	☐ Cooler 2 _____ °C	☐ Cooler 3 _____ °C	☐ Cooler 4 _____ °C	☐ Cooler 5 _____ °C
	☐ Cooler 6 _____ °C	☐ Cooler 7 _____ °C	☐ Cooler 8 _____ °C	☐ Cooler 9 _____ °C	☐ Cooler 10 _____ °C
Thermometer:	*A - S/N* 192381464	*B - S/N* 200291755	*C - S/N* 200291756	*D - S/N* 14025267	

Comments: ☐ **Temperature is out of range. PM was informed IMMEDIATELY.**

Note:

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
2	9-16	D10		R1
1-2	1-16	D1		R1
1-2	5, 6, 13, 14	D20	Samples are the same color (*)	
1	8	D13	For Anions	R1

CP 12/4/20

☐ pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS: (*) Unable to identify filtered container Anions list to be clarified

LEGEND:

Code	Description- Sample Management
D1	Analysis is not indicated in label
D2	Analysis mismatch COC vs label
D3	Sample ID mismatch COC vs label
D4	Sample ID is not indicated in _____
D5	Container -[improper] [leaking] [broken]
D6	Date/Time is not indicated in _____
D7	Date/Time mismatch COC vs label
D8	Sample listed in COC is not received
D9	Sample received is not listed in COC
D10	No initial/date on corrections in COC/label
D11	Container count mismatch COC vs received
D12	Container size mismatch COC vs received

Code	Description-Sample Management
D13	Out of Holding Time
D14	Bubble is >6mm
D15	No trip blank in cooler
D16	Preservation not indicated in _____
D17	Preservation mismatch COC vs label
D18	Insufficient chemical preservative
D19	Insufficient Sample
D20	No filtration info for dissolved analysis
D21	No sample for moisture determination
D22	
D23	
D24	

☐ **Continue to next page.**

Code	Description-Sample Management
R1	Proceed as indicated in ☒ COC ☐ Label
R2	Refer to attached instruction
R3	Cancel the analysis
R4	Use vial with smallest bubble first
R5	Log-in with latest sampling date and time+1 min
R6	Adjust pH as necessary
R7	Filter and preserved as necessary
R8	
R9	
R10	
R11	
R12	

REVIEWS:

Sample Labeling Maria Rivera
Date 12/04/20 12/4/20

SRF
Date 12/4/20

PM
Date 12/7/20

Andy Mai

From: Andy Mai
Sent: Monday, December 07, 2020 4:49 PM
To: 'Zardouzian, Erik'; Divine, Craig; Shellhorn, Amanda; Richard Beauvil
Cc: Cecilia Chavez; Bigelow, Amy; Hathaway, Emily; Brusca, Marshall; Tyler Kosaka; Justicia-Leon, Shandra; Tina Huang; Cecilia Chavez
Subject: RE: VAFB - SS003 and ETSCP Sample Cooler Shipment 12/3/2020

Hi Erik,

Unfortunately, a re-run was needed for Alkalinity so there is not much sample left. We will cancel the request for dissolved metals.

Thanks,
Andy Mai, PMP
EMAX Laboratories, Inc.
1835 W. 205th St.
Torrance, CA 90501
Tel: 310-618-8889 ext. 117
AMai@emaxlabs.com

EMAX is interested in your feedback; please provide your comments to: customerservice@emaxlabs.com

Note:
EMAX will be closed for the following holidays. Please contact me in advance if you will have short hold samples including BOD.

Christmas: 12/24/20-12/28/20
New Year: 12/31/20-1/3/21

From: Zardouzian, Erik [mailto:Erik.Zardouzian@arcadis.com]
Sent: Monday, December 07, 2020 2:43 PM
To: Andy Mai; Divine, Craig; Shellhorn, Amanda; Richard Beauvil
Cc: Cecilia Chavez; Bigelow, Amy; Hathaway, Emily; Brusca, Marshall; Tyler Kosaka; Justicia-Leon, Shandra; Tina Huang; Cecilia Chavez
Subject: RE: VAFB - SS003 and ETSCP Sample Cooler Shipment 12/3/2020

Hey Andy,

We mistakenly did not field filter for the dissolved metals. Can you attempt to use excess from the alkalinity sample and filter for dissolved metals?

Thanks,

EZ

From: Andy Mai <AMai@emaxlabs.com>
Sent: Monday, December 7, 2020 1:13 PM
To: Divine, Craig <Craig.Divine@arcadis.com>; Shellhorn, Amanda <Amanda.Shellhorn@arcadis.com>; Richard Beauvil <RBeauvil@emaxlabs.com>; Zardouzian, Erik <Erik.Zardouzian@arcadis.com>
Cc: Cecilia Chavez <CChavez@emaxlabs.com>; Bigelow, Amy <Amy.Bigelow@arcadis.com>; Hathaway, Emily <Emily.Hathaway@arcadis.com>; Brusca, Marshall <Marshall.Brusca@arcadis.com>; Tyler Kosaka <TKosaka@emaxlabs.com>; Justicia-Leon, Shandra <Shandra.Justicia-Leon@arcadis.com>; Tina Huang

<THuang@emaxlabs.com>; Cecilia Chavez <CChavez@emaxlabs.com>
Subject: RE: VAFB - SS003 and ETSCP Sample Cooler Shipment 12/3/2020

Hi Craig,

Two HNO3 preserved bottles per sample were received for Metals. Can you please let us know which should be used for Total and Dissolved Metals? There is additional info on the labels.

Thanks,
Andy Mai, PMP
EMAX Laboratories, Inc.
1835 W. 205th St.
Torrance, CA 90501
Tel: 310-618-8889 ext. 117
AMai@emaxlabs.com

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EMAX will be closed for the following holidays. Please **contact me in advance if you will have short hold samples including BOD.**

Christmas: 12/24/20-12/28/20
New Year: 12/31/20-1/3/21

From: Divine, Craig [mailto:Craig.Divine@arcadis.com]
Sent: Sunday, December 06, 2020 1:01 PM
To: Shellhorn, Amanda; Richard Beauvil; Zardouzian, Erik
Cc: Cecilia Chavez; Bigelow, Amy; Hathaway, Emily; Brusca, Marshall; Tyler Kosaka; Justicia-Leon, Shandra
Subject: RE: VAFB - SS003 and ETSCP Sample Cooler Shipment 12/3/2020

Hi Richard, please run the following major anions: sulfate, chloride, and alkalinity. Thank you!

From: Shellhorn, Amanda <Amanda.Shellhorn@arcadis.com>
Sent: Friday, December 4, 2020 8:42 PM
To: Richard Beauvil <RBeauvil@emaxlabs.com>; Zardouzian, Erik <Erik.Zardouzian@arcadis.com>; Divine, Craig <Craig.Divine@arcadis.com>
Cc: Cecilia Chavez <CChavez@emaxlabs.com>; Bigelow, Amy <Amy.Bigelow@arcadis.com>; Hathaway, Emily <Emily.Hathaway@arcadis.com>; Brusca, Marshall <Marshall.Brusca@arcadis.com>; Tyler Kosaka <TKosaka@emaxlabs.com>
Subject: RE: VAFB - SS003 and ETSCP Sample Cooler Shipment 12/3/2020

Richard,

I am not sure. @Zardouzian, Erik or @Divine, Craig will need to jump in to answer this for you. Thanks!

- Amanda

Amanda Shellhorn, GIT | Staff Geologist | amanda.shellhorn@arcadis.com

Arcadis | Arcadis U.S., Inc.

735 Tank Farm Road, Suite 150, San Luis Obispo, CA | 93401 | USA

M. 805.748.9919

www.arcadis.com

ARCADIS

From: Richard Beauvil <RBeauvil@emaxlabs.com>
Sent: Friday, December 4, 2020 12:56 PM
To: Shellhorn, Amanda <Amanda.Shellhorn@arcadis.com>
Cc: Cecilia Chavez <CChavez@emaxlabs.com>; Bigelow, Amy <Amy.Bigelow@arcadis.com>; Hathaway, Emily <Emily.Hathaway@arcadis.com>; Zardouzian, Erik <Erik.Zardouzian@arcadis.com>; Divine, Craig <Craig.Divine@arcadis.com>; Brusca, Marshall <Marshall.Brusca@arcadis.com>; Tyler Kosaka <TKosaka@emaxlabs.com>
Subject: Re: VAFB - SS003 and ETSCP Sample Cooler Shipment 12/3/2020

Hi Amanda,

For Anions, which anions do you need?

Richard M. Beauvil
Project Manager/Safety Officer
1835 W. 205th Street
Torrance, CA 90501
Tel: 310-618-8889 X118
rbeauvil@emaxlabs.com

EMAX is interested in your feedback; please provide your comments to:
customerservice@emaxlabs.com

EMAX Holidays Schedule:

Veteran's Day Observed –**Wednesday November 11th**, 2020

Observed –**Thursday/Friday, November 26th/27th, 2020**

Christmas Day Observed – **Friday, December 25, 2020**

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than LOQ/RL but greater than LOD/MDL/DL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

ARCADIS

VAFB-SS003

METHOD RSK-175
DISSOLVED GASES

SDG#: 20L042

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20L042

METHOD RSK-175
DISSOLVED GASES

A total of two(2) water samples were received on 12/04/20 to be analyzed for Dissolved Gases in accordance with Method RSK-175 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DGL004WB - result was compliant to project requirement. Refer to sample result summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
DISSOLVED GASES

Client : ARCADIS
Project : VAFB-SS003

SDG NO. : 20L042
Instrument ID : GCT072

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DGL004WB	1	NA	12/08/2010:33	12/08/2010:10	BL08003A	BL08002A	DGL004W	Method Blank
LCS1W	DGL004WL	1	NA	12/08/2010:56	12/08/2010:10	BL08004A	BL08002A	DGL004W	Lab Control Sample (LCS)
LCD1W	DGL004WC	1	NA	12/08/2011:08	12/08/2010:10	BL08005A	BL08002A	DGL004W	LCS Duplicate
SS003-3-MW-55(120120)DL	L042-01I	5	NA	12/08/2015:02	12/08/2010:10	BL08018A	BL08016A	DGL004W	Diluted Sample
SS003-3-MW-57(120120)	L042-02	1	NA	12/08/2015:17	12/08/2010:10	BL08019A	BL08016A	DGL004W	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

RSK-175
DISSOLVED GASES

Client	: ARCADIS	Date Collected:	12/01/20
Project	: VAFB-SS003	Date Received:	12/04/20
Batch No.	: 20L042	Date Extracted:	12/08/20 10:10
Sample ID:	SS003-3-MW-55(120120)DL	Date Analyzed:	12/08/20 15:02
Lab Samp ID:	L042-01I	Dilution Factor:	5
Lab File ID:	BL08018A	Matrix :	WATER
Ext Btch ID:	DGL004W	% Moisture :	NA
Calib. Ref.:	BL08016A	Instrument ID :	GCT072

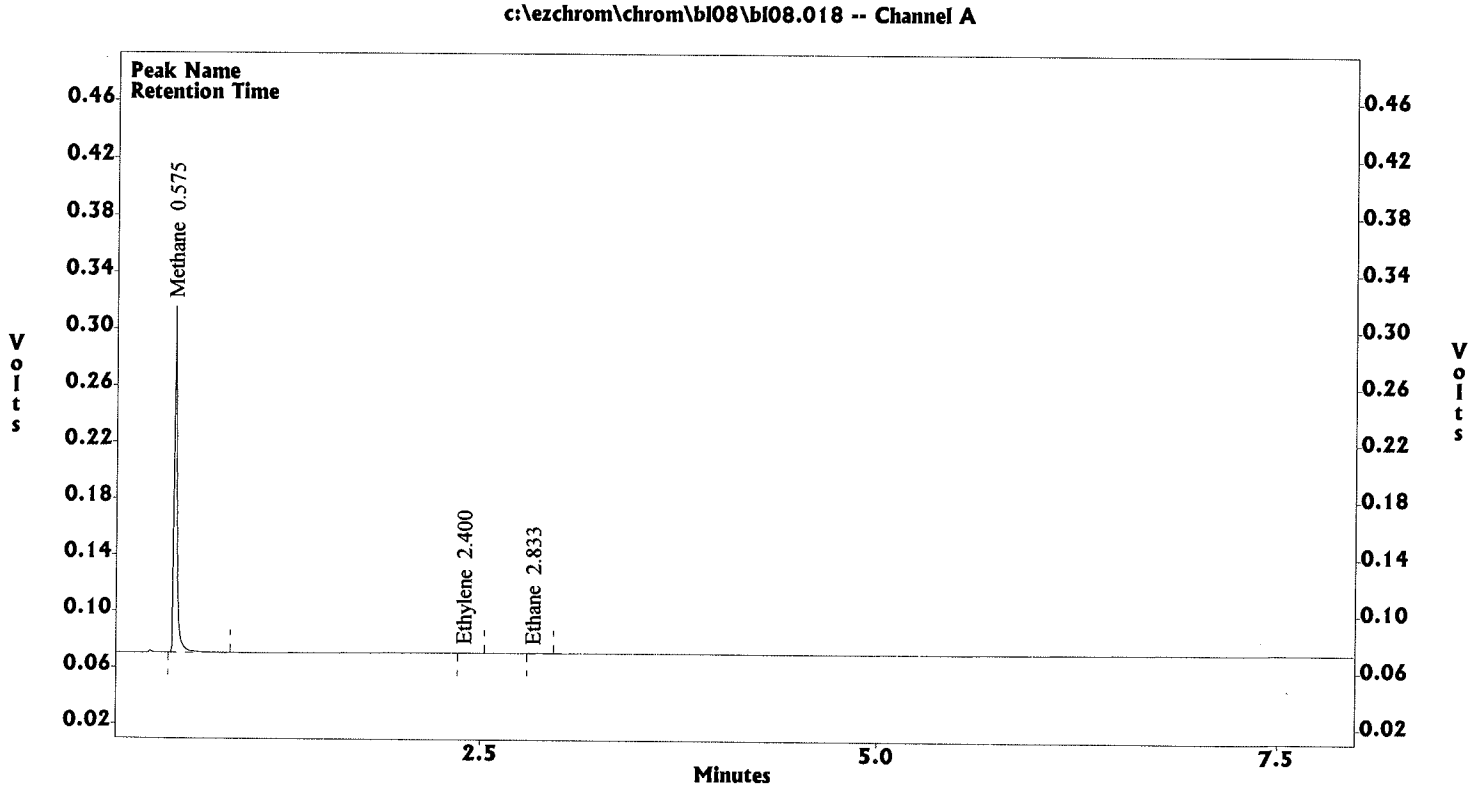
PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	110	10	0.85	1.7

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl08\bl08.018
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : L042-01I DF=5
Acquired : Dec 08, 2020 15:02:23
Printed : Dec 08, 2020 15:11:09
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.575	307140	13975.2	109.887
--	Acetylene	1.933	0	0.0	0.000
2	Ethylene	2.400	866	9519.0	0.455
3	Ethane	2.833	933	13110.4	0.356
--	Propane	5.117	0	0.0	0.000



RSK-175
DISSOLVED GASES

Client	: ARCADIS	Date Collected:	12/03/20
Project	: VAFB-SS003	Date Received:	12/04/20
Batch No.	: 20L042	Date Extracted:	12/08/20 10:10
Sample ID	: SS003-3-MW-57(120120)	Date Analyzed:	12/08/20 15:17
Lab Samp ID	: L042-02	Dilution Factor:	1
Lab File ID	: BL08019A	Matrix :	WATER
Ext Btch ID	: DGL004W	% Moisture :	NA
Calib. Ref.	: BL08016A	Instrument ID :	GCT072

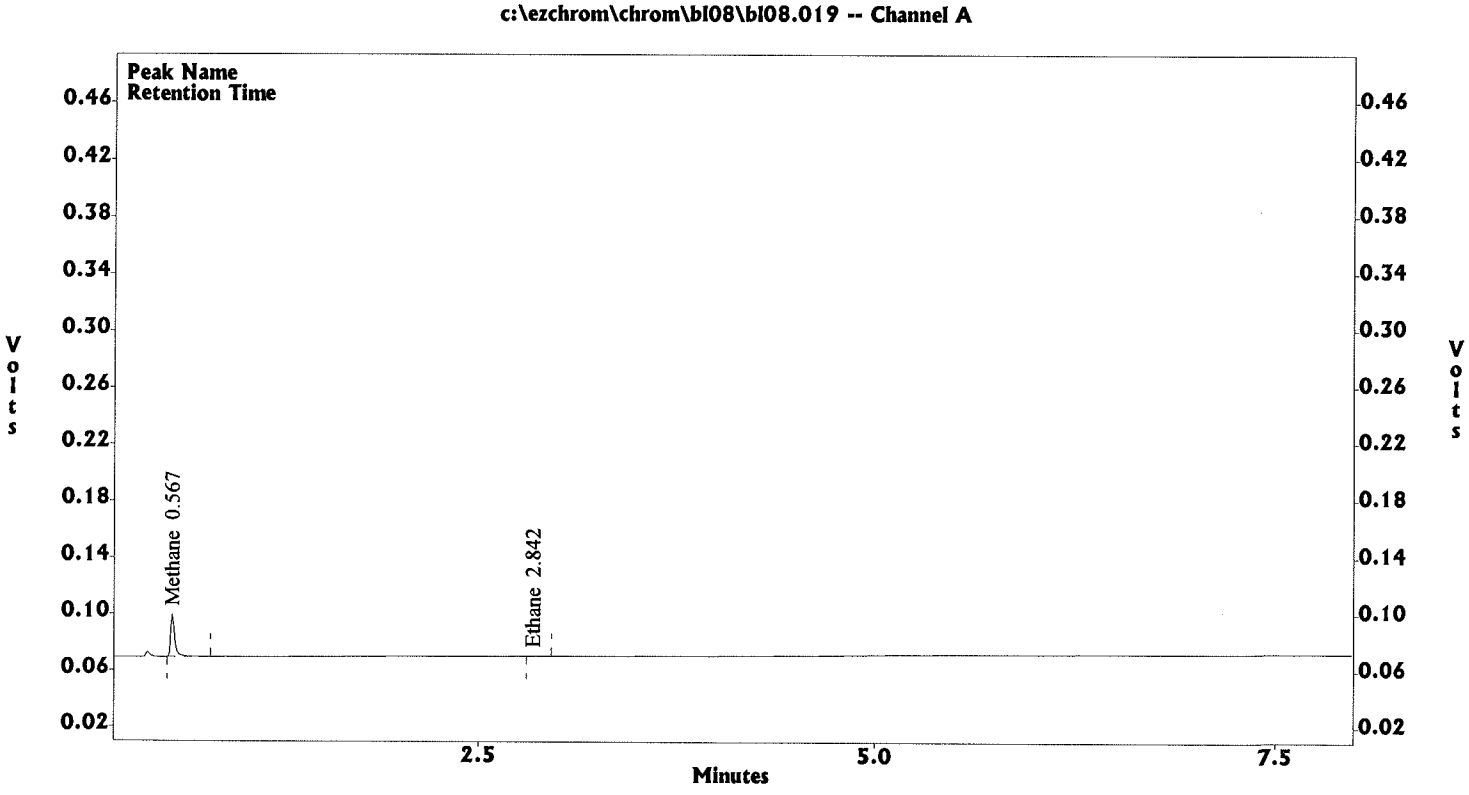
PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	3.8	2.0	0.17	0.34

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl08\bl08.019
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : L042-02
Acquired : Dec 08, 2020 15:17:48
Printed : Dec 08, 2020 15:29:34
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	53693	13975.2	3.842
--	Acetylene	1.933	0	0.0	0.000
--	Ethylene	2.392	0	0.0	0.000
2	Ethane	2.842	671	13110.4	0.051
--	Propane	5.117	0	0.0	0.000



QC SUMMARIES

RSK-175
DISSOLVED GASES

Client : ARCADIS	Date Collected: NA
Project : VAFB-SS003	Date Received: 12/08/20
Batch No. : 20L042	Date Extracted: 12/08/20 10:10
Sample ID: MBLK1W	Date Analyzed: 12/08/20 10:33
Lab Samp ID: DGL004WB	Dilution Factor: 1
Lab File ID: BL08003A	Matrix : WATER
Ext Btch ID: DGL004W	% Moisture : NA
Calib. Ref.: BL08002A	Instrument ID : GCT072

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	ND	2.0	0.17	0.34

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: ARCADIS
PROJECT: VAFB-SS003
BATCH NO.: 20L042
METHOD: RSK-175

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	DGL004WB	DGL004WL	DGL004WC		
LAB FILE ID:	BL08003A	BL08004A	BL08005A		
DATE EXTRACTED:	12/08/2010:10	12/08/2010:10	12/08/2010:10	DATE COLLECTED:	NA
DATE ANALYZED:	12/08/2010:33	12/08/2010:56	12/08/2011:08	DATE RECEIVED:	12/08/20
PREP. BATCH:	DGL004W	DGL004W	DGL004W		
CALIB. REF:	BL08002A	BL08002A	BL08002A		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Methane	ND	13.6	12.8	94	13.6	12.7	93	1	73-125	20

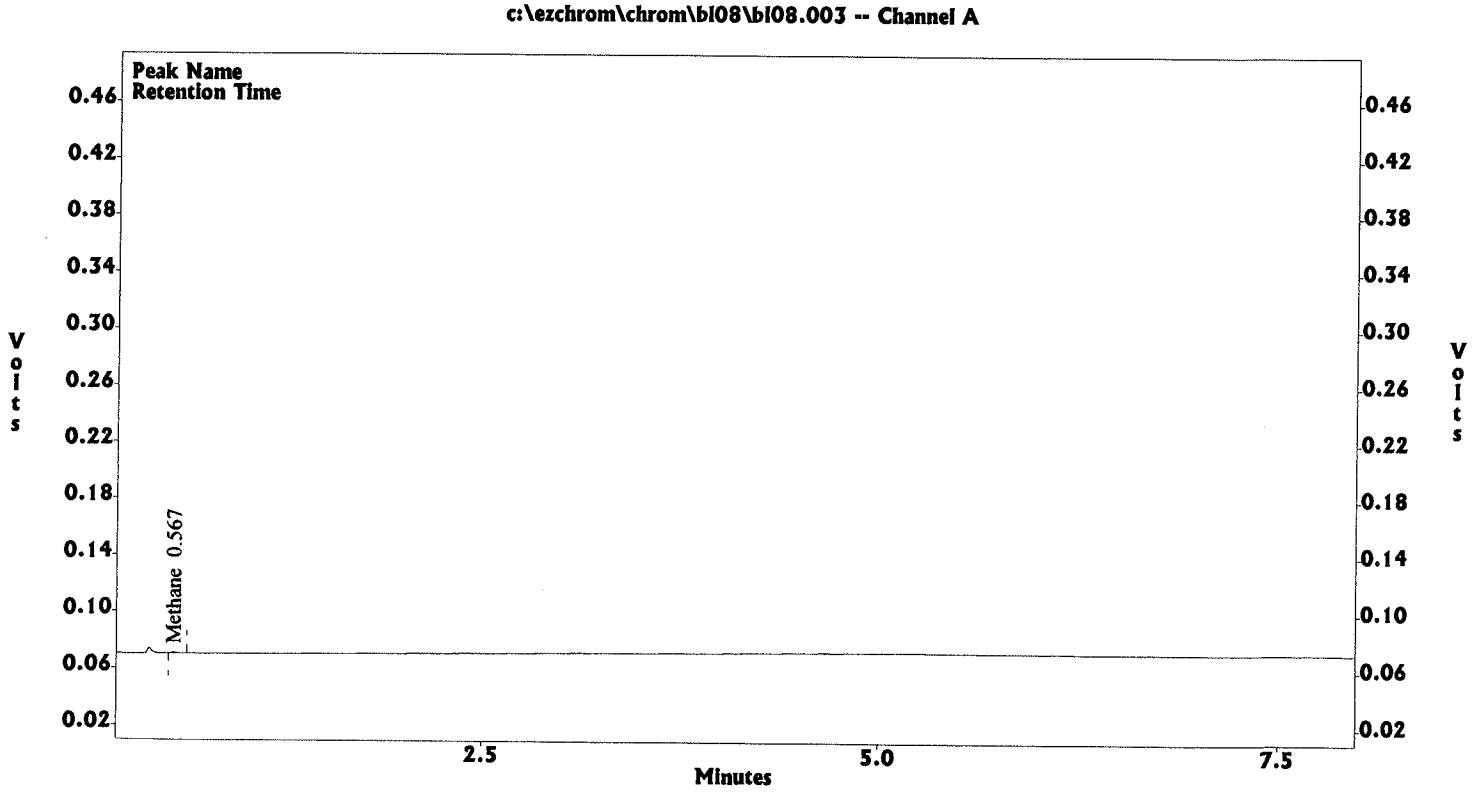
QC DATA

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl08\bl08.003
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DGL004WB
Acquired : Dec 08, 2020 10:33:34
Printed : Dec 08, 2020 10:55:21
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	1321	13975.2	0.095
--	Acetylene	1.942	0	0.0	0.000
--	Ethylene	2.400	0	0.0	0.000
--	Ethane	2.850	0	0.0	0.000
--	Propane	5.125	0	0.0	0.000

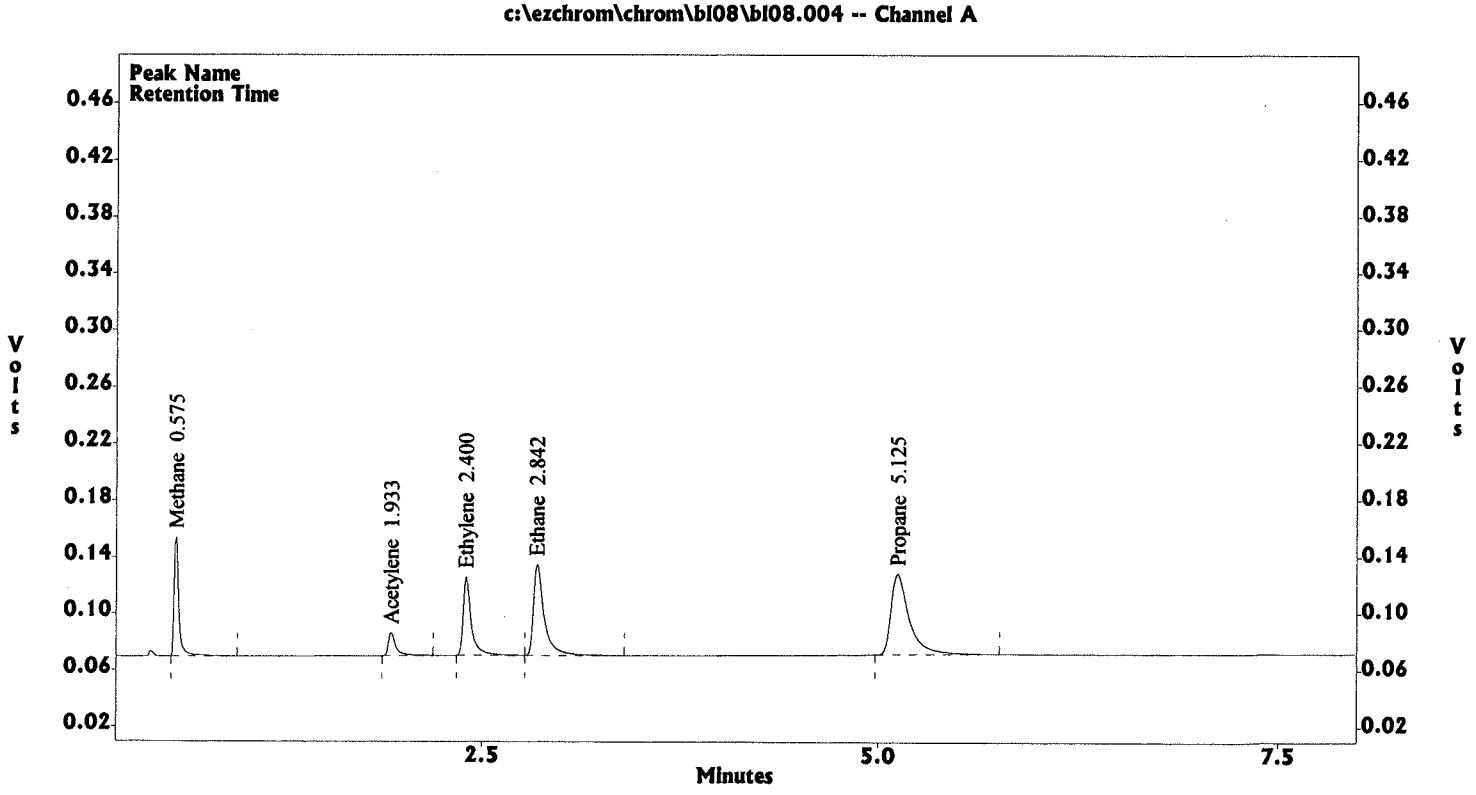


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl08\bl08.004
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DGL004WL
Acquired : Dec 08, 2020 10:56:13
Printed : Dec 08, 2020 11:07:22
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.575	178897	13975.2	12.801
2	Acetylene	1.933	52214	2483.4	21.025
3	Ethylene	2.400	198342	9519.0	20.837
4	Ethane	2.842	301173	13110.4	22.972
5	Propane	5.125	455267	13914.6	32.719

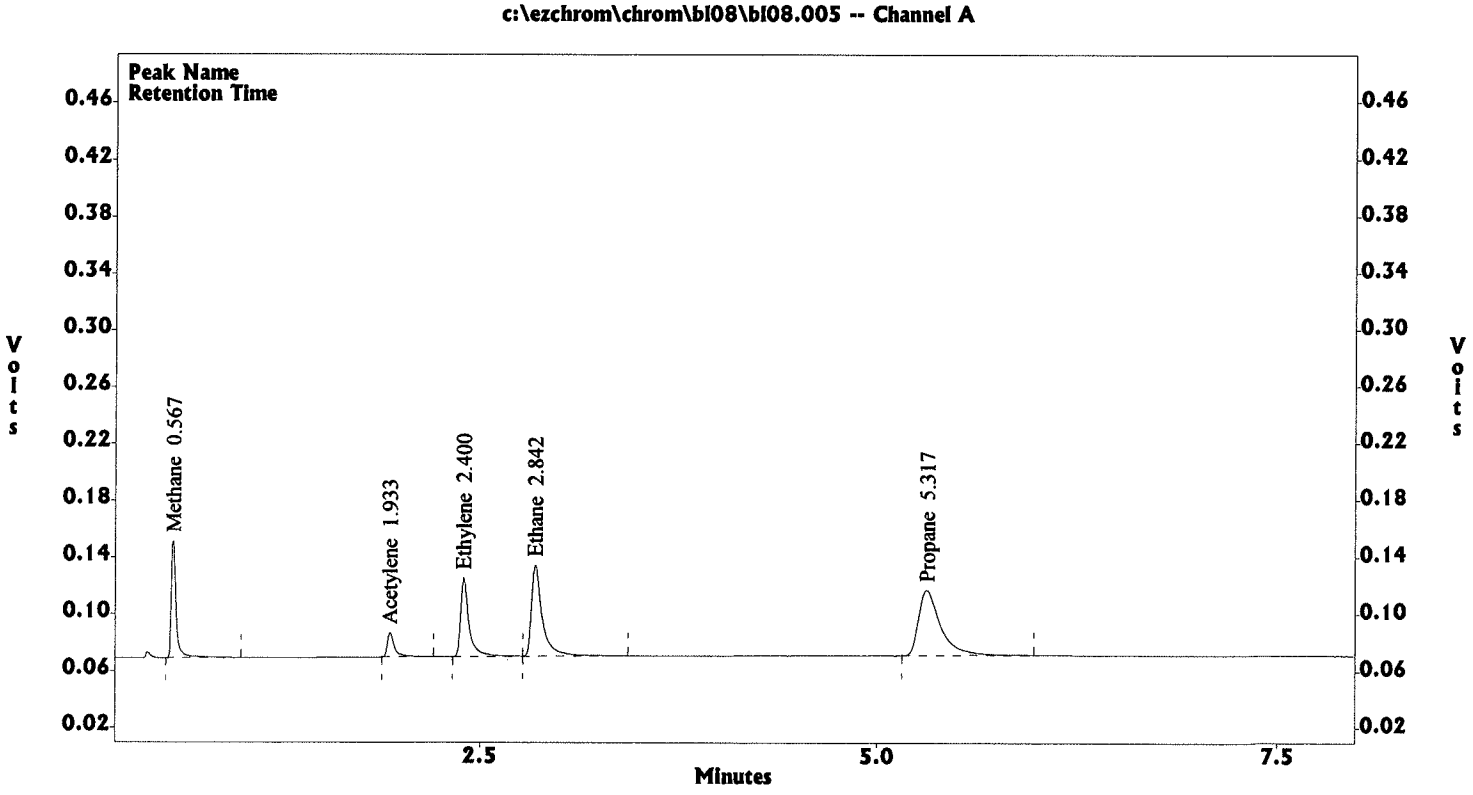


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl08\bl08.005
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DGL004WC
Acquired : Dec 08, 2020 11:08:40
Printed : Dec 08, 2020 11:16:45
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	177547	13975.2	12.704
2	Acetylene	1.933	53092	2483.4	21.379
3	Ethylene	2.400	199322	9519.0	20.939
4	Ethane	2.842	304591	13110.4	23.233
5	Propane	5.317	441925	13914.6	31.760



INITIAL CALIBRATIONS

INITIAL CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
LFID & Datetime: BD29002A 04/29/20 14:01
LFID & Datetime: BD29003A 04/29/20 14:14
LFID & Datetime: BD29004A 04/29/20 14:26
LFID & Datetime: BD29005A 04/29/20 14:39
LFID & Datetime: BD29006A 04/29/20 14:52
LFID & Datetime: BD29007A 04/29/20 15:06
CONC UNIT: ppb

COMPOUND	CONC X	CALIBRATION FACTORS (AREA)/UNIT 2.00X	10.00X	25.00X	40.00X	75.00X	100.00X	MEAN	%RSD
Methane	0.34	15844	15625	13737	12982	12496	13168	13975.2	10.2
Acetylene	0.55	2837	2796	2436	2283	2225	2322	2483.4	10.8
Ethylene	0.60	11084	10815	9218	8751	8417	8830	9519.0	12.0
Ethane	0.64	14697	14960	12826	12138	11732	12310	13110.4	10.5
Propane	0.94	16216	14816	13670	13030	12584	13171	13914.6	9.8

DG72D29.MET

FORM VI DGAS -2 1/96 Rev 2/2006

5/6/20

INITIAL CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
LFID & Datetime: BD29002A 04/29/20 14:01
LFID & Datetime: BD29003A 04/29/20 14:14
LFID & Datetime: BD29004A 04/29/20 14:26
LFID & Datetime: BD29005A 04/29/20 14:39
LFID & Datetime: BD29006A 04/29/20 14:52
LFID & Datetime: BD29007A 04/29/20 15:06

COMPOUND	RT OF STANDARDS (MIN)						MEAN	RT WINDOW		RTWINDOW
	2.0X	10.0X	25.0X	40.0X	75.0X	100.0X	RT	FROM	TO	WIDTH
Methane	0.558	0.550	0.542	0.542	0.542	0.542	0.546	0.520	0.572	0.026
Acetylene	1.900	1.900	1.883	1.883	1.883	1.883	1.889	1.836	1.942	0.053
Ethylene	2.358	2.367	2.350	2.350	2.350	2.350	2.354	2.316	2.392	0.038
Ethane	2.800	2.800	2.792	2.792	2.792	2.792	2.795	2.757	2.833	0.038
Propane	5.067	5.075	5.050	5.058	5.050	5.050	5.058	5.006	5.110	0.052

DG72D29.MET

FORM VI DGAS -1 1/96 Rev 2/2006

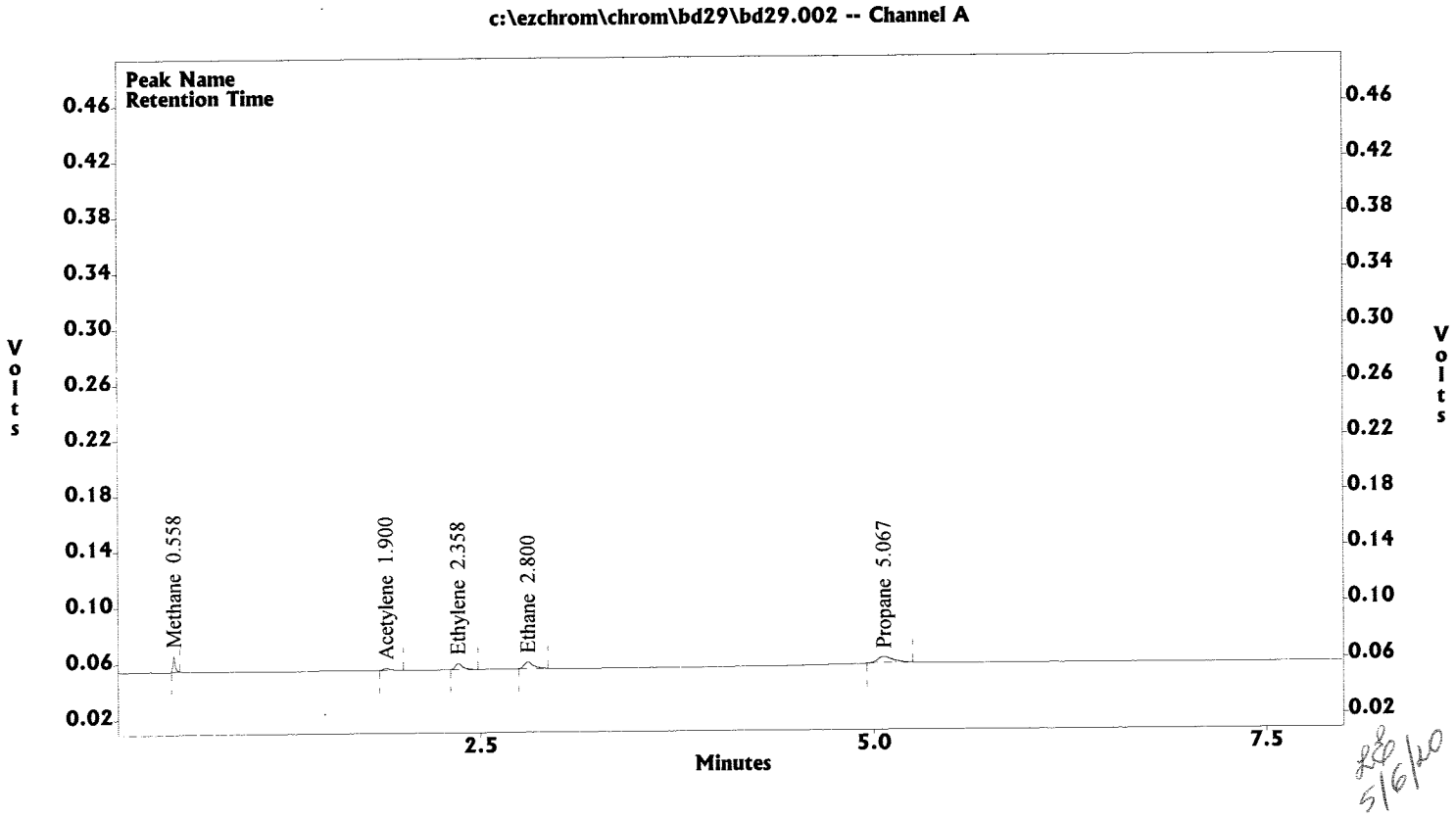
RR 5/6/20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.002
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DG72D2901
Acquired : Apr 29, 2020 14:01:33
Printed : Apr 30, 2020 11:05:49
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.558	10774	13975.2	0.680
2	Acetylene	1.900	3135	2483.4	1.105
3	Ethylene	2.358	13190	9519.0	1.190
4	Ethane	2.800	18739	13110.4	1.275
5	Propane	5.067	30324	13914.6	1.870



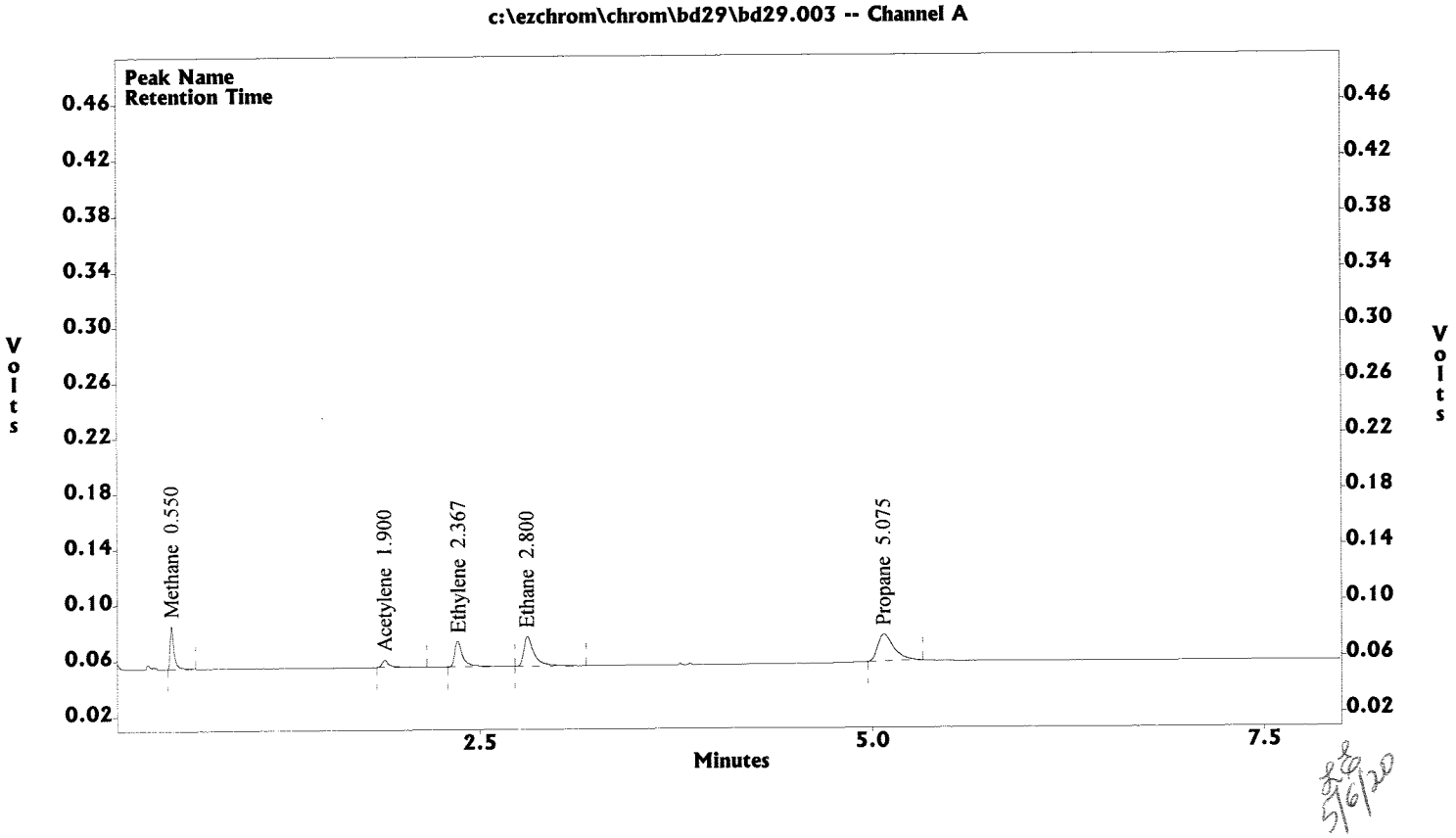
5/6/20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.003
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DG72D2902
Acquired : Apr 29, 2020 14:14:03
Printed : Apr 30, 2020 11:05:58
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.550	53155	13975.2	3.402
2	Acetylene	1.900	15459	2483.4	5.528
3	Ethylene	2.367	64381	9519.0	5.953
4	Ethane	2.800	95413	13110.4	6.378
5	Propane	5.075	138530	13914.6	9.350

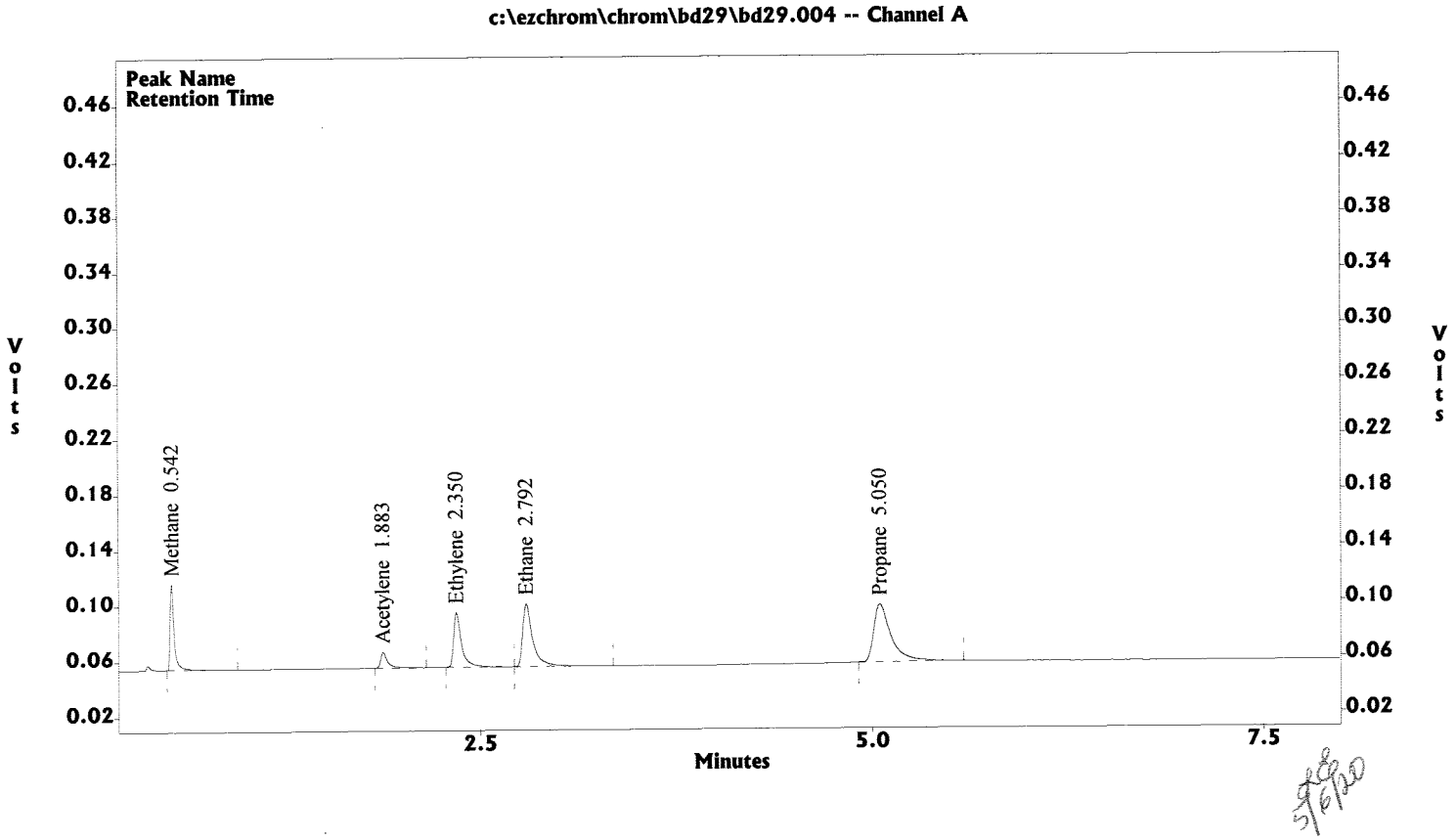


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.004
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DG72D2903
Acquired : Apr 29, 2020 14:26:21
Printed : Apr 30, 2020 11:06:03
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.542	116823	13975.2	8.504
2	Acetylene	1.883	33667	2483.4	13.820
3	Ethylene	2.350	137168	9519.0	14.880
4	Ethane	2.792	204569	13110.4	15.950
5	Propane	5.050	319746	13914.6	23.390



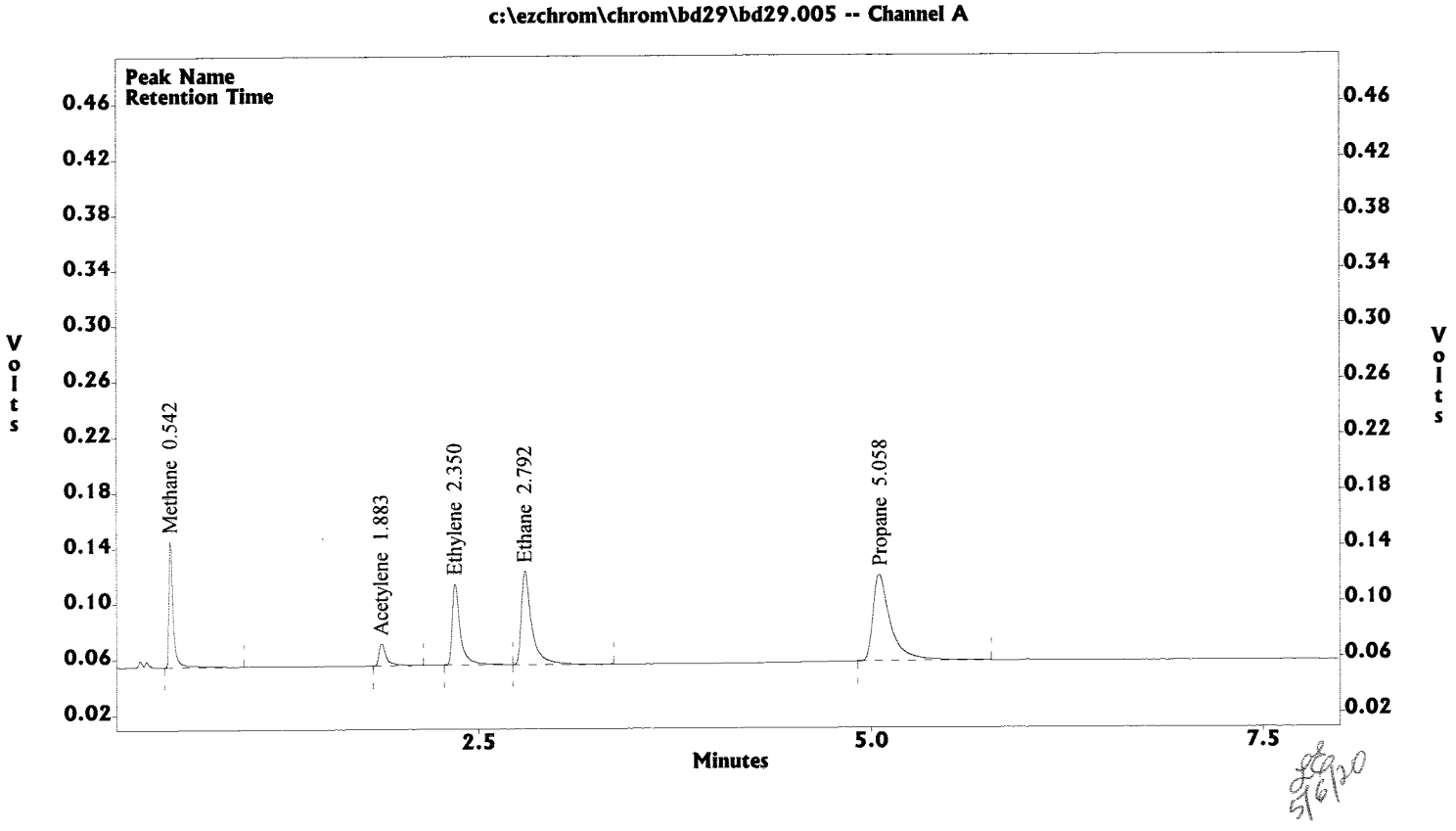
5/6/20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.005
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DG72D2904
Acquired : Apr 29, 2020 14:39:09
Printed : Apr 30, 2020 11:06:10
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.542	176554	13975.2	13.600
2	Acetylene	1.883	50480	2483.4	22.110
3	Ethylene	2.350	208350	9519.0	23.810
4	Ethane	2.792	309628	13110.4	25.510
5	Propane	5.058	487465	13914.6	37.410



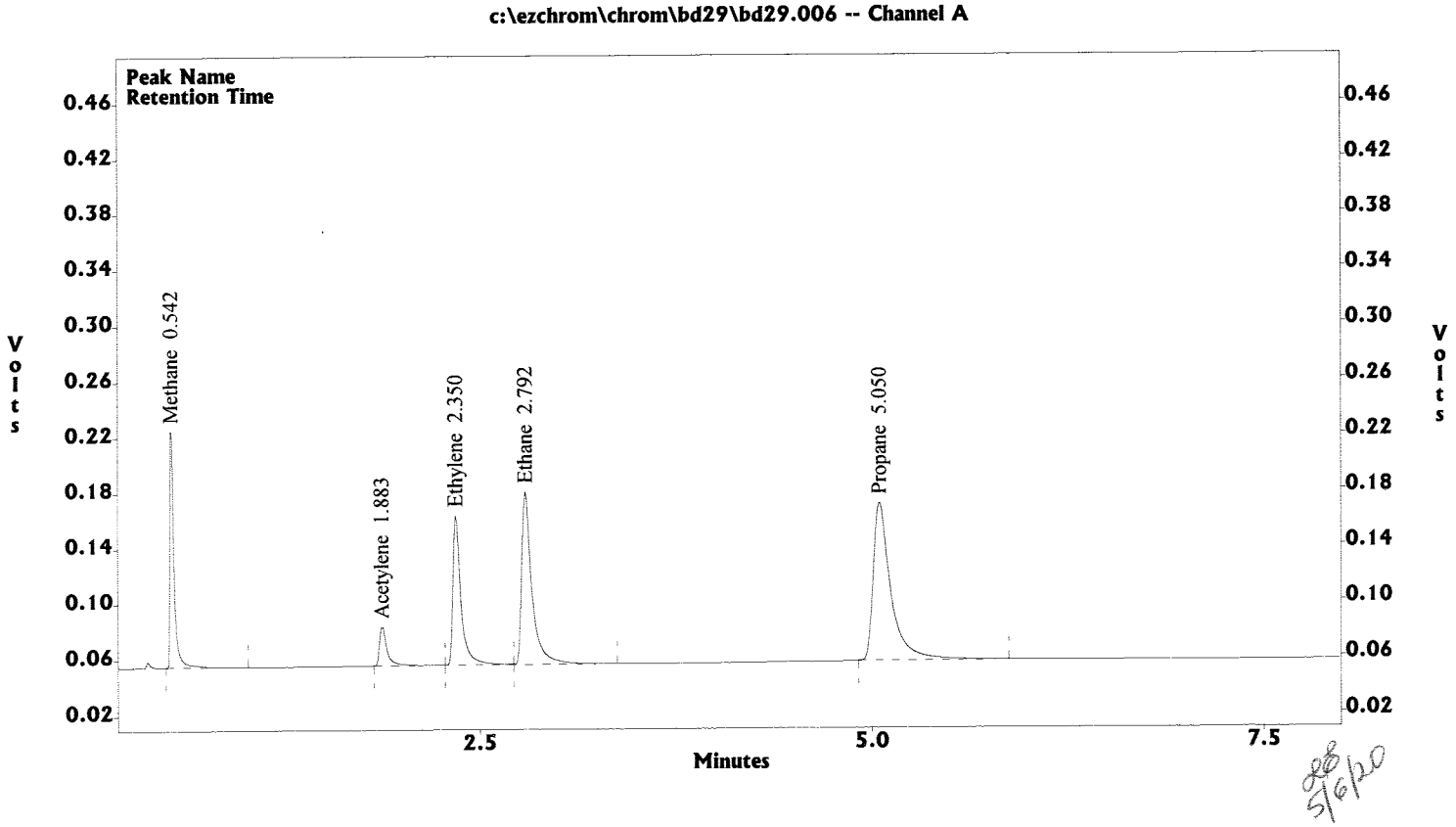
5/6/20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.006
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DG72D2905
Acquired : Apr 29, 2020 14:52:16
Printed : Apr 30, 2020 11:06:16
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.542	318762	13975.2	25.510
2	Acetylene	1.883	92228	2483.4	41.450
3	Ethylene	2.350	375713	9519.0	44.640
4	Ethane	2.792	561146	13110.4	47.830
5	Propane	5.050	882797	13914.6	70.150



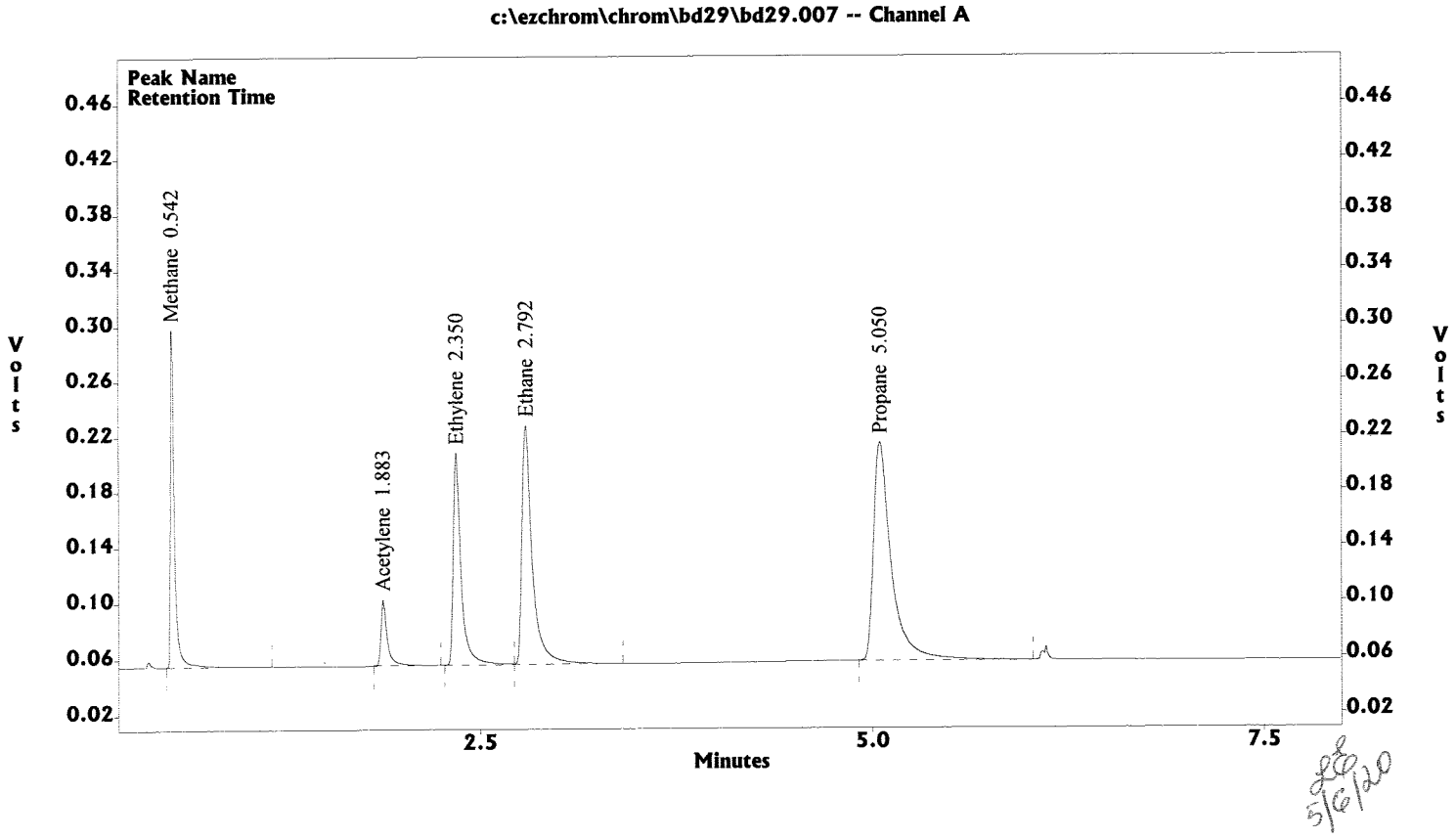
5/6/20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.007
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : DG72D2906
Acquired : Apr 29, 2020 15:06:38
Printed : Apr 30, 2020 11:06:21
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.542	447831	13975.2	34.010
2	Acetylene	1.883	128359	2483.4	55.270
3	Ethylene	2.350	525533	9519.0	59.520
4	Ethane	2.792	785030	13110.4	63.770
5	Propane	5.050	1231861	13914.6	93.530



5/6/20

SECOND SOURCE VERIFICATION

INITIAL CALIBRATION VERIFICATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BD29005A 04/29/2020 14:39
Conc Cont LFID & Datetime: BD29008A 04/29/2020 15:22
CONC UNIT : ppb

COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.542	0.516	0.568	13.6	13975.2	190886	13.66	0		15
Acetylene	1.883	1.830	1.936	22.1	2483.4	53083	21.38	-3		15
Ethylene	2.350	2.312	2.388	23.8	9519.0	236366	24.83	4		15
Ethane	2.792	2.754	2.830	25.5	13110.4	345766	26.37	3		15
Propane	5.050	4.998	5.102	37.4	13914.6	523750	37.64	1		15

DG72D29.MET

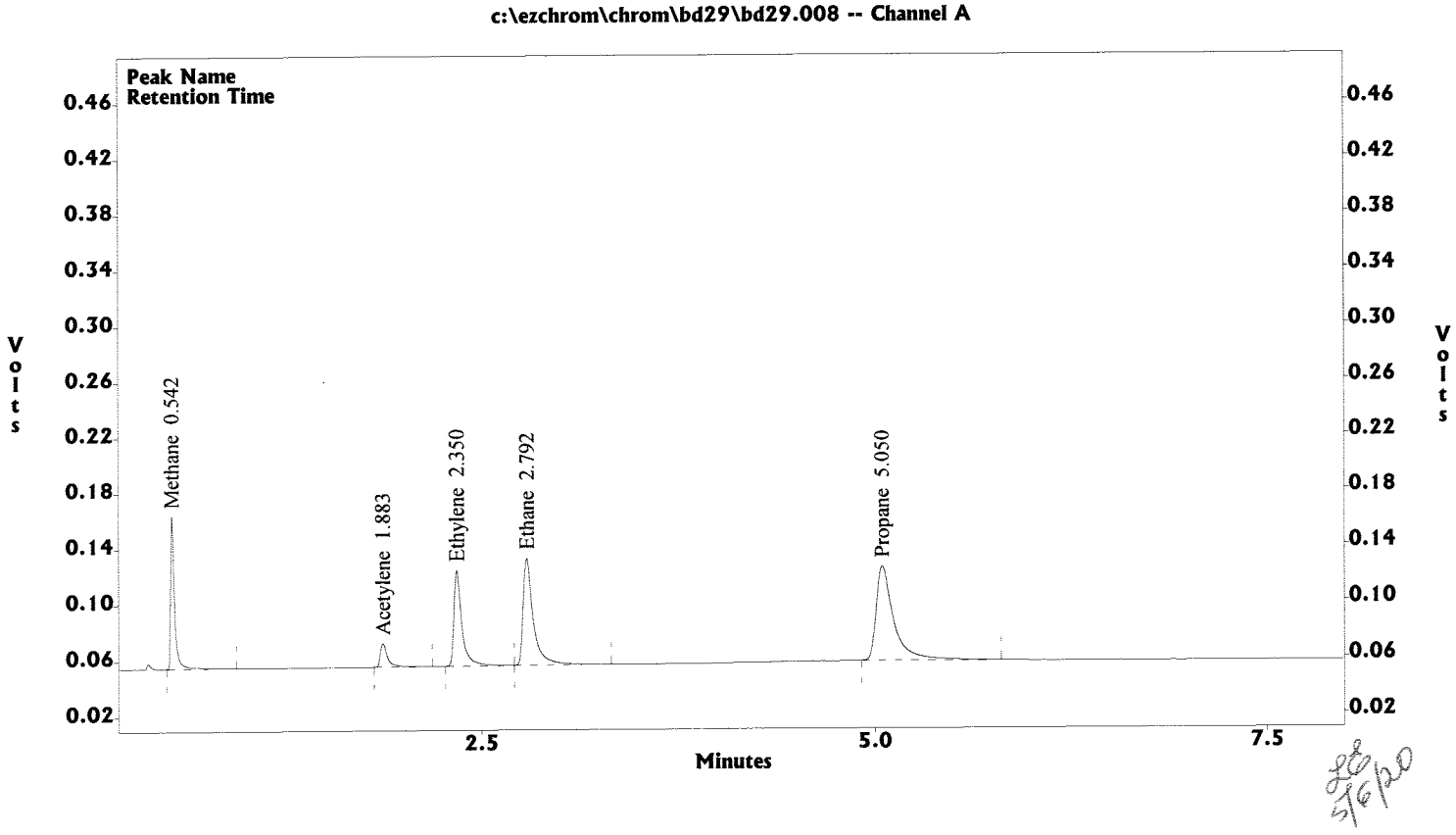
5/6/20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bd29\bd29.008
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : IDG72D29001
Acquired : Apr 29, 2020 15:22:29
Printed : Apr 30, 2020 11:06:33
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.542	190886	13975.2	13.659
2	Acetylene	1.883	53083	2483.4	21.375
3	Ethylene	2.350	236366	9519.0	24.831
4	Ethane	2.792	345766	13110.4	26.373
5	Propane	5.050	523750	13914.6	37.640



5/6/20

DAILY CALIBRATIONS

CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BD29005A 04/29/2020 14:39
Conc Cont LFID & Datetime: BL08002A 12/08/2020 10:20
CONC UNIT : ppb

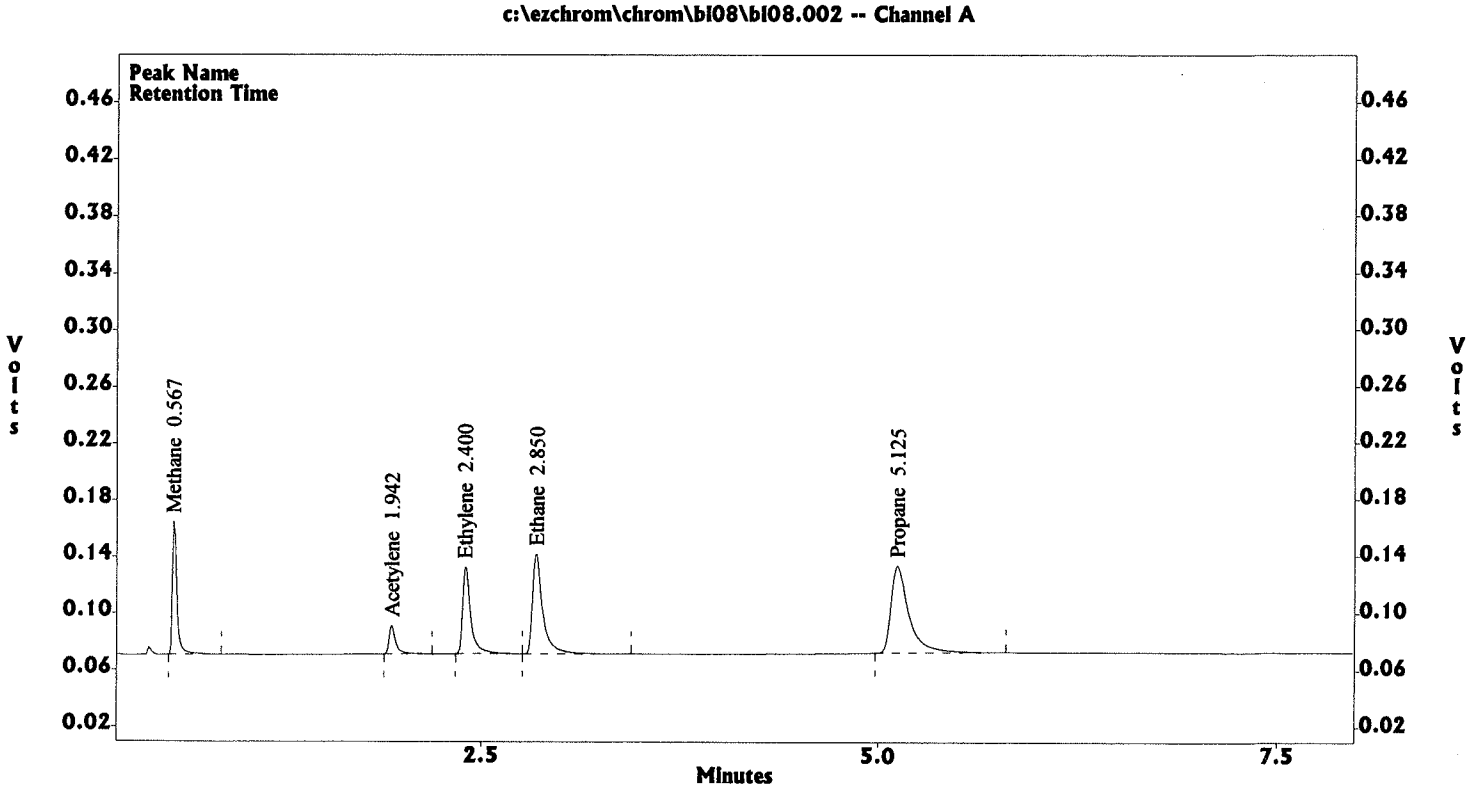
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.567	0.541	0.593	13.6	13975.2	188369	13.48	-1		20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl08\bl08.002
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : CDG72D29423
Acquired : Dec 08, 2020 10:20:34
Printed : Dec 08, 2020 10:32:31
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	188369	13975.2	13.479
2	Acetylene	1.942	58734	2483.4	23.651
3	Ethylene	2.400	217290	9519.0	22.827
4	Ethane	2.850	324450	13110.4	24.747
5	Propane	5.125	489982	13914.6	35.213



CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BD29005A 04/29/2020 14:39
Conc Cont LFID & Datetime: BL08016A 12/08/2020 13:44
CONC UNIT : ppb

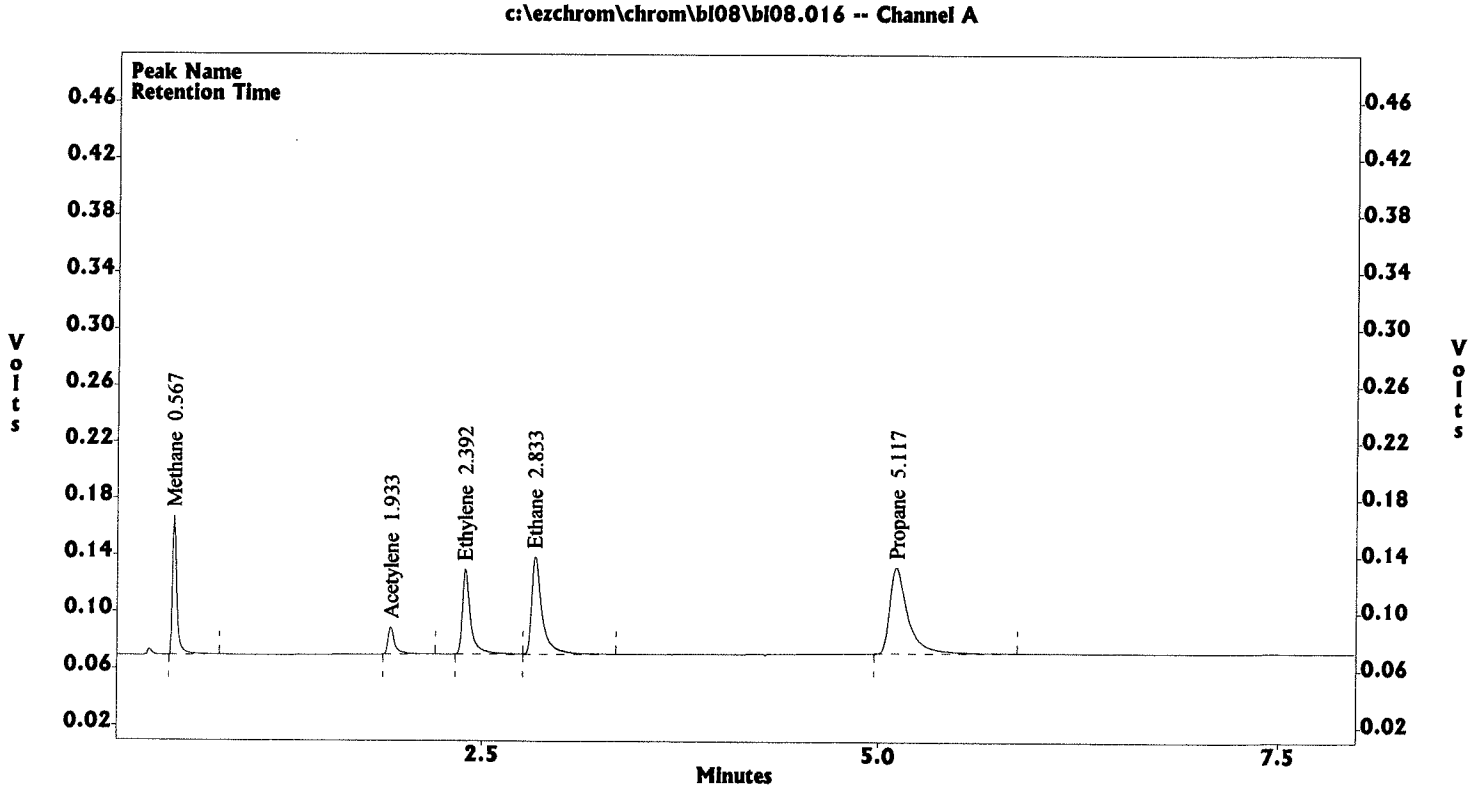
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.567	0.541	0.593	13.6	13975.2	188897	13.52	-1		20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl08\bl08.016
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : CDG72D29424
Acquired : Dec 08, 2020 13:44:16
Printed : Dec 08, 2020 14:47:44
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	188897	13975.2	13.517
2	Acetylene	1.933	56571	2483.4	22.780
3	Ethylene	2.392	212461	9519.0	22.320
4	Ethane	2.833	317287	13110.4	24.201
5	Propane	5.117	484059	13914.6	34.788



CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BD29005A 04/29/2020 14:39
Conc Cont LFID & Datetime: BL08020A 12/08/2020 15:30
CONC UNIT : ppb

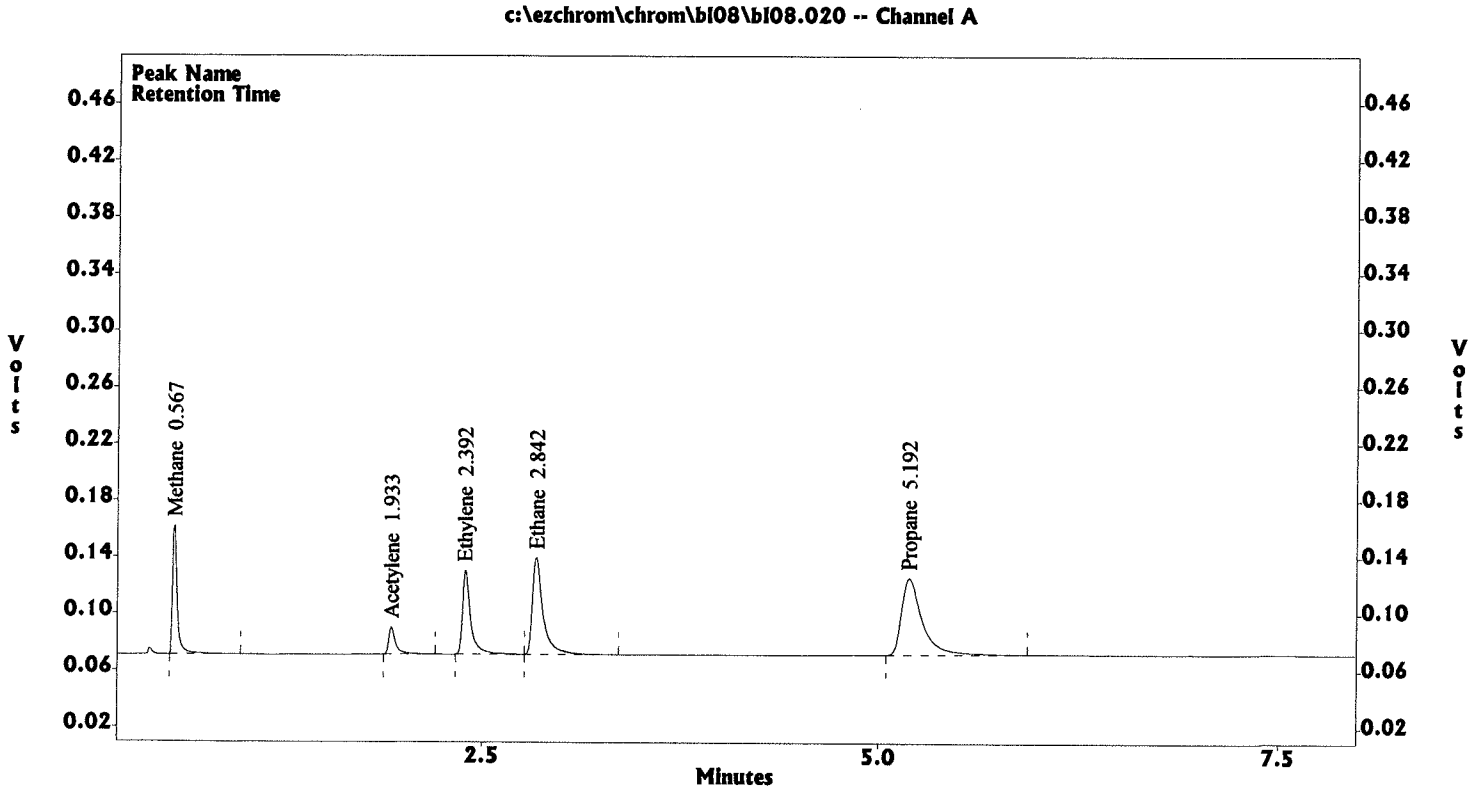
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.567	0.541	0.593	13.6	13975.2	191499	13.70	1		20

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl08\bl08.020
Method : c:\ezchrom\methods\dg72d29.met
Sample ID : CDG72D29425
Acquired : Dec 08, 2020 15:30:29
Printed : Dec 08, 2020 15:43:11
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	191499	13975.2	13.703
2	Acetylene	1.933	56853	2483.4	22.893
3	Ethylene	2.392	213081	9519.0	22.385
4	Ethane	2.842	317387	13110.4	24.209
5	Propane	5.192	483510	13914.6	34.748



ANALYTICAL LOG(S)

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

DGAS ICAL

Book #:	A72-019
Instrument No.:	72
Analytical Sequence:	BD29
Method File:	DG72D29
Analytical Batch:	N/A

SOP #	Rev. #
☑ EMAX-RSK175	4
☐ EMAX-D1945	0
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		Conc (µL/L)
ICAL	SSSB-18-22-01	10 → 500
ICV	↓ -02	200
Temperature (°C)	21	
Data File		

SYRINGES
☐ 500 µL - MSF-01-03-21
☑ 500 µL - MSF-01-02-12
☐ 100 µL - MSF-01-03-05
☐ 100 µL - MSF-01-02-01
☐ 100 µL - MSF-01-02-[illegible]
☐ 100 µL - MSF-01-03-08
☐ 10 µL - MSF-01-02-05
☐

ELECTRONIC DATA ARCHIVAL	
Location	Date
Labbkup/Ezchrom/EZC_9_DGAS	

Analyzed By: AS

Date: 4/29/20

Disposed By:

Date Disposed:

Batch: bd29.seq

Rpt	Vial/Sample ID	Method	Position	Sample Vol	Inj/Sa...	Description
1	IB72D2901	dg72d29.met	BD29.001	0	500uL	1	
2	DG72D2901	dg72d29.met	BD29.002	1	500uL	1	
3	DG72D2902	dg72d29.met	BD29.003	2	500uL	1	
4	DG72D2903	dg72d29.met	BD29.004	3	500uL	1	
5	DG72D2904	dg72d29.met	BD29.005	4	500uL	1	
6	DG72D2905	dg72d29.met	BD29.006	5	500uL	1	
7	DG72D2906	dg72d29.met	BD29.007	6	500uL	1	
8	IDG72D29001	dg72d29.met	BD29.008	0	500uL	1	

FINAL

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

DGL004W: L037, L017, L042

Book #:	A72-021
Instrument No.:	72
Analytical Sequence:	BL08
Method File:	DG72D29
Analytical Batch:	CDG72D29423

SOP #	Rev. #
☑ EMAX-RSK175	4
☐ EMAX-D1945	0
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		Conc (µL/L)
DCC	SS5B-19-10-03	200
Temperature (°C)	21	
Data File		

SYRINGES
☐ 500 µL - MSF-02-01-01
☑ 500 µL - MSF-01-02-12
☑ 100 µL - MSF-01-03-05
☐ 100 µL - MSF-01-02-01
☐ 100 µL - MSF-01-02-20
☐ 100 µL - MSF-01-03-08
☐ 100 µL - MSF-01-02-13
☐ 10 µL - MSF-01-02-05
☐

ELECTRONIC DATA ARCHIVAL	
Location	Date
Labbkup/Ezchrom/EZC_9_DGAS	

Analyzed By: AS

Date: 12/8/20

Disposed By:

Date Disposed:

Batch: bl08.seq

Run	Sample ID	Method	Filename	Sample Amt	Multi	Description
1	IB72L0801	dg72d29.met	BL08.001	500uL	1	
2	CDG72D29423	dg72d29.met	BL08.002	500uL	1	
3	DGL004WB	dg72d29.met	BL08.003	500uL	1	
4	DGL004WL	dg72d29.met	BL08.004	500uL	1	
5	DGL004WC	dg72d29.met	BL08.005	500uL	1	
6	L037-05	dg72d29.met	BL08.006	500uL	1	
7	L037-01	dg72d29.met	BL08.007	500uL	1	
8	L037-01M	dg72d29.met	BL08.008	500uL	1	
9	L037-01S	dg72d29.met	BL08.009	500uL	1	
10	L037-03	dg72d29.met	BL08.010	500uL	1	
11	L037-04	dg72d29.met	BL08.011	500uL	1	
12	L017-01	dg72d29.met	BL08.012	500uL	1	
13	L017-02	dg72d29.met	BL08.013	500uL	1	
14	L017-03	dg72d29.met	BL08.014	500uL	1	
15	L017-04	dg72d29.met	BL08.015	500uL	1	
16	CDG72D29424	dg72d29.met	BL08.016	500uL	1	
17	L042-01	dg72d29.met	BL08.017	500uL	1	
18	L042-01I DF=5	dg72d29.met	BL08.018	100uL	5	
19	L042-02	dg72d29.met	BL08.019	500uL	1	
20	CDG72D29425	dg72d29.met	BL08.020	500uL	1	

FINAL

EXTRACTION LOG(S)

EXTRACTION LOG FOR DISSOLVED GAS

SOP ☑ EMAX-RSK175 Rev. 4 ☐ CO2 ☐ Room Temp. (°C): 21

Start Date: 12/8/20 Time: 10:10 End Date: 12/8/20 Time: 11:05 Book #: EDG-048

PREPARATION BATCH* DGL004W

Sample Prep ID	Lab Sample ID	Sample Amount (ml)	Extract Volume (ml)	pH (< 2)	Notes
01	DGL004WB	39	4	N/A	
02	↓ WL	↓	↓	N/A	
03	↓ WC	↓	↓	N/A	
04	L037-05	↓	↓	✓	
05	↓ -01	↓	↓	✓	
06	↓ -01M	↓	↓	✓	
07	↓ -01S	↓	↓	✓	
08	L037-03	↓	↓	✓	
09	↓ -04	↓	↓	✓	
10	L037-01	↓	↓	✓	
11	↓ -02	↓	↓	✓	
12	↓ -03	↓	↓	✓	
13	↓ -04	↓	↓	✓	
14	L042-01	↓	↓	✓	
15	↓ -02	↓	↓	✓	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

AS 12/8/20

Standards	ID	Amount Added (ul)
LCS/MS	555A-10-02-03	1600

Reagent	Source
H_2O	SWIA-009-08-03
He	555A-11-01-01
Thermometer ID #:	RSK175-01
Tedlar Bag Lot#:	28181028
pH Strips:	HC904495
Vial Manufacturer:	ESS #OR256534 220317

Syringes

- ☐ 10 mL - MSF-01-01-24
- ☑ ~~5 mL - MSF-01-01-25~~ AS 12/8/20
- ☑ 5 mL - MSF-01-03-06
- ☐ 1 mL - MSF-01-02-24
- ☑ 5mL - MSF-01-01-12
- ☐

Comments:

Prepared By: AS

Standard Added By: AS

EMAX LABORATORIES, INC.

EXTRACTION LOG FOR DISSOLVED GAS

SOP ☑ EMAX-RSK175 Rev. 4 ☐ CO2 ☐ Room Temp. (°C): 21 Book #: EDG-046

Start Date: 4/29/20 Time: 13:00 End Date: 4/29/20 Time: 13:45

PREPARATION BATCH* N/A

Sample Prep ID	Lab Sample ID	Sample Amount (ml)	Extract Volume (ml)	pH (<2)	Notes
01	DG72D29-01	39	4	N/A	
02	-02	↓	↓	N/A	
03	-03			N/A	
04	-04			N/A	
05	-05			N/A	
06	-06			N/A	
07	IDG72D29-001			N/A	
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					AS

Standards	ID	Amount Added (ul)
LCS/MS ICV	SSSA-10-02-03	1600
ICAL	↓ -04	*

Reagent	Source
H_2O	RW2-18-001
He	SSSA-11-01-01
Thermometer ID #:	RSK175-01
Tedlar Bag Lot#:	28180128
pH Strips:	N/A
Vial Manufacturer:	FR24982B 2 20066

Syringes

- ☐ 10 mL - MSF-01-01-24
- ☑ 5 mL - MSF-01-01-25
- ☑ 5 mL - MSF-01-01-13
- ☐ 5 mL - MSF-01-03-06
- ☑ 1 mL - MSF-01-02~~24~~25 AS 4/29/20
- ☐

Comments: *

DGAS Std. (mL)		Helium (mL)
1) 0.08 mL	+	3.92 mL
2) 0.40	+	3.60
3) 1.00	+	3.00
4) 1.60	+	2.40
5) 3.00	+	1.00
6) 4.00 ↓	+	— ↓

Prepared By: AS

Standard Added By: AS

LABORATORY REPORT FOR

ARCADIS

VAFB-SS003

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

SDG#: 20L042

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20L042

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

A total of two(2) water samples were received on 12/04/20 to be analyzed for Total Metals by Trace ICP in accordance with Method 3010A/6010B and project specific requirements.

Holding Time
Samples were digested and analyzed within the prescribed holding time.

Calibration
Initial Calibration was established as prescribed by the method and was verified using a secondary source(ICV). Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were satisfied. MRL was analyzed as required by the project.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. IPL007WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. IPL007WL/IPL007WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
TOTAL METALS BY TRACE ICP

Client : ARCADIS
Project : VAFB-SS003

SDG NO. : 20L042
Instrument ID : D8

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IPL007WB	1.000	NA	12/09/2014:46	12/08/2011:31	ID8L005024	ID8L005022	IPL007W	Method Blank
LCS1W	IPL007WL	1.000	NA	12/09/2014:50	12/08/2011:31	ID8L005025	ID8L005022	IPL007W	Lab Control Sample (LCS)
LCD1W	IPL007WC	1.000	NA	12/09/2014:55	12/08/2011:31	ID8L005026	ID8L005022	IPL007W	LCS Duplicate
SS003-3-MW-55(120120)	L042-01	1.000	NA	12/09/2015:46	12/08/2011:31	ID8L005037	ID8L005034	IPL007W	Field Sample
SS003-3-MW-57(120120)	L042-02	1.000	NA	12/09/2015:51	12/08/2011:31	ID8L005038	ID8L005034	IPL007W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	12/01/20 13:20
Project	: VAFB-SS003	Date Received:	12/04/20
SDG NO.	: 20L042	Date Extracted:	12/08/20 11:31
Sample ID:	SS003-3-MW-55(120120)	Date Analyzed:	12/09/20 15:46
Lab Samp ID:	L042-01	Dilution Factor:	1
Lab File ID:	ID8L005037	Matrix:	WATER
Ext Btch ID:	IPL007W	% Moisture:	NA
Calib. Ref.:	ID8L005034	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	33.7J	200	20.0	40.0
Manganese	58.5	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: THuang	Analyzed by:	NTan

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	12/03/20 08:46
Project	: VAFB-SS003	Date Received:	12/04/20
SDG NO.	: 20L042	Date Extracted:	12/08/20 11:31
Sample ID:	SS003-3-MW-57(120120)	Date Analyzed:	12/09/20 15:51
Lab Samp ID:	L042-02	Dilution Factor:	1
Lab File ID:	ID8L005038	Matrix:	WATER
Ext Btch ID:	IPL007W	% Moisture:	NA
Calib. Ref.:	ID8L005034	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	1270	200	20.0	40.0
Manganese	29.0	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: THuang	Analyzed by:	NTan

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	NA
Project	: VAFB-SS003	Date Received:	NA
SDG NO.	: 20L042	Date Extracted:	12/08/20 11:31
Sample ID:	MBLK1W	Date Analyzed:	12/09/20 14:46
Lab Samp ID:	IPL007WB	Dilution Factor:	1
Lab File ID:	ID8L005024	Matrix:	WATER
Ext Btch ID:	IPL007W	% Moisture:	NA
Calib. Ref.:	ID8L005022	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	ND	200	20.0	40.0
Manganese	ND	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: THuang	Analyzed by:	NTan

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L042
METHOD : 3010A/6010B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1.000	1.000	1.000
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: IPL007WB	IPL007WL	IPL007WC
LAB FILE ID	: ID8L005024	ID8L005025	ID8L005026
DATE PREPARED	: 12/08/20 11:31	12/08/20 11:31	12/08/20 11:31
DATE ANALYZED	: 12/09/20 14:46	12/09/20 14:50	12/09/20 14:55
PREP BATCH	: IPL007W	IPL007W	IPL007W
CALIBRATION REF	: ID8L005022	ID8L005022	ID8L005022

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Iron	ND	5000	4890	98	5000	4860	97	1	80-120	20
Manganese	ND	500	467	93	500	469	94	0	80-120	20

MRL ID: _____

Analytes	True Values	
	Water (mg/L)	Soil (mg/kg)
Aluminum	0.200	20.0
Antimony	0.100	10.0
Arsenic	0.010	1.00
Barium	0.010	1.00
Beryllium	0.010	1.00
Boron	0.100	10.0
Cadmium	0.010	1.00
Calcium	1.00	100
Chromium	0.010	1.00
Cobalt	0.010	1.00
Copper	0.010	1.00
Iron	0.200	20.0
Lead	0.010	1.00
Lithium	0.010	1.00
Magnesium	1.00	100
Manganese	0.010	1.00
Molybdenum	0.010	1.00
Nickel	0.010	1.00
Potassium	1.00	100
Selenium	0.010	1.00
Silver	0.010	1.00
Strontium	0.010	1.00
Sodium	1.00	100
Thallium	0.010	1.00
Tin	0.100	10.0
Titanium	0.010	1.00
Vanadium	0.010	1.00
Zinc	0.020	2.00

ICP (6010) QC CHECK TABLE

QC	ICV	CCV	ICSAB	ICSA
Limit%	90-110	90-110	80-120	80-120
Comp	mg/L	mg/L	mg/L	mg/L
Al	100	100	400	400
Sb	1.5	1.5	1	0
As	1	1	1	0
Ba	2	2	0.5	0
Be	1.5	1.5	0.5	0
B	2.5	2.5	1	0
Cd	2	2	1	0
Ca	75	75	500	500
Cr	2.5	2.5	0.5	0
Co	1	1	0.5	0
Cu	2.5	2.5	0.5	0
Fe	25	25	200	200
Pb	2.5	2.5	1	0
Li	0.5	0.5	1	0
Mg	60	60	200	200
Mn	2.5	2.5	0.5	0
Mo	2.5	2.5	1	0
Ni	2.5	2.5	1	0
K	60	60	75	0
Se	1	1	1	0
Ag	0.5	0.5	1	0
Na	60	60	75	0
Sr	0.5	0.5	0.5	0
Tl	2.5	2.5	1	0
Sn	0.5	0.5	1	0
Ti	0.5	0.5	1	0
V	1.5	1.5	0.5	0
Zn	2.5	2.5	1	0

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 12|9|20 12:20

End Date: 12|9|20 19:49

SOP #	Rev. #
☑ EMAX-6010	8
☑ EMAX-6010C	2
☐ EMAX-200.7	5
☐ EMAX-	

Comments:

QC OK

CCV1, 2 & 3 Tl ↓ out of QC limit. Associated samples were reanalyzed

L008-01N Na OR diluted at 5X 1mL → 5mL

Book #: AD8-058

Instrument No.: D8

Analytical Batch: ID8L005

Analytical Sequence: S_20L6010 (V8)

Method File: 20L6010 (V8)

Database: EMAX28

Micropipette ID: ☐ 542761827

Micropipette ID: ☑ 942780530

Micropipette ID: ☑ M34663I

Micropipette ID: ☑ A42761570

Micropipette ID: ☐

	STANDARDS ID		STANDARDS ID
S0	SMIB24-2101	S26	SMIB23-4501
S1	N/A	S27	↓ 4502
S2	↓	S28	SMIB24-1101
S3	↓	S29	↓ 1102
S4	↓	S30	↓ 0601
S5	↓	S31	↓ 0602
S6	↓	ICV	SMIB23-4801
S7	↓	CCV	SMIB24-0701
S8	↓	ICSA	↓ 1402
S9	↓	ICSAB	SMIB23-4802
S10	↓	CRI/MRL	↓ 4901
S11	↓	CRI/MRL	SMIB24-0402
S12	↓	CRI/MRL	SMIB23-4901 (2X)
S16	↓	CRI/MRL	SMIB24-0401
S17	↓	Internal Standard	SMIB019-0803
S18	↓	Post-Spike 1	↓ 1210
S20	SMIB24-1001	Post-Spike 2	↓ 1301
S21	↓ 1002	Post-Spike 3	↓ 1302
S22	↓ 1201		
S23	↓ 0801		
S24	↓ 2102		
S25	SMIB23-4602		

Analyzed By: NT

Date: 12|9|20

SEQUENCE FILE : ID8L005

4-18	19-33	34-43	44-53	54-63
LFID	LSID	TIME	DATE	DF
ID8L005001	S0	12:20	12/09/20	1.000
ID8L005002	S20	12:25	12/09/20	1.000
ID8L005003	S21	12:29	12/09/20	1.000
ID8L005004	S22	12:34	12/09/20	1.000
ID8L005005	S23	12:39	12/09/20	1.000
ID8L005006	S24	12:44	12/09/20	1.000
ID8L005007	S25	12:49	12/09/20	1.000
ID8L005008	S26	12:54	12/09/20	1.000
ID8L005009	S27	12:58	12/09/20	1.000
ID8L005010	S28	13:03	12/09/20	1.000
ID8L005011	S29	13:08	12/09/20	1.000
ID8L005012	S30	13:13	12/09/20	1.000
ID8L005013	S31	13:31	12/09/20	1.000
ID8L005014	ICV	13:36	12/09/20	1.000
ID8L005015	ICB	13:41	12/09/20	1.000
ID8L005016	MRLL0901	13:45	12/09/20	1.000
ID8L005017	MRLL0902	13:50	12/09/20	1.000
ID8L005018	MRLL0903	13:55	12/09/20	1.000
ID8L005019	MRLL0904	14:00	12/09/20	1.000
ID8L005020	ICSA1	14:04	12/09/20	1.000
ID8L005021	ICSAB1	14:31	12/09/20	1.000
ID8L005022	CCV1	14:36	12/09/20	1.000
ID8L005023	CCB1	14:41	12/09/20	1.000
ID8L005024	IPL007WB	14:46	12/09/20	1.000
ID8L005025	IPL007WL	14:50	12/09/20	1.000
ID8L005026	IPL007WC	14:55	12/09/20	1.000
ID8L005027	L028-01M	14:59	12/09/20	1.000
ID8L005028	L028-01S	15:04	12/09/20	1.000
ID8L005029	L028-01A	15:09	12/09/20	1.000
ID8L005030	L028-01	15:13	12/09/20	1.000
ID8L005031	L028-01J	15:18	12/09/20	5.000
ID8L005032	MRLL0905	15:22	12/09/20	1.000
ID8L005033	MRLL0906	15:27	12/09/20	1.000
ID8L005034	CCV2	15:32	12/09/20	1.000
ID8L005035	CCB2	15:37	12/09/20	1.000
ID8L005036	L006-01	15:41	12/09/20	1.000
ID8L005037	L042-01	15:46	12/09/20	1.000
ID8L005038	L042-02	15:51	12/09/20	1.000
ID8L005039	L072-01	15:56	12/09/20	1.000
ID8L005040	IPL006WB	16:01	12/09/20	1.000
ID8L005041	IPL006WL	16:05	12/09/20	1.000
ID8L005042	IPL006WC	16:10	12/09/20	1.000
ID8L005043	L008-01	16:14	12/09/20	1.000
ID8L005044	CCV3	16:19	12/09/20	1.000
ID8L005045	CCB3	16:24	12/09/20	1.000
ID8L005046	L448-01M	16:29	12/09/20	1.000
ID8L005047	L448-01S	16:33	12/09/20	1.000
ID8L005048	L448-01A	16:38	12/09/20	1.000
ID8L005049	L448-01	16:43	12/09/20	1.000
ID8L005050	L448-01J	16:47	12/09/20	5.000
ID8L005051	TXL001SB	16:52	12/09/20	1.000
ID8L005052	TXL002WB	16:57	12/09/20	1.000
ID8L005053	K559-01	17:02	12/09/20	1.000
ID8L005054	K559-02	17:07	12/09/20	1.000
ID8L005055	CCV4	17:11	12/09/20	1.000
ID8L005056	CCB4	17:16	12/09/20	1.000
ID8L005057	K560-01M	17:21	12/09/20	1.000
ID8L005058	K560-01S	17:25	12/09/20	1.000
ID8L005059	K560-01A	17:30	12/09/20	1.000
ID8L005060	K560-01	17:34	12/09/20	1.000
ID8L005061	K560-01J	17:39	12/09/20	5.000
ID8L005062	K560-02	17:44	12/09/20	1.000

ID8L005063	IPL007WB	17:51	12/09/20	1.000
ID8L005064	IPL007WL	17:56	12/09/20	1.000
ID8L005065	IPL007WC	18:01	12/09/20	1.000
ID8L005066	L072-01N	18:05	12/09/20	1.000
ID8L005067	CCV5	18:10	12/09/20	1.000
ID8L005068	CCB5	18:16	12/09/20	1.000
ID8L005069	K560-03M	18:21	12/09/20	1.000
ID8L005070	K560-03S	18:25	12/09/20	1.000
ID8L005071	K560-03A	18:30	12/09/20	1.000
ID8L005072	K560-03	18:35	12/09/20	1.000
ID8L005073	K560-03J	18:40	12/09/20	5.000
ID8L005074	CCV6	18:44	12/09/20	1.000
ID8L005075	CCB6	18:49	12/09/20	1.000
ID8L005076	IPL006WB	18:54	12/09/20	1.000
ID8L005077	IPL006WL	18:59	12/09/20	1.000
ID8L005078	IPL006WC	19:03	12/09/20	1.000
ID8L005079	L448-01M	19:08	12/09/20	1.000
ID8L005080	L448-01S	19:13	12/09/20	1.000
ID8L005081	L448-01A	19:17	12/09/20	1.000
ID8L005082	L448-01N	19:22	12/09/20	1.000
ID8L005083	L448-01J	19:27	12/09/20	5.000
ID8L005084	L008-01N	19:31	12/09/20	1.000
ID8L005085	L008-01I	19:39	12/09/20	5.000
ID8L005086	CCV7	19:44	12/09/20	1.000
ID8L005087	CCB7	19:49	12/09/20	1.000

INITIAL CALIBRATION VERIFICATION SUMMARY FORM

Client : ARCADIS
Project : VAFB-SS003
SDG NO. : 20L042
Method : METHOD 3010A/6010B
Sequence : ID8L005
InstrumentID: D8

Lab Samp ID :	ICV	ICSA1	ICSAB1
QC Limit :	%R:90-110/RSD:<5	%R:80-120/<LOD	%R:80-120
Lab File ID :	ID8L005014	ID8L005020	ID8L005021
DateAnalyed :	12/09/2013:36	12/09/2014:04	12/09/2014:31

Parameter		Result	ICV EV	RSD	%Recovery	Result	ICSA EV	%Rec/LOD	Result	ICSAB EV	%Recovery
Aluminum		103.40	100	.17881	103	387.32	400	97	377.35	400	94
Antimony		1.3916	1.5	.14550	93	.01978	0	<0.03	.97705	1	98
Arsenic		1.0142	1.0	.24887	101	.00310	0	<0.005	1.0675	1	107
Barium		1.9879	2.0	.21310	99	.00008	0	<0.002	.50184	0.5	100
Beryllium		1.5414	1.5	.06767	103	-.00001	0	<0.001	.51615	0.5	103
Boron		2.5038	2.5	.27511	100	.06087	0	>0.01	1.0343	1.0	103
Cadmium		1.8976	2.0	.06763	95	-.00042	0	<0.002	.91806	1	92
Calcium		78.776	75	.08264	105	494.81	500	99	502.70	500	101
Chromium		2.4658	2.5	.06836	99	-.00067	0	<0.003	.50229	0.5	100
Cobalt		.97922	1.0	.12210	98	-.00042	0	<0.002	.49979	0.5	100
Copper		2.4290	2.5	.22899	97	.00047	0	<0.003	.49557	0.5	99
Iron	T	24.398	25	.16900	98	190.22	200	95	188.91	200	94
Lead		2.4546	2.5	.03523	98	.00099	0	<0.003	.98359	1	98
Lithium		.54086	0.5	.42009	108	.00404	0	<0.05	1.1467	1	115
Magnesium		59.769	60	.16007	100	197.13	200	99	196.69	200	98
Manganese	T	2.4062	2.5	.07526	96	.00096	0	<0.003	.47662	0.5	95
Molybdenum		2.4966	2.5	.29054	100	-.00030	0	<0.003	1.0571	1	106
Nickel		2.5728	2.5	.29224	103	-.00148	0	<0.003	1.0605	1	106
Potassium		62.026	60	.08182	103	-.05027	0	<0.1	82.888	75	111
Selenium		1.0086	1.0	.25378	101	-.00170	0	<0.005	1.0076	1	101
Silver		.48947	0.5	.06731	98	-.00075	0	<0.003	1.0376	1	104
Sodium		63.548	60	.09567	106	.06399	0	<0.1	84.158	75	112
Strontium		.48814	0.5	.12512	98	-.00142	0	>0.001	.49917	0.5	100
Thallium		2.2733	2.5	.23324	91	-.00377	0	<0.005	.82735	1	83
Tin		.53892	0.5	.25520	108	-.00125	0	<0.005	1.1045	1	110
Titanium		.51717	0.5	.11959	103	.00280	0	<0.005	1.0577	1	106
Vanadium		1.5148	1.5	.10864	101	-.00097	0	<0.002	.51081	0.5	102
Zinc		2.7255	2.5	.17479	109	.00238	0	<0.01	1.1266	1	113

Unit: mg/L
T: Target analyte
EV: Expected Value
Comment:

CONTINUING CALIBRATION VERIFICATION SUMMARY FORM

Client : ARCADIS
Project : VAFB-SS003
SDG NO. : 20L042
Method : 3010A/6010B
Sequence : ID8L005
Instrument ID: D8

CCV SampleID		: CCV1			CCV2			CCV3		
CCV DataFileID		: ID8L005022			ID8L005034			ID8L005044		
CCV DateTime		: 12/09/20 14:36			12/09/20 15:32			12/09/20 16:19		
PARAMETER		CCV EV	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD
Aluminum		100	101	101	.08725	99.8	100	.99504	100	100	.64086
Antimony		1.5	1.37	92	.32962	1.37	91	.38957	1.37	91	.67178
Arsenic		1.0	1.01	101	.65773	1.01	101	.42688	1	100	.87414
Barium		2.0	1.98	99	.13842	1.98	99	.26069	2	100	.09838
Beryllium		1.5	1.55	104	.17501	1.56	104	.11841	1.56	104	.06963
Boron		2.5	2.47	99	.11816	2.45	98	.14469	2.48	99	.02410
Cadmium		2.0	1.88	94	.33258	1.88	94	.16539	1.87	94	.46644
Calcium		75	78.6	105	.24085	78.8	105	.31687	78	104	.07651
Chromium		2.5	2.46	98	.17042	2.45	98	.03645	2.45	98	.21700
Cobalt		1.0	0.981	98	.12517	0.981	98	.15907	0.983	98	.11840
Copper		2.5	2.39	95	.14092	2.37	95	.27401	2.4	96	.11885
Iron	T	25	24.4	98	.18260	24.3	97	.15649	24.5	98	.16385
Lead		2.5	2.45	98	.12875	2.45	98	.07749	2.46	98	.13714
Lithium		0.5	0.539	108	.44907	0.537	107	.74141	0.531	106	.65849
Magnesium		60	59.8	100	.27757	59.8	100	.34447	59.3	99	.21340
Manganese	T	2.5	2.42	97	.18444	2.43	97	.10503	2.4	96	.14114
Molybdenum		2.5	2.52	101	.11699	2.52	101	.04473	2.53	101	.13774
Nickel		2.5	2.6	104	.19581	2.6	104	.06646	2.61	104	.20029
Potassium		60	61.6	103	.21748	61.5	102	.26019	61.1	102	.10853
Selenium		1.0	1	100	.17630	1	100	.14466	0.999	100	.50694
Silver		0.5	0.479	96	.29337	0.478	96	.45861	0.476	95	.18994
Sodium		60	63.6	106	.09951	63.6	106	.12977	63.4	106	.12207
Strontium		0.5	0.488	98	.18370	0.489	98	.14546	0.486	97	.08906
Thallium		2.5	2.23	89*	.25565	2.23	89*	.40152	2.23	89*	.51763
Tin		0.5	0.543	109	.21300	0.544	109	.41954	0.544	109	.11075
Titanium		0.5	0.522	104	.22723	0.525	105	.24335	0.523	105	.27898
Vanadium		1.5	1.52	101	.14487	1.51	101	.15122	1.52	101	.06955
Zinc		2.5	2.75	110	.15156	2.76	110	.06747	2.74	110	.11959

Unit: ug/L
T: Target analyte
%Rec QC Limit: 90-110
RSD QC Limit: <5
CCV EV: CCV Expected Value ug/L
Comment: * Out of QC limit

CONTINUING CALIBRATION BLANK SUMMARY FORM

Client : ARCADIS
Project : VAFB-SS003
SDG NO. : 20L042
Method : 3010A/6010B
Sequence : ID8L005
Instrument ID: D8

CB SampleID		: ICB		CCB1		CCB2		CCB3	
CB DataFileID		: ID8L005015		ID8L005023		ID8L005035		ID8L005045	
CB DateTime		: 12/09/2013:41		12/09/2014:41		12/09/2015:37		12/09/2016:24	
PARAMETER		LOD	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >
Aluminum		0.03	0.002	<0.03	0.006	<0.03	0.001	<0.03	0.005	<0.03
Antimony		0.03	0.00008	<0.03	0.002	<0.03	0.001	<0.03	0.00001	<0.03
Arsenic		0.005	0.002	<0.005	0.001	<0.005	0.0003	<0.005	0.002	<0.005
Barium		0.002	0.0003	<0.002	0.0001	<0.002	0.0004	<0.002	0.00004	<0.002
Beryllium		0.001	0.00001	<0.001	0.00005	<0.001	0.00003	<0.001	0.00003	<0.001
Boron		0.01	0.007	<0.01	0.007	<0.01	0.007	<0.01	0.012	>0.01
Cadmium		0.002	0.00006	<0.002	0.00002	<0.002	0.00002	<0.002	0.00009	<0.002
Calcium		0.1	0.002	<0.1	0.0003	<0.1	0.002	<0.1	0.0009	<0.1
Chromium		0.003	0.0001	<0.003	0.00001	<0.003	0.00	<0.003	0.0001	<0.003
Cobalt		0.002	0.00006	<0.002	0.0002	<0.002	0.00001	<0.002	0.0002	<0.002
Copper		0.003	0.0002	<0.003	0.0002	<0.003	0.0003	<0.003	0.0002	<0.003
Iron	T	0.04	0.003	<0.04	0.002	<0.04	0.002	<0.04	0.004	<0.04
Lead		0.003	0.001	<0.003	0.001	<0.003	0.001	<0.003	0.002	<0.003
Lithium		0.05	0.0009	<0.05	0.0003	<0.05	0.0009	<0.05	0.0008	<0.05
Magnesium		0.1	0.003	<0.1	0.002	<0.1	0.01	<0.1	0.01	<0.1
Manganese	T	0.003	0.00004	<0.003	0.0002	<0.003	0.00005	<0.003	0.0001	<0.003
Molybdenum		0.003	0.0005	<0.003	0.0006	<0.003	0.0005	<0.003	0.0004	<0.003
Nickel		0.003	0.0003	<0.003	0.00002	<0.003	0.0003	<0.003	0.0006	<0.003
Potassium		0.1	0.08	<0.1	0.07	<0.1	0.04	<0.1	0.05	<0.1
Selenium		0.005	0.002	<0.005	0.003	<0.005	0.002	<0.005	0.001	<0.005
Silver		0.003	0.00004	<0.003	0.0002	<0.003	0.00001	<0.003	0.0002	<0.003
Sodium		0.1	0.02	<0.1	0.04	<0.1	0.04	<0.1	0.24	>0.1
Strontium		0.001	0.00007	<0.001	0.00001	<0.001	0.00001	<0.001	0.00008	<0.001
Thallium		0.005	0.0002	<0.005	0.001	<0.005	0.0002	<0.005	0.00007	<0.005
Tin		0.005	0.0003	<0.005	0.0003	<0.005	0.0003	<0.005	0.0003	<0.005
Titanium		0.005	0.0002	<0.005	0.0005	<0.005	0.0006	<0.005	0.0007	<0.005
Vanadium		0.002	0.00007	<0.002	0.00002	<0.002	0.0002	<0.002	0.0002	<0.002
Zinc		0.01	0.0005	<0.01	0.0005	<0.01	0.0006	<0.01	0.0006	<0.01

Unit: mg/L
CB: Calibration Blank
T: Target analyte
Acceptance Criteria: CCB Result <LOD
Comment:

	Sample ID	Rack	Row	Col	Type	SampleName	Comment	Date File	Anaylst	CorrFact	Check	Check Table	Fail Action
1	0	0	0	0	Unk	S0		ID8L00500	NTan	1	☒	unk6010C	---
2	0	0	0	0	Unk	S20		ID8L00500	NTan	1	☒	unk6010C	---
3	0	0	0	0	Unk	S21		ID8L00500	NTan	1	☒	unk6010C	---
4	0	0	0	0	Unk	S22		ID8L00500	NTan	1	☒	unk6010C	---
5	0	0	0	0	Unk	S23		ID8L00500	NTan	1	☒	unk6010C	---
6	0	0	0	0	Unk	S24		ID8L00500	NTan	1	☒	unk6010C	---
7	0	0	0	0	Unk	S25		ID8L00500	NTan	1	☒	unk6010C	---
8	0	0	0	0	Unk	S26		ID8L00500	NTan	1	☒	unk6010C	---
9	0	0	0	0	Unk	S27		ID8L00500	NTan	1	☒	unk6010C	---
10	0	0	0	0	Unk	S28		ID8L00501	NTan	1	☒	unk6010C	---
11	0	0	0	0	Unk	S29		ID8L00501	NTan	1	☒	unk6010C	---
12	0	0	0	0	Unk	S30		ID8L00501	NTan	1	☒	unk6010C	---
13	0	0	0	0	Unk	S31		ID8L00501	NTan	1	☒	unk6010C	---
14	1	2	1	1	QC	ICV		ID8L00501	NTan	1	☒	CCV	None
15	2	2	2	1	QC	ICB		ID8L00501	NTan	1	☒	LOD	None
16	3	2	3	1	QC	MRLL0901		ID8L00501	NTan	1	☒	MRL-EMAX	None
17	4	2	4	1	QC	MRLL0902		ID8L00501	NTan	1	☒	MRL-AFCEE	None
18	5	2	5	1	Unk	MRLL0903	E2X	ID8L00501	NTan	1	☒	unk6010C	---
19	6	2	6	1	Unk	MRLL0904	4e	ID8L00501	NTan	1	☒	unk6010C	---
20	7	2	7	1	QC	ICSA1		ID8L00502	NTan	1	☒	ICSA-DoD	None
21	8	2	8	1	QC	ICSAB1		ID8L00502	NTan	1	☒	ICSAB	None
22	9	2	9	1	QC	CCV1	TI	ID8L00502	NTan	1	☒	CCV	None
23	10	2	10	1	QC	CCB1		ID8L00502	NTan	1	☒	LOD	None
24	11	2	11	1	QC	IPL007WB		ID8L00502	NTan	1	☒	1/2LOQ	None
25	12	2	12	1	QC	IPL007WL		ID8L00502	NTan	1	☒	LCS-WDoD	None
26	13	2	1	2	QC	IPL007WC		ID8L00502	NTan	1	☒	LCS-WDoD	None
27	14	2	2	2	Unk	L028-01M		ID8L00502	NTan	1	☒	unk6010C	---
28	15	2	3	2	Unk	L028-01S		ID8L00502	NTan	1	☒	unk6010C	---
29	16	2	4	2	Unk	L028-01A		ID8L00502	NTan	1	☒	unk6010C	---
30	17	2	5	2	Unk	L028-01		ID8L00503	NTan	1	☒	unk6010C	---
31	18	2	6	2	Unk	L028-01J	5X	ID8L00503	NTan	1	☒	unk6010C	---
32	19	2	7	2	QC	MRLL0905		ID8L00503	NTan	1	☒	MRL-EMAX	None
33	20	2	8	2	QC	MRLL0906		ID8L00503	NTan	1	☒	MRL-AFCEE	None
34	21	2	9	2	QC	CCV2	TI	ID8L00503	NTan	1	☒	CCV	None
35	22	2	10	2	QC	CCB2		ID8L00503	NTan	1	☒	LOD	None
36	23	2	11	2	Unk	L006-01		ID8L00503	NTan	1	☒	unk	---
37	24	2	12	2	Unk	L042-01		ID8L00503	NTan	1	☒	unk6010C	---
38	25	2	1	3	Unk	L042-02		ID8L00503	NTan	1	☒	unk6010C	---
39	26	2	2	3	Unk	L072-01		ID8L00503	NTan	1	☒	unk6010C	---
40	27	2	3	3	QC	IPL006WB		ID8L00504	NTan	1	☒	1/2LOQ	None

	Pos ID	Rack	Row	Col	Type	Samplename	Comment	Date File	Analyst	CorrFact	Check	Check Table	Fail Act
41	28	2	4	3	QC	IPL006WL		ID8L00504	NTan	1	☒	LCS-WDoD	None
42	29	2	5	3	QC	IPL006WC		ID8L00504	NTan	1	☒	LCS-WDoD	None
43	30	2	6	3	Unk	L008-01		ID8L00504	NTan	1	☒	unk	---
44	31	2	7	3	QC	CCV3	TI	ID8L00504	NTan	1	☒	CCV	None
45	32	2	8	3	QC	CCB3		ID8L00504	NTan	1	☒	LOD	None
46	33	2	9	3	Unk	L448-01M		ID8L00504	NTan	1	☒	unk	---
47	34	2	10	3	Unk	L448-01S		ID8L00504	NTan	1	☒	unk	---
48	35	2	11	3	Unk	L448-01A		ID8L00504	NTan	1	☒	unk	---
49	36	2	12	3	Unk	L448-01		ID8L00504	NTan	1	☒	unk	---
50	37	2	1	4	Unk	L448-01J	5X	ID8L00505	NTan	1	☒	unk	---
51	38	2	2	4	QC	TXL001SB	TCLP	ID8L00505	NTan	1	☒	1/2LOQ	None
52	39	2	3	4	QC	TXL002WB	TCLP	ID8L00505	NTan	1	☒	1/2LOQ	None
53	40	2	4	4	Unk	K559-01	TCLP	ID8L00505	NTan	1	☒	unk	---
54	41	2	5	4	Unk	K559-02	TCLP	ID8L00505	NTan	1	☒	unk	---
55	42	2	6	4	QC	CCV4		ID8L00505	NTan	1	☒	CCV	None
56	43	2	7	4	QC	CCB4		ID8L00505	NTan	1	☒	LOD	None
57	44	2	8	4	Unk	K560-01M	TCLP	ID8L00505	NTan	1	☒	unk	---
58	45	2	9	4	Unk	K560-01S	TCLP	ID8L00505	NTan	1	☒	unk	---
59	46	2	10	4	Unk	K560-01A	TCLP	ID8L00505	NTan	1	☒	unk	---
60	47	2	11	4	Unk	K560-01	TCLP	ID8L00506	NTan	1	☒	unk	---
61	48	2	12	4	Unk	K560-01J	5X TCLP	ID8L00506	NTan	1	☒	unk	---
62	49	2	1	5	Unk	K560-02	TCLP	ID8L00506	NTan	1	☒	unk	---
63	121	4	1	1	QC	IPL007WB		ID8L00506	NTan	1	☒	1/2LOQ	None
64	122	4	2	1	QC	IPL007WL		ID8L00506	NTan	1	☒	LCS-WDoD	None
65	123	4	3	1	QC	IPL007WC		ID8L00506	NTan	1	☒	LCS-WDoD	None
66	124	4	4	1	Unk	L072-01N		ID8L00506	NTan	1	☒	unk6010C	---
67	50	2	2	5	QC	CCV5		ID8L00506	NTan	1	☒	CCV	None
68	51	2	3	5	QC	CCB5		ID8L00506	NTan	1	☒	LOD	None
69	52	2	4	5	Unk	K560-03M	TCLP	ID8L00506	NTan	1	☒	unk	---
70	53	2	5	5	Unk	K560-03S	TCLP	ID8L00507	NTan	1	☒	unk	---
71	54	2	6	5	Unk	K560-03A	TCLP	ID8L00507	NTan	1	☒	unk	---
72	55	2	7	5	Unk	K560-03	TCLP	ID8L00507	NTan	1	☒	unk	---
73	56	2	8	5	Unk	K560-03J	5X TCLP	ID8L00507	NTan	1	☒	unk	---
74	57	2	9	5	QC	CCV6		ID8L00507	NTan	1	☒	CCV	None
75	58	2	10	5	QC	CCB6		ID8L00507	NTan	1	☒	LOD	None
76	125	4	5	1	QC	IPL006WB		ID8L00507	NTan	1	☒	1/2LOQ	None
77	126	4	6	1	QC	IPL006WL		ID8L00507	NTan	1	☒	LCS	None
78	127	4	7	1	QC	IPL006WC		ID8L00507	NTan	1	☒	LCS	None
79	128	4	8	1	Unk	L448-01M		ID8L00507	NTan	1	☒	unk	---
80	129	4	9	1	Unk	L448-01S		ID8L00508	NTan	1	☒	unk	---

	Vial ID	Rack	Row	Col	Type	Samplename	Comment	Date File	Anaylst	CorrFact	Check	Check Table	Fail Action
81	130	4	10	1	Unk	L448-01A		ID8L00508	NTan	1	☒	unk	---
82	131	4	11	1	Unk	L448-01N		ID8L00508	NTan	1	☒	unk	---
83	132	4	12	1	Unk	L448-01J	5X	ID8L00508	NTan	1	☒	unk	---
84	133	4	1	2	Unk	L008-01N		ID8L00508	NTan	1	☒	unk	---
85	136	4	4	2	Unk	L008-01I	5X	ID8L00508	NTan	1	☒	unk	---
86	134	4	2	2	QC	CCV7		ID8L00508	NTan	1	☒	CCV	None
87	135	4	3	2	QC	CCB7		ID8L00508	NTan	1	☒	LOD	None

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL
Al 308.215 {109}	12/09/2020 14:30:15	12/09/2020 13:03:40	Linear	1/Conc	0.001460	0.022797	0.000000	1.000000	0.999970	0.000194	0.001829
Sb 206.833 {463}	12/09/2020 14:30:15	12/09/2020 13:13:07	Linear	1/Conc	0.000033	0.004971	0.000000	1.000000	1.000000	0.000000	0.001808
As 189.042 {478}	12/09/2020 14:30:15	12/09/2020 13:36:21	Linear	1/Conc	-0.000002	0.001895	0.000000	1.000000	0.999999	0.000000	0.002424
Ba 455.403 { 74}	12/09/2020 14:30:15	12/09/2020 12:44:22	Linear	1/Conc	0.000907	0.530056	0.000000	1.000000	0.999939	0.001063	0.000349
Be 313.042 {108}	12/09/2020 14:30:15	12/09/2020 12:34:37	Linear	1/Conc	0.000051	0.963425	0.000000	1.000000	0.999999	0.000235	0.000094
B 249.773 {135}	12/09/2020 14:30:15	12/09/2020 12:53:57	Linear	1/Conc	0.000360	0.121093	0.000000	1.000000	0.999966	0.000182	0.000286
Cd 226.502 {449}	12/09/2020 14:30:15	12/09/2020 12:34:37	Linear	1/Conc	-0.000051	0.146968	0.000000	1.000000	0.999991	0.000116	0.000088
Ca 317.933 {106}	12/09/2020 14:30:15	12/09/2020 13:03:40	Linear	1/Conc	0.000527	0.019945	0.000000	1.000000	0.999862	0.003008	0.003870
Cr 267.716 {126}	12/09/2020 14:30:15	12/09/2020 13:03:40	Linear	1/Conc	0.000181	0.153109	0.000000	1.000000	0.999991	0.000119	0.000250
Co 228.616 {447}	12/09/2020 14:30:15	12/09/2020 12:44:22	Linear	1/Conc	-0.001023	0.806817	0.000000	1.000000	0.999998	0.000058	0.000254
Cu 324.754 {104}	12/09/2020 14:30:15	12/09/2020 12:44:22	Linear	1/Conc	0.000366	0.289953	0.000000	1.000000	0.999918	0.000673	0.000216
Fe 271.441 {124}	12/09/2020 14:30:15	12/09/2020 12:44:22	Linear	1/Conc	0.000178	0.005628	0.000000	1.000000	0.999811	0.000133	0.007412
Pb 220.353 {453}	12/09/2020 14:30:15	12/09/2020 12:34:37	Linear	1/Conc	-0.000392	0.200012	0.000000	1.000000	0.999999	0.000055	0.001008
Li 670.784 { 50}	12/09/2020 14:30:15	12/09/2020 13:36:21	Linear	1/Conc	0.000141	0.126388	0.000000	1.000000	0.999884	0.000052	0.001891
Mg 279.079 {121}	12/09/2020 14:30:15	12/09/2020 13:13:07	Linear	1/Conc	-0.000041	0.002909	0.000000	1.000000	0.999999	0.000008	0.019529
Mn 257.610 {131}	12/09/2020 14:30:15	12/09/2020 12:34:37	Linear	1/Conc	-0.000011	0.133090	0.000000	1.000000	0.999991	0.000101	0.000427
Mo 202.030 {467}	12/09/2020 14:30:15	12/09/2020 12:53:57	Linear	1/Conc	-0.000032	0.696760	0.000000	1.000000	0.999981	0.000775	0.000197
Ni 231.604 {446}	12/09/2020 14:30:15	12/09/2020 13:03:40	Linear	1/Conc	-0.000999	0.855631	0.000000	1.000000	0.999998	0.000276	0.000262
K 766.490 { 44}	12/09/2020 14:30:15	12/09/2020 13:03:40	Linear	1/Conc	-0.002454	0.006679	0.000000	1.000000	0.999997	0.000148	0.046132
Se 196.090 {472}	12/09/2020 14:30:15	12/09/2020 13:36:21	Linear	1/Conc	0.000013	0.002545	0.000000	1.000000	0.999954	0.000001	0.002374
Si 212.412 {459}	12/09/2020 14:30:15	12/09/2020 12:25:03	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000
Ag 328.068 {103}	12/09/2020 14:30:15	12/09/2020 13:36:21	Linear	1/Conc	-0.000184	0.178678	0.000000	1.000000	0.999982	0.000029	0.000421
Na 589.592 { 57}	12/09/2020 14:30:15	12/09/2020 12:53:57	Linear	1/Conc	0.000780	0.020352	0.000000	1.000000	0.999837	0.002663	0.011739
Sr 421.552 { 80}	12/09/2020 14:30:15	12/09/2020 13:36:21	Linear	1/Conc	-0.001110	0.820931	0.000000	1.000000	0.999829	0.000407	0.000195
Tl 190.856 {477}	12/09/2020 14:30:15	12/09/2020 13:13:07	Linear	1/Conc	-0.000013	0.004694	0.000000	1.000000	0.999758	0.000019	0.001363
Sn 189.989 {477}	12/09/2020 14:30:15	12/09/2020 13:36:21	Linear	1/Conc	-0.000003	0.106123	0.000000	1.000000	0.999989	0.000013	0.000749
Ti 334.941 {101}	12/09/2020 14:30:15	12/09/2020 13:36:21	Linear	1/Conc	0.000093	0.080394	0.000000	1.000000	0.999861	0.000036	0.001211
U 409.014 { 82}	12/09/2020 14:30:15	12/09/2020 12:25:03	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000
V 292.402 {115}	12/09/2020 14:30:15	12/09/2020 12:44:22	Linear	1/Conc	-0.000132	0.137288	0.000000	1.000000	0.999992	0.000098	0.000310
Zn 206.200 {463}	12/09/2020 14:30:15	12/09/2020 13:36:21	Linear	1/Conc	0.000491	0.769387	0.000000	1.000000	0.999995	0.000454	0.000173
Sc 227.318 {448}*	12/09/2020 14:30:15	12/09/2020 12:25:03	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000
Sc 361.384 { 93}*	12/09/2020 14:30:15	12/09/2020 12:25:03	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000
Sc 364.531 { 92}*	12/09/2020 14:30:15	12/09/2020 12:25:03	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000

IP8L005
S_20L6010(V8)
Exp x28
NT 12/9/20

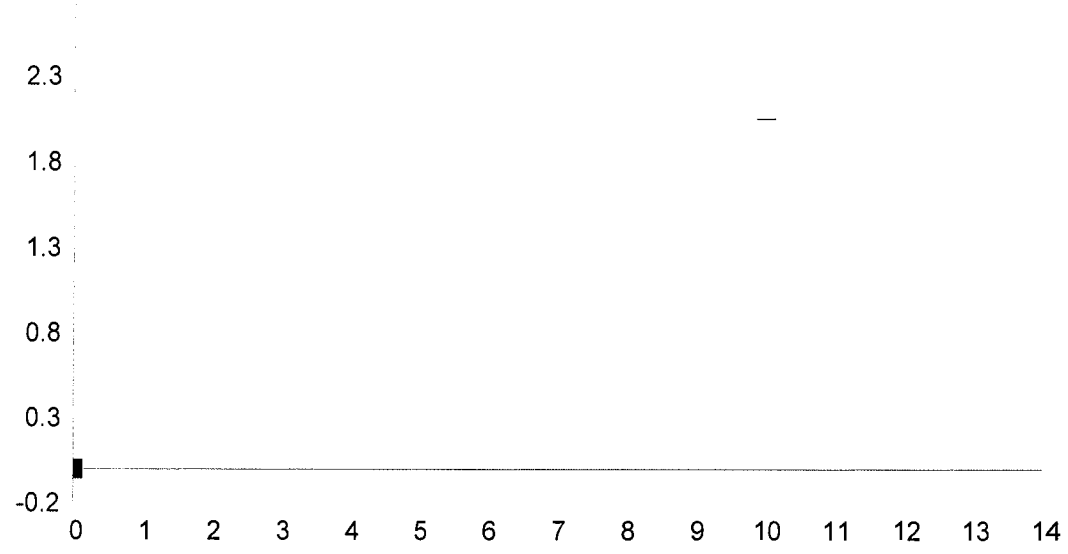
	Element, Wavelength and Order	Predicted MQL	Status	Reslope		QC Norm	
				Slope	Y-int	Slope factor	Offset
	Al 308.215 {109}	0.006097	OK.	1.000000	0.000000	1	0
	Sb 206.833 {463}	0.006026	OK.	1.000000	0.000000	1	0
	As 189.042 {478}	0.008080	OK.	1.000000	0.000000	1	0
	Ba 455.403 { 74}	0.001163	OK.	1.000000	0.000000	1	0
	Be 313.042 {108}	0.000313	OK.	1.000000	0.000000	1	0
	B 249.773 {135}	0.000954	OK.	1.000000	0.000000	1	0
	Cd 226.502 {449}	0.000294	OK.	1.000000	0.000000	1	0
	Ca 317.933 {106}	0.012899	OK.	1.000000	0.000000	1	0
	Cr 267.716 {126}	0.000833	OK.	1.000000	0.000000	1	0
	Co 228.616 {447}	0.000847	OK.	1.000000	0.000000	1	0
	Cu 324.754 {104}	0.000719	OK.	1.000000	0.000000	1	0
	Fe 271.441 {124}	0.024706	OK.	1.000000	0.000000	1	0
	Pb 220.353 {453}	0.003360	OK.	1.000000	0.000000	1	0
	Li 670.784 { 50}	0.006304	OK.	1.000000	0.000000	1	0
	Mg 279.079 {121}	0.065097	OK.	1.000000	0.000000	1	0
	Mn 257.610 {131}	0.001423	OK.	1.000000	0.000000	1	0
	Mo 202.030 {467}	0.000655	OK.	1.000000	0.000000	1	0
	Ni 231.604 {446}	0.000873	OK.	1.000000	0.000000	1	0
	K 766.490 { 44}	0.153773	OK.	1.000000	0.000000	1	0
	Se 196.090 {472}	0.007912	OK.	1.000000	0.000000	1	0
	Si 212.412 {459}	-1.000000	Warnin	1.000000	0.000000	1	0
	Ag 328.068 {103}	0.001402	OK.	1.000000	0.000000	1	0
	Na 589.592 { 57}	0.039129	OK.	1.000000	0.000000	1	0
	Sr 421.552 { 80}	0.000652	OK.	1.000000	0.000000	1	0
	Tl 190.856 {477}	0.004545	OK.	1.000000	0.000000	1	0
	Sn 189.989 {477}	0.002497	OK.	1.000000	0.000000	1	0
	Ti 334.941 {101}	0.004038	OK.	1.000000	0.000000	1	0
	U 409.014 { 82}	-1.000000	Warnin	1.000000	0.000000	1	0
	V 292.402 {115}	0.001035	OK.	1.000000	0.000000	1	0
	Zn 206.200 {463}	0.000577	OK.	1.000000	0.000000	1	0
	Sc 227.318 {448}*	-1.000000	Warnin	1.000000	0.000000	1	0
	Sc 361.384 { 93}*	-1.000000	Warnin	1.000000	0.000000	1	0
	Sc 364.531 { 92}*	-1.000000	Warnin	1.000000	0.000000	1	0

Fe 271.441 {124}

Date of Fit:	12/09/2020 12:44:22	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000178	Re-Slope:	1.000000
A1 (Gain):	0.005628	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999811	Status:	OK.
Std Error of Est:	0.000133		
Predicted MDL:	0.007412		
Predicted MQL:	0.024706		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S020H6010	.00000	-.00042	.000	.000	.00018	.000	1
S23	200.00	199.62	-.383	-.191	1.1069	.001	1
S22	2.5000	2.9280	.428	17.1	.01498	.000	1



Pb 220.353 {453}

Date of Fit:	12/09/2020 12:34:37	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000392	Re-Slope:	1.000000
A1 (Gain):	0.200012	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999999	Status:	OK.
Std Error of Est:	0.000055		
Predicted MDL:	0.001008		
Predicted MQL:	0.003360		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S020H6010	.00000	.00000	.000	.000	-.00039	.000	1
S21	10.000	9.9952	-.005	-.048	1.9988	.002	1
S20	1.0000	1.0048	.005	.476	.20057	.000	1

Mg 279.079 {121}

Date of Fit:	12/09/2020 13:13:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000041	Re-Slope:	1.000000
A1 (Gain):	0.002909	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999999	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	0.019529		
Predicted MQL:	0.065097		

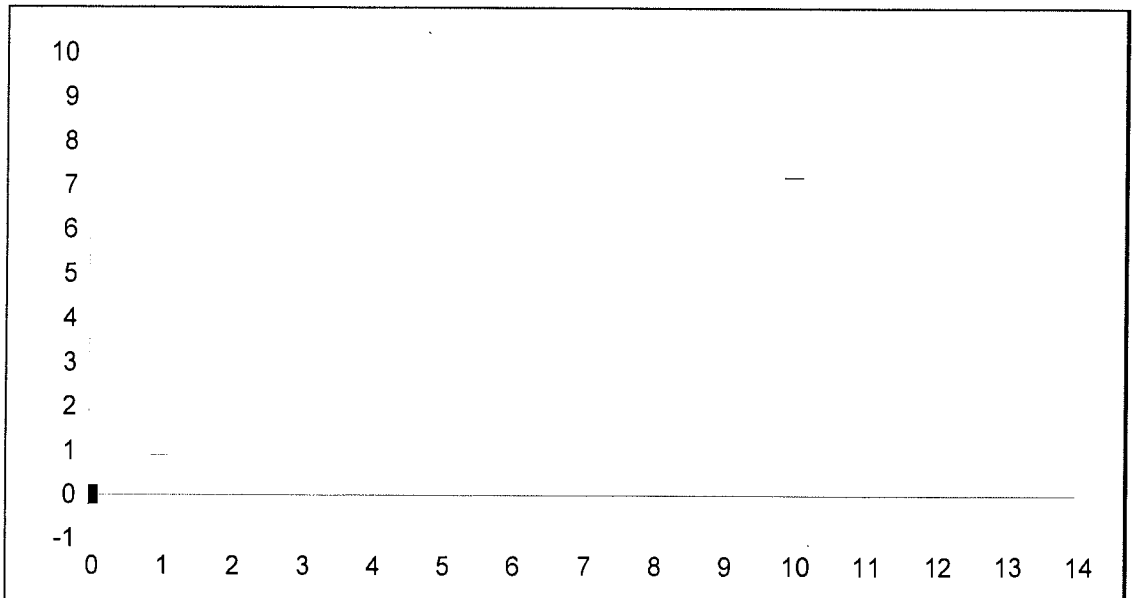
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S020H6010	.00000	-.00004	.000	.000	-.00004	.000	1
S29	100.00	99.954	-.046	-.046	.29071	.000	1
S28	10.000	10.046	.046	.459	.02918	.000	1

Mn 257.610 {131}

Date of Fit:	12/09/2020 12:34:37	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000011	Re-Slope:	1.000000
A1 (Gain):	0.133090	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999991	Status:	OK.
Std Error of Est:	0.000101		
Predicted MDL:	0.000427		
Predicted MQL:	0.001423		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S020H6010	.00000	-.00001	.000	.000	-.00001	.000	1
S21	10.000	9.9867	-.013	-.133	1.3291	.001	1
S20	1.0000	1.0133	.013	1.33	.13485	.000	1

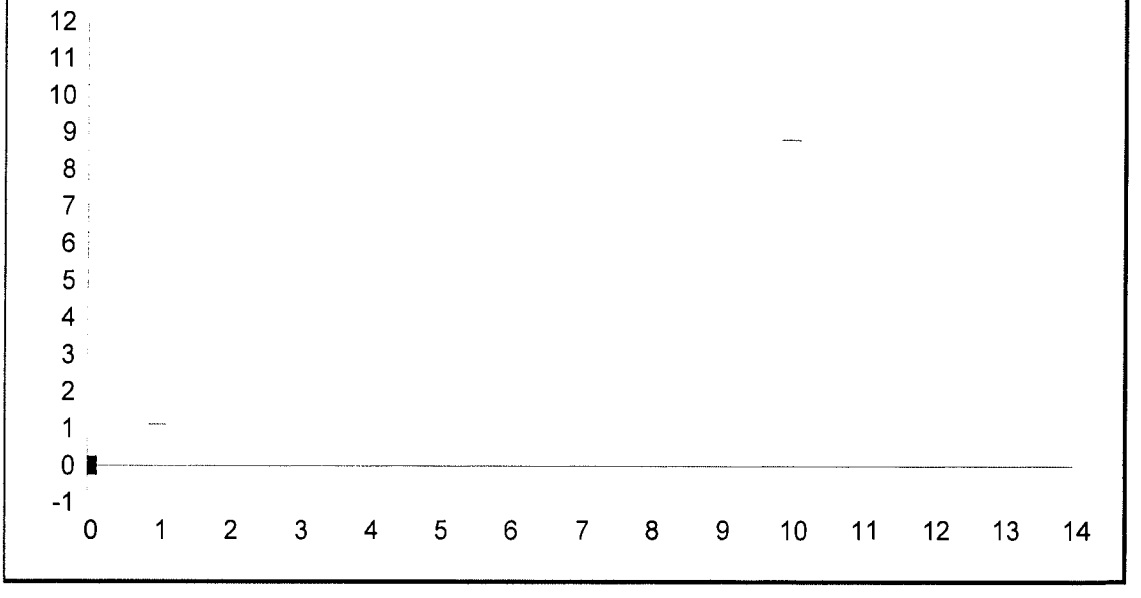


Mo 202.030 {467}

Date of Fit:	12/09/2020 12:53:57	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000032	Re-Slope:	1.000000
A1 (Gain):	0.696760	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999981	Status:	OK.
Std Error of Est:	0.000775		
Predicted MDL:	0.000197		
Predicted MQL:	0.000655		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S020H6010	.00000	.00002	.000	.000	-.00002	.000	1
S25	10.000	10.019	.019	.194	6.9811	.010	1
S24	1.0000	.98063	-.019	-1.94	.68323	.000	1



Status

Revision	8	
Date Created	08/14/2006 16:36:29	by admin
Date Modified	12/09/2020 14:30:43	by admin
Date Calibrated	12/09/2020 14:30:14	
Current Status	by admin	
Number of Elements	31	
Number of Wavelengths	33	
Calibration Type	External	
Notes:		

Analysis Preferences

Sample Options	# Repeats:	3			
	Delay Time:	0.0 seconds			
	Sample Flush Time:	47 seconds			
	Analysis mode	Speed			
Source	Sample Introduction	Nebulizer			
	Plasma View:	Line Selection			
Analysis Maximum Integration Times (sec)	Low WL Range	Axial	15	Radial	15
	High WL Range:	Axial	10	Radial	5
Calibration Mode	Concentration				
Trailing Full Frame Options	Intelli-Frame:		No		
	Max Integration Time (sec):		30		
	WL Range:		Low		
	View:		Axial		
	Auto-Increment Sample Names:		Yes		
	Use Sample Weight Corrections:		No		

Source Settings

Nebulizer Pump	Flush Pump Rate (rpm):	100	
	Analysis Pump Rate (rpm):	20	
	Pump Relaxation Time (sec):	8	
	Pump Tubing Type:	Tygon Orange/White	
	RF Power:	1150	W

Sample Name: S020H6010 Acquired: 12/09/2020 12:20:21 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00146**	**.00003**	**.00000**	**.00089**	**.00005**	**.00036**	**-.00005**	**.00048**	**.00018**	-.00102
Stddev	.00004	.00000	.0000	.00012	.00007	.00002	.00001	.00002	.00004	.00004
%RSD	3.0638	1.5607	121.25	13.025	151.86	6.3452	17.809	5.1015	24.490	3.9094
#1	.00151	.00003	.00000	.00102	.00013	.00038	-.00006	.00051	.00015	-.00107
#2	.00143	.00003	.00000	.00083	.00000	.00037	-.00004	.00046	.00023	-.00102
#3	.00143	.00003	.00000	.00082	.00001	.00034	-.00005	.00047	.00016	-.00099

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00036**	**.00018**	**-.00039**	**.00014**	**-.00004**	-.00001	**-.00002**	-.00100	**-.00245**	**.00001**
Stddev	.00002	.00002	.00011	.00017	.00004	.00002	.00014	.00019	.00034	.00000
%RSD	6.3330	9.6729	28.695	118.70	109.81	198.54	702.15	19.106	14.051	27.933
#1	.00033	.00017	-.00040	.00019	-.00001	-.00002	-.00018	-.00079	-.00279	.00001
#2	.00036	.00016	-.00027	-.00005	-.00009	.00002	.00005	-.00115	-.00210	.00002
#3	.00037	.00019	-.00050	.00027	-.00002	-.00003	.00007	-.00108	-.00247	.00001

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00018**	**.00074**	**-.00112**	**-.00001**	**.00000**	**.00009**	-.00013	**.00048**
Stddev	.00003	.00015	.00012	.00001	.0000	.00006	.00001	.00008
%RSD	16.671	20.017	10.395	52.360	858.57	63.973	5.2245	16.384
#1	-.00016	.00076	-.00121	-.00001	.00003	.00005	-.00013	.00044
#2	-.00017	.00088	-.00116	-.00001	-.00002	.00007	-.00014	.00058
#3	-.00022	.00059	-.00099	-.00002	-.00002	.00016	-.00013	.00044

Sample Name: S020H6010 Acquired: 12/09/2020 12:20:21 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6986.9**	**74299.**	**136960.**
Stddev	10.0	468.	82.
%RSD	.14241	.63054	.05999
#1	6996.9	73845.	136870.
#2	6986.8	74781.	137030.
#3	6977.0	74272.	136990.

Sample Name: S20 Acquired: 12/09/2020 12:25:06 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Be	Cd	Pb	Mn
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.96756**	**.14893**	**.20057**	**.13485**
Stddev	.00069	.00035	.00025	.00043
%RSD	.07168	.23680	.12619	.31718
#1	.96834	.14914	.20065	.13454
#2	.96701	.14913	.20078	.13534
#3	.96734	.14852	.20029	.13466

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**7328.9**	**78380.**	**144050.**
Stddev	12.8	334.	239.
%RSD	.17415	.42616	.16563
#1	7319.2	78675.	143850.
#2	7324.0	78017.	144000.
#3	7343.3	78448.	144310.

Sample Name: S21 Acquired: 12/09/2020 12:29:49 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Be	Cd	Pb	Mn
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**9.6302**	**1.4676**	**1.9988**	**1.3291**
Stddev	.0493	.0023	.0015	.0013
%RSD	.51243	.15760	.07536	.09716
#1	9.6849	1.4655	1.9987	1.3285
#2	9.5890	1.4672	1.9973	1.3283
#3	9.6167	1.4701	2.0003	1.3306

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**7328.2**	**79798.**	**145640.**
Stddev	18.4	165.	206.
%RSD	.25088	.20669	.14119
#1	7322.2	79660.	145830.
#2	7313.6	79754.	145420.
#3	7348.9	79981.	145680.

Sample Name: S22 Acquired: 12/09/2020 12:34:41 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Ba	Co	Cu	Fe	V
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.54947**	**.16135**	**.30196**	**.01498**	**.13888**
Stddev	.00140	.00019	.00017	.00003	.00017
%RSD	.25415	.11979	.05538	.18729	.12264
#1	.54866	.16134	.30211	.01494	.13883
#2	.54867	.16155	.30197	.01500	.13906
#3	.55109	.16116	.30178	.01499	.13873

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6928.1**	**75222.**	**138080.**
Stddev	18.0	217.	165.
%RSD	.25933	.28829	.11937
#1	6941.5	74997.	137990.
#2	6907.7	75239.	138270.
#3	6935.1	75430.	137970.

Sample Name: S23 Acquired: 12/09/2020 12:39:26 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Ba	Co	Cu	Fe	V
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5.2830**	**1.6116**	**2.8815**	**1.1069**	**1.3714**
Stddev	.0127	.0013	.0177	.0008	.0006
%RSD	.24023	.08110	.61571	.07608	.04563
#1	5.2850	1.6101	2.8611	1.1072	1.3718
#2	5.2946	1.6122	2.8920	1.1074	1.3718
#3	5.2694	1.6125	2.8916	1.1059	1.3707

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6573.8**	**76490.**	**139860.**
Stddev	2.3	498.	207.
%RSD	.03466	.65144	.14809
#1	6573.8	77025.	139910.
#2	6576.1	76040.	139630.
#3	6571.6	76406.	140040.

Sample Name: S24 Acquired: 12/09/2020 12:44:27 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	B	Mo	Na
Units	Cts/S	Cts/S	Cts/S
Avg	**.11829**	**.68323**	**1.0634**
Stddev	.00028	.00043	.0025
%RSD	.23401	.06352	.23600
#1	.11798	.68339	1.0643
#2	.11850	.68356	1.0653
#3	.11840	.68274	1.0606

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6740.4**	**76135.**	**140140.**
Stddev	31.8	323.	704.
%RSD	.47128	.42399	.50243
#1	6713.6	75913.	139620.
#2	6732.1	75987.	139850.
#3	6775.5	76506.	140940.

Sample Name: S25 Acquired: 12/09/2020 12:49:11 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	B	Mo	Na
Units	Cts/S	Cts/S	Cts/S
Avg	**1.2145**	**6.9811**	**6.0613**
Stddev	.0002	.0095	.0493
%RSD	.01331	.13642	.81377
#1	1.2143	6.9877	6.1081
#2	1.2145	6.9854	6.0660
#3	1.2146	6.9702	6.0098

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6277.0**	**78849.**	**136250.**
Stddev	2.7	497.	495.
%RSD	.04225	.63003	.36292
#1	6280.0	79130.	136800.
#2	6275.1	78276.	135830.
#3	6275.8	79142.	136140.

Sample Name: S26 Acquired: 12/09/2020 12:54:01 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Al	Ca	Cr	Ni	K
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.05057**	**1.0501**	**.15538**	**.85943**	**.32893**
Stddev	.00015	.0026	.00008	.00162	.00022
%RSD	.29673	.24426	.05102	.18804	.06770
#1	.05046	1.0486	.15532	.86113	.32871
#2	.05074	1.0488	.15535	.85791	.32915
#3	.05052	1.0531	.15547	.85927	.32892

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6710.2**	**78090.**	**140360.**
Stddev	21.7	396.	18.
%RSD	.32282	.50757	.01305
#1	6685.3	78426.	140380.
#2	6720.7	77653.	140370.
#3	6724.7	78191.	140340.

Sample Name: S27 Acquired: 12/09/2020 12:58:43 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Al	Ca	Cr	Ni	K
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**4.5574**	**9.9205**	**1.5296**	**8.5505**	**3.3397**
Stddev	.0637	.0535	.0005	.0102	.0019
%RSD	1.3983	.53889	.03452	.11918	.05568
#1	4.6228	9.9706	1.5298	8.5611	3.3390
#2	4.5538	9.8642	1.5300	8.5497	3.3418
#3	4.4955	9.9266	1.5290	8.5408	3.3383

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5729.9**	**76496.**	**125840.**
Stddev	7.4	270.	307.
%RSD	.12924	.35241	.24375
#1	5733.2	76544.	125490.
#2	5721.4	76738.	125930.
#3	5735.1	76206.	126080.

Sample Name: S28 Acquired: 12/09/2020 13:03:44 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Sb	Mg	Tl
Units	Cts/S	Cts/S	Cts/S
Avg	**.00501**	**.02918**	**.00501**
Stddev	.00000	.00008	.00001
%RSD	.08155	.27316	.18131
#1	.00501	.02911	.00501
#2	.00500	.02927	.00501
#3	.00500	.02917	.00500

Int. Std.	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S
Avg	**80048.**	**145670.**
Stddev	158.	320.
%RSD	.19679	.21969
#1	79951.	145310.
#2	79964.	145770.
#3	80230.	145920.

Sample Name: S29 Acquired: 12/09/2020 13:08:27 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	Sb	Mg	Tl
Units	Cts/S	Cts/S	Cts/S
Avg	**.04974**	**.29071**	**.04660**
Stddev	.00027	.00015	.00020
%RSD	.55029	.05102	.43423
#1	.05006	.29087	.04683
#2	.04956	.29069	.04645
#3	.04962	.29057	.04652

Int. Std.	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S
Avg	**75811.**	**137930.**
Stddev	136.	466.
%RSD	.17953	.33810
#1	75742.	137850.
#2	75723.	137510.
#3	75967.	138430.

Sample Name: S30 Acquired: 12/09/2020 13:13:11 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	As	Li	Se	Ag	Sr	Sn	Ti	Zn
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00094	.02628	.00126	.03603	.16987	.02144	.01677	.77778
Stddev	.00000	.00017	.00001	.00007	.00037	.00007	.00016	.00069
%RSD	.08011	.63144	.57208	.20507	.21895	.32523	.92650	.08906
#1	.00094	.02646	.00127	.03612	.17030	.02142	.01693	.77698
#2	.00094	.02614	.00126	.03599	.16964	.02152	.01676	.77820
#3	.00094	.02624	.00125	.03600	.16966	.02139	.01662	.77816

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	7189.1	78255.	147970.
Stddev	3.3	309.	263.
%RSD	.04580	.39537	.17741
#1	7192.6	77943.	147670.
#2	7186.1	78261.	148100.
#3	7188.7	78562.	148140.

Sample Name: S31 Acquired: 12/09/2020 13:31:42 Type: Cal
Method: 20L6010(v8) Mode: IR Corr. Factor: 1.000000
User: admin Date File: Type: Anaylst:
Comment:

Elem	As	Li	Se	Ag	Sr	Sn	Ti	Zn
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00379**	**.12567**	**.00513**	**.17801**	**.81303**	**.10590**	**.07989**	**7.6865**
Stddev	.00001	.00031	.00001	.00018	.00125	.00014	.00034	.0024
%RSD	.15453	.24962	.23846	.10338	.15338	.13433	.42245	.03143
#1	.00380	.12602	.00513	.17791	.81431	.10600	.07950	7.6838
#2	.00379	.12541	.00511	.17790	.81296	.10574	.08006	7.6884
#3	.00380	.12558	.00514	.17822	.81182	.10597	.08010	7.6872

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**7326.6**	**80770.**	**148640.**
Stddev	16.8	56.	238.
%RSD	.22951	.06938	.16031
#1	7319.0	80816.	148430.
#2	7314.9	80788.	148590.
#3	7345.9	80708.	148900.

Sample Name: ICV Acquired: 12/09/2020 13:36:25 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005014 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**103.40**	**1.3916**	**1.0142**	**1.9879**	**1.5414**	**2.5038**	**1.8976**	**78.776**	**2.4658**	**.97922**	**2.4290**
Stddev	.18	.0020	.0025	.0042	.0010	.0069	.0013	.065	.0017	.00120	.0056
%RSD	.17881	.14550	.24887	.21310	.06767	.27511	.06763	.08264	.06836	.12210	.22899
#1	103.61	1.3905	1.0114	1.9830	1.5405	2.5018	1.8963	78.758	2.4639	.97958	2.4265
#2	103.31	1.3939	1.0162	1.9902	1.5410	2.4982	1.8989	78.848	2.4663	.98020	2.4250
#3	103.28	1.3903	1.0151	1.9905	1.5425	2.5115	1.8977	78.721	2.4672	.97789	2.4353
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**24.398**	**2.4546**	**.54086**	**59.769**	**2.4062**	**2.4966**	**2.5728**	**62.026**	**1.0086**	**.48947**	**63.548**
Stddev	.041	.0009	.00227	.096	.0018	.0073	.0075	.051	.0026	.00033	.061
%RSD	.16900	.03523	.42009	.16007	.07526	.29054	.29224	.08182	.25378	.06731	.09567
#1	24.354	2.4556	.54141	59.687	2.4047	2.4926	2.5682	62.078	1.0096	.48957	63.614
#2	24.403	2.4544	.54280	59.874	2.4056	2.5049	2.5815	61.976	1.0058	.48911	63.535
#3	24.436	2.4539	.53836	59.745	2.4082	2.4922	2.5688	62.023	1.0106	.48974	63.494
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Sample Name: ICV Acquired: 12/09/2020 13:36:25 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005014 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.48814**	**2.2733**	**.53892**	**.51717**	**1.5148**	**2.7255**
Stddev	.00061	.0053	.00138	.00062	.0017	.0048
%RSD	.12512	.23324	.25520	.11959	.10864	.17479
#1	.48831	2.2777	.53738	.51717	1.5130	2.7233
#2	.48865	2.2674	.53935	.51655	1.5153	2.7310
#3	.48746	2.2747	.54003	.51779	1.5162	2.7223
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value						
Range						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5848.8**	**72631.**	**129020.**
Stddev	15.6	175.	172.
%RSD	.26588	.24150	.13306
#1	5854.2	72802.	129140.
#2	5831.3	72451.	128820.
#3	5861.0	72641.	129090.

Sample Name: ICB Acquired: 12/09/2020 13:41:07 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005015 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00233	-.00008	-.00205	-.00025	-.00001	.00719	.00006	-.00222	.00011	.00006	-.00018
Stddev	.00199	.00158	.00092	.00015	.00004	.00055	.00005	.00134	.00028	.00011	.00009
%RSD	85.365	1937.1	44.960	59.472	723.85	7.6176	79.752	60.247	260.31	165.12	48.336
#1	.00386	-.00167	-.00242	-.00039	.00004	.00762	.00012	-.00180	-.00020	.00019	-.00012
#2	.00008	.00150	-.00272	-.00027	-.00002	.00738	.00003	-.00371	.00033	-.00002	-.00029
#3	.00306	-.00008	-.00100	-.00009	-.00003	.00657	.00004	-.00114	.00018	.00003	-.00015
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00273	.00100	.00090	-.00284	.00004	.00055	-.00029	.07566	.00185	.00004	.01813
Stddev	.00170	.00045	.00145	.00948	.00046	.00010	.00009	.00934	.00372	.00020	.00578
%RSD	62.468	45.362	161.37	333.28	1203.7	18.305	31.058	12.341	201.59	510.81	31.902
#1	-.00221	.00052	.00225	.00665	.00023	.00066	-.00019	.06752	.00392	-.00015	.02456
#2	-.00135	.00105	-.00063	-.00288	.00037	.00047	-.00031	.07361	.00408	.00024	.01648
#3	-.00463	.00143	.00106	-.01230	-.00048	.00051	-.00037	.08585	-.00245	.00002	.01335
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Sample Name: ICB Acquired: 12/09/2020 13:41:07 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005015 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00007	.00020	.00026	-.00022	-.00007	-.00050
Stddev	.00021	.00089	.00032	.00040	.00037	.00011
%RSD	289.84	442.41	123.90	180.35	558.28	22.719
#1	.00006	-.00027	.00003	.00009	.00023	-.00059
#2	-.00031	-.00035	.00063	-.00067	-.00048	-.00055
#3	.00004	.00123	.00013	-.00008	.00006	-.00037
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit						
Low Limit						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	7069.3	76193.	144260.
Stddev	12.4	116.	165.
%RSD	.17526	.15187	.11408
#1	7055.8	76145.	144240.
#2	7072.0	76325.	144440.
#3	7080.1	76109.	144110.

Sample Name: MRLL0901 Acquired: 12/09/2020 13:45:52 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005016 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.22601	.10358	.01116	.01033	.01077	.10496	.01015	1.0746	.01075	.00978	.01057
Stddev	.00095	.00141	.00291	.00023	.00004	.00018	.00012	.0052	.00028	.00014	.00009
%RSD	.41939	1.3566	26.111	2.1959	.39527	.16886	1.1524	.48049	2.5753	1.4688	.82014
#1	.22676	.10294	.01187	.01007	.01073	.10498	.01018	1.0726	.01044	.00976	.01055
#2	.22494	.10261	.01366	.01045	.01080	.10477	.01002	1.0707	.01095	.00964	.01066
#3	.22632	.10519	.00796	.01048	.01080	.10512	.01025	1.0805	.01087	.00993	.01049
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.19093	.01119	.01104	1.0377	.00978	.00959	.01000	.97086	.00985	.01055	1.0377
Stddev	.00782	.00045	.00102	.0084	.00049	.00011	.00012	.01727	.00051	.00014	.0070
%RSD	4.0953	4.0658	9.2216	.80726	4.9816	1.1586	1.1540	1.7790	5.1984	1.3078	.67891
#1	.19033	.01148	.01213	1.0286	.00929	.00966	.01014	.96629	.00992	.01045	1.0297
#2	.18343	.01142	.01086	1.0452	.00979	.00964	.00993	.95634	.00930	.01050	1.0405
#3	.19903	.01066	.01012	1.0392	.01026	.00946	.00995	.98996	.01032	.01071	1.0429
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Sample Name: MRLL0901 Acquired: 12/09/2020 13:45:52 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005016 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.01069	.01113	.10519	.01100	.01023	.02069
Stddev	.00007	.00108	.00119	.00043	.00031	.00021
%RSD	.68952	9.7349	1.1282	3.8879	3.0331	1.0264
#1	.01061	.00992	.10656	.01137	.00988	.02058
#2	.01069	.01147	.10442	.01108	.01033	.02094
#3	.01076	.01200	.10459	.01053	.01047	.02056
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value						
Range						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	6941.4	75317.	141550.
Stddev	16.0	122.	112.
%RSD	.23051	.16258	.07884
#1	6943.0	75265.	141580.
#2	6924.7	75457.	141650.
#3	6956.6	75229.	141430.

Sample Name: ICSA1 Acquired: 12/09/2020 14:04:49 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005020 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**387.32**	**.01978**	**.00310**	**.00008**	**-.00001**	F **.06087**	**-.00042**	**494.81**	**-.00067**
Stddev	2.55	.00188	.00289	.00017	.00004	.00088	.00012	3.17	.00012
%RSD	.65831	9.4840	93.324	209.48	526.34	1.4443	29.104	.64120	18.040
#1	387.86	.02094	-.00023	-.00011	.00000	.06186	-.00037	495.85	-.00063
#2	389.56	.01762	.00452	.00016	-.00006	.06058	-.00057	491.25	-.00057
#3	384.55	.02078	.00500	.00019	.00003	.06018	-.00034	497.33	-.00080
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit						.01000			
Low Limit						-.01000			

Elem	Co	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00042**	**.00047**	**190.22**	**.00099**	**.00404**	**197.13**	**.00096**	**-.00030**	**-.00148**
Stddev	.00032	.00008	.18	.00155	.00077	.25	.00038	.00053	.00044
%RSD	76.956	17.154	.09504	157.63	19.128	.12786	39.177	176.22	29.827
#1	-.00017	.00039	190.42	.00012	.00429	197.42	.00116	.00027	-.00100
#2	-.00031	.00055	190.06	.00278	.00465	196.96	.00120	-.00041	-.00188
#3	-.00078	.00046	190.20	.00006	.00317	197.01	.00053	-.00076	-.00155
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: ICSA1 Acquired: 12/09/2020 14:04:49 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005020 Type: Anaylst: NTan
Comment:

Elem	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.05027**	**-.00170**	**-.00075**	**.06399**	F **-.00142**	**-.00377**	**-.00125**	**.00280**	**-.00097**
Stddev	.03647	.00165	.00048	.00197	.00022	.00139	.00065	.00064	.00013
%RSD	72.547	96.887	64.292	3.0766	15.634	36.999	51.791	22.834	13.117
#1	-.00858	-.00007	-.00045	.06257	-.00168	-.00259	-.00052	.00269	-.00105
#2	-.07624	-.00337	-.00131	.06624	-.00132	-.00340	-.00147	.00349	-.00103
#3	-.06599	-.00168	-.00050	.06317	-.00127	-.00530	-.00176	.00223	-.00082
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit					.00100				
Low Limit					-.00100				

Elem	Zn
Units	mg/L
Avg	**.00238**
Stddev	.00014
%RSD	5.8075
#1	.00253
#2	.00233
#3	.00227
Check ?	Chk Pass
High Limit	
Low Limit	

Sample Name: ICSA1 Acquired: 12/09/2020 14:04:49 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005020 Type: Anaylst: NTan
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5118.3**	**70458.**	**119940.**
Stddev	12.9	170.	543.
%RSD	.25284	.24087	.45243
#1	5113.4	70574.	119360.
#2	5108.5	70536.	120020.
#3	5133.0	70263.	120440.

Sample Name: ICSAB1 Acquired: 12/09/2020 14:31:44 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005021 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	377.35	.97705	1.0675	.50184	.51615	1.0343	.91806	502.70	.50229	.49979	.49557
Stddev	1.82	.00202	.0096	.00071	.00247	.0021	.00465	2.00	.00105	.00013	.00117
%RSD	.48294	.20673	.89737	.14189	.47907	.20687	.50647	.39815	.20853	.02574	.23634
#1	379.34	.97546	1.0761	.50159	.51656	1.0363	.92010	501.55	.50348	.49969	.49658
#2	375.75	.97637	1.0571	.50128	.51350	1.0346	.91274	501.54	.50149	.49975	.49585
#3	376.96	.97932	1.0692	.50264	.51840	1.0320	.92133	505.01	.50192	.49994	.49429
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	188.91	.98359	1.1467	196.69	.47662	1.0571	1.0605	82.888	1.0076	1.0376	84.158
Stddev	.50	.00196	.0014	.39	.00195	.0032	.0024	.128	.0067	.0010	.251
%RSD	.26394	.19892	.12025	.20028	.40818	.29908	.22161	.15423	.66872	.09721	.29853
#1	189.48	.98559	1.1475	196.52	.47703	1.0534	1.0600	82.745	1.0117	1.0374	84.118
#2	188.55	.98168	1.1476	196.41	.47450	1.0589	1.0630	82.928	.99981	1.0387	83.929
#3	188.70	.98350	1.1451	197.14	.47832	1.0589	1.0584	82.990	1.0113	1.0368	84.427
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Sample Name: ICSAB1 Acquired: 12/09/2020 14:31:44 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005021 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.49917	.82735	1.1045	1.0577	.51081	1.1266
Stddev	.00058	.00719	.0013	.0032	.00042	.0003
%RSD	.11557	.86879	.11849	.30200	.08293	.02543
#1	.49966	.83045	1.1031	1.0593	.51113	1.1262
#2	.49853	.81913	1.1057	1.0540	.51033	1.1267
#3	.49932	.83247	1.1047	1.0597	.51098	1.1267
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value						
Range						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	5124.7	70148.	119680.
Stddev	11.8	307.	429.
%RSD	.23063	.43738	.35832
#1	5129.3	70351.	119310.
#2	5111.3	70297.	120150.
#3	5133.6	69795.	119570.

Sample Name: CCV1 Acquired: 12/09/2020 14:36:33 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005022 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	100.62	1.3736	1.0123	1.9770	1.5529	2.4682	1.8840	78.593	2.4575	.98114
Stddev	.09	.0045	.0067	.0027	.0027	.0029	.0063	.189	.0042	.00123
%RSD	.08725	.32962	.65773	.13842	.17501	.11816	.33258	.24085	.17042	.12517
#1	100.71	1.3684	1.0069	1.9778	1.5517	2.4652	1.8803	78.377	2.4527	.98241
#2	100.55	1.3770	1.0197	1.9740	1.5511	2.4682	1.8912	78.730	2.4594	.98104
#3	100.59	1.3752	1.0102	1.9793	1.5561	2.4711	1.8804	78.672	2.4604	.97996
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	2.3866	24.381	2.4523	.53905	59.830	2.4198	2.5247	2.6032	61.595	1.0001
Stddev	.0034	.045	.0032	.00242	.166	.0045	.0029	.0051	.134	.0018
%RSD	.14092	.18260	.12875	.44907	.27757	.18444	.11699	.19581	.21748	.17630
#1	2.3897	24.336	2.4488	.53831	59.655	2.4155	2.5216	2.5995	61.477	1.0003
#2	2.3830	24.425	2.4535	.54176	59.848	2.4194	2.5249	2.6012	61.568	.99818
#3	2.3870	24.381	2.4548	.53709	59.986	2.4244	2.5275	2.6091	61.741	1.0017
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Sample Name: CCV1 Acquired: 12/09/2020 14:36:33 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005022 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.47909	63.599	.48847	F 2.2345	.54331	.52249	1.5155	F 2.7547
Stddev	.00141	.063	.00090	.0057	.00116	.00119	.0022	.0042
%RSD	.29337	.09951	.18370	.25565	.21300	.22723	.14487	.15156
#1	.47985	63.630	.48770	2.2326	.54209	.52256	1.5131	2.7508
#2	.47747	63.527	.48826	2.2410	.54342	.52127	1.5174	2.7543
#3	.47995	63.642	.48945	2.2301	.54440	.52364	1.5159	2.7591
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Fail
Value				2.5000				2.5000
Range				-10.000%				10.000%

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	5840.3	72557.	130720.
Stddev	4.6	306.	392.
%RSD	.07867	.42138	.29986
#1	5836.1	72230.	130630.
#2	5845.2	72835.	130380.
#3	5839.7	72606.	131140.

Sample Name: CCB1 Acquired: 12/09/2020 14:41:14 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005023 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00563	.00178	-.00134	-.00012	.00005	.00721	.00002	.00034	-.00001	.00016	-.00018
Stddev	.00168	.00044	.00017	.00022	.00002	.00021	.00011	.00290	.00009	.00020	.00019
%RSD	29.842	24.826	12.529	188.88	33.896	2.8769	550.60	861.18	801.77	120.99	108.71
#1	.00757	.00187	-.00127	-.00038	.00005	.00740	.00008	-.00213	.00005	.00015	-.00039
#2	.00472	.00217	-.00154	.00003	.00006	.00725	.00009	.00353	-.00012	-.00003	-.00001
#3	.00460	.00130	-.00122	.00000	.00003	.00699	-.00011	-.00039	.00004	.00037	-.00014
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00238	.00121	.00032	.00152	-.00018	.00057	-.00002	.07009	.00266	.00019	.03833
Stddev	.00613	.00082	.00167	.00968	.00037	.00015	.00029	.01203	.00019	.00029	.00722
%RSD	257.91	67.244	518.83	637.50	208.75	27.012	1586.2	17.162	7.3115	150.36	18.842
#1	.00135	.00049	-.00132	.00392	-.00036	.00070	.00026	.08141	.00246	.00053	.03182
#2	.00098	.00210	.00027	.00978	-.00042	.00061	-.00032	.07141	.00267	.00005	.03707
#3	-.00946	.00105	.00202	-.00914	.00025	.00040	.00001	.05746	.00285	.00000	.04610
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Sample Name: CCB1 Acquired: 12/09/2020 14:41:14 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005023 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00001	.00136	-.00030	.00052	.00002	-.00050
Stddev	.00005	.00107	.00009	.00096	.00014	.00010
%RSD	502.08	78.669	30.830	183.79	751.80	20.450
#1	.00005	.00235	-.00022	.00035	.00018	-.00040
#2	-.00004	.00023	-.00040	.00156	-.00011	-.00061
#3	.00002	.00150	-.00028	-.00034	-.00001	-.00049
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit						
Low Limit						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	7071.5	75750.	145090.
Stddev	14.1	220.	227.
%RSD	.19879	.29000	.15653
#1	7059.4	75538.	145330.
#2	7068.2	75735.	144880.
#3	7086.9	75977.	145040.

Sample Name: IPL007WB Acquired: 12/09/2020 14:46:01 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005024 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00601**	**.00164**	**-.00179**	F **.00515**	**.00000**	**.00444**	**-.00009**	**.02211**	**.00014**	**.00007**
Stddev	.00096	.00108	.00318	.00012	.00004	.00022	.00003	.00213	.00009	.00007
%RSD	15.934	65.598	177.09	2.4242	833.94	5.0061	31.329	9.6530	66.445	98.097
#1	.00578	.00194	.00066	.00507	-.00002	.00463	-.00012	.02243	.00021	.00007
#2	.00519	.00253	-.00066	.00508	.00005	.00448	-.00010	.01984	.00004	.00000
#3	.00706	.00045	-.00538	.00529	-.00001	.00419	-.00006	.02407	.00017	.00014
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit				.00500						
Low Limit				-.00500						

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00008**	**.00454**	**.00080**	**.00115**	**-.00108**	**-.00007**	**.00002**	**-.00042**	**.07134**	**-.00125**
Stddev	.00026	.00141	.00062	.00176	.03128	.00019	.00016	.00025	.02798	.00255
%RSD	320.13	31.083	78.102	152.93	2907.1	265.92	704.86	59.987	39.224	204.02
#1	.00007	.00516	.00145	.00242	.01185	.00015	-.00016	-.00022	.08490	-.00417
#2	.00007	.00553	.00021	.00187	.02167	-.00022	.00016	-.00070	.08995	.00048
#3	-.00039	.00292	.00074	-.00085	-.03675	-.00015	.00007	-.00033	.03916	-.00005
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Sample Name: IPL007WB Acquired: 12/09/2020 14:46:01 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005024 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00007**	**.03046**	**.00016**	**-.00058**	**-.00011**	**.00119**	**-.00012**	**.00172**
Stddev	.00016	.00430	.00022	.00102	.00030	.00064	.00022	.00012
%RSD	233.34	14.119	133.61	176.60	273.64	54.095	178.28	7.1617
#1	.00022	.03415	-.00009	.00050	-.00025	.00113	-.00002	.00181
#2	.00008	.03149	.00031	-.00153	.00023	.00058	-.00037	.00158
#3	-.00010	.02574	.00027	-.00070	-.00032	.00186	.00003	.00178
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6899.3**	**75503.**	**143500.**
Stddev	8.2	223.	392.
%RSD	.11911	.29563	.27327
#1	6895.5	75285.	143280.
#2	6908.8	75492.	143260.
#3	6893.8	75731.	143950.

Sample Name: IPL007WL Acquired: 12/09/2020 14:50:48 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005025 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**4.9825**	**2.3993**	**.48496**	**.48012**	**.49814**	**.46711**	**.45912**	**50.260**	**.48256**	**.47860**
Stddev	.0051	.0159	.00558	.00066	.00088	.00080	.00209	.031	.00083	.00063
%RSD	.10307	.66236	1.1515	.13654	.17751	.17039	.45620	.06245	.17101	.13096
#1	4.9871	2.4075	.48372	.48080	.49740	.46803	.46093	50.229	.48255	.47890
#2	4.9835	2.4094	.49105	.48007	.49912	.46665	.45961	50.292	.48339	.47787
#3	4.9770	2.3809	.48009	.47949	.49790	.46666	.45683	50.258	.48174	.47901
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.46169**	**4.8885**	**.47382**	**F .00122**	**48.101**	**.46669**	**.48407**	**.50890**	**48.628**	**.47666**
Stddev	.00037	.0190	.00083	.00175	.136	.00161	.00065	.00181	.122	.00406
%RSD	.07925	.38884	.17464	143.14	.28250	.34563	.13514	.35566	.25043	.85078
#1	.46188	4.8834	.47472	.00321	47.944	.46626	.48479	.51071	48.520	.47978
#2	.46192	4.9095	.47309	-.00009	48.168	.46847	.48350	.50709	48.760	.47812
#3	.46126	4.8726	.47365	.00055	48.189	.46533	.48392	.50890	48.604	.47207
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				.50000						
Range				-15.200%						

Sample Name: IPL007WL Acquired: 12/09/2020 14:50:48 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005025 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.46530**	**50.694**	**.46850**	**.43751**	**.51956**	**.50661**	**.49729**	**.53099**
Stddev	.00043	.137	.00062	.00272	.00151	.00225	.00105	.00114
%RSD	.09181	.27120	.13263	.62064	.29107	.44368	.21035	.21471
#1	.46555	50.538	.46796	.43994	.51915	.50693	.49670	.53090
#2	.46555	50.797	.46918	.43802	.51829	.50868	.49850	.52990
#3	.46481	50.748	.46835	.43458	.52123	.50422	.49667	.53217
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6075.0**	**74398.**	**134180.**
Stddev	23.1	334.	189.
%RSD	.37947	.44885	.14063
#1	6086.8	74685.	134040.
#2	6089.8	74031.	134110.
#3	6048.5	74477.	134390.

Sample Name: IPL007WC Acquired: 12/09/2020 14:55:22 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005026 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**4.9862**	**2.4088**	**.48798**	**.47928**	**.50141**	**.46994**	**.45588**	**50.767**	**.48168**	**.48037**
Stddev	.0080	.0009	.00138	.00142	.00228	.00048	.00158	.113	.00111	.00042
%RSD	.16005	.03895	.28350	.29688	.45511	.10319	.34605	.22345	.22941	.08789
#1	4.9782	2.4099	.48946	.47777	.50361	.46950	.45768	50.895	.48261	.48002
#2	4.9863	2.4082	.48776	.47948	.50157	.47046	.45472	50.729	.48198	.48084
#3	4.9941	2.4084	.48672	.48060	.49906	.46986	.45525	50.678	.48046	.48026
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.46110**	**4.8597**	**.47524**	F **.00209**	**48.654**	**.46897**	**.49565**	**.51277**	**49.198**	**.47025**
Stddev	.00032	.0109	.00078	.00092	.150	.00274	.00103	.00093	.128	.00430
%RSD	.06872	.22401	.16453	44.176	.30770	.58443	.20684	.18097	.26096	.91390
#1	.46132	4.8661	.47536	.00106	48.827	.47135	.49678	.51379	49.334	.47521
#2	.46124	4.8659	.47595	.00284	48.575	.46960	.49477	.51197	49.181	.46759
#3	.46073	4.8471	.47441	.00237	48.560	.46597	.49539	.51255	49.079	.46796
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				.50000						
Range				-15.200%						

Sample Name: IPL007WC Acquired: 12/09/2020 14:55:22 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005026 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.46579**	**51.459**	**.47491**	**.43419**	**.52841**	**.51409**	**.49616**	**.53528**
Stddev	.00067	.202	.00088	.00365	.00224	.00181	.00121	.00073
%RSD	.14361	.39163	.18513	.84054	.42426	.35123	.24366	.13669
#1	.46527	51.592	.47577	.43779	.53056	.51521	.49703	.53596
#2	.46556	51.558	.47497	.43429	.52860	.51506	.49666	.53450
#3	.46654	51.227	.47401	.43049	.52608	.51201	.49478	.53539
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5934.2**	**72992.**	**132610.**
Stddev	9.5	264.	286.
%RSD	.16082	.36120	.21535
#1	5925.0	72730.	132300.
#2	5944.1	72988.	132850.
#3	5933.5	73257.	132680.

Sample Name: CCV2 Acquired: 12/09/2020 15:32:27 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005034 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**99.830**	**1.3704**	**1.0129**	**1.9778**	**1.5586**	**2.4546**	**1.8797**	**78.783**	**2.4507**	**.98133**
Stddev	.993	.0053	.0043	.0052	.0019	.0036	.0031	.250	.0009	.00156
%RSD	.99504	.38957	.42688	.26069	.11841	.14469	.16539	.31687	.03645	.15907
#1	100.72	1.3766	1.0171	1.9815	1.5586	2.4559	1.8822	78.496	2.4517	.97994
#2	98.757	1.3672	1.0084	1.9800	1.5605	2.4573	1.8763	78.902	2.4500	.98302
#3	100.01	1.3674	1.0132	1.9719	1.5568	2.4505	1.8807	78.950	2.4504	.98103
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**2.3747**	**24.317**	**2.4525**	**.53729**	**59.791**	**2.4311**	**2.5232**	**2.6044**	**61.471**	**1.0042**
Stddev	.0065	.038	.0019	.00398	.206	.0026	.0011	.0017	.160	.0014
%RSD	.27401	.15649	.07749	.74141	.34447	.10503	.04473	.06646	.26019	.14466
#1	2.3772	24.308	2.4504	.53442	59.569	2.4290	2.5242	2.6026	61.314	1.0041
#2	2.3796	24.284	2.4540	.53562	59.829	2.4340	2.5234	2.6047	61.465	1.0057
#3	2.3673	24.359	2.4532	.54184	59.976	2.4304	2.5220	2.6060	61.634	1.0028
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Sample Name: CCV2 Acquired: 12/09/2020 15:32:27 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005034 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.47764**	**63.649**	**.48872**	F 2.2254	**.54445**	**.52494**	**1.5120**	F 2.7602
Stddev	.00219	.083	.00071	.0089	.00228	.00128	.0023	.0019
%RSD	.45861	.12977	.14546	.40152	.41954	.24335	.15122	.06747
#1	.47864	63.571	.48796	2.2357	.54591	.52346	1.5112	2.7588
#2	.47916	63.735	.48937	2.2209	.54562	.52567	1.5101	2.7623
#3	.47513	63.640	.48884	2.2196	.54182	.52569	1.5145	2.7595
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Fail
Value				2.5000				2.5000
Range				-10.000%				10.000%

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5895.7**	**73000.**	**132260.**
Stddev	13.2	232.	128.
%RSD	.22467	.31790	.09702
#1	5905.3	73223.	132190.
#2	5880.6	73017.	132180.
#3	5901.2	72759.	132410.

Sample Name: CCB2 Acquired: 12/09/2020 15:37:10 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005035 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00137	.00142	-.00030	-.00038	.00003	.00675	.00002	-.00239	.00000	-.00001	-.00033
Stddev	.00181	.00091	.00036	.00038	.00003	.00016	.00007	.00281	.0002	.00010	.00003
%RSD	131.64	64.599	121.37	100.76	125.71	2.3292	291.89	117.56	14622.	958.75	9.9098
#1	.00319	.00188	-.00049	-.00018	.00005	.00693	.00002	-.00544	-.00013	.00002	-.00030
#2	-.00042	.00036	-.00053	-.00082	-.00001	.00671	-.00005	.00009	-.00016	-.00013	-.00033
#3	.00135	.00201	.00012	-.00013	.00003	.00662	.00010	-.00181	.00028	.00007	-.00037
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Elem	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se	Ag	Na
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00179	.00106	.00093	-.01458	-.00005	.00050	-.00028	.04048	.00176	.00001	.04207
Stddev	.00332	.00099	.00139	.00290	.00029	.00005	.00011	.01069	.00066	.00044	.00408
%RSD	185.24	93.802	149.77	19.893	590.39	10.219	40.573	26.415	37.417	8694.1	9.6950
#1	-.00561	-.00006	.00117	-.01693	.00000	.00050	-.00033	.02840	.00169	-.00010	.04665
#2	-.00017	.00182	-.00057	-.01548	.00021	.00054	-.00036	.04429	.00113	-.00038	.03883
#3	.00040	.00141	.00218	-.01134	-.00036	.00044	-.00015	.04874	.00245	.00049	.04073
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Sample Name: CCB2 Acquired: 12/09/2020 15:37:10 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005035 Type: Anaylst: NTan
Comment:

Elem	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	-.00001	.00017	.00032	.00062	.00016	-.00057
Stddev	.00003	.00114	.00051	.00092	.00004	.00017
%RSD	229.20	659.15	158.31	148.94	26.439	29.357
#1	.00000	-.00025	-.00024	.00133	.00015	-.00046
#2	-.00004	.00147	.00045	-.00042	.00012	-.00077
#3	.00000	-.00069	.00075	.00095	.00020	-.00049
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit						
Low Limit						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	7104.2	76001.	145780.
Stddev	10.3	183.	288.
%RSD	.14474	.24075	.19778
#1	7094.2	75998.	145700.
#2	7114.8	75820.	145540.
#3	7103.5	76186.	146100.

Sample Name: L042-01 Acquired: 12/09/2020 15:46:41 Type: Unk
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005037 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.04618**	**.00484**	**.00205**	**.01613**	**.00002**	**.88204**	**-.00007**	**76.539**	**.00150**	**-.00031**
Stddev	.00080	.00162	.00430	.00010	.00006	.00245	.00006	.074	.00029	.00028
%RSD	1.7329	33.477	209.47	.64598	272.87	.27735	94.570	.09686	19.649	91.427
#1	.04685	.00667	-.00291	.01625	-.00003	.88462	-.00005	76.618	.00180	-.00033
#2	.04639	.00426	.00450	.01608	.00008	.88175	-.00013	76.528	.00121	-.00001
#3	.04529	.00359	.00457	.01605	.00000	.87975	-.00002	76.471	.00149	-.00057

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00132**	**.03371**	**.00031**	**.12985**	**F 124.15**	**.05850**	**.00652**	**.00272**	**31.100**	**.00520**
Stddev	.00014	.00329	.00224	.00159	.14	.00032	.00022	.00005	.083	.00418
%RSD	10.602	9.7603	716.03	1.2248	.11465	.55159	3.3957	1.7335	.26768	80.381
#1	.00118	.03677	.00099	.12833	124.31	.05881	.00639	.00274	31.050	.00888
#2	.00131	.03023	-.00218	.12972	124.04	.05853	.00677	.00276	31.055	.00066
#3	.00146	.03413	.00213	.13151	124.11	.05817	.00639	.00267	31.197	.00605

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00035**	**F 1123.2**	**.56064**	**-.00203**	**.00072**	**.00333**	**.00266**	**.01227**
Stddev	.00042	10.3	.00051	.00173	.00045	.00135	.00045	.00030
%RSD	118.79	.92125	.09126	85.137	62.559	40.465	16.865	2.4231
#1	.00010	1131.5	.56086	-.00230	.00095	.00467	.00232	.01262
#2	-.00073	1111.6	.56101	-.00361	.00101	.00334	.00317	.01212
#3	-.00043	1126.7	.56006	-.00018	.00020	.00197	.00250	.01209

Sample Name: L042-01 Acquired: 12/09/2020 15:46:41 Type: Unk
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005037 Type: Anaylst: NTan
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**4946.8**	**68792.**	**113470.**
Stddev	5.8	222.	375.
%RSD	.11794	.32330	.33029
#1	4943.4	68729.	113380.
#2	4953.6	69039.	113140.
#3	4943.5	68607.	113880.

Sample Name: L042-02 Acquired: 12/09/2020 15:51:33 Type: Unk
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005038 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	1.1211	.00307	.00962	.01243	.00015	.46269	-.00007	20.662	.00354	.00012
Stddev	.0074	.00039	.00048	.00035	.00004	.00156	.00008	.030	.00037	.00014
%RSD	.66094	12.636	5.0125	2.8001	29.099	.33819	110.10	.14411	10.461	117.43
#1	1.1145	.00347	.00931	.01209	.00011	.46205	-.00003	20.639	.00357	.00017
#2	1.1198	.00269	.00938	.01242	.00020	.46156	-.00016	20.652	.00316	-.00004
#3	1.1292	.00306	.01018	.01278	.00014	.46448	-.00002	20.695	.00390	.00023

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00319	1.2657	.00077	.03126	27.900	.02902	.00795	.00378	12.546	.00088
Stddev	.00010	.0102	.00095	.00032	.045	.00022	.00016	.00015	.022	.00199
%RSD	3.1074	.80467	122.78	1.0308	.16004	.77426	2.0744	4.0450	.17650	226.92
#1	.00314	1.2573	.00015	.03131	27.848	.02928	.00785	.00382	12.564	-.00100
#2	.00314	1.2626	.00031	.03091	27.931	.02892	.00814	.00392	12.552	.00067
#3	.00331	1.2770	.00186	.03155	27.919	.02887	.00787	.00362	12.521	.00296

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	.00018	F 324.75	.14354	-.00015	.00029	.03965	.00897	.01439
Stddev	.00028	3.65	.00034	.00188	.00040	.00118	.00015	.00016
%RSD	155.35	1.1233	.23556	1218.5	134.78	2.9792	1.6334	1.1098
#1	-.00014	325.46	.14383	-.00041	.00030	.03951	.00890	.01441
#2	.00031	327.99	.14317	.00184	-.00011	.03854	.00888	.01454
#3	.00038	320.80	.14363	-.00189	.00069	.04089	.00914	.01422

Sample Name: L042-02 Acquired: 12/09/2020 15:51:33 Type: Unk
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005038 Type: Anaylst: NTan
Comment:

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	5733.7	73659.	131640.
Stddev	4.9	192.	41.
%RSD	.08478	.26039	.03106
#1	5737.2	73844.	131650.
#2	5728.2	73461.	131670.
#3	5735.8	73674.	131590.

Sample Name: CCV3 Acquired: 12/09/2020 16:19:49 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005044 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**100.45**	**1.3725**	**1.0044**	**1.9975**	**1.5556**	**2.4810**	**1.8708**	**77.954**	**2.4534**	**.98324**
Stddev	.64	.0092	.0088	.0020	.0011	.0006	.0087	.060	.0053	.00116
%RSD	.64086	.67178	.87414	.09838	.06963	.02410	.46644	.07651	.21700	.11840
#1	101.05	1.3678	.99595	1.9965	1.5560	2.4806	1.8688	78.005	2.4494	.98458
#2	99.771	1.3831	1.0135	1.9962	1.5564	2.4816	1.8804	77.970	2.4595	.98249
#3	100.52	1.3665	1.0038	1.9998	1.5543	2.4807	1.8633	77.889	2.4514	.98264
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**2.4005**	**24.519**	**2.4582**	**.53090**	**59.306**	**2.4025**	**2.5265**	**2.6100**	**61.089**	**.99919**
Stddev	.0029	.040	.0034	.00350	.127	.0034	.0035	.0052	.066	.00507
%RSD	.11885	.16385	.13714	.65849	.21340	.14114	.13774	.20029	.10853	.50694
#1	2.4014	24.514	2.4617	.52792	59.269	2.4034	2.5249	2.6133	61.084	.99590
#2	2.3974	24.562	2.4579	.53475	59.447	2.4054	2.5305	2.6127	61.158	1.0050
#3	2.4029	24.482	2.4550	.53003	59.202	2.3988	2.5242	2.6040	61.026	.99666
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Sample Name: CCV3 Acquired: 12/09/2020 16:19:49 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005044 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.47587**	**63.429**	**.48627**	F **2.2259**	**.54393**	**.52279**	**1.5207**	**2.7438**
Stddev	.00090	.077	.00043	.0115	.00060	.00146	.0011	.0033
%RSD	.18994	.12207	.08906	.51763	.11075	.27898	.06955	.11959
#1	.47516	63.340	.48597	2.2225	.54358	.52234	1.5198	2.7476
#2	.47556	63.484	.48677	2.2387	.54463	.52162	1.5219	2.7421
#3	.47689	63.462	.48606	2.2164	.54359	.52442	1.5205	2.7417
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				2.5000				
Range				-10.000%				

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**5907.7**	**75255.**	**133280.**
Stddev	3.5	305.	492.
%RSD	.05859	.40474	.36948
#1	5906.2	75448.	133590.
#2	5911.6	74904.	132710.
#3	5905.2	75413.	133540.

Sample Name: CCB3 Acquired: 12/09/2020 16:24:31 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005045 Type: Anaylst: NTan
Comment:

Elem	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00490**	**-.00001**	**-.00214**	**-.00004**	**.00003**	F **.01175**	**.00009**	**.00089**	**-.00010**	**.00024**
Stddev	.00072	.00201	.00042	.00028	.00005	.00060	.00006	.00342	.00021	.00003
%RSD	14.651	13477.	19.493	726.34	187.50	5.1059	65.570	384.20	220.45	12.939
#1	.00562	.00203	-.00254	-.00021	-.00002	.01219	.00008	.00212	-.00024	.00020
#2	.00418	-.00199	-.00216	.00029	.00008	.01201	.00003	.00352	.00015	.00025
#3	.00491	-.00009	-.00171	-.00020	.00002	.01107	.00015	-.00297	-.00020	.00026
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit						.01000				
Low Limit						-.01000				

Elem	Cu	Fe	Pb	Li	Mg	Mn	Mo	Ni	K	Se
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**-.00022**	**-.00435**	**.00160**	**.00075**	**.01011**	**.00011**	**.00044**	**-.00060**	**.04834**	**.00107**
Stddev	.00010	.00379	.00057	.00062	.02490	.00033	.00019	.00011	.02366	.00129
%RSD	44.477	87.081	35.587	82.226	246.42	290.78	42.249	18.997	48.950	121.15
#1	-.00011	-.00183	.00225	.00134	.03729	.00027	.00066	-.00051	.07565	.00175
#2	-.00029	-.00871	.00135	.00081	-.01160	.00034	.00031	-.00056	.03508	.00187
#3	-.00025	-.00251	.00119	.00011	.00463	-.00027	.00037	-.00073	.03428	-.00042
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Sample Name: CCB3 Acquired: 12/09/2020 16:24:31 Type: QC
Method: 20L6010(v8) Mode: CONC Corr. Factor: 1.000000
User: admin Date File: ID8L005045 Type: Anaylst: NTan
Comment:

Elem	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg	**.00015**	F **.23774**	**.00008**	**-.00007**	**-.00025**	**.00070**	**.00017**	**-.00058**
Stddev	.00016	.01066	.00007	.00094	.00044	.00057	.00027	.00009
%RSD	100.82	4.4832	85.133	1432.4	177.43	80.596	161.80	15.443
#1	.00025	.24982	.00000	-.00082	-.00066	.00012	-.00013	-.00059
#2	-.00002	.23376	.00011	-.00037	.00021	.00125	.00039	-.00049
#3	.00023	.22965	.00012	.00099	-.00029	.00075	.00024	-.00067
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		.10000						
Low Limit		-.10000						

Int. Std.	Sc2273_A	Sc3613_R	Sc3645_A
Units	Cts/S	Cts/S	Cts/S
Avg	**6964.9**	**76129.**	**145880.**
Stddev	21.4	420.	158.
%RSD	.30735	.55132	.10816
#1	6941.9	76591.	145880.
#2	6968.6	76022.	145730.
#3	6984.2	75772.	146040.

EMAX LABORATORIES, INC.

DIGESTION LOG
for
ICP-METALS

Note: For samples, relevant QCs/Standards digested, refer to attached digestion sequence.

