GROUNDWATER MONITORING PROGRAM
2018 QUARTER TWO STATUS REPORT
FOR
REMEDIAL ACTION AT
THE DEFENSE NATIONAL STOCKPILE CENTER SCOTIA DEPOT
GLENVILLE, NEW YORK

Prepared For:



U.S. Army Corps of Engineers

Prepared By:

AECOM

AECOM Technical Services

October 2018

GROUNDWATER MONITORING PROGRAM
2018 QUARTER TWO STATUS REPORT

FOR

REMEDIAL ACTION AT
THE DEFENSE NATIONAL STOCKPILE CENTER SCOTIA DEPOT
GLENVILLE, NEW YORK

Prepared For:

U.S. Army Corp of Engineers

Prepared By:

AECOM

Contract No. W912DY-09-D-0059

Task Order No. 0010

October 2018

Table of Contents

1 INTRODUCTION 1-1

1.1 Site Description 1-1

1.2 Site History 1-1

1.2.1 Summary of Previous Investigations 1-2

1.2.2 Pre-Design Groundwater Investigation – 2013 1-3

1.2.3 Baseline Groundwater Investigation 1-3

1.3 PRB Design Summary 1-4

1.4 Remedial Action Implementation 1-4

2 QUARTERLY GROUNDWATER MONITORING PROGRAM 2-1

2.1 Sample Collection Methods 2-1

3 RESULTS 3-1

3.1 Hydrogeologic Results 3-1

3.2 Groundwater MNA Parameter Results 3-2

3.3 Groundwater VOC results 3-3

4 SUMMARY AND CONCLUSIONS 4-1

5 REFERENCES 5-1

List of Figures

Figure 1-1 Site Location Map

Figure 1-2 Site Layout Map

Figure 2-1A Compliance Wells and PRB Profile – June 2018

Figure 2-1B Groundwater Profile Section B-B' – June 2018

Figure 3-1 Potentiometric Site Map –June 2018

Figure 3-2 Groundwater Results – Quarterly Monitoring Locations – June2018

Figure 3-3 Site-Wide Groundwater Exceedance Results – June 2018

Figure 3-4 TCE Isopach Concentration Map – June 2018

List of Tables

Table 2-1 Monitoring Well Sampling Schedule and Guidelines

Table 3-1 Groundwater Elevation Data – June 2018

Table 3-2 Compliance Well Pairs Groundwater Sample Results -

Table 3-3 June2018 Annual Site-Wide Groundwater Sample Results

List of Appendices

Appendix A Groundwater Sample Collection Field Forms

Appendix B Field Calibration Forms

Appendix C Hydraulic Gradient and Velocity Calculations

Appendix D Full Laboratory Analytical Results

Appendix E AECOM Data Usability Summary Report (DUSR)

Appendix F Groundwater Concentration Trend Plots

1 INTRODUCTION

This report has been prepared by AECOM on behalf of the United States Army Corps of Engineers (USACE) and the United States General Services Administration (GSA) to document the groundwater monitoring activities performed at the Former Scotia Navy Depot (FSND) (Site) for the first quarter of 2018 (March 16, 2018, through June 22, 2018). This report presents the results of the seventh groundwater sampling event after the completion of the construction of the zero valent iron (ZVI) permeable reactive barrier (PRB) which was installed across the volatile organic compound (VOC) plume to remediate groundwater at the Site. This groundwater sampling event was a Site-wide sampling event which included collection of groundwater samples from 31 monitoring wells. Installation of the PRB was completed in from February 2016 to December 2016. The Site is adjacent to the north side of New York State (NYS) Route 5 (Amsterdam Road) in the Town of Glenville, Schenectady County, New York. A Site location map is provided in Figure 1-1.

1.1 Site Description

The Site and adjacent properties are zoned for commercial use. Residential properties are located to the south between Amsterdam Road and the Mohawk River. The Mohawk River is located approximately 1,500 feet west-southwest of the Site and represents the major drainage feature in Schenectady County. The water table beneath the Site is approximately 65 feet below ground surface (bgs), and groundwater beneath the Site flows from northeast to southwest toward the Mohawk River.

The Site overlies a United States Environmental Protection Agency (US EPA) designated Sole Source Aquifer referred to as the Schenectady or Great Flats Aquifer system, which is adjacent to and extends beneath the Mohawk River over a distance of approximately 12 miles in Schenectady County. Relative to a series of four aquifer protection zones established to protect five municipal water supplies relying on the aquifer system, the Site lies in Zone III or the General Aquifer Recharge Area. The Site is located approximately 1,500 feet southwest of the Village of Scotia well field and approximately 1.25 miles north of the Town of Rotterdam and City of Schenectady well fields.