Comments:

Digestion Vessel Lot # SMSA-0405-06

Filter Lot # N/A

samples pH <2

Book #: EIP-147
Batch: 1PL007W
Matrix: WATER
Digestor ID: E

SOP #	Rev. #
☑ EMAX-3010	7
☐ EMAX-3050	7
☐ EMAX-200.7	5
☐ EMAX-	

Start	Temp	End	Temp
	92.5 °C		93.8 °C

Standards	ID	Amount Added (ml/g)
LCS-1	SMIA-018-12-10	0.25
LCS-2	↓ 13-01	0.25
LCS-3	↓ 13-02	0.50
MS	same spike soln/vol as LCS 1,2,3	
Blank Soil (Bead)	N/A	N/A
Reagent	**Lot# / ID**	**Amount Added (ml)**
HNO_3	SWIA009-04-09	1.5 + 1.5
HCl	↓ 09-06	2.5 + 2.5
H_2O_2	N/A	N/A
HNO_3(1:1)	↓	↓
pH Strip (0-14)	HC857466	
Digestate Location	Metals	
Extract Location	N/A	
☑ Reagent Water ID:	SWIA-009-09-02	
☑ Thermometer ID:	192062809 / E37	
☑ Pipette ID:	7427663 31	
☑ Pipette ID:	8427807 99	
☐ Pipette ID:		
☐ HNO_3 dispenser checked @ 5.0 ml with Class A volumetric flask		
☐ HCl dispenser checked @ 5.0 ml with Class A volumetric flask		

Prepared By: TH
Standard Added By: TH Witnessed By: MC
Extract Rcvd By: NT Checked By: TH

EMAX LABORATORIES

DIGESTION LOG FOR METALS

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
20IPL007W01	IPL007WB	50	ml	12/8/20 10:34	50	50	50	1	
20IPL007W02	IPL007WL	50	ml	12/8/20 10:34	50	50	50	1	
20IPL007W03	IPL007WC	50	ml	12/8/20 10:34	50	50	50	1	
20IPL007W04	L006-01	50	ml	12/8/20 10:34	50	50	50	1	
20IPL007W05	L028-01	50	ml	12/8/20 10:34	50	50	50	1	
20IPL007W06	L028-01M	50	ml	12/8/20 10:34	50	50	50	1	
20IPL007W07	L028-01S	50	ml	12/8/20 10:34	50	50	50	1	
20IPL007W08	L042-01	50	ml	12/8/20 10:34	50	50	50	1	
20IPL007W09	L042-02	50	ml	12/8/20 10:34	50	50	50	1	
20IPL007W10	L072-01	50	ml	12/8/20 10:34	50	50	50	1	

TH
12/8/20

Vd=digestate volume PrepFctr=)ExpAmt/Aliquot)*(Vd/ExpVd)

☑ Digestion Started @ 12/8/20 11:31 Prepared By: THuang

☑ Digestion Ended @ 12/8/20 18:29 Checked By: TH

Comments: Date 12/8/20

SOP EMAX-3010 Rev. 7

LABORATORY REPORT FOR

ARCADIS

VAFB-SS003

WET CHEMICAL ANALYSES

SDG#: 20L042

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20L042

METHOD 300.0
CHLORIDE-CL

A total of two(2) water samples were received on 12/04/20 to be analyzed for Chloride-Cl in accordance with Method 300.0 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, two(2) method blanks were analyzed. ICL011WB and ICL013WB were compliant to project requirement. Refer to sample result summary forms for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, two(2) sets of LCS/LCD were analyzed. ICL011WL/ICL011WC and ICL013WL/ICL013WC were within LCS limits. Refer to LCS summary forms for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20L042

METHOD 300.0
SULFATE

A total of two(2) water samples were received on 12/04/20 to be analyzed for Sulfate in accordance with Method 300.0 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Sulfate was not detected in ICL011WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. ICL011WL/ICL011WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

SAMPLE RESULTS

METHOD 300.0
CHLORIDE-CL

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20L042

Matrix : WATER
InstrumentID : D0

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	ICL011WB	ND	1	NA	0.2	0.05	0.1	12/04/2022:10	NA	AL07-31	AL07-29	ICL011W	NA	NA
LCS1W	ICL011WL	1.00	1	NA	0.2	0.05	0.1	12/04/2022:44	NA	AL07-32	AL07-29	ICL011W	NA	NA
LCD1W	ICL011WC	0.992	1	NA	0.2	0.05	0.1	12/04/2023:18	NA	AL07-33	AL07-29	ICL011W	NA	NA
SS003-3-MW-57(120120)	L042-02T	407	400	NA	80	20	40	12/05/2000:43	NA	AL07-38	AL07-29	ICL011W	12/03/2008:46	12/04/20
MBLK2W	ICL013WB	ND	1	NA	0.2	0.05	0.1	12/07/2011:23	NA	AL09-03	AL09-01	ICL013W	NA	NA
LCS2W	ICL013WL	0.985	1	NA	0.2	0.05	0.1	12/07/2011:40	NA	AL09-04	AL09-01	ICL013W	NA	NA
LCD2W	ICL013WC	0.982	1	NA	0.2	0.05	0.1	12/07/2011:57	NA	AL09-05	AL09-01	ICL013W	NA	NA
SS003-3-MW-55(120120)	L042-01I	1940	2000	NA	400	100	200	12/07/2016:11	NA	AL09-15	AL09-13	ICL013W	12/01/2013:20	12/04/20

METHOD 300.0
SULFATE

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20L042

Matrix : WATER
InstrumentID : D0

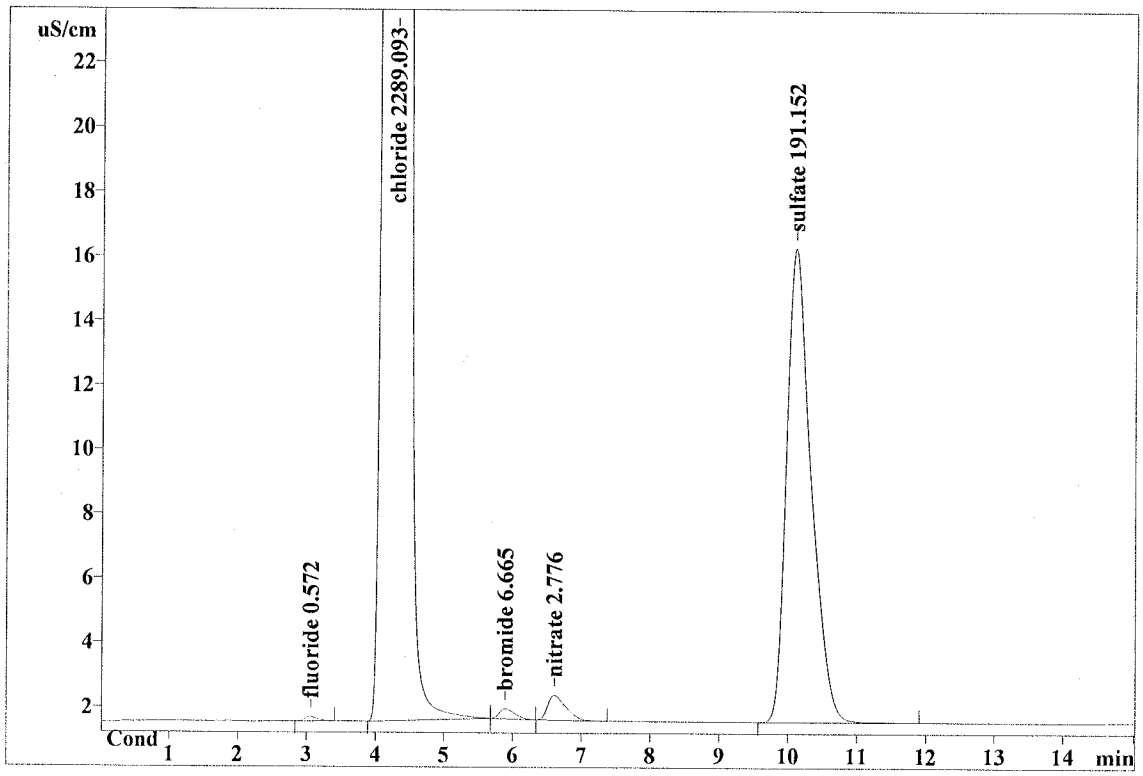
CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	ICL011WB	ND	1	NA	0.5	0.125	0.25	12/04/2022:10	NA	AL07-31	AL07-29	ICL011W	NA	NA
LCS1W	ICL011WL	4.81	1	NA	0.5	0.125	0.25	12/04/2022:44	NA	AL07-32	AL07-29	ICL011W	NA	NA
LCD1W	ICL011WC	4.78	1	NA	0.5	0.125	0.25	12/04/2023:18	NA	AL07-33	AL07-29	ICL011W	NA	NA
SS003-3-MW-57(120120)	L042-02K	119	10	NA	5	1.25	2.5	12/05/2000:26	NA	AL07-37	AL07-29	ICL011W	12/03/2008:46	12/04/20
SS003-3-MW-55(120120)	L042-01K	191	10	NA	5	1.25	2.5	12/05/2002:43	NA	AL07-44	AL07-41	ICL011W	12/01/2013:20	12/04/20

Report date: 12/7/2020 3:32:48 PM
Printed by: TWangc

Ident: AL07-44 L042-01K DF=10
Analysis from: 12/5/2020 2:43:28 AM
File: _2020-12-05_02-43.chw Last save: 12/5/2020 2:58:25 AM

Method: ICD0-J27.mtw Last save: 12/4/2020 11:41:21 AM
Run operator: TWangc
Analysis number: 164498

SAMPLE: METHOD 300/9056/4110B
: 2ml/20ml
Vial number: 44
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.06	0.13	1.595	0.572	fluoride
2	4.30	356.12	5167.146	2289.093	chloride
3	5.89	0.32	4.887	6.665	bromide
4	6.60	0.77	14.141	2.776	nitrate
5	10.10	14.71	368.495	191.152	sulfate ✓
5	15.00	372.04	5556.264	2490.259	

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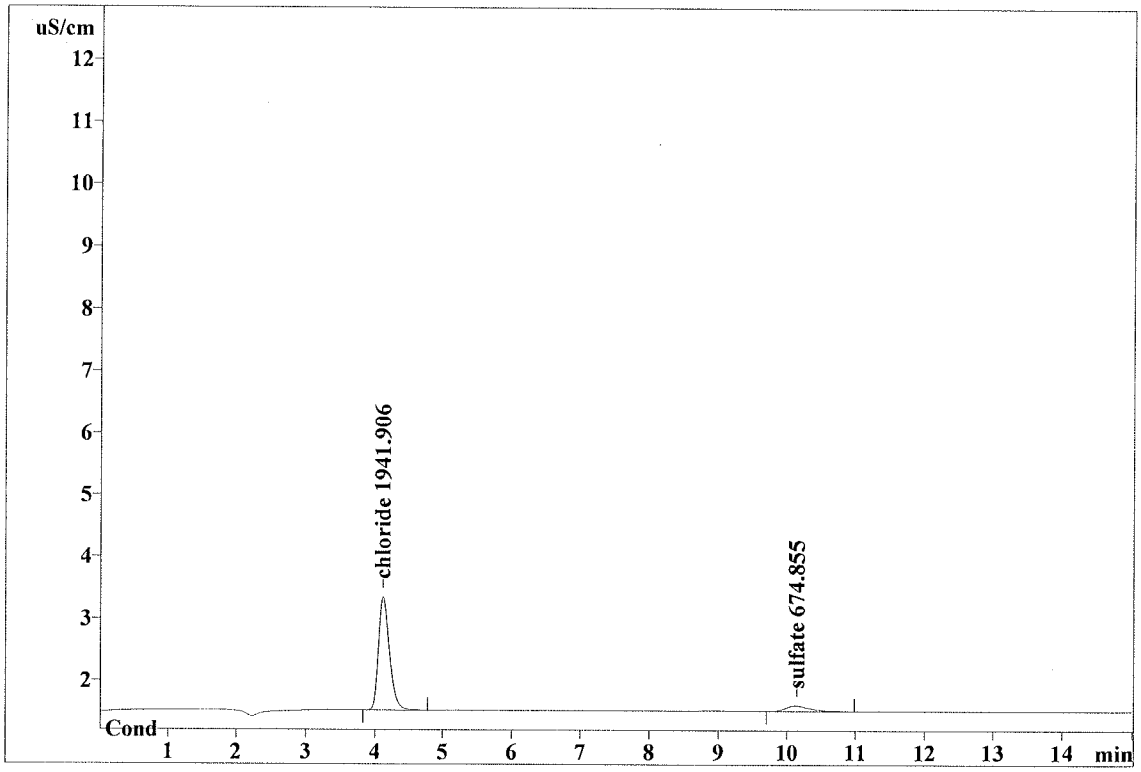
Report date: 12/8/2020 9:50:21 AM
Printed by: LDip

Ident: AL09-15 L042-01I DF=2000
Analysis from: 12/7/2020 4:11:48 PM
File: _2020-12-07_16-11.chw Last save: 12/7/2020 4:26:45 PM

Method: ICD0-J27.mtw Last save: 12/7/2020 10:55:37 AM
Run operator: TWangc
Analysis number: 164534

SAMPLE: METHOD 300/9056/4110B
: 0.2ml/20ml INTERMEDIATE, 1ml/20ml DF=2000
Vial number: 15
Volume: 1.0 µL
Dilution: 2000.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.12	1.83	20.981	1941.906	chloride ✓
2	10.13	0.09	2.335	674.855	sulfate
2	15.00	1.92	23.316	2616.761	

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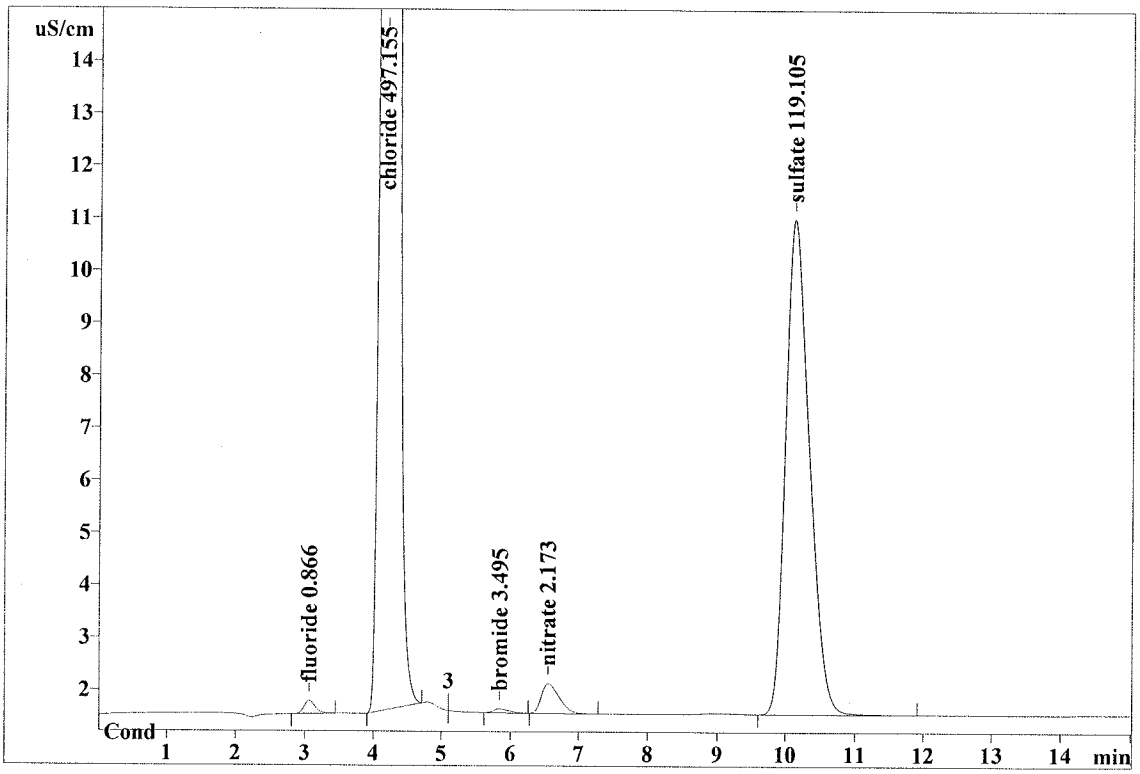
Report date: 12/7/2020 3:31:50 PM
Printed by: TWangc

Ident: AL07-37 L042-02K DF=10
Analysis from: 12/5/2020 12:26:45 AM
File: _2020-12-05_00-26.chw Last save: 12/5/2020 12:41:42 AM

Method: ICD0-J27.mtw Last save: 12/4/2020 11:41:21 AM
Run operator: TWangc
Analysis number: 164490

SAMPLE: METHOD 300/9056/4110B
: 2ml/20ml
Vial number: 37
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.06	0.25	2.795	0.866	fluoride
2	4.18	94.73	1121.486	497.155	chloride
3	5.10	-0.00	-0.000	0.000	
4	5.84	0.08	1.243	3.495	bromide
5	6.55	0.57	10.418	2.173	nitrate
6	10.12	9.46	228.006	119.105	sulfate ✓
6	15.00	105.08	1363.947	622.793	

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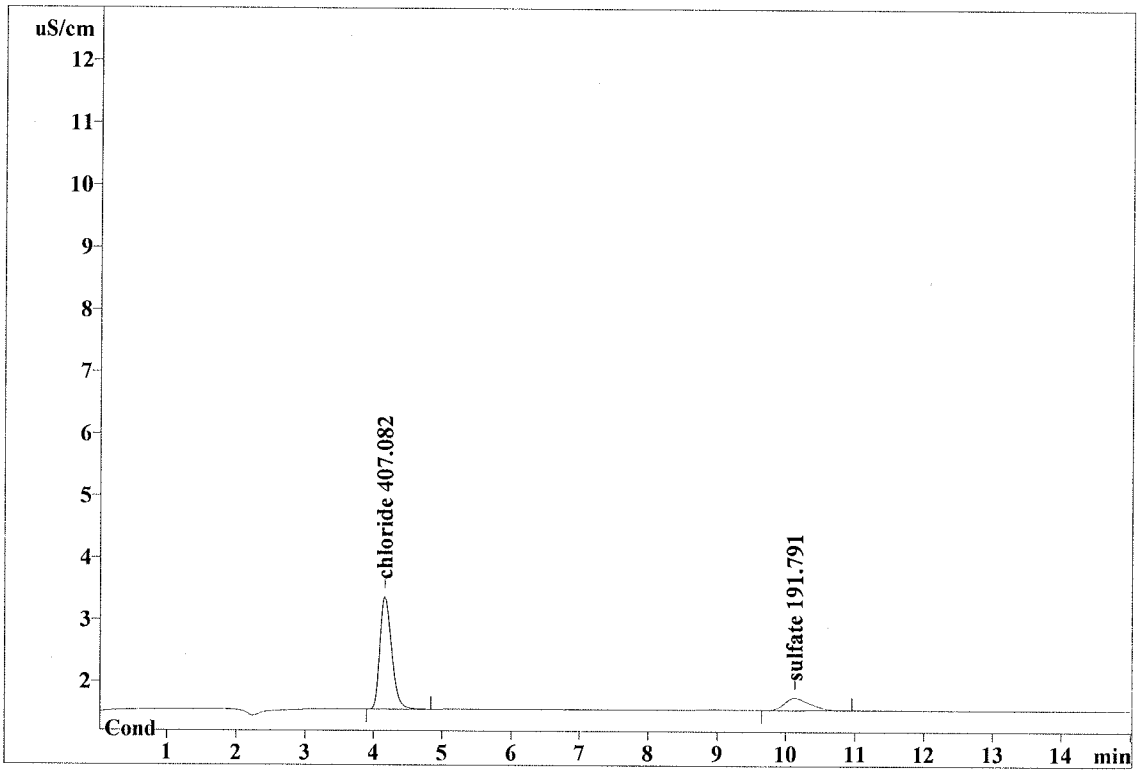
Report date: 12/7/2020 3:32:20 PM
Printed by: TWangc

Ident: AL07-38 L042-02T DF=400
Analysis from: 12/5/2020 12:43:50 AM
File: _2020-12-05_00-43.chw Last save: 12/5/2020 12:58:47 AM

Method: ICD0-J27.mtw Last save: 12/4/2020 11:41:21 AM
Run operator: TWangc
Analysis number: 164491

SAMPLE: METHOD 300/9056/4110B
: 0.1ml/40ml
Vial number: 38
Volume: 1.0 µL
Dilution: 400.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.16	1.82	22.036	407.082	chloride ✓
2	10.13	0.20	5.105	191.791	sulfate
2	15.00	2.02	27.142	598.873	

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QC SUMMARIES

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L042
METHOD : 300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICL011WB	ICL011WL	ICL011WC
LAB FILE ID :	AL07-31	AL07-32	AL07-33
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/04/2022:10	12/04/2022:44	12/04/2023:18
PREP BATCH :	ICL011W	ICL011W	ICL011W
CALIBRATION REF:	AL07-29	AL07-29	AL07-29

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	1	1.00	100	1	0.992	99	1	90-110	20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L042
METHOD : 300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK2W	LCS2W	LCD2W
LAB SAMPLE ID :	ICL013WB	ICL013WL	ICL013WC
LAB FILE ID :	AL09-03	AL09-04	AL09-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/07/2011:23	12/07/2011:40	12/07/2011:57
PREP BATCH :	ICL013W	ICL013W	ICL013W
CALIBRATION REF:	AL09-01	AL09-01	AL09-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	1	0.985	99	1	0.982	98	0	90-110	20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L042
METHOD : 300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICL011WB	ICL011WL	ICL011WC
LAB FILE ID :	AL07-31	AL07-32	AL07-33
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/04/2022:10	12/04/2022:44	12/04/2023:18
PREP BATCH :	ICL011W	ICL011W	ICL011W
CALIBRATION REF:	AL07-29	AL07-29	AL07-29

ACCESSION:

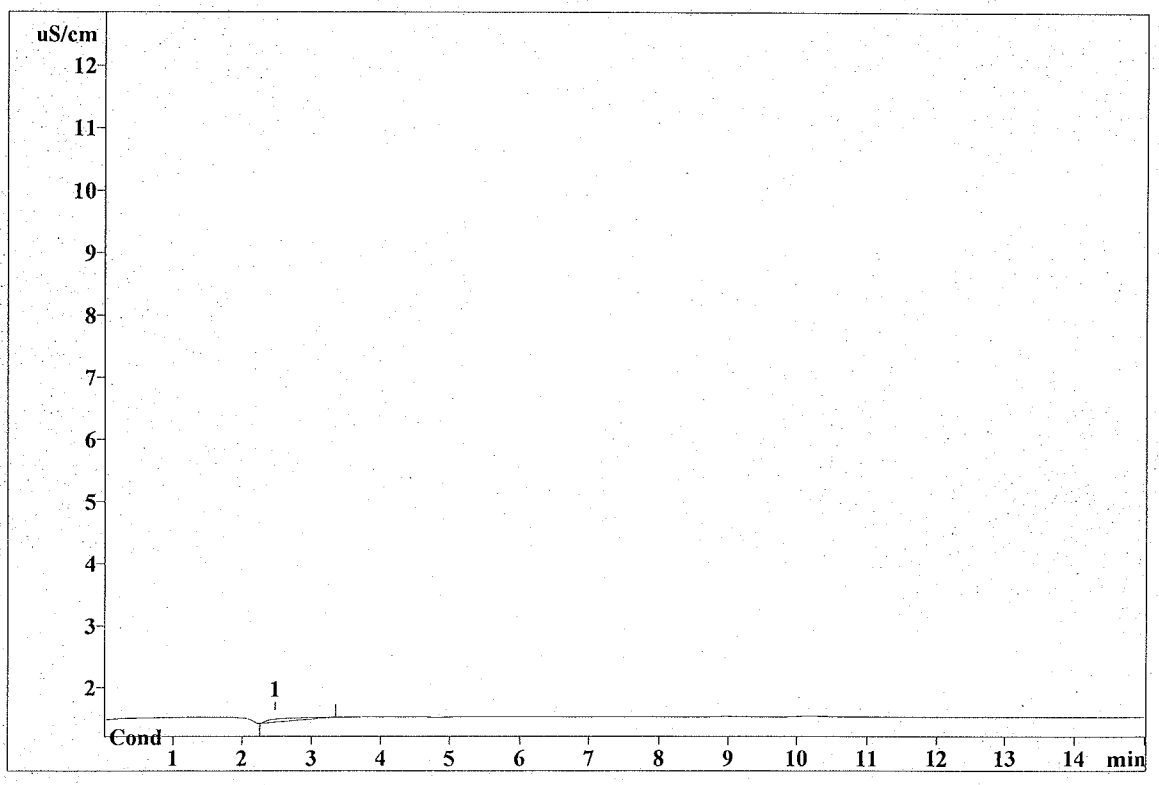
PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	5	4.81	96	5	4.78	96	1	90-110	20

QC DATA

Report date: 12/7/2020 2:54:07 PM
Printed by: TWangc

Ident: AL07-31 ICL011WB
Analysis from: 12/4/2020 10:10:00 PM
File: _2020-12-04_22-10.chw Last save: 12/4/2020 10:24:57 PM
Modified!
Method: ICD0-J27.mtw Last save: 12/4/2020 11:41:21 AM
Run operator: TWangc
Analysis number: 164482

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 31
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.48	0.05	2.006	0.000	

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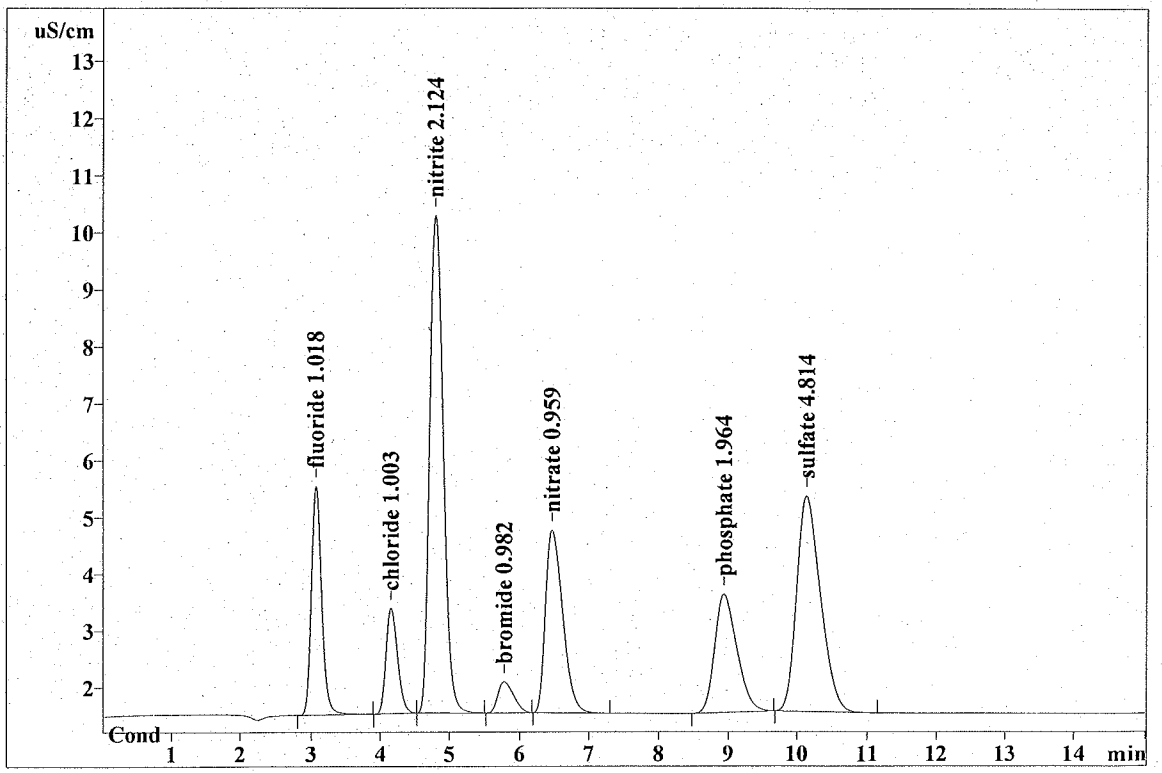
Report date: 12/7/2020 2:54:16 PM
Printed by: TWangc

Ident: AL07-32 ICL011WL
Analysis from: 12/4/2020 10:44:11 PM
File: _2020-12-04_22-44.chw Last save: 12/4/2020 10:59:08 PM

Method: ICD0-J27.mtw Last save: 12/4/2020 11:41:21 AM
Run operator: TWangc
Analysis number: 164484

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 32
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.06	4.03	40.781	1.018	fluoride
2	4.15	1.86	21.708	1.003	chloride
3	4.79	8.75	119.654	2.124	nitrite
4	5.78	0.55	8.515	0.982	bromide
5	6.47	3.22	56.138	0.959	nitrate
6	8.93	2.09	46.515	1.964	phosphate
7	10.13	3.80	89.626	4.814	sulfate
7	15.00	24.29	382.937	12.864	

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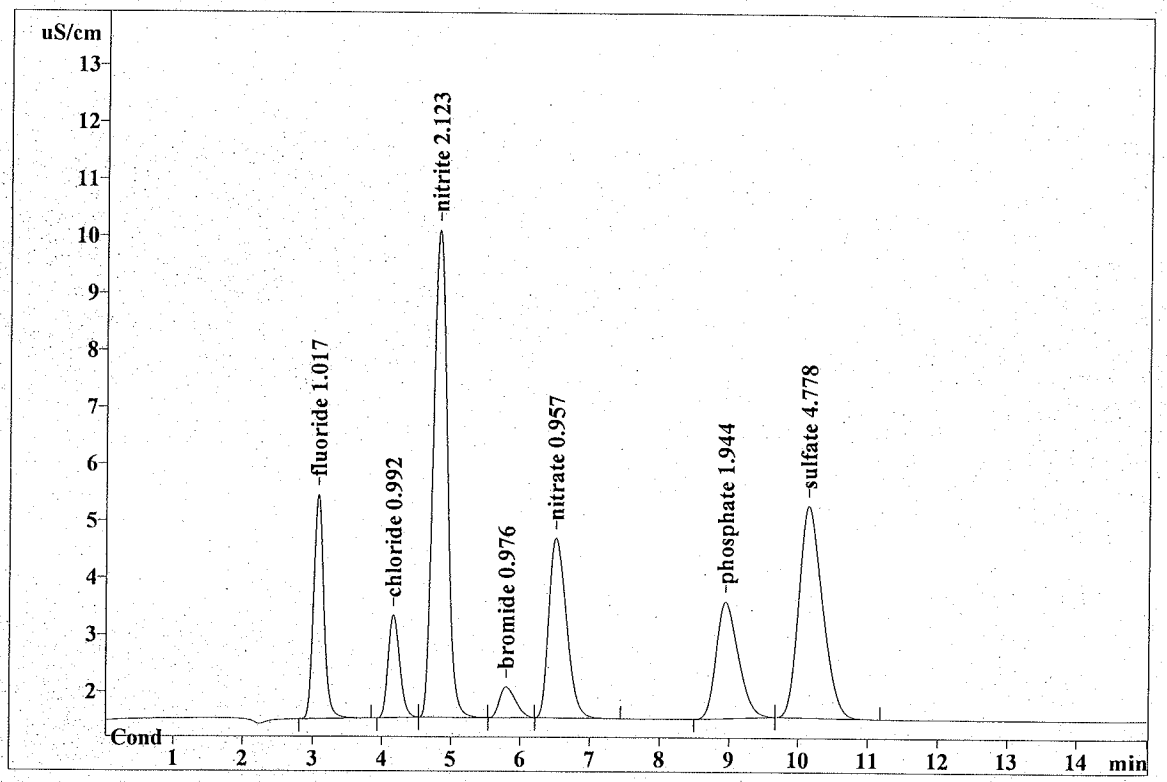
Report date: 12/7/2020 2:54:24 PM
Printed by: TWangc

Ident: AL07-33 ICL011WC
Analysis from: 12/4/2020 11:18:22 PM
File: _2020-12-04_23-18.chw Last save: 12/4/2020 11:33:19 PM

Method: ICD0-J27.mtw Last save: 12/4/2020 11:41:21 AM
Run operator: TWangc
Analysis number: 164486

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 33
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.07	3.93	40.745	1.017	fluoride
2	4.16	1.80	21.460	0.992	chloride
3	4.80	8.56	119.591	2.123	nitrite
4	5.80	0.54	8.449	0.976	bromide
5	6.49	3.15	56.015	0.957	nitrate
6	8.93	2.04	45.979	1.944	phosphate
7	10.13	3.72	88.917	4.778	sulfate
7	15.00	23.75	381.155	12.787	

This report has been created by IC Net
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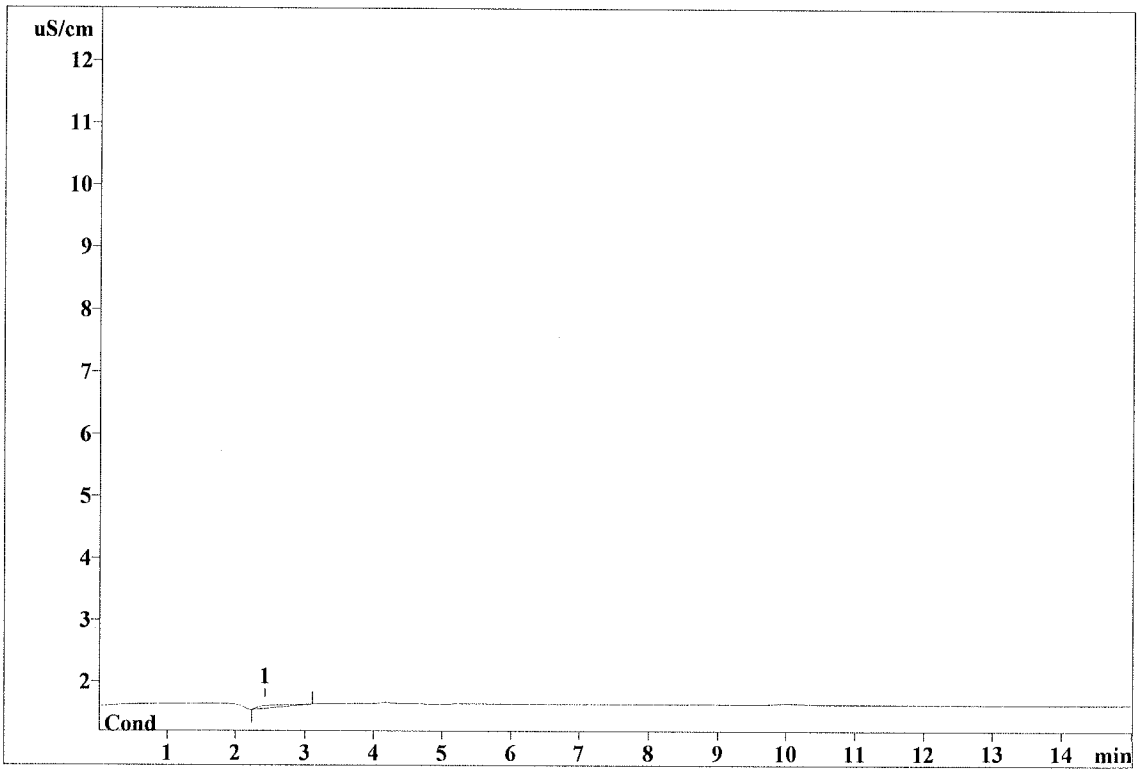
Report date: 12/8/2020 1:28:26 PM
Printed by: LDip

Ident: AL09-03 ICL013WB
Analysis from: 12/7/2020 11:23:14 AM
File: _2020-12-07_11-23.chw Last save: 12/8/2020 10:04:47 AM
Modified!
Method: ICD0-J27.mtw Last save: 12/7/2020 10:55:37 AM
Run operator: TWangc
Analysis number: 164522

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

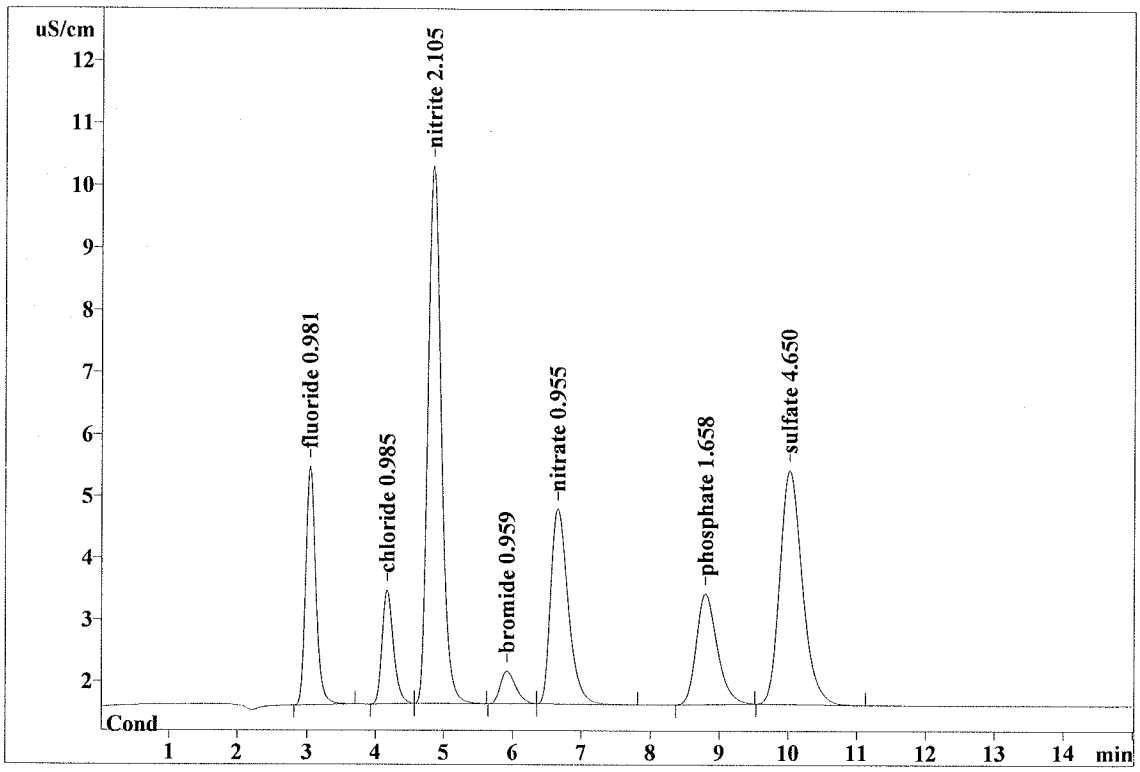
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.43	0.04	1.310	0.000	

This report has been created by IC Net
METROHM LTD

Report date: 12/8/2020 1:28:34 PM
Printed by: LDip

Ident: AL09-04 ICL013WL
Analysis from: 12/7/2020 11:40:20 AM
File: _2020-12-07_11-40.chw Last save: 12/8/2020 10:04:47 AM
Modified!
Method: ICD0-J27.mtw Last save: 12/7/2020 10:55:37 AM
Run operator: TWangc
Analysis number: 164523

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	3.86	39.249	0.981	fluoride
2	4.16	1.84	21.290	0.985	chloride
3	4.84	8.67	118.569	2.105	nitrite
4	5.91	0.53	8.252	0.959	bromide
5	6.65	3.16	55.872	0.955	nitrate
6	8.79	1.79	38.278	1.658	phosphate
7	10.01	3.79	86.422	4.650	sulfate
7	15.00	23.64	367.931	12.292	

This report has been created by IC Net
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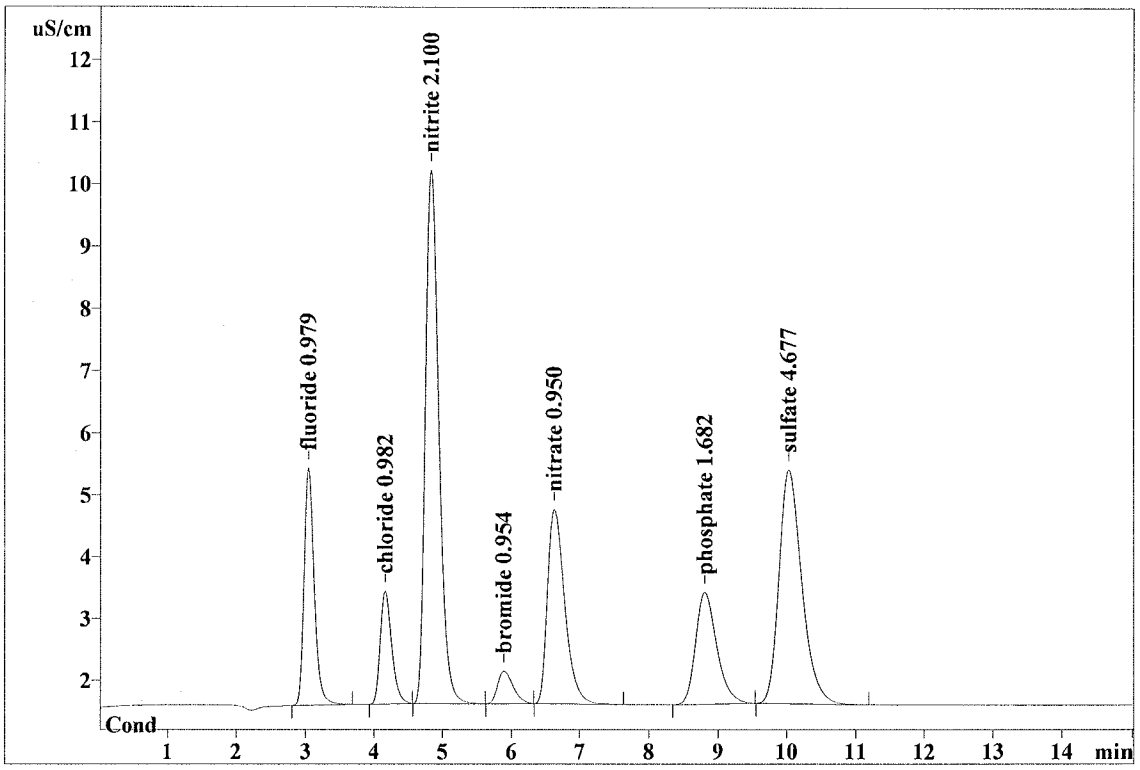
Report date: 12/8/2020 1:28:42 PM
Printed by: LDip

Ident: AL09-05 ICL013WC
Analysis from: 12/7/2020 11:57:26 AM
File: _2020-12-07_11-57.chw Last save: 12/8/2020 10:04:47 AM
Modified!
Method: ICD0-J27.mtw Last save: 12/7/2020 10:55:37 AM
Run operator: TWangc
Analysis number: 164524

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 5
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	3.83	39.193	0.979	fluoride
2	4.16	1.82	21.239	0.982	chloride
3	4.83	8.60	118.309	2.100	nitrite
4	5.89	0.52	8.188	0.954	bromide
5	6.63	3.14	55.593	0.950	nitrate
6	8.80	1.81	38.920	1.682	phosphate
7	10.03	3.78	86.958	4.677	sulfate
7	15.00	23.51	368.400	12.325	

This report has been created by IC Net
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INITIAL CALIBRATION(S)

IC Result Check FormVersion : J27/AJ15(2020)

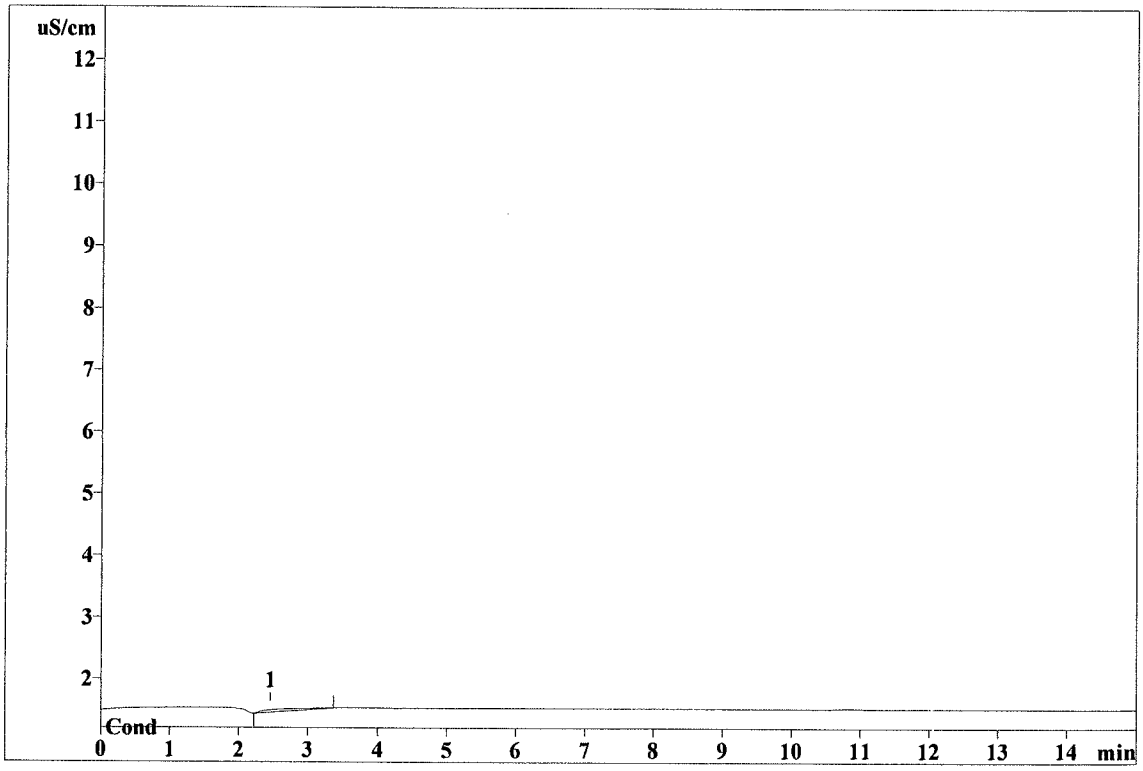
LFID	LSID	Selection	iodide	chloride	fluoride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AJ15-01	IB	OCFIBNPS	0	0	0	0	0	0	0	0	_2020-10-28_13-28	1
AJ15-02	S0	OCFIBNPS	0	0	0	0	0	0	0	0	_2020-10-28_13-45	1
AJ15-03	S1	OCFIBNPS	0	0.0812344	0.0576408	0.0671536	0.277728	0.084371	0.264307	0.265029	_2020-10-28_14-03	1
AJ15-04	S2	OCFIBNPS	0	0.121294	0.097092	0.104175	0.310119	0.120341	0.294602	0.299005	_2020-10-28_14-20	1
AJ15-05	S3	OCFIBNPS	0	0.206112	0.187748	0.187798	0.380854	0.20327	0.355772	0.36933	_2020-10-28_14-37	1
AJ15-06	S4	OCFIBNPS	0	0.466346	0.453199	0.455968	0.587569	0.465665	0.551093	0.577801	_2020-10-28_14-54	1
AJ15-07	S5	OCFIBNPS	0	0.944692	0.941658	0.936816	0.945875	0.946486	0.91239	0.948642	_2020-10-28_15-11	1
AJ15-08	S6	OCFIBNPS	0	2.03032	2.00503	1.99188	1.76425	2.02987	1.76888	1.775	_2020-10-28_15-28	1
AJ15-09	S7	OCFIBNPS	0	5.69621	5.21289	5.20334	4.67049	5.54632	4.73219	4.68897	_2020-10-28_15-45	1
AJ15-10	S8	OCFIBNPS	0	11.6873	9.89473	9.90287	9.66758	11.1989	9.79312	9.69846	_2020-10-28_16-02	1
AJ15-11	S9	OCFIBNPS	0	24.0502	18.4226	18.5347	20.2455	22.816	20.1777	20.2278	_2020-10-28_16-19	1
AJ15-12	ICV	OCFIBNPS	0%*	208.9%*	99%	102.9%	97.8%	100.5%	91.7%	94.4%	_2020-10-28_16-36	1
AJ15-13	ICV1	OCFIBNPS	0%*	99.5%	100.1%	102%	98.5%	100.5%	96.6%	98.2%	_2020-10-28_16-53	1
AJ15-14	ICB	OCFIBNPS	0	0	0	0	0	0	0	0	_2020-10-28_17-10	1

Report date: 10/28/2020 6:23:00 PM
Printed by: LDip

Ident: AJ15-02 S0
Analysis from: 10/28/2020 1:45:55 PM
File: _2020-10-28_13-45.chw Last save: 10/28/2020 6:20:36 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162702

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 2
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.45	0.04	1.740	0.000	

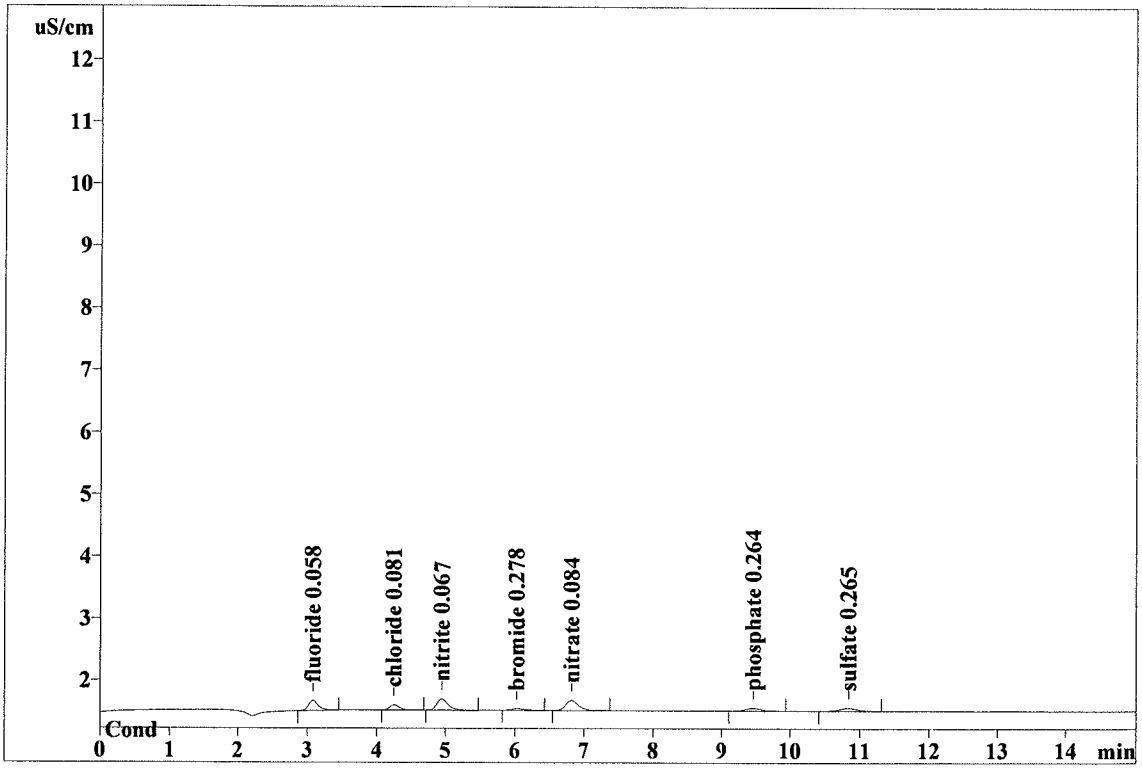
This report has been created by IC Net
METROHM LTD

Report date: 10/28/2020 6:23:03 PM
Printed by: LDip

Ident: AJ15-03 S1
Analysis from: 10/28/2020 2:03:00 PM
File: _2020-10-28_14-03.chw Last save: 10/28/2020 6:16:05 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162703

SAMPLE: METHOD 300/9056/4110B
: 0.05 PPM
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	0.16	1.614	0.058	fluoride
2	4.25	0.09	0.894	0.081	chloride
3	4.94	0.18	2.116	0.067	nitrite
4	6.03	0.03	0.418	0.278	bromide
5	6.81	0.16	2.225	0.084	nitrate
6	9.45	0.04	0.784	0.264	phosphate
7	10.83	0.05	0.924	0.265	sulfate
7	15.00	0.73	8.975	1.097	

This report has been created by IC Net
METROHM LTD

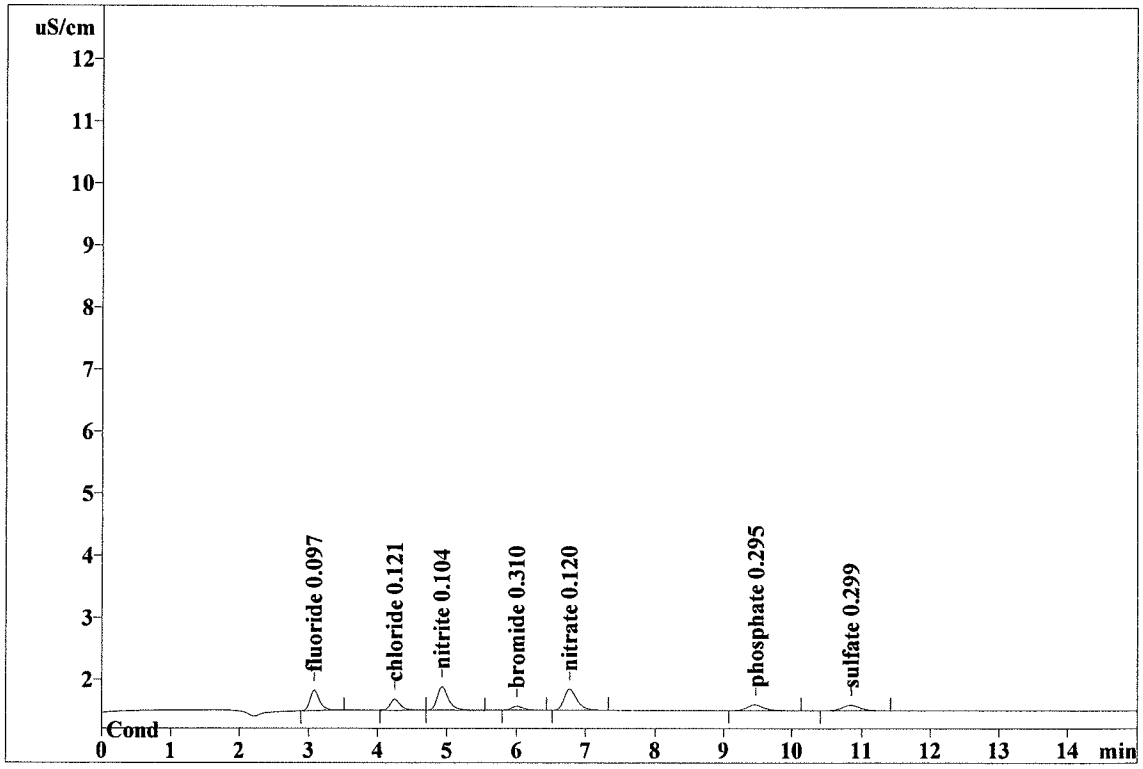
TK 10/30/20

Report date: 10/28/2020 6:23:08 PM
Printed by: LDip

Ident: AJ15-04 S2
Analysis from: 10/28/2020 2:20:06 PM
File: _2020-10-28_14-20.chw Last save: 10/28/2020 6:16:05 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162704

SAMPLE: METHOD 300/9056/4110B
: 0.1 PPM
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000

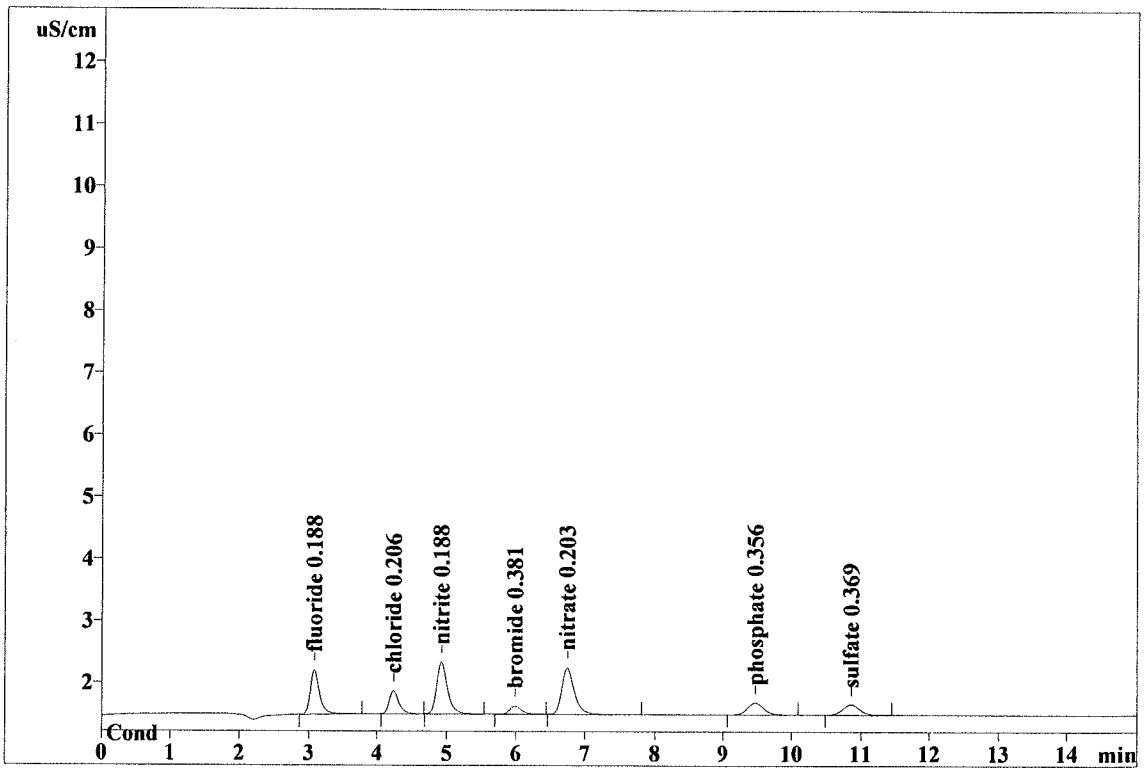


Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	0.33	3.223	0.097	fluoride
2	4.24	0.18	1.798	0.121	chloride
3	4.93	0.38	4.232	0.104	nitrite
4	6.00	0.06	0.790	0.310	bromide
5	6.77	0.34	4.443	0.120	nitrate
6	9.46	0.09	1.599	0.295	phosphate
7	10.84	0.09	1.586	0.299	sulfate
7	15.00	1.47	17.671	1.347	

This report has been created by IC Net
METROHM LTD

Report date:	10/28/2020 6:23:11 PM	
Printed by:	LDip	
Ident:	AJ15-05 S3	
Analysis from:	10/28/2020 2:37:12 PM	
File:	_2020-10-28_14-37.chw	Last save: 10/28/2020 6:16:06 PM
Method:	ICD0-J27.mtw	Last save: 10/28/2020 1:26:40 PM
Run operator:	LDip	
Analysis number:	162705	
SAMPLE:	METHOD 300/9056/4110B	
:	0.2 PPM	
Vial number:	5	
Volume:	1.0 µL	
Dilution:	1.00	
Amount:	1.0000	

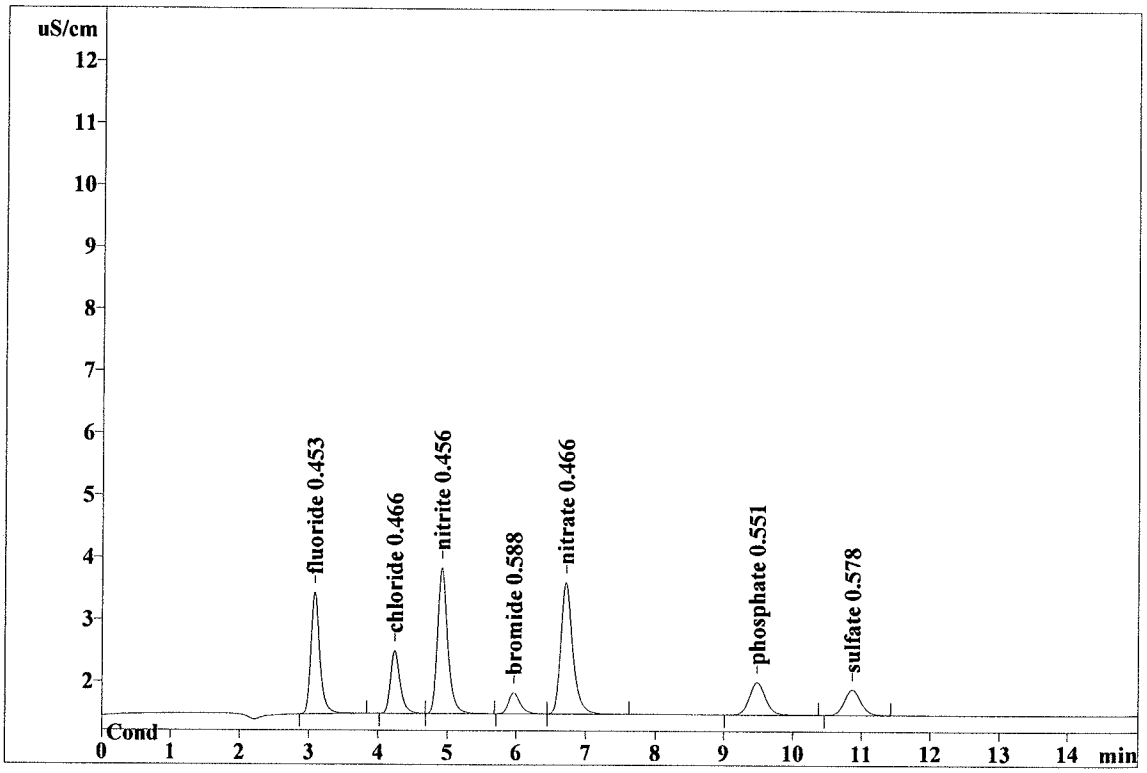


Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	0.72	6.920	0.188	fluoride
2	4.24	0.38	3.713	0.206	chloride
3	4.92	0.84	9.011	0.188	nitrite
4	5.98	0.13	1.603	0.381	bromide
5	6.74	0.75	9.556	0.203	nitrate
6	9.47	0.20	3.245	0.356	phosphate
7	10.85	0.17	2.957	0.369	sulfate
7	15.00	3.18	37.005	1.891	

This report has been created by IC Net
METROHM LTD

Report date:	10/28/2020 6:23:15 PM	
Printed by:	LDip	
Ident:	AJ15-06 S4	
Analysis from:	10/28/2020 2:54:17 PM	
File:	_2020-10-28_14-54.chw	Last save: 10/28/2020 6:16:06 PM
Method:	ICD0-J27.mtw	Last save: 10/28/2020 1:26:40 PM
Run operator:	LDip	
Analysis number:	162706	
SAMPLE:	METHOD 300/9056/4110B	
:	0.5 PPM	
Vial number:	6	
Volume:	1.0 µL	
Dilution:	1.00	
Amount:	1.0000	

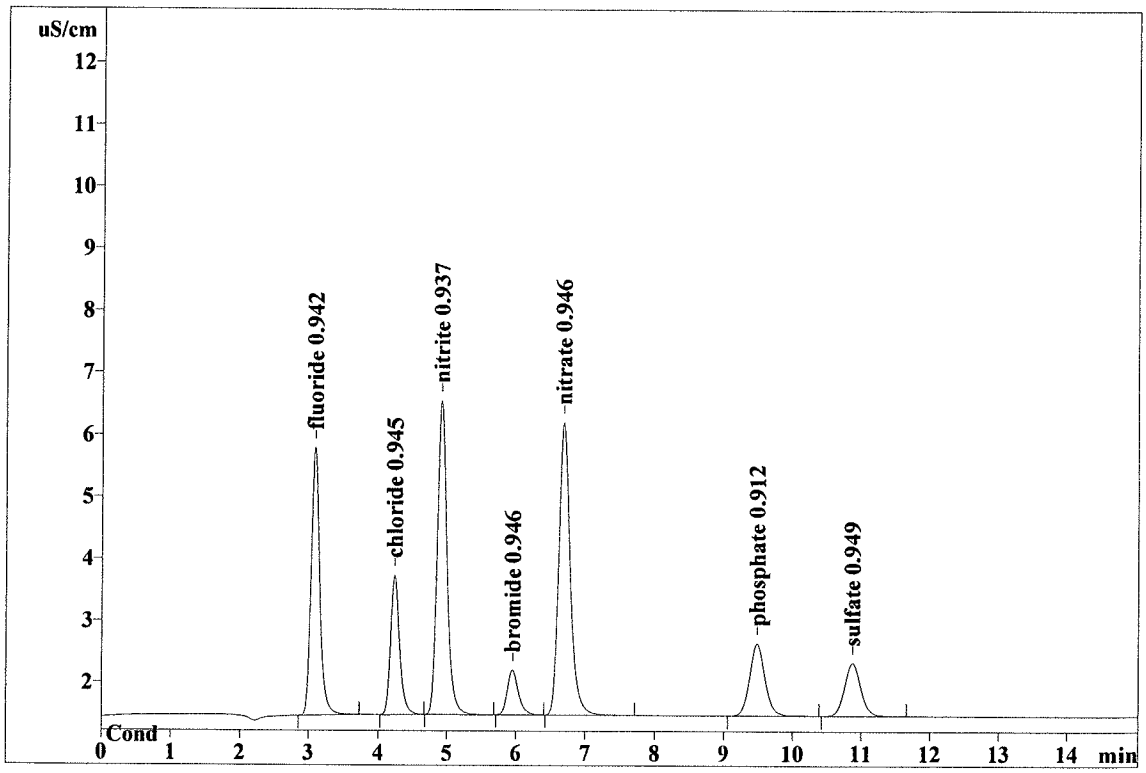


Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	1.96	17.744	0.453	fluoride
2	4.23	1.01	9.588	0.466	chloride
3	4.91	2.34	24.336	0.456	nitrite
4	5.97	0.34	3.980	0.588	bromide
5	6.71	2.12	25.733	0.466	nitrate
6	9.48	0.53	8.499	0.551	phosphate
7	10.87	0.41	7.023	0.578	sulfate
7	15.00	8.71	96.903	3.558	

This report has been created by IC Net
METROHM LTD

Report date:	10/28/2020 6:23:18 PM		
Printed by:	LDip		
Ident:	AJ15-07 S5		
Analysis from:	10/28/2020 3:11:22 PM		
File:	_2020-10-28_15-11.chw	Last save:	10/28/2020 6:16:06 PM
Method:	ICD0-J27.mtw	Last save:	10/28/2020 1:26:40 PM
Run operator:	LDip		
Analysis number:	162707		
SAMPLE:	METHOD 300/9056/4110B		
:	1.0 PPM		
Vial number:	7		
Volume:	1.0 µL		
Dilution:	1.00		
Amount:	1.0000		

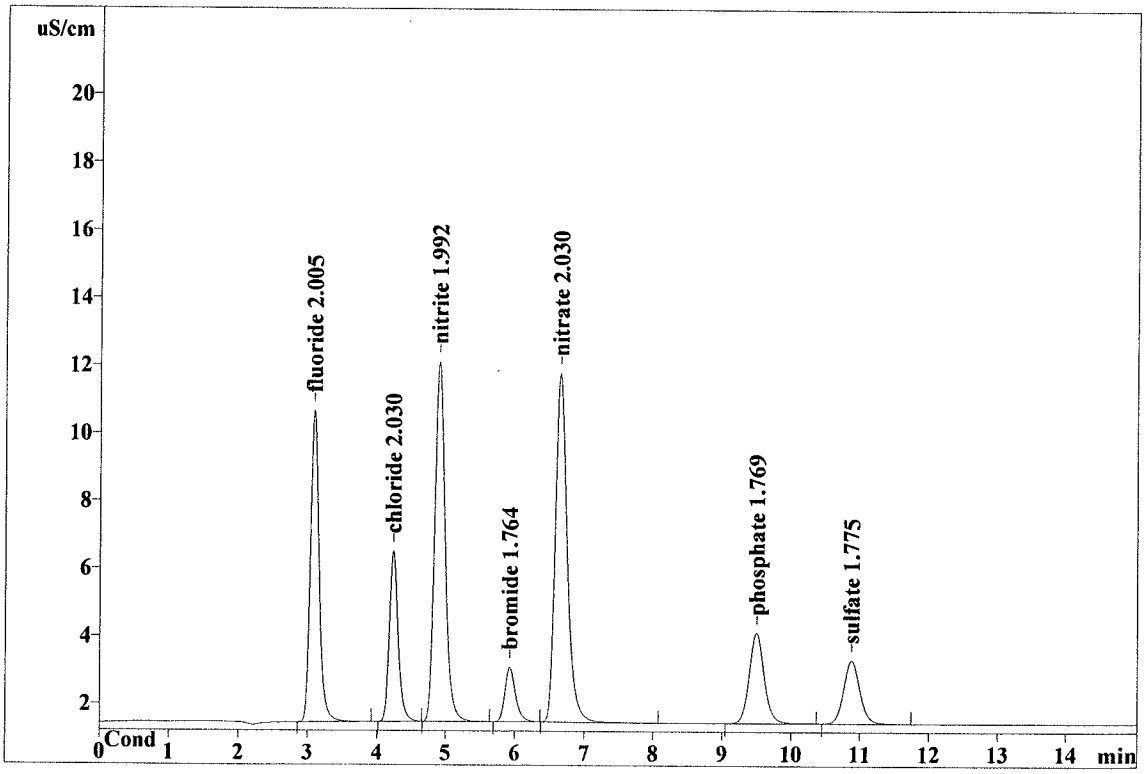


Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.09	4.32	37.662	0.942	fluoride
2	4.23	2.25	20.388	0.945	chloride
3	4.90	5.07	51.816	0.937	nitrite
4	5.94	0.72	8.099	0.946	bromide
5	6.67	4.72	55.378	0.946	nitrate
6	9.48	1.17	18.218	0.912	phosphate
7	10.87	0.86	14.254	0.949	sulfate
7	15.00	19.12	205.814	6.577	

This report has been created by IC Net
METROHM LTD

Report date:	10/28/2020 6:23:26 PM	
Printed by:	LDip	
Ident:	AJ15-08 S6	
Analysis from:	10/28/2020 3:28:28 PM	
File:	_2020-10-28_15-28.chw	Last save: 10/28/2020 6:16:06 PM
Method:	ICD0-J27.mtw	Last save: 10/28/2020 1:26:40 PM
Run operator:	LDip	
Analysis number:	162708	
SAMPLE:	METHOD 300/9056/4110B	
:	2.0 PPM	
Vial number:	8	
Volume:	1.0 µL	
Dilution:	1.00	
Amount:	1.0000	



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.09	9.21	81.023	2.005	fluoride
2	4.23	5.04	44.898	2.030	chloride
3	4.89	10.64	112.110	1.992	nitrite
4	5.93	1.61	17.508	1.764	bromide
5	6.64	10.31	122.171	2.030	nitrate
6	9.49	2.68	41.259	1.769	phosphate
7	10.88	1.87	30.368	1.775	sulfate
7	15.00	41.37	449.336	13.365	

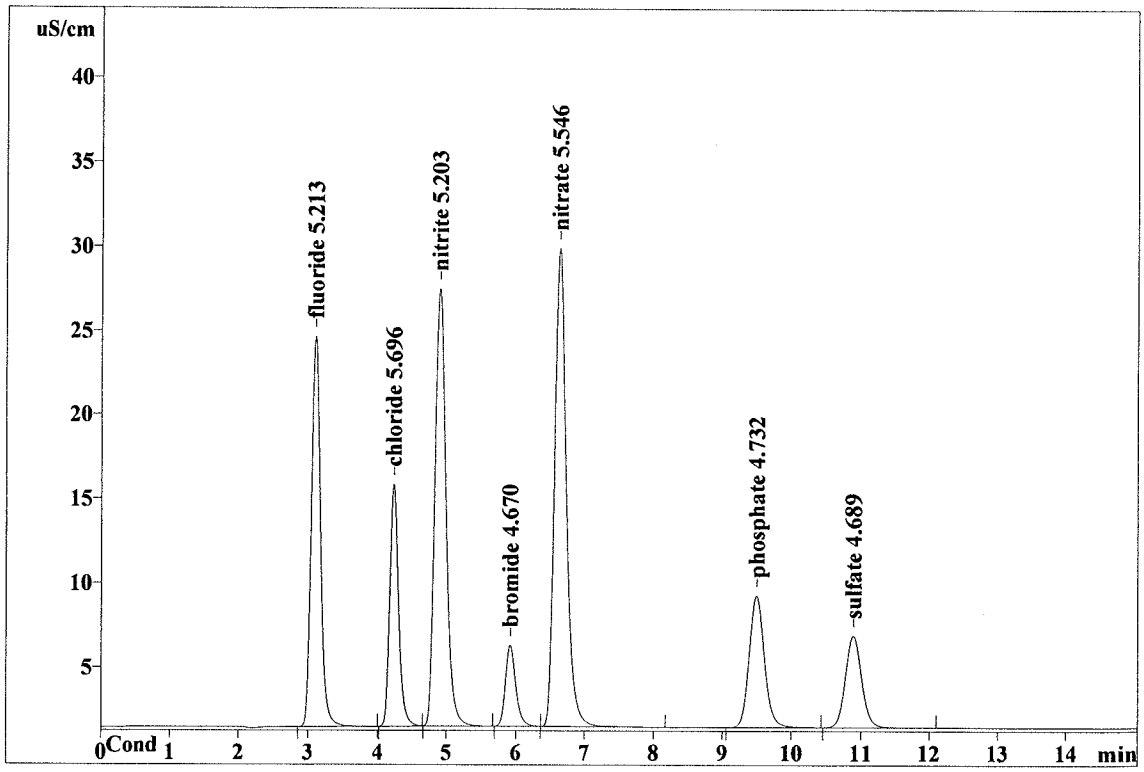
This report has been created by IC Net
METROHM LTD

Report date: 10/28/2020 6:23:35 PM
Printed by: LDip

Ident: AJ15-09 S7
Analysis from: 10/28/2020 3:45:33 PM
File: _2020-10-28_15-45.chw Last save: 10/28/2020 6:16:06 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162709

SAMPLE: METHOD 300/9056/4110B
: 5.0 PPM
Vial number: 9
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000

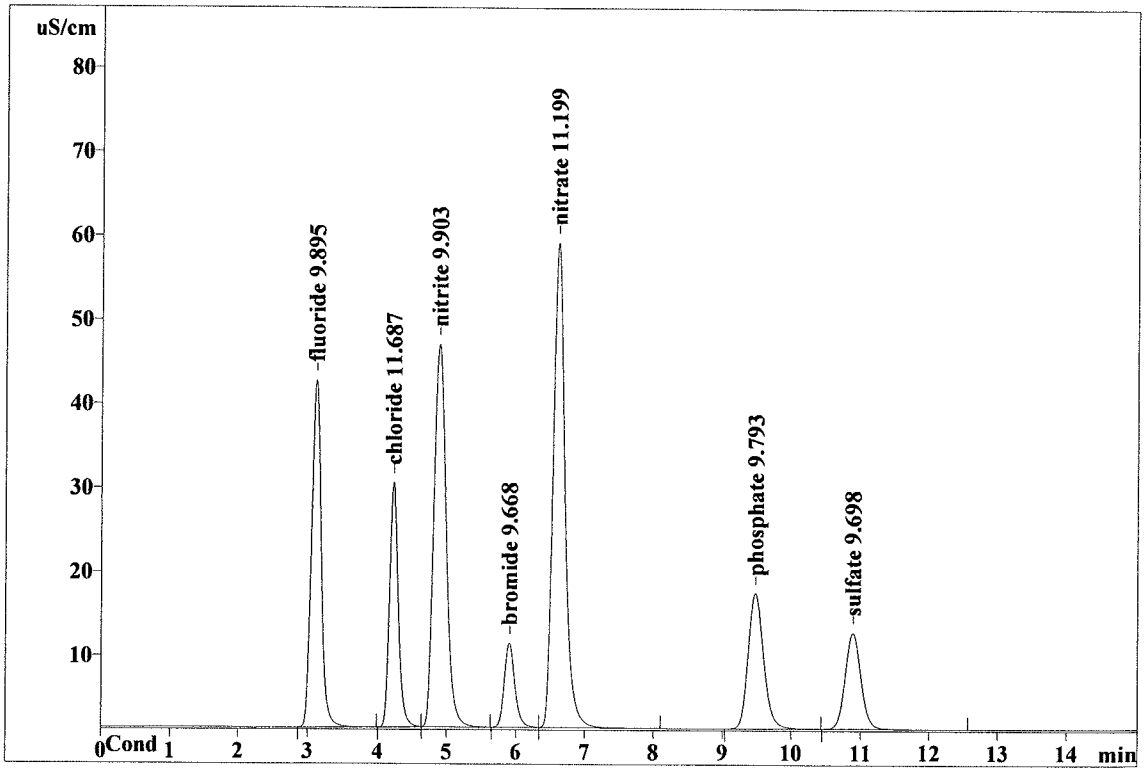


Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.10	23.20	211.828	5.213	fluoride
2	4.23	14.36	127.663	5.696	chloride
3	4.89	25.98	295.637	5.203	nitrite
4	5.91	4.83	50.920	4.670	bromide
5	6.62	28.42	338.972	5.546	nitrate
6	9.48	7.83	120.975	4.732	phosphate
7	10.89	5.47	87.189	4.689	sulfate
7	15.00	110.09	1233.184	35.750	

This report has been created by IC Net
METROHM LTD

Report date:	10/28/2020 6:23:47 PM	
Printed by:	LDip	
Ident:	AJ15-10 S8	
Analysis from:	10/28/2020 4:02:38 PM	
File:	_2020-10-28_16-02.chw	Last save: 10/28/2020 6:16:06 PM
Method:	ICD0-J27.mtw	Last save: 10/28/2020 1:26:40 PM
Run operator:	LDip	
Analysis number:	162710	
SAMPLE:	METHOD 300/9056/4110B	
:	10.0 PPM	
Vial number:	10	
Volume:	1.0 µL	
Dilution:	1.00	
Amount:	1.0000	



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.11	41.36	402.738	9.895	fluoride
2	4.22	29.18	262.923	11.687	chloride
3	4.88	45.56	564.204	9.903	nitrite
4	5.90	10.08	108.369	9.668	bromide
5	6.60	57.71	687.469	11.199	nitrate
6	9.46	16.20	257.120	9.793	phosphate
7	10.88	11.48	184.872	9.698	sulfate
7	15.00	211.57	2467.695	71.843	

This report has been created by IC Net
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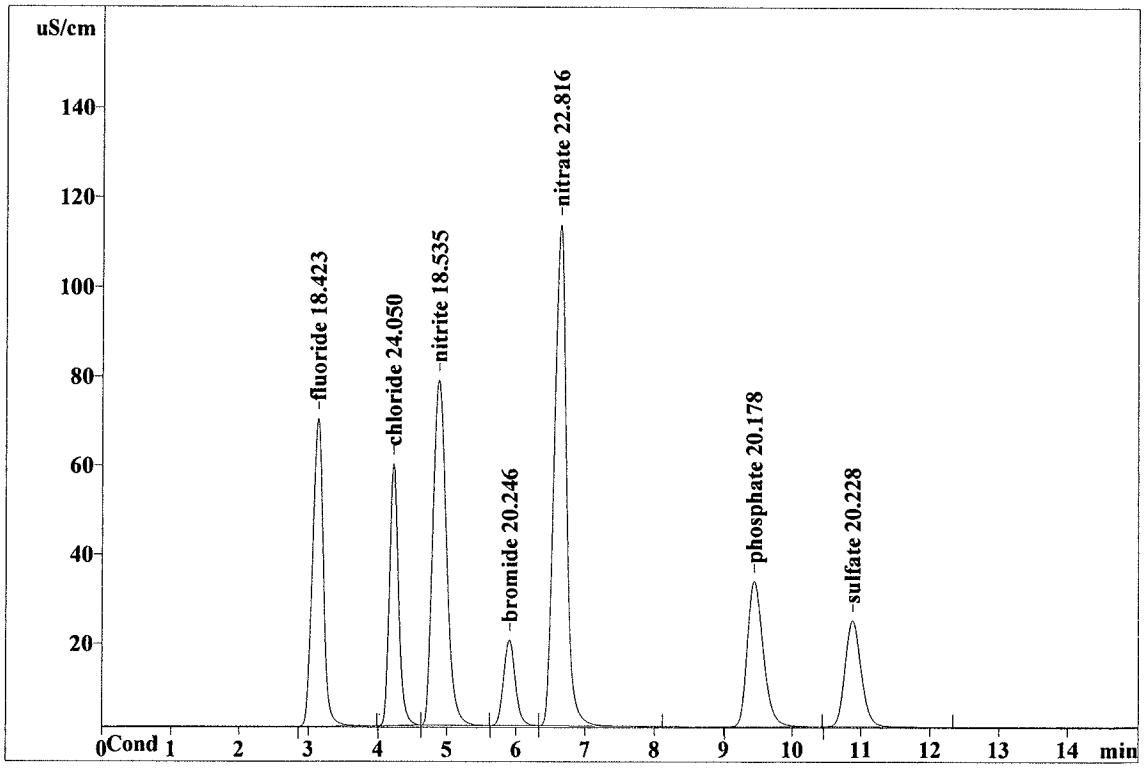
Report date: 10/28/2020 6:23:58 PM
Printed by: LDip

Ident: AJ15-11 S9
Analysis from: 10/28/2020 4:19:43 PM
File: _2020-10-28_16-19.chw Last save: 10/28/2020 6:16:06 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162711

SAMPLE: METHOD 300/9056/4110B
: 20.0 PPM
Vial number: 11
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.13	69.06	750.476	18.423	fluoride
2	4.22	58.85	542.042	24.050	chloride
3	4.87	77.49	1057.491	18.535	nitrite
4	5.90	19.20	229.980	20.246	bromide
5	6.63	112.34	1403.704	22.816	nitrate
6	9.43	32.65	536.476	20.178	phosphate
7	10.87	23.83	390.189	20.228	sulfate
7	15.00	393.43	4910.359	144.474	

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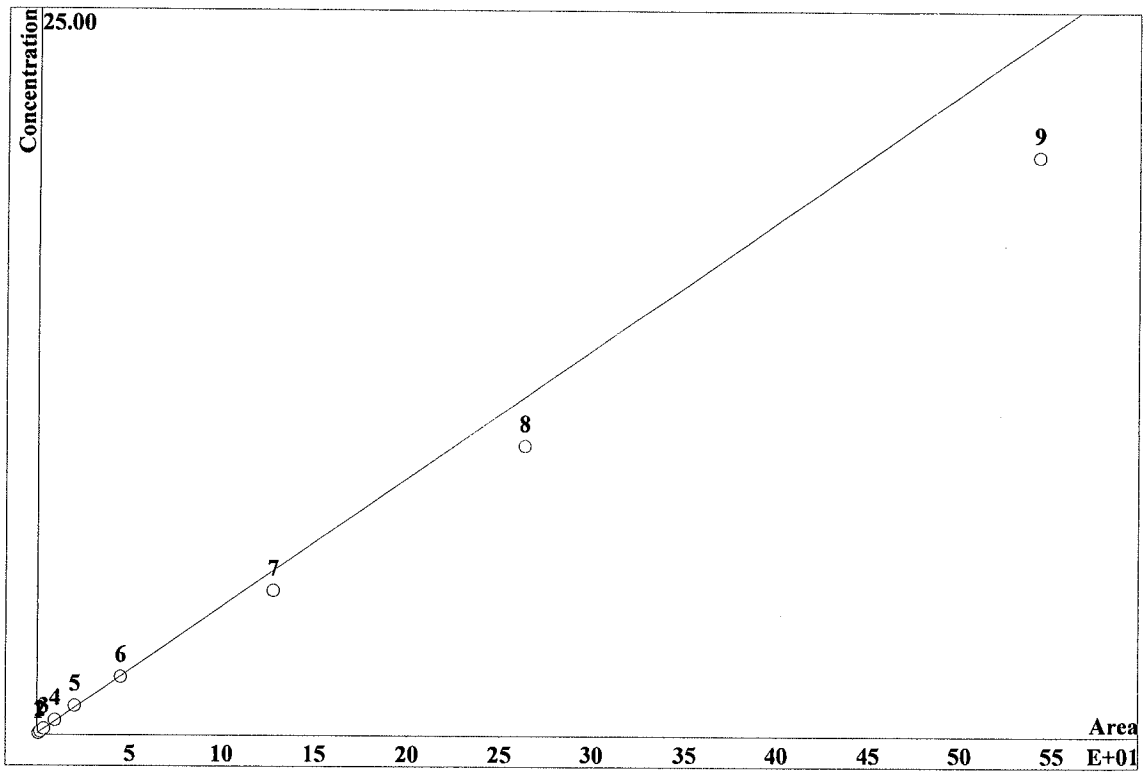
CALIBRATION OF COMPONENT chloride

Method: ICD0-J27.mtw
Equation: Q = 0.0442929·A + 0.0416539
RSD: 6.320 %
Correlation coefficient: 0.998838

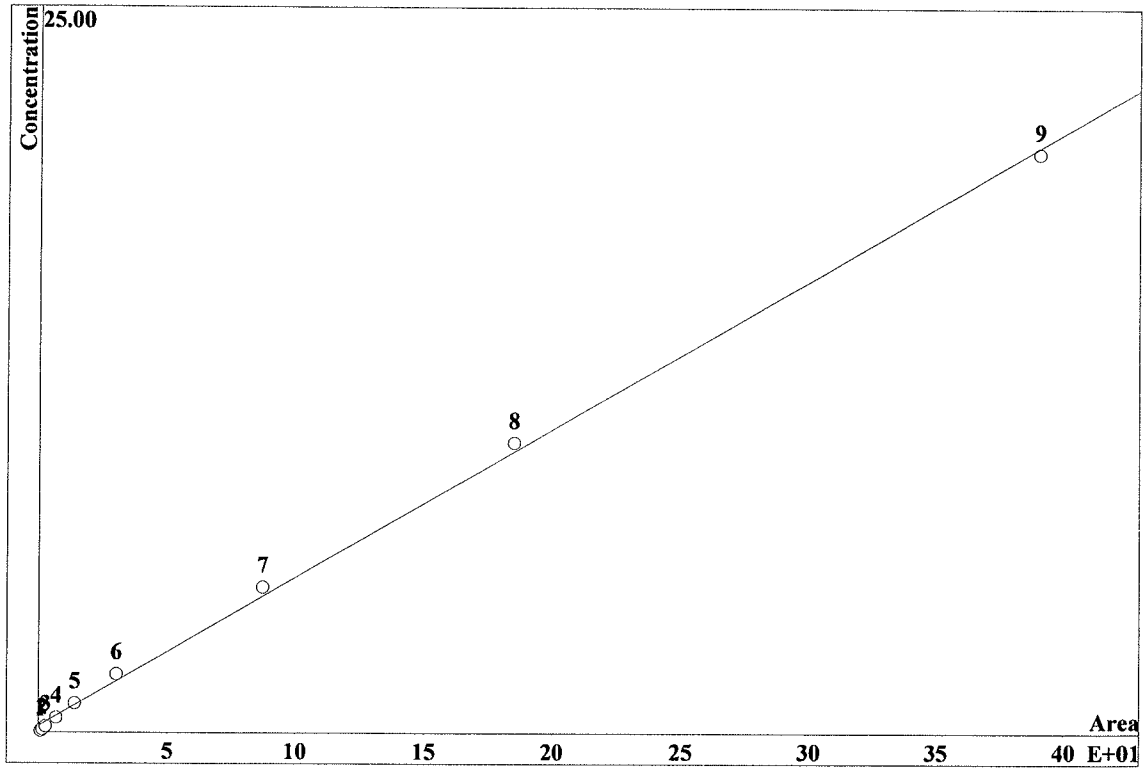


K3 = 0 K2 = 0 K1 = 0.0442929 K0 = 0.0416539
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.08758	0.8936	0.05	1	4.23	Yes	_2020-10-28_1□
2	0.1774	1.798	0.1	1	4.23	Yes	_2020-10-28_1□
3	0.3777	3.713	0.2	1	4.23	Yes	_2020-10-28_1□
4	1.012	9.588	0.5	1	4.23	Yes	_2020-10-28_1□
5	2.252	20.39	1	1	4.23	Yes	_2020-10-28_1□
6	5.042	44.9	2	1	4.23	Yes	_2020-10-28_1□
7	14.36	127.7	5	1	4.23	No	_2020-10-28_1□
8	29.18	262.9	10	1	4.23	No	_2020-10-28_1
9	58.85	542	20	1	4.23	No	_2020-10-28_1

CALIBRATION OF COMPONENT sulfate

Method: ICD0-J27.mtw
Equation: Q = 0.0512831·A + 0.217664
RSD: 5.629 %
Correlation coefficient: 0.999430



K3 = 0 K2 = 0 K1 = 0.0512831 K0 = 0.217664
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.05108	0.9236	0.05	1	10.86	Yes	_2020-10-28_1□
2	0.08787	1.586	0.1	1	10.86	Yes	_2020-10-28_1□
3	0.1691	2.957	0.2	1	10.86	Yes	_2020-10-28_1□
4	0.4138	7.023	0.5	1	10.86	Yes	_2020-10-28_1□
5	0.8601	14.25	1	1	10.86	Yes	_2020-10-28_1□
6	1.875	30.37	2	1	10.86	Yes	_2020-10-28_1□
7	5.467	87.19	5	1	10.86	Yes	_2020-10-28_1□
8	11.48	184.9	10	1	10.86	Yes	_2020-10-28_1
9	23.83	390.2	20	1	10.86	Yes	_2020-10-28_1

SECOND SOURCE VERIFICATION

IC Result Check FormVersion : J27/AJ15(2020)

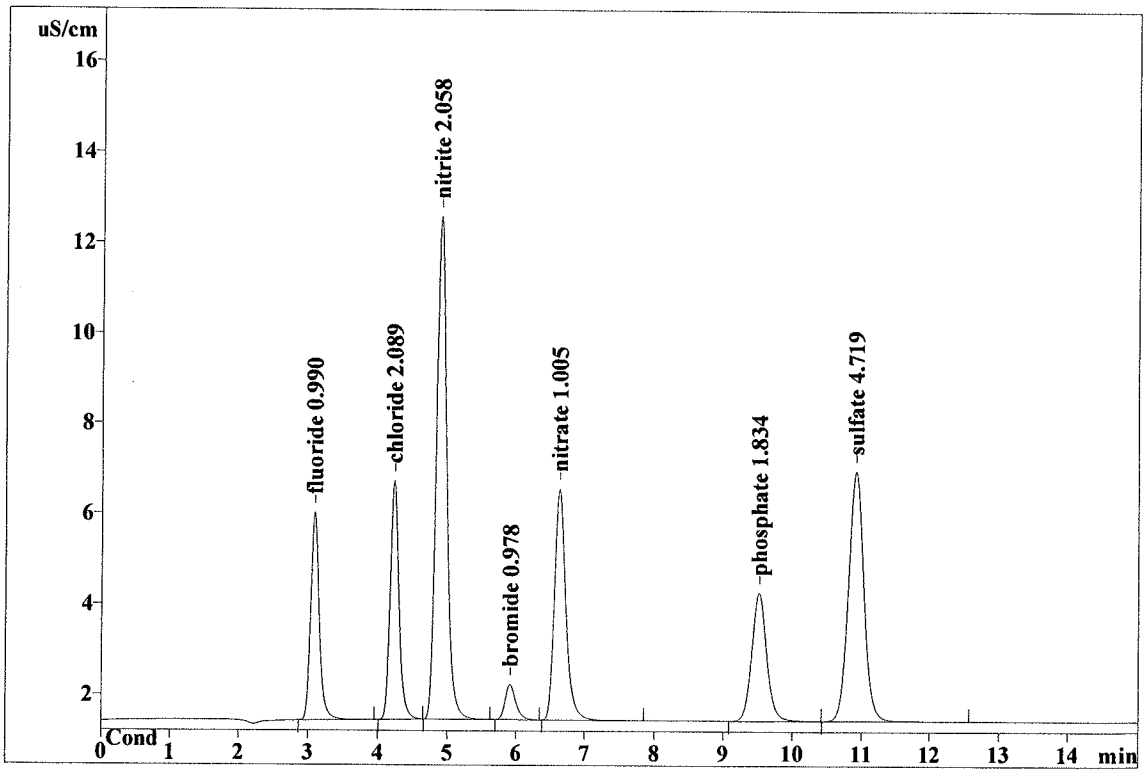
LFID	LSID	Selection	phosphate	nitrite	nitrate	iodide	fluoride	chloride	bromide	sulfate	RawNetID	DF
AJ15-01	IB	PINOFCBS	0	0	0	0	0	0	0	0	_2020-10-28_13-28	1
AJ15-12	ICV	PINOFCBS	91.7%	102.9%	100.5%	0%*	99%	208.9%*	97.8%	94.4%	_2020-10-28_16-36	1
AJ15-13	ICV1	PINOFCBS	96.6%	102%	100.5%	0%*	100.1%	99.5%	98.5%	98.2%	_2020-10-28_16-53	1
AJ15-14	ICB	PINOFCBS	0	0	0	0	0	0	0	0	_2020-10-28_17-10	1

Report date: 10/28/2020 6:24:05 PM
Printed by: LDip

Ident: AJ15-12 ICV
Analysis from: 10/28/2020 4:36:48 PM
File: _2020-10-28_16-36.chw Last save: 10/28/2020 6:16:06 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162712

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 12
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.09	4.58	39.618	0.990	fluoride
2	4.22	5.27	46.216	2.089	chloride
3	4.88	11.13	115.916	2.058	nitrite
4	5.91	0.77	8.468	0.978	bromide
5	6.63	5.09	58.969	1.005	nitrate
6	9.51	2.82	43.023	1.834	phosphate
7	10.91	5.51	87.774	4.719	sulfate
7	15.00	35.18	399.984	13.673	

This report has been created by IC Net
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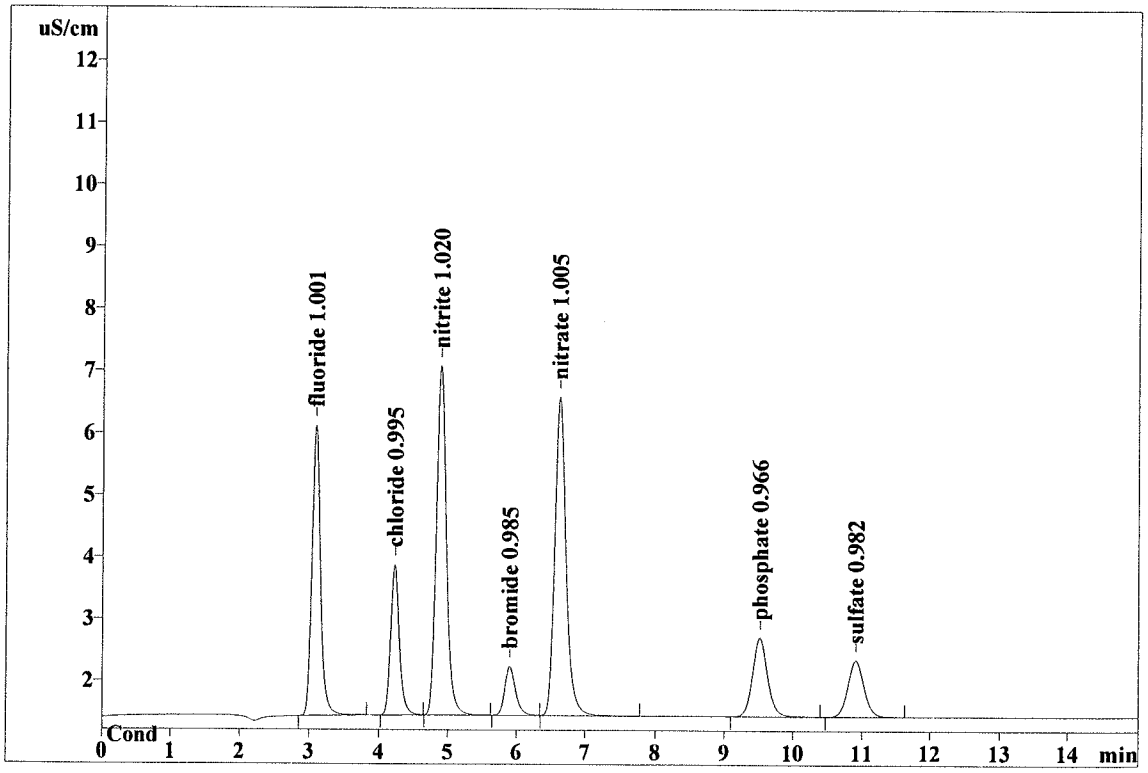
Report date: 10/28/2020 6:24:08 PM
Printed by: LDip

Ident: AJ15-13 ICV1
Analysis from: 10/28/2020 4:53:54 PM
File: _2020-10-28_16-53.chw Last save: 10/28/2020 6:16:07 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162713

SAMPLE: METHOD 300/9056/4110B
: 1.0 PPM
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.09	4.69	40.082	1.001	fluoride
2	4.22	2.43	21.516	0.995	chloride
3	4.88	5.63	56.582	1.020	nitrite
4	5.90	0.79	8.545	0.985	bromide
5	6.62	5.13	58.999	1.005	nitrate
6	9.51	1.27	19.671	0.966	phosphate
7	10.91	0.91	14.897	0.982	sulfate
7	15.00	20.84	220.293	6.954	

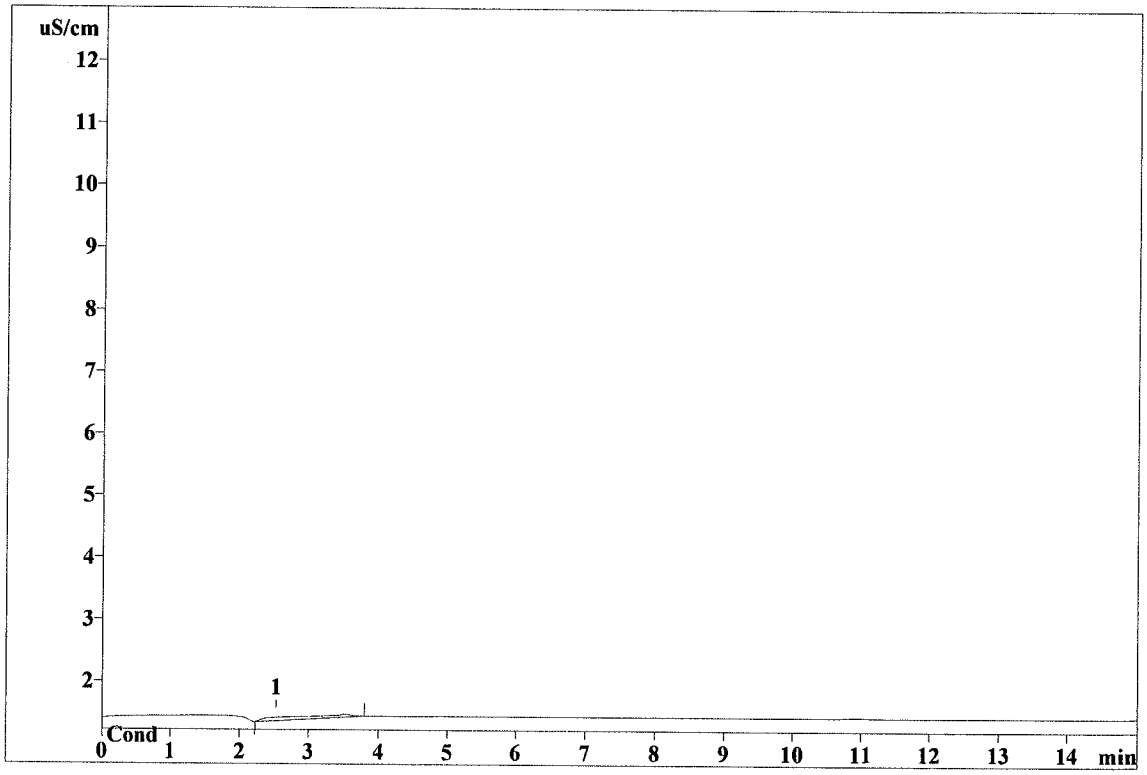
This report has been created by IC Net
METROHM LTD

Report date: 10/28/2020 6:24:11 PM
Printed by: LDip

Ident: AJ15-14 ICB
Analysis from: 10/28/2020 5:10:59 PM
File: _2020-10-28_17-10.chw Last save: 10/28/2020 6:22:47 PM

Method: ICD0-J27.mtw Last save: 10/28/2020 1:26:40 PM
Run operator: LDip
Analysis number: 162714

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 14
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.52	0.05	3.566	0.000	

This report has been created by IC Net
METROHM LTD

DAILY CALIBRATION(S)

Continuing Calibration Summary Form

Client : ARCADIS
Project : VAFB-SS003
SDG : 20L042
Method : 300.0
ICAL Ref. : 20AJ15
InstrumentID: D0
Parameter : CHLORIDE-CL

LFID	LSID	Recovery (%)	AnalysisDateTime
AL07-29	CCV427	102.3	12/04/2021:35
AL07-41	CCV429	101.9	12/05/2001:35
AL09-01	CCV435	98.5	12/07/2010:49
AL09-13	CCV437	97.1	12/07/2014:39
AL09-16	CCV439	99.5	12/07/2016:28

CCV Acceptance Criteria: 90-110%

Continuing Calibration Summary Form

Client : ARCADIS
Project : VAFB-SS003
SDG : 20L042
Method : 300.0
ICAL Ref. : 20AJ15
InstrumentID: D0
Parameter : SULFATE

LFID	LSID	Recovery (%)	AnalysisDateTime
AL07-29	CCV427	97.1	12/04/2021:35
AL07-41	CCV429	96.2	12/05/2001:35
AL07-51	CCV431	93.8	12/05/2005:00

CCV Acceptance Criteria: 90-110%

IC Result Check FormVersion : J27/AJ15(2020)

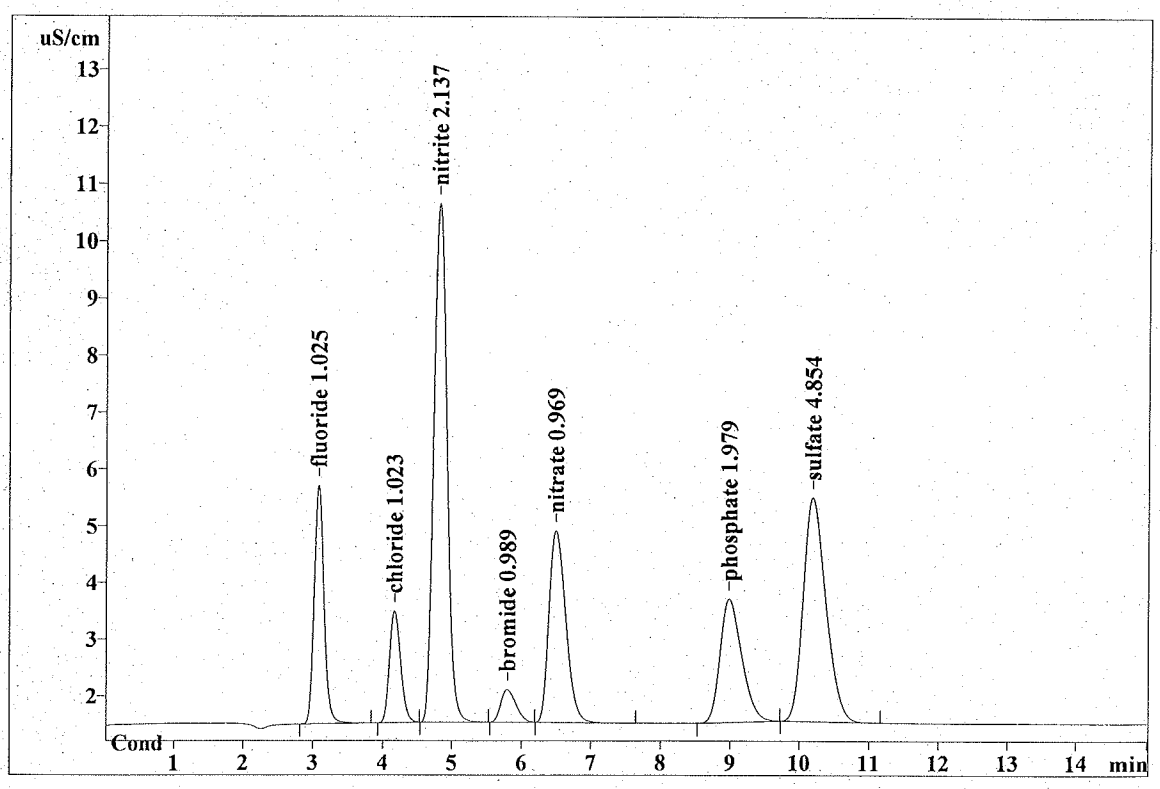
LFID	LSID	Selection	bromide	chloride	fluoride	iodide	sulfate	phosphate	nitrite	nitrate	RawNetID	DF
AL07-01	CCV421	BCFOSPIN	98.2%	102.6%	100.9%	0%*	98.7%	85%*	106.8%	98.5%	_2020-12-04_11-40	1
AL07-02	CCB421	BCFOSPIN	0	0	0	0	0	0	0	0	_2020-12-04_11-57	1
AL07-13	CCV423	BCFOSPIN	99.8%	103.8%	102.8%	0%*	100.3%	91.8%	107.6%	98.3%	_2020-12-04_15-29	1
AL07-14	CCB423	BCFOSPIN	0	0	0	0	0	0	0	0	_2020-12-04_15-46	1
AL07-23	CCV425	BCFOSPIN	98.3%	99.5%	101.4%	0%*	95.2%	97%	105.6%	96.4%	_2020-12-04_19-36	1
AL07-24	CCB425	BCFOSPIN	0	0	0	0	0	0	0	0	_2020-12-04_19-53	1
AL07-29	CCV427	BCFOSPIN	98.9%	102.3%	102.5%	0%*	97.1%	98.9%	106.8%	96.9%	_2020-12-04_21-35	1
AL07-30	CCB427	BCFOSPIN	0	0	0	0	0	0	0	0	_2020-12-04_21-52	1
AL07-41	CCV429	BCFOSPIN	97.7%	101.9%	102%	0%*	96.2%	95.5%	106.3%	95.9%	_2020-12-05_01-35	1
AL07-42	CCB429	BCFOSPIN	0	0	0	0	0	0	0	0	_2020-12-05_02-09	1
AL07-51	CCV431	BCFOSPIN	92.5%	97.2%	100%	0%*	93.8%	93.4%	104.4%	93.8%	_2020-12-05_05-00	1
AL07-52	CCB431	BCFOSPIN	0	0	0	0	0	0	0	0	_2020-12-05_05-17	1
AL07-61	CCV433	BCFOSPIN	95.9%	100.1%	101.7%	0%*	94.9%	97.5%	105.5%	95.2%	_2020-12-05_07-51	1
AL07-62	CCB433	BCFOSPIN	0	0	0	0	0	0	0	0	_2020-12-05_08-25	1

Report date: 12/7/2020 2:53:16 PM
Printed by: TWangc

Ident: AL07-29 CCV427
Analysis from: 12/4/2020 9:35:50 PM
File: _2020-12-04_21-35.chw Last save: 12/4/2020 9:50:47 PM

Method: ICD0-J27.mtw Last save: 12/4/2020 11:41:21 AM
Run operator: TWangc
Analysis number: 164480

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 29
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.08	4.20	41.056	1.025	fluoride
2	4.16	1.96	22.149	1.023	chloride
3	4.80	9.12	120.402	2.137	nitrite
4	5.79	0.57	8.591	0.989	bromide
5	6.48	3.38	56.739	0.969	nitrate
6	8.98	2.18	46.911	1.979	phosphate
7	10.18	3.95	90.403	4.854	sulfate
7	15.00	25.36	386.249	12.975	

This report has been created by IC Net
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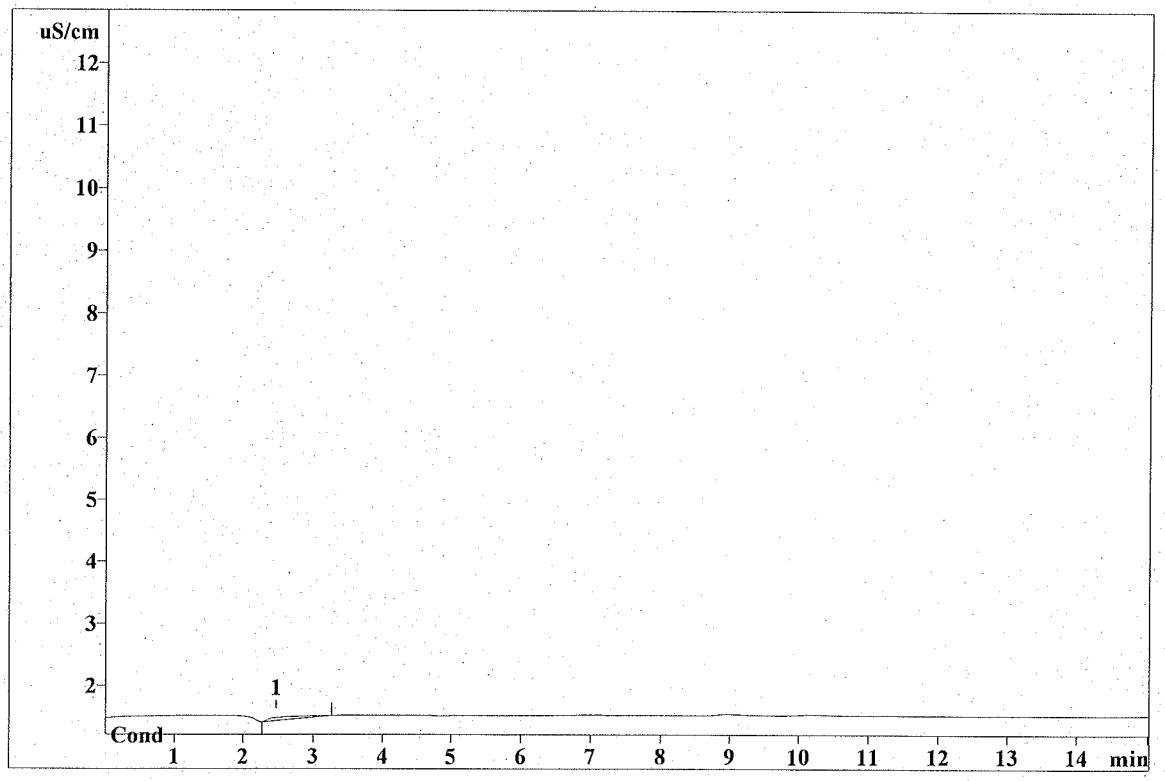
Report date: 12/7/2020 2:53:41 PM
Printed by: TWangc

Ident: AL07-30 CCB427
Analysis from: 12/4/2020 9:52:55 PM
File: _2020-12-04_21-52.chw Last save: 12/4/2020 10:07:52 PM
Modified!
Method: ICD0-J27.mtw Last save: 12/4/2020 11:41:21 AM
Run operator: TWangc
Analysis number: 164481

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 30
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.47	0.05	1.807	0.000	

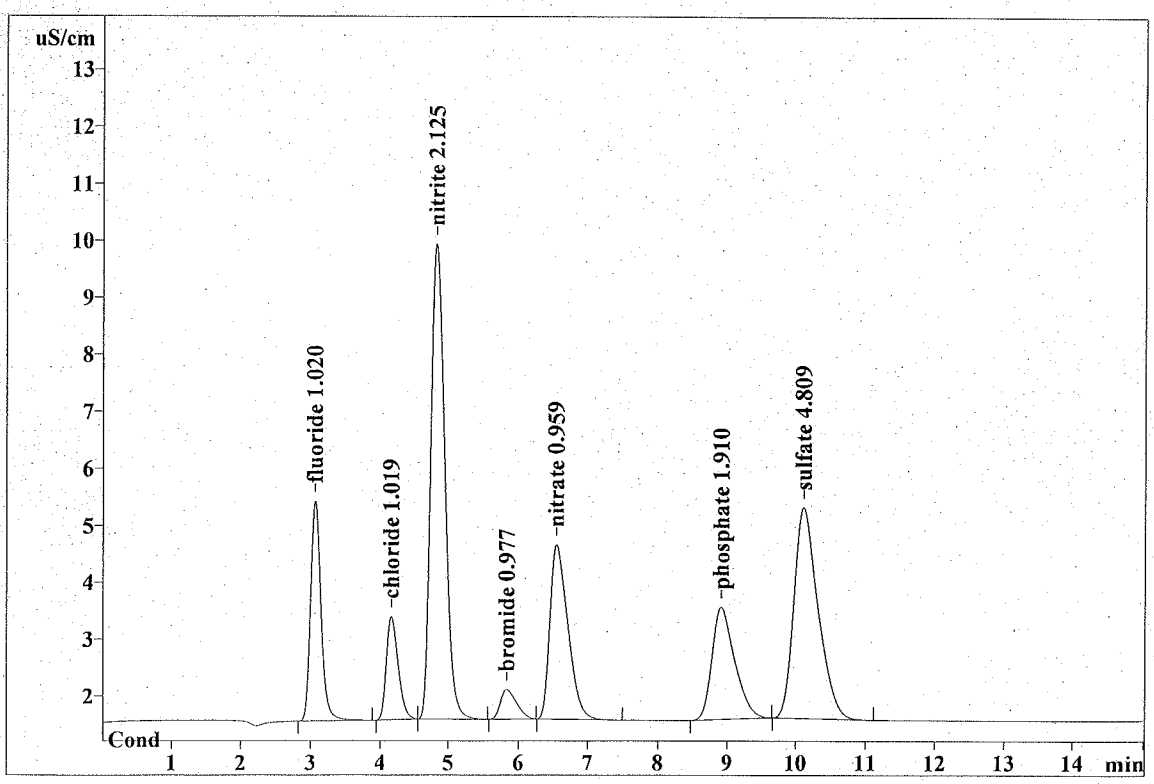
This report has been created by IC Net
METROHM LTD

Report date: 12/7/2020 2:54:30 PM
Printed by: TWangc

Ident: AL07-41 CCV429
Analysis from: 12/5/2020 1:35:06 AM
File: _2020-12-05_01-35.chw Last save: 12/5/2020 1:50:03 AM

Method: ICD0-J27.mtw Last save: 12/4/2020 11:41:21 AM
Run operator: TWangc
Analysis number: 164494

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 41
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

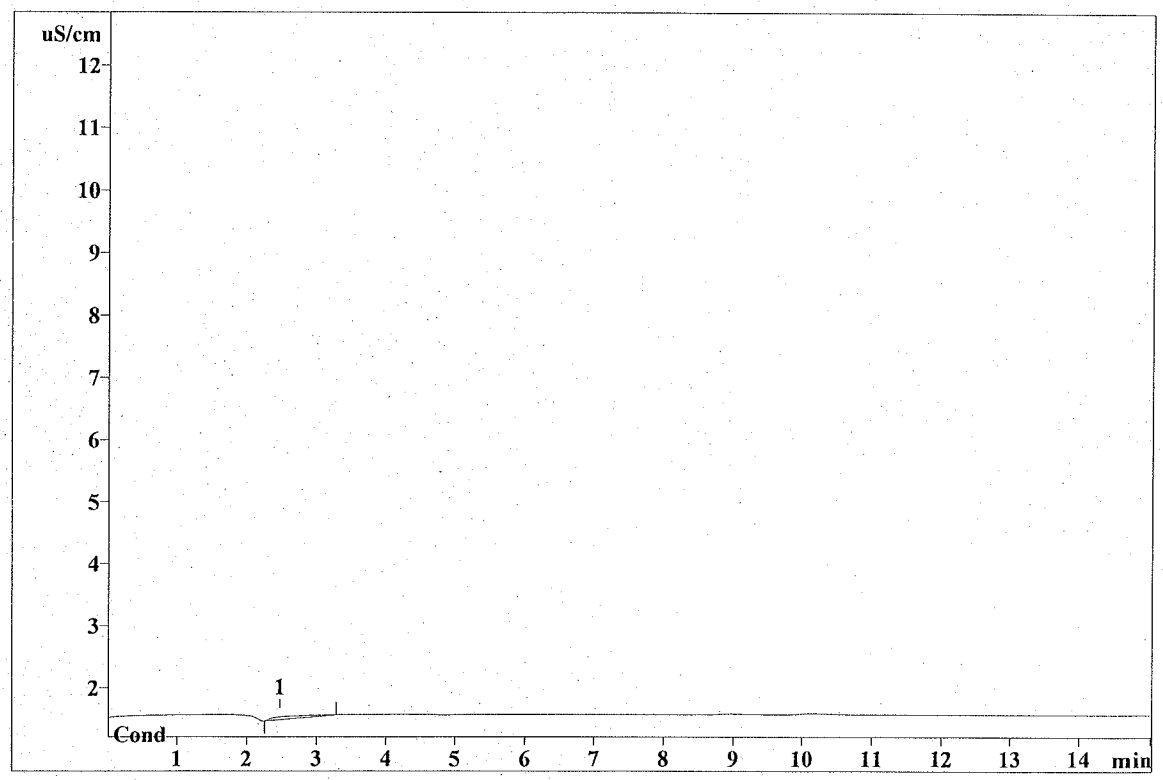
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.06	3.87	40.851	1.020	fluoride
2	4.16	1.81	22.071	1.019	chloride
3	4.81	8.35	119.721	2.125	nitrite
4	5.83	0.52	8.460	0.977	bromide
5	6.53	3.07	56.161	0.959	nitrate
6	8.91	1.97	45.062	1.910	phosphate
7	10.10	3.71	89.529	4.809	sulfate
7	15.00	23.31	381.854	12.820	

This report has been created by IC Net
METROHM LTD

Report date: 12/7/2020 2:55:02 PM
Printed by: TWangc

Ident: AL07-42 CCB429
Analysis from: 12/5/2020 2:09:17 AM
File: _2020-12-05_02-09.chw Last save: 12/5/2020 2:24:14 AM
Modified!
Method: ICD0-J27.mtw Last save: 12/4/2020 11:41:21 AM
Run operator: TWangc
Analysis number: 164496

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 42
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.47	0.05	1.707	0.000	

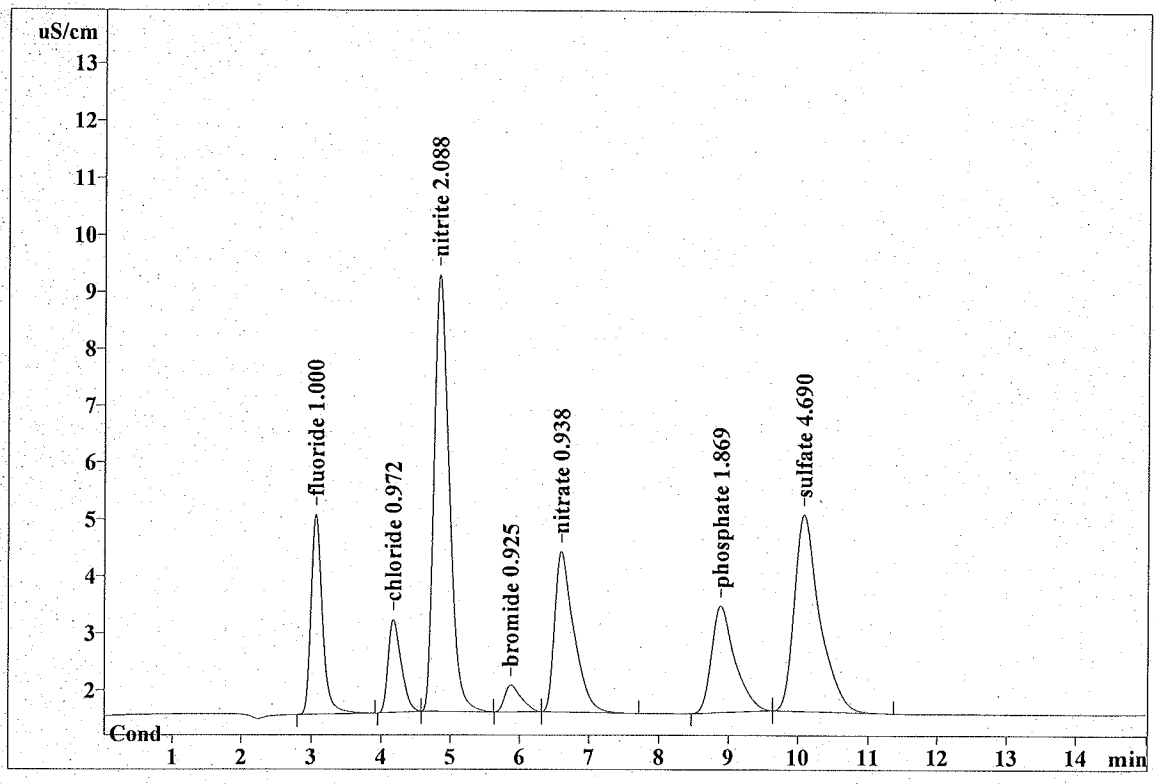
This report has been created by IC Net
METROHM LTD

Report date: 12/7/2020 2:55:15 PM
Printed by: TWangc

Ident: AL07-51 CCV431
Analysis from: 12/5/2020 5:00:13 AM
File: _2020-12-05_05-00.chw Last save: 12/5/2020 5:15:10 AM

Method: ICD0-J27.mtw Last save: 12/4/2020 11:41:21 AM
Run operator: TWangc
Analysis number: 164506

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 51
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

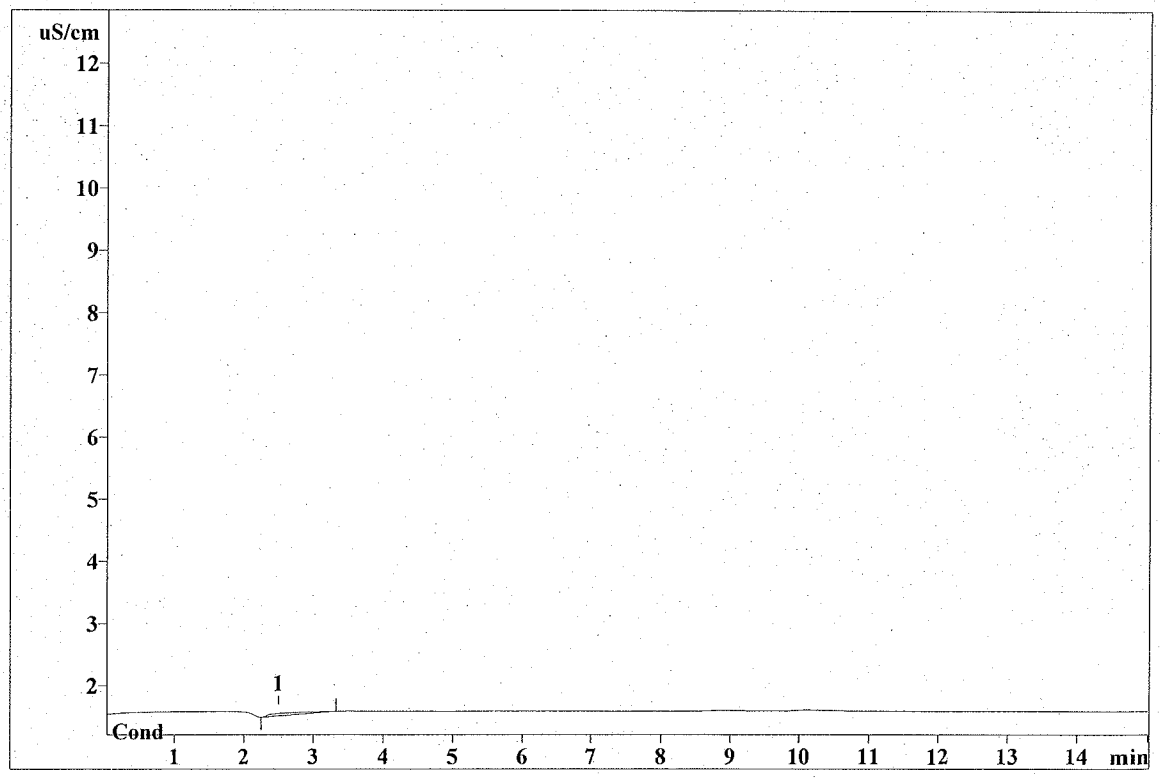
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.06	3.51	40.046	1.000	fluoride
2	4.17	1.63	20.997	0.972	chloride
3	4.83	7.68	117.596	2.088	nitrite
4	5.87	0.47	7.858	0.925	bromide
5	6.59	2.82	54.865	0.938	nitrate
6	8.88	1.87	43.949	1.869	phosphate
7	10.07	3.45	87.204	4.690	sulfate
7	15.00	21.44	372.516	12.481	

This report has been created by IC Net
METROHM LTD

Report date: 12/7/2020 2:55:39 PM
Printed by: TWangc

Ident: AL07-52 CCB431
Analysis from: 12/5/2020 5:17:19 AM
File: _2020-12-05_05-17.chw Last save: 12/5/2020 5:32:16 AM
Modified!
Method: ICD0-J27.mtw Last save: 12/4/2020 11:41:21 AM
Run operator: TWangc
Analysis number: 164507

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 52
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.50	0.04	1.616	0.000	

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IC Result Check FormVersion : J27/AJ15(2020)

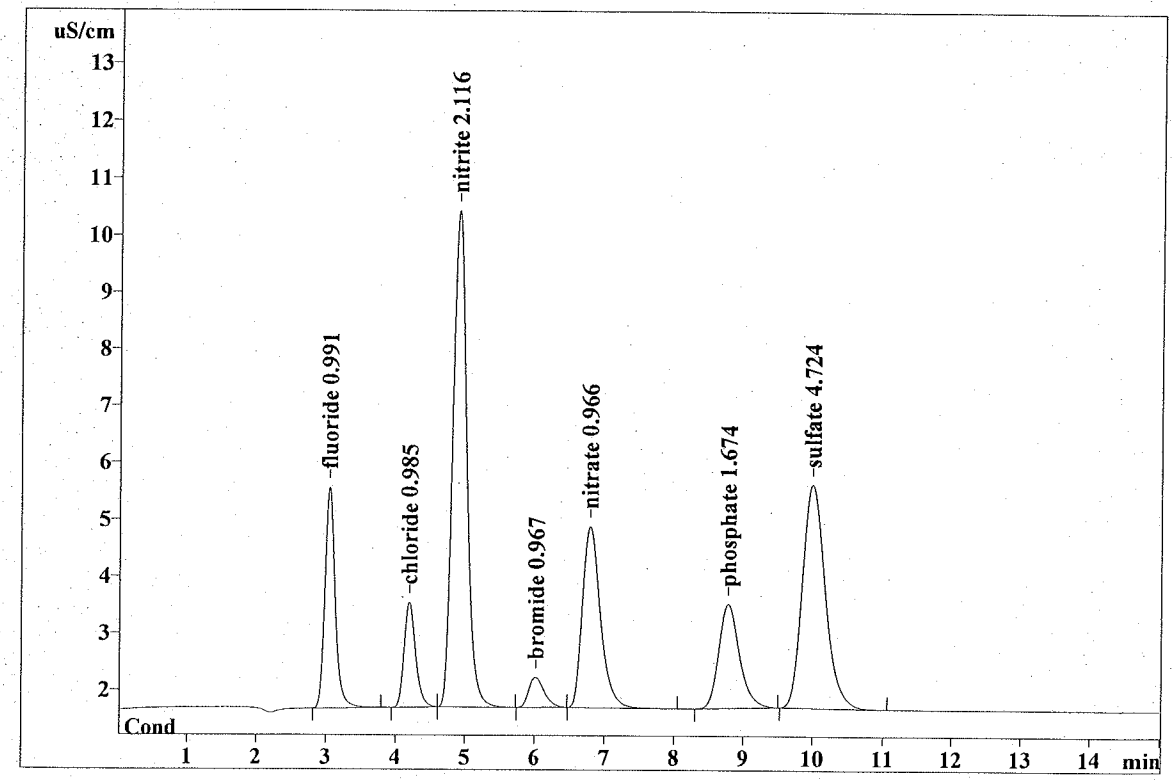
LFID	LSID	Selection	nitrite	phosphate	fluoride	iodide	chloride	bromide	nitrate	sulfate	RawNetID	DF
AL09-01	CCV435	IPFOCBNS	105.8%	83.7%*	99.1%	0%*	98.5%	96.7%	96.6%	94.5%	_2020-12-07_10-49	1
AL09-02	CCB435	IPFOCBNS	0	0	0	0	0	0	0	0	_2020-12-07_11-06	1
AL09-13	CCV437	IPFOCBNS	105.3%	82.4%*	98.9%	0%*	97.1%	94.7%	94.8%	93.1%	_2020-12-07_14-39	1
AL09-14	CCB437	IPFOCBNS	0	0	0	0	0	0	0	0	_2020-12-07_14-56	1
AL09-16	CCV439	IPFOCBNS	105.5%	81.2%*	99.2%	0%*	99.5%	95.8%	95.6%	93.5%	_2020-12-07_16-28	1
AL09-17	CCB439	IPFOCBNS	0	0	0	0	0	0	0	0	_2020-12-07_16-45	1

Report date: 12/8/2020 9:45:17 AM
Printed by: LDip

Ident: AL09-01 CCV435
Analysis from: 12/7/2020 10:49:03 AM
File: _2020-12-07_10-49.chw Last save: 12/7/2020 11:04:00 AM

Method: ICD0-J27.mtw Last save: 12/7/2020 10:55:37 AM
Run operator: TWangc
Analysis number: 164520

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 1
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	3.88	39.693	0.991	fluoride
2	4.19	1.84	21.306	0.985	chloride
3	4.89	8.73	119.204	2.116	nitrite
4	6.01	0.53	8.346	0.967	bromide
5	6.78	3.18	56.588	0.966	nitrate
6	8.77	1.83	38.695	1.674	phosphate
7	9.98	3.93	87.880	4.724	sulfate
7	15.00	23.93	371.713	12.424	

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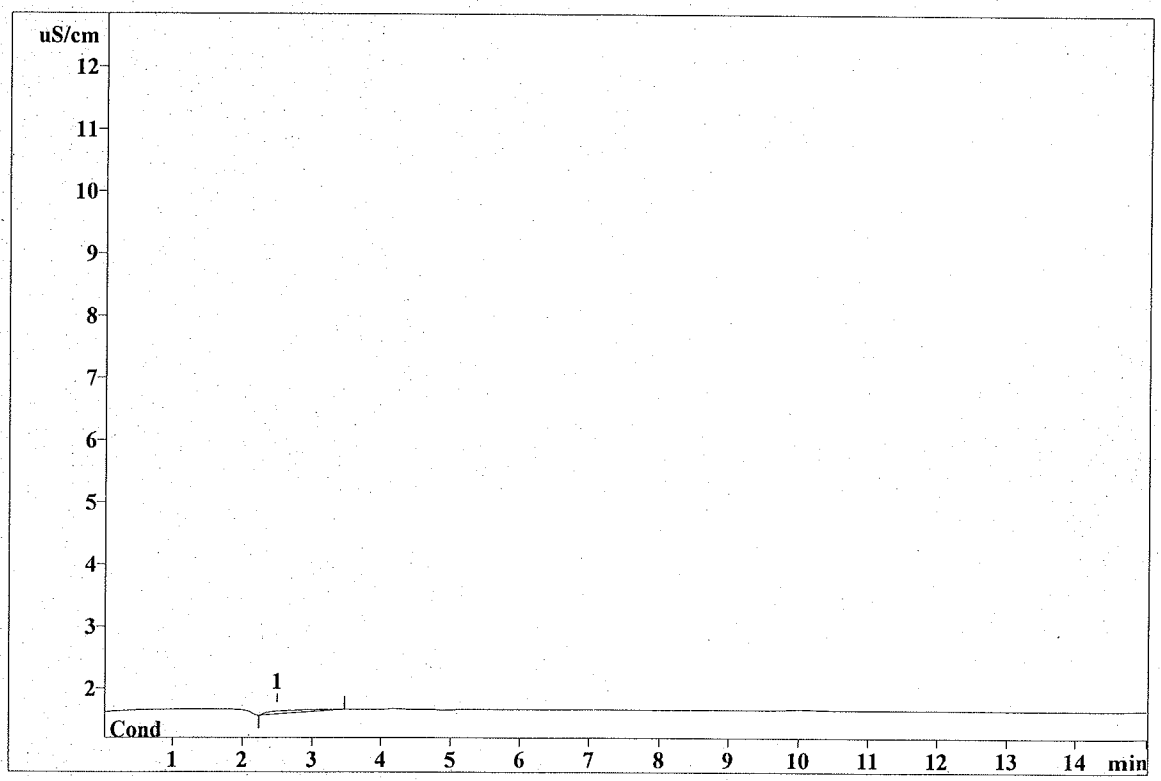
METROHM LTD

Report date: 12/8/2020 9:46:01 AM
Printed by: LDip

Ident: AL09-02 CCB435
Analysis from: 12/7/2020 11:06:09 AM
File: _2020-12-07_11-06.chw Last save: 12/7/2020 11:21:06 AM
Modified!
Method: ICD0-J27.mtw Last save: 12/7/2020 10:55:37 AM
Run operator: TWangc
Analysis number: 164521

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 2
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.49	0.05	2.178	0.000	

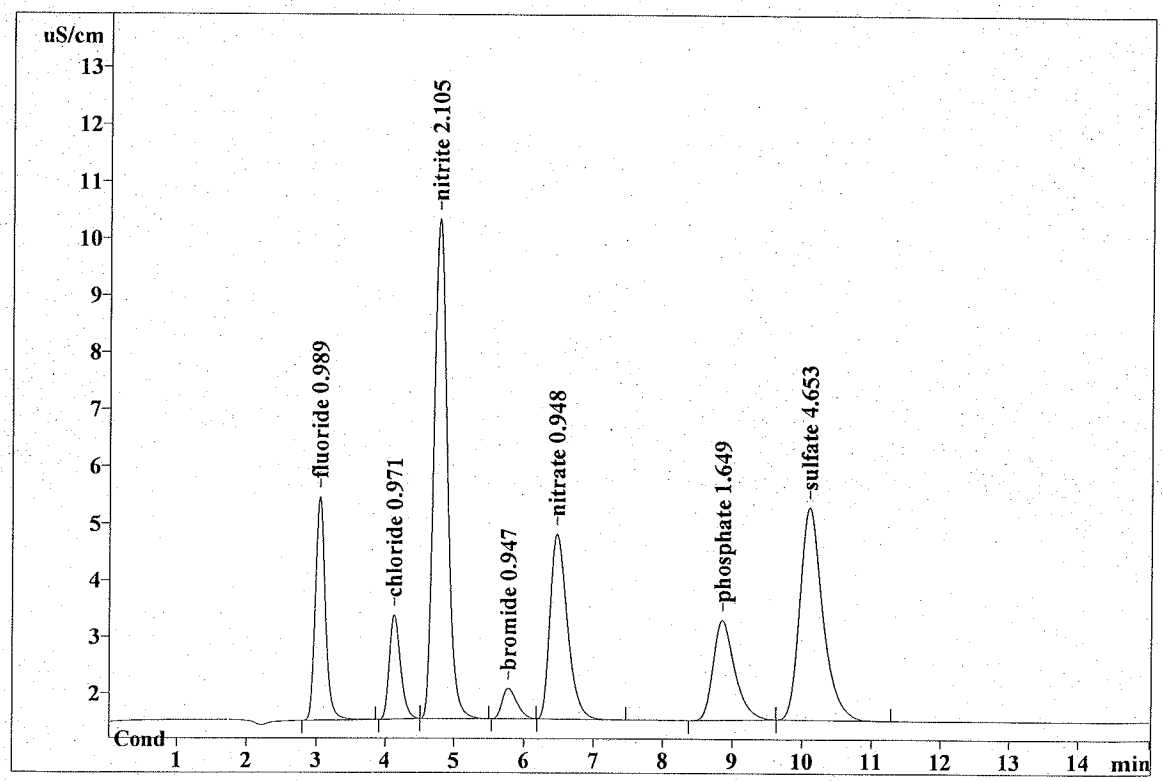
This report has been created by IC Net
METROHM LTD

Report date: 12/8/2020 9:49:47 AM
Printed by: LDip

Ident: AL09-13 CCV437
Analysis from: 12/7/2020 2:39:23 PM
File: _2020-12-07_14-39.chw Last save: 12/7/2020 2:54:20 PM

Method: ICD0-J27.mtw Last save: 12/7/2020 10:55:37 AM
Run operator: TWangc
Analysis number: 164532

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

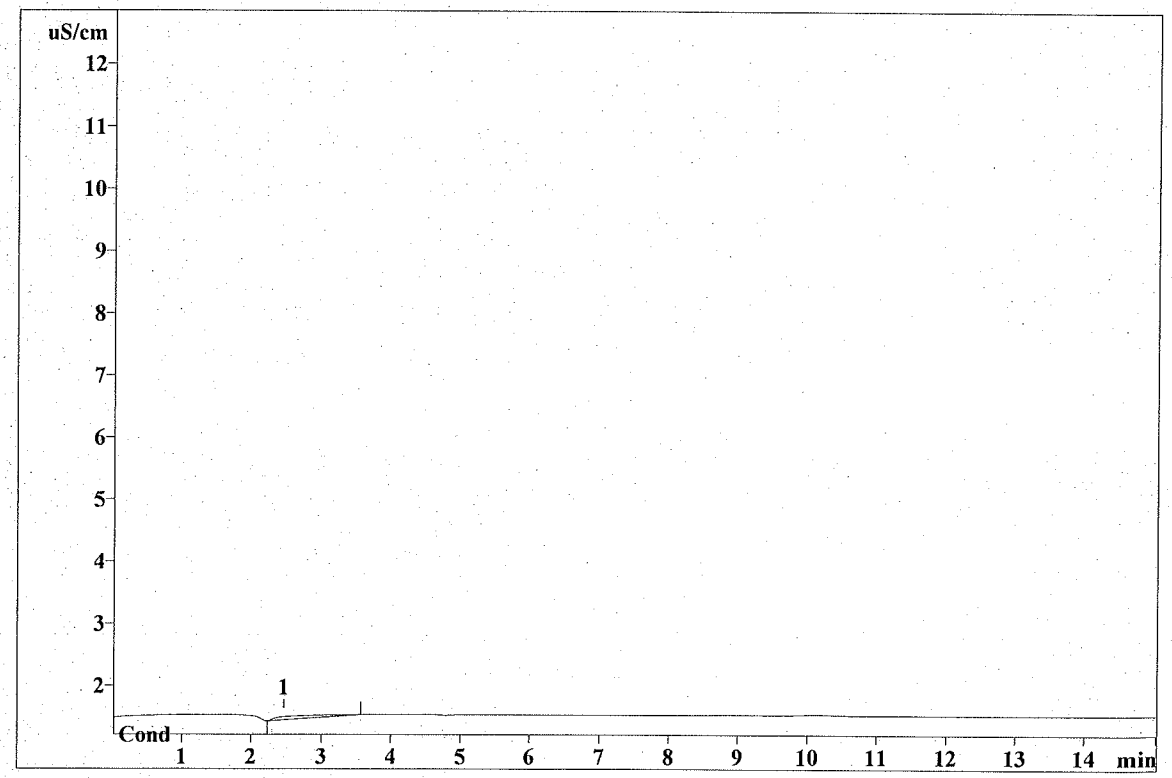
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	3.95	39.585	0.989	fluoride
2	4.13	1.84	20.989	0.971	chloride
3	4.76	8.80	118.591	2.105	nitrite
4	5.77	0.54	8.107	0.947	bromide
5	6.46	3.27	55.463	0.948	nitrate
6	8.85	1.77	38.031	1.649	phosphate
7	10.09	3.75	86.478	4.653	sulfate
7	15.00	23.91	367.244	12.261	

This report has been created by IC Net
METROHM LTD

Report date: 12/8/2020 9:50:01 AM
Printed by: LDip

Ident: AL09-14 CCB437
Analysis from: 12/7/2020 2:56:29 PM
File: _2020-12-07_14-56.chw Last save: 12/7/2020 3:11:26 PM
Modified!
Method: ICD0-J27.mtw Last save: 12/7/2020 10:55:37 AM
Run operator: TWangc
Analysis number: 164533

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 14
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.47	0.05	2.516	0.000	

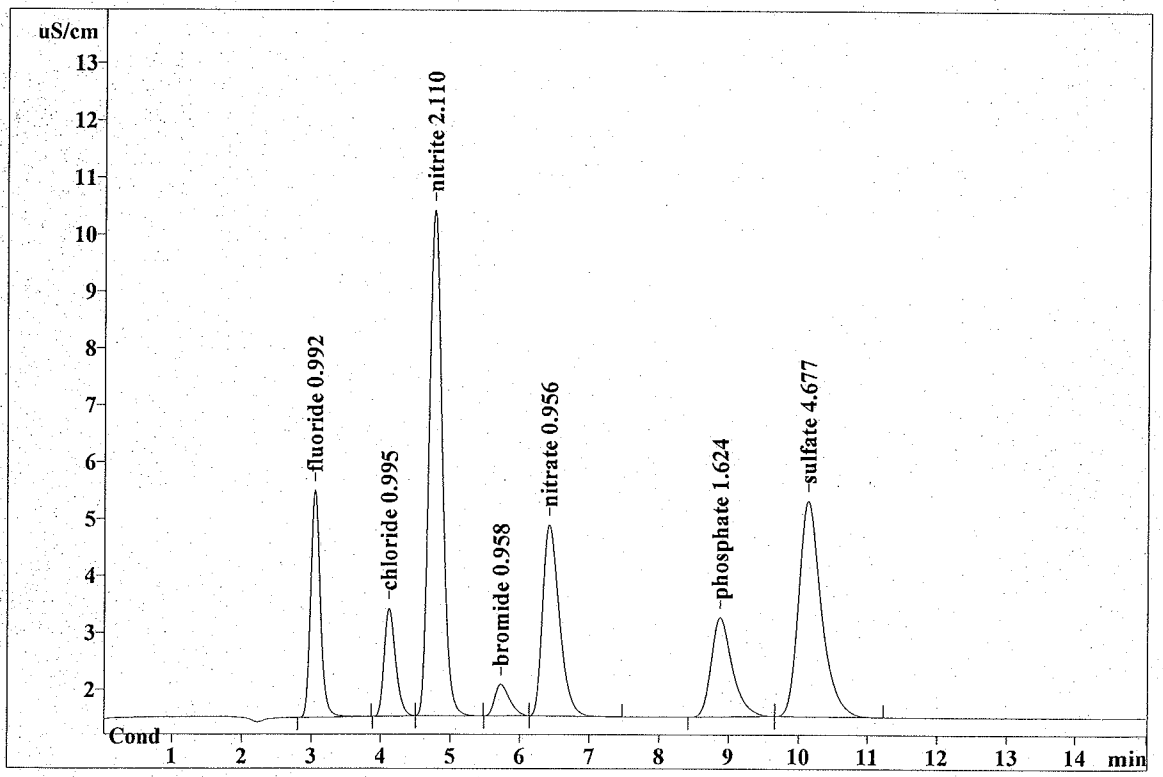
This report has been created by IC Net
METROHM LTD

Report date: 12/8/2020 9:50:31 AM
Printed by: LDip

Ident: AL09-16 CCV439
Analysis from: 12/7/2020 4:28:53 PM
File: _2020-12-07_16-28.chw Last save: 12/7/2020 4:43:50 PM

Method: ICD0-J27.mtw Last save: 12/7/2020 10:55:37 AM
Run operator: TWangc
Analysis number: 164535

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 16
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

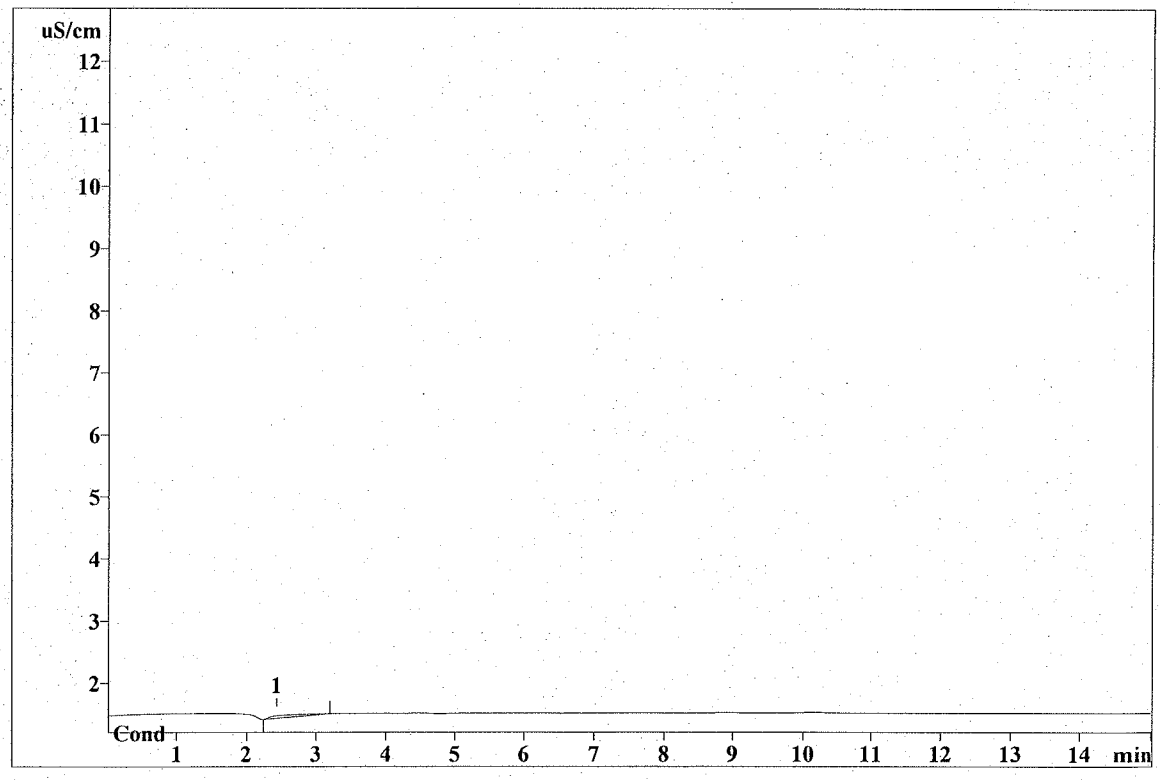
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	3.99	39.717	0.992	fluoride
2	4.12	1.89	21.517	0.995	chloride
3	4.75	8.90	118.842	2.110	nitrite
4	5.73	0.55	8.242	0.958	bromide
5	6.41	3.36	55.977	0.956	nitrate
6	8.87	1.75	37.350	1.624	phosphate
7	10.12	3.79	86.960	4.677	sulfate
7	15.00	24.24	368.605	12.312	

This report has been created by IC Net
METROHM LTD

Report date: 12/8/2020 9:50:56 AM
Printed by: LDip

Ident: AL09-17 CCB439
Analysis from: 12/7/2020 4:45:58 PM
File: _2020-12-07_16-45.chw Last save: 12/7/2020 5:00:55 PM
Modified!
Method: ICD0-J27.mtw Last save: 12/7/2020 10:55:37 AM
Run operator: TWangc
Analysis number: 164536

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 17
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.43	0.04	1.534	0.000	

This report has been created by IC Net
METROHM LTD

ANALYTICAL LOG(S)

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ION CHROMATOGRAPHY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

	CONCENTRATIONS (ppm)
S1	0.05
S2	0.1
S3	0.2
S4	0.5
S5	1.0
S6	2.0
S7	5.0
S8	10.0
S9	20.0

	LINEARITY (ppm)
F	10
Cl	2
NO_2	10
Br	20
NO_3	2
PO_4	20
SO_4	20

Book #: AD0-069
Instrument No.: D0
Pipette ID's: 039380124
SW3-02-02-02
439350100
Analytical Sequence: AJ15
Method File: ICD0 - J27. mtw
Analytical Batch: NA

SOP #	Rev. #
☑ EMAX-300.0	13
☑ EMAX-4110B	6
☑ EMAX-9056	9
☐ EMAX-	
STANDARDS ID	
ICAL	SW3B-14 – 21-02
ICV	SW3B-14 – 22-02
CCV ICV1 (LO 10/28/20)	SW3B-14 – 21-03
LCS	—
MS	—

Filters Lot #: Snap Seal Containers Lot #:
0.45 µm: 4 oz: 04119002
0.2 µm: 1.5 oz:

Column: Metrosep A Supp 5-100
Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION Expiration Date: ~~11/26/20~~ 11/26/20 LO 10/28/20

Std ID	Aliquot	Final Vol*
SP2-01-24-04	20 mL	2 L

IC REGENERANT PREPARATION Expiration Date: 11/28/20

Std ID	Aliquot	Final Vol*
SP2-01-36-03	100 mL	1 L

* Reagent Water ID: SW1A-009-07-01

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LO
Date: 10/28/20

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
2020-10-28_13-28.chw	ICD0-J27.mtw	AJ15-01 IB	1	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-10-28_13-45.chw	ICD0-J27.mtw	AJ15-02 S0	2	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-10-28_14-03.chw	ICD0-J27.mtw	AJ15-03 S1	3	1.0	1.0	1.0	100.0	1	METHOD 300/9056/4110B	0.05 PPM
2020-10-28_14-20.chw	ICD0-J27.mtw	AJ15-04 S2	4	1.0	1.0	1.0	100.0	2	METHOD 300/9056/4110B	0.1 PPM
2020-10-28_14-37.chw	ICD0-J27.mtw	AJ15-05 S3	5	1.0	1.0	1.0	100.0	3	METHOD 300/9056/4110B	0.2 PPM
2020-10-28_14-54.chw	ICD0-J27.mtw	AJ15-06 S4	6	1.0	1.0	1.0	100.0	4	METHOD 300/9056/4110B	0.5 PPM
2020-10-28_15-11.chw	ICD0-J27.mtw	AJ15-07 S5	7	1.0	1.0	1.0	100.0	5	METHOD 300/9056/4110B	1.0 PPM
2020-10-28_15-28.chw	ICD0-J27.mtw	AJ15-08 S6	8	1.0	1.0	1.0	100.0	6	METHOD 300/9056/4110B	2.0 PPM
2020-10-28_15-45.chw	ICD0-J27.mtw	AJ15-09 S7	9	1.0	1.0	1.0	100.0	7	METHOD 300/9056/4110B	5.0 PPM
2020-10-28_16-02.chw	ICD0-J27.mtw	AJ15-10 S8	10	1.0	1.0	1.0	100.0	8	METHOD 300/9056/4110B	10.0 PPM
2020-10-28_16-19.chw	ICD0-J27.mtw	AJ15-11 S9	11	1.0	1.0	1.0	100.0	9	METHOD 300/9056/4110B	20.0 PPM
2020-10-28_16-36.chw	ICD0-J27.mtw	AJ15-12 ICV	12	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-10-28_16-53.chw	ICD0-J27.mtw	AJ15-13 ICV1	13	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	1.0 PPM
2020-10-28_17-10.chw	ICD0-J27.mtw	AJ15-14 ICB	14	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	

FINAL 10/28/20

ANALYSIS RUN LOG
for
ION CHROMATOGRAPHY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence. For dillution preparation (sample aliquot/final volume) refer to sample info.

Comments:

Book #:	AD0-070
Instrument No.:	D0
Pipette ID's:	039380124
	SW3-02-02-02
	439350100
Analytical Sequence:	AL07
Method File:	ICD0-J27.mtw
Analytical Batch:	ICL009W / ICL011W

SOP #	Rev. #
☑ EMAX-300.0	13
☐ EMAX-4110B	6
☑ EMAX-9056	9
☐ EMAX-	
STANDARDS ID	
ICAL	—
ICV	—
CCV	SW3B-15-02-03
LCS	SW3B-15-03-01
MS	SCP refer to LCS Parent ID

Filters Lot #:	Snap Seal Containers Lot #:
0.45 µm: 00191103	4 oz:
0.2 µm: 00297103	1.5 oz: 17320006

Column: Metrosep A Supp 5-100

Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION Expiration Date: 01/03/21

Std ID	Aliquot	Final Vol*
SP2-01-34-01	20 mL	2 L

IC REGENERANT PREPARATION Expiration Date: 01/03/21

Std ID	Aliquot	Final Vol*
SP2-01-41-02	100 mL	1 L

* Reagent Water ID: SW1A-009-09-02

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LO

Date: 12/4/20

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
2020-12-04_11-40.chw	ICD0-J27.mtw	AL07-01 CCV421	1	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_11-57.chw	ICD0-J27.mtw	AL07-02 CCB421	2	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_12-14.chw	ICD0-J27.mtw	AL07-03 ICL009WB	3	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_12-32.chw	ICD0-J27.mtw	AL07-04 ICL009WL	4	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_12-49.chw	ICD0-J27.mtw	AL07-05 ICL009WC	5	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_13-06.chw	ICD0-J27.mtw	AL07-06 L037-01	6	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_13-23.chw	ICD0-J27.mtw	AL07-07 L037-03	7	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_13-40.chw	ICD0-J27.mtw	AL07-08 L037-04	8	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_13-57.chw	ICD0-J27.mtw	AL07-09 L037-05	9	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_14-38.chw	ICD0-J27.mtw	AL07-10 L037-01D	10	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_14-55.chw	ICD0-J27.mtw	AL07-11 L037-01M	11	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_15-12.chw	ICD0-J27.mtw	AL07-12 L037-01S	12	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_15-29.chw	ICD0-J27.mtw	AL07-13 CCV423	13	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_15-46.chw	ICD0-J27.mtw	AL07-14 CCB423	14	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_16-59.chw	ICD0-J27.mtw	AL07-15 L037-01I DF=10	15	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-12-04_17-16.chw	ICD0-J27.mtw	AL07-16 L037-01ID DF=10	16	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-12-04_17-33.chw	ICD0-J27.mtw	AL07-17 L037-01IM DF=10	17	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-12-04_17-50.chw	ICD0-J27.mtw	AL07-18 L037-01IS DF=10	18	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-12-04_18-08.chw	ICD0-J27.mtw	AL07-19 L037-03I DF=20	19	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-12-04_18-27.chw	ICD0-J27.mtw	AL07-20 L037-03J DF=100	20	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/20ml
2020-12-04_18-44.chw	ICD0-J27.mtw	AL07-21 L037-04I DF=10	21	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/20ml
2020-12-04_19-02.chw	ICD0-J27.mtw	AL07-22 L037-04J DF=100	22	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/20ml
2020-12-04_19-36.chw	ICD0-J27.mtw	AL07-23 CCV425	23	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_19-53.chw	ICD0-J27.mtw	AL07-24 CCB425	24	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_20-10.chw	ICD0-J27.mtw	AL07-25 L037-01J DF=100	25	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	0.4ml/40ml
2020-12-04_20-27.chw	ICD0-J27.mtw	AL07-26 L037-01JD DF=100	26	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	0.4ml/40ml
2020-12-04_20-44.chw	ICD0-J27.mtw	AL07-27 L037-01JM DF=100	27	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	0.4ml/40ml
2020-12-04_21-01.chw	ICD0-J27.mtw	AL07-28 L037-01JS DF=100	28	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	0.4ml/40ml
2020-12-04_21-35.chw	ICD0-J27.mtw	AL07-29 CCV427	29	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_21-52.chw	ICD0-J27.mtw	AL07-30 CCB427	30	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_22-10.chw	ICD0-J27.mtw	AL07-31 ICL011WB	31	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_22-44.chw	ICD0-J27.mtw	AL07-32 ICL011WL	32	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_23-18.chw	ICD0-J27.mtw	AL07-33 ICL011WC	33	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_23-35.chw	ICD0-J27.mtw	AL07-34 L042-02	34	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-04_23-52.chw	ICD0-J27.mtw	AL07-35 L042-02I DF=2	35	1.0	2.0	1.0	100.0	0	METHOD 300/9056/4110B	10ml/20ml
2020-12-05_00-09.chw	ICD0-J27.mtw	AL07-36 L042-02J DF=5	36	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/20ml
2020-12-05_00-26.chw	ICD0-J27.mtw	AL07-37 L042-02K DF=10	37	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/20ml
2020-12-05_00-43.chw	ICD0-J27.mtw	AL07-38 L042-02T DF=400	38	1.0	400.0	1.0	100.0	0	METHOD 300/9056/4110B	0.1ml/40ml
2020-12-05_01-00.chw	ICD0-J27.mtw	AL07-39 L042-01	39	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-05_01-18.chw	ICD0-J27.mtw	AL07-40 L042-01I DF=2	40	1.0	2.0	1.0	100.0	0	METHOD 300/9056/4110B	10ml/20ml
2020-12-05_01-35.chw	ICD0-J27.mtw	AL07-41 CCV429	41	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-05_02-09.chw	ICD0-J27.mtw	AL07-42 CCB429	42	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-05_02-26.chw	ICD0-J27.mtw	AL07-43 L042-01J DF=5	43	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/20ml
2020-12-05_02-43.chw	ICD0-J27.mtw	AL07-44 L042-01K DF=10	44	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	2ml/20ml
2020-12-05_03-00.chw	ICD0-J27.mtw	AL07-45 L042-01T DF=20	45	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml
2020-12-05_03-17.chw	ICD0-J27.mtw	AL07-46 L042-01G DF=800	46	1.0	800.0	1.0	100.0	0	METHOD 300/9056/4110B	1ml/20ml INTERMEDIATE, 1ml/40ml DF=800
2020-12-05_03-34.chw	ICD0-J27.mtw	AL07-47 K188-07T DF=400	47	1.0	400.0	1.0	100.0	0	METHOD 300/9056/4110B	0.1ml/40ml
2020-12-05_03-51.chw	ICD0-J27.mtw	AL07-48 K188-07TD DF=400	48	1.0	400.0	1.0	100.0	0	METHOD 300/9056/4110B	0.1ml/40ml
2020-12-05_04-08.chw	ICD0-J27.mtw	AL07-49 K188-07TM DF=400	49	1.0	400.0	1.0	100.0	0	METHOD 300/9056/4110B	0.1ml/40ml
2020-12-05_04-26.chw	ICD0-J27.mtw	AL07-50 K188-07TS DF=400	50	1.0	400.0	1.0	100.0	0	METHOD 300/9056/4110B	0.1ml/40ml
2020-12-05_05-00.chw	ICD0-J27.mtw	AL07-51 CCV431	51	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-05_05-17.chw	ICD0-J27.mtw	AL07-52 CCB431	52	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-05_05-34.chw	ICD0-J27.mtw	AL07-53 QC FILTER1 H2O	53	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	0.22uM Lot :00297103
2020-12-05_05-51.chw	ICD0-J27.mtw	AL07-54 QC FILTER1 LCS	54	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	0.22uM Lot :00297103
2020-12-05_06-08.chw	ICD0-J27.mtw	AL07-55 QC FILTER2 H2O	55	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	0.45uM Lot :91369103
2020-12-05_06-25.chw	ICD0-J27.mtw	AL07-56 QC FILTER2 LCS	56	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	0.45uM Lot :91369103
2020-12-05_06-42.chw	ICD0-J27.mtw	AL07-57 K136-04R	57	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-05_06-59.chw	ICD0-J27.mtw	AL07-58 K136-04RD	58	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-05_07-16.chw	ICD0-J27.mtw	AL07-59 K136-04RM	59	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
2020-12-05_07-34.chw	ICD0-J27.mtw	AL07-60 K136-04RS	60	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2020-12-05_07-51.chw	ICD0-J27.mtw	AL07-61 CCV433	61	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2020-12-05_08-25.chw	ICD0-J27.mtw	AL07-62 CCB433	62	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ION CHROMATOGRAPHY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence. For dillution preparation (sample aliquot/final volume) refer to sample info

Comments:

Book #:	AD0-070
Instrument No.:	D0
Pipette ID's:	039380124
	SW3-02-02-02
	439350100
Analytical Sequence:	AL09
Method File:	ICD0-J27.mtw
Analytical Batch:	ICL013W

SOP #	Rev. #
☑ EMAX-300.0	13
☐ EMAX-4110B	6
☑ EMAX-9056	9
☐ EMAX-	
STANDARDS ID	
ICAL	—
ICV	—
CCV	SW3B-15-03-02
LCS	SW3B-15-03-03
MS	SCP refer to LCS Parent ID

Filters Lot #:	Snap Seal Containers Lot #:
0.45 µm: 0019103	4 oz:
0.2 µm: 00297103	1.5 oz: 17320006

Column: Metrosep A Supp 5-100

Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION Expiration Date: 01/03/21

Std ID	Aliquot	Final Vol*
SP2-01-34-01	20 mL	2 L

IC REGENERANT PREPARATION Expiration Date: 01/03/21

Std ID	Aliquot	Final Vol*
SP2-01-41-02	100 mL	1 L

* Reagent Water ID: SWA-009-09-02

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LE / TW

Date: ~~12/5/20~~ TW 12/7/20

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
2020-12-07_10-49.chw	ICD0-J27.mtw	AL09-01 CCV435	1	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-07_11-06.chw	ICD0-J27.mtw	AL09-02 CCB435	2	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-07_11-23.chw	ICD0-J27.mtw	AL09-03 ICL013WB	3	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-07_11-40.chw	ICD0-J27.mtw	AL09-04 ICL013WL	4	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-07_11-57.chw	ICD0-J27.mtw	AL09-05 ICL013WC	5	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-07_12-14.chw	ICD0-J27.mtw	AL09-06 L412-02	6	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-07_12-56.chw	ICD0-J27.mtw	AL09-07 L017-03K DF=10	7	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-12-07_13-13.chw	ICD0-J27.mtw	AL09-08 L017-03KD DF=10	8	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-12-07_13-31.chw	ICD0-J27.mtw	AL09-09 L017-03KM DF=10	9	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-12-07_13-48.chw	ICD0-J27.mtw	AL09-10 L017-03KS DF=10	10	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/40ml
2020-12-07_14-05.chw	ICD0-J27.mtw	AL09-11 L412-02I DF=5	11	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	4ml/20ml
2020-12-07_14-22.chw	ICD0-J27.mtw	AL09-12 L412-02J DF=200	12	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/40ml
2020-12-07_14-39.chw	ICD0-J27.mtw	AL09-13 CCV437	13	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-07_14-56.chw	ICD0-J27.mtw	AL09-14 CCB437	14	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-07_16-11.chw	ICD0-J27.mtw	AL09-15 L042-01I DF=2000	15	1.0	2000.0	1.0	100.0	0	METHOD 300/9056/4110B	0.2ml/20ml INTERMEDIATE, 1ml/20ml DF=20
2020-12-07_16-28.chw	ICD0-J27.mtw	AL09-16 CCV439	16	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2020-12-07_16-45.chw	ICD0-J27.mtw	AL09-17 CCB439	17	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	

FINAL lo 12/8/20

RETENTION TIME WINDOW

TWENTY FOUR HOUR RETENTION TIME WINDOW
METHOD 300.0

Lab name:	**EMAX**	**Method:**	**EMAX-300.0**
Instrument ID:	D0 (761 IC)	**IC column:**	METROSEP A SUPP 5
		Column size:	100X4.0mm

Compound	ICAL Mean RT	from	to	RTW
FLUORIDE	**3.09**	2.96	3.23	**0.137**
CHLORIDE	**4.23**	4.05	4.41	**0.181**
NITRITE	**4.90**	4.71	5.10	**0.195**
BROMIDE	**5.95**	5.71	6.19	**0.238**
NITRATE	**6.69**	6.35	7.02	**0.335**
PHOSPHATE	**9.47**	9.21	9.72	**0.256**
SULFATE	**10.86**	10.54	11.19	**0.321**

ICD0-J27.mtw

TWENTY FOUR HOUR RETENTION TIME WINDOW
METHOD 300.0

Lab name:	**EMAX**	**Method:**	**EMAX-300.0**
Instrument ID:	D0 (761 IC)	**IC column:**	METROSEP A SUPP 5
		Column size:	100X4.0mm

Compound		Retention time Window
FLUORIDE	(+/-)	0.137
CHLORIDE	(+/-)	0.181
NITRITE	(+/-)	0.195
BROMIDE	(+/-)	0.238
NITRATE	(+/-)	0.335
PHOSPHATE	(+/-)	0.256
SULFATE	(+/-)	0.321
IODIDE	(+/-)	0.435

TK 07/07/20

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20L042

METHOD SM2320-B
TOTAL ALKALINITY

A total of two(2) water samples were received on 12/04/20 to be analyzed for Total Alkalinity in accordance with Method SM2320-B and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Alkalinity was not detected in ALL001WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. ALL001WL/ALL001WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM2320-B
TOTAL ALKALINITY

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20L042

Matrix : WATER
InstrumentID : E5

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DIL. FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ALL001WB	ND	1	NA	5	5	5	12/08/2017:08	NA	20E5L0703	20E5L07	ALL001W	NA	NA
LCS1W	ALL001WL	75.7	1	NA	5	5	5	12/08/2017:15	NA	20E5L0704	20E5L07	ALL001W	NA	NA
LCD1W	ALL001WC	78.2	1	NA	5	5	5	12/08/2017:22	NA	20E5L0705	20E5L07	ALL001W	NA	NA
SS003-3-MW-55(120120)	L042-01	244	1	NA	5	5	5	12/08/2018:20	NA	20E5L0712	20E5L07	ALL001W	12/01/2013:20	12/04/20
SS003-3-MW-57(120120)	L042-02	193	1	NA	5	5	5	12/08/2018:27	NA	20E5L0713	20E5L07	ALL001W	12/03/2008:46	12/04/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L042
METHOD : METHOD SM2320-B

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ALL001WB	ALL001WL	ALL001WC
LAB FILE ID :	20E5L0703	20E5L0704	20E5L0705
DATE EXTRACTED :	NA	NA	NA
DATE ANALYZED :	12/08/2017:08	12/08/2017:15	12/08/2017:22
PREP BATCH :	ALL001W	ALL001W	ALL001W
CALIBRATION REF:	20E5L07	20E5L07	20E5L07

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
ALKALINITY	ND	75.8	75.7	100	75.8	78.2	103	3	80-120	20

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ALKALINITY

Note: For samples and relevent QCs/Standards analyzed, refer to attached analytical sequence.

☑ Titration end point: pH 4.5 ± 0.04

☑ Low alkalinity: pH 4.2 ± 0.04

Micropipette ID: NA

MS/MSD amount of spike: NA

Reagent Water: RW1-20-002

Comments:

Book#: AAL-044

Instrument No.: ☐ 53 ☑ E5

Analytical Batch: 20E5L07

Analytical Sequence: ALL001

SOP #	Rev. #
☑ EMAX-2320B	6
☐ EMAX-	

STANDARDS ID		Conc. (mg/L)
0.02N HCL	~~SWR1-02-24-07~~ SWR1-02-24-07 ☑ 12/7/20	0.02N
LCS	SW1-02-06-10	75.8
MS/MSD	NA	NA
ICV	NA	NA

pH Buffer	ID
pH 4	SW1-02-07-01
pH 7	SW1-02-07-02
pH 10	SW1-02-07-03
pH 8.0 (Check)	SW1-02-05-19
pH Strip	HC998032

Analyzed By: LD

Date: ~~12/7/20~~ 12/8/20 ☑ 12/8/20

PC-TitratION PLUS

pH and Alkalinity In-Run Report

Run Number 1252 **Analytical Batch#** 20E5L07

Seq. #	SampleID	Data File Name	RunDate	RunTime	pH	Volume @pH 8.3	Volume @pH 4.5	Volume @pH 4.2	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	Review Notes
1	ICV PH7.96	20E5L07	12/08/20	4:53 PM	7.98	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
2	INSTR. CHK.	20E5L07	12/08/20	5:02 PM	8.71	.08	1.62	-1.00	3.38	67.66	60.89	6.77	.00	
3	ALL001WB	20E5L07	12/08/20	5:08 PM	6.46	.00	.07	.11	.00	1.34 ✓	1.34	.00	.00	
4	ALL001WL	20E5L07	12/08/20	5:15 PM	9.02	1.06	1.81	-1.00	44.19	75.75 ✓	.00	63.11	12.63	
5	ALL001WC	20E5L07	12/08/20	5:22 PM	9.05	1.11	1.87	-1.00	46.57	78.17 ✓	.00	63.19	14.97	
6	L037-05	20E5L07	12/08/20	5:28 PM	6.92	.00	.10	.14	.00	2.28	2.28	.00	.00	
7	L037-04	20E5L07	12/08/20	5:36 PM	7.35	.00	9.26	-1.00	.00	387.19	387.19	.00	.00	
8	L037-01	20E5L07	12/08/20	5:47 PM	7.45	.00	13.04	-1.00	.00	545.14 ✓	545.14	.00	.00	
9	L037-01D	20E5L07	12/08/20	5:56 PM	7.44	.00	11.55	-1.00	.00	482.71 ✓	482.71	.00	.00	
10	L037-03	20E5L07	12/08/20	6:03 PM	7.43	.00	7.85	-1.00	.00	327.95	327.95	.00	.00	
11	L412-02	20E5L07	12/08/20	6:12 PM	7.89	.00	2.01	-1.00	.00	84.10	84.10	.00	.00	
12	L042-01	20E5L07	12/08/20	6:20 PM	7.61	.00	5.84	-1.00	.00	244.20	244.20	.00	.00	
13	L042-02	20E5L07	12/08/20	6:27 PM	7.67	.00	4.62	-1.00	.00	193.27	193.27	.00	.00	
14	K627-01	20E5L07	12/08/20	6:33 PM	7.07	.00	.34	.39	.00	12.06	12.06	.00	.00	
15	K627-02	20E5L07	12/08/20	6:40 PM	7.42	.00	.44	.48	.00	16.38	16.38	.00	.00	
16	K628-01	20E5L07	12/08/20	6:46 PM	7.06	.00	.33	.38	.00	11.74	11.74	.00	.00	
17	K628-02	20E5L07	12/08/20	6:52 PM	7.15	.00	.38	.42	.00	13.66	13.66	.00	.00	
18	K628-03	20E5L07	12/08/20	6:59 PM	7.62	.00	.89	-1.00	.00	37.23	37.23	.00	.00	

Analyzed by: LO Reviewed by: LO Date: 12/9/20

PC-TitratION PLUS by Man-Tech Associates, Inc.

pH AND ALKALINITY IN-RUN REPORT.SRW

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Run Number 1252 **Analytical Batch#** **20E5L07**

Seq. #	SampleID	Data File Name	RunDate	RunTime	pH	Volume @pH 8.3	Volume @pH 4.5	Volume @pH 4.2	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	Review Notes
19	K628-04	20E5L07	12/08/20	7:06 PM	7.63	.00	.86	-1.00	.00	36.09	36.09	.00	.00	
20	K628-05	20E5L07	12/08/20	7:12 PM	7.24	.00	.37	.42	.00	13.29	13.29	.00	.00	
21	L008-01	20E5L07	12/08/20	7:26 PM	8.16	.00	23.08	-1.00	.00	964.91	964.91	.00	.00	
22	L017-01	20E5L07	12/08/20	7:34 PM	8.01	.00	6.18	-1.00	.00	258.47	258.47	.00	.00	
23	L017-02	20E5L07	12/08/20	7:45 PM	7.95	.00	11.70	-1.00	.00	489.00	489.00	.00	.00	
24	L017-03	20E5L07	12/08/20	7:53 PM	7.95	.00	10.00	-1.00	.00	418.02	418.02	.00	.00	
25	L017-04	20E5L07	12/08/20	8:01 PM	7.71	.00	.26	.30	.00	9.03	9.03	.00	.00	
26	L006-01	20E5L07	12/08/20	8:08 PM	8.35	.04	3.86	-1.00	1.50	161.19	158.19	3.01	.00	
27	RINSE	20E5L07	12/08/20	8:15 PM	7.20	.00	.15	.19	.00	4.48	4.48	.00	.00	

Analyzed by: LO Reviewed by: LO Date: 12/9/20

PC-TitratION PLUS by Man-Tech Associates, Inc.

pH AND ALKALINITY IN-RUN REPORT.S

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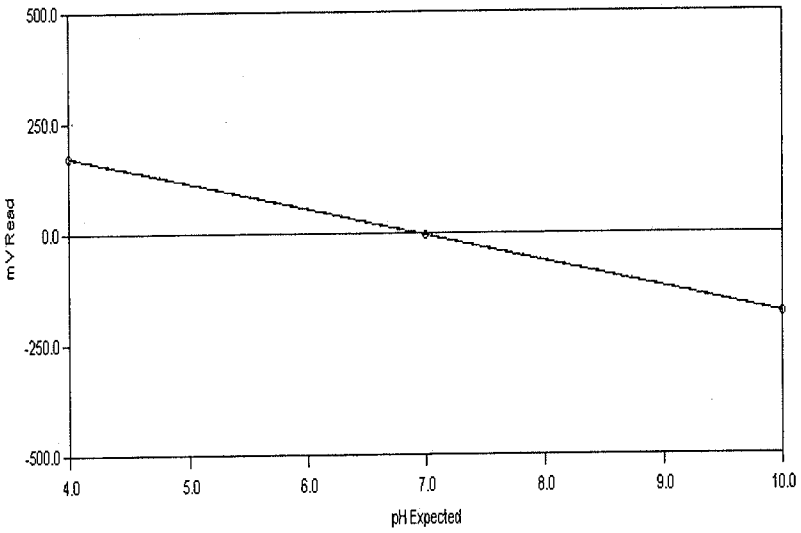
PC-TitratION PLUS
Calibration Report

Calibration Record # 906



Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	12/08/2020
Channel	1	Time	4:50 PM
Probe Type	pH	Temperature	298.61 K 25.46 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-58.817	CorrCoeff	1.0000
Intercept	-5.613	Equation: Y = (-58.817) X + (-5.613)	

Calibration Validity True Operator

	Result	Minimum	Maximum
Slope	-58.817	-65.00	-53.00
Intercept	-5.613	-40.00	40.00
Correlation Coefficient	1.0000	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	Standard	Reading
	4.00	171.02
	7.00	-5.98
	10.00	-181.88

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PC-Titrate For Windows

Running List Report

Order Number - 20E5L07

	Schedule	Sample Id	Vial	Weight	Volume
1	PH CAL	CAL	1	.00	25.00
2	PH ONLY	ICV PH7.96	4	.00	25.00
3	PH-ALK	INSTR. CHK.	5	.00	25.00
4	PH-ALK	ALL001WB	6	.00	25.00
5	PH-ALK	ALL001WL	7	.00	25.00
6	PH-ALK	ALL001WC	8	.00	25.00
7	PH-ALK	L037-05	9	.00	25.00
8	PH-ALK	L037-04	10	.00	25.00
9	PH-ALK	L037-01	11	.00	25.00
10	PH-ALK	L037-01D	12	.00	25.00
11	PH-ALK	L037-03	13	.00	25.00
12	PH-ALK	L412-02	14	.00	25.00
13	PH-ALK	L042-01	15	.00	25.00
14	PH-ALK	L042-02	16	.00	25.00
15	PH-ALK	K627-01	17	.00	25.00
16	PH-ALK	K627-02	18	.00	25.00
17	PH-ALK	K628-01	19	.00	25.00
18	PH-ALK	K628-02	20	.00	25.00
19	PH-ALK	K628-03	21	.00	25.00
20	PH-ALK	K628-04	22	.00	25.00
21	PH-ALK	K628-05	23	.00	25.00
22	PH-ALK	L008-01	24	.00	25.00
23	PH-ALK	L017-01	25	.00	25.00
24	PH-ALK	L017-02	26	.00	25.00
25	PH-ALK	L017-03	27	.00	25.00
26	PH-ALK	L017-04	28	.00	25.00
27	PH-ALK	L006-01	29	.00	25.00
28	PH-ALK	RINSE	30	.00	25.00

PC-TitratION PLUS by Man-Tech Associates, Inc.

runninglist.SRW

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CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20L042

METHOD SM4500-S2-D
TOTAL SULFIDE

A total of two(2) water samples were received on 12/04/20 to be analyzed for Total Sulfide in accordance with Method SM4500-S2-D and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Sulfide was not detected in SFL001WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. SFL001WL/SFL001WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Sulfide was within MS QC limits in L042-01M/L042-01S. Sample duplicate was analyzed and RPD was within expected value. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM4500-S2-D
TOTAL SULFIDE

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20L042

Matrix : WATER
InstrumentID : H9

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	SFL001WB	ND	1	NA	0.1	0.01	0.02	12/07/2013:23	NA	20SFL00110	20SFL001	SFL001W	NA	NA
LCS1W	SFL001WL	0.588	1	NA	0.1	0.01	0.02	12/07/2013:24	NA	20SFL00111	20SFL001	SFL001W	NA	NA
LCD1W	SFL001WC	0.588	1	NA	0.1	0.01	0.02	12/07/2013:24	NA	20SFL00112	20SFL001	SFL001W	NA	NA
SS003-3-MW-55(120120)	L042-01	ND	1	NA	0.1	0.01	0.02	12/07/2013:25	NA	20SFL00113	20SFL001	SFL001W	12/01/2013:20	12/04/20
SS003-3-MW-55(120120)DUP	L042-01D	ND	1	NA	0.1	0.01	0.02	12/07/2013:25	NA	20SFL00114	20SFL001	SFL001W	12/01/2013:20	12/04/20
SS003-3-MW-55(120120)MS	L042-01M	0.600	1	NA	0.1	0.01	0.02	12/07/2013:25	NA	20SFL00115	20SFL001	SFL001W	12/01/2013:20	12/04/20
SS003-3-MW-55(120120)MSD	L042-01S	0.597	1	NA	0.1	0.01	0.02	12/07/2013:25	NA	20SFL00116	20SFL001	SFL001W	12/01/2013:20	12/04/20
SS003-3-MW-57(120120)	L042-02	0.0464J	1	NA	0.1	0.01	0.02	12/07/2013:25	NA	20SFL00117	20SFL001	SFL001W	12/03/2008:46	12/04/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L042
METHOD : SM4500-S2-D

MATRIX : WATER % MOISTURE:NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1W LCS1W LCD1W
LAB SAMPLE ID : SFL001WB SFL001WL SFL001WC
LAB FILE ID : 20SFL00110 20SFL00111 20SFL00112
DATE PREPARED : NA NA NA
DATE ANALYZED : 12/07/2013:23 12/07/2013:24 12/07/2013:24
PREP BATCH : SFL001W SFL001W SFL001W
CALIBRATION REF: 20SFL001 20SFL001 20SFL001

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
SULFIDE	ND	0.600	0.588	98	0.600	0.588	98	0	80-120	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L042
METHOD : SM4500-S2-D

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: SS003-3-MW-55(120120)	SS003-3-MW-55(120120)MS	SS003-3-MW-55(120120)MSD
LAB SAMPLE ID	: L042-01	L042-01M	L042-01S
LAB FILE ID	: 20SFL00113	20SFL00115	20SFL00116
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 12/07/2013:25	12/07/2013:25	12/07/2013:25
PREP BATCH	: SFL001W	SFL001W	SFL001W
CALIBRATION REF	: 20SFL001	20SFL001	20SFL001

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
SULFIDE	ND	0.600	0.600	100	0.600	0.597	99	0	75-125	20

PS: Parent Sample MS: Matrix Spike MSD: Matrix Spike Duplicate

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L042
METHOD : SM4500-S2-D

MATRIX : WATER

DILUTION FACTOR:	1	1
SAMPLE ID :	SS003-3-MW-55(120120)	SS003-3-MW-55(120120)DUP
LAB SAMPLE ID :	L042-01	L042-01D
LAB FILE ID :	20SFL00113	20SFL00114
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/07/2013:25	12/07/2013:25
PREP BATCH :	SFL001W	SFL001W
CALIBRATION REF:	20SFL001	20SFL001

ACCESSION:

PARAMETER	PSResult (mg/L)	DUPResult (mg/L)	RPD (%)	QCLimit (%)
SULFIDE	ND	ND	0	20

PS: Parent Sample DUP: Sample Duplicate

Data File Name	Calibration ID	Conc. mg/L	WL	Abs	CalDate	FC	%Rec
20SFL00101	S0	0.00	664NM	0	12/7/20 12:52	-0.0071	ND
20SFL00102	S1	0.10	664NM	0.068	12/7/20 12:52	0.099872984	100
20SFL00103	S2	0.20	664NM	0.137	12/7/20 12:52	0.2084191	104
20SFL00104	S3	0.40	664NM	0.263	12/7/20 12:52	0.406633747	102
20SFL00105	S4	0.80	664NM	0.528	12/7/20 12:53	0.823513757	103
20SFL00106	S5	1.00	664NM	0.656	12/7/20 12:53	1.024874668	102
20SFL00107	S6	1.20	664NM	0.75	12/7/20 12:53	1.172749087	98
20SFL00108	ICV	0.60	664NM	0.382	12/7/20 12:53	0.593836468	99
20SFL00109	ICB	0.00	664NM	0	12/7/20 12:53	-0.0071	ND
20SFL00120	CCV1	0.60	664NM	0.378	12/7/20 13:25	0.58754394	98
20SFL00121	CCB1	0.00	664NM	0	12/7/20 13:26	-0.0071	ND
20SFL00125	CCV2	0.60	664NM	0.384	12/7/20 13:26	0.596982733	99
20SFL00126	CCB2	0.00	664NM	0	12/7/20 13:26	-0.0071	ND
20SFL00128	CCV3	0.60	664NM	0.378	12/7/20 14:19	0.58754394	98
20SFL00129	CCB3	0.00	664NM	0	12/7/20 14:19	-0.0071	ND

Coloring Time	$FC = [(A * CF) - Y] * DF$	InstrumentID: H9
12/7/20 12:41		
12/7/20 12:41		
12/7/20 12:41		
12/7/20 12:41		
12/7/20 12:41		
12/7/20 12:41		
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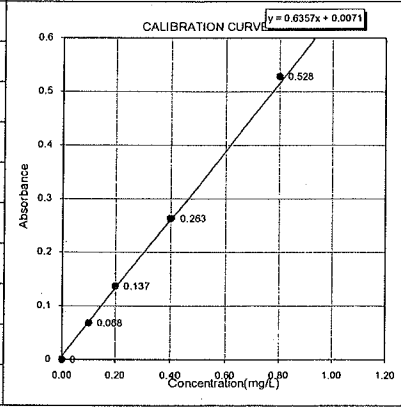
12/7/20 12:41		



CF= 1.573132116 Y= 0.0071 r= 0.999266

DL Water(mg/L)	0.01	DL Soil(mg/Kg)	
LOD Water(mg/L)	0.02	LOD Soil(mg/Kg)	
LOQ Water(mg/L)	0.1	LOQ Soil(mg/Kg)	

SOP

☑ EMAX-4500-S2D Rev. 4

Comment:

Standard / Reagent ID	Description	Conc.	Exp.Date
SW2B-27-20-07	Intermediate ICAL CCV Std (mg/L)	10	12/07/20
SW2B-27-20-08	Intermediate ICV LCS Std (mg/L)	10	12/07/20
SW1-02-03-12	MS Spike	1000	04/29/22
RW1-20-002	Reagent Water	NA	NA
NA	Sand	NA	NA
SWR1-03-02-02	Amine Sulfuric Acid	CRT RGT	09/01/21
SWR1-02-24-05	Ferric Chloride (%)	100	05/01/22
SWP1-57-13-03	Diammonium Phosphate	Mixed	08/05/21
SWP1-53-31-03	Sulfuric Acid,%	50	03/03/21
HC904495	pH strip	0-14	10/28/30

Standard Prep	Intermediate Std Aliquot (mg/L)	Final Vol (ml)	DateTime
S0	0	7.5	12/7/20 12:17
S1	0.075	7.5	12/7/20 12:17
S2	0.15	7.5	12/7/20 12:17
S3	0.3	7.5	12/7/20 12:17
S4	0.6	7.5	12/7/20 12:17
S5	0.75	7.5	12/7/20 12:17
S6	0.9	7.5	12/7/20 12:17
LCS	0.45	7.5	12/7/20 12:17
ICV	0.45	7.5	12/7/20 12:17
CCV	0.45	7.5	12/7/20 12:17
MS	0.009	15	12/7/20 12:17

Balance ID: NA

Micropipette ID: 442781364 339362002 942754082 539330061

Expected Sample Amount (ml): 7.5

Snapseal Lot | 1.5oz | 4oz | 10oz |:	21520008	28619010	23620008

Analyzed by: NHando

Reviewed by: NH
Date: 12/09/20

DataFileID	LabSampleID	Result	Flag	RUnit	SampleAmt	SUnit	PDateTime	FinalVol (ml)	WL	Abs	ADateTime	Sample Bkgnd	DF	%M	Conc.	DFxPrep Factor	Notes	Analyst	ph check	Coloring Time
20SFL00110	SFL001WB	ND		mg/L	7.5	ml	NA	7.5	664NM	0.001	12/7/20 13:23	0	1		-0.00553	1		NHando		12/7/20 13:11
20SFL00111	SFL001WL	0.588		mg/L	7.5	ml	NA	7.5	664NM	0.378	12/7/20 13:24	0	1		0.587544	1		NHando		12/7/20 13:11
20SFL00112	SFL001WC	0.588		mg/L	7.5	ml	NA	7.5	664NM	0.378	12/7/20 13:24	0	1		0.587544	1		NHando		12/7/20 13:11
20SFL00113	L042-01	ND		mg/L	7.5	ml	NA	7.5	664NM	0.005	12/7/20 13:25	0	1		0.000766	1		NHando	>9	12/7/20 13:11
20SFL00114	L042-01D	ND		mg/L	7.5	ml	NA	7.5	664NM	0.005	12/7/20 13:25	0	1		0.000766	1		NHando	>9	12/7/20 13:11
20SFL00115	L042-01M	0.6		mg/L	7.5	ml	NA	7.5	664NM	0.386	12/7/20 13:25	0	1		0.600129	1		NHando	>9	12/7/20 13:11
20SFL00116	L042-01S	0.597		mg/L	7.5	ml	NA	7.5	664NM	0.384	12/7/20 13:25	0	1		0.596983	1		NHando	>9	12/7/20 13:11
20SFL00117	L042-02	0.0464	J	mg/L	7.5	ml	NA	7.5	664NM	0.037	12/7/20 13:25	0.003	1		0.046386	1		NHando	>9	12/7/20 13:11
20SFL00118	L439-01	1.542	DR	mg/L	7.5	ml	NA	7.5	664NM	0.985	12/7/20 13:25	0	1		1.542435	1		NHando	>9	12/7/20 13:11
20SFL00119	L439-02	0.059	J	mg/L	7.5	ml	NA	7.5	664NM	0.042	12/7/20 13:25	0	1		0.058972	1		NHando	>9	12/7/20 13:11
20SFL00120	CCV1	0.588		mg/L	7.5	ml	NA	7.5	664NM	0.378	12/7/20 13:25	0	1		0.587544	1		NHando		12/7/20 13:11
20SFL00121	CCB1	ND		mg/L	7.5	ml	NA	7.5	664NM	0	12/7/20 13:26	0	1		-0.0071	1		NHando		12/7/20 13:11
20SFL00122	L439-03	ND		mg/L	7.5	ml	NA	7.5	664NM	0.008	12/7/20 13:26	0	1		0.005485	1		NHando	>9	12/7/20 13:11
20SFL00123	L439-04	0.117		mg/L	7.5	ml	NA	7.5	664NM	0.079	12/7/20 13:26	0	1		0.117177	1		NHando	>9	12/7/20 13:11
20SFL00124	L441-01	0.13		mg/L	7.5	ml	NA	7.5	664NM	0.087	12/7/20 13:26	0	1		0.129762	1		NHando	>9	12/7/20 13:11
20SFL00125	CCV2	0.597		mg/L	7.5	ml	NA	7.5	664NM	0.384	12/7/20 13:26	0	1		0.596983	1		NHando		12/7/20 13:11
20SFL00126	CCB2	ND		mg/L	7.5	ml	NA	7.5	664NM	0	12/7/20 13:26	0	1		-0.0071	1		NHando		12/7/20 13:11
20SFL00127	L439-01I	1.634		mg/L	3.75	ml	NA	7.5	664NM	0.524	12/7/20 14:18	0	1		1.634442	2		NHando		12/7/20 14:05
20SFL00128	CCV3	0.588		mg/L	7.5	ml	NA	7.5	664NM	0.378	12/7/20 14:19	0	1		0.587544	1		NHando		12/7/20 14:05
20SFL00129	CCB3	ND		mg/L	7.5	ml	NA	7.5	664NM	0	12/7/20 14:19	0	1		-0.0071	1		NHando		12/7/20 14:05

Reviewed by: NH
Date: 12/09/20

LAB QC CHECK

DataFileID	LabSampleID	Result	Expected Value	QC Result
20SFL00110	SFL001WB	ND	ND	MB Passed
20SFL00111	SFL001WL	0.588	0.6	%R=98
20SFL00112	SFL001WC	0.588	0.6	%R=98

MS CHECK

DataFileID	LabSampleID	Result	Expected Value	QC Result
20SFL00113	L042-01	ND	0	RPD=1
20SFL00115	L042-01M	0.6	0.6	%R=100
20SFL00116	L042-01S	0.597	0.6	%R=100

DUP CHECK

DataFileID	LabSampleID	Result	Expected Value	RPD
20SFL00113	L042-01	ND	0	0
20SFL00114	L042-01D	ND		

Reviewed by: NH
Date: 12/09/20

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20L042

METHOD SM5310-B
TOC

A total of two(2) water samples were received on 12/04/20 to be analyzed for TOC in accordance with Method SM5310-B and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. TCL005WB - TOC was detected at trace level(0.428J) but <1/2 of LOQ. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. TCL005WL/TCL005WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. TOC was within MS QC limits in L042-02M/L042-02S. Sample duplicate was analyzed and RPD was within expected value. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM5310-B
TOC

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20L042

Matrix : WATER
InstrumentID : 62

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DIL'N FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	TCL005WB	0.428J	1	NA	1.00	0.250	0.500	12/11/2006:52	NA	TCL003-40	TCL003-38	TCL005W	NA	NA
LCS1W	TCL005WL	25.2	1	NA	1.00	0.250	0.500	12/11/2007:07	NA	TCL003-41	TCL003-38	TCL005W	NA	NA
LCD1W	TCL005WC	25.3	1	NA	1.00	0.250	0.500	12/11/2007:23	NA	TCL003-42	TCL003-38	TCL005W	NA	NA
SS003-3-MW-55(120120)	L042-01	8.97	1	NA	1.00	0.250	0.500	12/11/2011:19	NA	TCL003-57	TCL003-50	TCL005W	12/01/2013:20	12/04/20
SS003-3-MW-57(120120)	L042-02	8.17	1	NA	1.00	0.250	0.500	12/11/2011:34	NA	TCL003-58	TCL003-50	TCL005W	12/03/2008:46	12/04/20
SS003-3-MW-57(120120)DUP	L042-02D	8.42	1	NA	1.00	0.250	0.500	12/11/2011:49	NA	TCL003-59	TCL003-50	TCL005W	12/03/2008:46	12/04/20
SS003-3-MW-57(120120)MS	L042-02M	32.6	1	NA	1.00	0.250	0.500	12/11/2012:04	NA	TCL003-60	TCL003-50	TCL005W	12/03/2008:46	12/04/20
SS003-3-MW-57(120120)MSD	L042-02S	33.1	1	NA	1.00	0.250	0.500	12/11/2012:19	NA	TCL003-61	TCL003-50	TCL005W	12/03/2008:46	12/04/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L042
METHOD : SM5310-B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: TCL005WB	TCL005WL	TCL005WC
LAB FILE ID	: TCL003-40	TCL003-41	TCL003-42
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 12/11/2006:52	12/11/2007:07	12/11/2007:23
PREP BATCH	: TCL005W	TCL005W	TCL005W
CALIBRATION REF	: TCL003-38	TCL003-38	TCL003-38

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
TOC	0.428J	25.0	25.2	101	25.0	25.3	101	0	80-120	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L042
METHOD : SM5310-B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: SS003-3-MW-57(120120)	SS003-3-MW-57(120120)MS	SS003-3-MW-57(120120)MSD
LAB SAMPLE ID	: L042-02	L042-02M	L042-02S
LAB FILE ID	: TCL003-58	TCL003-60	TCL003-61
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 12/11/2011:34	12/11/2012:04	12/11/2012:19
PREP BATCH	: TCL005W	TCL005W	TCL005W
CALIBRATION REF	: TCL003-50	TCL003-50	TCL003-50

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
TOC	8.17	25.0	32.6	98	25.0	33.1	100	2	80-120	20

PS: Parent Sample MS: Matrix Spike MSD: Matrix Spike Duplicate

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L042
METHOD : SM5310-B

MATRIX	: WATER	
DILUTION FACTOR	: 1	1
SAMPLE ID	: SS003-3-MW-57(120120)	SS003-3-MW-57(120120)DUP
LAB SAMPLE ID	: L042-02	L042-02D
LAB FILE ID	: TCL003-58	TCL003-59
DATE PREPARED	: NA	NA
DATE ANALYZED	: 12/11/2011:34	12/11/2011:49
PREP BATCH	: TCL005W	TCL005W
CALIBRATION REF	: TCL003-50	TCL003-50

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
TOC	8.17	8.42	3	20

	Date	Time
Start	12/10/20	18:32
End	12/11/20	14:29

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

☐ Sample was filtered. Filter ID: NA

Comments: TCL004W: 20L014
20L015
20L019
TCL005W: 20L019
20L042
20L062

Dilution prep values can be found in comments section of results table. —MA 12/11/20

Reagent Water ID #: RW1·20·002

pH Strips Lot #: HC904495

2 M HCl SWP1·55·26·02

Book #: A62-040

Instrument No.: 62

Micropipette ID: ☑ 439350020

Micropipette ID: ☑ 539360056

Micropipette ID: ☑ 642780221

Micropipette ID: ☐

Analytical Sequence: TCL003

Method File: TCL003

Analytical Batch: TCL004W/TCL005W

SOP #	Rev. #
☑ EMAX-5310B	4
☑ EMAX-9060	4
☐ EMAX-	

STANDARDS ID		CONC. (mg/L)
S0	RW1·20·002	0
S1	SW7B·01·22·03	1
S2	↓	5
S3		10
S4		40
S5		80
S6	—	—
ICV/LCS	SW7B-01·22·04	25
CCV	SW7B·01·22·05	25
	—	—

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ TOC	
☐	

Analyzed By: —MA

Date: 12/11/20

	Type	Analysi	Sample Name	Sample ID	Dilutio	Result	Comment
1	Standard	NPOC	ICAL - Instrum	TCL003-01	1.000		TOC METHOD 9060/5310B
2	Control	NPOC	ICV	TCL003-02	1.000	NPOC:25.68 mg/L	
3	Unknown	NPOC	ICB	TCL003-03	1.000	NPOC:0.4130 mg/L	
4	Unknown	NPOC	HCO3/CO3	TCL003-04	1.000	NPOC:0.3140 mg/L	
5	Unknown	NPOC	TCL004WB	TCL003-05	1.000	NPOC:0.1333 mg/L	
6	Unknown	NPOC	TCL004WL	TCL003-06	1.000	NPOC:25.22 mg/L	
7	Unknown	NPOC	TCL004WC	TCL003-07	1.000	NPOC:25.25 mg/L	
8	Unknown	NPOC	L014-01	TCL003-08	1.000	NPOC:1.410 mg/L	PH<2
9	Unknown	NPOC	L014-02	TCL003-09	1.000	NPOC:1.665 mg/L	PH<2
10	Unknown	NPOC	L014-03	TCL003-10	1.000	NPOC:1.006 mg/L	PH<2
11	Unknown	NPOC	L014-05	TCL003-11	1.000	NPOC:0.9868 mg/L	PH<2
12	Unknown	NPOC	L014-06	TCL003-12	1.000	NPOC:0.8644 mg/L	PH<2
13	Unknown	NPOC	L014-07	TCL003-13	1.000	NPOC:1.627 mg/L	PH<2
14	Control	NPOC	CCV1	TCL003-14	1.000	NPOC:25.04 mg/L	
15	Unknown	NPOC	CCB1	TCL003-15	1.000	NPOC:0.1530 mg/L	
16	Unknown	NPOC	L014-08	TCL003-16	1.000	NPOC:2.556 mg/L	PH<2
17	Unknown	NPOC	L014-09	TCL003-17	1.000	NPOC:1.670 mg/L	PH<2
18	Unknown	NPOC	L015-03	TCL003-18	1.000	NPOC:13.48 mg/L	PH<2
19	Unknown	NPOC	L015-04	TCL003-19	1.000	NPOC:1.865 mg/L	PH<2
20	Unknown	NPOC	L015-04D	TCL003-20	1.000	NPOC:1.892 mg/L	PH<2
21	Unknown	NPOC	L015-04M	TCL003-21	1.000	NPOC:25.98 mg/L	PH<2
22	Unknown	NPOC	L015-04S	TCL003-22	1.000	NPOC:24.83 mg/L	PH<2
23	Unknown	NPOC	L015-05	TCL003-23	1.000	NPOC:2.329 mg/L	PH<2
24	Unknown	NPOC	L015-10	TCL003-24	1.000	NPOC:1.712 mg/L	PH<2
25	Unknown	NPOC	L015-11I	TCL003-25	3.000	NPOC:10.11 mg/L	DF=3, SUDS, PH<2
26	Control	NPOC	CCV2	TCL003-26	1.000	NPOC:24.74 mg/L	
27	Unknown	NPOC	CCB2	TCL003-27	1.000	NPOC:0.2396 mg/L	
28	Unknown	NPOC	L019-01	TCL003-28	1.000	NPOC:3.383 mg/L	PH<2
29	Unknown	NPOC	L019-02	TCL003-29	1.000	NPOC:1.104 mg/L	PH<2
30	Unknown	NPOC	L019-03	TCL003-30	1.000	NPOC:1.175 mg/L	PH<2
31	Unknown	NPOC	L019-04	TCL003-31	1.000	NPOC:1.297 mg/L	PH<2
32	Unknown	NPOC	L019-05	TCL003-32	1.000	NPOC:1.701 mg/L	PH<2
33	Unknown	NPOC	L019-05D	TCL003-33	1.000	NPOC:1.737 mg/L	PH<2
34	Unknown	NPOC	L019-05M	TCL003-34	1.000	NPOC:26.32 mg/L	PH<2
35	Unknown	NPOC	L019-05S	TCL003-35	1.000	NPOC:24.85 mg/L	PH<2
36	Unknown	NPOC	L019-08	TCL003-36	1.000	NPOC:1.639 mg/L	PH<2
37	Unknown	NPOC	L019-09	TCL003-37	1.000	NPOC:6.281 mg/L	PH<2
38	Control	NPOC	CCV3	TCL003-38	1.000	NPOC:25.06 mg/L	
39	Unknown	NPOC	CCB3	TCL003-39	1.000	NPOC:0.1422 mg/L	
40	Unknown	NPOC	TCL005WB	TCL003-40	1.000	NPOC:0.4278 mg/L	
41	Unknown	NPOC	TCL005WL	TCL003-41	1.000	NPOC:25.17 mg/L	
42	Unknown	NPOC	TCL005WC	TCL003-42	1.000	NPOC:25.28 mg/L	
43	Unknown	NPOC	L019-07	TCL003-43	1.000	NPOC:3.306 mg/L	PH<2
44	Unknown	NPOC	L019-07D	TCL003-44	1.000	NPOC:3.274 mg/L	PH<2
45	Unknown	NPOC	L019-07M	TCL003-45	1.000	NPOC:28.18 mg/L	PH<2
46	Unknown	NPOC	L019-07S	TCL003-46	1.000	NPOC:27.02 mg/L	PH<2
47	Unknown	NPOC	L019-10	TCL003-47	1.000	NPOC:1.807 mg/L	PH<2
48	Unknown	NPOC	L019-11	TCL003-48	1.000	NPOC:1.287 mg/L	PH<2
49	Unknown	NPOC	L019-12	TCL003-49	1.000	NPOC:1.007 mg/L	PH<2
50	Control	NPOC	CCV4	TCL003-50	1.000	NPOC:25.42 mg/L	
51	Unknown	NPOC	CCB4	TCL003-51	1.000	NPOC:0.1873 mg/L	
52	Unknown	NPOC	L019-13	TCL003-52	1.000	NPOC:5.817 mg/L	PH<2
53	Unknown	NPOC	L019-14	TCL003-53	1.000	NPOC:5.810 mg/L	PH<2
54	Unknown	NPOC	L019-15	TCL003-54	1.000	NPOC:1.770 mg/L	PH<2
55	Unknown	NPOC	L019-16	TCL003-55	1.000	NPOC:3.916 mg/L	PH<2
56	Unknown	NPOC	L019-17I	TCL003-56	3.000	NPOC:26.76 mg/L	DF=3, TURBID, PH<2
57	Unknown	NPOC	L042-01	TCL003-57	1.000	NPOC:8.972 mg/L	PH<2
58	Unknown	NPOC	L042-02	TCL003-58	1.000	NPOC:8.167 mg/L	PH<2
59	Unknown	NPOC	L042-02D	TCL003-59	1.000	NPOC:8.419 mg/L	PH<2
60	Unknown	NPOC	L042-02M	TCL003-60	1.000	NPOC:32.64 mg/L	PH<2
61	Unknown	NPOC	L042-02S	TCL003-61	1.000	NPOC:33.05 mg/L	PH<2
62	Control	NPOC	CCV5	TCL003-62	1.000	NPOC:24.97 mg/L	
63	Unknown	NPOC	CCB5	TCL003-63	1.000	NPOC:0.3197 mg/L	
64	Unknown	NPOC	L062-01	TCL003-64	1.000	NPOC:2.789 mg/L	PH<2
65	Unknown	NPOC	L062-03I	TCL003-65	3.000	NPOC:41.01 mg/L	DF=3, TURBID, PH<2
66	Unknown	NPOC	L062-15I	TCL003-66	10.00	NPOC:13.28 mg/L	DF=10, STRONG ODOR, PH<2
67	Control	NPOC	CCV6	TCL003-67	1.000	NPOC:24.88 mg/L	

	Type	Analysi	Sample Name	Sample ID	Dilutio	Result	Comment
68	Unknown	NPOC	CCB6	TCL003-68	1.000	NPOC:0.1504 mg/L	
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MB 12/11/20

FINAL

	Type	Analysi	Sample Name	Sample ID	Dilutio	Result	Comment
1	Standard	NPOC	ICAL - Instrum	TCL003-01	1.000		DF = X, ALIQUOT / FINAL VOLUME
2	Control	NPOC	ICV	TCL003-02	1.000	NPOC:25.68 mg/L	
3	Unknown	NPOC	ICB	TCL003-03	1.000	NPOC:0.4130 mg/L	
4	Unknown	NPOC	HCO3/CO3	TCL003-04	1.000	NPOC:0.3140 mg/L	
5	Unknown	NPOC	TCL004WB	TCL003-05	1.000	NPOC:0.1333 mg/L	
6	Unknown	NPOC	TCL004WL	TCL003-06	1.000	NPOC:25.22 mg/L	
7	Unknown	NPOC	TCL004WC	TCL003-07	1.000	NPOC:25.25 mg/L	
8	Unknown	NPOC	L014-01	TCL003-08	1.000	NPOC:1.410 mg/L	
9	Unknown	NPOC	L014-02	TCL003-09	1.000	NPOC:1.665 mg/L	
10	Unknown	NPOC	L014-03	TCL003-10	1.000	NPOC:1.006 mg/L	
11	Unknown	NPOC	L014-05	TCL003-11	1.000	NPOC:0.9868 mg/L	
12	Unknown	NPOC	L014-06	TCL003-12	1.000	NPOC:0.8644 mg/L	
13	Unknown	NPOC	L014-07	TCL003-13	1.000	NPOC:1.627 mg/L	
14	Control	NPOC	CCV1	TCL003-14	1.000	NPOC:25.04 mg/L	
15	Unknown	NPOC	CCB1	TCL003-15	1.000	NPOC:0.1530 mg/L	
16	Unknown	NPOC	L014-08	TCL003-16	1.000	NPOC:2.556 mg/L	
17	Unknown	NPOC	L014-09	TCL003-17	1.000	NPOC:1.670 mg/L	
18	Unknown	NPOC	L015-03	TCL003-18	1.000	NPOC:13.48 mg/L	
19	Unknown	NPOC	L015-04	TCL003-19	1.000	NPOC:1.865 mg/L	
20	Unknown	NPOC	L015-04D	TCL003-20	1.000	NPOC:1.892 mg/L	
21	Unknown	NPOC	L015-04M	TCL003-21	1.000	NPOC:25.98 mg/L	
22	Unknown	NPOC	L015-04S	TCL003-22	1.000	NPOC:24.83 mg/L	
23	Unknown	NPOC	L015-05	TCL003-23	1.000	NPOC:2.329 mg/L	
24	Unknown	NPOC	L015-10	TCL003-24	1.000	NPOC:1.712 mg/L	
25	Unknown	NPOC	L015-11	TCL003-25	3.000	NPOC:10.11 mg/L	DF=3, 5ml / 15ml
26	Control	NPOC	CCV2	TCL003-26	1.000	NPOC:24.74 mg/L	
27	Unknown	NPOC	CCB2	TCL003-27	1.000	NPOC:0.2396 mg/L	
28	Unknown	NPOC	L019-01	TCL003-28	1.000	NPOC:3.383 mg/L	
29	Unknown	NPOC	L019-02	TCL003-29	1.000	NPOC:1.104 mg/L	
30	Unknown	NPOC	L019-03	TCL003-30	1.000	NPOC:1.175 mg/L	
31	Unknown	NPOC	L019-04	TCL003-31	1.000	NPOC:1.297 mg/L	
32	Unknown	NPOC	L019-05	TCL003-32	1.000	NPOC:1.701 mg/L	
33	Unknown	NPOC	L019-05D	TCL003-33	1.000	NPOC:1.737 mg/L	
34	Unknown	NPOC	L019-05M	TCL003-34	1.000	NPOC:26.32 mg/L	
35	Unknown	NPOC	L019-05S	TCL003-35	1.000	NPOC:24.85 mg/L	
36	Unknown	NPOC	L019-08	TCL003-36	1.000	NPOC:1.639 mg/L	
37	Unknown	NPOC	L019-09	TCL003-37	1.000	NPOC:6.281 mg/L	
38	Control	NPOC	CCV3	TCL003-38	1.000	NPOC:25.06 mg/L	
39	Unknown	NPOC	CCB3	TCL003-39	1.000	NPOC:0.1422 mg/L	
40	Unknown	NPOC	TCL005WB	TCL003-40	1.000	NPOC:0.4278 mg/L	
41	Unknown	NPOC	TCL005WL	TCL003-41	1.000	NPOC:25.17 mg/L	
42	Unknown	NPOC	TCL005WC	TCL003-42	1.000	NPOC:25.28 mg/L	
43	Unknown	NPOC	L019-07	TCL003-43	1.000	NPOC:3.306 mg/L	
44	Unknown	NPOC	L019-07D	TCL003-44	1.000	NPOC:3.274 mg/L	
45	Unknown	NPOC	L019-07M	TCL003-45	1.000	NPOC:28.18 mg/L	
46	Unknown	NPOC	L019-07S	TCL003-46	1.000	NPOC:27.02 mg/L	
47	Unknown	NPOC	L019-10	TCL003-47	1.000	NPOC:1.807 mg/L	
48	Unknown	NPOC	L019-11	TCL003-48	1.000	NPOC:1.287 mg/L	
49	Unknown	NPOC	L019-12	TCL003-49	1.000	NPOC:1.007 mg/L	
50	Control	NPOC	CCV4	TCL003-50	1.000	NPOC:25.42 mg/L	
51	Unknown	NPOC	CCB4	TCL003-51	1.000	NPOC:0.1873 mg/L	
52	Unknown	NPOC	L019-13	TCL003-52	1.000	NPOC:5.817 mg/L	
53	Unknown	NPOC	L019-14	TCL003-53	1.000	NPOC:5.810 mg/L	
54	Unknown	NPOC	L019-15	TCL003-54	1.000	NPOC:1.770 mg/L	
55	Unknown	NPOC	L019-16	TCL003-55	1.000	NPOC:3.916 mg/L	
56	Unknown	NPOC	L019-17	TCL003-56	3.000	NPOC:26.76 mg/L	DF=3, 5ml / 15ml
57	Unknown	NPOC	L042-01	TCL003-57	1.000	NPOC:8.972 mg/L	
58	Unknown	NPOC	L042-02	TCL003-58	1.000	NPOC:8.167 mg/L	
59	Unknown	NPOC	L042-02D	TCL003-59	1.000	NPOC:8.419 mg/L	
60	Unknown	NPOC	L042-02M	TCL003-60	1.000	NPOC:32.64 mg/L	
61	Unknown	NPOC	L042-02S	TCL003-61	1.000	NPOC:33.05 mg/L	
62	Control	NPOC	CCV5	TCL003-62	1.000	NPOC:24.97 mg/L	
63	Unknown	NPOC	CCB5	TCL003-63	1.000	NPOC:0.3197 mg/L	
64	Unknown	NPOC	L062-01	TCL003-64	1.000	NPOC:2.789 mg/L	
65	Unknown	NPOC	L062-03	TCL003-65	3.000	NPOC:41.01 mg/L	DF=3, 5ml/ 15ml
66	Unknown	NPOC	L062-15	TCL003-66	10.00	NPOC:13.28 mg/L	DF=10, 1.5ml / 15ml
67	Control	NPOC	CCV6	TCL003-67	1.000	NPOC:24.88 mg/L	

	Type	Analysi	Sample Name	Sample ID	Dilutio	Result	Comment
68	Unknown	NPOC	CCB6	TCL003-68	1.000	NPOC:0.1504 mg/L	
69							
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75							
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99							
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YA 12/11/20

FINAL

Instr.Information

System	TOC-9060/415.1/5310B
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

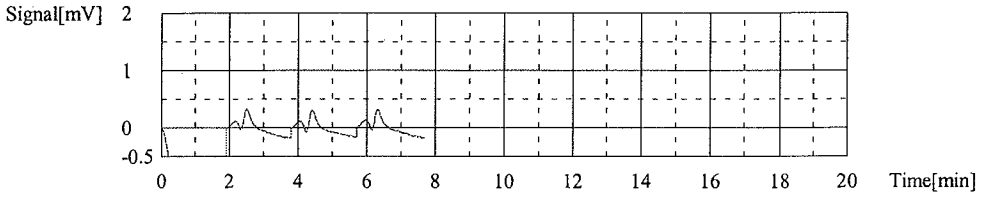
Sample Name:	ICAL - Instrument 62
Sample ID:	TCL003-01
Cal. Curve:	TCL003.2020_12_10_18_24_29.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.5103	50uL	1	*******		12/10/20 06:32:52 PM
2	0.6437	50uL	1	*******		12/10/20 06:34:57 PM
3	0.5829	50uL	1	*******		12/10/20 06:37:01 PM
4	0.8359	50uL	1	*******		12/10/20 06:39:10 PM

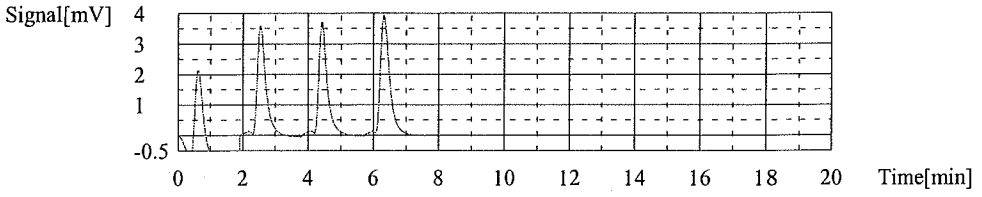
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 0.6432



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	4.947	50uL	1	*******		12/10/20 06:47:44 PM
2	6.856	50uL	1	*******		12/10/20 06:49:49 PM
3	6.663	50uL	1	*******		12/10/20 06:51:53 PM
4	7.649	50uL	1	*******		12/10/20 06:53:57 PM

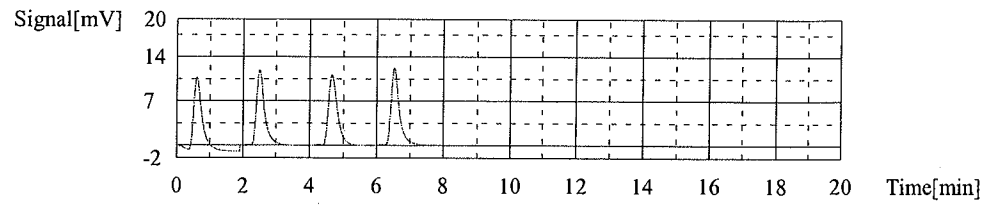
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 6.529



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	19.86	50uL	1	*******		12/10/20 07:02:31 PM
2	21.48	50uL	1	*******		12/10/20 07:04:48 PM
3	21.40	50uL	1	*******		12/10/20 07:06:53 PM
4	21.69	50uL	1	*******		12/10/20 07:08:57 PM

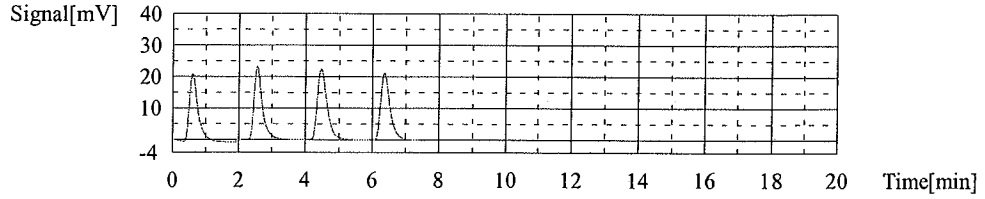
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 21.11



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	39.70	50uL	1	*******		12/10/20 07:17:34 PM
2	42.27	50uL	1	*******		12/10/20 07:19:39 PM
3	46.47	50uL	1	*******		12/10/20 07:21:43 PM
4	42.91	50uL	1	*******		12/10/20 07:23:48 PM

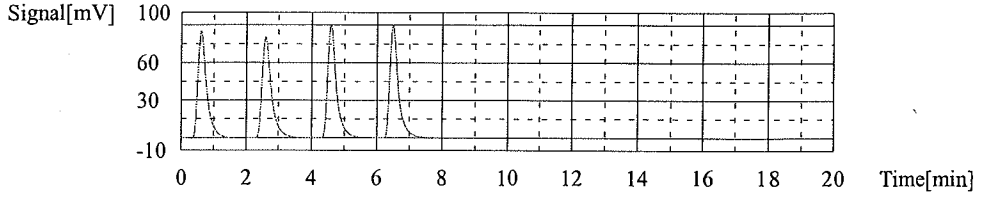
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 42.84



Conc: 40.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	165.4	50uL	1	*******		12/10/20 07:32:30 PM
2	166.7	50uL	1	*******		12/10/20 07:34:40 PM
3	169.1	50uL	1	*******		12/10/20 07:36:44 PM
4	167.3	50uL	1	*******		12/10/20 07:38:52 PM

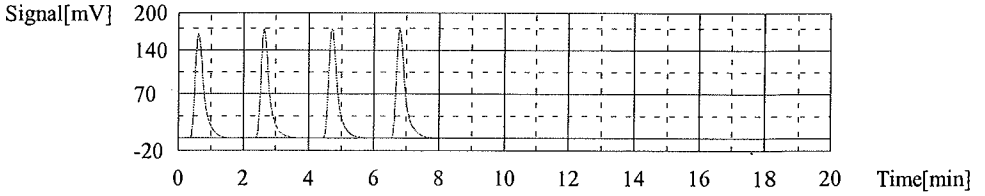
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 167.1



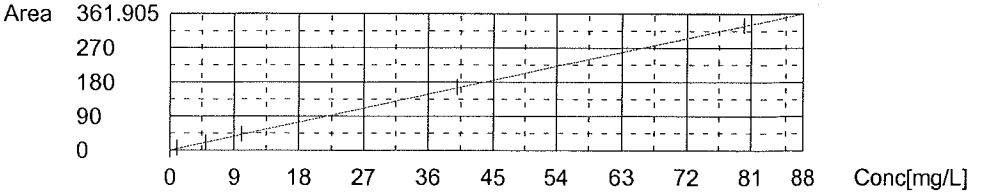
Conc: 80.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	325.0	50uL	1	*******		12/10/20 07:47:36 PM
2	327.0	50uL	1	*******		12/10/20 07:49:50 PM
3	335.2	50uL	1	*******		12/10/20 07:52:07 PM
4	332.5	50uL	1	*******		12/10/20 07:54:18 PM

Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 329.9



Slope: 4.113
Intercept 0.000
r^2 0.999952



Control Sample

Sample Name: ICV
Sample ID: TCL003-02
Method: TCL003.tpl
Chk. Result Control value: 25.68 / Control exceeds range!

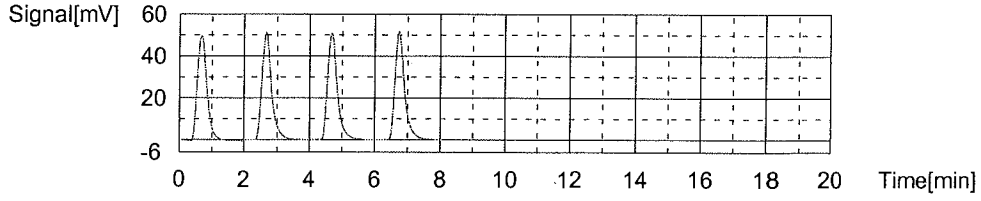
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:25.68 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	104.3	25.36mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 08:03:07 PM
2	104.9	25.51mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 08:05:18 PM
3	107.2	26.07mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 08:07:33 PM
4	106.0	25.77mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 08:09:40 PM

Mean Area 105.6
Mean Conc. 25.68mg/L



Sample

Sample Name: ICB
Sample ID: TCL003-03
Origin: TCL003.cal
Chk. Result

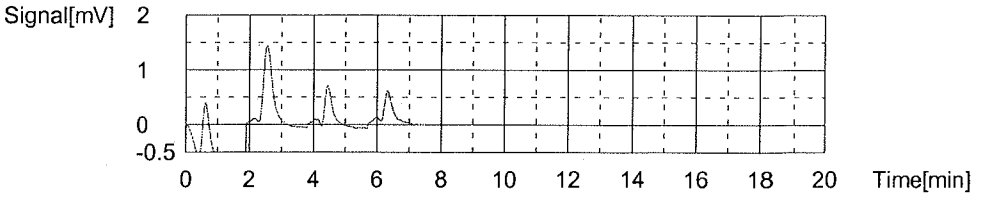
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4130 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.526	0.3711mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 08:18:18 PM
2	2.924	0.7110mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 08:20:22 PM
3	1.257	0.3056mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 08:22:27 PM
4	1.087	0.2643mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 08:24:31 PM

Mean Area 1.699
Mean Conc. 0.4130mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCL003-04
Origin: TCL003.cal
Chk. Result

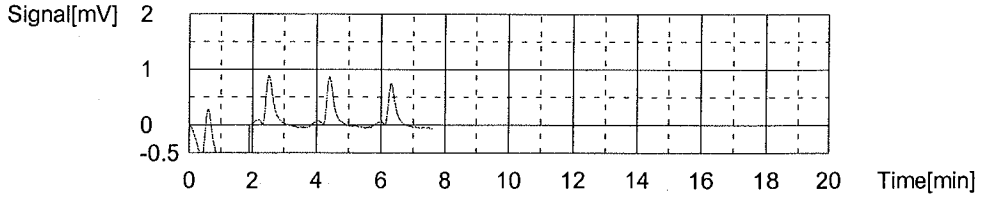
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.3140 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.027	0.2497mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 08:45:53 PM
2	1.547	0.3762mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 08:47:57 PM
3	1.252	0.3044mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 08:50:02 PM
4	1.340	0.3258mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 08:52:06 PM

Mean Area 1.292
Mean Conc. 0.3140mg/L



Sample

Sample Name: TCL004WB
Sample ID: TCL003-05
Origin: TCL003.cal
Chk. Result

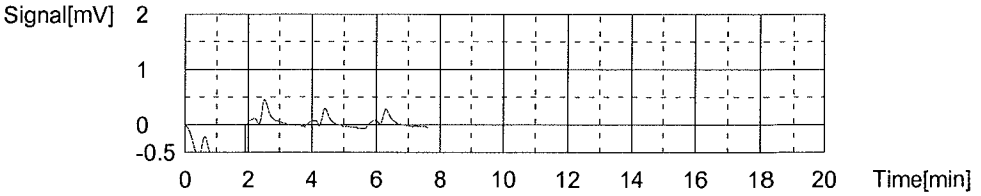
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1333 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5193	0.1263mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 09:13:27 PM
2	0.7534	0.1832mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 09:15:31 PM
3	0.5395	0.1312mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 09:17:35 PM
4	0.3801	0.09242mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 09:19:40 PM

Mean Area 0.5481
Mean Conc. 0.1333mg/L



Sample

Sample Name: TCL004WL
Sample ID: TCL003-06
Origin: TCL003.cal
Chk. Result

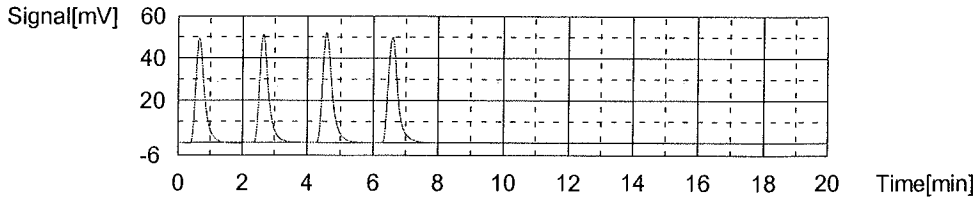
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:25.22 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	99.24	24.13mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 09:28:20 PM
2	104.3	25.36mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 09:30:27 PM
3	106.1	25.80mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 09:32:36 PM
4	105.2	25.58mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 09:34:49 PM

Mean Area 103.7
Mean Conc. 25.22mg/L



Sample

Sample Name: TCL004WC
Sample ID: TCL003-07
Origin: TCL003.cal
Chk. Result

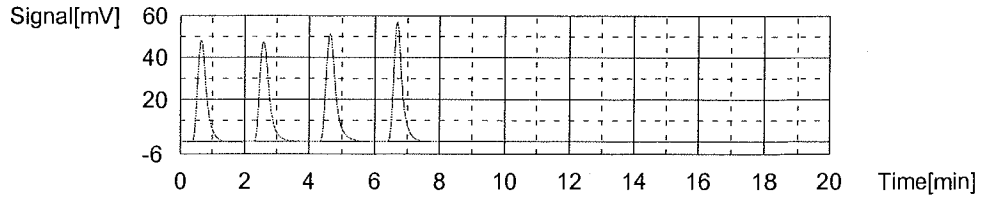
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:25.25 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	98.53	23.96mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 09:43:26 PM
2	104.1	25.31mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 09:45:38 PM
3	106.8	25.97mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 09:47:52 PM
4	106.0	25.77mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 09:49:58 PM

Mean Area 103.9
Mean Conc. 25.25mg/L



Sample

Sample Name: L014-01
Sample ID: TCL003-08
Origin: TCL003.cal
Chk. Result

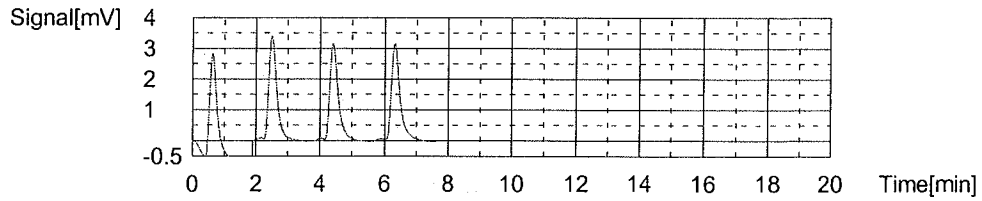
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.410 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.453	1.326mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 09:58:33 PM
2	6.056	1.473mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:00:37 PM
3	5.877	1.429mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:02:41 PM
4	5.810	1.413mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:04:45 PM

Mean Area 5.799
Mean Conc. 1.410mg/L



Sample

Sample Name: L014-02
Sample ID: TCL003-09
Origin: TCL003.cal
Chk. Result

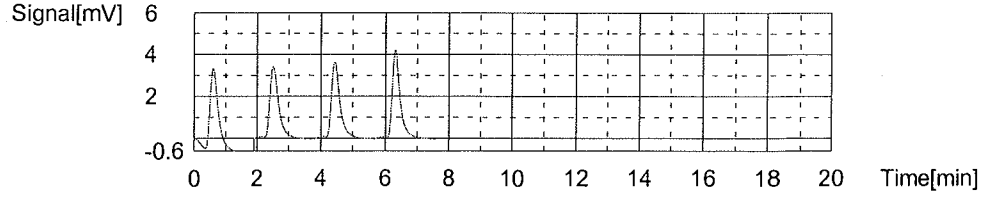
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.665 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.658	1.619mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:13:21 PM
2	6.609	1.607mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:15:25 PM
3	6.836	1.662mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:17:29 PM
4	7.287	1.772mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:19:34 PM

Mean Area 6.848
Mean Conc. 1.665mg/L



Sample

Sample Name: L014-03
Sample ID: TCL003-10
Origin: TCL003.cal
Chk. Result

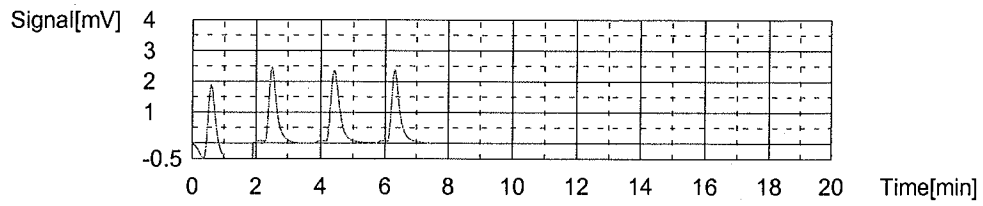
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.006 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3.978	0.9673mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:28:09 PM
2	3.953	0.9612mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:30:13 PM
3	4.174	1.015mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:32:17 PM
4	4.447	1.081mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:34:21 PM

Mean Area 4.138
Mean Conc. 1.006mg/L



Sample

Sample Name: L014-05
Sample ID: TCL003-11
Origin: TCL003.cal
Chk. Result

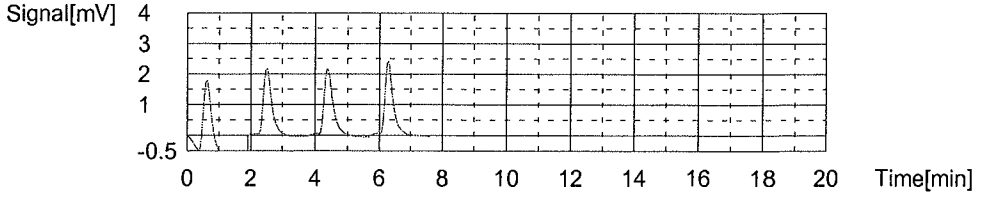
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.9868 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.016	0.9765mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:42:57 PM
2	4.011	0.9753mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:45:01 PM
3	3.964	0.9639mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:47:05 PM
4	4.242	1.031mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:49:09 PM

Mean Area 4.058
Mean Conc. 0.9868mg/L



Sample

Sample Name: L014-06
Sample ID: TCL003-12
Origin: TCL003.cal
Chk. Result

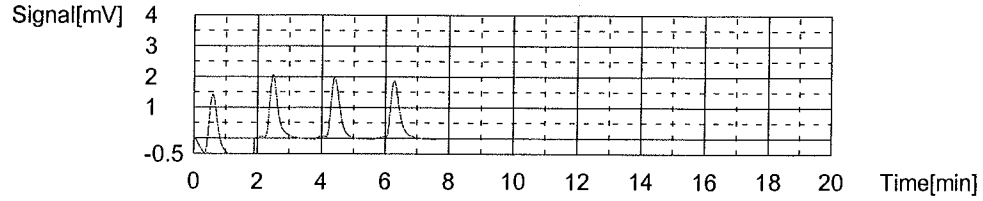
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.8644 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3.474	0.8447mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:57:44 PM
2	3.534	0.8593mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 10:59:49 PM
3	3.565	0.8669mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:01:53 PM
4	3.646	0.8866mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:03:57 PM

Mean Area 3.555
Mean Conc. 0.8644mg/L



Sample

Sample Name: L014-07
Sample ID: TCL003-13
Origin: TCL003.cal
Chk. Result

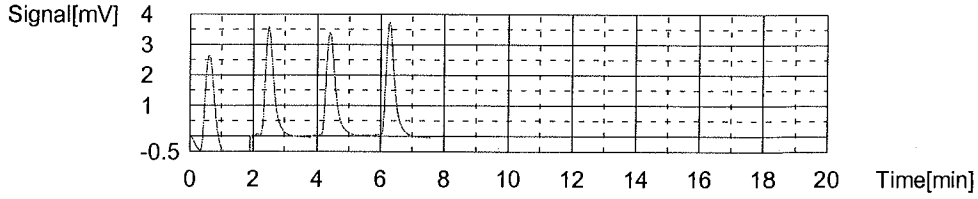
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.627 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.327	1.538mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:12:32 PM
2	6.810	1.656mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:14:37 PM
3	6.613	1.608mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:16:41 PM
4	7.008	1.704mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:18:45 PM

Mean Area 6.689
Mean Conc. 1.627mg/L



Control Sample

Sample Name: CCV1
Sample ID: TCL003-14
Method: TCL003.tpl
Chk. Result Control value: 25.04 / Control exceeds range!

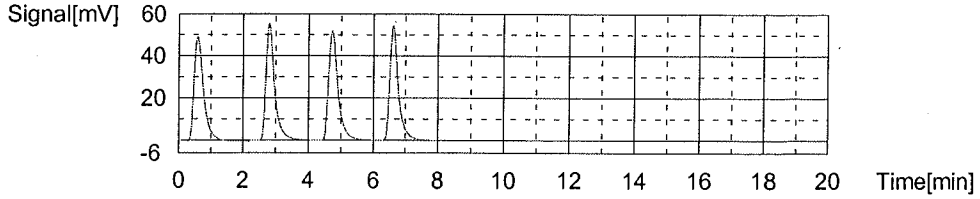
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:25.04 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	101.2	24.61mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:27:39 PM
2	102.9	25.02mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:29:44 PM
3	104.8	25.48mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:31:48 PM
4	103.0	25.05mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:33:54 PM

Mean Area 103.0
Mean Conc. 25.04mg/L



Sample

Sample Name: CCB1
Sample ID: TCL003-15
Origin: TCL003.cal
Chk. Result

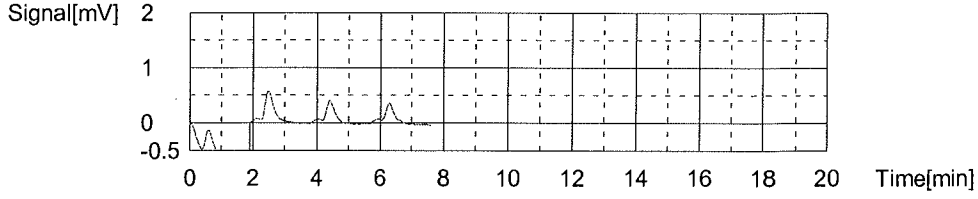
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1530 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5155	0.1253mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:42:29 PM
2	0.8765	0.2131mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:44:34 PM
3	0.6036	0.1468mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:46:38 PM
4	0.5214	0.1268mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/10/20 11:48:42 PM

Mean Area 0.6292
Mean Conc. 0.1530mg/L



Sample

Sample Name: L014-08
Sample ID: TCL003-16
Origin: TCL003.cal
Chk. Result

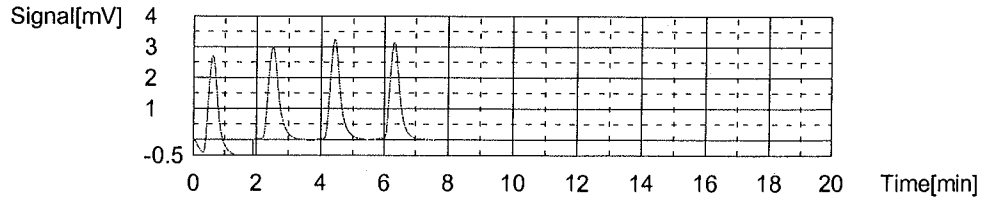
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:2.556 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.556	1.594mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 05:21:03 AM
2	6.702	1.630mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 05:23:07 AM
3	6.881	1.673mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 05:25:12 AM
4	6.822	1.659mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 05:27:16 AM

Mean Area 6.740
Mean Conc. 1.639mg/L



Sample

Sample Name: L019-09
Sample ID: TCL003-37
Origin: TCL003.cal
Chk. Result

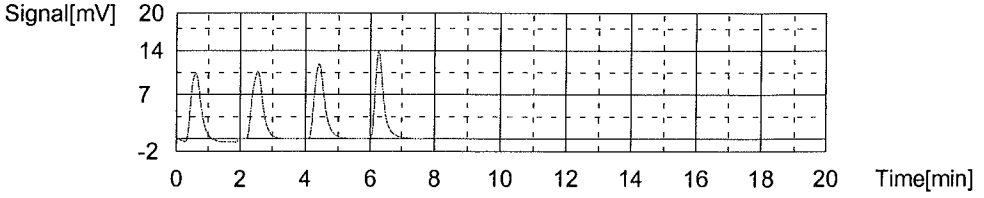
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:6.281 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	24.89	6.052mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 05:35:52 AM
2	25.61	6.227mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 05:37:56 AM
3	26.41	6.422mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 05:40:01 AM
4	26.41	6.422mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 05:42:08 AM

Mean Area 25.83
Mean Conc. 6.281mg/L



Control Sample

Sample Name: CCV3
Sample ID: TCL003-38
Method: TCL003.tpl
Chk. Result Control value: 25.06 / Control exceeds range!

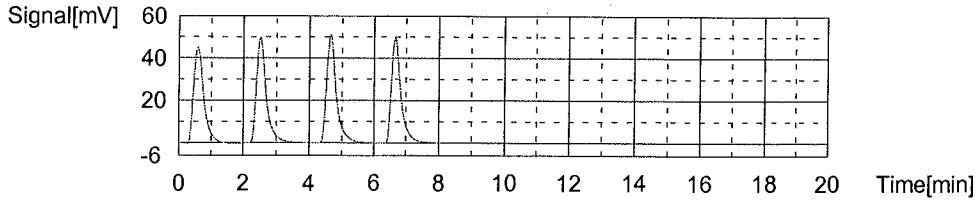
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:25.06 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	100.5	24.44mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 05:50:45 AM
2	102.8	25.00mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 05:53:01 AM
3	105.8	25.73mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 05:55:14 AM
4	103.2	25.09mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 05:57:23 AM

Mean Area 103.1
Mean Conc. 25.06mg/L



Sample

Sample Name: CCB3
Sample ID: TCL003-39
Origin: TCL003.cal
Chk. Result

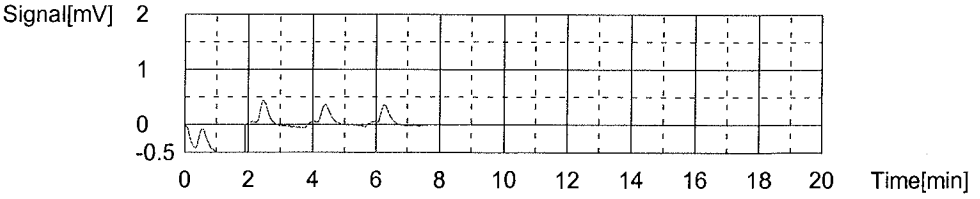
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1422 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5657	0.1376mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 06:18:45 AM
2	0.6635	0.1613mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 06:20:49 AM
3	0.5619	0.1366mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 06:22:54 AM
4	0.5489	0.1335mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 06:24:58 AM

Mean Area 0.5850
Mean Conc. 0.1422mg/L



Sample

Sample Name: TCL005WB
Sample ID: TCL003-40
Origin: TCL003.cal
Chk. Result

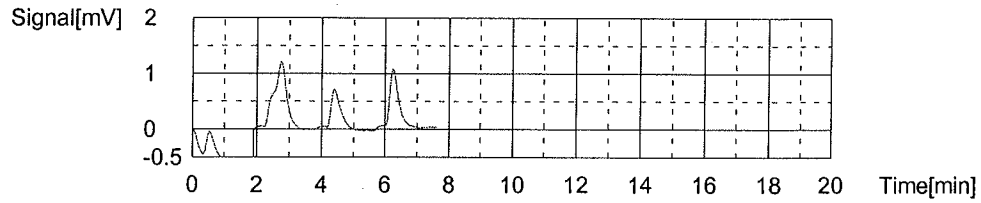
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4278 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5909	0.1437mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 06:46:20 AM
2	3.179	0.7730mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 06:48:24 AM
3	1.349	0.3280mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 06:50:28 AM
4	1.919	0.4666mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 06:52:33 AM

Mean Area 1.759
Mean Conc. 0.4278mg/L



Sample

Sample Name: TCL005WL
Sample ID: TCL003-41
Origin: TCL003.cal
Chk. Result

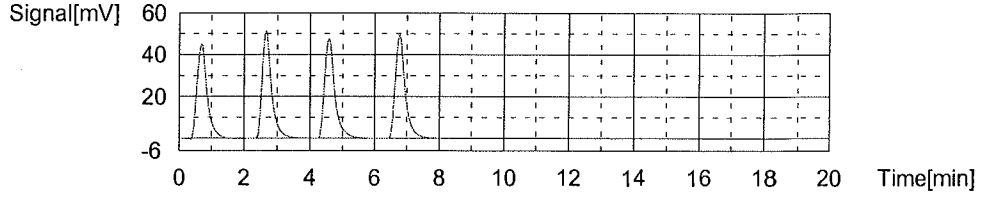
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:25.17 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	102.0	24.80mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:01:16 AM
2	102.3	24.88mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:03:20 AM
3	104.6	25.43mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:05:41 AM
4	105.2	25.58mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:07:47 AM

Mean Area 103.5
Mean Conc. 25.17mg/L



Sample

Sample Name: TCL005WC
Sample ID: TCL003-42
Origin: TCL003.cal
Chk. Result

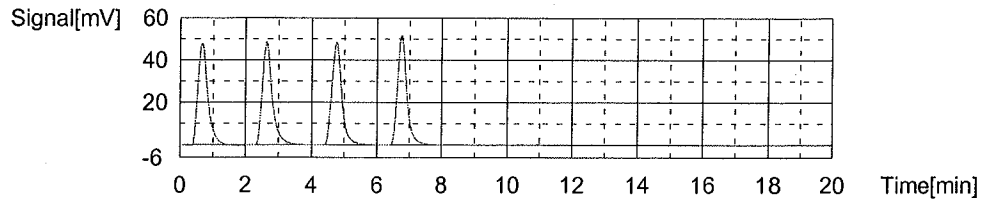
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:25.28 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	102.3	24.88mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:16:26 AM
2	104.1	25.31mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:18:41 AM
3	104.5	25.41mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:20:52 AM
4	104.9	25.51mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:23:02 AM

Mean Area 104.0
Mean Conc. 25.28mg/L



Sample

Sample Name: L019-07
Sample ID: TCL003-43
Origin: TCL003.cal
Chk. Result

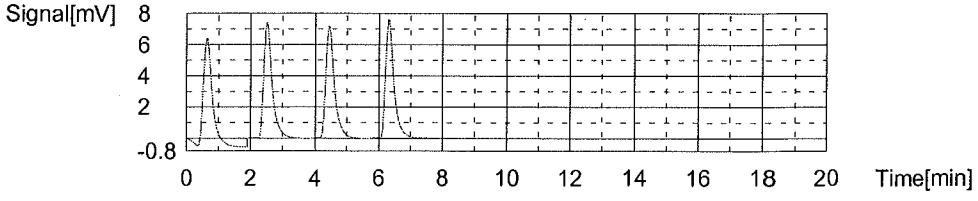
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:3.306 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	13.08	3.181mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:31:38 AM
2	13.54	3.292mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:33:42 AM
3	13.89	3.377mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:35:46 AM
4	13.88	3.375mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:37:51 AM

Mean Area 13.60
Mean Conc. 3.306mg/L



Sample

Sample Name: L019-07D
Sample ID: TCL003-44
Origin: TCL003.cal
Chk. Result

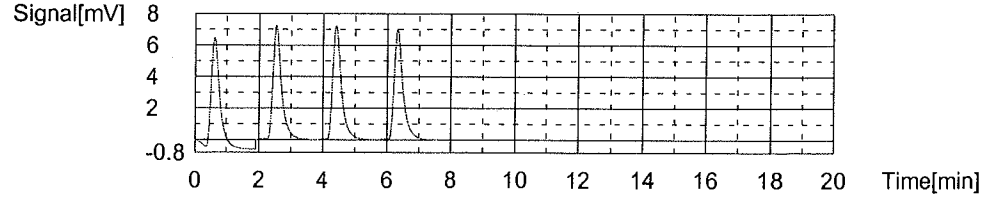
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:3.274 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	12.70	3.088mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:46:26 AM
2	13.63	3.314mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:48:31 AM
3	13.88	3.375mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:50:35 AM
4	13.64	3.317mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 07:52:40 AM

Mean Area 13.46
Mean Conc. 3.274mg/L



Sample

Sample Name: L019-07M
Sample ID: TCL003-45
Origin: TCL003.cal
Chk. Result

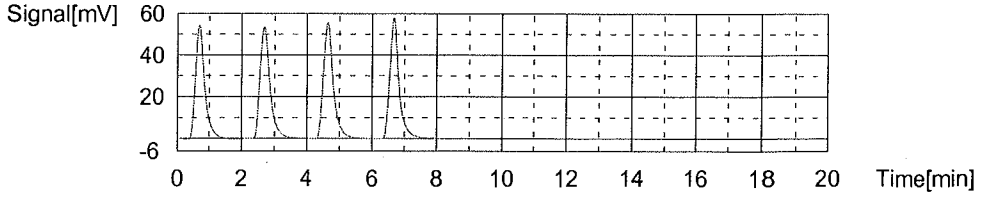
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:28.18 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	113.9	27.70mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:01:23 AM
2	114.8	27.91mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:03:29 AM
3	118.7	28.86mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:05:41 AM
4	116.2	28.25mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:08:00 AM

Mean Area 115.9
Mean Conc. 28.18mg/L



Sample

Sample Name: L019-07S
Sample ID: TCL003-46
Origin: TCL003.cal
Chk. Result

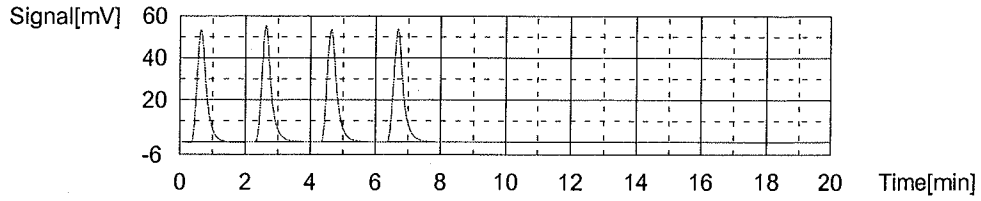
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:27.02 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	108.3	26.33mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:16:39 AM
2	111.9	27.21mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:18:51 AM
3	112.3	27.31mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:21:02 AM
4	112.0	27.23mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:23:14 AM

Mean Area 111.1
Mean Conc. 27.02mg/L



Sample

Sample Name: L019-10
Sample ID: TCL003-47
Origin: TCL003.cal
Chk. Result

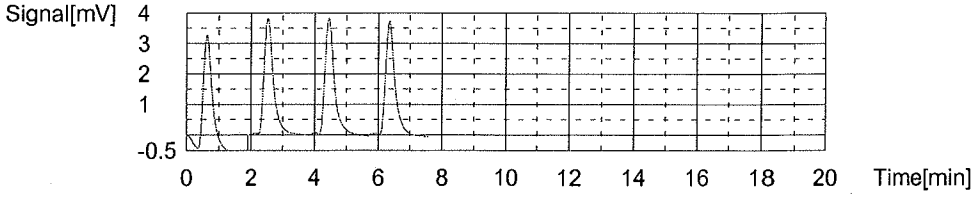
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.807 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.027	1.709mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:31:50 AM
2	7.591	1.846mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:33:55 AM
3	7.592	1.846mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:35:59 AM
4	7.516	1.828mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:38:03 AM

Mean Area 7.431
Mean Conc. 1.807mg/L



Sample

Sample Name: L019-11
Sample ID: TCL003-48
Origin: TCL003.cal
Chk. Result

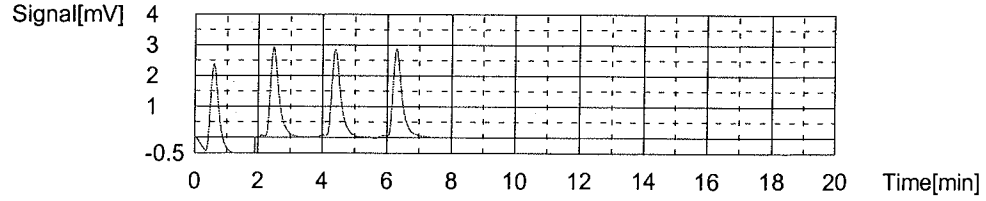
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.287 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.900	1.191mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:46:39 AM
2	5.401	1.313mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:48:44 AM
3	5.275	1.283mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:50:48 AM
4	5.597	1.361mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 08:52:52 AM

Mean Area 5.293
Mean Conc. 1.287mg/L



Sample

Sample Name: L019-12
Sample ID: TCL003-49
Origin: TCL003.cal
Chk. Result

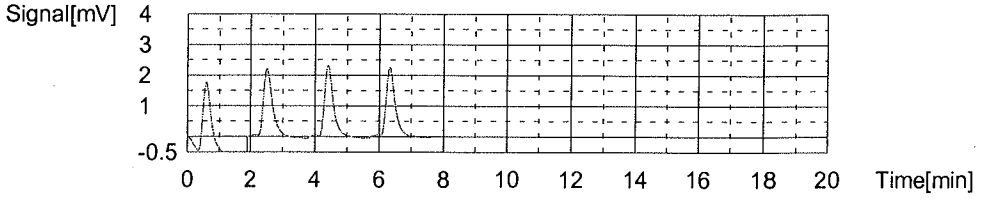
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.007 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3.861	0.9388mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 09:01:28 AM
2	4.186	1.018mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 09:03:33 AM
3	4.267	1.038mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 09:05:37 AM
4	4.255	1.035mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 09:07:41 AM

Mean Area 4.142
Mean Conc. 1.007mg/L



Control Sample

Sample Name: CCV4
Sample ID: TCL003-50
Method: TCL003.tpl
Chk. Result Control value: 25.42 / Control exceeds range!

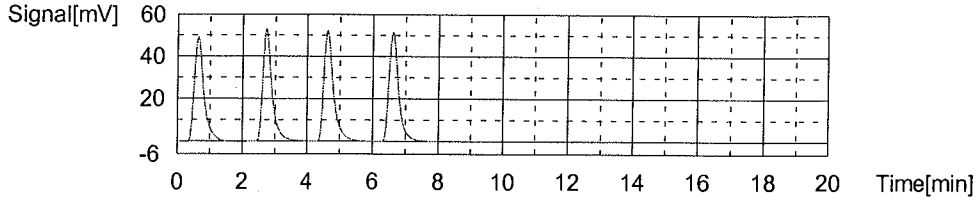
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:25.42 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	103.0	25.05mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 09:16:30 AM
2	104.2	25.34mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 09:18:34 AM
3	106.2	25.82mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 09:20:42 AM
4	104.8	25.48mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 09:22:53 AM

Mean Area 104.6
Mean Conc. 25.42mg/L



Sample

Sample Name: CCB4
Sample ID: TCL003-51
Origin: TCL003.cal
Chk. Result

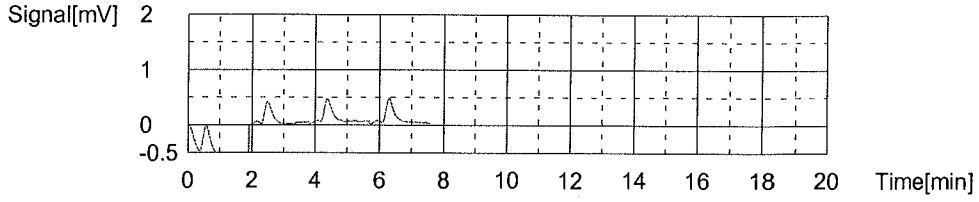
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1873 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.6873	0.1671mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 09:31:29 AM
2	0.7403	0.1800mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 09:33:33 AM
3	0.8517	0.2071mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 09:35:38 AM
4	0.8022	0.1951mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 09:37:42 AM

Mean Area 0.7704
Mean Conc. 0.1873mg/L



Sample

Sample Name: L019-13
Sample ID: TCL003-52
Origin: TCL003.cal
Chk. Result

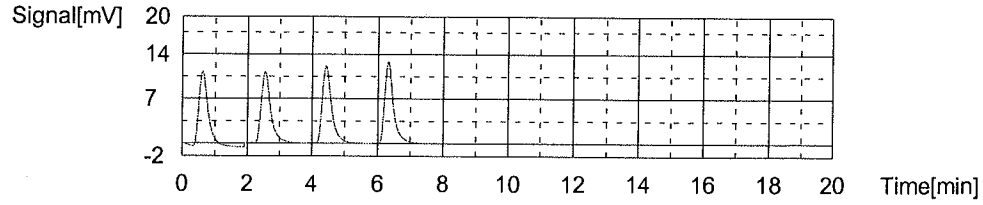
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:5.817 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	22.84	5.554mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 09:59:04 AM
2	23.84	5.797mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:01:08 AM
3	24.13	5.867mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:03:13 AM
4	24.88	6.050mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:05:17 AM

Mean Area 23.92
Mean Conc. 5.817mg/L



Sample

Sample Name: L019-14
Sample ID: TCL003-53
Origin: TCL003.cal
Chk. Result

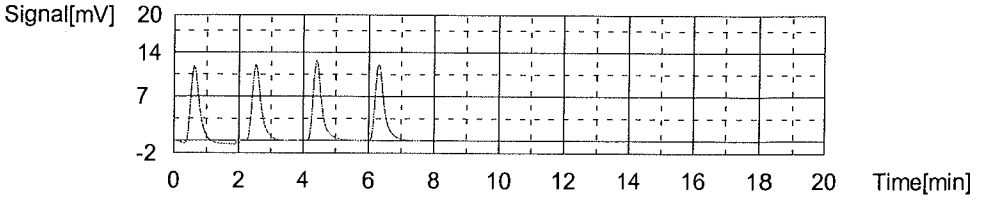
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:5.810 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	23.55	5.726mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:13:53 AM
2	23.99	5.833mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:15:57 AM
3	24.04	5.846mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:18:02 AM
4	24.00	5.836mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:20:06 AM

Mean Area 23.90
Mean Conc. 5.810mg/L



Sample

Sample Name: L019-15
Sample ID: TCL003-54
Origin: TCL003.cal
Chk. Result

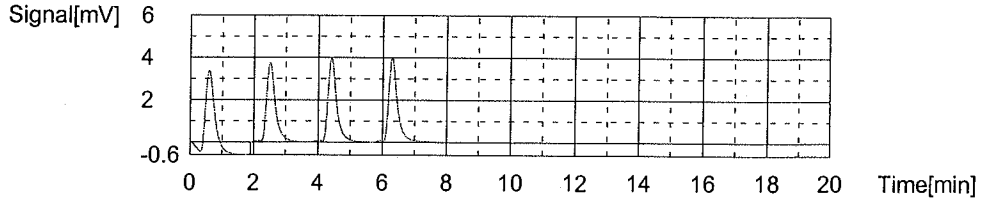
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.770 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.349	1.787mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:28:42 AM
2	7.112	1.729mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:30:46 AM
3	7.171	1.744mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:32:51 AM
4	7.488	1.821mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:34:55 AM

Mean Area 7.280
Mean Conc. 1.770mg/L



Sample

Sample Name: L019-16
Sample ID: TCL003-55
Origin: TCL003.cal
Chk. Result

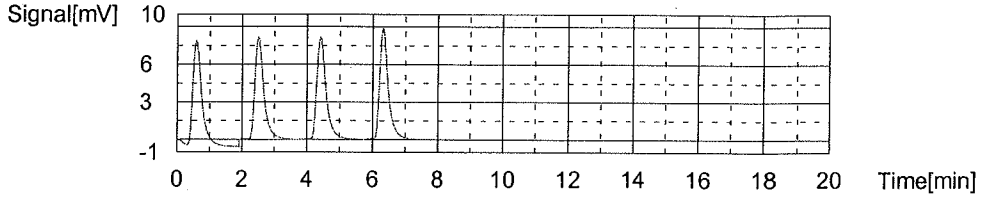
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:3.916 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	16.03	3.898mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:43:32 AM
2	15.80	3.842mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:45:36 AM
3	16.11	3.917mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:47:41 AM
4	16.48	4.007mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:49:45 AM

Mean Area 16.11
Mean Conc. 3.916mg/L



Sample

Sample Name: L019-17I
Sample ID: TCL003-56
Origin: TCL003.cal
Chk. Result

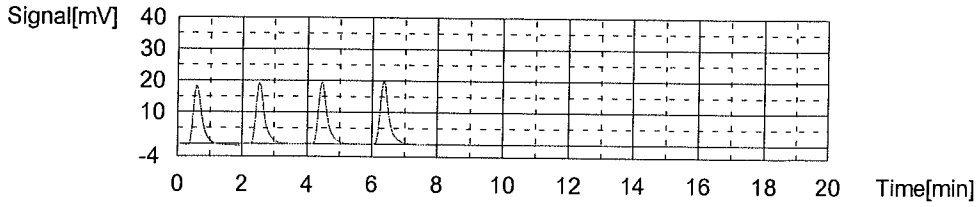
Type	Anal.	Dil.	Result
Unknown	NPOC	3.000	NPOC:26.76 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	34.78	25.37mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 10:58:22 AM
2	36.97	26.97mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:00:27 AM
3	37.63	27.45mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:02:31 AM
4	37.33	27.23mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:04:36 AM

Mean Area 36.68
Mean Conc. 26.76mg/L



Sample

Sample Name: L042-01
Sample ID: TCL003-57
Origin: TCL003.cal
Chk. Result

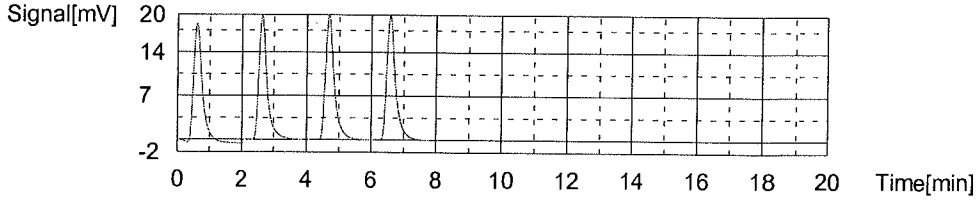
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:8.972 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	35.92	8.734mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:13:20 AM
2	36.95	8.985mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:15:32 AM
3	37.47	9.111mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:17:37 AM
4	37.25	9.058mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:19:41 AM

Mean Area 36.90
Mean Conc. 8.972mg/L



Sample

Sample Name: L042-02
Sample ID: TCL003-58
Origin: TCL003.cal
Chk. Result

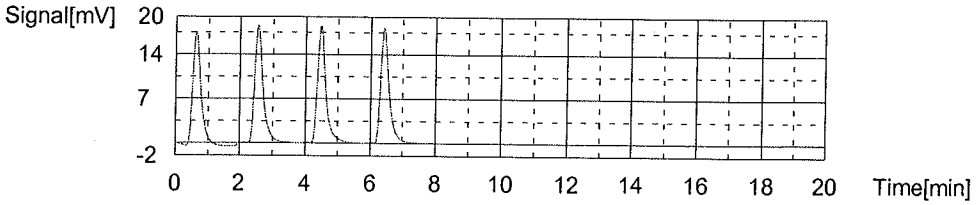
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:8.167 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	32.19	7.827mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:28:18 AM
2	33.54	8.156mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:30:23 AM
3	34.39	8.362mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:32:31 AM
4	34.23	8.323mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:34:36 AM

Mean Area 33.59
Mean Conc. 8.167mg/L



Sample

Sample Name: L042-02D
Sample ID: TCL003-59
Origin: TCL003.cal
Chk. Result

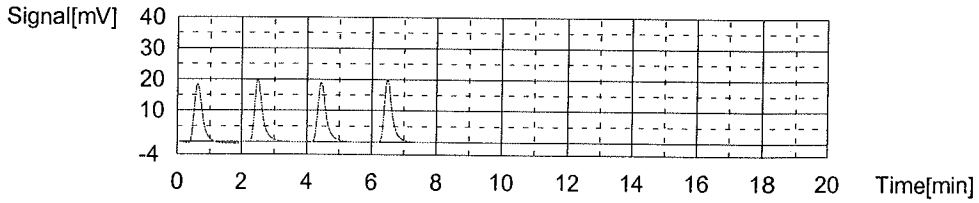
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:8.419 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	33.79	8.216mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:43:12 AM
2	34.56	8.404mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:45:17 AM
3	35.57	8.649mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:47:32 AM
4	34.57	8.406mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:49:37 AM

Mean Area 34.62
Mean Conc. 8.419mg/L



Sample

Sample Name: L042-02M
Sample ID: TCL003-60
Origin: TCL003.cal
Chk. Result

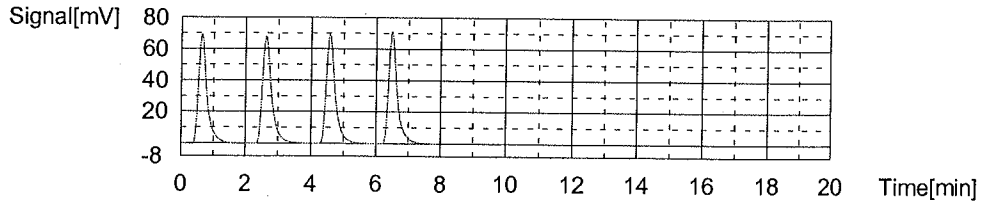
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:32.64 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	130.5	31.73mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 11:58:18 AM
2	134.3	32.66mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:00:25 PM
3	136.4	33.17mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:02:30 PM
4	135.8	33.02mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:04:43 PM

Mean Area 134.3
Mean Conc. 32.64mg/L



Sample

Sample Name: L042-02S
Sample ID: TCL003-61
Origin: TCL003.cal
Chk. Result

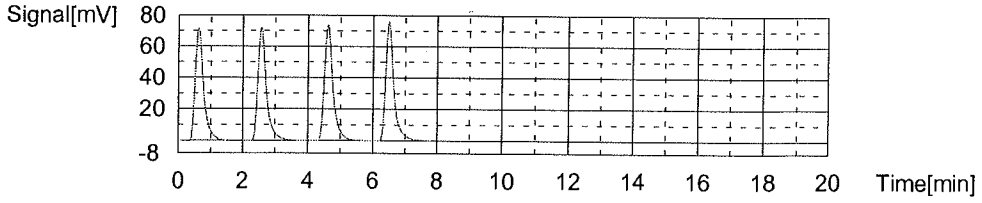
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:33.05 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	133.2	32.39mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:13:21 PM
2	135.7	33.00mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:15:33 PM
3	137.8	33.51mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:17:37 PM
4	136.9	33.29mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:19:47 PM

Mean Area 135.9
Mean Conc. 33.05mg/L



Control Sample

Sample Name: CCV5
Sample ID: TCL003-62
Method: TCL003.tpl
Chk. Result Control value: 24.97 / Control exceeds range!

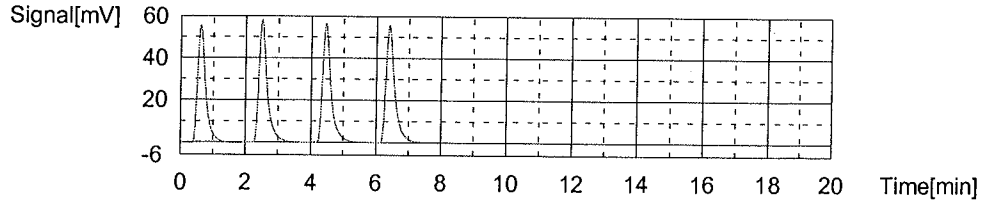
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.97 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	97.37	23.68mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:28:23 PM
2	103.3	25.12mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:30:29 PM
3	105.4	25.63mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:32:36 PM
4	104.7	25.46mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:34:41 PM

Mean Area 102.7
Mean Conc. 24.97mg/L



Sample

Sample Name: CCB5
Sample ID: TCL003-63
Origin: TCL003.cal
Chk. Result

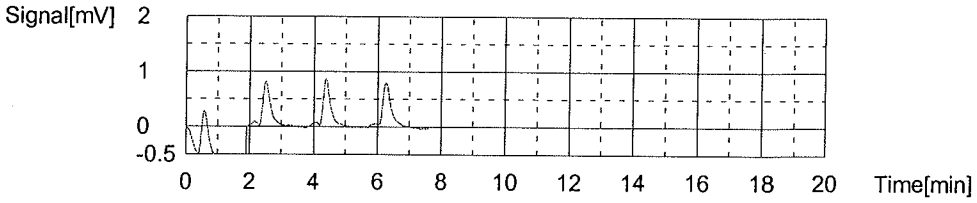
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.3197 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.153	0.2804mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:43:17 PM
2	1.416	0.3443mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:45:22 PM
3	1.419	0.3450mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:47:26 PM
4	1.271	0.3091mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 12:49:30 PM

Mean Area 1.315
Mean Conc. 0.3197mg/L



Sample

Sample Name: L062-01
Sample ID: TCL003-64
Origin: TCL003.cal
Chk. Result

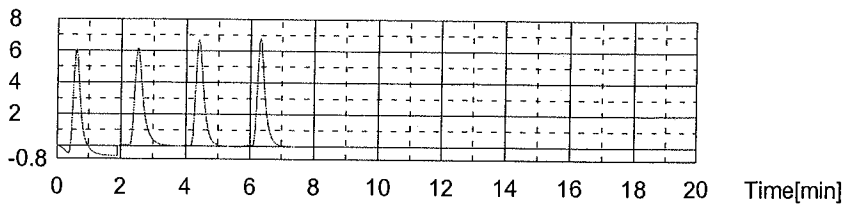
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:2.789 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	10.82	2.631mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:10:53 PM
2	11.37	2.765mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:12:58 PM
3	11.97	2.911mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:15:02 PM
4	11.72	2.850mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:17:06 PM

Mean Area 11.47
Mean Conc. 2.789mg/L



Sample

Sample Name: L062-03I
Sample ID: TCL003-65
Origin: TCL003.cal
Chk. Result

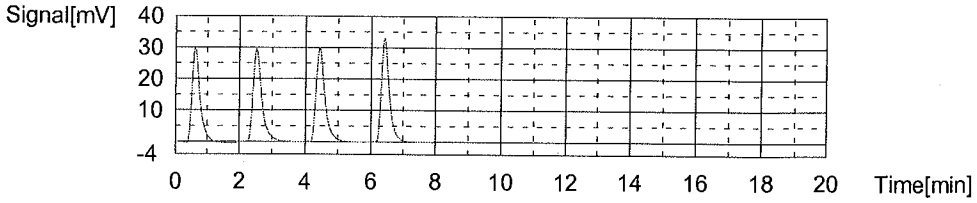
Type	Anal.	Dil.	Result
Unknown	NPOC	3.000	NPOC:41.01 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	54.51	39.76mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:25:43 PM
2	55.87	40.76mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:27:47 PM
3	57.38	41.86mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:29:58 PM
4	57.12	41.67mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:32:16 PM

Mean Area 56.22
Mean Conc. 41.01mg/L



Sample

Sample Name: L062-15I
Sample ID: TCL003-66
Origin: TCL003.cal
Chk. Result

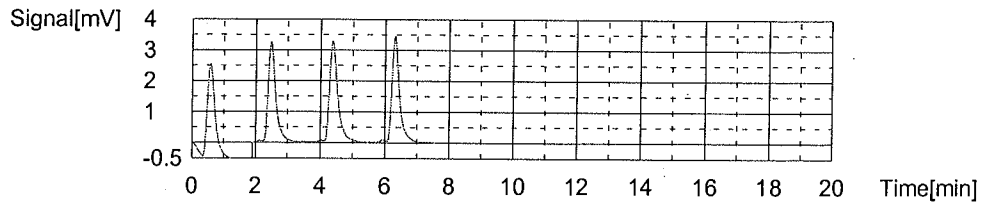
Type	Anal.	Dil.	Result
Unknown	NPOC	10.00	NPOC:13.28 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.026	12.22mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:40:53 PM
2	5.274	12.82mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:42:57 PM
3	5.851	14.23mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:45:02 PM
4	5.703	13.87mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:47:06 PM

Mean Area 5.463
Mean Conc. 13.28mg/L



Control Sample

Sample Name: CCV6
Sample ID: TCL003-67
Method: TCL003.tpl
Chk. Result Control value: 24.88 / Control exceeds range!

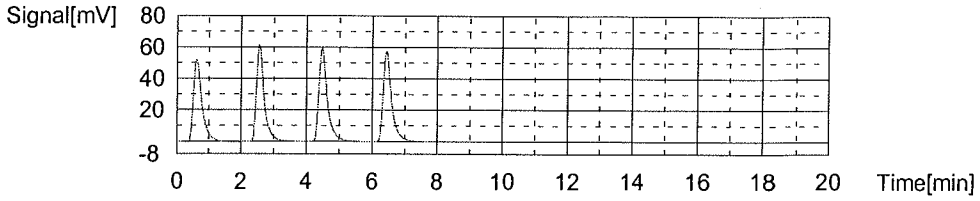
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.88 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	99.00	24.07mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:55:46 PM
2	101.3	24.63mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:57:50 PM
3	105.2	25.58mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 01:59:58 PM
4	103.8	25.24mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 02:02:05 PM

Mean Area 102.3
Mean Conc. 24.88mg/L



Sample

Sample Name: CCB6
Sample ID: TCL003-68
Origin: TCL003.cal
Chk. Result

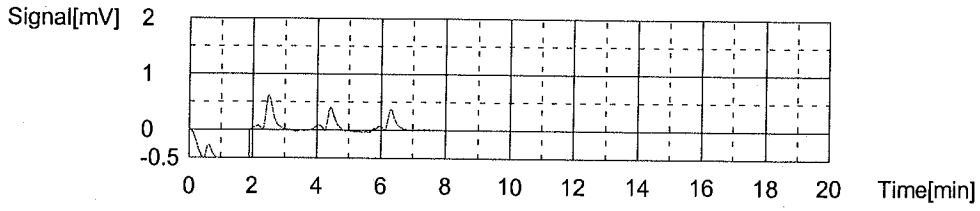
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1504 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2785	0.06772mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 02:23:27 PM
2	0.8629	0.2098mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 02:25:31 PM
3	0.7012	0.1705mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 02:27:36 PM
4	0.6321	0.1537mg/L	50uL	1		TCL003.2020_12_10_18_24_29.cal	12/11/20 02:29:40 PM

Mean Area 0.6187
Mean Conc. 0.1504mg/L



METHOD 300.0
CHLORIDE-CL

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20L086
Matrix : WATER
InstrumentID : D0

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	ICL025WB	ND	1	NA	0.2	0.05	0.1	12/14/2011:26	NA	AL17-03	AL17-01	ICL025W	NA	NA
LCS1W	ICL025WL	0.967	1	NA	0.2	0.05	0.1	12/14/2011:43	NA	AL17-04	AL17-01	ICL025W	NA	NA
LCD1W	ICL025WC	0.964	1	NA	0.2	0.05	0.1	12/14/2012:00	NA	AL17-05	AL17-01	ICL025W	NA	NA
SS003-3-MW-39D-12082020	L086-01J	2190	2000	NA	400	100	200	12/14/2019:19	NA	AL17-29	AL17-25	ICL025W	12/08/2013:20	12/09/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L086
METHOD : 300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICL025WB	ICL025WL	ICL025WC
LAB FILE ID :	AL17-03	AL17-04	AL17-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/14/2011:26	12/14/2011:43	12/14/2012:00
PREP BATCH :	ICL025W	ICL025W	ICL025W
CALIBRATION REF:	AL17-01	AL17-01	AL17-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	1	0.967	97	1	0.964	96	0	90-110	20

METHOD 300.0
SULFATE

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20L086
Matrix : WATER
InstrumentID : D0

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	ICL025WB	ND	1	NA	0.5	0.125	0.25	12/14/2011:26	NA	AL17-03	AL17-01	ICL025W	NA	NA
LCS1W	ICL025WL	4.54	1	NA	0.5	0.125	0.25	12/14/2011:43	NA	AL17-04	AL17-01	ICL025W	NA	NA
LCD1W	ICL025WC	4.56	1	NA	0.5	0.125	0.25	12/14/2012:00	NA	AL17-05	AL17-01	ICL025W	NA	NA
SS003-3-MW-39D-12082020	L086-01I	681	100	NA	50	12.5	25	12/14/2019:02	NA	AL17-28	AL17-25	ICL025W	12/08/2013:20	12/09/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L086
METHOD : 300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICL025WB	ICL025WL	ICL025WC
LAB FILE ID :	AL17-03	AL17-04	AL17-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/14/2011:26	12/14/2011:43	12/14/2012:00
PREP BATCH :	ICL025W	ICL025W	ICL025W
CALIBRATION REF:	AL17-01	AL17-01	AL17-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	5	4.54	91	5	4.56	91	0	90-110	20

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	12/08/20 13:20
Project	: VAFB-SS003	Date Received:	12/09/20
SDG NO.	: 20L086	Date Extracted:	12/14/20 12:03
Sample ID:	SS003-3-MW-39D-12082020	Date Analyzed:	12/15/20 18:40
Lab Samp ID:	L086-01	Dilution Factor:	1
Lab File ID:	ID8L007066	Matrix:	WATER
Ext Btch ID:	IPL011W	% Moisture:	NA
Calib. Ref.:	ID8L007057	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	197J	200	20.0	40.0
Manganese	146	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	12/08/20 12:23
Project	: VAFB-SS003	Date Received:	12/09/20
SDG NO.	: 20L086	Date Extracted:	12/14/20 12:03
Sample ID:	SS003-3-MW-55-12082020	Date Analyzed:	12/15/20 18:45
Lab Samp ID:	L086-02	Dilution Factor:	1
Lab File ID:	ID8L007067	Matrix:	WATER
Ext Btch ID:	IPL011W	% Moisture:	NA
Calib. Ref.:	ID8L007057	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	22.8J	200	20.0	40.0
Manganese	67.1	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	12/08/20 12:47
Project	: VAFB-SS003	Date Received:	12/09/20
SDG NO.	: 20L086	Date Extracted:	12/14/20 12:03
Sample ID:	SS003-3-MW-57-12082020	Date Analyzed:	12/15/20 18:50
Lab Samp ID:	L086-03	Dilution Factor:	1
Lab File ID:	ID8L007068	Matrix:	WATER
Ext Btch ID:	IPL011W	% Moisture:	NA
Calib. Ref.:	ID8L007057	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	ND	200	20.0	40.0
Manganese	36.5	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
DISSOLVED METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	NA
Project	: VAFB-SS003	Date Received:	NA
SDG NO.	: 20L086	Date Extracted:	12/14/20 12:03
Sample ID:	MBLK1W	Date Analyzed:	12/15/20 15:20
Lab Samp ID:	IPL011WB	Dilution Factor:	1
Lab File ID:	ID8L007029	Matrix:	WATER
Ext Btch ID:	IPL011W	% Moisture:	NA
Calib. Ref.:	ID8L007022	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	ND	200	20.0	40.0
Manganese	ND	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

IPL011WB.TXT
IPL011WC.TXT
IPL011WL.TXT
L086-01.TXT
L086-02.TXT
L086-03.TXT
MRLL1501.TXT

```
00  ID8L007014  ICV         |
00  ID8L007015  ICB         |
00  ID8L007016  MRLL1501    |
00  ID8L007020  ICSA1       |
00  ID8L007021  ICSAB1      |
00  ID8L007022  CCV1        |
00  ID8L007023  CCB1        |
00  ID8L007029  IPL011WB    |
00  ID8L007030  IPL011WL    |
00  ID8L007031  IPL011WC    |
00  ID8L007033  CCV2        |
00  ID8L007034  CCB2        |
00  ID8L007057  CCV4        |
00  ID8L007058  CCB4        |
00  ID8L007066  L086-01     |
00  ID8L007067  L086-02     |
00  ID8L007068  L086-03     |
00  ID8L007069  CCV5        |
00  ID8L007070  CCB5        |
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"1","IPL011WB","ID8L007029"
"2","IPL011WL","ID8L007030"
"3","IPL011WC","ID8L007031"

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L086
METHOD : 3010A/6010B

MATRIX	WATER		% MOISTURE:NA
DILUTION FACTOR	1.000	1.000	1.000
SAMPLE ID	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	IPL011WB	IPL011WL	IPL011WC
LAB FILE ID	ID8L007029	ID8L007030	ID8L007031
DATE PREPARED	12/14/20 12:03	12/14/20 12:03	12/14/20 12:03
DATE ANALYZED	12/15/20 15:20	12/15/20 15:25	12/15/20 15:30
PREP BATCH	IPL011W	IPL011W	IPL011W
CALIBRATION REF	ID8L007022	ID8L007022	ID8L007022

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Iron	ND	5000	5160	103	5000	5130	103	1	80-120	20
Manganese	ND	500	475	95	500	478	96	1	80-120	20

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	12/08/20 13:20
Project	: VAFB-SS003	Date Received:	12/09/20
SDG NO.	: 20L086	Date Extracted:	12/14/20 12:03
Sample ID:	SS003-3-MW-39D-12082020	Date Analyzed:	12/15/20 18:35
Lab Samp ID:	L086-01	Dilution Factor:	1
Lab File ID:	ID8L007065	Matrix:	WATER
Ext Btch ID:	IPL011W	% Moisture:	NA
Calib. Ref.:	ID8L007057	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	215	200	20.0	40.0
Manganese	145	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

METHOD 3010A/6010B
TOTAL METALS BY TRACE ICP

Client	: ARCADIS	Date Collected:	NA
Project	: VAFB-SS003	Date Received:	NA
SDG NO.	: 20L086	Date Extracted:	12/14/20 12:03
Sample ID:	MBLK1W	Date Analyzed:	12/15/20 15:20
Lab Samp ID:	IPL011WB	Dilution Factor:	1
Lab File ID:	ID8L007029	Matrix:	WATER
Ext Btch ID:	IPL011W	% Moisture:	NA
Calib. Ref.:	ID8L007022	Instrument ID:	D8

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Iron	ND	200	20.0	40.0
Manganese	ND	10.0	1.50	3.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CKaing	Analyzed by:	NTan

IPL011WB.TXT
IPL011WC.TXT
IPL011WL.TXT
L086-01.TXT
MRLL1501.TXT

```
00  ID8L007014  ICV         |
00  ID8L007015  ICB         |
00  ID8L007016  MRLL1501    |
00  ID8L007020  ICSA1       |
00  ID8L007021  ICSAB1      |
00  ID8L007022  CCV1        |
00  ID8L007023  CCB1        |
00  ID8L007029  IPL011WB    |
00  ID8L007030  IPL011WL    |
00  ID8L007031  IPL011WC    |
00  ID8L007033  CCV2        |
00  ID8L007034  CCB2        |
00  ID8L007057  CCV4        |
00  ID8L007058  CCB4        |
00  ID8L007065  L086-01     |
00  ID8L007069  CCV5        |
00  ID8L007070  CCB5        |
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"1","IPL011WB","ID8L007029"
"2","IPL011WL","ID8L007030"
"3","IPL011WC","ID8L007031"

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L086
METHOD : 3010A/6010B

MATRIX	WATER		% MOISTURE:NA
DILUTION FACTOR	1.000	1.000	1.000
SAMPLE ID	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	IPL011WB	IPL011WL	IPL011WC
LAB FILE ID	ID8L007029	ID8L007030	ID8L007031
DATE PREPARED	12/14/20 12:03	12/14/20 12:03	12/14/20 12:03
DATE ANALYZED	12/15/20 15:20	12/15/20 15:25	12/15/20 15:30
PREP BATCH	IPL011W	IPL011W	IPL011W
CALIBRATION REF	ID8L007022	ID8L007022	ID8L007022

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Iron	ND	5000	5160	103	5000	5130	103	1	80-120	20
Manganese	ND	500	475	95	500	478	96	1	80-120	20

RSK-175
DISSOLVED GASES

Client	: ARCADIS	Date Collected	: 12/08/20
Project	: VAFB-SS003	Date Received	: 12/09/20
Batch No.	: 20L086	Date Extracted	: 12/15/20 08:30
Sample ID	: SS003-3-MW-39D-12082020	Date Analyzed	: 12/15/20 10:14
Lab Samp ID	: L086-01	Dilution Factor	: 1
Lab File ID	: BL15006A	Matrix	: WATER
Ext Btch ID	: DGL008W	% Moisture	: NA
Calib. Ref.	: BL15002A	Instrument ID	: GCT072

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	34	2.0	0.17	0.34

RSK-175
DISSOLVED GASES

Client	: ARCADIS	Date Collected	: NA
Project	: VAFB-SS003	Date Received	: 12/15/20
Batch No.	: 20L086	Date Extracted	: 12/15/20 08:30
Sample ID	: MBLK1W	Date Analyzed	: 12/15/20 09:34
Lab Samp ID	: DGL008WB	Dilution Factor	: 1
Lab File ID	: BL15003A	Matrix	: WATER
Ext Btch ID	: DGL008W	% Moisture	: NA
Calib. Ref.	: BL15002A	Instrument ID	: GCT072

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
METHANE	ND	2.0	0.17	0.34

BL15002A.ESD
BL15003A.ESD
BL15004A.ESD
BL15005A.ESD
BL15006A.ESD
BL15014A.ESD
BL15032A.ESD

DGL008WB.TXT
DGL008WC.TXT
DGL008WL.TXT
L086-01.TXT

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: ARCADIS
PROJECT: VAFB-SS003
BATCH NO.: 20L086
METHOD: RSK-175

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	DGL008WB	DGL008WL	DGL008WC		
LAB FILE ID:	BL15003A	BL15004A	BL15005A		
DATE EXTRACTED:	12/15/2008:30	12/15/2008:30	12/15/2008:30	DATE COLLECTED:	NA
DATE ANALYZED:	12/15/2009:34	12/15/2009:47	12/15/2010:00	DATE RECEIVED:	12/15/20
PREP. BATCH:	DGL008W	DGL008W	DGL008W		
CALIB. REF:	BL15002A	BL15002A	BL15002A		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Methane	ND	13.6	14.0	103	13.6	13.7	101	2	73-125	20

METHOD SM4500-S2-D
TOTAL SULFIDE

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20L086
Matrix : WATER
InstrumentID : H9

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	SFL002WB	ND	1	NA	0.1	0.01	0.02	12/11/2013:24	NA	20SFL00210	20SFL002	SFL002W	NA	NA
LCS1W	SFL002WL	0.601	1	NA	0.1	0.01	0.02	12/11/2013:24	NA	20SFL00211	20SFL002	SFL002W	NA	NA
LCD1W	SFL002WC	0.604	1	NA	0.1	0.01	0.02	12/11/2013:24	NA	20SFL00212	20SFL002	SFL002W	NA	NA
SS003-3-MW-39D-12082020	L086-01	0.0363J	1	NA	0.1	0.01	0.02	12/11/2013:25	NA	20SFL00214	20SFL002	SFL002W	12/08/2013:20	12/09/20
SS003-3-MW-39D-12082020DUP	L086-01D	0.0363J	1	NA	0.1	0.01	0.02	12/11/2013:25	NA	20SFL00215	20SFL002	SFL002W	12/08/2013:20	12/09/20
SS003-3-MW-39D-12082020MS	L086-01M	0.607	1	NA	0.1	0.01	0.02	12/11/2013:25	NA	20SFL00216	20SFL002	SFL002W	12/08/2013:20	12/09/20
SS003-3-MW-39D-12082020MSD	L086-01S	0.604	1	NA	0.1	0.01	0.02	12/11/2013:25	NA	20SFL00217	20SFL002	SFL002W	12/08/2013:20	12/09/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L086
METHOD : SM4500-S2-D

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: SFL002WB	SFL002WL	SFL002WC
LAB FILE ID	: 20SFL00210	20SFL00211	20SFL00212
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 12/11/2013:24	12/11/2013:24	12/11/2013:24
PREP BATCH	: SFL002W	SFL002W	SFL002W
CALIBRATION REF	: 20SFL002	20SFL002	20SFL002

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
SULFIDE	ND	0.600	0.601	100	0.600	0.604	101	0	80-120	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L086
METHOD : SM4500-S2-D

MATRIX	WATER		% MOISTURE:NA
DILUTION FACTOR	1	1	1
SAMPLE ID	SS003-3-MW-39D-12082020	SS003-3-MW-39D-12082020MS	SS003-3-MW-39D-12082020MSD
LAB SAMPLE ID	L086-01	L086-01M	L086-01S
LAB FILE ID	20SFL00214	20SFL00216	20SFL00217
DATE PREPARED	NA	NA	NA
DATE ANALYZED	12/11/2013:25	12/11/2013:25	12/11/2013:25
PREP BATCH	SFL002W	SFL002W	SFL002W
CALIBRATION REF	20SFL002	20SFL002	20SFL002

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
SULFIDE	0.0363J	0.600	0.607	95	0.600	0.604	95	0	75-125	20

PS: Parent Sample MS: Matrix Spike MSD: Matrix Spike Duplicate

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L086
METHOD : SM4500-S2-D

MATRIX : WATER

DILUTION FACTOR:	1	1
SAMPLE ID :	SS003-3-MW-39D-12082020	SS003-3-MW-39D-12082020DUP
LAB SAMPLE ID :	L086-01	L086-01D
LAB FILE ID :	20SFL00214	20SFL00215
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/11/2013:25	12/11/2013:25
PREP BATCH :	SFL002W	SFL002W
CALIBRATION REF:	20SFL002	20SFL002

ACCESSION:

PARAMETER	PSResult (mg/L)	DUPResult (mg/L)	RPD (%)	QCLimit (%)
SULFIDE	0.0363J	0.0363J	NA	20

PS: Parent Sample DUP: Sample Duplicate

METHOD SM2320-B
TOTAL ALKALINITY

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20L086
Matrix : WATER
InstrumentID : E5

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DIL. FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ALL007WB	ND	1	NA	5	5	5	12/17/2013:07	NA	20E5L2904	20E5L29	ALL007W	NA	NA
LCS1W	ALL007WL	80.1	1	NA	5	5	5	12/17/2013:15	NA	20E5L2905	20E5L29	ALL007W	NA	NA
LCD1W	ALL007WC	82.4	1	NA	5	5	5	12/17/2013:22	NA	20E5L2906	20E5L29	ALL007W	NA	NA
SS003-3-MW-39D-12082020	L086-01	64.2	1	NA	5	5	5	12/17/2014:08	NA	20E5L2911	20E5L29	ALL007W	12/08/2013:20	12/09/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L086
METHOD : METHOD SM2320-B

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ALL007WB	ALL007WL	ALL007WC
LAB FILE ID :	20E5L2904	20E5L2905	20E5L2906
DATE EXTRACTED :	NA	NA	NA
DATE ANALYZED :	12/17/2013:07	12/17/2013:15	12/17/2013:22
PREP BATCH :	ALL007W	ALL007W	ALL007W
CALIBRATION REF:	20E5L29	20E5L29	20E5L29

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
ALKALINITY	ND	79	80.1	101	79	82.4	104	3	80-120	20

METHOD SM5310-B
TOC

Client : ARCADIS
Project : VAFB-SS003
Batch No. : 20L086

Matrix : WATER
InstrumentID : 62

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DIL'N FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	TCL008WB	ND	1	NA	1.00	0.250	0.500	12/17/2021:24	NA	TCL005-05	TCL005-02	TCL008W	NA	NA
LCS1W	TCL008WL	24.5	1	NA	1.00	0.250	0.500	12/17/2021:39	NA	TCL005-06	TCL005-02	TCL008W	NA	NA
LCD1W	TCL008WC	24.5	1	NA	1.00	0.250	0.500	12/17/2021:54	NA	TCL005-07	TCL005-02	TCL008W	NA	NA
SS003-3-MW-39D-12082020	L086-01I	44.7	3	NA	3.00	0.750	1.50	12/17/2023:08	NA	TCL005-12	TCL005-02	TCL008W	12/08/2013:20	12/09/20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : VAFB-SS003
BATCH NO. : 20L086
METHOD : SM5310-B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: TCL008WB	TCL008WL	TCL008WC
LAB FILE ID	: TCL005-05	TCL005-06	TCL005-07
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 12/17/2021:24	12/17/2021:39	12/17/2021:54
PREP BATCH	: TCL008W	TCL008W	TCL008W
CALIBRATION REF	: TCL005-02	TCL005-02	TCL005-02

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
TOC	ND	25.0	24.5	98	25.0	24.5	98	0	80-120	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

CHAIN OF CUSTODY

EMAX Laboratories, Inc.
1835 W. 205th Street, Torrance, CA 90501
Tel # : 310-618-8889 FAX#: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:
SAMPLE STORAGE

EMAX CONTROL NO. 20L087
PROJECT CODE: 30013092 SS037.C

CLIENT Arcadis
PROJECT VAFB - SS003
COORDINATOR Emily Hathaway
TEL 916-865-3131 FAX EMAIL emily.hathaway@arcadis.com
SEND REPORT TO Emily Hathaway
COMPANY Arcadis
ADDRESS 735 Tank Farm Rd, Ste 150
San Luis Obispo, CA 93401
EMAX PM Richard Beauvil

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaO3
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H2SO4
O=	

ANALYSIS REQUIRED: VOCs (8260B); MS/MSD

TAT:
- ☐ Rush __24__hrs.
- ☐ Rush __48_hrs
- ☐ Rush_72_hrs
- ☐ 7 days
- ☐ 14 days
- ☒ 21 days Standard

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE	COMMENTS
1	3-MW-60 (120320)	VAFB	12/3/20	1607	3	40mL	VOA	GW		X	
2	SS003-3-MW-60(120320)TB2	VAFB	12/3/20	1530	3	40ml	VOA	GW		X	
3	SS003-DUP2 (120420)	↓	12/4/20	0000	3	↓	↓	↓	X	X	
4	~~SS003-~~ 3-MW-62(120420)		↓	1337	3					X	
5	3-MW-61 (120420)	↓		1445	3	↓	↓	↓		X	
6											
7											
8											
9											
10											

12/4/20

Instructions Standard TAT

Cooler #	Temp. (°C)	Sample #s
1	4.7	

SAMPLER Marshall Brusca / Avery Barrera

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/8/2020	1422	12/8/2020 1422
	12/8/2020	1500	FedEx SHIPPED
	12/9/20	12:10	

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

Type of Delivery	Airbill / Tracking Number	ECN 20L087
☒ Fedex ☐ UPS ☐ GSO ☐ Others	7723 6385 7555	Recipient Maria Rivera
☐ EMAX Courier ☐ Client Delivery		Date 12/09/20 Time 12:10

COC INSPECTION

☒ Client Name	☒ Client PM/FC	☒ Sampler Name	☒ Sampling Date/Time	☒ Sample ID	☒ Matrix
☒ Address	☒ Tel # / Fax #	☐ Courier Signature	☒ Analysis Required	☐ Preservative (if any)	☒ TAT
Safety Issues (if any)	☐ High concentrations expected	☐ From Superfund Site	☐ Rad screening required		

Note: _____

PACKAGING INSPECTION

Container	☒ Cooler	☐ Box	☐ Other		
Condition	☒ Custody Seal	☐ Intact	☐ Damaged		
Packaging	☒ Bubble Pack	☐ Styrofoam	☐ Popcorn	☐ Sufficient	☐ _____
Temperatures (Cool, ≤6 °C but not frozen)	☒ Cooler 1 4.2 °C	☐ Cooler 2_____ °C	☐ Cooler 3_____ °C	☐ Cooler 4_____ °C	☐ Cooler 5_____ °C
	☐ Cooler 6_____ °C	☐ Cooler 7_____ °C	☐ Cooler 8_____ °C	☐ Cooler 9_____ °C	☐ Cooler 10_____ °C
Thermometer:	*A - S/N* 19238146 4	*B - S/N* 200291755	*C - S/N* 200291756	*D - S/N* 14025267	

Comments: ☐ **Temperature is out of range. PM was informed IMMEDIATELY.**

Note: _____

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
1-5	1-15	D16		R8
1	1-3	D10		

12/10/20

☐ pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NB 12/10/20

NOTES/OBSERVATIONS:

LEGEND:

☐ **Continue to next page.**

Code	Description- Sample Management	Code	Description-Sample Management	Code	Description-Sample Management
D1	Analysis is not indicated in _____	D13	Out of Holding Time	R1	Proceed as indicated in ☐ COC ☐ Label
D2	Analysis mismatch COC vs label	D14	Bubble is >6mm	R2	Refer to attached instruction
D3	Sample ID mismatch COC vs label	D15	No trip blank in cooler	R3	Cancel the analysis
D4	Sample ID is not indicated in _____	(D16)	Preservation not indicated in CoC	R4	Use vial with smallest bubble first
D5	Container -[improper] [leaking] [broken]	D17	Preservation mismatch COC vs label	R5	Log-in with latest sampling date and time+1 min
D6	Date/Time is not indicated in _____	D18	Insufficient chemical preservative	R6	Adjust pH as necessary
D7	Date/Time mismatch COC vs label	D19	Insufficient Sample	R7	Filter and preserved as necessary
D8	Sample listed in COC is not received	D20	No filtration info for dissolved analysis	R8	_____
D9	Sample received is not listed in COC	D21	No sample for moisture determination	R9	_____
(D10)	No initial/date on corrections in COC/label	D22	_____	R10	_____
D11	Container count mismatch COC vs received	D23	_____	R11	_____
D12	Container size mismatch COC vs received	D24	_____	R12	_____

REVIEWS:

Sample Labeling Maria Rivera Date 12/09/20 12/9/20

SRF _____ Date 12/9/20

PM NB Date 12/10/20

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than LOQ/RL but greater than LOD/MDL/DL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

ARCADIS

VAFB-SS003

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

SDG#: 20L087

CASE NARRATIVE

Client : ARCADIS

Project: VAFB-SS003

SDG : 20L087

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

A total of five(5) water samples were received on 12/09/20 to be analyzed for Volatile Organics by GC/MS in accordance with Method 5030B/8260B and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Instrument Performance and Calibration
Instrument tune check was performed prior to calibration. Result was within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried out at a frequency required by the project. There were two(2)CCVs (Data file IDs: RLC136 and RLC167) associated with this SDG. All calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, two(2) method blanks were analyzed. VO67L07B and VO67L08B were compliant to project requirement. Refer to sample result summary forms for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, two(2) sets of LCS/LCD were analyzed. VO67L07L/VO67L07C and VO67L08L/VO67L08C were within LCS limits. Refer to LCS summary forms for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Surrogate
Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met. Some analytes were manually integrated in samples L087-03, -04 and -05. Hence, the original chromatogram was retained and corrected chromatogram was initialed and dated. The secondary reviewer concurred with the manual integrations.

LAB CHRONICLE
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS
Project : VAFB-SS003

SDG NO. : 20L087
Instrument ID : 67

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	V067L07B	1	NA	12/10/2015:32	12/10/2015:32	RLC140	RJC459	V067L07	Method Blank
LCS1W	V067L07L	1	NA	12/10/2014:14	12/10/2014:14	RLC137	RJC459	V067L07	Lab Control Sample (LCS)
LCD1W	V067L07C	1	NA	12/10/2014:41	12/10/2014:41	RLC138	RJC459	V067L07	LCS Duplicate
SS003-3-MW-60(120320)TB2	L087-02	1	NA	12/10/2015:57	12/10/2015:57	RLC141	RJC459	V067L07	Field Sample
3-MW-60(120320)	L087-01	1	NA	12/10/2016:23	12/10/2016:23	RLC142	RJC459	V067L07	Field Sample
SS003-DUP2(120420)	L087-03	1	NA	12/10/2016:48	12/10/2016:48	RLC143	RJC459	V067L07	Field Sample
3-MW-62(120420)	L087-04	1	NA	12/10/2017:14	12/10/2017:14	RLC144	RJC459	V067L07	Field Sample
3-MW-61(120420)	L087-05	1	NA	12/10/2017:40	12/10/2017:40	RLC145	RJC459	V067L07	Field Sample
MBLK2W	V067L08B	1	NA	12/11/2017:32	12/11/2017:32	RLC171	RJC459	V067L08	Method Blank
LCS2W	V067L08L	1	NA	12/11/2016:10	12/11/2016:10	RLC168	RJC459	V067L08	Lab Control Sample (LCS)
LCD2W	V067L08C	1	NA	12/11/2016:36	12/11/2016:36	RLC169	RJC459	V067L08	LCS Duplicate
3-MW-60(120320)DL	L087-01I	50	NA	12/11/2020:06	12/11/2020:06	RLC177	RJC459	V067L08	Diluted Sample
3-MW-61(120420)DL	L087-05I	50	NA	12/11/2020:32	12/11/2020:32	RLC178	RJC459	V067L08	Diluted Sample
SS003-DUP2(120420)DL	L087-03I	250	NA	12/11/2020:57	12/11/2020:57	RLC179	RJC459	V067L08	Diluted Sample
3-MW-62(120420)DL	L087-04I	250	NA	12/11/2021:23	12/11/2021:23	RLC180	RJC459	V067L08	Diluted Sample
3-MW-61(120420)DL	L087-05J	250	NA	12/11/2021:48	12/11/2021:48	RLC181	RJC459	V067L08	Diluted Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected	: 12/03/20
Project	: VAFB-SS003	Date Received	: 12/09/20
Batch No.	: 20L087	Date Extracted	: 12/10/20 16:23 # 12/11/20 20:06
Sample ID	: 3-MW-60(120320)	Date Analyzed	: 12/10/20 16:23 # 12/11/20 20:06
Lab Samp ID	: L087-01 #L087-01I	Dilution Factor	: 1 # 50
Lab File ID	: RLC142 #RLC177	Matrix	: WATER
Ext Btch ID	: V067L07 #V067L08	% Moisture	: NA
Calib. Ref.	: RJC459 #RJC459	Instrument ID	: 67

	PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
	1,1,1,2-TETRACHLOROETHANE	0.31J	0.50	0.10	0.20
	1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
#	1,1,2,2-TETRACHLOROETHANE	680	50	5.5	10
	1,1,2-TRICHLOROETHANE	11	1.0	0.10	0.20
	1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
	1,1-DICHLOROETHENE	ND	1.0	0.10	0.20
	1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
	1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
	1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
	1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
	1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
	1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
	1,2-DICHLOROETHANE	0.19J	0.50	0.10	0.20
	1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
	1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
	1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
	2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
	2-BUTANONE	6.9J	10	2.0	4.0
	2-CHLOROTOLUENE	ND	1.0	0.12	0.20
	2-HEXANONE	ND	10	2.3	4.0
	4-CHLOROTOLUENE	ND	1.0	0.11	0.20
	ACETONE	150	10	2.6	5.0
	BENZENE	0.15J	1.0	0.10	0.20
	BROMOBENZENE	ND	1.0	0.10	0.20
	BROMOCHLOROMETHANE	5.3	1.0	0.11	0.20
	BROMODICHLOROMETHANE	0.40J	1.0	0.10	0.20
	BROMOFORM	0.78J	1.0	0.15	0.30
	BROMOMETHANE	ND	1.0	0.16	0.30
	CARBON DISULFIDE	0.37J	1.0	0.10	0.20
	CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
	CHLOROBENZENE	0.11J	1.0	0.10	0.20
	CHLOROETHANE	ND	1.0	0.27	0.30
	CHLOROFORM	50	1.0	0.10	0.20
	CHLOROMETHANE	14	1.0	0.15	0.30
	CIS-1,2-DICHLOROETHENE	11	1.0	0.10	0.20
	CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
	DIBROMOCHLOROMETHANE	0.49J	1.0	0.10	0.20
	DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
	ETHYLBENZENE	ND	1.0	0.10	0.20
	HEXACHLOROBUTADIENE	1.1	1.0	0.22	0.30
	ISOPROPYL BENZENE	ND	1.0	0.10	0.20
	M,P-XYLENES	ND	2.0	0.21	0.40
	MIBK	ND	10	2.1	4.0
#	METHYLENE CHLORIDE	300	100	12	25
	MTBE	ND	1.0	0.13	0.20
	NAPHTHALENE	ND	2.0	0.25	0.50
	N-BUTYLBENZENE	ND	1.0	0.17	0.20
	N-PROPYLBENZENE	ND	1.0	0.13	0.20
	O-XYLENE	ND	1.0	0.10	0.20
	P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
	SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
	STYRENE	ND	1.0	0.10	0.20
	TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
	TETRACHLOROETHENE	8.4	1.0	0.15	0.20
	TOLUENE	ND	1.0	0.10	0.20
	TRANS-1,2-DICHLOROETHENE	1.7	1.0	0.10	0.20
	TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
#	TRICHLOROETHENE	1500	50	5.0	10
	TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
	VINYL CHLORIDE	0.12J	0.50	0.12	0.20
	VINYL ACETATE	ND	2.0	0.25	0.50
	FREON113	ND	1.0	0.20	0.30
	TERT-BUTANOL	ND	20	5.0	10
	DIPE	ND	1.0	0.10	0.20
	ETBE	ND	1.0	0.10	0.20
	TAME	ND	1.0	0.10	0.20

	SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
	1,2-DICHLOROETHANE-D4	9.28	10.00	92.8	70-120
	4-BROMOFLUOROBENZENE	9.47	10.00	94.7	75-120
	TOLUENE-D8	9.32	10.00	93.2	85-120
	DIBROMOFLUOROMETHANE	9.83	10.00	98.3	85-115
#	1,2-DICHLOROETHANE-D4	471	500.0	94.1	70-120
#	4-BROMOFLUOROBENZENE	472	500.0	94.4	75-120
#	TOLUENE-D8	459	500.0	91.9	85-120
#	DIBROMOFLUOROMETHANE	485	500.0	97.0	85-115

Members of the Associated File

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected:	12/03/20
Project	: VAFB-SS003	Date Received:	12/09/20
Batch No.	: 20L087	Date Extracted:	12/10/20 16:23
Sample ID:	3-MW-60(120320)	Date Analyzed:	12/10/20 16:23
Lab Samp ID:	L087-01	Dilution Factor:	1
Lab File ID:	RLC142	Matrix	: WATER
Ext Btch ID:	VO67L07	% Moisture	: NA
Calib. Ref.:	RJC459	Instrument ID	: 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	0.31J	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	550E	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	11	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	ND	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	0.19J	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	6.9J	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	150	10	2.6	5.0
BENZENE	0.15J	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	5.3	1.0	0.11	0.20
BROMODICHLOROMETHANE	0.40J	1.0	0.10	0.20
BROMOFORM	0.78J	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	0.37J	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	0.11J	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	50	1.0	0.10	0.20
CHLOROMETHANE	14	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	11	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	0.49J	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	1.1	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	320E	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	ND	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	8.4	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	1.7	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	560E	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	0.12J	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.28	10.00	92.8	70-120
4-BROMOFLUOROBENZENE	9.47	10.00	94.7	75-120
TOLUENE-D8	9.32	10.00	93.2	85-120
DIBROMOFLUOROMETHANE	9.83	10.00	98.3	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L10\RLC142.D Vial: 8
Acq On : 10 Dec 2020 4:23 pm Operator: VLu
Sample : 20L087-01 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:11 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2464148	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1894350	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	582726	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	790988	9.83	ug/l	0.00
Spiked Amount 10.000			Recovery =	98.30%		
43) 1,2-Dichloroethane-d4	9.14	65	477775	9.28	ug/l	0.00
Spiked Amount 10.000			Recovery =	92.80%		
56) Toluene-d8	12.82	98	2694334	9.32	ug/l	0.00
Spiked Amount 10.000			Recovery =	93.20%		
77) 4-Bromofluorobenzene	17.47	95	749738	9.47	ug/l	0.00
Spiked Amount 10.000			Recovery =	94.70%		
Target Compounds						Qvalue
4) Chloromethane	2.11	50	1814898	13.91	ug/l	100
5) Vinyl chloride	2.21	62	15169	0.12	ug/l	52
6) Bromomethane	2.66	94	11878	0.11	ug/l	82
7) Chloroethane	2.64	64	16391	0.18	ug/l	67
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	8056	0.12	ug/l	90
13) Acetone	3.50	43	1137261	149.65	ug/l	97
17) Iodomethane	4.13	142	4982558	36.19	ug/l	98
19) Methylene chloride	4.41	49	34766998	322.27	ug/l E	94
20) Carbon disulfide	4.39	76	137994	0.37	ug/l	90
23) trans-1,2-Dichloroethene	4.91	96	180302	1.65	ug/l	99
29) 2-Butanone	6.75	72	21851	6.87	ug/l	82
31) cis-1,2-Dichloroethene	7.14	96	1165861	10.97	ug/l	99
32) Chloroform	7.52	83	7788380	49.51	ug/l	97
33) Bromochloromethane	7.89	130	245403	5.26	ug/l	99
34) tert-Amyl alcohol	8.02	59	10539	4.82	ug/l	99
36) Tetrahydrofuran	8.00	42	6333	0.79	ug/l	69
44) 1,2-Dichloroethane	9.33	62	11939	0.19	ug/l	98
45) Benzene	9.32	78	53808	0.15	ug/l	96
46) Trichloroethene	10.57	130	53379722	558.74	ug/l E	91
49) Bromodichloromethane	11.38	83	38534	0.40	ug/l	99
51) Dibromomethane	11.45	93	88301	2.40	ug/l	92
53) 4-Methyl-2-pentanone	12.11	43	38564	1.32	ug/l	95
60) 1,1,2-Trichloroethane	13.60	97	490193	10.78	ug/l	92
63) Tetrachloroethene	14.09	164	622274	8.36	ug/l	99
64) Dibromochloromethane	14.46	129	26811	0.49	ug/l	95
67) Chlorobenzene	15.51	112	22513	0.11	ug/l	95
68) 1,1,1,2-Tetrachloroethane	15.60	131	20477	0.31	ug/l	88

(#) = qualifier out of range (m) = manual integration
RLC142.D VO67J30.M Fri Dec 11 12:11:39 2020 Page 1

Data File : D:\HPCHEM\1\DATA\20L10\RLC142.D Vial: 8
Acq On : 10 Dec 2020 4:23 pm Operator: VLu
Sample : 20L087-01 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:11 2020 Quant Results File: VO67J30.RES

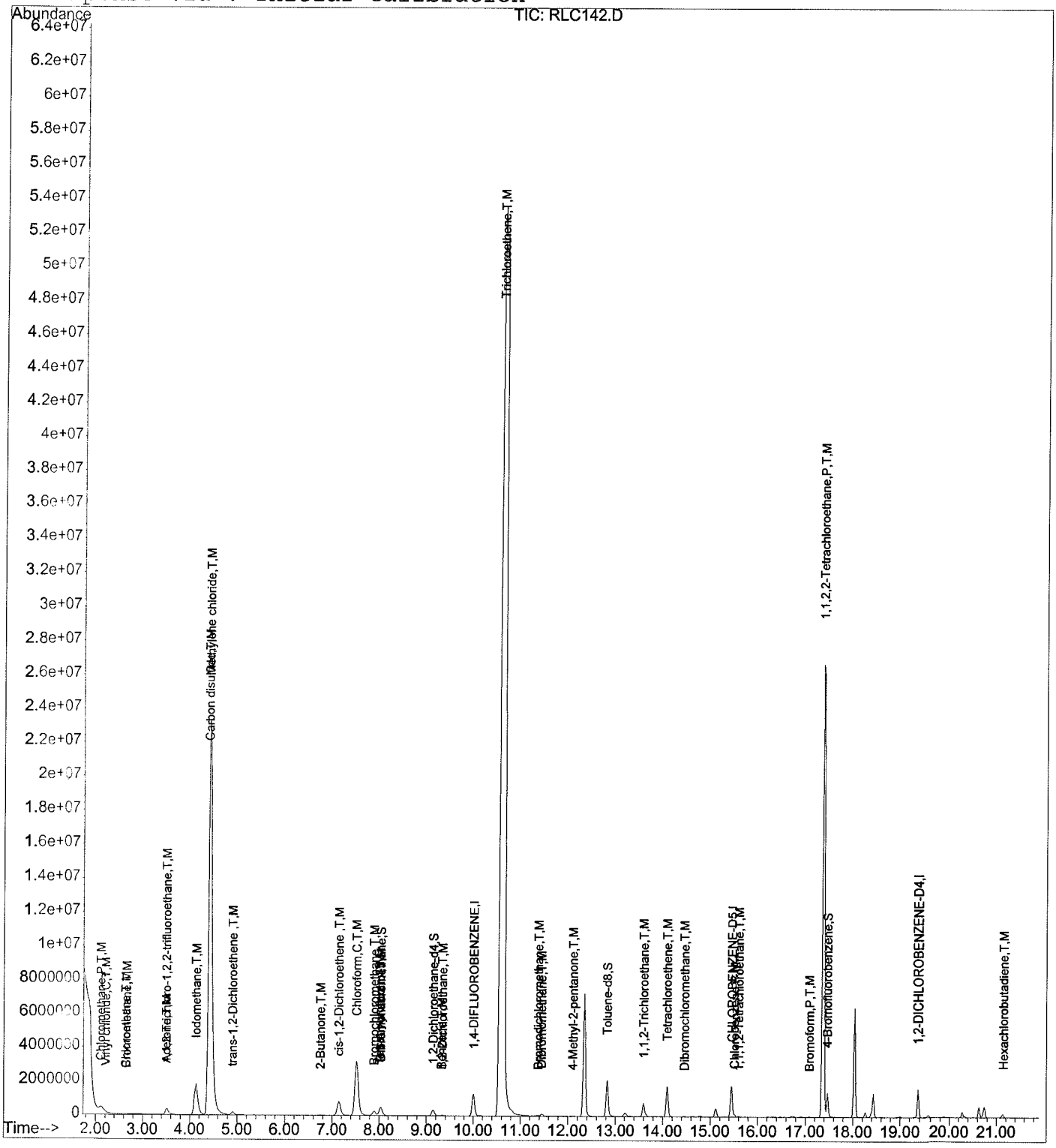
Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

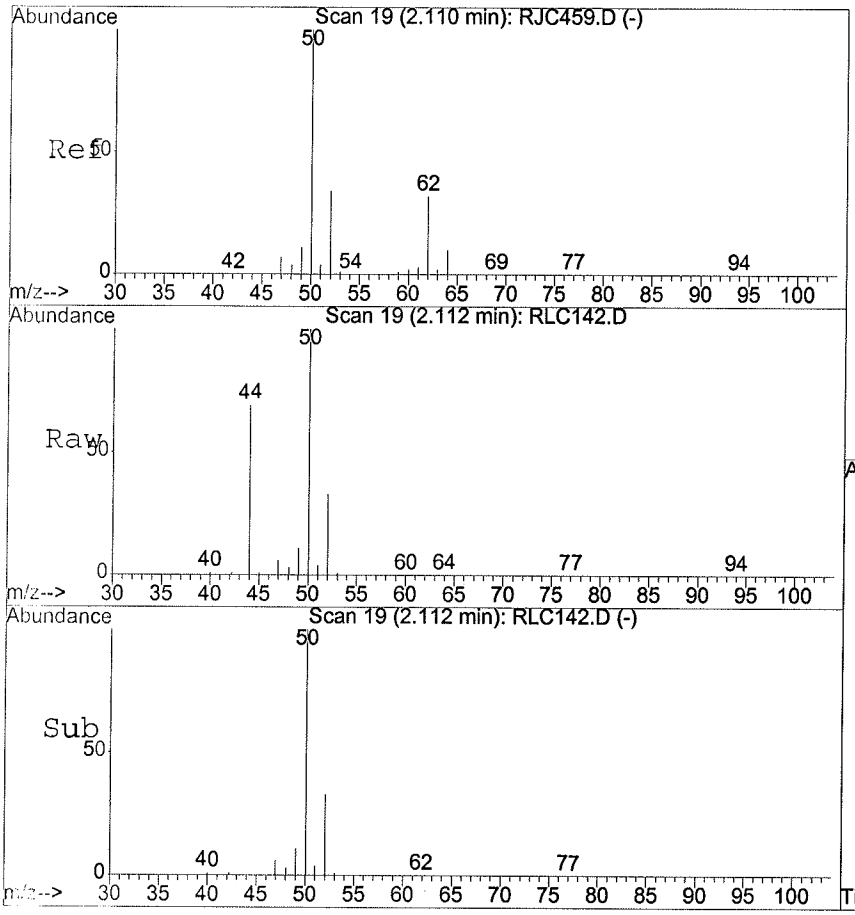
Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
75) Bromoform	17.09	173	20427	0.78	ug/l		97
76) 1,1,2,2-Tetrachloroethane	17.37	83	23323958	545.90	ug/l	E	78
95) Hexachlorobutadiene	21.15	225	45088	1.10	ug/l		98

(#) = qualifier out of range (m) = manual integration
RLC142.D VO67J30.M Fri Dec 11 12:11:39 2020 Page 2

Data File : D:\HPCHEM\1\DATA\20L10\RLC142.D Vial: 8
Acq On : 10 Dec 2020 4:23 pm Operator: VLu
Sample : 20L087-01 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:11 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

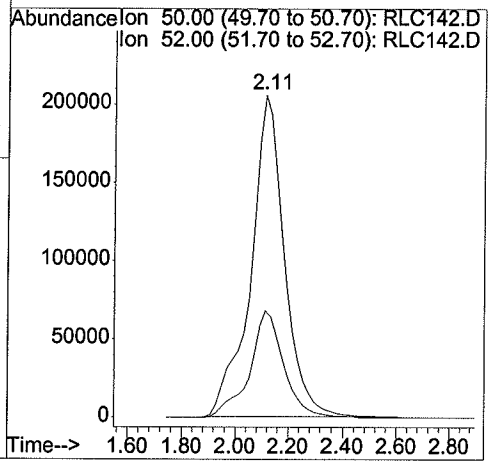


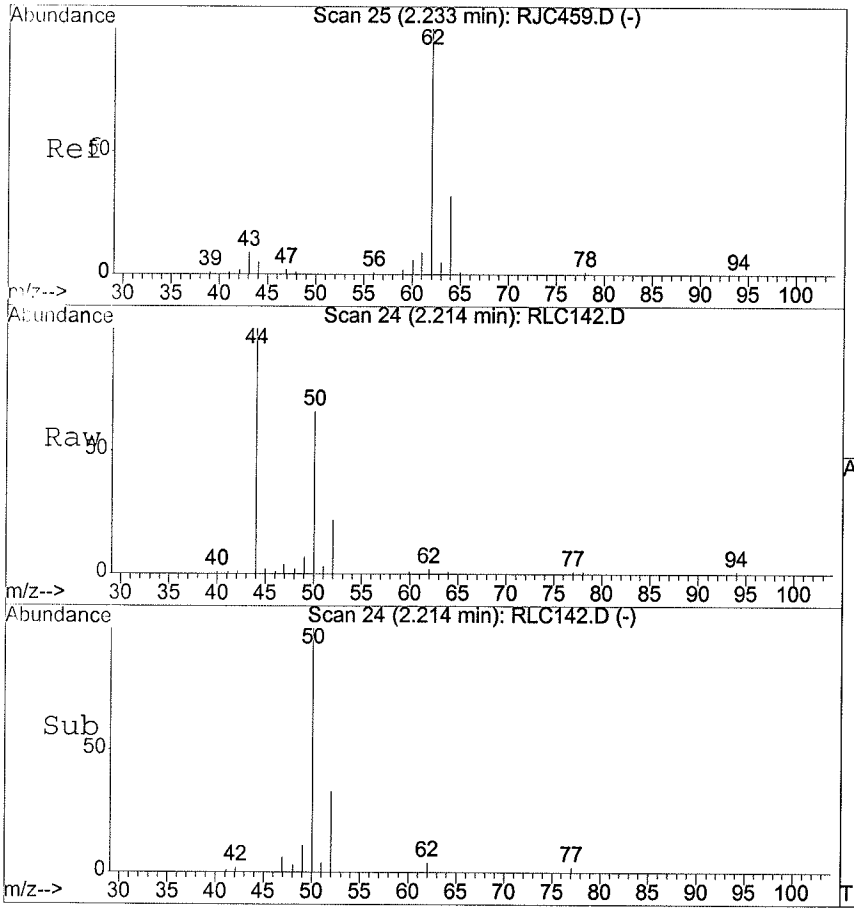


#4
Chloromethane
Concen: 13.91 ug/l
RT: 2.11 min Scan# 19
Delta R.T. 0.00 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 50 Resp: 1814898

Ion	Ratio	Lower	Upper
50	100		
52	33.7	3.5	63.5

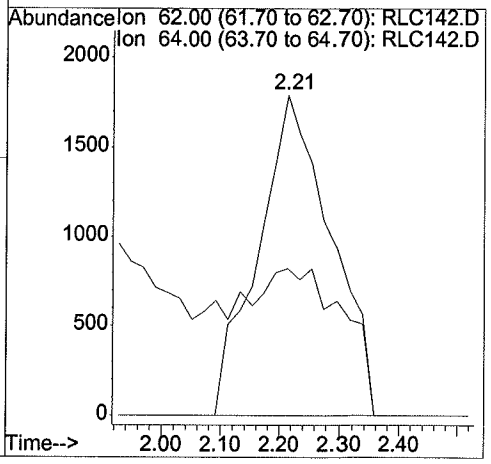


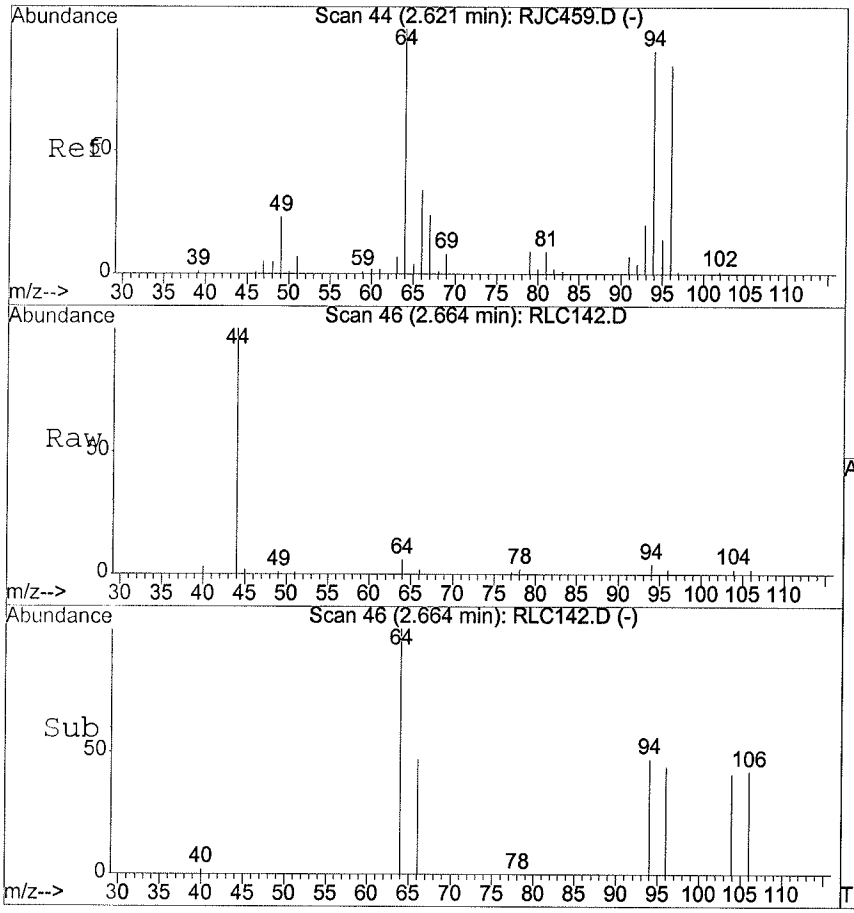


#5
Vinyl chloride
Concen: 0.12 ug/l
RT: 2.21 min Scan# 24
Delta R.T. -0.02 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 62 Resp: 15169

Ion	Ratio	Lower	Upper
62	100		
64	5.0	1.4	61.4

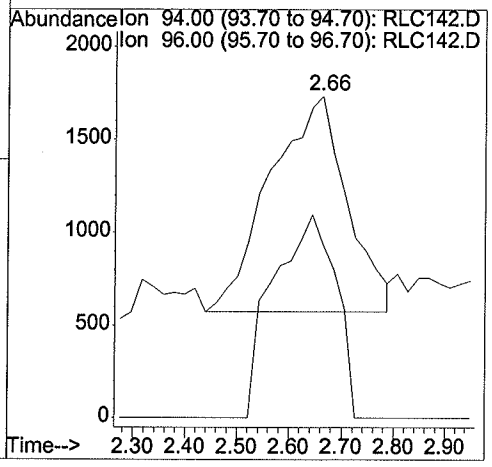


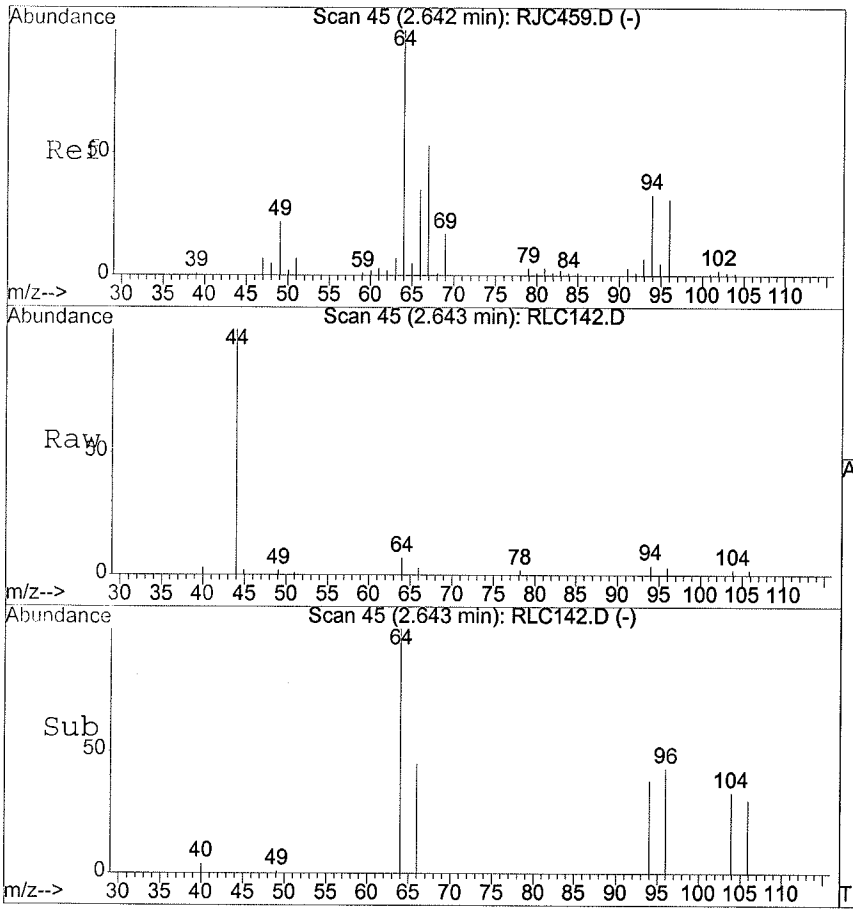


#6
Bromomethane
Concen: 0.11 ug/l
RT: 2.66 min Scan# 46
Delta R.T. 0.04 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 94 Resp: 11878

Ion	Ratio	Lower	Upper
94	100		
96	76.5	63.6	123.6

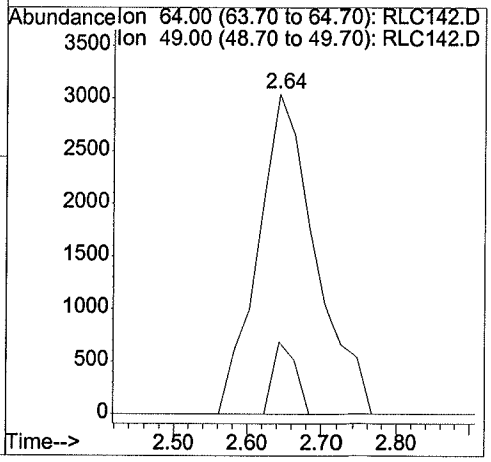


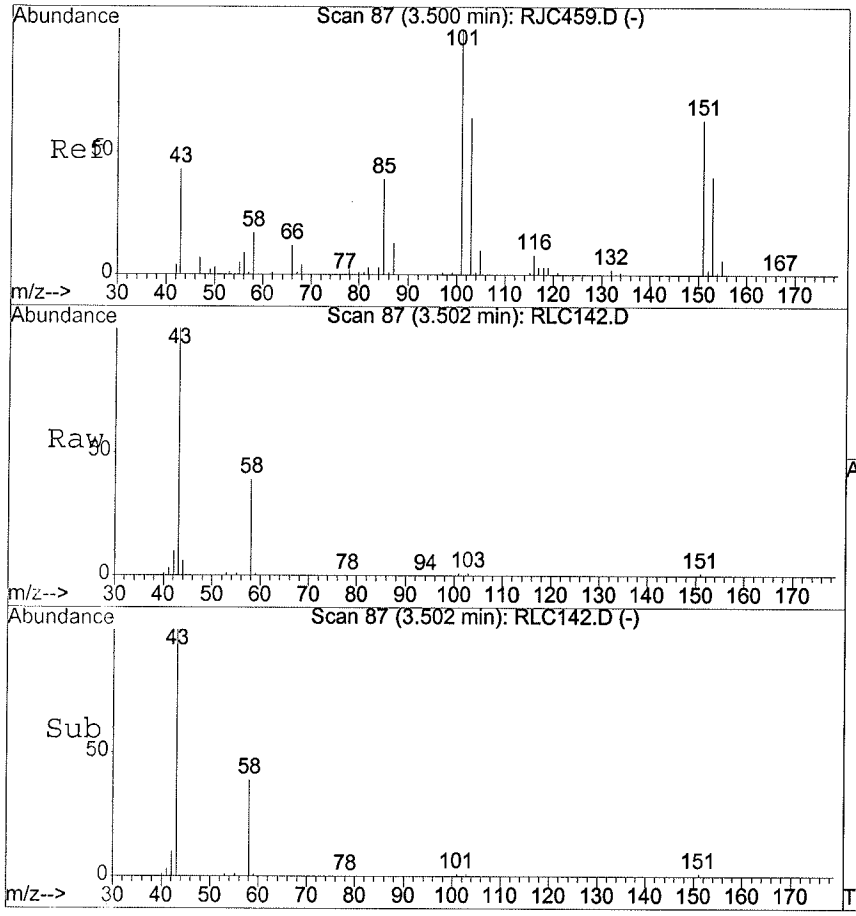


#7
Chloroethane
Concen: 0.18 ug/l
RT: 2.64 min Scan# 45
Delta R.T. 0.00 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 64 Resp: 16391

Ion	Ratio	Lower	Upper
64	100		
49	9.0	0.0	55.4

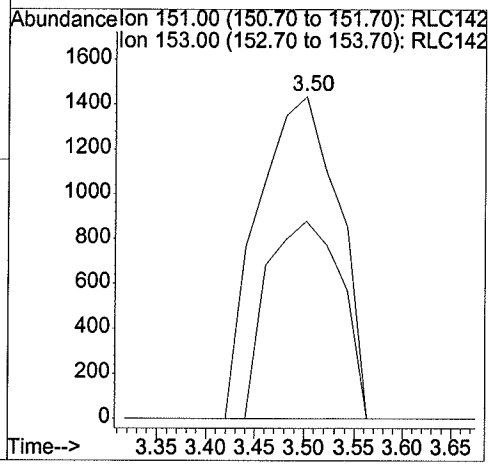


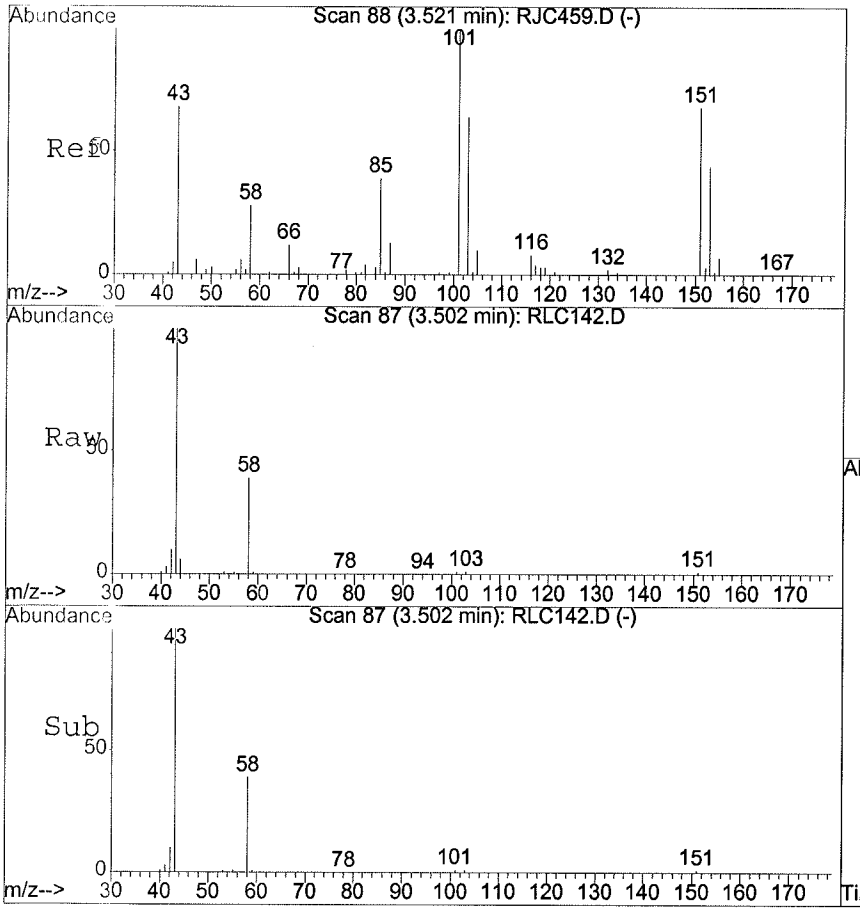


#12
1,1,2-Trichloro-1,2,2-trifluo
Concen: 0.12 ug/l
RT: 3.50 min Scan# 87
Delta R.T. 0.00 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion:151 Resp: 8056

Ion	Ratio	Lower	Upper
151	100		
153	56.4	34.0	94.0

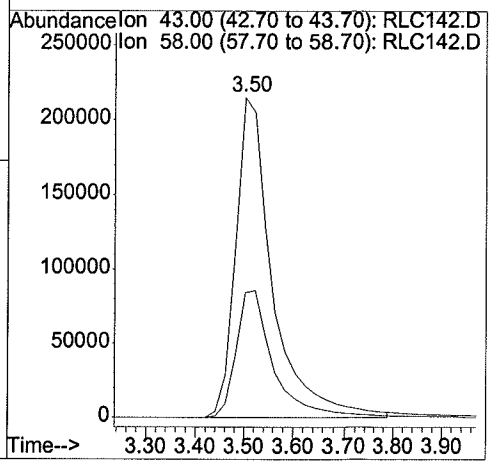


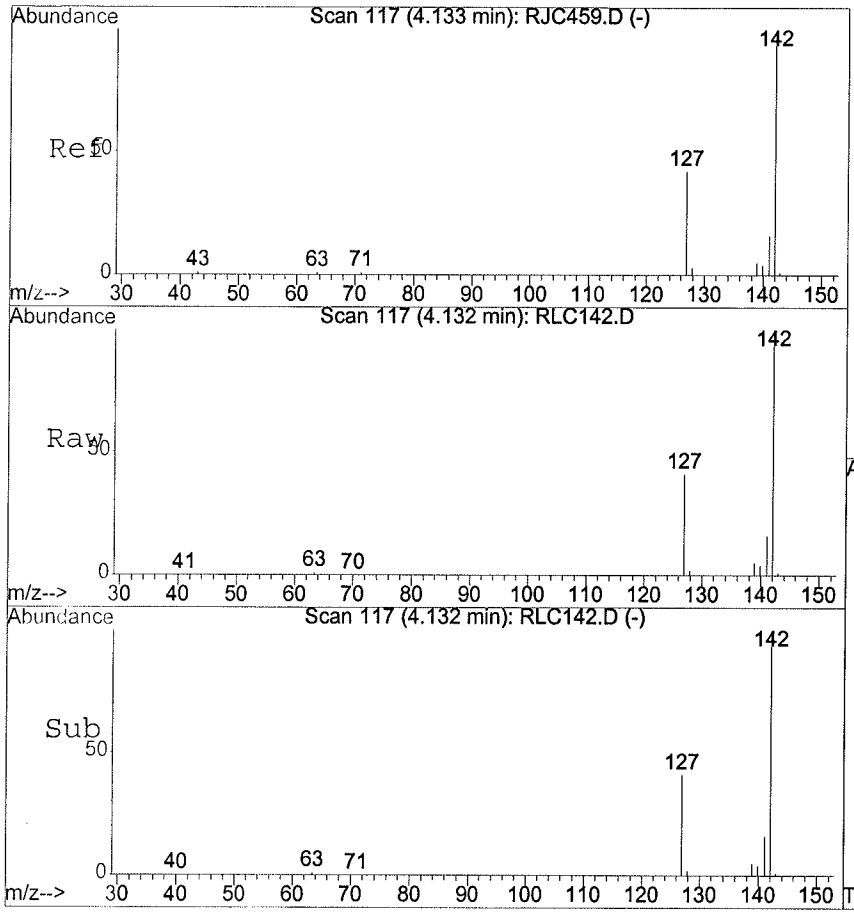


#13
Acetone
Concen: 149.65 ug/l
RT: 3.50 min Scan# 87
Delta R.T. -0.02 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 43 Resp: 1137261

Ion	Ratio	Lower	Upper
43	100		
58	40.2	12.2	72.2

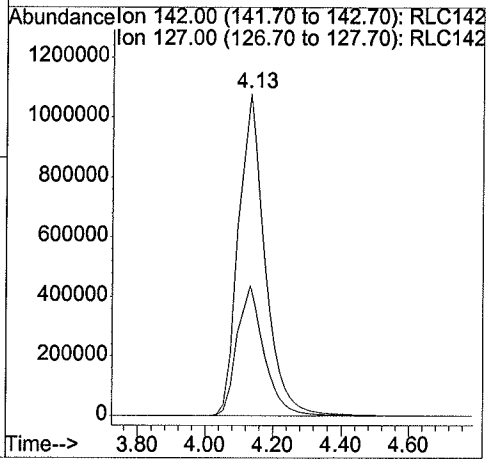


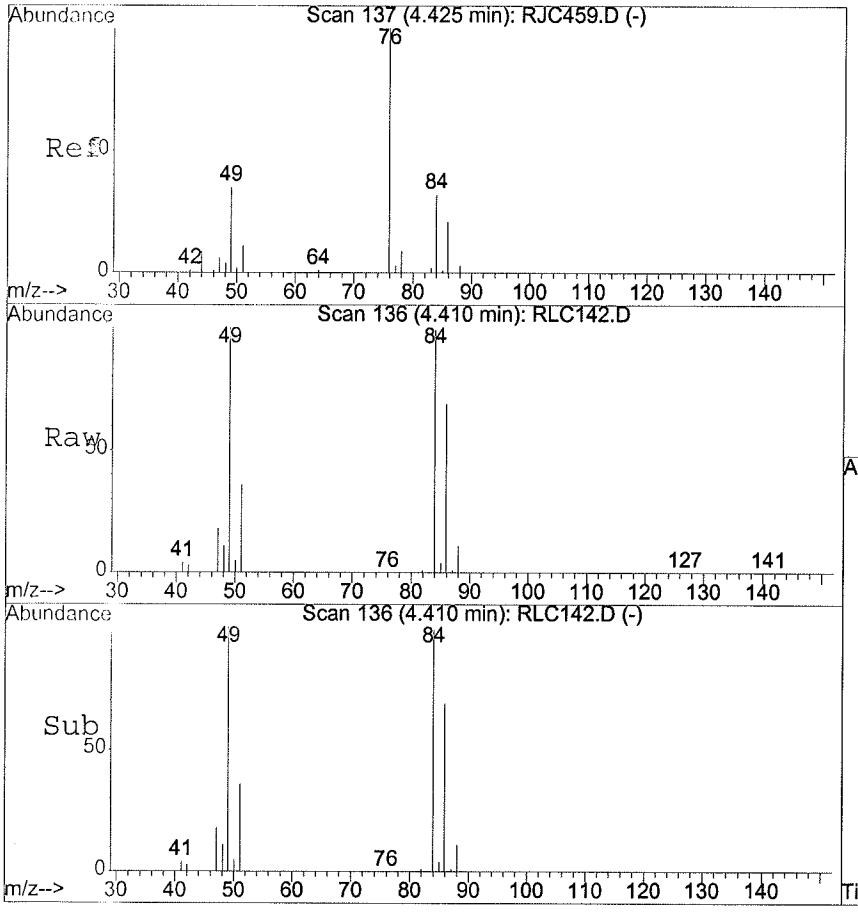


#17
Iodomethane
Concen: 36.19 ug/l
RT: 4.13 min Scan# 117
Delta R.T. -0.00 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion:142 Resp: 4982558

Ion	Ratio	Lower	Upper
142	100		
127	41.3	12.5	72.5

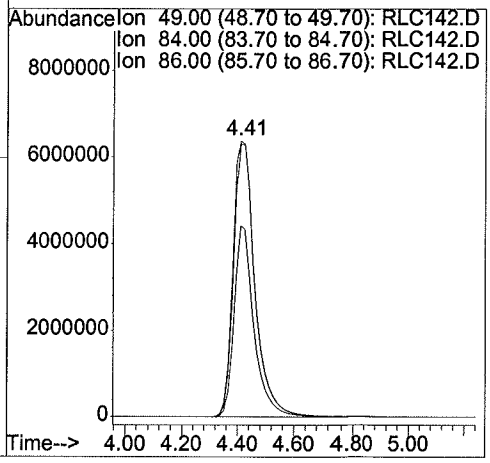


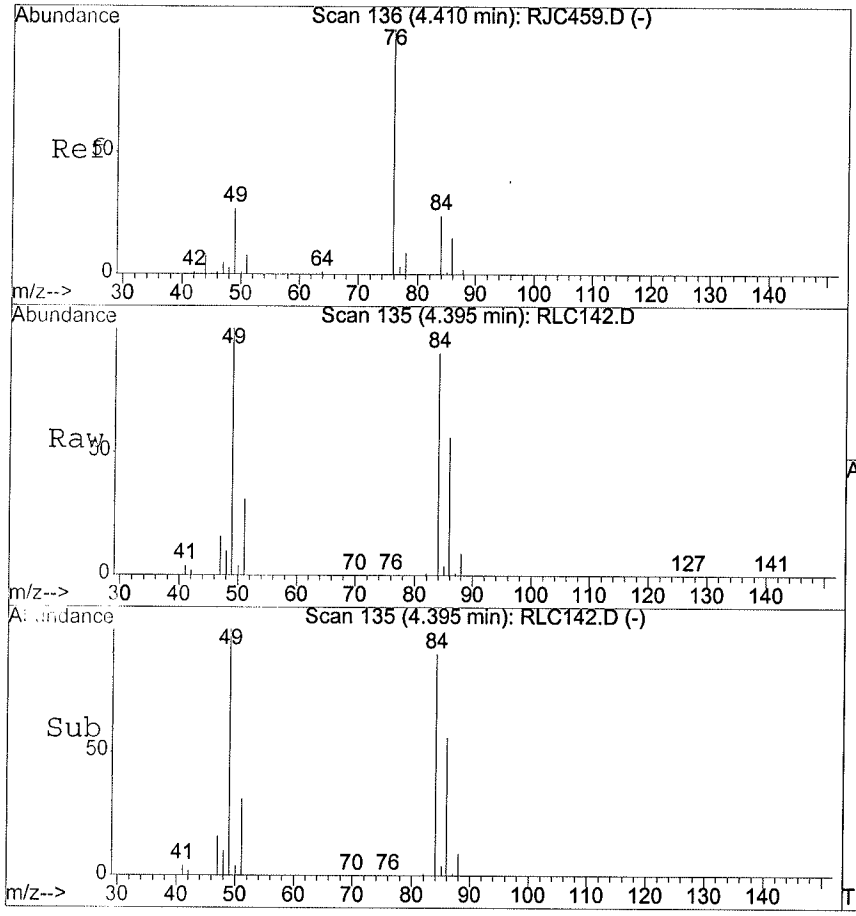


#19
Methylene chloride
Concen: 322.27 ug/l
RT: 4.41 min Scan# 136
Delta R.T. -0.02 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 49 Resp:34766998

Ion	Ratio	Lower	Upper
49	100		
84	95.9	60.1	120.1
86	62.6	27.5	87.5

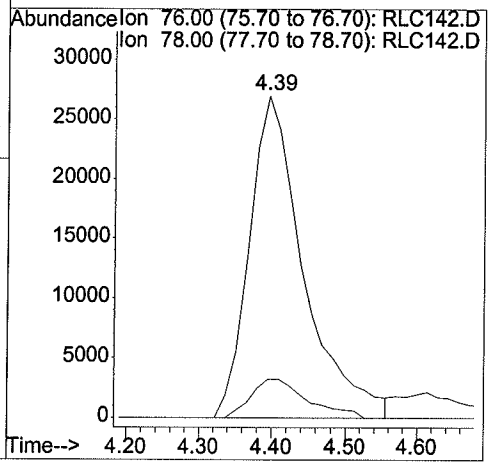


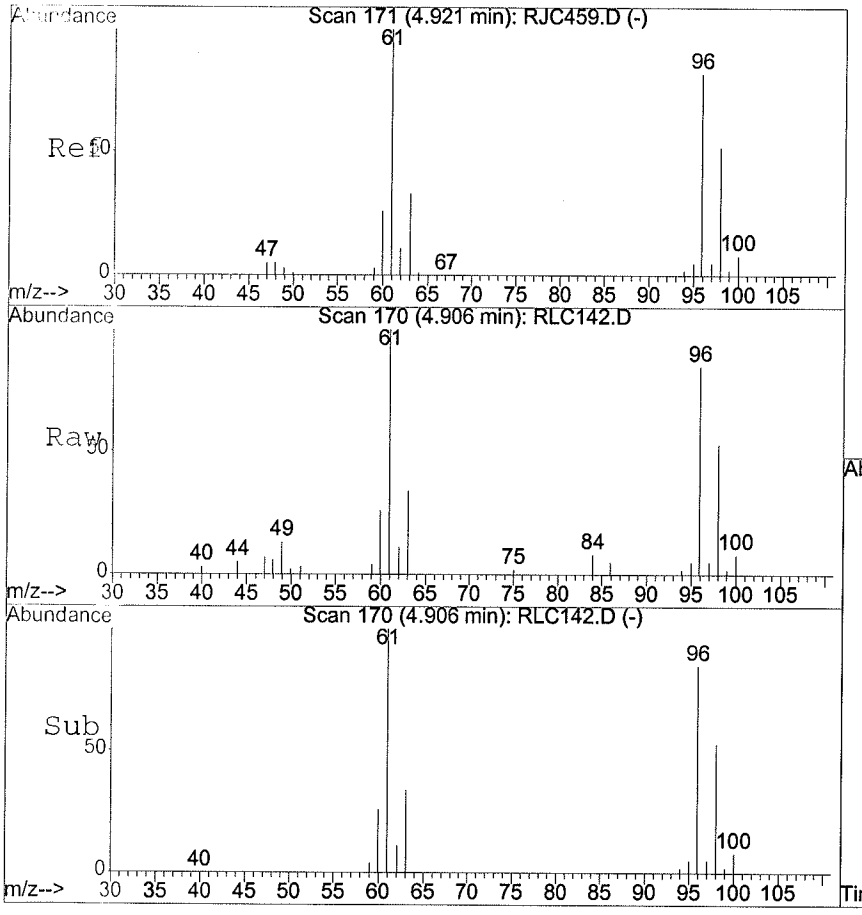


#20
Carbon disulfide
Concen: 0.37 ug/l
RT: 4.39 min Scan# 135
Delta R.T. -0.02 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 76 Resp: 137994

Ion	Ratio	Lower	Upper
76	100		
78	12.6	0.0	39.1

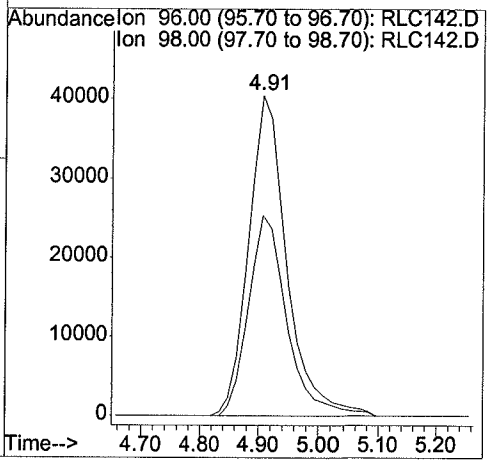


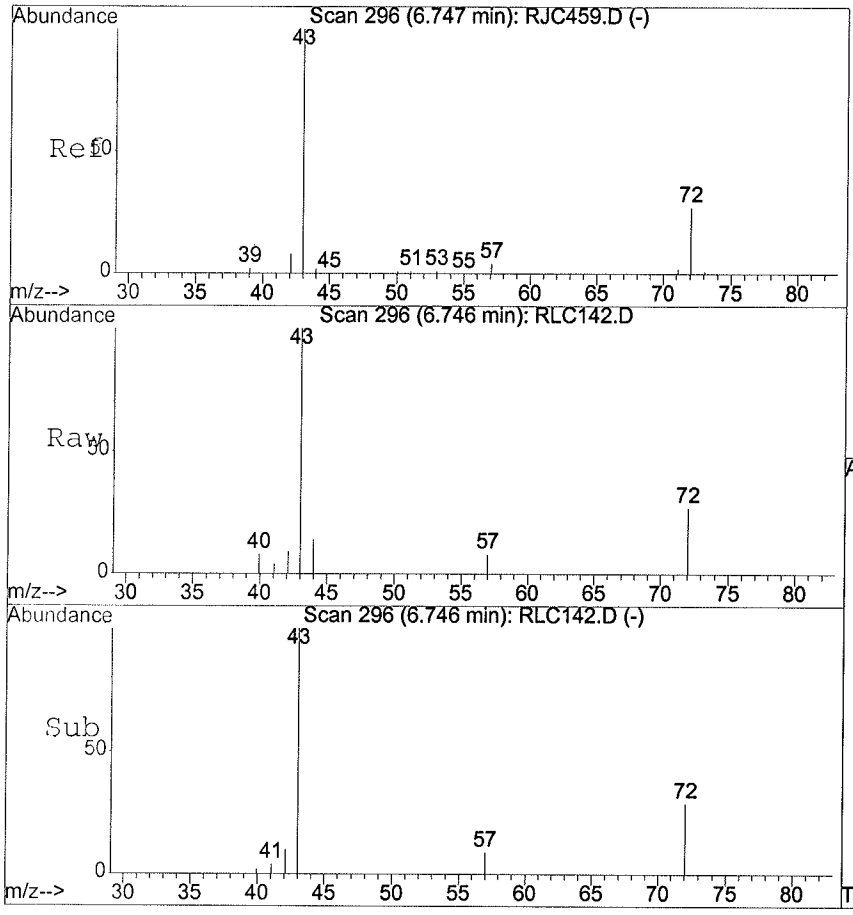


#23
trans-1,2-Dichloroethene
Concen: 1.65 ug/l
RT: 4.91 min Scan# 170
Delta R.T. -0.02 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 96 Resp: 180302

Ion	Ratio	Lower	Upper
96	100		
98	63.1	32.6	92.6

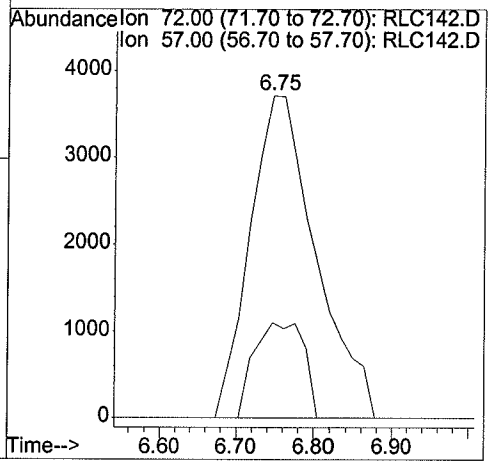


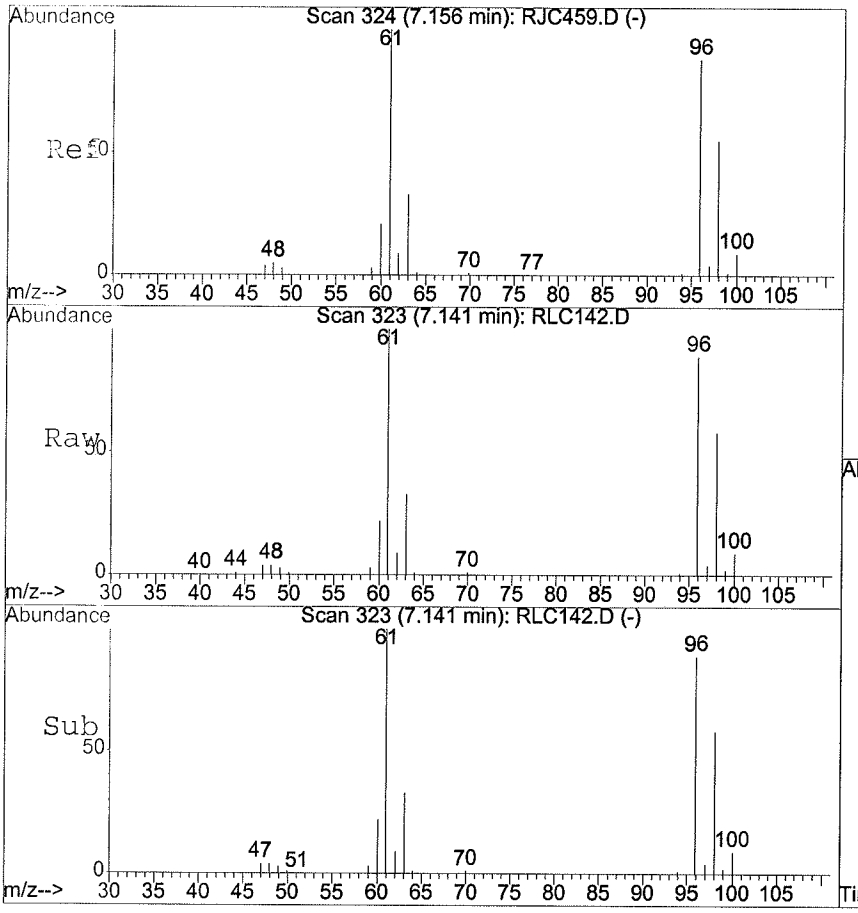


#29
2-Butanone
Concen: 6.87 ug/l
RT: 6.75 min Scan# 296
Delta R.T. -0.00 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 72 Resp: 21851

Ion	Ratio	Lower	Upper
72	100		
57	22.5	2.7	62.7

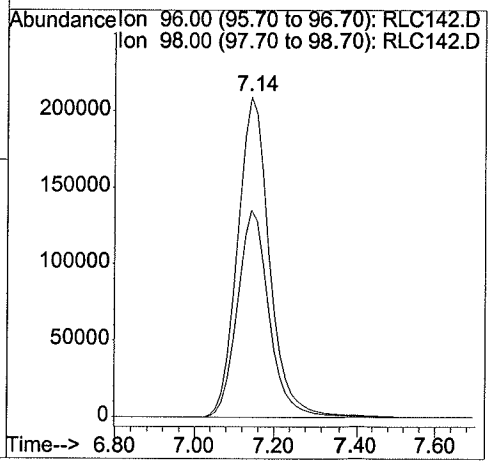


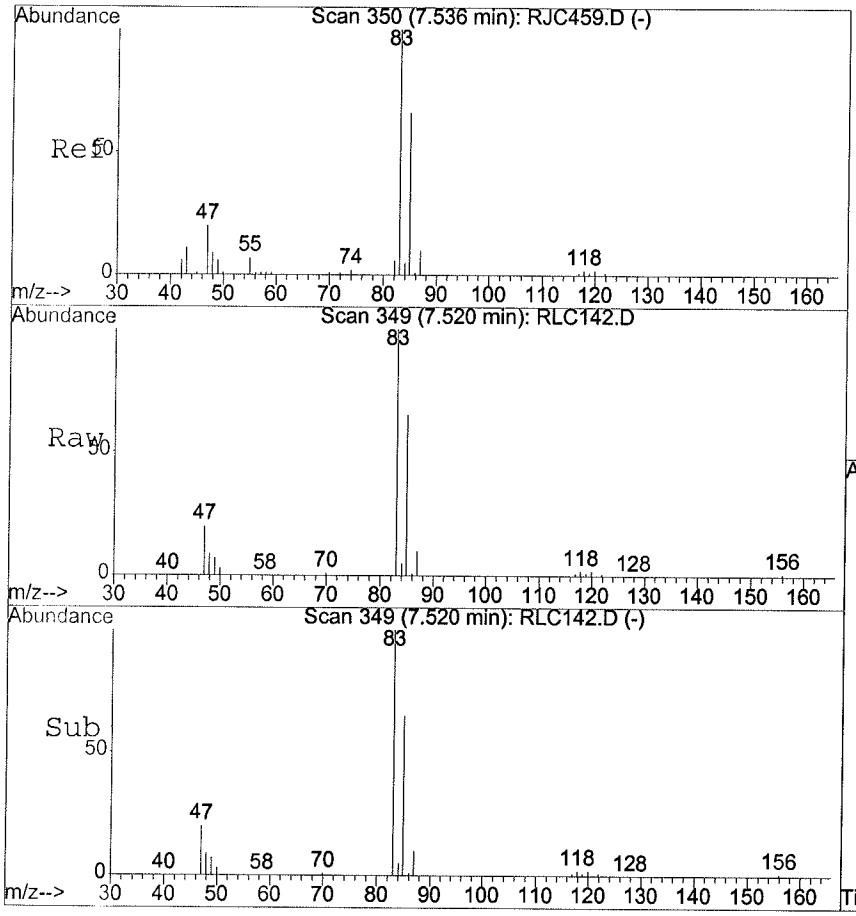


#31
cis-1,2-Dichloroethene
Concen: 10.97 ug/l
RT: 7.14 min Scan# 323
Delta R.T. -0.02 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 96 Resp: 1165861

Ion	Ratio	Lower	Upper
96	100		
98	64.1	33.5	93.5

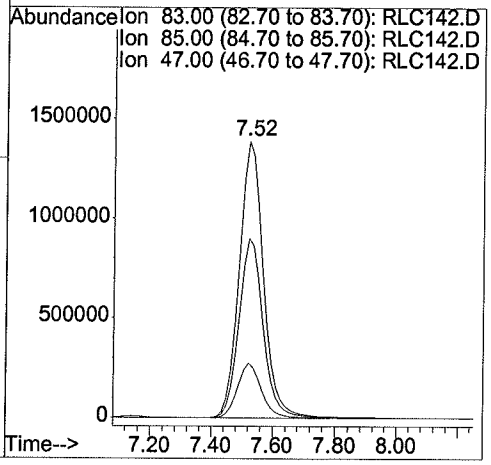


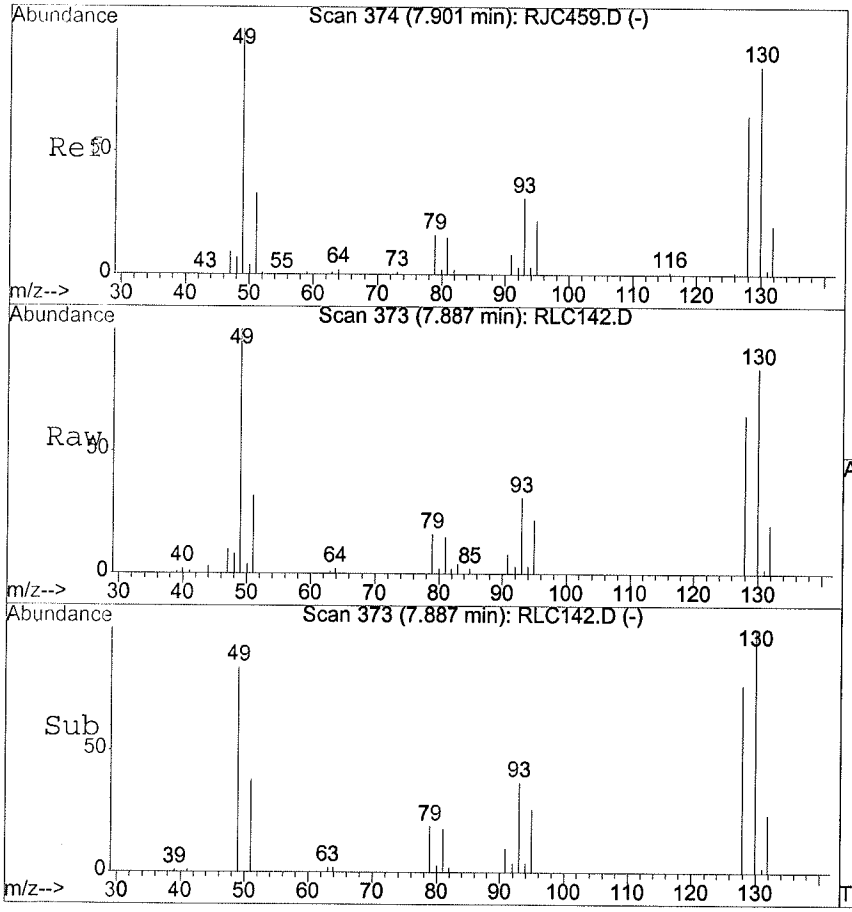


#32
Chloroform
Concen: 49.51 ug/l
RT: 7.52 min Scan# 349
Delta R.T. -0.02 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 83 Resp: 7788380

Ion	Ratio	Lower	Upper
83	100		
85	64.9	37.8	97.8
47	19.8	0.0	50.5

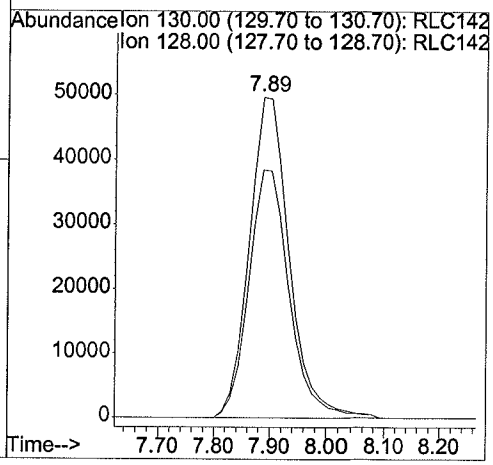


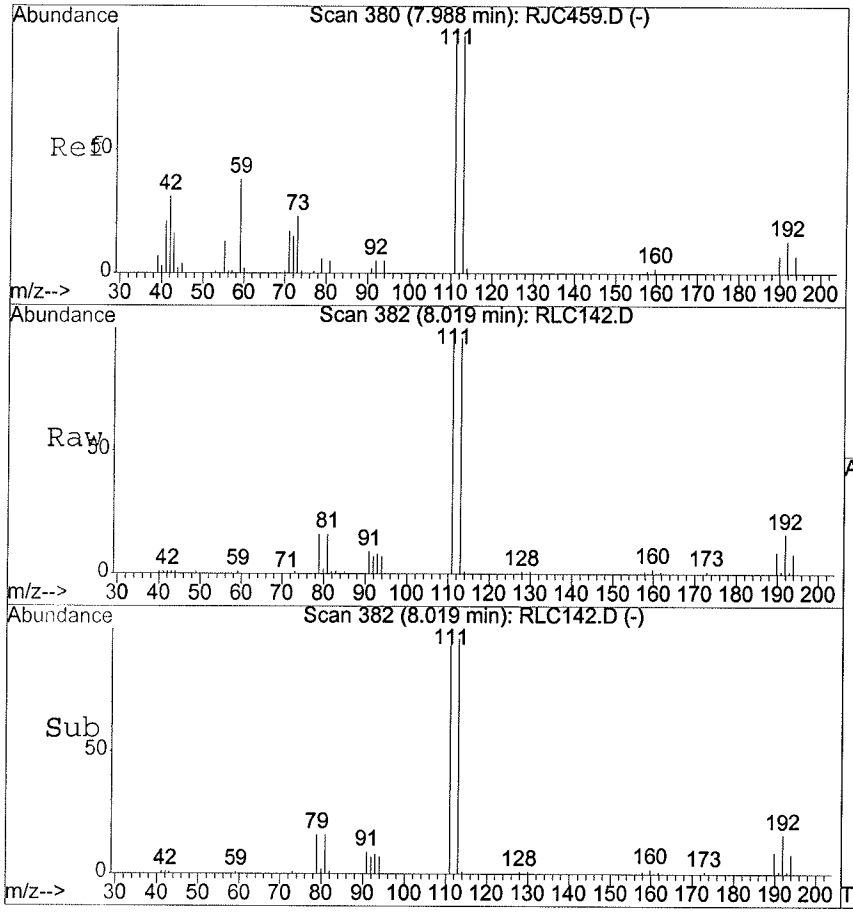


#33
Bromochloromethane
Concen: 5.26 ug/l
RT: 7.89 min Scan# 373
Delta R.T. -0.01 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion:130 Resp: 245403

Ion	Ratio	Lower	Upper
130	100		
128	78.6	48.1	108.1

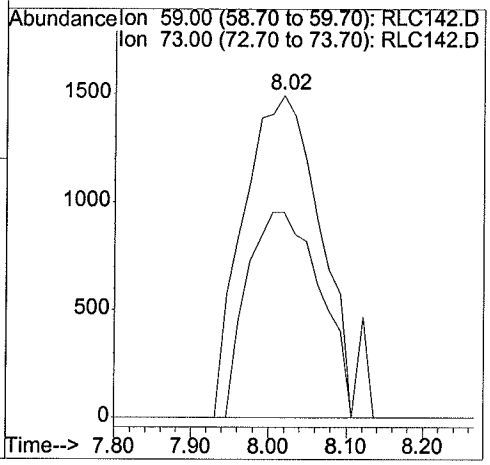


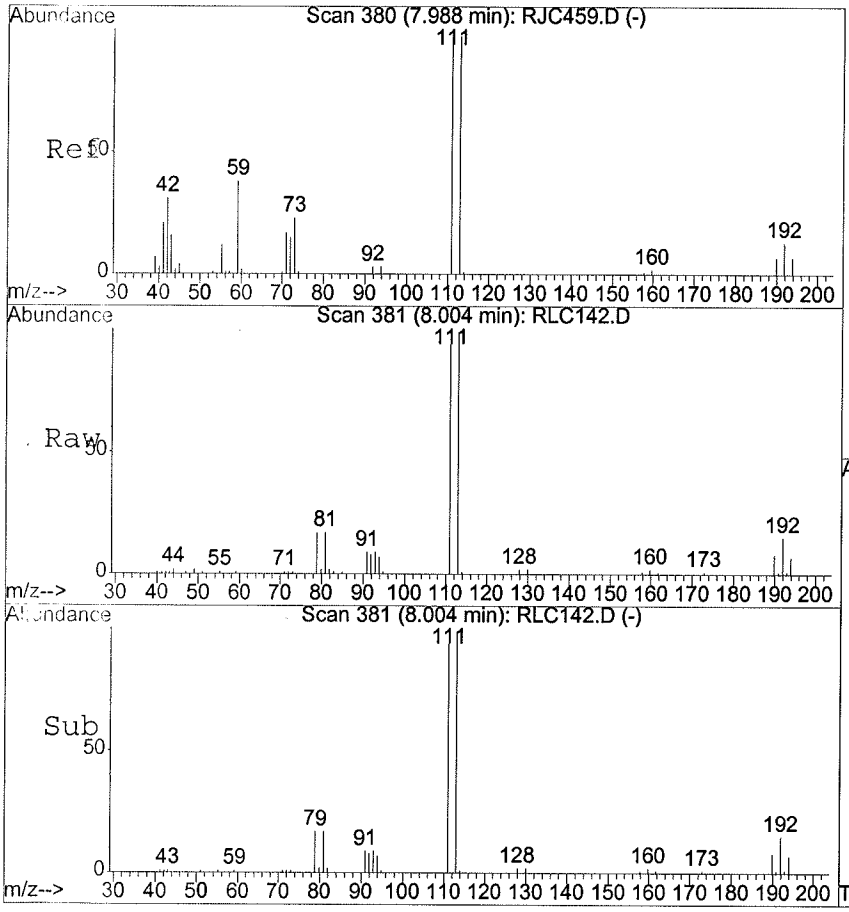


#34
tert-Amyl alcohol
Concen: 4.82 ug/l
RT: 8.02 min Scan# 382
Delta R.T. 0.03 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 59 Resp: 10539

Ion	Ratio	Lower	Upper
59	100		
73	59.2	29.7	89.7

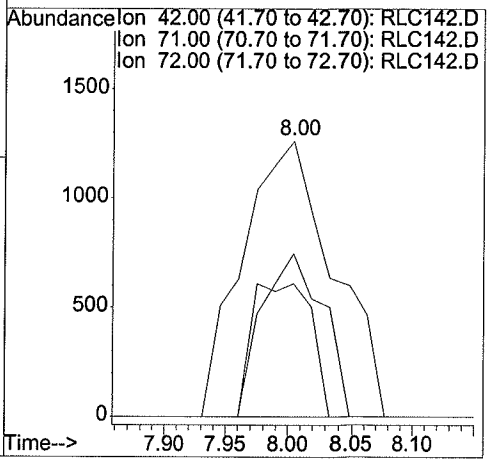


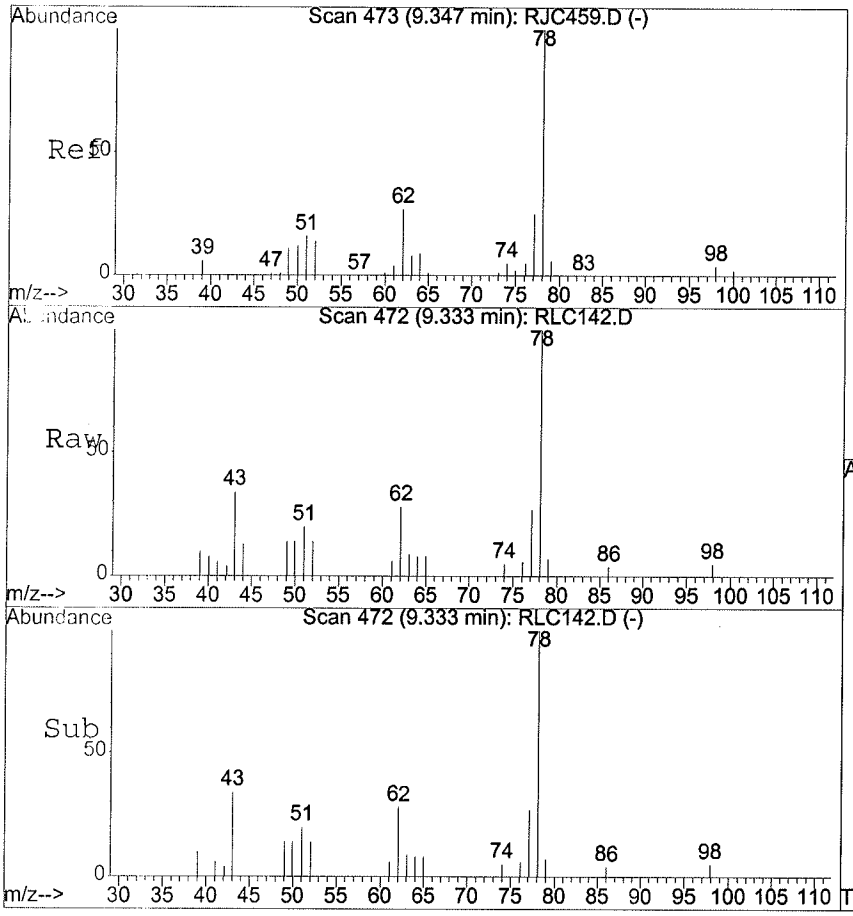


#36
Tetrahydrofuran
Concen: 0.79 ug/l
RT: 8.00 min Scan# 381
Delta R.T. 0.02 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 42 Resp: 6333

Ion	Ratio	Lower	Upper
42	100		
71	39.7	22.5	82.5
72	16.3	15.9	75.9

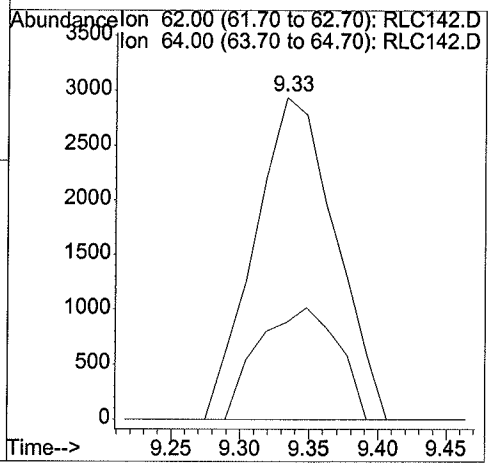


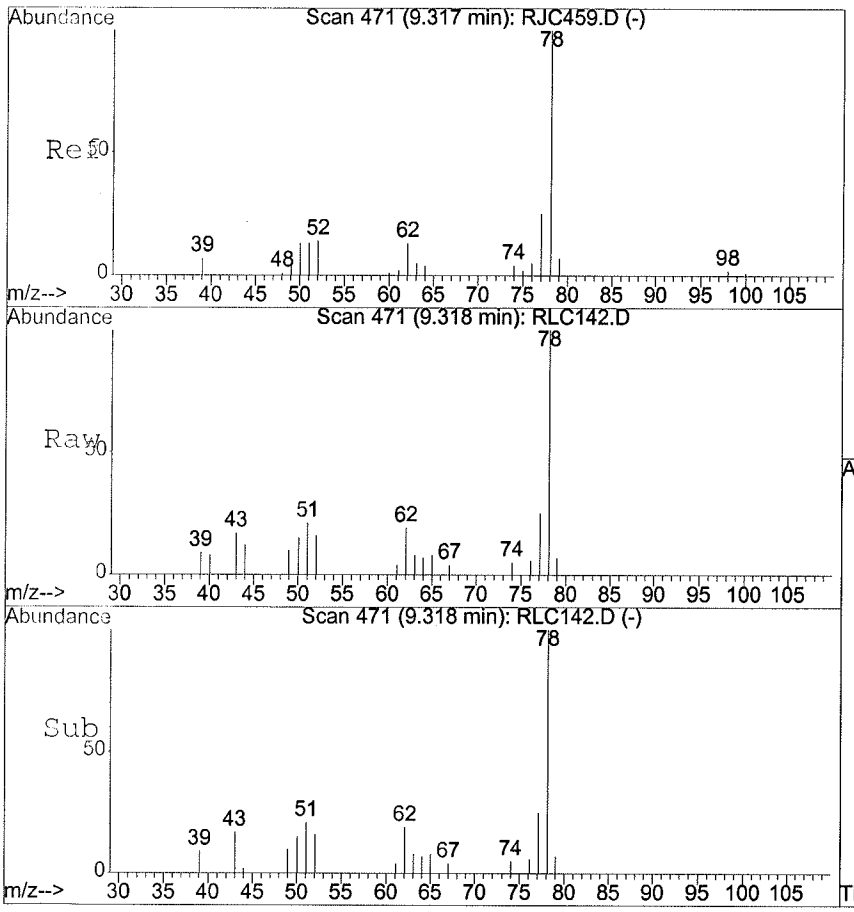


#44
1,2-Dichloroethane
Concen: 0.19 ug/l
RT: 9.33 min Scan# 472
Delta R.T. -0.01 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 62 Resp: 11939

Ion	Ratio	Lower	Upper
62	100		
64	34.2	3.1	63.1

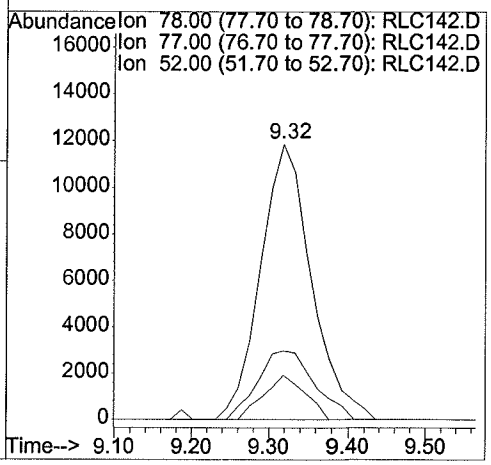


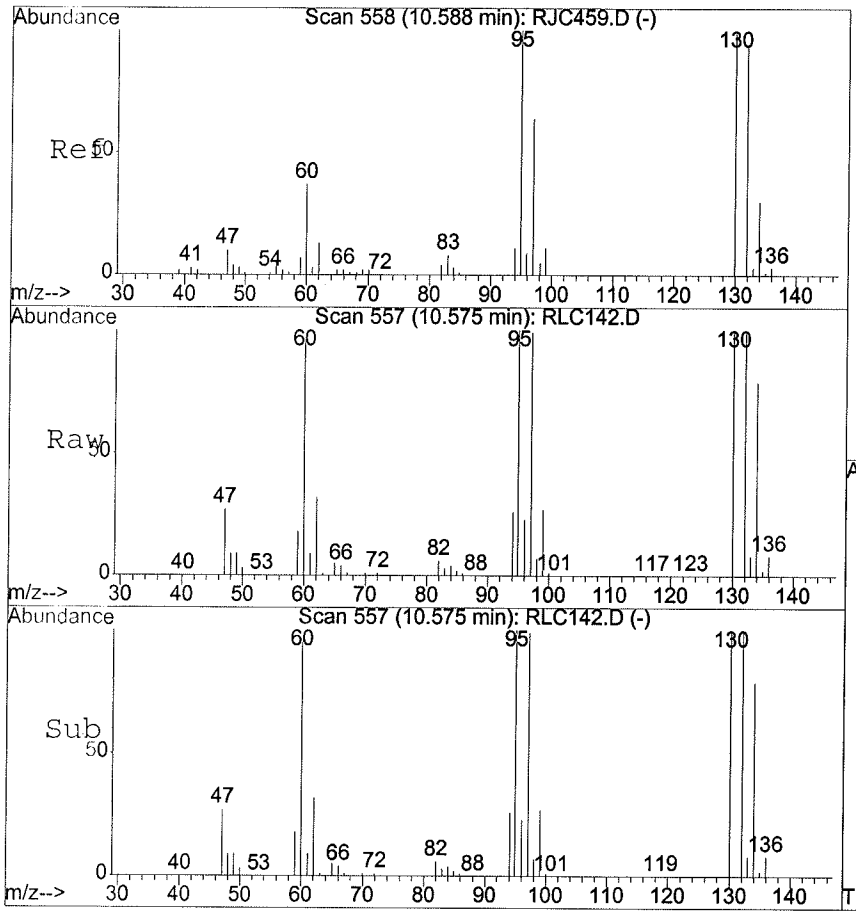


#45
Benzene
Concen: 0.15 ug/l
RT: 9.32 min Scan# 471
Delta R.T. 0.00 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 78 Resp: 53808

Ion	Ratio	Lower	Upper
78	100		
77	27.9	0.0	55.1
52	13.4	0.0	44.3

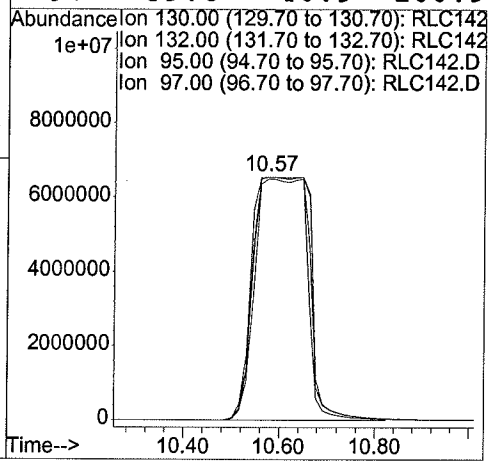


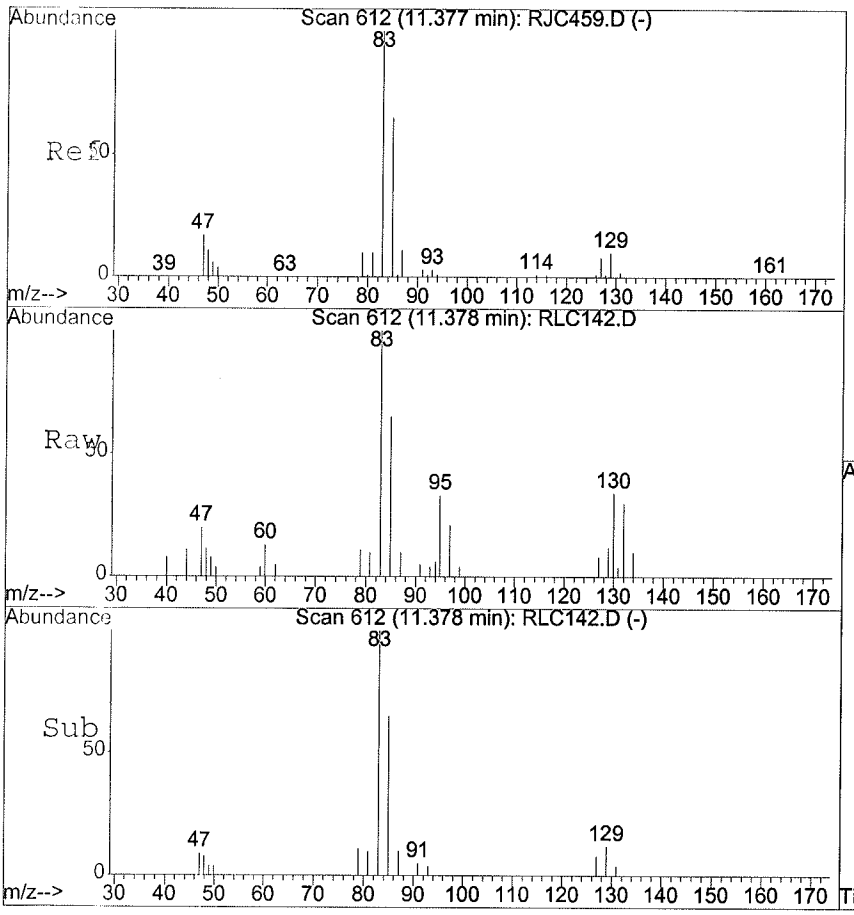


#46
Trichloroethene
Concen: 558.74 ug/l
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion:130 Resp:53379722

Ion	Ratio	Lower	Upper
130	100		
132	99.3	65.5	125.5
95	99.6	73.3	133.3
97	89.6	40.9	100.9

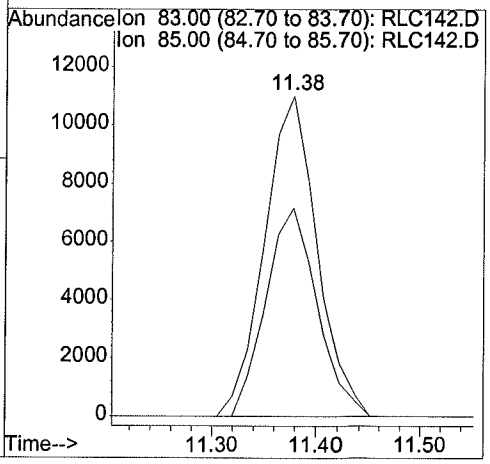


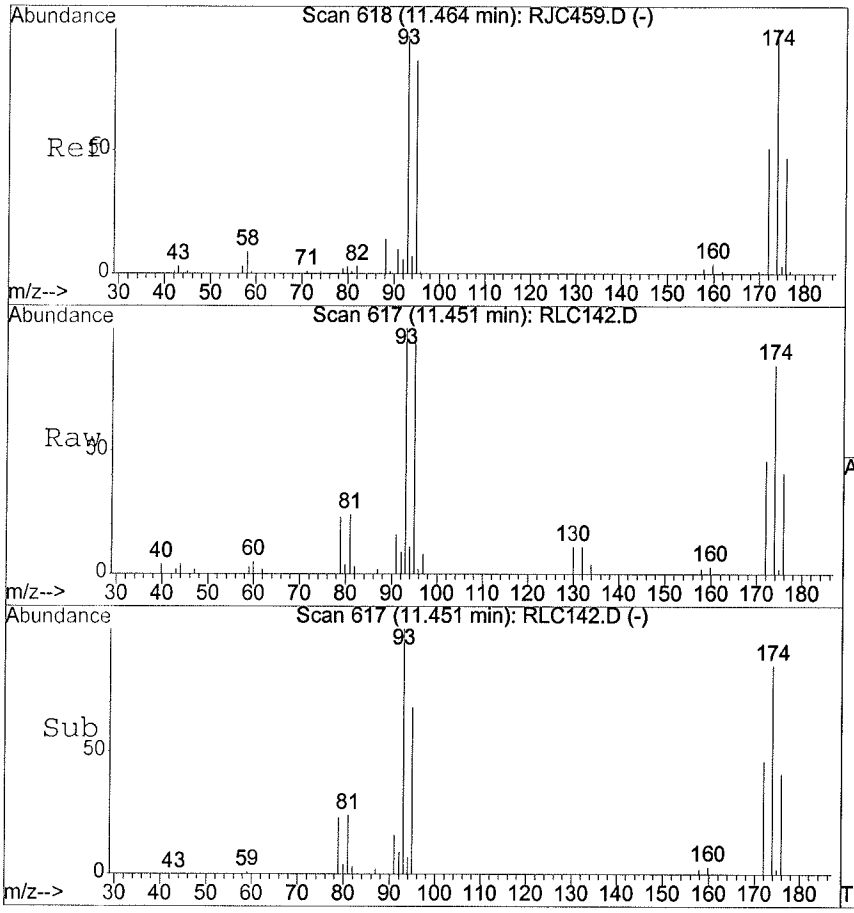


#49
Bromodichloromethane
Concen: 0.40 ug/l
RT: 11.38 min Scan# 612
Delta R.T. 0.00 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 83 Resp: 38534

Ion	Ratio	Lower	Upper
83	100		
85	63.6	34.3	94.3

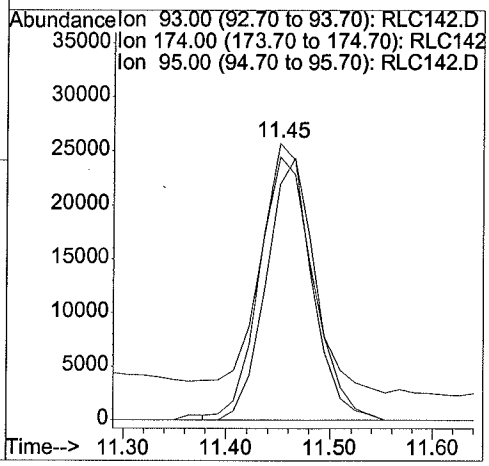


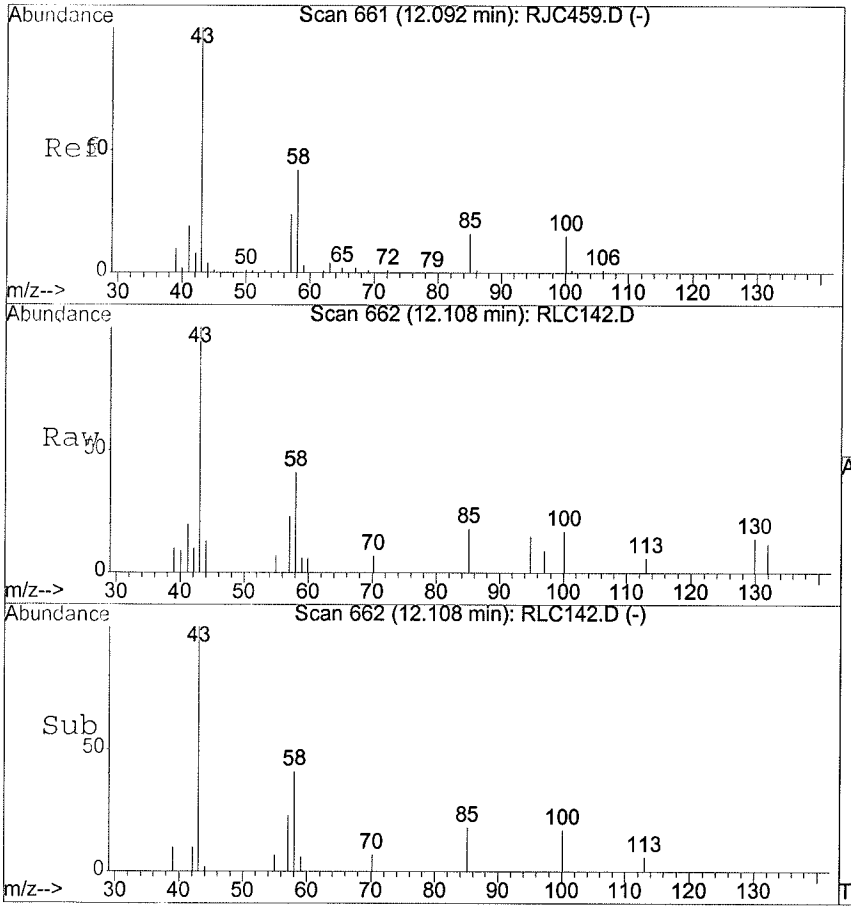


#51
Dibromomethane
Concen: 2.40 ug/l
RT: 11.45 min Scan# 617
Delta R.T. -0.01 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 93 Resp: 88301

Ion	Ratio	Lower	Upper
93	100		
174	92.3	60.4	120.4
95	95.3	51.8	111.8

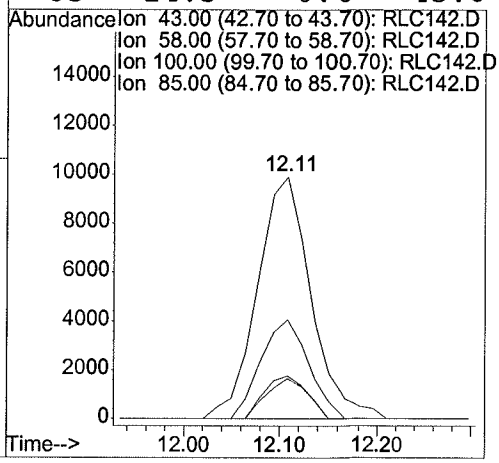


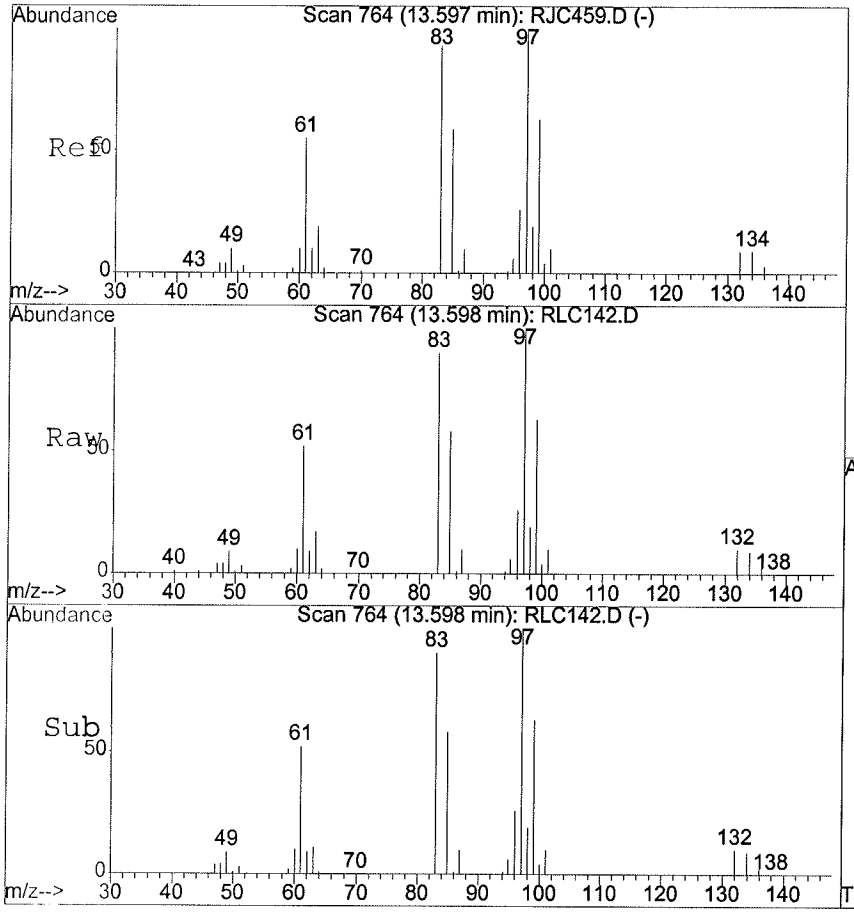


#53
4-Methyl-2-pentanone
Concen: 1.32 ug/l
RT: 12.11 min Scan# 662
Delta R.T. 0.02 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 43 Resp: 38564

Ion	Ratio	Lower	Upper
43	100		
58	36.6	10.0	70.0
100	12.9	0.0	45.2
85	14.3	0.0	45.6

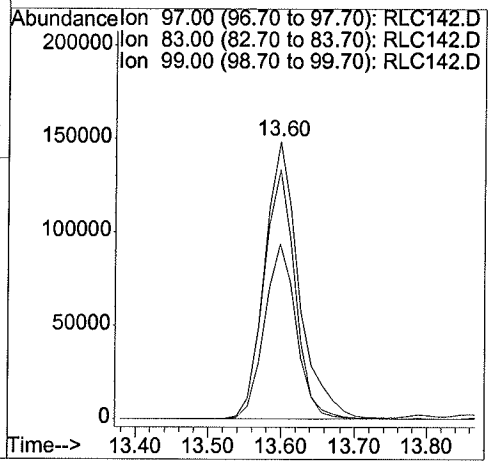


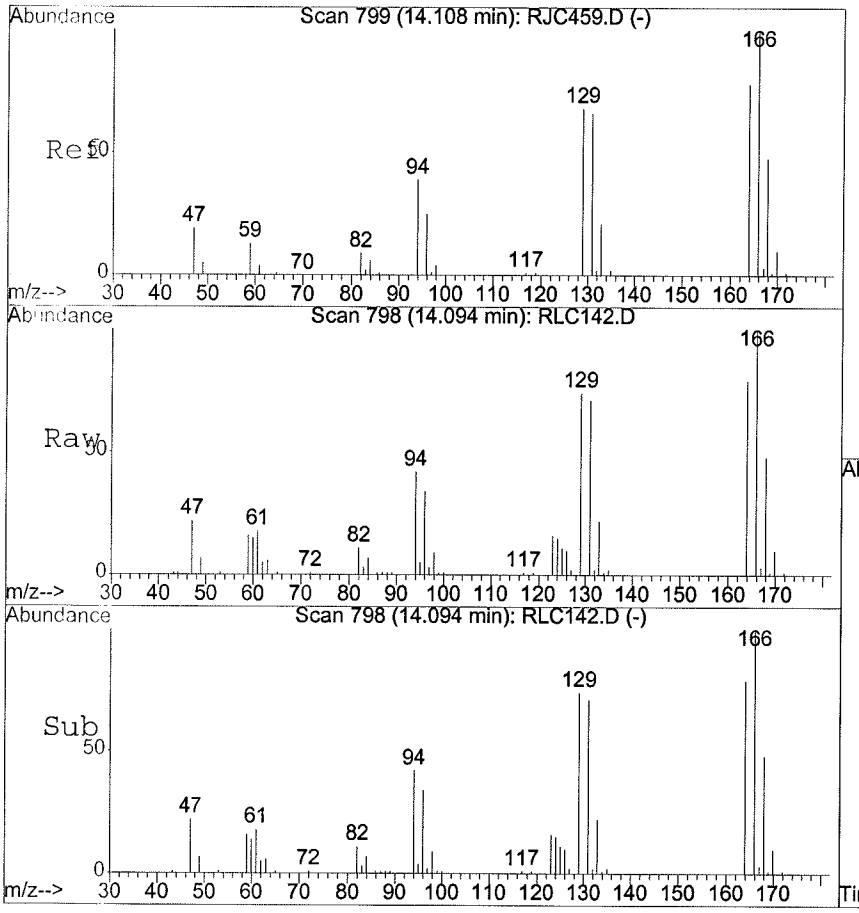


#60
1,1,2-Trichloroethane
Concen: 10.78 ug/l
RT: 13.60 min Scan# 764
Delta R.T. 0.00 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 97 Resp: 490193

Ion	Ratio	Lower	Upper
97	100		
83	81.3	60.6	120.6
99	58.7	33.2	93.2

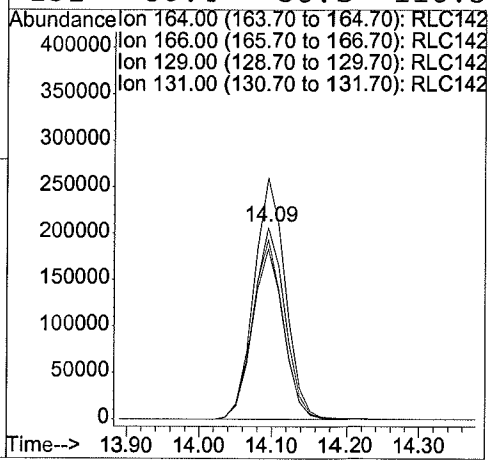


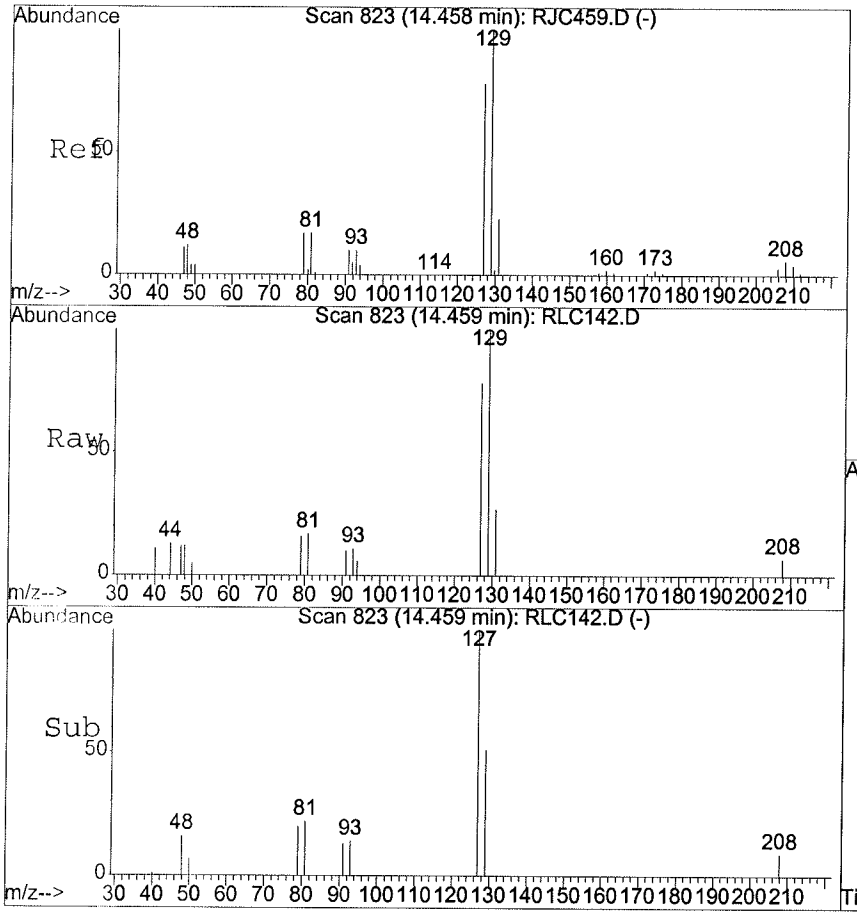


#63
Tetrachloroethene
Concen: 8.36 ug/l
RT: 14.09 min Scan# 798
Delta R.T. -0.01 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion:164 Resp: 622274

Ion	Ratio	Lower	Upper
164	100		
166	126.0	97.5	157.5
129	92.3	61.9	121.9
131	88.4	58.5	118.5

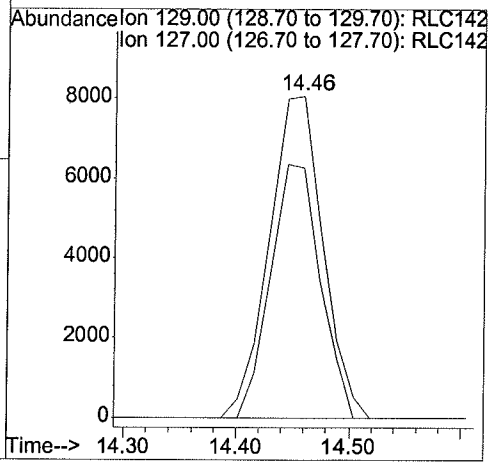


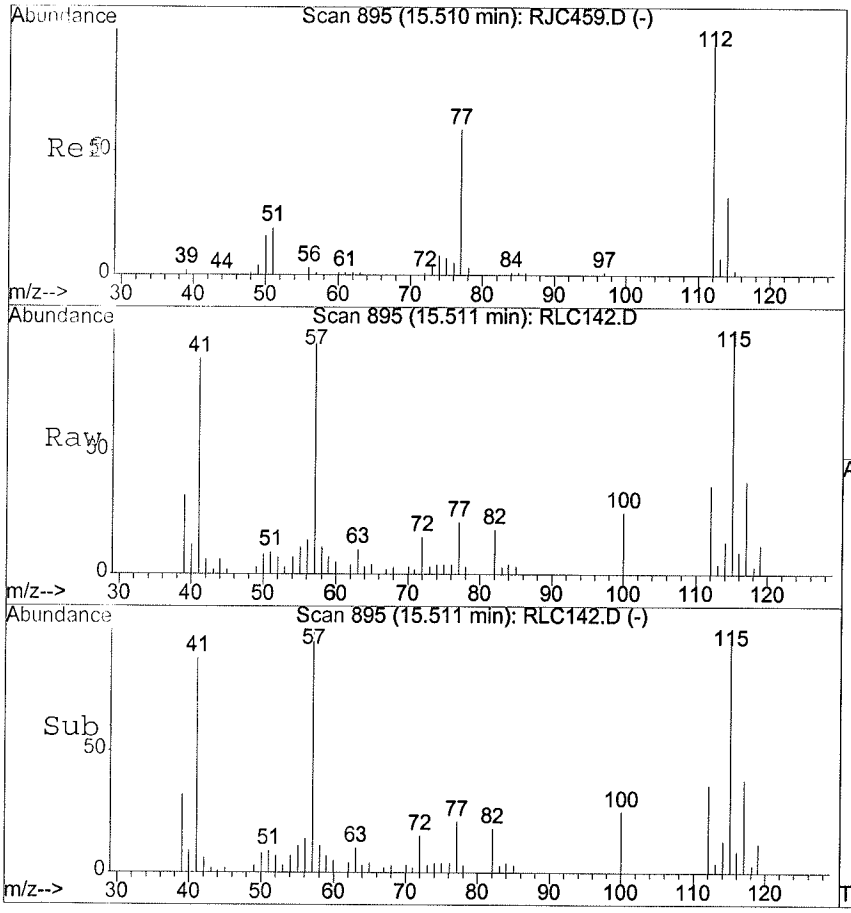


#64
Dibromochloromethane
Concen: 0.49 ug/l
RT: 14.46 min Scan# 823
Delta R.T. 0.00 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion:129 Resp: 26811

Ion	Ratio	Lower	Upper
129	100		
127	73.1	47.4	107.4

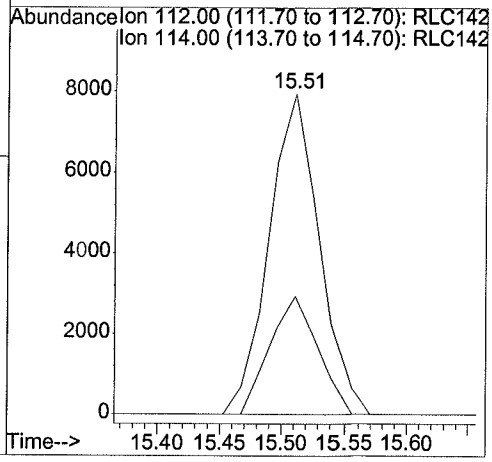


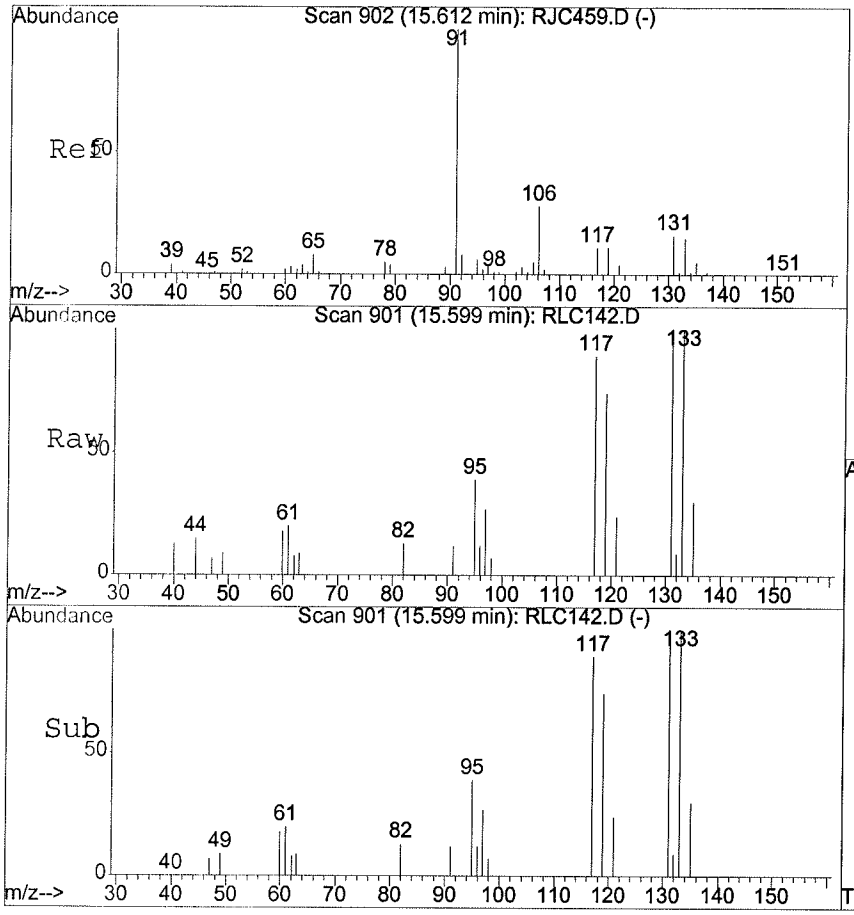


#67
Chlorobenzene
Concen: 0.11 ug/l
RT: 15.51 min Scan# 895
Delta R.T. 0.00 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion:112 Resp: 22513

Ion	Ratio	Lower	Upper
112	100		
114	35.2	2.2	62.2

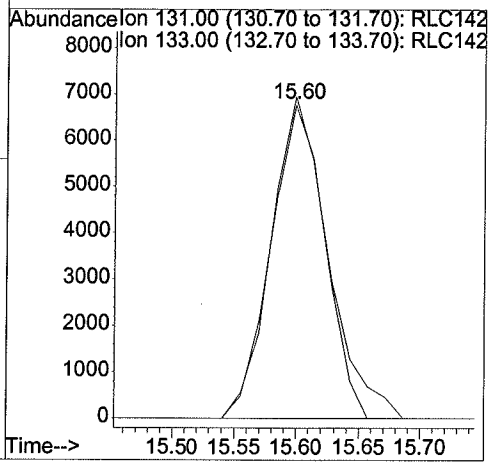


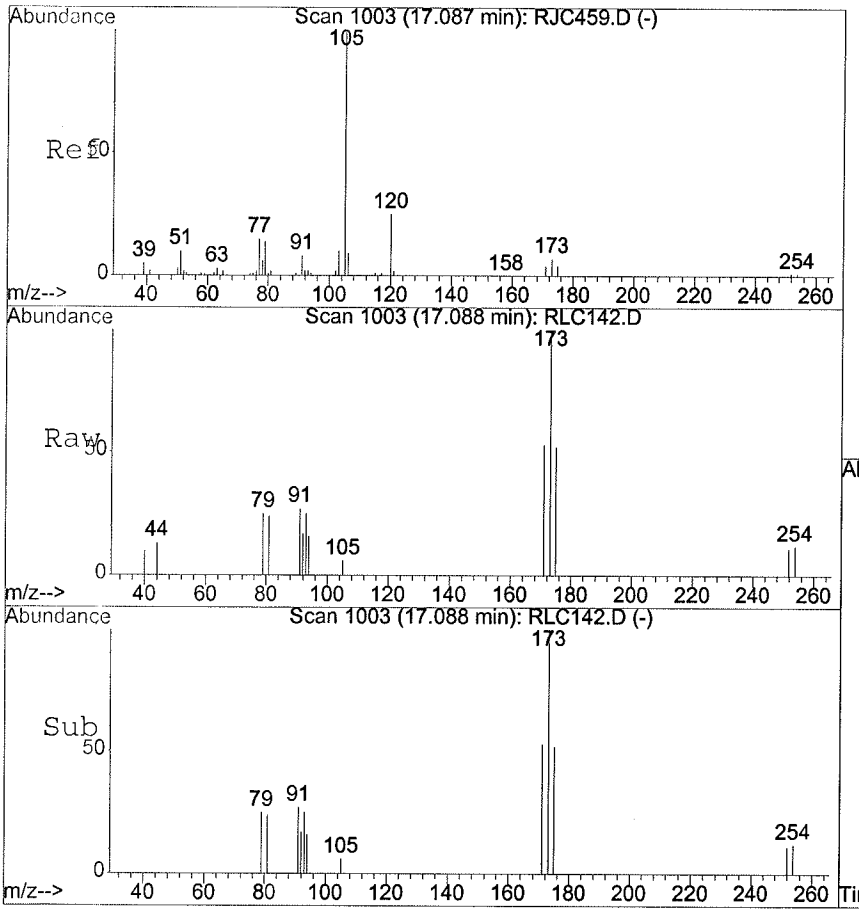


#68
1,1,1,2-Tetrachloroethane
Concen: 0.31 ug/l
RT: 15.60 min Scan# 901
Delta R.T. -0.01 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion:131 Resp: 20477

Ion	Ratio	Lower	Upper
131	100		
133	107.9	66.6	126.6

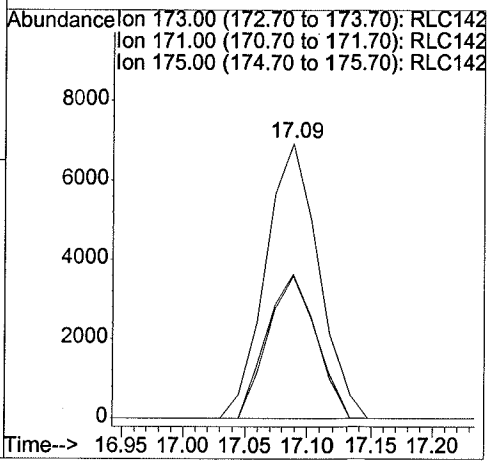


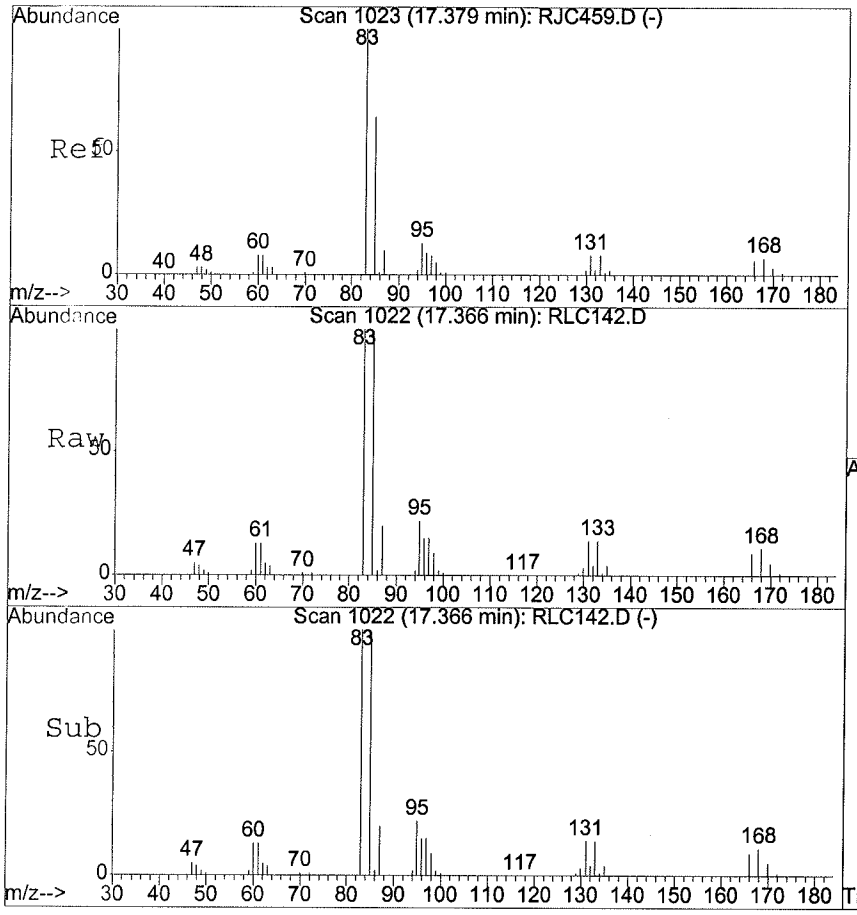


#75
Bromoform
Concen: 0.78 ug/l
RT: 17.09 min Scan# 1003
Delta R.T. 0.00 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion:173 Resp: 20427

Ion	Ratio	Lower	Upper
173	100		
171	48.9	21.3	81.3
175	47.6	18.8	78.8

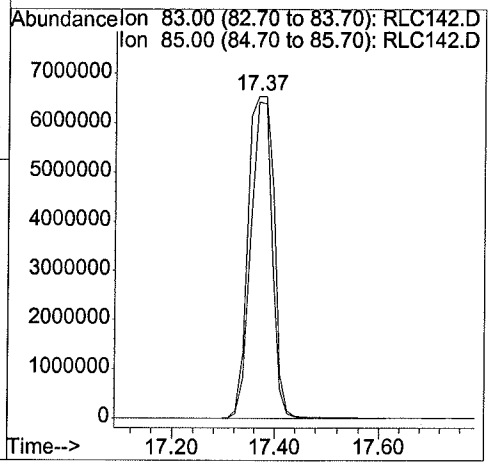


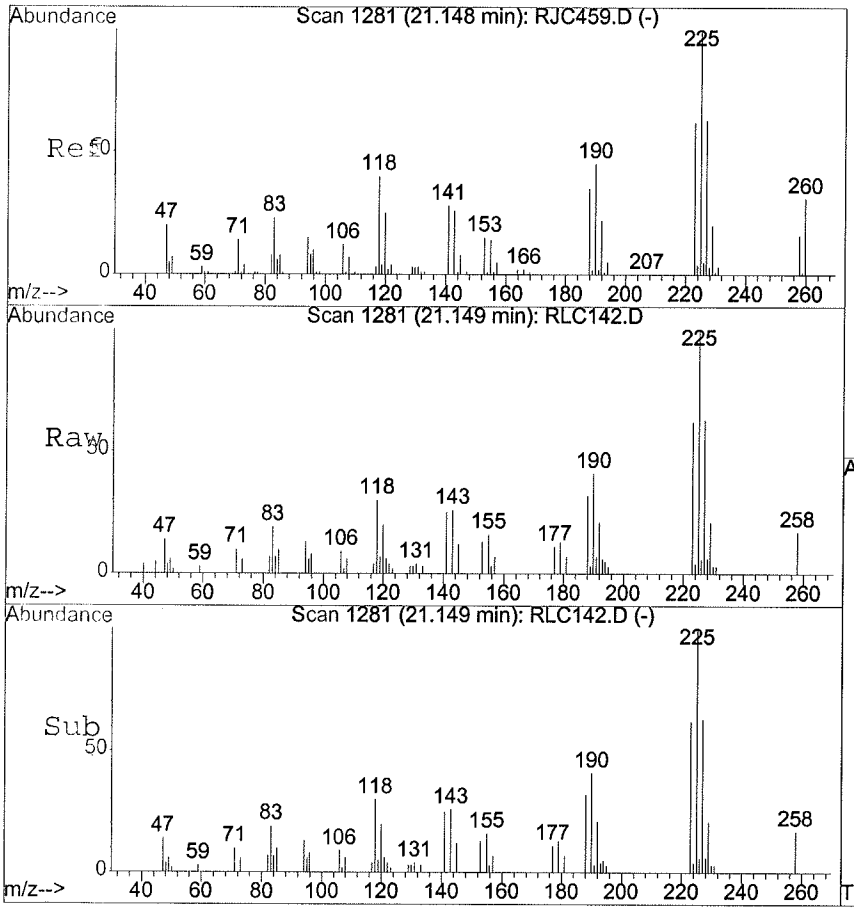


#76
1,1,2,2-Tetrachloroethane
Concen: 545.90 ug/l
RT: 17.37 min Scan# 1022
Delta R.T. -0.01 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion: 83 Resp:23323958

Ion	Ratio	Lower	Upper
83	100		
85	80.7	33.6	93.6

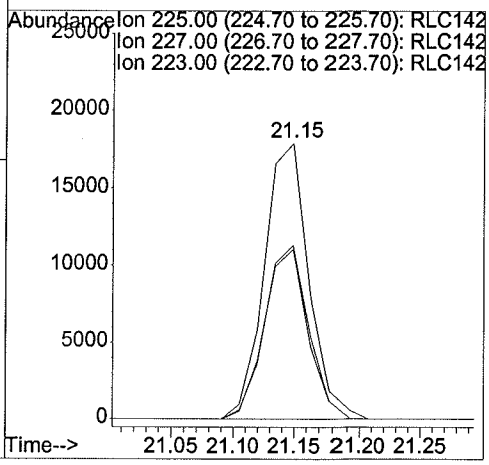




#95
Hexachlorobutadiene
Concen: 1.10 ug/l
RT: 21.15 min Scan# 1281
Delta R.T. 0.00 min
Lab File: RLC142.D
Acq: 10 Dec 2020 4:23 pm

Tgt Ion:225 Resp: 45088

Ion	Ratio	Lower	Upper
225	100		
227	62.4	33.7	93.7
223	60.5	32.1	92.1



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected:	12/03/20
Project	: VAFB-SS003	Date Received:	12/09/20
Batch No.	: 20L087	Date Extracted:	12/11/20 20:06
Sample ID:	3-MW-60(120320)DL	Date Analyzed:	12/11/20 20:06
Lab Samp ID:	L087-01I	Dilution Factor:	50
Lab File ID:	RLC177	Matrix	: WATER
Ext Btch ID:	VO67L08	% Moisture	: NA
Calib. Ref.:	RJC459	Instrument ID	: 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	25	5.0	10
1,1,1-TRICHLOROETHANE	ND	50	5.0	10
1,1,2,2-TETRACHLOROETHANE	680	50	5.5	10
1,1,2-TRICHLOROETHANE	11J	50	5.0	10
1,1-DICHLOROETHANE	ND	50	5.0	10
1,1-DICHLOROETHENE	ND	50	5.0	10
1,1-DICHLOROPROPENE	ND	50	5.0	10
1,2,3-TRICHLOROBENZENE	ND	50	7.5	15
1,2,3-TRICHLOROPROPANE	ND	100	12	25
1,2,4-TRICHLOROBENZENE	ND	50	7.5	15
1,2,4-TRIMETHYLBENZENE	ND	50	5.5	10
1,2-DIBROMO-3-CHLOROPROPANE	ND	100	12	25
1,2-DIBROMOETHANE	ND	50	5.0	10
1,2-DICHLOROBENZENE	ND	50	5.0	10
1,2-DICHLOROETHANE	ND	25	5.0	10
1,2-DICHLOROPROPANE	ND	50	5.0	10
1,3,5-TRIMETHYLBENZENE	ND	50	6.5	10
1,3-DICHLOROBENZENE	ND	50	5.5	10
1,3-DICHLOROPROPANE	ND	50	5.0	10
1,4-DICHLOROBENZENE	ND	50	5.0	10
2,2-DICHLOROPROPANE	ND	50	8.0	10
2-BUTANONE	ND	500	100	200
2-CHLOROTOLUENE	ND	50	6.0	10
2-HEXANONE	ND	500	110	200
4-CHLOROTOLUENE	ND	50	5.5	10
ACETONE	250J	500	130	250
BENZENE	ND	50	5.0	10
BROMOBENZENE	ND	50	5.0	10
BROMOCHLOROMETHANE	ND	50	5.5	10
BROMODICHLOROMETHANE	ND	50	5.0	10
BROMOFORM	ND	50	7.5	15
BROMOMETHANE	ND	50	8.0	15
CARBON DISULFIDE	ND	50	5.0	10
CARBON TETRACHLORIDE	ND	50	5.0	10
CHLOROBENZENE	ND	50	5.0	10
CHLOROETHANE	ND	50	14	15
CHLOROFORM	43J	50	5.0	10
CHLOROMETHANE	14J	50	7.5	15
CIS-1,2-DICHLOROETHENE	9.7J	50	5.0	10
CIS-1,3-DICHLOROPROPENE	ND	50	5.0	10
DIBROMOCHLOROMETHANE	ND	50	5.0	10
DICHLORODIFLUOROMETHANE	ND	50	7.5	15
ETHYLBENZENE	ND	50	5.0	10
HEXACHLOROBUTADIENE	ND	50	11	15
ISOPROPYL BENZENE	ND	50	5.0	10
M,P-XYLENES	ND	100	11	20
MIBK	ND	500	100	200
METHYLENE CHLORIDE	300	100	12	25
MTBE	ND	50	6.5	10
NAPHTHALENE	ND	100	12	25
N-BUTYLBENZENE	ND	50	8.5	10
N-PROPYLBENZENE	ND	50	6.5	10
O-XYLENE	ND	50	5.0	10
P-ISOPROPYLTOLUENE	ND	50	7.0	10
SEC-BUTYLBENZENE	ND	50	6.5	10
STYRENE	ND	50	5.0	10
TERT-BUTYLBENZENE	ND	50	6.5	10
TETRACHLOROETHENE	ND	50	7.5	10
TOLUENE	ND	50	5.0	10
TRANS-1,2-DICHLOROETHENE	ND	50	5.0	10
TRANS-1,3-DICHLOROPROPENE	ND	50	5.5	10
TRICHLOROETHENE	1500	50	5.0	10
TRICHLOROFLUOROMETHANE	ND	50	7.5	15
VINYL CHLORIDE	ND	25	6.0	10
VINYL ACETATE	ND	100	12	25
FREON113	ND	50	10	15
TERT-BUTANOL	ND	1000	250	500
DIPE	ND	50	5.0	10
ETBE	ND	50	5.0	10
TAME	ND	50	5.0	10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	471	500.0	94.1	70-120
4-BROMOFLUOROBENZENE	472	500.0	94.4	75-120
TOLUENE-D8	459	500.0	91.9	85-120
DIBROMOFLUOROMETHANE	485	500.0	97.0	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L11\RLC177.D Vial: 13
Acq On : 11 Dec 2020 8:06 pm Operator: VLu
Sample : 20L087-01I 0.5mL Inst : 67
Misc : DF=50 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:56 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

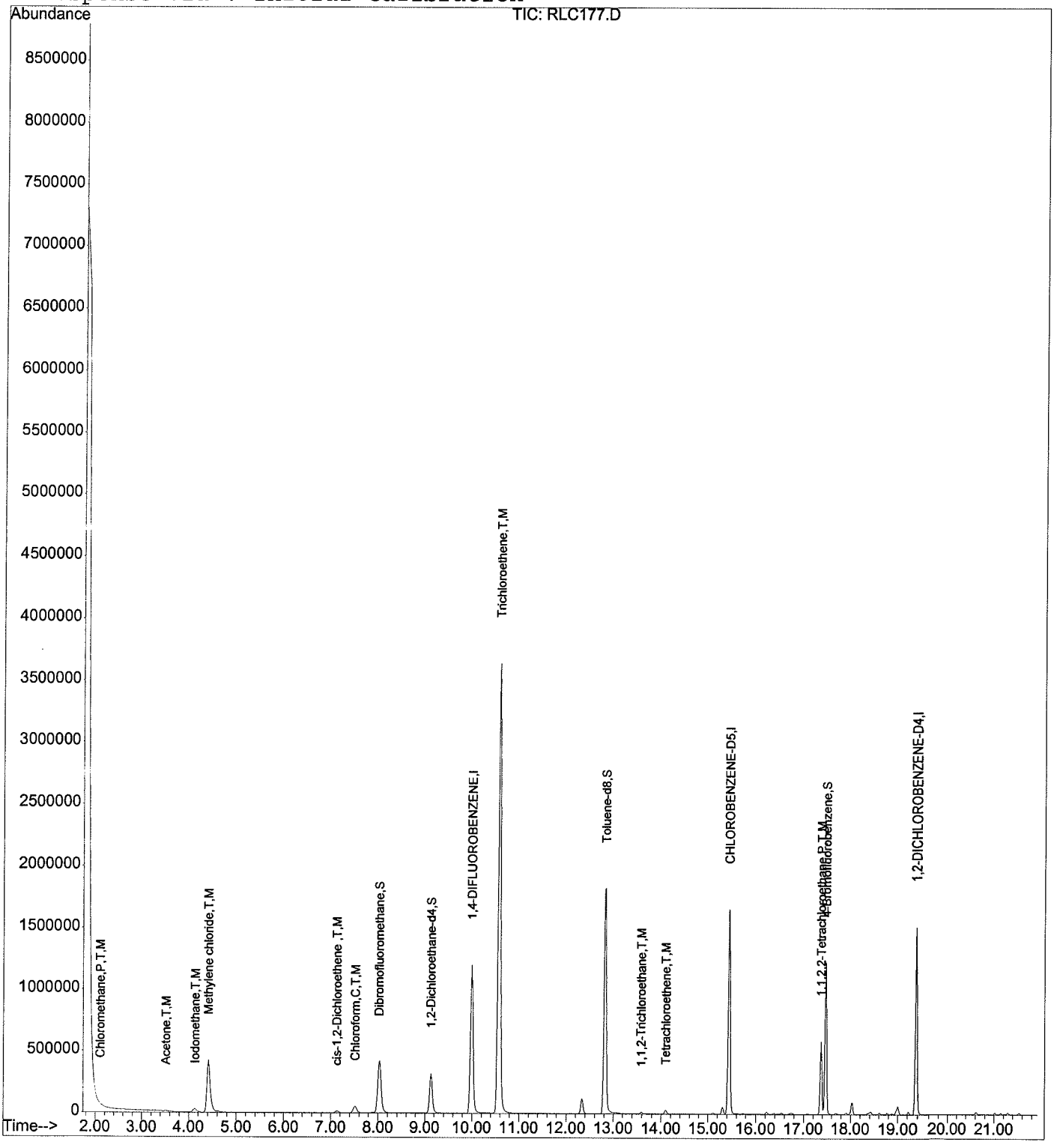
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2269326	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1780694	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	545775	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.02	111	718579	9.70	ug/l	-0.01
Spiked Amount 10.000			Recovery =	97.00%		
43) 1,2-Dichloroethane-d4	9.13	65	446200	9.41	ug/l	-0.01
Spiked Amount 10.000			Recovery =	94.10%		
56) Toluene-d8	12.82	98	2496830	9.19	ug/l	0.00
Spiked Amount 10.000			Recovery =	91.90%		
77) 4-Bromofluorobenzene	17.47	95	699931	9.44	ug/l	0.00
Spiked Amount 10.000			Recovery =	94.40%		
Target Compounds						Qvalue
4) Chloromethane	2.11	50	33274	0.28	ug/l	93
13) Acetone	3.52	43	34332	4.91	ug/l	80
17) Iodomethane	4.13	142	84020	0.66	ug/l	97
19) Methylene chloride	4.41	49	600703	6.05	ug/l	93
31) cis-1,2-Dichloroethene	7.13	96	19055	0.19	ug/l	100
32) Chloroform	7.52	83	125973	0.87	ug/l	96
46) Trichloroethene	10.57	130	2651005	30.13	ug/l	96
60) 1,1,2-Trichloroethane	13.58	97	9728	0.23	ug/l	93
63) Tetrachloroethene	14.09	164	9209	0.13	ug/l	93
76) 1,1,2,2-Tetrachloroethane	17.37	83	543815	13.59	ug/l	100

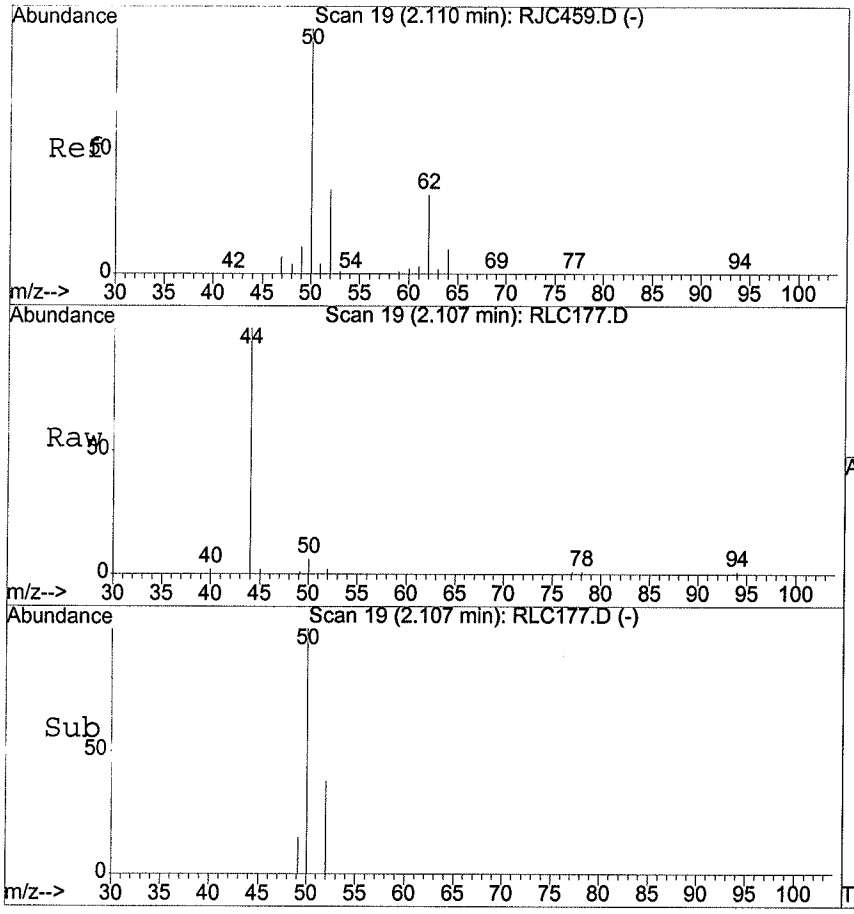
(#) = qualifier out of range (m) = manual integration
RLC177.D VO67J30.M Mon Dec 14 10:56:30 2020 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L11\RLC177.D Vial: 13
Acq On : 11 Dec 2020 8:06 pm Operator: VLu
Sample : 20L087-01I 0.5mL Inst : 67
Misc : DF=50 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:56 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

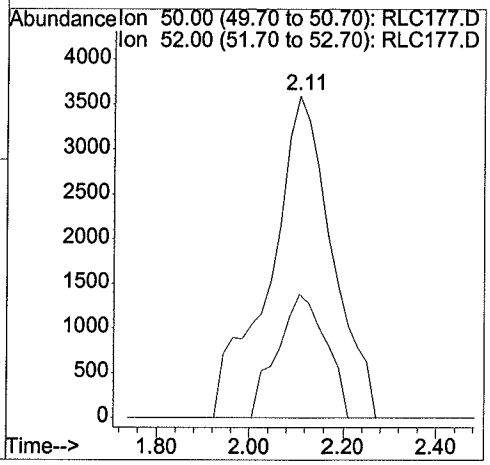


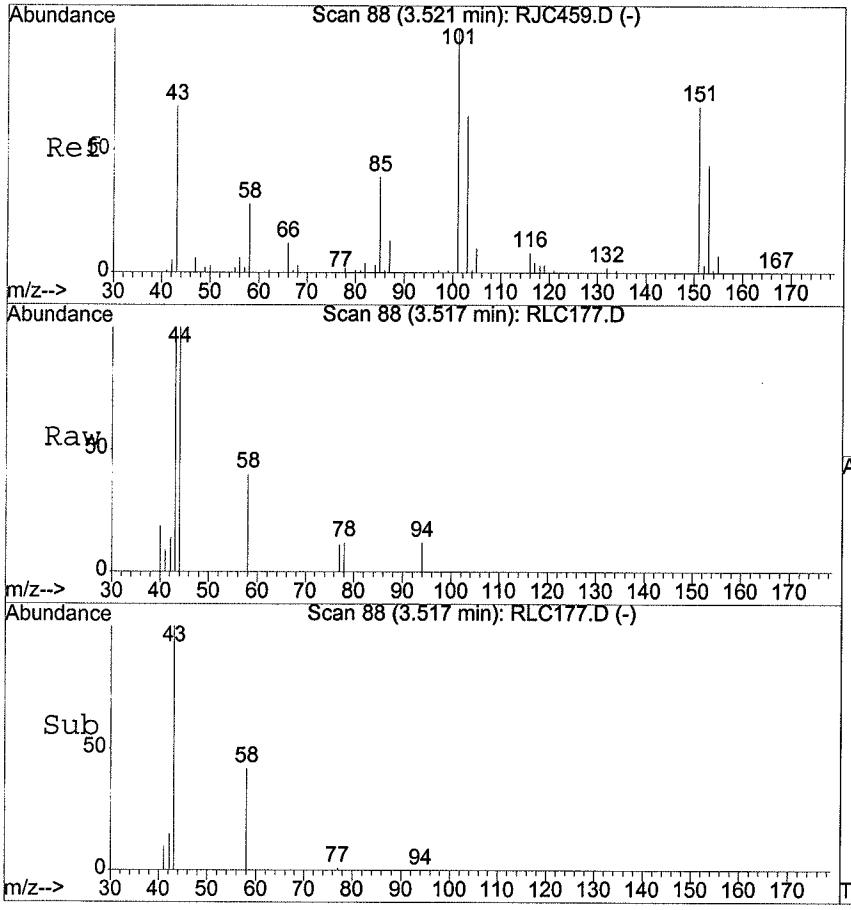


#4
Chloromethane
Concen: 0.28 ug/l
RT: 2.11 min Scan# 19
Delta R.T. -0.00 min
Lab File: RLC177.D
Acq: 11 Dec 2020 8:06 pm

Tgt Ion: 50 Resp: 33274

Ion	Ratio	Lower	Upper
50	100		
52	29.8	3.5	63.5

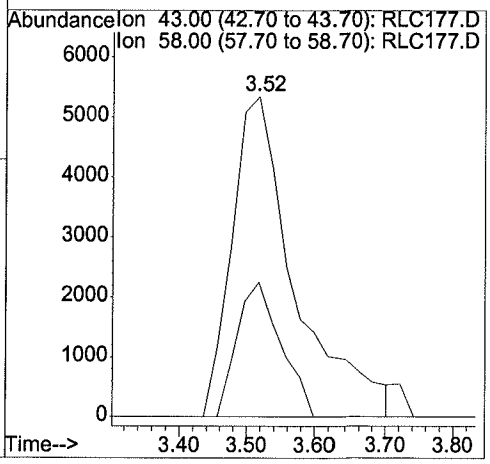


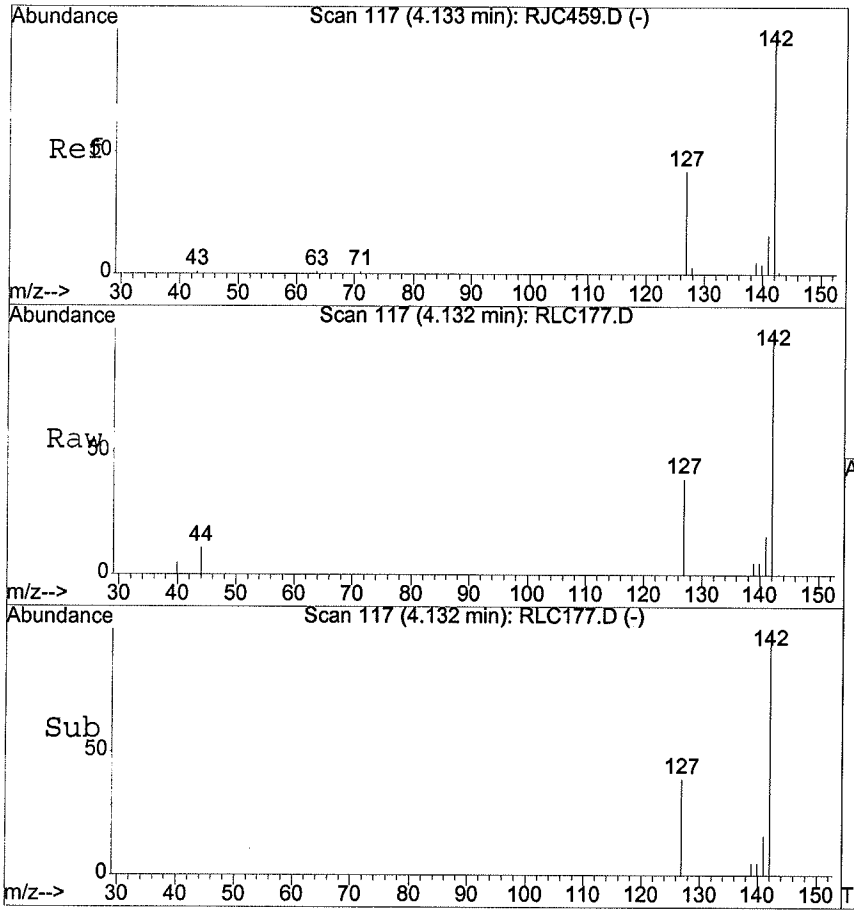


#13
Acetone
Concen: 4.91 ug/l
RT: 3.52 min Scan# 88
Delta R.T. -0.00 min
Lab File: RLC177.D
Acq: 11 Dec 2020 8:06 pm

Tgt Ion: 43 Resp: 34332

Ion	Ratio	Lower	Upper
43	100		
58	29.7	12.2	72.2

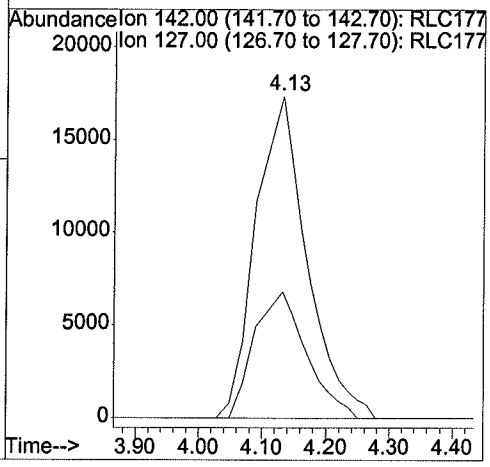


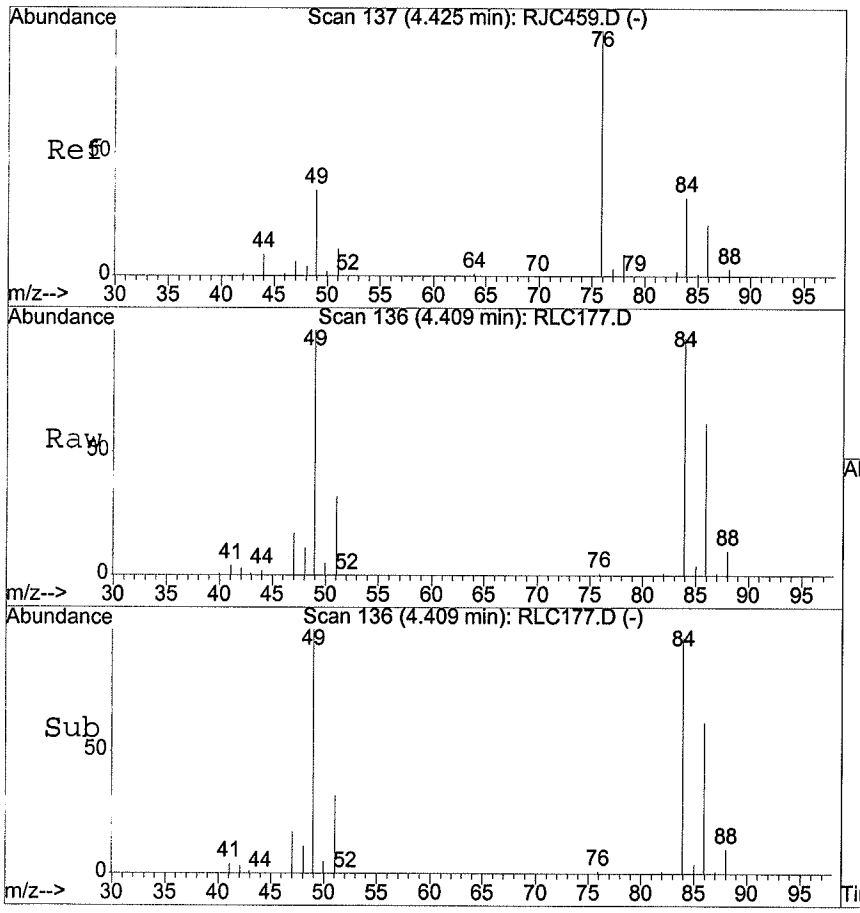


#17
Iodomethane
Concen: 0.66 ug/l
RT: 4.13 min Scan# 117
Delta R.T. -0.00 min
Lab File: RLC177.D
Acq: 11 Dec 2020 8:06 pm

Tgt Ion:142 Resp: 84020

Ion	Ratio	Lower	Upper
142	100		
127	40.4	12.5	72.5

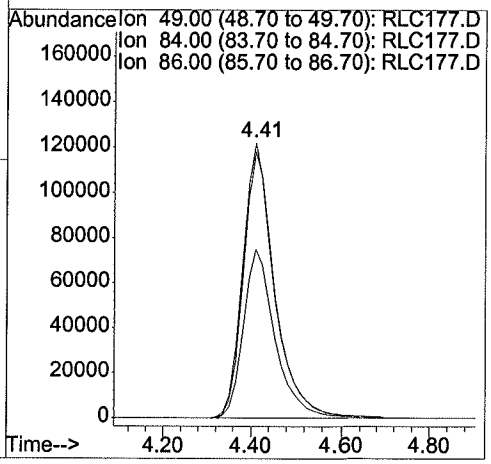


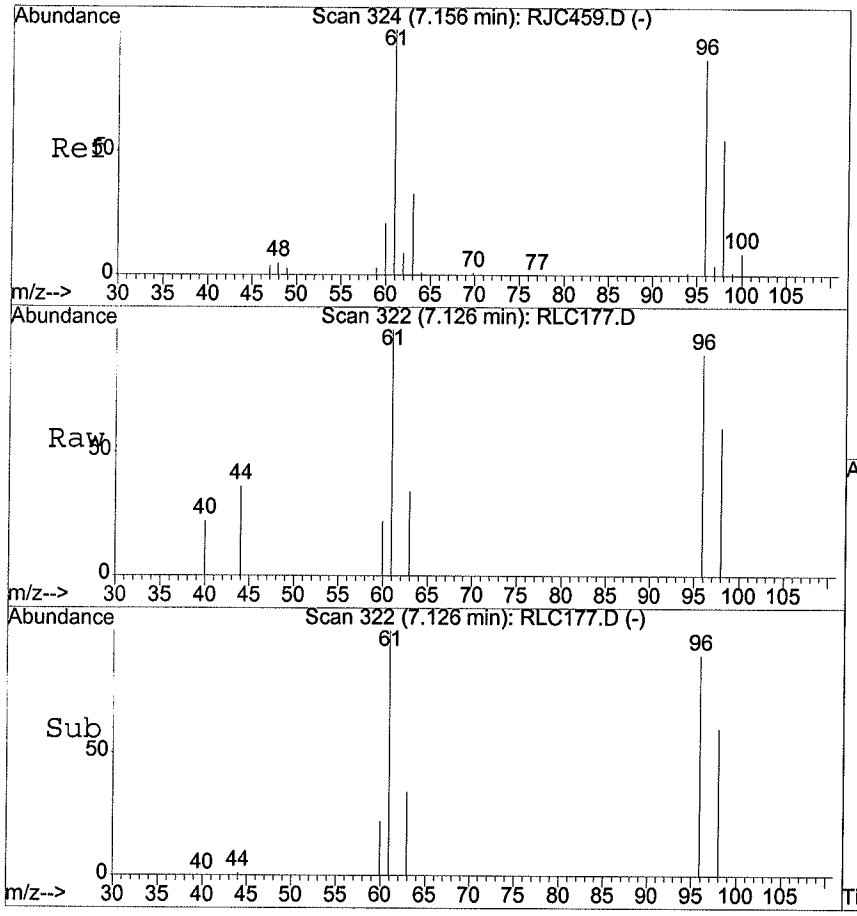


#19
Methylene chloride
Concen: 6.05 ug/l
RT: 4.41 min Scan# 136
Delta R.T. -0.02 min
Lab File: RLC177.D
Acq: 11 Dec 2020 8:06 pm

Tgt Ion: 49 Resp: 600703

Ion	Ratio	Lower	Upper
49	100		
84	97.3	60.1	120.1
86	61.6	27.5	87.5

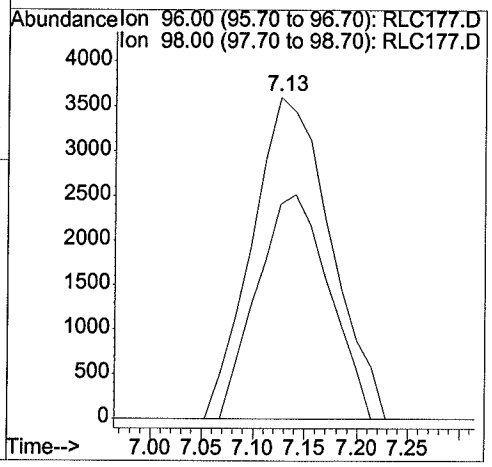


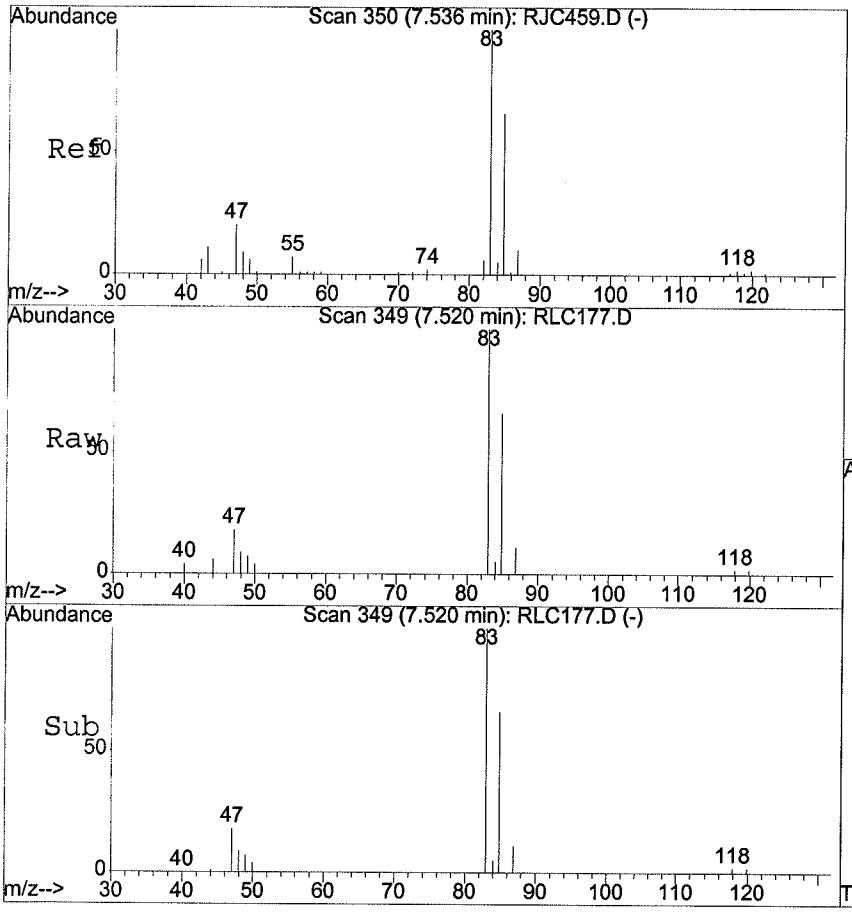


#31
cis-1,2-Dichloroethene
Concen: 0.19 ug/l
RT: 7.13 min Scan# 322
Delta R.T. -0.03 min
Lab File: RLC177.D
Acq: 11 Dec 2020 8:06 pm

Tgt Ion: 96 Resp: 19055

Ion	Ratio	Lower	Upper
96	100		
98	63.9	33.5	93.5

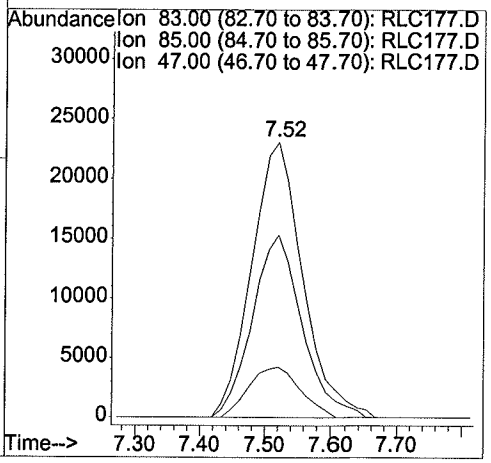


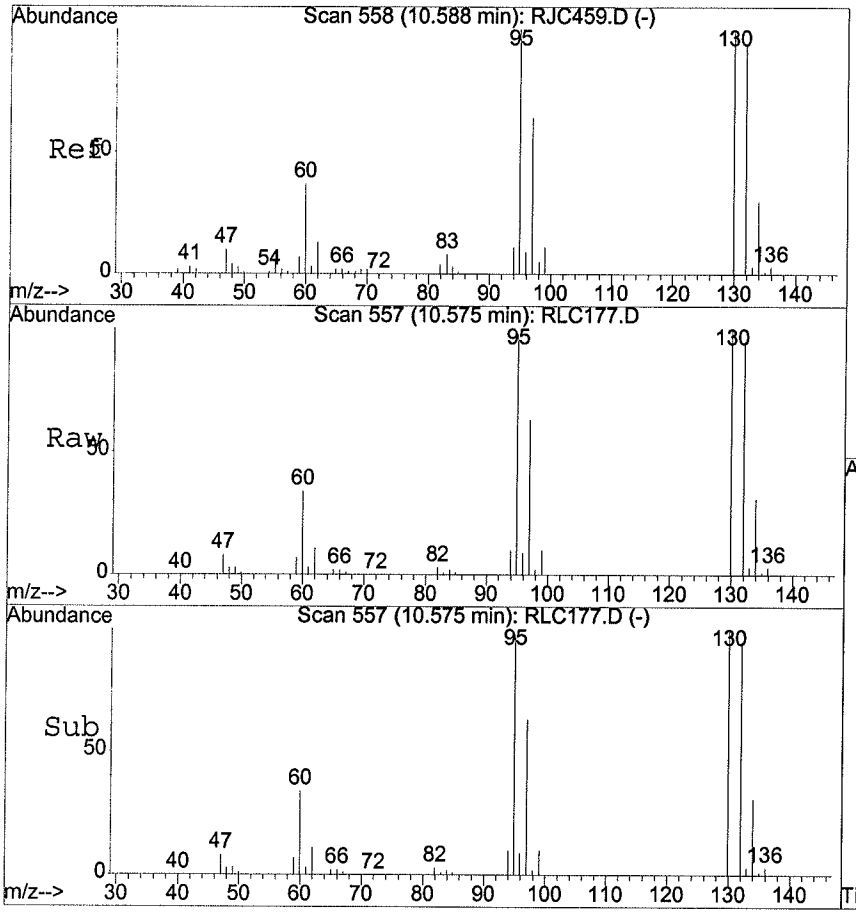


#32
Chloroform
Concen: 0.87 ug/l
RT: 7.52 min Scan# 349
Delta R.T. -0.02 min
Lab File: RLC177.D
Acq: 11 Dec 2020 8:06 pm

Tgt Ion: 83 Resp: 125973

Ion	Ratio	Lower	Upper
83	100		
85	64.6	37.8	97.8
47	18.7	0.0	50.5

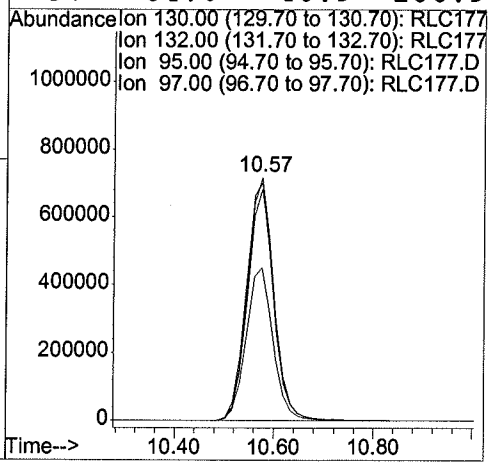


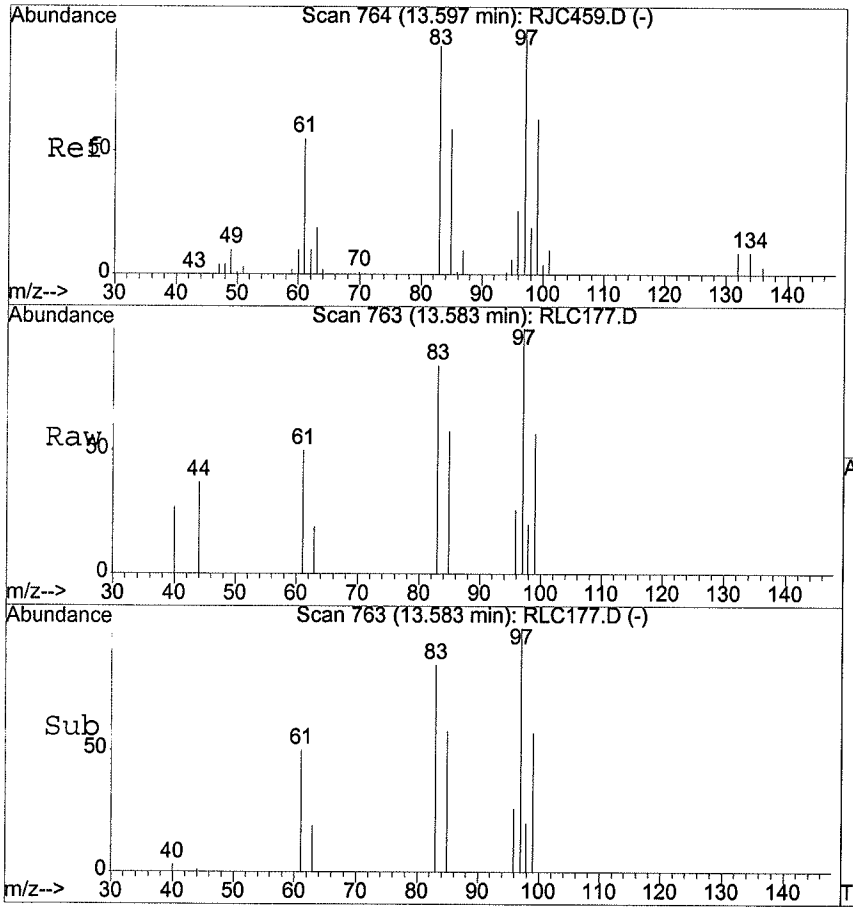


#46
Trichloroethene
Concen: 30.13 ug/l
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC177.D
Acq: 11 Dec 2020 8:06 pm

Tgt Ion:130 Resp: 2651005

Ion	Ratio	Lower	Upper
130	100		
132	95.1	65.5	125.5
95	99.8	73.3	133.3
97	64.0	40.9	100.9

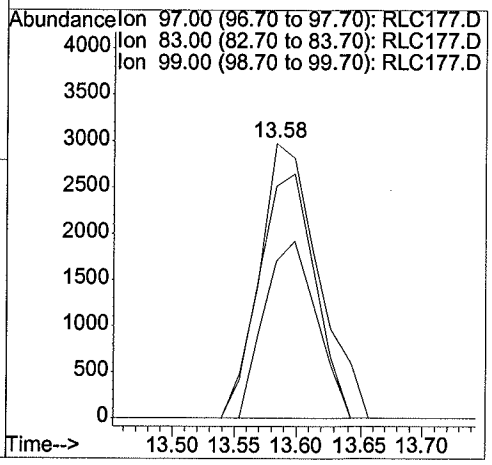


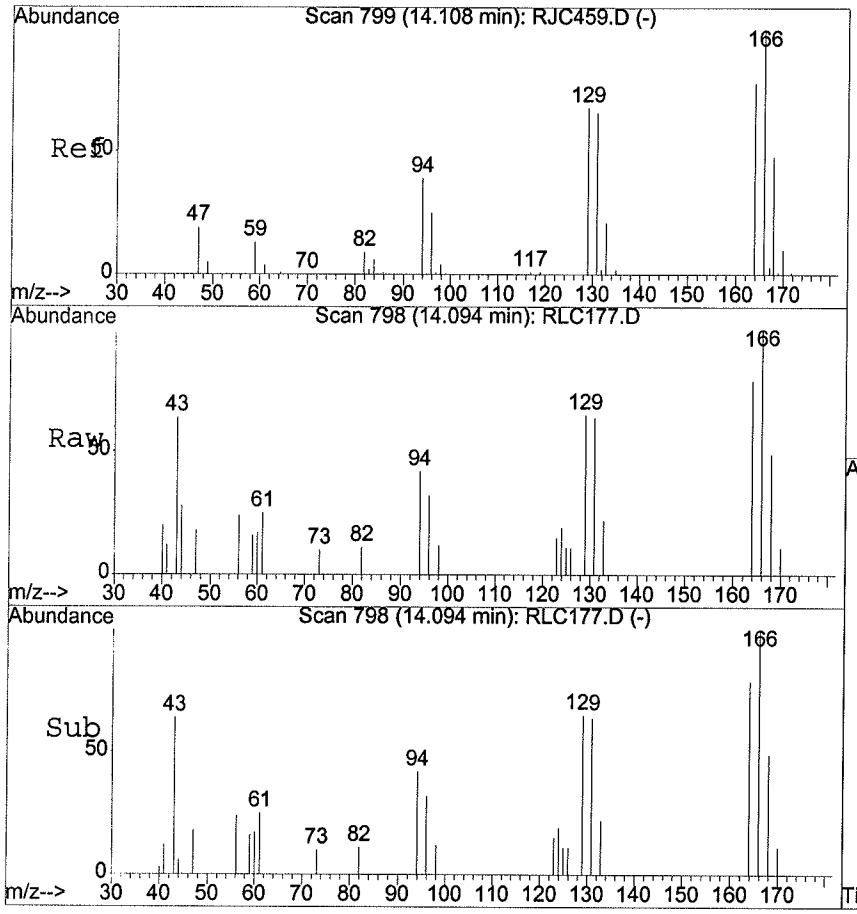


#60
1,1,2-Trichloroethane
Concen: 0.23 ug/l
RT: 13.58 min Scan# 763
Delta R.T. -0.01 min
Lab File: RLC177.D
Acq: 11 Dec 2020 8:06 pm

Tgt Ion: 97 Resp: 9728

Ion	Ratio	Lower	Upper
97	100		
83	84.6	60.6	120.6
99	57.4	33.2	93.2

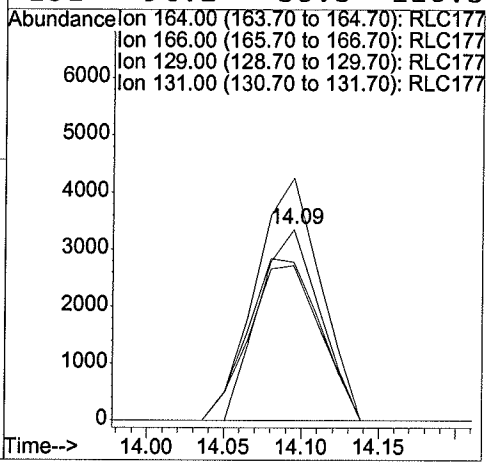


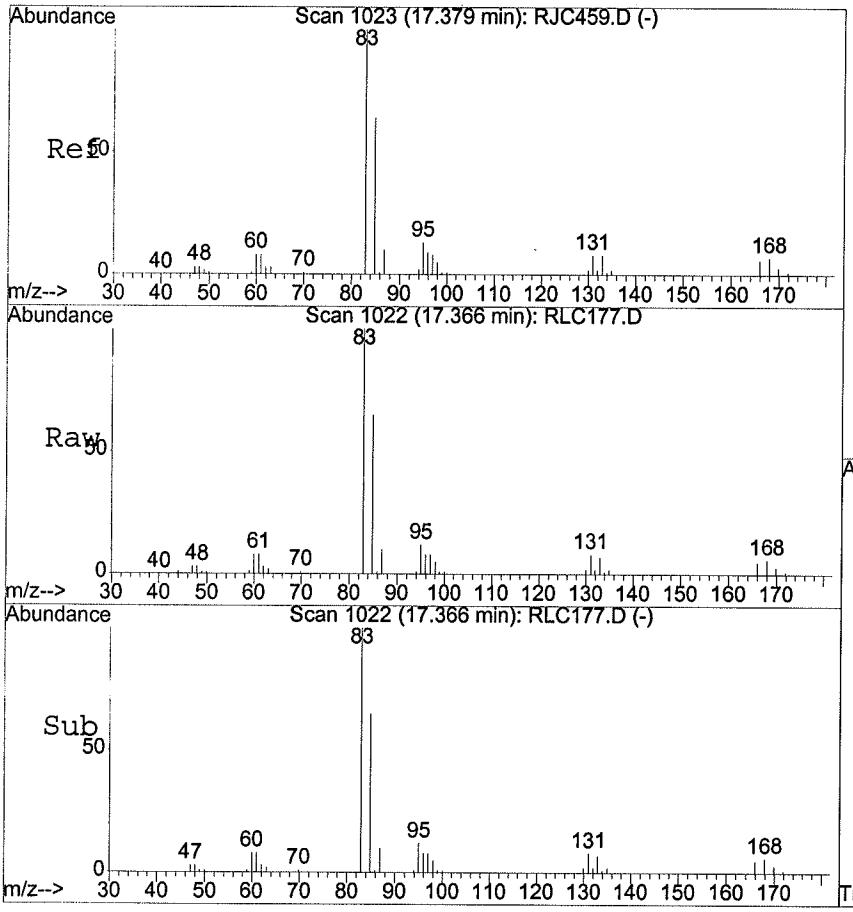


#63
Tetrachloroethene
Concen: 0.13 ug/l
RT: 14.09 min Scan# 798
Delta R.T. -0.01 min
Lab File: RLC177.D
Acq: 11 Dec 2020 8:06 pm

Tgt Ion:164 Resp: 9209

Ion	Ratio	Lower	Upper
164	100		
166	134.3	97.5	157.5
129	99.3	61.9	121.9
131	94.2	58.5	118.5

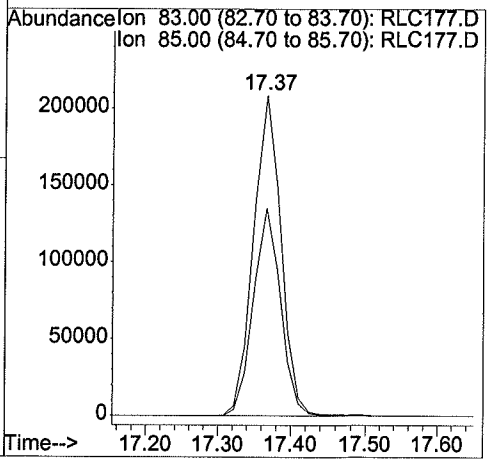




#76
1,1,2,2-Tetrachloroethane
Concen: 13.59 ug/l
RT: 17.37 min Scan# 1022
Delta R.T. -0.01 min
Lab File: RLC177.D
Acq: 11 Dec 2020 8:06 pm

Tgt Ion: 83 Resp: 543815

Ion	Ratio	Lower	Upper
83	100		
85	63.9	33.6	93.6



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected:	12/03/20
Project	: VAFB-SS003	Date Received:	12/09/20
Batch No.	: 20L0B7	Date Extracted:	12/10/20 15:57
Sample ID:	SS003-3-MW-60(120320)TB2	Date Analyzed:	12/10/20 15:57
Lab Samp ID:	L087-02	Dilution Factor:	1
Lab File ID:	RLC141	Matrix	: WATER
Ext Btch ID:	V067L07	% Moisture	: NA
Calib. Ref.:	RJC459	Instrument ID	: 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	ND	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	ND	10	2.6	5.0
BENZENE	ND	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	ND	1.0	0.10	0.20
BROMOFORM	ND	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	ND	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	ND	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	ND	1.0	0.10	0.20
CHLOROMETHANE	ND	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	ND	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	ND	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	ND	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	ND	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	ND	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	ND	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.11	10.00	91.1	70-120
4-BROMOFLUOROBENZENE	10.1	10.00	101	75-120
TOLUENE-D8	9.54	10.00	95.4	85-120
DIBROMOFLUOROMETHANE	9.66	10.00	96.6	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L10\RLC141.D Vial: 7
Acq On : 10 Dec 2020 3:57 pm Operator: VLu
Sample : 20L087-02 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:08 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

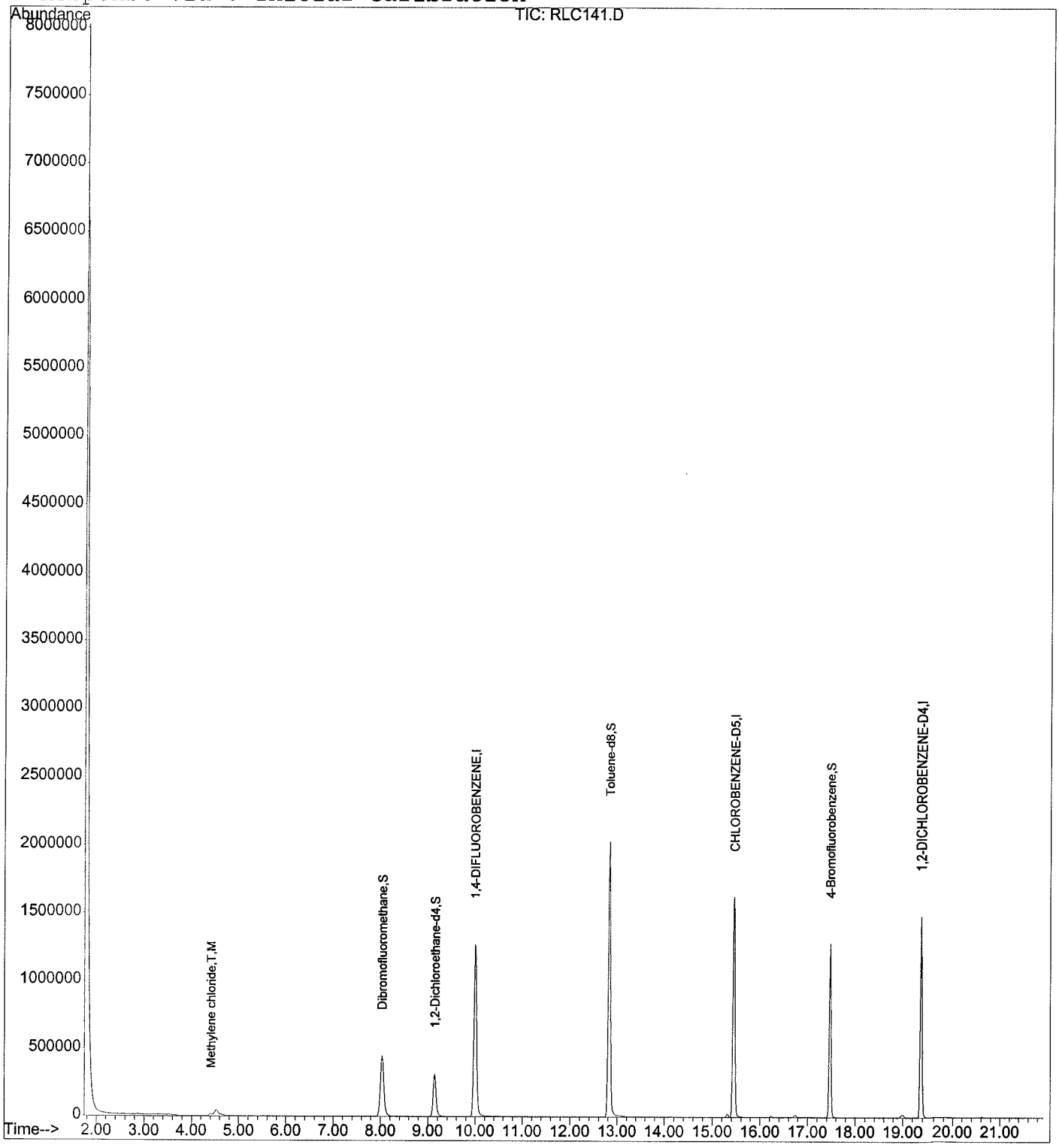
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2380521	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.45	117	1793642	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	516904	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	750800	9.66	ug/l	0.00
Spiked Amount 10.000			Recovery =	96.60%		
43) 1,2-Dichloroethane-d4	9.14	65	453079	9.11	ug/l	0.00
Spiked Amount 10.000			Recovery =	91.10%		
56) Toluene-d8	12.82	98	2610743	9.54	ug/l	0.00
Spiked Amount 10.000			Recovery =	95.40%		
77) 4-Bromofluorobenzene	17.47	95	707630	10.07	ug/l	0.00
Spiked Amount 10.000			Recovery =	100.70%		
Target Compounds						Qvalue
19) Methylene chloride	4.41	49	24124	0.23	ug/l	98

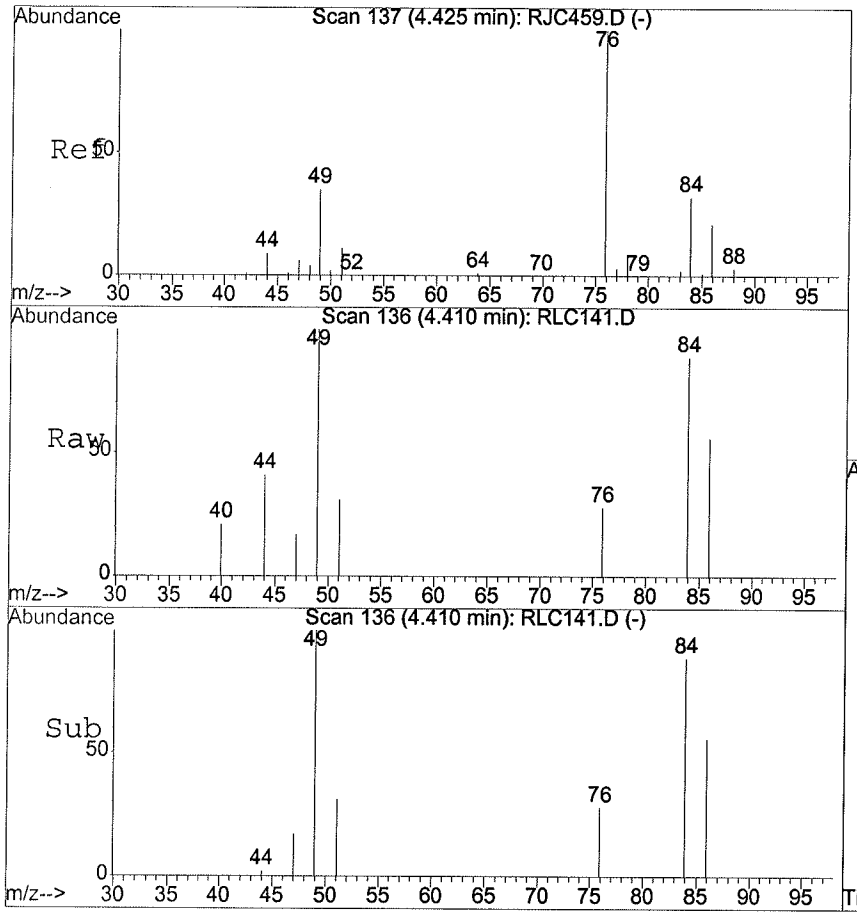
(#) = qualifier out of range (m) = manual integration
RLC141.D VO67J30.M Fri Dec 11 12:08:27 2020 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L10\RLC141.D Vial: 7
Acq On : 10 Dec 2020 3:57 pm Operator: VLu
Sample : 20L087-02 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:08 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

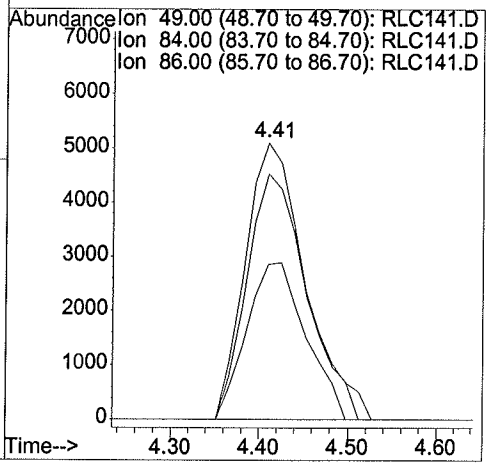




#19
Methylene chloride
Concen: 0.23 ug/l
RT: 4.41 min Scan# 136
Delta R.T. -0.02 min
Lab File: RLC141.D
Acq: 10 Dec 2020 3:57 pm

Tgt Ion: 49 Resp: 24124

Ion	Ratio	Lower	Upper
49	100		
84	88.0	60.1	120.1
86	55.6	27.5	87.5



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected	: 12/04/20
Project	: VAFB-SS003	Date Received	: 12/09/20
Batch No.	: 20L087	Date Extracted	: 12/10/20 16:48 # 12/11/20 20:57
Sample ID	: SS003-DUP2(120420)	Date Analyzed	: 12/10/20 16:48 # 12/11/20 20:57
Lab Samp ID	: L087-03 #L087-03I	Dilution Factor	: 1 # 250
Lab File ID	: RLC143 #RLC179	Matrix	: WATER
Ext Btch ID	: V067L07 #V067L08	% Moisture	: NA
Calib. Ref.	: RJC459 #RJC459	Instrument ID	: 67

	PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
	1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
	1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
	1,1,2,2-TETRACHLOROETHANE	13	1.0	0.11	0.20
	1,1,2-TRICHLOROETHANE	19	1.0	0.10	0.20
	1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
	1,1-DICHLOROETHENE	1.7	1.0	0.10	0.20
	1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
	1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
	1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,4-TRIMETHYLBENZENE	0.21J	1.0	0.11	0.20
	1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
	1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
	1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
	1,2-DICHLOROETHANE	1.7	0.50	0.10	0.20
	1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
	1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
	1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
	2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
	2-BUTANONE	ND	10	2.0	4.0
	2-CHLOROTOLUENE	ND	1.0	0.12	0.20
	2-HEXANONE	ND	10	2.3	4.0
	4-CHLOROTOLUENE	ND	1.0	0.11	0.20
	ACETONE	6.0J	10	2.6	5.0
	BENZENE	0.89J	1.0	0.10	0.20
	BROMOBENZENE	ND	1.0	0.10	0.20
	BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
	BROMODICHLOROMETHANE	0.17J	1.0	0.10	0.20
	BROMOFORM	0.59J	1.0	0.15	0.30
	BROMOMETHANE	ND	1.0	0.16	0.30
	CARBON DISULFIDE	0.13J	1.0	0.10	0.20
	CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
	CHLOROBENZENE	ND	1.0	0.10	0.20
	CHLOROETHANE	ND	1.0	0.27	0.30
	CHLOROFORM	1.7	1.0	0.10	0.20
	CHLOROMETHANE	ND	1.0	0.15	0.30
#	CIS-1,2-DICHLOROETHENE	660	250	25	50
	CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
	DIBROMOCHLOROMETHANE	0.38J	1.0	0.10	0.20
	DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
	ETHYLBENZENE	ND	1.0	0.10	0.20
	HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
	ISOPROPYL BENZENE	0.26J	1.0	0.10	0.20
	M,P-XYLENES	ND	2.0	0.21	0.40
	MIBK	ND	10	2.1	4.0
	METHYLENE CHLORIDE	3.6	2.0	0.25	0.50
	MTBE	ND	1.0	0.13	0.20
	NAPHTHALENE	6.2	2.0	0.25	0.50
	N-BUTYLBENZENE	ND	1.0	0.17	0.20
	N-PROPYLBENZENE	ND	1.0	0.13	0.20
	O-XYLENE	0.71J	1.0	0.10	0.20
	P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
	SEC-BUTYLBENZENE	0.13J	1.0	0.13	0.20
	STYRENE	ND	1.0	0.10	0.20
	TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
	TETRACHLOROETHENE	ND	1.0	0.15	0.20
	TOLUENE	0.14J	1.0	0.10	0.20
#	TRANS-1,2-DICHLOROETHENE	260	250	25	50
	TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
#	TRICHLOROETHENE	7400	250	25	50
	TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
	VINYL CHLORIDE	21	0.50	0.12	0.20
	VINYL ACETATE	ND	2.0	0.25	0.50
	FREON113	ND	1.0	0.20	0.30
	TERT-BUTANOL	ND	20	5.0	10
	DIPE	ND	1.0	0.10	0.20
	ETBE	ND	1.0	0.10	0.20
	TAME	ND	1.0	0.10	0.20

	SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
	1,2-DICHLOROETHANE-D4	9.36	10.00	93.6	70-120
	4-BROMOFLUOROBENZENE	9.66	10.00	96.6	75-120
	TOLUENE-D8	9.32	10.00	93.2	85-120
	DIBROMOFLUOROMETHANE	9.83	10.00	98.3	85-115
#	1,2-DICHLOROETHANE-D4	2390	2500	95.7	70-120
#	4-BROMOFLUOROBENZENE	2360	2500	94.5	75-120
#	TOLUENE-D8	2290	2500	91.7	85-120
#	DIBROMOFLUOROMETHANE	2430	2500	97.2	85-115

Members of the Associated File

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/04/20
Project : VAFB-SS003	Date Received: 12/09/20
Batch No. : 20L087	Date Extracted: 12/10/20 16:48
Sample ID: SS003-DUP2(120420)	Date Analyzed: 12/10/20 16:48
Lab Samp ID: L087-03	Dilution Factor: 1
Lab File ID: RLC143	Matrix : WATER
Ext Btch ID: VO67L07	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	13	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	19	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	1.7	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	0.21J	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	1.7	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	6.0J	10	2.6	5.0
BENZENE	0.89J	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	0.17J	1.0	0.10	0.20
BROMOFORM	0.59J	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	0.13J	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	ND	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	1.7	1.0	0.10	0.20
CHLOROMETHANE	ND	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	510E	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	0.38J	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	0.26J	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	3.6	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	6.2	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	0.71J	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	0.13J	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	ND	1.0	0.15	0.20
TOLUENE	0.14J	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	300E	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	870E	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	21	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.36	10.00	93.6	70-120
4-BROMOFLUOROBENZENE	9.66	10.00	96.6	75-120
TOLUENE-D8	9.32	10.00	93.2	85-120
DIBROMOFLUOROMETHANE	9.83	10.00	98.3	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L10\RLC143.D Vial: 9
Acq On : 10 Dec 2020 4:48 pm Operator: VLu
Sample : 20L087-03 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:13 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

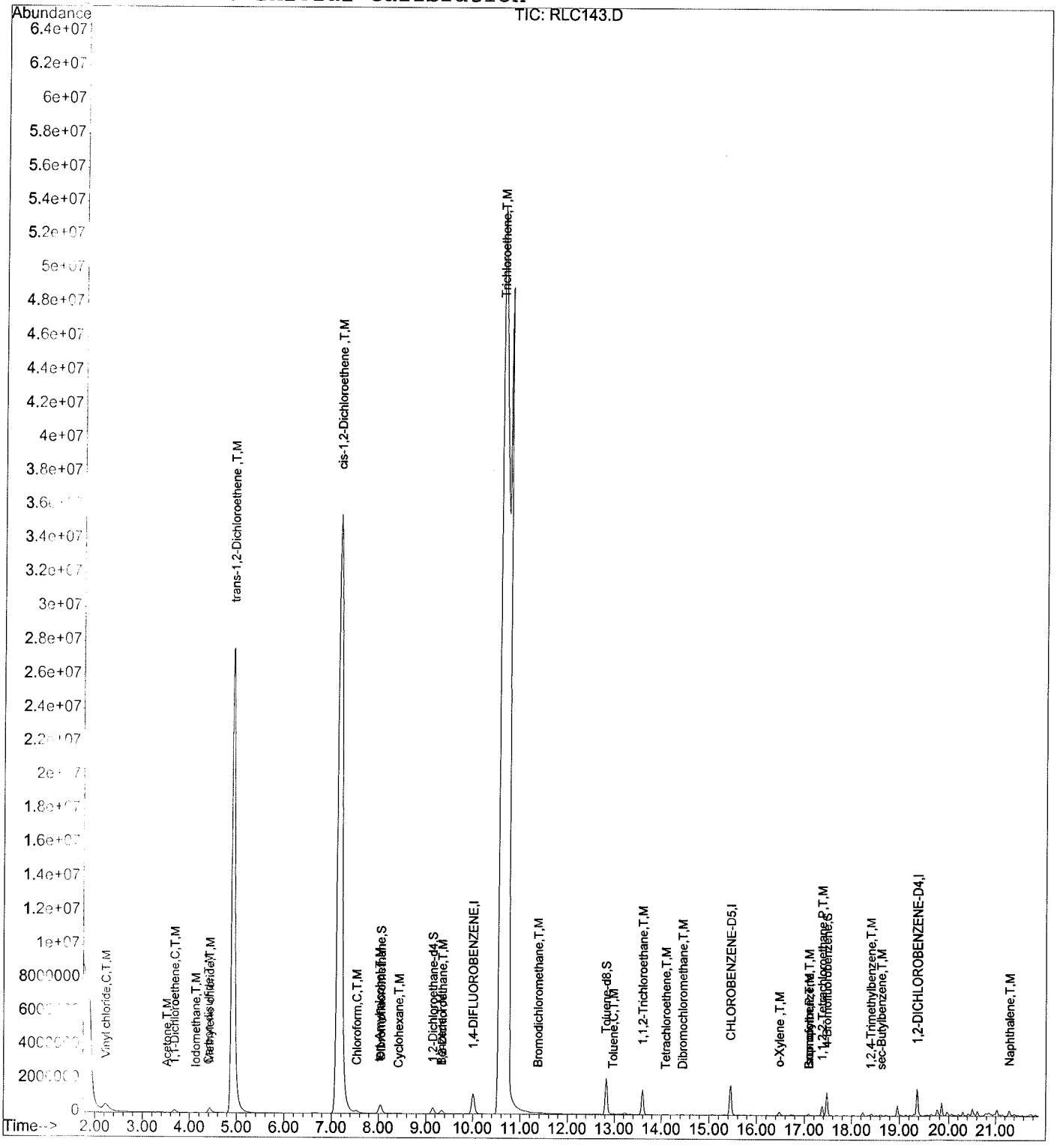
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2523750	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1915973	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	568954	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	809959	9.83	ug/l	0.01
Spiked Amount 10.000			Recovery =	98.30%		
43) 1,2-Dichloroethane-d4	9.14	65	493292	9.36	ug/l	0.00
Spiked Amount 10.000			Recovery =	93.60%		
56) Toluene-d8	12.82	98	2724720	9.32	ug/l	0.00
Spiked Amount 10.000			Recovery =	93.20%		
77) 4-Bromofluorobenzene	17.47	95	746745	9.66	ug/l	0.00
Spiked Amount 10.000			Recovery =	96.60%		
Target Compounds						Qvalue
5) Vinyl chloride	2.23	62	2649307	21.04	ug/l	99
13) Acetone	3.52	43	46959	6.03	ug/l	86
14) 1,1-Dichloroethene	3.68	61	263153	1.68	ug/l	97
17) Iodomethane	4.13	142	26464	0.19	ug/l	96
19) Methylene chloride	4.42	49	401587	3.63	ug/l	97
20) Carbon disulfide	4.40	76	48139	0.13	ug/l	98
23) trans-1,2-Dichloroethene	4.92	96	32979762	295.42	ug/l E	92
31) cis-1,2-Dichloroethene	7.16	96	55040970m	505.77	ug/l E	
32) Chloroform	7.54	83	275378	1.71	ug/l	97
34) tert-Amyl alcohol	8.02	59	31100	13.88	ug/l	93
38) Cyclohexane	8.43	84	28248	0.19	ug/l	97
44) 1,2-Dichloroethane	9.35	62	113188	1.74	ug/l	98
45) Benzene	9.33	78	327420	0.89	ug/l	99
46) Trichloroethene	10.57	130	85070298m	869.43	ug/l E	
49) Bromodichloromethane	11.38	83	16216	0.17	ug/l	100
57) Toluene	12.97	91	53362	0.14	ug/l	98
60) 1,1,2-Trichloroethane	13.60	97	869639	18.90	ug/l	96
63) Tetrachloroethene	14.09	164	10888	0.14	ug/l	98
64) Dibromochloromethane	14.44	129	21231	0.38	ug/l	100
71) o-Xylene	16.47	91	207079	0.71	ug/l	99
73) Isopropylbenzene	17.09	105	96827	0.26	ug/l	99
75) Bromoform	17.09	173	15107	0.59	ug/l	97
76) 1,1,2,2-Tetrachloroethane	17.37	83	541926	12.99	ug/l	100
86) 1,2,4-Trimethylbenzene	18.40	105	51174	0.21	ug/l	88
87) sec-Butylbenzene	18.62	105	48528	0.13	ug/l	100
96) Naphthalene	21.29	128	358415	6.20	ug/l	96

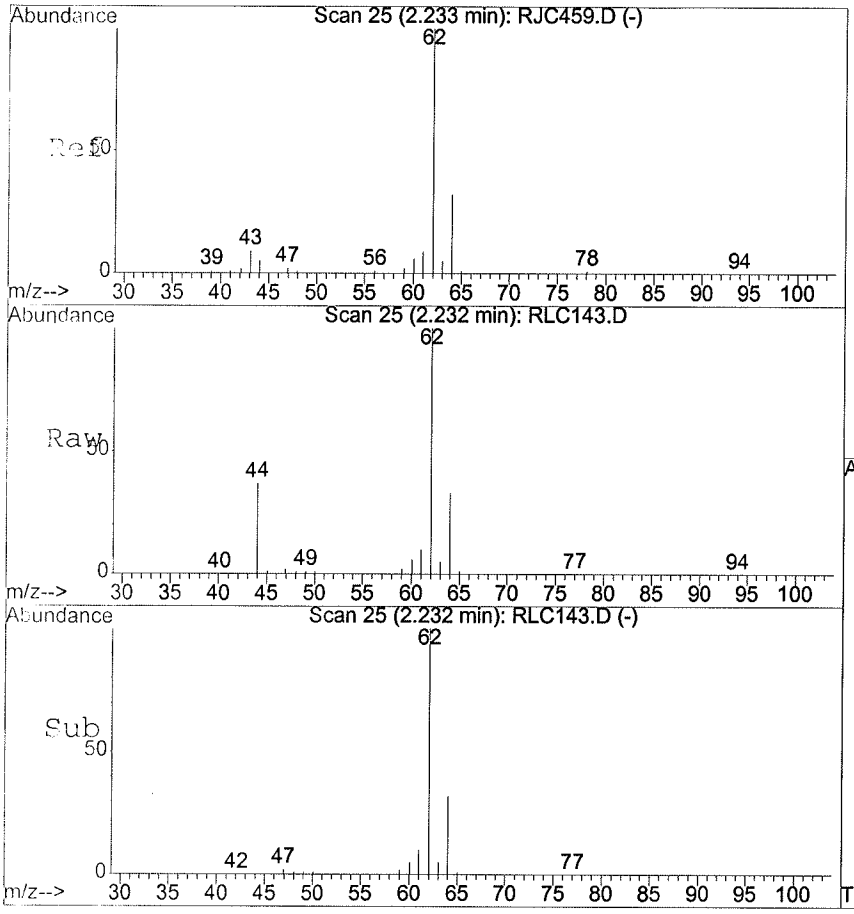
(#) = qualifier out of range (m) = manual integration
RLC143.D VO67J30.M Fri Dec 11 12:13:45 2020 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L10\RLC143.D Vial: 9
Acq On : 10 Dec 2020 4:48 pm Operator: VLu
Sample : 20L087-03 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:13 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

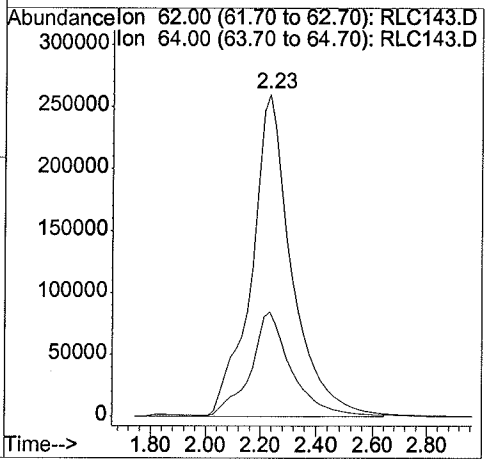


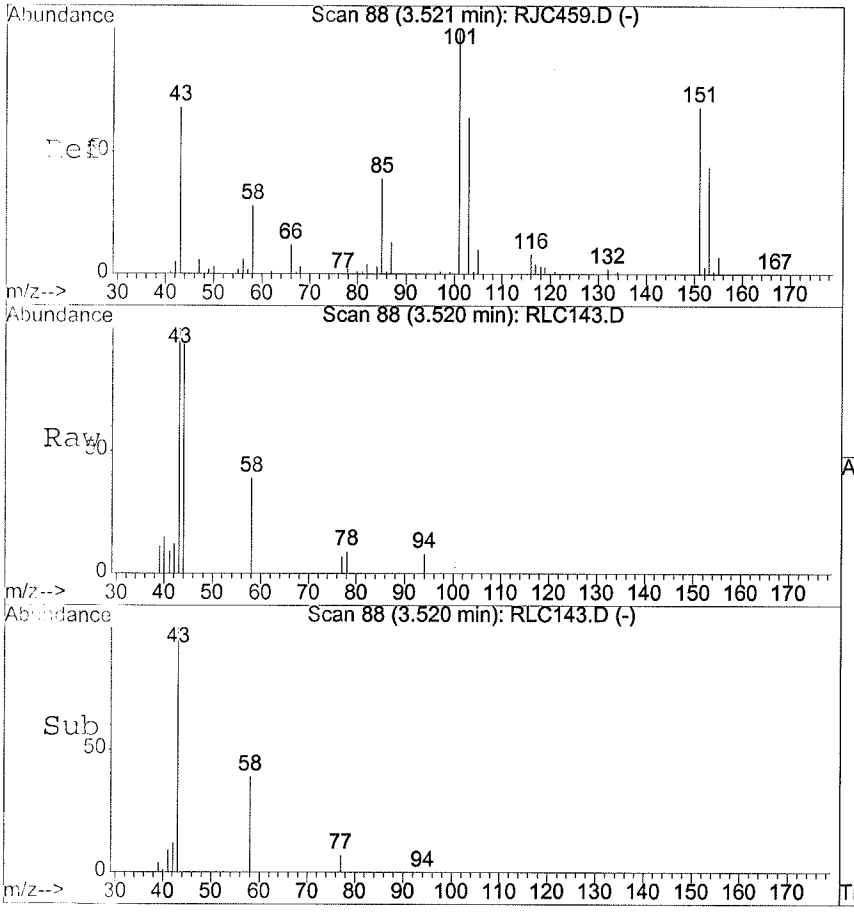


#5
Vinyl chloride
Concen: 21.04 ug/l
RT: 2.23 min Scan# 25
Delta R.T. -0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 62 Resp: 2649307

Ion	Ratio	Lower	Upper
62	100		
64	31.8	1.4	61.4

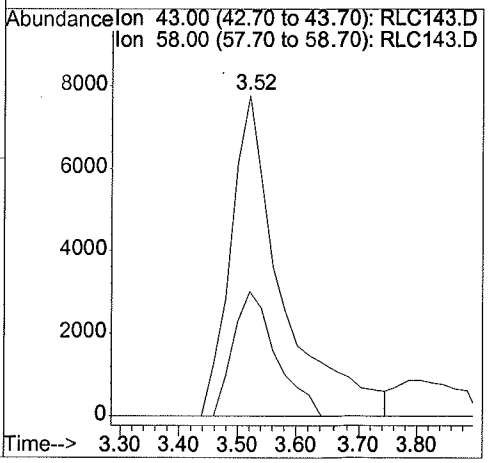


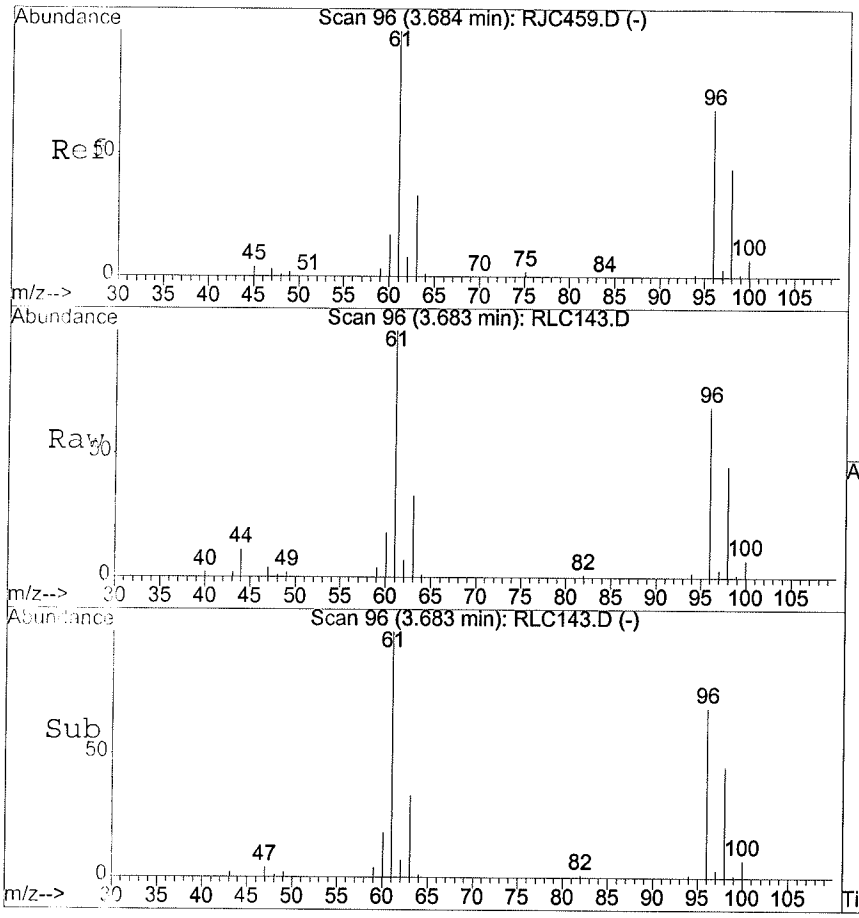


#13
Acetone
Concen: 6.03 ug/l
RT: 3.52 min Scan# 88
Delta R.T. -0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 43 Resp: 46959

Ion	Ratio	Lower	Upper
43	100		
58	33.0	12.2	72.2

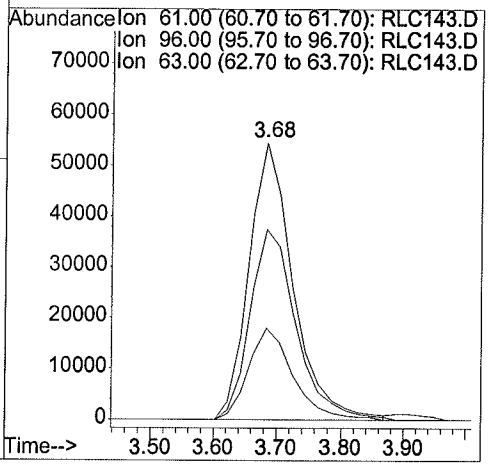


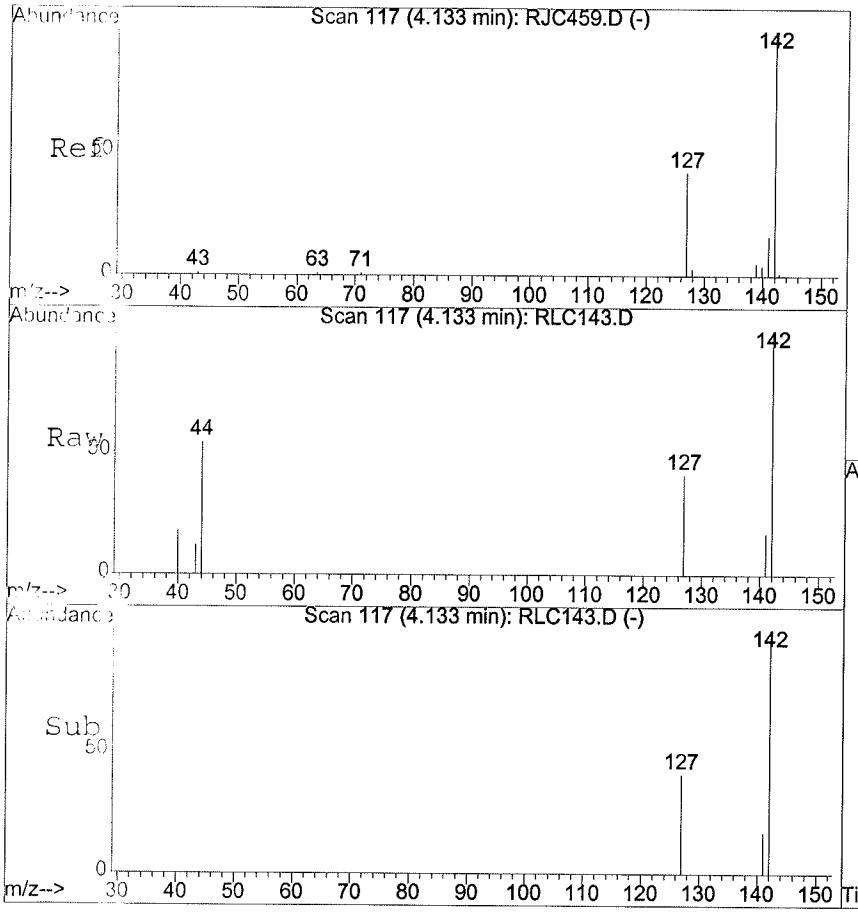


#14
1,1-Dichloroethene
Concen: 1.68 ug/l
RT: 3.68 min Scan# 96
Delta R.T. -0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 61 Resp: 263153

Ion	Ratio	Lower	Upper
61	100		
96	71.7	38.7	98.7
63	33.4	2.9	62.9

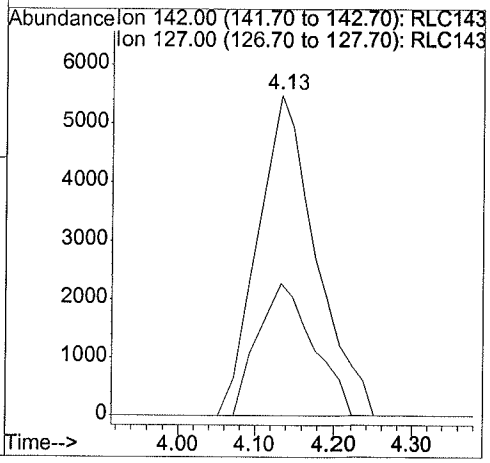


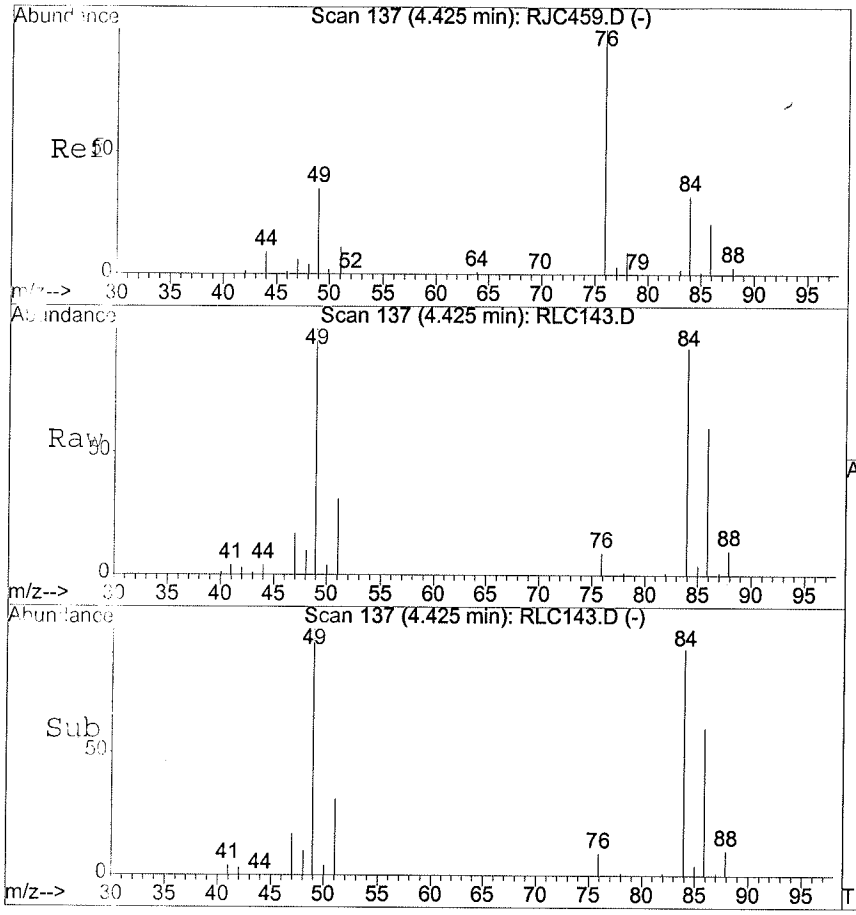


#17
Iodomethane
Concen: 0.19 ug/l
RT: 4.13 min Scan# 117
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion:142 Resp: 26464

Ion	Ratio	Lower	Upper
142	100		
127	40.0	12.5	72.5

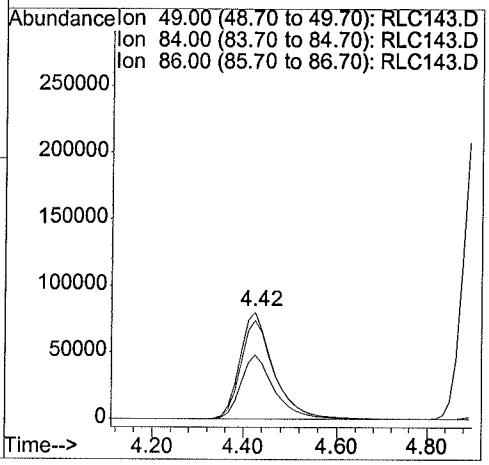


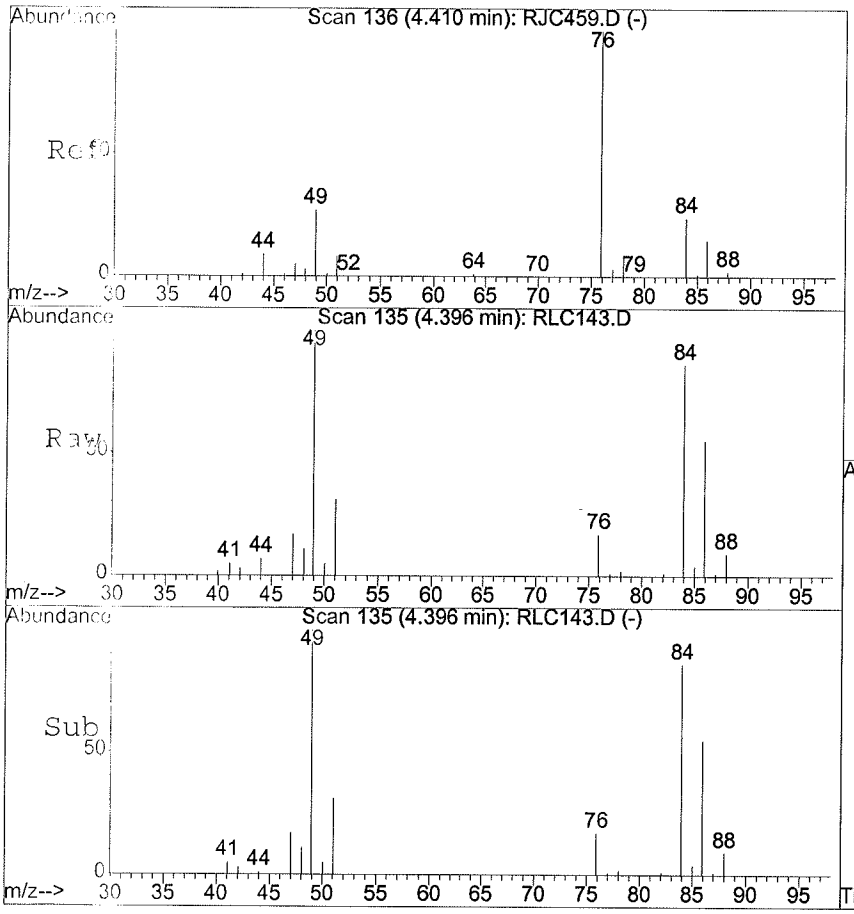


#19
Methylene chloride
Concen: 3.63 ug/l
RT: 4.42 min Scan# 137
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 49 Resp: 401587

Ion	Ratio	Lower	Upper
49	100		
84	92.7	60.1	120.1
86	59.3	27.5	87.5

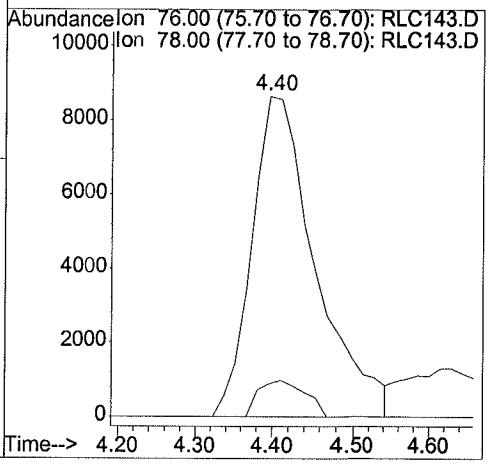


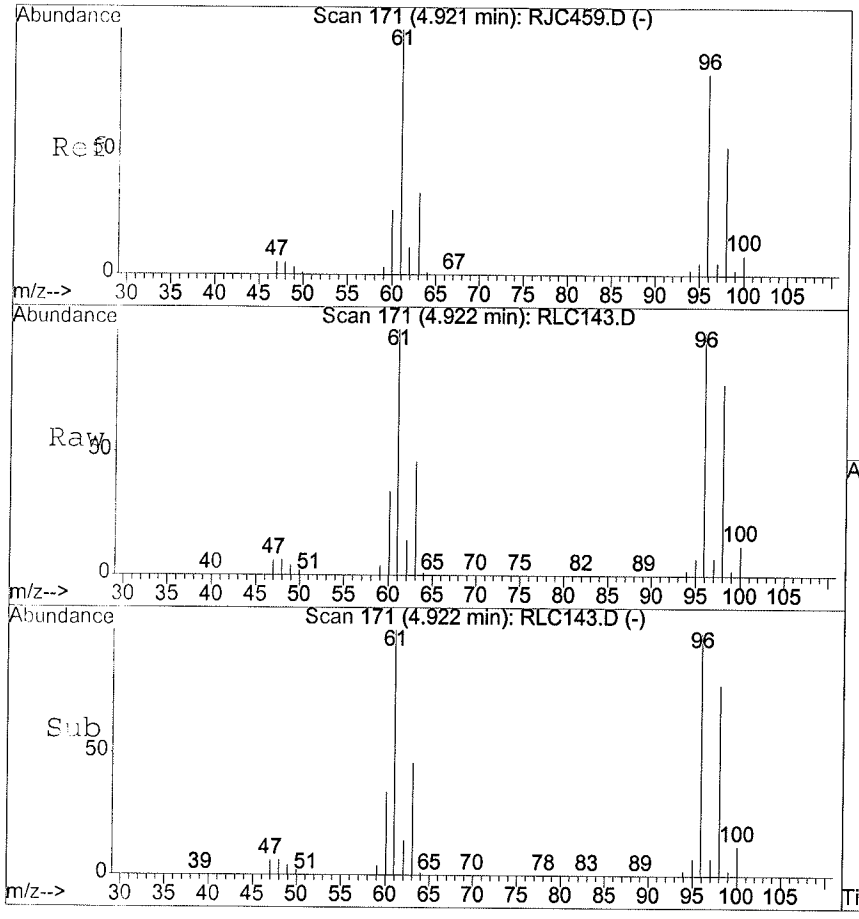


#20
Carbon disulfide
Concen: 0.13 ug/l
RT: 4.40 min Scan# 135
Delta R.T. -0.01 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 76 Resp: 48139

Ion	Ratio	Lower	Upper
76	100		
78	8.4	0.0	39.1

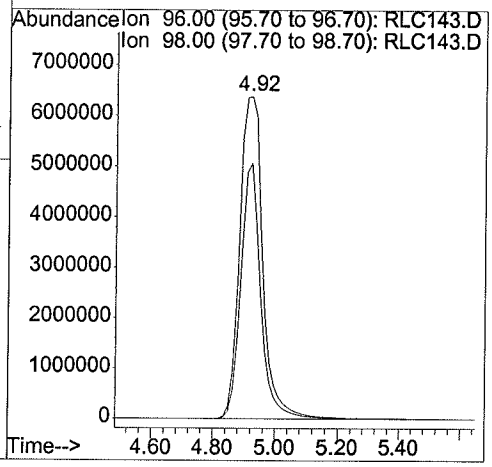


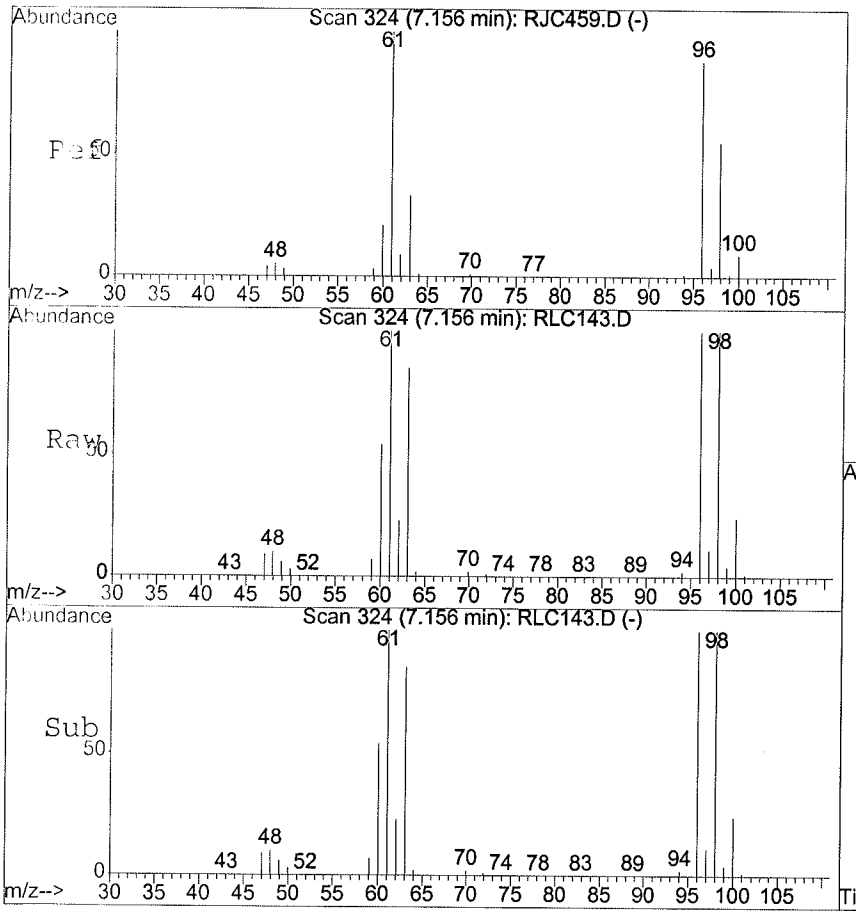


#23
trans-1,2-Dichloroethene
Concen: 295.42 ug/l
RT: 4.92 min Scan# 171
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 96 Resp:32979762

Ion	Ratio	Lower	Upper
96	100		
98	68.6	32.6	92.6

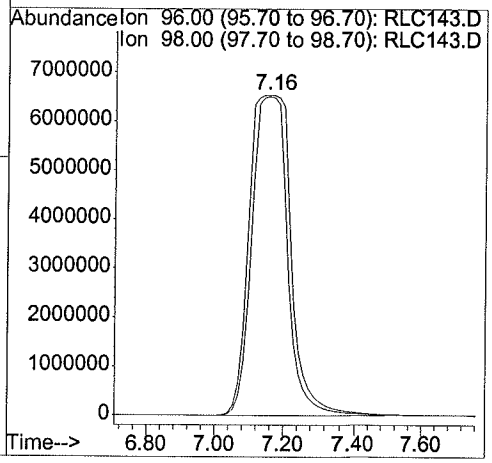


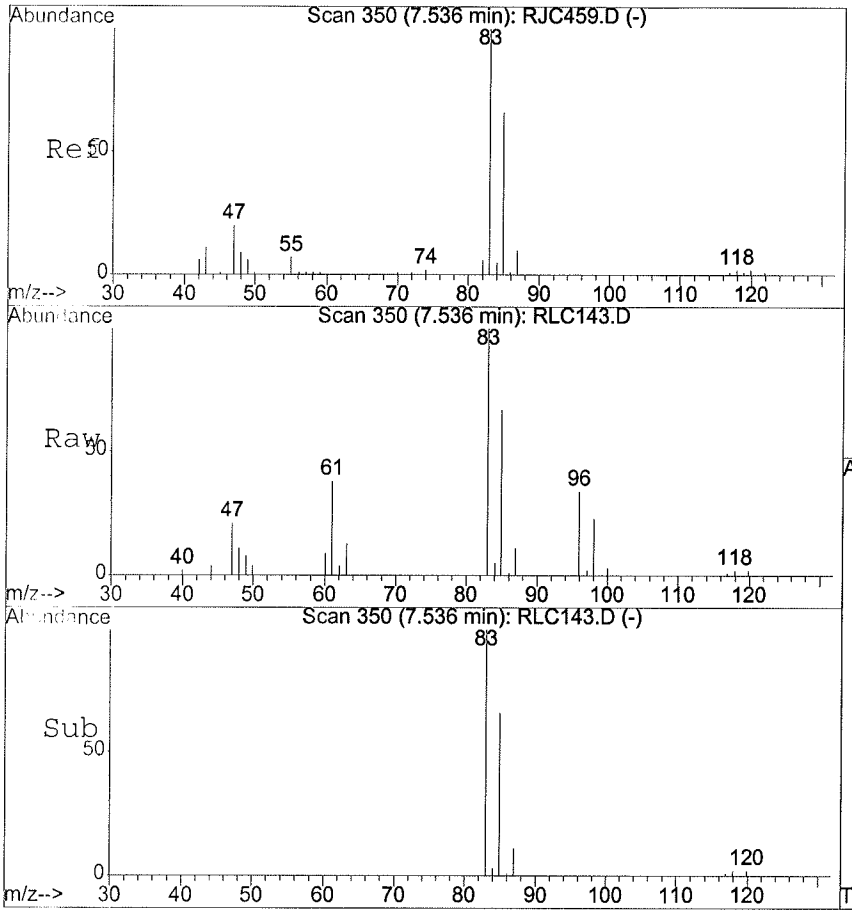


#31
cis-1,2-Dichloroethene
Concen: 505.77 ug/l m
RT: 7.16 min Scan# 324
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 96 Resp:55040970

Ion	Ratio	Lower	Upper
96	100		
98	0.0	33.5	93.5#

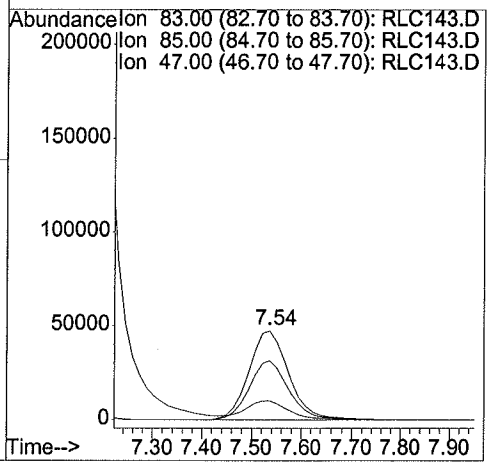


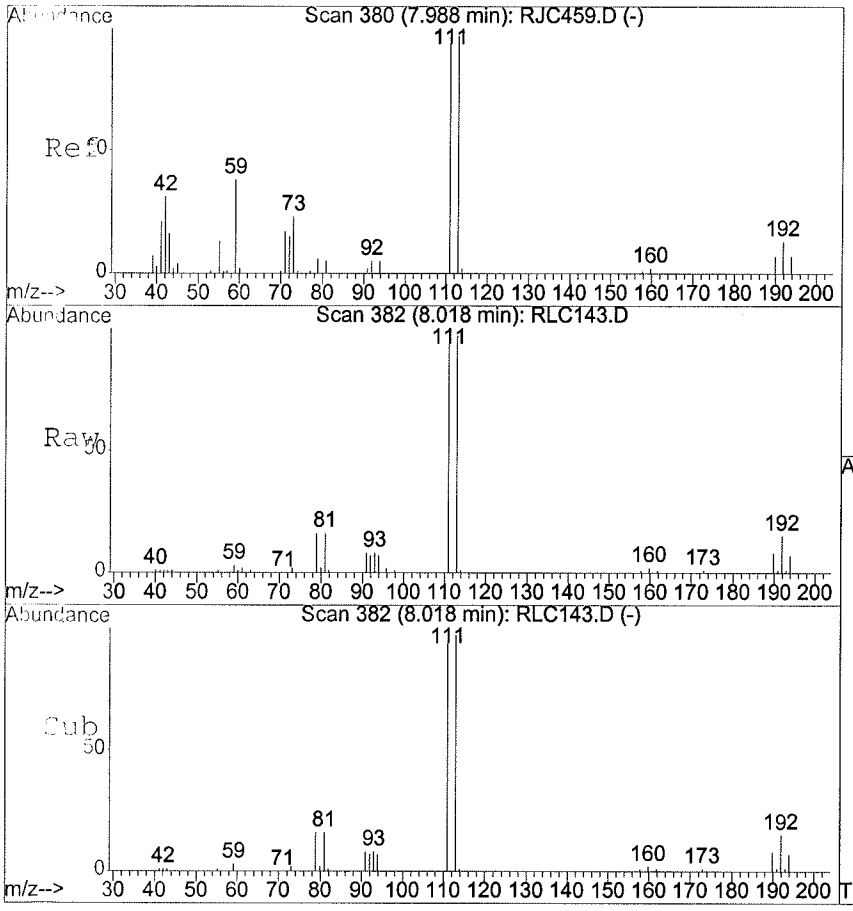


#32
Chloroform
Concen: 1.71 ug/l
RT: 7.54 min Scan# 350
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 83 Resp: 275378

Ion	Ratio	Lower	Upper
83	100		
85	65.9	37.8	97.8
47	23.8	0.0	50.5

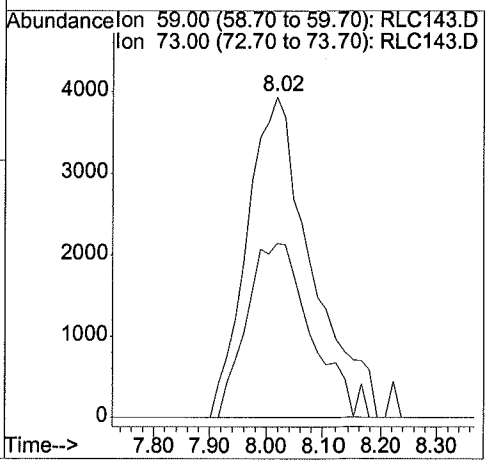


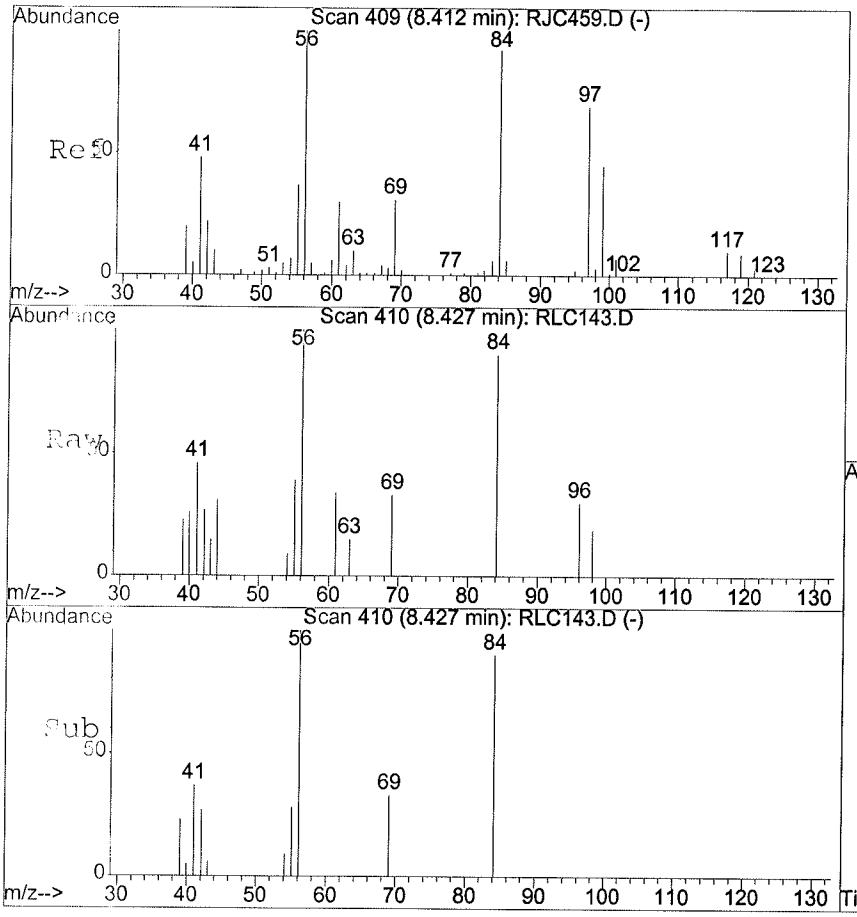


#34
tert-Amyl alcohol
Concen: 13.88 ug/l
RT: 8.02 min Scan# 382
Delta R.T. 0.03 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 59 Resp: 31100

Ion	Ratio	Lower	Upper
59	100		
73	54.4	29.7	89.7

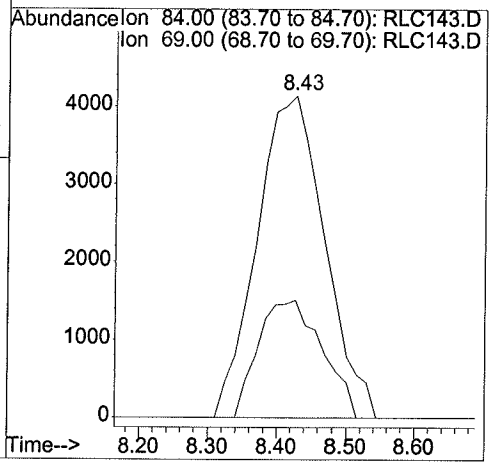


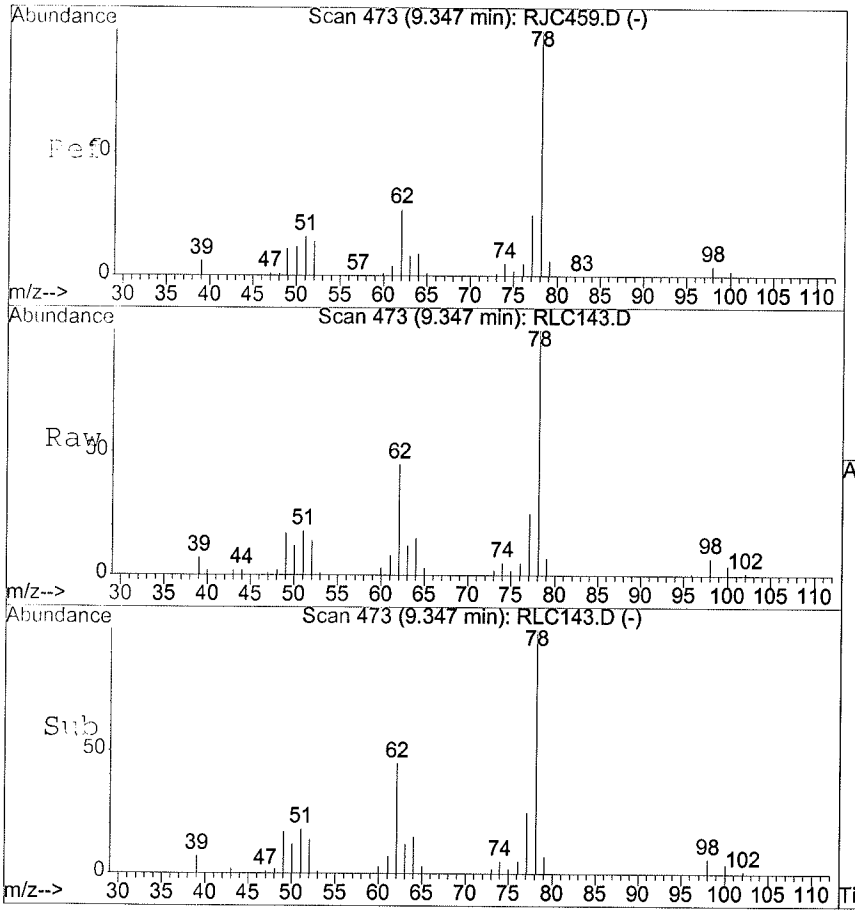


#38
Cyclohexane
Concen: 0.19 ug/l
RT: 8.43 min Scan# 410
Delta R.T. 0.01 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 84 Resp: 28248

Ion	Ratio	Lower	Upper
84	100		
69	34.5	6.0	66.0

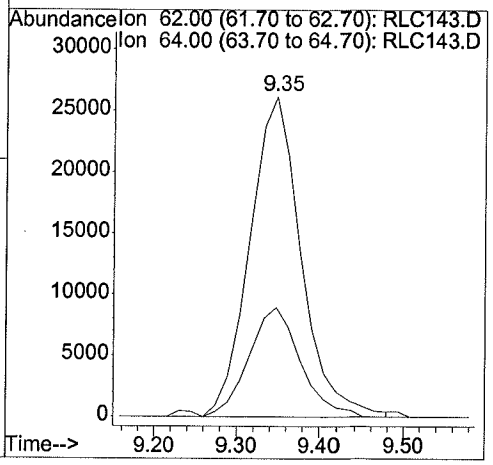


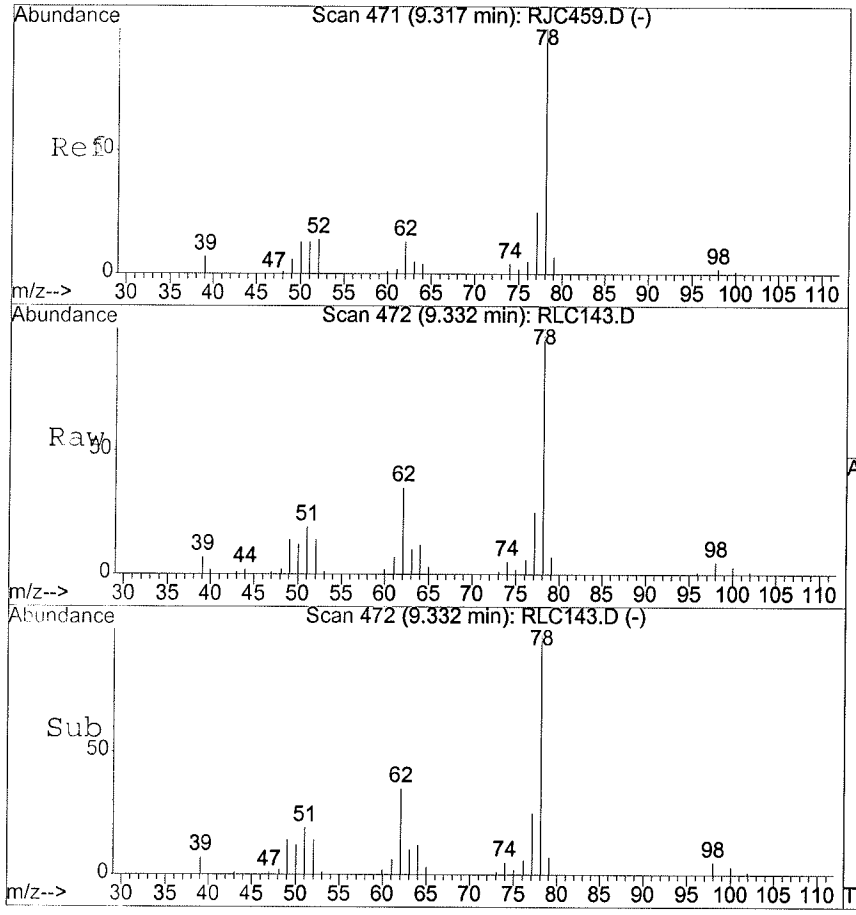


#44
1,2-Dichloroethane
Concen: 1.74 ug/l
RT: 9.35 min Scan# 473
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 62 Resp: 113188

Ion	Ratio	Lower	Upper
62	100		
64	34.2	3.1	63.1

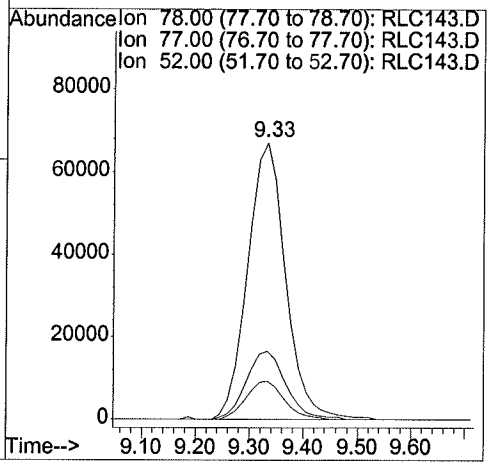


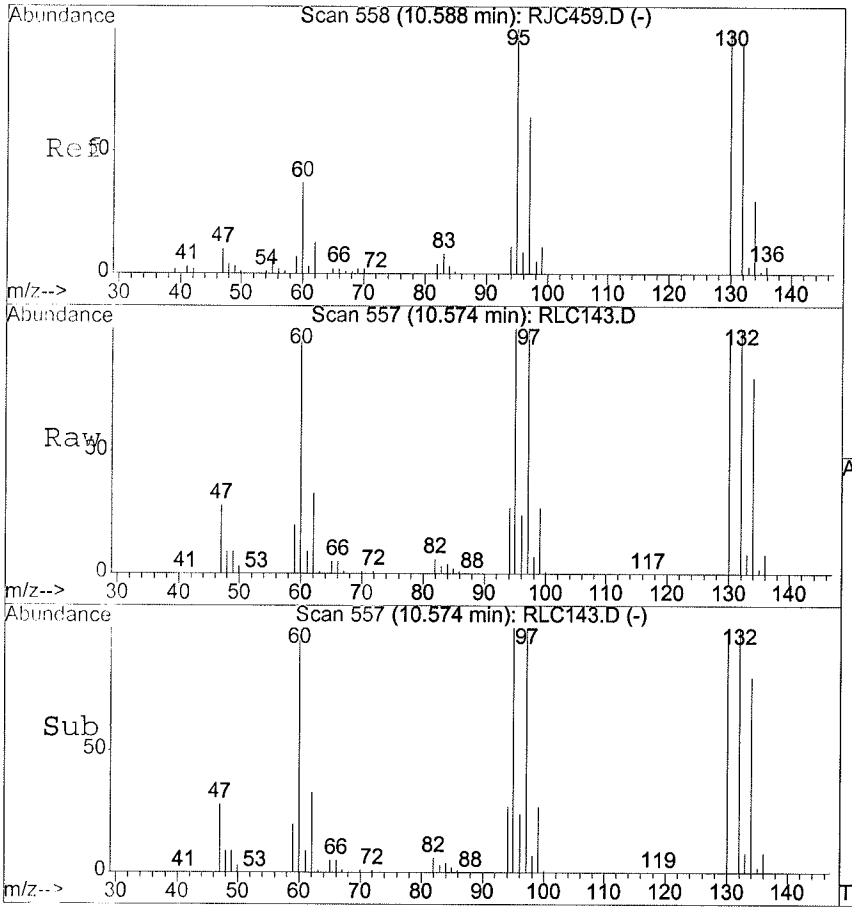


#45
Benzene
Concen: 0.89 ug/l
RT: 9.33 min Scan# 472
Delta R.T. 0.01 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 78 Resp: 327420

Ion	Ratio	Lower	Upper
78	100		
77	25.8	0.0	55.1
52	13.9	0.0	44.3

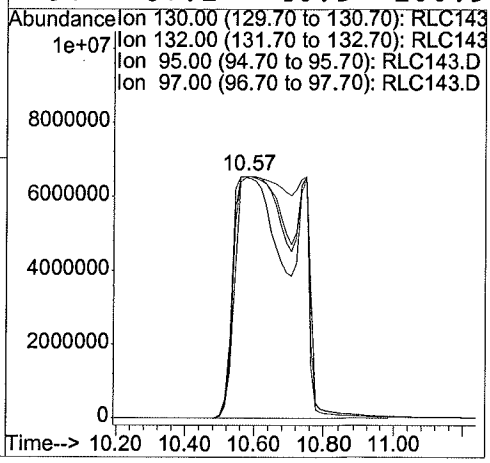


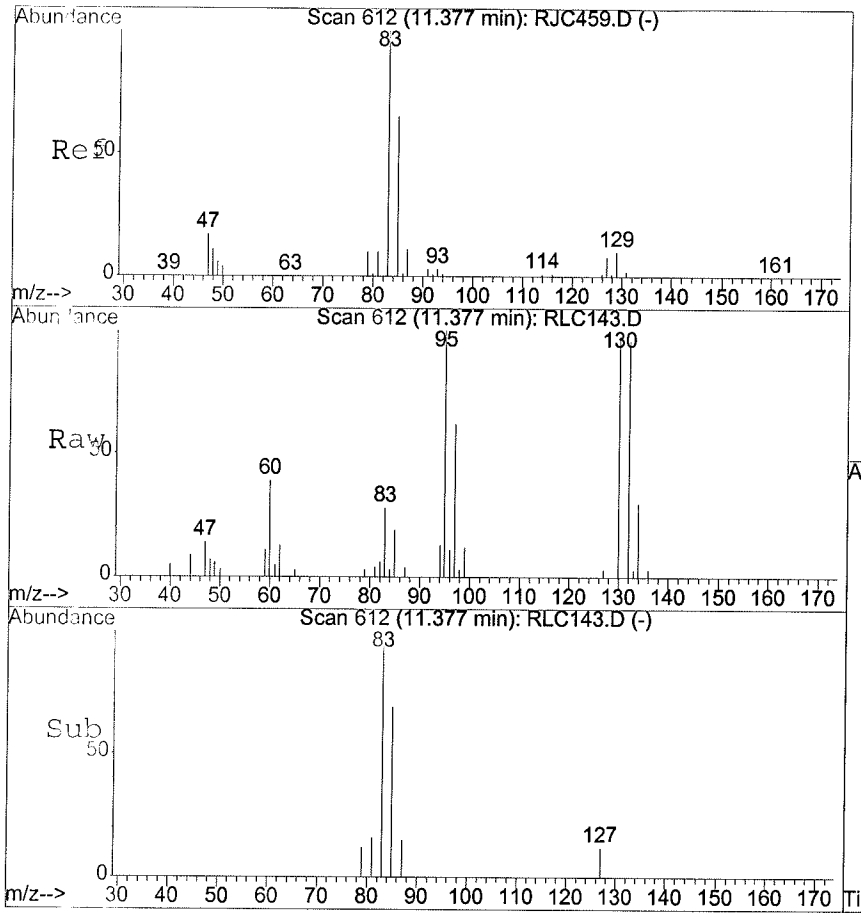


#46
Trichloroethene
Concen: 869.43 ug/l m
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion:130 Resp:85070298

Ion	Ratio	Lower	Upper
130	100		
132	74.8	65.5	125.5
95	81.6	73.3	133.3
97	67.1	40.9	100.9

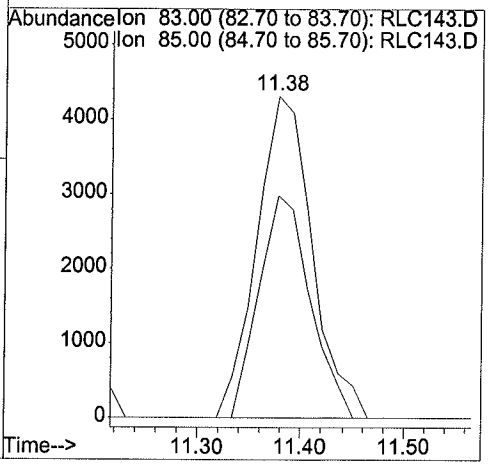


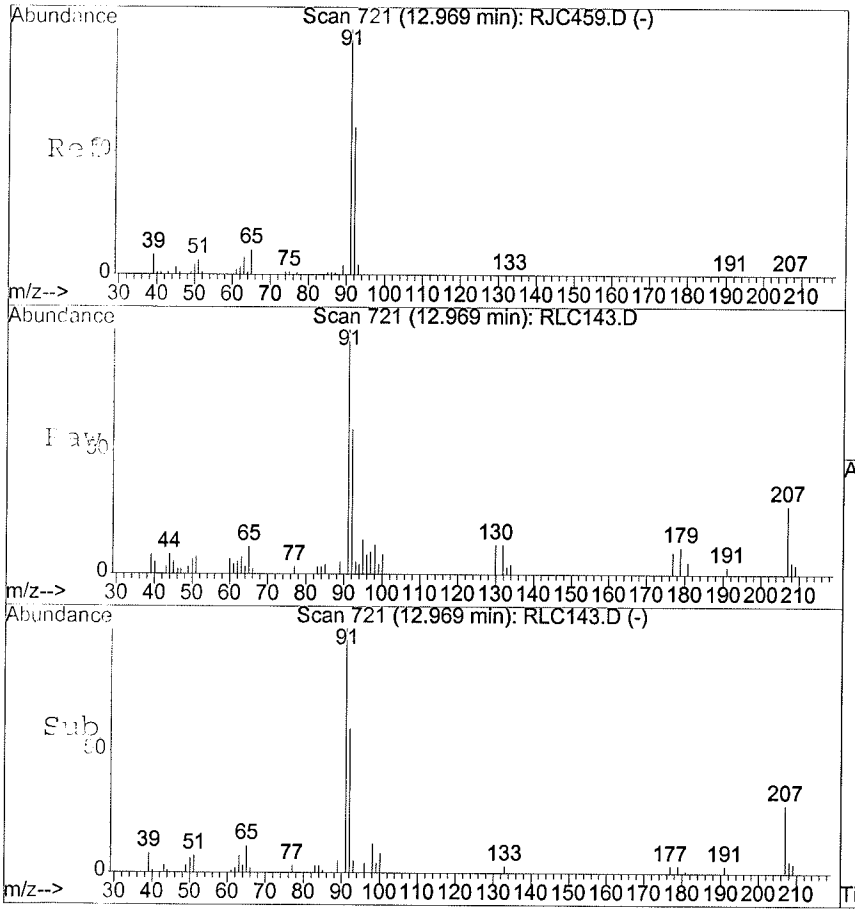


#49
Bromodichloromethane
Concen: 0.17 ug/l
RT: 11.38 min Scan# 612
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 83 Resp: 16216

Ion	Ratio	Lower	Upper
83	100		
85	64.0	34.3	94.3

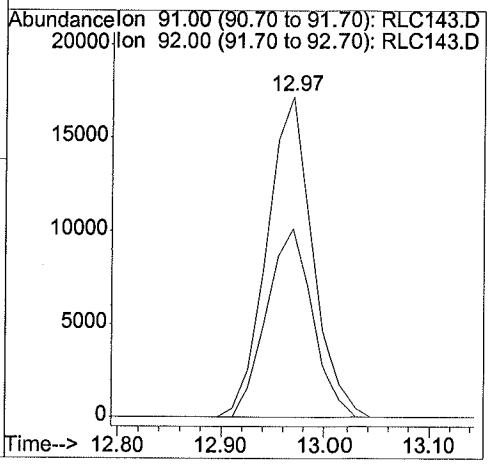


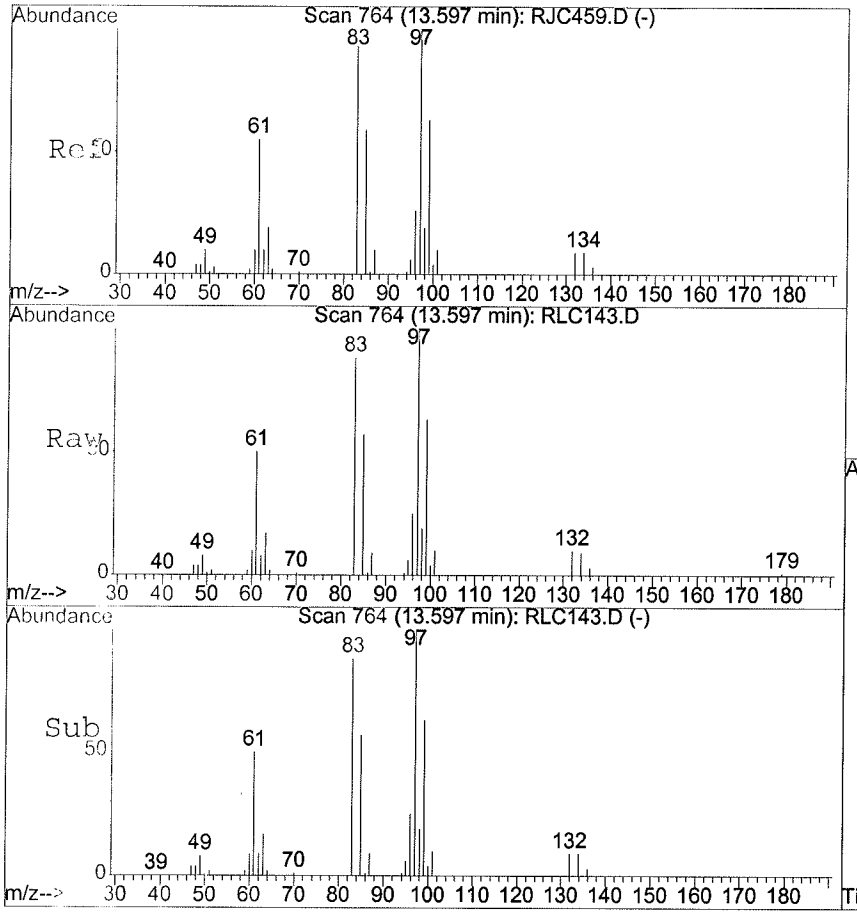


#57
Toluene
Concen: 0.14 ug/l
RT: 12.97 min Scan# 721
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 91 Resp: 53362

Ion	Ratio	Lower	Upper
91	100		
92	59.2	30.6	90.6

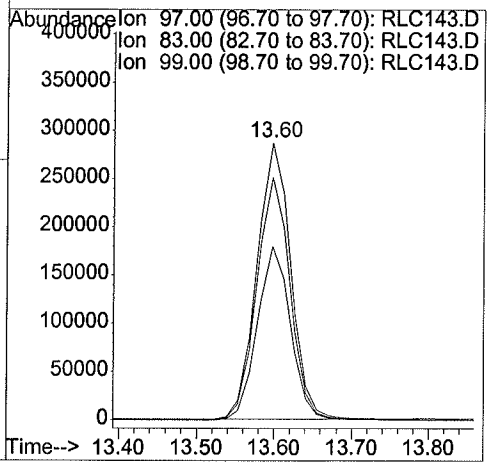


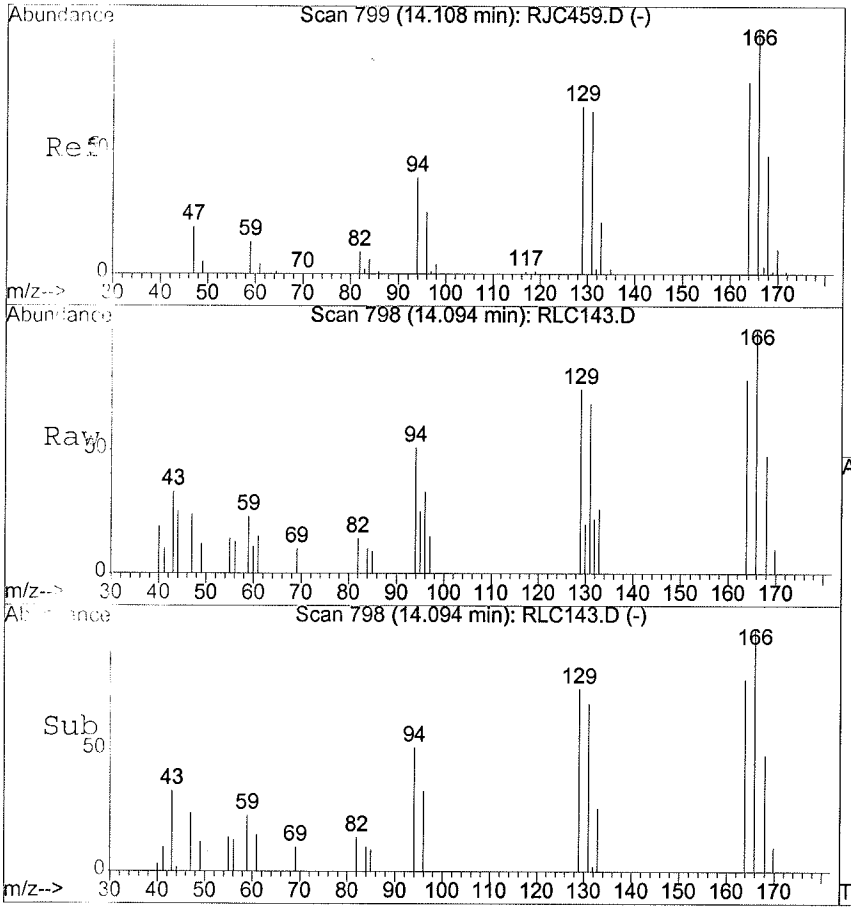


#60
1,1,2-Trichloroethane
Concen: 18.90 ug/l
RT: 13.60 min Scan# 764
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 97 Resp: 869639

Ion	Ratio	Lower	Upper
97	100		
83	86.0	60.6	120.6
99	62.0	33.2	93.2

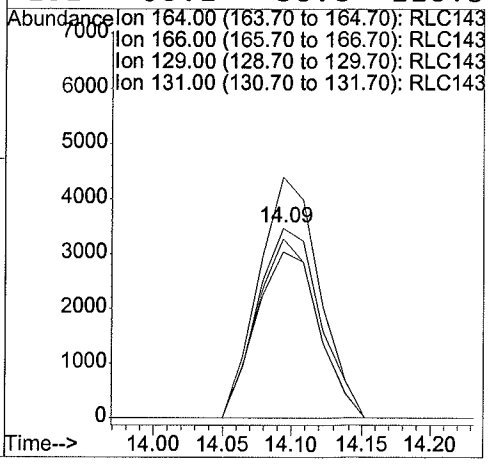


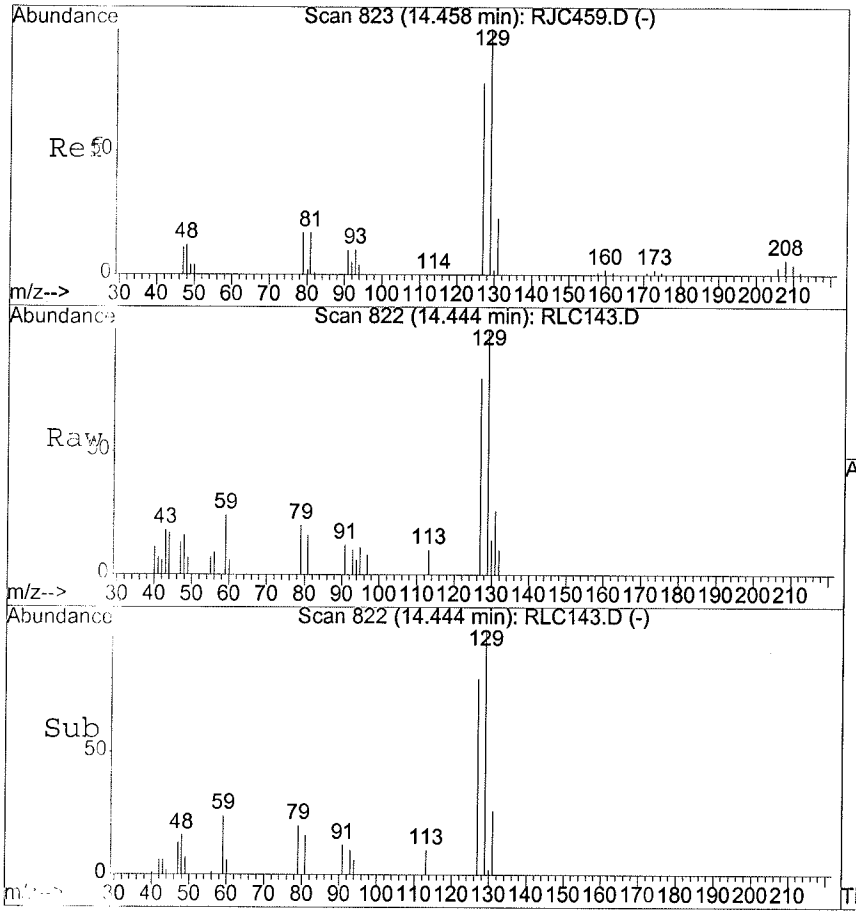


#63
Tetrachloroethene
Concen: 0.14 ug/l
RT: 14.09 min Scan# 798
Delta R.T. -0.01 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion:164 Resp: 10888

Ion	Ratio	Lower	Upper
164	100		
166	122.2	97.5	157.5
129	90.6	61.9	121.9
131	88.1	58.5	118.5

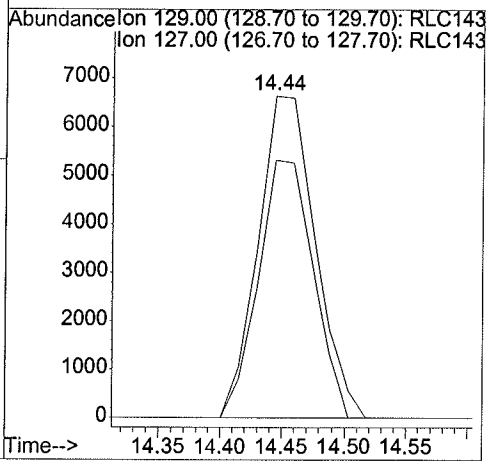


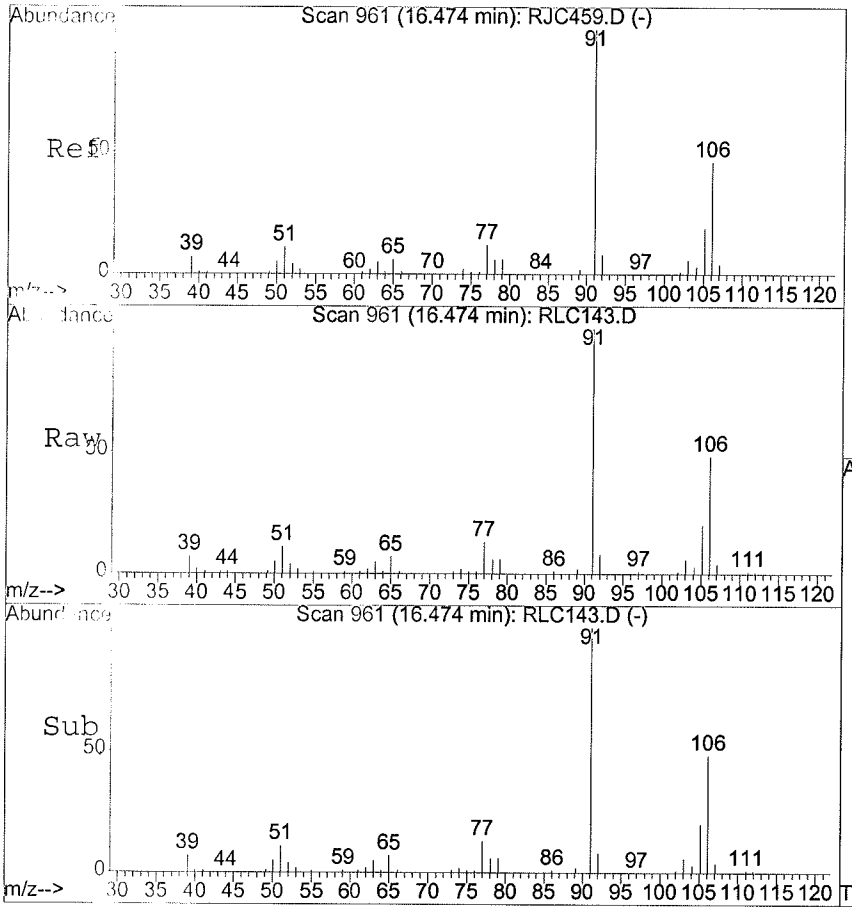


#64
Dibromochloromethane
Concen: 0.38 ug/l
RT: 14.44 min Scan# 822
Delta R.T. -0.01 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion:129 Resp: 21231

Ion	Ratio	Lower	Upper
129	100		
127	77.1	47.4	107.4

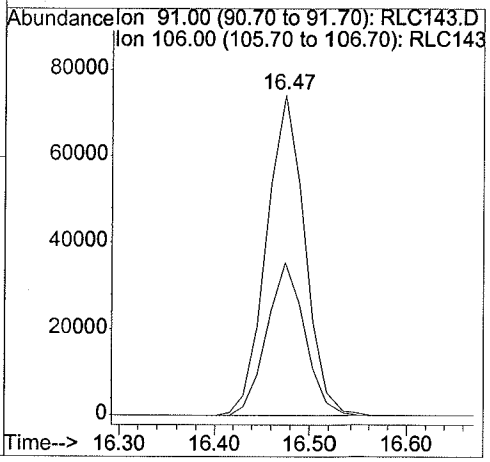


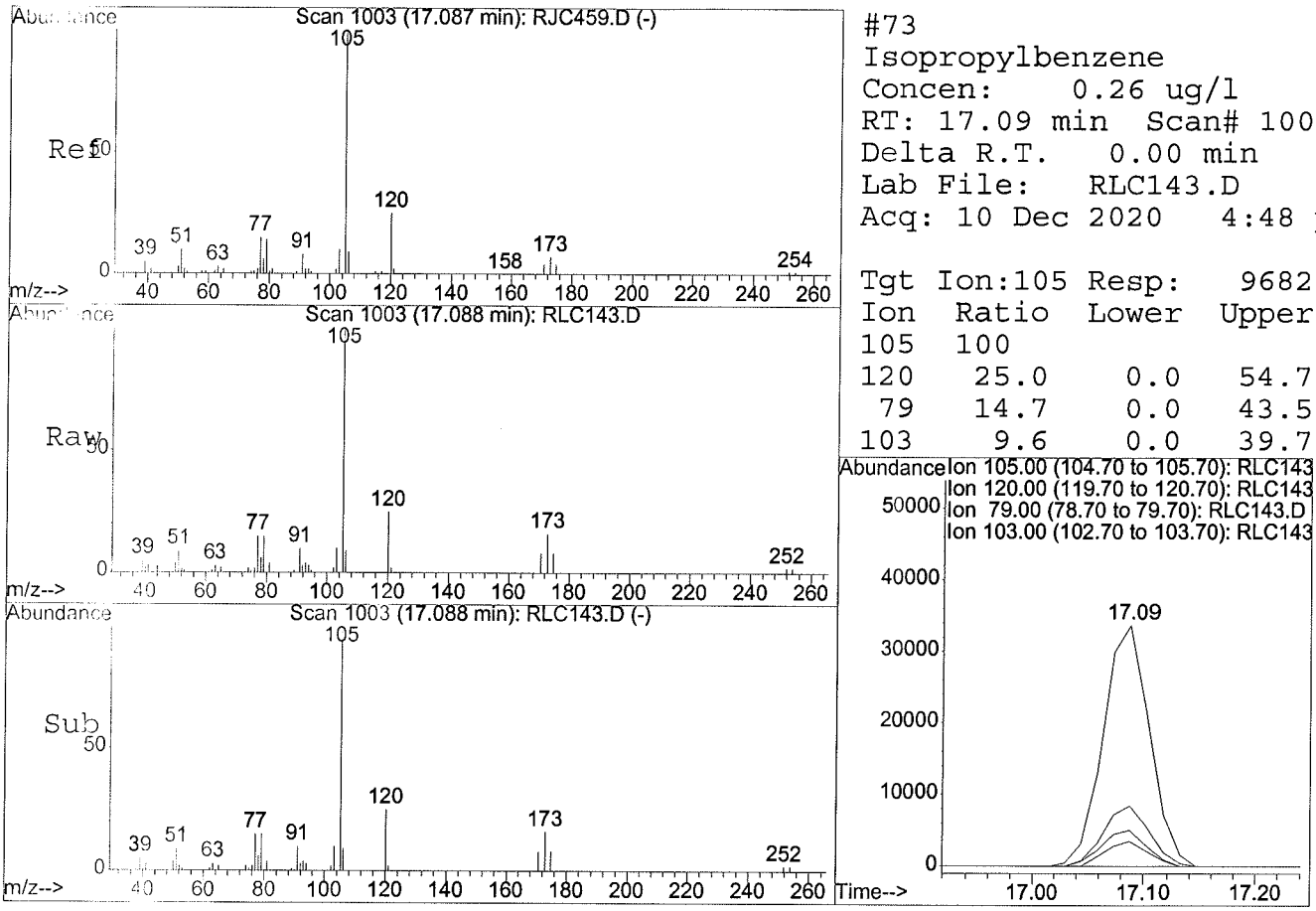


#71
o-Xylene
Concen: 0.71 ug/l
RT: 16.47 min Scan# 961
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 91 Resp: 207079

Ion	Ratio	Lower	Upper
91	100		
106	47.3	16.9	76.9

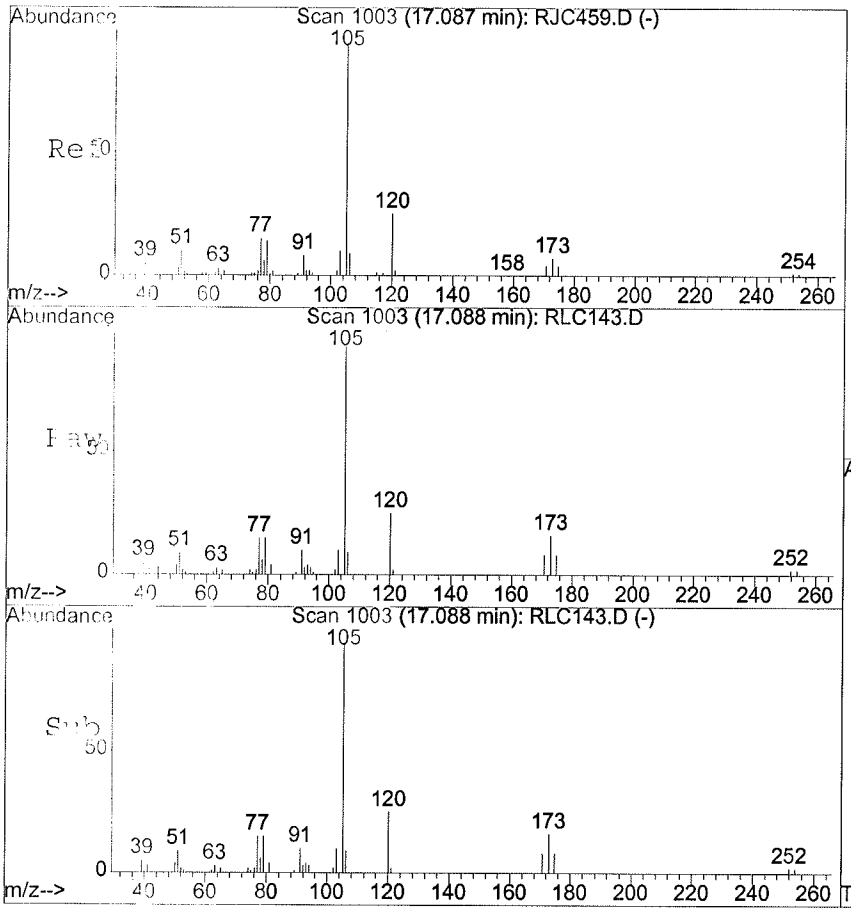




#73
Isopropylbenzene
Concen: 0.26 ug/l
RT: 17.09 min Scan# 1003
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion:105 Resp: 96827

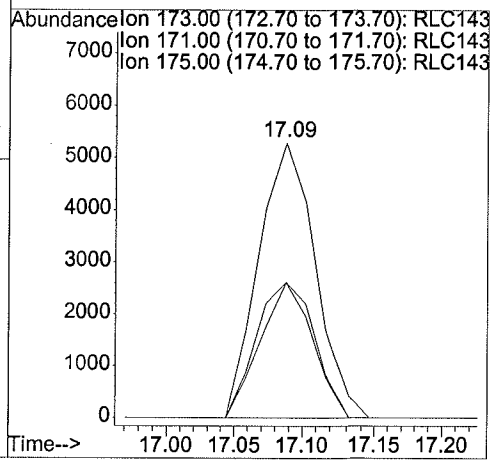
Ion	Ratio	Lower	Upper
105	100		
120	25.0	0.0	54.7
79	14.7	0.0	43.5
103	9.6	0.0	39.7

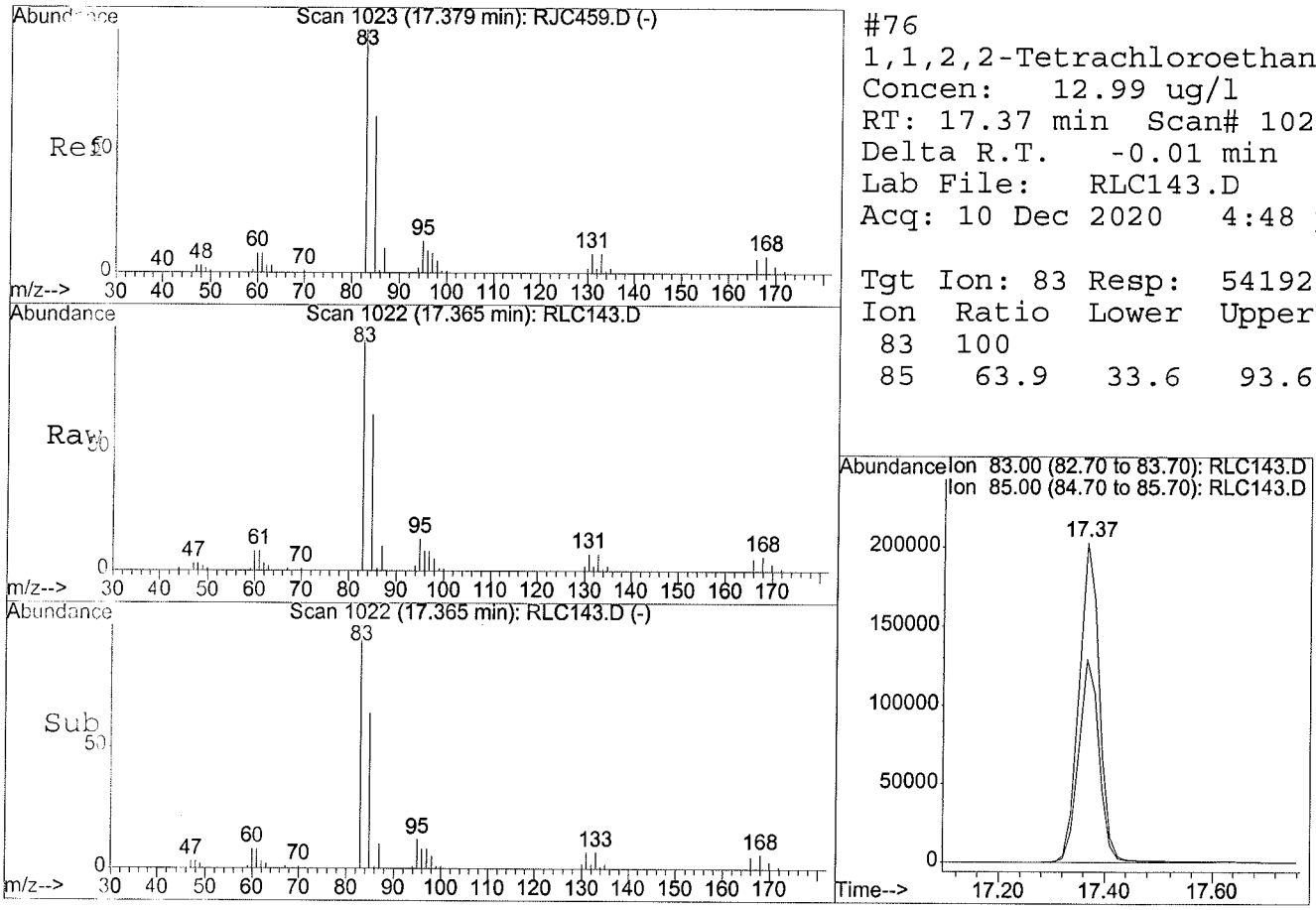


#75
Bromoform
Concen: 0.59 ug/l
RT: 17.09 min Scan# 1003
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion:173 Resp: 15107

Ion	Ratio	Lower	Upper
173	100		
171	50.6	21.3	81.3
175	45.7	18.8	78.8

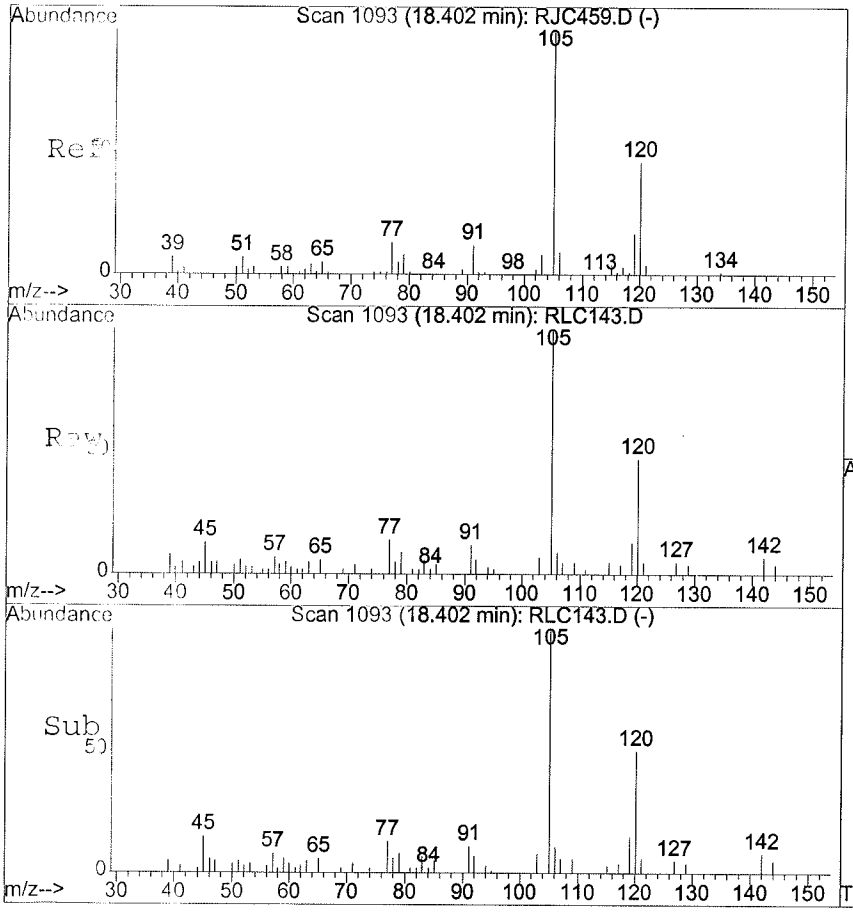




#76
1,1,2,2-Tetrachloroethane
Concen: 12.99 ug/l
RT: 17.37 min Scan# 1022
Delta R.T. -0.01 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion: 83 Resp: 541926

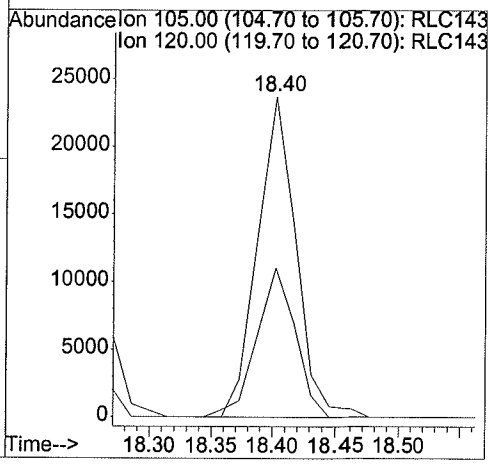
Ion	Ratio	Lower	Upper
83	100		
85	63.9	33.6	93.6

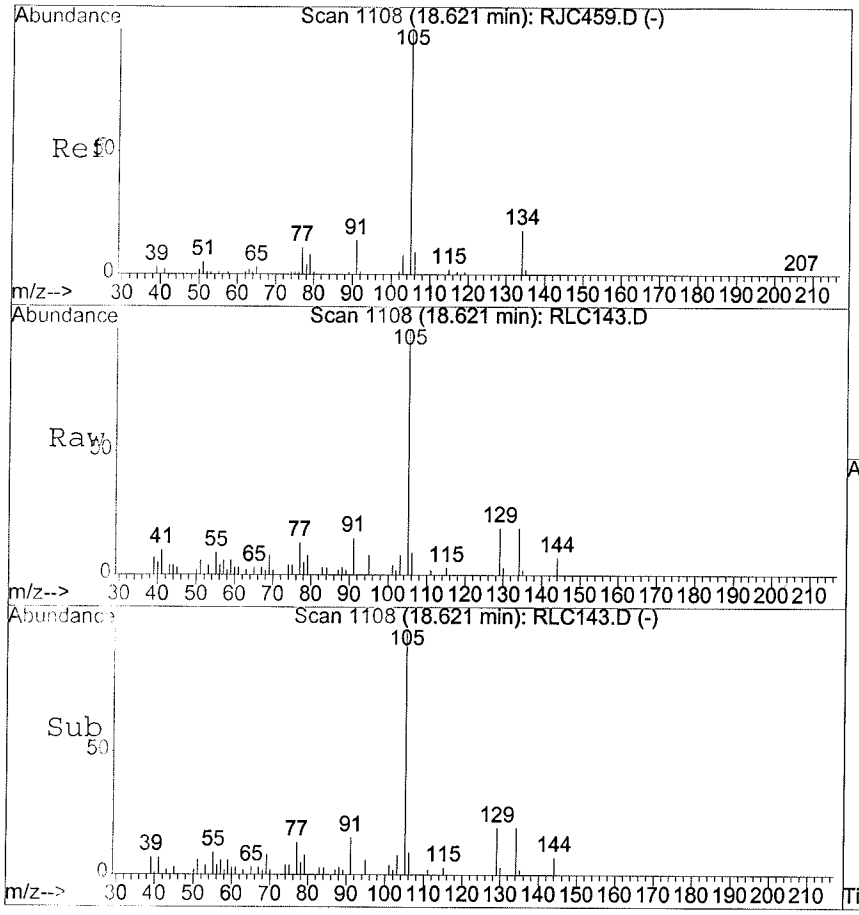


#86
1,2,4-Trimethylbenzene
Concen: 0.21 ug/l
RT: 18.40 min Scan# 1093
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion:105 Resp: 51174

Ion	Ratio	Lower	Upper
105	100		
120	47.0	25.8	85.8

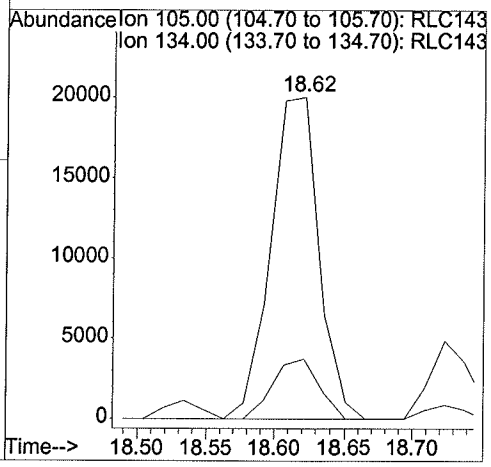


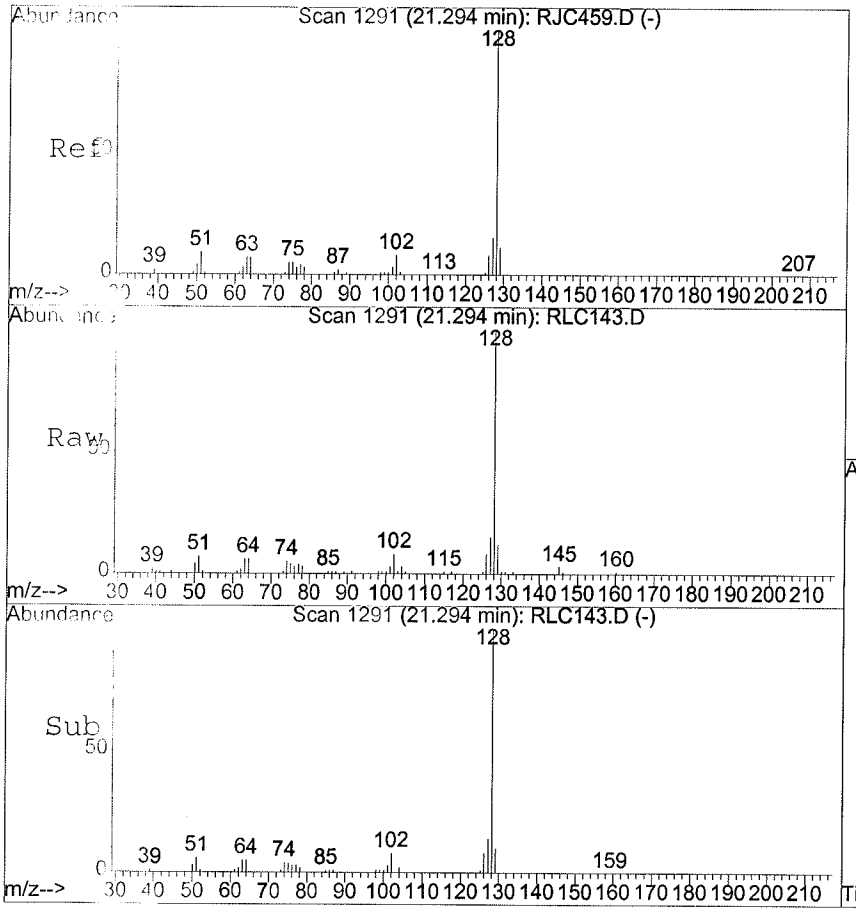


#87
sec-Butylbenzene
Concen: 0.13 ug/l
RT: 18.62 min Scan# 1108
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion:105 Resp: 48528

Ion	Ratio	Lower	Upper
105	100		
134	17.7	0.0	47.9

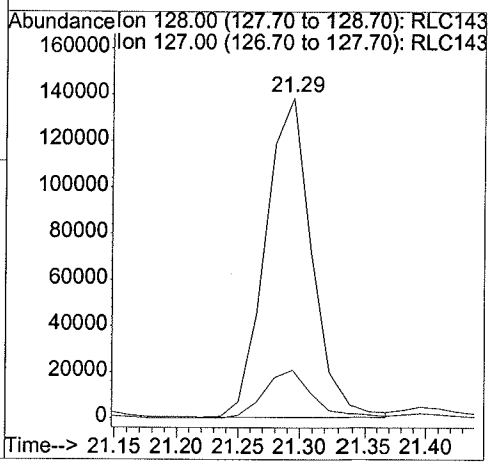




#96
Naphthalene
Concen: 6.20 ug/l
RT: 21.29 min Scan# 1291
Delta R.T. 0.00 min
Lab File: RLC143.D
Acq: 10 Dec 2020 4:48 pm

Tgt Ion:128 Resp: 358415

Ion	Ratio	Lower	Upper
128	100		
127	16.0	0.0	44.4

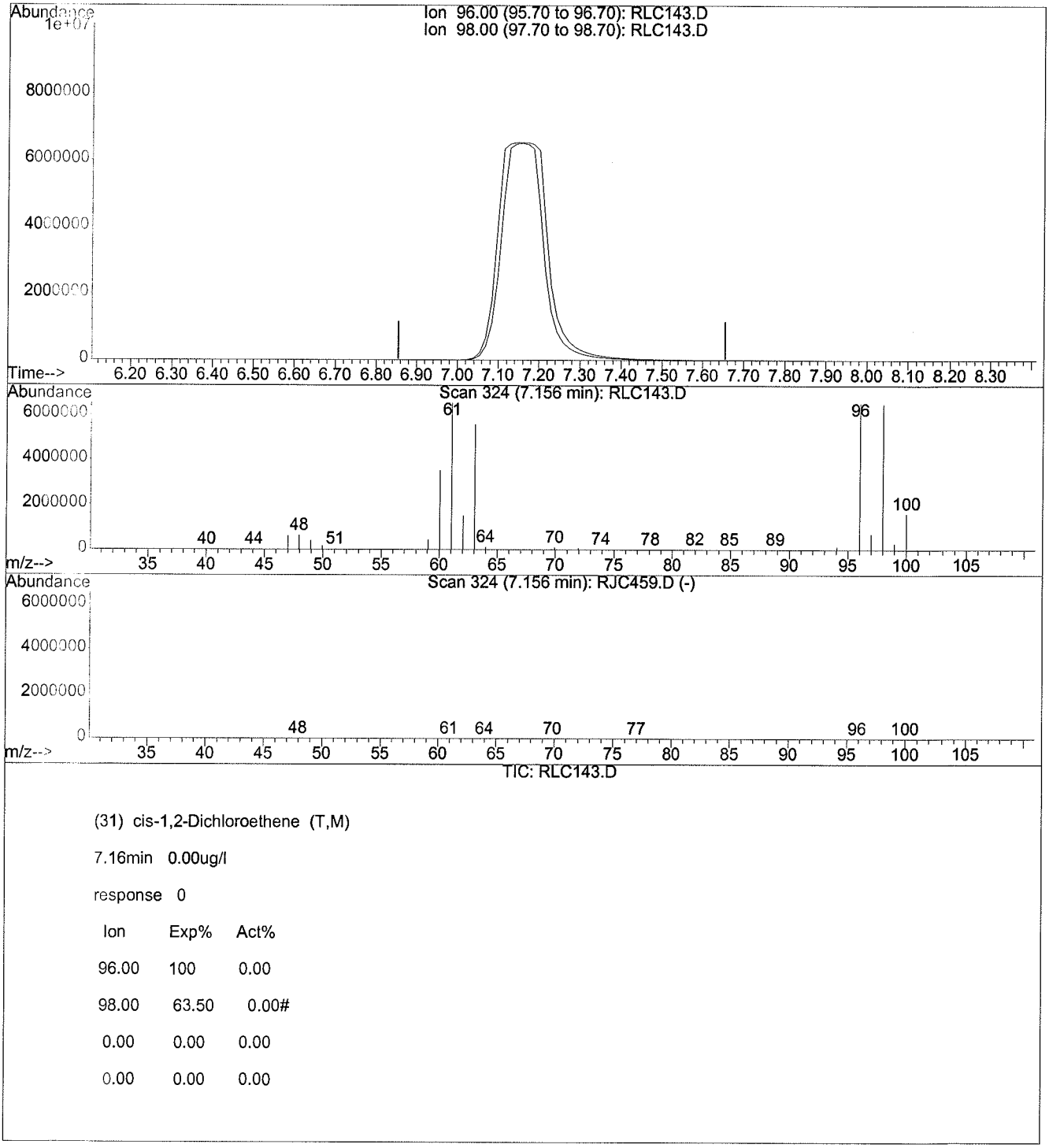


Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L10\RLC143.D
Acq On : 10 Dec 2020 4:48 pm
Sample : 20L087-03 25mL
Misc : DF=1.0
MS Integration Params: RTE.P
Quant Time: Dec 11 12:12 2020

Vial: 9
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC143.D

(31) cis-1,2-Dichloroethene (T,M)

7.16min 0.00ug/l

response 0

Ion	Exp%	Act%
96.00	100	0.00
98.00	63.50	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

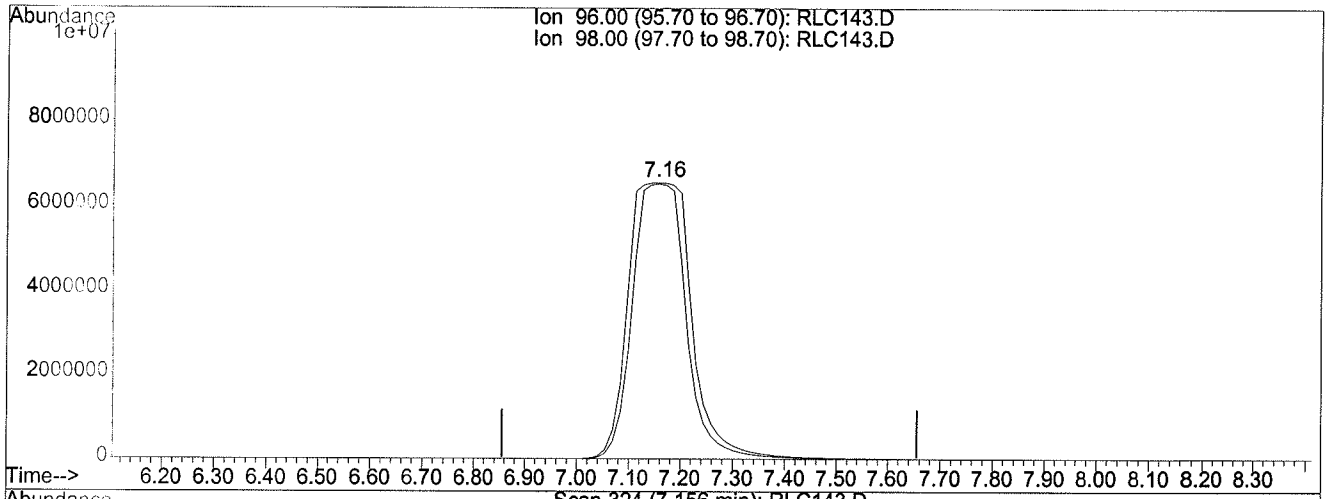
RLC143.D VO67J30.M Fri Dec 11 12:12:18 2020

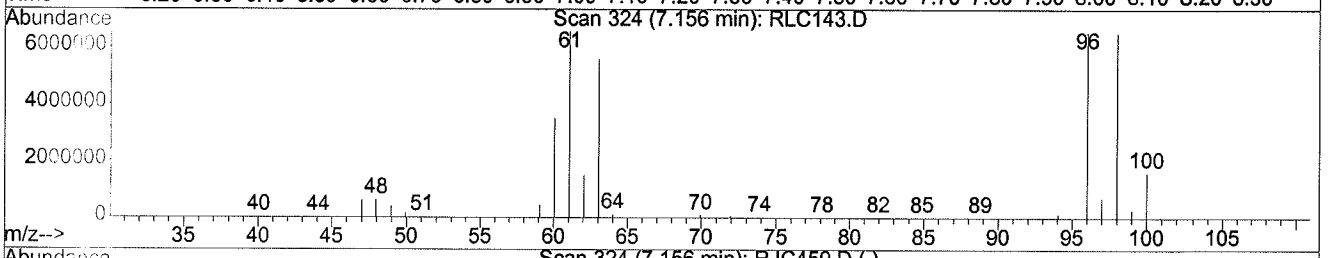
Quantitation Report (Qedit)

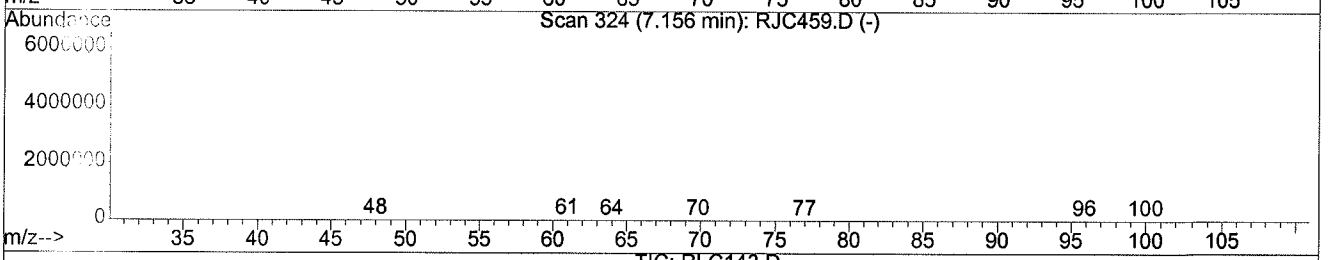
Data File : D:\HPCHEM\1\DATA\20L10\RLC143.D
Acq On : 10 Dec 2020 4:48 pm
Sample : 20L087-03 25mL
Misc : DF=1.0
MS Integration Params: RTE.P
Quant Time: Dec 11 12:12 2020

Vial: 9
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration







TIC: RLC143.D

(31) cis-1,2-Dichloroethene (T,M)

7.16min 505.77ug/l m

response 55040970

Ion	Exp%	Act%
96.00	100	100
98.00	63.50	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

☐ Incorrect Retention Time
☐ Incorrect Baseline
☐ Incorrect Integration
☑ Other not integrated

Initials VL 12/11/20

VL 12/14/20

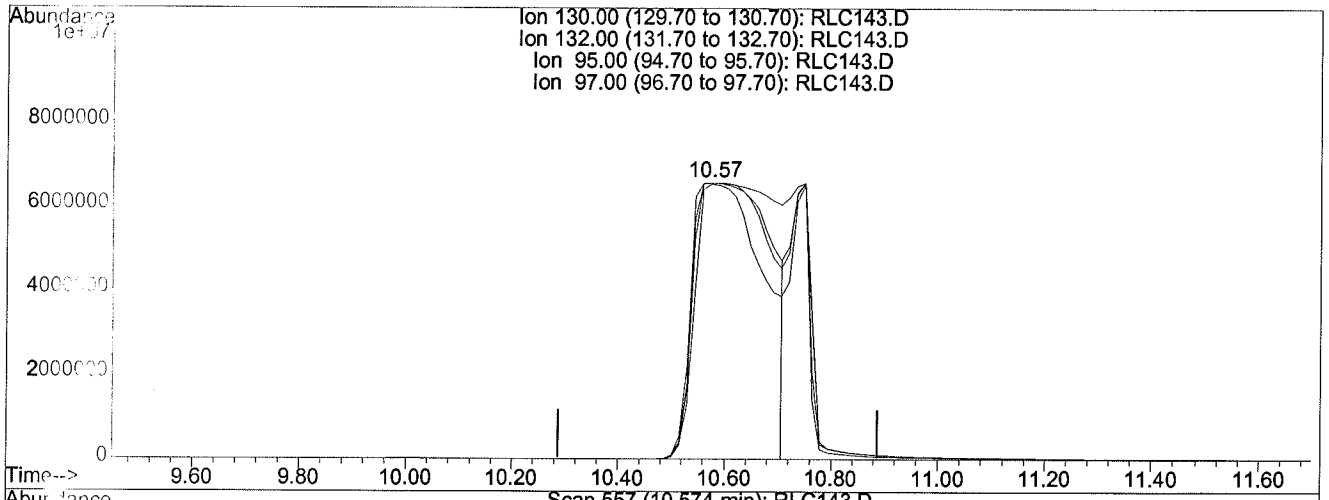
RLC143.D VO67J30.M Fri Dec 11 12:12:21 2020

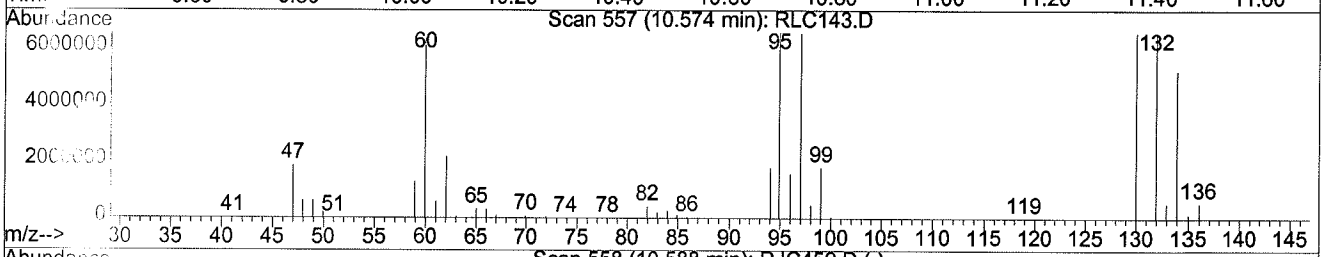
Quantitation Report (Qedit)

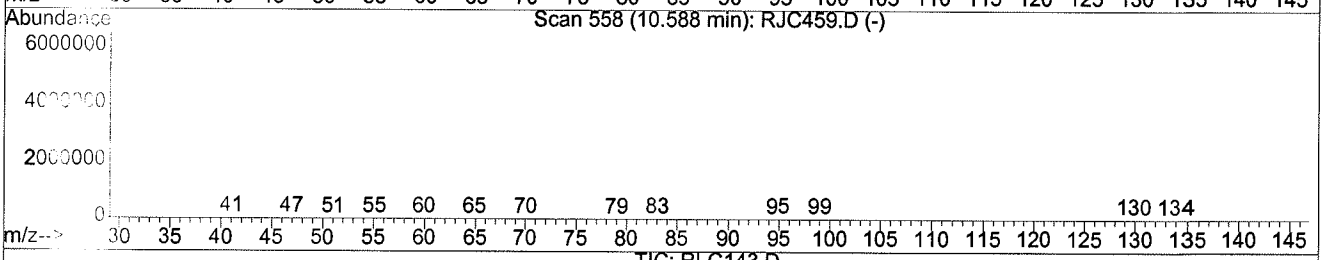
Data File : D:\HPCHEM\1\DATA\20L10\RLC143.D
Acq On : 10 Dec 2020 4:48 pm
Sample : 20L087-03 25mL
Misc : DF=1.0
MS Integration Params: RTE.P
Quant Time: Dec 11 12:12 2020

Vial: 9
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration







TIC: RLC143.D

(46) Trichloroethene (T,M)

10.57min 663.30ug/l

response 64901646

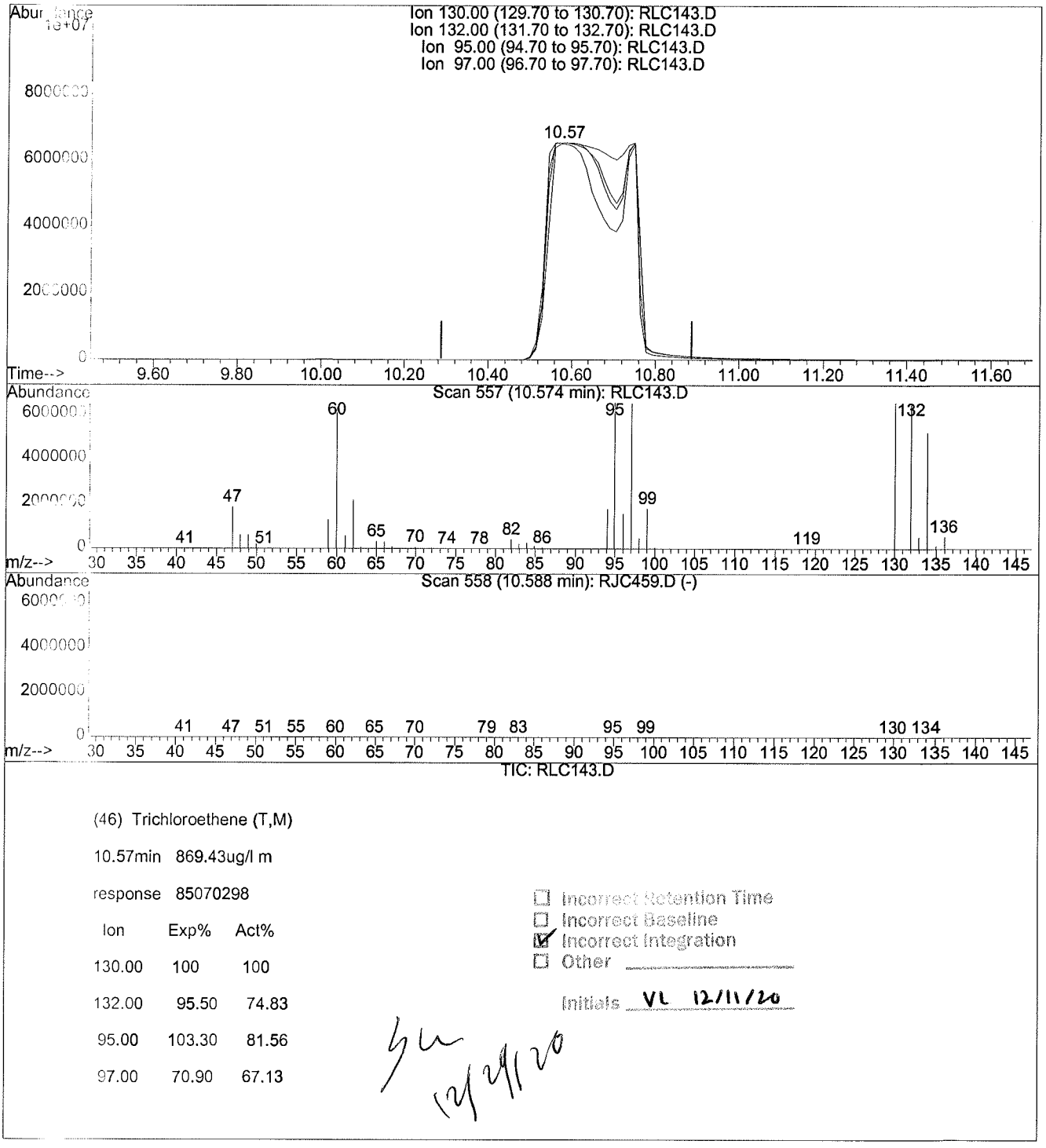
Ion	Exp%	Act%
130.00	100	100
132.00	95.50	98.08
95.00	103.30	106.91
97.00	70.90	87.99

RLC143.D VO67J30.M Fri Dec 11 12:12:42 2020

Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L10\RLC143.D Vial: 9
Acq On : 10 Dec 2020 4:48 pm Operator: VLu
Sample : 20L087-03 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:12 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



(46) Trichloroethene (T,M)

10.57min 869.43ug/l m

response 85070298

Ion	Exp%	Act%
130.00	100	100
132.00	95.50	74.83
95.00	103.30	81.56
97.00	70.90	67.13

☐ Incorrect Retention Time
☐ Incorrect Baseline
☑ Incorrect Integration
☐ Other _____

Initials VL 12/11/20

12/21/20

RLC143.D VO67J30.M Fri Dec 11 12:12:46 2020

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/04/20
Project : VAFB-SS003	Date Received: 12/09/20
Batch No. : 20L087	Date Extracted: 12/11/20 20:57
Sample ID: SS003-DUP2(120420)DL	Date Analyzed: 12/11/20 20:57
Lab Samp ID: L087-03I	Dilution Factor: 250
Lab File ID: RLC179	Matrix : WATER
Ext Btch ID: V067L08	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	120	25	50
1,1,1-TRICHLOROETHANE	ND	250	25	50
1,1,2,2-TETRACHLOROETHANE	ND	250	28	50
1,1,2-TRICHLOROETHANE	ND	250	25	50
1,1-DICHLOROETHANE	ND	250	25	50
1,1-DICHLOROETHENE	ND	250	25	50
1,1-DICHLOROPROPENE	ND	250	25	50
1,2,3-TRICHLOROBENZENE	ND	250	37	75
1,2,3-TRICHLOROPROPANE	ND	500	62	120
1,2,4-TRICHLOROBENZENE	ND	250	37	75
1,2,4-TRIMETHYLBENZENE	ND	250	28	50
1,2-DIBROMO-3-CHLOROPROPANE	ND	500	62	120
1,2-DIBROMOETHANE	ND	250	25	50
1,2-DICHLOROBENZENE	ND	250	25	50
1,2-DICHLOROETHANE	ND	120	25	50
1,2-DICHLOROPROPANE	ND	250	25	50
1,3,5-TRIMETHYLBENZENE	ND	250	33	50
1,3-DICHLOROBENZENE	ND	250	28	50
1,3-DICHLOROPROPANE	ND	250	25	50
1,4-DICHLOROBENZENE	ND	250	25	50
2,2-DICHLOROPROPANE	ND	250	40	50
2-BUTANONE	ND	2500	500	1000
2-CHLOROTOLUENE	ND	250	30	50
2-HEXANONE	ND	2500	580	1000
4-CHLOROTOLUENE	ND	250	28	50
ACETONE	ND	2500	650	1200
BENZENE	ND	250	25	50
BROMOBENZENE	ND	250	25	50
BROMOCHLOROMETHANE	ND	250	28	50
BROMODICHLOROMETHANE	ND	250	25	50
BROMOFORM	ND	250	37	75
BROMOMETHANE	ND	250	40	75
CARBON DISULFIDE	ND	250	25	50
CARBON TETRACHLORIDE	ND	250	25	50
CHLOROBENZENE	ND	250	25	50
CHLOROETHANE	ND	250	67	75
CHLOROFORM	ND	250	25	50
CHLOROMETHANE	ND	250	37	75
CIS-1,2-DICHLOROETHENE	660	250	25	50
CIS-1,3-DICHLOROPROPENE	ND	250	25	50
DIBROMOCHLOROMETHANE	ND	250	25	50
DICHLORODIFLUOROMETHANE	ND	250	37	75
ETHYLBENZENE	ND	250	25	50
HEXACHLOROBUTADIENE	ND	250	55	75
ISOPROPYL BENZENE	ND	250	25	50
M,P-XYLENES	ND	500	52	100
MIBK	ND	2500	520	1000
METHYLENE CHLORIDE	ND	500	62	120
MTBE	ND	250	33	50
NAPHTHALENE	ND	500	62	120
N-BUTYLBENZENE	ND	250	42	50
N-PROPYLBENZENE	ND	250	33	50
O-XYLENE	ND	250	25	50
P-ISOPROPYLTOLUENE	ND	250	35	50
SEC-BUTYLBENZENE	ND	250	33	50
STYRENE	ND	250	25	50
TERT-BUTYLBENZENE	ND	250	33	50
TETRACHLOROETHENE	ND	250	37	50
TOLUENE	ND	250	25	50
TRANS-1,2-DICHLOROETHENE	260	250	25	50
TRANS-1,3-DICHLOROPROPENE	ND	250	28	50
TRICHLOROETHENE	7400	250	25	50
TRICHLOROFLUOROMETHANE	ND	250	37	75
VINYL CHLORIDE	ND	120	30	50
VINYL ACETATE	ND	500	62	120
FREON113	ND	250	50	75
TERT-BUTANOL	ND	5000	1200	2500
DIPE	ND	250	25	50
ETBE	ND	250	25	50
TAME	ND	250	25	50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	2390	2500	95.7	70-120
4-BROMOFLUOROBENZENE	2360	2500	94.5	75-120
TOLUENE-D8	2290	2500	91.7	85-120
DIBROMOFLUOROMETHANE	2430	2500	97.2	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L11\RLC179.D Vial: 15
Acq On : 11 Dec 2020 8:57 pm Operator: VLu
Sample : 20L087-03I 100uL Inst : 67
Misc : DF=250 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 11:00 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2162491	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1698617	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	521580	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.02	111	686176	9.72	ug/l	-0.01
Spiked Amount 10.000			Recovery =	97.20%		
43) 1,2-Dichloroethane-d4	9.13	65	432138	9.57	ug/l	-0.01
Spiked Amount 10.000			Recovery =	95.70%		
56) Toluene-d8	12.82	98	2376813	9.17	ug/l	0.00
Spiked Amount 10.000			Recovery =	91.70%		
77) 4-Bromofluorobenzene	17.47	95	670276	9.45	ug/l	0.00
Spiked Amount 10.000			Recovery =	94.50%		
Target Compounds						Qvalue
23) trans-1,2-Dichloroethene	4.91	96	98858	1.03	ug/l	99
31) cis-1,2-Dichloroethene	7.14	96	247008	2.65	ug/l	99
46) Trichloroethene	10.57	130	2490782	29.71	ug/l	97

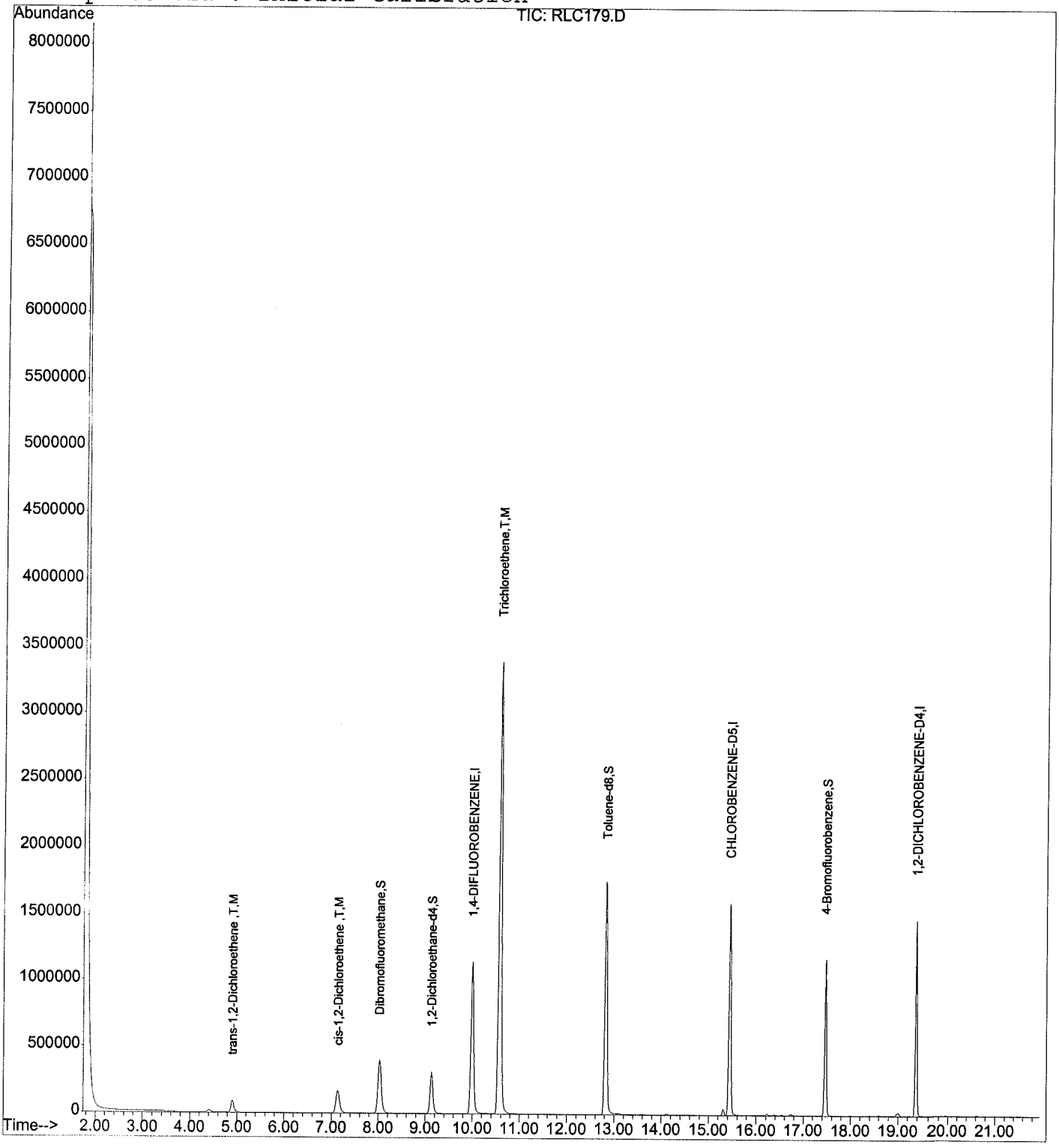
(#) = qualifier out of range (m) = manual integration
RLC179.D VO67J30.M Mon Dec 14 11:00:57 2020 Page 1

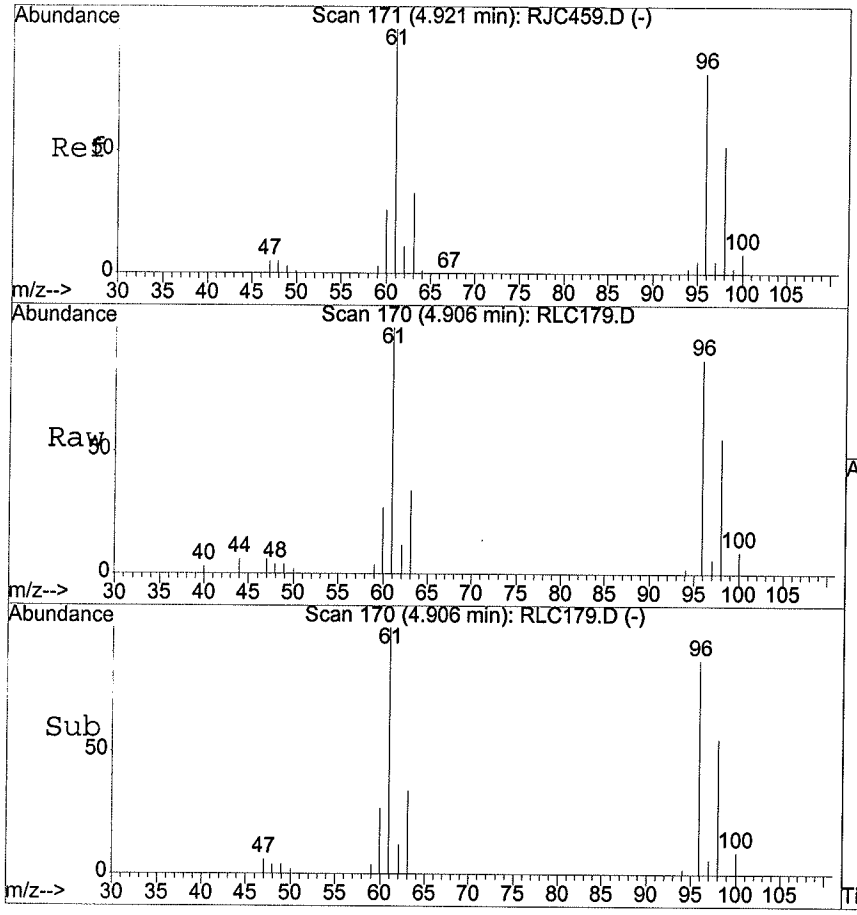
Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L11\RLC179.D
Acq On : 11 Dec 2020 8:57 pm
Sample : 20L087-03I 100uL
Misc : DF=250
MS Integration Params: RTE.P
Quant Time: Dec 14 11:00 2020

Vial: 15
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

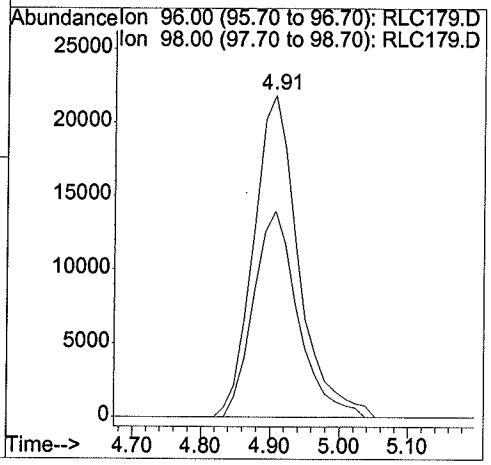


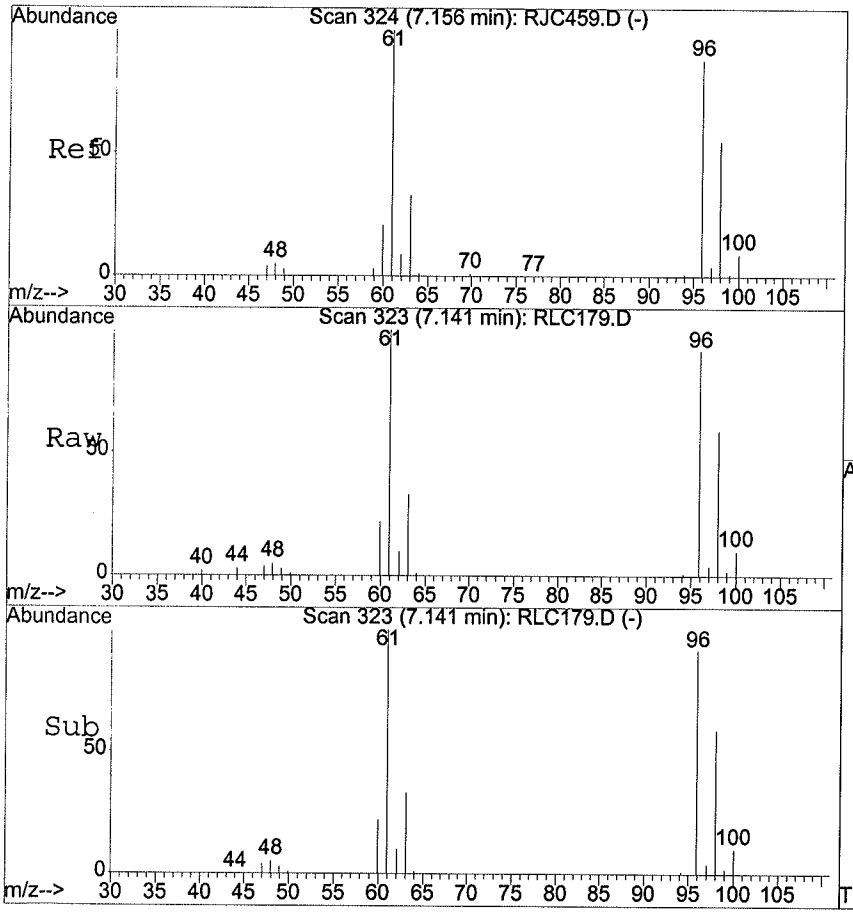


#23
trans-1,2-Dichloroethene
Concen: 1.03 ug/l
RT: 4.91 min Scan# 170
Delta R.T. -0.02 min
Lab File: RLC179.D
Acq: 11 Dec 2020 8:57 pm

Tgt Ion: 96 Resp: 98858

Ion	Ratio	Lower	Upper
96	100		
98	63.4	32.6	92.6

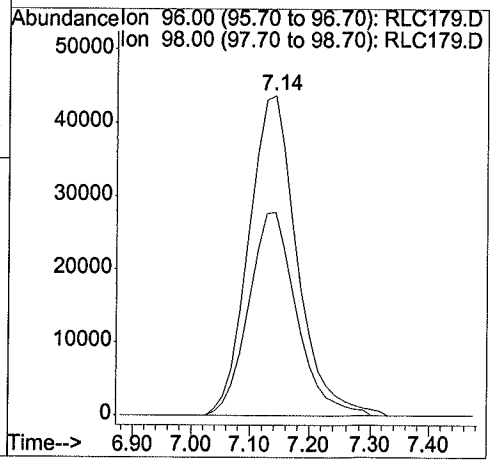


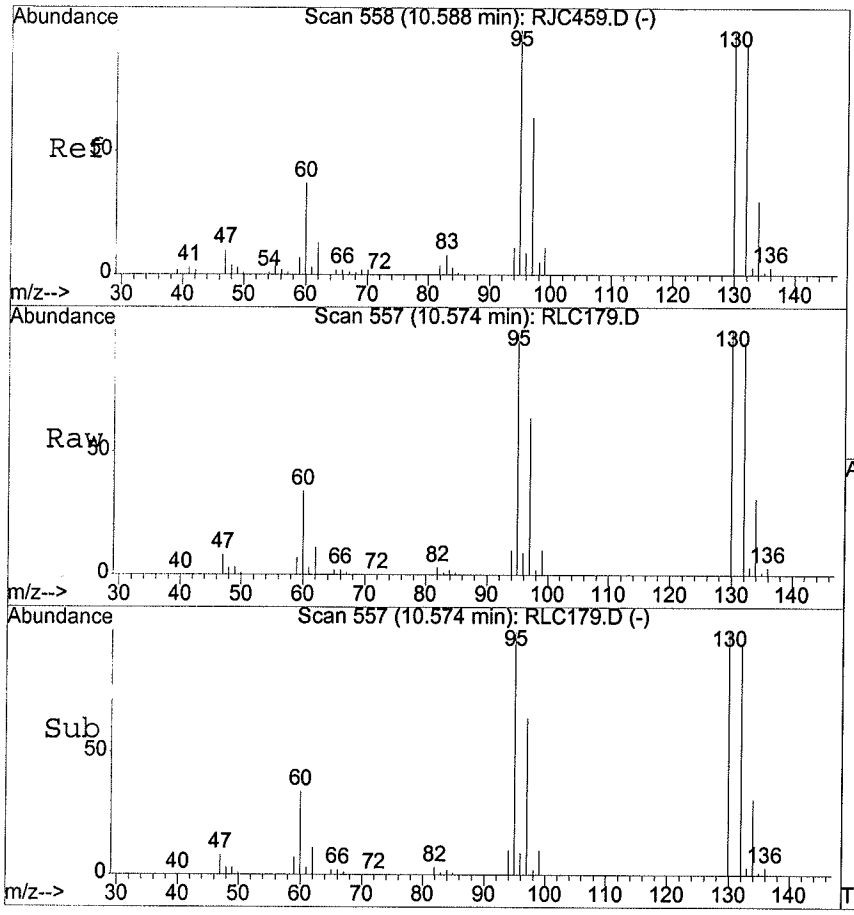


#31
cis-1,2-Dichloroethene
Concen: 2.65 ug/l
RT: 7.14 min Scan# 323
Delta R.T. -0.02 min
Lab File: RLC179.D
Acq: 11 Dec 2020 8:57 pm

Tgt Ion: 96 Resp: 247008

Ion	Ratio	Lower	Upper
96	100		
98	63.0	33.5	93.5

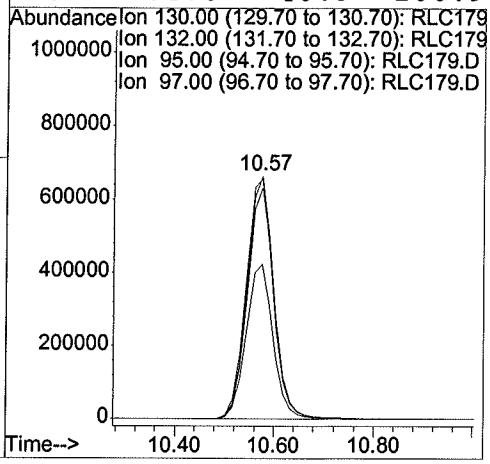




#46
Trichloroethene
Concen: 29.71 ug/l
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC179.D
Acq: 11 Dec 2020 8:57 pm

Tgt Ion:130 Resp: 2490782

Ion	Ratio	Lower	Upper
130	100		
132	95.2	65.5	125.5
95	100.8	73.3	133.3
97	64.6	40.9	100.9



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected:	12/04/20
Project	: VAFB-SS003	Date Received:	12/09/20
Batch No.	: 20L087	Date Extracted:	12/10/20 17:14 # 12/11/20 21:23
Sample ID	: 3-MW-62(120420)	Date Analyzed:	12/10/20 17:14 # 12/11/20 21:23
Lab Samp ID	: L087-04 #L087-04I	Dilution Factor:	1 # 250
Lab File ID	: RLC144 #RLC180	Matrix	: WATER
Ext Btch ID	: VO67L07 #VO67L08	% Moisture	: NA
Calib. Ref.	: RJC459 #RJC459	Instrument ID	: 67

	PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
	1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
	1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
	1,1,2,2-TETRACHLOROETHANE	12	1.0	0.11	0.20
	1,1,2-TRICHLOROETHANE	19	1.0	0.10	0.20
	1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
	1,1-DICHLOROETHENE	1.7	1.0	0.10	0.20
	1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
	1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
	1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,4-TRIMETHYLBENZENE	0.21J	1.0	0.11	0.20
	1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
	1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
	1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
	1,2-DICHLOROETHANE	1.8	0.50	0.10	0.20
	1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
	1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
	1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
	2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
	2-BUTANONE	ND	10	2.0	4.0
	2-CHLOROTOLUENE	ND	1.0	0.12	0.20
	2-HEXANONE	ND	10	2.3	4.0
	4-CHLOROTOLUENE	ND	1.0	0.11	0.20
	ACETONE	7.9J	10	2.6	5.0
	BENZENE	0.89J	1.0	0.10	0.20
	BROMOBENZENE	ND	1.0	0.10	0.20
	BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
	BROMODICHLOROMETHANE	0.17J	1.0	0.10	0.20
	BROMOFORM	0.69J	1.0	0.15	0.30
	BROMOMETHANE	ND	1.0	0.16	0.30
	CARBON DISULFIDE	0.13J	1.0	0.10	0.20
	CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
	CHLOROBENZENE	ND	1.0	0.10	0.20
	CHLOROETHANE	ND	1.0	0.27	0.30
	CHLOROFORM	1.7	1.0	0.10	0.20
	CHLOROMETHANE	ND	1.0	0.15	0.30
#	CIS-1,2-DICHLOROETHENE	670	250	25	50
	CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
	DIBROMOCHLOROMETHANE	0.44J	1.0	0.10	0.20
	DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
	ETHYLBENZENE	ND	1.0	0.10	0.20
	HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
	ISOPROPYL BENZENE	0.27J	1.0	0.10	0.20
	M,P-XYLENES	ND	2.0	0.21	0.40
	MIBK	ND	10	2.1	4.0
	METHYLENE CHLORIDE	3.6	2.0	0.25	0.50
	MTBE	ND	1.0	0.13	0.20
	NAPHTHALENE	6.4	2.0	0.25	0.50
	N-BUTYLBENZENE	ND	1.0	0.17	0.20
	N-PROPYLBENZENE	ND	1.0	0.13	0.20
	O-XYLENE	0.71J	1.0	0.10	0.20
	P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
	SEC-BUTYLBENZENE	0.14J	1.0	0.13	0.20
	STYRENE	ND	1.0	0.10	0.20
	TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
	TETRACHLOROETHENE	ND	1.0	0.15	0.20
	TOLUENE	0.14J	1.0	0.10	0.20
#	TRANS-1,2-DICHLOROETHENE	260	250	25	50
	TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
#	TRICHLOROETHENE	7800	250	25	50
	TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
	VINYL CHLORIDE	21	0.50	0.12	0.20
	VINYL ACETATE	ND	2.0	0.25	0.50
	FREON113	ND	1.0	0.20	0.30
	TERT-BUTANOL	ND	20	5.0	10
	DIPE	ND	1.0	0.10	0.20
	ETBE	ND	1.0	0.10	0.20
	TAME	ND	1.0	0.10	0.20

	SURROGATE PARAMETERS	RESULTS	SPK AMT	% RECOVERY	QC LIMIT
	1,2-DICHLOROETHANE-D4	9.17	10.00	91.7	70-120
	4-BROMOFLUOROBENZENE	9.69	10.00	96.9	75-120
	TOLUENE-D8	9.29	10.00	92.9	85-120
	DIBROMOFLUOROMETHANE	9.82	10.00	98.2	85-115
#	1,2-DICHLOROETHANE-D4	2310	2500	92.5	70-120
#	4-BROMOFLUOROBENZENE	2370	2500	94.8	75-120
#	TOLUENE-D8	2320	2500	92.7	85-120
#	DIBROMOFLUOROMETHANE	2410	2500	96.4	85-115

Members of the Associated File

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected:	12/04/20
Project	: VAFB-SS003	Date Received:	12/09/20
Batch No.	: 20L087	Date Extracted:	12/10/20 17:14
Sample ID	: 3-MW-62(120420)	Date Analyzed:	12/10/20 17:14
Lab Samp ID	: L087-04	Dilution Factor:	1
Lab File ID	: RLC144	Matrix	: WATER
Ext Btch ID	: V067L07	% Moisture	: NA
Calib. Ref.	: RJC459	Instrument ID	: 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	12	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	19	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	1.7	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	0.21J	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	1.8	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	7.9J	10	2.6	5.0
BENZENE	0.89J	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	0.17J	1.0	0.10	0.20
BROMOFORM	0.69J	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	0.13J	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	ND	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	1.7	1.0	0.10	0.20
CHLOROMETHANE	ND	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	500E	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	0.44J	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	0.27J	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	3.6	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	6.4	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	0.71J	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	0.14J	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	ND	1.0	0.15	0.20
TOLUENE	0.14J	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	290E	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	860E	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	21	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.17	10.00	91.7	70-120
4-BROMOFLUOROBENZENE	9.69	10.00	96.9	75-120
TOLUENE-D8	9.29	10.00	92.9	85-120
DIBROMOFLUOROMETHANE	9.82	10.00	98.2	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L10\RLC144.D Vial: 10
Acq On : 10 Dec 2020 5:14 pm Operator: VLu
Sample : 20L087-04 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:18 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2521186	10.00	ug/l		0.00
55) CHLOROBENZENE-D5	15.45	117	1894361	10.00	ug/l		0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	558930	10.00	ug/l		-0.01
System Monitoring Compounds							
35) Dibromofluoromethane	8.03	111	808488	9.82	ug/l		0.00
Spiked Amount 10.000			Recovery =	98.20%			
43) 1,2-Dichloroethane-d4	9.14	65	483223	9.17	ug/l		0.00
Spiked Amount 10.000			Recovery =	91.70%			
56) Toluene-d8	12.82	98	2685725	9.29	ug/l		0.00
Spiked Amount 10.000			Recovery =	92.90%			
77) 4-Bromofluorobenzene	17.47	95	736485	9.69	ug/l		0.00
Spiked Amount 10.000			Recovery =	96.90%			
Target Compounds							Qvalue
5) Vinyl chloride	2.23	62	2614668	20.79	ug/l		99
13) Acetone	3.52	43	61054	7.85	ug/l		88
14) 1,1-Dichloroethene	3.68	61	263582	1.69	ug/l		97
17) Iodomethane	4.13	142	27713	0.20	ug/l		95
19) Methylene chloride	4.42	49	397791	3.60	ug/l		98
20) Carbon disulfide	4.41	76	49119	0.13	ug/l		97
23) trans-1,2-Dichloroethene	4.92	96	32757750	293.73	ug/l	E	92
31) cis-1,2-Dichloroethene	7.15	96	54868159m	504.69	ug/l	E	
32) Chloroform	7.53	83	278963	1.73	ug/l		96
34) tert-Amyl alcohol	8.00	59	31833	14.22	ug/l		92
38) Cyclohexane	8.41	84	29877	0.20	ug/l		93
44) 1,2-Dichloroethane	9.35	62	114001	1.75	ug/l		99
45) Benzene	9.33	78	327866	0.89	ug/l		98
46) Trichloroethene	10.57	130	84430524m	863.77	ug/l	E	
49) Bromodichloromethane	11.38	83	16416	0.17	ug/l		93
57) Toluene	12.97	91	53802	0.14	ug/l		98
60) 1,1,2-Trichloroethane	13.60	97	856223	18.82	ug/l		97
63) Tetrachloroethene	14.09	164	9990	0.13	ug/l		96
64) Dibromochloromethane	14.44	129	24384	0.44	ug/l		100
71) o-Xylene	16.47	91	205416	0.71	ug/l		99
73) Isopropylbenzene	17.09	105	101555	0.27	ug/l		98
75) Bromoform	17.09	173	17376	0.69	ug/l		95
76) 1,1,2,2-Tetrachloroethane	17.37	83	472607	11.53	ug/l		100
86) 1,2,4-Trimethylbenzene	18.40	105	51190	0.21	ug/l		86
87) sec-Butylbenzene	18.61	105	50187	0.14	ug/l		99
96) Naphthalene	21.29	128	360566	6.35	ug/l		96

(#) = qualifier out of range (m) = manual integration
RLC144.D VO67J30.M Fri Dec 11 12:18:07 2020 Page 1

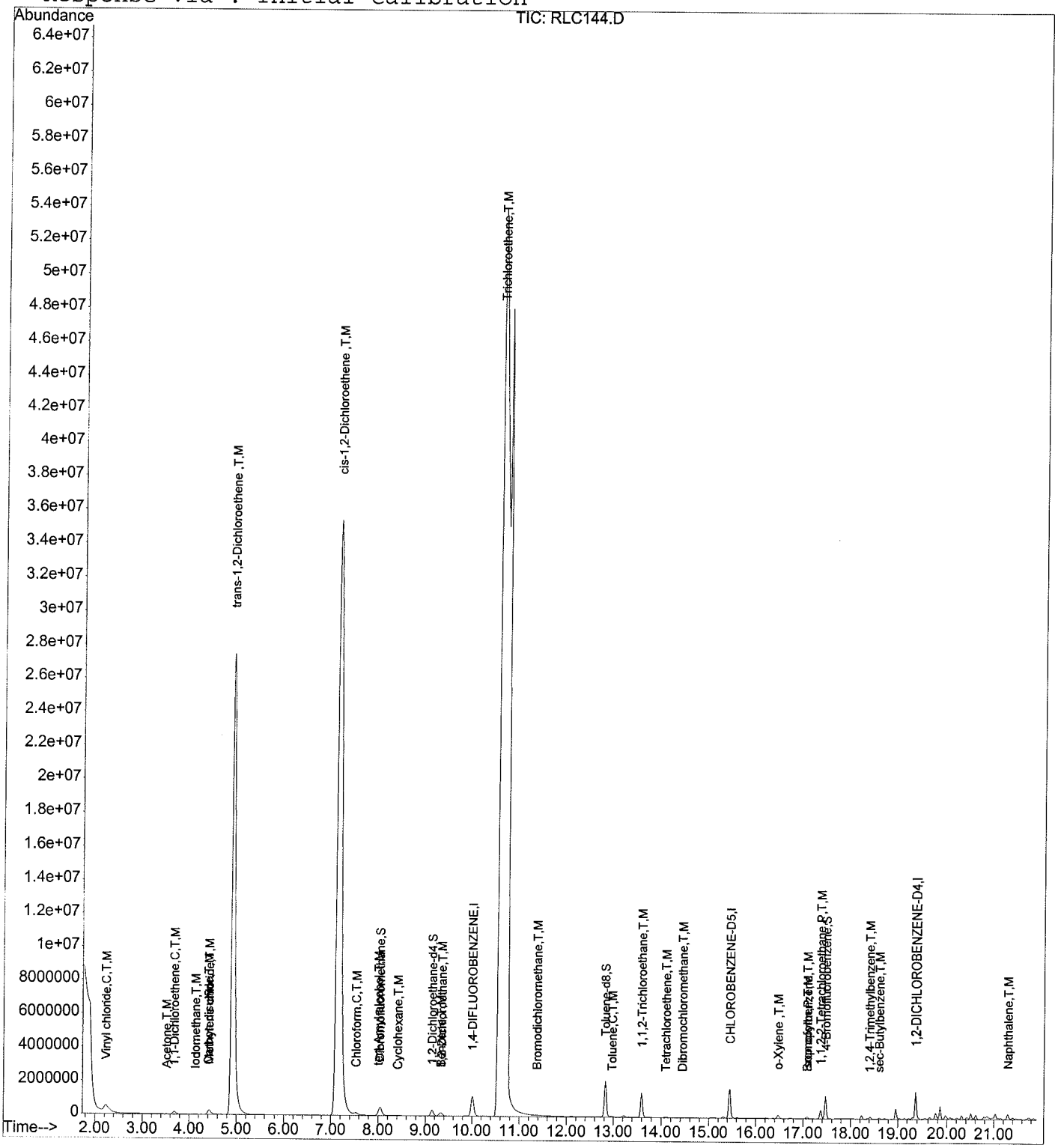
Quantitation Report

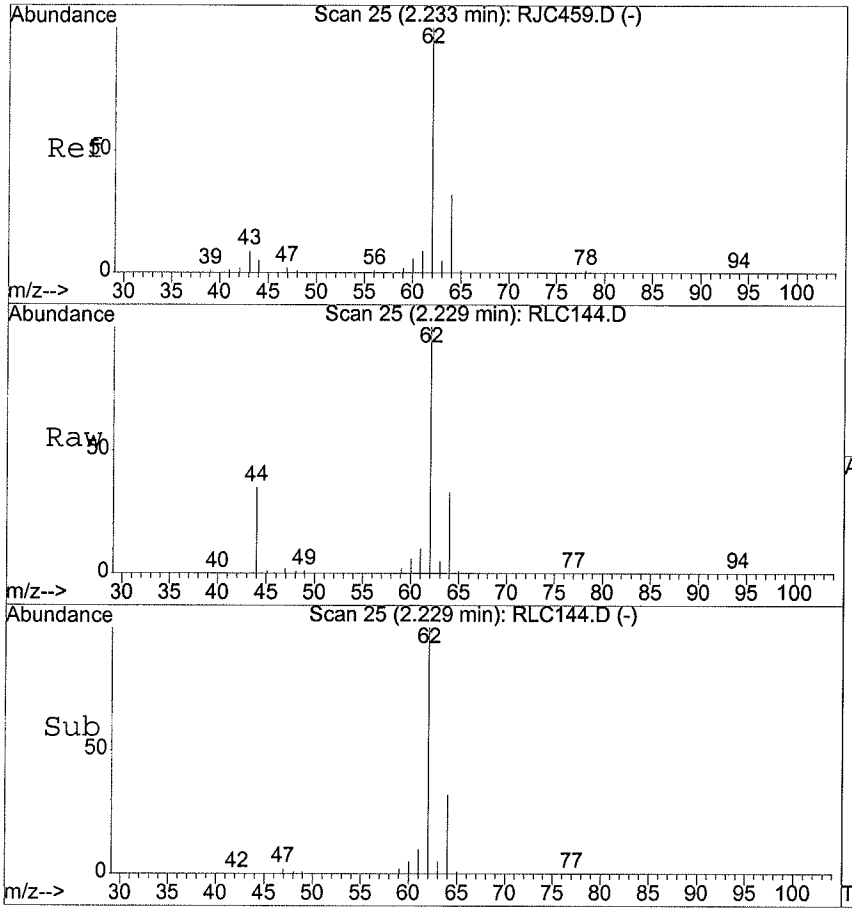
Data File : D:\HPCHEM\1\DATA\20L10\RLC144.D
Acq On : 10 Dec 2020 5:14 pm
Sample : 20L087-04 25mL
Misc : DF=1.0
MS Integration Params: RTE.P
Quant Time: Dec 11 12:18 2020

Vial: 10
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

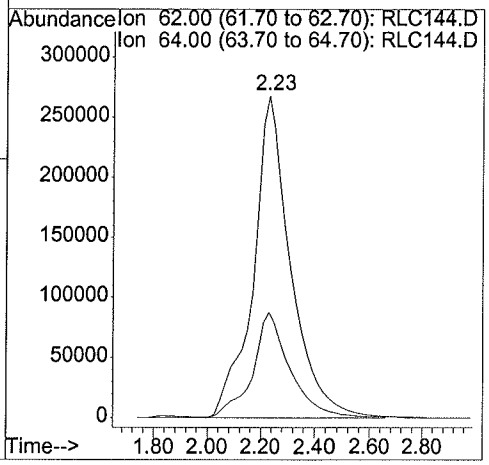


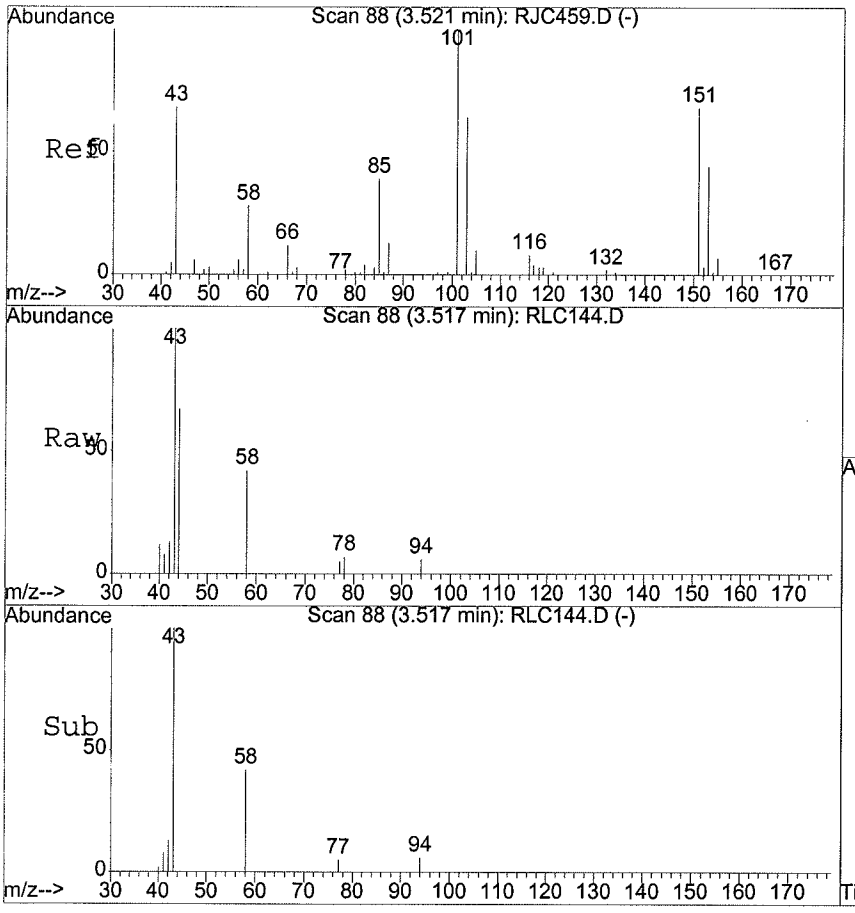


#5
Vinyl chloride
Concen: 20.79 ug/l
RT: 2.23 min Scan# 25
Delta R.T. -0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 62 Resp: 2614668

Ion	Ratio	Lower	Upper
62	100		
64	31.7	1.4	61.4

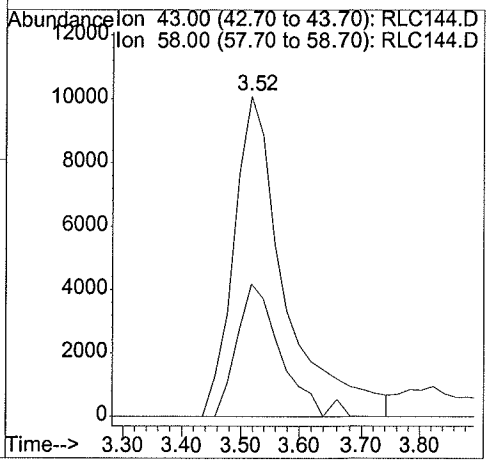


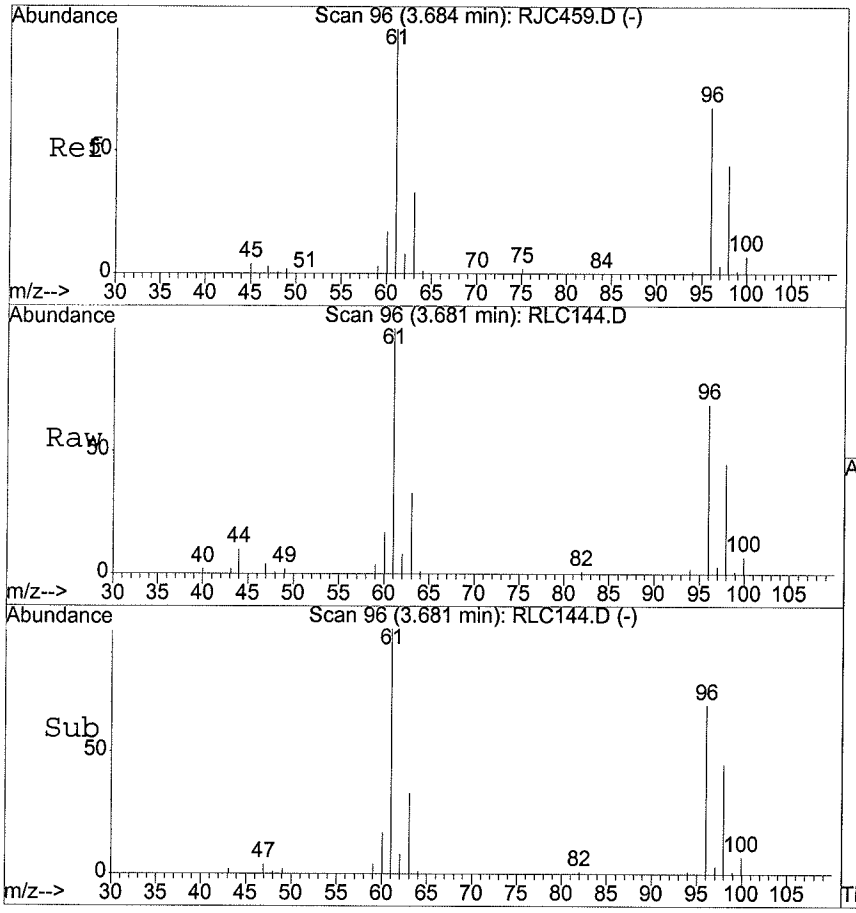


#13
Acetone
Concen: 7.85 ug/l
RT: 3.52 min Scan# 88
Delta R.T. -0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 43 Resp: 61054

Ion	Ratio	Lower	Upper
43	100		
58	34.8	12.2	72.2

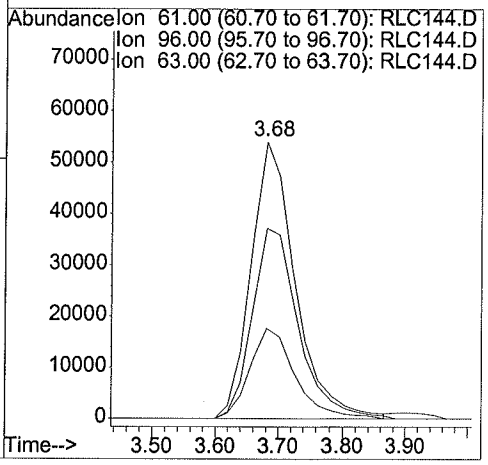


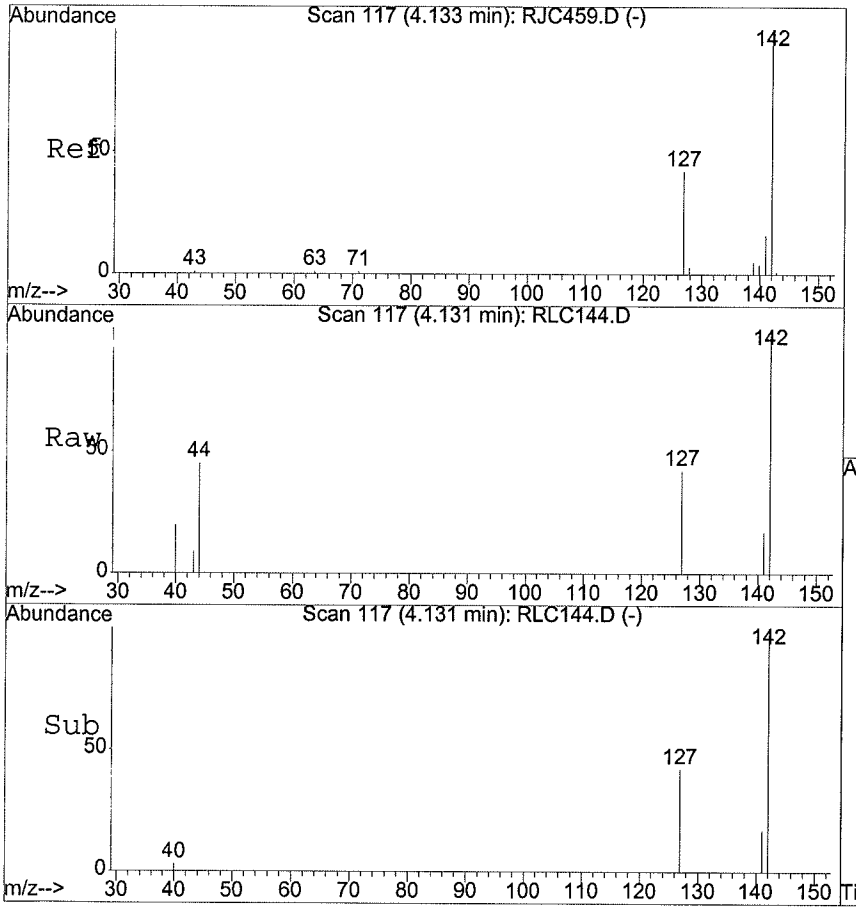


#14
1,1-Dichloroethene
Concen: 1.69 ug/l
RT: 3.68 min Scan# 96
Delta R.T. -0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 61 Resp: 263582

Ion	Ratio	Lower	Upper
61	100		
96	71.6	38.7	98.7
63	33.5	2.9	62.9

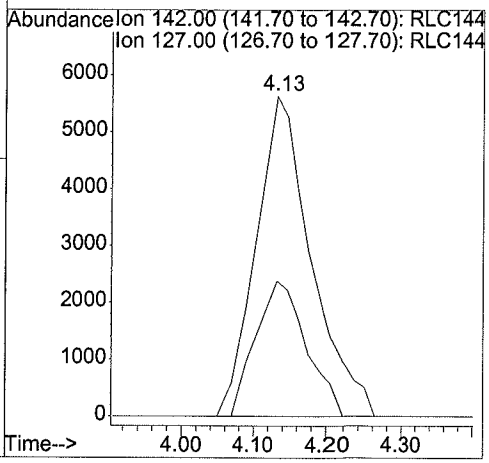


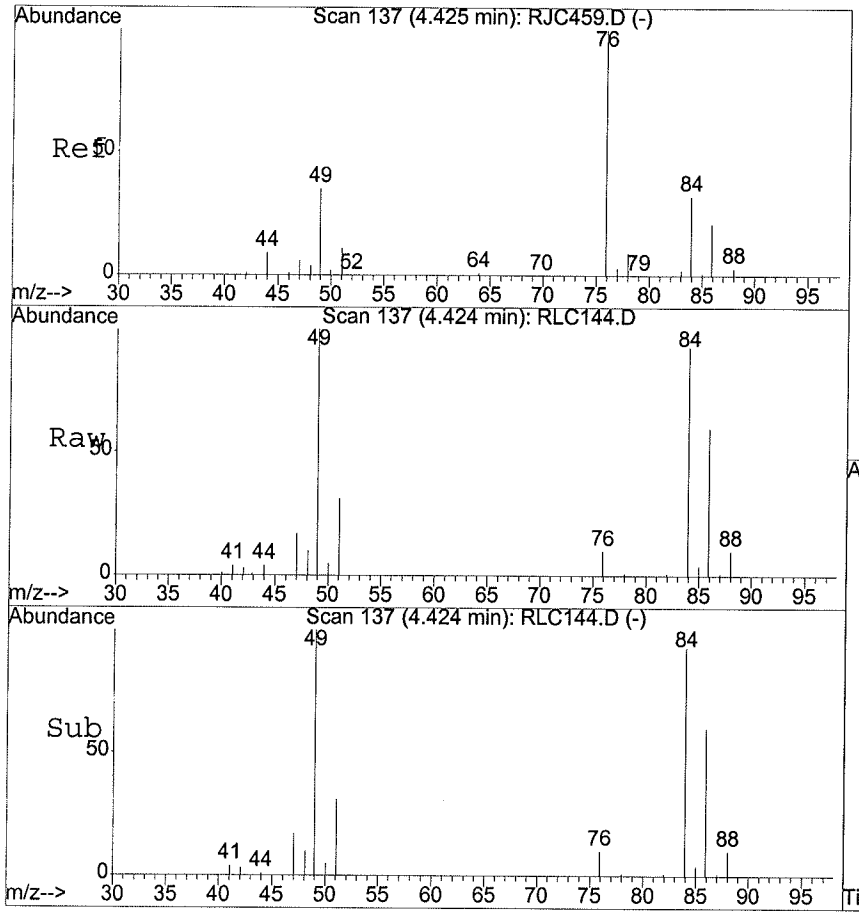


#17
Iodomethane
Concen: 0.20 ug/l
RT: 4.13 min Scan# 117
Delta R.T. -0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion:142 Resp: 27713

Ion	Ratio	Lower	Upper
142	100		
127	39.1	12.5	72.5

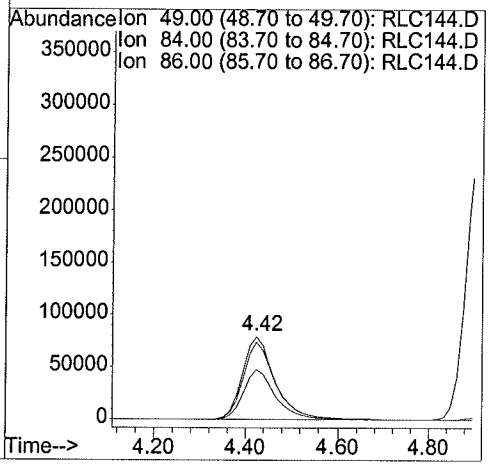


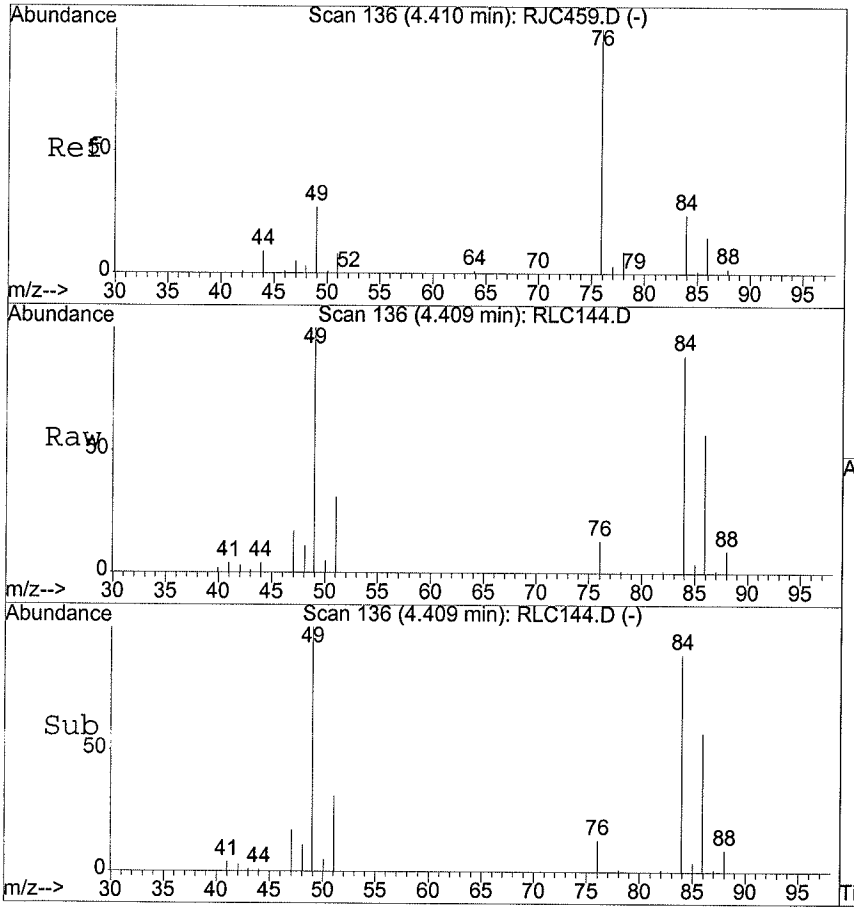


#19
Methylene chloride
Concen: 3.60 ug/l
RT: 4.42 min Scan# 137
Delta R.T. -0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 49 Resp: 397791

Ion	Ratio	Lower	Upper
49	100		
84	92.1	60.1	120.1
86	59.2	27.5	87.5

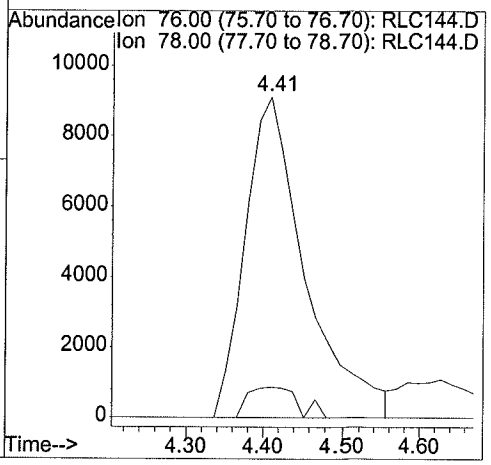


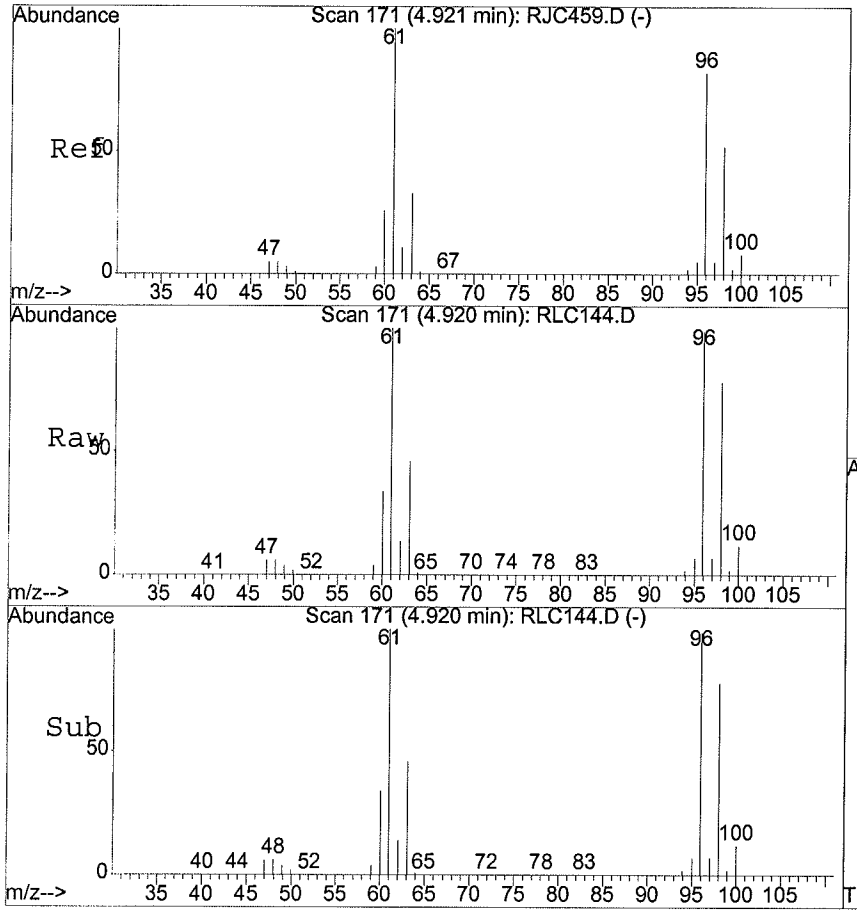


#20
Carbon disulfide
Concen: 0.13 ug/l
RT: 4.41 min Scan# 136
Delta R.T. -0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 76 Resp: 49119

Ion	Ratio	Lower	Upper
76	100		
78	8.1	0.0	39.1

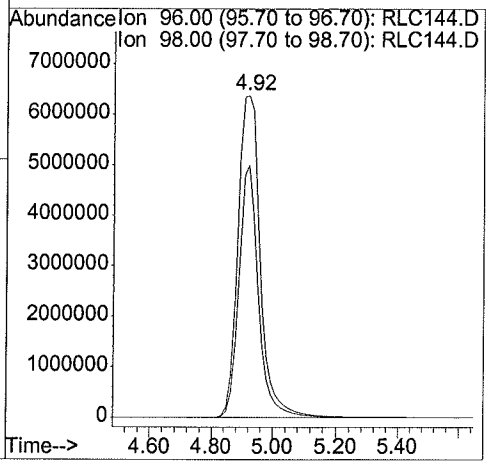


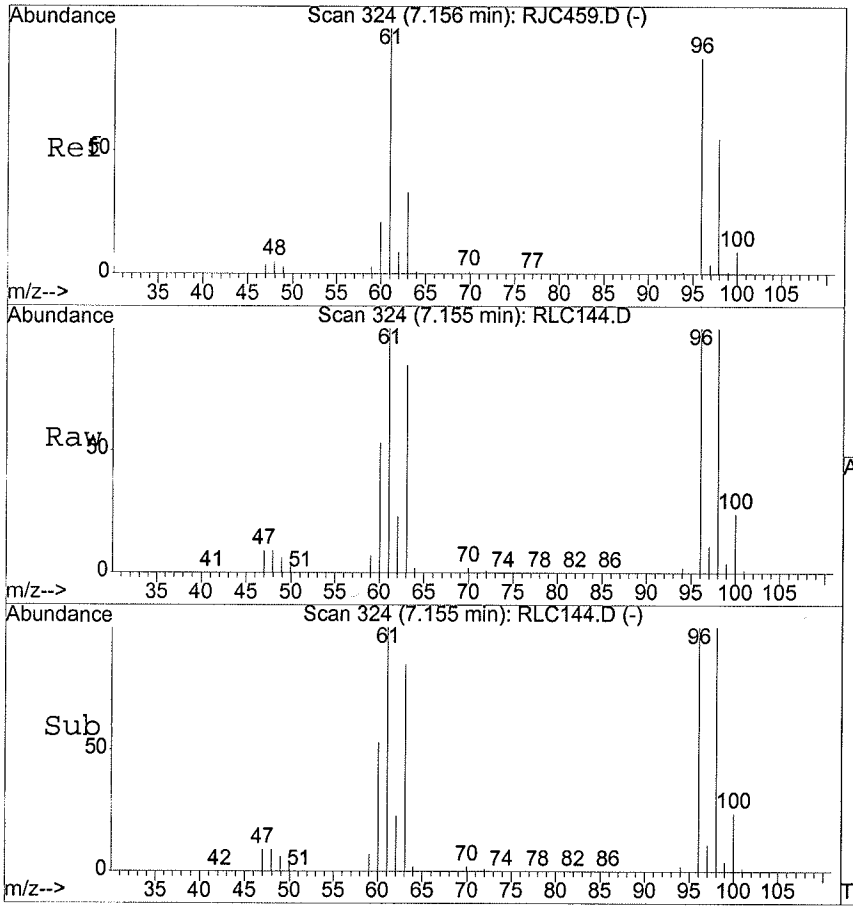


#23
trans-1,2-Dichloroethene
Concen: 293.73 ug/l
RT: 4.92 min Scan# 171
Delta R.T. -0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 96 Resp:32757750

Ion	Ratio	Lower	Upper
96	100		
98	68.5	32.6	92.6

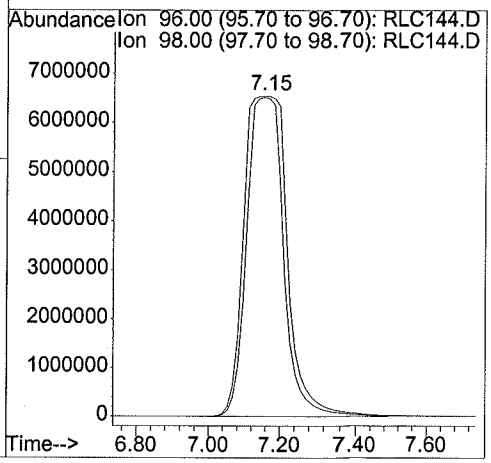


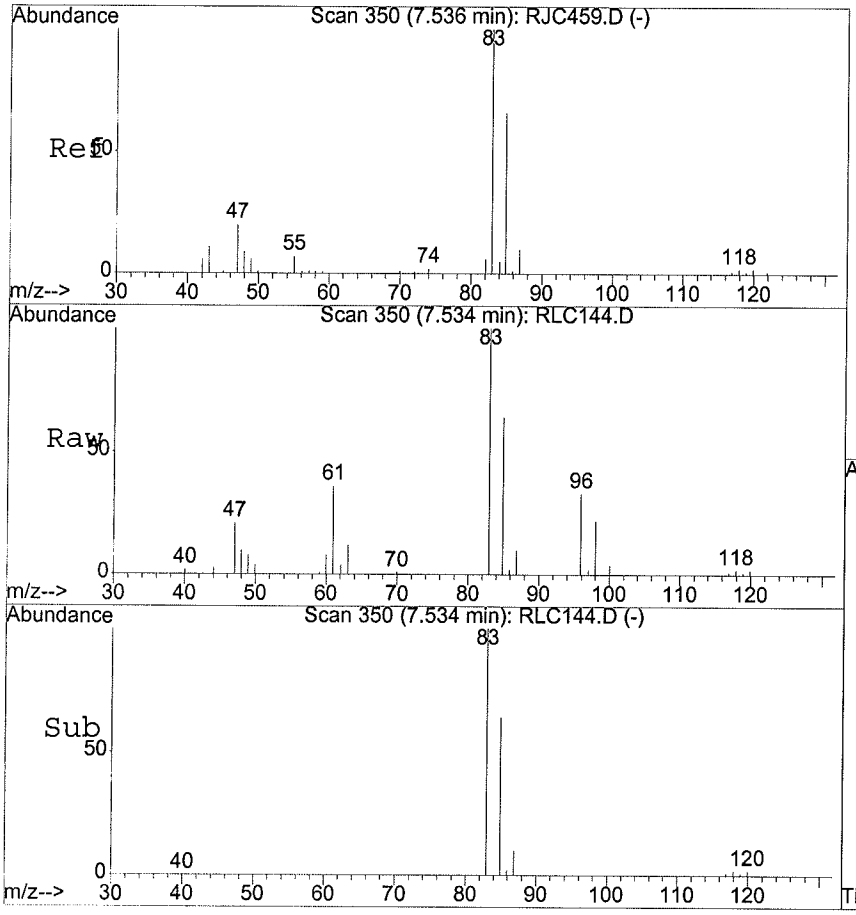


#31
cis-1,2-Dichloroethene
Concen: 504.69 ug/l m
RT: 7.15 min Scan# 324
Delta R.T. -0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 96 Resp:54868159

Ion	Ratio	Lower	Upper
96	100		
98	0.0	33.5	93.5#

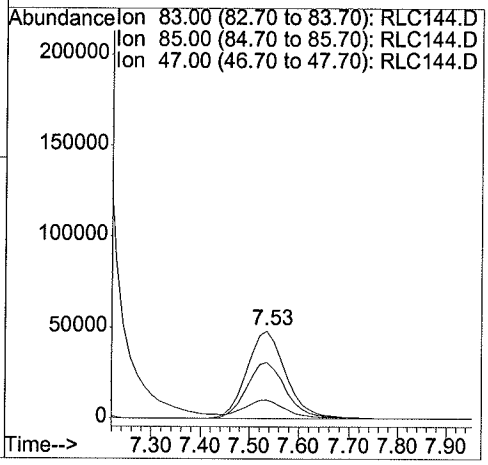


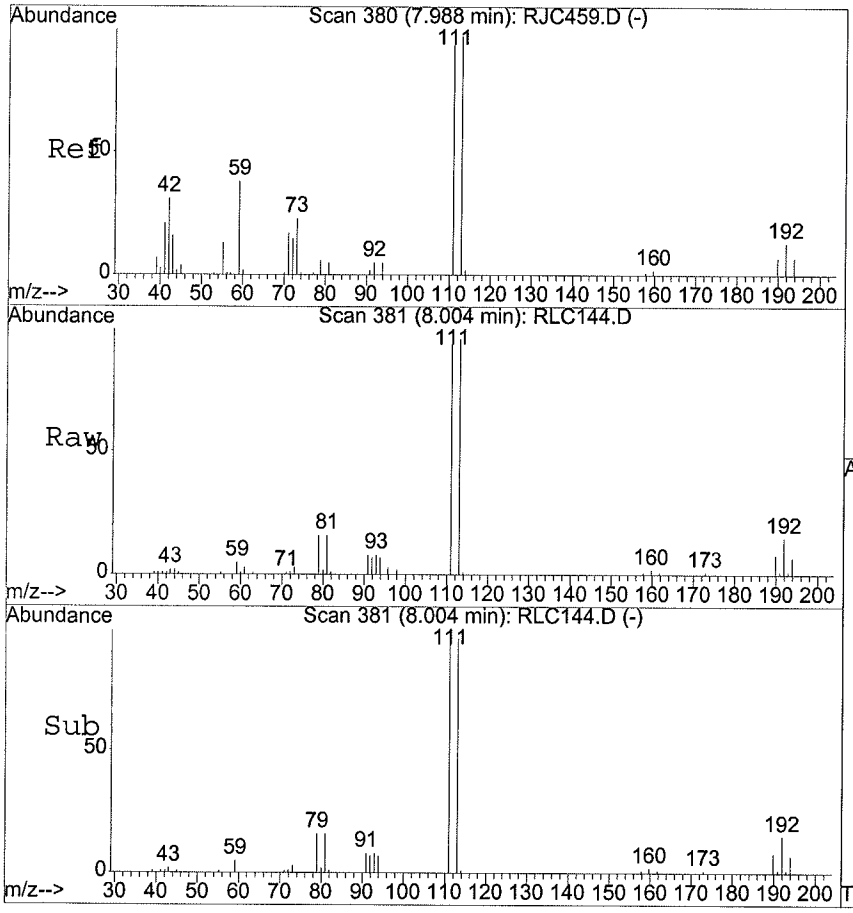


#32
Chloroform
Concen: 1.73 ug/l
RT: 7.53 min Scan# 350
Delta R.T. -0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 83 Resp: 278963

Ion	Ratio	Lower	Upper
83	100		
85	64.9	37.8	97.8
47	23.7	0.0	50.5

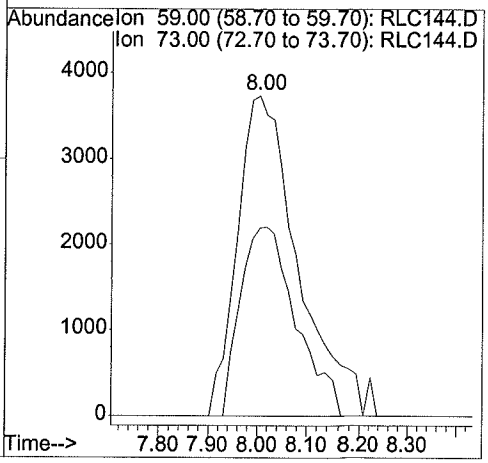


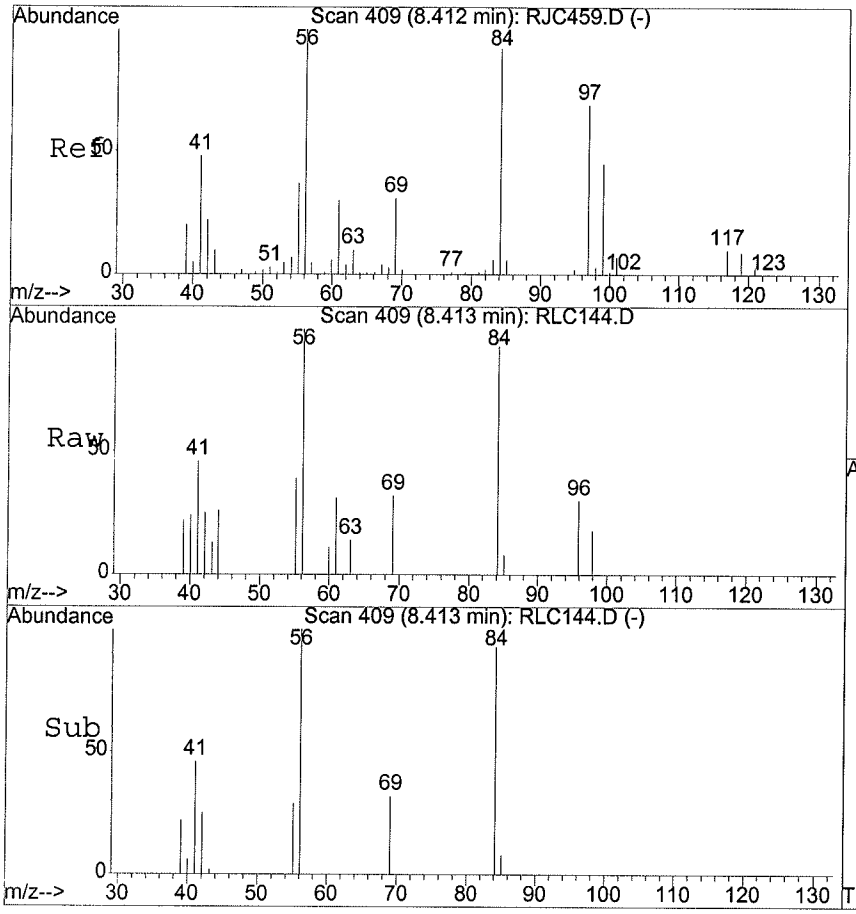


#34
tert-Amyl alcohol
Concen: 14.22 ug/l
RT: 8.00 min Scan# 381
Delta R.T. 0.02 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 59 Resp: 31833

Ion	Ratio	Lower	Upper
59	100		
73	53.9	29.7	89.7

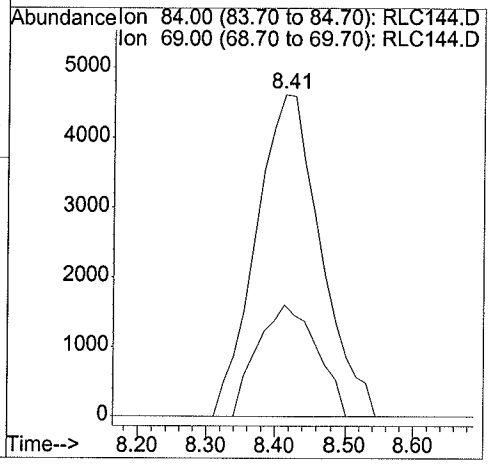


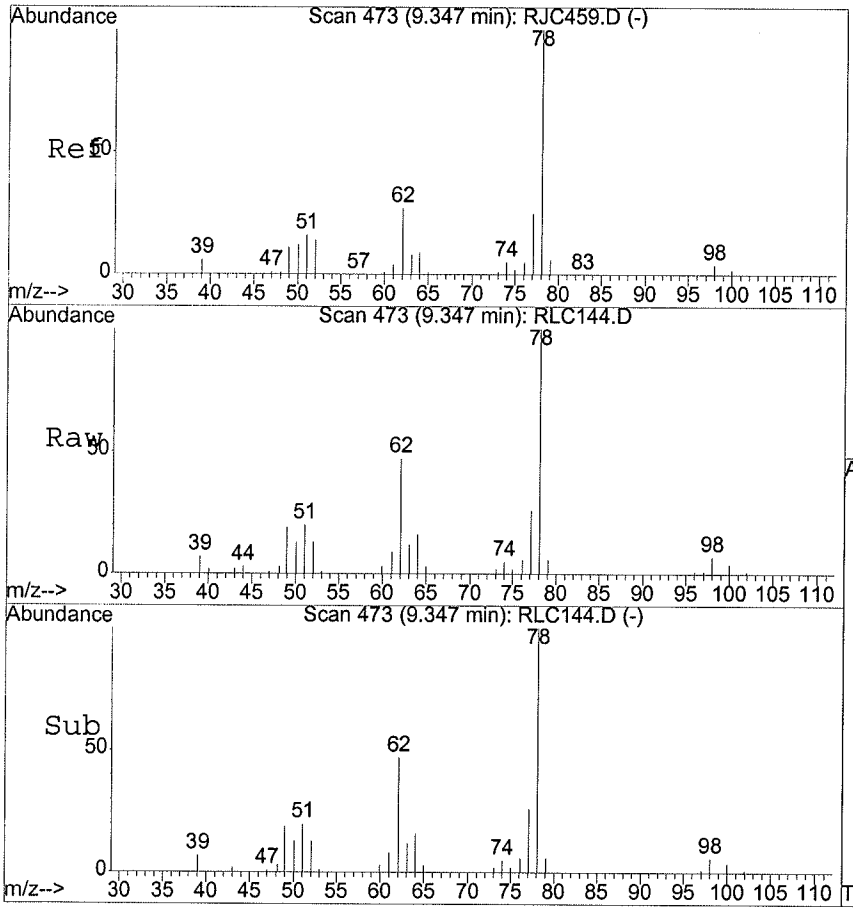


#38
Cyclohexane
Concen: 0.20 ug/l
RT: 8.41 min Scan# 409
Delta R.T. 0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 84 Resp: 29877

Ion	Ratio	Lower	Upper
84	100		
69	31.8	6.0	66.0

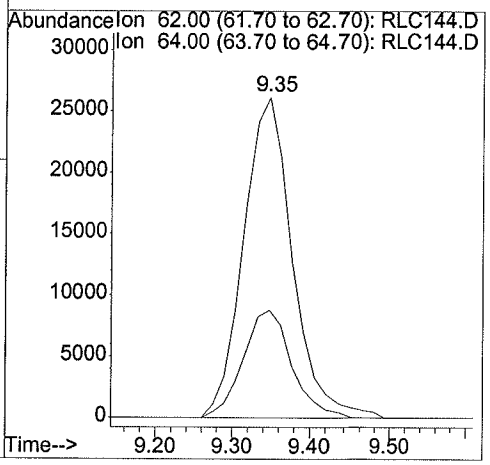


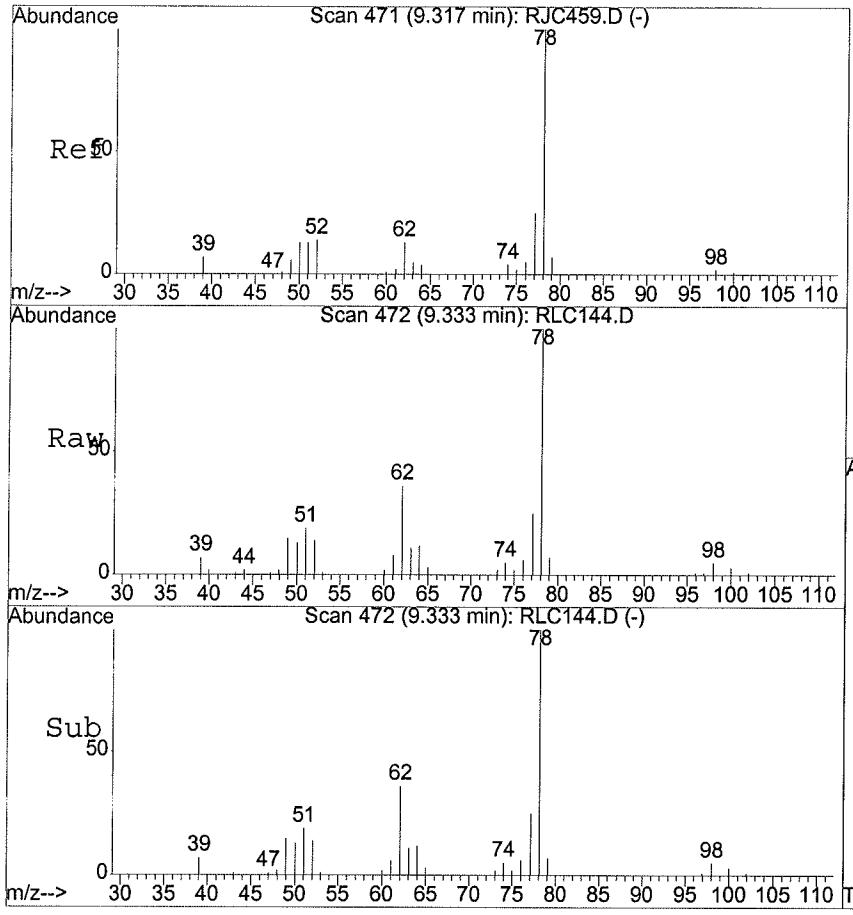


#44
1,2-Dichloroethane
Concen: 1.75 ug/l
RT: 9.35 min Scan# 473
Delta R.T. 0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 62 Resp: 114001

Ion	Ratio	Lower	Upper
62	100		
64	33.5	3.1	63.1

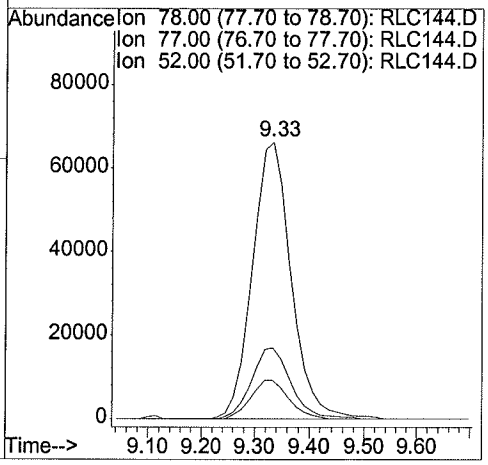


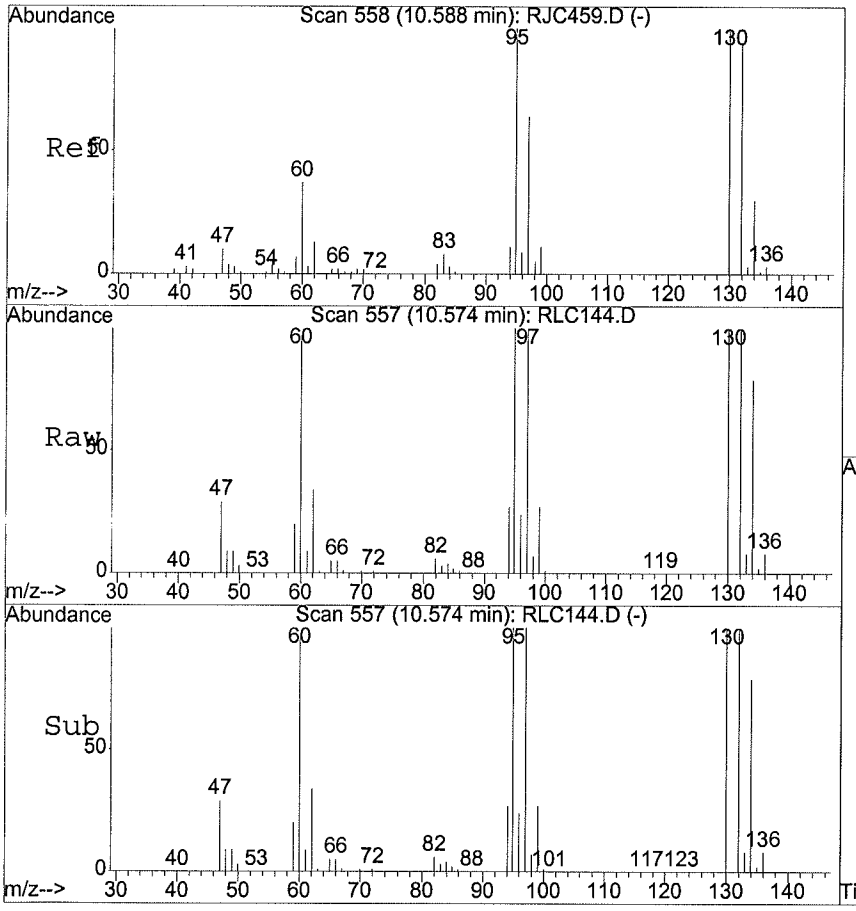


#45
Benzene
Concen: 0.89 ug/l
RT: 9.33 min Scan# 472
Delta R.T. 0.02 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 78 Resp: 327866

Ion	Ratio	Lower	Upper
78	100		
77	26.0	0.0	55.1
52	13.7	0.0	44.3

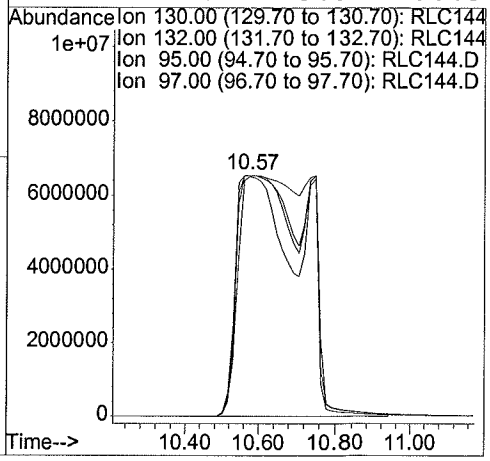


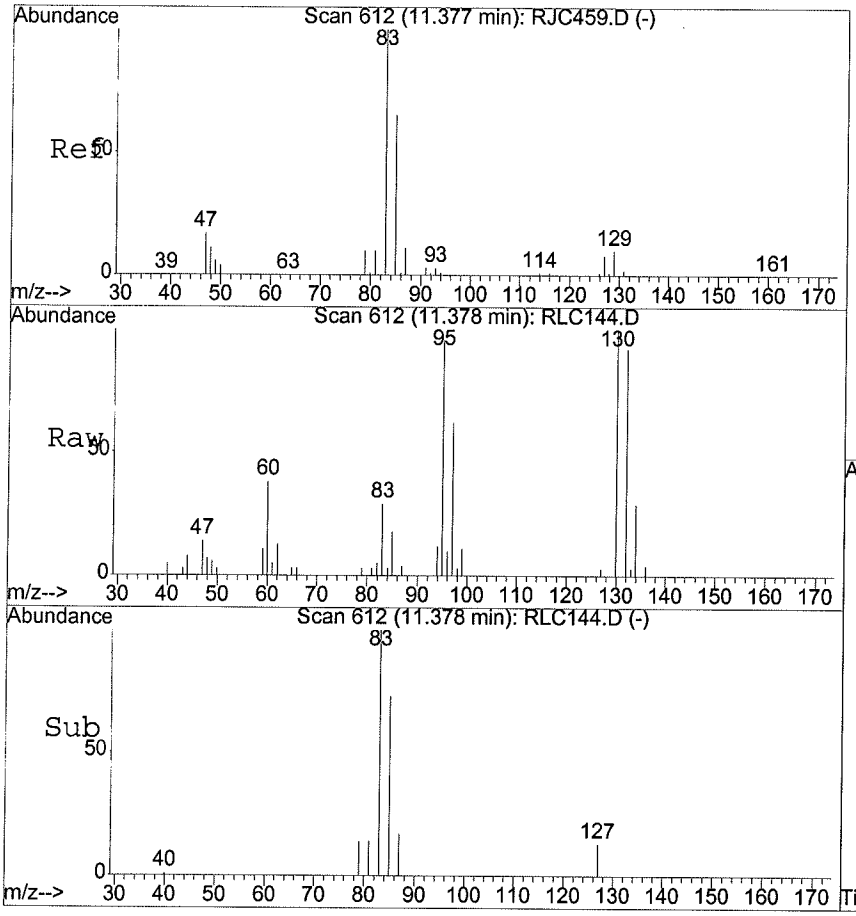


#46
Trichloroethene
Concen: 863.77 ug/l m
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion:130 Resp:84430524

Ion	Ratio	Lower	Upper
130	100		
132	75.8	65.5	125.5
95	82.6	73.3	133.3
97	67.7	40.9	100.9

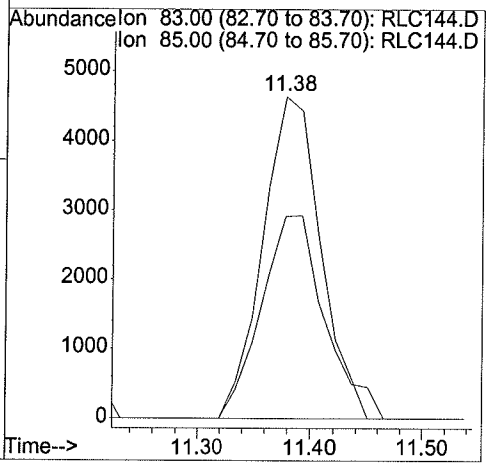


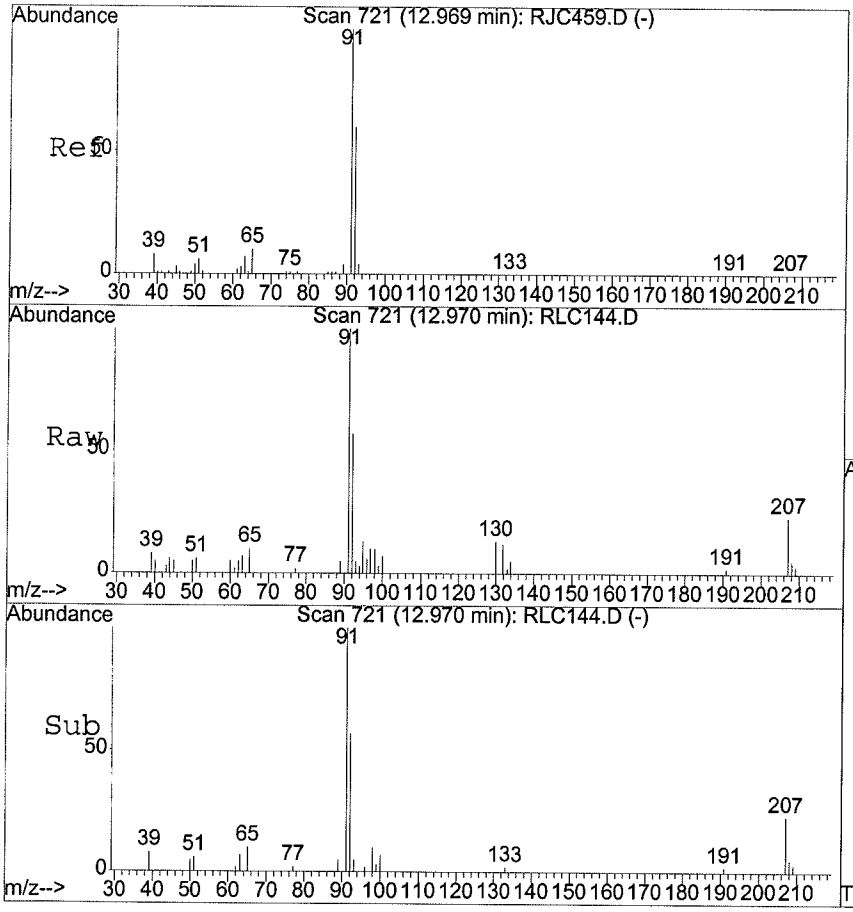


#49
Bromodichloromethane
Concen: 0.17 ug/l
RT: 11.38 min Scan# 612
Delta R.T. 0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 83 Resp: 16416

Ion	Ratio	Lower	Upper
83	100		
85	69.6	34.3	94.3

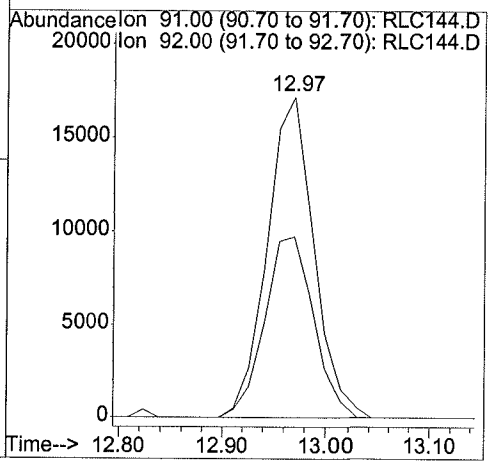


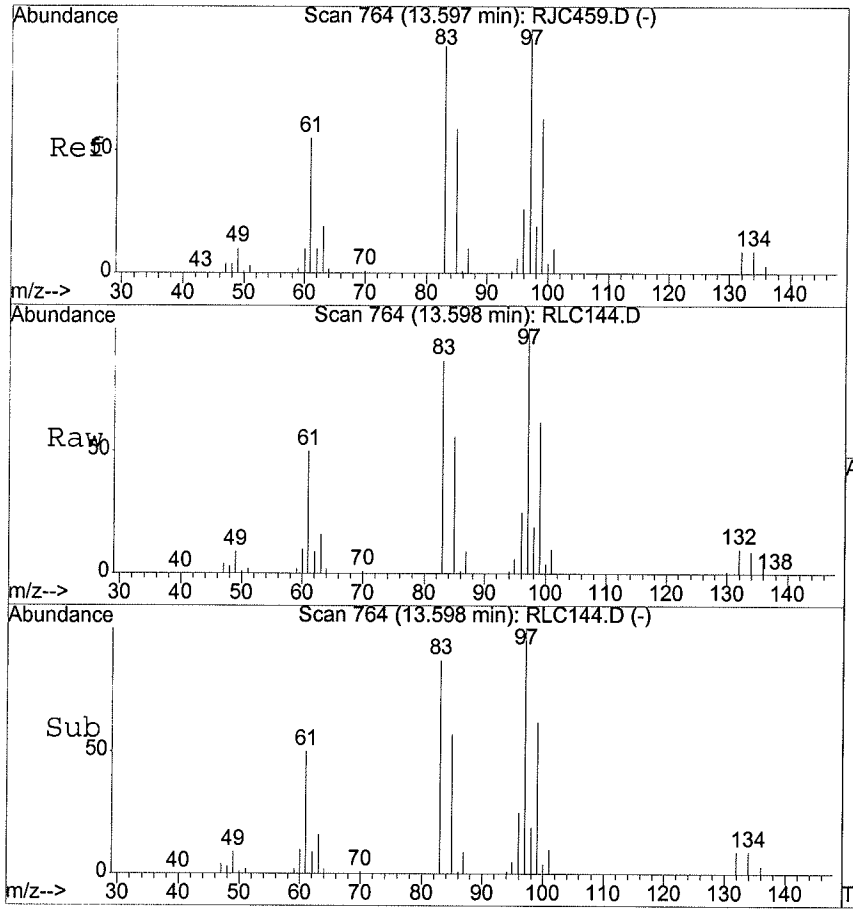


#57
Toluene
Concen: 0.14 ug/l
RT: 12.97 min Scan# 721
Delta R.T. 0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 91 Resp: 53802

Ion	Ratio	Lower	Upper
91	100		
92	59.4	30.6	90.6

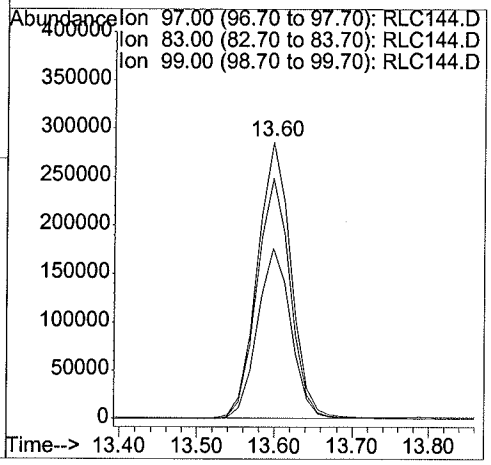


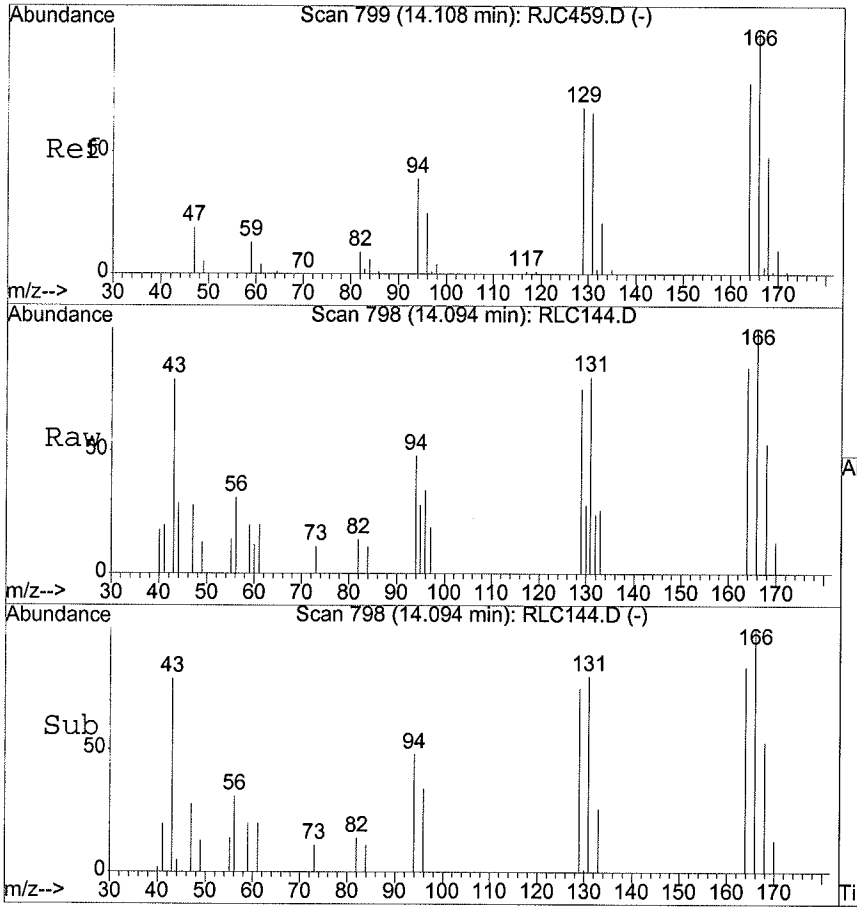


#60
1,1,2-Trichloroethane
Concen: 18.82 ug/l
RT: 13.60 min Scan# 764
Delta R.T. 0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 97 Resp: 856223

Ion	Ratio	Lower	Upper
97	100		
83	87.0	60.6	120.6
99	62.3	33.2	93.2

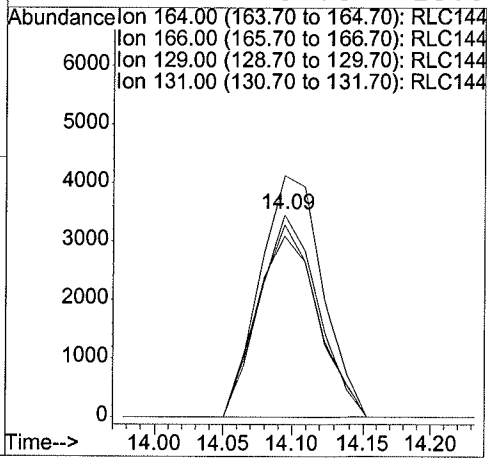


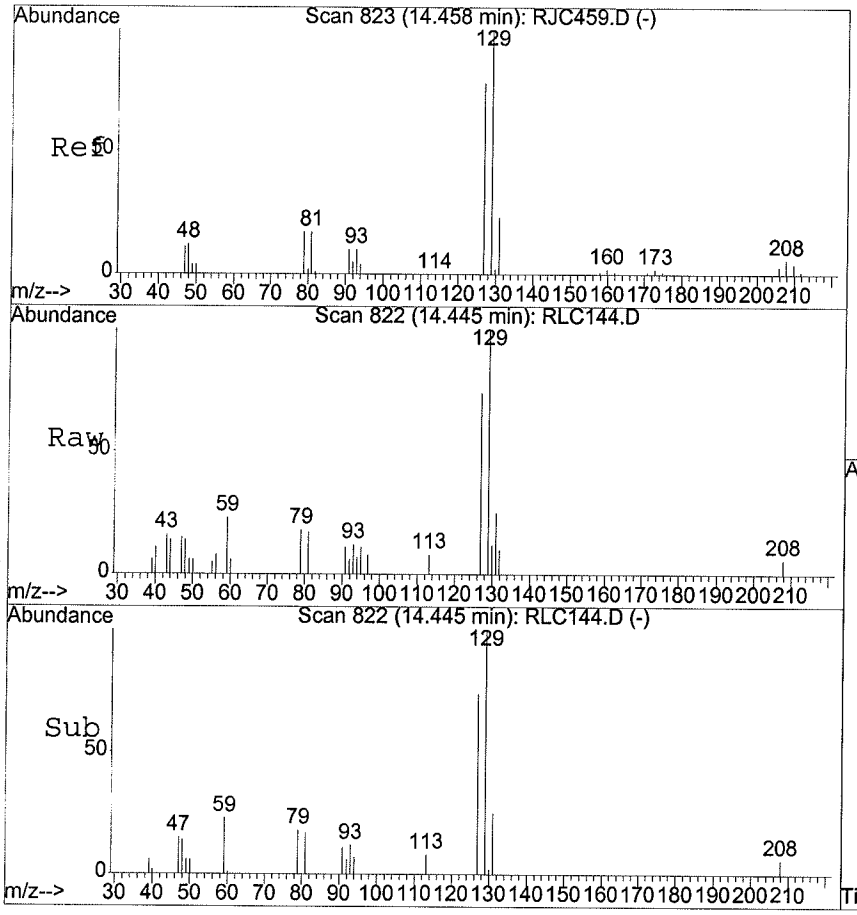


#63
Tetrachloroethene
Concen: 0.13 ug/l
RT: 14.09 min Scan# 798
Delta R.T. -0.01 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion:164 Resp: 9990

Ion	Ratio	Lower	Upper
164	100		
166	128.2	97.5	157.5
129	96.0	61.9	121.9
131	97.4	58.5	118.5

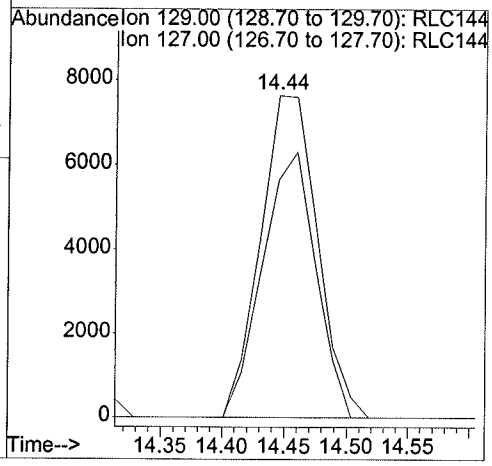


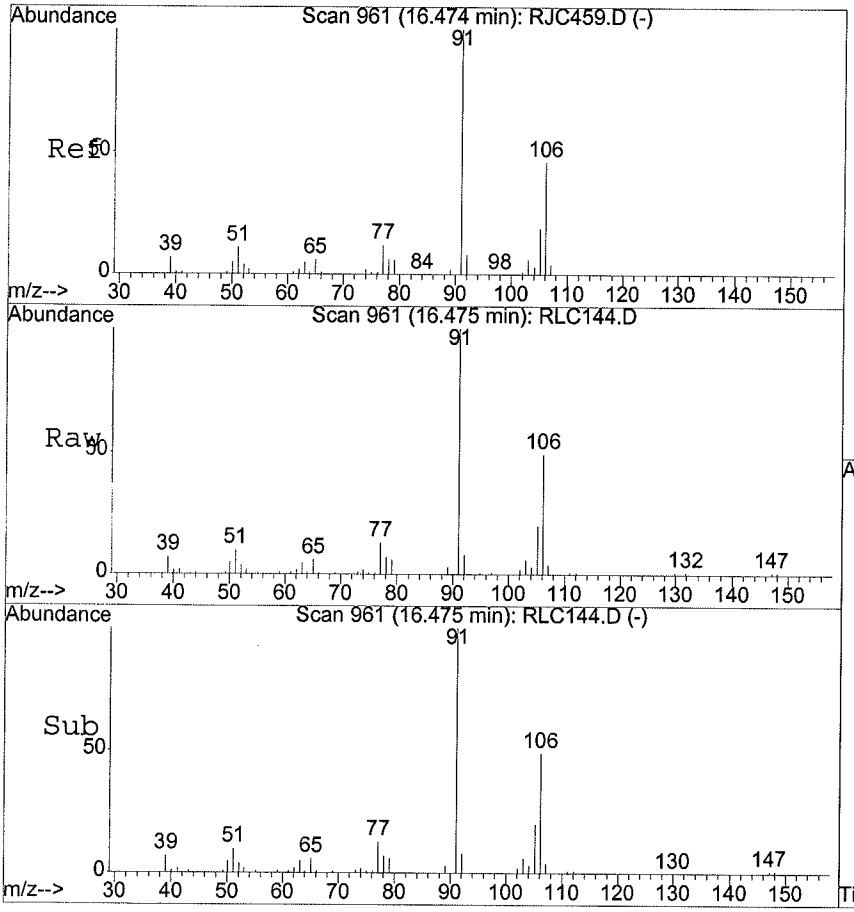


#64
Dibromochloromethane
Concen: 0.44 ug/l
RT: 14.44 min Scan# 822
Delta R.T. -0.01 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion:129 Resp: 24384

Ion	Ratio	Lower	Upper
129	100		
127	77.5	47.4	107.4

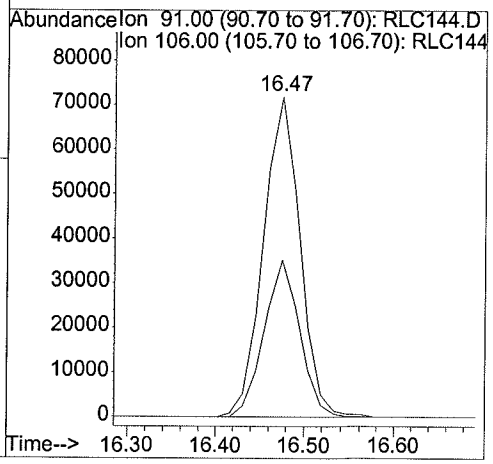


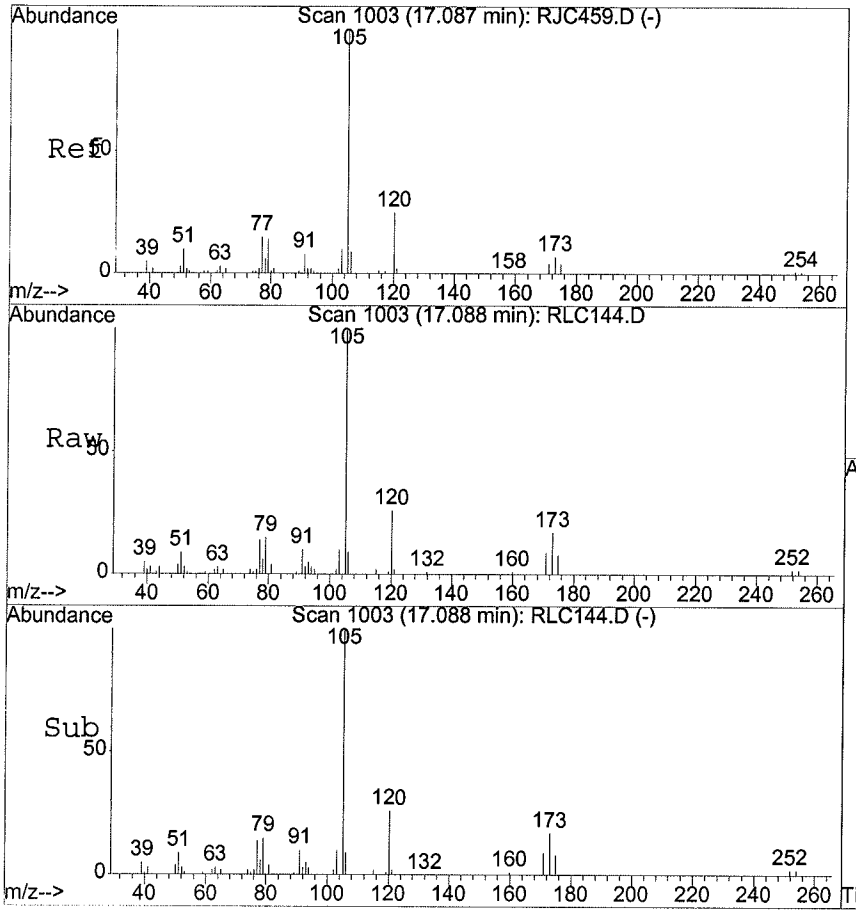


#71
o-Xylene
Concen: 0.71 ug/l
RT: 16.47 min Scan# 961
Delta R.T. 0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 91 Resp: 205416

Ion	Ratio	Lower	Upper
91	100		
106	47.6	16.9	76.9

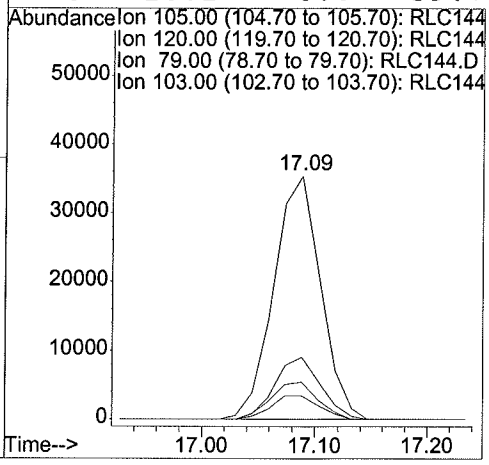


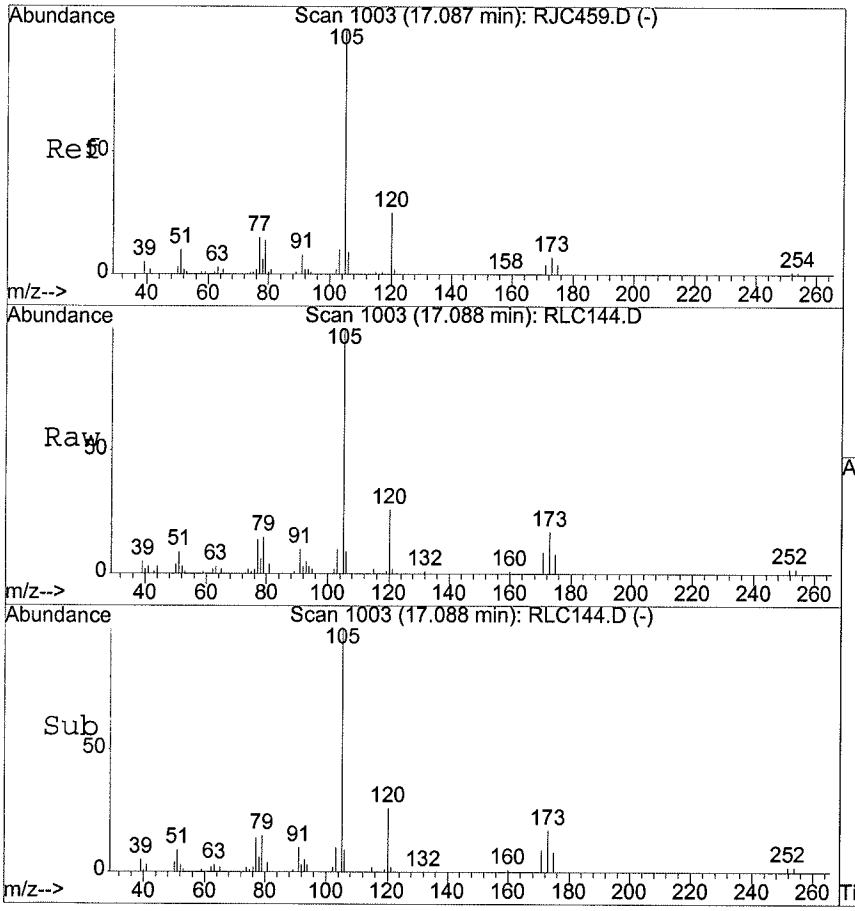


#73
Isopropylbenzene
Concen: 0.27 ug/l
RT: 17.09 min Scan# 1003
Delta R.T. 0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion:105 Resp: 101555

Ion	Ratio	Lower	Upper
105	100		
120	25.1	0.0	54.7
79	15.4	0.0	43.5
103	10.1	0.0	39.7

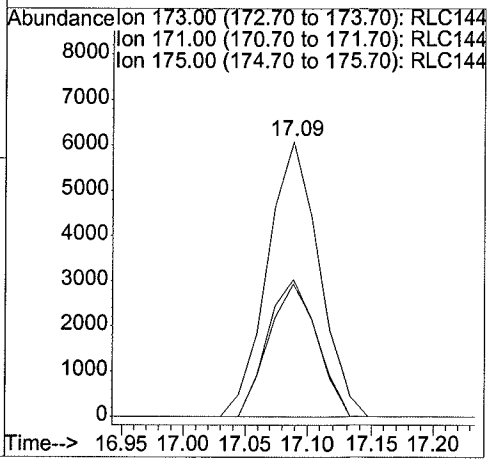


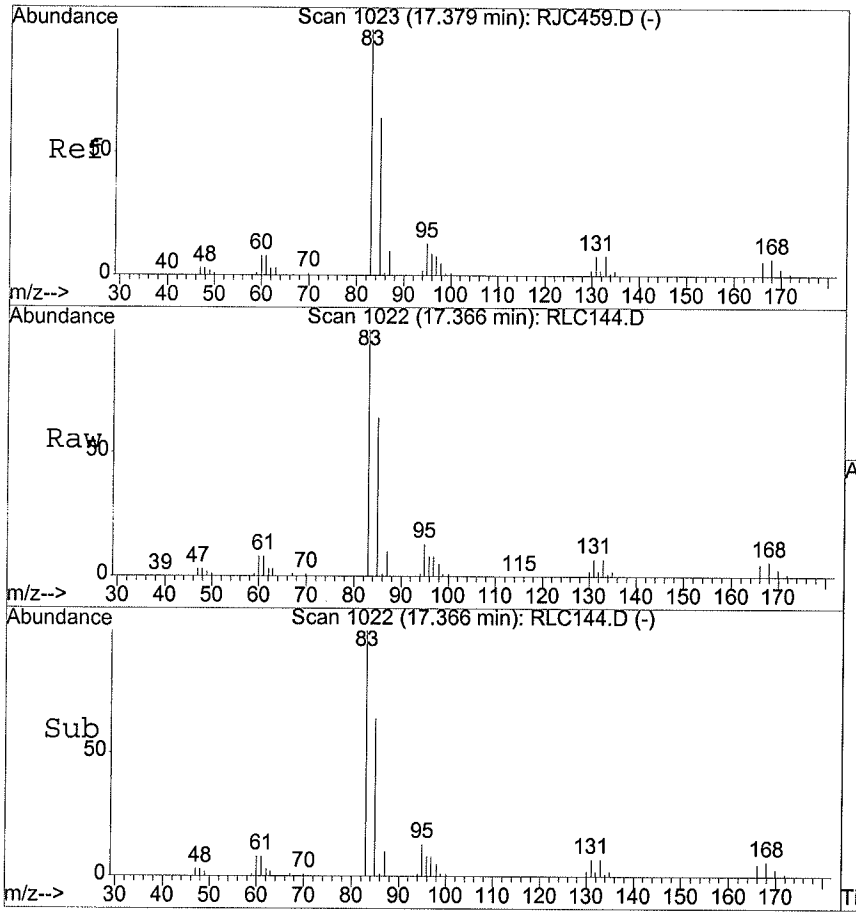


#75
Bromoform
Concen: 0.69 ug/l
RT: 17.09 min Scan# 1003
Delta R.T. 0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion:173 Resp: 17376

Ion	Ratio	Lower	Upper
173	100		
171	47.5	21.3	81.3
175	45.9	18.8	78.8

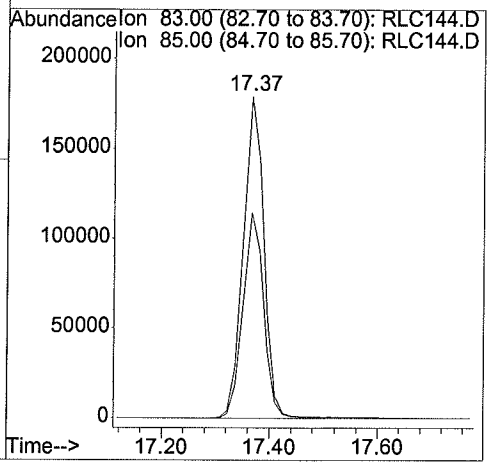


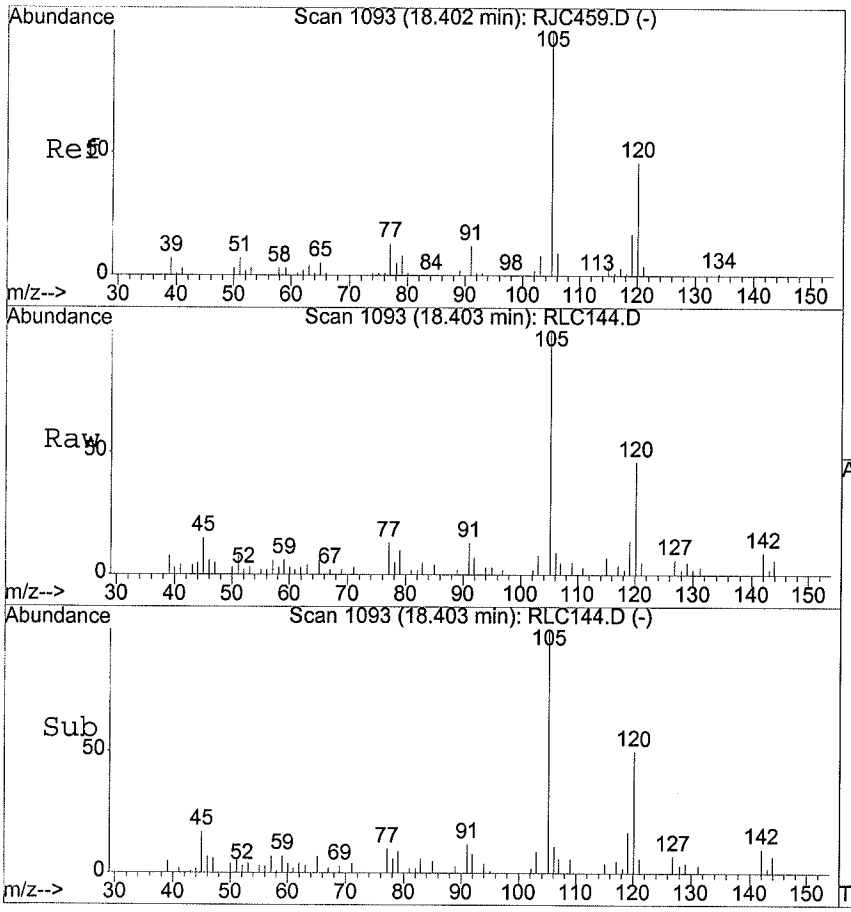


#76
1,1,2,2-Tetrachloroethane
Concen: 11.53 ug/l
RT: 17.37 min Scan# 1022
Delta R.T. -0.01 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion: 83 Resp: 472607

Ion	Ratio	Lower	Upper
83	100		
85	64.0	33.6	93.6

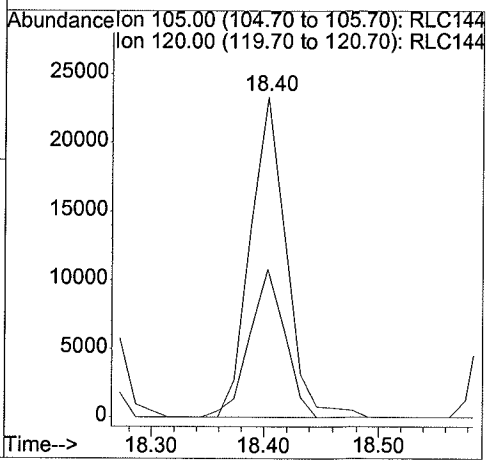


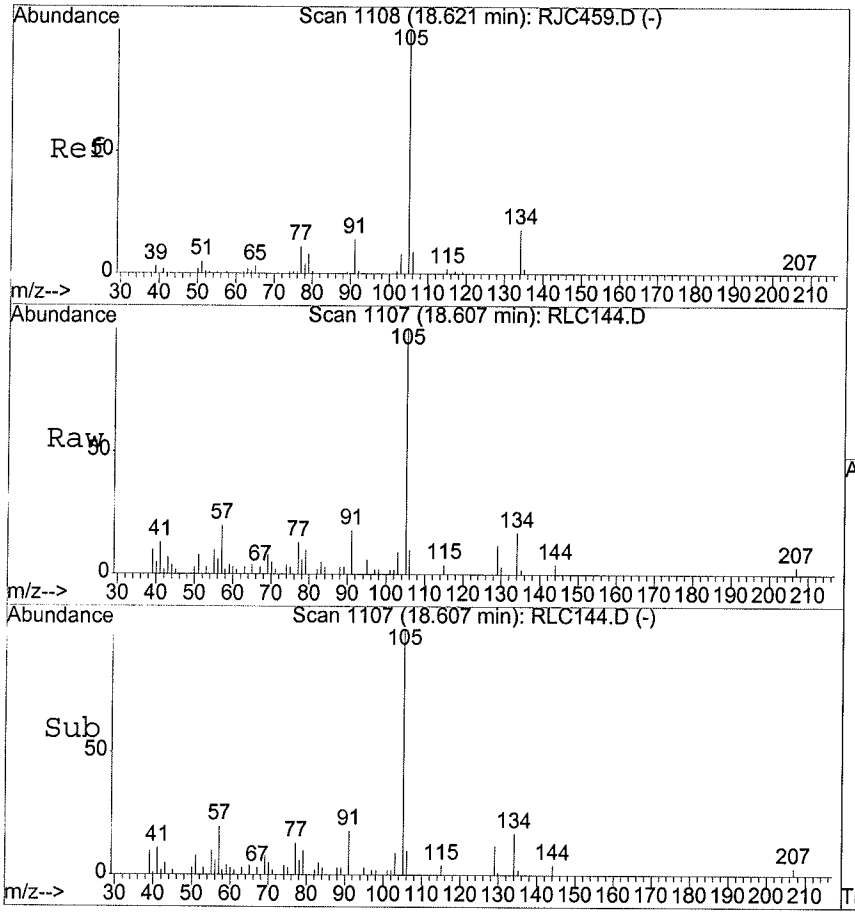


#86
1,2,4-Trimethylbenzene
Concen: 0.21 ug/l
RT: 18.40 min Scan# 1093
Delta R.T. 0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion:105 Resp: 51190

Ion	Ratio	Lower	Upper
105	100		
120	45.8	25.8	85.8

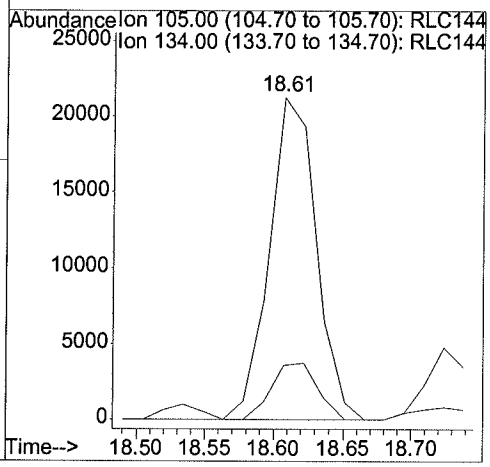


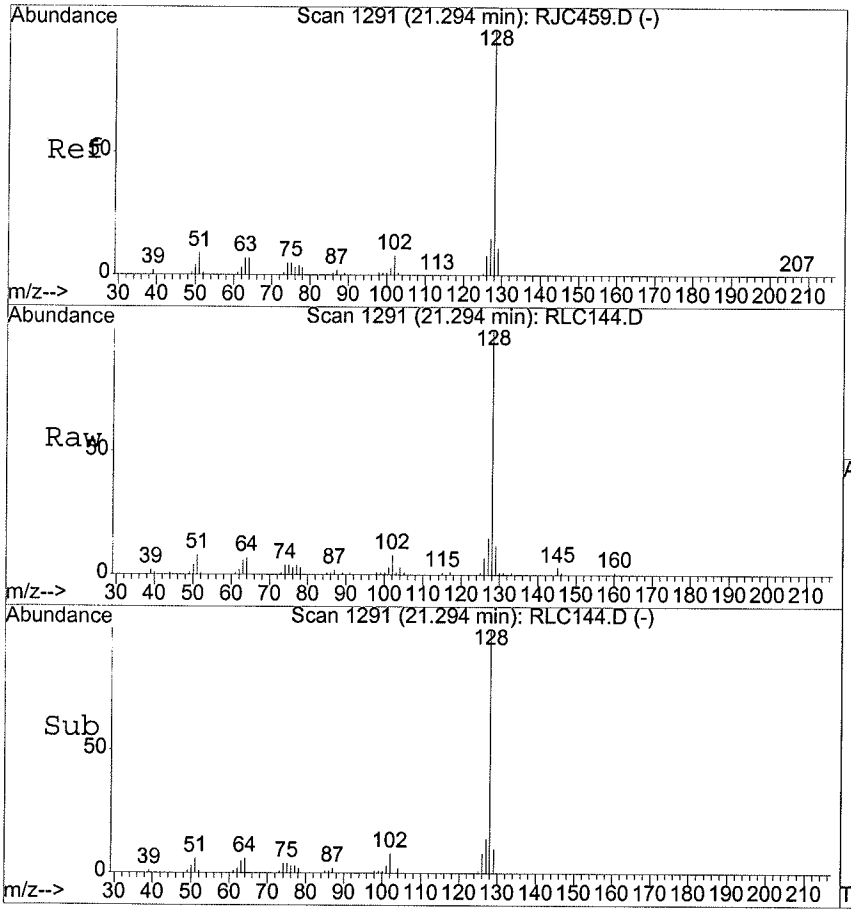


#87
sec-Butylbenzene
Concen: 0.14 ug/l
RT: 18.61 min Scan# 1107
Delta R.T. -0.01 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion:105 Resp: 50187

Ion	Ratio	Lower	Upper
105	100		
134	17.2	0.0	47.9

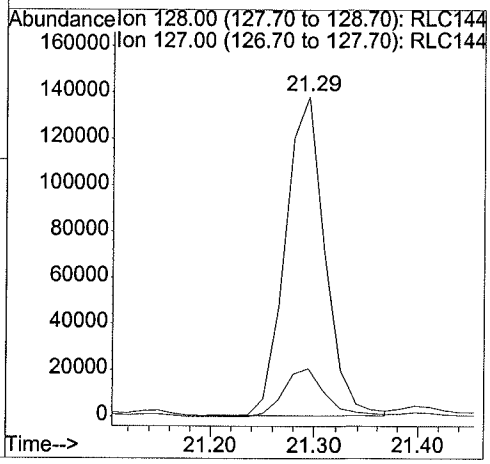




#96
Naphthalene
Concen: 6.35 ug/l
RT: 21.29 min Scan# 1291
Delta R.T. 0.00 min
Lab File: RLC144.D
Acq: 10 Dec 2020 5:14 pm

Tgt Ion:128 Resp: 360566

Ion	Ratio	Lower	Upper
128	100		
127	16.0	0.0	44.4



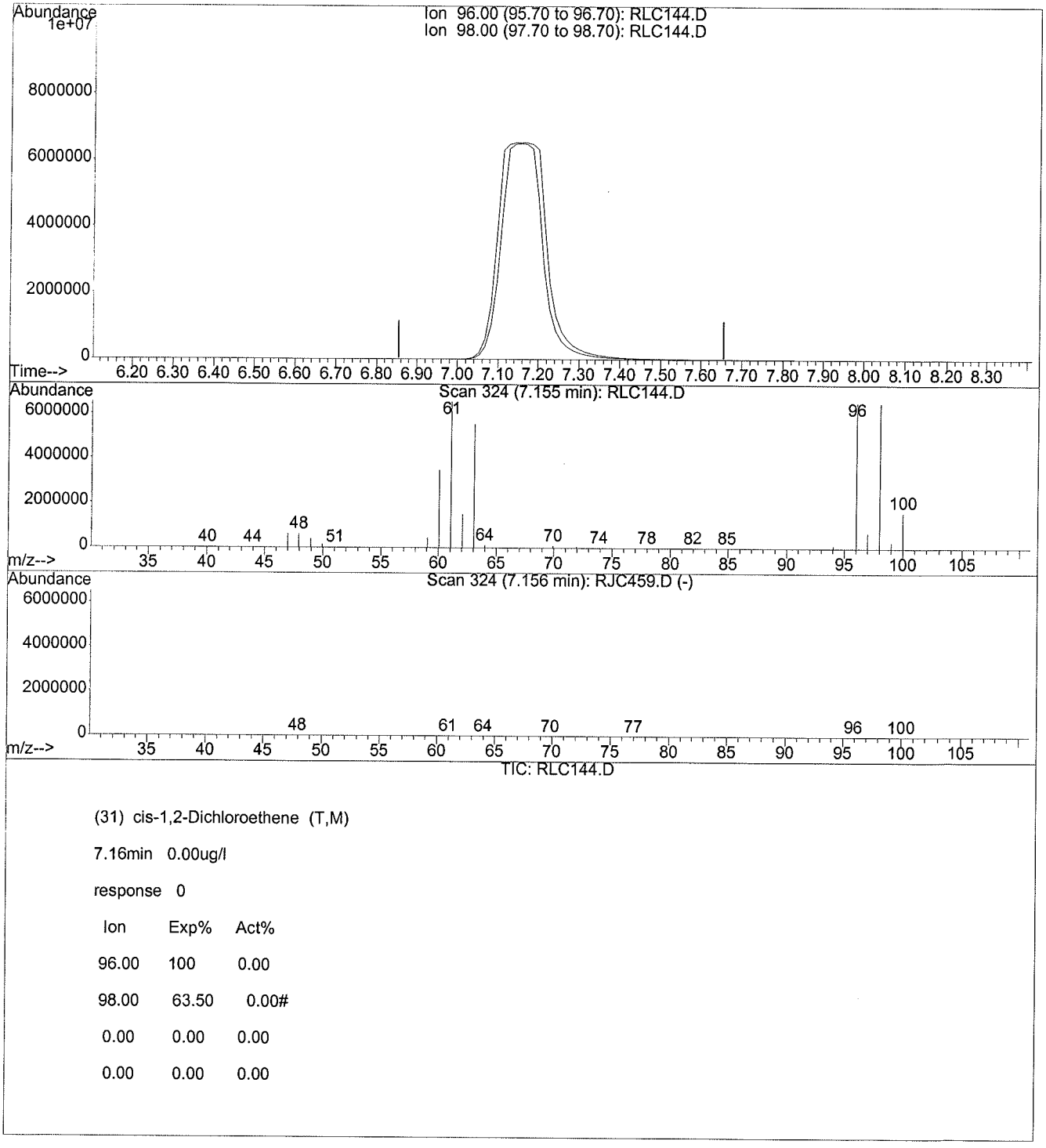
Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L10\RLC144.D
Acq On : 10 Dec 2020 5:14 pm
Sample : 20L087-04 25mL
Misc : DF=1.0
MS Integration Params: RTE.P
Quant Time: Dec 11 12:16 2020

Vial: 10
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC144.D

(31) cis-1,2-Dichloroethene (T,M)

7.16min 0.00ug/l

response 0

Ion	Exp%	Act%
96.00	100	0.00
98.00	63.50	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

RLC144.D VO67J30.M Fri Dec 11 12:16:38 2020

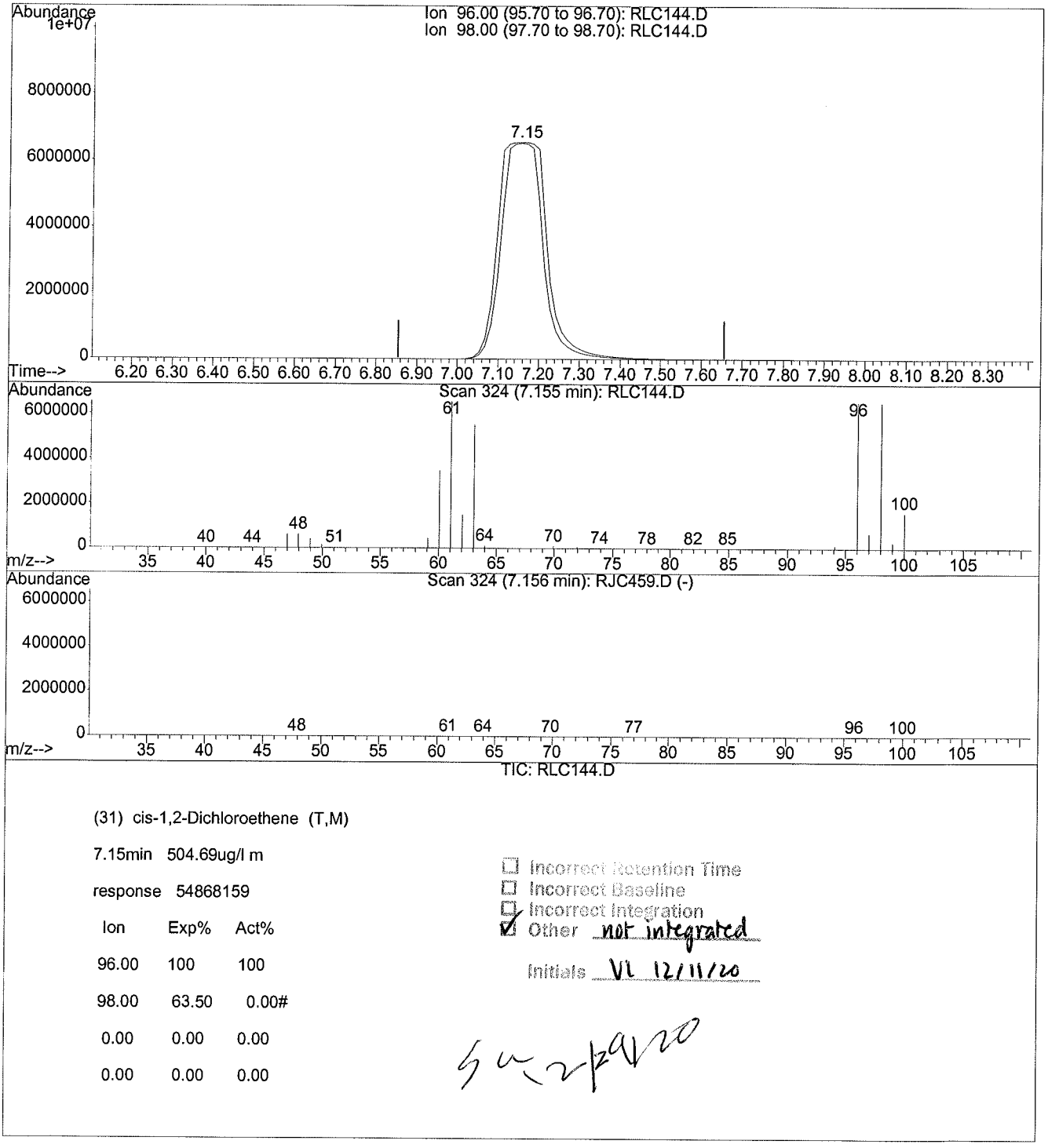
Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L10\RLC144.D
Acq On : 10 Dec 2020 5:14 pm
Sample : 20L087-04 25mL
Misc : DF=1.0
MS Integration Params: RTE.P
Quant Time: Dec 11 12:16 2020

Vial: 10
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



(31) cis-1,2-Dichloroethene (T,M)

7.15min 504.69ug/l m

response 54868159

Ion	Exp%	Act%
96.00	100	100
98.00	63.50	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

☐ Incorrect Retention Time
☐ Incorrect Baseline
☐ Incorrect Integration
☑ Other not integrated

Initials VL 12/11/20

12/9/20

RLC144.D VO67J30.M Fri Dec 11 12:16:41 2020

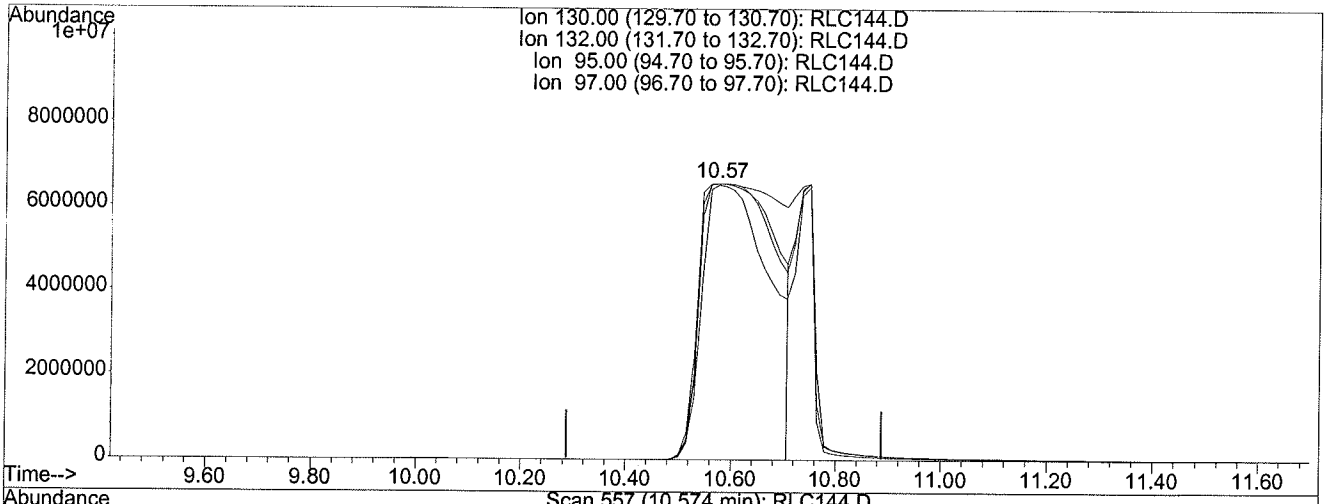
Quantitation Report (Qedit)

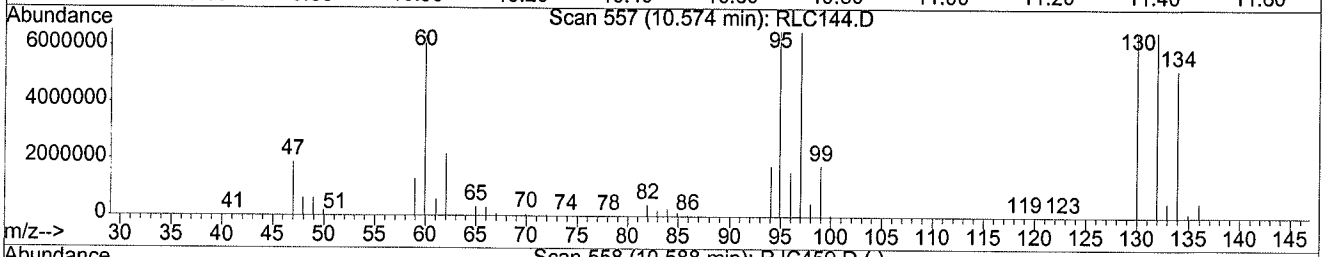
Data File : D:\HPCHEM\1\DATA\20L10\RLC144.D
Acq On : 10 Dec 2020 5:14 pm
Sample : 20L087-04 25mL
Misc : DF=1.0
MS Integration Params: RTE.P
Quant Time: Dec 11 12:16 2020

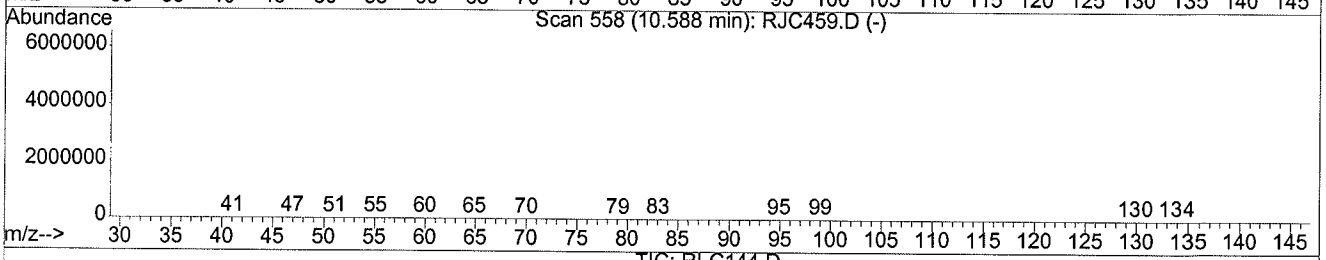
Vial: 10
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration







TIC: RLC144.D

(46) Trichloroethene (T,M)

10.57min 667.17ug/l

response 65214157

Ion	Exp%	Act%
130.00	100	100
132.00	95.50	98.16
95.00	103.30	106.95
97.00	70.90	87.70

RLC144.D VO67J30.M Fri Dec 11 12:17:06 2020

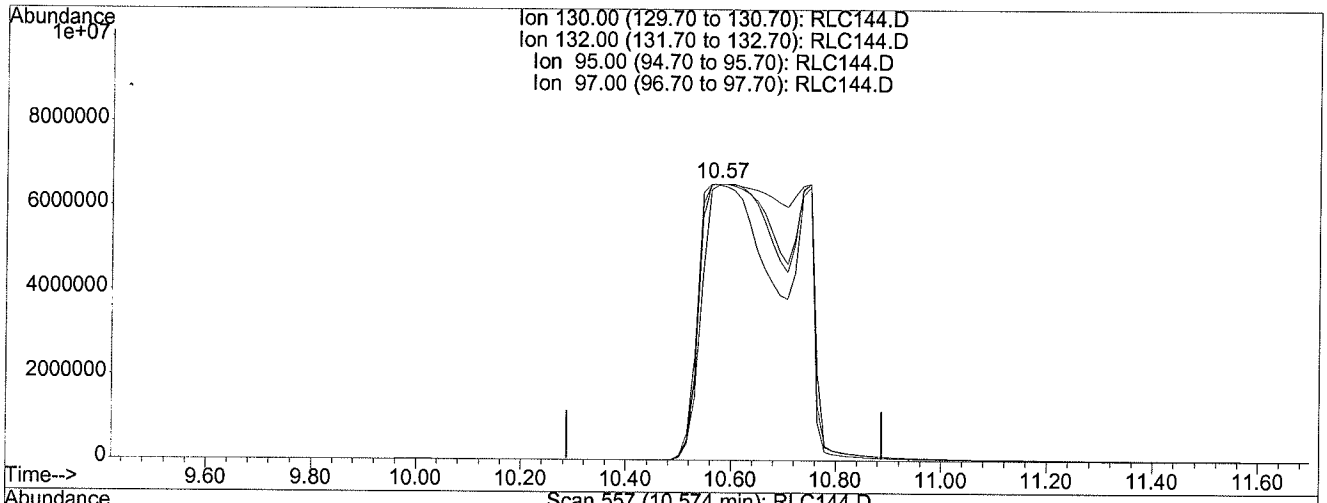
Quantitation Report (Qedit)

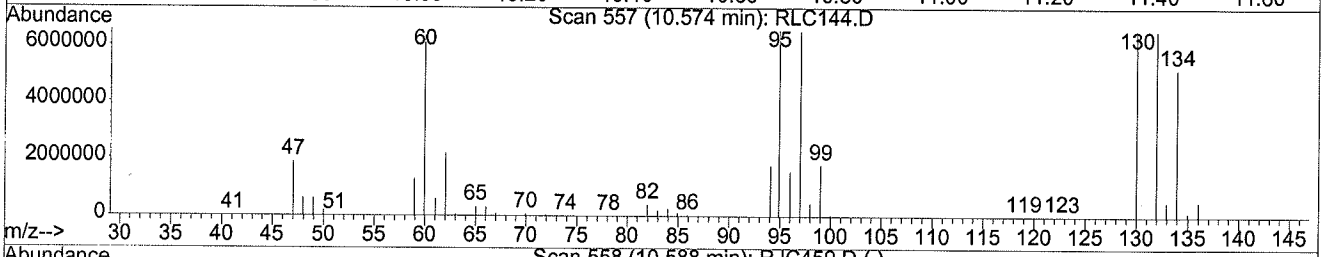
Data File : D:\HPCHEM\1\DATA\20L10\RLC144.D
Acq On : 10 Dec 2020 5:14 pm
Sample : 20L087-04 25mL
Misc : DF=1.0
MS Integration Params: RTE.P
Quant Time: Dec 11 12:17 2020

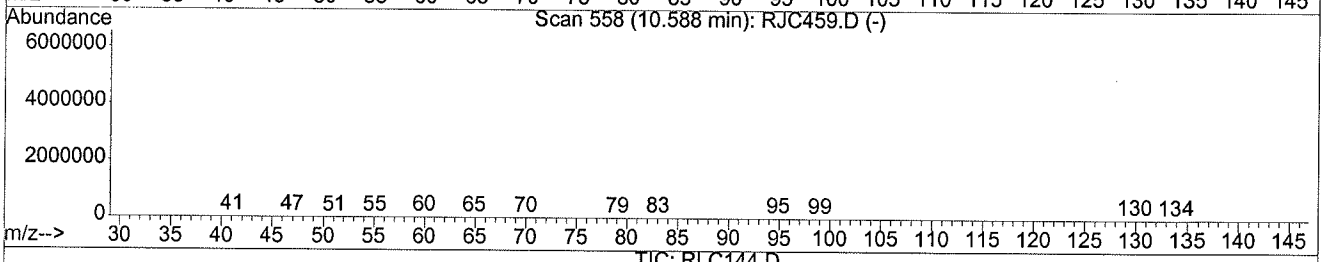
Vial: 10
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration







TIC: RLC144.D

(46) Trichloroethene (T,M)

10.57min 863.77ug/l m

response 84430524

Ion	Exp%	Act%
130.00	100	100
132.00	95.50	75.82
95.00	103.30	82.61
97.00	70.90	67.74

☐ Incorrect Retention Time
☐ Incorrect Baseline
☑ Incorrect Integration
☐ Other _____

Initials VL 12/11/20

12/11/20

RLC144.D VO67J30.M Fri Dec 11 12:17:09 2020

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected:	12/04/20
Project	: VAFB-SS003	Date Received:	12/09/20
Batch No.	: 20L087	Date Extracted:	12/11/20 21:23
Sample ID:	3-MW-62(120420)DL	Date Analyzed:	12/11/20 21:23
Lab Samp ID:	L087-04I	Dilution Factor:	250
Lab File ID:	RLC180	Matrix	: WATER
Ext Btch ID:	VO67L08	% Moisture	: NA
Calib. Ref.:	RJC459	Instrument ID	: 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	120	25	50
1,1,1-TRICHLOROETHANE	ND	250	25	50
1,1,2,2-TETRACHLOROETHANE	ND	250	28	50
1,1,2-TRICHLOROETHANE	ND	250	25	50
1,1-DICHLOROETHANE	ND	250	25	50
1,1-DICHLOROETHENE	ND	250	25	50
1,1-DICHLOROPROPENE	ND	250	25	50
1,2,3-TRICHLOROBENZENE	ND	250	37	75
1,2,3-TRICHLOROPROPANE	ND	500	62	120
1,2,4-TRICHLOROBENZENE	ND	250	37	75
1,2,4-TRIMETHYLBENZENE	ND	250	28	50
1,2-DIBROMO-3-CHLOROPROPANE	ND	500	62	120
1,2-DIBROMOETHANE	ND	250	25	50
1,2-DICHLOROBENZENE	ND	250	25	50
1,2-DICHLOROETHANE	ND	120	25	50
1,2-DICHLOROPROPANE	ND	250	25	50
1,3,5-TRIMETHYLBENZENE	ND	250	33	50
1,3-DICHLOROBENZENE	ND	250	28	50
1,3-DICHLOROPROPANE	ND	250	25	50
1,4-DICHLOROBENZENE	ND	250	25	50
2,2-DICHLOROPROPANE	ND	250	40	50
2-BUTANONE	ND	2500	500	1000
2-CHLOROTOLUENE	ND	250	30	50
2-HEXANONE	ND	2500	580	1000
4-CHLOROTOLUENE	ND	250	28	50
ACETONE	ND	2500	650	1200
BENZENE	ND	250	25	50
BROMOBENZENE	ND	250	25	50
BROMOCHLOROMETHANE	ND	250	28	50
BROMODICHLOROMETHANE	ND	250	25	50
BROMOFORM	ND	250	37	75
BROMOMETHANE	ND	250	40	75
CARBON DISULFIDE	ND	250	25	50
CARBON TETRACHLORIDE	ND	250	25	50
CHLOROBENZENE	ND	250	25	50
CHLOROETHANE	ND	250	67	75
CHLOROFORM	ND	250	25	50
CHLOROMETHANE	ND	250	37	75
CIS-1,2-DICHLOROETHENE	670	250	25	50
CIS-1,3-DICHLOROPROPENE	ND	250	25	50
DIBROMOCHLOROMETHANE	ND	250	25	50
DICHLORODIFLUOROMETHANE	ND	250	37	75
ETHYLBENZENE	ND	250	25	50
HEXACHLOROBUTADIENE	ND	250	55	75
ISOPROPYL BENZENE	ND	250	25	50
M,P-XYLENES	ND	500	52	100
MIBK	ND	2500	520	1000
METHYLENE CHLORIDE	ND	500	62	120
MTBE	ND	250	33	50
NAPHTHALENE	ND	500	62	120
N-BUTYLBENZENE	ND	250	42	50
N-PROPYLBENZENE	ND	250	33	50
O-XYLENE	ND	250	25	50
P-ISOPROPYLTOLUENE	ND	250	35	50
SEC-BUTYLBENZENE	ND	250	33	50
STYRENE	ND	250	25	50
TERT-BUTYLBENZENE	ND	250	33	50
TETRACHLOROETHENE	ND	250	37	50
TOLUENE	ND	250	25	50
TRANS-1,2-DICHLOROETHENE	260	250	25	50
TRANS-1,3-DICHLOROPROPENE	ND	250	28	50
TRICHLOROETHENE	7800	250	25	50
TRICHLOROFLUOROMETHANE	ND	250	37	75
VINYL CHLORIDE	ND	120	30	50
VINYL ACETATE	ND	500	62	120
FREON113	ND	250	50	75
TERT-BUTANOL	ND	5000	1200	2500
DIPE	ND	250	25	50
ETBE	ND	250	25	50
TAME	ND	250	25	50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	2310	2500	92.5	70-120
4-BROMOFLUOROBENZENE	2370	2500	94.8	75-120
TOLUENE-D8	2320	2500	92.7	85-120
DIBROMOFLUOROMETHANE	2410	2500	96.4	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L11\RLC180.D Vial: 16
Acq On : 11 Dec 2020 9:23 pm Operator: VLu
Sample : 20L087-04I 100uL Inst : 67
Misc : DF=250 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 11:02 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

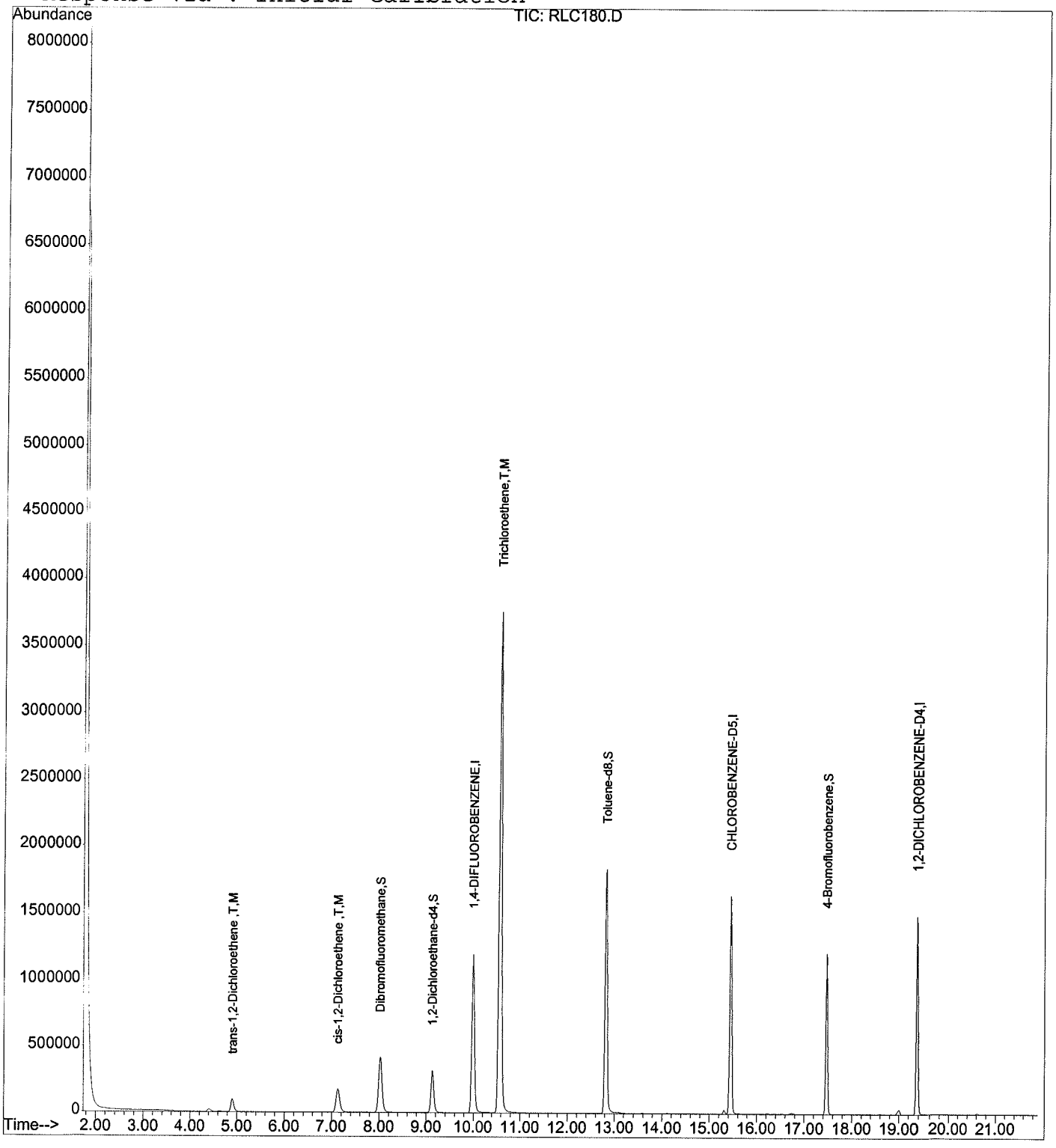
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2262784	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1755479	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	536000	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.02	111	712423	9.64	ug/l	-0.01
Spiked Amount 10.000			Recovery =	96.40%		
43) 1,2-Dichloroethane-d4	9.13	65	437275	9.25	ug/l	-0.01
Spiked Amount 10.000			Recovery =	92.50%		
56) Toluene-d8	12.82	98	2484699	9.27	ug/l	0.00
Spiked Amount 10.000			Recovery =	92.70%		
77) 4-Bromofluorobenzene	17.47	95	690638	9.48	ug/l	0.00
Spiked Amount 10.000			Recovery =	94.80%		
Target Compounds						Qvalue
23) trans-1,2-Dichloroethene	4.91	96	105986	1.06	ug/l	99
31) cis-1,2-Dichloroethene	7.13	96	260274	2.67	ug/l	100
46) Trichloroethene	10.57	130	2723301	31.04	ug/l	97

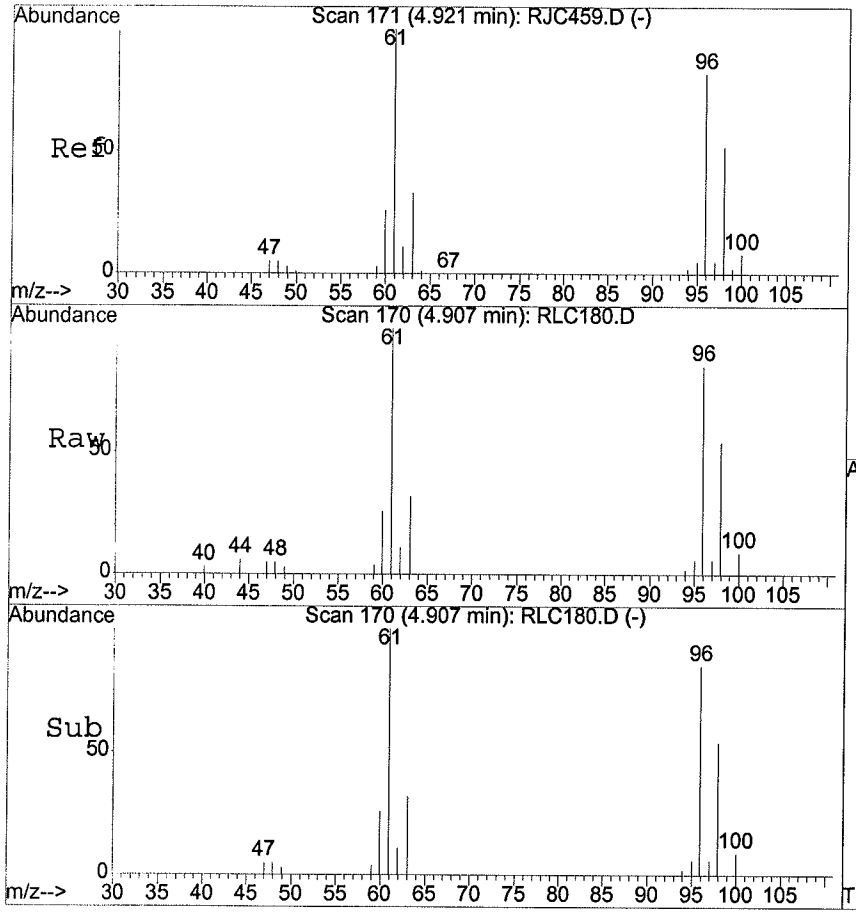
(#) = qualifier out of range (m) = manual integration
RLC180.D VO67J30.M Mon Dec 14 11:02:41 2020 Page 1

Data File : D:\HPCHEM\1\DATA\20L11\RLC180.D
Acq On : 11 Dec 2020 9:23 pm
Sample : 20L087-04I 100uL
Misc : DF=250
MS Integration Params: RTE.P
Quant Time: Dec 14 11:02 2020

Vial: 16
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

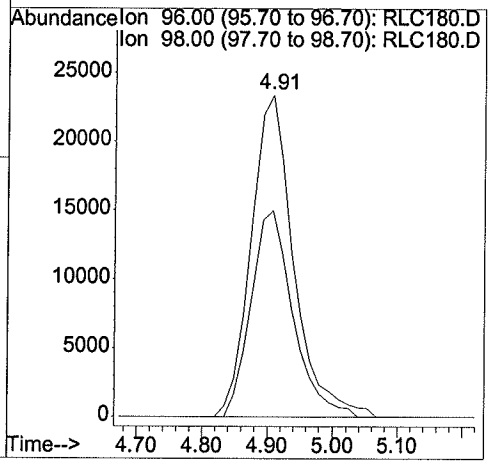


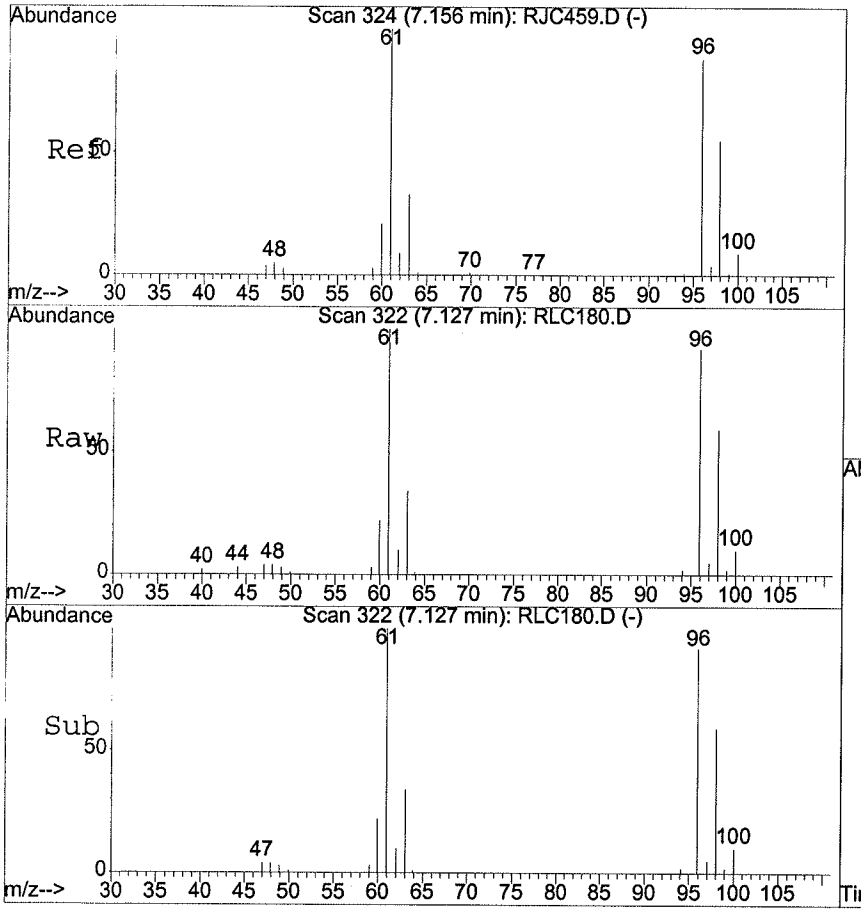


#23
trans-1,2-Dichloroethene
Concen: 1.06 ug/l
RT: 4.91 min Scan# 170
Delta R.T. -0.01 min
Lab File: RLC180.D
Acq: 11 Dec 2020 9:23 pm

Tgt Ion: 96 Resp: 105986

Ion	Ratio	Lower	Upper
96	100		
98	63.4	32.6	92.6

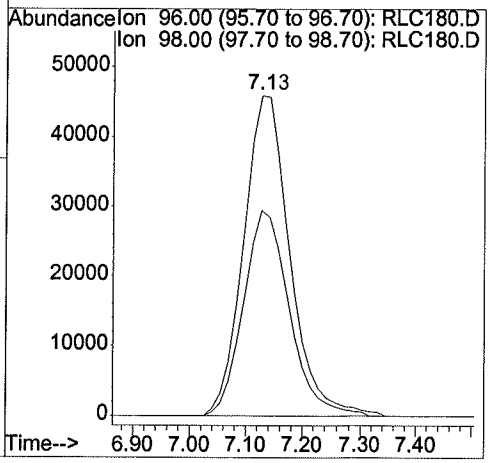


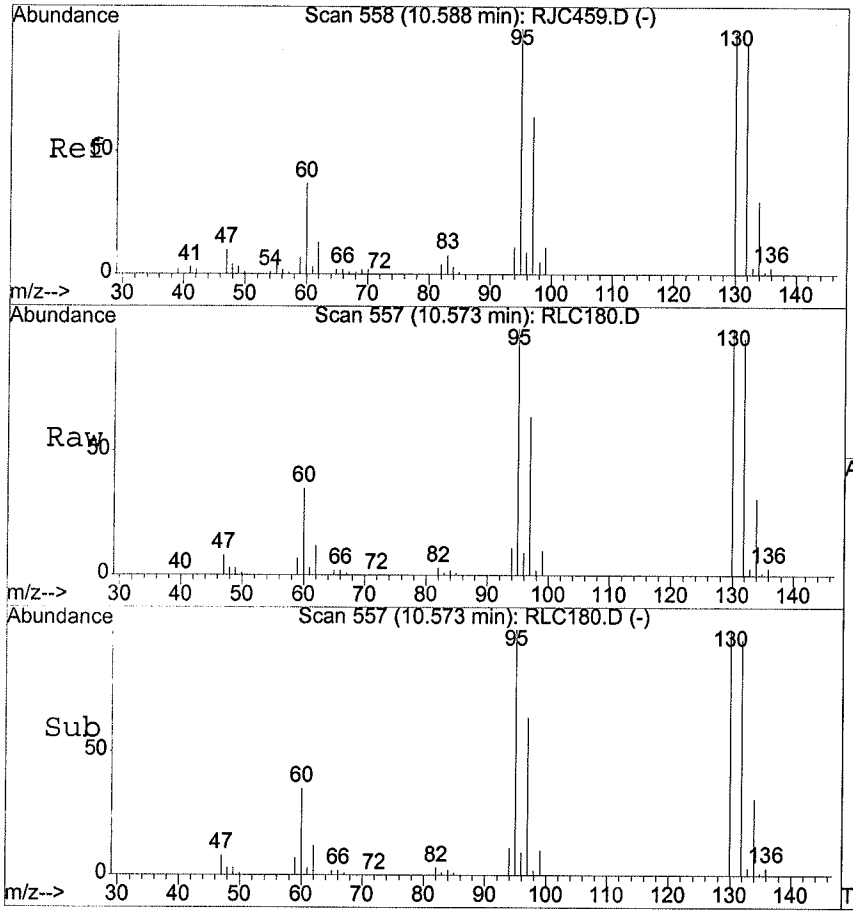


#31
cis-1,2-Dichloroethene
Concen: 2.67 ug/l
RT: 7.13 min Scan# 322
Delta R.T. -0.03 min
Lab File: RLC180.D
Acq: 11 Dec 2020 9:23 pm

Tgt Ion: 96 Resp: 260274

Ion	Ratio	Lower	Upper
96	100		
98	63.7	33.5	93.5

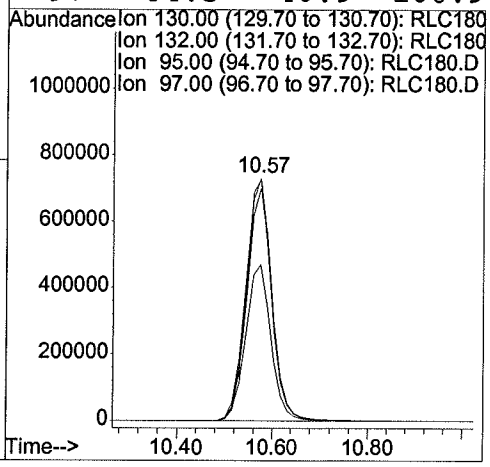




#46
Trichloroethene
Concen: 31.04 ug/l
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC180.D
Acq: 11 Dec 2020 9:23 pm

Tgt Ion:130 Resp: 2723301

Ion	Ratio	Lower	Upper
130	100		
132	95.0	65.5	125.5
95	100.6	73.3	133.3
97	64.5	40.9	100.9



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS			Date Collected	: 12/04/20
Project	: VAFB-SS003			Date Received	: 12/09/20
Batch No.	: 20L087			Date Extracted	: 12/10/20 17:40 # 12/11/20 20:32 ## 12/11/20 21:48
Sample ID	: 3-MW-61(120420)			Date Analyzed	: 12/10/20 17:40 # 12/11/20 20:32 ## 12/11/20 21:48
Lab Samp ID	: L087-05	#L087-05I	##L087-05J	Dilution Factor	: 1 # 50 ## 250
Lab File ID	: RLC145	#RLC178	##RLC181	Matrix	: WATER
Ext Btch ID	: VO67L07	#VO67L08	##VO67L08	% Moisture	: NA
Calib. Ref.	: RJC459	#RJC459	##RJC459	Instrument ID	: 67

	PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
	1,1,1,2-TETRACHLOROETHANE	0.17J	0.50	0.10	0.20
	1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
#	1,1,2,2-TETRACHLOROETHANE	260	50	5.5	10
	1,1,2-TRICHLOROETHANE	6.4	1.0	0.10	0.20
	1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
	1,1-DICHLOROETHENE	ND	1.0	0.10	0.20
	1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
	1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
	1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
	1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
	1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
	1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
	1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
	1,2-DICHLOROETHANE	0.32J	0.50	0.10	0.20
	1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
	1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
	1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
	1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
	2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
	2-BUTANONE	16	10	2.0	4.0
	2-CHLOROTOLUENE	ND	1.0	0.12	0.20
	2-HEXANONE	ND	10	2.3	4.0
	4-CHLOROTOLUENE	ND	1.0	0.11	0.20
	ACETONE	210	10	2.6	5.0
	BENZENE	0.75J	1.0	0.10	0.20
	BROMOBENZENE	ND	1.0	0.10	0.20
	BROMOCHLOROMETHANE	2.1	1.0	0.11	0.20
	BROMODICHLOROMETHANE	0.38J	1.0	0.10	0.20
	BROMOFORM	0.15J	1.0	0.15	0.30
	BROMOMETHANE	ND	1.0	0.16	0.30
	CARBON DISULFIDE	0.76J	1.0	0.10	0.20
	CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
	CHLOROBENZENE	0.45J	1.0	0.10	0.20
	CHLOROETHANE	0.51J	1.0	0.27	0.30
	CHLOROFORM	45	1.0	0.10	0.20
	CHLOROMETHANE	24	1.0	0.15	0.30
	CIS-1,2-DICHLOROETHENE	39	1.0	0.10	0.20
	CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
	DIBROMOCHLOROMETHANE	0.17J	1.0	0.10	0.20
	DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
	ETHYLBENZENE	ND	1.0	0.10	0.20
	HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
	ISOPROPYL BENZENE	ND	1.0	0.10	0.20
	M,P-XYLENES	ND	2.0	0.21	0.40
	MIBK	ND	10	2.1	4.0
#	METHYLENE CHLORIDE	110	100	12	25
	MTBE	ND	1.0	0.13	0.20
	NAPHTHALENE	0.46J	2.0	0.25	0.50
	N-BUTYLBENZENE	ND	1.0	0.17	0.20
	N-PROPYLBENZENE	ND	1.0	0.13	0.20
	O-XYLENE	ND	1.0	0.10	0.20
	P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
	SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
	STYRENE	ND	1.0	0.10	0.20
	TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
	TETRACHLOROETHENE	30	1.0	0.15	0.20
	TOLUENE	ND	1.0	0.10	0.20
	TRANS-1,2-DICHLOROETHENE	6.0	1.0	0.10	0.20
	TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
##	TRICHLOROETHENE	8300	250	25	50
	TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
	VINYL CHLORIDE	0.13J	0.50	0.12	0.20
	VINYL ACETATE	ND	2.0	0.25	0.50
	FREON113	ND	1.0	0.20	0.30
	TERT-BUTANOL	28	20	5.0	10
	DIPE	ND	1.0	0.10	0.20
	ETBE	ND	1.0	0.10	0.20
	TAME	ND	1.0	0.10	0.20

	SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
	1,2-DICHLOROETHANE-D4	9.32	10.00	93.2	70-120
	4-BROMOFLUOROBENZENE	9.46	10.00	94.6	75-120
	TOLUENE-D8	9.27	10.00	92.7	85-120
	DIBROMOFLUOROMETHANE	9.90	10.00	99.0	85-115
#	1,2-DICHLOROETHANE-D4	458	500.0	91.6	70-120
#	4-BROMOFLUOROBENZENE	477	500.0	95.4	75-120
#	TOLUENE-D8	461	500.0	92.1	85-120
#	DIBROMOFLUOROMETHANE	479	500.0	95.7	85-115
##	1,2-DICHLOROETHANE-D4	2350	2500	94.1	70-120
##	4-BROMOFLUOROBENZENE	2400	2500	96.1	75-120
##	TOLUENE-D8	2300	2500	92.1	85-120
##	DIBROMOFLUOROMETHANE	2400	2500	95.9	85-115

Members of the First Associated File
Members of the Second Associated File

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : ARCADIS	Date Collected: 12/04/20
Project : VAFB-SS003	Date Received: 12/09/20
Batch No. : 20L087	Date Extracted: 12/10/20 17:40
Sample ID: 3-MW-61(120420)	Date Analyzed: 12/10/20 17:40
Lab Samp ID: L087-05	Dilution Factor: 1
Lab File ID: RLC145	Matrix : WATER
Ext Btch ID: V067L07	% Moisture : NA
Calib. Ref.: RJC459	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	0.17J	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	320E	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	6.4	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	ND	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	0.32J	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	16	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	210	10	2.6	5.0
BENZENE	0.75J	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	2.1	1.0	0.11	0.20
BROMODICHLOROMETHANE	0.38J	1.0	0.10	0.20
BROMOFORM	0.15J	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	0.76J	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	0.45J	1.0	0.10	0.20
CHLOROETHANE	0.51J	1.0	0.27	0.30
CHLOROFORM	45	1.0	0.10	0.20
CHLOROMETHANE	24	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	39	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	0.17J	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	110E	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	0.46J	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	30	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	6.0	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	880E	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	0.13J	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	28	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.32	10.00	93.2	70-120
4-BROMOFLUOROBENZENE	9.46	10.00	94.6	75-120
TOLUENE-D8	9.27	10.00	92.7	85-120
DIBROMOFLUOROMETHANE	9.90	10.00	99.0	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L10\RLC145.D Vial: 11
Acq On : 10 Dec 2020 5:40 pm Operator: VLu
Sample : 20L087-05 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 30 13:42 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2581151	10.00	ug/l		0.00
55) CHLOROBENZENE-D5	15.45	117	1926156	10.00	ug/l		0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	579494	10.00	ug/l		-0.01
System Monitoring Compounds							
35) Dibromofluoromethane	8.03	111	834313	9.90	ug/l		0.00
Spiked Amount 10.000			Recovery =	99.00%			
43) 1,2-Dichloroethane-d4	9.14	65	502625	9.32	ug/l		0.00
Spiked Amount 10.000			Recovery =	93.20%			
56) Toluene-d8	12.82	98	2724316	9.27	ug/l		0.00
Spiked Amount 10.000			Recovery =	92.70%			
77) 4-Bromofluorobenzene	17.47	95	744911	9.46	ug/l		0.00
Spiked Amount 10.000			Recovery =	94.60%			
Target Compounds							Qvalue
4) Chloromethane	2.13	50	3256814	23.83	ug/l		99
5) Vinyl chloride	2.23	62	16749	0.13	ug/l		70
7) Chloroethane	2.64	64	48194	0.51	ug/l		87
13) Acetone	3.52	43	1652581	207.60	ug/l		98
15) tert-Butyl alcohol	3.81	59	77730	28.18	ug/l		95
17) Iodomethane	4.13	142	2459717	17.06	ug/l		97
19) Methylene chloride	4.42	49	12950572	114.60	ug/l	E	96
20) Carbon disulfide	4.40	76	296096	0.76	ug/l		96
23) trans-1,2-Dichloroethene	4.91	96	680590	5.96	ug/l		99
29) 2-Butanone	6.75	72	52432	15.73	ug/l		97
31) cis-1,2-Dichloroethene	7.14	96	4362047	39.19	ug/l		99
32) Chloroform	7.52	83	7359938	44.67	ug/l		97
33) Bromochloromethane	7.90	130	104952	2.15	ug/l		98
34) tert-Amyl alcohol	8.00	59	47530	20.74	ug/l		97
38) Cyclohexane	8.43	84	61098	0.39	ug/l		100
44) 1,2-Dichloroethane	9.33	62	21373	0.32	ug/l		99
45) Benzene	9.33	78	284677	0.75	ug/l		98
46) Trichloroethene	10.57	130	87635463m	875.72	ug/l	E	
49) Bromodichloromethane	11.38	83	37584	0.38	ug/l		95
51) Dibromomethane	11.46	93	96680	2.50	ug/l	#	73
60) 1,1,2-Trichloroethane	13.60	97	297485m	6.43	ug/l		
63) Tetrachloroethene	14.09	164	2267618	29.98	ug/l		99
64) Dibromochloromethane	14.46	129	9248	0.17	ug/l		87
67) Chlorobenzene	15.51	112	95389	0.45	ug/l		99
68) 1,1,1,2-Tetrachloroethane	15.60	131	11138	0.17	ug/l		99
75) Bromoform	17.09	173	4019	0.15	ug/l		85
76) 1,1,2,2-Tetrachloroethane	17.36	83	13431285	316.11	ug/l	E	100

(#) = qualifier out of range (m) = manual integration
RLC145.D VO67J30.M Wed Dec 30 13:42:57 2020 Page 1

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L10\RLC145.D Vial: 11
Acq On : 10 Dec 2020 5:40 pm Operator: VLu
Sample : 20L087-05 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 30 13:42 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

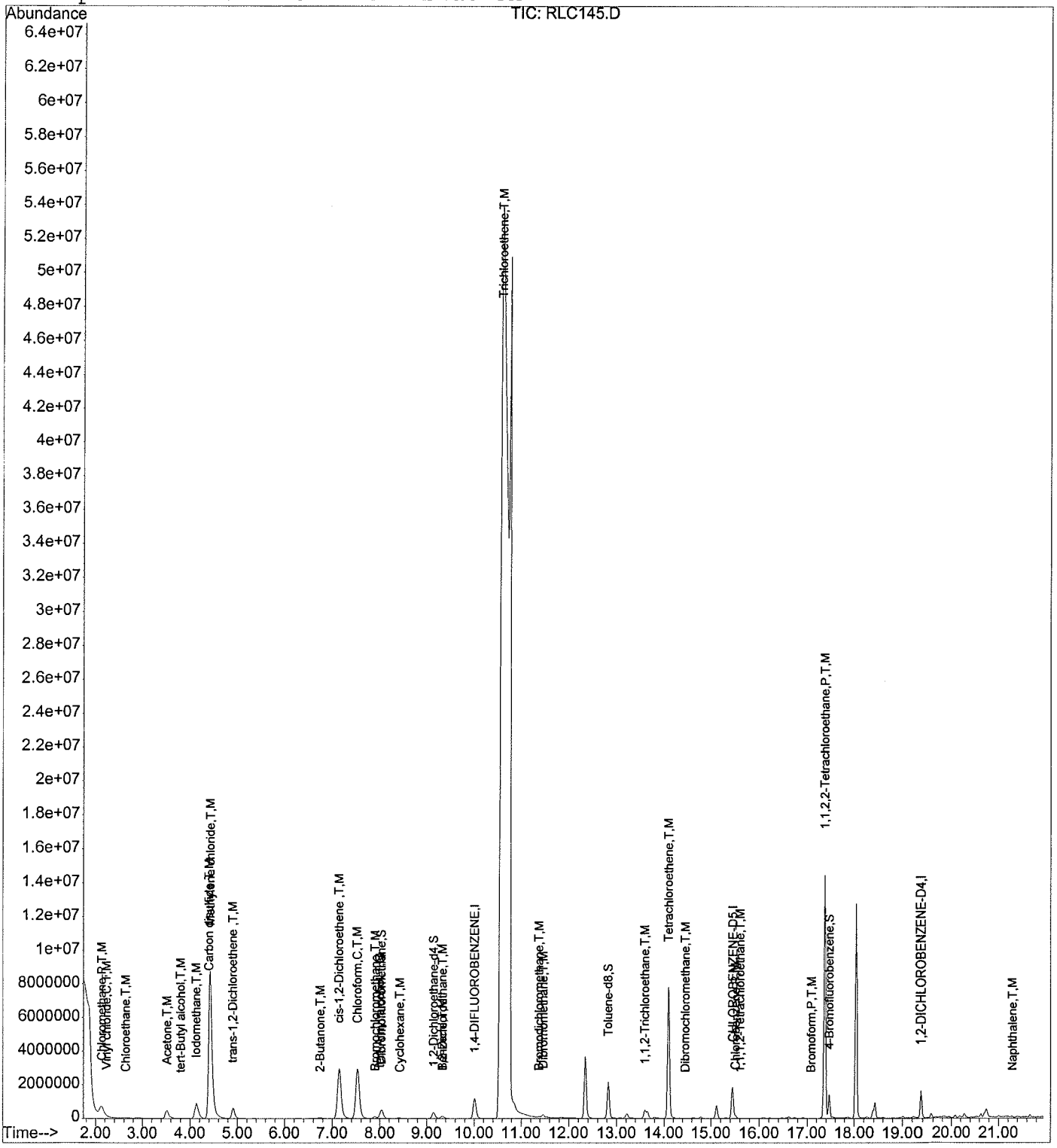
Compound	R.T.	QIon	Response	Conc Unit	Qvalue
96) Naphthalene	21.29	128	26861	0.46 ug/l	87

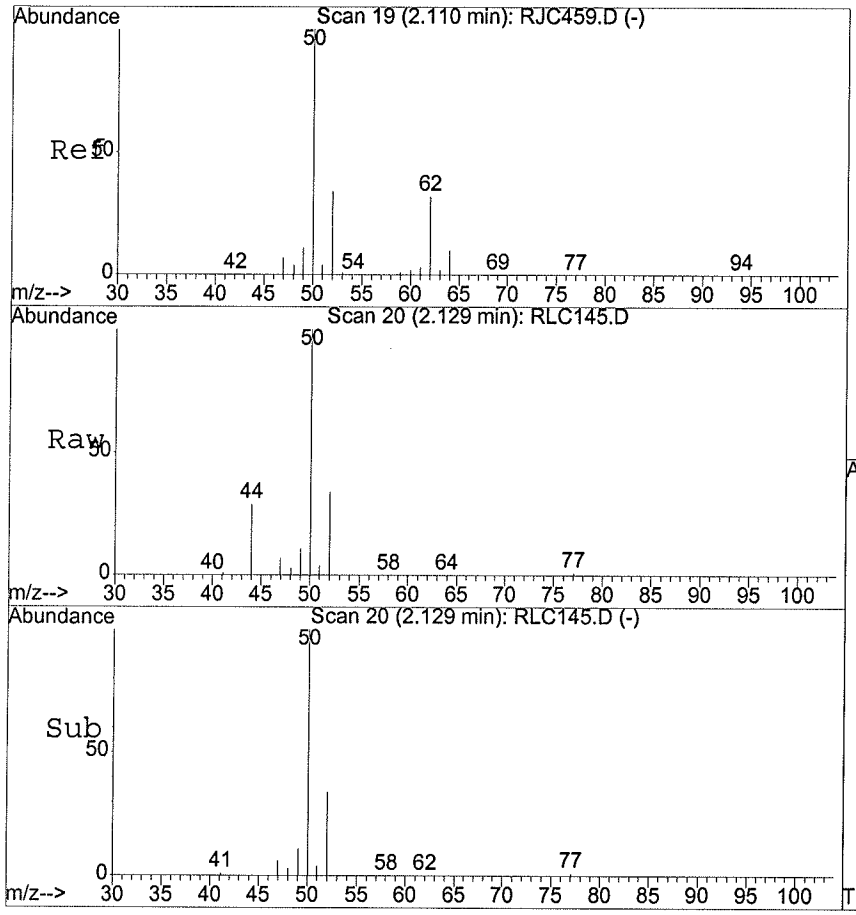
(#) = qualifier out of range (m) = manual integration
RLC145.D VO67J30.M Wed Dec 30 13:42:57 2020 Page 2

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L10\RLC145.D Vial: 11
Acq On : 10 Dec 2020 5:40 pm Operator: VLu
Sample : 20L087-05 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 30 13:42 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

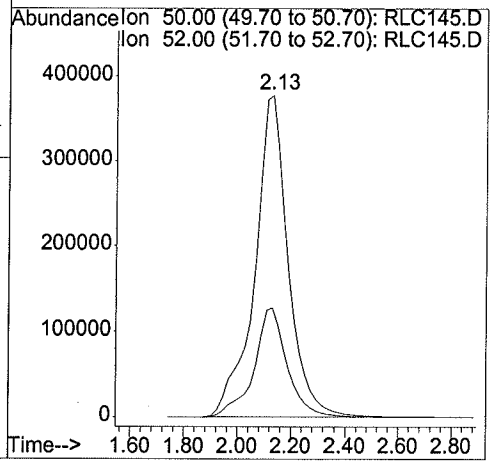


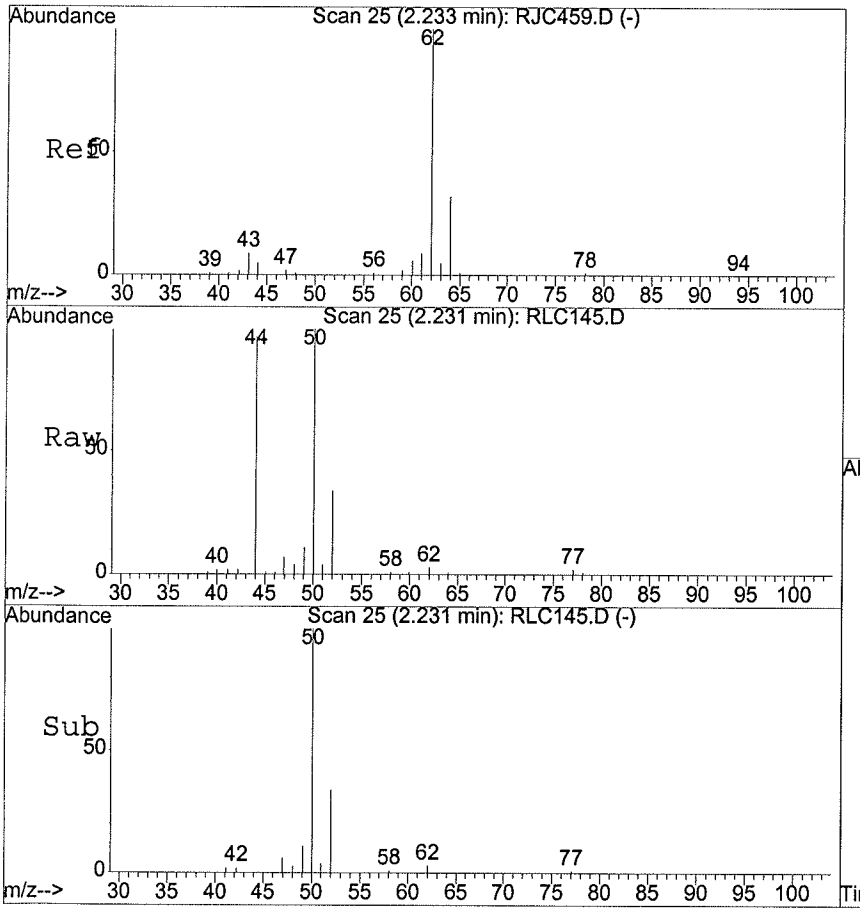


#4
Chloromethane
Concen: 23.83 ug/l
RT: 2.13 min Scan# 20
Delta R.T. 0.02 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 50 Resp: 3256814

Ion	Ratio	Lower	Upper
50	100		
52	33.9	3.5	63.5

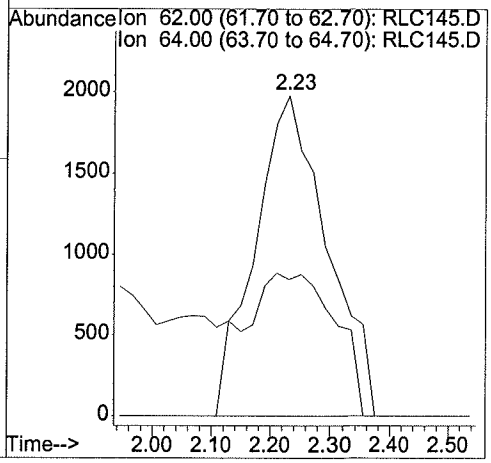


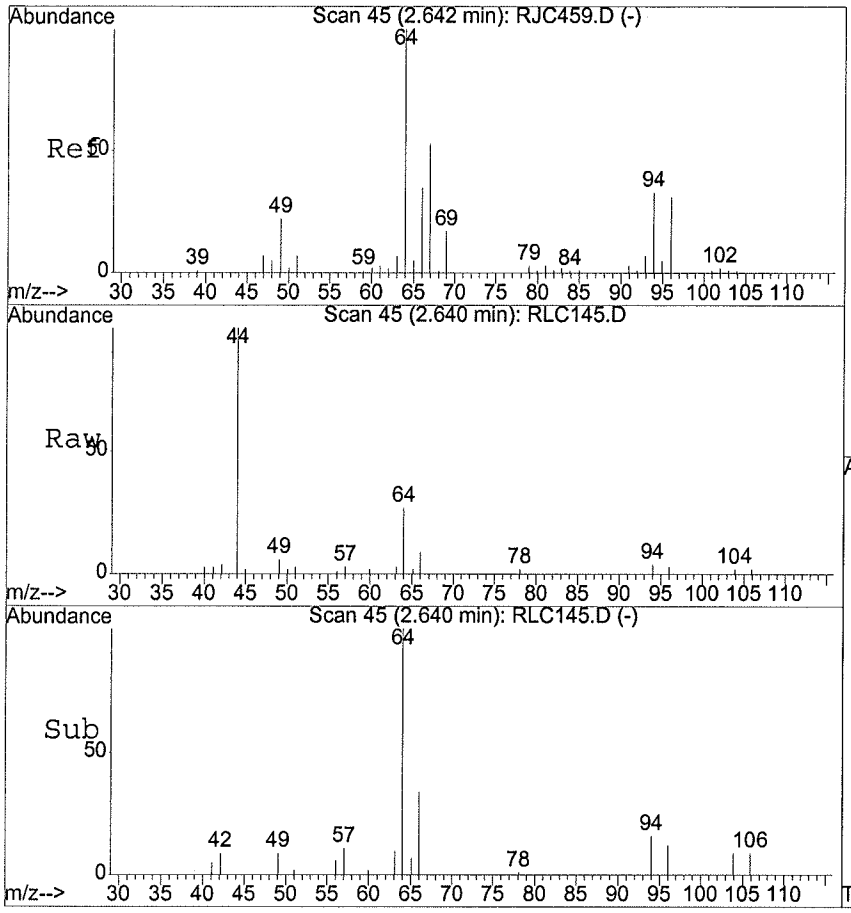


#5
Vinyl chloride
Concen: 0.13 ug/l
RT: 2.23 min Scan# 25
Delta R.T. -0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 62 Resp: 16749

Ion	Ratio	Lower	Upper
62	100		
64	48.0	1.4	61.4

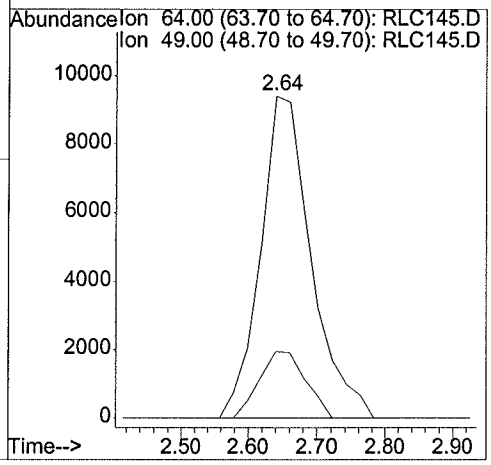


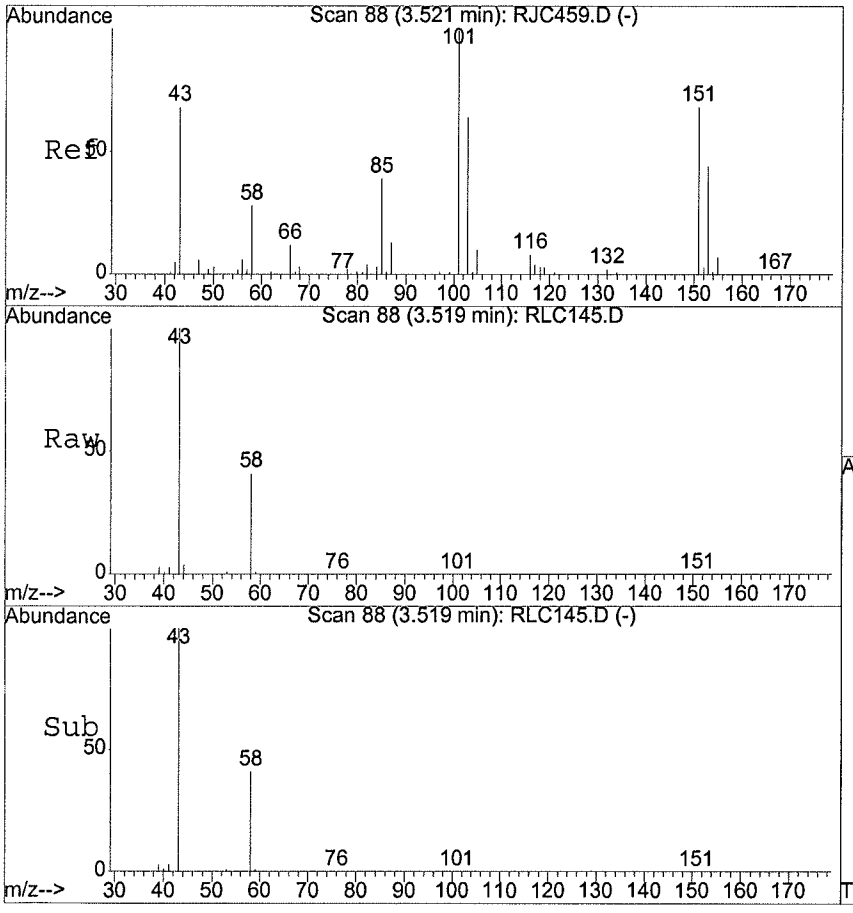


#7
Chloroethane
Concen: 0.51 ug/l
RT: 2.64 min Scan# 45
Delta R.T. -0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 64 Resp: 48194

Ion	Ratio	Lower	Upper
64	100		
49	19.0	0.0	55.4

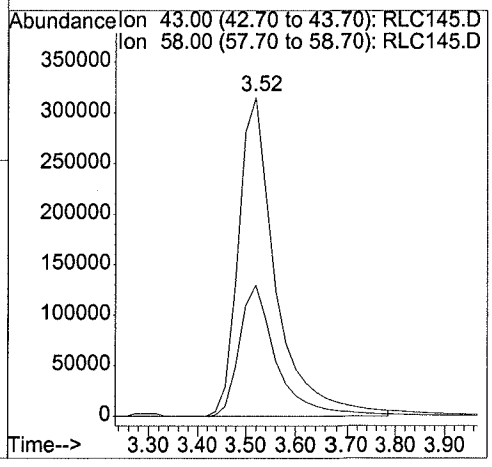


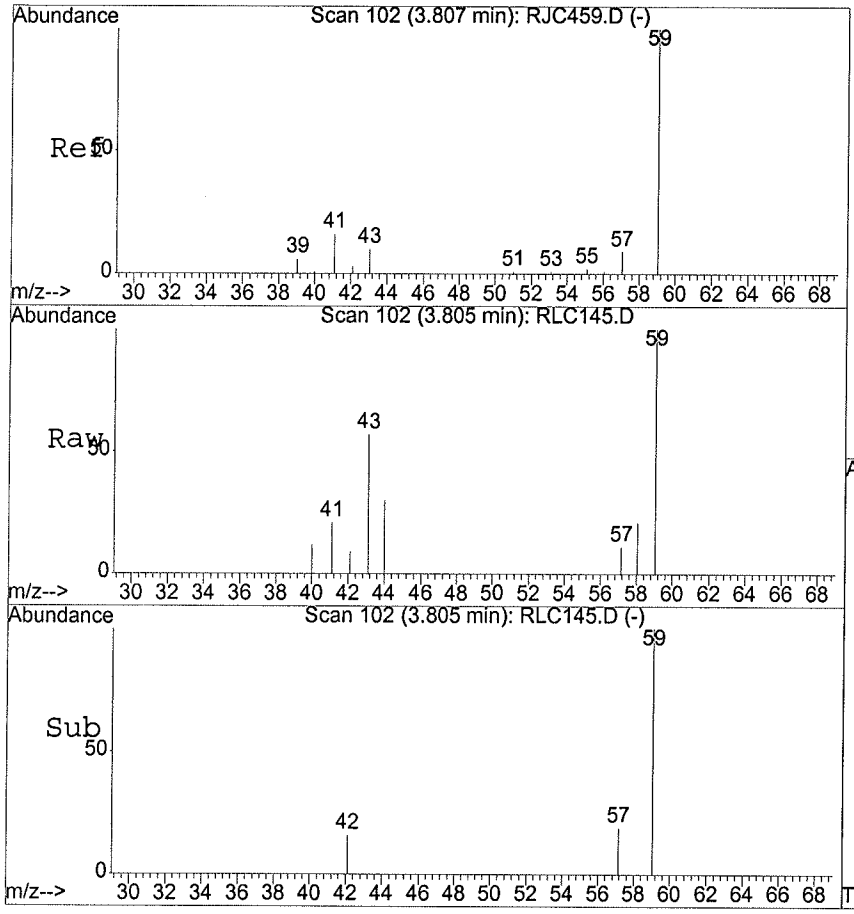


#13
Acetone
Concen: 207.60 ug/l
RT: 3.52 min Scan# 88
Delta R.T. -0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 43 Resp: 1652581

Ion	Ratio	Lower	Upper
43	100		
58	40.9	12.2	72.2

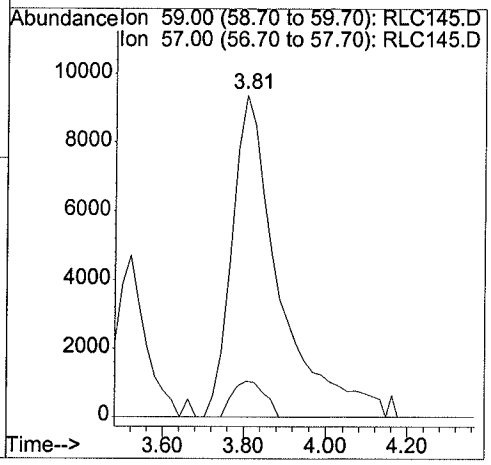


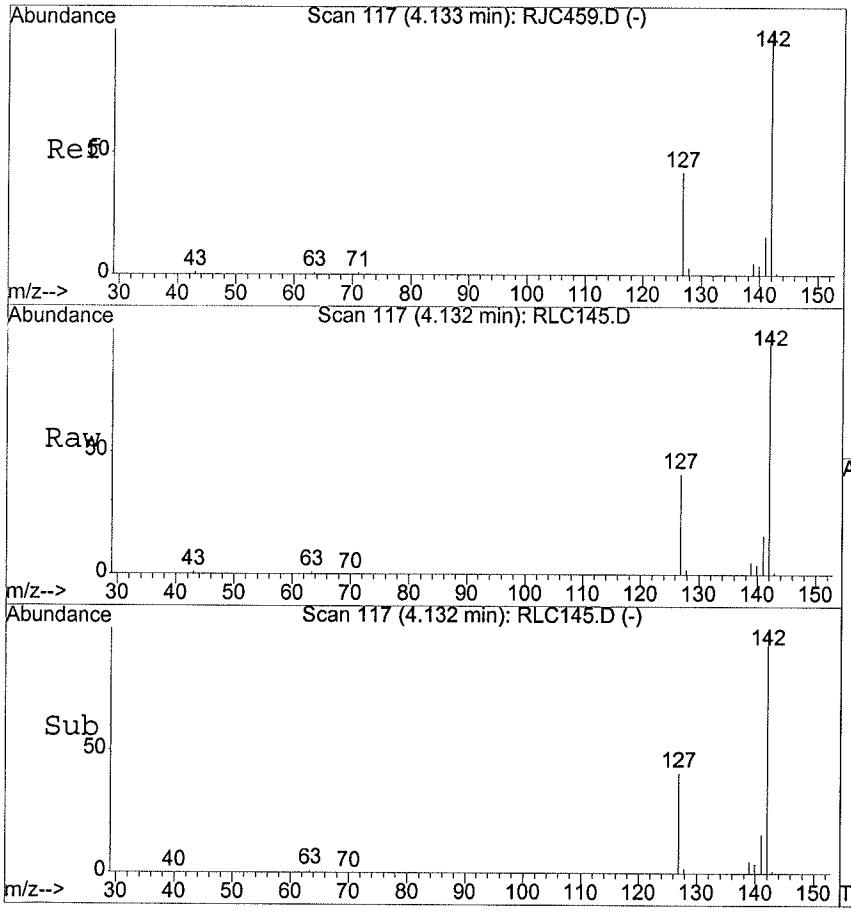


#15
tert-Butyl alcohol
Concen: 28.18 ug/l
RT: 3.81 min Scan# 102
Delta R.T. -0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 59 Resp: 77730

Ion	Ratio	Lower	Upper
59	100		
57	7.5	0.0	39.2

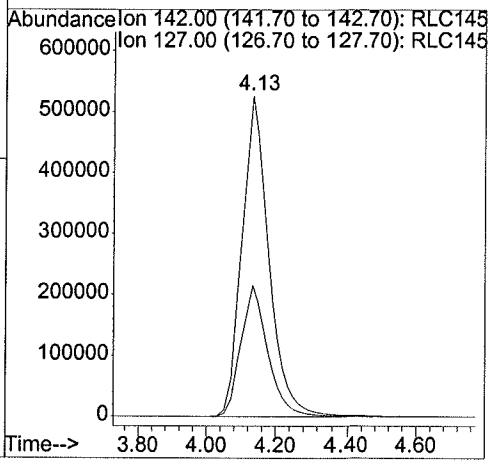


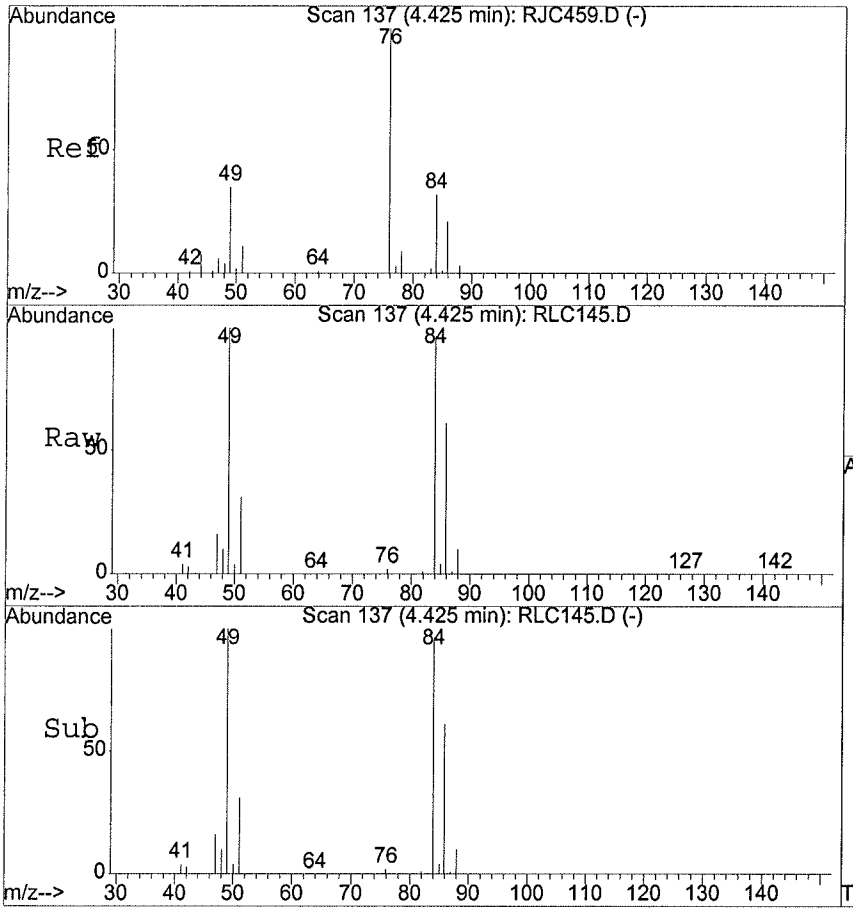


#17
Iodomethane
Concen: 17.06 ug/l
RT: 4.13 min Scan# 117
Delta R.T. -0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion:142 Resp: 2459717

Ion	Ratio	Lower	Upper
142	100		
127	40.8	12.5	72.5

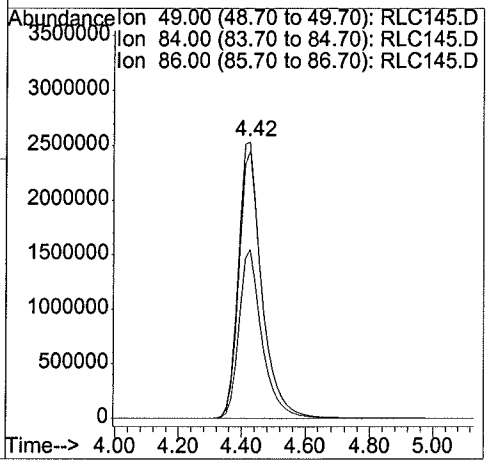


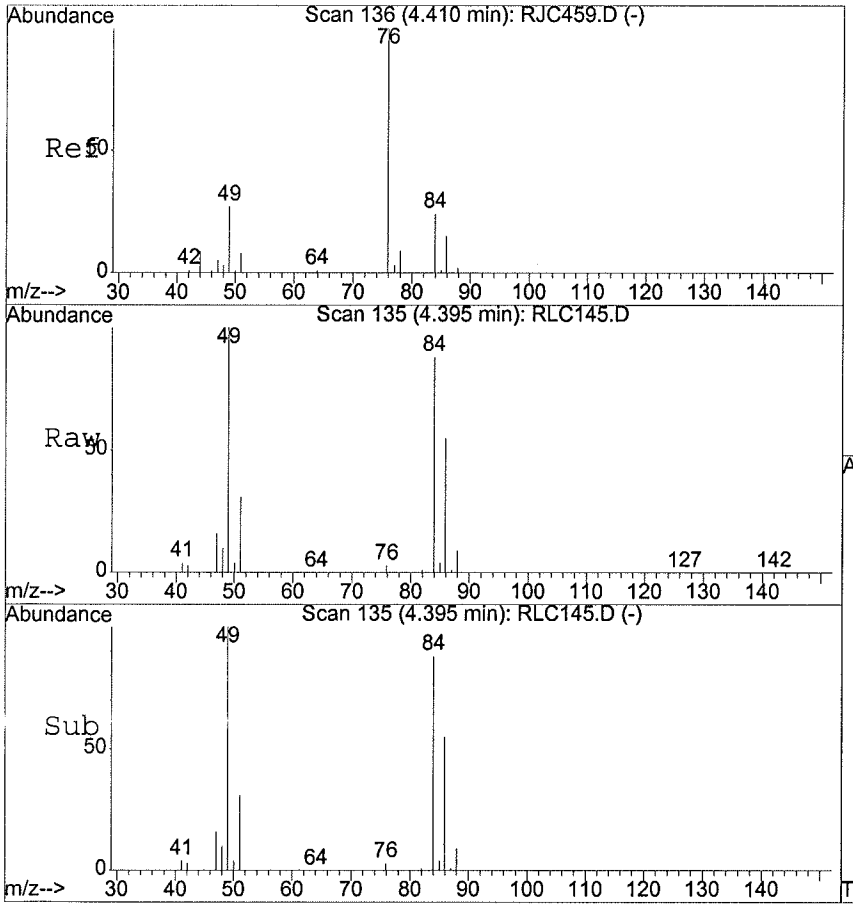


#19
Methylene chloride
Concen: 114.60 ug/l
RT: 4.42 min Scan# 137
Delta R.T. -0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 49 Resp:12950572

Ion	Ratio	Lower	Upper
49	100		
84	94.6	60.1	120.1
86	60.0	27.5	87.5

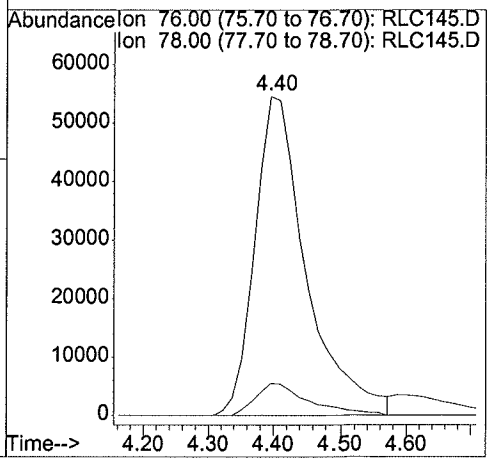


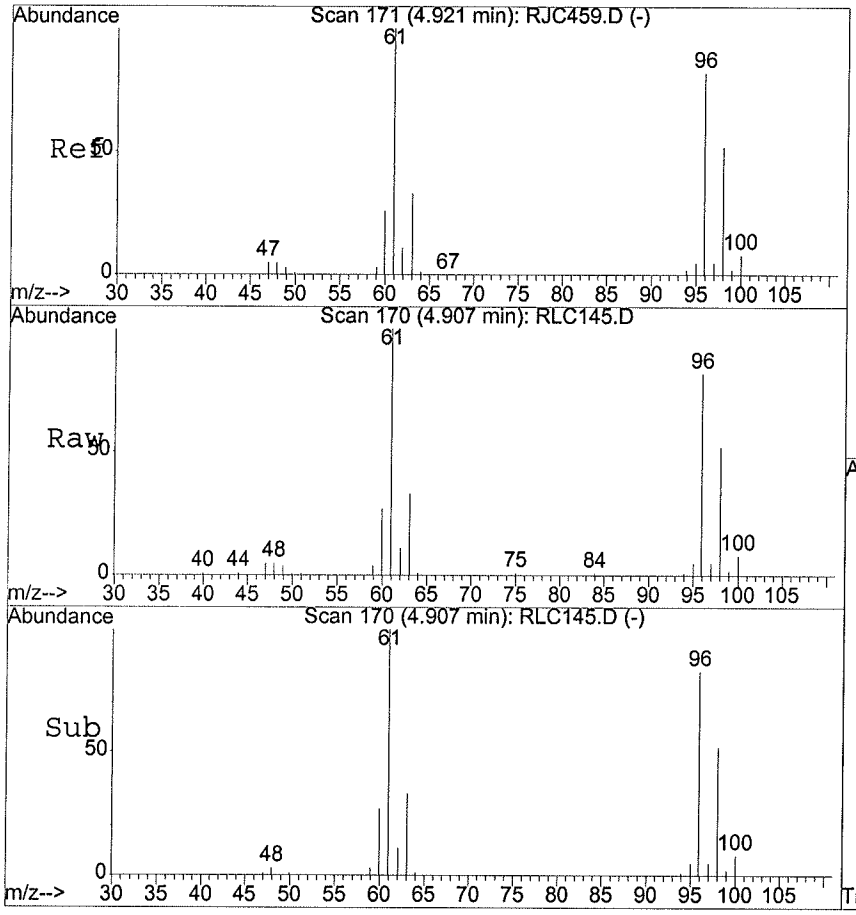


#20
Carbon disulfide
Concen: 0.76 ug/l
RT: 4.40 min Scan# 135
Delta R.T. -0.01 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 76 Resp: 296096

Ion	Ratio	Lower	Upper
76	100		
78	10.4	0.0	39.1

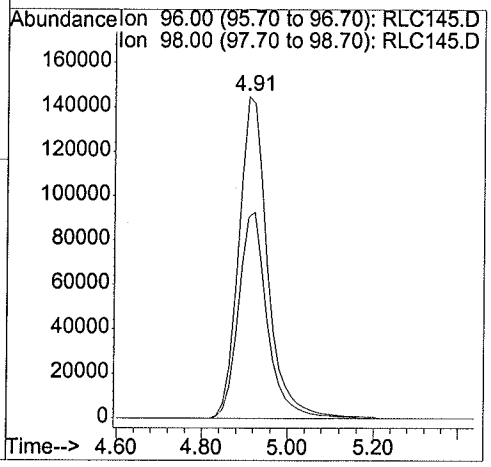


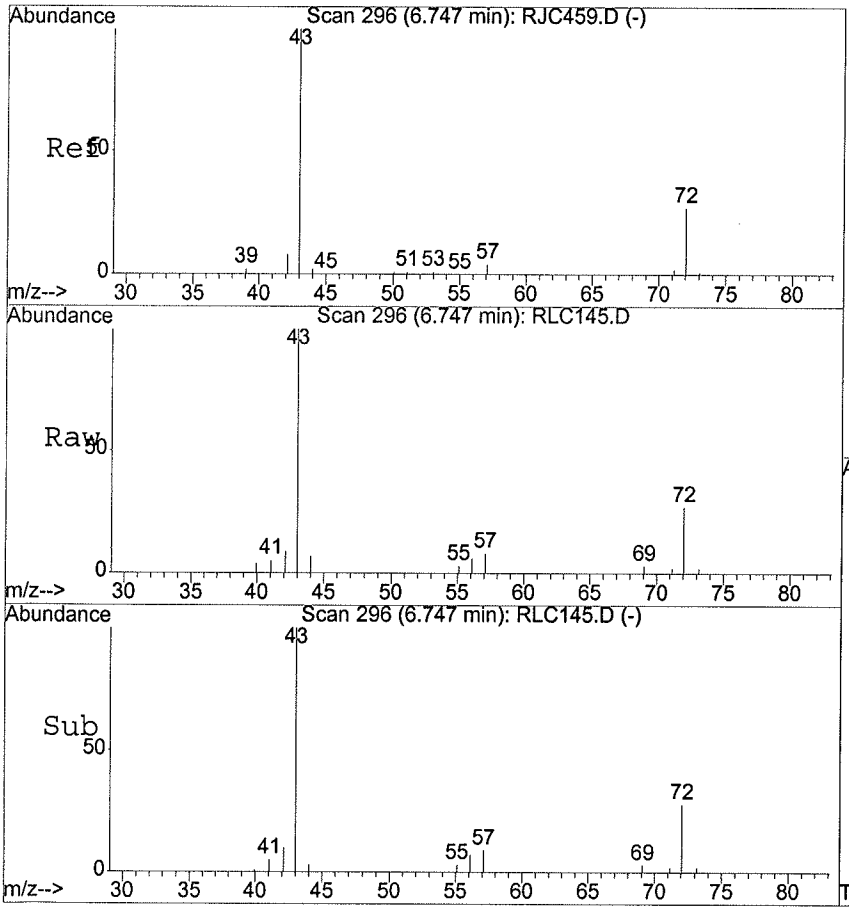


#23
trans-1,2-Dichloroethene
Concen: 5.96 ug/l
RT: 4.91 min Scan# 170
Delta R.T. -0.01 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 96 Resp: 680590

Ion	Ratio	Lower	Upper
96	100		
98	63.7	32.6	92.6

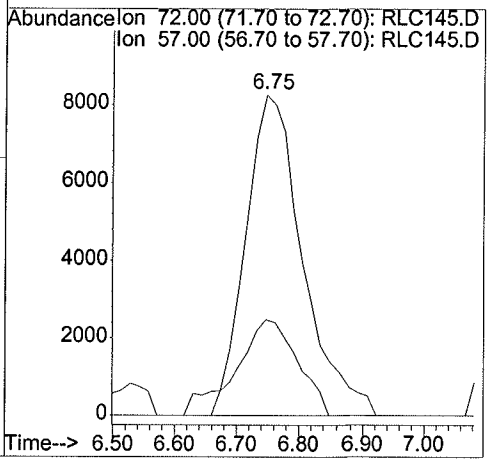


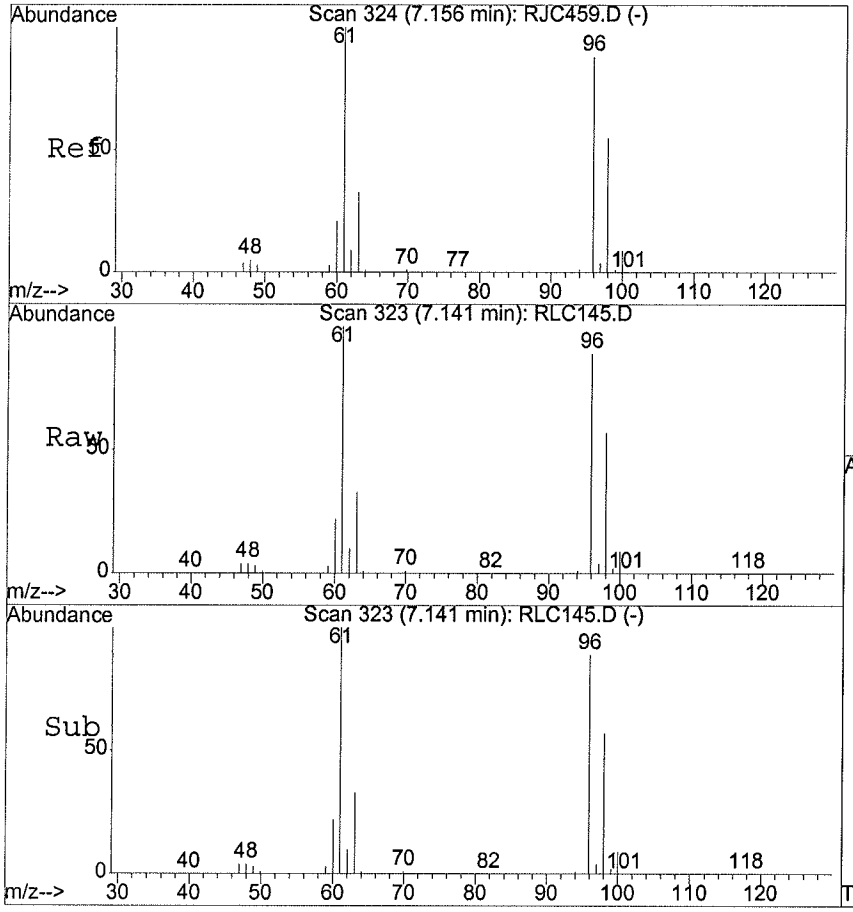


#29
2-Butanone
Concen: 15.73 ug/l
RT: 6.75 min Scan# 296
Delta R.T. -0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 72 Resp: 52432

Ion	Ratio	Lower	Upper
72	100		
57	31.0	2.7	62.7

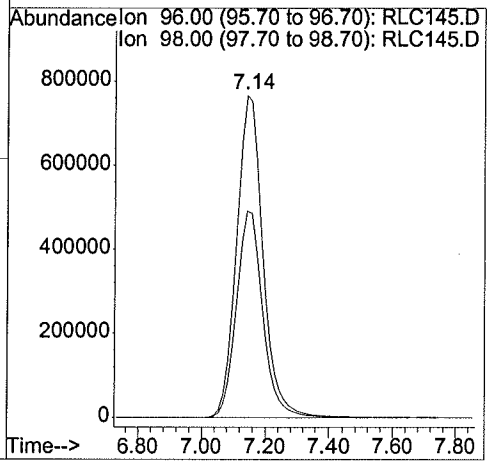


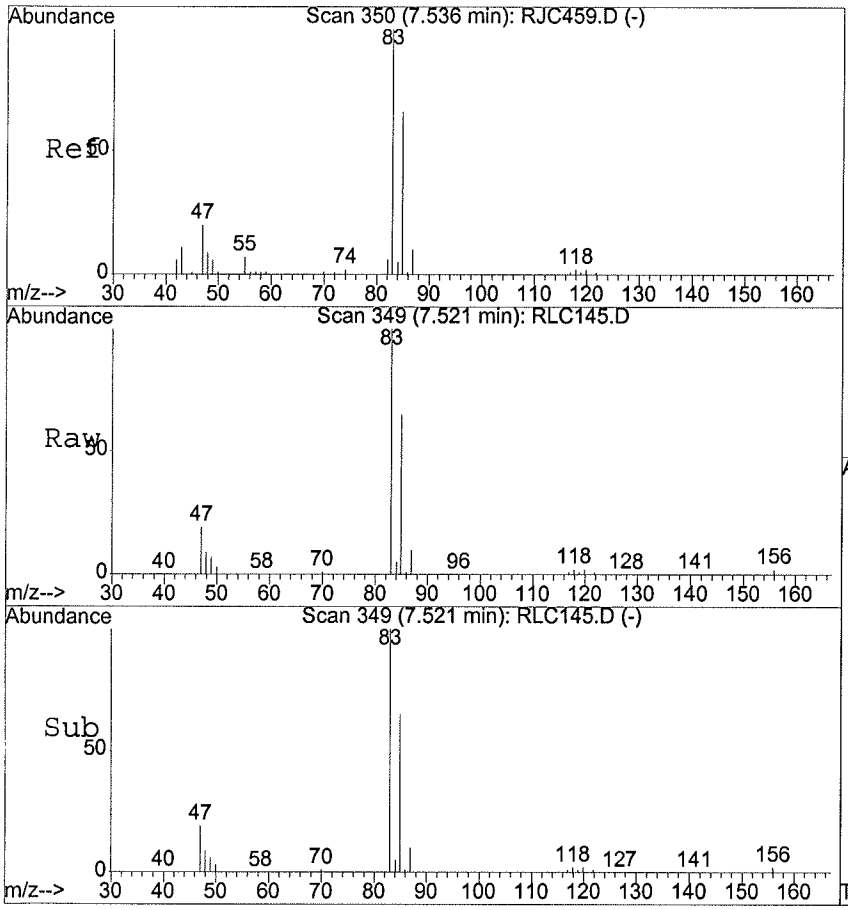


#31
cis-1,2-Dichloroethene
Concen: 39.19 ug/l
RT: 7.14 min Scan# 323
Delta R.T. -0.01 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 96 Resp: 4362047

Ion	Ratio	Lower	Upper
96	100		
98	64.1	33.5	93.5

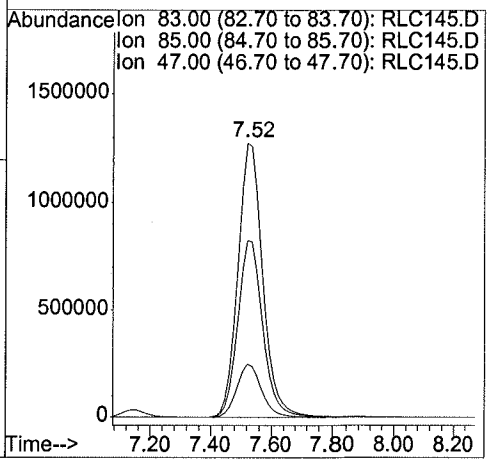


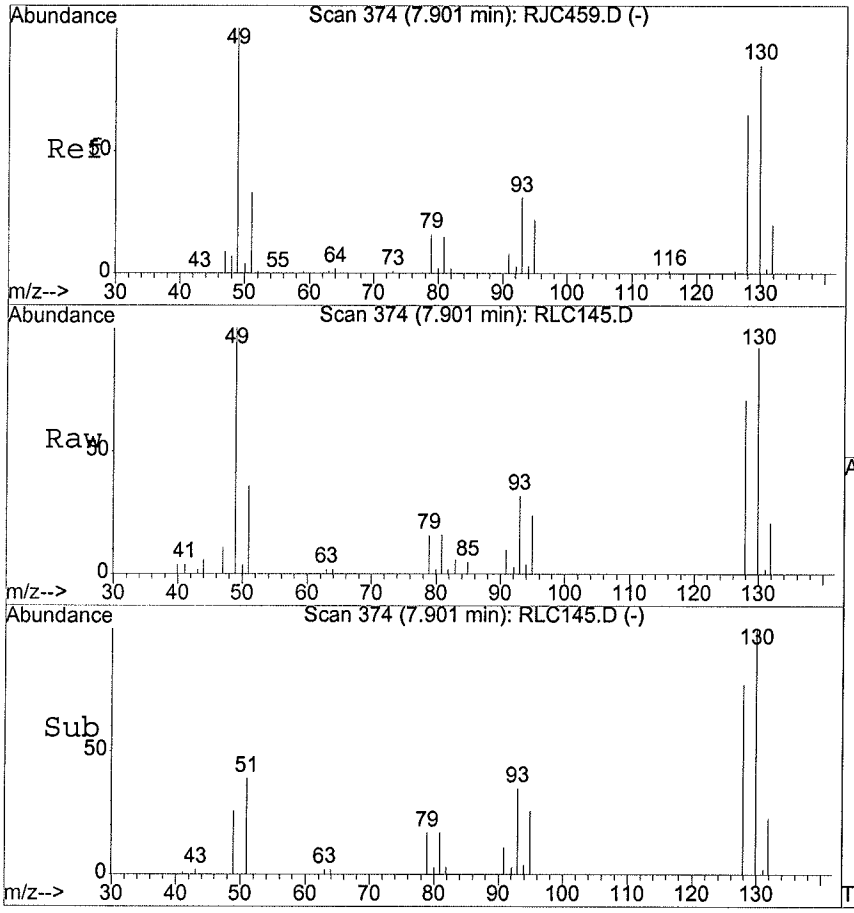


#32
Chloroform
Concen: 44.67 ug/l
RT: 7.52 min Scan# 349
Delta R.T. -0.01 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 83 Resp: 7359938

Ion	Ratio	Lower	Upper
83	100		
85	65.0	37.8	97.8
47	19.5	0.0	50.5

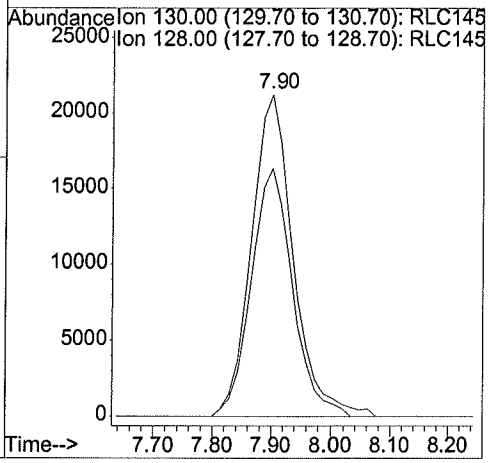


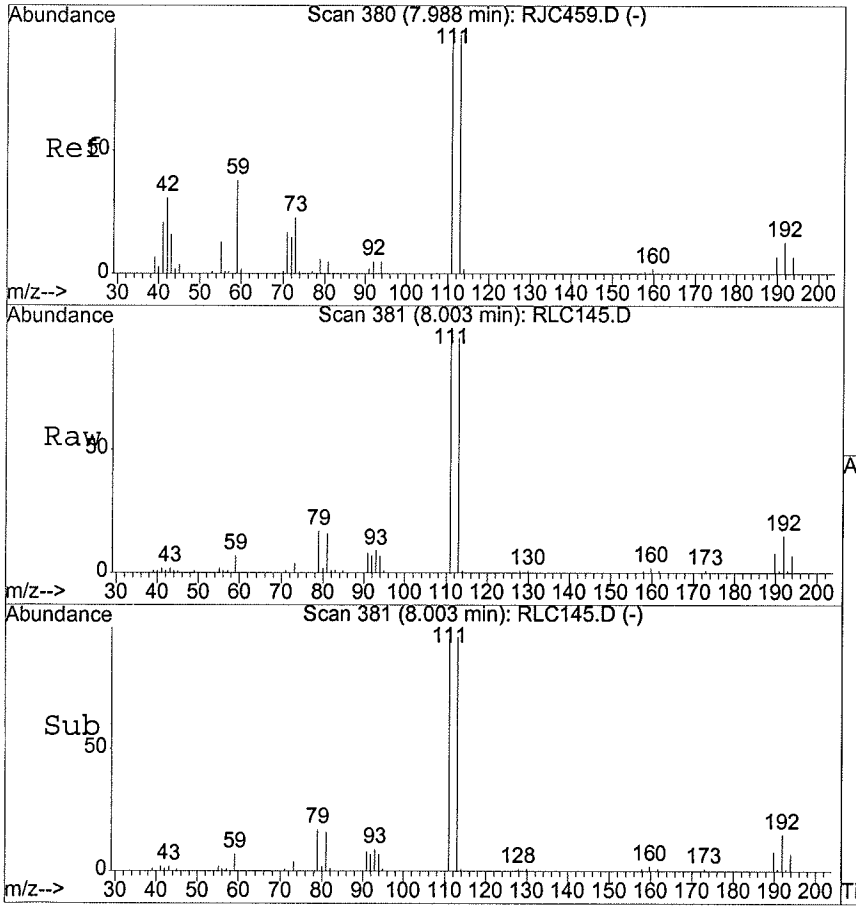


#33
Bromochloromethane
Concen: 2.15 ug/l
RT: 7.90 min Scan# 374
Delta R.T. 0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion:130 Resp: 104952

Ion	Ratio	Lower	Upper
130	100		
128	76.4	48.1	108.1

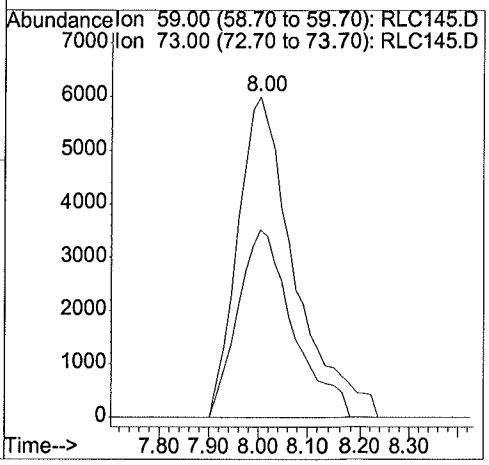


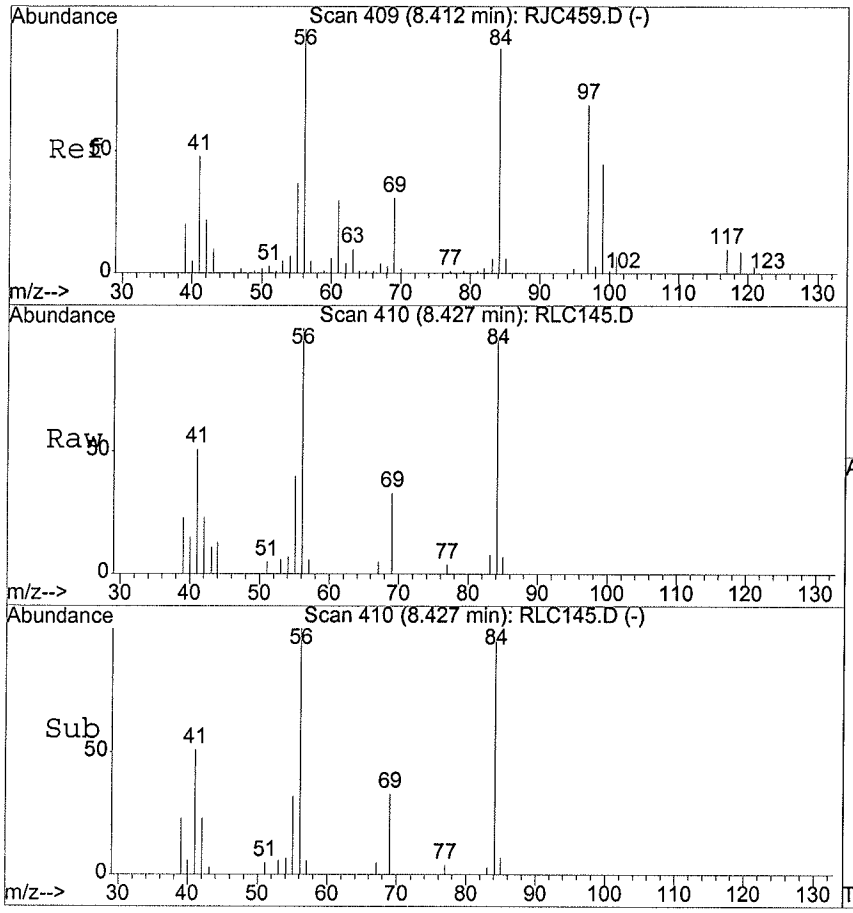


#34
tert-Amyl alcohol
Concen: 20.74 ug/l
RT: 8.00 min Scan# 381
Delta R.T. 0.01 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 59 Resp: 47530

Ion	Ratio	Lower	Upper
59	100		
73	57.3	29.7	89.7

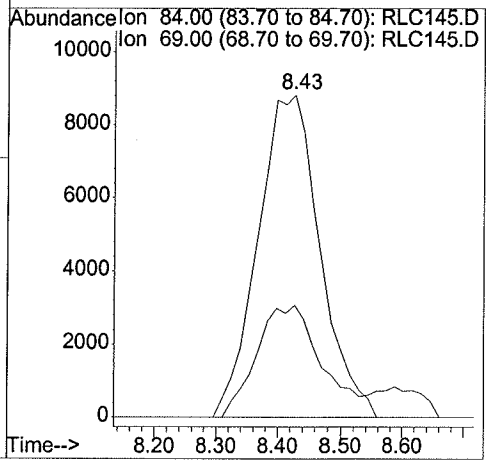


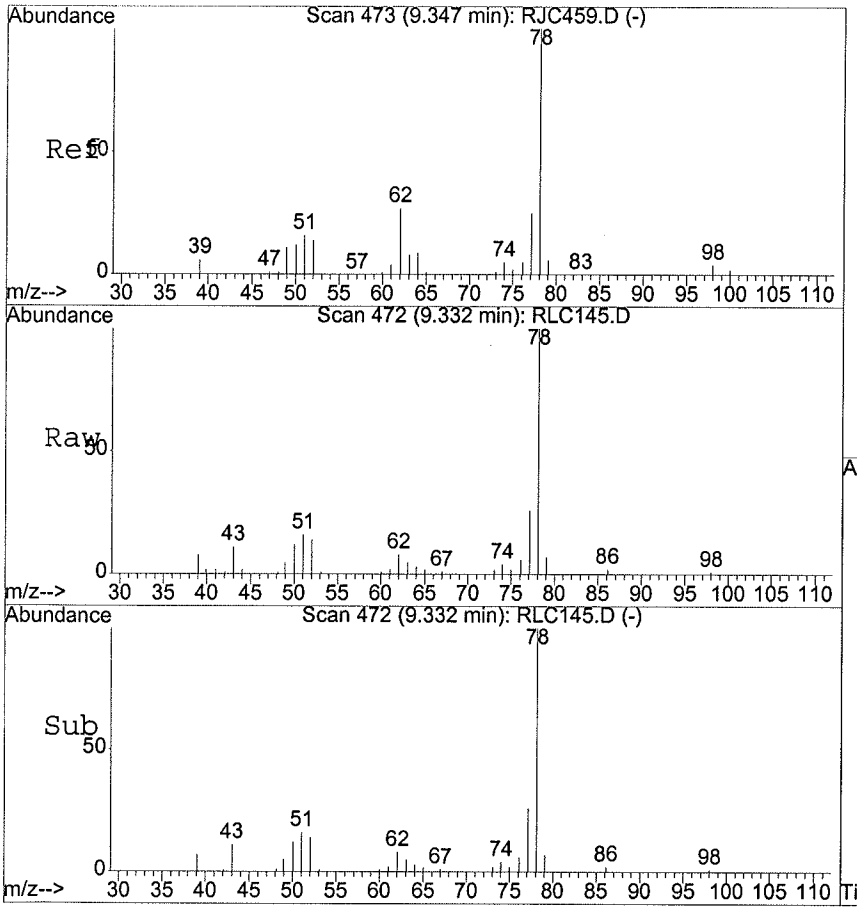


#38
Cyclohexane
Concen: 0.39 ug/l
RT: 8.43 min Scan# 410
Delta R.T. 0.01 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 84 Resp: 61098

Ion	Ratio	Lower	Upper
84	100		
69	36.1	6.0	66.0

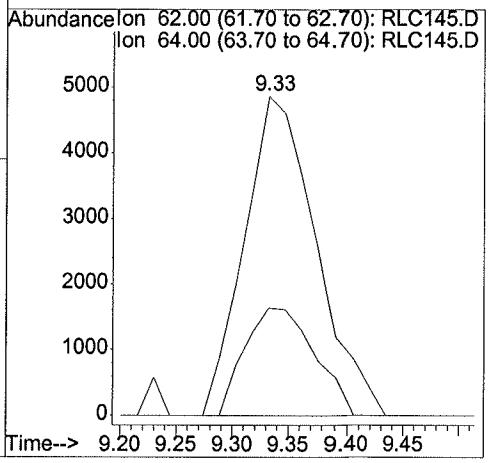


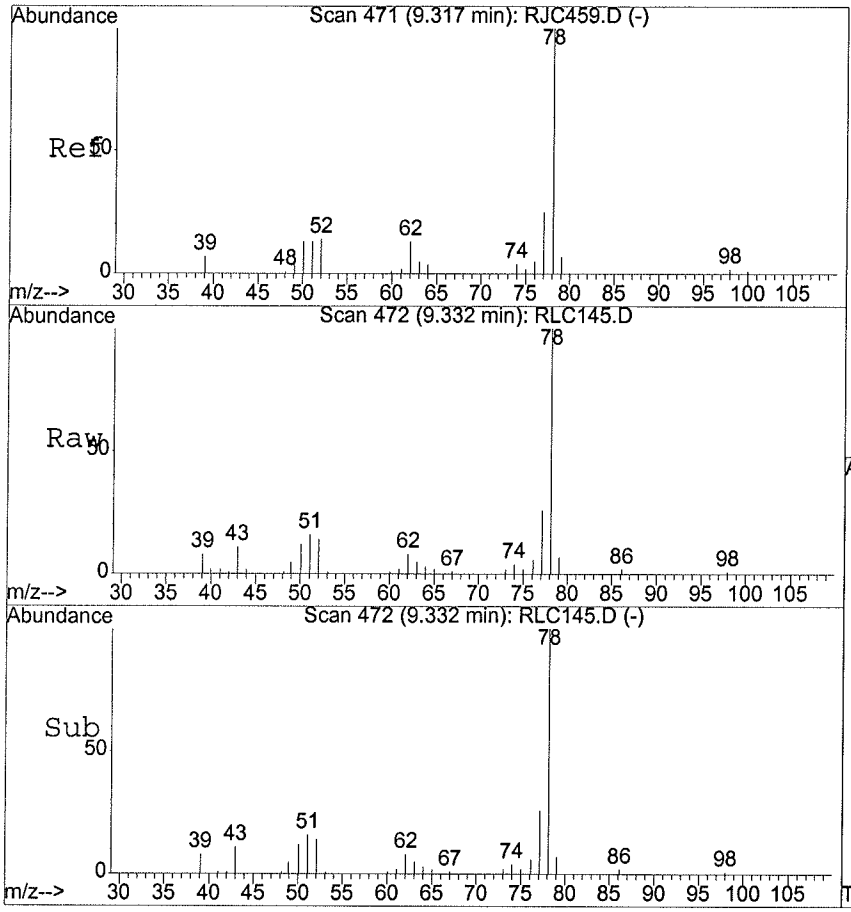


#44
1,2-Dichloroethane
Concen: 0.32 ug/l
RT: 9.33 min Scan# 472
Delta R.T. -0.01 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 62 Resp: 21373

Ion	Ratio	Lower	Upper
62	100		
64	32.7	3.1	63.1

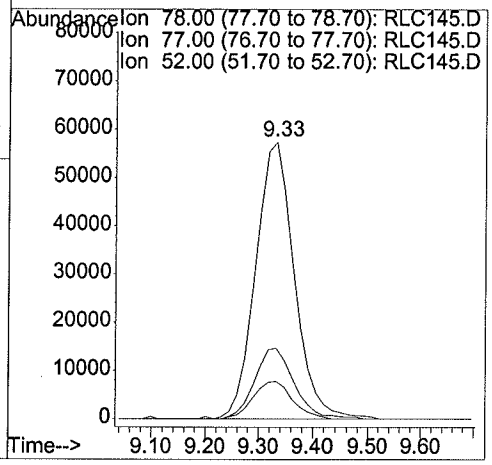


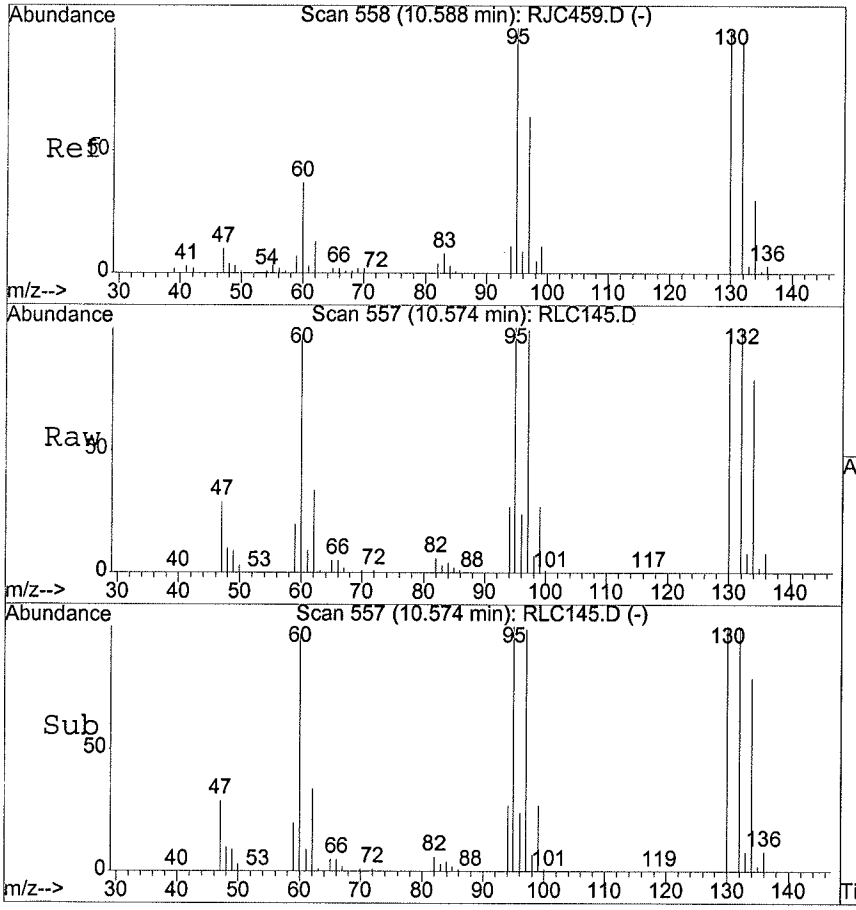


#45
Benzene
Concen: 0.75 ug/l
RT: 9.33 min Scan# 472
Delta R.T. 0.01 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 78 Resp: 284677

Ion	Ratio	Lower	Upper
78	100		
77	26.1	0.0	55.1
52	13.9	0.0	44.3

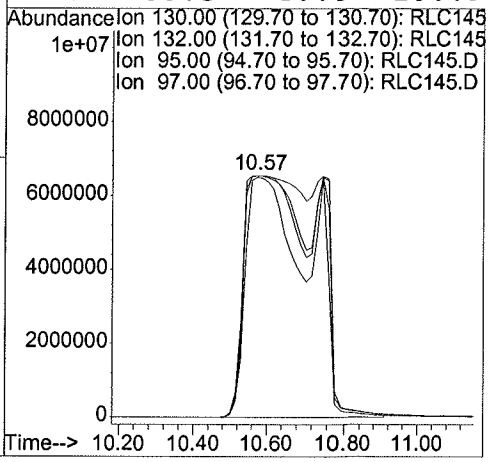


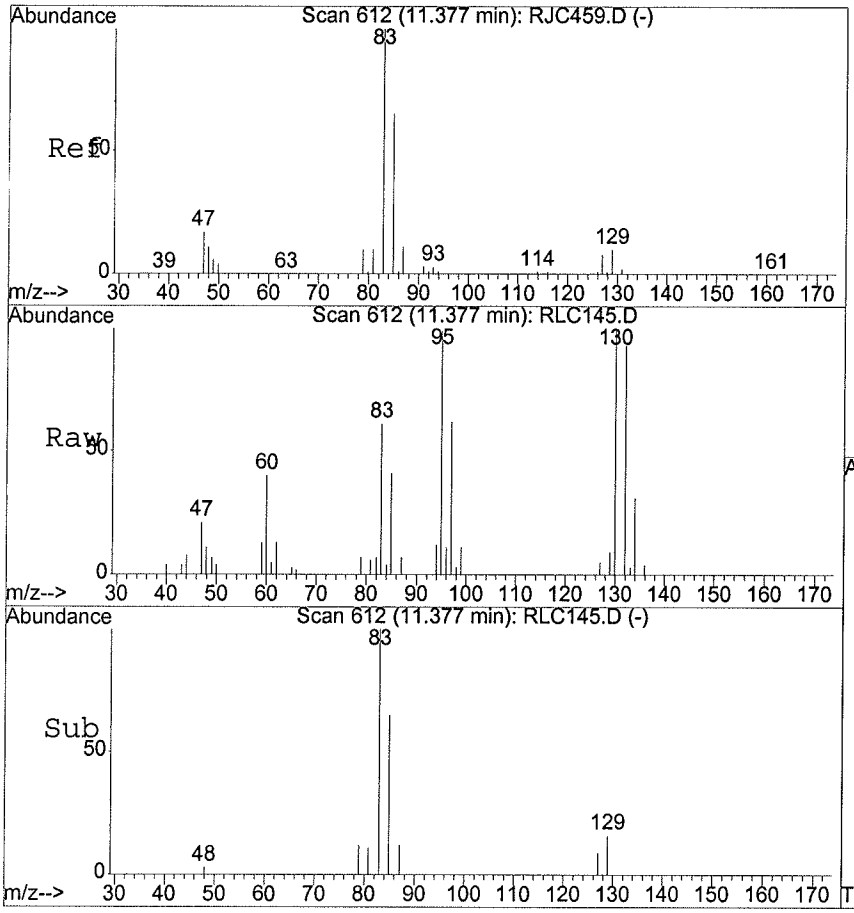


#46
Trichloroethene
Concen: 875.72 ug/l m
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion:130 Resp:87635463

Ion	Ratio	Lower	Upper
130	100		
132	73.3	65.5	125.5
95	79.7	73.3	133.3
97	65.5	40.9	100.9

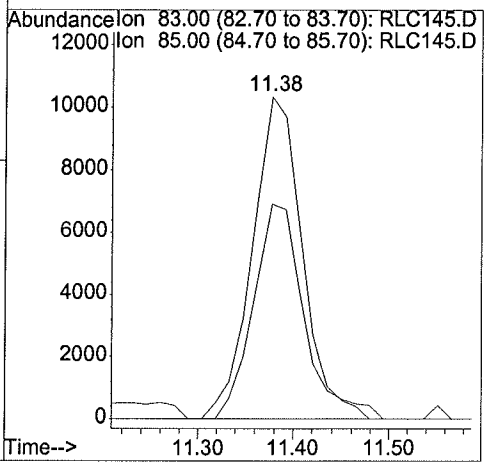


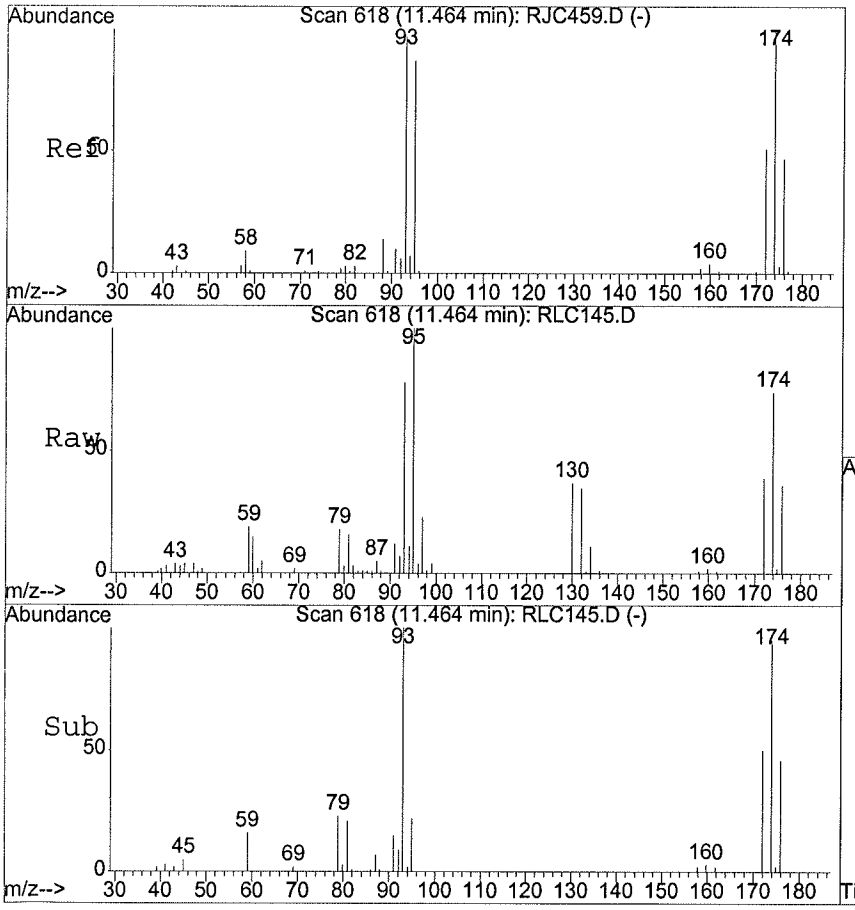


#49
Bromodichloromethane
Concen: 0.38 ug/l
RT: 11.38 min Scan# 612
Delta R.T. 0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 83 Resp: 37584

Ion	Ratio	Lower	Upper
83	100		
85	68.0	34.3	94.3

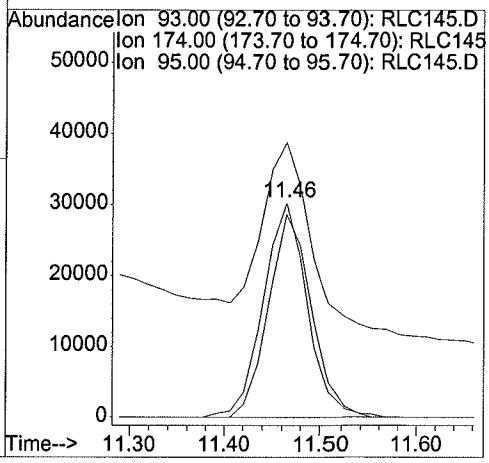


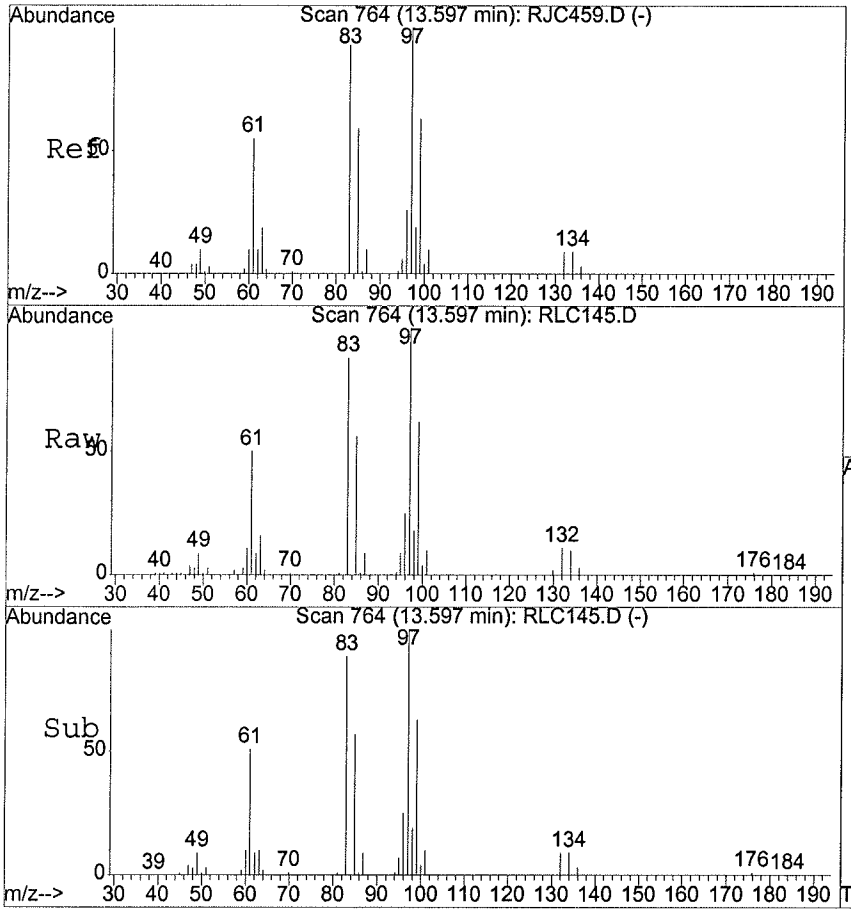


#51
Dibromomethane
Concen: 2.50 ug/l
RT: 11.46 min Scan# 618
Delta R.T. 0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 93 Resp: 96680

Ion	Ratio	Lower	Upper
93	100		
174	92.7	60.4	120.4
95	130.0	51.8	111.8#

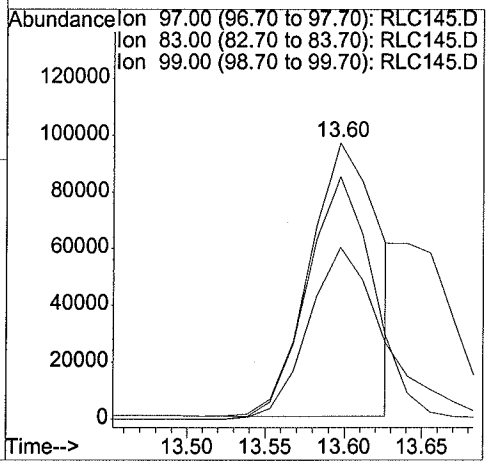


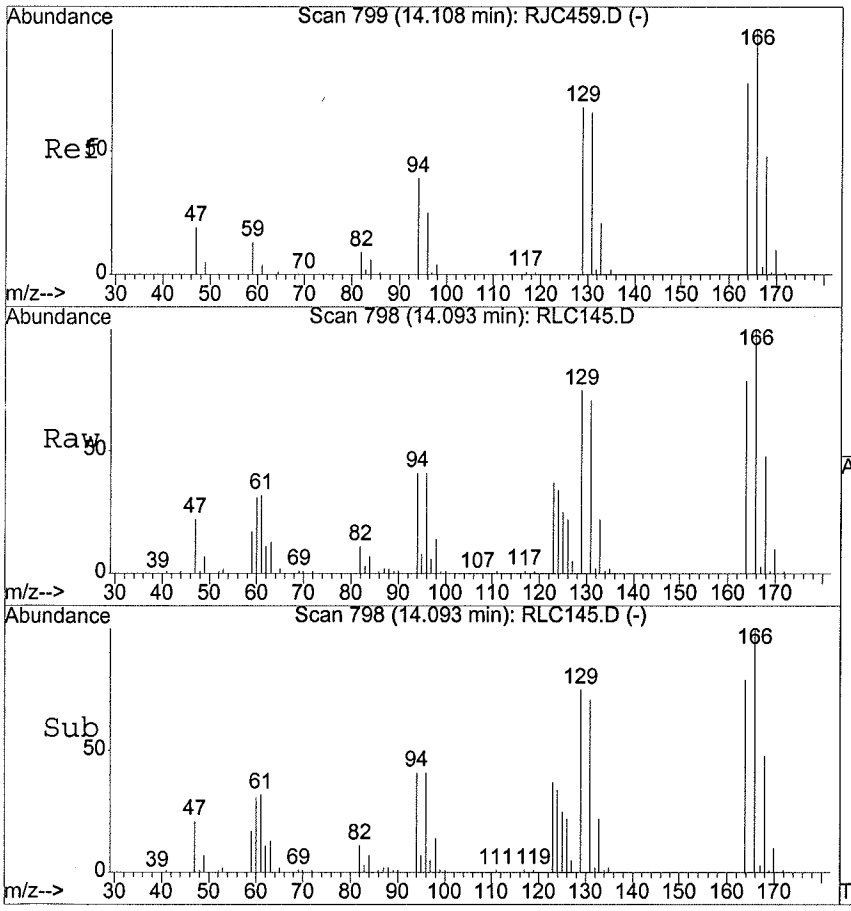


#60
1,1,2-Trichloroethane
Concen: 6.43 ug/l m
RT: 13.60 min Scan# 764
Delta R.T. 0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 97 Resp: 297485

Ion	Ratio	Lower	Upper
97	100		
83	85.6	60.6	120.6
99	70.1	33.2	93.2

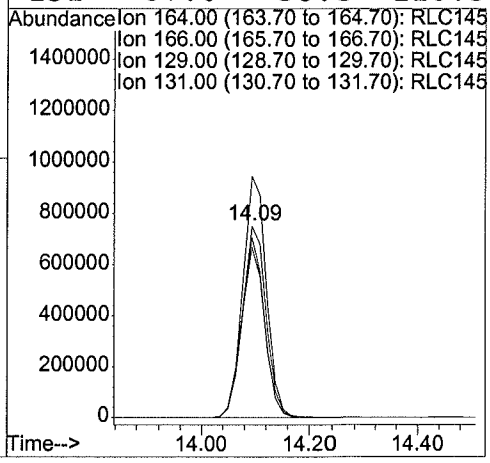


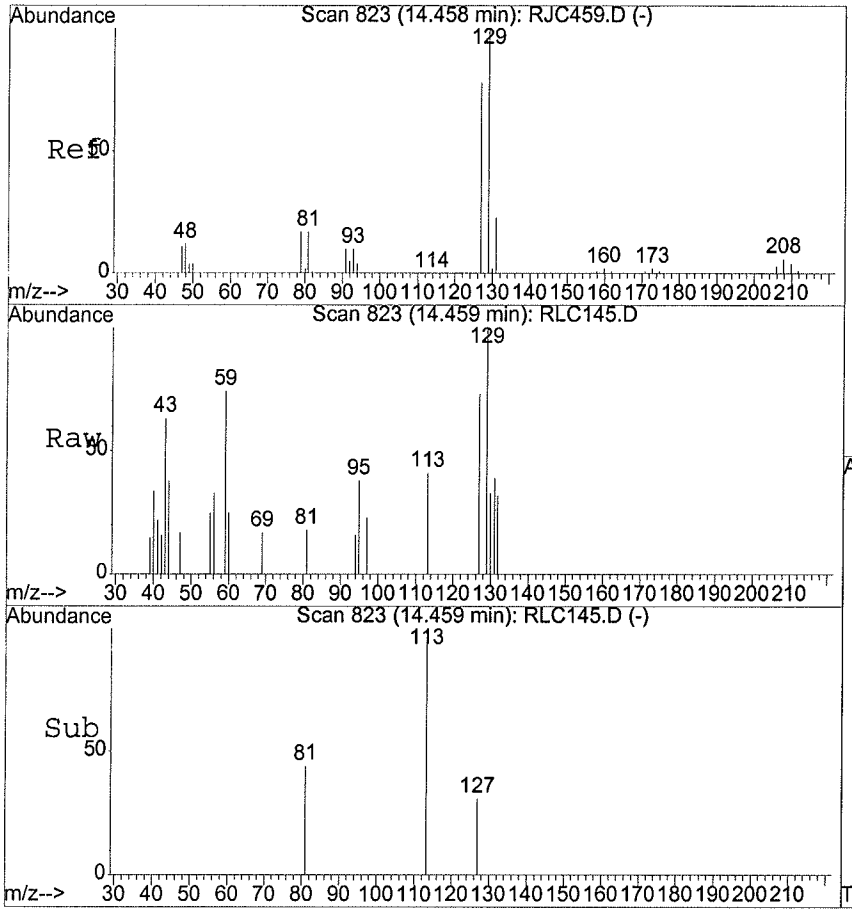


#63
Tetrachloroethene
Concen: 29.98 ug/l
RT: 14.09 min Scan# 798
Delta R.T. -0.01 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion:164 Resp: 2267618

Ion	Ratio	Lower	Upper
164	100		
166	126.5	97.5	157.5
129	91.2	61.9	121.9
131	87.0	58.5	118.5

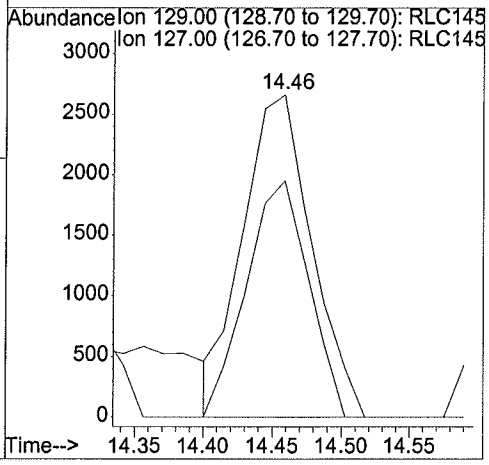


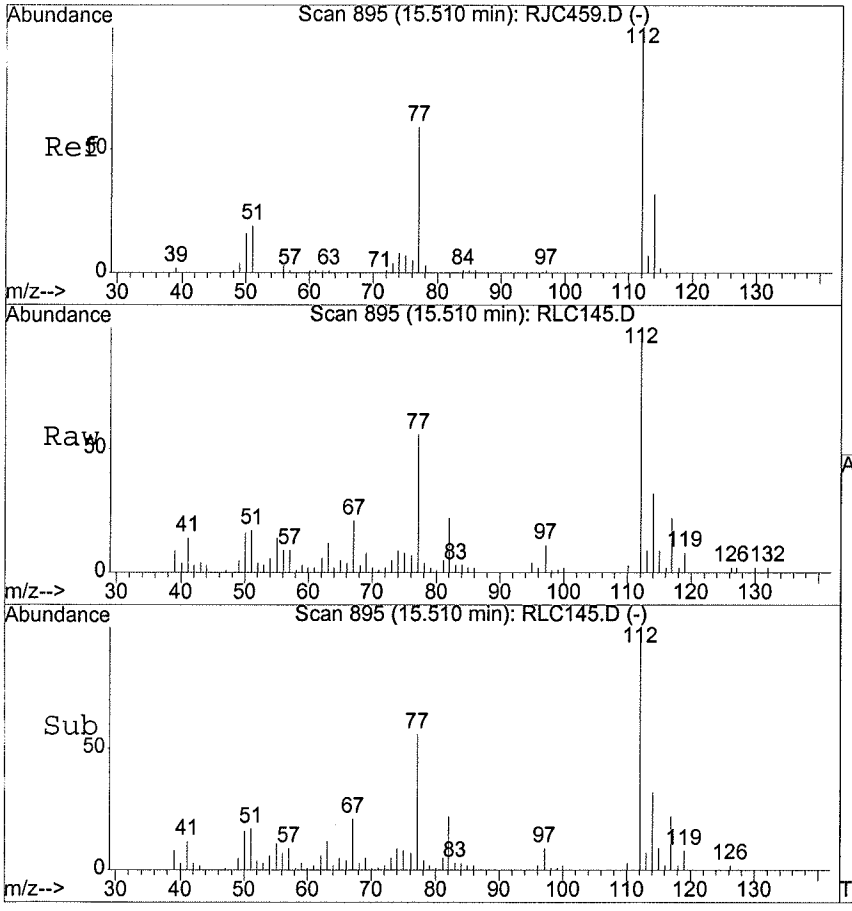


#64
Dibromochloromethane
Concen: 0.17 ug/l
RT: 14.46 min Scan# 823
Delta R.T. 0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion:129 Resp: 9248

Ion	Ratio	Lower	Upper
129	100		
127	66.4	47.4	107.4

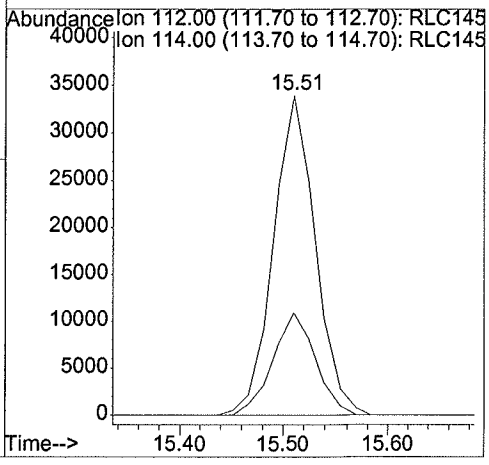


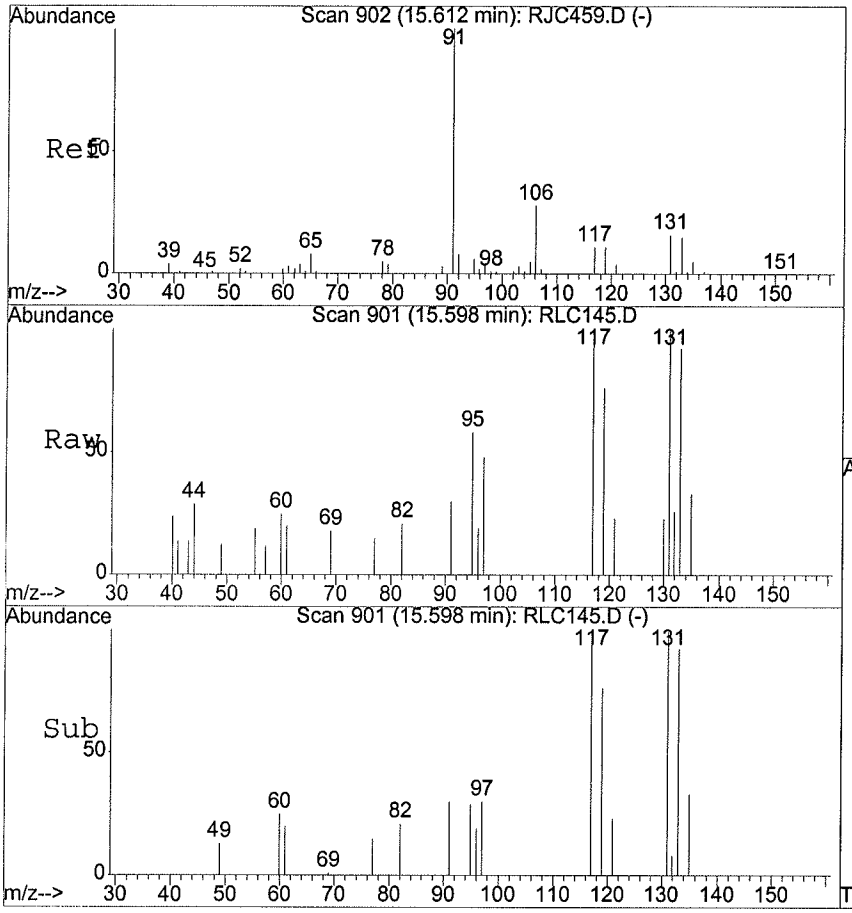


#67
Chlorobenzene
Concen: 0.45 ug/l
RT: 15.51 min Scan# 895
Delta R.T. 0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion:112 Resp: 95389

Ion	Ratio	Lower	Upper
112	100		
114	32.6	2.2	62.2

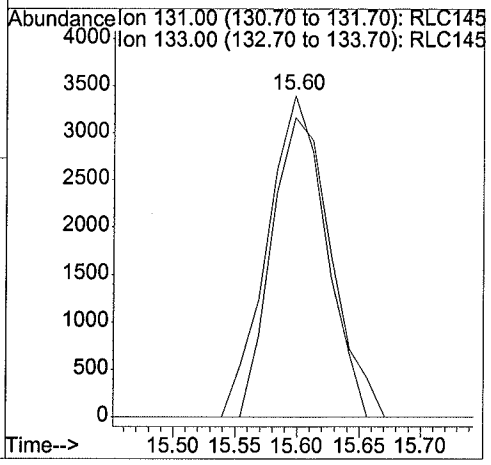


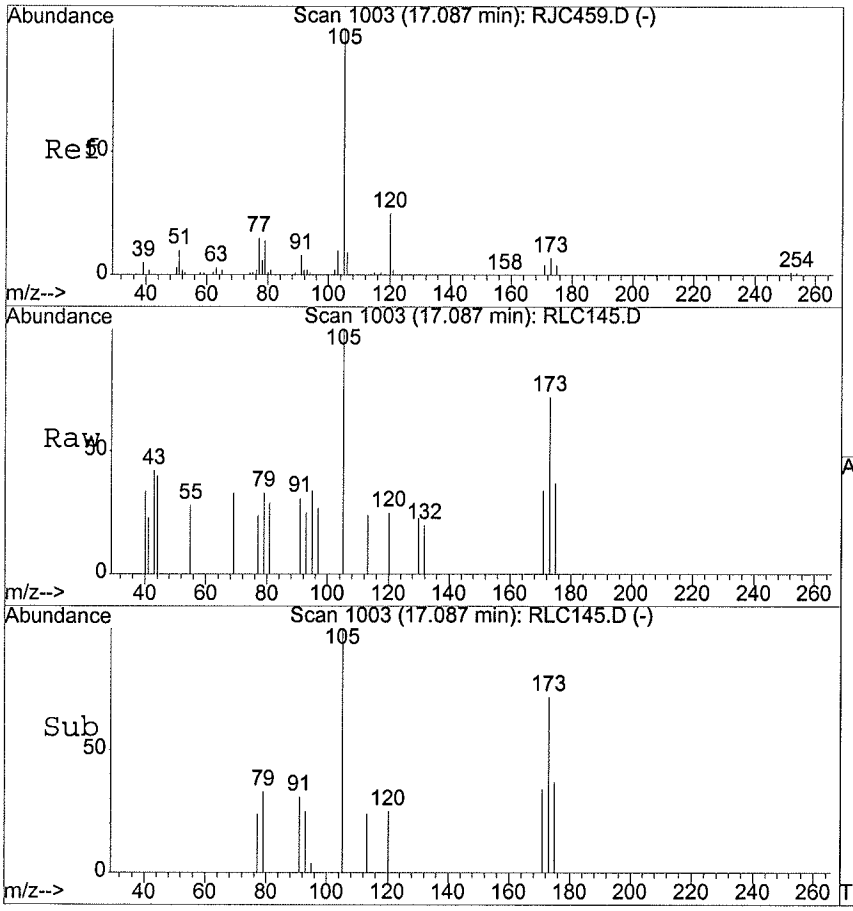


#68
1,1,1,2-Tetrachloroethane
Concen: 0.17 ug/l
RT: 15.60 min Scan# 901
Delta R.T. -0.01 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion:131 Resp: 11138

Ion	Ratio	Lower	Upper
131	100		
133	95.4	66.6	126.6

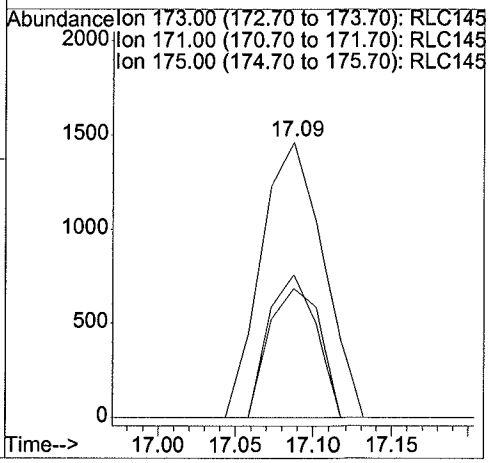


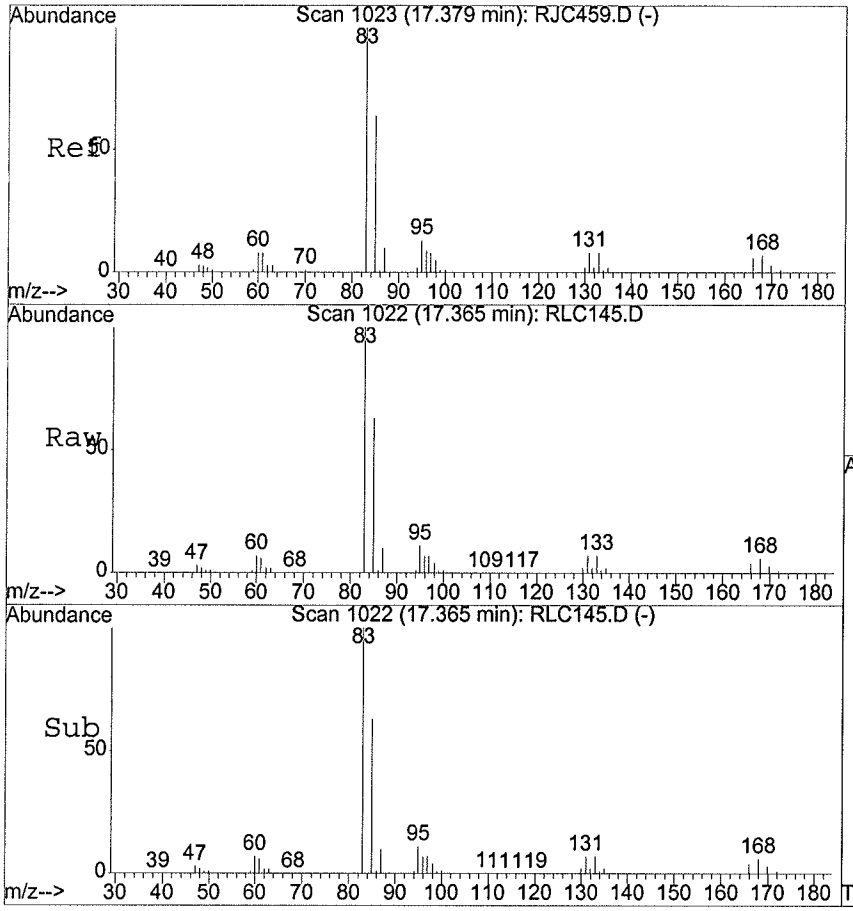


#75
Bromoform
Concen: 0.15 ug/l
RT: 17.09 min Scan# 1003
Delta R.T. 0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion:173 Resp: 4019

Ion	Ratio	Lower	Upper
173	100		
171	39.1	21.3	81.3
175	40.2	18.8	78.8

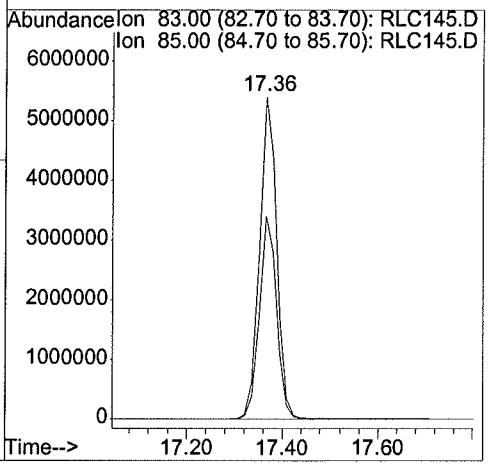


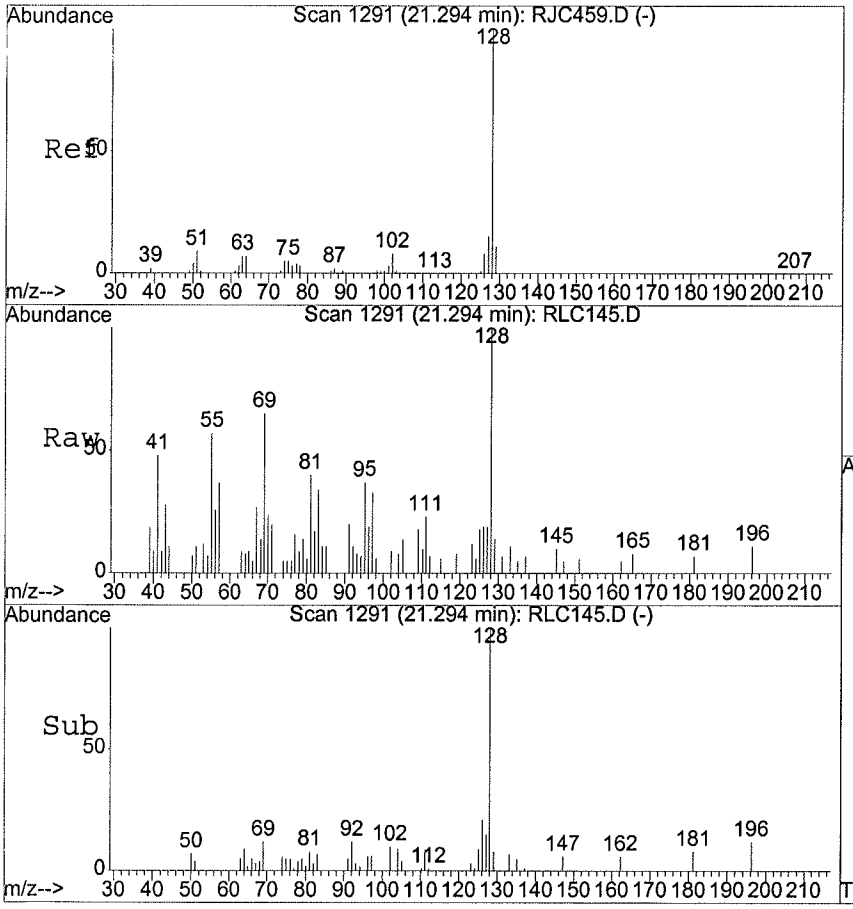


#76
1,1,2,2-Tetrachloroethane
Concen: 316.11 ug/l
RT: 17.36 min Scan# 1022
Delta R.T. -0.01 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion: 83 Resp:13431285

Ion	Ratio	Lower	Upper
83	100		
85	63.5	33.6	93.6

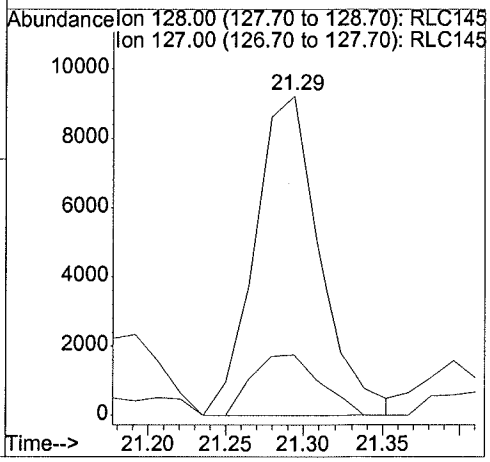




#96
Naphthalene
Concen: 0.46 ug/l
RT: 21.29 min Scan# 1291
Delta R.T. 0.00 min
Lab File: RLC145.D
Acq: 10 Dec 2020 5:40 pm

Tgt Ion:128 Resp: 26861

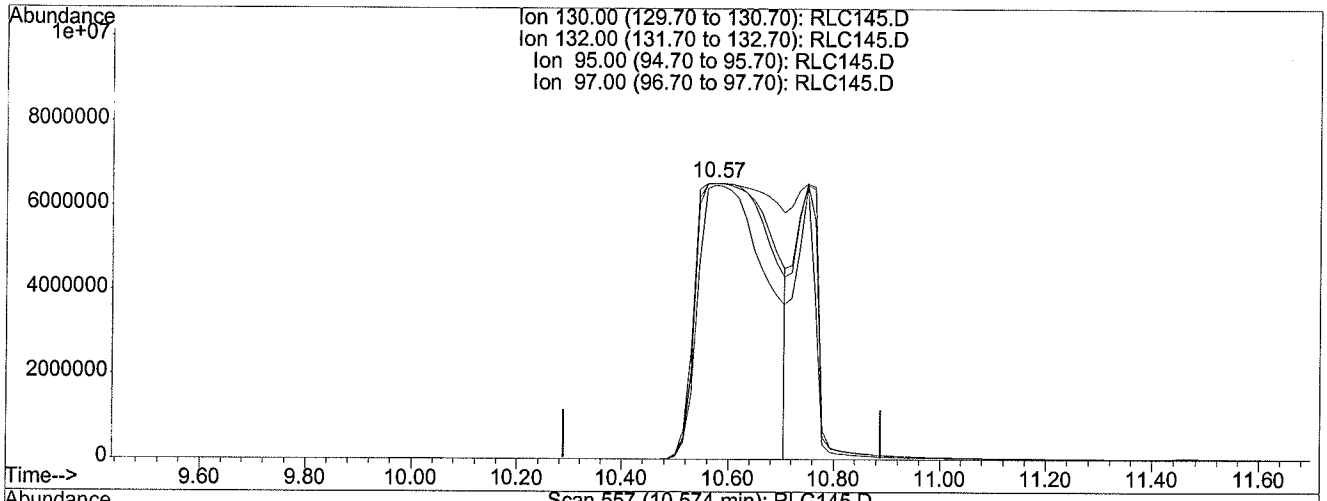
Ion	Ratio	Lower	Upper
128	100		
127	19.8	0.0	44.4

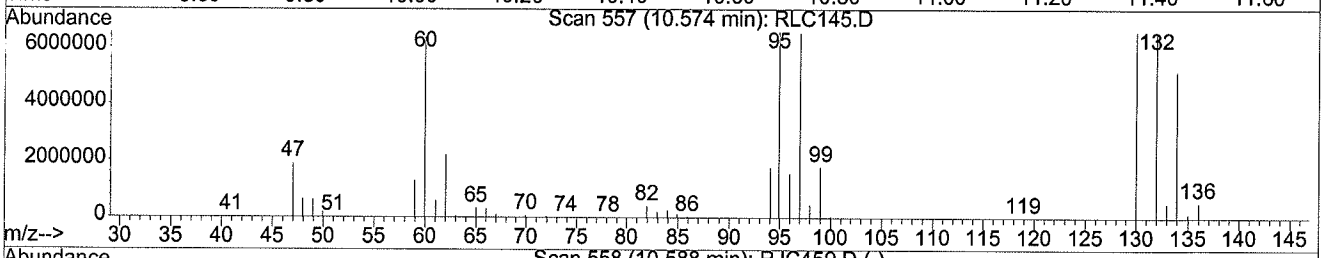


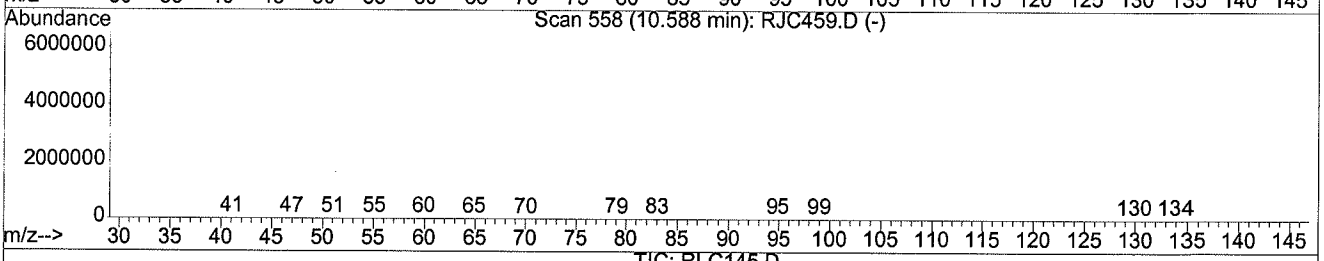
Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L10\RLC145.D Vial: 11
Acq On : 10 Dec 2020 5:40 pm Operator: VLu
Sample : 20L087-05 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:57 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration







TIC: RLC145.D

(46) Trichloroethene (T,M)

10.57min 653.12ug/l

response 65359267

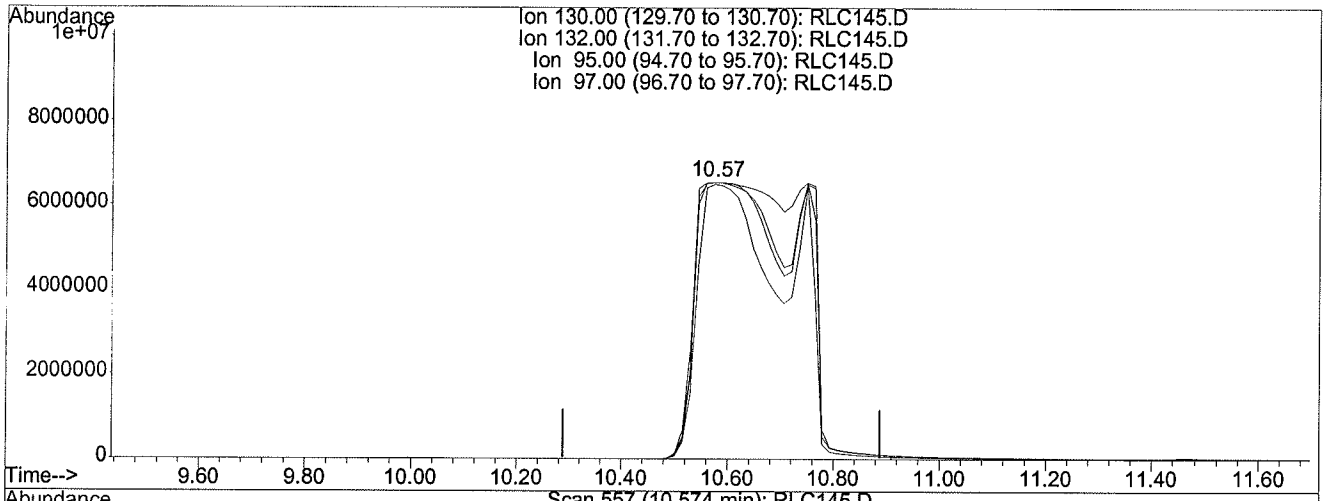
Ion	Exp%	Act%
130.00	100	100
132.00	95.50	98.24
95.00	103.30	106.86
97.00	70.90	87.82

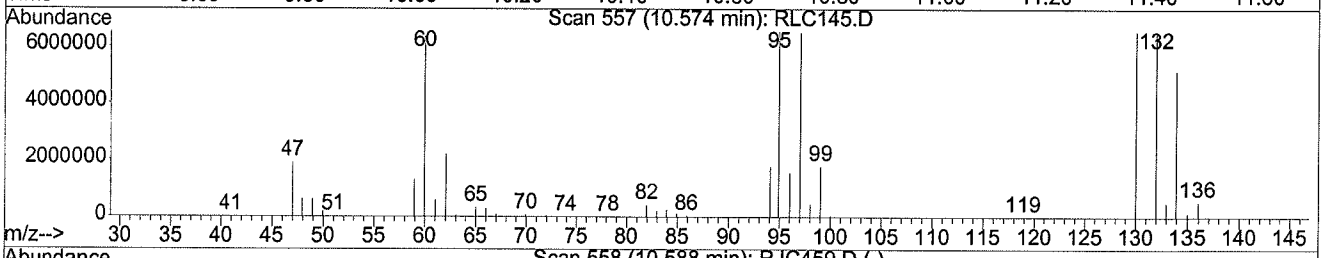
RLC145.D VO67J30.M Fri Dec 11 12:57:24 2020

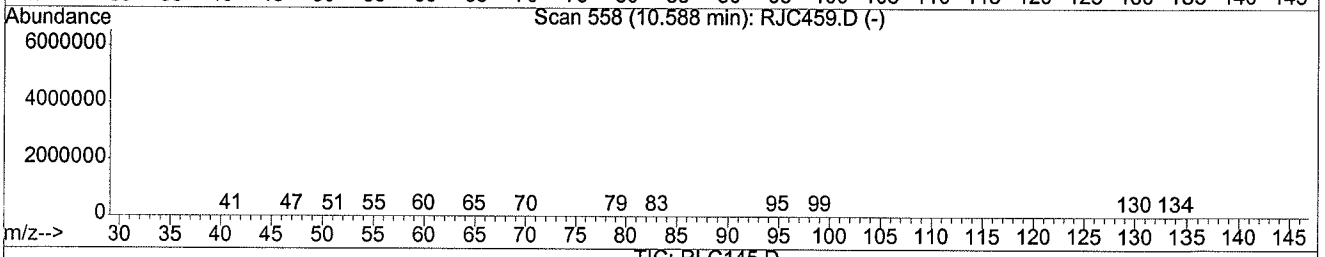
Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L10\RLC145.D Vial: 11
Acq On : 10 Dec 2020 5:40 pm Operator: VLu
Sample : 20L087-05 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:57 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration







TIC: RLC145.D

(46) Trichloroethene (T,M)

10.57min 875.72ug/l m

response 87635463

Ion	Exp%	Act%
130.00	100	100
132.00	95.50	73.27
95.00	103.30	79.70
97.00	70.90	65.50

☐ Incorrect Retention Time
☐ Incorrect Baseline
☑ Incorrect Integration
☐ Other _____

Initials VL 12/11/20

12/22/20

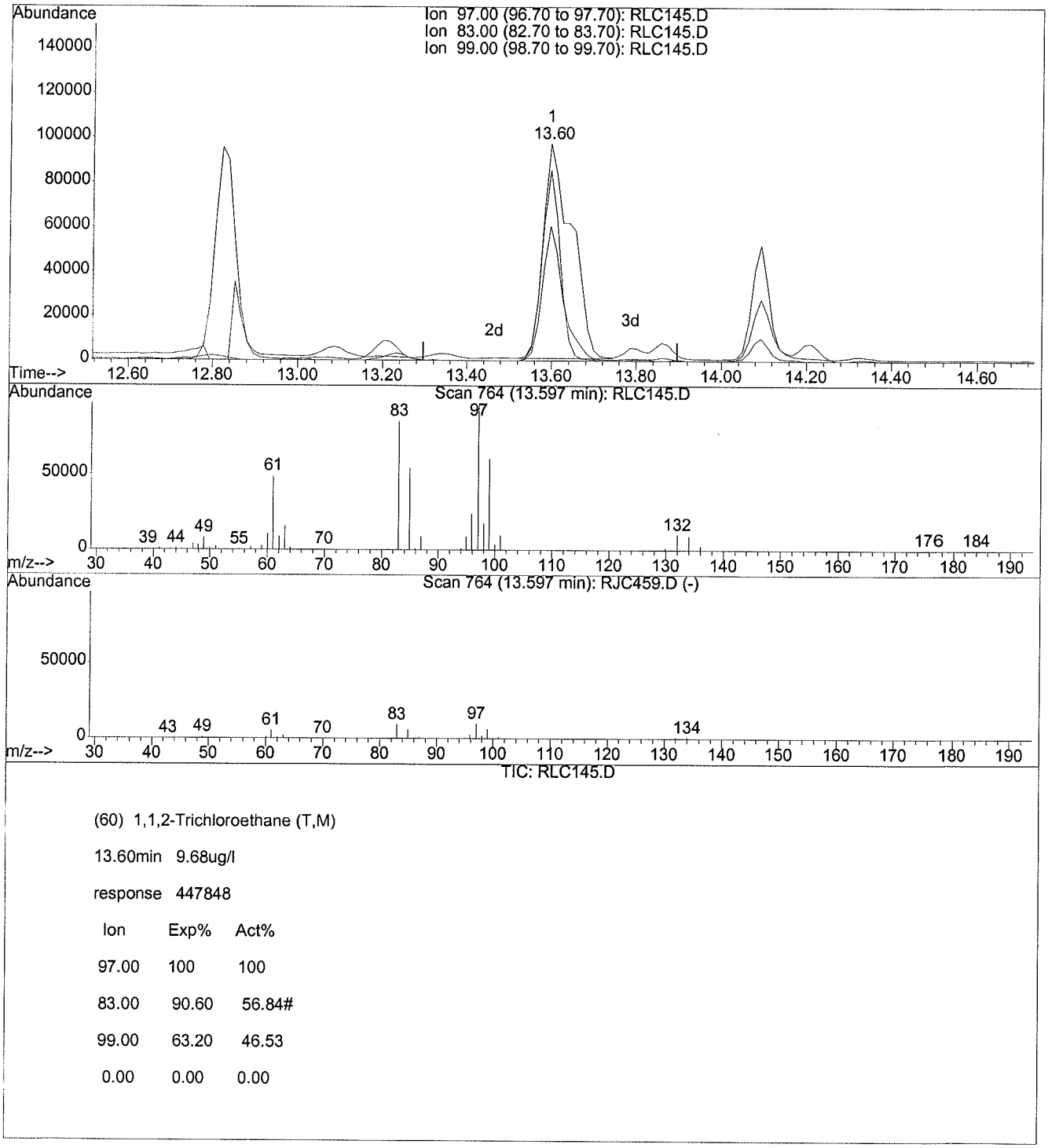
RLC145.D VO67J30.M Fri Dec 11 12:57:27 2020

Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L10\RLC145.D
Acq On : 10 Dec 2020 5:40 pm
Sample : 20L087-05 25mL
Misc : DF=1.0
MS Integration Params: RTE.P
Quant Time: Dec 11 12:57 2020

Vial: 11
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration



TIC: RLC145.D

(60) 1,1,2-Trichloroethane (T,M)

13.60min 9.68ug/l

response 447848

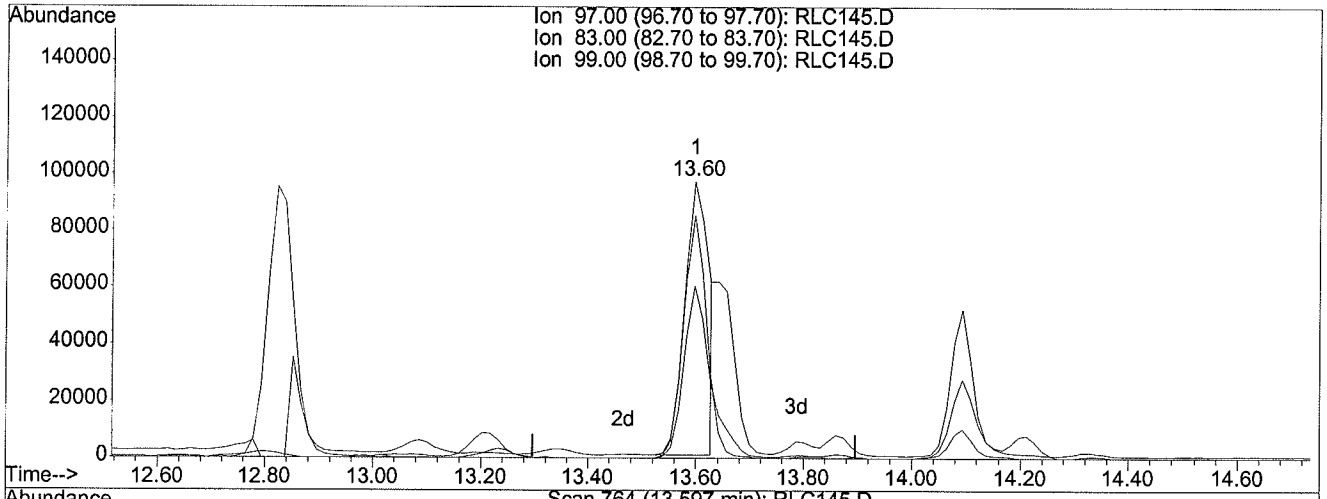
Ion	Exp%	Act%
97.00	100	100
83.00	90.60	56.84#
99.00	63.20	46.53
0.00	0.00	0.00

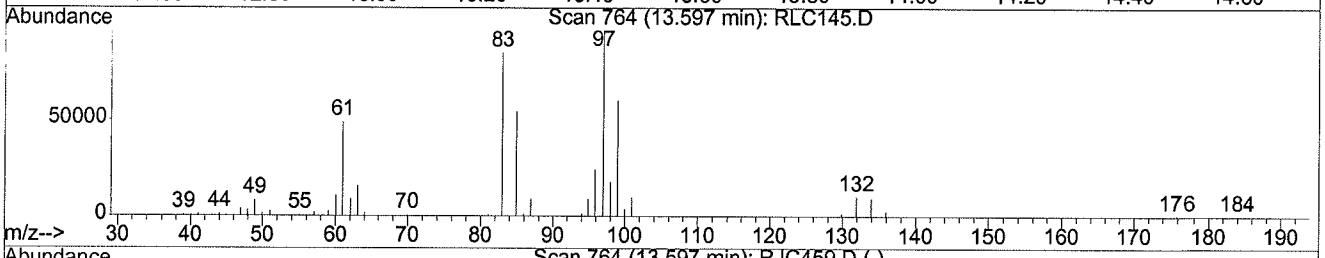
RLC145.D VO67J30.M Fri Dec 11 12:58:48 2020

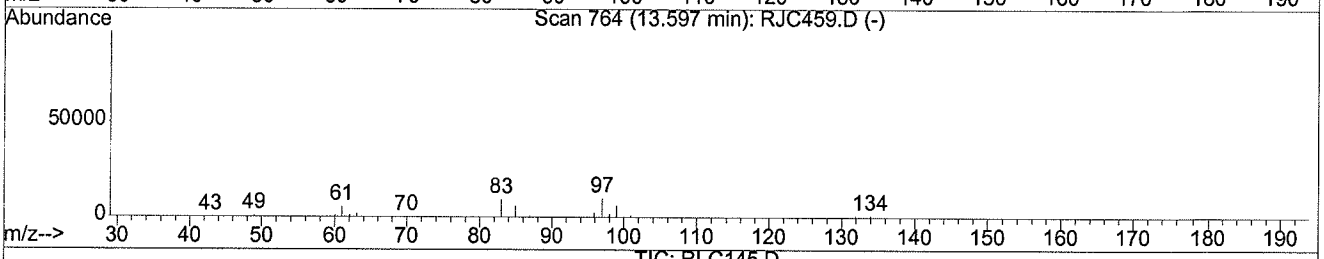
Quantitation Report (Qedit)

Data File : D:\HPCHEM\1\DATA\20L10\RLC145.D Vial: 11
Acq On : 10 Dec 2020 5:40 pm Operator: VLu
Sample : 20L087-05 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:58 2020 Quant Results File: temp.res

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration







TIC: RLC145.D

(60) 1,1,2-Trichloroethane (T,M)

13.60min 6.43ug/l m

response 297485

Ion	Exp%	Act%
97.00	100	100
83.00	90.60	85.57
99.00	63.20	70.06
0.00	0.00	0.00

☐ Incorrect Retention Time
☐ Incorrect Baseline
☑ Incorrect Integration
☐ Other _____

Initials VL 12/11/20

VL 12/11/20

RLC145.D VO67J30.M Fri Dec 11 12:59:02 2020

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected	: 12/04/20
Project	: VAFB-SS003	Date Received	: 12/09/20
Batch No.	: 20L087	Date Extracted	: 12/11/20 20:32
Sample ID	: 3-MW-61(120420)DL	Date Analyzed	: 12/11/20 20:32
Lab Samp ID	: L087-05I	Dilution Factor	: 50
Lab File ID	: RLC178	Matrix	: WATER
Ext Btch ID	: VO67L08	% Moisture	: NA
Calib. Ref.	: RJC459	Instrument ID	: 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	25	5.0	10
1,1,1-TRICHLOROETHANE	ND	50	5.0	10
1,1,2,2-TETRACHLOROETHANE	260	50	5.5	10
1,1,2-TRICHLOROETHANE	8.8J	50	5.0	10
1,1-DICHLOROETHANE	ND	50	5.0	10
1,1-DICHLOROETHENE	ND	50	5.0	10
1,1-DICHLOROPROPENE	ND	50	5.0	10
1,2,3-TRICHLOROBENZENE	ND	50	7.5	15
1,2,3-TRICHLOROPROPANE	ND	100	12	25
1,2,4-TRICHLOROBENZENE	ND	50	7.5	15
1,2,4-TRIMETHYLBENZENE	ND	50	5.5	10
1,2-DIBROMO-3-CHLOROPROPANE	ND	100	12	25
1,2-DIBROMOETHANE	ND	50	5.0	10
1,2-DICHLOROBENZENE	ND	50	5.0	10
1,2-DICHLOROETHANE	ND	25	5.0	10
1,2-DICHLOROPROPANE	ND	50	5.0	10
1,3,5-TRIMETHYLBENZENE	ND	50	6.5	10
1,3-DICHLOROBENZENE	ND	50	5.5	10
1,3-DICHLOROPROPANE	ND	50	5.0	10
1,4-DICHLOROBENZENE	ND	50	5.0	10
2,2-DICHLOROPROPANE	ND	50	8.0	10
2-BUTANONE	ND	500	100	200
2-CHLOROTOLUENE	ND	50	6.0	10
2-HEXANONE	ND	500	110	200
4-CHLOROTOLUENE	ND	50	5.5	10
ACETONE	290J	500	130	250
BENZENE	ND	50	5.0	10
BROMOBENZENE	ND	50	5.0	10
BROMOCHLOROMETHANE	ND	50	5.5	10
BROMODICHLOROMETHANE	ND	50	5.0	10
BROMOFORM	ND	50	7.5	15
BROMOMETHANE	ND	50	8.0	15
CARBON DISULFIDE	ND	50	5.0	10
CARBON TETRACHLORIDE	ND	50	5.0	10
CHLOROBENZENE	ND	50	5.0	10
CHLOROETHANE	ND	50	14	15
CHLOROFORM	36J	50	5.0	10
CHLOROMETHANE	23J	50	7.5	15
CIS-1,2-DICHLOROETHENE	33J	50	5.0	10
CIS-1,3-DICHLOROPROPENE	ND	50	5.0	10
DIBROMOCHLOROMETHANE	ND	50	5.0	10
DICHLORODIFLUOROMETHANE	ND	50	7.5	15
ETHYLBENZENE	ND	50	5.0	10
HEXACHLOROBUTADIENE	ND	50	11	15
ISOPROPYL BENZENE	ND	50	5.0	10
M,P-XYLENES	ND	100	11	20
MIBK	ND	500	100	200
METHYLENE CHLORIDE	110	100	12	25
MTBE	ND	50	6.5	10
NAPHTHALENE	ND	100	12	25
N-BUTYLBENZENE	ND	50	8.5	10
N-PROPYLBENZENE	ND	50	6.5	10
O-XYLENE	ND	50	5.0	10
P-ISOPROPYLTOLUENE	ND	50	7.0	10
SEC-BUTYLBENZENE	ND	50	6.5	10
STYRENE	ND	50	5.0	10
TERT-BUTYLBENZENE	ND	50	6.5	10
TETRACHLOROETHENE	21J	50	7.5	10
TOLUENE	ND	50	5.0	10
TRANS-1,2-DICHLOROETHENE	ND	50	5.0	10
TRANS-1,3-DICHLOROPROPENE	ND	50	5.5	10
TRICHLOROETHENE	7300E	50	5.0	10
TRICHLOROFLUOROMETHANE	ND	50	7.5	15
VINYL CHLORIDE	ND	25	6.0	10
VINYL ACETATE	ND	100	12	25
FREON113	ND	50	10	15
TERT-BUTANOL	ND	1000	250	500
DIPE	ND	50	5.0	10
ETBE	ND	50	5.0	10
TAME	ND	50	5.0	10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	458	500.0	91.6	70-120
4-BROMOFLUOROBENZENE	477	500.0	95.4	75-120
TOLUENE-D8	461	500.0	92.1	85-120
DIBROMOFLUOROMETHANE	479	500.0	95.7	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L11\RLC178.D Vial: 14
Acq On : 11 Dec 2020 8:32 pm Operator: VLu
Sample : 20L087-05I 0.5mL Inst : 67
Misc : DF=50 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:57 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

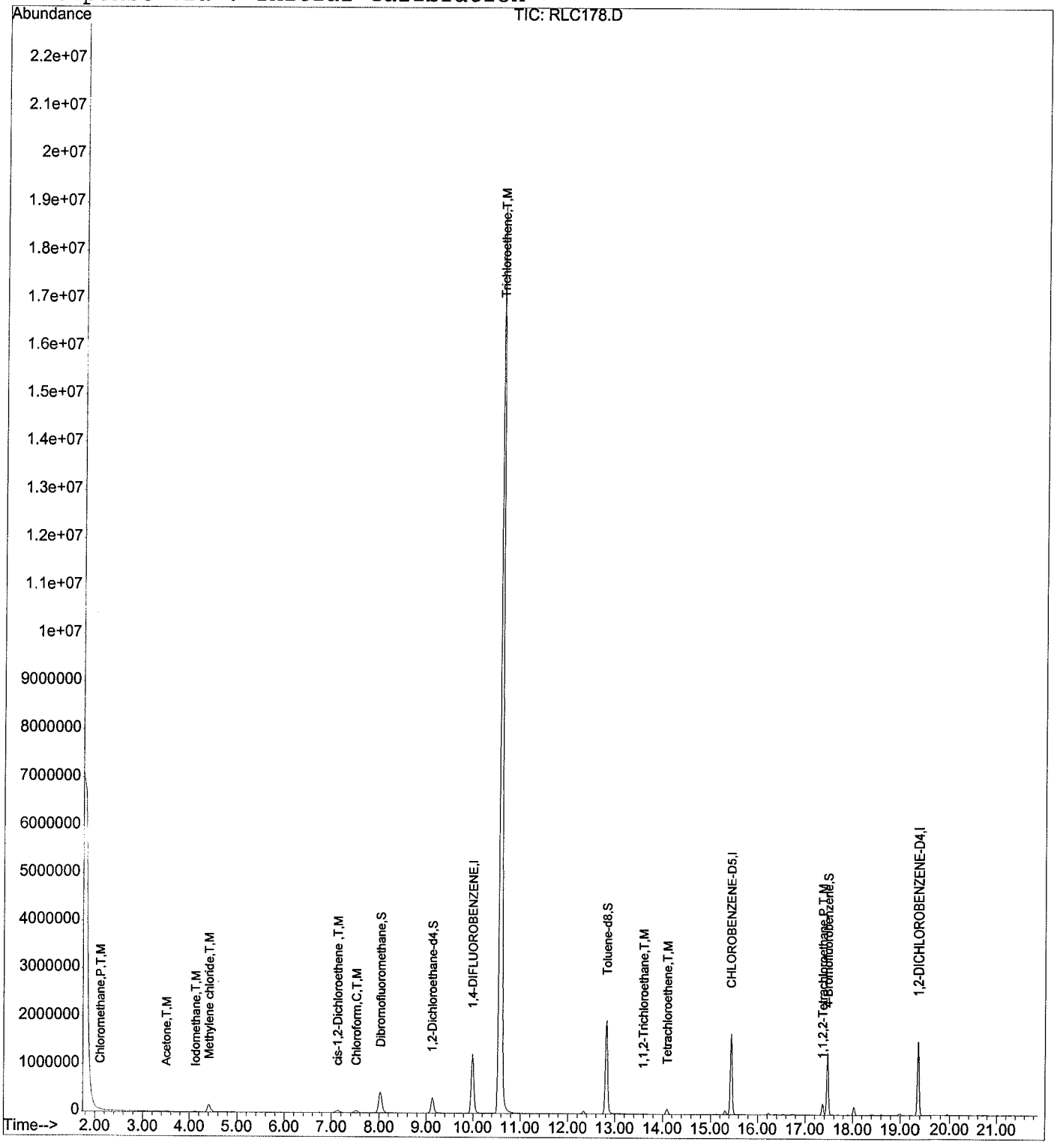
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2353473	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1841020	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	559666	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	735835	9.57	ug/l	0.00
Spiked Amount 10.000			Recovery =	95.70%		
43) 1,2-Dichloroethane-d4	9.13	65	450537	9.16	ug/l	-0.01
Spiked Amount 10.000			Recovery =	91.60%		
56) Toluene-d8	12.82	98	2588720	9.21	ug/l	0.00
Spiked Amount 10.000			Recovery =	92.10%		
77) 4-Bromofluorobenzene	17.47	95	726076	9.54	ug/l	0.00
Spiked Amount 10.000			Recovery =	95.40%		
Target Compounds						Qvalue
4) Chloromethane	2.11	50	56883	0.46	ug/l	98
13) Acetone	3.50	43	41803	5.76	ug/l	83
17) Iodomethane	4.13	142	40024	0.30	ug/l	98
19) Methylene chloride	4.41	49	224096	2.17	ug/l	94
31) cis-1,2-Dichloroethene	7.13	96	66431	0.65	ug/l	99
32) Chloroform	7.52	83	108059	0.72	ug/l	98
46) Trichloroethene	10.57	130	13293665	145.69	ug/l E	96
60) 1,1,2-Trichloroethane	13.60	97	7755	0.18	ug/l	72
63) Tetrachloroethene	14.09	164	29802	0.41	ug/l	98
76) 1,1,2,2-Tetrachloroethane	17.36	83	215834	5.26	ug/l	99

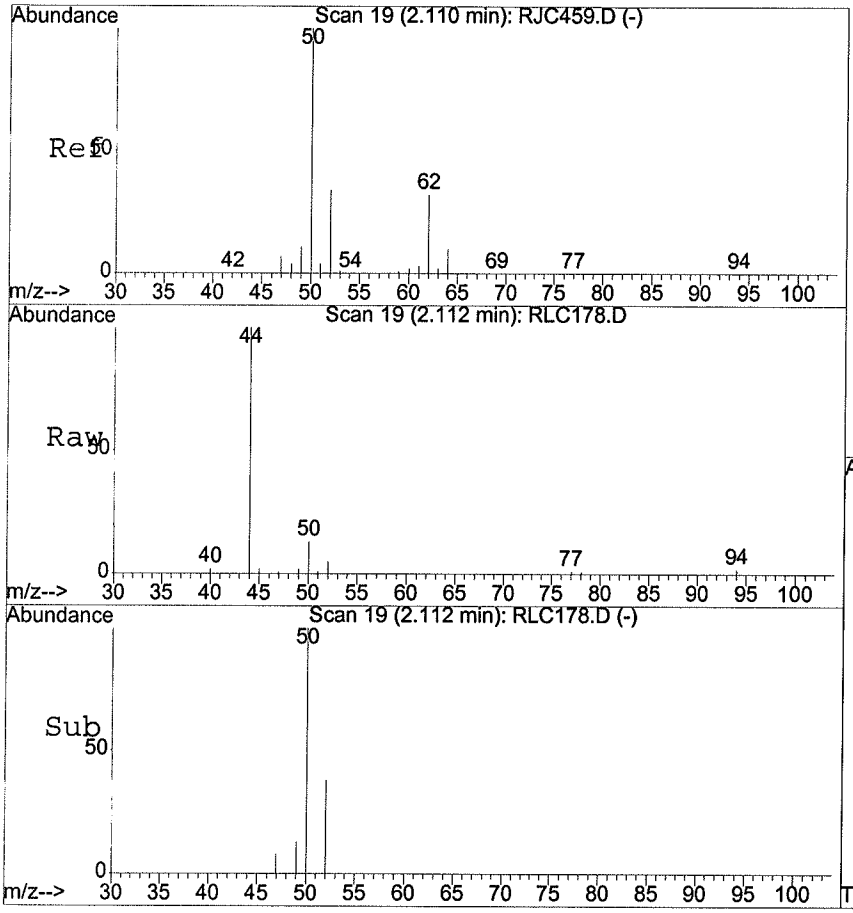
(#) = qualifier out of range (m) = manual integration
RLC178.D VO67J30.M Mon Dec 14 10:58:00 2020 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L11\RLC178.D Vial: 14
Acq On : 11 Dec 2020 8:32 pm Operator: VLu
Sample : 20L087-05I 0.5mL Inst : 67
Misc : DF=50 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:57 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

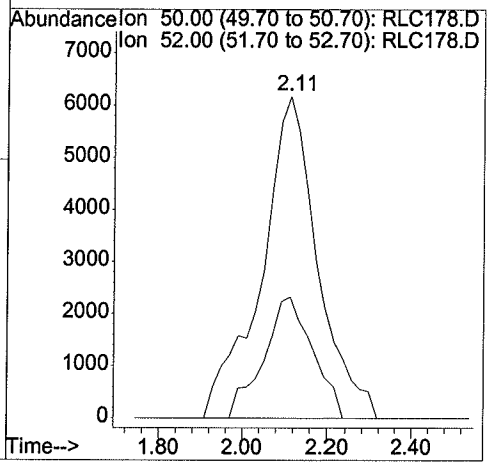


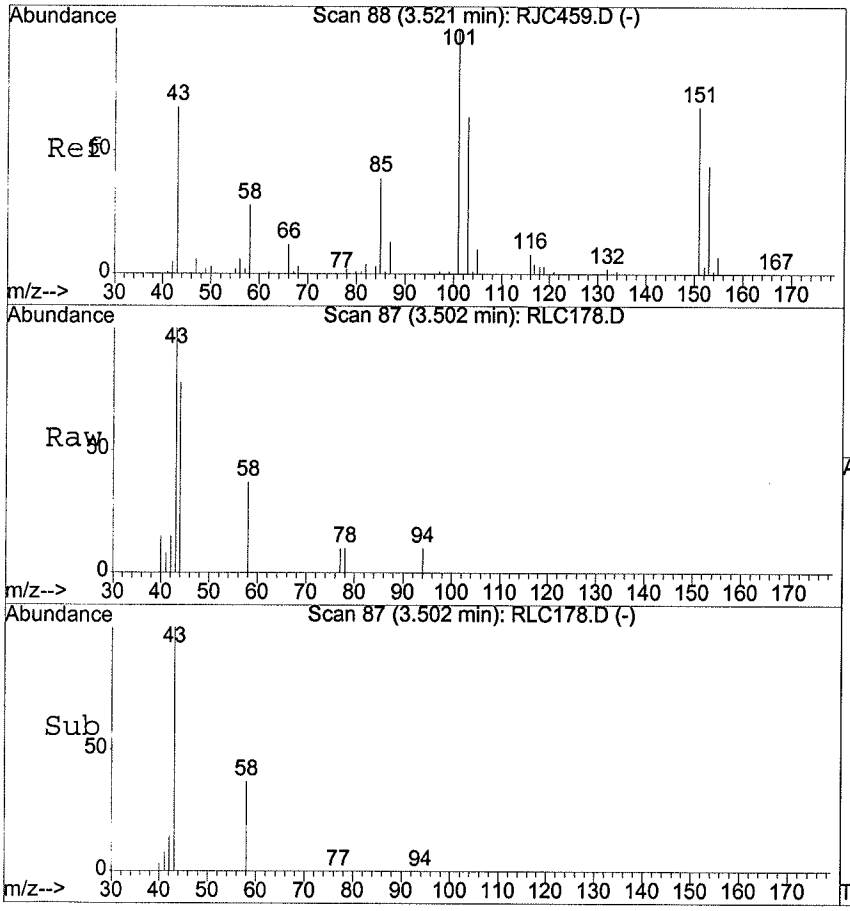


#4
Chloromethane
Concen: 0.46 ug/l
RT: 2.11 min Scan# 19
Delta R.T. 0.00 min
Lab File: RLC178.D
Acq: 11 Dec 2020 8:32 pm

Tgt Ion: 50 Resp: 56883

Ion	Ratio	Lower	Upper
50	100		
52	32.6	3.5	63.5

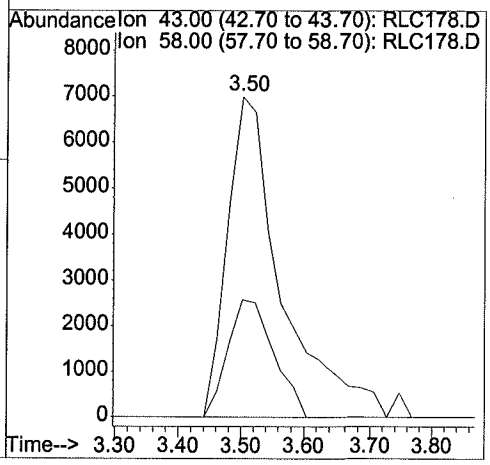


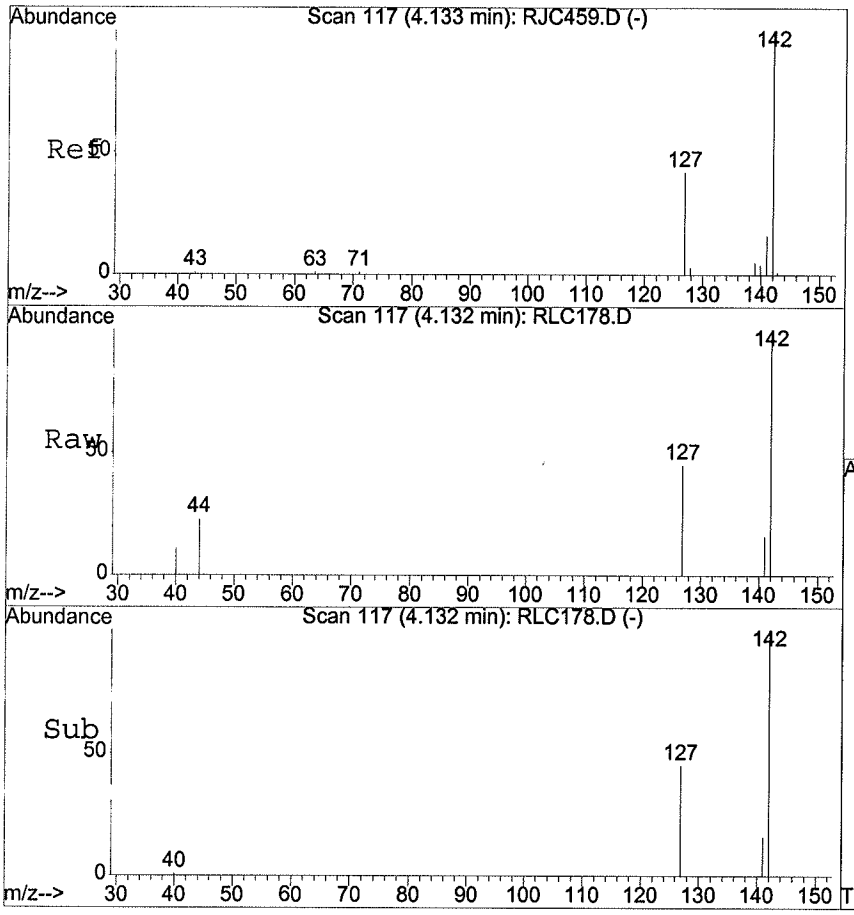


#13
Acetone
Concen: 5.76 ug/l
RT: 3.50 min Scan# 87
Delta R.T. -0.02 min
Lab File: RLC178.D
Acq: 11 Dec 2020 8:32 pm

Tgt Ion: 43 Resp: 41803

Ion	Ratio	Lower	Upper
43	100		
58	31.5	12.2	72.2

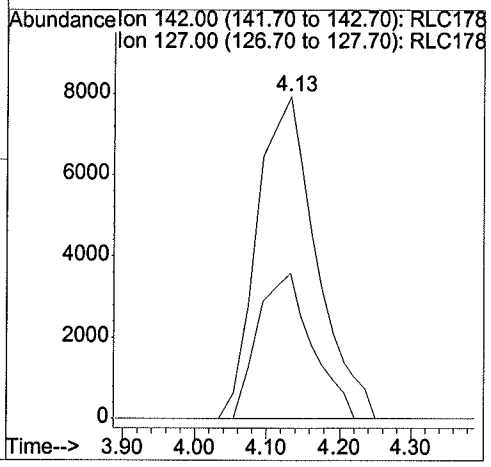


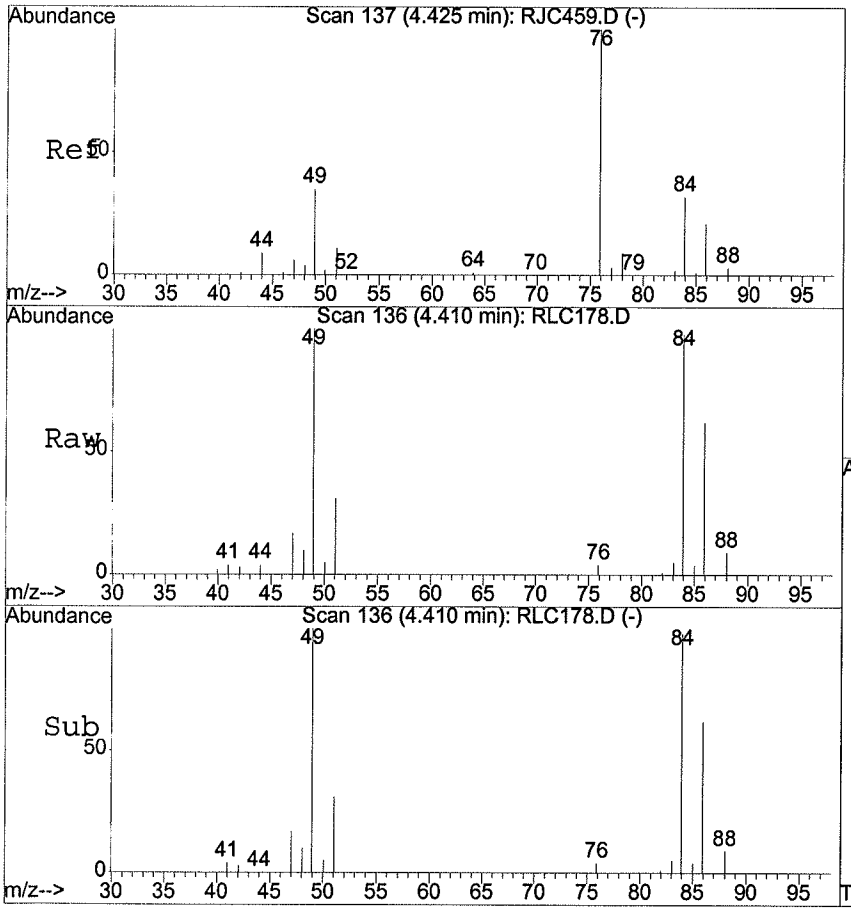


#17
Iodomethane
Concen: 0.30 ug/l
RT: 4.13 min Scan# 117
Delta R.T. -0.00 min
Lab File: RLC178.D
Acq: 11 Dec 2020 8:32 pm

Tgt Ion:142 Resp: 40024

Ion	Ratio	Lower	Upper
142	100		
127	41.1	12.5	72.5

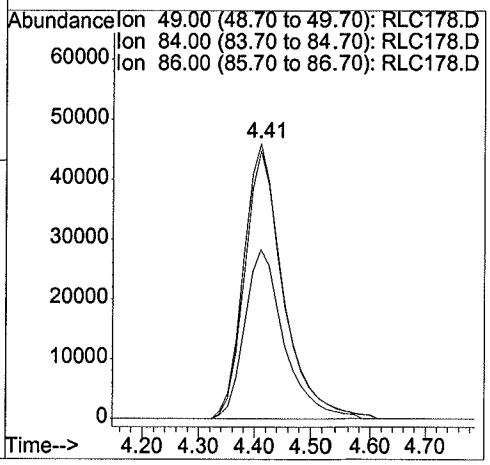


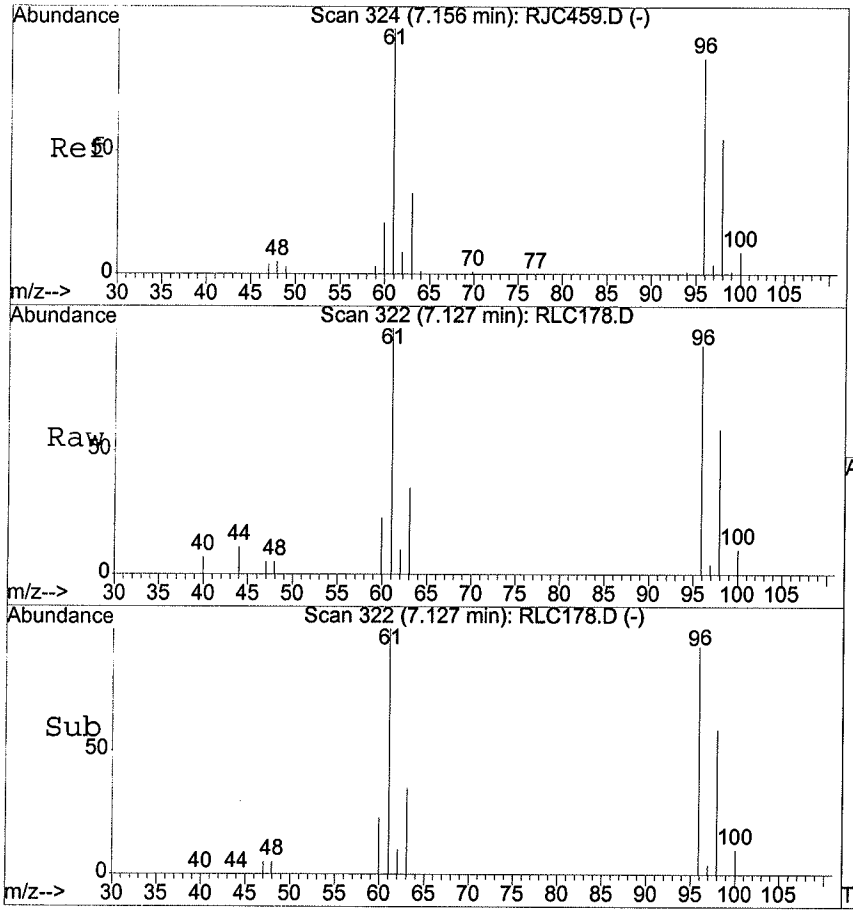


#19
Methylene chloride
Concen: 2.17 ug/l
RT: 4.41 min Scan# 136
Delta R.T. -0.01 min
Lab File: RLC178.D
Acq: 11 Dec 2020 8:32 pm

Tgt Ion: 49 Resp: 224096

Ion	Ratio	Lower	Upper
49	100		
84	96.6	60.1	120.1
86	61.7	27.5	87.5

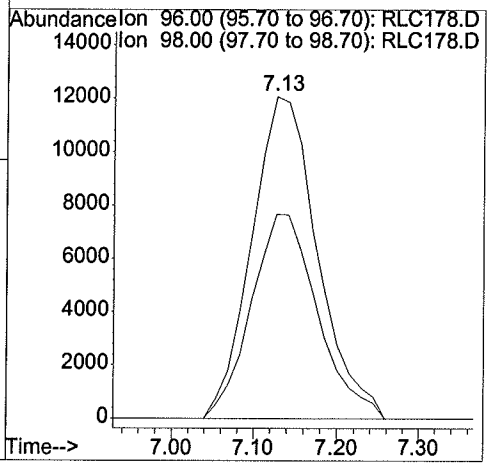


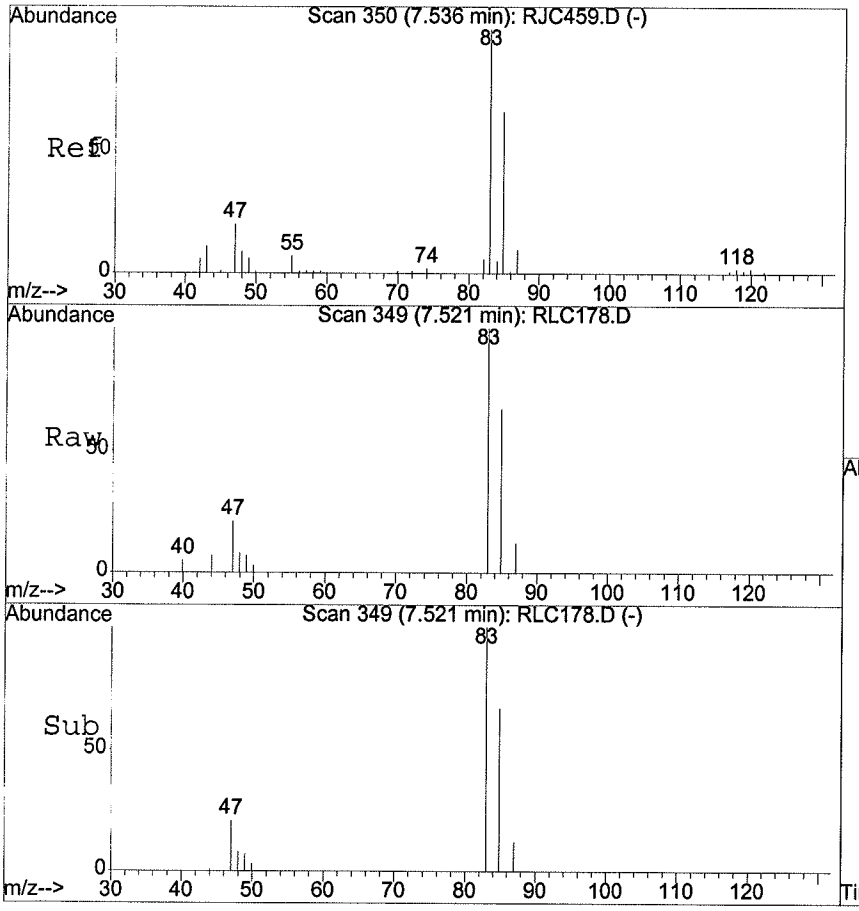


#31
cis-1,2-Dichloroethene
Concen: 0.65 ug/l
RT: 7.13 min Scan# 322
Delta R.T. -0.03 min
Lab File: RLC178.D
Acq: 11 Dec 2020 8:32 pm

Tgt Ion: 96 Resp: 66431

Ion	Ratio	Lower	Upper
96	100		
98	64.0	33.5	93.5

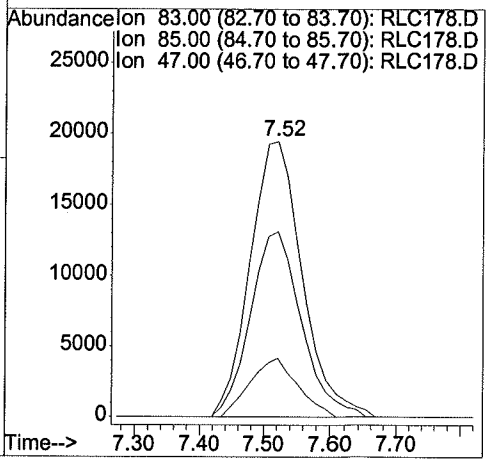


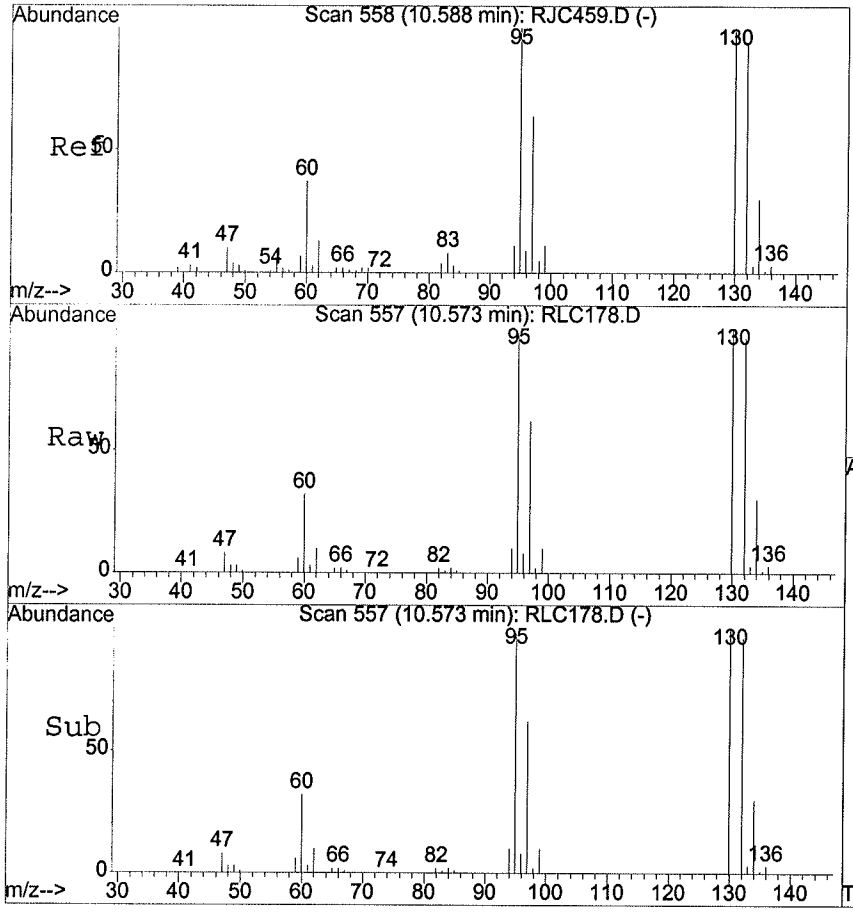


#32
Chloroform
Concen: 0.72 ug/l
RT: 7.52 min Scan# 349
Delta R.T. -0.01 min
Lab File: RLC178.D
Acq: 11 Dec 2020 8:32 pm

Tgt Ion: 83 Resp: 108059

Ion	Ratio	Lower	Upper
83	100		
85	65.7	37.8	97.8
47	19.7	0.0	50.5

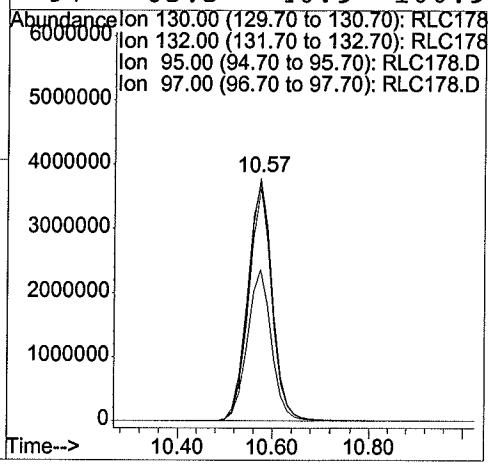


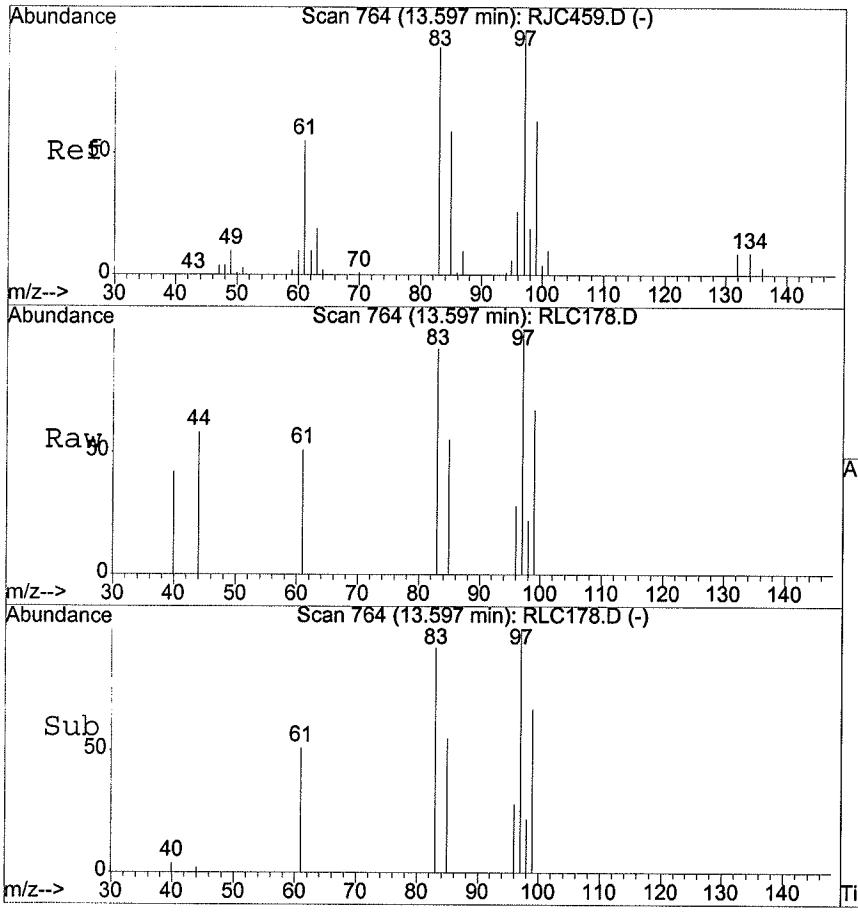


#46
Trichloroethene
Concen: 145.69 ug/l
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC178.D
Acq: 11 Dec 2020 8:32 pm

Tgt Ion:130 Resp:13293665

Ion	Ratio	Lower	Upper
130	100		
132	95.3	65.5	125.5
95	99.1	73.3	133.3
97	63.3	40.9	100.9

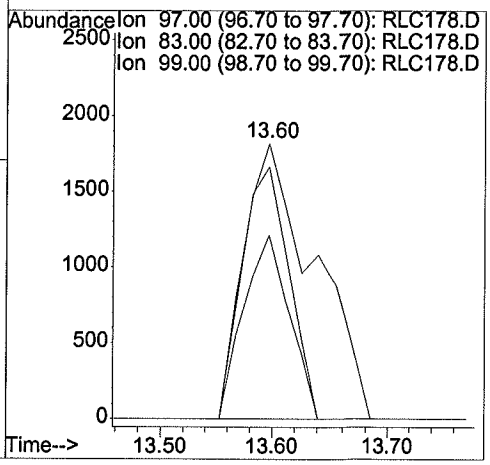


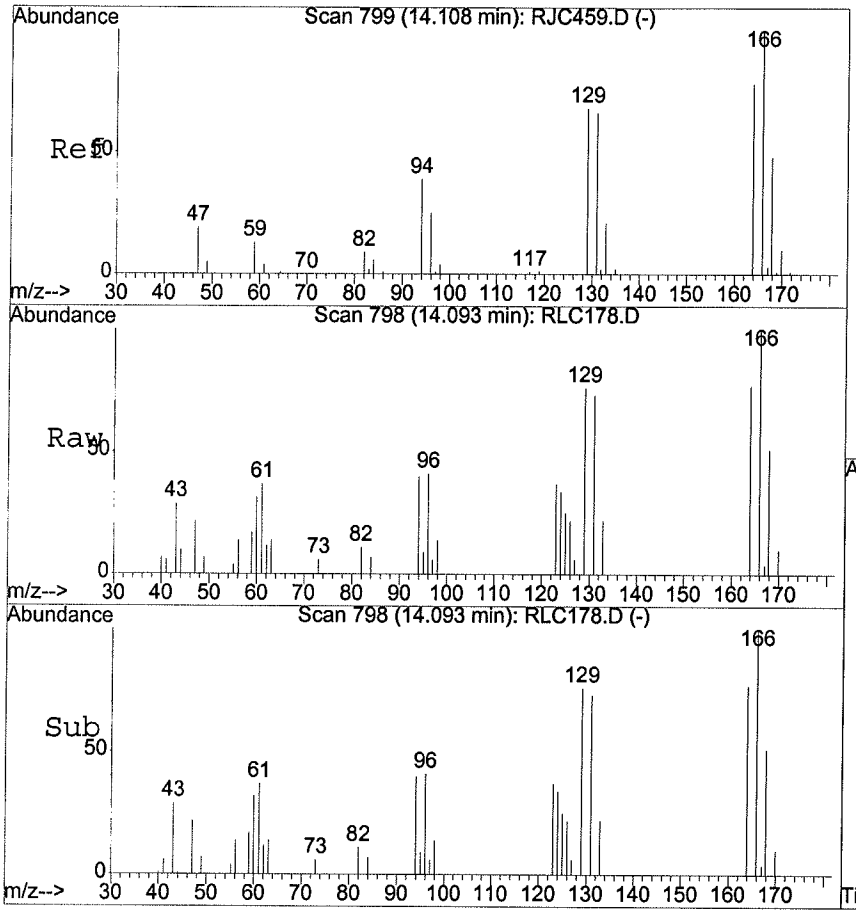


#60
1,1,2-Trichloroethane
Concen: 0.18 ug/l
RT: 13.60 min Scan# 764
Delta R.T. -0.00 min
Lab File: RLC178.D
Acq: 11 Dec 2020 8:32 pm

Tgt Ion: 97 Resp: 7755

Ion	Ratio	Lower	Upper
97	100		
83	62.3	60.6	120.6
99	44.3	33.2	93.2

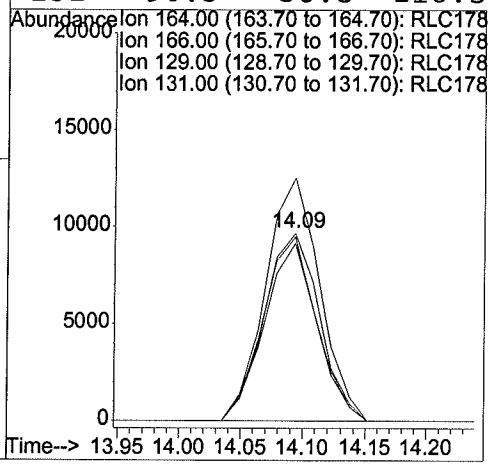


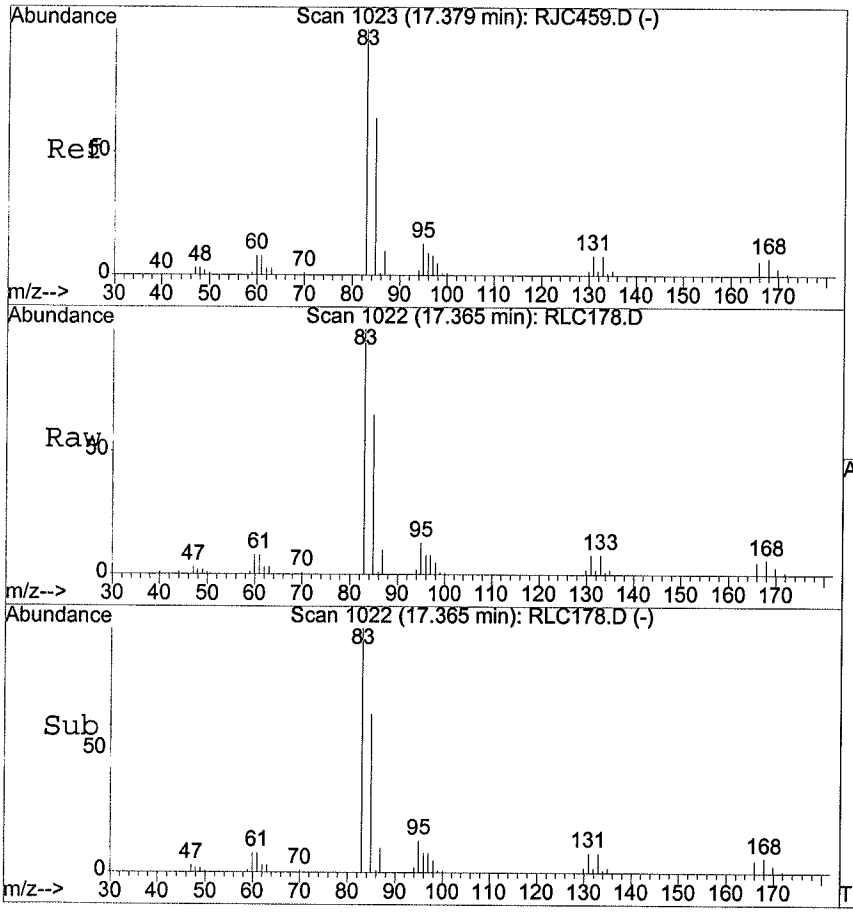


#63
Tetrachloroethene
Concen: 0.41 ug/l
RT: 14.09 min Scan# 798
Delta R.T. -0.01 min
Lab File: RLC178.D
Acq: 11 Dec 2020 8:32 pm

Tgt Ion:164 Resp: 29802

Ion	Ratio	Lower	Upper
164	100		
166	127.1	97.5	157.5
129	95.2	61.9	121.9
131	90.3	58.5	118.5

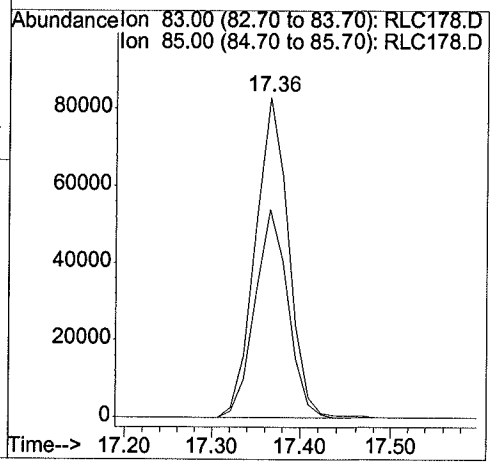




#76
1,1,2,2-Tetrachloroethane
Concen: 5.26 ug/l
RT: 17.36 min Scan# 1022
Delta R.T. -0.01 min
Lab File: RLC178.D
Acq: 11 Dec 2020 8:32 pm

Tgt Ion: 83 Resp: 215834

Ion	Ratio	Lower	Upper
83	100		
85	64.5	33.6	93.6



METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected:	12/04/20
Project	: VAFB-SS003	Date Received:	12/09/20
Batch No.	: 20L087	Date Extracted:	12/11/20 21:48
Sample ID:	3-MW-61(120420)DL	Date Analyzed:	12/11/20 21:48
Lab Samp ID:	L087-05J	Dilution Factor:	250
Lab File ID:	RLC181	Matrix	: WATER
Ext Btch ID:	V067L08	% Moisture	: NA
Calib. Ref.:	RJC459	Instrument ID	: 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	120	25	50
1,1,1-TRICHLOROETHANE	ND	250	25	50
1,1,2,2-TETRACHLOROETHANE	290	250	28	50
1,1,2-TRICHLOROETHANE	ND	250	25	50
1,1-DICHLOROETHANE	ND	250	25	50
1,1-DICHLOROETHENE	ND	250	25	50
1,1-DICHLOROPROPENE	ND	250	25	50
1,2,3-TRICHLOROBENZENE	ND	250	37	75
1,2,3-TRICHLOROPROPANE	ND	500	62	120
1,2,4-TRICHLOROBENZENE	ND	250	37	75
1,2,4-TRIMETHYLBENZENE	ND	250	28	50
1,2-DIBROMO-3-CHLOROPROPANE	ND	500	62	120
1,2-DIBROMOETHANE	ND	250	25	50
1,2-DICHLOROBENZENE	ND	250	25	50
1,2-DICHLOROETHANE	ND	120	25	50
1,2-DICHLOROPROPANE	ND	250	25	50
1,3,5-TRIMETHYLBENZENE	ND	250	33	50
1,3-DICHLOROBENZENE	ND	250	28	50
1,3-DICHLOROPROPANE	ND	250	25	50
1,4-DICHLOROBENZENE	ND	250	25	50
2,2-DICHLOROPROPANE	ND	250	40	50
2-BUTANONE	ND	2500	500	1000
2-CHLOROTOLUENE	ND	250	30	50
2-HEXANONE	ND	2500	580	1000
4-CHLOROTOLUENE	ND	250	28	50
ACETONE	ND	2500	650	1200
BENZENE	ND	250	25	50
BROMOBENZENE	ND	250	25	50
BROMOCHLOROMETHANE	ND	250	28	50
BROMODICHLOROMETHANE	ND	250	25	50
BROMOFORM	ND	250	37	75
BROMOMETHANE	ND	250	40	75
CARBON DISULFIDE	ND	250	25	50
CARBON TETRACHLORIDE	ND	250	25	50
CHLOROBENZENE	ND	250	25	50
CHLOROETHANE	ND	250	67	75
CHLOROFORM	40J	250	25	50
CHLOROMETHANE	ND	250	37	75
CIS-1,2-DICHLOROETHENE	37J	250	25	50
CIS-1,3-DICHLOROPROPENE	ND	250	25	50
DIBROMOCHLOROMETHANE	ND	250	25	50
DICHLORODIFLUOROMETHANE	ND	250	37	75
ETHYLBENZENE	ND	250	25	50
HEXACHLOROBUTADIENE	ND	250	55	75
ISOPROPYL BENZENE	ND	250	25	50
M,P-XYLENES	ND	500	52	100
MIBK	ND	2500	520	1000
METHYLENE CHLORIDE	ND	500	62	120
MTBE	ND	250	33	50
NAPHTHALENE	ND	500	62	120
N-BUTYLBENZENE	ND	250	42	50
N-PROPYLBENZENE	ND	250	33	50
O-XYLENE	ND	250	25	50
P-ISOPROPYLTOLUENE	ND	250	35	50
SEC-BUTYLBENZENE	ND	250	33	50
STYRENE	ND	250	25	50
TERT-BUTYLBENZENE	ND	250	33	50
TETRACHLOROETHENE	ND	250	37	50
TOLUENE	ND	250	25	50
TRANS-1,2-DICHLOROETHENE	ND	250	25	50
TRANS-1,3-DICHLOROPROPENE	ND	250	28	50
TRICHLOROETHENE	8300	250	25	50
TRICHLOROFLUOROMETHANE	ND	250	37	75
VINYL CHLORIDE	ND	120	30	50
VINYL ACETATE	ND	500	62	120
FREON113	ND	250	50	75
TERT-BUTANOL	ND	5000	1200	2500
DIPE	ND	250	25	50
ETBE	ND	250	25	50
TAME	ND	250	25	50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	2350	2500	94.1	70-120
4-BROMOFLUOROBENZENE	2400	2500	96.1	75-120
TOLUENE-D8	2300	2500	92.1	85-120
DIBROMOFLUOROMETHANE	2400	2500	95.9	85-115

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L11\RLC181.D Vial: 17
Acq On : 11 Dec 2020 9:48 pm Operator: VLu
Sample : 20L087-05J 100uL Inst : 67
Misc : DF=250 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 11:00 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

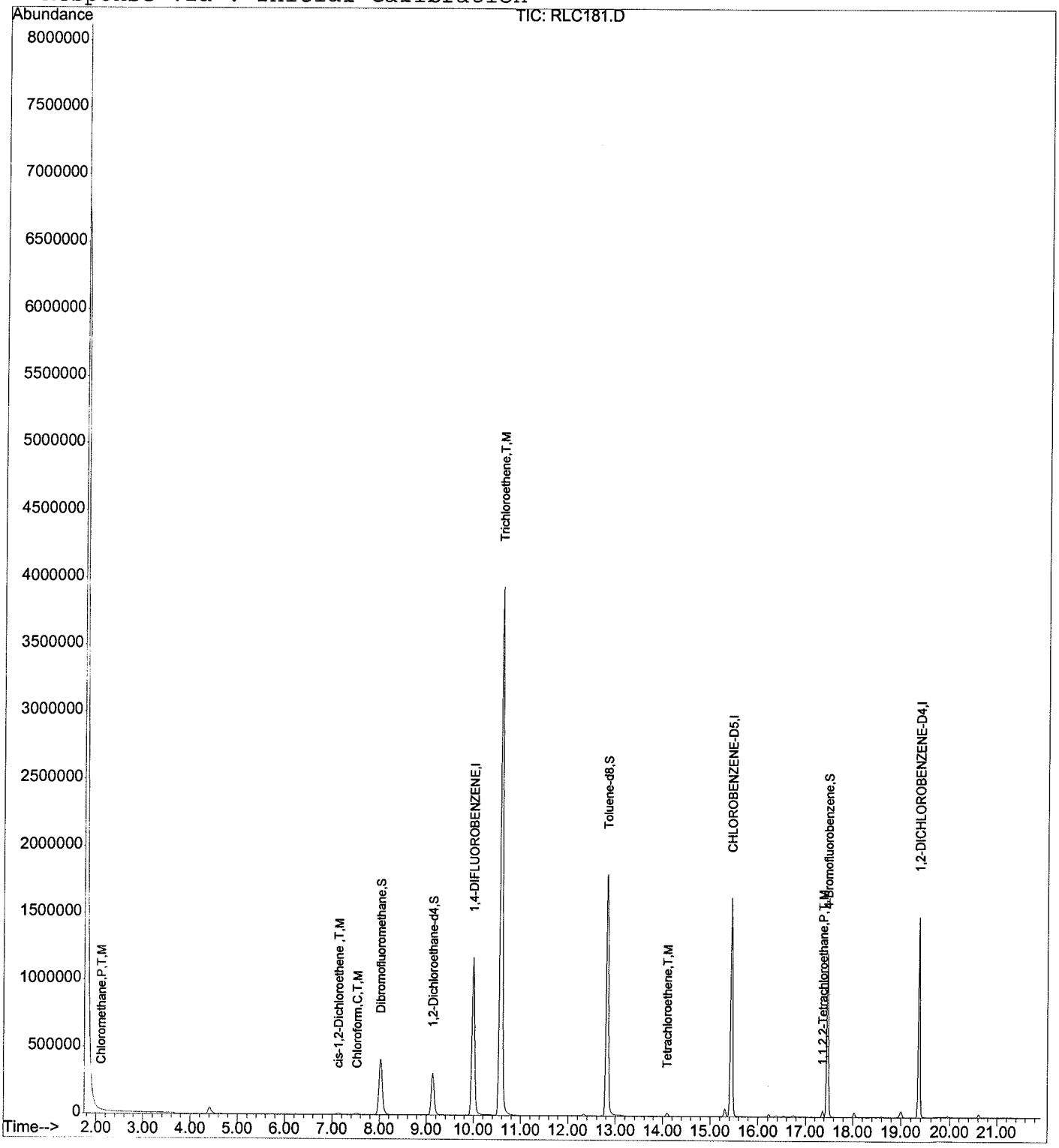
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2240904	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1745909	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	527695	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.02	111	701681	9.59	ug/l	-0.01
Spiked Amount 10.000			Recovery =	95.90%		
43) 1,2-Dichloroethane-d4	9.13	65	440654	9.41	ug/l	-0.01
Spiked Amount 10.000			Recovery =	94.10%		
56) Toluene-d8	12.82	98	2454918	9.21	ug/l	0.00
Spiked Amount 10.000			Recovery =	92.10%		
77) 4-Bromofluorobenzene	17.47	95	689164	9.61	ug/l	0.00
Spiked Amount 10.000			Recovery =	96.10%		
Target Compounds						Qvalue
4) Chloromethane	2.11	50	14261	0.12	ug/l	86
31) cis-1,2-Dichloroethene	7.13	96	14314	0.15	ug/l	95
32) Chloroform	7.52	83	23157	0.16	ug/l	93
46) Trichloroethene	10.57	130	2880717	33.16	ug/l	96
63) Tetrachloroethene	14.09	164	7095	0.10	ug/l	93
76) 1,1,2,2-Tetrachloroethane	17.37	83	45144	1.17	ug/l	99

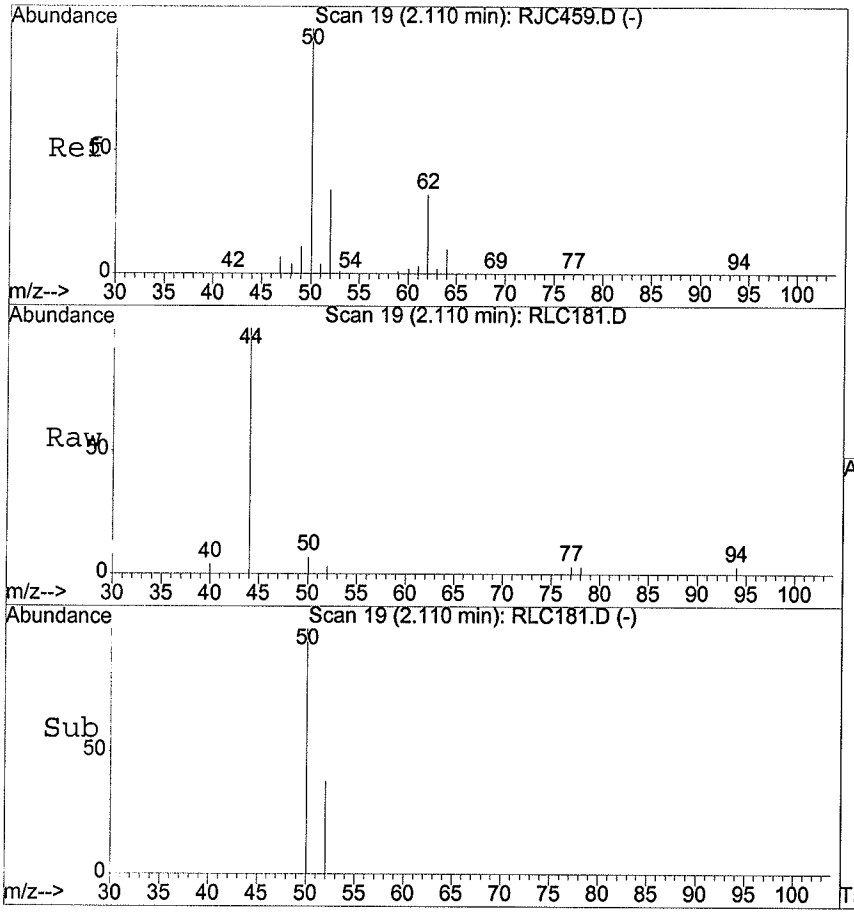
(#) = qualifier out of range (m) = manual integration
RLC181.D VO67J30.M Mon Dec 14 11:00:23 2020 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L11\RLC181.D Vial: 17
Acq On : 11 Dec 2020 9:48 pm Operator: VLu
Sample : 20L087-05J 100uL Inst : 67
Misc : DF=250 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 11:00 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

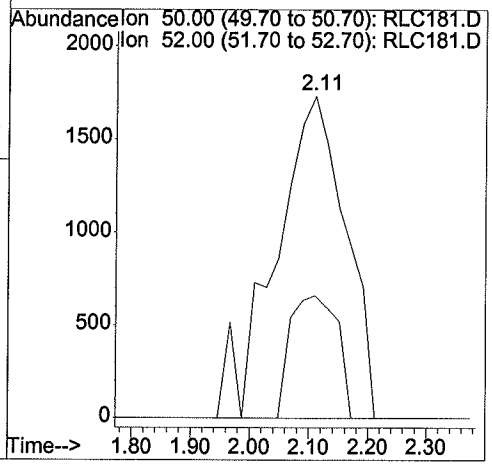


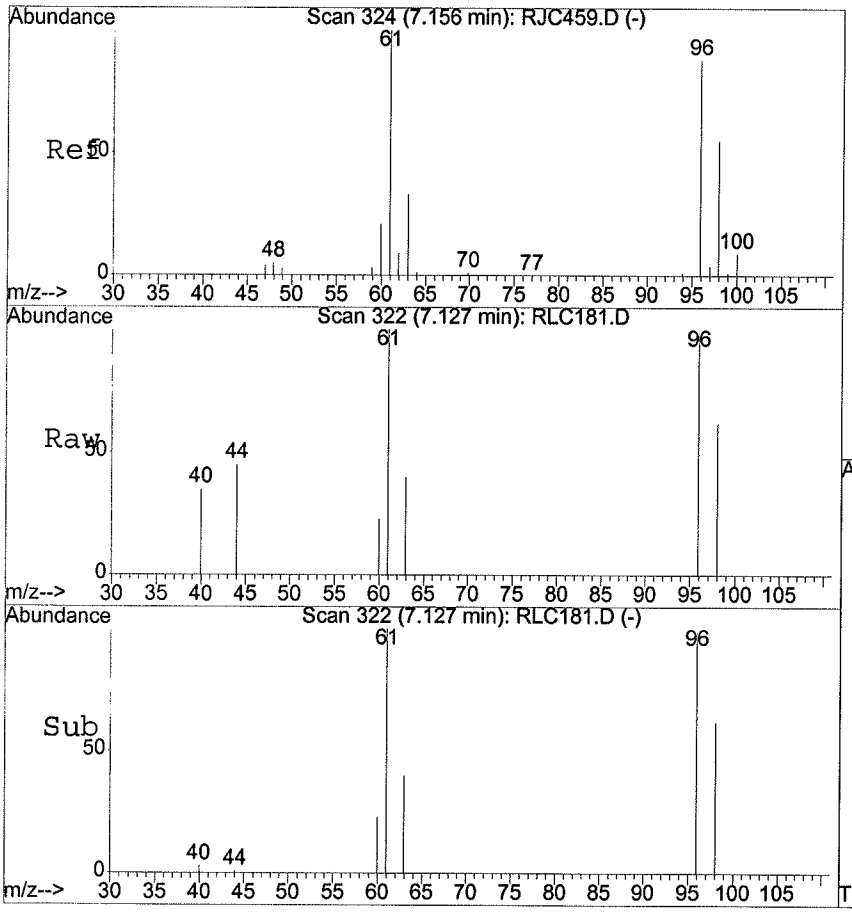


#4
Chloromethane
Concen: 0.12 ug/l
RT: 2.11 min Scan# 19
Delta R.T. -0.00 min
Lab File: RLC181.D
Acq: 11 Dec 2020 9:48 pm

Tgt Ion: 50 Resp: 14261

Ion	Ratio	Lower	Upper
50	100		
52	25.4	3.5	63.5

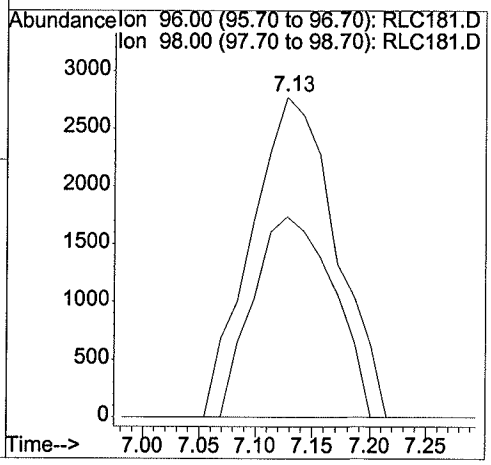


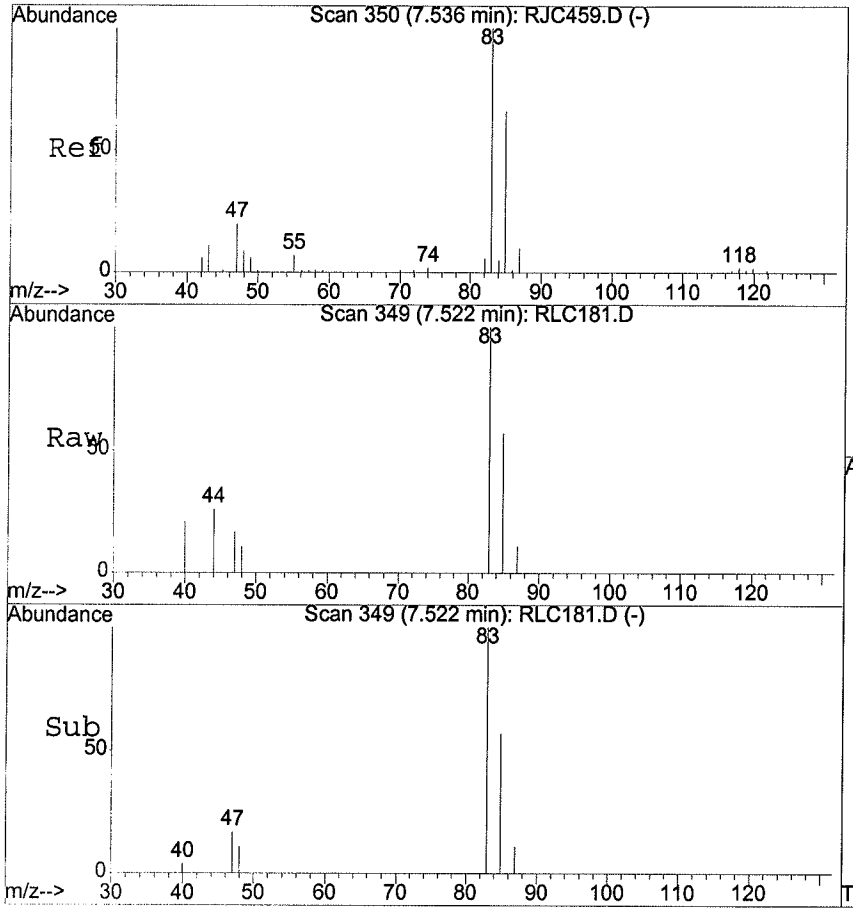


#31
cis-1,2-Dichloroethene
Concen: 0.15 ug/l
RT: 7.13 min Scan# 322
Delta R.T. -0.03 min
Lab File: RLC181.D
Acq: 11 Dec 2020 9:48 pm

Tgt Ion: 96 Resp: 14314

Ion	Ratio	Lower	Upper
96	100		
98	59.4	33.5	93.5

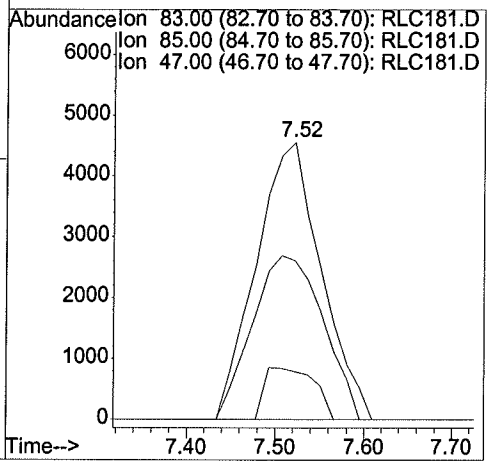


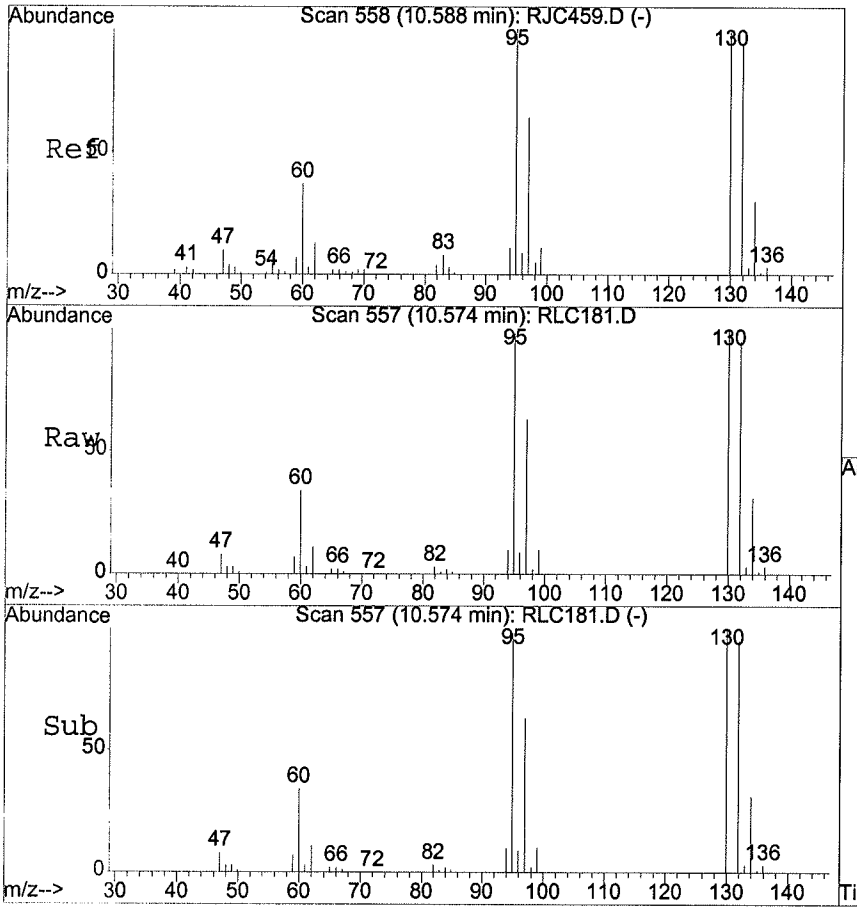


#32
Chloroform
Concen: 0.16 ug/l
RT: 7.52 min Scan# 349
Delta R.T. -0.01 min
Lab File: RLC181.D
Acq: 11 Dec 2020 9:48 pm

Tgt Ion: 83 Resp: 23157

Ion	Ratio	Lower	Upper
83	100		
85	64.1	37.8	97.8
47	14.3	0.0	50.5

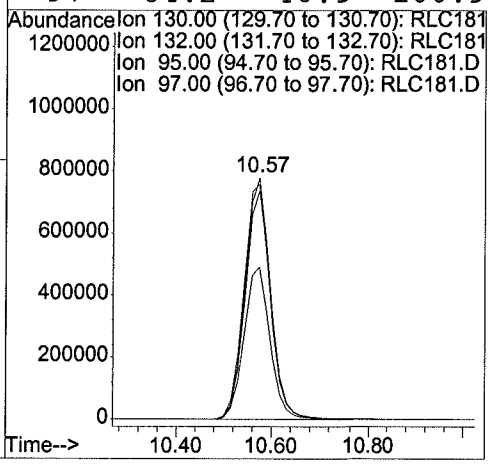


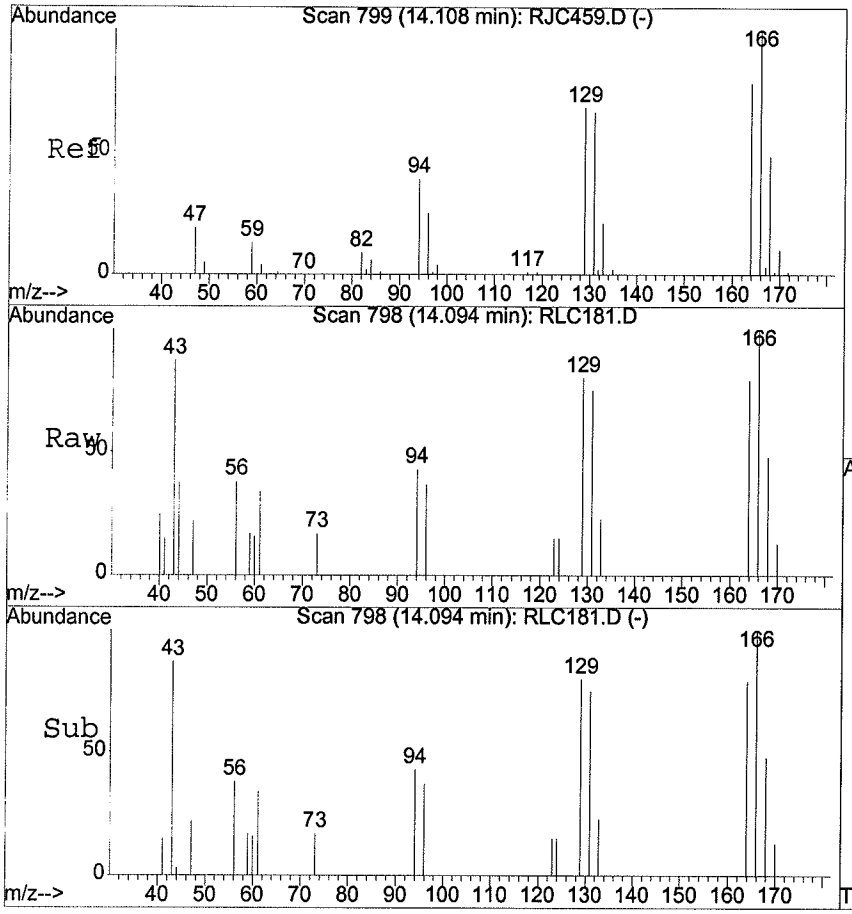


#46
Trichloroethene
Concen: 33.16 ug/l
RT: 10.57 min Scan# 557
Delta R.T. -0.01 min
Lab File: RLC181.D
Acq: 11 Dec 2020 9:48 pm

Tgt Ion:130 Resp: 2880717

Ion	Ratio	Lower	Upper
130	100		
132	94.7	65.5	125.5
95	100.4	73.3	133.3
97	64.2	40.9	100.9

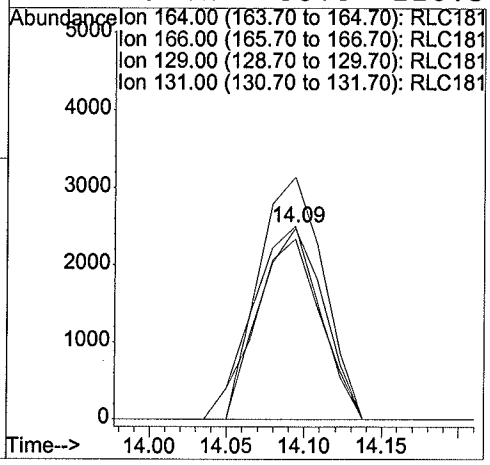


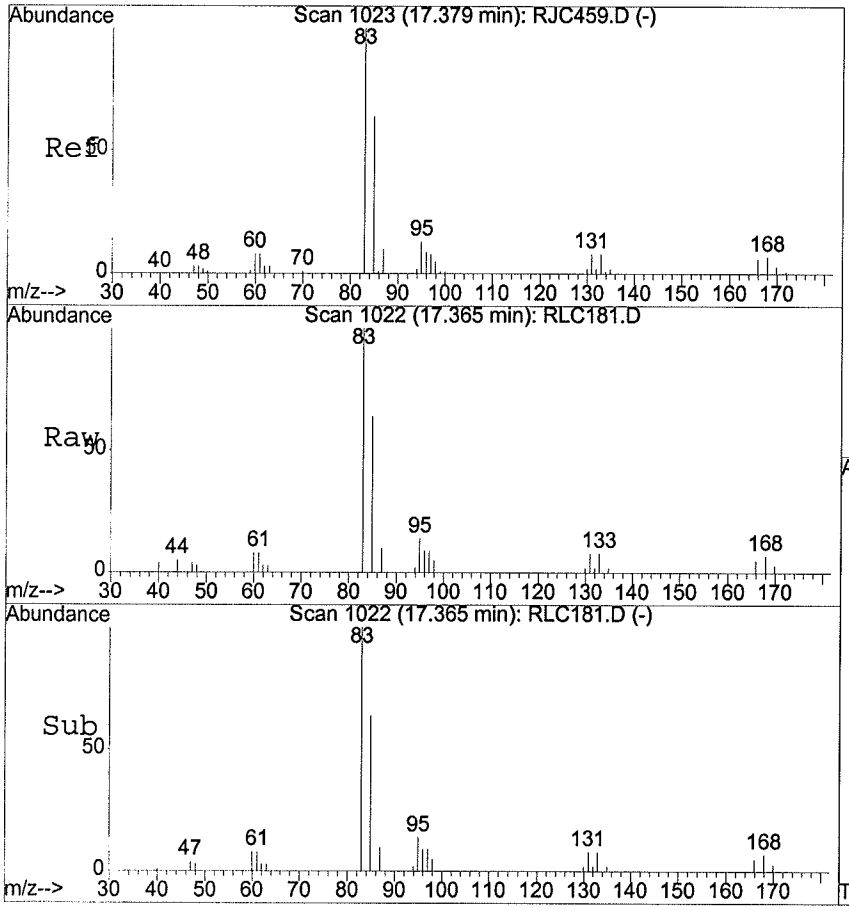


#63
Tetrachloroethene
Concen: 0.10 ug/l
RT: 14.09 min Scan# 798
Delta R.T. -0.01 min
Lab File: RLC181.D
Acq: 11 Dec 2020 9:48 pm

Tgt Ion:164 Resp: 7095

Ion	Ratio	Lower	Upper
164	100		
166	128.1	97.5	157.5
129	105.2	61.9	121.9
131	97.2	58.5	118.5

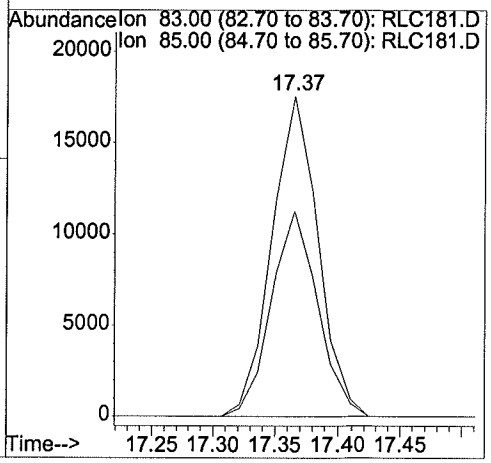




#76
1,1,2,2-Tetrachloroethane
Concen: 1.17 ug/l
RT: 17.37 min Scan# 1022
Delta R.T. -0.01 min
Lab File: RLC181.D
Acq: 11 Dec 2020 9:48 pm

Tgt Ion: 83 Resp: 45144

Ion	Ratio	Lower	Upper
83	100		
85	64.7	33.6	93.6



QC SUMMARIES

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected:	NA
Project	: VAFB-SS003	Date Received:	12/10/20
Batch No.	: 20L087	Date Extracted:	12/10/20 15:32
Sample ID:	MBLK1W	Date Analyzed:	12/10/20 15:32
Lab Samp ID:	VO67L07B	Dilution Factor:	1
Lab File ID:	RLC140	Matrix	: WATER
Ext Btch ID:	VO67L07	% Moisture	: NA
Calib. Ref.:	RJC459	Instrument ID	: 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	ND	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	ND	10	2.6	5.0
BENZENE	ND	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	ND	1.0	0.10	0.20
BROMOFORM	ND	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	ND	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	ND	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	ND	1.0	0.10	0.20
CHLOROMETHANE	ND	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	ND	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	ND	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	ND	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	ND	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	ND	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	ND	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.10	10.00	91.0	70-120
4-BROMOFLUOROBENZENE	10.0	10.00	100	75-120
TOLUENE-D8	9.63	10.00	96.3	85-120
DIBROMOFLUOROMETHANE	9.68	10.00	96.8	85-115

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: ARCADIS
PROJECT: VAFB-SS003
BATCH NO.: 20L087
METHOD: METHOD 5030B/8260B

MATRIX: WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID:	MBLK1W		
LAB SAMP ID:	V067L07B	V067L07L	V067L07C
LAB FILE ID:	RLC140	RLC137	RLC138
DATE EXTRACTED:	12/10/2015:32	12/10/2014:14	12/10/2014:41
DATE ANALYZED:	12/10/2015:32	12/10/2014:14	12/10/2014:41
PREP. BATCH:	V067L07	V067L07	V067L07
CALIB. REF:	RJC459	RJC459	RJC459

DATE COLLECTED: NA
DATE RECEIVED: 12/10/20

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1,1,2-Tetrachloroethane	ND	10.0	8.98	90	10.0	8.83	88	2	80-130	20
1,1,1-Trichloroethane	ND	10.0	8.41	84	10.0	8.27	83	2	65-130	20
1,1,2,2-Tetrachloroethane	ND	10.0	9.46	95	10.0	9.67	97	2	65-130	20
1,1,2-Trichloroethane	ND	10.0	8.91	89	10.0	9.06	91	2	75-125	20
1,1-Dichloroethane	ND	10.0	8.47	85	10.0	8.33	83	2	70-135	20
1,1-Dichloroethene	ND	10.0	7.97	80	10.0	7.85	78	2	70-130	20
1,1-Dichloropropene	ND	10.0	8.44	84	10.0	8.32	83	1	75-130	20
1,2,3-Trichlorobenzene	ND	10.0	9.16	92	10.0	9.10	91	1	55-140	20
1,2,3-Trichloropropane	ND	10.0	9.72	97	10.0	9.97	100	3	75-125	20
1,2,4-Trichlorobenzene	ND	10.0	8.79	88	10.0	8.64	86	2	65-135	20
1,2,4-Trimethylbenzene	ND	10.0	8.54	85	10.0	8.26	83	3	75-130	20
1,2-Dibromo-3-chloropropane	ND	10.0	10.6	106	10.0	11.1	111	4	50-130	20
1,2-Dibromoethane	ND	10.0	9.14	91	10.0	9.31	93	2	80-120	20
1,2-Dichlorobenzene	ND	10.0	8.31	83	10.0	8.18	82	2	70-120	20
1,2-Dichloroethane	ND	10.0	8.67	87	10.0	8.70	87	0	70-130	20
1,2-Dichloropropane	ND	10.0	8.70	87	10.0	8.63	86	1	75-125	20
1,3,5-Trimethylbenzene	ND	10.0	8.42	84	10.0	8.19	82	3	75-130	20
1,3-Dichlorobenzene	ND	10.0	8.27	83	10.0	8.05	80	3	75-125	20
1,3-Dichloropropane	ND	10.0	8.78	88	10.0	8.94	89	2	75-125	20
1,4-Dichlorobenzene	ND	10.0	8.19	82	10.0	7.99	80	2	75-125	20
2,2-Dichloropropane	ND	10.0	8.61	86	10.0	8.37	84	3	70-135	20
2-Butanone	ND	50.0	47.2	94	50.0	49.0	98	4	30-150	20
2-Chlorotoluene	ND	10.0	7.84	78	10.0	7.63	76	3	75-125	20
2-Hexanone	ND	50.0	43.0	86	50.0	45.0	90	4	55-130	20
4-Chlorotoluene	ND	10.0	8.17	82	10.0	7.88	79	4	75-130	20
Acetone	ND	50.0	40.2	80	50.0	42.6	85	6	40-140	20
Benzene	ND	10.0	8.63	86	10.0	8.50	85	2	80-120	20
Bromobenzene	ND	10.0	8.78	88	10.0	8.63	86	2	75-125	20
Bromochloromethane	ND	10.0	9.30	93	10.0	9.41	94	1	65-130	20
Bromodichloromethane	ND	10.0	9.12	91	10.0	9.19	92	1	75-120	20
Bromoform	ND	10.0	9.71	97	10.0	9.76	98	1	70-130	20
Bromomethane	ND	10.0	8.29	83	10.0	8.28	83	0	30-145	20
Carbon Disulfide	ND	10.0	8.10	81	10.0	7.55	75	7	35-160	20
Carbon Tetrachloride	ND	10.0	8.67	87	10.0	8.55	86	1	65-140	20
Chlorobenzene	ND	10.0	8.50	85	10.0	8.37	84	2	80-120	20
Chloroethane	ND	10.0	8.93	89	10.0	8.95	89	0	60-135	20
Chloroform	ND	10.0	8.65	86	10.0	8.56	86	1	65-135	20
Chloromethane	ND	10.0	10.1	101	10.0	10.1	101	0	40-125	20
cis-1,2-Dichloroethene	ND	10.0	8.48	85	10.0	8.45	84	0	70-125	20
cis-1,3-Dichloropropene	ND	10.0	8.95	89	10.0	8.99	90	0	70-130	20
Dibromochloromethane	ND	10.0	9.53	95	10.0	9.68	97	2	60-135	20
Dichlorodifluoromethane	ND	10.0	8.04	80	10.0	8.07	81	0	30-155	20
Ethylbenzene	ND	10.0	8.23	82	10.0	8.04	80	2	75-125	20
Hexachlorobutadiene	ND	10.0	8.00	80	10.0	7.61	76	5	50-140	20
Isopropyl Benzene	ND	10.0	8.63	86	10.0	8.34	83	3	75-125	20
m,p-Xylenes	ND	20.0	16.5	82	20.0	16.2	81	1	75-130	20
MIBK	ND	50.0	42.6	85	50.0	45.2	90	6	60-135	20
Methylene Chloride	ND	10.0	8.23	82	10.0	8.21	82	0	55-140	20
MTBE	ND	10.0	9.09	91	10.0	9.19	92	1	65-125	20
Naphthalene	ND	10.0	9.90	99	10.0	10.1	101	2	55-140	20
n-Butylbenzene	ND	10.0	8.41	84	10.0	8.04	80	5	70-135	20
n-Propylbenzene	ND	10.0	8.32	83	10.0	8.01	80	4	70-130	20
o-Xylene	ND	10.0	8.29	83	10.0	8.13	81	2	80-120	20
p-Isopropyltoluene	ND	10.0	8.86	89	10.0	8.55	86	4	75-130	20
Sec-Butylbenzene	ND	10.0	8.61	86	10.0	8.24	82	4	70-125	20
Styrene	ND	10.0	8.23	82	10.0	8.22	82	0	65-135	20
Tert-Butylbenzene	ND	10.0	8.56	86	10.0	8.28	83	3	70-130	20
Tetrachloroethene	ND	10.0	7.75	78	10.0	7.60	76	2	45-150	20
Toluene	ND	10.0	8.39	84	10.0	8.21	82	2	75-120	20
Trans-1,2-Dichloroethene	ND	10.0	8.32	83	10.0	8.15	82	2	60-140	20
Trans-1,3-Dichloropropene	ND	10.0	8.75	88	10.0	8.79	88	0	55-140	20
Trichloroethene	ND	10.0	8.57	86	10.0	8.52	85	1	70-125	20
Trichlorofluoromethane	ND	10.0	9.46	95	10.0	9.38	94	1	60-145	20
Vinyl Chloride	ND	10.0	9.94	99	10.0	9.96	100	0	50-145	20
Vinyl Acetate	ND	10.0	9.66	97	10.0	9.74	97	1	20-160	20
Freon113	ND	10.0	8.66	87	10.0	8.50	85	2	70-140	20
tert-Butanol	ND	250	233	93	250	237	95	2	60-150	20
DIPE	ND	10.0	8.70	87	10.0	8.67	87	0	70-140	20
ETBE	ND	10.0	8.80	88	10.0	8.83	88	0	60-140	20
TAME	ND	10.0	9.20	92	10.0	9.33	93	1	60-140	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10.0	9.28	93	10.0	9.47	95	70-120
4-Bromofluorobenzene	10.0	9.20	92	10.0	9.12	91	75-120
Toluene-d8	10.0	9.43	94	10.0	9.32	93	85-120
Dibromofluoromethane	10.0	9.81	98	10.0	9.81	98	85-115

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: ARCADIS	Date Collected:	NA
Project	: VAFB-SS003	Date Received:	12/11/20
Batch No.	: 20L087	Date Extracted:	12/11/20 17:32
Sample ID:	MBLK2W	Date Analyzed:	12/11/20 17:32
Lab Samp ID:	VO67L08B	Dilution Factor:	1
Lab File ID:	RLC171	Matrix	: WATER
Ext Btch ID:	VO67L08	% Moisture	: NA
Calib. Ref.:	RJC459	Instrument ID	: 67

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.50	0.10	0.20
1,1,1-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11	0.20
1,1,2-TRICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHANE	ND	1.0	0.10	0.20
1,1-DICHLOROETHENE	ND	1.0	0.10	0.20
1,1-DICHLOROPROPENE	ND	1.0	0.10	0.20
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,3-TRICHLOROPROPANE	ND	2.0	0.25	0.50
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15	0.30
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11	0.20
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25	0.50
1,2-DIBROMOETHANE	ND	1.0	0.10	0.20
1,2-DICHLOROBENZENE	ND	1.0	0.10	0.20
1,2-DICHLOROETHANE	ND	0.50	0.10	0.20
1,2-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.13	0.20
1,3-DICHLOROBENZENE	ND	1.0	0.11	0.20
1,3-DICHLOROPROPANE	ND	1.0	0.10	0.20
1,4-DICHLOROBENZENE	ND	1.0	0.10	0.20
2,2-DICHLOROPROPANE	ND	1.0	0.16	0.20
2-BUTANONE	ND	10	2.0	4.0
2-CHLOROTOLUENE	ND	1.0	0.12	0.20
2-HEXANONE	ND	10	2.3	4.0
4-CHLOROTOLUENE	ND	1.0	0.11	0.20
ACETONE	ND	10	2.6	5.0
BENZENE	ND	1.0	0.10	0.20
BROMOBENZENE	ND	1.0	0.10	0.20
BROMOCHLOROMETHANE	ND	1.0	0.11	0.20
BROMODICHLOROMETHANE	ND	1.0	0.10	0.20
BROMOFORM	ND	1.0	0.15	0.30
BROMOMETHANE	ND	1.0	0.16	0.30
CARBON DISULFIDE	ND	1.0	0.10	0.20
CARBON TETRACHLORIDE	ND	1.0	0.10	0.20
CHLOROBENZENE	ND	1.0	0.10	0.20
CHLOROETHANE	ND	1.0	0.27	0.30
CHLOROFORM	ND	1.0	0.10	0.20
CHLOROMETHANE	ND	1.0	0.15	0.30
CIS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10	0.20
DIBROMOCHLOROMETHANE	ND	1.0	0.10	0.20
DICHLORODIFLUOROMETHANE	ND	1.0	0.15	0.30
ETHYLBENZENE	ND	1.0	0.10	0.20
HEXACHLOROBUTADIENE	ND	1.0	0.22	0.30
ISOPROPYL BENZENE	ND	1.0	0.10	0.20
M,P-XYLENES	ND	2.0	0.21	0.40
MIBK	ND	10	2.1	4.0
METHYLENE CHLORIDE	ND	2.0	0.25	0.50
MTBE	ND	1.0	0.13	0.20
NAPHTHALENE	ND	2.0	0.25	0.50
N-BUTYLBENZENE	ND	1.0	0.17	0.20
N-PROPYLBENZENE	ND	1.0	0.13	0.20
O-XYLENE	ND	1.0	0.10	0.20
P-ISOPROPYLTOLUENE	ND	1.0	0.14	0.20
SEC-BUTYLBENZENE	ND	1.0	0.13	0.20
STYRENE	ND	1.0	0.10	0.20
TERT-BUTYLBENZENE	ND	1.0	0.13	0.20
TETRACHLOROETHENE	ND	1.0	0.15	0.20
TOLUENE	ND	1.0	0.10	0.20
TRANS-1,2-DICHLOROETHENE	ND	1.0	0.10	0.20
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11	0.20
TRICHLOROETHENE	ND	1.0	0.10	0.20
TRICHLOROFLUOROMETHANE	ND	1.0	0.15	0.30
VINYL CHLORIDE	ND	0.50	0.12	0.20
VINYL ACETATE	ND	2.0	0.25	0.50
FREON113	ND	1.0	0.20	0.30
TERT-BUTANOL	ND	20	5.0	10
DIPE	ND	1.0	0.10	0.20
ETBE	ND	1.0	0.10	0.20
TAME	ND	1.0	0.10	0.20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.27	10.00	92.7	70-120
4-BROMOFLUOROBENZENE	9.65	10.00	96.5	75-120
TOLUENE-D8	9.29	10.00	92.9	85-120
DIBROMOFLUOROMETHANE	9.63	10.00	96.3	85-115

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: ARCADIS
PROJECT: VAFB-SS003
BATCH NO.: 20L087
METHOD: METHOD 5030B/8260B

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	V067L08B	V067L08L	V067L08C		
LAB FILE ID:	RLC171	RLC168	RLC169		
DATE EXTRACTED:	12/11/2017:32	12/11/2016:10	12/11/2016:36	DATE COLLECTED:	NA
DATE ANALYZED:	12/11/2017:32	12/11/2016:10	12/11/2016:36	DATE RECEIVED:	12/11/20
PREP. BATCH:	V067L08	V067L08	V067L08		
CALIB. REF:	RJC459	RJC459	RJC459		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1,1,2-Tetrachloroethane	ND	10.0	9.99	100	10.0	9.53	95	5	80-130	20
1,1,1-Trichloroethane	ND	10.0	9.41	94	10.0	8.82	88	6	65-130	20
1,1,2,2-Tetrachloroethane	ND	10.0	10.6	106	10.0	10.1	101	4	65-130	20
1,1,2-Trichloroethane	ND	10.0	10.1	101	10.0	9.54	95	5	75-125	20
1,1-Dichloroethane	ND	10.0	9.30	93	10.0	8.70	87	7	70-135	20
1,1-Dichloroethene	ND	10.0	8.96	90	10.0	8.38	84	7	70-130	20
1,1-Dichloropropene	ND	10.0	9.97	100	10.0	9.44	94	5	75-130	20
1,2,3-Trichlorobenzene	ND	10.0	10.5	105	10.0	10.2	102	2	55-140	20
1,2,3-Trichloropropane	ND	10.0	10.9	109	10.0	10.3	103	5	75-125	20
1,2,4-Trichlorobenzene	ND	10.0	10.1	101	10.0	9.66	97	4	65-135	20
1,2,4-Trimethylbenzene	ND	10.0	9.42	94	10.0	9.00	90	5	75-130	20
1,2-Dibromo-3-chloropropane	ND	10.0	12.0	120	10.0	11.8	118	1	50-130	20
1,2-Dibromoethane	ND	10.0	10.8	108	10.0	10.2	102	5	80-120	20
1,2-Dichlorobenzene	ND	10.0	9.27	93	10.0	8.92	89	4	70-120	20
1,2-Dichloroethane	ND	10.0	9.91	99	10.0	9.33	93	6	70-130	20
1,2-Dichloropropane	ND	10.0	9.74	97	10.0	9.22	92	5	75-125	20
1,3,5-Trimethylbenzene	ND	10.0	9.26	93	10.0	8.84	88	5	75-130	20
1,3-Dichlorobenzene	ND	10.0	9.31	93	10.0	8.91	89	4	75-125	20
1,3-Dichloropropane	ND	10.0	10.0	100	10.0	9.48	95	5	75-125	20
1,4-Dichlorobenzene	ND	10.0	9.17	92	10.0	8.87	89	3	75-125	20
2,2-Dichloropropane	ND	10.0	9.90	99	10.0	8.79	88	12	70-135	20
2-Butanone	ND	50.0	50.4	101	50.0	48.0	96	5	30-150	20
2-Chlorotoluene	ND	10.0	8.70	87	10.0	8.18	82	6	75-125	20
2-Hexanone	ND	50.0	44.6	89	50.0	42.4	85	5	55-130	20
4-Chlorotoluene	ND	10.0	8.74	87	10.0	8.43	84	4	75-130	20
Acetone	ND	50.0	43.3	87	50.0	40.6	81	6	40-140	20
Benzene	ND	10.0	9.78	98	10.0	9.21	92	6	80-120	20
Bromobenzene	ND	10.0	10.1	101	10.0	9.62	96	5	75-125	20
Bromochloromethane	ND	10.0	11.1	111	10.0	10.5	105	6	65-130	20
Bromodichloromethane	ND	10.0	10.3	103	10.0	9.78	98	5	75-120	20
Bromoform	ND	10.0	10.6	106	10.0	10.1	101	5	70-130	20
Bromomethane	ND	10.0	8.48	85	10.0	8.11	81	4	30-145	20
Carbon Disulfide	ND	10.0	8.42	84	10.0	7.80	78	8	35-160	20
Carbon Tetrachloride	ND	10.0	9.74	97	10.0	9.21	92	6	65-140	20
Chlorobenzene	ND	10.0	9.61	96	10.0	9.13	91	5	80-120	20
Chloroethane	ND	10.0	8.80	88	10.0	8.42	84	4	60-135	20
Chloroform	ND	10.0	9.69	97	10.0	9.09	91	6	65-135	20
Chloromethane	ND	10.0	9.79	98	10.0	9.34	93	5	40-125	20
cis-1,2-Dichloroethene	ND	10.0	9.83	98	10.0	9.22	92	6	70-125	20
cis-1,3-Dichloropropene	ND	10.0	10.4	104	10.0	9.83	98	6	70-130	20
Dibromochloromethane	ND	10.0	10.7	107	10.0	10.2	102	5	60-135	20
Dichlorodifluoromethane	ND	10.0	7.82	78	10.0	7.57	76	3	30-155	20
Ethylbenzene	ND	10.0	9.25	92	10.0	8.82	88	5	75-125	20
Hexachlorobutadiene	ND	10.0	8.72	87	10.0	8.47	85	3	50-140	20
Isopropyl Benzene	ND	10.0	9.53	95	10.0	9.02	90	6	75-125	20
m,p-Xylenes	ND	20.0	18.8	94	20.0	17.6	88	6	75-130	20
MIBK	ND	50.0	45.8	92	50.0	43.7	87	5	60-135	20
Methylene Chloride	ND	10.0	9.25	93	10.0	8.70	87	6	55-140	20
MTBE	ND	10.0	10.7	107	10.0	10.1	101	6	65-125	20
Naphthalene	ND	10.0	11.0	110	10.0	10.7	107	3	55-140	20
n-Butylbenzene	ND	10.0	9.14	91	10.0	8.85	89	3	70-135	20
n-Propylbenzene	ND	10.0	9.04	90	10.0	8.64	86	5	70-130	20
o-Xylene	ND	10.0	9.29	93	10.0	8.86	89	5	80-120	20
p-Isopropyltoluene	ND	10.0	9.70	97	10.0	9.30	93	4	75-130	20
Sec-Butylbenzene	ND	10.0	9.16	92	10.0	8.83	88	4	70-125	20
Styrene	ND	10.0	9.30	93	10.0	8.69	87	7	65-135	20
Tert-Butylbenzene	ND	10.0	9.22	92	10.0	8.79	88	5	70-130	20
Tetrachloroethene	ND	10.0	9.28	93	10.0	8.81	88	5	45-150	20
Toluene	ND	10.0	9.46	95	10.0	8.89	89	6	75-120	20
Trans-1,2-Dichloroethene	ND	10.0	9.86	99	10.0	9.20	92	7	60-140	20
Trans-1,3-Dichloropropene	ND	10.0	9.78	98	10.0	9.22	92	6	55-140	20
Trichloroethene	ND	10.0	10.2	102	10.0	9.74	97	4	70-125	20
Trichlorofluoromethane	ND	10.0	9.42	94	10.0	9.13	91	3	60-145	20
Vinyl Chloride	ND	10.0	9.73	97	10.0	9.24	92	5	50-145	20
Vinyl Acetate	ND	10.0	10.1	101	10.0	9.45	95	7	20-160	20
Freon113	ND	10.0	9.63	96	10.0	9.20	92	5	70-140	20
tert-Butanol	ND	250	273	109	250	251	100	8	60-150	20
DIPE	ND	10.0	9.62	96	10.0	9.04	90	6	70-140	20
ETBE	ND	10.0	10.1	101	10.0	9.46	95	7	60-140	20
TAME	ND	10.0	10.7	107	10.0	10.2	102	5	60-140	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10.0	9.34	93	10.0	9.26	93	70-120
4-Bromofluorobenzene	10.0	8.96	90	10.0	8.80	88	75-120
Toluene-d8	10.0	9.11	91	10.0	9.08	91	85-120
Dibromofluoromethane	10.0	9.78	98	10.0	9.59	96	85-115

QC DATA

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L10\RLC140.D Vial: 6
Acq On : 10 Dec 2020 3:32 pm Operator: VLu
Sample : VO67L07B 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:05 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

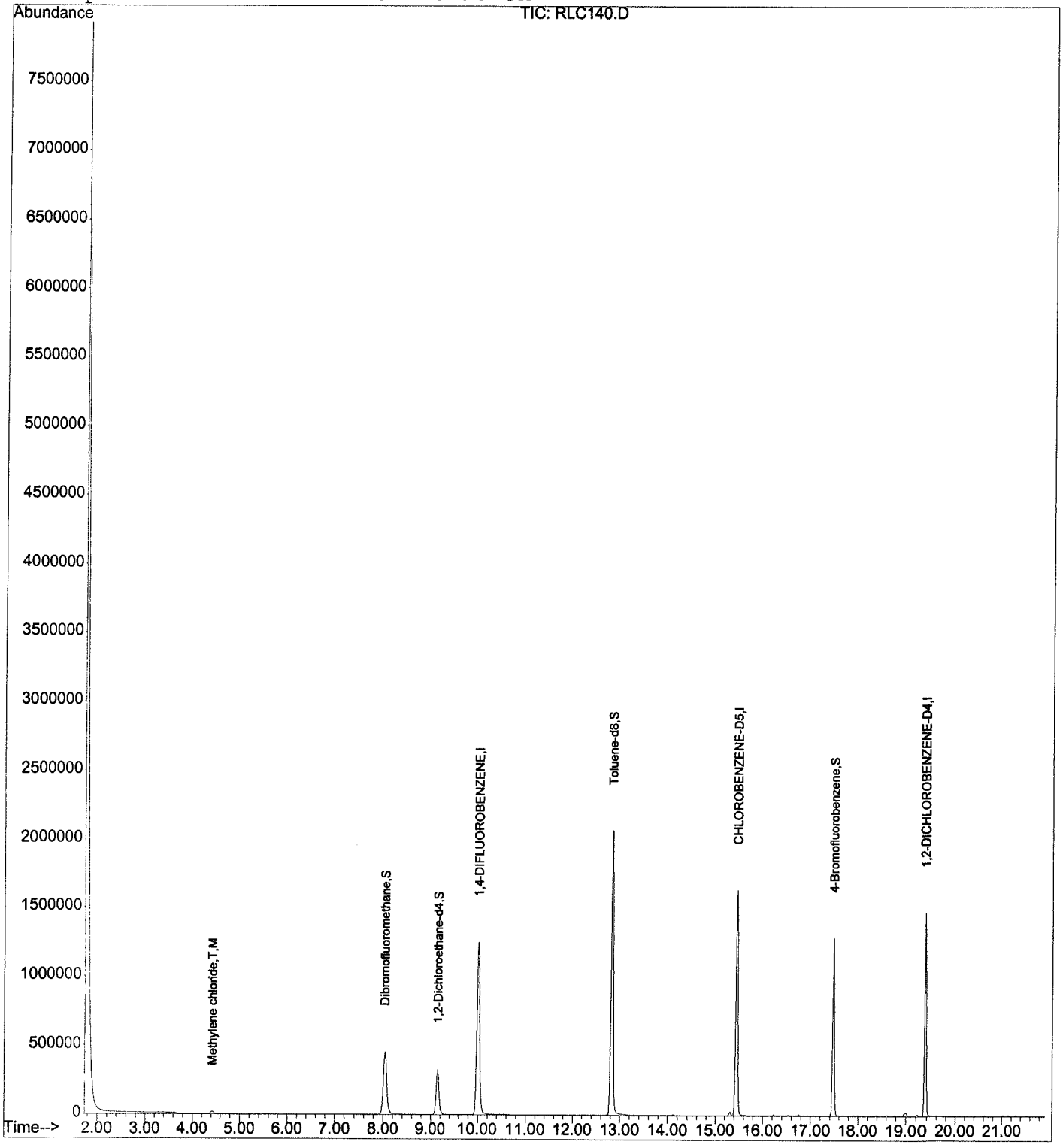
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2398277	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1789432	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	522136	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	758034	9.68	ug/l	0.00
Spiked Amount 10.000			Recovery = 96.80%			
43) 1,2-Dichloroethane-d4	9.14	65	455851	9.10	ug/l	0.00
Spiked Amount 10.000			Recovery = 91.00%			
56) Toluene-d8	12.82	98	2630581	9.63	ug/l	0.00
Spiked Amount 10.000			Recovery = 96.30%			
77) 4-Bromofluorobenzene	17.47	95	711767	10.03	ug/l	0.00
Spiked Amount 10.000			Recovery = 100.30%			
Target Compounds						Qvalue
19) Methylene chloride	4.42	49	24935	0.24	ug/l	98

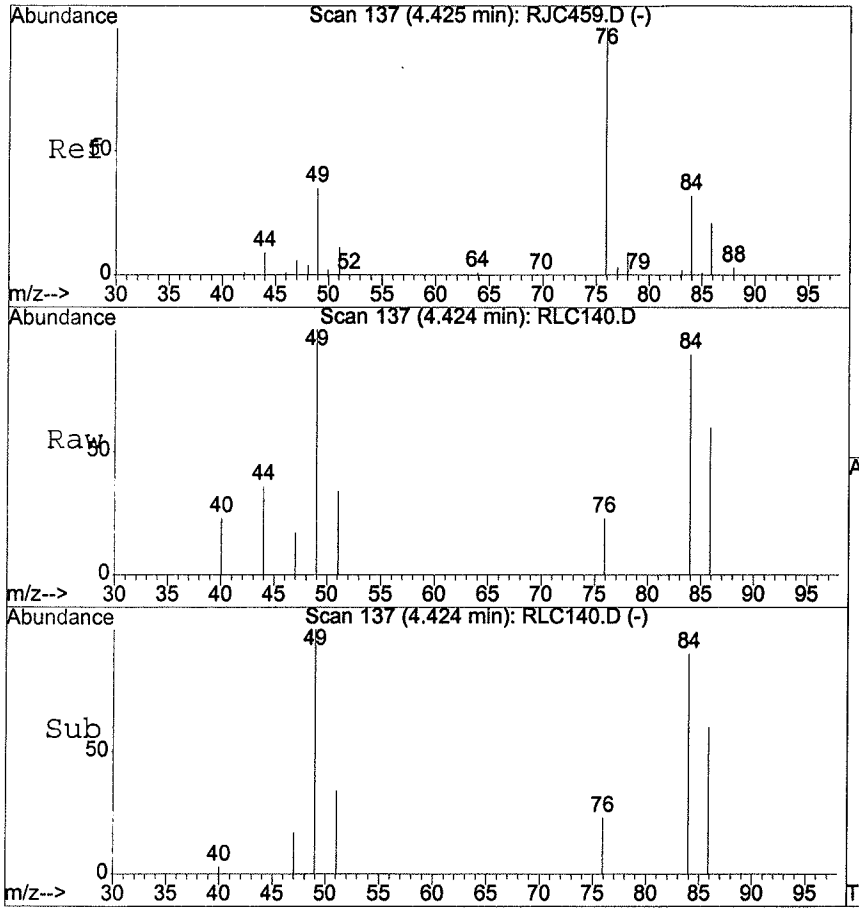
(#) = qualifier out of range (m) = manual integration
RLC140.D VO67J30.M Fri Dec 11 12:05:29 2020 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L10\RLC140.D Vial: 6
Acq On : 10 Dec 2020 3:32 pm Operator: VLu
Sample : VO67L07B 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:05 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

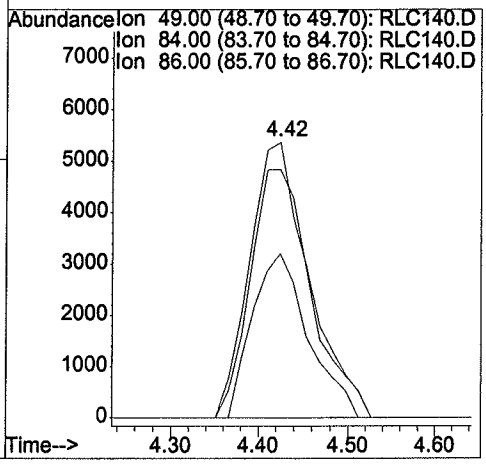




#19
Methylene chloride
Concen: 0.24 ug/l
RT: 4.42 min Scan# 137
Delta R.T. -0.00 min
Lab File: RLC140.D
Acq: 10 Dec 2020 3:32 pm

Tgt Ion: 49 Resp: 24935

Ion	Ratio	Lower	Upper
49	100		
84	92.6	60.1	120.1
86	56.3	27.5	87.5



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L10\RLC137.D Vial: 3
Acq On : 10 Dec 2020 2:14 pm Operator: VLu
Sample : VO67L07L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:06 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2370919	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.45	117	1801462	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	583228	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	759158	9.81	ug/l	0.00
Spiked Amount 10.000			Recovery =	98.10%		
43) 1,2-Dichloroethane-d4	9.14	65	459414	9.28	ug/l	0.00
Spiked Amount 10.000			Recovery =	92.80%		
56) Toluene-d8	12.82	98	2593491	9.43	ug/l	0.00
Spiked Amount 10.000			Recovery =	94.30%		
77) 4-Bromofluorobenzene	17.47	95	729333	9.20	ug/l	0.00
Spiked Amount 10.000			Recovery =	92.00%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	659004	8.04	ug/l	100
4) Chloromethane	2.11	50	1266370	10.09	ug/l	100
5) Vinyl chloride	2.23	62	1176091	9.94	ug/l	99
6) Bromomethane	2.64	94	852891	8.29	ug/l	98
7) Chloroethane	2.64	64	774053	8.93	ug/l	98
8) Dichlorofluoromethane	2.72	67	1508126	8.21	ug/l	99
9) Trichlorofluoromethane	2.90	101	1157824	9.46	ug/l	100
11) Acrolein	3.44	56	198601	38.69	ug/l	77
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	563164	8.66	ug/l	100
13) Acetone	3.52	43	293591	40.15	ug/l	99
14) 1,1-Dichloroethene	3.68	61	1172655	7.97	ug/l	97
15) tert-Butyl alcohol	3.80	59	590423	233.03	ug/l	100
17) Iodomethane	4.13	142	1086932	8.21	ug/l	98
18) Acetonitrile	4.23	41	992490	84.62	ug/l	99
19) Methylene chloride	4.41	49	853744	8.22	ug/l	97
20) Carbon disulfide	4.40	76	2913799	8.10	ug/l	99
21) Acrylonitrile	4.64	53	463554	42.90	ug/l	99
22) tert-Butyl methyl ether (M	4.69	73	1079326	9.09	ug/l	100
23) trans-1,2-Dichloroethene	4.91	96	872123	8.32	ug/l	99
24) Isopropyl ether (DIPE)	5.56	45	1940507	8.70	ug/l	98
25) 1,1-Dichloroethane	5.74	63	1372223	8.47	ug/l	99
26) Vinyl acetate	5.80	43	781251	9.67	ug/l	98
28) tert-Butyl ethyl ether (ET	6.47	59	1513717	8.80	ug/l	99
29) 2-Butanone	6.75	72	144505	47.19	ug/l	98
30) 2,2-Dichloropropane	7.04	77	957199	8.61	ug/l	99
31) cis-1,2-Dichloroethene	7.14	96	867192	8.48	ug/l	98
32) Chloroform	7.52	83	1308684	8.65	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\20L10\RLC137.D Vial: 3
Acq On : 10 Dec 2020 2:14 pm Operator: VLu
Sample : VO67L07L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:06 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
33)	Bromochloromethane	7.89	130	416942	9.30 ug/l		100
36)	Tetrahydrofuran	7.97	42	68034	8.83 ug/l		95
37)	1,1,1-Trichloroethane	8.43	97	1036800	8.41 ug/l		99
40)	1,1-Dichloropropene	8.76	110	398833	8.44 ug/l		100
41)	Carbon tetrachloride	8.95	119	877636	8.67 ug/l		100
42)	tert-Amyl methyl ether (TA	9.08	87	277122	9.20 ug/l		99
44)	1,2-Dichloroethane	9.33	62	530466	8.67 ug/l		100
45)	Benzene	9.32	78	2996056	8.63 ug/l		99
46)	Trichloroethene	10.57	130	787992	8.57 ug/l		97
48)	1,2-Dichloropropane	10.94	63	663681	8.70 ug/l		99
49)	Bromodichloromethane	11.38	83	836545	9.12 ug/l		99
50)	1,4-Dioxane	11.46	88	44651	160.44 ug/l		95
51)	Dibromomethane	11.45	93	321360	9.06 ug/l		100
53)	4-Methyl-2-pentanone	12.09	43	1201753	42.59 ug/l		95
54)	cis-1,3-Dichloropropene	12.43	75	995530	8.95 ug/l		98
57)	Toluene	12.95	91	2976192	8.39 ug/l		100
58)	Ethyl methacrylate	13.38	69	472524	9.19 ug/l		96
59)	trans-1,3-Dichloropropene	13.35	75	716813	8.75 ug/l		97
60)	1,1,2-Trichloroethane	13.60	97	385512	8.91 ug/l		99
61)	2-Hexanone	13.66	43	767788	43.02 ug/l		97
62)	1,3-Dichloropropane	14.05	76	692061	8.78 ug/l		100
63)	Tetrachloroethene	14.09	164	548593	7.75 ug/l		99
64)	Dibromochloromethane	14.46	129	497489	9.53 ug/l		100
65)	1,2-Dibromoethane	14.79	107	373788	9.14 ug/l		99
66)	1-Chlorohexane	15.13	91	1217941	8.63 ug/l		99
67)	Chlorobenzene	15.51	112	1695728	8.50 ug/l		100
68)	1,1,1,2-Tetrachloroethane	15.60	131	558919	8.98 ug/l		99
69)	Ethylbenzene	15.61	91	3248794	8.23 ug/l		99
70)	m-Xylene & p-Xylene	15.74	91	4756408	16.45 ug/l		98
71)	o-Xylene	16.47	91	2265529	8.29 ug/l		99
72)	Styrene	16.55	104	1752039	8.23 ug/l	#	78
73)	Isopropylbenzene	17.09	105	3067302	8.63 ug/l		99
75)	Bromoform	17.09	173	255408	9.71 ug/l		99
76)	1,1,2,2-Tetrachloroethane	17.37	83	404580	9.46 ug/l		99
78)	1,2,3-Trichloropropane	17.58	110	101122	9.72 ug/l		98
79)	trans-1,4-Dichloro-2-buten	17.19	53	80163	7.57 ug/l		96
80)	n-Propylbenzene	17.69	91	3772731	8.32 ug/l		99
81)	Bromobenzene	17.73	156	563486	8.78 ug/l		99
82)	1,3,5-Trimethylbenzene	17.91	105	2273569	8.42 ug/l		99
83)	2-Chlorotoluene	17.92	91	2181869	7.84 ug/l		98
84)	4-Chlorotoluene	17.98	91	1906910	8.17 ug/l		99

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

Data File : D:\HPCHEM\1\DATA\20L10\RLC137.D Vial: 3
Acq On : 10 Dec 2020 2:14 pm Operator: VLu
Sample : VO67L07L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:06 2020 Quant Results File: VO67J30.RES

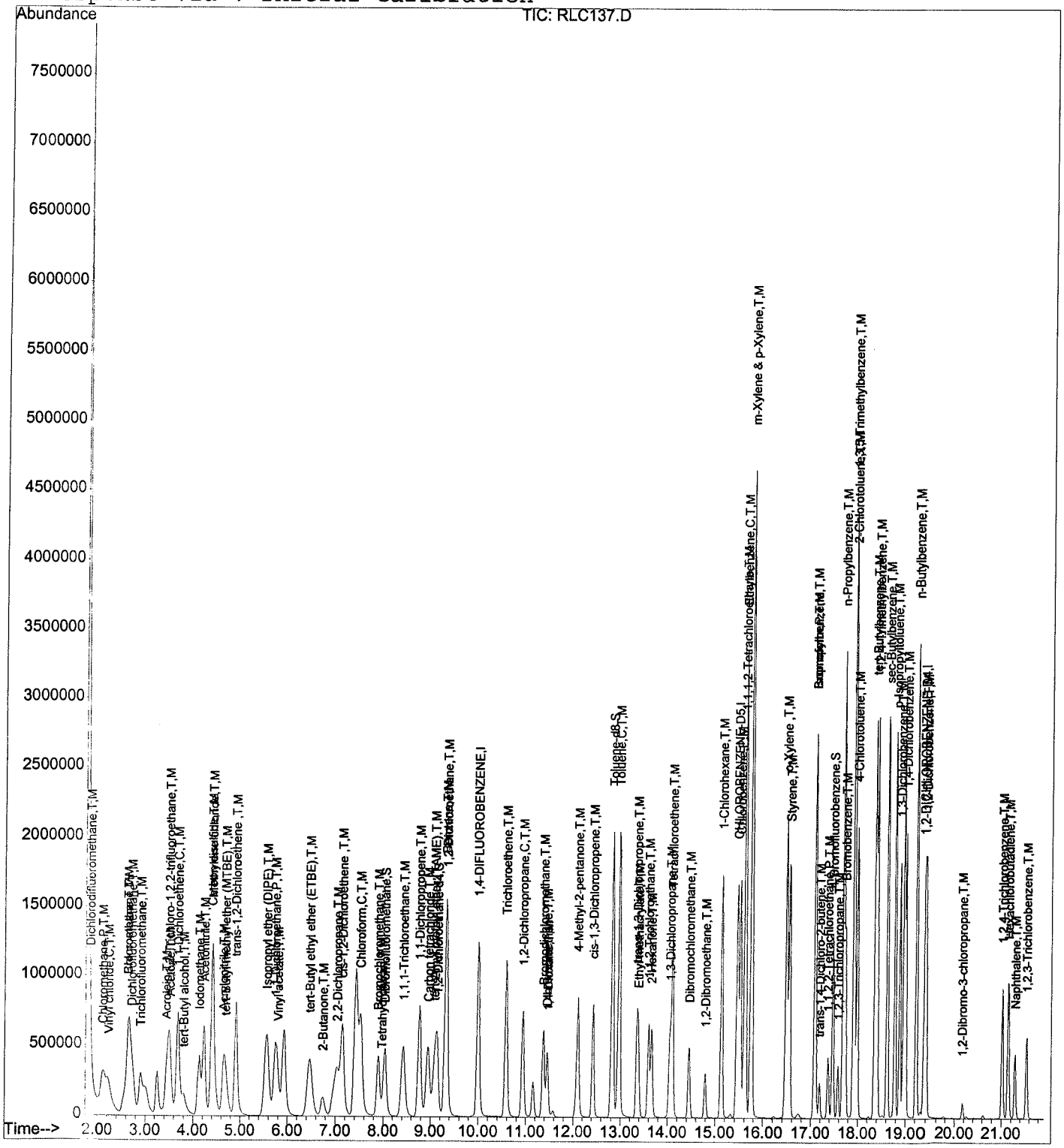
Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
85)	tert-Butylbenzene	18.36	134	507493	8.56 ug/l	97
86)	1,2,4-Trimethylbenzene	18.40	105	2162138	8.54 ug/l	99
87)	sec-Butylbenzene	18.62	105	3285842	8.61 ug/l	100
88)	p-Isopropyltoluene	18.78	119	2560518	8.86 ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	1087238	8.27 ug/l	99
90)	1,4-Dichlorobenzene	19.00	146	1054524	8.19 ug/l	99
91)	n-Butylbenzene	19.22	91	2498882	8.41 ug/l	99
92)	1,2-Dichlorobenzene	19.40	146	873320	8.31 ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.17	157	48174	10.62 ug/l	99
94)	1,2,4-Trichlorobenzene	21.02	180	436460	8.79 ug/l	99
95)	Hexachlorobutadiene	21.15	225	327096	8.00 ug/l	99
96)	Naphthalene	21.29	128	586054	9.90 ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	309293	9.16 ug/l	98

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

Data File : D:\HPCHEM\1\DATA\20L10\RLC137.D Vial: 3
Acq On : 10 Dec 2020 2:14 pm Operator: VLu
Sample : VO67L07L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:06 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L10\RLC138.D Vial: 4
Acq On : 10 Dec 2020 2:41 pm Operator: VLu
Sample : VO67L07C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:06 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2319565	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.45	117	1785081	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	579775	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	742962	9.81	ug/l	0.00
Spiked Amount 10.000			Recovery =	98.10%		
43) 1,2-Dichloroethane-d4	9.14	65	458757	9.47	ug/l	0.00
Spiked Amount 10.000			Recovery =	94.70%		
56) Toluene-d8	12.82	98	2538785	9.32	ug/l	0.00
Spiked Amount 10.000			Recovery =	93.20%		
77) 4-Bromofluorobenzene	17.47	95	718710	9.12	ug/l	0.00
Spiked Amount 10.000			Recovery =	91.20%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	646610	8.07	ug/l	100
4) Chloromethane	2.11	50	1242265	10.11	ug/l	100
5) Vinyl chloride	2.23	62	1152930	9.96	ug/l	100
6) Bromomethane	2.64	94	833001	8.28	ug/l	99
7) Chloroethane	2.64	64	758854	8.95	ug/l	98
8) Dichlorofluoromethane	2.72	67	1453203	8.09	ug/l	99
9) Trichlorofluoromethane	2.91	101	1122362	9.38	ug/l	100
11) Acrolein	3.44	56	200881	40.00	ug/l	79
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	540828	8.50	ug/l	99
13) Acetone	3.50	43	304513	42.57	ug/l	98
14) 1,1-Dichloroethene	3.68	61	1128851	7.84	ug/l	97
15) tert-Butyl alcohol	3.80	59	587844	237.15	ug/l	99
17) Iodomethane	4.13	142	1033449	7.97	ug/l	99
18) Acetonitrile	4.22	41	931913	81.22	ug/l	99
19) Methylene chloride	4.41	49	833742	8.21	ug/l	97
20) Carbon disulfide	4.40	76	2655231	7.55	ug/l	99
21) Acrylonitrile	4.64	53	472205	44.67	ug/l	99
22) tert-Butyl methyl ether (M	4.67	73	1067396	9.19	ug/l	100
23) trans-1,2-Dichloroethene	4.91	96	836661	8.15	ug/l	98
24) Isopropyl ether (DIPE)	5.56	45	1890261	8.67	ug/l	96
25) 1,1-Dichloroethane	5.74	63	1319584	8.33	ug/l	99
26) Vinyl acetate	5.80	43	769936	9.74	ug/l	99
28) tert-Butyl ethyl ether (ET	6.46	59	1486171	8.83	ug/l	99
29) 2-Butanone	6.75	72	146895	49.04	ug/l	97
30) 2,2-Dichloropropane	7.03	77	910994	8.37	ug/l	99
31) cis-1,2-Dichloroethene	7.14	96	845024	8.45	ug/l	98
32) Chloroform	7.52	83	1267535	8.56	ug/l	98

(#) = qualifier out of range (m) = manual integration
RLC138.D VO67J30.M Fri Dec 11 12:06:55 2020 Page 1

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L10\RLC138.D Vial: 4
Acq On : 10 Dec 2020 2:41 pm Operator: VLu
Sample : VO67L07C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:06 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
33)	Bromochloromethane	7.89	130	412731	9.41 ug/l		100
36)	Tetrahydrofuran	7.97	42	70324	9.32 ug/l		95
37)	1,1,1-Trichloroethane	8.43	97	997048	8.27 ug/l		99
40)	1,1-Dichloropropene	8.76	110	384905	8.32 ug/l		99
41)	Carbon tetrachloride	8.94	119	846856	8.55 ug/l		99
42)	tert-Amyl methyl ether (TA	9.10	87	274837	9.33 ug/l		99
44)	1,2-Dichloroethane	9.33	62	520901	8.70 ug/l		99
45)	Benzene	9.32	78	2887420	8.50 ug/l		99
46)	Trichloroethene	10.57	130	766524	8.52 ug/l		97
48)	1,2-Dichloropropane	10.94	63	644038	8.63 ug/l		100
49)	Bromodichloromethane	11.38	83	824473	9.19 ug/l		99
50)	1,4-Dioxane	11.47	88	45714	167.89 ug/l		95
51)	Dibromomethane	11.45	93	318726	9.19 ug/l		99
53)	4-Methyl-2-pentanone	12.09	43	1247788	45.20 ug/l		96
54)	cis-1,3-Dichloropropene	12.43	75	978790	8.99 ug/l		98
57)	Toluene	12.95	91	2885080	8.21 ug/l		100
58)	Ethyl methacrylate	13.38	69	479544	9.41 ug/l		96
59)	trans-1,3-Dichloropropene	13.35	75	713343	8.79 ug/l		97
60)	1,1,2-Trichloroethane	13.60	97	388197	9.06 ug/l		99
61)	2-Hexanone	13.66	43	795579	44.98 ug/l		97
62)	1,3-Dichloropropane	14.04	76	698501	8.94 ug/l		99
63)	Tetrachloroethene	14.09	164	533130	7.60 ug/l		99
64)	Dibromochloromethane	14.46	129	500442	9.68 ug/l		100
65)	1,2-Dibromoethane	14.80	107	377331	9.31 ug/l		99
66)	1-Chlorohexane	15.13	91	1173795	8.39 ug/l		99
67)	Chlorobenzene	15.51	112	1654825	8.37 ug/l		100
68)	1,1,1,2-Tetrachloroethane	15.60	131	545136	8.83 ug/l		100
69)	Ethylbenzene	15.61	91	3145860	8.04 ug/l		99
70)	m-Xylene & p-Xylene	15.74	91	4645092	16.21 ug/l		98
71)	o-Xylene	16.47	91	2204078	8.13 ug/l		99
72)	Styrene	16.55	104	1733589	8.22 ug/l	#	78
73)	Isopropylbenzene	17.09	105	2935549	8.34 ug/l		99
75)	Bromoform	17.09	173	255170	9.76 ug/l		100
76)	1,1,2,2-Tetrachloroethane	17.37	83	411209	9.67 ug/l		100
78)	1,2,3-Trichloropropane	17.58	110	103077	9.97 ug/l		98
79)	trans-1,4-Dichloro-2-buten	17.19	53	80995	7.69 ug/l		97
80)	n-Propylbenzene	17.69	91	3611192	8.01 ug/l		99
81)	Bromobenzene	17.73	156	550355	8.63 ug/l		99
82)	1,3,5-Trimethylbenzene	17.91	105	2198518	8.19 ug/l		100
83)	2-Chlorotoluene	17.92	91	2111451	7.63 ug/l		98
84)	4-Chlorotoluene	17.98	91	1829348	7.88 ug/l		100

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

Data File : D:\HPCHEM\1\DATA\20L10\RLC138.D Vial: 4
Acq On : 10 Dec 2020 2:41 pm Operator: VLu
Sample : VO67L07C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:06 2020 Quant Results File: VO67J30.RES

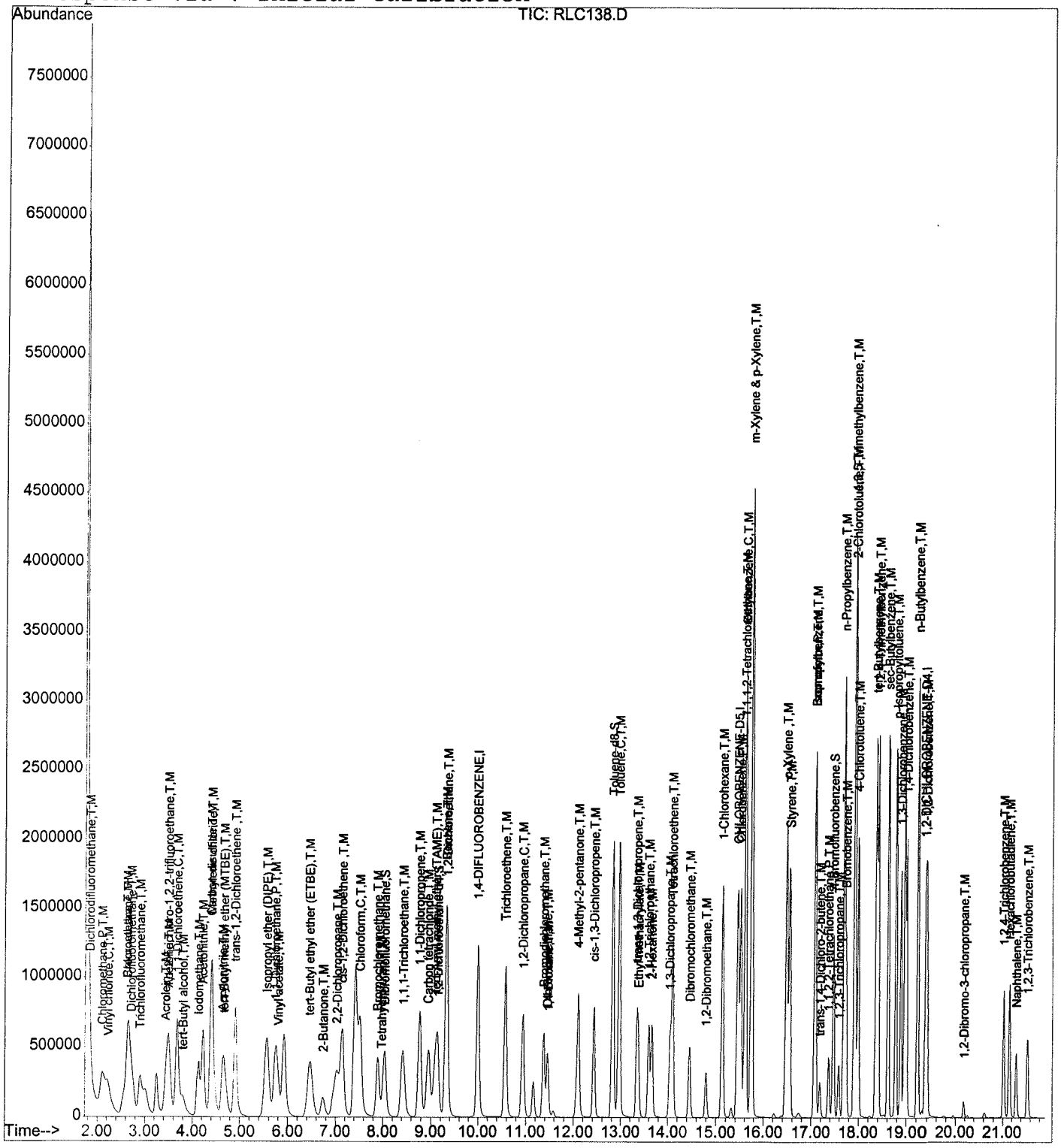
Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
85)	tert-Butylbenzene	18.36	134	487538	8.28	ug/l	96
86)	1,2,4-Trimethylbenzene	18.40	105	2078310	8.26	ug/l	99
87)	sec-Butylbenzene	18.61	105	3124447	8.24	ug/l	99
88)	p-Isopropyltoluene	18.78	119	2457415	8.55	ug/l	98
89)	1,3-Dichlorobenzene	18.88	146	1052222	8.05	ug/l	99
90)	1,4-Dichlorobenzene	19.00	146	1022572	7.99	ug/l	99
91)	n-Butylbenzene	19.22	91	2374281	8.04	ug/l	99
92)	1,2-Dichlorobenzene	19.40	146	853675	8.18	ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.18	157	49929	11.07	ug/l	100
94)	1,2,4-Trichlorobenzene	21.02	180	426447	8.64	ug/l	100
95)	Hexachlorobutadiene	21.15	225	309427	7.61	ug/l	99
96)	Naphthalene	21.29	128	593335	10.08	ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	305562	9.10	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\20L10\RLC138.D Vial: 4
Acq On : 10 Dec 2020 2:41 pm Operator: VLu
Sample : VO67L07C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 12:06 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L11\RLC171.D Vial: 7
Acq On : 11 Dec 2020 5:32 pm Operator: VLu
Sample : VO67L08B 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:34 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

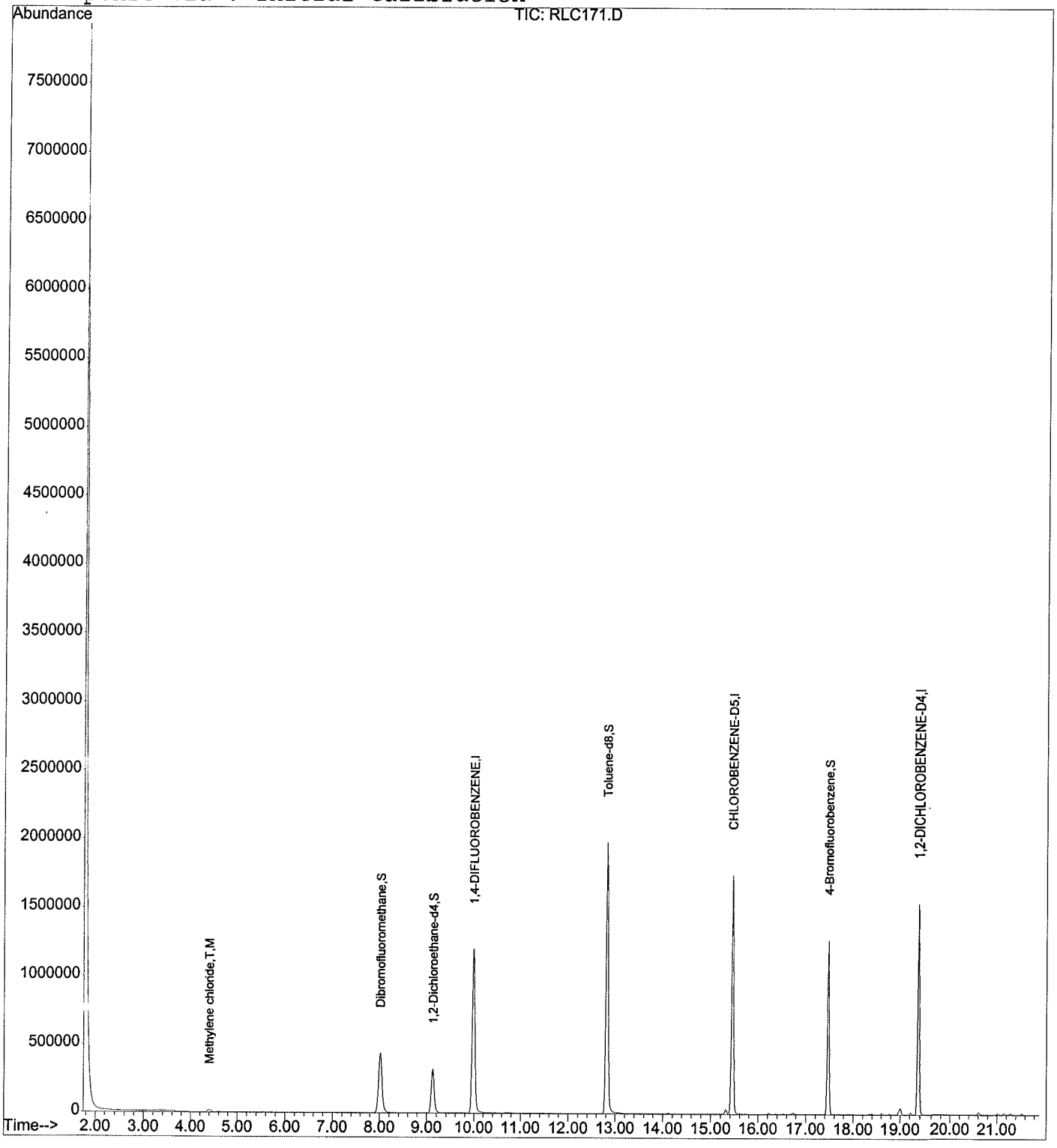
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2369160	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1837465	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	551378	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.02	111	745349	9.63	ug/l	-0.01
Spiked Amount 10.000			Recovery =	96.30%		
43) 1,2-Dichloroethane-d4	9.13	65	458932	9.27	ug/l	-0.01
Spiked Amount 10.000			Recovery =	92.70%		
56) Toluene-d8	12.81	98	2604832	9.29	ug/l	-0.01
Spiked Amount 10.000			Recovery =	92.90%		
77) 4-Bromofluorobenzene	17.47	95	723491	9.65	ug/l	0.00
Spiked Amount 10.000			Recovery =	96.50%		
Target Compounds						Qvalue
19) Methylene chloride	4.40	49	23553	0.23	ug/l	94

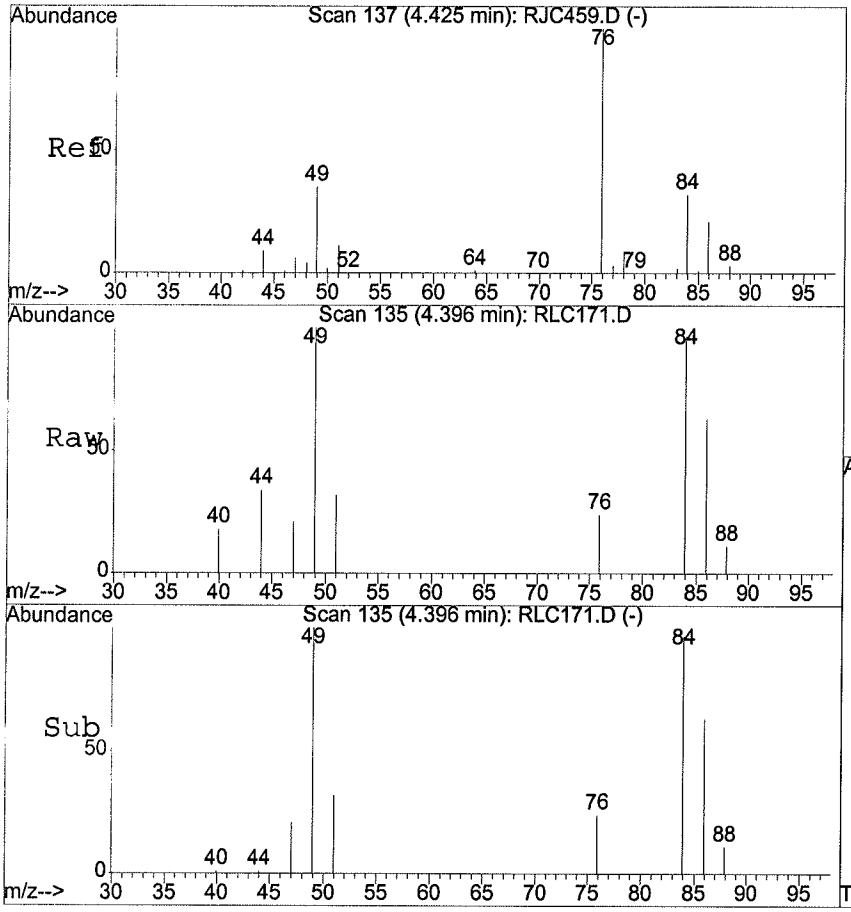
(#) = qualifier out of range (m) = manual integration
RLC171.D VO67J30.M Mon Dec 14 10:34:20 2020 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L11\RLC171.D Vial: 7
Acq On : 11 Dec 2020 5:32 pm Operator: VLu
Sample : VO67L08B 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:34 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration

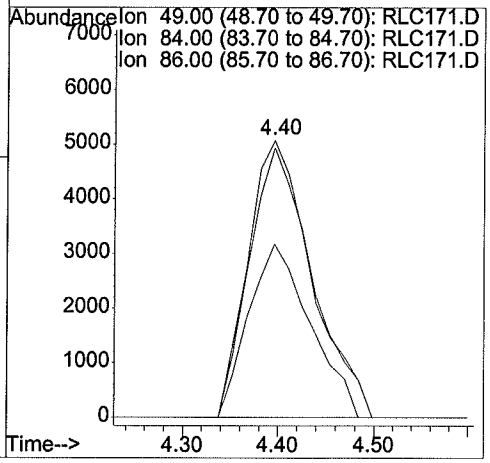




#19
Methylene chloride
Concen: 0.23 ug/l
RT: 4.40 min Scan# 135
Delta R.T. -0.03 min
Lab File: RLC171.D
Acq: 11 Dec 2020 5:32 pm

Tgt Ion: 49 Resp: 23553

Ion	Ratio	Lower	Upper
49	100		
84	96.5	60.1	120.1
86	60.6	27.5	87.5



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L11\RLC168.D Vial: 4
Acq On : 11 Dec 2020 4:10 pm Operator: VLu
Sample : VO67L08L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:50 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2254031	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.44	117	1776022	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	588220	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.02	111	719938	9.78	ug/l	-0.01
Spiked Amount 10.000			Recovery =	97.80%		
43) 1,2-Dichloroethane-d4	9.13	65	440003	9.34	ug/l	-0.01
Spiked Amount 10.000			Recovery =	93.40%		
56) Toluene-d8	12.81	98	2470143	9.11	ug/l	-0.01
Spiked Amount 10.000			Recovery =	91.10%		
77) 4-Bromofluorobenzene	17.47	95	716362	8.96	ug/l	0.00
Spiked Amount 10.000			Recovery =	89.60%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	608888	7.82	ug/l	100
4) Chloromethane	2.11	50	1168384	9.79	ug/l	100
5) Vinyl chloride	2.21	62	1094749	9.73	ug/l	100
6) Bromomethane	2.64	94	829461	8.48	ug/l	100
7) Chloroethane	2.64	64	725563	8.80	ug/l	98
8) Dichlorofluoromethane	2.72	67	1549833	8.88	ug/l	100
9) Trichlorofluoromethane	2.88	101	1095525	9.42	ug/l	100
11) Acrolein	3.41	56	202490	41.50	ug/l	95
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	595552	9.63	ug/l	100
13) Acetone	3.50	43	300755	43.27	ug/l	99
14) 1,1-Dichloroethene	3.66	61	1253426	8.96	ug/l	96
15) tert-Butyl alcohol	3.78	59	656716	272.64	ug/l	100
17) Iodomethane	4.09	142	1156494	9.18	ug/l	99
18) Acetonitrile	4.22	41	992897	89.05	ug/l	96
19) Methylene chloride	4.39	49	912974	9.25	ug/l	94
20) Carbon disulfide	4.38	76	2878794	8.42	ug/l	100
21) Acrylonitrile	4.63	53	464872	45.26	ug/l	99
22) tert-Butyl methyl ether (M	4.67	73	1208990	10.71	ug/l	98
23) trans-1,2-Dichloroethene	4.89	96	982855	9.86	ug/l	99
24) Isopropyl ether (DIPE)	5.55	45	2038800	9.62	ug/l	94
25) 1,1-Dichloroethane	5.72	63	1432691	9.30	ug/l	100
26) Vinyl acetate	5.78	43	778061	10.12	ug/l	97
28) tert-Butyl ethyl ether (ET	6.45	59	1652328	10.10	ug/l	98
29) 2-Butanone	6.72	72	146752	50.41	ug/l	97
30) 2,2-Dichloropropane	7.02	77	1046375	9.90	ug/l	99
31) cis-1,2-Dichloroethene	7.13	96	955228	9.83	ug/l	99
32) Chloroform	7.51	83	1393847	9.69	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\20L11\RLC168.D Vial: 4
Acq On : 11 Dec 2020 4:10 pm Operator: VLu
Sample : VO67L08L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:50 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Bromochloromethane	7.87	130	475175	11.14	ug/l	99
36)	Tetrahydrofuran	7.96	42	73490	10.03	ug/l	95
37)	1,1,1-Trichloroethane	8.41	97	1103044	9.41	ug/l	98
40)	1,1-Dichloropropene	8.75	110	447946	9.97	ug/l	99
41)	Carbon tetrachloride	8.94	119	936808	9.74	ug/l	99
42)	tert-Amyl methyl ether (TA	9.08	87	307327	10.74	ug/l	100
44)	1,2-Dichloroethane	9.32	62	576503	9.91	ug/l	100
45)	Benzene	9.30	78	3226759	9.78	ug/l	99
46)	Trichloroethene	10.57	130	888132	10.16	ug/l	96
48)	1,2-Dichloropropane	10.92	63	705846	9.74	ug/l	99
49)	Bromodichloromethane	11.36	83	897484	10.29	ug/l	99
50)	1,4-Dioxane	11.45	88	51906	196.18	ug/l	93
51)	Dibromomethane	11.45	93	361808	10.73	ug/l	98
53)	4-Methyl-2-pentanone	12.09	43	1229058	45.82	ug/l	94
54)	cis-1,3-Dichloropropene	12.41	75	1100898	10.41	ug/l	98
57)	Toluene	12.95	91	3309044	9.46	ug/l	99
58)	Ethyl methacrylate	13.38	69	522574	10.31	ug/l	95
59)	trans-1,3-Dichloropropene	13.33	75	789976	9.78	ug/l	95
60)	1,1,2-Trichloroethane	13.60	97	428719	10.05	ug/l	99
61)	2-Hexanone	13.66	43	783916	44.55	ug/l	95
62)	1,3-Dichloropropane	14.04	76	777299	10.00	ug/l	100
63)	Tetrachloroethene	14.09	164	647057	9.28	ug/l	99
64)	Dibromochloromethane	14.44	129	552707	10.74	ug/l	99
65)	1,2-Dibromoethane	14.78	107	434823	10.79	ug/l	99
66)	1-Chlorohexane	15.13	91	1354833	9.74	ug/l	99
67)	Chlorobenzene	15.51	112	1889912	9.61	ug/l	100
68)	1,1,1,2-Tetrachloroethane	15.60	131	613414	9.99	ug/l	99
69)	Ethylbenzene	15.61	91	3598734	9.25	ug/l	99
70)	m-Xylene & p-Xylene	15.74	91	5347059	18.76	ug/l	98
71)	o-Xylene	16.47	91	2503534	9.29	ug/l	98
72)	Styrene	16.53	104	1952478	9.30	ug/l	98
73)	Isopropylbenzene	17.07	105	3339686	9.53	ug/l	99
75)	Bromoform	17.09	173	282336	10.64	ug/l	99
76)	1,1,2,2-Tetrachloroethane	17.37	83	455257	10.56	ug/l	99
78)	1,2,3-Trichloropropane	17.58	110	113908	10.86	ug/l	98
79)	trans-1,4-Dichloro-2-buten	17.18	53	86890	8.13	ug/l	94
80)	n-Propylbenzene	17.69	91	4135011	9.04	ug/l	98
81)	Bromobenzene	17.73	156	651654	10.07	ug/l	100
82)	1,3,5-Trimethylbenzene	17.91	105	2520163	9.26	ug/l	99
83)	2-Chlorotoluene	17.92	91	2442301	8.70	ug/l	97
84)	4-Chlorotoluene	17.98	91	2058814	8.74	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\20L11\RLC168.D Vial: 4
Acq On : 11 Dec 2020 4:10 pm Operator: VLu
Sample : VO67L08L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:50 2020 Quant Results File: VO67J30.RES

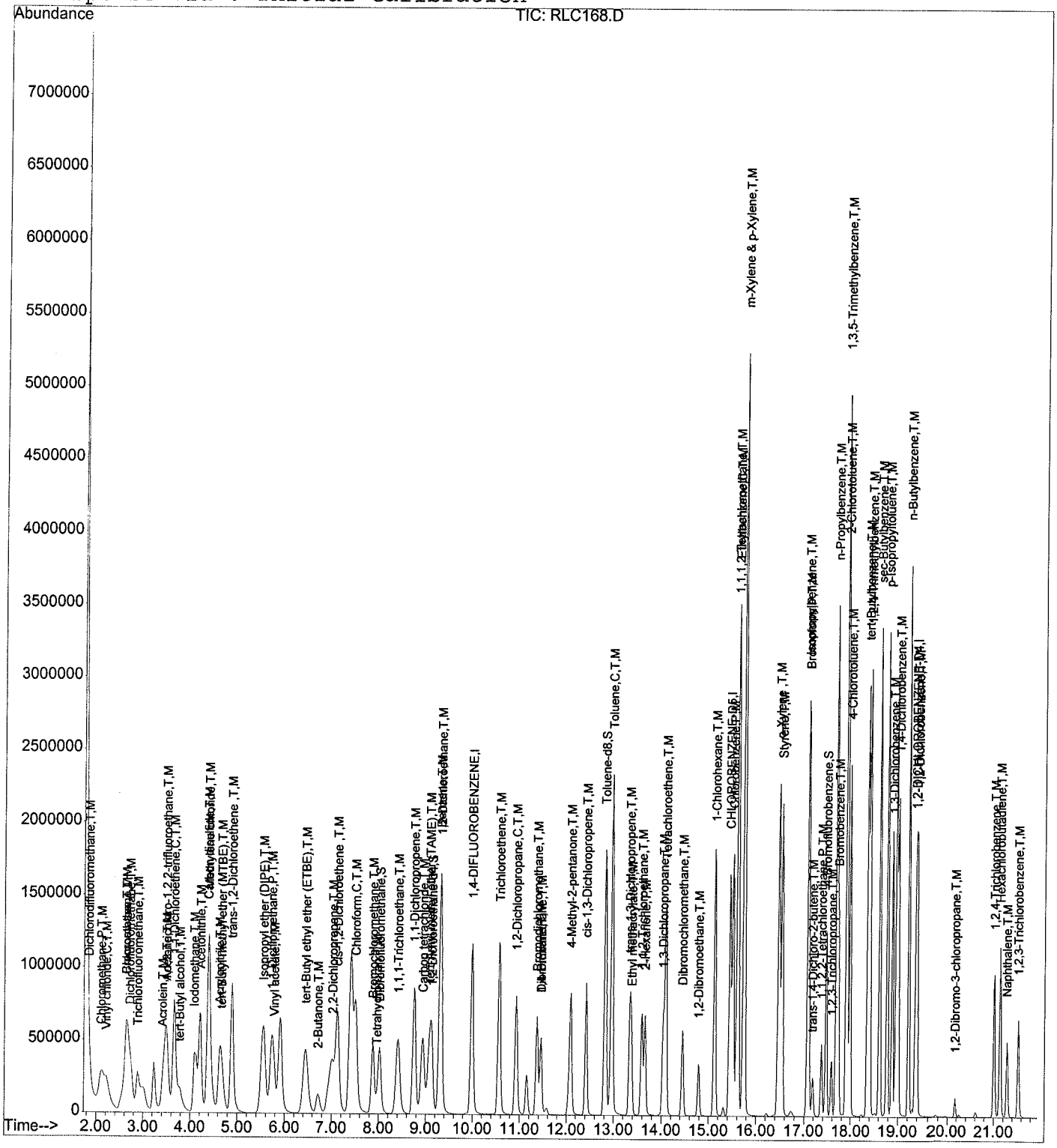
Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
85)	tert-Butylbenzene	18.36	134	551331	9.22	ug/l	91
86)	1,2,4-Trimethylbenzene	18.40	105	2405974	9.42	ug/l	99
87)	sec-Butylbenzene	18.61	105	3526791	9.16	ug/l	99
88)	p-Isopropyltoluene	18.77	119	2828408	9.70	ug/l	98
89)	1,3-Dichlorobenzene	18.88	146	1234729	9.31	ug/l	99
90)	1,4-Dichlorobenzene	19.00	146	1191345	9.17	ug/l	99
91)	n-Butylbenzene	19.22	91	2739769	9.14	ug/l	99
92)	1,2-Dichlorobenzene	19.40	146	982398	9.27	ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.17	157	54802	11.97	ug/l	99
94)	1,2,4-Trichlorobenzene	21.02	180	505889	10.10	ug/l	100
95)	Hexachlorobutadiene	21.13	225	359538	8.72	ug/l	100
96)	Naphthalene	21.28	128	657403	11.01	ug/l	100
97)	1,2,3-Trichlorobenzene	21.53	180	356441	10.47	ug/l	100

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

Data File : D:\HPCHEM\1\DATA\20L11\RLC168.D Vial: 4
Acq On : 11 Dec 2020 4:10 pm Operator: VLu
Sample : VO67L08L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:50 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L11\RLC169.D Vial: 5
Acq On : 11 Dec 2020 4:36 pm Operator: VLu
Sample : VO67L08C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:52 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2340736	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.45	117	1850253	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	615008	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	733137	9.59	ug/l	0.00
Spiked Amount 10.000			Recovery =	95.90%		
43) 1,2-Dichloroethane-d4	9.13	65	452634	9.26	ug/l	-0.01
Spiked Amount 10.000			Recovery =	92.60%		
56) Toluene-d8	12.82	98	2564092	9.08	ug/l	0.00
Spiked Amount 10.000			Recovery =	90.80%		
77) 4-Bromofluorobenzene	17.47	95	735904	8.80	ug/l	0.00
Spiked Amount 10.000			Recovery =	88.00%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	612008	7.57	ug/l	99
4) Chloromethane	2.11	50	1157643	9.34	ug/l	100
5) Vinyl chloride	2.21	62	1078843	9.24	ug/l	100
6) Bromomethane	2.64	94	823562	8.11	ug/l	100
7) Chloroethane	2.64	64	721077	8.42	ug/l	99
8) Dichlorofluoromethane	2.72	67	1515977	8.36	ug/l	100
9) Trichlorofluoromethane	2.91	101	1102835	9.13	ug/l	100
11) Acrolein	3.42	56	196728	38.82	ug/l	92
12) 1,1,2-Trichloro-1,2,2-trif	3.48	151	590710	9.20	ug/l	100
13) Acetone	3.50	43	292764	40.56	ug/l	100
14) 1,1-Dichloroethene	3.66	61	1216122	8.38	ug/l	96
15) tert-Butyl alcohol	3.81	59	628446	251.24	ug/l	100
17) Iodomethane	4.13	142	1183327	9.05	ug/l	98
18) Acetonitrile	4.22	41	998627	86.24	ug/l	98
19) Methylene chloride	4.41	49	891551	8.70	ug/l	94
20) Carbon disulfide	4.40	76	2769718	7.80	ug/l	99
21) Acrylonitrile	4.64	53	460063	43.13	ug/l	99
22) tert-Butyl methyl ether (M	4.67	73	1178104	10.05	ug/l	99
23) trans-1,2-Dichloroethene	4.91	96	952886	9.20	ug/l	99
24) Isopropyl ether (DIPE)	5.55	45	1989478	9.04	ug/l	94
25) 1,1-Dichloroethane	5.74	63	1391712	8.70	ug/l	100
26) Vinyl acetate	5.80	43	754224	9.45	ug/l	97
28) tert-Butyl ethyl ether (ET	6.45	59	1606954	9.46	ug/l	98
29) 2-Butanone	6.73	72	145016	47.97	ug/l	98
30) 2,2-Dichloropropane	7.02	77	964617	8.79	ug/l	98
31) cis-1,2-Dichloroethene	7.14	96	930350	9.22	ug/l	99
32) Chloroform	7.52	83	1358704	9.09	ug/l	98

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L11\RLC169.D Vial: 5
Acq On : 11 Dec 2020 4:36 pm Operator: VLu
Sample : VO67L08C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:52 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Bromochloromethane	7.89	130	463635	10.47	ug/l	100
36)	Tetrahydrofuran	7.97	42	74010	9.72	ug/l	95
37)	1,1,1-Trichloroethane	8.43	97	1073567	8.82	ug/l	98
40)	1,1-Dichloropropene	8.76	110	440730	9.44	ug/l	99
41)	Carbon tetrachloride	8.94	119	920540	9.21	ug/l	99
42)	tert-Amyl methyl ether (TA	9.08	87	303565	10.21	ug/l	100
44)	1,2-Dichloroethane	9.33	62	563522	9.33	ug/l	99
45)	Benzene	9.32	78	3156247	9.21	ug/l	99
46)	Trichloroethene	10.57	130	883719	9.74	ug/l	96
48)	1,2-Dichloropropane	10.94	63	693951	9.22	ug/l	100
49)	Bromodichloromethane	11.38	83	885853	9.78	ug/l	100
50)	1,4-Dioxane	11.46	88	50269	182.95	ug/l	92
51)	Dibromomethane	11.45	93	353799	10.11	ug/l	98
53)	4-Methyl-2-pentanone	12.09	43	1216656	43.68	ug/l	94
54)	cis-1,3-Dichloropropene	12.43	75	1079618	9.83	ug/l	98
57)	Toluene	12.95	91	3239142	8.89	ug/l	99
58)	Ethyl methacrylate	13.38	69	519343	9.84	ug/l	94
59)	trans-1,3-Dichloropropene	13.35	75	775322	9.22	ug/l	96
60)	1,1,2-Trichloroethane	13.60	97	423856	9.54	ug/l	99
61)	2-Hexanone	13.65	43	777098	42.39	ug/l	95
62)	1,3-Dichloropropane	14.03	76	767488	9.48	ug/l	99
63)	Tetrachloroethene	14.09	164	639881	8.81	ug/l	100
64)	Dibromochloromethane	14.44	129	548149	10.22	ug/l	100
65)	1,2-Dibromoethane	14.79	107	429237	10.22	ug/l	99
66)	1-Chlorohexane	15.13	91	1335101	9.21	ug/l	100
67)	Chlorobenzene	15.51	112	1870396	9.13	ug/l	100
68)	1,1,1,2-Tetrachloroethane	15.60	131	609748	9.53	ug/l	99
69)	Ethylbenzene	15.61	91	3575723	8.82	ug/l	99
70)	m-Xylene & p-Xylene	15.74	91	5239629	17.64	ug/l	98
71)	o-Xylene	16.47	91	2487500	8.86	ug/l	99
72)	Styrene	16.53	104	1900509	8.69	ug/l	99
73)	Isopropylbenzene	17.09	105	3292640	9.02	ug/l	99
75)	Bromoform	17.09	173	281190	10.14	ug/l	99
76)	1,1,2,2-Tetrachloroethane	17.36	83	455116	10.09	ug/l	100
78)	1,2,3-Trichloropropane	17.58	110	113079	10.31	ug/l	100
79)	trans-1,4-Dichloro-2-buten	17.17	53	85600	7.66	ug/l	94
80)	n-Propylbenzene	17.69	91	4132099	8.64	ug/l	98
81)	Bromobenzene	17.73	156	650871	9.62	ug/l	99
82)	1,3,5-Trimethylbenzene	17.90	105	2516589	8.84	ug/l	98
83)	2-Chlorotoluene	17.92	91	2401901	8.18	ug/l	97
84)	4-Chlorotoluene	17.98	91	2075205	8.43	ug/l	97

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L11\RLC169.D Vial: 5
Acq On : 11 Dec 2020 4:36 pm Operator: VLu
Sample : VO67L08C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:52 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

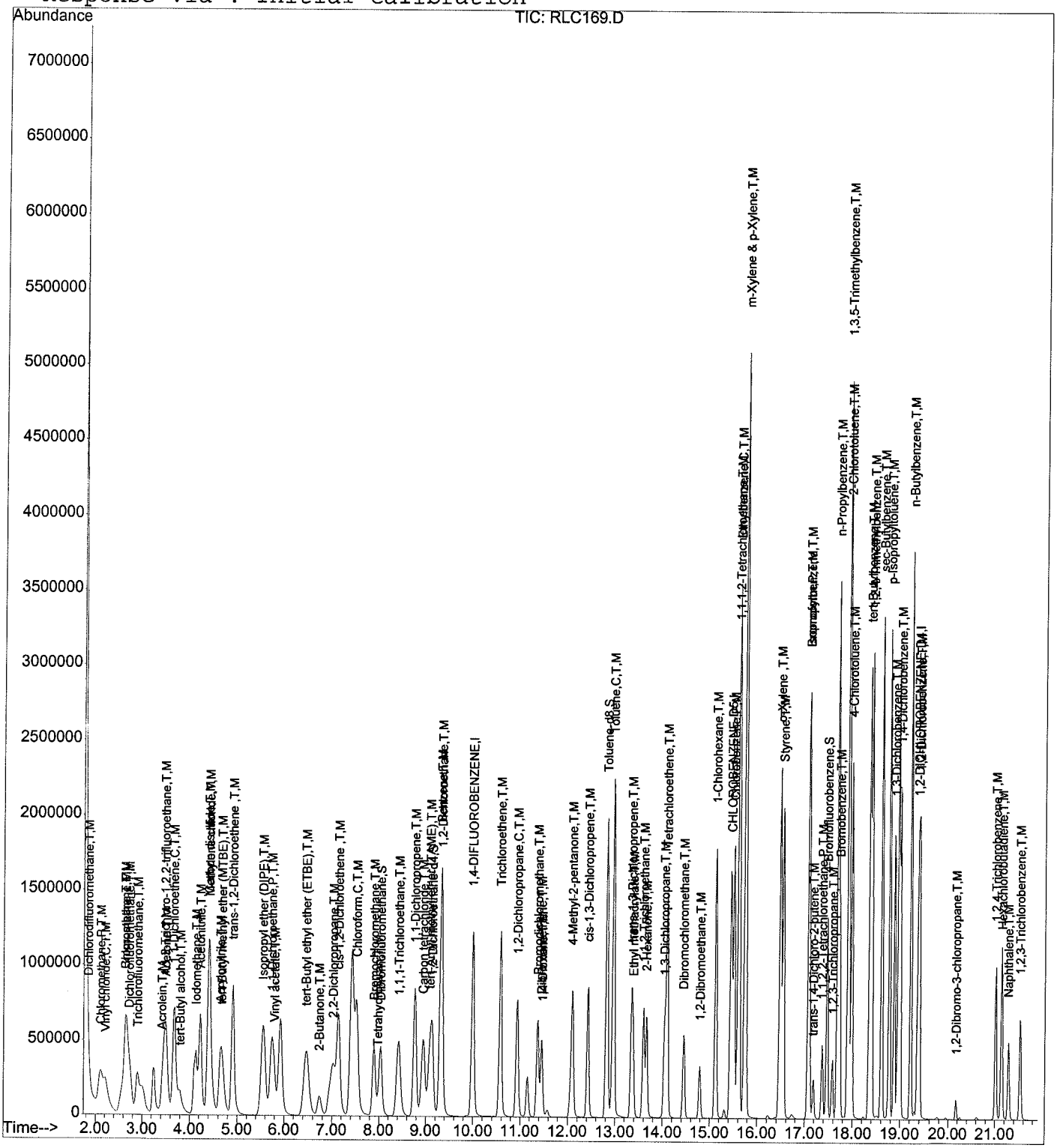
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
85)	tert-Butylbenzene	18.36	134	549520	8.79	ug/l	90
86)	1,2,4-Trimethylbenzene	18.40	105	2401360	9.00	ug/l	98
87)	sec-Butylbenzene	18.61	105	3554364	8.83	ug/l	99
88)	p-Isopropyltoluene	18.77	119	2835196	9.30	ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	1235976	8.91	ug/l	98
90)	1,4-Dichlorobenzene	19.00	146	1203863	8.87	ug/l	99
91)	n-Butylbenzene	19.22	91	2774403	8.85	ug/l	99
92)	1,2-Dichlorobenzene	19.39	146	988364	8.92	ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.17	157	56570	11.82	ug/l	99
94)	1,2,4-Trichlorobenzene	21.02	180	505979	9.66	ug/l	100
95)	Hexachlorobutadiene	21.15	225	365402	8.47	ug/l	99
96)	Naphthalene	21.28	128	670009	10.73	ug/l	100
97)	1,2,3-Trichlorobenzene	21.53	180	363473	10.21	ug/l	99

(#) = qualifier out of range (m) = manual integration
RLC169.D VO67J30.M Mon Dec 14 10:52:43 2020 Page 3

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20L11\RLC169.D Vial: 5
Acq On : 11 Dec 2020 4:36 pm Operator: VLu
Sample : VO67L08C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:52 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



INITIAL CALIBRATIONS

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc
Lab Code: EMXT Case No.:
Lab File ID: RJC453
Instrument ID: 67
GC Column: RTX502.2 ID:0.25mm (mm)

Contract: ICAL
SAS No.: SDG No.: ICAL
BFB Injection Date : 10/30/20
BFB Injection Time : 10:46
Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.73
75	30.0 - 60.0% of mass 95	46.50
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.92
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	70.04
175	5.0 - 9.0% of mass 174	6.17(8.8)1
176	95.0 - 101.0% of mass 174	68.44(97.7)1
177	5.0 - 9.0% of mass 176	4.68(6.8)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD,BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD0.3	V067J301	RJC454	10/30/20	11:33
2	VSTD0.5	V067J302	RJC455	10/30/20	11:59
3	VSTD01	V067J303	RJC456	10/30/20	12:24
4	VSTD02	V067J304	RJC457	10/30/20	12:50
5	VSTD05	V067J305	RJC458	10/30/20	13:16
6	VSTD010	V067J306	RJC459	10/30/20	13:41
7	VSTD020	V067J307	RJC461	10/30/20	14:07
8	VSTD030	V067J308	RJC462	10/30/20	14:33
9	VSTD050	V067J309	RJC463	10/30/20	14:59
10	VSTD100	V067J3010	RJC464	10/30/20	15:24
11	VSTD010	IV067J3001	RJC467	10/30/20	16:41

FORM V VOA OLM02.0

5a
11/04/20

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR

Instrument ID :67
Beginning DateTime :10/30/20 11:33
Spike Units :PPB
IC File :RJC459

Column Spec :RTX502.2 ID :0.25MM
Ending DateTime :10/30/20 15:24
HPChem Method :V067J30

M	IDX	Parameters	.3 11:33 RJC454	.5 11:59 RJC455	1 12:24 RJC456	2 12:50 RJC457	5 13:16 RJC458	10 13:41 RJC459	20 14:07 RJC461	30 14:33 RJC462	50 14:59 RJC463	100 15:24 RJC464	Av_RRF	%_RSD	Av_Rt_M
	1	1,4-DIFLUOROBENZENE	1	1	1	1	1	1	1	1	1	1	1	0	10.0028
	2	Dichlorodifluoromethane	0.324	0.373	0.330	0.337	0.356	0.348	0.352	0.339	0.342	0.353	0.346	4.09	1.8426
	3	Dichlorotetrafluoroethane	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	4	Chloromethane	------	0.568	0.596	0.550	0.553	0.539	0.513	0.474	0.442	------	0.529	9.60	2.1132
	5	Vinyl chloride	0.409	0.490	0.537	0.513	0.560	0.547	0.527	0.477	0.429	------	0.499	10.49	2.2260
	6	Bromomethane	------	0.379	0.422	0.419	0.460	0.453	0.459	0.444	0.432	0.438	0.434	5.86	2.6241
	7	Chloroethane	0.337	0.358	0.391	0.364	0.391	0.371	0.375	0.362	0.353	0.355	0.366	4.63	2.6398
	8	Dichlorofluoromethane	0.828	0.807	0.718	0.776	0.770	0.734	0.791	0.793	0.768	0.760	0.774	4.22	2.7134
	9	Trichlorofluoromethane	------	0.476	0.533	0.510	0.536	0.531	0.540	0.509	0.495	0.516	0.516	4.10	2.9035
	10	sec-Propyl alcohol	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
5	11	Acrolein	------	------	0.024	0.023	0.022	0.020	0.021	0.022	0.020	0.020	0.022	6.11	3.4369
	12	1,1,2-Trichloro-1,2,2-trifluoroethane	0.280	0.279	0.246	0.269	0.276	0.266	0.284	0.287	0.278	0.278	0.274	4.23	3.4942
5	13	Acetone	------	------	------	0.039	0.031	0.029	0.030	0.030	0.029	0.029	0.031	12.15	3.5189
	14	1,1-Dichloroethene	0.615	0.596	0.552	0.606	0.609	0.592	0.660	0.668	0.650	0.655	0.620	5.98	3.6803
25	15	tert-Butyl alcohol	0.010	0.011	0.010	0.011	0.011	0.010	0.011	0.011	0.011	0.011	0.011	3.92	3.8131
	16	Methyl acetate	------	------	------	0.111	0.102	0.101	0.098	0.100	0.099	0.101	0.102	4.46	4.1930
	17	Iodomethane	0.548	0.574	0.550	0.574	0.537	0.534	0.555	0.571	0.555	0.590	0.559	3.19	4.1322
10	18	Acetonitrile	0.052	0.050	0.046	0.049	0.049	0.047	0.050	0.051	0.050	0.051	0.049	3.84	4.2330
	19	Methylene chloride	0.515	0.474	0.416	0.432	0.420	0.404	0.427	0.434	0.422	0.434	0.438	7.48	4.4229
	20	Carbon disulfide	------	1.395	1.532	1.417	1.512	1.523	1.566	1.555	1.568	1.585	1.517	4.44	4.4017
5	21	Acrylonitrile	------	0.042	0.042	0.044	0.045	0.045	0.047	0.049	0.047	0.049	0.046	6.52	4.6532
	22	tert-Butyl methyl ether (MTBE)	0.486	0.492	0.468	0.506	0.502	0.486	0.512	0.529	0.512	0.515	0.501	3.56	4.6930
	23	trans-1,2-Dichloroethene	0.449	0.434	0.399	0.436	0.438	0.427	0.458	0.464	0.452	0.468	0.442	4.61	4.9121
	24	Isopropyl ether (DIPE)	0.961	0.966	0.887	0.957	0.930	0.891	0.944	0.964	0.943	0.960	0.940	3.11	5.5635
	25	1,1-Dichloroethane	0.682	0.683	0.632	0.690	0.678	0.655	0.701	0.706	0.691	0.714	0.683	3.55	5.7505
	26	Vinyl acetate	0.311	0.336	0.352	0.339	0.332	0.335	0.347	0.353	0.337	0.367	0.341	4.45	5.8045
25	27	2-Butanol	------	0.009	0.009	0.009	0.010	0.010	0.010	0.010	0.009	0.010	0.009	4.80	6.2857
	28	tert-Butyl ethyl ether (ETBE)	0.712	0.735	0.684	0.752	0.735	0.698	0.733	0.747	0.728	0.731	0.726	2.97	6.4763
5	29	2-Butanone	------	0.011	0.011	0.013	0.013	0.013	0.014	0.014	0.014	0.014	0.013	7.77	6.7515
	30	2,2-Dichloropropane	0.560	0.490	0.456	0.479	0.466	0.446	0.477	0.455	0.433	0.427	0.469	8.03	7.0386
	31	cis-1,2-Dichloroethene	0.425	0.421	0.395	0.430	0.427	0.417	0.445	0.454	0.442	0.455	0.431	4.27	7.1496
	32	Chloroform	0.631	0.614	0.606	0.655	0.638	0.613	0.655	0.663	0.644	0.665	0.638	3.40	7.5323
	33	Bromochloromethane	0.181	0.181	0.173	0.188	0.189	0.184	0.197	0.202	0.196	0.200	0.189	4.96	7.8996
5	34	tert-Amyl alcohol	------	------	0.008	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	5.02	7.9978
	35	Dibromofluoromethane	0.286	0.297	0.300	0.330	0.332	0.351	0.339	0.352	0.332	0.348	0.327	7.33	8.0413
	36	Tetrahydrofuran	------	0.032	0.032	0.033	0.033	0.033	0.033	0.033	0.032	0.032	0.033	1.34	7.9919
	37	1,1,1-Trichloroethane	0.533	0.526	0.478	0.519	0.515	0.500	0.532	0.539	0.523	0.535	0.520	3.60	8.4283
	38	Cyclohexane	0.495	0.484	0.588	0.596	0.635	0.639	0.646	0.643	0.634	0.677	0.604	10.83	8.4137
	39	2,2,4-Trimethylpentane	------	1.528	1.705	1.722	1.801	1.819	1.761	1.760	1.738	1.816	1.739	5.11	8.5940
	40	1,1-Dichloropropene	0.195	0.187	0.178	0.201	0.200	0.194	0.208	0.211	0.206	0.213	0.199	5.50	8.7759
	41	Carbon tetrachloride	0.425	0.427	0.386	0.428	0.429	0.413	0.443	0.445	0.433	0.440	0.427	4.00	8.9512
	42	tert-Amyl methyl ether (TAME)	0.120	0.127	0.118	0.130	0.128	0.125	0.131	0.134	0.128	0.129	0.127	3.90	9.1002
	43	1,2-Dichloroethane-d4	0.187	0.197	0.194	0.217	0.211	0.222	0.214	0.222	0.208	0.217	0.209	5.86	9.1426
	44	1,2-Dichloroethane	0.254	0.260	0.244	0.260	0.255	0.250	0.265	0.269	0.259	0.266	0.258	2.93	9.3441
	45	Benzene	1.501	1.449	1.344	1.466	1.449	1.409	1.522	1.557	1.542	1.400	1.464	4.63	9.3222
	46	Trichloroethene	0.394	0.379	0.345	0.377	0.378	0.372	0.394	0.407	0.401	0.429	0.388	5.88	10.5855
	47	Methylcyclohexane	0.609	0.570	0.648	0.666	0.700	0.705	0.711	0.717	0.718	0.775	0.682	8.78	10.6629
	48	1,2-Dichloropropane	0.317	0.312	0.295	0.323	0.318	0.309	0.330	0.337	0.331	0.345	0.322	4.61	10.9390

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	49	Bromodichloromethane	0.373	0.378	0.360	0.386	0.383	0.373	0.400	0.408	0.397	0.410	0.387	4.30	11.3771
20	50	1,4-Dioxane	------	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	3.76	11.4680
	51	Dibromomethane	0.145	0.143	0.140	0.148	0.149	0.146	0.156	0.158	0.153	0.157	0.150	4.21	11.4604
	52	2-Chloroethyl vinyl ether	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
5	53	4-Methyl-2-pentanone	0.109	0.115	0.108	0.115	0.117	0.116	0.123	0.130	0.125	0.130	0.119	6.59	12.1001
	54	cis-1,3-Dichloropropene	0.458	0.451	0.424	0.458	0.460	0.450	0.486	0.498	0.491	0.516	0.469	5.89	12.4301
	55	CHLOROBENZENE-D5	1	1	1	1	1	1	1	1	1	1	1	0	15.4534
	56	Toluene-d8	1.337	1.410	1.410	1.544	1.556	1.659	1.610	1.685	1.628	1.426	1.526	8.00	12.8274
	57	Toluene	1.990	1.959	1.820	1.939	1.925	1.880	2.044	2.088	2.080	------	1.969	4.61	12.9675
	58	Ethyl methacrylate	0.260	0.271	0.265	0.278	0.280	0.277	0.296	0.310	0.301	0.315	0.285	6.68	13.3824
	59	trans-1,3-Dichloropropene	0.423	0.431	0.416	0.444	0.450	0.437	0.475	0.489	0.479	0.502	0.455	6.53	13.3503
	60	1,1,2-Trichloroethane	0.237	0.237	0.224	0.238	0.234	0.231	0.246	0.253	0.245	0.256	0.240	4.12	13.6015
5	61	2-Hexanone	0.094	0.097	0.094	0.098	0.098	0.097	0.101	0.106	0.102	0.104	0.099	4.26	13.6701
	62	1,3-Dichloropropane	0.417	0.420	0.407	0.427	0.432	0.421	0.450	0.465	0.454	0.483	0.438	5.55	14.0499
	63	Tetrachloroethene	0.398	0.381	0.349	0.373	0.379	0.368	0.402	0.411	0.413	0.455	0.393	7.60	14.1010
	64	Dibromochloromethane	0.269	0.287	0.269	0.285	0.287	0.280	0.301	0.309	0.299	0.313	0.290	5.36	14.4573
	65	1,2-Dibromoethane	0.205	0.221	0.219	0.226	0.227	0.221	0.234	0.243	0.234	0.241	0.227	4.99	14.7962
	66	1-Chlorohexane	0.775	0.749	0.706	0.759	0.770	0.746	0.810	0.823	0.820	0.876	0.783	6.26	15.1350
	67	Chlorobenzene	1.111	1.088	1.017	1.097	1.086	1.056	1.149	1.175	1.177	1.116	1.107	4.55	15.5162
	68	1,1,1,2-Tetrachloroethane	0.321	0.340	0.311	0.332	0.335	0.326	0.355	0.368	0.372	0.395	0.346	7.64	15.6053
	69	Ethylbenzene	2.212	2.177	1.997	2.158	2.152	2.099	2.314	2.388	2.219	------	2.191	5.21	15.6224
2	70	m-Xylene & p-Xylene	1.622	1.584	1.443	1.577	1.577	1.557	1.745	1.735	------	------	1.605	6.11	15.7496
	71	o-Xylene	1.503	1.476	1.408	1.505	1.497	1.451	1.586	1.621	1.614	------	1.518	4.86	16.4793
	72	Styrene	1.222	1.176	1.074	1.168	1.162	1.144	1.213	1.244	1.240	1.174	1.182	4.33	16.5488
	73	Isopropylbenzene	1.948	1.917	1.783	1.943	1.964	1.904	2.097	2.174	2.023	------	1.973	5.78	17.0894
	74	1,2-DICHLOROBENZENE-D4	1	1	1	1	1	1	1	1	1	1	1	0	19.3807
	75	Bromoform	0.410	0.430	0.419	0.436	0.441	0.440	0.478	0.497	0.510	------	0.451	7.82	17.0910
	76	1,1,2,2-Tetrachloroethane	0.749	0.744	0.707	0.733	0.717	0.707	0.738	0.749	0.728	0.760	0.733	2.50	17.3769
	77	4-Bromofluorobenzene	1.330	1.278	1.333	1.344	1.333	1.402	1.342	1.385	1.340	1.505	1.359	4.49	17.4733
	78	1,2,3-Trichloropropane	0.160	0.183	0.176	0.188	0.177	0.174	0.181	0.186	0.178	0.181	0.178	4.41	17.5887
	79	trans-1,4-Dichloro-2-butene	------	0.186	0.171	0.179	0.179	0.174	0.186	0.187	0.184	0.190	0.182	3.52	17.1916
	80	n-Propylbenzene	8.148	7.745	7.167	7.723	7.644	7.453	8.191	8.146	------	------	7.777	4.72	17.6885
	81	Bromobenzene	1.113	1.055	1.023	1.060	1.055	1.031	1.112	1.134	1.151	1.270	1.100	6.72	17.7391
	82	1,3,5-Trimethylbenzene	4.869	4.575	4.258	4.508	4.483	4.390	4.801	4.957	4.805	------	4.627	5.18	17.9089
	83	2-Chlorotoluene	4.827	4.572	4.346	4.549	4.440	4.719	5.133	5.166	5.200	------	4.772	6.86	17.9219
	84	4-Chlorotoluene	4.432	4.188	3.841	4.014	4.020	3.530	3.899	4.014	4.100	------	4.004	6.18	17.9933
	85	tert-Butylbenzene	1.045	0.984	0.918	0.992	0.981	0.959	1.027	1.035	1.063	1.158	1.016	6.51	18.3657
	86	1,2,4-Trimethylbenzene	4.692	4.342	4.064	4.293	4.215	4.127	4.444	4.475	4.411	------	4.340	4.44	18.4071
	87	sec-Butylbenzene	6.940	6.605	6.060	6.441	6.395	6.243	6.823	6.830	------	------	6.542	4.75	18.6214
	88	p-Isopropyltoluene	5.231	4.909	4.609	4.967	4.841	4.794	5.199	5.275	4.774	------	4.955	4.69	18.7820
	89	1,3-Dichlorobenzene	2.350	2.229	2.058	2.202	2.159	2.114	2.310	2.338	2.379	2.408	2.255	5.32	18.8856
	90	1,4-Dichlorobenzene	2.232	2.169	2.036	2.173	2.133	2.083	2.261	2.323	2.354	2.312	2.208	4.84	19.0068
	91	n-Butylbenzene	5.499	5.055	4.722	5.088	5.039	5.004	5.412	5.401	4.640	------	5.096	5.87	19.2283
	92	1,2-Dichlorobenzene	1.910	1.784	1.672	1.758	1.751	1.704	1.813	1.838	1.841	1.939	1.801	4.72	19.4070
	93	1,2-Dibromo-3-chloropropane	0.063	0.076	0.069	0.079	0.080	0.080	0.084	0.086	0.081	0.081	0.078	8.92	20.1840
	94	1,2,4-Trichlorobenzene	0.944	0.854	0.780	0.843	0.827	0.819	0.863	0.869	0.857	0.857	0.851	4.94	21.0223
	95	Hexachlorobutadiene	0.797	0.714	0.663	0.702	0.688	0.671	0.702	0.694	0.685	0.693	0.701	5.28	21.1479
	96	Naphthalene	1.055	0.991	0.968	1.012	1.008	1.020	1.039	1.066	1.012	0.983	1.015	3.05	21.2940
	97	1,2,3-Trichlorobenzene	0.628	0.575	0.531	0.585	0.571	0.571	0.586	0.594	0.578	0.570	0.579	4.16	21.5423

Spike Amount = Nominal Amount * M

Ave_%RSD : 5.4 Max_%RSD : 12.2

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Compound List Report 67

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
Total Cpnds : 97

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	1,4-DIFLUOROBENZENE	114	10.00	1.000	A	1	A	B
2	T	Dichlorodifluoromethane	85	1.84	0.184	A	1	A	B
3	T	Dichlorotetrafluoroethane	85	0.00	0.000	A	2	A	B
4	T	Chloromethane	50	2.11	0.211	A	1	A	B
5	T	Vinyl chloride	62	2.23	0.223	A	1	A	B
6	T	Bromomethane	94	2.62	0.262	A	1	A	B
7	T	Chloroethane	64	2.64	0.264	A	1	A	B
8	T	Dichlorofluoromethane	67	2.72	0.272	A	1	A	B
9	T	Trichlorofluoromethane	101	2.91	0.291	A	1	A	B
10	T	sec-Propyl alcohol	45	0.00	0.000	A	1	A	B
11	T	Acrolein	56	3.44	0.344	A	1	A	B
12	T	1,1,2-Trichloro-1,2,2-trifluor	151	3.50	0.350	A	1	A	B
13	T	Acetone	43	3.52	0.352	A	1	A	B
14	T	1,1-Dichloroethene	61	3.68	0.368	A	2	A	B
15	T	tert-Butyl alcohol	59	3.81	0.381	A	1	A	B
16	T	Methyl acetate	43	4.19	0.419	A	1	A	B
17	T	Iodomethane	142	4.13	0.413	A	1	A	B
18	T	Acetonitrile	41	4.23	0.423	A	1	A	B
19	T	Methylene chloride	49	4.42	0.442	A	2	A	B
20	T	Carbon disulfide	76	4.41	0.441	A	1	A	B
21	T	Acrylonitrile	53	4.66	0.466	A	2	A	B
22	T	tert-Butyl methyl ether (MTBE)	73	4.69	0.469	A	1	A	B
23	T	trans-1,2-Dichloroethene	96	4.92	0.492	A	1	A	B
24	T	Isopropyl ether (DIPE)	45	5.56	0.556	A	1	A	B
25	T	1,1-Dichloroethane	63	5.75	0.575	A	2	A	B
26	T	Vinyl acetate	43	5.81	0.581	A	1	A	B
27	T	2-Butanol	45	6.28	0.628	A	1	A	B
28	T	tert-Butyl ethyl ether (ETBE)	59	6.47	0.647	A	1	A	B
29	T	2-Butanone	72	6.75	0.674	A	1	A	B
30	T	2,2-Dichloropropane	77	7.04	0.704	A	2	A	B
31	T	cis-1,2-Dichloroethene	96	7.16	0.715	A	1	A	B
32	T	Chloroform	83	7.54	0.753	A	2	A	B
33	T	Bromochloromethane	130	7.90	0.790	A	1	A	B
34	T	tert-Amyl alcohol	59	7.99	0.799	A	1	A	B
35	S	Dibromofluoromethane	111	8.03	0.803	A	1	A	B
36	T	Tetrahydrofuran	42	7.99	0.799	A	2	A	B
37	T	1,1,1-Trichloroethane	97	8.43	0.842	A	2	A	B
38	T	Cyclohexane	84	8.41	0.841	A	1	A	B
39	T	2,2,4-Trimethylpentane	57	8.59	0.858	A	1	A	B
40	T	1,1-Dichloropropene	110	8.78	0.877	A	1	A	B
41	T	Carbon tetrachloride	119	8.95	0.895	A	1	A	B
42	T	tert-Amyl methyl ether (TAME)	87	9.10	0.909	A	1	A	B
43	S	1,2-Dichloroethane-d4	65	9.14	0.914	A	1	A	B
44	T	1,2-Dichloroethane	62	9.35	0.934	A	1	A	B
45	T	Benzene	78	9.32	0.931	A	2	A	B
46	T	Trichloroethene	130	10.59	1.058	A	3	A	B
47	T	Methylcyclohexane	83	10.66	1.066	A	2	A	B
48	T	1,2-Dichloropropane	63	10.94	1.093	A	1	A	B
49	T	Bromodichloromethane	83	11.38	1.137	A	1	A	B
50	T	1,4-Dioxane	88	11.46	1.146	A	1	A	B
51	T	Dibromomethane	93	11.46	1.146	A	2	A	B
52	T	2-Chloroethyl vinyl ether	63	12.05	1.204	A	1	A	B
53	T	4-Methyl-2-pentanone	43	12.09	1.209	A	3	A	B

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54	T	cis-1,3-Dichloropropene	75	12.43	1.242	A	3	A	B
55	I	CHLOROBENZENE-D5	117	15.45	1.000	A	2	A	B
56	S	Toluene-d8	98	12.82	0.830	A	1	A	B
57	T	Toluene	91	12.97	0.839	A	1	A	B
58	T	Ethyl methacrylate	69	13.38	0.866	A	1	A	B
59	T	trans-1,3-Dichloropropene	75	13.35	0.864	A	1	A	B
60	T	1,1,2-Trichloroethane	97	13.60	0.880	A	2	A	B
61	T	2-Hexanone	43	13.67	0.885	A	1	A	B
62	T	1,3-Dichloropropane	76	14.05	0.909	A	1	A	B
63	T	Tetrachloroethene	164	14.11	0.913	A	3	A	B
64	T	Dibromochloromethane	129	14.46	0.936	A	1	A	B
65	T	1,2-Dibromoethane	107	14.79	0.957	A	1	A	B
66	T	1-Chlorohexane	91	15.13	0.979	A	1	A	B
67	P,M	Chlorobenzene	112	15.51	1.004	A	1	A	B
68	T	1,1,1,2-Tetrachloroethane	131	15.61	1.010	A	1	A	B
69	T	Ethylbenzene	91	15.63	1.011	A	1	A	B
70	T	m-Xylene & p-Xylene	91	15.76	1.020	A	1	A	B
71	T	o-Xylene	91	16.47	1.066	A	1	A	B
72	T	Styrene	104	16.55	1.071	A	2	A	B
73	T	Isopropylbenzene	105	17.09	1.106	A	3	A	B
74	I	1,2-DICHLOROBENZENE-D4	152	19.38	1.000	A	1	A	B
75	T	Bromoform	173	17.09	0.882	A	2	A	B
76	T	1,1,2,2-Tetrachloroethane	83	17.38	0.897	A	1	A	B
77	S	4-Bromofluorobenzene	95	17.47	0.901	A	2	A	B
78	T	1,2,3-Trichloropropane	110	17.58	0.907	A	1	A	B
79	T	trans-1,4-Dichloro-2-butene	53	17.19	0.887	A	1	A	B
80	T	n-Propylbenzene	91	17.69	0.913	A	2	A	B
81	T	Bromobenzene	156	17.74	0.916	A	1	A	B
82	T	1,3,5-Trimethylbenzene	105	17.91	0.924	A	2	A	B
83	T	2-Chlorotoluene	91	17.92	0.925	A	1	A	B
84	T	4-Chlorotoluene	91	17.99	0.928	A	1	A	B
85	T	tert-Butylbenzene	134	18.37	0.948	A	1	A	B
86	T	1,2,4-Trimethylbenzene	105	18.40	0.950	A	1	A	B
87	T	sec-Butylbenzene	105	18.62	0.961	A	1	A	B
88	T	p-Isopropyltoluene	119	18.78	0.969	A	2	A	B
89	T	1,3-Dichlorobenzene	146	18.88	0.974	A	2	A	B
90	T	1,4-Dichlorobenzene	146	19.00	0.980	A	2	A	B
91	T	n-Butylbenzene	91	19.23	0.992	A	2	A	B
92	T	1,2-Dichlorobenzene	146	19.41	1.002	A	1	A	B
93	T	1,2-Dibromo-3-chloropropane	157	20.18	1.041	A	1	A	B
94	T	1,2,4-Trichlorobenzene	180	21.02	1.084	A	2	A	B
95	T	Hexachlorobutadiene	225	21.15	1.091	A	2	A	B
96	T	Naphthalene	128	21.29	1.099	A	1	A	B
97	T	1,2,3-Trichlorobenzene	180	21.54	1.112	A	2	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

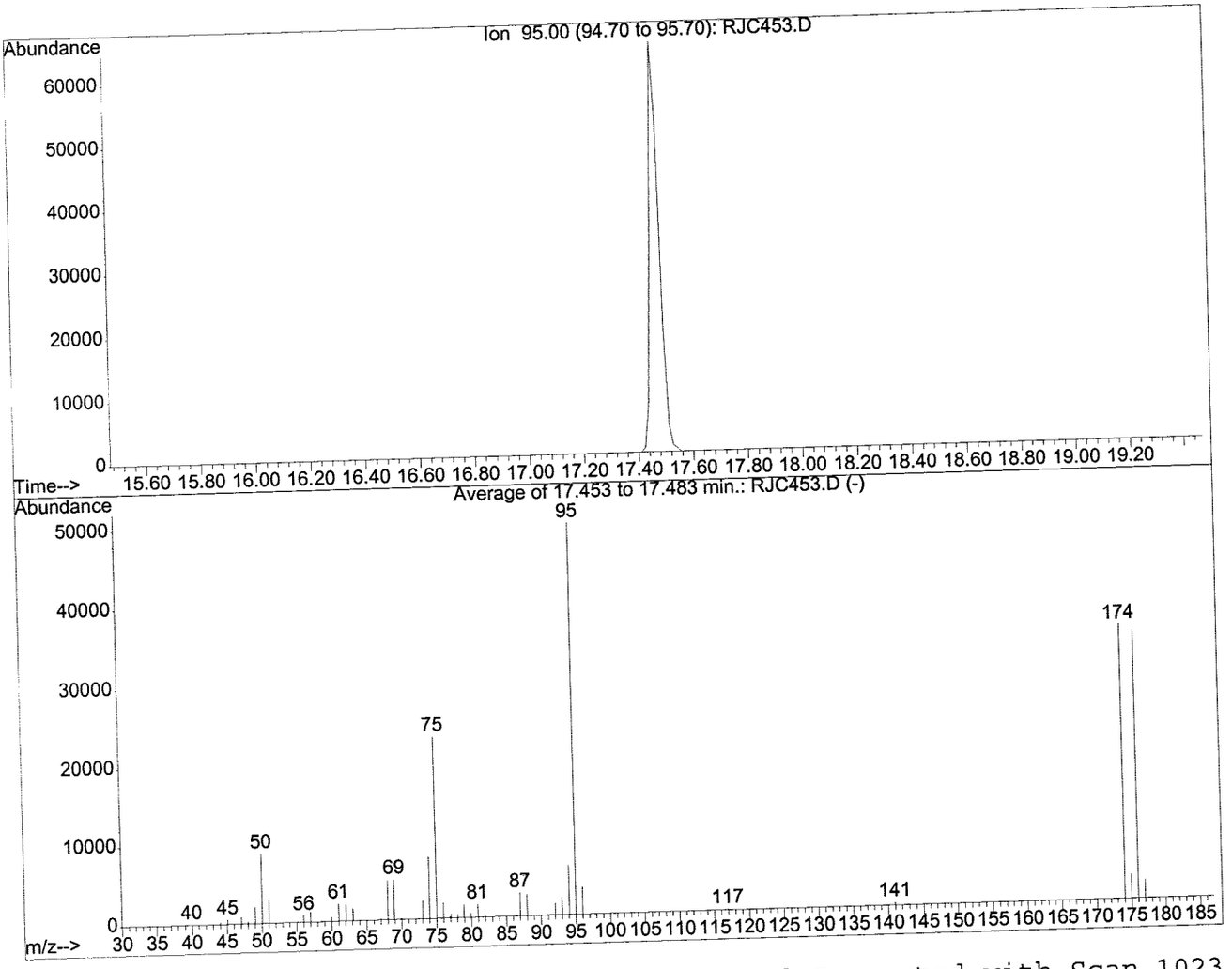
VO67J30.M Mon Nov 02 18:53:51 2020

SA 11/4/20

BFB

Data File : D:\HPCHEM\1\DATA\20J30\RJC453.D
Acq On : 30 Oct 2020 10:46 am
Sample : BFB67J20
Misc : T/CHK
MS Integration Params: RTE.P
Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B

Vial: 1
Operator: VLu
Inst : 67
Multiplr: 1.00



AutoFind: Scans 1028, 1029, 1030; Background Corrected with Scan 1023

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.7	8807	PASS
75	95	30	60	46.5	23099	PASS
95	95	100	100	100.0	49672	PASS
96	95	5	9	6.9	3438	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	70.0	34792	PASS
175	174	5	9	8.8	3063	PASS
176	174	95	101	97.7	33996	PASS
177	176	5	9	6.8	2323	PASS

RJC453.D VO67J30.M Mon Nov 02 11:19:27 2020 SU 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC454.D Vial: 2
Acq On : 30 Oct 2020 11:33 am Operator: VLu
Sample : VO67J301 Inst : 67
Misc : 0.3ppb 8260/1.5ppb KET-AA/7.5ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 17:51 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.99	114	2538415	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.45	117	1867023	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	566233	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	21746	0.26	ug/l	0.00
Spiked Amount 10.000			Recovery =	2.60%		
43) 1,2-Dichloroethane-d4	9.13	65	14243	0.27	ug/l	-0.01
Spiked Amount 10.000			Recovery =	2.70%		
56) Toluene-d8	12.82	98	74898	0.26	ug/l	0.00
Spiked Amount 10.000			Recovery =	2.60%		
77) 4-Bromofluorobenzene	17.47	95	22587	0.29	ug/l	0.00
Spiked Amount 10.000			Recovery =	2.90%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	24688	0.28	ug/l	88
4) Chloromethane	2.11	50	47396	0.35	ug/l	86
5) Vinyl chloride	2.23	62	31170	0.25	ug/l	78
6) Bromomethane	2.64	94	26933	0.24	ug/l	99
7) Chloroethane	2.64	64	25647	0.28	ug/l	87
8) Dichlorofluoromethane	2.72	67	63057	0.32	ug/l	87
9) Trichlorofluoromethane	2.90	101	31026	0.24	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	21292	0.31	ug/l	99
13) Acetone	3.50	43	31840	4.07	ug/l	75
14) 1,1-Dichloroethene	3.66	61	46813	0.30	ug/l	99
17) Iodomethane	4.13	142	41741	0.29	ug/l	99
18) Acetonitrile	4.22	41	39435	3.14	ug/l	96
19) Methylene chloride	4.41	49	39253	0.35	ug/l	99
20) Carbon disulfide	4.39	76	89999	0.23	ug/l	98
21) Acrylonitrile	4.64	53	14657	1.27	ug/l	93
22) tert-Butyl methyl ether (M	4.69	73	36999	0.29	ug/l	99
23) trans-1,2-Dichloroethene	4.89	96	34165	0.30	ug/l	98
24) Isopropyl ether (DIPE)	5.55	45	73220	0.31	ug/l	96
25) 1,1-Dichloroethane	5.72	63	51937	0.30	ug/l	98
26) Vinyl acetate	5.78	43	23664	0.27	ug/l #	70
28) tert-Butyl ethyl ether (ET	6.45	59	54193	0.29	ug/l	97
30) 2,2-Dichloropropane	7.02	77	42647	0.36	ug/l	90
31) cis-1,2-Dichloroethene	7.13	96	32372	0.30	ug/l	98
32) Chloroform	7.51	83	48041	0.30	ug/l	98
33) Bromochloromethane	7.89	130	13778	0.29	ug/l	97
37) 1,1,1-Trichloroethane	8.41	97	40592	0.31	ug/l	97
38) Cyclohexane	8.40	84	37696	0.25	ug/l	98

(#) = qualifier out of range (m) = manual integration
RJC454.D VO67J30.M Mon Nov 02 18:51:35 2020 Page 1

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Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC454.D
Acq On : 30 Oct 2020 11:33 am
Sample : VO67J301
Misc : 0.3ppb 8260/1.5ppb KET-AA/7.5ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 17:51 2020

Vial: 2
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit		Qvalue
39) 2,2,4-Trimethylpentane	8.56	57	69718	0.16 ug/l		95
40) 1,1-Dichloropropene	8.76	110	14830	0.29 ug/l		100
41) Carbon tetrachloride	8.94	119	32392	0.30 ug/l		99
42) tert-Amyl methyl ether (TA	9.08	87	9119	0.28 ug/l		98
44) 1,2-Dichloroethane	9.32	62	19306	0.29 ug/l		95
45) Benzene	9.32	78	114331	0.31 ug/l		96
46) Trichloroethene	10.57	130	30034	0.31 ug/l		97
47) Methylcyclohexane	10.65	83	46342	0.27 ug/l		99
48) 1,2-Dichloropropane	10.92	63	24125	0.30 ug/l		92
49) Bromodichloromethane	11.36	83	28391	0.29 ug/l		99
51) Dibromomethane	11.45	93	11022	0.29 ug/l		95
53) 4-Methyl-2-pentanone	12.09	43	41534	1.37 ug/l		97
54) cis-1,3-Dichloropropene	12.43	75	34910	0.29 ug/l		94
57) Toluene	12.95	91	111452	0.30 ug/l		100
58) Ethyl methacrylate	13.38	69	14577	0.27 ug/l		86
59) trans-1,3-Dichloropropene	13.35	75	23683	0.28 ug/l		96
60) 1,1,2-Trichloroethane	13.60	97	13256	0.30 ug/l		96
61) 2-Hexanone	13.67	43	26296	1.42 ug/l		96
62) 1,3-Dichloropropane	14.05	76	23363	0.29 ug/l		96
63) Tetrachloroethene	14.09	164	22287	0.30 ug/l		99
64) Dibromochloromethane	14.44	129	15051	0.28 ug/l		99
65) 1,2-Dibromoethane	14.80	107	11486	0.27 ug/l		98
66) 1-Chlorohexane	15.13	91	43434	0.30 ug/l		99
67) Chlorobenzene	15.51	112	62203	0.30 ug/l		100
68) 1,1,1,2-Tetrachloroethane	15.60	131	17986	0.28 ug/l	#	66
69) Ethylbenzene	15.61	91	123907	0.30 ug/l		99
70) m-Xylene & p-Xylene	15.74	91	181727	0.61 ug/l		99
71) o-Xylene	16.47	91	84177	0.30 ug/l		98
72) Styrene	16.55	104	68457	0.31 ug/l		99
73) Isopropylbenzene	17.09	105	109115	0.30 ug/l		100
75) Bromoform	17.09	173	6957	0.27 ug/l		99
76) 1,1,2,2-Tetrachloroethane	17.38	83	12716	0.31 ug/l		99
78) 1,2,3-Trichloropropane	17.58	110	2714	0.27 ug/l		84
79) trans-1,4-Dichloro-2-buten	17.19	53	2442	0.24 ug/l		98
80) n-Propylbenzene	17.69	91	138415	0.31 ug/l		99
81) Bromobenzene	17.73	156	18911	0.30 ug/l		99
82) 1,3,5-Trimethylbenzene	17.91	105	82715	0.32 ug/l		99
83) 2-Chlorotoluene	17.92	91	81990	0.30 ug/l		95
84) 4-Chlorotoluene	17.99	91	75280	0.33 ug/l		93
85) tert-Butylbenzene	18.36	134	17743	0.31 ug/l		92
86) 1,2,4-Trimethylbenzene	18.40	105	79696	0.32 ug/l		97

(#) = qualifier out of range (m) = manual integration SH 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC454.D Vial: 2
Acq On : 30 Oct 2020 11:33 am Operator: VLu
Sample : VO67J301 Inst : 67
Misc : 0.3ppb 8260/1.5ppb KET-AA/7.5ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 17:51 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
87)	sec-Butylbenzene	18.62	105	117887	0.32	ug/l	99
88)	p-Isopropyltoluene	18.78	119	88851	0.32	ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	39914	0.31	ug/l	99
90)	1,4-Dichlorobenzene	19.00	146	37910	0.30	ug/l	97
91)	n-Butylbenzene	19.24	91	93411	0.32	ug/l	99
92)	1,2-Dichlorobenzene	19.41	146	32448	0.32	ug/l	93
94)	1,2,4-Trichlorobenzene	21.03	180	16031	0.33	ug/l	95
95)	Hexachlorobutadiene	21.15	225	13545	0.34	ug/l	95
96)	Naphthalene	21.29	128	17924	0.31	ug/l	96
97)	1,2,3-Trichlorobenzene	21.54	180	10665	0.33	ug/l	94

SA 11/4/20

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

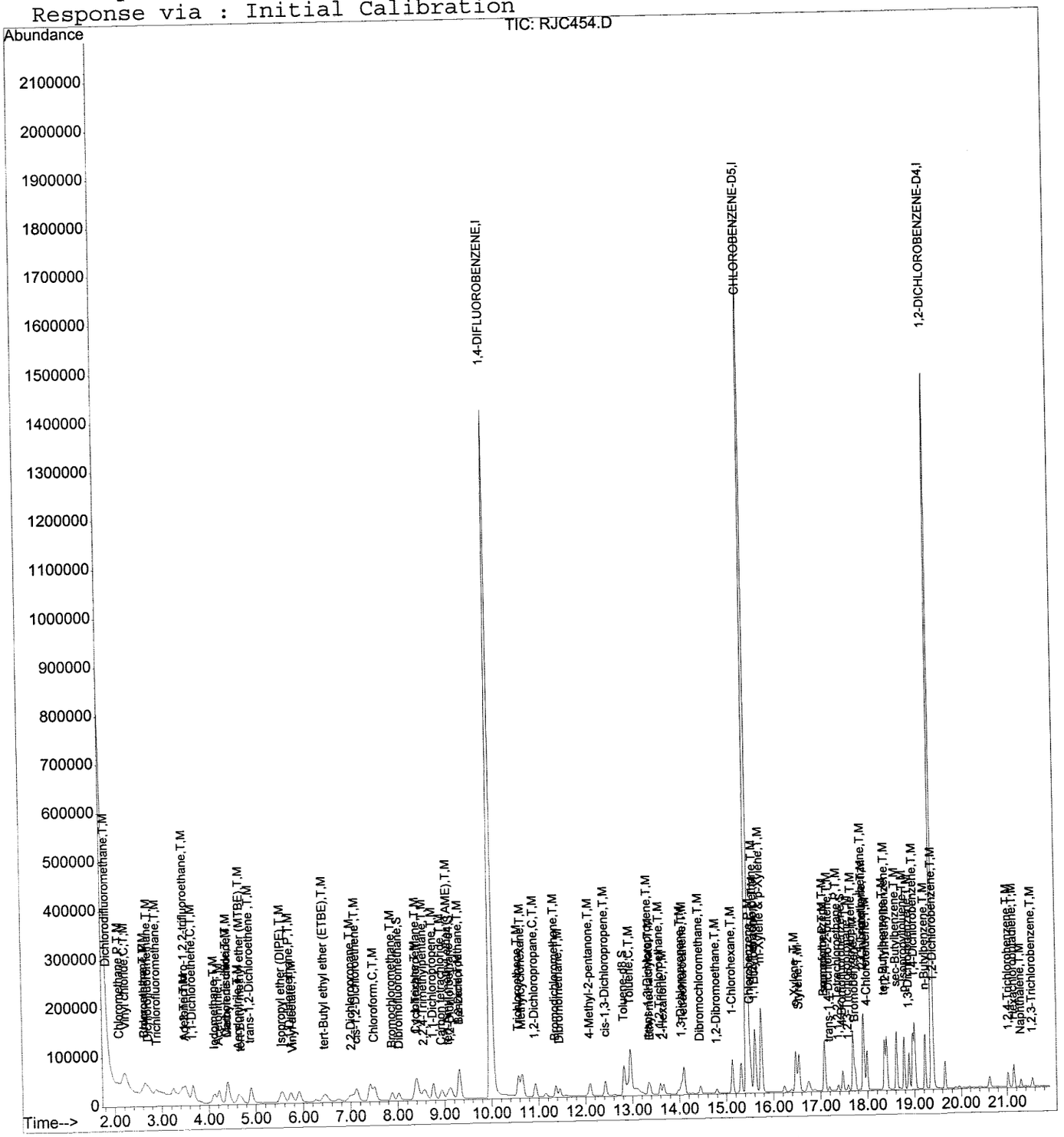
Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC454.D
Acq On : 30 Oct 2020 11:33 am
Sample : VO67J301
Misc : 0.3ppb 8260/1.5ppb KET-AA/7.5ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 17:51 2020

Vial: 2
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



SA 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC455.D Vial: 3
Acq On : 30 Oct 2020 11:59 am Operator: VLu
Sample : VO67J302 Inst : 67
Misc : 0.5ppb 8260/2.5ppb KET-AA/12.5ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2547933	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1859780	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	579038	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	37874	0.46	ug/l	0.02
Spiked Amount 10.000			Recovery =	4.60%		
43) 1,2-Dichloroethane-d4	9.14	65	25152	0.47	ug/l	0.00
Spiked Amount 10.000			Recovery =	4.70%		
56) Toluene-d8	12.82	98	131093	0.46	ug/l	0.00
Spiked Amount 10.000			Recovery =	4.60%		
77) 4-Bromofluorobenzene	17.47	95	36998	0.47	ug/l	0.00
Spiked Amount 10.000			Recovery =	4.70%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.85	85	47542	0.54	ug/l	90
4) Chloromethane	2.11	50	72422	0.54	ug/l	99
5) Vinyl chloride	2.21	62	62415	0.49	ug/l	70
6) Bromomethane	2.62	94	48282	0.44	ug/l	93
7) Chloroethane	2.64	64	45622	0.49	ug/l	96
8) Dichlorofluoromethane	2.70	67	102754	0.52	ug/l	92
9) Trichlorofluoromethane	2.91	101	60660	0.46	ug/l	100
11) Acrolein	3.44	56	17181	3.11	ug/l	74
12) 1,1,2-Trichloro-1,2,2-trif	3.48	151	35548	0.51	ug/l	97
13) Acetone	3.52	43	39936	5.08	ug/l	82
14) 1,1-Dichloroethene	3.69	61	75944	0.48	ug/l	98
15) tert-Butyl alcohol	3.81	59	33866	12.44	ug/l	93
16) Methyl acetate	4.19	43	12810	0.49	ug/l	77
17) Iodomethane	4.13	142	73091	0.51	ug/l	99
18) Acetonitrile	4.23	41	63113	5.01	ug/l	100
19) Methylene chloride	4.42	49	60339	0.54	ug/l	99
20) Carbon disulfide	4.41	76	177683	0.46	ug/l	97
21) Acrylonitrile	4.66	53	26540	2.29	ug/l	94
22) tert-Butyl methyl ether (M	4.70	73	62676	0.49	ug/l	98
23) trans-1,2-Dichloroethene	4.92	96	55279	0.49	ug/l	99
24) Isopropyl ether (DIPE)	5.56	45	123057	0.51	ug/l	96
25) 1,1-Dichloroethane	5.75	63	87026	0.50	ug/l	100
26) Vinyl acetate	5.81	43	42830	0.49	ug/l	91
27) 2-Butanol	6.31	45	27126	11.28	ug/l #	1
28) tert-Butyl ethyl ether (ET	6.47	59	93641	0.51	ug/l	95
29) 2-Butanone	6.75	72	7120	2.16	ug/l	77
30) 2,2-Dichloropropane	7.04	77	62391	0.52	ug/l	96

(#) = qualifier out of range (m) = manual integration
RJC455.D VO67J30.M Mon Nov 02 18:52:52 2020 Page 1

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Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC455.D Vial: 3
Acq On : 30 Oct 2020 11:59 am Operator: VLu
Sample : VO67J302 Inst : 67
Misc : 0.5ppb 8260/2.5ppb KET-AA/12.5ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	cis-1,2-Dichloroethene	7.15	96	53648	0.49 ug/l	99
32)	Chloroform	7.53	83	78241	0.48 ug/l	99
33)	Bromochloromethane	7.90	130	23093	0.48 ug/l	100
34)	tert-Amyl alcohol	8.00	59	4534	2.00 ug/l	82
36)	Tetrahydrofuran	8.02	42	4057	0.49 ug/l	77
37)	1,1,1-Trichloroethane	8.43	97	67050	0.51 ug/l	99
38)	Cyclohexane	8.41	84	61598	0.40 ug/l	100
39)	2,2,4-Trimethylpentane	8.59	57	194623	0.44 ug/l	99
40)	1,1-Dichloropropene	8.78	110	23886	0.47 ug/l	98
41)	Carbon tetrachloride	8.95	119	54346	0.50 ug/l	100
42)	tert-Amyl methyl ether (TA	9.10	87	16180	0.50 ug/l	91
44)	1,2-Dichloroethane	9.35	62	33141	0.50 ug/l	98
45)	Benzene	9.32	78	184572	0.49 ug/l	96
46)	Trichloroethene	10.59	130	48274	0.49 ug/l	99
47)	Methylcyclohexane	10.66	83	72596	0.42 ug/l	98
48)	1,2-Dichloropropane	10.94	63	39738	0.48 ug/l	97
49)	Bromodichloromethane	11.38	83	48174	0.49 ug/l	99
50)	1,4-Dioxane	11.47	88	2812	9.40 ug/l	80
51)	Dibromomethane	11.45	93	18258	0.48 ug/l	98
53)	4-Methyl-2-pentanone	12.11	43	73406	2.42 ug/l	98
54)	cis-1,3-Dichloropropene	12.43	75	57469	0.48 ug/l	94
57)	Toluene	12.97	91	182122	0.50 ug/l	100
58)	Ethyl methacrylate	13.38	69	25245	0.48 ug/l	93
59)	trans-1,3-Dichloropropene	13.35	75	40040	0.47 ug/l	95
60)	1,1,2-Trichloroethane	13.60	97	22006	0.49 ug/l	98
61)	2-Hexanone	13.67	43	45010	2.44 ug/l	95
62)	1,3-Dichloropropane	14.05	76	39081	0.48 ug/l	95
63)	Tetrachloroethene	14.09	164	35405	0.48 ug/l	99
64)	Dibromochloromethane	14.46	129	26684	0.50 ug/l	98
65)	1,2-Dibromoethane	14.80	107	20570	0.49 ug/l	99
66)	1-Chlorohexane	15.13	91	69611	0.48 ug/l	99
67)	Chlorobenzene	15.51	112	101196	0.49 ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.60	131	31646	0.49 ug/l	88
69)	Ethylbenzene	15.63	91	202474	0.50 ug/l	99
70)	m-Xylene & p-Xylene	15.74	91	294627	0.99 ug/l	100
71)	o-Xylene	16.47	91	137261	0.49 ug/l	98
72)	Styrene	16.55	104	109387	0.50 ug/l	80
73)	Isopropylbenzene	17.09	105	178229	0.49 ug/l	100
75)	Bromoform	17.09	173	12440	0.48 ug/l	98
76)	1,1,2,2-Tetrachloroethane	17.37	83	21540	0.51 ug/l	100
78)	1,2,3-Trichloropropane	17.58	110	5284	0.51 ug/l	92

(#) = qualifier out of range (m) = manual integration
RJC455.D VO67J30.M Mon Nov 02 18:52:53 2020 Page 2

SA 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC455.D Vial: 3
Acq On : 30 Oct 2020 11:59 am Operator: VLu
Sample : VO67J302 Inst : 67
Misc : 0.5ppb 8260/2.5ppb KET-AA/12.5ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.19	53	5373	0.51 ug/l	88
80)	n-Propylbenzene	17.69	91	224220	0.50 ug/l	99
81)	Bromobenzene	17.73	156	30535	0.48 ug/l	100
82)	1,3,5-Trimethylbenzene	17.91	105	132446	0.49 ug/l	99
83)	2-Chlorotoluene	17.92	91	132375	0.48 ug/l	95
84)	4-Chlorotoluene	17.99	91	121259	0.52 ug/l	94
85)	tert-Butylbenzene	18.36	134	28494	0.48 ug/l	93
86)	1,2,4-Trimethylbenzene	18.40	105	125708	0.50 ug/l	100
87)	sec-Butylbenzene	18.62	105	191230	0.50 ug/l	99
88)	p-Isopropyltoluene	18.78	119	142119	0.50 ug/l	97
89)	1,3-Dichlorobenzene	18.88	146	64544	0.49 ug/l	100
90)	1,4-Dichlorobenzene	19.00	146	62794	0.49 ug/l	100
91)	n-Butylbenzene	19.22	91	146353	0.50 ug/l	99
92)	1,2-Dichlorobenzene	19.41	146	51646	0.50 ug/l	93
93)	1,2-Dibromo-3-chloropropan	20.18	157	2200	0.49 ug/l	84
94)	1,2,4-Trichlorobenzene	21.02	180	24732	0.50 ug/l	99
95)	Hexachlorobutadiene	21.15	225	20680	0.51 ug/l	98
96)	Naphthalene	21.29	128	28690	0.49 ug/l	97
97)	1,2,3-Trichlorobenzene	21.54	180	16644	0.50 ug/l	99

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(#) = qualifier out of range (m) = manual integration
RJC455.D VO67J30.M Mon Nov 02 18:52:53 2020 Page 3

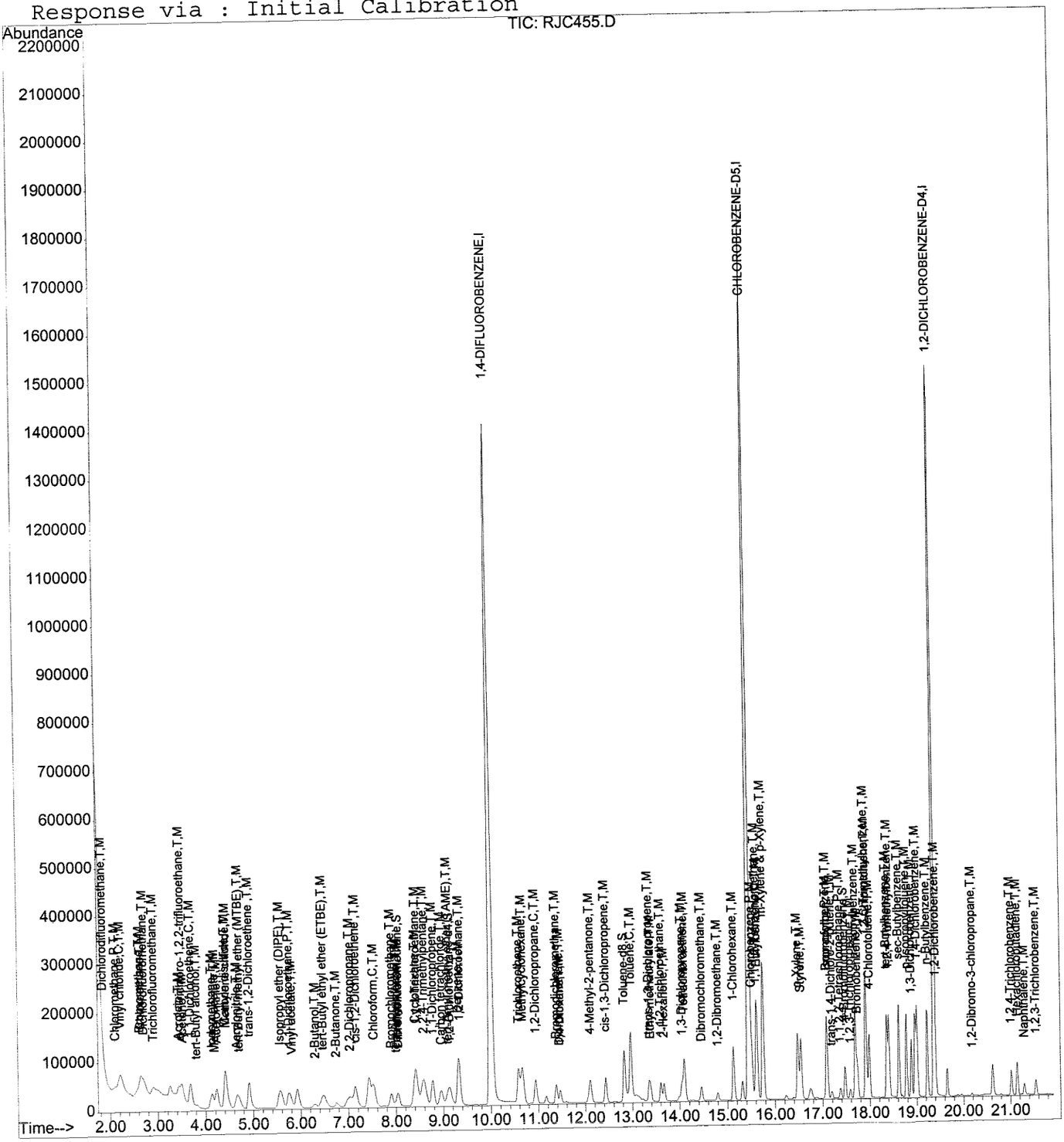
Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC455.D
Acq On : 30 Oct 2020 11:59 am
Sample : VO67J302
Misc : 0.5ppb 8260/2.5ppb KET-AA/12.5ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020

Vial: 3
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC455.D VO67J30.M Mon Nov 02 18:52:55 2020 Su 11/4/20 Page 4

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC456.D Vial: 4
Acq On : 30 Oct 2020 12:24 pm Operator: VLu
Sample : VO67J303 Inst : 67
Misc : 1.0ppb 8260/5.0ppb KET-AA/25ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2591758	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1876998	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	585378	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	77634	0.92	ug/l	0.00
Spiked Amount 10.000			Recovery =	9.20%		
43) 1,2-Dichloroethane-d4	9.14	65	50192	0.93	ug/l	0.00
Spiked Amount 10.000			Recovery =	9.30%		
56) Toluene-d8	12.82	98	264721	0.92	ug/l	0.00
Spiked Amount 10.000			Recovery =	9.20%		
77) 4-Bromofluorobenzene	17.47	95	78048	0.98	ug/l	0.00
Spiked Amount 10.000			Recovery =	9.80%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	85560	0.96	ug/l	90
4) Chloromethane	2.13	50	154576	1.13	ug/l	99
5) Vinyl chloride	2.23	62	139197	1.08	ug/l	95
6) Bromomethane	2.64	94	109474	0.97	ug/l	94
7) Chloroethane	2.66	64	101327	1.07	ug/l	96
8) Dichlorofluoromethane	2.72	67	186097	0.93	ug/l	95
9) Trichlorofluoromethane	2.90	101	138025	1.03	ug/l	98
11) Acrolein	3.44	56	30532	5.44	ug/l	68
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	63854	0.90	ug/l	100
13) Acetone	3.52	43	60745	7.60	ug/l	85
14) 1,1-Dichloroethene	3.68	61	143078	0.89	ug/l	99
15) tert-Butyl alcohol	3.82	59	65065	23.49	ug/l	97
16) Methyl acetate	4.20	43	46162	1.75	ug/l	68
17) Iodomethane	4.13	142	142622	0.98	ug/l	100
18) Acetonitrile	4.23	41	118677	9.26	ug/l	97
19) Methylene chloride	4.42	49	107822	0.95	ug/l	99
20) Carbon disulfide	4.41	76	397173	1.01	ug/l	96
21) Acrylonitrile	4.66	53	54102	4.58	ug/l	96
22) tert-Butyl methyl ether (M	4.70	73	121245	0.93	ug/l	100
23) trans-1,2-Dichloroethene	4.92	96	103333	0.90	ug/l	100
24) Isopropyl ether (DIPE)	5.56	45	229923	0.94	ug/l	99
25) 1,1-Dichloroethane	5.75	63	163909	0.93	ug/l	100
26) Vinyl acetate	5.81	43	91313	1.03	ug/l	93
27) 2-Butanol	6.29	45	57564	23.53	ug/l	98
28) tert-Butyl ethyl ether (ET	6.48	59	177197	0.94	ug/l	99
29) 2-Butanone	6.76	72	14888	4.45	ug/l	93
30) 2,2-Dichloropropane	7.04	77	118293	0.97	ug/l	98

(#) = qualifier out of range (m) = manual integration
RJC456.D VO67J30.M Mon Nov 02 18:53:25 2020 Su 11/4/20 Page 1

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC456.D Vial: 4
Acq On : 30 Oct 2020 12:24 pm Operator: VLu
Sample : VO67J303 Inst : 67
Misc : 1.0ppb 8260/5.0ppb KET-AA/25ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31) cis-1,2-Dichloroethene	7.15	96	102426	0.92 ug/l	100
32) Chloroform	7.53	83	157042	0.95 ug/l	96
33) Bromochloromethane	7.90	130	44863	0.92 ug/l	97
34) tert-Amyl alcohol	8.00	59	10368	4.51 ug/l	97
36) Tetrahydrofuran	7.99	42	8419	1.00 ug/l	88
37) 1,1,1-Trichloroethane	8.43	97	123792	0.92 ug/l	98
38) Cyclohexane	8.41	84	152271	0.97 ug/l	100
39) 2,2,4-Trimethylpentane	8.59	57	441868	0.98 ug/l	100
40) 1,1-Dichloropropene	8.78	110	46190	0.89 ug/l	98
41) Carbon tetrachloride	8.95	119	100137	0.91 ug/l	99
42) tert-Amyl methyl ether (TA	9.10	87	30537	0.93 ug/l	96
44) 1,2-Dichloroethane	9.35	62	63259	0.95 ug/l	98
45) Benzene	9.32	78	348459	0.92 ug/l	98
46) Trichloroethene	10.59	130	89513	0.89 ug/l	99
47) Methylcyclohexane	10.66	83	167887	0.95 ug/l	97
48) 1,2-Dichloropropane	10.94	63	76359	0.92 ug/l	99
49) Bromodichloromethane	11.38	83	93175	0.93 ug/l	98
50) 1,4-Dioxane	11.48	88	6122	20.12 ug/l	98
51) Dibromomethane	11.47	93	36169	0.93 ug/l	99
53) 4-Methyl-2-pentanone	12.11	43	140502	4.56 ug/l	99
54) cis-1,3-Dichloropropene	12.43	75	109857	0.90 ug/l	95
57) Toluene	12.97	91	341568	0.92 ug/l	100
58) Ethyl methacrylate	13.38	69	49714	0.93 ug/l	97
59) trans-1,3-Dichloropropene	13.35	75	78137	0.92 ug/l	96
60) 1,1,2-Trichloroethane	13.60	97	42065	0.93 ug/l	99
61) 2-Hexanone	13.67	43	87929	4.73 ug/l	95
62) 1,3-Dichloropropane	14.05	76	76457	0.93 ug/l	99
63) Tetrachloroethene	14.09	164	65525	0.89 ug/l	99
64) Dibromochloromethane	14.46	129	50405	0.93 ug/l	98
65) 1,2-Dibromoethane	14.80	107	41024	0.96 ug/l	98
66) 1-Chlorohexane	15.13	91	132435	0.90 ug/l	99
67) Chlorobenzene	15.51	112	190941	0.92 ug/l	100
68) 1,1,1,2-Tetrachloroethane	15.60	131	58389	0.90 ug/l	91
69) Ethylbenzene	15.61	91	374784	0.91 ug/l	100
70) m-Xylene & p-Xylene	15.74	91	541619	1.80 ug/l	99
71) o-Xylene	16.48	91	264277	0.93 ug/l	98
72) Styrene	16.55	104	201603	0.91 ug/l	79
73) Isopropylbenzene	17.09	105	334693	0.90 ug/l	100
75) Bromoform	17.09	173	24517	0.93 ug/l	100
76) 1,1,2,2-Tetrachloroethane	17.38	83	41357	0.96 ug/l	99
78) 1,2,3-Trichloropropane	17.59	110	10327	0.99 ug/l	97

(#) = qualifier out of range (m) = manual integration
RJC456.D VO67J30.M Mon Nov 02 18:53:26 2020 Page 2

SA
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Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC456.D Vial: 4
Acq On : 30 Oct 2020 12:24 pm Operator: VLu
Sample : VO67J303 Inst : 67
Misc : 1.0ppb 8260/5.0ppb KET-AA/25ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.19	53	10015	0.94 ug/l	96
80)	n-Propylbenzene	17.69	91	419538	0.92 ug/l	100
81)	Bromobenzene	17.73	156	59899	0.93 ug/l	100
82)	1,3,5-Trimethylbenzene	17.91	105	249227	0.92 ug/l	99
83)	2-Chlorotoluene	17.92	91	254402	0.91 ug/l	99
84)	4-Chlorotoluene	17.99	91	224857	0.96 ug/l	100
85)	tert-Butylbenzene	18.36	134	53717	0.90 ug/l	93
86)	1,2,4-Trimethylbenzene	18.40	105	237886	0.94 ug/l	98
87)	sec-Butylbenzene	18.62	105	354756	0.93 ug/l	99
88)	p-Isopropyltoluene	18.78	119	269783	0.93 ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	120460	0.91 ug/l	100
90)	1,4-Dichlorobenzene	19.00	146	119195	0.92 ug/l	99
91)	n-Butylbenzene	19.22	91	276410	0.93 ug/l	99
92)	1,2-Dichlorobenzene	19.40	146	97854	0.93 ug/l	96
93)	1,2-Dibromo-3-chloropropan	20.18	157	4041	0.89 ug/l	82
94)	1,2,4-Trichlorobenzene	21.02	180	45642	0.92 ug/l	99
95)	Hexachlorobutadiene	21.15	225	38813	0.95 ug/l	99
96)	Naphthalene	21.29	128	56691	0.95 ug/l	99
97)	1,2,3-Trichlorobenzene	21.54	180	31076	0.92 ug/l	99

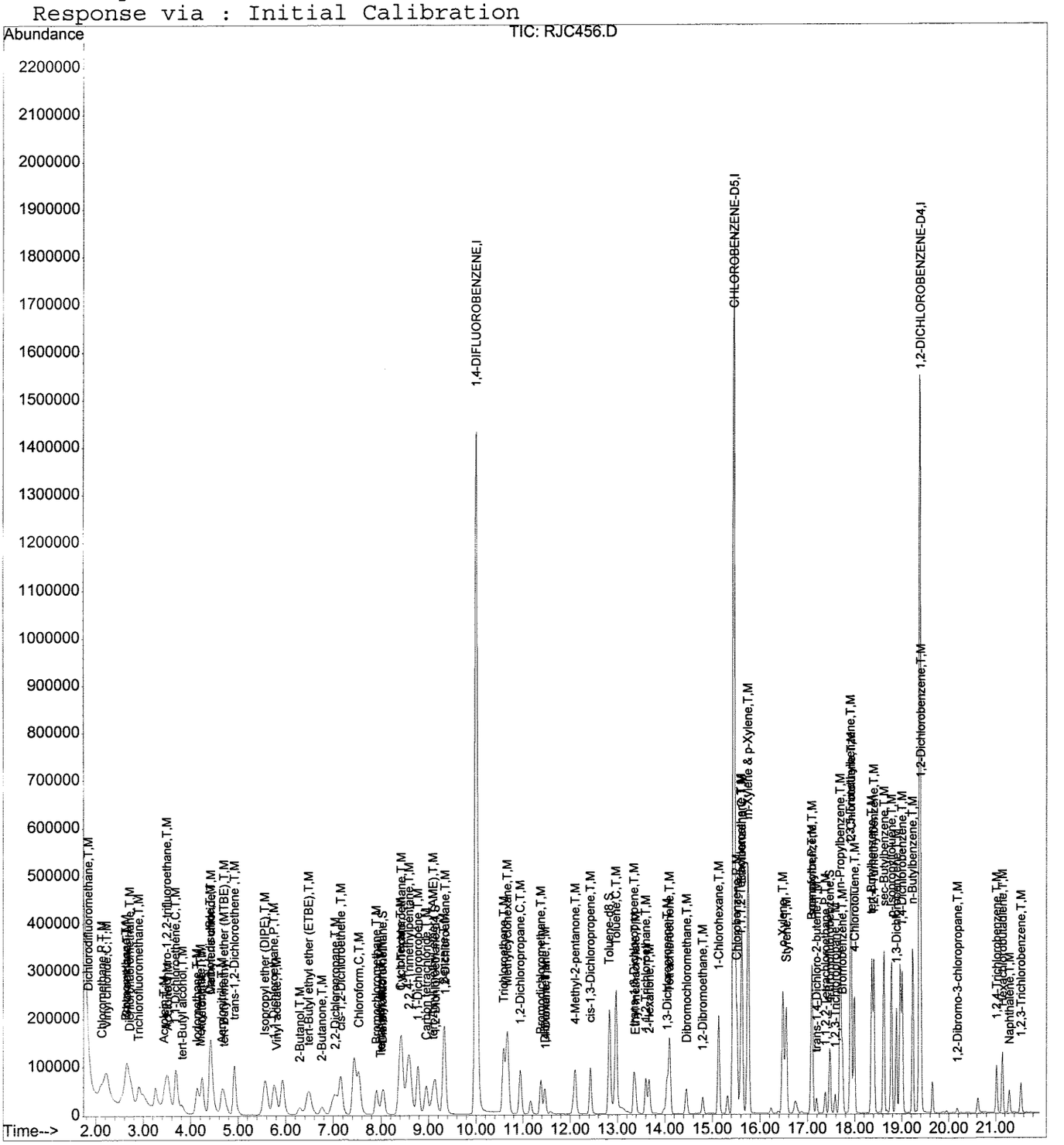
SU 11/4/20

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC456.D Vial: 4
Acq On : 30 Oct 2020 12:24 pm Operator: VLu
Sample : VO67J303 Inst : 67
Misc : 1.0ppb 8260/5.0ppb KET-AA/25ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:46 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC456.D VO67J30.M Mon Nov 02 18:53:29 2020 Page 4

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Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC457.D Vial: 5
Acq On : 30 Oct 2020 12:50 pm Operator: VLu
Sample : VO67J304 Inst : 67
Misc : 2.0ppb 8260/10ppb KET-AA/50ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2504411	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1857262	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	600494	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	165144	2.02	ug/l	0.02
Spiked Amount 10.000			Recovery =	20.20%		
43) 1,2-Dichloroethane-d4	9.14	65	108722	2.08	ug/l	0.00
Spiked Amount 10.000			Recovery =	20.80%		
56) Toluene-d8	12.82	98	573410	2.02	ug/l	0.00
Spiked Amount 10.000			Recovery =	20.20%		
77) 4-Bromofluorobenzene	17.47	95	161385	1.98	ug/l	0.00
Spiked Amount 10.000			Recovery =	19.80%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	168957	1.95	ug/l	99
4) Chloromethane	2.13	50	275240	2.08	ug/l	100
5) Vinyl chloride	2.23	62	257153	2.06	ug/l	97
6) Bromomethane	2.64	94	209725	1.93	ug/l	97
7) Chloroethane	2.64	64	182567	1.99	ug/l	99
8) Dichlorofluoromethane	2.72	67	388846	2.00	ug/l	97
9) Trichlorofluoromethane	2.90	101	255323	1.98	ug/l	100
11) Acrolein	3.43	56	58515	10.79	ug/l	86
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	134972	1.96	ug/l	98
13) Acetone	3.52	43	97911	12.68	ug/l	93
14) 1,1-Dichloroethene	3.68	61	303420	1.95	ug/l	99
15) tert-Butyl alcohol	3.82	59	132262	49.42	ug/l	100
16) Methyl acetate	4.20	43	55820	2.19	ug/l	88
17) Iodomethane	4.13	142	287514	2.05	ug/l	100
18) Acetonitrile	4.23	41	246373	19.89	ug/l	99
19) Methylene chloride	4.42	49	216383	1.97	ug/l	100
20) Carbon disulfide	4.41	76	709975	1.87	ug/l	98
21) Acrylonitrile	4.66	53	109599	9.60	ug/l	97
22) tert-Butyl methyl ether (M	4.69	73	253453	2.02	ug/l	100
23) trans-1,2-Dichloroethene	4.92	96	218546	1.97	ug/l	100
24) Isopropyl ether (DIPE)	5.56	45	479134	2.03	ug/l	98
25) 1,1-Dichloroethane	5.75	63	345548	2.02	ug/l	100
26) Vinyl acetate	5.81	43	169755	1.99	ug/l	98
27) 2-Butanol	6.28	45	118958	50.32	ug/l	96
28) tert-Butyl ethyl ether (ET	6.48	59	376886	2.07	ug/l	99
29) 2-Butanone	6.75	72	31814	9.84	ug/l	97
30) 2,2-Dichloropropane	7.04	77	239968	2.04	ug/l	99

(#) = qualifier out of range (m) = manual integration SU 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC457.D Vial: 5
Acq On : 30 Oct 2020 12:50 pm Operator: VLu
Sample : VO67J304 Inst : 67
Misc : 2.0ppb 8260/10ppb KET-AA/50ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	cis-1,2-Dichloroethene	7.15	96	215312	1.99 ug/l	100
32)	Chloroform	7.53	83	328206	2.05 ug/l	99
33)	Bromochloromethane	7.90	130	94409	1.99 ug/l	98
34)	tert-Amyl alcohol	8.00	59	21538	9.69 ug/l	99
36)	Tetrahydrofuran	7.99	42	16499	2.03 ug/l	98
37)	1,1,1-Trichloroethane	8.43	97	259756	2.00 ug/l	100
38)	Cyclohexane	8.41	84	298419	1.97 ug/l	99
39)	2,2,4-Trimethylpentane	8.59	57	862530	1.98 ug/l	100
40)	1,1-Dichloropropene	8.78	110	100590	2.01 ug/l	97
41)	Carbon tetrachloride	8.95	119	214329	2.00 ug/l	99
42)	tert-Amyl methyl ether (TA	9.10	87	65167	2.05 ug/l	98
44)	1,2-Dichloroethane	9.35	62	130248	2.01 ug/l	98
45)	Benzene	9.32	78	734451	2.00 ug/l	100
46)	Trichloroethene	10.57	130	189020	1.95 ug/l	99
47)	Methylcyclohexane	10.66	83	333388	1.95 ug/l	100
48)	1,2-Dichloropropane	10.94	63	161740	2.01 ug/l	99
49)	Bromodichloromethane	11.38	83	193202	1.99 ug/l	100
50)	1,4-Dioxane	11.47	88	11315	38.49 ug/l	92
51)	Dibromomethane	11.45	93	74057	1.98 ug/l	99
53)	4-Methyl-2-pentanone	12.09	43	289204	9.70 ug/l	99
54)	cis-1,3-Dichloropropene	12.43	75	229593	1.95 ug/l	98
57)	Toluene	12.97	91	720301	1.97 ug/l	100
58)	Ethyl methacrylate	13.38	69	103079	1.94 ug/l	97
59)	trans-1,3-Dichloropropene	13.35	75	164990	1.95 ug/l	98
60)	1,1,2-Trichloroethane	13.60	97	88372	1.98 ug/l	100
61)	2-Hexanone	13.67	43	181972	9.89 ug/l	97
62)	1,3-Dichloropropane	14.05	76	158621	1.95 ug/l	99
63)	Tetrachloroethene	14.09	164	138422	1.90 ug/l	99
64)	Dibromochloromethane	14.46	129	105838	1.97 ug/l	99
65)	1,2-Dibromoethane	14.80	107	83962	1.99 ug/l	98
66)	1-Chlorohexane	15.13	91	281755	1.94 ug/l	99
67)	Chlorobenzene	15.51	112	407503	1.98 ug/l	100
68)	1,1,1,2-Tetrachloroethane	15.60	131	123195	1.92 ug/l	96
69)	Ethylbenzene	15.61	91	801466	1.97 ug/l	100
70)	m-Xylene & p-Xylene	15.74	91	1171853	3.93 ug/l	99
71)	o-Xylene	16.47	91	558884	1.98 ug/l	100
72)	Styrene	16.55	104	433967	1.98 ug/l	80
73)	Isopropylbenzene	17.09	105	721598	1.97 ug/l	100
75)	Bromoform	17.09	173	52407	1.93 ug/l	99
76)	1,1,2,2-Tetrachloroethane	17.37	83	88055	2.00 ug/l	99
78)	1,2,3-Trichloropropane	17.58	110	22610	2.11 ug/l	99

(#) = qualifier out of range (m) = manual integration
RJC457.D VO67J30.M Mon Nov 02 18:55:02 2020 11/4/20 Page 2

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC457.D
Acq On : 30 Oct 2020 12:50 pm
Sample : VO67J304
Misc : 2.0ppb 8260/10ppb KET-AA/50ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020

Vial: 5
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) trans-1,4-Dichloro-2-buten	17.19	53	21468	1.97 ug/l	98
80) n-Propylbenzene	17.69	91	927536	1.99 ug/l	100
81) Bromobenzene	17.73	156	127337	1.93 ug/l	100
82) 1,3,5-Trimethylbenzene	17.91	105	541374	1.95 ug/l	100
83) 2-Chlorotoluene	17.92	91	546331	1.91 ug/l	100
84) 4-Chlorotoluene	17.99	91	482130	2.01 ug/l	100
85) tert-Butylbenzene	18.36	134	119157	1.95 ug/l	95
86) 1,2,4-Trimethylbenzene	18.40	105	515535	1.98 ug/l	99
87) sec-Butylbenzene	18.62	105	773526	1.97 ug/l	100
88) p-Isopropyltoluene	18.78	119	596549	2.00 ug/l	99
89) 1,3-Dichlorobenzene	18.88	146	264423	1.95 ug/l	100
90) 1,4-Dichlorobenzene	19.00	146	261014	1.97 ug/l	100
91) n-Butylbenzene	19.22	91	611006	2.00 ug/l	100
92) 1,2-Dichlorobenzene	19.40	146	211130	1.95 ug/l	99
93) 1,2-Dibromo-3-chloropropan	20.18	157	9435	2.02 ug/l	96
94) 1,2,4-Trichlorobenzene	21.02	180	101214	1.98 ug/l	99
95) Hexachlorobutadiene	21.15	225	84368	2.00 ug/l	100
96) Naphthalene	21.29	128	121505	1.99 ug/l	99
97) 1,2,3-Trichlorobenzene	21.54	180	70243	2.02 ug/l	98

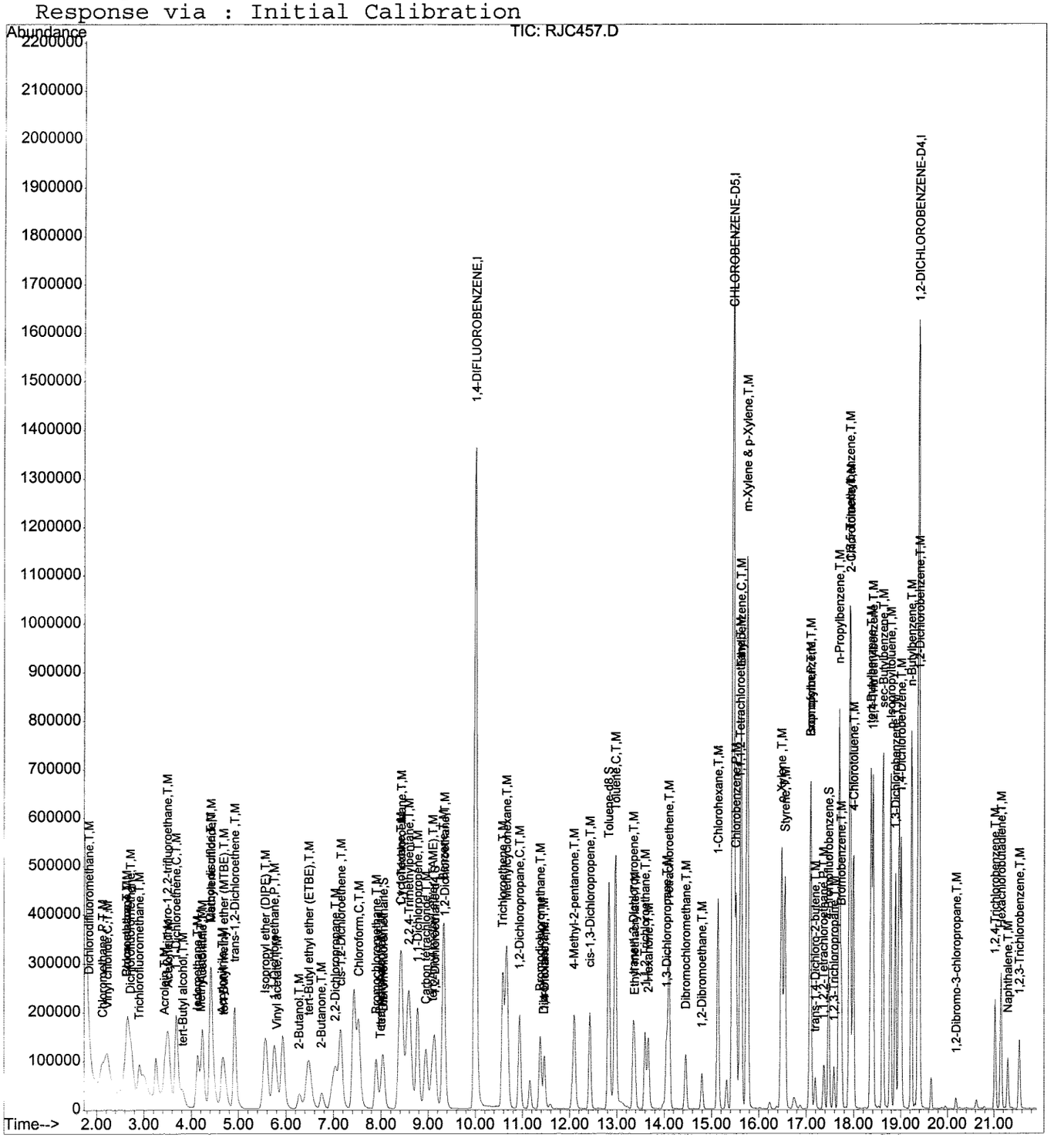
Su 11/4/20

(#) = qualifier out of range (m) = manual integration
RJC457.D VO67J30.M Mon Nov 02 18:55:02 2020

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC457.D Vial: 5
Acq On : 30 Oct 2020 12:50 pm Operator: VLu
Sample : VO67J304 Inst : 67
Misc : 2.0ppb 8260/10ppb KET-AA/50ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC457.D VO67J30.M Mon Nov 02 18:55:05 2020 Sa 11/4/20 Page 4

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC458.D Vial: 6
Acq On : 30 Oct 2020 1:16 pm Operator: VLu
Sample : VO67J305 Inst : 67
Misc : 5.0ppb 8260/25ppb KET-AA/125ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2469907	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1828509	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	603772	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	410475	5.09	ug/l	0.00
Spiked Amount 10.000			Recovery =	50.90%		
43) 1,2-Dichloroethane-d4	9.14	65	260489	5.05	ug/l	0.00
Spiked Amount 10.000			Recovery =	50.50%		
56) Toluene-d8	12.82	98	1422242	5.10	ug/l	0.00
Spiked Amount 10.000			Recovery =	51.00%		
77) 4-Bromofluorobenzene	17.47	95	402349	4.90	ug/l	0.00
Spiked Amount 10.000			Recovery =	49.00%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	439761	5.15	ug/l	100
4) Chloromethane	2.11	50	683395	5.23	ug/l	100
5) Vinyl chloride	2.23	62	691058	5.61	ug/l	99
6) Bromomethane	2.64	94	567866	5.30	ug/l	100
7) Chloroethane	2.64	64	482780	5.34	ug/l	99
8) Dichlorofluoromethane	2.72	67	950336	4.97	ug/l	99
9) Trichlorofluoromethane	2.90	101	661903	5.19	ug/l	96
11) Acrolein	3.44	56	136007	25.44	ug/l	96
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	340960	5.03	ug/l	100
13) Acetone	3.52	43	190873	25.06	ug/l	99
14) 1,1-Dichloroethene	3.68	61	752641	4.91	ug/l	100
15) tert-Butyl alcohol	3.80	59	338973	128.43	ug/l	99
16) Methyl acetate	4.19	43	126334	5.03	ug/l	93
17) Iodomethane	4.13	142	663249	4.81	ug/l	99
18) Acetonitrile	4.24	41	600346	49.14	ug/l	99
19) Methylene chloride	4.43	49	518693	4.80	ug/l	100
20) Carbon disulfide	4.40	76	1867137	4.98	ug/l	99
21) Acrylonitrile	4.64	53	276273	24.54	ug/l	99
22) tert-Butyl methyl ether (M	4.69	73	619771	5.01	ug/l	100
23) trans-1,2-Dichloroethene	4.91	96	540677	4.95	ug/l	100
24) Isopropyl ether (DIPE)	5.56	45	1148003	4.94	ug/l	97
25) 1,1-Dichloroethane	5.75	63	837778	4.96	ug/l	100
26) Vinyl acetate	5.80	43	410422	4.87	ug/l	99
27) 2-Butanol	6.28	45	297149	127.46	ug/l	99
28) tert-Butyl ethyl ether (ET	6.47	59	907331	5.06	ug/l	99
29) 2-Butanone	6.75	72	80459	25.22	ug/l	99
30) 2,2-Dichloropropane	7.04	77	575898	4.97	ug/l	100

(#) = qualifier out of range (m) = manual integration
RJC458.D VO67J30.M Mon Nov 02 18:55:21 2020 Page 1

SM 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC458.D Vial: 6
Acq On : 30 Oct 2020 1:16 pm Operator: VLu
Sample : VO67J305 Inst : 67
Misc : 5.0ppb 8260/25ppb KET-AA/125ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	cis-1,2-Dichloroethene	7.14	96	527469	4.95 ug/l	100
32)	Chloroform	7.52	83	787770	5.00 ug/l	100
33)	Bromochloromethane	7.90	130	233224	4.99 ug/l	99
34)	tert-Amyl alcohol	7.99	59	55131	25.14 ug/l	99
36)	Tetrahydrofuran	7.99	42	40171	5.00 ug/l	99
37)	1,1,1-Trichloroethane	8.43	97	636005	4.95 ug/l	99
38)	Cyclohexane	8.41	84	783948	5.26 ug/l	99
39)	2,2,4-Trimethylpentane	8.59	57	2224554	5.18 ug/l	100
40)	1,1-Dichloropropene	8.78	110	247180	5.02 ug/l	99
41)	Carbon tetrachloride	8.95	119	529707	5.02 ug/l	100
42)	tert-Amyl methyl ether (TA	9.10	87	157703	5.03 ug/l	98
44)	1,2-Dichloroethane	9.35	62	315223	4.94 ug/l	99
45)	Benzene	9.32	78	1789127	4.95 ug/l	100
46)	Trichloroethene	10.59	130	466210	4.87 ug/l	99
47)	Methylcyclohexane	10.66	83	865023	5.14 ug/l	100
48)	1,2-Dichloropropane	10.94	63	392252	4.94 ug/l	99
49)	Bromodichloromethane	11.38	83	473595	4.96 ug/l	100
50)	1,4-Dioxane	11.47	88	28093	96.90 ug/l	99
51)	Dibromomethane	11.47	93	184454	4.99 ug/l	99
53)	4-Methyl-2-pentanone	12.09	43	720546	24.51 ug/l	99
54)	cis-1,3-Dichloropropene	12.43	75	568069	4.90 ug/l	99
57)	Toluene	12.97	91	1759659	4.89 ug/l	99
58)	Ethyl methacrylate	13.38	69	255774	4.90 ug/l	100
59)	trans-1,3-Dichloropropene	13.35	75	411095	4.95 ug/l	99
60)	1,1,2-Trichloroethane	13.60	97	213869	4.87 ug/l	99
61)	2-Hexanone	13.67	43	448485	24.76 ug/l	99
62)	1,3-Dichloropropane	14.05	76	395346	4.94 ug/l	100
63)	Tetrachloroethene	14.09	164	346173	4.82 ug/l	99
64)	Dibromochloromethane	14.46	129	261992	4.94 ug/l	100
65)	1,2-Dibromoethane	14.80	107	207798	5.01 ug/l	100
66)	1-Chlorohexane	15.13	91	703854	4.91 ug/l	100
67)	Chlorobenzene	15.51	112	992986	4.90 ug/l	100
68)	1,1,1,2-Tetrachloroethane	15.60	131	306625	4.85 ug/l	99
69)	Ethylbenzene	15.63	91	1967804	4.91 ug/l	99
70)	m-Xylene & p-Xylene	15.74	91	2883100	9.82 ug/l	100
71)	o-Xylene	16.47	91	1369082	4.93 ug/l	100
72)	Styrene	16.55	104	1062149	4.92 ug/l	100
73)	Isopropylbenzene	17.09	105	1795687	4.98 ug/l	100
75)	Bromoform	17.09	173	133032	4.88 ug/l	100
76)	1,1,2,2-Tetrachloroethane	17.38	83	216454	4.89 ug/l	100
78)	1,2,3-Trichloropropane	17.58	110	53431	4.96 ug/l	99

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

SG 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC458.D Vial: 6
Acq On : 30 Oct 2020 1:16 pm Operator: VLu
Sample : VO67J305 Inst : 67
Misc : 5.0ppb 8260/25ppb KET-AA/125ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.19	53	53974	4.92	ug/l	98
80)	n-Propylbenzene	17.69	91	2307651	4.91	ug/l	100
81)	Bromobenzene	17.75	156	318526	4.79	ug/l	100
82)	1,3,5-Trimethylbenzene	17.91	105	1353397	4.84	ug/l	100
83)	2-Chlorotoluene	17.92	91	1340304	4.65	ug/l	94
84)	4-Chlorotoluene	17.99	91	1213621	5.02	ug/l	93
85)	tert-Butylbenzene	18.36	134	296089	4.83	ug/l	96
86)	1,2,4-Trimethylbenzene	18.40	105	1272319	4.86	ug/l	100
87)	sec-Butylbenzene	18.62	105	1930466	4.89	ug/l	100
88)	p-Isopropyltoluene	18.78	119	1461317	4.88	ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	651778	4.79	ug/l	100
90)	1,4-Dichlorobenzene	19.00	146	643777	4.83	ug/l	100
91)	n-Butylbenzene	19.22	91	1521316	4.94	ug/l	100
92)	1,2-Dichlorobenzene	19.41	146	528511	4.86	ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.18	157	24220	5.16	ug/l	99
94)	1,2,4-Trichlorobenzene	21.02	180	249580	4.86	ug/l	99
95)	Hexachlorobutadiene	21.15	225	207717	4.91	ug/l	99
96)	Naphthalene	21.29	128	304386	4.96	ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	172518	4.94	ug/l	100

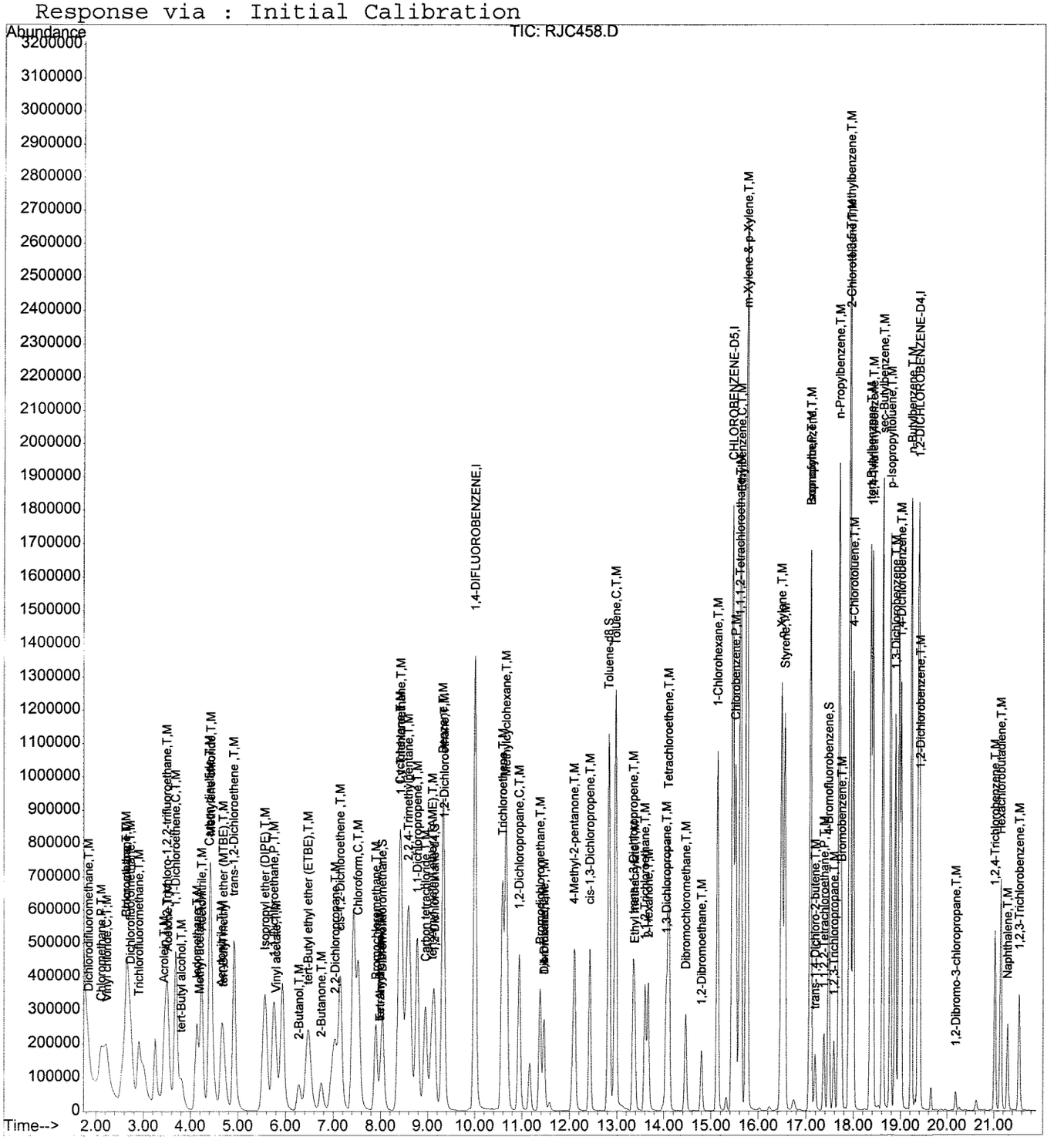
(#) = qualifier out of range (m) = manual integration
RJC458.D VO67J30.M Mon Nov 02 18:55:22 2020 Page 3

Sq 11/4/20

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC458.D Vial: 6
Acq On : 30 Oct 2020 1:16 pm Operator: VLu
Sample : VO67J305 Inst : 67
Misc : 5.0ppb 8260/25ppb KET-AA/125ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC459.D
Acq On : 30 Oct 2020 1:41 pm
Sample : VO67J306
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020

Vial: 7
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2484539	10.00 ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1854704	10.00 ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	612676	10.00 ug/l	0.00
System Monitoring Compounds					
35) Dibromofluoromethane	8.03	111	871140	10.74 ug/l	0.00
Spiked Amount 10.000			Recovery =	107.40%	
43) 1,2-Dichloroethane-d4	9.14	65	551928	10.63 ug/l	0.00
Spiked Amount 10.000			Recovery =	106.30%	
56) Toluene-d8	12.82	98	3077049	10.87 ug/l	0.00
Spiked Amount 10.000			Recovery =	108.70%	
77) 4-Bromofluorobenzene	17.47	95	859025	10.32 ug/l	0.00
Spiked Amount 10.000			Recovery =	103.20%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.84	85	864860	10.07 ug/l	100
4) Chloromethane	2.11	50	1339060	10.18 ug/l	100
5) Vinyl chloride	2.23	62	1359809	10.97 ug/l	100
6) Bromomethane	2.62	94	1125147	10.44 ug/l	100
7) Chloroethane	2.64	64	921172	10.14 ug/l	100
8) Dichlorofluoromethane	2.72	67	1824113	9.48 ug/l	100
9) Trichlorofluoromethane	2.91	101	1318218	10.28 ug/l	100
11) Acrolein	3.44	56	252879	47.02 ug/l	100
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	661586	9.70 ug/l	100
13) Acetone	3.52	43	357543	46.66 ug/l	100
14) 1,1-Dichloroethene	3.68	61	1470648	9.54 ug/l	100
15) tert-Butyl alcohol	3.81	59	647555	243.89 ug/l	100
16) Methyl acetate	4.19	43	251186	9.93 ug/l	100
17) Iodomethane	4.13	142	1326205	9.55 ug/l	100
18) Acetonitrile	4.23	41	1172204	95.38 ug/l	100
19) Methylene chloride	4.42	49	1004181	9.23 ug/l	100
20) Carbon disulfide	4.41	76	3783442	10.04 ug/l	100
21) Acrylonitrile	4.66	53	553984	48.93 ug/l	100
22) tert-Butyl methyl ether (M	4.69	73	1207663	9.71 ug/l	100
23) trans-1,2-Dichloroethene	4.92	96	1060946	9.65 ug/l	100
24) Isopropyl ether (DIPE)	5.56	45	2214406	9.48 ug/l	100
25) 1,1-Dichloroethane	5.75	63	1627506	9.59 ug/l	100
26) Vinyl acetate	5.81	43	832217	9.82 ug/l	100
27) 2-Butanol	6.28	45	606198	258.49 ug/l	100
28) tert-Butyl ethyl ether (ET	6.47	59	1733632	9.62 ug/l	100
29) 2-Butanone	6.75	72	160108	49.90 ug/l	100
30) 2,2-Dichloropropane	7.04	77	1107482	9.50 ug/l	100

(#) = qualifier out of range (m) = manual integration
RJC459.D VO67J30.M Mon Nov 02 18:55:33 2020

SA 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC459.D Vial: 7
Acq On : 30 Oct 2020 1:41 pm Operator: VLu
Sample : VO67J306 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
31)	cis-1,2-Dichloroethene	7.16	96	1036251	9.67	ug/l	100
32)	Chloroform	7.54	83	1522086	9.60	ug/l	100
33)	Bromochloromethane	7.90	130	457936	9.74	ug/l	100
34)	tert-Amyl alcohol	7.99	59	115273	52.26	ug/l	100
36)	Tetrahydrofuran	7.99	42	80901	10.01	ug/l	100
37)	1,1,1-Trichloroethane	8.43	97	1242169	9.62	ug/l	100
38)	Cyclohexane	8.41	84	1588144	10.59	ug/l	100
39)	2,2,4-Trimethylpentane	8.59	57	4518615	10.46	ug/l	100
40)	1,1-Dichloropropene	8.78	110	482428	9.74	ug/l	100
41)	Carbon tetrachloride	8.95	119	1026153	9.68	ug/l	100
42)	tert-Amyl methyl ether (TA	9.10	87	311724	9.88	ug/l	100
44)	1,2-Dichloroethane	9.35	62	621479	9.69	ug/l	100
45)	Benzene	9.32	78	3499564	9.62	ug/l	100
46)	Trichloroethene	10.59	130	924026	9.59	ug/l	100
47)	Methylcyclohexane	10.66	83	1750950	10.34	ug/l	100
48)	1,2-Dichloropropane	10.94	63	767908	9.61	ug/l	100
49)	Bromodichloromethane	11.38	83	927367	9.65	ug/l	100
50)	1,4-Dioxane	11.46	88	58214	199.61	ug/l	100
51)	Dibromomethane	11.46	93	363892	9.79	ug/l	100
53)	4-Methyl-2-pentanone	12.09	43	1446041	48.91	ug/l	100
54)	cis-1,3-Dichloropropene	12.43	75	1117330	9.58	ug/l	100
57)	Toluene	12.97	91	3486966	9.55	ug/l	100
58)	Ethyl methacrylate	13.38	69	514155	9.71	ug/l	100
59)	trans-1,3-Dichloropropene	13.35	75	811310	9.62	ug/l	100
60)	1,1,2-Trichloroethane	13.60	97	429243	9.64	ug/l	100
61)	2-Hexanone	13.67	43	896971	48.81	ug/l	100
62)	1,3-Dichloropropane	14.05	76	780116	9.61	ug/l	100
63)	Tetrachloroethene	14.11	164	681988	9.36	ug/l	100
64)	Dibromochloromethane	14.46	129	518695	9.65	ug/l	100
65)	1,2-Dibromoethane	14.79	107	409112	9.72	ug/l	100
66)	1-Chlorohexane	15.13	91	1383571	9.52	ug/l	100
67)	Chlorobenzene	15.51	112	1958231	9.54	ug/l	100
68)	1,1,1,2-Tetrachloroethane	15.61	131	604596	9.43	ug/l	100
69)	Ethylbenzene	15.63	91	3892605	9.58	ug/l	100
70)	m-Xylene & p-Xylene	15.76	91	5774124	19.40	ug/l	100
71)	o-Xylene	16.47	91	2691866	9.56	ug/l	100
72)	Styrene	16.55	104	2121322	9.68	ug/l	100
73)	Isopropylbenzene	17.09	105	3530704	9.65	ug/l	100
75)	Bromoform	17.09	173	269549	9.75	ug/l	100
76)	1,1,2,2-Tetrachloroethane	17.38	83	433400	9.65	ug/l	100
78)	1,2,3-Trichloropropane	17.58	110	106461	9.74	ug/l	100

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

SU 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC459.D
Acq On : 30 Oct 2020 1:41 pm
Sample : VO67J306
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020

Vial: 7
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) trans-1,4-Dichloro-2-buten	17.19	53	106382	9.56 ug/l	100
80) n-Propylbenzene	17.69	91	4566315	9.58 ug/l	100
81) Bromobenzene	17.74	156	631455	9.37 ug/l	100
82) 1,3,5-Trimethylbenzene	17.91	105	2689741	9.49 ug/l	100
83) 2-Chlorotoluene	17.92	91	2890950	9.89 ug/l	100
84) 4-Chlorotoluene	17.99	91	2162562	8.81 ug/l	100
85) tert-Butylbenzene	18.37	134	587277	9.43 ug/l	100
86) 1,2,4-Trimethylbenzene	18.40	105	2528257	9.51 ug/l	100
87) sec-Butylbenzene	18.62	105	3824943	9.54 ug/l	100
88) p-Isopropyltoluene	18.78	119	2937300	9.67 ug/l	100
89) 1,3-Dichlorobenzene	18.88	146	1295344	9.38 ug/l	100
90) 1,4-Dichlorobenzene	19.00	146	1276141	9.43 ug/l	100
91) n-Butylbenzene	19.23	91	3065647	9.82 ug/l	100
92) 1,2-Dichlorobenzene	19.41	146	1043939	9.46 ug/l	100
93) 1,2-Dibromo-3-chloropropan	20.18	157	48889	10.25 ug/l	100
94) 1,2,4-Trichlorobenzene	21.02	180	501862	9.62 ug/l	100
95) Hexachlorobutadiene	21.15	225	411131	9.57 ug/l	100
96) Naphthalene	21.29	128	624796	10.04 ug/l	100
97) 1,2,3-Trichlorobenzene	21.54	180	349857	9.86 ug/l	100

SA
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(#) = qualifier out of range (m) = manual integration
RJC459.D VO67J30.M Mon Nov 02 18:55:34 2020 Page 3

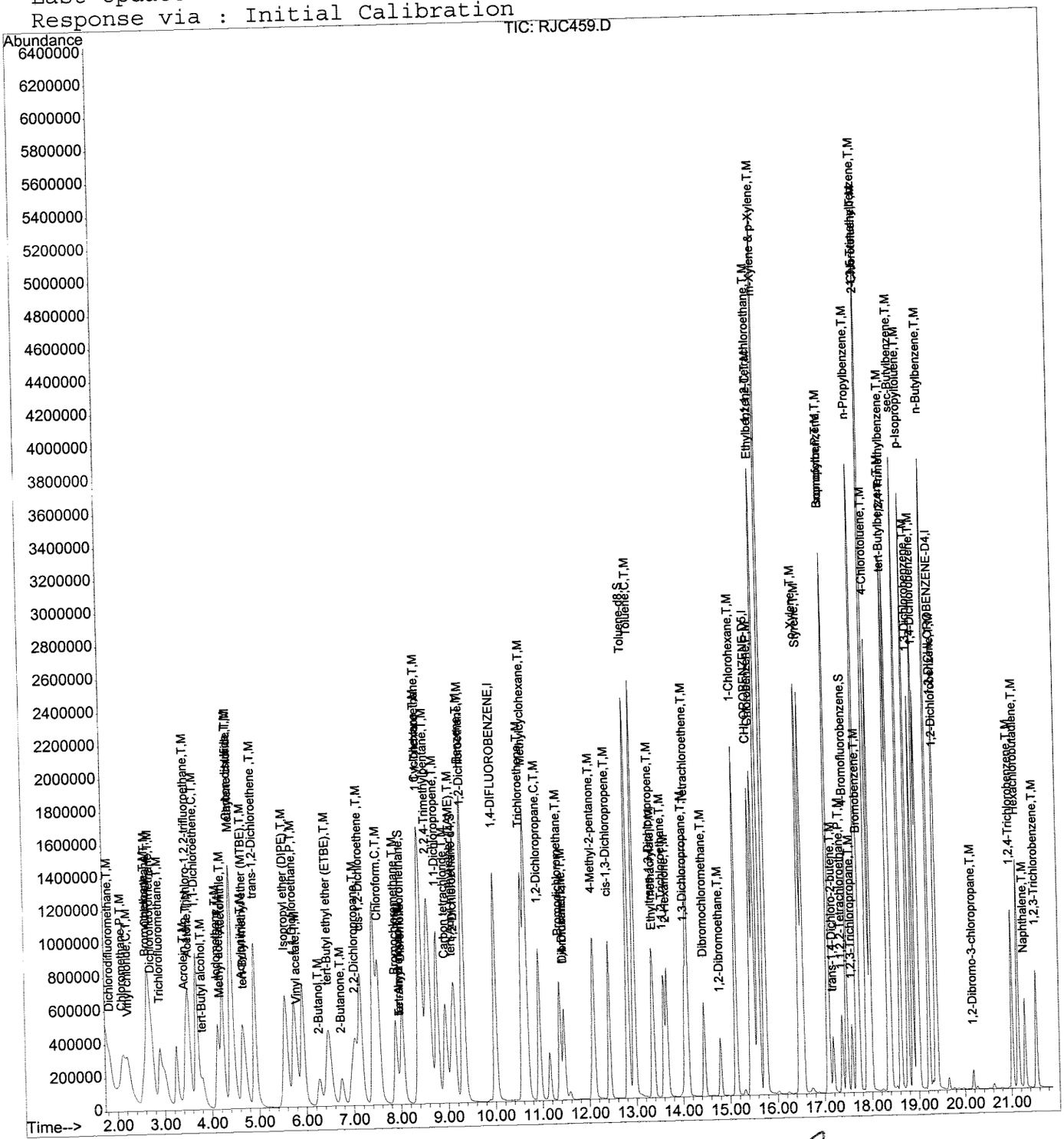
Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC459.D
Acq On : 30 Oct 2020 1:41 pm
Sample : VO67J306
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020

Vial: 7
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



SU 11/4/20

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC461.D Vial: 9
Acq On : 30 Oct 2020 2:07 pm Operator: VLu
Sample : VO67J307 Inst : 67
Misc : 20ppb 8260/100ppb KET-AA/500ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2393433	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1789811	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	600078	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	1620905	20.74	ug/l	0.01
Spiked Amount 10.000			Recovery =	207.40%		
43) 1,2-Dichloroethane-d4	9.14	65	1022657	20.45	ug/l	0.00
Spiked Amount 10.000			Recovery =	204.50%		
56) Toluene-d8	12.82	98	5764380	21.10	ug/l	0.00
Spiked Amount 10.000			Recovery =	211.00%		
77) 4-Bromofluorobenzene	17.48	95	1611039	19.75	ug/l	0.01
Spiked Amount 10.000			Recovery =	197.50%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	1685434	20.38	ug/l	99
4) Chloromethane	2.11	50	2457473	19.39	ug/l	100
5) Vinyl chloride	2.23	62	2523227	21.13	ug/l	100
6) Bromomethane	2.62	94	2197105	21.15	ug/l	100
7) Chloroethane	2.64	64	1797094	20.53	ug/l	100
8) Dichlorofluoromethane	2.70	67	3787360	20.43	ug/l	99
9) Trichlorofluoromethane	2.91	101	2583423	20.92	ug/l	100
11) Acrolein	3.44	56	513613	99.13	ug/l	100
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	1360073	20.71	ug/l	100
13) Acetone	3.52	43	706811	95.76	ug/l	100
14) 1,1-Dichloroethene	3.68	61	3160070	21.28	ug/l	99
15) tert-Butyl alcohol	3.80	59	1296061	506.73	ug/l	99
16) Methyl acetate	4.19	43	467481	19.19	ug/l	97
17) Iodomethane	4.13	142	2655813	19.86	ug/l	98
18) Acetonitrile	4.24	41	2399227	202.64	ug/l	99
19) Methylene chloride	4.43	49	2045841	19.52	ug/l	99
20) Carbon disulfide	4.40	76	7493978	20.64	ug/l	100
21) Acrylonitrile	4.64	53	1135559	104.11	ug/l	99
22) tert-Butyl methyl ether (M	4.69	73	2450048	20.45	ug/l	99
23) trans-1,2-Dichloroethene	4.91	96	2190210	20.69	ug/l	99
24) Isopropyl ether (DIPE)	5.56	45	4518468	20.08	ug/l	100
25) 1,1-Dichloroethane	5.75	63	3354263	20.51	ug/l	100
26) Vinyl acetate	5.80	43	1661049	20.36	ug/l	99
27) 2-Butanol	6.28	45	1141724	505.37	ug/l	98
28) tert-Butyl ethyl ether (ET	6.47	59	3509621	20.21	ug/l	99
29) 2-Butanone	6.75	72	327462	105.94	ug/l	96
30) 2,2-Dichloropropane	7.04	77	2281819	20.33	ug/l	99

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

Su 11/4/20

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC461.D Vial: 9
Acq On : 30 Oct 2020 2:07 pm Operator: VLu
Sample : VO67J307 Inst : 67
Misc : 20ppb 8260/100ppb KET-AA/500ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31) cis-1,2-Dichloroethene	7.14	96	2132109	20.66 ug/l	99
32) Chloroform	7.54	83	3134822	20.52 ug/l	100
33) Bromochloromethane	7.90	130	943465	20.84 ug/l	100
34) tert-Amyl alcohol	7.99	59	210199	98.92 ug/l	99
36) Tetrahydrofuran	7.99	42	155721	20.01 ug/l	97
37) 1,1,1-Trichloroethane	8.43	97	2544961	20.45 ug/l	99
38) Cyclohexane	8.41	84	3090170	21.39 ug/l	100
39) 2,2,4-Trimethylpentane	8.59	57	8431974	20.26 ug/l	100
40) 1,1-Dichloropropene	8.78	110	994671	20.85 ug/l	99
41) Carbon tetrachloride	8.95	119	2120451	20.76 ug/l	99
42) tert-Amyl methyl ether (TA	9.10	87	627665	20.65 ug/l	100
44) 1,2-Dichloroethane	9.35	62	1266564	20.50 ug/l	100
45) Benzene	9.32	78	7286706	20.80 ug/l	99
46) Trichloroethene	10.59	130	1886335	20.33 ug/l	100
47) Methylcyclohexane	10.66	83	3402751	20.85 ug/l	100
48) 1,2-Dichloropropane	10.94	63	1577966	20.50 ug/l	100
49) Bromodichloromethane	11.38	83	1914196	20.68 ug/l	100
50) 1,4-Dioxane	11.46	88	118248	420.88 ug/l	98
51) Dibromomethane	11.46	93	747657	20.89 ug/l	100
53) 4-Methyl-2-pentanone	12.09	43	2955733	103.77 ug/l	99
54) cis-1,3-Dichloropropene	12.43	75	2328630	20.73 ug/l	100
57) Toluene	12.97	91	7315921	20.76 ug/l	100
58) Ethyl methacrylate	13.38	69	1061044	20.77 ug/l	99
59) trans-1,3-Dichloropropene	13.35	75	1700269	20.90 ug/l	99
60) 1,1,2-Trichloroethane	13.60	97	880384	20.49 ug/l	99
61) 2-Hexanone	13.67	43	1810946	102.12 ug/l	99
62) 1,3-Dichloropropane	14.05	76	1609986	20.55 ug/l	99
63) Tetrachloroethene	14.11	164	1438363	20.46 ug/l	99
64) Dibromochloromethane	14.46	129	1077258	20.77 ug/l	100
65) 1,2-Dibromoethane	14.79	107	837014	20.60 ug/l	100
66) 1-Chlorohexane	15.13	91	2900802	20.69 ug/l	100
67) Chlorobenzene	15.52	112	4111601	20.75 ug/l	100
68) 1,1,1,2-Tetrachloroethane	15.61	131	1272414	20.57 ug/l	100
69) Ethylbenzene	15.63	91	8281616	21.12 ug/l	100
70) m-Xylene & p-Xylene	15.76	91	12489339	43.48 ug/l	99
71) o-Xylene	16.49	91	5677055	20.90 ug/l	99
72) Styrene	16.55	104	4343860	20.54 ug/l	98
73) Isopropylbenzene	17.09	105	7507004	21.26 ug/l	100
75) Bromoform	17.09	173	573810	21.20 ug/l	100
76) 1,1,2,2-Tetrachloroethane	17.38	83	886296	20.14 ug/l	100
78) 1,2,3-Trichloropropane	17.58	110	216866	20.26 ug/l	100

(#) = qualifier out of range (m) = manual integration
RJC461.D VO67J30.M Mon Nov 02 18:55:43 2020 Page 2

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Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC461.D Vial: 9
Acq On : 30 Oct 2020 2:07 pm Operator: VLu
Sample : VO67J307 Inst : 67
Misc : 20ppb 8260/100ppb KET-AA/500ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.19	53	223469	20.51 ug/l	99
80)	n-Propylbenzene	17.69	91	9830146	21.06 ug/l	99
81)	Bromobenzene	17.74	156	1335055	20.22 ug/l	100
82)	1,3,5-Trimethylbenzene	17.91	105	5761496	20.75 ug/l	99
83)	2-Chlorotoluene	17.92	91	6160728	21.51 ug/l	100
84)	4-Chlorotoluene	17.99	91	4678888	19.47 ug/l	100
85)	tert-Butylbenzene	18.37	134	1233022	20.22 ug/l	98
86)	1,2,4-Trimethylbenzene	18.42	105	5332944	20.48 ug/l	100
87)	sec-Butylbenzene	18.62	105	8188325	20.86 ug/l	99
88)	p-Isopropyltoluene	18.78	119	6239859	20.98 ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	2772788	20.49 ug/l	99
90)	1,4-Dichlorobenzene	19.02	146	2713415	20.48 ug/l	99
91)	n-Butylbenzene	19.23	91	6495798	21.24 ug/l	99
92)	1,2-Dichlorobenzene	19.41	146	2176476	20.14 ug/l	98
93)	1,2-Dibromo-3-chloropropan	20.18	157	100290	21.48 ug/l	99
94)	1,2,4-Trichlorobenzene	21.02	180	1035588	20.27 ug/l	100
95)	Hexachlorobutadiene	21.15	225	842820	20.03 ug/l	99
96)	Naphthalene	21.29	128	1246400	20.45 ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	703280	20.24 ug/l	99

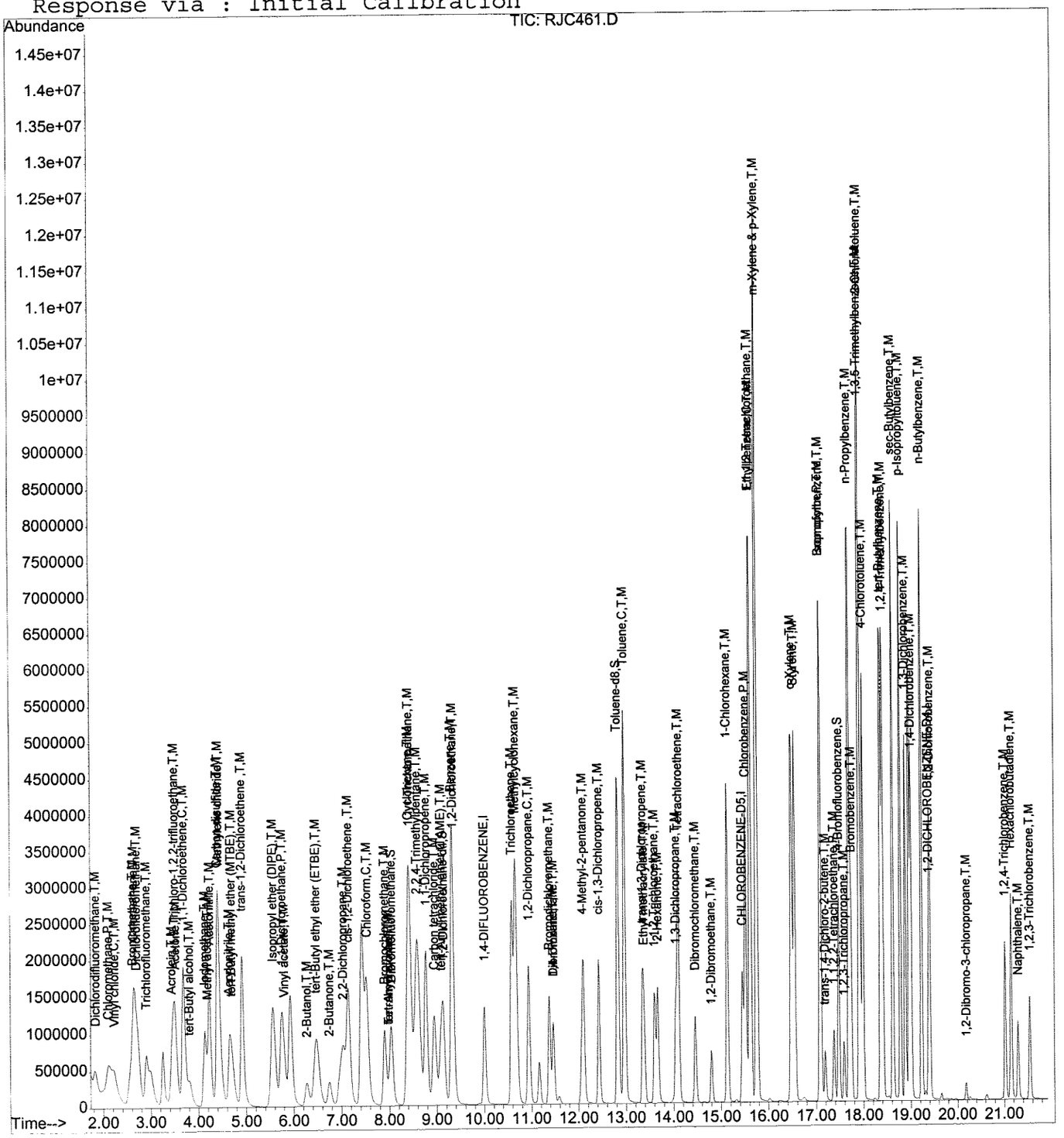
Sa 11/4/20

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC461.D Vial: 9
Acq On : 30 Oct 2020 2:07 pm Operator: VLu
Sample : VO67J307 Inst : 67
Misc : 20ppb 8260/100ppb KET-AA/500ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



SG 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC462.D Vial: 10
Acq On : 30 Oct 2020 2:33 pm Operator: VLu
Sample : VO67J308 Inst : 67
Misc : 30ppb 8260/150ppb KET-AA/750ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2430537	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1826539	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	621291	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	2564147	32.31	ug/l	0.01
Spiked Amount 10.000			Recovery = 323.10%			
43) 1,2-Dichloroethane-d4	9.14	65	1618650	31.88	ug/l	0.00
Spiked Amount 10.000			Recovery = 318.80%			
56) Toluene-d8	12.84	98	9233072	33.11	ug/l	0.01
Spiked Amount 10.000			Recovery = 331.10%			
77) 4-Bromofluorobenzene	17.48	95	2580726	30.56	ug/l	0.01
Spiked Amount 10.000			Recovery = 305.60%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	2473734	29.45	ug/l	99
4) Chloromethane	2.11	50	3453384	26.83	ug/l	99
5) Vinyl chloride	2.21	62	3481437	28.71	ug/l	99
6) Bromomethane	2.62	94	3240622	30.72	ug/l	99
7) Chloroethane	2.64	64	2636462	29.66	ug/l	100
8) Dichlorofluoromethane	2.70	67	5780313	30.71	ug/l	99
9) Trichlorofluoromethane	2.91	101	3714380	29.61	ug/l	99
11) Acrolein	3.44	56	796579	151.39	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	2094299	31.40	ug/l	100
13) Acetone	3.52	43	1106024	147.55	ug/l	100
14) 1,1-Dichloroethene	3.68	61	4872158	32.31	ug/l	99
15) tert-Butyl alcohol	3.80	59	2084424	802.52	ug/l	100
16) Methyl acetate	4.19	43	728607	29.45	ug/l	97
17) Iodomethane	4.13	142	4160706	30.64	ug/l	98
18) Acetonitrile	4.23	41	3740158	311.08	ug/l	99
19) Methylene chloride	4.42	49	3161116	29.71	ug/l	99
20) Carbon disulfide	4.39	76	11340770	30.76	ug/l	100
21) Acrylonitrile	4.64	53	1802684	162.75	ug/l	100
22) tert-Butyl methyl ether (M	4.69	73	3855083	31.68	ug/l	100
23) trans-1,2-Dichloroethene	4.91	96	3382785	31.46	ug/l	100
24) Isopropyl ether (DIPE)	5.56	45	7025974	30.74	ug/l	98
25) 1,1-Dichloroethane	5.75	63	5147230	30.99	ug/l	100
26) Vinyl acetate	5.80	43	2573747	31.06	ug/l	99
27) 2-Butanol	6.28	45	1795946	782.82	ug/l	99
28) tert-Butyl ethyl ether (ET	6.48	59	5450180	30.91	ug/l	100
29) 2-Butanone	6.75	72	515771	164.31	ug/l	92
30) 2,2-Dichloropropane	7.04	77	3320547	29.13	ug/l	99

(#) = qualifier out of range (m) = manual integration
RJC462.D VO67J30.M Mon Nov 02 18:57:56 2020 Page 1

SU 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC462.D
Acq On : 30 Oct 2020 2:33 pm
Sample : VO67J308
Misc : 30ppb 8260/150ppb KET-AA/750ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020

Vial: 10
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31) cis-1,2-Dichloroethene	7.16	96	3310183	31.58 ug/l	99
32) Chloroform	7.54	83	4831648	31.14 ug/l	100
33) Bromochloromethane	7.90	130	1470481	31.98 ug/l	100
34) tert-Amyl alcohol	7.99	59	345018	159.88 ug/l	100
36) Tetrahydrofuran	7.99	42	242935	30.74 ug/l	95
37) 1,1,1-Trichloroethane	8.43	97	3929756	31.10 ug/l	100
38) Cyclohexane	8.41	84	4691286	31.98 ug/l	100
39) 2,2,4-Trimethylpentane	8.60	57	12831005	30.36 ug/l	100
40) 1,1-Dichloropropene	8.78	110	1534886	31.68 ug/l	99
41) Carbon tetrachloride	8.95	119	3245543	31.28 ug/l	99
42) tert-Amyl methyl ether (TA	9.10	87	977681	31.67 ug/l	100
44) 1,2-Dichloroethane	9.35	62	1959636	31.23 ug/l	99
45) Benzene	9.33	78	11352428	31.90 ug/l	99
46) Trichloroethene	10.59	130	2968051	31.50 ug/l	99
47) Methylcyclohexane	10.66	83	5225730	31.54 ug/l	99
48) 1,2-Dichloropropane	10.94	63	2459178	31.46 ug/l	99
49) Bromodichloromethane	11.38	83	2974836	31.64 ug/l	100
50) 1,4-Dioxane	11.46	88	177875	623.45 ug/l	98
51) Dibromomethane	11.46	93	1149675	31.63 ug/l	98
53) 4-Methyl-2-pentanone	12.11	43	4731524	163.58 ug/l	100
54) cis-1,3-Dichloropropene	12.43	75	3630151	31.82 ug/l	100
57) Toluene	12.97	91	11443878	31.81 ug/l	100
58) Ethyl methacrylate	13.39	69	1699608	32.61 ug/l	99
59) trans-1,3-Dichloropropene	13.35	75	2681106	32.29 ug/l	99
60) 1,1,2-Trichloroethane	13.61	97	1384595	31.57 ug/l	99
61) 2-Hexanone	13.67	43	2911471	160.88 ug/l	99
62) 1,3-Dichloropropane	14.05	76	2546423	31.85 ug/l	100
63) Tetrachloroethene	14.11	164	2252823	31.40 ug/l	99
64) Dibromochloromethane	14.46	129	1695922	32.04 ug/l	100
65) 1,2-Dibromoethane	14.79	107	1329340	32.06 ug/l	99
66) 1-Chlorohexane	15.14	91	4509681	31.52 ug/l	100
67) Chlorobenzene	15.52	112	6439375	31.84 ug/l	99
68) 1,1,1,2-Tetrachloroethane	15.61	131	2018646	31.97 ug/l	98
69) Ethylbenzene	15.63	91	13088003	32.71 ug/l	99
70) m-Xylene & p-Xylene	15.76	91	19017849	64.87 ug/l	98
71) o-Xylene	16.49	91	8881127	32.03 ug/l	99
72) Styrene	16.55	104	6814548	31.57 ug/l	98
73) Isopropylbenzene	17.09	105	11911780	33.06 ug/l	99
75) Bromoform	17.10	173	926534	33.06 ug/l	99
76) 1,1,2,2-Tetrachloroethane	17.38	83	1396071	30.65 ug/l	99
78) 1,2,3-Trichloropropane	17.60	110	346379	31.26 ug/l	99

(#) = qualifier out of range (m) = manual integration
RJC462.D VO67J30.M Mon Nov 02 18:57:57 2020

SA 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC462.D
Acq On : 30 Oct 2020 2:33 pm
Sample : VO67J308
Misc : 30ppb 8260/150ppb KET-AA/750ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020

Vial: 10
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.19	53	348107	30.85	ug/l	98
80)	n-Propylbenzene	17.70	91	15183018	31.42	ug/l	100
81)	Bromobenzene	17.74	156	2112787	30.90	ug/l	100
82)	1,3,5-Trimethylbenzene	17.92	105	9239857	32.14	ug/l	100
83)	2-Chlorotoluene	17.92	91	9629153	32.48	ug/l	99
84)	4-Chlorotoluene	17.99	91	7481359	30.07	ug/l	100
85)	tert-Butylbenzene	18.37	134	1928183	30.54	ug/l	96
86)	1,2,4-Trimethylbenzene	18.42	105	8341401	30.93	ug/l	100
87)	sec-Butylbenzene	18.62	105	12729349	31.32	ug/l	99
88)	p-Isopropyltoluene	18.78	119	9832273	31.94	ug/l	99
89)	1,3-Dichlorobenzene	18.88	146	4358265	31.11	ug/l	99
90)	1,4-Dichlorobenzene	19.01	146	4330460	31.57	ug/l	99
91)	n-Butylbenzene	19.23	91	10067039	31.80	ug/l	100
92)	1,2-Dichlorobenzene	19.41	146	3426704	30.62	ug/l	98
93)	1,2-Dibromo-3-chloropropan	20.18	157	160470	33.19	ug/l	99
94)	1,2,4-Trichlorobenzene	21.03	180	1619511	30.62	ug/l	100
95)	Hexachlorobutadiene	21.15	225	1293959	29.71	ug/l	99
96)	Naphthalene	21.29	128	1987525	31.50	ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	1107056	30.78	ug/l	100

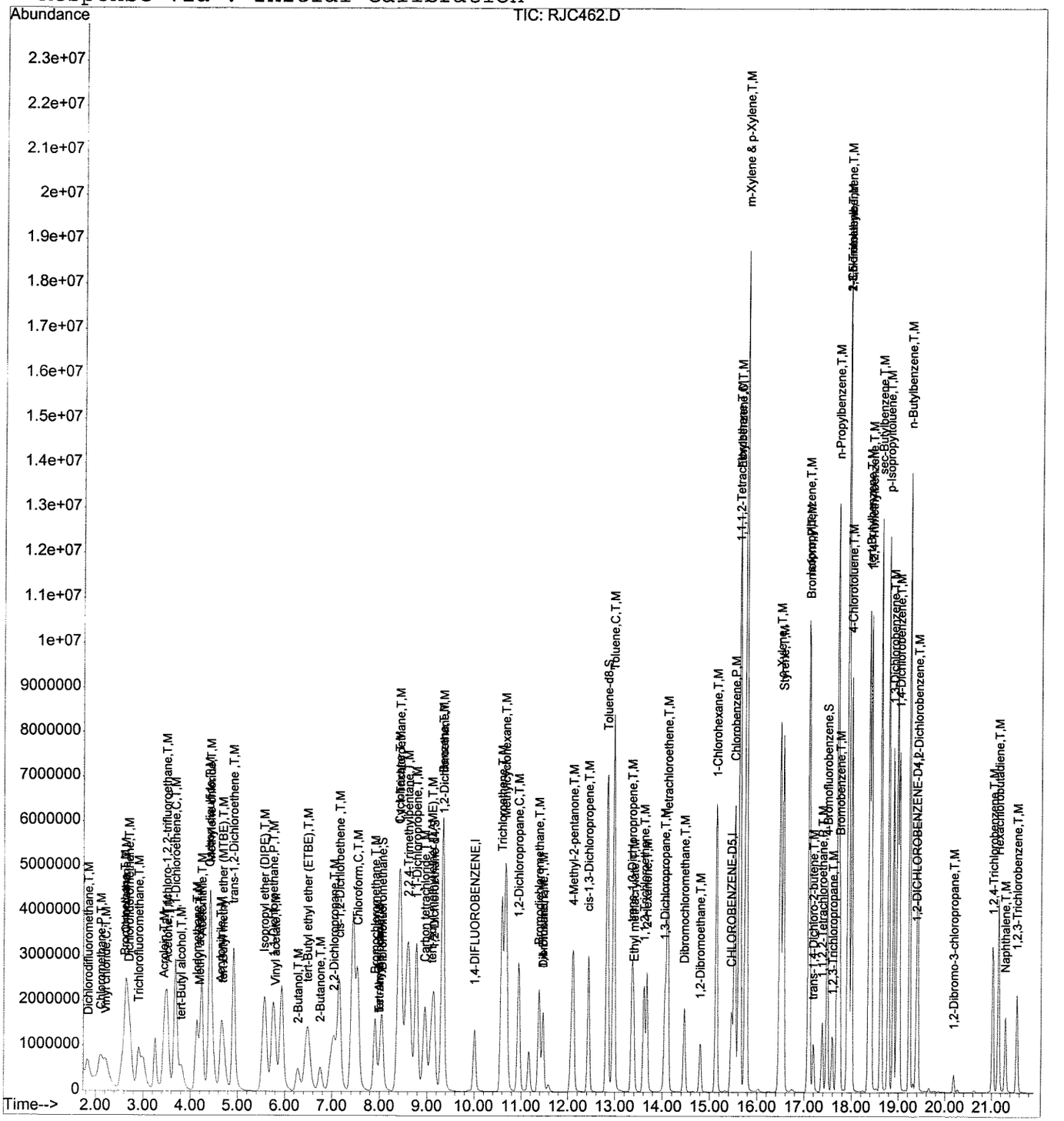
5-6-11/1/20

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC462.D Vial: 10
Acq On : 30 Oct 2020 2:33 pm Operator: VLu
Sample : VO67J308 Inst : 67
Misc : 30ppb 8260/150ppb KET-AA/750ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:47 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC462.D VO67J30.M Mon Nov 02 18:58:00 2020 Page 4

11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC463.D
Acq On : 30 Oct 2020 2:59 pm
Sample : VO67J309
Misc : 50ppb 8260/250ppb KET-AA/1250ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:48 2020

Vial: 11
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2521775	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1898899	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	630417	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	4187506	50.85	ug/l	0.01
Spiked Amount 10.000			Recovery =	508.50%		
43) 1,2-Dichloroethane-d4	9.14	65	2624947	49.83	ug/l	0.00
Spiked Amount 10.000			Recovery =	498.30%		
56) Toluene-d8	12.84	98	15459405	53.33	ug/l	0.01
Spiked Amount 10.000			Recovery =	533.30%		
77) 4-Bromofluorobenzene	17.48	95	4225272	49.31	ug/l	0.01
Spiked Amount 10.000			Recovery =	493.10%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	4313577	49.50	ug/l	99
4) Chloromethane	2.11	50	5574563	41.75	ug/l	99
5) Vinyl chloride	2.23	62	5412407	43.02	ug/l	100
6) Bromomethane	2.62	94	5445155	49.76	ug/l	99
7) Chloroethane	2.64	64	4455704	48.31	ug/l	100
8) Dichlorofluoromethane	2.72	67	9682216	49.57	ug/l	99
9) Trichlorofluoromethane	2.90	101	6235516	47.91	ug/l	100
11) Acrolein	3.44	56	1270643	232.75	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	3500474	50.58	ug/l	100
13) Acetone	3.52	43	1804591	232.04	ug/l	100
14) 1,1-Dichloroethene	3.68	61	8195599	52.39	ug/l	98
15) tert-Butyl alcohol	3.82	59	3463416	1285.19	ug/l	99
16) Methyl acetate	4.19	43	1246481	48.56	ug/l	98
17) Iodomethane	4.13	142	6996865	49.66	ug/l	97
18) Acetonitrile	4.24	41	6279459	503.38	ug/l	99
19) Methylene chloride	4.42	49	5319649	48.18	ug/l	99
20) Carbon disulfide	4.40	76	19767416	51.67	ug/l	100
21) Acrylonitrile	4.66	53	2991128	260.27	ug/l	99
22) tert-Butyl methyl ether (M	4.70	73	6451780	51.10	ug/l	99
23) trans-1,2-Dichloroethene	4.92	96	5696216	51.06	ug/l	100
24) Isopropyl ether (DIPE)	5.56	45	11895297	50.16	ug/l	98
25) 1,1-Dichloroethane	5.75	63	8714950	50.58	ug/l	99
26) Vinyl acetate	5.81	43	4244236	49.37	ug/l	99
27) 2-Butanol	6.28	45	2974285	1249.53	ug/l	100
28) tert-Butyl ethyl ether (ET	6.48	59	9184788	50.20	ug/l	100
29) 2-Butanone	6.76	72	852741	261.83	ug/l	97
30) 2,2-Dichloropropane	7.04	77	5462358	46.18	ug/l	98

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

SU 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC463.D Vial: 11
Acq On : 30 Oct 2020 2:59 pm Operator: VLu
Sample : VO67J309 Inst : 67
Misc : 50ppb 8260/250ppb KET-AA/1250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:48 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	cis-1,2-Dichloroethene	7.16	96	5579090	51.31 ug/l	100
32)	Chloroform	7.54	83	8125611	50.48 ug/l	99
33)	Bromochloromethane	7.90	130	2472891	51.84 ug/l	99
34)	tert-Amyl alcohol	8.00	59	562903	251.41 ug/l	100
36)	Tetrahydrofuran	7.99	42	403831	49.25 ug/l	95
37)	1,1,1-Trichloroethane	8.44	97	6593697	50.30 ug/l	99
38)	Cyclohexane	8.43	84	7998845	52.55 ug/l	100
39)	2,2,4-Trimethylpentane	8.60	57	21912115	49.97 ug/l	100
40)	1,1-Dichloropropene	8.78	110	2600461	51.73 ug/l	99
41)	Carbon tetrachloride	8.95	119	5454932	50.68 ug/l	99
42)	tert-Amyl methyl ether (TA	9.11	87	1615243	50.43 ug/l	99
44)	1,2-Dichloroethane	9.35	62	3262222	50.12 ug/l	100
45)	Benzene	9.33	78	19445686	52.67 ug/l	99
46)	Trichloroethene	10.59	130	5062088	51.78 ug/l	99
47)	Methylcyclohexane	10.68	83	9051510	52.65 ug/l	99
48)	1,2-Dichloropropane	10.94	63	4173560	51.46 ug/l	99
49)	Bromodichloromethane	11.38	83	5008264	51.34 ug/l	100
50)	1,4-Dioxane	11.46	88	296126	1000.37 ug/l	98
51)	Dibromomethane	11.46	93	1928444	51.14 ug/l	98
53)	4-Methyl-2-pentanone	12.11	43	7880495	262.59 ug/l	99
54)	cis-1,3-Dichloropropene	12.43	75	6193103	52.33 ug/l	99
57)	Toluene	12.97	91	19750587	52.81 ug/l	100
58)	Ethyl methacrylate	13.39	69	2855973	52.70 ug/l	98
59)	trans-1,3-Dichloropropene	13.35	75	4545432	52.66 ug/l	97
60)	1,1,2-Trichloroethane	13.61	97	2329066	51.08 ug/l	99
61)	2-Hexanone	13.67	43	4826970	256.57 ug/l	99
62)	1,3-Dichloropropane	14.05	76	4315162	51.92 ug/l	99
63)	Tetrachloroethene	14.11	164	3918313	52.54 ug/l	99
64)	Dibromochloromethane	14.46	129	2838840	51.59 ug/l	100
65)	1,2-Dibromoethane	14.79	107	2218739	51.48 ug/l	99
66)	1-Chlorohexane	15.15	91	7787171	52.35 ug/l	99
67)	Chlorobenzene	15.52	112	11170981	53.13 ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.61	131	3535896	53.87 ug/l	98
69)	Ethylbenzene	15.63	91	21065862	50.64 ug/l	95
70)	m-Xylene & p-Xylene	15.76	91	24432286	80.17 ug/l	70
71)	o-Xylene	16.49	91	15328222	53.18 ug/l	99
72)	Styrene	16.55	104	11774638	52.47 ug/l	98
73)	Isopropylbenzene	17.10	105	19210223	51.29 ug/l	98
75)	Bromoform	17.10	173	1606542	56.49 ug/l	99
76)	1,1,2,2-Tetrachloroethane	17.38	83	2294559	49.64 ug/l	99
78)	1,2,3-Trichloropropane	17.60	110	562008	49.98 ug/l	100

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

SA 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC463.D
Acq On : 30 Oct 2020 2:59 pm
Sample : VO67J309
Misc : 50ppb 8260/250ppb KET-AA/1250ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 16:48 2020

Vial: 11
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) trans-1,4-Dichloro-2-buten	17.19	53	579007	50.58 ug/l	99
80) n-Propylbenzene	17.70	91	20135889	41.07 ug/l	89
81) Bromobenzene	17.74	156	3627207	52.29 ug/l	100
82) 1,3,5-Trimethylbenzene	17.92	105	15145942	51.92 ug/l	95
83) 2-Chlorotoluene	17.93	91	16392046	54.48 ug/l	100
84) 4-Chlorotoluene	17.99	91	12924116	51.20 ug/l	100
85) tert-Butylbenzene	18.37	134	3352098	52.33 ug/l	93
86) 1,2,4-Trimethylbenzene	18.42	105	13903010	50.81 ug/l	96
87) sec-Butylbenzene	18.62	105	17504184	42.44 ug/l	91
88) p-Isopropyltoluene	18.78	119	15049129	48.17 ug/l	96
89) 1,3-Dichlorobenzene	18.88	146	7499414	52.76 ug/l	98
90) 1,4-Dichlorobenzene	19.02	146	7420647	53.32 ug/l	98
91) n-Butylbenzene	19.23	91	14627067	45.53 ug/l	89
92) 1,2-Dichlorobenzene	19.41	146	5801565	51.10 ug/l	98
93) 1,2-Dibromo-3-chloropropan	20.18	157	255921	52.17 ug/l	99
94) 1,2,4-Trichlorobenzene	21.03	180	2702023	50.35 ug/l	99
95) Hexachlorobutadiene	21.15	225	2160287	48.88 ug/l	99
96) Naphthalene	21.29	128	3190264	49.84 ug/l	99
97) 1,2,3-Trichlorobenzene	21.54	180	1822412	49.93 ug/l	100

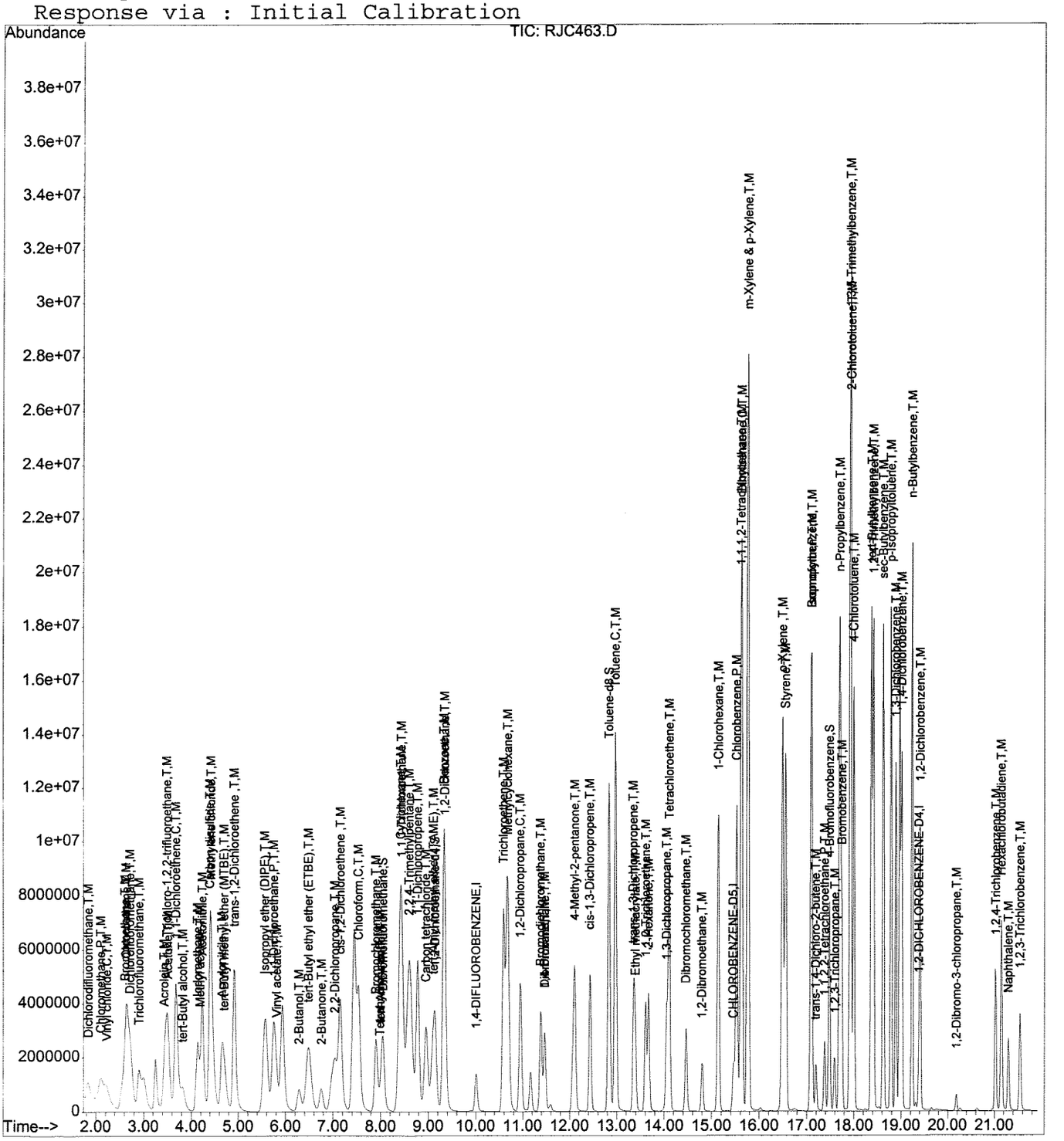
Sa
11/4/20

(#) = qualifier out of range (m) = manual integration
RJC463.D VO67J30.M Mon Nov 02 18:58:16 2020 Page 3

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC463.D Vial: 11
Acq On : 30 Oct 2020 2:59 pm Operator: VLu
Sample : VO67J309 Inst : 67
Misc : 50ppb 8260/250ppb KET-AA/1250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:48 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC463.D VO67J30.M Mon Nov 02 18:58:18 2020 Page 4

SA 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC464.D
Acq On : 30 Oct 2020 3:24 pm
Sample : VO67J3010
Misc : 100ppb 8260/500ppb KET-AA/2500ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 17:58 2020

Vial: 12
Operator: VLu
Inst : 67
Multiplr: 1.00
Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2527431	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.47	117	1874376	10.00	ug/l	0.01
74) 1,2-DICHLOROBENZENE-D4	19.38	152	593895	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	8793189	106.54	ug/l	0.01
Spiked Amount 10.000			Recovery	= 1065.40%		
43) 1,2-Dichloroethane-d4	9.16	65	5484038	103.87	ug/l	0.01
Spiked Amount 10.000			Recovery	= 1038.70%		
56) Toluene-d8	12.84	98	26722977	93.40	ug/l	0.01
Spiked Amount 10.000			Recovery	= 934.00%		
77) 4-Bromofluorobenzene	17.48	95	8939992	110.75	ug/l	0.01
Spiked Amount 10.000			Recovery	= 1107.50%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.85	85	8928459	102.23	ug/l	100
4) Chloromethane	2.09	50	10479034	78.31	ug/l	98
5) Vinyl chloride	2.21	62	8413047	66.72	ug/l	80
6) Bromomethane	2.60	94	11061015	100.85	ug/l	99
7) Chloroethane	2.62	64	8968531	97.03	ug/l	98
8) Dichlorofluoromethane	2.71	67	19216996	98.17	ug/l	98
9) Trichlorofluoromethane	2.89	101	13039952	99.98	ug/l	100
11) Acrolein	3.44	56	2579765	471.50	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.48	151	7037620	101.47	ug/l	100
13) Acetone	3.52	43	3614105	463.67	ug/l	99
14) 1,1-Dichloroethene	3.69	61	16558803	105.61	ug/l	98
15) tert-Butyl alcohol	3.83	59	6844914	2534.31	ug/l	99
16) Methyl acetate	4.19	43	2558540	99.45	ug/l	98
17) Iodomethane	4.13	142	14904346	105.55	ug/l	96
18) Acetonitrile	4.23	41	12982142	1038.35	ug/l	100
19) Methylene chloride	4.42	49	10966835	99.11	ug/l	99
20) Carbon disulfide	4.39	76	40069011	104.50	ug/l	100
21) Acrylonitrile	4.66	53	6230045	540.90	ug/l	100
22) tert-Butyl methyl ether (M	4.70	73	13013992	102.84	ug/l	99
23) trans-1,2-Dichloroethene	4.91	96	11823460	105.76	ug/l	100
24) Isopropyl ether (DIPE)	5.58	45	24270340	102.12	ug/l	98
25) 1,1-Dichloroethane	5.75	63	18052478	104.53	ug/l	99
26) Vinyl acetate	5.81	43	9282970	107.73	ug/l	100
27) 2-Butanol	6.29	45	6216303	2605.70	ug/l	100
28) tert-Butyl ethyl ether (ET	6.50	59	18470234	100.73	ug/l	99
29) 2-Butanone	6.76	72	1717374	526.14	ug/l	99
30) 2,2-Dichloropropane	7.05	77	10801623	91.12	ug/l	98

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

SK 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC464.D
Acq On : 30 Oct 2020 3:24 pm
Sample : VO67J3010
Misc : 100ppb 8260/500ppb KET-AA/2500ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 17:58 2020

Vial: 12
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31) cis-1,2-Dichloroethene	7.16	96	11494146	105.47 ug/l	100
32) Chloroform	7.55	83	16799688	104.13 ug/l	100
33) Bromochloromethane	7.90	130	5048679	105.60 ug/l	100
34) tert-Amyl alcohol	8.02	59	1143171	509.43 ug/l	100
36) Tetrahydrofuran	7.99	42	818717	99.63 ug/l	94
37) 1,1,1-Trichloroethane	8.44	97	13512651	102.84 ug/l	99
38) Cyclohexane	8.43	84	17109863	112.15 ug/l	100
39) 2,2,4-Trimethylpentane	8.62	57	45890383	104.42 ug/l	100
40) 1,1-Dichloropropene	8.78	110	5395162	107.07 ug/l	99
41) Carbon tetrachloride	8.95	119	11110791	102.99 ug/l	99
42) tert-Amyl methyl ether (TA	9.11	87	3256261	101.45 ug/l	98
44) 1,2-Dichloroethane	9.35	62	6723897	103.06 ug/l	100
45) Benzene	9.33	78	35391088	95.65 ug/l	95
46) Trichloroethene	10.59	130	10841424	110.64 ug/l	99
47) Methylcyclohexane	10.68	83	19592819	113.71 ug/l	98
48) 1,2-Dichloropropane	10.95	63	8725483	107.34 ug/l	97
49) Bromodichloromethane	11.39	83	10366886	106.04 ug/l	99
50) 1,4-Dioxane	11.48	88	612809	2065.55 ug/l	97
51) Dibromomethane	11.46	93	3976858	105.22 ug/l	97
53) 4-Methyl-2-pentanone	12.11	43	16489976	548.23 ug/l	99
54) cis-1,3-Dichloropropene	12.44	75	13044608	109.97 ug/l	98
57) Toluene	12.97	91	28921390	78.35 ug/l	75
58) Ethyl methacrylate	13.39	69	5909558	110.48 ug/l	96
59) trans-1,3-Dichloropropene	13.36	75	9408517	110.42 ug/l	95
60) 1,1,2-Trichloroethane	13.61	97	4805091	106.77 ug/l	99
61) 2-Hexanone	13.67	43	9787382	527.03 ug/l	97
62) 1,3-Dichloropropane	14.05	76	9055883	110.38 ug/l	99
63) Tetrachloroethene	14.11	164	8529691	115.87 ug/l	99
64) Dibromochloromethane	14.46	129	5863044	107.95 ug/l	100
65) 1,2-Dibromoethane	14.81	107	4515215	106.13 ug/l	99
66) 1-Chlorohexane	15.14	91	16411161	111.78 ug/l	99
67) Chlorobenzene	15.52	112	20926248	100.84 ug/l	94
68) 1,1,1,2-Tetrachloroethane	15.61	131	7405021	114.28 ug/l	98
69) Ethylbenzene	15.63	91	27565384	67.13 ug/l	57
71) o-Xylene	16.49	91	24453099	85.95 ug/l	79
72) Styrene	16.56	104	21998435	99.32 ug/l	91
73) Isopropylbenzene	17.10	105	25857553	69.94 ug/l	74
75) Bromoform	17.10	173	3334888	124.48 ug/l	99
76) 1,1,2,2-Tetrachloroethane	17.38	83	4513533	103.65 ug/l	100
78) 1,2,3-Trichloropropane	17.60	110	1075433	101.52 ug/l	99
79) trans-1,4-Dichloro-2-buten	17.20	53	1127545	104.55 ug/l	100

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

SU 11/4/20

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC464.D Vial: 12
Acq On : 30 Oct 2020 3:24 pm Operator: VLu
Sample : VO67J3010 Inst : 67
Misc : 100ppb 8260/500ppb KET-AA/2500ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 17:58 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
80)	n-Propylbenzene	17.69	91	24395613	52.82	ug/l	54
81)	Bromobenzene	17.74	156	7542578	115.41	ug/l	100
82)	1,3,5-Trimethylbenzene	17.92	105	20703081	75.34	ug/l	68
83)	2-Chlorotoluene	17.92	91	21550470	76.03	ug/l	71
84)	4-Chlorotoluene	17.99	91	18717433	78.71	ug/l	74
85)	tert-Butylbenzene	18.37	134	6874461	113.92	ug/l	100
86)	1,2,4-Trimethylbenzene	18.42	105	19656401	76.26	ug/l	65
87)	sec-Butylbenzene	18.62	105	22434424	57.74	ug/l	61
88)	p-Isopropyltoluene	18.78	119	19064669	64.78	ug/l	67
89)	1,3-Dichlorobenzene	18.90	146	14303443	106.81	ug/l	97
90)	1,4-Dichlorobenzene	19.01	146	13733780	104.75	ug/l	95
91)	n-Butylbenzene	19.23	91	19344129	63.92	ug/l	67
92)	1,2-Dichlorobenzene	19.41	146	11515039	107.66	ug/l	97
93)	1,2-Dibromo-3-chloropropan	20.18	157	479470	103.75	ug/l	100
94)	1,2,4-Trichlorobenzene	21.03	180	5091068	100.70	ug/l	100
95)	Hexachlorobutadiene	21.15	225	4115584	98.84	ug/l	99
96)	Naphthalene	21.29	128	5839670	96.83	ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	3386865	98.51	ug/l	99

SU 11/4/20

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

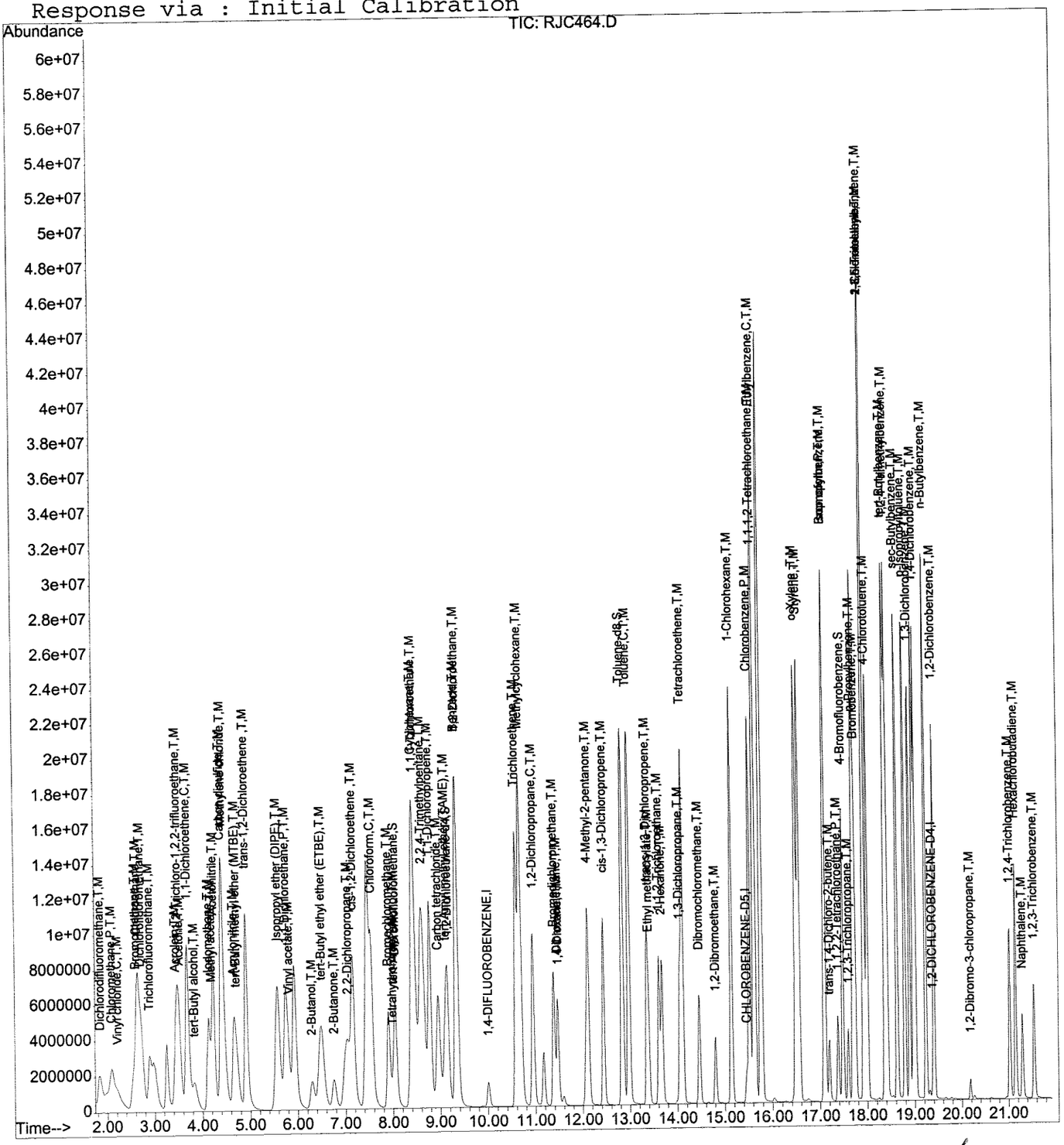
Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC464.D
Acq On : 30 Oct 2020 3:24 pm
Sample : VO67J3010
Misc : 100ppb 8260/500ppb KET-AA/2500ppb TBA
MS Integration Params: RTE.P
Quant Time: Nov 2 17:58 2020

Vial: 12
Operator: VLu
Inst : 67
Multiplr: 1.00

Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC464.D VO67J30.M Mon Nov 02 18:59:07 2020 Page 4

SA 11/4/20

SECOND SOURCE VERIFICATION

CONTINUE_CALIBRATION - CALIBRATION VERIFICATION

Instrument ID :67
IC Beginning DateTime :10/30/20 11:33
Spike Amount :10 PPB
CC/CV File :RJC467
IC File :RJC459

Column Spec :RTX502.2 ID :0.25MM
IC Ending DateTime :10/30/20 15:24
HPChem Method :V067J30
Date_Time :10/30/20 16:41

M	IDX	Parameters	CC Con	CC% D	CC Resp	CCRRF	AVRRF	CC Rtm	AVRtm	% RSD	Co X0	Co X1	Co X2	Co Cor
	1	1,4-DIFLUOROBENZENE	10.000	0	2673175	1	1	10.005	10.003	0				
	2	Dichlorodifluoromethane	8.886	-11.1	820888	0.307	0.346	1.841	1.843	4.09				
	3	Dichlorotetrafluoroethane												
	4	Chloromethane	10.128	1.3	1433471	0.536	0.529	2.106	2.113	9.60				
	5	Vinyl chloride	10.643	6.4	1419504	0.531	0.499	2.229	2.226	10.49				
	6	Bromomethane	10.020	0.2	1162402	0.435	0.434	2.638	2.624	5.86				
	7	Chloroethane	11.002	10.0	1075560	0.402	0.366	2.638	2.640	4.63				
	8	Dichlorofluoromethane	10.183	1.8	2108128	0.789	0.774	2.720	2.713	4.22				
	9	Trichlorofluoromethane	11.423	14.2	1575813	0.589	0.516	2.904	2.904	4.10				
	10	sec-Propyl alcohol												
5	11	Acrolein	44.650	-10.7	258386	0.019	0.022	3.435	3.437	6.11				
	12	1,1,2-Trichloro-1,2,2-trifluoroethane	9.977	-0.2	731893	0.274	0.274	3.497	3.494	4.23				
5	13	Acetone	42.005	-16.0	346288	0.026	0.031	3.517	3.519	12.15				
	14	1,1-Dichloroethene	9.859	-1.4	1634976	0.612	0.620	3.681	3.680	5.98				
25	15	tert-Butyl alcohol	242.085	-3.2	691551	0.010	0.011	3.824	3.813	3.92				
	16	Methyl acetate	9.337	-6.6	254061	0.095	0.102	4.205	4.193	4.46				
	17	Iodomethane	10.668	6.7	1593302	0.596	0.559	4.132	4.132	3.19				
10	18	Acetonitrile	109.625	9.6	1449639	0.054	0.049	4.234	4.233	3.84				
	19	Methylene chloride	9.534	-4.7	1115789	0.417	0.438	4.424	4.423	7.48				
	20	Carbon disulfide	10.400	4.0	4217344	1.578	1.517	4.409	4.402	4.44				
5	21	Acrylonitrile	45.563	-8.9	555056	0.042	0.046	4.658	4.653	6.52				
	22	tert-Butyl methyl ether (MTBE)	9.535	-4.6	1276178	0.477	0.501	4.701	4.693	3.56				
	23	trans-1,2-Dichloroethene	9.969	-0.3	1178794	0.441	0.442	4.921	4.912	4.61				
	24	Isopropyl ether (DIPE)	10.023	0.2	2519285	0.942	0.940	5.578	5.563	3.11				
	25	1,1-Dichloroethane	9.816	-1.8	1792856	0.671	0.683	5.753	5.751	3.55				
	26	Vinyl acetate	10.588	5.9	964988	0.361	0.341	5.811	5.805	4.45				
25	27	2-Butanol	238.357	-4.7	601428	0.009	0.009	6.293	6.286	4.80				
	28	tert-Butyl ethyl ether (ETBE)	9.804	-2.0	1901481	0.711	0.726	6.483	6.476	2.97				
5	29	2-Butanone	46.092	-7.8	159124	0.012	0.013	6.761	6.752	7.77				
	30	2,2-Dichloropropane	9.824	-1.8	1231699	0.461	0.469	7.053	7.039	8.03				
	31	cis-1,2-Dichloroethene	9.665	-3.3	1114144	0.417	0.431	7.155	7.150	4.27				
	32	Chloroform	9.986	-0.1	1704070	0.637	0.638	7.535	7.532	3.40				
	33	Bromochloromethane	9.903	-1.0	500726	0.187	0.189	7.917	7.900	4.96				
5	34	tert-Amyl alcohol	49.006	-2.0	116312	0.009	0.009	7.990	7.998	5.02				
	35	Dibromofluoromethane	10.758	7.6	939086	0.351	0.327	8.048	8.041	7.33				
	36	Tetrahydrofuran	9.646	-3.5	83841	0.031	0.033	7.990	7.992	1.34				
	37	1,1,1-Trichloroethane	9.937	-0.6	1380937	0.517	0.520	8.442	8.428	3.60				
	38	Cyclohexane	10.200	2.0	1645761	0.616	0.604	8.413	8.414	10.83				
	39	2,2,4-Trimethylpentane	9.555	-4.4	4441472	1.661	1.739	8.603	8.594	5.11				
	40	1,1-Dichloropropene	9.952	-0.5	530384	0.198	0.199	8.778	8.776	5.50				
	41	Carbon tetrachloride	10.143	1.4	1157384	0.433	0.427	8.953	8.951	4.00				
	42	tert-Amyl methyl ether (TAME)	9.786	-2.1	332229	0.124	0.127	9.114	9.100	3.90				
	43	1,2-Dichloroethane-d4	10.282	2.8	574184	0.215	0.209	9.158	9.143	5.86				
	44	1,2-Dichloroethane	9.595	-4.1	661857	0.248	0.258	9.348	9.344	2.93				
	45	Benzene	9.938	-0.6	3889243	1.455	1.464	9.333	9.322	4.63				
	46	Trichloroethene	9.956	-0.4	1031839	0.386	0.388	10.589	10.585	5.88				
	47	Methylcyclohexane	11.598	16.0	2113650	0.791	0.682	10.677	10.663	8.78				
	48	1,2-Dichloropropane	9.770	-2.3	839948	0.314	0.322	10.955	10.939	4.61				
	49	Bromodichloromethane	9.880	-1.2	1021576	0.382	0.387	11.378	11.377	4.30				
20	50	1,4-Dioxane	182.993	-8.5	57421	0.001	0.001	11.480	11.468	3.76				
	51	Dibromomethane	9.257	-7.4	370067	0.138	0.150	11.466	11.460	4.21				
	52	2-Chloroethyl vinyl ether												
5	53	4-Methyl-2-pentanone	46.330	-7.3	1473898	0.110	0.119	12.108	12.100	6.59				
	54	cis-1,3-Dichloropropene	9.855	-1.5	1236297	0.462	0.469	12.430	12.430	5.89				
	55	CHLOROBENZENE-D5	10.000	0	2007201	1	1	15.453	15.453	0				
	56	Toluene-d8	10.973	9.7	3362053	1.675	1.526	12.839	12.827	8.00				
	57	Toluene	9.914	-0.9	3918855	1.952	1.969	12.970	12.967	4.61				
	58	Ethyl methacrylate	9.552	-4.5	547127	0.273	0.285	13.394	13.382	6.68				
	59	trans-1,3-Dichloropropene	9.591	-4.1	875112	0.436	0.455	13.350	13.350	6.53				
	60	1,1,2-Trichloroethane	8.968	-10.3	432175	0.215	0.240	13.613	13.601	4.12				
5	61	2-Hexanone	45.152	-9.7	897913	0.089	0.099	13.671	13.670	4.26				
	62	1,3-Dichloropropane	9.255	-7.5	813060	0.405	0.438	14.051	14.050	5.55				
	63	Tetrachloroethene	9.639	-3.6	759854	0.379	0.393	14.109	14.101	7.60				
	64	Dibromochloromethane	9.640	-3.6	560689	0.279	0.290	14.460	14.457	5.36				
	65	1,2-Dibromoethane	9.374	-6.3	427082	0.213	0.227	14.810	14.796	4.99				
	66	1-Chlorohexane	10.344	3.4	1626382	0.810	0.783	15.146	15.135	6.26				
	67	Chlorobenzene	9.605	-3.9	2134642	1.063	1.107	15.526	15.516	4.55				
	68	1,1,1,2-Tetrachloroethane	9.737	-2.6	675645	0.337	0.346	15.613	15.605	7.64				
	69	Ethylbenzene	9.814	-1.9	4315485	2.150	2.191	15.628	15.622	5.21				
2	70	m-Xylene & p-Xylene	20.116	0.6	6480339	1.614	1.605	15.759	15.750	6.11				
	71	o-Xylene	9.741	-2.6	2967943	1.479	1.518	16.490	16.479	4.86				
	72	Styrene	9.509	-4.9	2255634	1.124	1.182	16.548	16.549	4.33				
	73	Isopropylbenzene	10.101	1.0	3999250	1.992	1.973	17.089	17.089	5.78				
	74	1,2-DICHLOROBENZENE-D4	10.000	0	662078	1	1	19.382	19.381	0				
	75	Bromoform	9.174	-8.3	274002	0.414	0.451	17.103	17.091	7.82				
	76	1,1,2,2-Tetrachloroethane	9.173	-8.3	445281	0.673	0.733	17.381	17.377	2.50				
	77	4-Bromofluorobenzene	10.492	4.9	944226	1.426	1.359	17.483	17.473	4.49				
	78	1,2,3-Trichloropropane	9.317	-6.8	110025	0.166	0.178	17.600	17.589	4.41				
	79	trans-1,4-Dichloro-2-butene	9.592	-4.1	115324	0.174	0.182	17.191	17.192	3.52				
	80	n-Propylbenzene	9.942	-0.6	5119204	7.732	7.777	17.702	17.688	4.72				
	81	Bromobenzene	9.796	-2.0	713700	1.078	1.100	17.746	17.739	6.75				
	82	1,3,5-Trimethylbenzene	9.995	-0.1	3062097	4.625	4.627	17.921	17.909	5.18				
	83	2-Chlorotoluene	9.509	-4.9	3004757	4.538	4.772	17.921	17.922	6.86				
	84	4-Chlorotoluene	9.227	-7.7	2446303	3.695	4.004	17.994	17.993	6.18				
	85	tert-Butylbenzene	9.608	-3.9	646383	0.976	1.016	18.374	18.366	6.51				
	86	1,2,4-Trimethylbenzene	10.073	0.7	2894538	4.372	4.340	18.418	18.407	4.44				
	87	sec-Butylbenzene	10.047	0.5	4351814	6.573	6.542	18.622	18.621	4.75				
	88	p-Isopropyltoluene	10.538	5.4	3457451	5.222	4.955	18.783	18.782	4.69				
	89	1,3-Dichlorobenzene	9.398	-6.0	1402953	2.119	2.255	18.885	18.886	5.32				
	90	1,4-Dichlorobenzene	9.177	-8.2	1341325	2.026	2.208	19.017	19.007	4.84				
	91	n-Butylbenzene	10.368	3.7	3427676	5.283	5.096	19.236	19.228	5.87				
	92	1,2-Dichlorobenzene	8.986	-10.1	1071440	1.618	1.801	19.411	19.407	4.72				
	93	1,2-Dibromo-3-chloropropane	9.983	-0.2	51430	0.078	0.078	20.185	20.184	8.92				
	94	1,2,4-Trichlorobenzene	10.129	1.3	570859	0.862	0.851	21.032	21.022	4.94				
	95	Hexachlorobutadiene	9.939	-0.6	461380	0.697	0.701	21.149	21.148	5.28				
	96	Naphthalene	9.885	-1.1	664613	1.004	1.015	21.295	21.294	3.05				
	97	1,2,3-Trichlorobenzene	10.180	1.8	390205	0.589	0.579	21.543	21.542	4.16				

Spike Amount = Nominal Amount * M

SA 11/4/20

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	108	0.00
2	T,M	Dichlorodifluoromethane	10.000	8.886	11.1	95	0.00
3	T,M	Dichlorotetrafluoroethane	-1.000	0.000	0.0	0	0.00
4	P,T,M	Chloromethane	10.000	10.128	-1.3	107	0.00
5	C,T,M	Vinyl chloride	10.000	10.643	-6.4	104	0.00
6	T,M	Bromomethane	10.000	10.020	-0.2	103	0.02
7	T,M	Chloroethane	10.000	11.001	-10.0	117	0.00
8	T,M	Dichlorofluoromethane	10.000	10.183	-1.8	116	0.00
9	T,M	Trichlorofluoromethane	10.000	11.423	-14.2	120	0.00
10	T,M	sec-Propyl alcohol	-1.000	0.000	0.0	0	0.00
11	T,M	Acrolein	50.000	44.650	10.7	102	0.00
12	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	9.977	0.2	111	0.00
13	T,M	Acetone	50.000	42.004	16.0	97	0.00
14	C,T,M	1,1-Dichloroethene	10.000	9.859	1.4	111	0.00
15	T,M	tert-Butyl alcohol	250.000	242.085	3.2	107	0.02
16	T,M	Methyl acetate	10.000	9.337	6.6	101	0.01
17	T,M	Iodomethane	10.000	10.668	-6.7	120	0.00
18	T,M	Acetonitrile	100.000	109.625	-9.6	124	0.00
19	T,M	Methylene chloride	10.000	9.534	4.7	111	0.00
20	T,M	Carbon disulfide	10.000	10.400	-4.0	111	0.00
21	T,M	Acrylonitrile	50.000	45.563	8.9	100	0.00
22	T,M	tert-Butyl methyl ether (MT	10.000	9.535	4.6	106	0.01
23	T,M	trans-1,2-Dichloroethene	10.000	9.969	0.3	111	0.00
24	T,M	Isopropyl ether (DIPE)	10.000	10.022	-0.2	114	0.01
25	P,T,M	1,1-Dichloroethane	10.000	9.815	1.9	110	0.00
26	T,M	Vinyl acetate	10.000	10.588	-5.9	116	0.00
27	T,M	2-Butanol	250.000	238.357	4.7	99	0.01
28	T,M	tert-Butyl ethyl ether (ETB	10.000	9.804	2.0	110	0.01
29	T,M	2-Butanone	50.000	46.092	7.8	99	0.01
30	T,M	2,2-Dichloropropane	10.000	9.824	1.8	111	0.01
31	T,M	cis-1,2-Dichloroethene	10.000	9.666	3.3	108	0.00
32	C,T,M	Chloroform	10.000	9.986	0.1	112	0.00
33	T,M	Bromochloromethane	10.000	9.903	1.0	109	0.02
34	T,M	tert-Amyl alcohol	50.000	49.006	2.0	101	0.00
35	S	Dibromofluoromethane	10.000	10.758	-7.6	108	0.02
36	T,M	Tetrahydrofuran	10.000	9.646	3.5	104	0.00
37	T,M	1,1,1-Trichloroethane	10.000	9.937	0.6	111	0.02
38	T,M	Cyclohexane	10.000	10.200	-2.0	104	0.00
39	T,M	2,2,4-Trimethylpentane	10.000	9.555	4.5	98	0.02
40	T,M	1,1-Dichloropropene	10.000	9.952	0.5	110	0.00
41	T,M	Carbon tetrachloride	10.000	10.143	-1.4	113	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	10.000	9.786	2.1	107	0.02
43	S	1,2-Dichloroethane-d4	10.000	10.282	-2.8	104	0.02
44	T,M	1,2-Dichloroethane	10.000	9.592	4.1	106	0.00
45	T,M	Benzene	10.000	9.938	0.6	111	0.02
46	T,M	Trichloroethene	10.000	9.956	0.4	112	0.00
47	T,M	Methylcyclohexane	10.000	11.598	-16.0	121	0.02
48	C,T,M	1,2-Dichloropropane	10.000	9.770	2.3	109	0.02
49	T,M	Bromodichloromethane	10.000	9.880	1.2	110	0.00
50	T,M	1,4-Dioxane	200.000	182.993	8.5	99	0.02
51	T,M	Dibromomethane	10.000	9.257	7.4	102	0.00
52	T,M	2-Chloroethyl vinyl ether	10.000	0.000	100.0#	0	0.02
53	T,M	4-Methyl-2-pentanone	50.000	46.330	7.3	102	0.02
54	T,M	cis-1,3-Dichloropropene	10.000	9.855	1.4	111	0.00
55	I	CHLOROBENZENE-D5	10.000	10.000	0.0	108	0.00
56	S	Toluene-d8	10.000	10.973	-9.7	109	0.02
57	C,T,M	Toluene	10.000	9.914	0.9	112	0.00
58	T,M	Ethyl methacrylate	10.000	9.552	4.5	106	0.02
59	T,M	trans-1,3-Dichloropropene	10.000	9.591	4.1	108	0.00
60	T,M	1,1,2-Trichloroethane	10.000	8.968	10.3	101	0.02
61	T,M	2-Hexanone	50.000	45.152	9.7	100	0.00
62	T,M	1,3-Dichloropropane	10.000	9.255	7.4	104	0.00
63	T,M	Tetrachloroethene	10.000	9.639	3.6	111	0.00
64	T,M	Dibromochloromethane	10.000	9.640	3.6	108	0.00
65	T,M	1,2-Dibromoethane	10.000	9.374	6.3	104	0.02
66	T,M	1-Chlorohexane	10.000	10.344	-3.4	118	0.02
67	P,M	Chlorobenzene	10.000	9.605	3.9	109	0.02
68	T,M	1,1,1,2-Tetrachloroethane	10.000	9.737	2.6	112	0.00
69	C,T,M	Ethylbenzene	10.000	9.814	1.9	111	0.00
70	T,M	m-Xylene & p-Xylene	20.000	20.116	-0.6	112	0.00
71	T,M	o-Xylene	10.000	9.741	2.6	110	0.02
72	T,M	Styrene	10.000	9.509	4.9	106	0.00
73	T,M	Isopropylbenzene	10.000	10.101	-1.0	113	0.00
74	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	108	0.00
75	P,T,M	Bromoform	10.000	9.174	8.3	102	0.02
76	P,T,M	1,1,2,2-Tetrachloroethane	10.000	9.173	8.3	103	0.00
77	S	4-Bromofluorobenzene	10.000	10.492	-4.9	110	0.02
78	T,M	1,2,3-Trichloropropane	10.000	9.317	6.8	103	0.02
79	T,M	trans-1,4-Dichloro-2-butene	10.000	9.592	4.1	108	0.00
80	T,M	n-Propylbenzene	10.000	9.942	0.6	112	0.02

(#) = Out of Range

SA 11/4/20

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	10.000	9.796	2.0	113	0.00
82	T,M	1,3,5-Trimethylbenzene	10.000	9.995	0.1	114	0.02
83	T,M	2-Chlorotoluene	10.000	9.510	4.9	104	0.00
84	T,M	4-Chlorotoluene	10.000	9.227	7.7	113	0.00
85	T,M	tert-Butylbenzene	10.000	9.609	3.9	110	0.00
86	T,M	1,2,4-Trimethylbenzene	10.000	10.073	-0.7	114	0.02
87	T,M	sec-Butylbenzene	10.000	10.047	-0.5	114	0.00
88	T,M	p-Isopropyltoluene	10.000	10.538	-5.4	118	0.00
89	T,M	1,3-Dichlorobenzene	10.000	9.398	6.0	108	0.00
90	T,M	1,4-Dichlorobenzene	10.000	9.177	8.2	105	0.02
91	T,M	n-Butylbenzene	10.000	10.367	-3.7	114	0.00
92	T,M	1,2-Dichlorobenzene	10.000	8.986	10.1	103	0.00
93	T,M	1,2-Dibromo-3-chloropropane	10.000	9.983	0.2	105	0.00
94	T,M	1,2,4-Trichlorobenzene	10.000	10.129	-1.3	114	0.02
95	T,M	Hexachlorobutadiene	10.000	9.939	0.6	112	0.00
96	T,M	Naphthalene	10.000	9.885	1.2	106	0.00
97	T,M	1,2,3-Trichlorobenzene	10.000	10.180	-1.8	112	0.00

SV 11/4/20

(#) = Out of Range SPCC's out = 0 CCC's out = 0
RJC467.D VO67J30.M Mon Nov 02 19:00:18 2020 Page 3

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	108	0.00
2	T,M	Dichlorodifluoromethane	0.346	0.307	11.3	95	0.00
3	T,M	Dichlorotetrafluoroethane	0.000	0.000	0.0	0#	0.00
4	P,T,M	Chloromethane	0.529	0.536	-1.3	107	0.00
5	C,T,M	Vinyl chloride	0.499	0.531	-6.4	104	0.00
6	T,M	Bromomethane	0.434	0.435	-0.2	103	0.02
7	T,M	Chloroethane	0.366	0.402	-9.8	117	0.00
8	T,M	Dichlorofluoromethane	0.774	0.789	-1.9	116	0.00
9	T,M	Trichlorofluoromethane	0.516	0.589	-14.1	120	0.00
10	T,M	sec-Propyl alcohol	0.000	0.000	0.0	0#	0.00
11	T,M	Acrolein	0.022	0.019	13.6	102	0.00
12	T,M	1,1,2-Trichloro-1,2,2-trifl	0.274	0.274	0.0	111	0.00
13	T,M	Acetone	0.031	0.026	16.1	97	0.00
14	C,T,M	1,1-Dichloroethene	0.620	0.612	1.3	111	0.00
15	T,M	tert-Butyl alcohol	0.011	0.010	9.1	107	0.02
16	T,M	Methyl acetate	0.102	0.095	6.9	101	0.01
17	T,M	Iodomethane	0.559	0.596	-6.6	120	0.00
18	T,M	Acetonitrile	0.049	0.054	-10.2	124	0.00
19	T,M	Methylene chloride	0.438	0.417	4.8	111	0.00
20	T,M	Carbon disulfide	1.517	1.578	-4.0	111	0.00
21	T,M	Acrylonitrile	0.046	0.042	8.7	100	0.00
22	T,M	tert-Butyl methyl ether (MT	0.501	0.477	4.8	106	0.01
23	T,M	trans-1,2-Dichloroethene	0.442	0.441	0.2	111	0.00
24	T,M	Isopropyl ether (DIPE)	0.940	0.942	-0.2	114	0.01
25	P,T,M	1,1-Dichloroethane	0.683	0.671	1.8	110	0.00
26	T,M	Vinyl acetate	0.341	0.361	-5.9	116	0.00
27	T,M	2-Butanol	0.009	0.009	0.0	99	0.01
28	T,M	tert-Butyl ethyl ether (ETB	0.726	0.711	2.1	110	0.01
29	T,M	2-Butanone	0.013	0.012	7.7	99	0.01
30	T,M	2,2-Dichloropropane	0.469	0.461	1.7	111	0.01
31	T,M	cis-1,2-Dichloroethene	0.431	0.417	3.2	108	0.00
32	C,T,M	Chloroform	0.638	0.637	0.2	112	0.00
33	T,M	Bromochloromethane	0.189	0.187	1.1	109	0.02
34	T,M	tert-Amyl alcohol	0.009	0.009	0.0	101	0.00
35	S	Dibromofluoromethane	0.327	0.351	-7.3	108	0.02
36	T,M	Tetrahydrofuran	0.033	0.031	6.1	104	0.00
37	T,M	1,1,1-Trichloroethane	0.520	0.517	0.6	111	0.02
38	T,M	Cyclohexane	0.604	0.616	-2.0	104	0.00
39	T,M	2,2,4-Trimethylpentane	1.739	1.661	4.5	98	0.02
40	T,M	1,1-Dichloropropene	0.199	0.198	0.5	110	0.00
41	T,M	Carbon tetrachloride	0.427	0.433	-1.4	113	0.00

(#) = Out of Range
RJC467.D VO67J30.M Mon Nov 02 19:00:22 2020 Su 11/4/20 Page 1

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	0.127	0.124	2.4	107	0.02
43	S	1,2-Dichloroethane-d4	0.209	0.215	-2.9	104	0.02
44	T,M	1,2-Dichloroethane	0.258	0.248	3.9	106	0.00
45	T,M	Benzene	1.464	1.455	0.6	111	0.02
46	T,M	Trichloroethene	0.388	0.386	0.5	112	0.00
47	T,M	Methylcyclohexane	0.682	0.791	-16.0	121	0.02
48	C,T,M	1,2-Dichloropropane	0.322	0.314	2.5	109	0.02
49	T,M	Bromodichloromethane	0.387	0.382	1.3	110	0.00
50	T,M	1,4-Dioxane	0.001	0.001	0.0	99	0.02
51	T,M	Dibromomethane	0.150	0.138	8.0	102	0.00
52	T,M	2-Chloroethyl vinyl ether	0.000	0.077	0.0	0#	0.02
53	T,M	4-Methyl-2-pentanone	0.119	0.110	7.6	102	0.02
54	T,M	cis-1,3-Dichloropropene	0.469	0.462	1.5	111	0.00
55	I	CHLOROBENZENE-D5	1.000	1.000	0.0	108	0.00
56	S	Toluene-d8	1.526	1.675	-9.8	109	0.02
57	C,T,M	Toluene	1.969	1.952	0.9	112	0.00
58	T,M	Ethyl methacrylate	0.285	0.273	4.2	106	0.02
59	T,M	trans-1,3-Dichloropropene	0.455	0.436	4.2	108	0.00
60	T,M	1,1,2-Trichloroethane	0.240	0.215	10.4	101	0.02
61	T,M	2-Hexanone	0.099	0.089	10.1	100	0.00
62	T,M	1,3-Dichloropropane	0.438	0.405	7.5	104	0.00
63	T,M	Tetrachloroethene	0.393	0.379	3.6	111	0.00
64	T,M	Dibromochloromethane	0.290	0.279	3.8	108	0.00
65	T,M	1,2-Dibromoethane	0.227	0.213	6.2	104	0.02
66	T,M	1-Chlorohexane	0.783	0.810	-3.4	118	0.02
67	P,M	Chlorobenzene	1.107	1.063	4.0	109	0.02
68	T,M	1,1,1,2-Tetrachloroethane	0.346	0.337	2.6	112	0.00
69	C,T,M	Ethylbenzene	2.191	2.150	1.9	111	0.00
70	T,M	m-Xylene & p-Xylene	1.605	1.614	-0.6	112	0.00
71	T,M	o-Xylene	1.518	1.479	2.6	110	0.02
72	T,M	Styrene	1.182	1.124	4.9	106	0.00
73	T,M	Isopropylbenzene	1.973	1.992	-1.0	113	0.00
74	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	108	0.00
75	P,T,M	Bromoform	0.451	0.414	8.2	102	0.02
76	P,T,M	1,1,2,2-Tetrachloroethane	0.733	0.673	8.2	103	0.00
77	S	4-Bromofluorobenzene	1.359	1.426	-4.9	110	0.02
78	T,M	1,2,3-Trichloropropane	0.178	0.166	6.7	103	0.02
79	T,M	trans-1,4-Dichloro-2-butene	0.182	0.174	4.4	108	0.00
80	T,M	n-Propylbenzene	7.777	7.732	0.6	112	0.02

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D
Acq On : 30 Oct 2020 4:41 pm
Sample : IVO67J3001
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA
MS Integration Params: RTE.P

Vial: 15
Operator: VLu
Inst : 67
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	1.100	1.078	2.0	113	0.00
82	T,M	1,3,5-Trimethylbenzene	4.627	4.625	0.0	114	0.02
83	T,M	2-Chlorotoluene	4.772	4.538	4.9	104	0.00
84	T,M	4-Chlorotoluene	4.004	3.695	7.7	113	0.00
85	T,M	tert-Butylbenzene	1.016	0.976	3.9	110	0.00
86	T,M	1,2,4-Trimethylbenzene	4.340	4.372	-0.7	114	0.02
87	T,M	sec-Butylbenzene	6.542	6.573	-0.5	114	0.00
88	T,M	p-Isopropyltoluene	4.955	5.222	-5.4	118	0.00
89	T,M	1,3-Dichlorobenzene	2.255	2.119	6.0	108	0.00
90	T,M	1,4-Dichlorobenzene	2.208	2.026	8.2	105	0.02
91	T,M	n-Butylbenzene	5.096	5.283	-3.7	114	0.00
92	T,M	1,2-Dichlorobenzene	1.801	1.618	10.2	103	0.00
93	T,M	1,2-Dibromo-3-chloropropane	0.078	0.078	0.0	105	0.00
94	T,M	1,2,4-Trichlorobenzene	0.851	0.862	-1.3	114	0.02
95	T,M	Hexachlorobutadiene	0.701	0.697	0.6	112	0.00
96	T,M	Naphthalene	1.015	1.004	1.1	106	0.00
97	T,M	1,2,3-Trichlorobenzene	0.579	0.589	-1.7	112	0.00

11/4/20

(#) = Out of Range SPCC's out = 0 CCC's out = 0
RJC467.D VO67J30.M Mon Nov 02 19:00:25 2020 Page 3

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:49 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.01	114	2673175	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	2007201	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.38	152	662078	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.05	111	939086	10.76	ug/l	0.02
Spiked Amount 10.000			Recovery =	107.60%		
43) 1,2-Dichloroethane-d4	9.16	65	574184	10.28	ug/l	0.02
Spiked Amount 10.000			Recovery =	102.80%		
56) Toluene-d8	12.84	98	3362053	10.97	ug/l	0.02
Spiked Amount 10.000			Recovery =	109.70%		
77) 4-Bromofluorobenzene	17.48	95	944226	10.49	ug/l	0.02
Spiked Amount 10.000			Recovery =	104.90%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	820888	8.89	ug/l	100
4) Chloromethane	2.11	50	1433471	10.13	ug/l	100
5) Vinyl chloride	2.23	62	1419504	10.64	ug/l	100
6) Bromomethane	2.64	94	1162402	10.02	ug/l	100
7) Chloroethane	2.64	64	1075560	11.00	ug/l	100
8) Dichlorofluoromethane	2.72	67	2108128	10.18	ug/l	100
9) Trichlorofluoromethane	2.90	101	1575813	11.42	ug/l	100
11) Acrolein	3.44	56	258386	44.65	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	731893	9.98	ug/l	99
13) Acetone	3.52	43	346288	42.00	ug/l	100
14) 1,1-Dichloroethene	3.68	61	1634976	9.86	ug/l	99
15) tert-Butyl alcohol	3.82	59	691551	242.08	ug/l	99
16) Methyl acetate	4.20	43	254061	9.34	ug/l	94
17) Iodomethane	4.13	142	1593302	10.67	ug/l	99
18) Acetonitrile	4.23	41	1449639	109.63	ug/l	99
19) Methylene chloride	4.42	49	1115789	9.53	ug/l	99
20) Carbon disulfide	4.41	76	4217344	10.40	ug/l	100
21) Acrylonitrile	4.66	53	555056	45.56	ug/l	100
22) tert-Butyl methyl ether (M	4.70	73	1276178	9.54	ug/l	100
23) trans-1,2-Dichloroethene	4.92	96	1178794	9.97	ug/l	100
24) Isopropyl ether (DIPE)	5.58	45	2519285	10.02	ug/l	99
25) 1,1-Dichloroethane	5.75	63	1792856	9.82	ug/l	100
26) Vinyl acetate	5.81	43	964988	10.59	ug/l	100
27) 2-Butanol	6.29	45	601428	238.36	ug/l	100
28) tert-Butyl ethyl ether (ET	6.48	59	1901481	9.80	ug/l	100
29) 2-Butanone	6.76	72	159124	46.09	ug/l	94
30) 2,2-Dichloropropane	7.05	77	1231699	9.82	ug/l	100

(#) = qualifier out of range (m) = manual integration
RJC467.D VO67J30.M Mon Nov 02 19:00:30 2020 11/4/20 Page 1

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:49 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	cis-1,2-Dichloroethene	7.16	96	1114144	9.67 ug/l	100
32)	Chloroform	7.53	83	1704070	9.99 ug/l	99
33)	Bromochloromethane	7.92	130	500726	9.90 ug/l	100
34)	tert-Amyl alcohol	7.99	59	116312	49.01 ug/l	100
36)	Tetrahydrofuran	7.99	42	83841	9.65 ug/l	98
37)	1,1,1-Trichloroethane	8.44	97	1380937	9.94 ug/l	100
38)	Cyclohexane	8.41	84	1645761	10.20 ug/l	99
39)	2,2,4-Trimethylpentane	8.60	57	4441472	9.56 ug/l	100
40)	1,1-Dichloropropene	8.78	110	530384	9.95 ug/l	100
41)	Carbon tetrachloride	8.95	119	1157384	10.14 ug/l	100
42)	tert-Amyl methyl ether (TA	9.11	87	332229	9.79 ug/l	98
44)	1,2-Dichloroethane	9.35	62	661857	9.59 ug/l	100
45)	Benzene	9.33	78	3889243	9.94 ug/l	100
46)	Trichloroethene	10.59	130	1031839	9.96 ug/l	100
47)	Methylcyclohexane	10.68	83	2113650	11.60 ug/l	99
48)	1,2-Dichloropropane	10.95	63	839948	9.77 ug/l	100
49)	Bromodichloromethane	11.38	83	1021576	9.88 ug/l	100
50)	1,4-Dioxane	11.48	88	57421	182.99 ug/l	100
51)	Dibromomethane	11.47	93	370067	9.26 ug/l	99
53)	4-Methyl-2-pentanone	12.11	43	1473898	46.33 ug/l	99
54)	cis-1,3-Dichloropropene	12.43	75	1236297	9.85 ug/l	99
57)	Toluene	12.97	91	3918855	9.91 ug/l	100
58)	Ethyl methacrylate	13.39	69	547127	9.55 ug/l	99
59)	trans-1,3-Dichloropropene	13.35	75	875112	9.59 ug/l	100
60)	1,1,2-Trichloroethane	13.61	97	432175	8.97 ug/l	99
61)	2-Hexanone	13.67	43	897913	45.15 ug/l	99
62)	1,3-Dichloropropane	14.05	76	813060	9.25 ug/l	100
63)	Tetrachloroethene	14.11	164	759854	9.64 ug/l	100
64)	Dibromochloromethane	14.46	129	560689	9.64 ug/l	99
65)	1,2-Dibromoethane	14.81	107	427082	9.37 ug/l	99
66)	1-Chlorohexane	15.15	91	1626382	10.34 ug/l	100
67)	Chlorobenzene	15.53	112	2134642	9.61 ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.61	131	675645	9.74 ug/l	99
69)	Ethylbenzene	15.63	91	4315485	9.81 ug/l	100
70)	m-Xylene & p-Xylene	15.76	91	6480339	20.12 ug/l	99
71)	o-Xylene	16.49	91	2967943	9.74 ug/l	99
72)	Styrene	16.55	104	2255634	9.51 ug/l	97
73)	Isopropylbenzene	17.09	105	3999250	10.10 ug/l	100
75)	Bromoform	17.10	173	274002	9.17 ug/l	99
76)	1,1,2,2-Tetrachloroethane	17.38	83	445281	9.17 ug/l	100
78)	1,2,3-Trichloropropane	17.60	110	110025	9.32 ug/l	99

(#) = qualifier out of range (m) = manual integration
RJC467.D VO67J30.M Mon Nov 02 19:00:31 2020 11/4/20 Page 2

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:49 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.19	53	115324	9.59	ug/l	100
80)	n-Propylbenzene	17.70	91	5119204	9.94	ug/l	100
81)	Bromobenzene	17.75	156	713700	9.80	ug/l	99
82)	1,3,5-Trimethylbenzene	17.92	105	3062097	10.00	ug/l	100
83)	2-Chlorotoluene	17.92	91	3004757	9.51	ug/l	100
84)	4-Chlorotoluene	17.99	91	2446303	9.23	ug/l	98
85)	tert-Butylbenzene	18.37	134	646383	9.61	ug/l	98
86)	1,2,4-Trimethylbenzene	18.42	105	2894538	10.07	ug/l	100
87)	sec-Butylbenzene	18.62	105	4351814	10.05	ug/l	99
88)	p-Isopropyltoluene	18.78	119	3457451	10.54	ug/l	100
89)	1,3-Dichlorobenzene	18.89	146	1402953	9.40	ug/l	99
90)	1,4-Dichlorobenzene	19.02	146	1341325	9.18	ug/l	100
91)	n-Butylbenzene	19.24	91	3497676	10.37	ug/l	100
92)	1,2-Dichlorobenzene	19.41	146	1071440	8.99	ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.18	157	51430	9.98	ug/l	99
94)	1,2,4-Trichlorobenzene	21.03	180	570859	10.13	ug/l	100
95)	Hexachlorobutadiene	21.15	225	461380	9.94	ug/l	100
96)	Naphthalene	21.29	128	664613	9.89	ug/l	100
97)	1,2,3-Trichlorobenzene	21.54	180	390205	10.18	ug/l	100

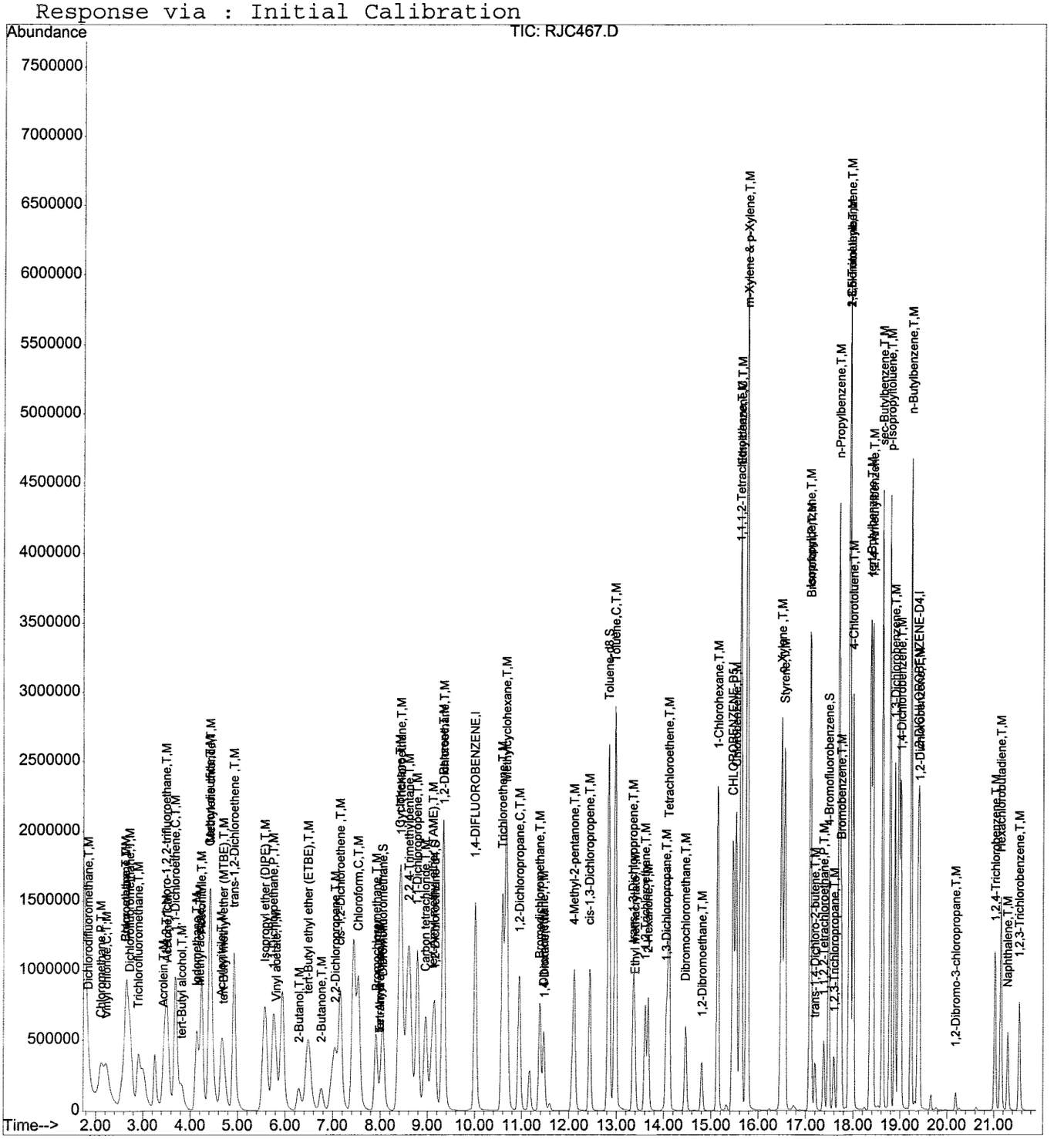
Su 11/4/20

(#) = qualifier out of range (m) = manual integration
RJC467.D VO67J30.M Mon Nov 02 19:00:31 2020 Page 3

Quantitation Report

Data File : D:\HPCHEM\1\DATA\20J30\RJC467.D Vial: 15
Acq On : 30 Oct 2020 4:41 pm Operator: VLu
Sample : IVO67J3001 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 2 16:49 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



RJC467.D VO67J30.M Mon Nov 02 19:00:34 2020 11/4/20 Page 4

DAILY CALIBRATIONS

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc
Lab Code: EMXT Case No.:
Lab File ID: RLC135
Instrument ID: 67
GC Column:RTX502.2ID:0.25mm (mm)

Contract: VAFB-SS003
SAS No.: SDG No.: 20L087
BFB Injection Date : 12/10/20
BFB Injection Time : 13:22
Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.03
75	30.0 - 60.0% of mass 95	46.35
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.64
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	74.49
175	5.0 - 9.0% of mass 174	6.55(8.8)1
176	95.0 - 101.0% of mass 174	71.34(95.8)1
177	5.0 - 9.0% of mass 176	4.86(6.8)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD,BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD010	CV067J3024	RLC136	12/10/20	13:48
2	MBLK1W	V067L07B	RLC140	12/10/20	15:32
3	LCS1W	V067L07L	RLC137	12/10/20	14:14
4	LCD1W	V067L07C	RLC13B	12/10/20	14:41
5	SS003-3-MW-60(120320)TB2	L0B7-02	RLC141	12/10/20	15:57
6	3-MW-60(120320)	L0B7-01	RLC142	12/10/20	16:23
7	SS003-DUP2(120420)	L087-03	RLC143	12/10/20	16:48
8	3-MW-62(120420)	L087-04	RLC144	12/10/20	17:14
9	3-MW-61(120420)	L087-05	RLC145	12/10/20	17:40

FORM 8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : EMAX Inc
Lab Code : EMXT
Lab File ID : RJC459
Instrument ID: 67
GC Column : RTX502.2ID:0.25mm (mm)

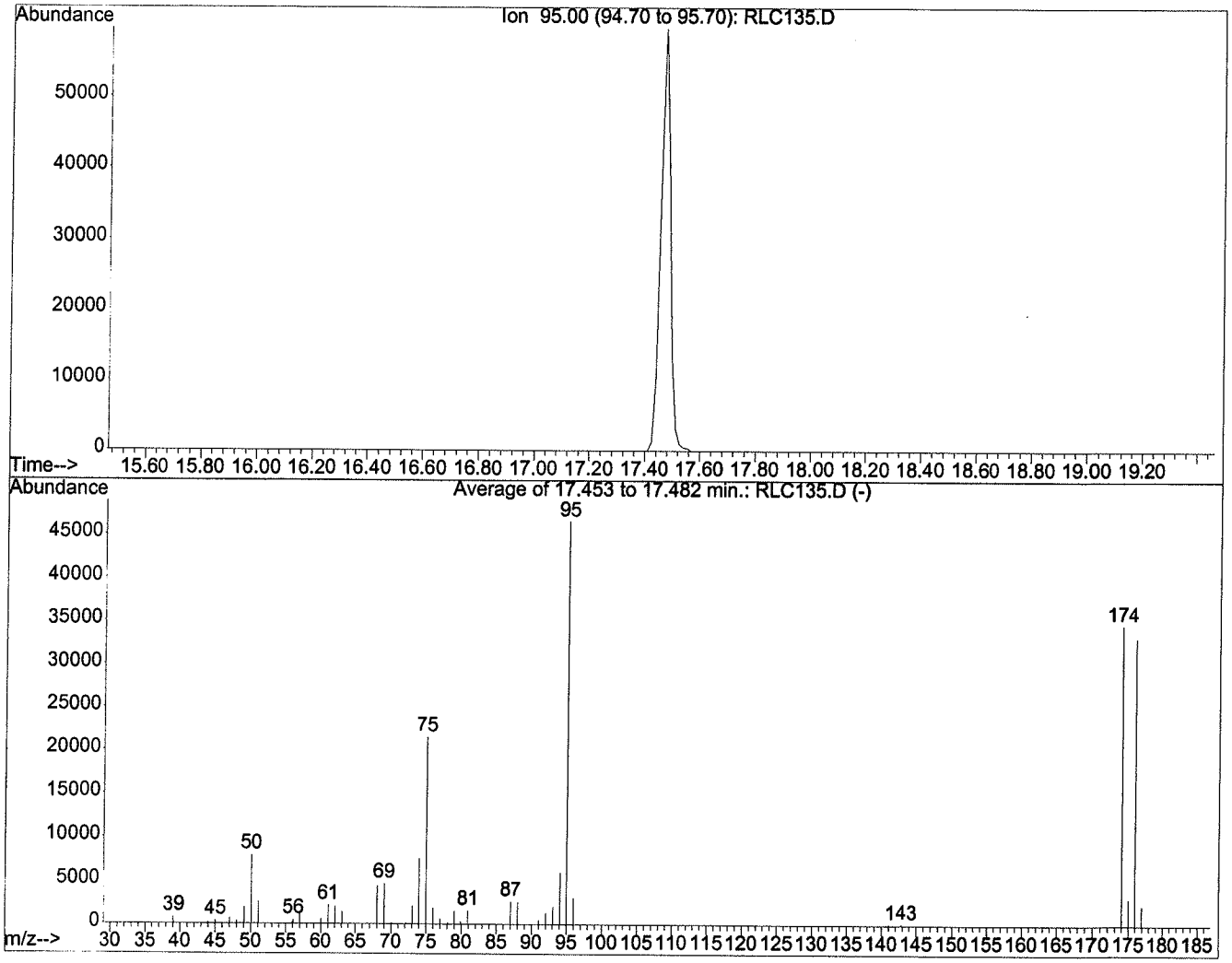
Project: VAFB-SS003
SDG No: 20L087
Date Analyzed: 10/30/2020
Time Analyzed: 13:41
Heated Purge (Y/N): N

		1,4-DIFLUOROBENZENE		CHLOROBENZENE-D5		1,2-DICHLOROBENZENE-D4	
		AREA #	RT(min)	AREA #	RT(min)	AREA #	RT(min)
	12 HOUR STD	2484539	10.00	1854704	15.45	612676	19.38
	UPPER LIMIT	4969078	10.50	3709408	15.95	1225352	19.88
	LOWER LIMIT	1242270	9.50	927352	14.95	306338	18.88
	SAMPLE ID						
1	VSTD010	2313997	10.00	1741636	15.45	560732	19.37
2	MBLK1W	2398277	10.00	1789432	15.45	522136	19.37
3	LCS1W	2370919	9.99	1801462	15.45	583228	19.37
4	LCD1W	2319565	9.99	1785081	15.45	579775	19.37
5	SS003-3-MW-60(120320)TB2	2380521	9.99	1793642	15.45	516904	19.37
6	3-MW-60(120320)	2464148	10.00	1894350	15.45	582726	19.37
7	SS003-DUP2(120420)	2523750	10.00	1915973	15.45	568954	19.37
8	3-MW-62(120420)	2521186	10.00	1894361	15.45	558930	19.37
9	3-MW-61(120420)	2581151	10.00	1926156	15.45	579494	19.37

Area Upper Limit = + 100% of internal standard area
Area Lower Limit = - 50% of internal standard area
RT Upper Limit = + 0.5 min. (30 sec.) of internal standard RT
RT Lower Limit = - 0.5 min. (30 sec.) of internal standard RT

Data File : D:\HPCHEM\1\DATA\20L10\RLC135.D
Acq On : 10 Dec 2020 1:22 pm
Sample : BFB67L07
Misc : T/CHK
MS Integration Params: RTE.P
Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B

Vial: 1
Operator: VLu
Inst : 67
Multiplr: 1.00



AutoFind: Scans 1028, 1029, 1030; Background Corrected with Scan 1023

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.0	7924	PASS
75	95	30	60	46.3	21560	PASS
95	95	100	100	100.0	46520	PASS
96	95	5	9	6.6	3089	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	74.5	34651	PASS
175	174	5	9	8.8	3048	PASS
176	174	95	101	95.8	33187	PASS
177	176	5	9	6.8	2259	PASS

RLC135.D VO67J30.M Fri Dec 11 11:56:16 2020

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L10\RLC136.D Vial: 2
Acq On : 10 Dec 2020 1:48 pm Operator: VLu
Sample : CVO67J3024 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	93	0.00
2	T,M	Dichlorodifluoromethane	10.000	9.022	9.8	83	0.00
3	T,M	Dichlorotetrafluoroethane	-1.000	0.000	0.0	0	0.00
4	P,T,M	Chloromethane	10.000	9.109	8.9	83	0.00
5	C,T,M	Vinyl chloride	10.000	9.690	3.1	82	-0.02
6	T,M	Bromomethane	10.000	9.612	3.9	86	0.02
7	T,M	Chloroethane	10.000	9.338	6.6	86	0.00
8	T,M	Dichlorofluoromethane	10.000	8.951	10.5	88	-0.02
9	T,M	Trichlorofluoromethane	10.000	9.897	1.0	90	0.00
10	T,M	sec-Propyl alcohol	-1.000	0.000	0.0	0	0.00
11	T,M	Acrolein	50.000	45.317	9.4	90	-0.02
12	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	9.667	3.3	93	-0.02
13	T,M	Acetone	50.000	43.622	12.8	87	-0.02
14	C,T,M	1,1-Dichloroethene	10.000	9.142	8.6	89	-0.02
15	T,M	tert-Butyl alcohol	250.000	244.290	2.3	93	0.00
16	T,M	Methyl acetate	10.000	0.000	100.0#	0	-4.19#
17	T,M	Iodomethane	10.000	9.128	8.7	89	0.00
18	T,M	Acetonitrile	100.000	83.387	16.6	81	-0.02
19	T,M	Methylene chloride	10.000	8.932	10.7	90	-0.02
20	T,M	Carbon disulfide	10.000	9.932	0.7	92	-0.02
21	T,M	Acrylonitrile	50.000	49.480	1.0	94	-0.02
22	T,M	tert-Butyl methyl ether (MT	10.000	9.866	1.3	95	0.00
23	T,M	trans-1,2-Dichloroethene	10.000	9.277	7.2	90	-0.02
24	T,M	Isopropyl ether (DIPE)	10.000	9.327	6.7	92	0.00
25	P,T,M	1,1-Dichloroethane	10.000	9.027	9.7	88	-0.02
26	T,M	Vinyl acetate	10.000	11.015	-10.2	104	-0.02
27	T,M	2-Butanol	250.000	0.000	100.0#	0	-6.28#
28	T,M	tert-Butyl ethyl ether (ETB	10.000	9.369	6.3	91	0.00
29	T,M	2-Butanone	50.000	52.114	-4.2	97	0.00
30	T,M	2,2-Dichloropropane	10.000	9.116	8.8	89	0.00
31	T,M	cis-1,2-Dichloroethene	10.000	9.423	5.8	91	-0.02
32	C,T,M	Chloroform	10.000	9.271	7.3	90	-0.02
33	T,M	Bromochloromethane	10.000	9.840	1.6	94	-0.01
34	T,M	tert-Amyl alcohol	50.000	0.000	100.0#	0	-7.99#
35	S	Dibromofluoromethane	10.000	9.779	2.2	85	0.00
36	T,M	Tetrahydrofuran	10.000	9.775	2.2	91	-0.01
37	T,M	1,1,1-Trichloroethane	10.000	9.045	9.6	88	0.00
38	T,M	Cyclohexane	10.000	0.000	100.0#	0	-8.41#
39	T,M	2,2,4-Trimethylpentane	10.000	0.000	100.0#	0	-8.59#
40	T,M	1,1-Dichloropropene	10.000	9.440	5.6	90	-0.01
41	T,M	Carbon tetrachloride	10.000	9.393	6.1	90	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L10\RLC136.D Vial: 2
Acq On : 10 Dec 2020 1:48 pm Operator: VLu
Sample : CVO67J3024 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	10.000	9.757	2.4	92	0.00
43	S	1,2-Dichloroethane-d4	10.000	9.424	5.8	83	0.00
44	T,M	1,2-Dichloroethane	10.000	9.386	6.1	90	-0.01
45	T,M	Benzene	10.000	9.316	6.8	90	0.00
46	T,M	Trichloroethene	10.000	9.248	7.5	90	-0.01
47	T,M	Methylcyclohexane	10.000	0.000	100.0#	0	-10.66#
48	C,T,M	1,2-Dichloropropane	10.000	9.256	7.4	90	0.00
49	T,M	Bromodichloromethane	10.000	9.261	7.4	89	0.00
50	T,M	1,4-Dioxane	200.000	176.242	11.9	82	0.00
51	T,M	Dibromomethane	10.000	9.837	1.6	94	-0.01
52	T,M	2-Chloroethyl vinyl ether	10.000	0.000	100.0#	0	0.00
53	T,M	4-Methyl-2-pentanone	50.000	47.136	5.7	90	0.00
54	T,M	cis-1,3-Dichloropropene	10.000	9.328	6.7	91	0.00
55	I	CHLOROBENZENE-D5	10.000	10.000	0.0	94	0.00
56	S	Toluene-d8	10.000	9.488	5.1	82	0.00
57	C,T,M	Toluene	10.000	9.005	9.9	89	-0.01
58	T,M	Ethyl methacrylate	10.000	10.002	-0.0	97	0.00
59	T,M	trans-1,3-Dichloropropene	10.000	9.459	5.4	92	0.00
60	T,M	1,1,2-Trichloroethane	10.000	9.676	3.2	94	0.00
61	T,M	2-Hexanone	50.000	47.762	4.5	92	-0.01
62	T,M	1,3-Dichloropropane	10.000	9.531	4.7	93	-0.01
63	T,M	Tetrachloroethene	10.000	8.697	13.0	87	-0.01
64	T,M	Dibromochloromethane	10.000	9.945	0.5	97	-0.01
65	T,M	1,2-Dibromoethane	10.000	10.066	-0.7	97	0.00
66	T,M	1-Chlorohexane	10.000	9.095	9.0	90	0.00
67	P,M	Chlorobenzene	10.000	9.314	6.9	92	0.00
68	T,M	1,1,1,2-Tetrachloroethane	10.000	9.483	5.2	94	-0.01
69	C,T,M	Ethylbenzene	10.000	8.942	10.6	88	-0.01
70	T,M	m-Xylene & p-Xylene	20.000	18.124	9.4	88	-0.01
71	T,M	o-Xylene	10.000	8.940	10.6	88	0.00
72	T,M	Styrene	10.000	8.807	11.9	85	0.00
73	T,M	Isopropylbenzene	10.000	9.221	7.8	90	0.00
74	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	92	-0.01
75	P,T,M	Bromoform	10.000	10.014	-0.1	94	0.00
76	P,T,M	1,1,2,2-Tetrachloroethane	10.000	10.267	-2.7	97	-0.01
77	S	4-Bromofluorobenzene	10.000	9.271	7.3	82	0.00
78	T,M	1,2,3-Trichloropropane	10.000	10.649	-6.5	100	0.00
79	T,M	trans-1,4-Dichloro-2-butene	10.000	8.539	14.6	82	0.00
80	T,M	n-Propylbenzene	10.000	9.336	6.6	89	0.00

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\20L10\RLC136.D Vial: 2
Acq On : 10 Dec 2020 1:48 pm Operator: VLu
Sample : CVO67J3024 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	10.000	9.408	5.9	92	-0.01
82	T,M	1,3,5-Trimethylbenzene	10.000	9.576	4.2	92	0.00
83	T,M	2-Chlorotoluene	10.000	8.972	10.3	83	0.00
84	T,M	4-Chlorotoluene	10.000	9.023	9.8	94	-0.01
85	T,M	tert-Butylbenzene	10.000	9.167	8.3	89	-0.01
86	T,M	1,2,4-Trimethylbenzene	10.000	9.333	6.7	90	0.00
87	T,M	sec-Butylbenzene	10.000	9.297	7.0	89	-0.01
88	T,M	p-Isopropyltoluene	10.000	9.658	3.4	91	-0.01
89	T,M	1,3-Dichlorobenzene	10.000	9.337	6.6	91	0.00
90	T,M	1,4-Dichlorobenzene	10.000	9.270	7.3	90	0.00
91	T,M	n-Butylbenzene	10.000	9.244	7.6	86	-0.01
92	T,M	1,2-Dichlorobenzene	10.000	9.395	6.1	91	-0.01
93	T,M	1,2-Dibromo-3-chloropropane	10.000	11.064	-10.6	99	-0.01
94	T,M	1,2,4-Trichlorobenzene	10.000	9.283	7.2	88	0.00
95	T,M	Hexachlorobutadiene	10.000	9.035	9.6	86	0.00
96	T,M	Naphthalene	10.000	10.379	-3.8	95	0.00
97	T,M	1,2,3-Trichlorobenzene	10.000	9.723	2.8	90	0.00

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L10\RLC136.D Vial: 2
Acq On : 10 Dec 2020 1:48 pm Operator: VLu
Sample : CVO67J3024 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	93	0.00
2	T,M	Dichlorodifluoromethane	0.346	0.312	9.8	83	0.00
3	T,M	Dichlorotetrafluoroethane	0.000	0.000	0.0	0#	0.00
4	P,T,M	Chloromethane	0.529	0.482	8.9	83	0.00
5	C,T,M	Vinyl chloride	0.499	0.483	3.2	82	-0.02
6	T,M	Bromomethane	0.434	0.417	3.9	86	0.02
7	T,M	Chloroethane	0.366	0.342	6.6	86	0.00
8	T,M	Dichlorofluoromethane	0.774	0.693	10.5	88	-0.02
9	T,M	Trichlorofluoromethane	0.516	0.511	1.0	90	0.00
10	T,M	sec-Propyl alcohol	0.000	0.000	0.0	0#	0.00
11	T,M	Acrolein	0.022	0.020	9.1	90	-0.02
12	T,M	1,1,2-Trichloro-1,2,2-trifl	0.274	0.265	3.3	93	-0.02
13	T,M	Acetone	0.031	0.027	12.9	87	-0.02
14	C,T,M	1,1-Dichloroethene	0.620	0.567	8.5	89	-0.02
15	T,M	tert-Butyl alcohol	0.011	0.010	9.1	93	0.00
16	T,M	Methyl acetate	0.102	0.000	100.0#	0#	-4.19#
17	T,M	Iodomethane	0.559	0.510	8.8	89	0.00
18	T,M	Acetonitrile	0.049	0.041	16.3	81	-0.02
19	T,M	Methylene chloride	0.438	0.391	10.7	90	-0.02
20	T,M	Carbon disulfide	1.517	1.507	0.7	92	-0.02
21	T,M	Acrylonitrile	0.046	0.045	2.2	94	-0.02
22	T,M	tert-Butyl methyl ether (MT	0.501	0.494	1.4	95	0.00
23	T,M	trans-1,2-Dichloroethene	0.442	0.410	7.2	90	-0.02
24	T,M	Isopropyl ether (DIPE)	0.940	0.877	6.7	92	0.00
25	P,T,M	1,1-Dichloroethane	0.683	0.617	9.7	88	-0.02
26	T,M	Vinyl acetate	0.341	0.376	-10.3	104	-0.02
27	T,M	2-Butanol	0.009	0.000	100.0#	0#	-6.28#
28	T,M	tert-Butyl ethyl ether (ETB	0.726	0.680	6.3	91	0.00
29	T,M	2-Butanone	0.013	0.013	0.0	97	0.00
30	T,M	2,2-Dichloropropane	0.469	0.428	8.7	89	0.00
31	T,M	cis-1,2-Dichloroethene	0.431	0.406	5.8	91	-0.02
32	C,T,M	Chloroform	0.638	0.592	7.2	90	-0.02
33	T,M	Bromochloromethane	0.189	0.186	1.6	94	-0.01
34	T,M	tert-Amyl alcohol	0.009	0.000	100.0#	0#	-7.99#
35	S	Dibromofluoromethane	0.327	0.319	2.4	85	0.00
36	T,M	Tetrahydrofuran	0.033	0.032	3.0	91	-0.01
37	T,M	1,1,1-Trichloroethane	0.520	0.470	9.6	88	0.00
38	T,M	Cyclohexane	0.604	0.000	100.0#	0#	-8.41#
39	T,M	2,2,4-Trimethylpentane	1.739	0.000	100.0#	0#	-8.59#
40	T,M	1,1-Dichloropropene	0.199	0.188	5.5	90	-0.01
41	T,M	Carbon tetrachloride	0.427	0.401	6.1	90	-0.01

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\20L10\RLC136.D Vial: 2
Acq On : 10 Dec 2020 1:48 pm Operator: VLu
Sample : CV067J3024 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\V067J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	0.127	0.124	2.4	92	0.00
43	S	1,2-Dichloroethane-d4	0.209	0.197	5.7	83	0.00
44	T,M	1,2-Dichloroethane	0.258	0.242	6.2	90	-0.01
45	T,M	Benzene	1.464	1.364	6.8	90	0.00
46	T,M	Trichloroethene	0.388	0.359	7.5	90	-0.01
47	T,M	Methylcyclohexane	0.682	0.000	100.0#	0#	-10.66#
48	C,T,M	1,2-Dichloropropane	0.322	0.298	7.5	90	0.00
49	T,M	Bromodichloromethane	0.387	0.358	7.5	89	0.00
50	T,M	1,4-Dioxane	0.001	0.001	0.0	82	0.00
51	T,M	Dibromomethane	0.150	0.147	2.0	94	-0.01
52	T,M	2-Chloroethyl vinyl ether	0.000	0.035	0.0	0#	0.00
53	T,M	4-Methyl-2-pentanone	0.119	0.112	5.9	90	0.00
54	T,M	cis-1,3-Dichloropropene	0.469	0.438	6.6	91	0.00
55	I	CHLOROBENZENE-D5	1.000	1.000	0.0	94	0.00
56	S	Toluene-d8	1.526	1.448	5.1	82	0.00
57	C,T,M	Toluene	1.969	1.774	9.9	89	-0.01
58	T,M	Ethyl methacrylate	0.285	0.285	0.0	97	0.00
59	T,M	trans-1,3-Dichloropropene	0.455	0.430	5.5	92	0.00
60	T,M	1,1,2-Trichloroethane	0.240	0.232	3.3	94	0.00
61	T,M	2-Hexanone	0.099	0.095	4.0	92	-0.01
62	T,M	1,3-Dichloropropane	0.438	0.417	4.8	93	-0.01
63	T,M	Tetrachloroethene	0.393	0.342	13.0	87	-0.01
64	T,M	Dibromochloromethane	0.290	0.288	0.7	97	-0.01
65	T,M	1,2-Dibromoethane	0.227	0.228	-0.4	97	0.00
66	T,M	1-Chlorohexane	0.783	0.712	9.1	90	0.00
67	P,M	Chlorobenzene	1.107	1.031	6.9	92	0.00
68	T,M	1,1,1,2-Tetrachloroethane	0.346	0.328	5.2	94	-0.01
69	C,T,M	Ethylbenzene	2.191	1.959	10.6	88	-0.01
70	T,M	m-Xylene & p-Xylene	1.605	1.454	9.4	88	-0.01
71	T,M	o-Xylene	1.518	1.357	10.6	88	0.00
72	T,M	Styrene	1.182	1.041	11.9	85	0.00
73	T,M	Isopropylbenzene	1.973	1.819	7.8	90	0.00
74	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	92	-0.01
75	P,T,M	Bromoform	0.451	0.452	-0.2	94	0.00
76	P,T,M	1,1,2,2-Tetrachloroethane	0.733	0.753	-2.7	97	-0.01
77	S	4-Bromofluorobenzene	1.359	1.260	7.3	82	0.00
78	T,M	1,2,3-Trichloropropane	0.178	0.190	-6.7	100	0.00
79	T,M	trans-1,4-Dichloro-2-butene	0.182	0.155	14.8	82	0.00
80	T,M	n-Propylbenzene	7.777	7.261	6.6	89	0.00

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\20L10\RLC136.D Vial: 2
Acq On : 10 Dec 2020 1:48 pm Operator: VLu
Sample : CVO67J3024 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	1.100	1.035	5.9	92	-0.01
82	T,M	1,3,5-Trimethylbenzene	4.627	4.431	4.2	92	0.00
83	T,M	2-Chlorotoluene	4.772	4.282	10.3	83	0.00
84	T,M	4-Chlorotoluene	4.004	3.613	9.8	94	-0.01
85	T,M	tert-Butylbenzene	1.016	0.931	8.4	89	-0.01
86	T,M	1,2,4-Trimethylbenzene	4.340	4.050	6.7	90	0.00
87	T,M	sec-Butylbenzene	6.542	6.082	7.0	89	-0.01
88	T,M	p-Isopropyltoluene	4.955	4.786	3.4	91	-0.01
89	T,M	1,3-Dichlorobenzene	2.255	2.105	6.7	91	0.00
90	T,M	1,4-Dichlorobenzene	2.208	2.047	7.3	90	0.00
91	T,M	n-Butylbenzene	5.096	4.711	7.6	86	-0.01
92	T,M	1,2-Dichlorobenzene	1.801	1.692	6.1	91	-0.01
93	T,M	1,2-Dibromo-3-chloropropane	0.078	0.086	-10.3	99	-0.01
94	T,M	1,2,4-Trichlorobenzene	0.851	0.790	7.2	88	0.00
95	T,M	Hexachlorobutadiene	0.701	0.633	9.7	86	0.00
96	T,M	Naphthalene	1.015	1.054	-3.8	95	0.00
97	T,M	1,2,3-Trichlorobenzene	0.579	0.563	2.8	90	0.00

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L10\RLC136.D Vial: 2
Acq On : 10 Dec 2020 1:48 pm Operator: VLu
Sample : CV067J3024 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 11:57 2020 Quant Results File: V067J30.RES

Quant Method : D:\HPCHEM\1\METHODS\V067J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : V067J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.00	114	2313997	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.45	117	1741636	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.37	152	560732	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.03	111	738925	9.78	ug/l	0.00
Spiked Amount 10.000			Recovery =	97.80%		
43) 1,2-Dichloroethane-d4	9.14	65	455543	9.42	ug/l	0.00
Spiked Amount 10.000			Recovery =	94.20%		
56) Toluene-d8	12.82	98	2522607	9.49	ug/l	0.00
Spiked Amount 10.000			Recovery =	94.90%		
77) 4-Bromofluorobenzene	17.47	95	706606	9.27	ug/l	0.00
Spiked Amount 10.000			Recovery =	92.70%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.85	85	721430	9.02	ug/l	99
4) Chloromethane	2.11	50	1116079	9.11	ug/l	100
5) Vinyl chloride	2.21	62	1118692	9.69	ug/l	99
6) Bromomethane	2.64	94	965199	9.61	ug/l	99
7) Chloroethane	2.64	64	790276	9.34	ug/l	99
8) Dichlorofluoromethane	2.70	67	1604196	8.95	ug/l	99
9) Trichlorofluoromethane	2.91	101	1181815	9.90	ug/l	100
11) Acrolein	3.42	56	227011	45.32	ug/l	98
12) 1,1,2-Trichloro-1,2,2-trif	3.48	151	613864	9.67	ug/l	100
13) Acetone	3.50	43	311299	43.62	ug/l	99
14) 1,1-Dichloroethene	3.67	61	1312310	9.14	ug/l	98
15) tert-Butyl alcohol	3.81	59	604086	244.29	ug/l	100
17) Iodomethane	4.13	142	1180150	9.13	ug/l	100
18) Acetonitrile	4.22	41	954511	83.39	ug/l	99
19) Methylene chloride	4.41	49	904897	8.93	ug/l	98
20) Carbon disulfide	4.39	76	3486554	9.93	ug/l	99
21) Acrylonitrile	4.64	53	521789	49.48	ug/l	99
22) tert-Butyl methyl ether (M	4.69	73	1143017	9.87	ug/l	99
23) trans-1,2-Dichloroethene	4.91	96	949589	9.28	ug/l	98
24) Isopropyl ether (DIPE)	5.56	45	2029443	9.33	ug/l	95
25) 1,1-Dichloroethane	5.74	63	1427355	9.03	ug/l	100
26) Vinyl acetate	5.80	43	868964	11.01	ug/l	99
28) tert-Butyl ethyl ether (ET	6.47	59	1572862	9.37	ug/l	98
29) 2-Butanone	6.75	72	155741	52.11	ug/l	98
30) 2,2-Dichloropropane	7.04	77	989345	9.12	ug/l	99
31) cis-1,2-Dichloroethene	7.14	96	940236	9.42	ug/l	99
32) Chloroform	7.52	83	1369485	9.27	ug/l	99

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L10\RLC136.D Vial: 2
Acq On : 10 Dec 2020 1:48 pm Operator: VLu
Sample : CVO67J3024 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 11:57 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
33)	Bromochloromethane	7.89	130	430691	9.84 ug/l		100
36)	Tetrahydrofuran	7.97	42	73543	9.77 ug/l		95
37)	1,1,1-Trichloroethane	8.43	97	1088093	9.04 ug/l		99
40)	1,1-Dichloropropene	8.76	110	435470	9.44 ug/l		100
41)	Carbon tetrachloride	8.94	119	927818	9.39 ug/l		99
42)	tert-Amyl methyl ether (TA	9.10	87	286727	9.76 ug/l		99
44)	1,2-Dichloroethane	9.33	62	560615	9.39 ug/l		99
45)	Benzene	9.32	78	3156037	9.32 ug/l		99
46)	Trichloroethene	10.57	130	829712	9.25 ug/l		97
48)	1,2-Dichloropropane	10.94	63	688844	9.26 ug/l		100
49)	Bromodichloromethane	11.38	83	828980	9.26 ug/l		100
50)	1,4-Dioxane	11.47	88	47872	176.24 ug/l		95
51)	Dibromomethane	11.45	93	340386	9.84 ug/l		99
53)	4-Methyl-2-pentanone	12.09	43	1298039	47.14 ug/l		96
54)	cis-1,3-Dichloropropene	12.43	75	1012984	9.33 ug/l		99
57)	Toluene	12.96	91	3088823	9.01 ug/l		100
58)	Ethyl methacrylate	13.38	69	497141	10.00 ug/l		96
59)	trans-1,3-Dichloropropene	13.35	75	748935	9.46 ug/l		98
60)	1,1,2-Trichloroethane	13.60	97	404637	9.68 ug/l		99
61)	2-Hexanone	13.66	43	824154	47.76 ug/l		97
62)	1,3-Dichloropropane	14.04	76	726577	9.53 ug/l		100
63)	Tetrachloroethene	14.09	164	594911	8.70 ug/l		99
64)	Dibromochloromethane	14.44	129	501873	9.94 ug/l		100
65)	1,2-Dibromoethane	14.80	107	397909	10.07 ug/l		99
66)	1-Chlorohexane	15.13	91	1240803	9.10 ug/l		100
67)	Chlorobenzene	15.51	112	1796054	9.31 ug/l		100
68)	1,1,1,2-Tetrachloroethane	15.60	131	570961	9.48 ug/l		100
69)	Ethylbenzene	15.61	91	3411602	8.94 ug/l		99
70)	m-Xylene & p-Xylene	15.74	91	5066118	18.12 ug/l		98
71)	o-Xylene	16.47	91	2363385	8.94 ug/l		99
72)	Styrene	16.55	104	1812714	8.81 ug/l	#	77
73)	Isopropylbenzene	17.09	105	3167924	9.22 ug/l		99
75)	Bromoform	17.09	173	253295	10.01 ug/l		100
76)	1,1,2,2-Tetrachloroethane	17.37	83	422117	10.27 ug/l		100
78)	1,2,3-Trichloropropane	17.58	110	106509	10.65 ug/l		99
79)	trans-1,4-Dichloro-2-buten	17.19	53	86947	8.54 ug/l		95
80)	n-Propylbenzene	17.69	91	4071230	9.34 ug/l		99
81)	Bromobenzene	17.73	156	580494	9.41 ug/l		98
82)	1,3,5-Trimethylbenzene	17.91	105	2484591	9.58 ug/l		100
83)	2-Chlorotoluene	17.92	91	2401048	8.97 ug/l		99
84)	4-Chlorotoluene	17.98	91	2025956	9.02 ug/l		99

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

Data File : D:\HPCHEM\1\DATA\20L10\RLC136.D Vial: 2
Acq On : 10 Dec 2020 1:48 pm Operator: VLu
Sample : CV067J3024 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 11:57 2020 Quant Results File: VO67J30.RES

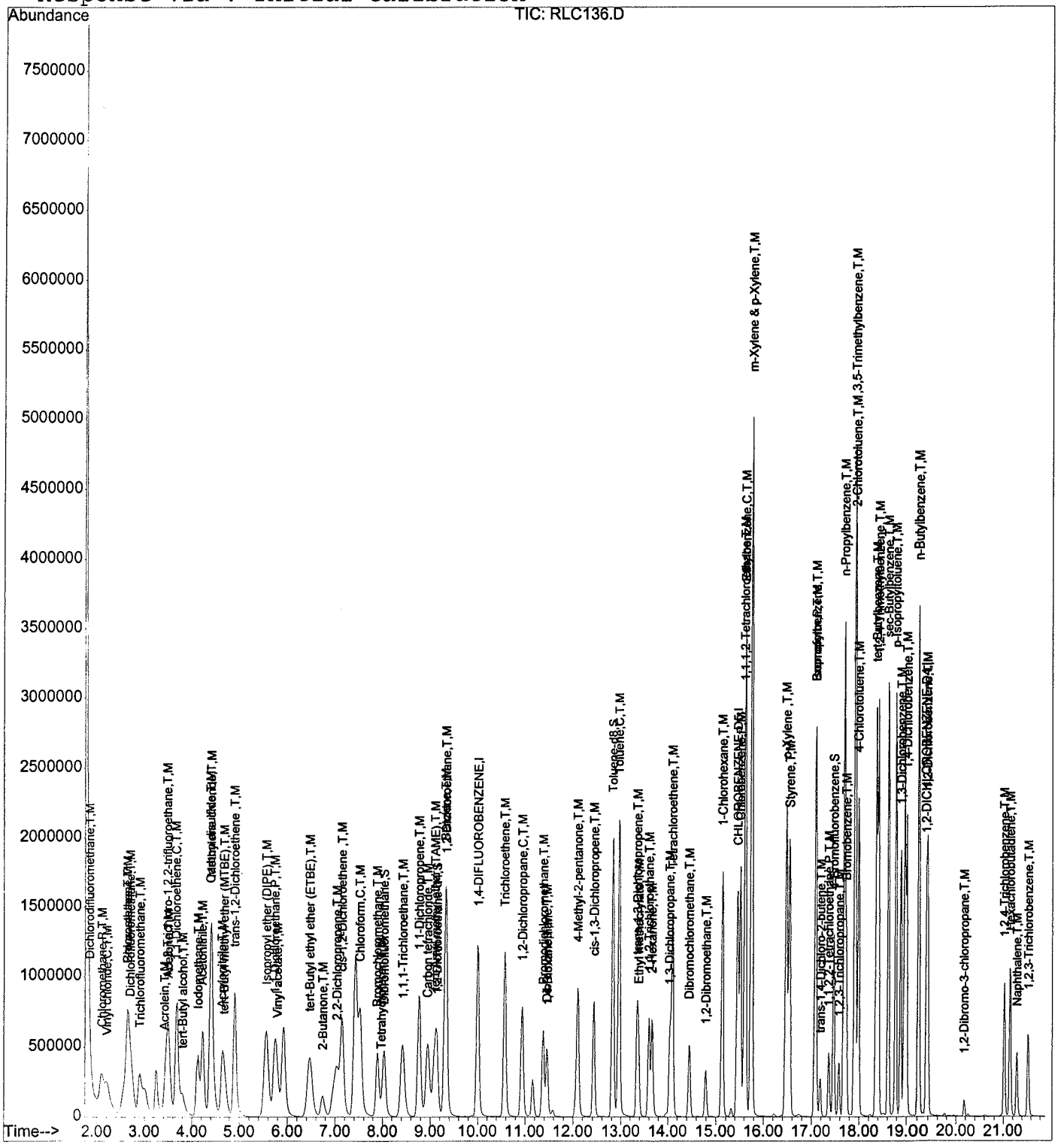
Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
85) tert-Butylbenzene	18.36	134	522276	9.17 ug/l	94
86) 1,2,4-Trimethylbenzene	18.40	105	2271213	9.33 ug/l	100
87) sec-Butylbenzene	18.61	105	3410423	9.30 ug/l	100
88) p-Isopropyltoluene	18.77	119	2683765	9.66 ug/l	98
89) 1,3-Dichlorobenzene	18.88	146	1180533	9.34 ug/l	99
90) 1,4-Dichlorobenzene	19.00	146	1147558	9.27 ug/l	98
91) n-Butylbenzene	19.22	91	2641349	9.24 ug/l	99
92) 1,2-Dichlorobenzene	19.40	146	948754	9.39 ug/l	99
93) 1,2-Dibromo-3-chloropropan	20.17	157	48272	11.06 ug/l	98
94) 1,2,4-Trichlorobenzene	21.02	180	443091	9.28 ug/l	99
95) Hexachlorobutadiene	21.15	225	355207	9.04 ug/l	99
96) Naphthalene	21.29	128	591000	10.38 ug/l	100
97) 1,2,3-Trichlorobenzene	21.54	180	315636	9.72 ug/l	99

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

Data File : D:\HPCHEM\1\DATA\20L10\RLC136.D Vial: 2
Acq On : 10 Dec 2020 1:48 pm Operator: VLu
Sample : CVO67J3024 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 11 11:57 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc Contract: VAFB-SS003

Lab Code: EMXT Case No.: SAS No.: SDG No.: 20L087

Lab File ID: RLC165 BFB Injection Date : 12/11/20

Instrument ID: 67 BFB Injection Time : 14:37

GC Column:RTX502.2ID:0.25mm (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.57
75	30.0 - 60.0% of mass 95	43.61
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.52
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	78.72
175	5.0 - 9.0% of mass 174	6.99(8.9)1
176	95.0 - 101.0% of mass 174	74.91(95.2)1
177	5.0 - 9.0% of mass 176	4.92(6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD,BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD010	CV067J3025	RLC167	12/11/20	15:38
2	MBLK2W	V067L08B	RLC171	12/11/20	17:32
3	LCS2W	V067L08L	RLC168	12/11/20	16:10
4	LCD2W	V067L08C	RLC169	12/11/20	16:36
5	3-MW-60(120320)DL	L087-01I	RLC177	12/11/20	20:06
6	3-MW-61(120420)DL	L087-05I	RLC178	12/11/20	20:32
7	SS003-DUP2(120420)DL	L087-03I	RLC179	12/11/20	20:57
8	3-MW-62(120420)DL	L087-04I	RLC180	12/11/20	21:23
9	3-MW-61(120420)DL	L087-05J	RLC181	12/11/20	21:48

FORM 8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : EMAX Inc
Lab Code : EMXT
Lab File ID : RJC459
Instrument ID: 67
GC Column : RTX502.2ID:0.25mm (mm)

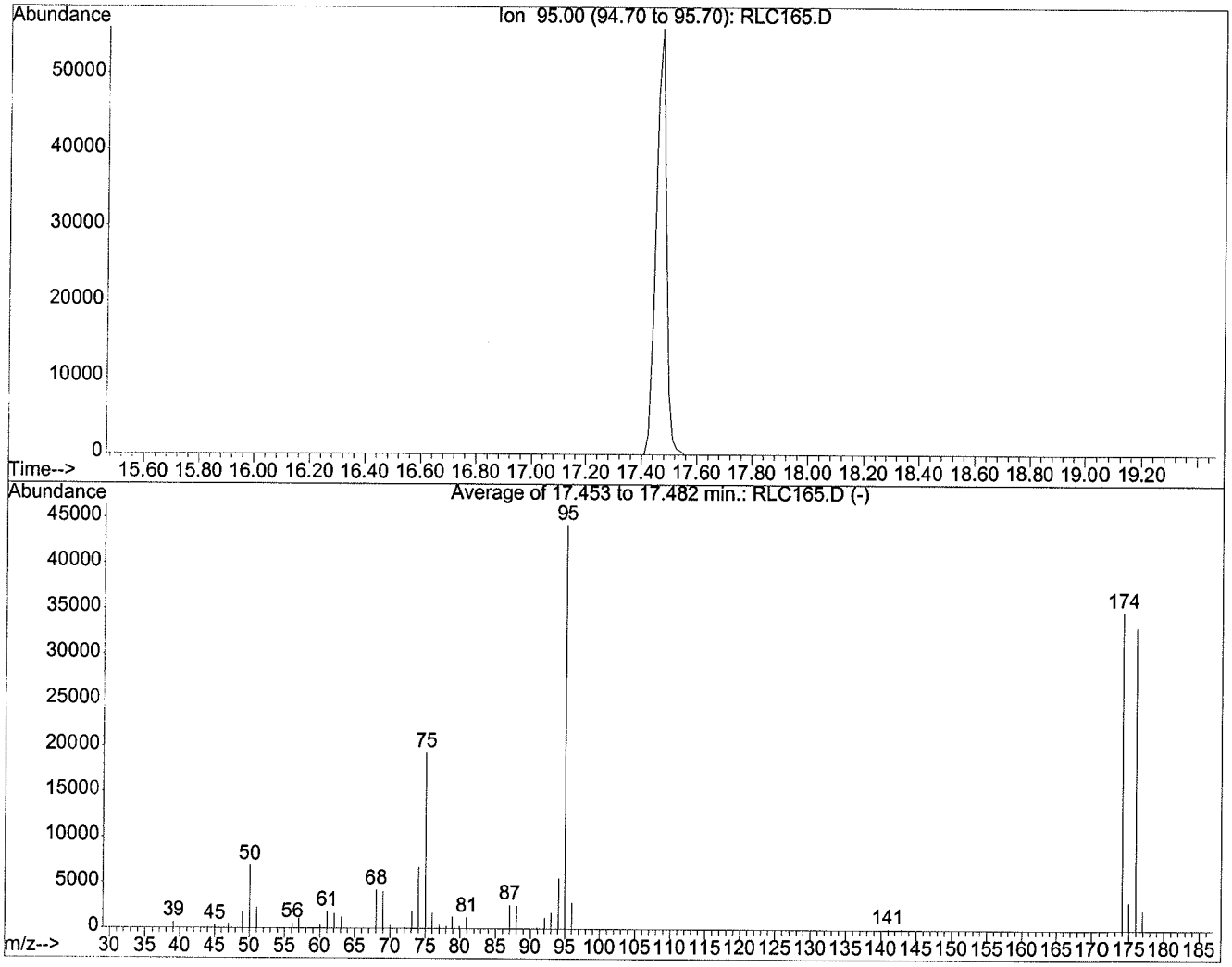
Project: VAFB-SS003
SDG No: 20L087
Date Analyzed: 10/30/2020
Time Analyzed: 13:41
Heated Purge (Y/N): N

		1,4-DIFLUOROBENZENE		CHLOROBENZENE-D5		1,2-DICHLOROBENZENE-D4	
		AREA #	RT(min)	AREA #	RT(min)	AREA #	RT(min)
	12 HOUR STD	2484539	10.00	1854704	15.45	612676	19.38
	UPPER LIMIT	4969078	10.50	3709408	15.95	1225352	19.88
	LOWER LIMIT	1242270	9.50	927352	14.95	306338	18.88
	SAMPLE ID						
1	VSTD010	2254364	9.98	1773401	15.44	577068	19.37
2	MBLK2W	2369160	9.99	1837465	15.44	551378	19.37
3	LCS2W	2254031	9.99	1776022	15.44	588220	19.37
4	LCD2W	2340736	9.99	1850253	15.45	615008	19.37
5	3-MW-60(120320)DL	2269326	9.99	1780694	15.44	545775	19.37
6	3-MW-61(120420)DL	2353473	9.99	1841020	15.44	559666	19.37
7	SS003-DUP2(120420)DL	2162491	9.99	1698617	15.44	521580	19.37
8	3-MW-62(120420)DL	2262784	9.99	1755479	15.44	536000	19.37
9	3-MW-61(120420)DL	2240904	9.99	1745909	15.44	527695	19.37

Area Upper Limit = + 100% of internal standard area
Area Lower Limit = - 50% of internal standard area
RT Upper Limit = + 0.5 min. (30 sec.) of internal standard RT
RT Lower Limit = - 0.5 min. (30 sec.) of internal standard RT

Data File : D:\HPCHEM\1\DATA\20L11\RLC165.D
Acq On : 11 Dec 2020 2:37 pm
Sample : BFB67L08
Misc : T/CHK
MS Integration Params: RTE.P
Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B

Vial: 1
Operator: VLu
Inst : 67
Multiplr: 1.00



AutoFind: Scans 1028, 1029, 1030; Background Corrected with Scan 1023

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	15.6	6891	PASS
75	95	30	60	43.6	19301	PASS
95	95	100	100	100.0	44259	PASS
96	95	5	9	6.5	2887	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	78.7	34843	PASS
175	174	5	9	8.9	3096	PASS
176	174	95	101	95.2	33155	PASS
177	176	5	9	6.6	2178	PASS

RLC165.D VO67J30.M Mon Dec 14 10:27:41 2020

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L11\RLC167.D Vial: 3
Acq On : 11 Dec 2020 3:38 pm Operator: VLu
Sample : CVO67J3025 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	91	-0.03
2	T,M	Dichlorodifluoromethane	10.000	9.197	8.0	83	0.00
3	T,M	Dichlorotetrafluoroethane	-1.000	0.000	0.0	0	0.00
4	P,T,M	Chloromethane	10.000	8.995	10.1	80	0.00
5	C,T,M	Vinyl chloride	10.000	9.500	5.0	79	-0.02
6	T,M	Bromomethane	10.000	9.819	1.8	85	0.02
7	T,M	Chloroethane	10.000	9.063	9.4	81	0.00
8	T,M	Dichlorofluoromethane	10.000	8.753	12.5	84	0.00
9	T,M	Trichlorofluoromethane	10.000	9.349	6.5	83	-0.02
10	T,M	sec-Propyl alcohol	-1.000	0.000	0.0	0	0.00
11	T,M	Acrolein	50.000	46.326	7.3	89	-0.02
12	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	9.608	3.9	90	-0.02
13	T,M	Acetone	50.000	42.544	14.9	83	-0.02
14	C,T,M	1,1-Dichloroethene	10.000	8.909	10.9	85	-0.02
15	T,M	tert-Butyl alcohol	250.000	242.734	2.9	90	-0.02
16	T,M	Methyl acetate	10.000	0.000	100.0#	0	-4.19#
17	T,M	Iodomethane	10.000	8.954	10.5	85	-0.04
18	T,M	Acetonitrile	100.000	75.900	24.1#	72	-0.03
19	T,M	Methylene chloride	10.000	8.908	10.9	88	-0.03
20	T,M	Carbon disulfide	10.000	10.395	-3.9	94	-0.03
21	T,M	Acrylonitrile	50.000	48.644	2.7	90	-0.03
22	T,M	tert-Butyl methyl ether (MT	10.000	10.109	-1.1	94	-0.03
23	T,M	trans-1,2-Dichloroethene	10.000	9.696	3.0	91	-0.03
24	T,M	Isopropyl ether (DIPE)	10.000	9.267	7.3	89	-0.03
25	P,T,M	1,1-Dichloroethane	10.000	9.129	8.7	86	-0.03
26	T,M	Vinyl acetate	10.000	9.916	0.8	92	-0.04
27	T,M	2-Butanol	250.000	0.000	100.0#	0	-6.28#
28	T,M	tert-Butyl ethyl ether (ETB	10.000	9.553	4.5	90	-0.03
29	T,M	2-Butanone	50.000	52.015	-4.0	95	-0.03
30	T,M	2,2-Dichloropropane	10.000	9.720	2.8	93	-0.03
31	T,M	cis-1,2-Dichloroethene	10.000	9.953	0.5	93	-0.04
32	C,T,M	Chloroform	10.000	9.567	4.3	90	-0.03
33	T,M	Bromochloromethane	10.000	10.433	-4.3	97	-0.03
34	T,M	tert-Amyl alcohol	50.000	0.000	100.0#	0	-7.99#
35	S	Dibromofluoromethane	10.000	9.589	4.1	81	-0.03
36	T,M	Tetrahydrofuran	10.000	9.221	7.8	84	-0.03
37	T,M	1,1,1-Trichloroethane	10.000	9.143	8.6	86	-0.03
38	T,M	Cyclohexane	10.000	0.000	100.0#	0	-8.41#
39	T,M	2,2,4-Trimethylpentane	10.000	0.000	100.0#	0	-8.59#
40	T,M	1,1-Dichloropropene	10.000	9.813	1.9	91	-0.03
41	T,M	Carbon tetrachloride	10.000	9.555	4.5	90	-0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L11\RLC167.D Vial: 3
Acq On : 11 Dec 2020 3:38 pm Operator: VLu
Sample : CVO67J3025 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	10.000	10.155	-1.5	93	-0.03
43	S	1,2-Dichloroethane-d4	10.000	9.126	8.7	78	-0.03
44	T,M	1,2-Dichloroethane	10.000	9.563	4.4	90	-0.03
45	T,M	Benzene	10.000	9.556	4.4	90	-0.01
46	T,M	Trichloroethene	10.000	10.051	-0.5	95	-0.03
47	T,M	Methylcyclohexane	10.000	0.000	100.0#	0	-10.66#
48	C,T,M	1,2-Dichloropropane	10.000	9.555	4.5	90	-0.01
49	T,M	Bromodichloromethane	10.000	9.694	3.1	91	-0.01
50	T,M	1,4-Dioxane	200.000	188.957	5.5	86	-0.01
51	T,M	Dibromomethane	10.000	10.280	-2.8	95	-0.03
52	T,M	2-Chloroethyl vinyl ether	10.000	0.000	100.0#	0	0.00
53	T,M	4-Methyl-2-pentanone	50.000	46.975	6.0	87	-0.01
54	T,M	cis-1,3-Dichloropropene	10.000	9.837	1.6	93	-0.01
55	I	CHLOROBENZENE-D5	10.000	10.000	0.0	96	-0.01
56	S	Toluene-d8	10.000	9.089	9.1	80	-0.01
57	C,T,M	Toluene	10.000	9.096	9.0	91	-0.01
58	T,M	Ethyl methacrylate	10.000	9.745	2.6	96	-0.01
59	T,M	trans-1,3-Dichloropropene	10.000	9.330	6.7	93	-0.01
60	T,M	1,1,2-Trichloroethane	10.000	9.775	2.2	97	-0.01
61	T,M	2-Hexanone	50.000	45.848	8.3	90	-0.01
62	T,M	1,3-Dichloropropane	10.000	9.554	4.5	95	-0.01
63	T,M	Tetrachloroethene	10.000	9.128	8.7	93	-0.01
64	T,M	Dibromochloromethane	10.000	10.089	-0.9	100	-0.01
65	T,M	1,2-Dibromoethane	10.000	10.254	-2.5	101	-0.01
66	T,M	1-Chlorohexane	10.000	9.150	8.5	92	-0.01
67	P,M	Chlorobenzene	10.000	9.613	3.9	96	0.00
68	T,M	1,1,1,2-Tetrachloroethane	10.000	9.663	3.4	98	-0.01
69	C,T,M	Ethylbenzene	10.000	9.065	9.4	90	-0.01
70	T,M	m-Xylene & p-Xylene	20.000	18.465	7.7	91	-0.01
71	T,M	o-Xylene	10.000	9.166	8.3	92	0.00
72	T,M	Styrene	10.000	9.300	7.0	92	-0.01
73	T,M	Isopropylbenzene	10.000	9.347	6.5	93	-0.01
74	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	94	-0.01
75	P,T,M	Bromoform	10.000	9.822	1.8	95	0.00
76	P,T,M	1,1,2,2-Tetrachloroethane	10.000	10.095	-1.0	99	-0.01
77	S	4-Bromofluorobenzene	10.000	9.005	9.9	82	0.00
78	T,M	1,2,3-Trichloropropane	10.000	10.562	-5.6	102	0.00
79	T,M	trans-1,4-Dichloro-2-butene	10.000	8.001	20.0	79	-0.01
80	T,M	n-Propylbenzene	10.000	9.425	5.7	93	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L11\RLC167.D Vial: 3
Acq On : 11 Dec 2020 3:38 pm Operator: VLu
Sample : CVO67J3025 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	10.000	9.991	0.1	100	-0.01
82	T,M	1,3,5-Trimethylbenzene	10.000	9.574	4.3	95	0.00
83	T,M	2-Chlorotoluene	10.000	9.177	8.2	87	-0.01
84	T,M	4-Chlorotoluene	10.000	8.834	11.7	94	-0.01
85	T,M	tert-Butylbenzene	10.000	9.345	6.5	93	-0.01
86	T,M	1,2,4-Trimethylbenzene	10.000	9.560	4.4	95	0.00
87	T,M	sec-Butylbenzene	10.000	9.433	5.7	93	-0.01
88	T,M	p-Isopropyltoluene	10.000	9.878	1.2	96	-0.01
89	T,M	1,3-Dichlorobenzene	10.000	9.758	2.4	98	-0.01
90	T,M	1,4-Dichlorobenzene	10.000	9.664	3.4	96	0.00
91	T,M	n-Butylbenzene	10.000	9.501	5.0	91	-0.01
92	T,M	1,2-Dichlorobenzene	10.000	9.881	1.2	98	-0.01
93	T,M	1,2-Dibromo-3-chloropropane	10.000	11.475	-14.7	105	-0.01
94	T,M	1,2,4-Trichlorobenzene	10.000	10.273	-2.7	101	0.00
95	T,M	Hexachlorobutadiene	10.000	9.662	3.4	95	-0.01
96	T,M	Naphthalene	10.000	10.848	-8.5	102	-0.01
97	T,M	1,2,3-Trichlorobenzene	10.000	10.674	-6.7	102	-0.01

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

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L11\RLC167.D Vial: 3
Acq On : 11 Dec 2020 3:38 pm Operator: VLu
Sample : CVO67J3025 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I 1,4-DIFLUOROBENZENE	1.000	1.000	0.0	91	-0.03
2	T,M Dichlorodifluoromethane	0.346	0.318	8.1	83	0.00
3	T,M Dichlorotetrafluoroethane	0.000	0.000	0.0	0#	0.00
4	P,T,M Chloromethane	0.529	0.476	10.0	80	0.00
5	C,T,M Vinyl chloride	0.499	0.474	5.0	79	-0.02
6	T,M Bromomethane	0.434	0.426	1.8	85	0.02
7	T,M Chloroethane	0.366	0.331	9.6	81	0.00
8	T,M Dichlorofluoromethane	0.774	0.678	12.4	84	0.00
9	T,M Trichlorofluoromethane	0.516	0.482	6.6	83	-0.02
10	T,M sec-Propyl alcohol	0.000	0.000	0.0	0#	0.00
11	T,M Acrolein	0.022	0.020	9.1	89	-0.02
12	T,M 1,1,2-Trichloro-1,2,2-trifl	0.274	0.264	3.6	90	-0.02
13	T,M Acetone	0.031	0.026	16.1	83	-0.02
14	C,T,M 1,1-Dichloroethene	0.620	0.553	10.8	85	-0.02
15	T,M tert-Butyl alcohol	0.011	0.010	9.1	90	-0.02
16	T,M Methyl acetate	0.102	0.000	100.0#	0#	-4.19#
17	T,M Iodomethane	0.559	0.500	10.6	85	-0.04
18	T,M Acetonitrile	0.049	0.038	22.4#	72	-0.03
19	T,M Methylene chloride	0.438	0.390	11.0	88	-0.03
20	T,M Carbon disulfide	1.517	1.577	-4.0	94	-0.03
21	T,M Acrylonitrile	0.046	0.044	4.3	90	-0.03
22	T,M tert-Butyl methyl ether (MT	0.501	0.506	-1.0	94	-0.03
23	T,M trans-1,2-Dichloroethene	0.442	0.429	2.9	91	-0.03
24	T,M Isopropyl ether (DIPE)	0.940	0.871	7.3	89	-0.03
25	P,T,M 1,1-Dichloroethane	0.683	0.624	8.6	86	-0.03
26	T,M Vinyl acetate	0.341	0.338	0.9	92	-0.04
27	T,M 2-Butanol	0.009	0.000	100.0#	0#	-6.28#
28	T,M tert-Butyl ethyl ether (ETB	0.726	0.693	4.5	90	-0.03
29	T,M 2-Butanone	0.013	0.013	0.0	95	-0.03
30	T,M 2,2-Dichloropropane	0.469	0.456	2.8	93	-0.03
31	T,M cis-1,2-Dichloroethene	0.431	0.429	0.5	93	-0.04
32	C,T,M Chloroform	0.638	0.611	4.2	90	-0.03
33	T,M Bromochloromethane	0.189	0.197	-4.2	97	-0.03
34	T,M tert-Amyl alcohol	0.009	0.000	100.0#	0#	-7.99#
35	S Dibromofluoromethane	0.327	0.313	4.3	81	-0.03
36	T,M Tetrahydrofuran	0.033	0.030	9.1	84	-0.03
37	T,M 1,1,1-Trichloroethane	0.520	0.475	8.7	86	-0.03
38	T,M Cyclohexane	0.604	0.000	100.0#	0#	-8.41#
39	T,M 2,2,4-Trimethylpentane	1.739	0.000	100.0#	0#	-8.59#
40	T,M 1,1-Dichloropropene	0.199	0.196	1.5	91	-0.03
41	T,M Carbon tetrachloride	0.427	0.408	4.4	90	-0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L11\RLC167.D Vial: 3
Acq On : 11 Dec 2020 3:38 pm Operator: VLu
Sample : CV067J3025 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	0.127	0.129	-1.6	93	-0.03
43	S	1,2-Dichloroethane-d4	0.209	0.191	8.6	78	-0.03
44	T,M	1,2-Dichloroethane	0.258	0.247	4.3	90	-0.03
45	T,M	Benzene	1.464	1.399	4.4	90	-0.01
46	T,M	Trichloroethene	0.388	0.390	-0.5	95	-0.03
47	T,M	Methylcyclohexane	0.682	0.000	100.0#	0#	-10.66#
48	C,T,M	1,2-Dichloropropane	0.322	0.307	4.7	90	-0.01
49	T,M	Bromodichloromethane	0.387	0.375	3.1	91	-0.01
50	T,M	1,4-Dioxane	0.001	0.001	0.0	86	-0.01
51	T,M	Dibromomethane	0.150	0.154	-2.7	95	-0.03
52	T,M	2-Chloroethyl vinyl ether	0.000	0.035	0.0	0#	0.00
53	T,M	4-Methyl-2-pentanone	0.119	0.112	5.9	87	-0.01
54	T,M	cis-1,3-Dichloropropene	0.469	0.462	1.5	93	-0.01
55	I	CHLOROBENZENE-D5	1.000	1.000	0.0	96	-0.01
56	S	Toluene-d8	1.526	1.388	9.0	80	-0.01
57	C,T,M	Toluene	1.969	1.791	9.0	91	-0.01
58	T,M	Ethyl methacrylate	0.285	0.278	2.5	96	-0.01
59	T,M	trans-1,3-Dichloropropene	0.455	0.424	6.8	93	-0.01
60	T,M	1,1,2-Trichloroethane	0.240	0.235	2.1	97	-0.01
61	T,M	2-Hexanone	0.099	0.091	8.1	90	-0.01
62	T,M	1,3-Dichloropropane	0.438	0.418	4.6	95	-0.01
63	T,M	Tetrachloroethene	0.393	0.359	8.7	93	-0.01
64	T,M	Dibromochloromethane	0.290	0.292	-0.7	100	-0.01
65	T,M	1,2-Dibromoethane	0.227	0.233	-2.6	101	-0.01
66	T,M	1-Chlorohexane	0.783	0.717	8.4	92	-0.01
67	P,M	Chlorobenzene	1.107	1.064	3.9	96	0.00
68	T,M	1,1,1,2-Tetrachloroethane	0.346	0.334	3.5	98	-0.01
69	C,T,M	Ethylbenzene	2.191	1.986	9.4	90	-0.01
70	T,M	m-Xylene & p-Xylene	1.605	1.482	7.7	91	-0.01
71	T,M	o-Xylene	1.518	1.391	8.4	92	0.00
72	T,M	Styrene	1.182	1.099	7.0	92	-0.01
73	T,M	Isopropylbenzene	1.973	1.844	6.5	93	-0.01
74	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	94	-0.01
75	P,T,M	Bromoform	0.451	0.443	1.8	95	0.00
76	P,T,M	1,1,2,2-Tetrachloroethane	0.733	0.740	-1.0	99	-0.01
77	S	4-Bromofluorobenzene	1.359	1.224	9.9	82	0.00
78	T,M	1,2,3-Trichloropropane	0.178	0.188	-5.6	102	0.00
79	T,M	trans-1,4-Dichloro-2-butene	0.182	0.145	20.3#	79	-0.01
80	T,M	n-Propylbenzene	7.777	7.330	5.7	93	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\20L11\RLC167.D Vial: 3
Acq On : 11 Dec 2020 3:38 pm Operator: VLu
Sample : CVO67J3025 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	1.100	1.099	0.1	100	-0.01
82	T,M	1,3,5-Trimethylbenzene	4.627	4.430	4.3	95	0.00
83	T,M	2-Chlorotoluene	4.772	4.380	8.2	87	-0.01
84	T,M	4-Chlorotoluene	4.004	3.537	11.7	94	-0.01
85	T,M	tert-Butylbenzene	1.016	0.950	6.5	93	-0.01
86	T,M	1,2,4-Trimethylbenzene	4.340	4.149	4.4	95	0.00
87	T,M	sec-Butylbenzene	6.542	6.171	5.7	93	-0.01
88	T,M	p-Isopropyltoluene	4.955	4.895	1.2	96	-0.01
89	T,M	1,3-Dichlorobenzene	2.255	2.200	2.4	98	-0.01
90	T,M	1,4-Dichlorobenzene	2.208	2.134	3.4	96	0.00
91	T,M	n-Butylbenzene	5.096	4.841	5.0	91	-0.01
92	T,M	1,2-Dichlorobenzene	1.801	1.780	1.2	98	-0.01
93	T,M	1,2-Dibromo-3-chloropropane	0.078	0.089	-14.1	105	-0.01
94	T,M	1,2,4-Trichlorobenzene	0.851	0.874	-2.7	101	0.00
95	T,M	Hexachlorobutadiene	0.701	0.677	3.4	95	-0.01
96	T,M	Naphthalene	1.015	1.102	-8.6	102	-0.01
97	T,M	1,2,3-Trichlorobenzene	0.579	0.618	-6.7	102	-0.01

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\20L11\RLC167.D Vial: 3
Acq On : 11 Dec 2020 3:38 pm Operator: VLu
Sample : CVO67J3025 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:29 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	9.98	114	2254364	10.00	ug/l	-0.03
55) CHLOROBENZENE-D5	15.44	117	1773401	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	19.37	152	577068	10.00	ug/l	-0.01
System Monitoring Compounds						
35) Dibromofluoromethane	8.00	111	705903	9.59	ug/l	-0.03
Spiked Amount 10.000			Recovery =	95.90%		
43) 1,2-Dichloroethane-d4	9.11	65	429797	9.13	ug/l	-0.03
Spiked Amount 10.000			Recovery =	91.30%		
56) Toluene-d8	12.81	98	2460602	9.09	ug/l	-0.01
Spiked Amount 10.000			Recovery =	90.90%		
77) 4-Bromofluorobenzene	17.47	95	706314	9.00	ug/l	0.00
Spiked Amount 10.000			Recovery =	90.00%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	716501	9.20	ug/l	100
4) Chloromethane	2.11	50	1073647	8.99	ug/l	100
5) Vinyl chloride	2.21	62	1068545	9.50	ug/l	99
6) Bromomethane	2.64	94	960596	9.82	ug/l	100
7) Chloroethane	2.64	64	747260	9.06	ug/l	98
8) Dichlorofluoromethane	2.72	67	1528185	8.75	ug/l	100
9) Trichlorofluoromethane	2.89	101	1087608	9.35	ug/l	99
11) Acrolein	3.42	56	226082	46.33	ug/l	84
12) 1,1,2-Trichloro-1,2,2-trif	3.48	151	594418	9.61	ug/l	100
13) Acetone	3.50	43	295787	42.54	ug/l	99
14) 1,1-Dichloroethene	3.66	61	1245965	8.91	ug/l	96
15) tert-Butyl alcohol	3.79	59	584770	242.73	ug/l	99
17) Iodomethane	4.09	142	1127826	8.95	ug/l	98
18) Acetonitrile	4.20	41	846424	75.90	ug/l	97
19) Methylene chloride	4.39	49	879193	8.91	ug/l	94
20) Carbon disulfide	4.38	76	3555029	10.40	ug/l	99
21) Acrylonitrile	4.63	53	499750	48.64	ug/l	99
22) tert-Butyl methyl ether (M	4.66	73	1140979	10.11	ug/l	99
23) trans-1,2-Dichloroethene	4.89	96	966909	9.70	ug/l	99
24) Isopropyl ether (DIPE)	5.53	45	1964418	9.27	ug/l	97
25) 1,1-Dichloroethane	5.72	63	1406300	9.13	ug/l	100
26) Vinyl acetate	5.77	43	762153	9.92	ug/l	97
28) tert-Butyl ethyl ether (ET	6.44	59	1562399	9.55	ug/l	98
29) 2-Butanone	6.72	72	151439	52.01	ug/l	98
30) 2,2-Dichloropropane	7.01	77	1027671	9.72	ug/l	98
31) cis-1,2-Dichloroethene	7.11	96	967511	9.95	ug/l	100
32) Chloroform	7.51	83	1376695	9.57	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\20L11\RLC167.D Vial: 3
Acq On : 11 Dec 2020 3:38 pm Operator: VLu
Sample : CVO67J3025 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:29 2020 Quant Results File: VO67J30.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
33)	Bromochloromethane	7.87	130	444884	10.43 ug/l	100
36)	Tetrahydrofuran	7.96	42	67590	9.22 ug/l	95
37)	1,1,1-Trichloroethane	8.40	97	1071535	9.14 ug/l	99
40)	1,1-Dichloropropene	8.75	110	441026	9.81 ug/l	99
41)	Carbon tetrachloride	8.92	119	919413	9.55 ug/l	99
42)	tert-Amyl methyl ether (TA	9.07	87	290746	10.16 ug/l	99
44)	1,2-Dichloroethane	9.32	62	556477	9.56 ug/l	100
45)	Benzene	9.30	78	3153752	9.56 ug/l	99
46)	Trichloroethene	10.56	130	878470	10.05 ug/l	96
48)	1,2-Dichloropropane	10.92	63	692729	9.55 ug/l	99
49)	Bromodichloromethane	11.36	83	845328	9.69 ug/l	100
50)	1,4-Dioxane	11.45	88	50003	188.96 ug/l	93
51)	Dibromomethane	11.44	93	346565	10.28 ug/l	97
53)	4-Methyl-2-pentanone	12.08	43	1260267	46.97 ug/l	94
54)	cis-1,3-Dichloropropene	12.41	75	1040781	9.84 ug/l	98
57)	Toluene	12.96	91	3176915	9.10 ug/l	99
58)	Ethyl methacrylate	13.36	69	493189	9.75 ug/l	95
59)	trans-1,3-Dichloropropene	13.33	75	752147	9.33 ug/l	95
60)	1,1,2-Trichloroethane	13.58	97	416213	9.78 ug/l	99
61)	2-Hexanone	13.66	43	805568	45.85 ug/l	96
62)	1,3-Dichloropropane	14.04	76	741610	9.55 ug/l	99
63)	Tetrachloroethene	14.09	164	635775	9.13 ug/l	100
64)	Dibromochloromethane	14.44	129	518434	10.09 ug/l	100
65)	1,2-Dibromoethane	14.78	107	412743	10.25 ug/l	99
66)	1-Chlorohexane	15.12	91	1271023	9.15 ug/l	100
67)	Chlorobenzene	15.51	112	1887564	9.61 ug/l	100
68)	1,1,1,2-Tetrachloroethane	15.60	131	592377	9.66 ug/l	100
69)	Ethylbenzene	15.61	91	3521627	9.06 ug/l	99
70)	m-Xylene & p-Xylene	15.74	91	5255632	18.46 ug/l	98
71)	o-Xylene	16.47	91	2467411	9.17 ug/l	99
72)	Styrene	16.53	104	1948991	9.30 ug/l	99
73)	Isopropylbenzene	17.07	105	3269472	9.35 ug/l	99
75)	Bromoform	17.09	173	255685	9.82 ug/l	100
76)	1,1,2,2-Tetrachloroethane	17.37	83	427120	10.09 ug/l	99
78)	1,2,3-Trichloropropane	17.58	110	108710	10.56 ug/l	99
79)	trans-1,4-Dichloro-2-buten	17.18	53	83840	8.00 ug/l	93
80)	n-Propylbenzene	17.69	91	4229982	9.43 ug/l	99
81)	Bromobenzene	17.73	156	634438	9.99 ug/l	100
82)	1,3,5-Trimethylbenzene	17.91	105	2556583	9.57 ug/l	99
83)	2-Chlorotoluene	17.91	91	2527303	9.18 ug/l	98
84)	4-Chlorotoluene	17.98	91	2041289	8.83 ug/l	97

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

Data File : D:\HPCHEM\1\DATA\20L11\RLC167.D Vial: 3
Acq On : 11 Dec 2020 3:38 pm Operator: VLu
Sample : CVO67J3025 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:29 2020 Quant Results File: VO67J30.RES

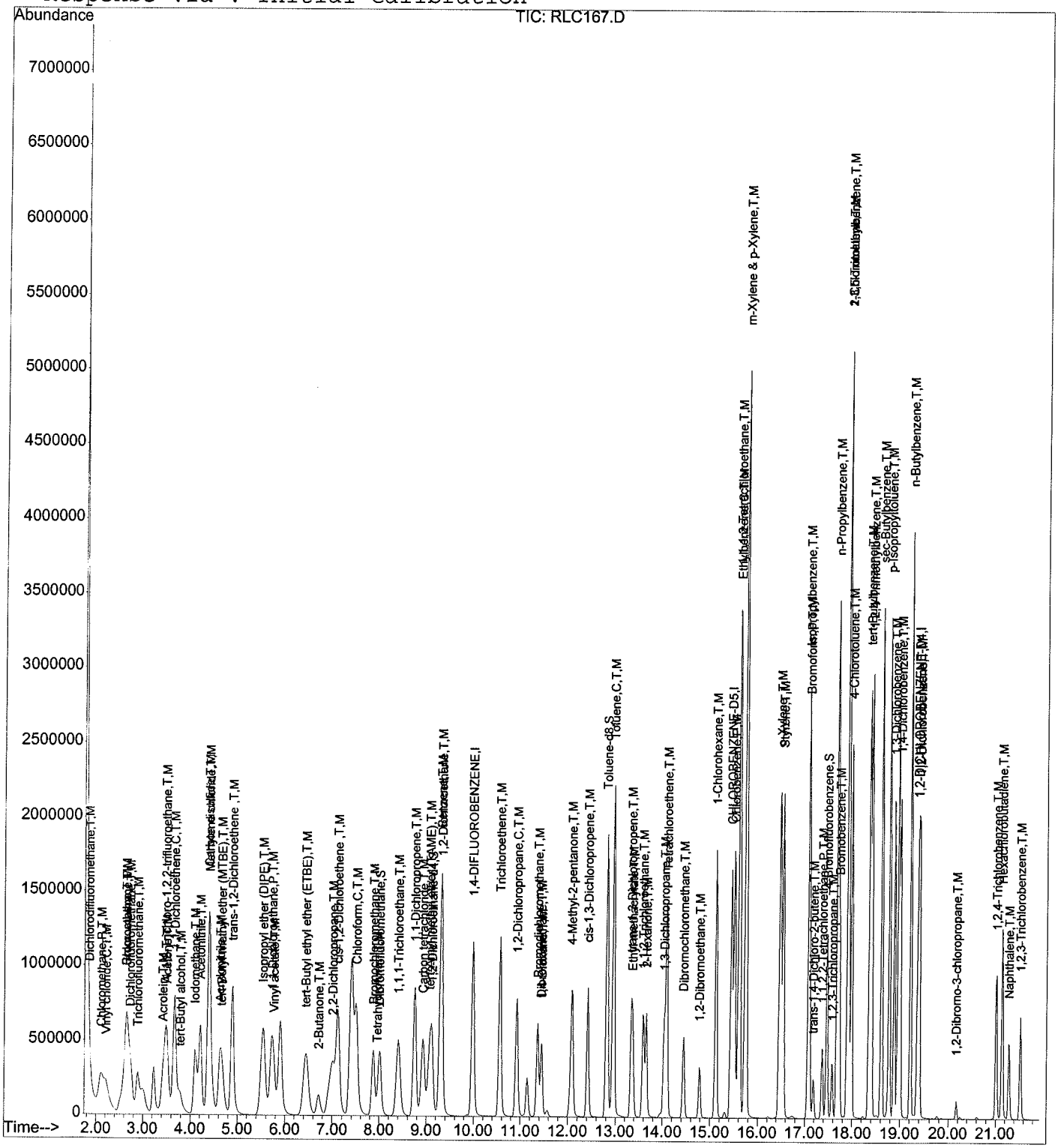
Quant Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration
DataAcq Meth : VO67J30

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
85)	tert-Butylbenzene	18.36	134	547944	9.35	ug/l	93
86)	1,2,4-Trimethylbenzene	18.40	105	2394338	9.56	ug/l	99
87)	sec-Butylbenzene	18.61	105	3561078	9.43	ug/l	99
88)	p-Isopropyltoluene	18.77	119	2824816	9.88	ug/l	99
89)	1,3-Dichlorobenzene	18.87	146	1269727	9.76	ug/l	99
90)	1,4-Dichlorobenzene	19.00	146	1231180	9.66	ug/l	99
91)	n-Butylbenzene	19.22	91	2793780	9.50	ug/l	99
92)	1,2-Dichlorobenzene	19.40	146	1026929	9.88	ug/l	100
93)	1,2-Dibromo-3-chloropropan	20.17	157	51524	11.47	ug/l	100
94)	1,2,4-Trichlorobenzene	21.02	180	504621	10.27	ug/l	99
95)	Hexachlorobutadiene	21.13	225	390929	9.66	ug/l	99
96)	Naphthalene	21.28	128	635668	10.85	ug/l	100
97)	1,2,3-Trichlorobenzene	21.53	180	356604	10.67	ug/l	100

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

Data File : D:\HPCHEM\1\DATA\20L11\RLC167.D Vial: 3
Acq On : 11 Dec 2020 3:38 pm Operator: VLu
Sample : CVO67J3025 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 14 10:29 2020 Quant Results File: VO67J30.RES

Method : D:\HPCHEM\1\METHODS\VO67J30.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Nov 02 17:45:37 2020
Response via : Initial Calibration



ANALYTICAL LOG(S)

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☑ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 5 ☐ EMAX-624.1 Rev.No. 0

Start Date: 10/30/20 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge Book #: A67-071

BATCH V067J306

	Sample Prep ID	Data File Name	Lab Sample ID	(*) Sample Amount (mL)	DF	Matrix W pH < 2	Matrix W Cl_2 < 5ppm	Matrix S	Notes
01	RJC453	BFB67J20 ✓	A/B	NA	NA	NA		8260 Ket-AA TBA 10:46
02	54	V067J301 ✓						0.3 1.5 7.5 ppb
03	55	2 ✓						0.5 2.5 12.5
04	56	3 ✓						1.0 5.0 25
05	57	4 ✓						2.0 10 50
06	58	5 ✓						5.0 25 125
07	59	6 ✓						10 50 250
08	61	7 ✓						20 100 500
09	62	8 ✓						30 150 750
10	63	9 ✓						50 250 1250
11	64	10 ✓						100 500 2500 ppb
12	65	RINSE						
13	66	↓						
14	67	IV067J3001 ✓						10 50 250 ppb
15	68	RINSE			↓	↓	↓	17:32
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								VL 11/2/20
30								

Instrument No.	67
INITIAL CALIBRATION REFERENCE	
DATE	10/30/20
ICAL ID	V067J30

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC 8260 Ket-AA	SVI-35-33-01 / -32-01	*	50/1250 250
DCC 4add	-03-02	↓	250/6250
DCC GAS CS2	-33-03 / -29-03		250 250
DCC TAA-224	↓ -35-02	↓	250/1250
BFB	SVI-34-99-01	1	50
IS/SURR. IS	-34-55-01	5	50
IS/SURR. SS	↓ -35-16-01	*	250
ICV/LCS 8260 Ket-AA	SVI-35-19-01	5	50/1250
ICV/LCS 3add 2but	-08-02 / -07-01 / -34-01	5 / 12.5	250 / 50 / 500
ICV/LCS GAS CS2	-16-02 / ↓ -21-03	1 / ↓	250 / 250
ICV/LCS TAA 224MP	SVI-34-78-03 / ↓ -35-11-02	5 / 5	250 / 50
Data File Folder	20J30		

	LOT #	Syringe Lot #
pH strip		MSV-02-01-07-5
Chlorine strip		-02-01-08-2
Methanol		-01-04-16
$NaHSO_4$		-01-05-08
Reagent Water	RWS-20-001	↓ -02-01-02
Sand		N01-C5916

Electronic Data Archival Location	Date
HPCHEM_VOA/TO67	

Comments:

Analyzed By: VL

Date Disposed: 11/2/20 Disposed By: VL

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☐ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 5 ☐ EMAX-624.1 Rev.No. 0

Start Date: 12/10/20 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge Book #: A67-071

BATCH CV067J3024

	Sample Prep ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix W pH <2	Matrix W Cl_2 <5ppm	Matrix S	Notes
01		RLC135	BFB67L07 ✓						13:22
02		36	CV067J3024 ✓						
03		37	V067L07L ✓						
04		38	↓ C ✓						
05		39	RINSE						
06		40	V067L07B ✓	25mL					
07		41	20L087-02 ✓		1.0	✓	✓		TB-005-03-14
08		42	-01 ✓			✓	~~✓~~		50X
09		43	-03 ✓			✓	✓		250X
10		44	-04 ✓			✓	✓		250X
11		45	↓ -05 ✓			✓	~~✓~~		50X, 250X
12		46	20L088-01 ✓			✓	✓		50X
13		47	-02 ✓			✓	✓		25X
14		48	↓ -03 ✓	↓	↓	✓	✓		C107
15		49	20L070-02I ✓	5.0mL	5.0	✓	✓		
16		50	-04I ✓	↓	↓	✓	✓		
17		51	↓ -06I ✓	↓	↓	✓	✓		
18		52	20L090-06 ✓	25mL	1.0	✓	✓		TB-005-03-13
19		53	-01 ✓	↓	↓	✓	✓		
20		54	-02 ✓	↓	↓	✓	✓		
21		55	-03 ✓	↓	↓	✓	✓		
22		56	-04 ✓	↓	↓	✓	✓		50X
23		57	↓ -05	↓	↓	✓	✓		C10
24		58	20L091-01 ✓	↓	↓	✓	✓		
25		59	↓ -02 ✓	↓	↓	✓	✓		
26		60	EV067J3024 ✓						00:03
27		61	↓ A						
28		62	↓ B						
29		63	RINSE						
30		64	↓						

Instrument No.	67
INITIAL CALIBRATION REFERENCE	
DATE	10/30/20
ICAL ID	V067J30

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC 8260	SV1-35-48-03	5	
DCC Ket-AA	-59-01	5	
DCC GAS	-44-01	1	
DCC CS_2	-21-01	1	
BFB	-65-03	1	
IS/SURR.	-39-03	5	50/250/1250
ICV/LCS 8260	-19-01	5	
ICV/LCS Ket-AA	-38-02	5	
ICV/LCS GAS	-45-01	1	
ICV/LCS CS_2	-44-03	1	
Data File Folder	20L10		

	LOT #	Syringe Lot #
pH strip	HC904495	MSV-02-01-07-5
Chlorine strip	014802	-02-01-08-2
Methanol		-01-04-16
$NaHSO_4$		
Reagent Water	RW5-20-001	
Sand		

Electronic Data Archival Location	Date
HPCHEM_VOA/TO67	

Comments:

Analyzed By: VL

Date Disposed: 12/11/20 Disposed By: VL

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☐ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 5 ☐ EMAX-624.1 Rev.No. 0

Start Date: 12/11/20 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge Book #: A67-071

BATCH CV067J3025

	Sample Prep ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix W pH<2	Matrix W Cl_2<5ppm	Matrix S	Notes
01		RLC165	BFB67L08 ✓						14:37
02	66	↓	STD CHK						
03	67		CV067J3025 ✓						
04	68		V067L08L ✓						
05	69		↓ C ✓						
06	70		RINSE						
07	71		V067L08B ✓	25mL					
08	72		SPIB-13-31-04 ✓	↓	1.0	3	✓		
09	73		20L070-02I	5.0mL	5.0	✓	✓		} confirmation only
10	74		↓ -04I	↓	↓	✓	✓		
11	75		↓ -06I	↓	↓	✓	✓		
12	76		RINSE						
13	77		20L087-01I ✓	0.5mL	50	✓	✓		
14	78		-05I ✓	↓	↓	✓	✓		
15	79		-03I ✓	100mL	250	✓	✓		
16	80		-04I ✓	↓	↓	✓	✓		
17	81		↓ -05I ✓	↓	↓	✓	✓		
18	82		20L088-01I ✓	0.5mL	50	✓	✓		
19	83		-02I ✓	1.0mL	25	✓	✓		
20	84		↓ -03N ✓	25mL	1.0	✓	✓		
21	85		20L090-04I ✓	0.5mL	50	✓	✓		
22	86		↓ -05N ✓	25mL	1.0	✓	✓		
23	87		EV067J3025 ✓						00:22
24	88		↓ A						
25	89		↓ B						
26	90		RINSE						
27									
28									
29									
30									VL 12/14/20

Instrument No.	67
INITIAL CALIBRATION REFERENCE	
DATE	10/30/20
ICAL ID	V067J30

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC 8260	SV1-35-48-03	5	
DCC Ket-AA	-59-02	5	
DCC GAS	-64-03	1	
DCC CS_2	-59-03	1	
BFB	-65-03	1	
IS/SURR.	-57-03	5	5012501 1250
ICV/LCS 8260	-18-03	5	
ICV/LCS Ket-AA	-38-02	5	
ICV/LCS GAS	-45-01	1	
ICV/LCS CS_2	↓ -44-03	1	
Data File Folder	20L11		

	LOT #	Syringe Lot #
pH strip	HC904495	MSV-02-01-07-5
Chlorine strip	014802	-02-01-08-2
Methanol		-01-04-16
$NaHSO_4$		-01-03-21
Reagent Water	RWS-20-001	
Sand		

Electronic Data Archival Location	Date
HPCHEM_VOA/TO67	

Comments:

Analyzed By: VL

Date Disposed: 12/14/20 Disposed By: VL

APPENDIX C MIN-TRAP PHOTO LOG

Photograph Log

[Client Name]

Photograph 1: Baseline Sampling_Mag Susc

Photograph 2: Baseline Sampling_Mag Susc

Photograph 3: Baseline Sampling_Mag Susc

Photograph 4: Min-Traps and Bio-Traps_2020_11 Deployment

Photograph 5: VSFB Site SS003 Min-Trap & Bio-trap Retrieval _3-MW-55

Photograph 6: VSFB Site SS03 Min-Trap Retrieval and Sampling

Photograph 7: VSFB Site SS03 Min-Trap Retrieval and Sampling

Photograph 8: VSFB Site SS03 Min-Trap Retrieval and Sampling

Photograph 9: VSFB Site SS03 Min-Trap Retrieval and Sampling

Photograph 10: VSFB Site SS03 Min-Trap Retrieval and Sampling

Photograph 11: VSFB Site SS03 Min-Trap Retreival and Sampling

Photograph 12: VSFB Site SS03 Min-Trap Retreival and Sampling

Photograph 13: VSFB Site SS03 Min-Trap Retreival and Sampling

Photograph 14: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

Photograph 15: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

Photograph 16: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

Photograph 17: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

Photograph 18: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

Photograph 19: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

Photograph 20: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

Photograph 21: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

Photograph 22: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

Photograph 23: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

Photograph 24: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

Photograph 25: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

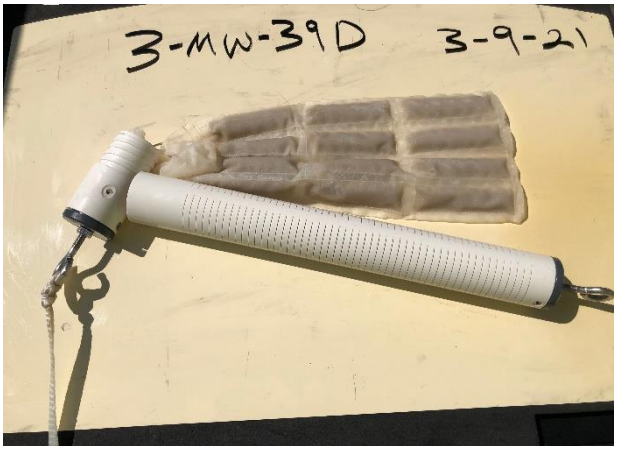
Photograph 26: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

Photograph 27: VSFB Site SS03 Soil Drilling and Sampling Nov 2021

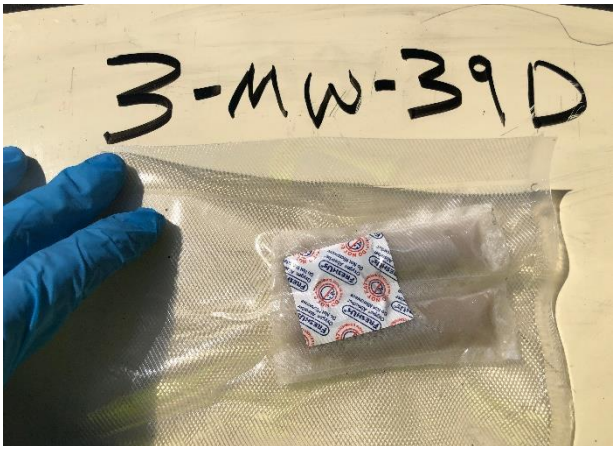
Photograph 28: VSFB Site SS03 Soil Drilling and Sampling 3-MW-14 Nov 2021

Photograph 29: VSFB Site SS03 Soil Drilling and Sampling 3-MW-14 Nov 2021

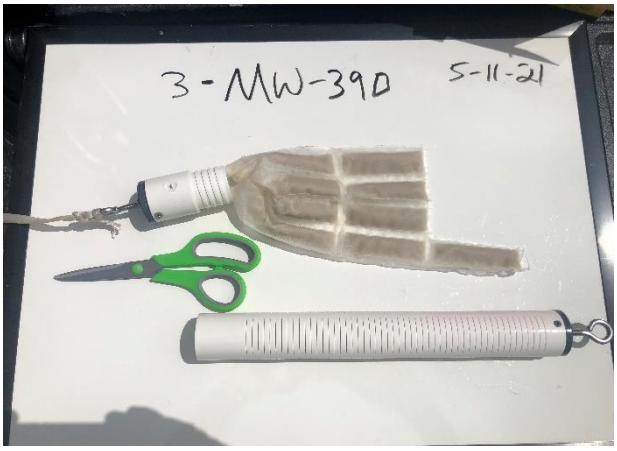
Photograph 30: VSFB Site SS03 Soil Drilling and Sampling 3-MW-55 Nov 2021



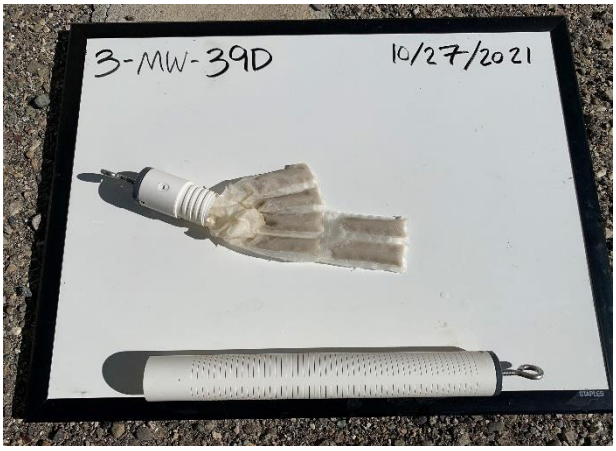
Photograph 31: VSFB Site SS03 3-MW-39D (Background) Min-Trap Retrieval and Sampling March 2021



Photograph 32: Site SS03 3-MW-39D (Background) Min-Trap Retrieval and Sampling March 2021



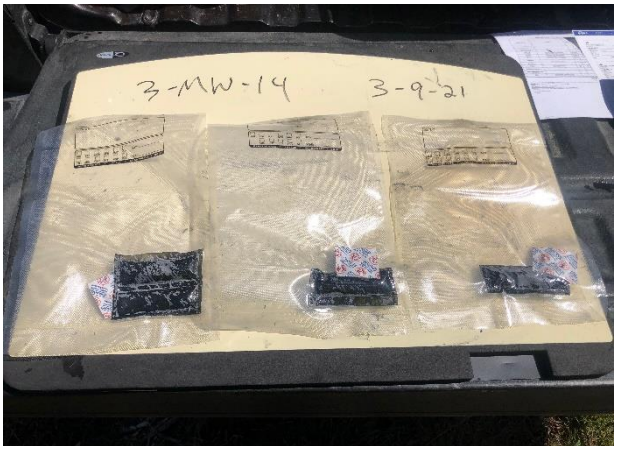
Photograph 33: VSFB Site SS03 3-MW-39D (Background) Min-Trap Retrieval and Sampling MaY 2021



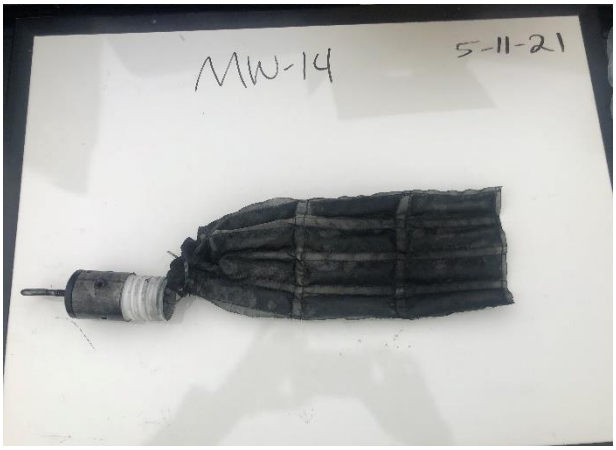
Photograph 34: VSFB Site SS03 3-MW-39D (Background) Min-Trap Retrieval and Sampling October 2021

Photograph 35: VSFB Site SS03 3-MW-14 Min-Trap Retrieval and Sampling March 2021

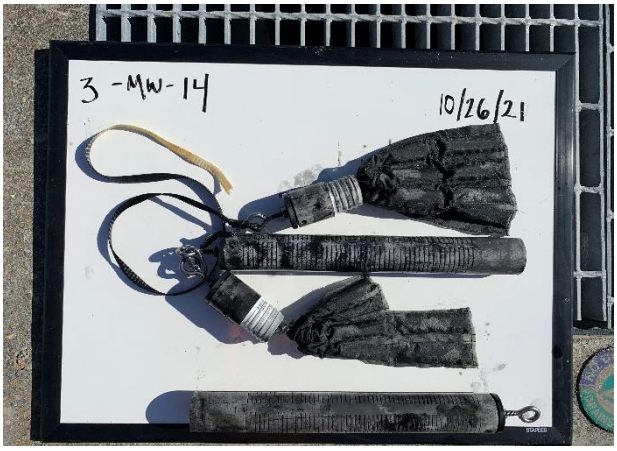
Photograph 36: VSFB Site SS03 3-MW-14 Min-Trap Retrieval and Sampling March 2021



Photograph 37: VSFB Site SS03 3-MW-14 Min-Trap Retrieval and Sampling March 2021

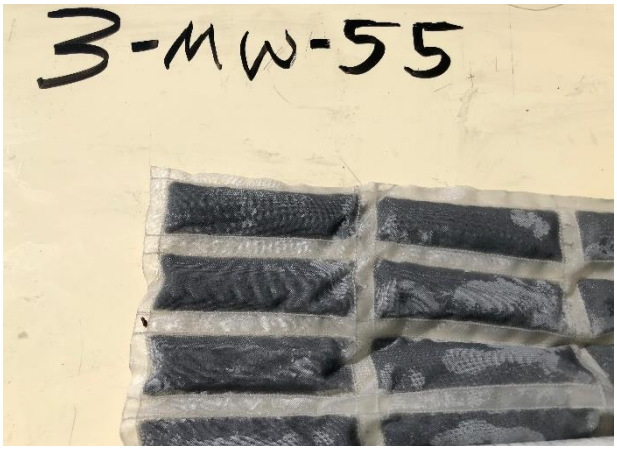


Photograph 38: VSFB Site SS03 3-MW-14 Min-Trap Retrieval and Sampling May 2021

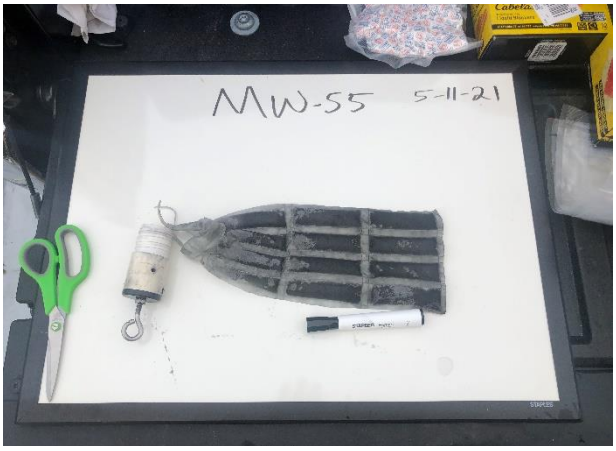


Photograph 39: VSFB Site SS03 3-MW-14 Min-Trap Retrieval and Sampling October 2021

Photograph 40: VSFB Site SS03 3-MW-55 Min-Trap Retrieval and Sampling March 2021



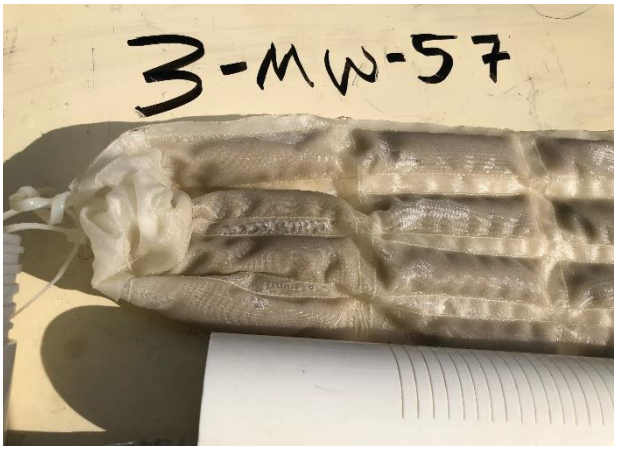
Photograph 41: VSFB Site SS03 3-MW-55 Min-Trap Retrieval and Sampling March 2021



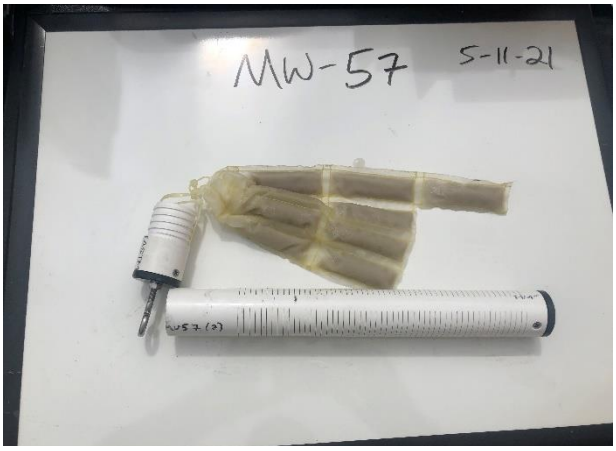
Photograph 42: VSFB Site SS03 3-MW-55 Min-Trap Retrieval and Sampling May 2021

Photograph 43: VSFB Site SS03 3-MW-55 Min-Trap Retrieval and Sampling October 2021

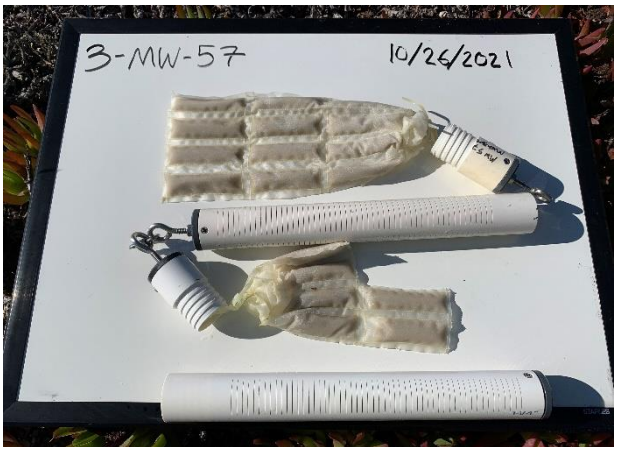
Photograph 44: VSFB Site SS03 3-MW-57 Min-Trap Retrieval and Sampling March 2021



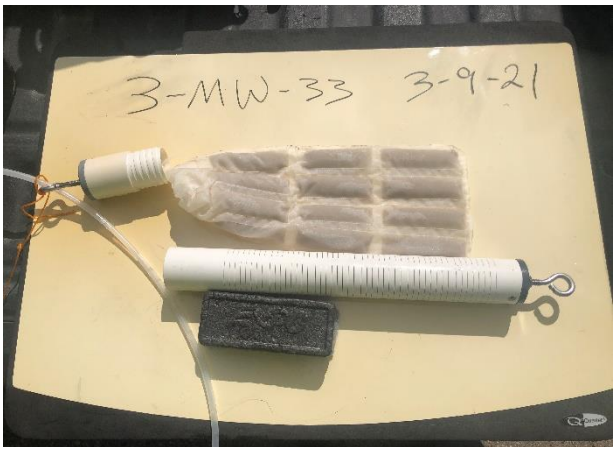
Photograph 45: VSFB Site SS03 3-MW-57 Min-Trap Retrieval and Sampling March 2021



Photograph 46: VSFB Site SS03 3-MW-57 Min-Trap Retrieval and Sampling May 2021



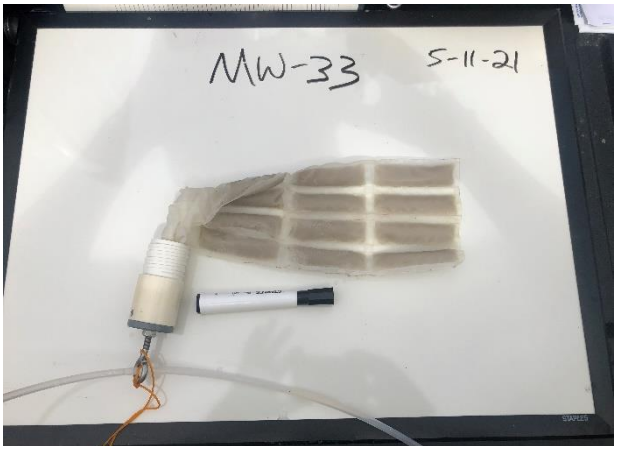
Photograph 47: VSFB Site SS03 3-MW-57 Min-Trap Retrieval and Sampling October 2021



Photograph 48: VSFB Site SS03 3-MW-33 Min-Trap Retrieval and Sampling March 2021

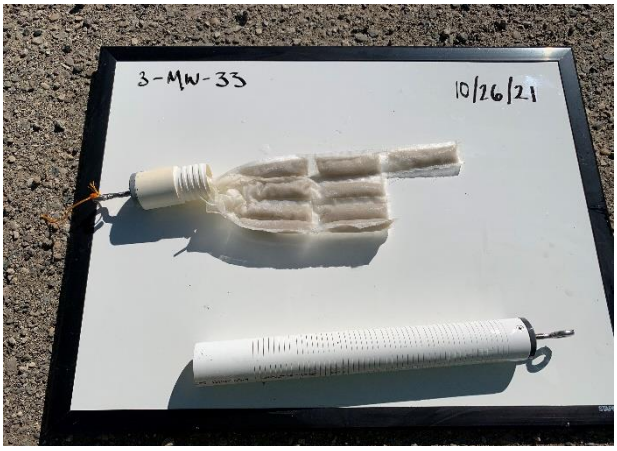
Photograph Log

[Client Name]

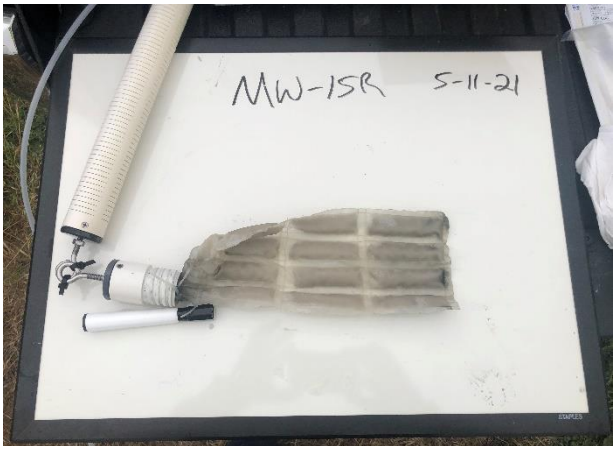


Photograph 49: VSFB Site SS03 3-MW-33 Min-Trap Retrieval and Sampling May 2021

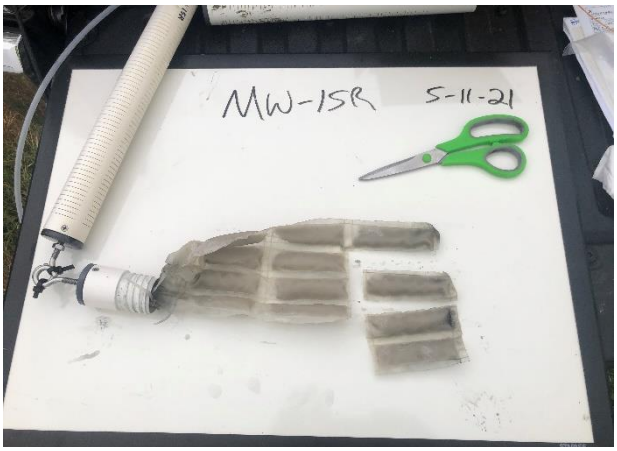
Photograph 50: VSFB Site SS03 3-MW-33 Min-Trap Retrieval and Sampling May 2021



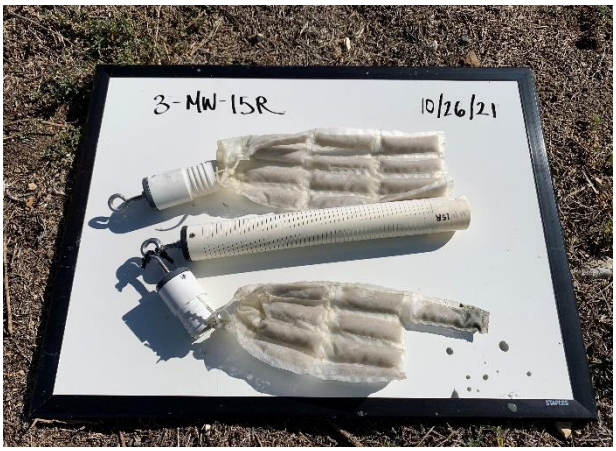
Photograph 51: VSFB Site SS03 3-MW-33 Min-Trap Retrieval and Sampling October 2021



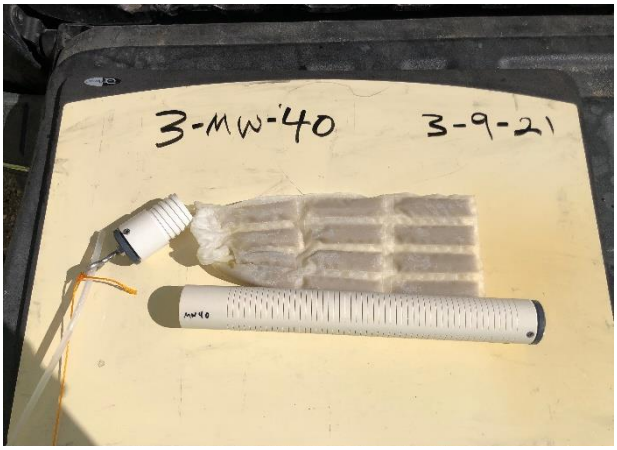
Photograph 52: VSFB Site SS03 3-MW-15R Min-Trap Retrieval and Sampling May 2021



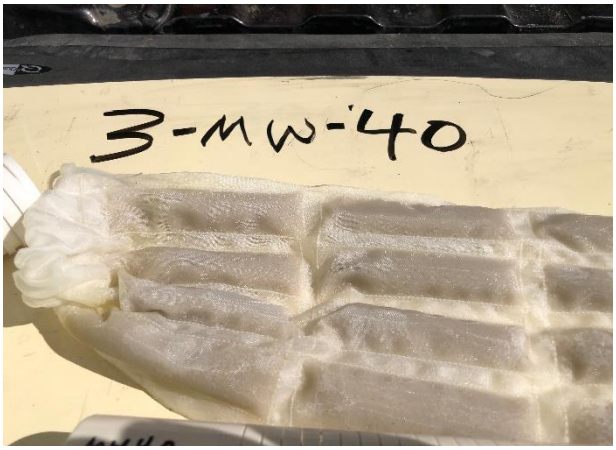
Photograph 53: VSFB Site SS03 3-MW-15R Min-Trap Retrieval and Sampling May 2021



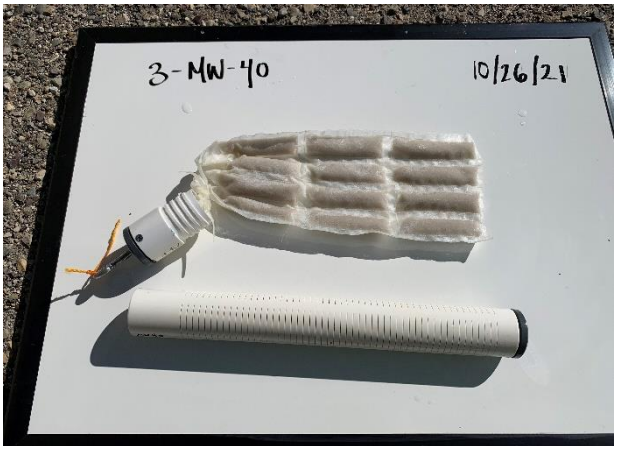
Photograph 54: VSFB Site SS03 3-MW-15R Min-Trap Retrieval and Sampling October 2021



Photograph 55: VSFB Site SS03 3-MW-40 Min-Trap Retrieval and Sampling March 2021

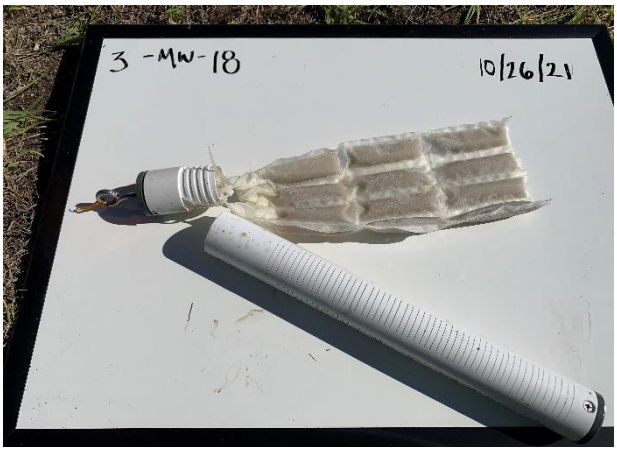


Photograph 56: VSFB Site SS03 3-MW-40 Min-Trap Retrieval and Sampling March 2021



Photograph 57: VSFB Site SS03 3-MW-40 Min-Trap Retrieval and Sampling October 2021

Photograph 58: VSFB Site SS03 3-MW-18 Min-Trap Retrieval and Sampling March 2021



Photograph 59: VSFB Site SS03 3-MW-18 Min-Trap Retrieval and Sampling October 2021

APPENDIX D SOIL CORE LOGS

sampled

ARCADIS Design & Consultancy for natural and built assets

Boring/Well ID SS003 SB1-3-MW-14 Page 1 of 2

Project/ Client: USACE	Site Address/ Location: VAFB - SS003		Job No. 30028451
Start Date: 5/10/2021	End Date: 5/10/2021	Total Depth: 25'	Hole Diameter: 2.25"	Depth to 1st Water: 19'
Sampling Device: Core barrel	Length: 5'	Diameter: 2.5"	Sampling Interval: discrete
Hammer Weight: NA	Hammer Drop: NA	Drilling Contractor: JHA	
Drilling Rig: Geoprobe 7822DT	Drilling Method: DPT	Drilling Fluid Used: None	
Driller: Chris Kim	Helper(s): Joe S.		
Logged By: A. Shellhorn	Reviewed By:	Date Reviewed:	

Depth (ft)	Drive Interval	Blows per 6"	Recovery (in.)	Time	Sample ID	Description	PID Reading
1						See SS003SB1-3-MW-14-pilot log for lithology details	
2							
3							
4							
5							
10			59"	1200	SB1 13-15' sampled down to melting		
15							
20				1205	SB2 20-22' sampled down to saturation		

Remarks/Notes:

- Boring Hand cleared 3 to 5 ft bgs; used star bit to get through RR base from 0-3 ft
- Boring abandoned w/ Portland grout via 1" tremie pipe

ARCADIS
Infrastructure, environment, buildings

Boring/Well ID SS0035B1-3-MW-14

Project/ Client: VAFB

Site Address/ Location: SS003 - VAFB

Job No.: 30028451

Depth (ft)	Drive Interval	Blows per 6"	Recovery (in.)	Time	Sample ID	Description Depth: Principal Components, (angularity, plasticity, dilatency); Minor Components, (angularity, plasticity, dilatency); Sorting, Moisture Content, Consistency/Density, Color (Munsel Chart), Additional Comments.	PID Reading
21							
22						← cont from previous page	
						TD = 25' bgs	

Remarks/Notes:

pilot MW-14

ARCADIS Design & Consultancy for natural and built assets

Boring/Well ID SS0035B1-3-MW-14-pilot

Page 1 of 2

Project/ Client: USACE		Site Address/ Location: VAFB - SS003			Job No. 30028451
Start Date: 5/10/2021 1109	End Date: 5/10/2021	Total Depth: 25'	Hole Diameter: 2.25"	Depth to 1st Water: 19'	
Sampling Device: Corebarrel	Length: 5'	Diameter: 2.25"	Sampling Interval: cont		
Hammer Weight: NA	Hammer Drop: NA		Drilling Contractor: JHA		
Drilling Rig: Geoprobe 7822DT	Drilling Method: DPT		Drilling Fluid Used: None		
Driller: Chris K.	Helper(s): Joe S.				
Logged By: A. Shellhorn	Reviewed By:		Date Reviewed:		

Depth (ft)	Drive Interval	Blows per 6"	Recovery (in.)	Time	Sample ID	Description: Depth: Principal Components, (angularity, plasticity, dilatency); Minor Components, (angularity, plasticity, dilatency); Sorting, Moisture Content, Consistency/Density, Color (Munsel Chart), Additional Comments.	PID Reading
						Begin logging at 5ft bgs	
5	Hand auger		48"			5-9.8' Sand (SW) fine to med, trace coarse grained, subang to subrounded, 5% silt, poorly sorted, dry to moist, loose to mid dense, brown (10YR 4/3); mino. iron staining throughout	5-10% clay
10			60"	1200	SB1 13-15' & mottling	9.8-15 - Sandy Clay (CL): low to medium plasticity, no dilatancy; 30-35% sand, fine to medium grained, trace coarse grained; subangular to subrounded; dry to moist, stiff, very dark grayish brown (10YR 3/2), dark mottling throughout; heavy iron staining from 10-10.5', moderate iron staining from 10.5-15 ft; from 11.5-15 ft, intermittent 2-3" stringers of clayey sand	
15			60"			15-19.0 - Silty clay (CL) low to med plast, no dilatancy; 25-30% silt; dry to moist, stiff, light olive gray (5Y 6/2); at 18ft silt 1% 35-40%, minor iron staining from 18-19ft	
20	V		60"	1205	20-22' & wet	19.0-22' Sandy Silt (ML) low plasticity, slow dilatancy; 10-15% sand, very fine grained, subangular; 5% clay; wet, soft, olive (5Y 5/3)	

Remarks/Notes:

SB1 mottling 13-15 1200

SB2 wet, int. 20-22

Boring abandoned via tremmie pipe w/ portland grout

★ Samples collected from separate boring - see log for SS0035B1-3-MW-14

ARCADIS
Infrastructure, environment, buildings

Boring/Well ID SS003SB1-3-MW-74

Project/ Client: **VAFB**

Site Address/ Location: VAFB - SS003

Job No.:

Depth (ft)	Drive Interval	Blows per 6"	Recovery (in.)	Time	Sample ID	Description Depth: Principal Components, (angularity, plasticity, dilatency); Minor Components, (angularity, plasticity, dilatency); Sorting, Moisture Content, Consistency/Density, Color (Munsel Chart), Additional Comments.	PID Reading
23						23.0-25 - Silt (MH) med to high plasticity, no to slow dilatancy; 5% sand, VF grained, subangular; 5% clay; moist, stiff, olive (5Y 5/3); minor iron staining throughout	

Remarks/Notes:

ARCADIS Design & Consultancy for natural and built assets

Boring/Well ID SS0035B1-3-MW-55 **Page** 1 of 1

Project/ Client: USACE	Site Address/ Location: VAFB - SS003				Job No. 30020451
Start Date: 5/10/2021	End Date: 5/10/2021	Total Depth: 20'	Hole Diameter: 2.25"	Depth to 1st Water: NA	
Sampling Device: Core Barrel	Length: 5'	Diameter: 2.25"	Sampling Interval: discrete		
Hammer Weight: NA	Hammer Drop: NA	Drilling Contractor: JHA			
Drilling Rig: Geoprobe 7822DT	Drilling Method: DPT	Drilling Fluid Used: None			
Driller: Chris Kim	Helper(s): Joe S.				
Logged By: A. Shellhorn	Reviewed By:	Date Reviewed:			

Depth (ft)	Drive Interval	Blows per 6"	Recovery (in.)	Time	Sample ID	Description (Depth: Principal Components, (angularity, plasticity, dilatency); Minor Components, (angularity, plasticity, dilatency); Sorting, Moisture Content, Consistency/Density, Color (Munsel Chart), Additional Comments.)	PID Reading
0						See SS0035B1-3-MW-55-pilot2 log for lithology	NA
1							
2							
3							
4							
5							
10							
15					SS0035B1-3-MW-55		
			60"	1030	16-18'		
20							

Remarks/Notes: Sample collected @ 1030 from 16-18ft bgs

- Boring abandoned w/ portland grout via 1" tremie pipe

pilot 1

ARCADIS Design & Consultancy for natural and built assets

Boring/Well ID SS003SB1-3-MW-55-pilot 1 **Page** 1 of 2

Project/ Client: USAREE	Site Address/ Location: VAFB-SS003		Job No. 30028451
Start Date: 5/10/2021	End Date: 5/10/2021	Total Depth: 22' bgs	Hole Diameter: 2.25"	Depth to 1st Water: 16.2'
Sampling Device: Core Barrel	Length: 5'	Diameter: 2.25"	Sampling Interval: continuous	
Hammer Weight: NA	Hammer Drop: NA		Drilling Contractor: JHA	
Drilling Rig: Geoprobe 7822DT	Drilling Method: DPT		Drilling Fluid Used: None	
Driller: Chris Kim	Helper(s): Joe S.			
Logged By: Amanda Shellhorn	Reviewed By:		Date Reviewed:	

Depth (ft)	Drive Interval	Blows per 6"	Recovery (in.)	Time	Sample ID	Description Depth: Principal Components, (angularity, plasticity, dilatency); Minor Components, (angularity, plasticity, dilatency); Sorting, Moisture Content, Consistency/Density, Color (Munsel Chart), Additional Comments.	PID Reading
0	HAND AUGER			NA	NA	Begin logging at 5ft bgs	NA
5			48"			5-7 ft Clayey Sand (SC) fine to coarse grained, subangular to subrounded; 10-15% clay; 5% silt; poorly sorted, moist to wet, loose, yellowish brown (10YR 5/4).	
10			60"			7-11 Sandy Clay (CL): low to med plast, no dilatancy; 25-30% sand, fine to med grained, subangular to subrounded; 5% silt; moist, med stiff to stiff, grayish brown (10YR 5/2); minor black mottling from 9.5-10 ft; minor iron staining from 10-10.5ft	
15			58"			11-12.5 Clay (CL) low to med plast, no dilatancy; 5-10% sand, fine to med grained, subang to subrounded; <5% silt; moist, stiff, light olive gray (5Y 6/2); minor iron staining ~~and from 12-12.5(BS)~~ at base of unit, 2-3" clayey lens from 12.3-12.5 12.5-16.2 Silt (ML) low to med plast, no to slow dilatancy; 5-10% clay; moist to wet, med stiff to stiff, pale olive (5Y 5/3); minor iron staining from 13.5-14ft	
20			43"			16.2-19.5 Sandy Silt (MH) med to high plasticity, slow dilatancy; 25-35% sand, very fine grained, subrounded; <5% clay; wet, soft to med stiff, pale olive (5Y 6/2) 19.5-22' Silty Clay (CH): med to high plast, no dilatancy; 30% silt; 5-10% sand, vf grained; moist, mid stiff to stiff, pale olive (5Y 6/2); at 21.5 ft, color becomes bluish gray (5BG 5/1) 5/10Y 4/1); minor iron staining from 19.5-20.3 ft	

Remarks/Notes:
- Hand cleared to 5ft bgs; Location ~2.5' SSW from 3-MW-55
- Pilot boring
* Recovery greater than drive likely due to expansive soils
- Boring abandoned w/ Portland grout via 1" tremie pipe

ARCADIS
Infrastructure, environment, buildings

Boring/Well ID SS0035BI-3-MW-SS-pilot1 Page 2 of 2

Project/ Client: VAFB – USACE Site Address/ Location: VAFB – SS003 Job No.: 30028451

Depth (ft)	Drive Interval	Blows per 6"	Recovery (in.)	Time	Sample ID	Description Depth: Principal Components, (angularity, plasticity, dilatency); Minor Components, (angularity, plasticity, dilatency); Sorting, Moisture Content, Consistency/Density, Color (Munsel Chart), Additional Comments.	PID Reading
22						cont from previous page TD = 22 ft bgs	

Remarks/Notes:

ARCADIS Design & Consultancy for natural and built assets

SS003SB1-3-MW-55-pilot2

Boring/Well ID 3-MW-55B ~~sample~~

Project/ Client: USACE	Site Address/ Location: VAFB - SS003		Job No. 300284S1
Start Date: 5/10/2021 ~~09:45~~	End Date: 5/10/2021	Total Depth: 22'	Hole Diameter: 2.25"	Depth to 1st Water: 14.8'
Sampling Device: Coreburn	Length: 5'	Diameter: 2.25"	Sampling Interval: cont.	
Hammer Weight: NA	Hammer Drop: NA	Drilling Contractor: JHA		
Drilling Rig: 7822DT Geoprobe	Drilling Method: DPT	Drilling Fluid Used: None		
Driller: Chris Kia	Helper(s): Joe S.			
Logged By: Amanda Shallhorn	Reviewed By:	Date Reviewed:		

Depth (ft)	Drive Interval	Blows per 6"	Recovery (in.)	Time	Sample ID	Description Depth: Principal Components, (angularity, plasticity, dilatancy); Minor Components, (angularity, plasticity, dilatancy); Sorting, Moisture Content, Consistency/Density, Color (Munsel Chart), Additional Comments.	PID Reading
							NA
1	HAND Auger						
2							
3							
4						Begin Drilling/Sampling at 5ft bgs	
5			30"			5-9.5 ft Sand (SW): fine to coarse grained, subangular; 5% silt, 5% clay; poorly sorted, wet, loose, yellowish brown (10YR 5/6)	
10			60"			9.5-12.5 Sandy Clay (CH): med to high plasticity, no dilatancy, 30% sand, fine to med grained, subangular; 5% silt; moist, ~~med dense to dense~~ med stiff to stiff, grayish brown (10YR 5/2); minor black mottling from 10.8-11.0 ft	
						12.5-13.5 Clay (CL): low to med plasticity, no dilatancy; 5-10% silt; dry to moist, stiff, light olive gray (5Y 6/2); minor iron staining + mottling throughout	
						13.5-14.8 Silt (ML) no to low plasticity, no dilatancy; 5% sand, very fine grained, subangular; ~~wet~~ dry, med stiff to stiff, pale olive (5Y 6/3)	
15			48"			14.8-19.8 Sandy Silt (MH): med to high plast, slow dilatancy; 25-30% vf sand, subangular; 10-15% clay; moist to wet, soft, ~~light olive~~ pale olive (5Y 5/3); minor iron staining from 15-17 ft bgs	
				1030	** 16-18'		
20			*51"			19.8-22 Silty Clay (CH) med to high plasticity, no dilatancy; 25-30% ~~clay~~ silt; moist, stiff, pale olive (5Y 6/2); @ 21 ft, ~~color~~ color becomes bluish gray (GLEY 1 5/10GY)	

Remarks/Notes:

* Recovery greater than drive likely due to expansive soils and borehole collapse
- Hand cleared to 5ft bgs
** Sample collected from 16-18' bgs @ 1030 from stop out location SS003SB1-3-MW-55 - see separate log
~1 ft W of pilot 2
- Pilot boring advanced ~ 3ft W of 3-MW-55
- Boring abandoned w/ Portland grout via 1" tremmie pipe

ARCADIS
infrastructure, environment, buildings

Boring/Well ID SS003 SB1-3-MW-55-pilot2 Page 2 of 2

Project/ Client: VAFB USACE

Site Address/ Location: VAFB - SS003

Job No.: 30028451

Depth (ft)	Drive Interval	Blows per 6"	Recovery (in.)	Time	Sample ID	Description Depth: Principal Components, (angularity, plasticity, dilatency); Minor Components, (angularity, plasticity, dilatency); Sorting, Moisture Content, Consistency/Density, Color (Munsel Chart), Additional Comments.	PID Reading
22						cont from previous page TD = 22' bgs	

Remarks/Notes:

APPENDIX E APPLICATION OF 14C-TCE ASSAY TO SAMPLES FROM MIN-TRAPS AND GROUNDWATER

Application of ^{14}C-TCE Assay to Samples from Min-Traps and Groundwater

Objective

Arcadis subcontracted with Clemson University on ESTCP Project ER19-5190 to perform microcosm tests. The objective of this part of the project was to determine if mineral precipitates recovered from Min-traps catalyze abiotic degradation of TCE. A ^{14}C-TCE assay was used with samples of groundwater and Min-trap solids to measure degradation rate constants.

Materials and Methods

Experiments were performed with groundwater and Min-trap solids from two wells: MW-14 and MW-41. The samples were shipped on ice to Clemson University and stored at 4 °C until the microcosms were prepared. The groundwater was delivered in 1 L polypropylene bottles. One pillow from the Min-trap devices used in each well was delivered in vacuum sealed plastic container to minimize exposure of the solids to oxygen in air.

Microcosms were prepared in 160 mL serum bottles. The groundwater was filter sterilized by passage through a 0.2 µm filter and then transferred to an anaerobic chamber. The filter sterilized groundwater (FSGW) was stored overnight to allow it to equilibrate with the headspace in the anaerobic chamber (~95% N_2, 5% H_2). FSGW was added to triplicate serum bottles (100 mL/bottle) there were then capped with butyl rubber septa. A fourth serum bottle received the FSGW and the contents of one of the pillows, which was cut open after transfer to the anaerobic chamber; wet weights were recorded to determine the mass added (15.13 g for MW-14, 15.26 g for MW-41).

For MW-14, one of the 1 L bottles of groundwater contained a noticeable amount of a black precipitate (Figure 1a). To test the hypothesis that the principate consisted of reactive

minerals, a fifth microcosm was prepared by concentrating the precipitate and adding it to the microcosm. Concentration was accomplished by pouring off most of the groundwater (in the anaerobic chamber) without suspending the precipitate, shaking the bottle to suspend the precipitate in the remaining groundwater, and pouring the suspension into two 50 mL centrifuge vials. The vials were capped, removed from the chamber, and centrifuged at 5500 rpm for 5 minutes. The resulting pellet in one of the centrifuge tubes is shown in Figure 1b. The tubes were returned to the anaerobic chamber, the groundwater water was decanted without disrupting the pellet, and ~40 mL of FSGW was added to each tube. The tubes were shaken to suspend the precipitate and the contents were added to a serum bottle. Additional FSGW was added to reach a total volume of ~100 mL. The mass of solids present was 0.3627 g.

Once assembled, the capped serum bottles were moved from the anaerobic chamber and the headspace of each bottle was sparged with oxygen-free ultra-high purity N_2 to remove the H_2 from the anaerobic chamber. The bottles with then sealed with Teflon-faced butyl rubber septa and aluminum crimp caps.

Following procedures outlined by Mills et al. (2018), ^{14}C-TCE was separated from the acetonitrile and impurities in the stock solution on a gas chromatograph (HP 5890 Series II). An aliquot of the stock solution (80 µL) was injected (100 µL liquid syringe; VICI, Series C) onto a stainless-steel column (2.44 m x 3.175 mm) packed with 1% SP-1000 on 60/80 Carbopack-B (Supelco). The end of the column was connected to a four-port valve in the GC oven. The valve was positioned so that the flow exited the oven through stainless-steel tubing (1.59 mm) rather than routing to the flame ionization detector (FID). The tubing terminated with a threaded Luer-Lok™ fitting for attachment of a sterile needle, through which the purified ^{14}C-TCE was injected at a predetermined residence time into the serum bottles. Prior to injecting the purified ^{14}C-TCE,

24 mL of headspace was withdrawn with a 100 mL gas-tight syringe (SGE, removable Luer-Lok™) to compensate for the gas being added, so that the headspace of the serum bottles was not over pressurized.

High purity N_2 served as the carrier gas (33.5 ± 0.5 mL/min). The temperature program was 60°C for 2 min, increased at 20°C per min to 150°C, increased at 10°C to 200°C and held for 38.5 min. The elution time for TCE was 9.4-10.2 min. The average amount of ^{14}C-TCE added to the serum bottles was approximately 0.23 µCi (500,000 disintegrations per minute (dpm)). The extended hold time at 200 °C was designed to ensure that impurities did not accumulate on the column. To raise the initial concentration of TCE in the bottles, 25 µL of TCE saturated water was added. This resulted in an average time-zero TCE level of ~0.21 µmol per bottle, or an aqueous phase concentration ranging from 230 µg/L, when taking into account partitioning between the headspace and liquid phases.

Time zero measurements included counting the ^{14}C activity in a headspace sample (0.5 mL) and liquid sample (0.2 mL), making it possible to calculate the total amount of ^{14}C added to the bottles (0.23 µCi). An additional liquid sample (~5 mL) was withdrawn, filtered (0.2 µm), and evenly split into liquid scintillation vials. The pH of one of the samples was made acidic by addition of HCl (6 M) and the other was made basic by addition of NaOH (8 M). Both subsamples were sparged for 30 min with N_2 to remove unreacted ^{14}C-TCE. The activity in the basic sample was used to calculate the total amount of ^{14}C products. The difference between the activity in the basic and acidic samples was attributed to $^{14}CO_2$, while the balance of activity was attributed to soluble, non-strippable products. The bottles were incubated quiescently at room temperature (22-24 °C). At seven day intervals, additional liquid samples were removed and evaluated for ^{14}C products. The amount of ^{14}C products formed was normalized to a per milliliter basis using the

volume of the sample that was sparged. The activity present in the time zero sample for each microcosm was subtracted from each subsequent sample so that the results are presented as the net increase in ^{14}C products above time zero.

Beta radiation was detected and quantified using a Tri-Carb 2910 TR (PerkinElmer, Inc.), which is a low activity liquid scintillation counter. The counter utilizes Time-Resolved Liquid Scintillation Counting, which allowed for high sensitivity and low background counting of samples. When setting up sample runs, the quantification interface QuantaSmart™ was used. The assay parameters were set up for single DPM measurements. Acidic sparged samples, direct headspace samples, and liquid samples taken directly from the serum bottles were counted within 3 h of the sampling event. The sparged alkaline liquid samples were incubated quiescently (in the dark) for approximately 12 h before counting, to reduce chemiluminescence arising from the high pH of the 2.5 mL sample mixed with the LSC.

Pseudo first-order rate constants were calculated as described by Mills et al. (2018). Accumulation of ^{14}C products was used in a mass balance model for ^{14}C in the microcosms, based on the following equation:

$$\Delta C_{p,i} = C_{l,i-1,a} - C_{l,i-1,a}(e^{-k\,\Delta t}) \qquad (1)$$

where $\Delta C_{p,i}$ = the increase in ^{14}C products over the i^{th} interval between sampling events (i = 0 to a maximum of 7); $C_{l,i,a}$ = concentration of ^{14}C products in the aqueous phase after removing the liquid and headspace samples, i.e., the beginning of the i^{th} interval; and Δt is the time between sampling events. It was assumed that Δ_i will be zero at i = 0 (i.e., there is no accumulation of ^{14}C products at time-zero). The accumulated ^{14}C products used to calculate the rate constant was quantified by the amount of activity present in alkaline sparged sample, which includes both $^{14}CO_2$ and ^{14}C-NSR (converted to dpm/mL).

For the triplicate FSGW microcosms, MATLAB was used to determine rate constants by minimizing the sum of squared errors between the ^{14}C product prediction and the ^{14}C product measurements over time. Triplicate bottles were fitted simultaneously to obtain a single value for *k* (i.e., as opposed to determining *k* for each bottle and then taking the average). The value of *k* was iterated in the MATLAB script until a minimum value was obtained for the sums of squares of error determined as the squared difference between the experimental and estimated ^{14}C product values. The MATLAB function that was used for the iterative approach is *lsqcurvefit*, which is a nonlinear curve-fitting solver function that uses the trust-region-reflective algorithm. Confidence intervals (95%) were determined using the MATLAB function *nlparci* with the Jacobian matrix and residual vector determined from *lsqcurvefit.* For the treatments with a single microcosm (i.e., bottles with the Min-trap pillows added and the MW-14 bottle with precipitate added), the rate constants were determined in Excel using the solver function to minimize the sums of squares of error; confidence intervals are not reported for these results.

Results and Discussion

Accumulation of ^{14}C products from the MW-14 microcosm with the contents of the Min-trap pillow present followed a consistent linear trend through 42 days of monitoring (Figure 2a). Results for the microcosm with the precipitate recovered from MW-14 groundwater followed a similar trend. In contrast, ^{14}C products in the triplicate control microcosms with only FSGW present were lower. None of the results from day 7 are shown because they were several fold higher than all subsequent samples and were considered to be outliers.

The MW-41 microcosm with the Min-trap pillow present followed a similar trend (Figure 2b), although the magnitude of accumulation of products was not as high as in the Min-trap microcosm for MW-14. The triplicate FSGW controls for MW-41 were similarly low in ^{14}C

product accumulation to the microcosms for MW-14. As with the MW-14 microcosms, the data from day 7 were considered to be outliers.

At the end of the incubation period, $^{14}CO_2$ comprised 41% of the ^{14}C products for the MW-14 Mintrap microcosm, 35% for the MW-14 precipitate microcosm, and 43% for the MW-41 Mintrap microcosm. The balance of the ^{14}C products were therefore soluble and non-strippable compounds, which have been shown in similar studies to include compounds such as glycolate, acetate, and formate (Darlington et al., 2008), indicating that the ^{14}C products are non-hazardous.

Pseudo-first order rate constants are shown in Figure 3. Results for the Min-trap pillow and precipitate from the MW-14 location are ~70% higher than the rate constant for the Min-trap pillow from the MW-41 location. The corresponding half-lives range from 5.1 to 8.6 years. For both locations, the rate constants for the FSGW controls are not statistically different from zero, as indicated by the magnitude of the 95% confidence intervals.

These results confirm that the Min-trap solids include minerals that catalyze abiotic degradation of TCE. The mineral precipitate recovered from the sample of groundwater from MW-14 was also reactive. It is not possible to make a direct comparison of the rate constants since the mass of precipitate on the Min-trap sample was not determined. Nevertheless, both samples generated ^{14}C degradation products well in excess of what was generated in the FSGW controls.

An important next step for the ^{14}C-TCE assay as applied to Min-trap samples is to relate the laboratory results to in situ abiotic degradation activity. This will require normalizing the rate constants to the mass of reactive minerals and volume of groundwater present in the microcosms. A rough estimate of this normalized value can be made for the MW-14 microcosm with the precipitate present (0.3627 g). The volume of water in the microcosm varied over time due to sampling. Based on the volume present at the midpoint of the incubation (i.e., 82.5 mL), the

normalized rate constant is 0.030 L/g·yr. If the concentration of reactive minerals is known in situ, it would be possible to use the microcosm normalized rate constant to estimate the rate constant for in situ conditions. That rate constant could be used in groundwater models to predict the time needed to reach a remediation goal.

For future studies, it will be essential to replicate the Min-trap microcosms and to increase the amount of Min-trap solids added to each serum bottle. That will facilitate a more robust separation in the amount of ^{14}C products recovered compared to the FSGW controls. Use of triplicates will make it possible to determine confidence intervals for the rate constants, which are needed to assess the degree of variability.

References

Darlington, R., Lehmicke, L., Andrachek, R.G. and Freedman, D.L. (2008) Biotic and abiotic anaerobic transformations of trichloroethene and *cis*-1,2-dichloroethene in fractured sandstone. *Environ. Sci. Technol*. **42**(12), 4323-4330.

Mills IV, J.C., Wilson, J.T., Wilson, B.H., Wiedemeier, T.H. and Freedman, D.L. (2018) Quantification of TCE co-oxidation in groundwater using a ^{14}C–Assay. *Groundwater Monitoring & Remediation* **38**(2), 57-67.

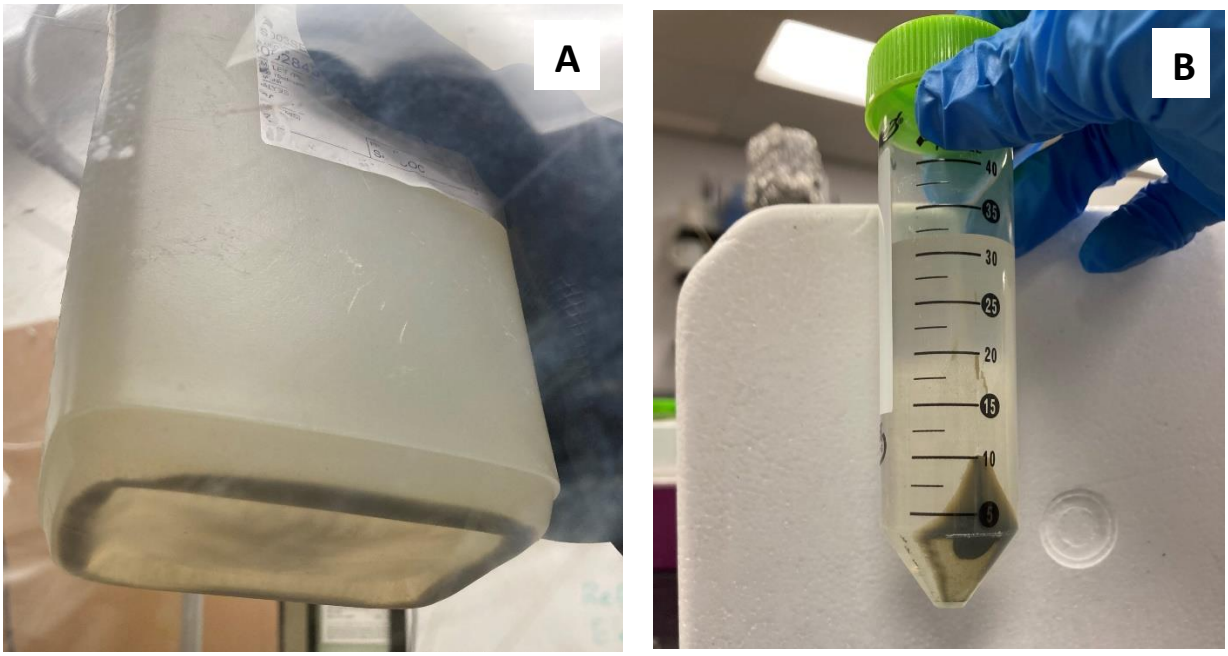


Figure 1. A) Photo of the MW-14 groundwater sample that contained a noticeable amount of black precipitate; and B) photo of the 50 mL centrifuge tube with a pellet of the concentrated precipitate.

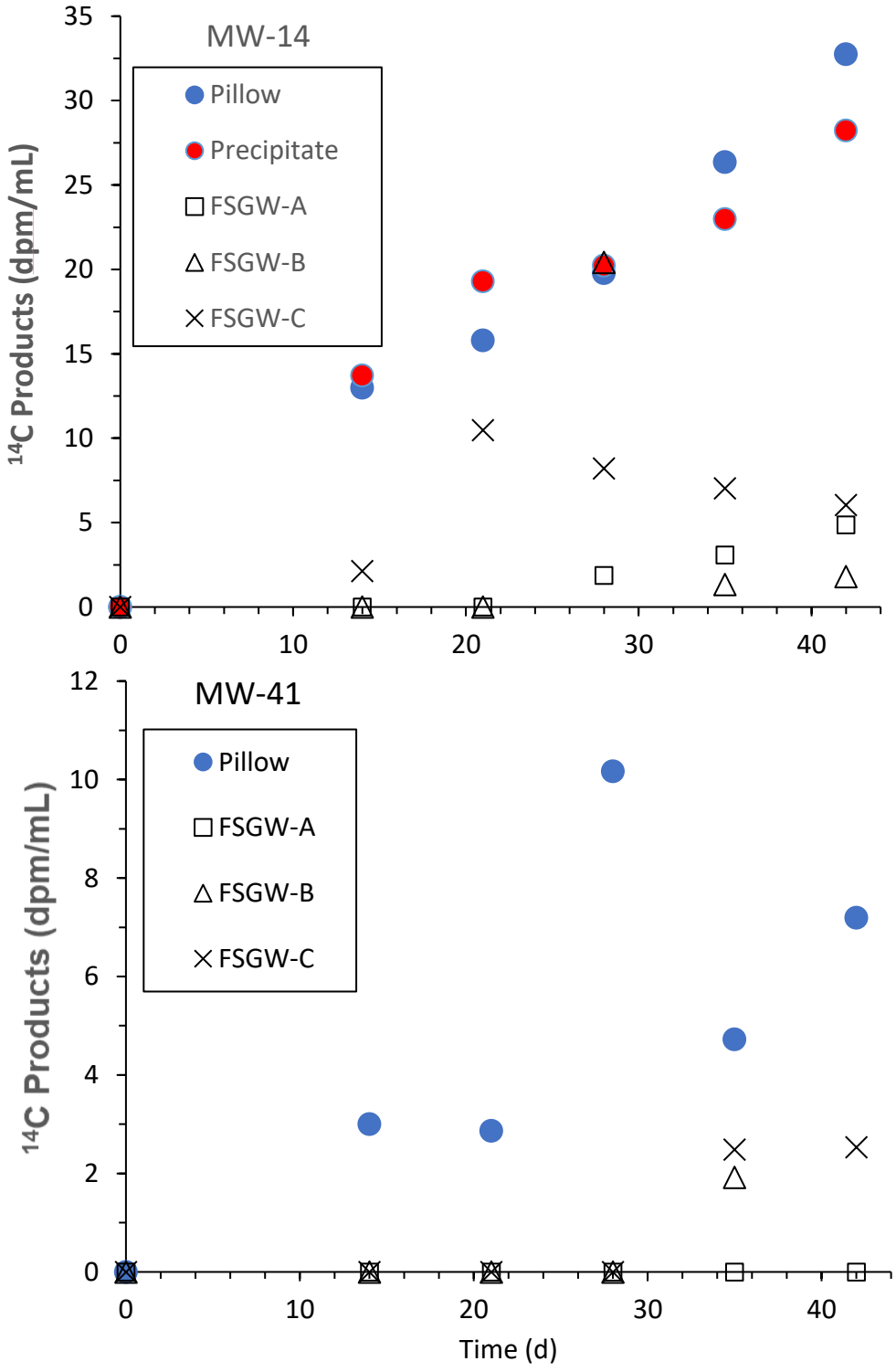


Figure 2. Accumulation of ^{14}C products formed from abiotic degradation of ^{14}C-TCE in microcosms prepared with A) FSGW, a Min-trap pillow, and precipitate from MW-14 and B) FSGW and a Min-trap pillow from MW-41. Results from day 7 were considered to be outliers and are not shown.

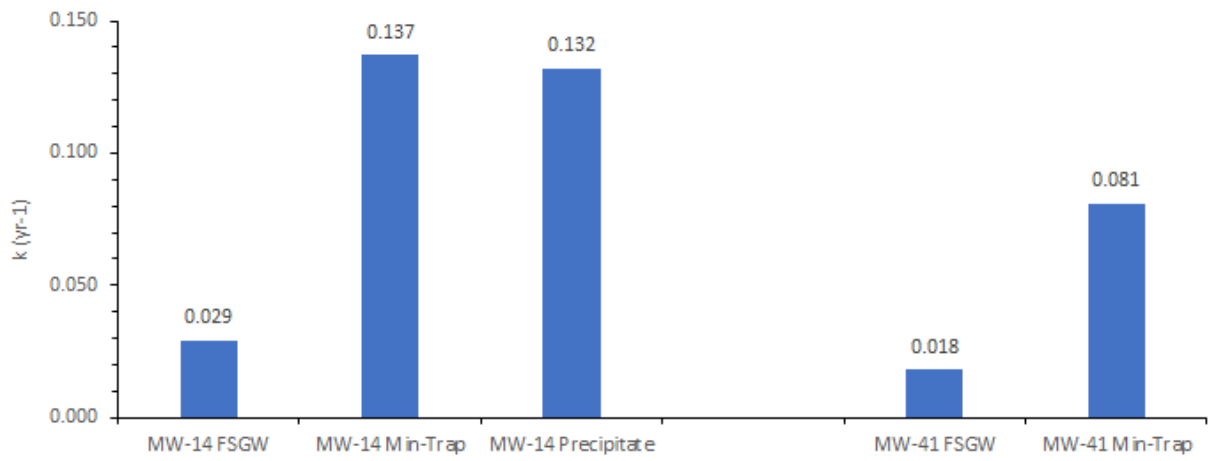


Figure 3. First order rate constants determined from MW-14 and MW-41 microcosms based on the rate of accumulation of ^{14}C degradation products.