Portions of the original Scotia Naval Depot have been subdivided and sold since 1972 by the United States Government. The Site now consists of several large privately held parcels in addition to a portion of land still administered by the GSA. The private parcels contain a variety of industrial tenants; while the GSA leases its remaining portion to the Defense Logistics Agency/Defense National Stockpile Center and the Navy.

1.2 Site History

The Scotia Depot was built in 1942 and 1943 and was commissioned as a United States Navy facility on March 30, 1943. It served as a storage and supply depot for naval forces along the Atlantic coast and Europe, and as a storage and distribution point for National Stockpile materials. On January 1, 1960, the Navy turned the facility over to the GSA. During the period between early 1966 and approximately 1973, the USACE/Army Material Command (AMC) leased buildings from the Navy for the fabrication and storage of vehicles as well as other

military equipment. Additionally, between 1967 and 1969, the GSA and the Navy leased to the United States Army/Defense Supply Agency, Buildings 202 and 203. The agreement indicates these buildings were used for the preservation and rail loading of trucks; and storage of trucks and vehicles.

1.2.1 Summary of Previous Investigations

In the late 1980s, trichloroethene (TCE) was detected at low-level concentrations of less than 1 microgram per liter (µg/L) in the Town of Rotterdam and City of Schenectady well fields. In an effort to determine the potential source(s) of the TCE, the New York State Department of Health (NYSDOH) performed sampling of private water supply wells in the area during 1991. The private water supply sampling included residences located on NYS Route 5 in the Town of Glenville hydraulically downgradient of the Defense National Stockpile Center Scotia Depot Site. VOCs, including TCE, 1,1,1-trichloroethane (1,1,1-TCA), and tetrachloroethene (PCE), were detected in groundwater collected in some of these residential wells. The sampling results were consistent with the known groundwater contamination concentrations at the Defense National Stockpile Center Scotia Depot Site, including TCE which was detected in the NYS Route 5 residential well water samples at concentrations up to 320 µg/L. Following a recommendation by the NYSDOH to connect to public water, the homes on NYS Route 5 were subsequently connected to public water provided by the Town of Glenville. Although the drinking water standard was never exceeded in the City of Schenectady and the Town of Rotterdam municipal water supply wells, increased groundwater quality monitoring was initiated following the identification of the contamination.

Subsequent to the NYSDOH residential groundwater sampling, six subsurface investigations were completed to identify the possible source of TCE in the residential wells and to delineate the extent of the TCE groundwater plume. The investigations were completed between 1995 and 2007 and focused on the assemblage of properties comprising the former 337-acre Defense National Stockpile Center Scotia Depot. The New York State Department of Environmental Conservation (NYSDEC) 2007 Expanded Site Investigation (ESI) (NYSDEC, 2007) provides details on each of these investigations. Investigation data indicated that TCE disposal may have also occurred in the northeast corner of the 401 sub-block and the area near the north corner of the 403 sub-block.

Based on these investigations, a Record of Decision (ROD) specifying a groundwater remedy was approved by the NYSDEC in March 2010 (NYSDEC, 2010). The ROD specified a remedial action for the groundwater plume which included treatment of the plume through the installation of a zero valent iron (ZVI) PRB. During this time investigations were also conducted in relation to a carbon tetrachloride plume that was identified as a source for potential soil vapor intrusion. In addition to the groundwater remedy, the ROD also identified the need for soil vapor intrusion mitigation at the building 201 sub-block. Details on the installation and monitoring of the SVI portion of the remedy are provided in the Final Engineering Report (FER) (AECOM, 2017a). A Site Layout Map is provided in Figure 1-2.

1.2.2 Pre-Design Groundwater Investigation – 2013

A pre-design investigation (PDI) was completed by Stone Environmental in 2013 to verify the location and dimensions of the TCE plume to better estimate the appropriate location and depth of the PRB. The PDI was completed as a component of the ROD selected remedy to aid in the PRB design. The pre-design investigation included:

- Baseline groundwater sampling of 24 existing onsite monitoring wells
- Synoptic measurement of groundwater elevations in 35 on-site and off-site monitoring wells
- Vertical groundwater profile of VOC plume at 16 locations (WP-01 to WP-16)
- Installation and development of four on-site monitoring wells (MW-24 through MW-27)
- Hydraulic conductivity measurements
- Geotechnical soil sampling (laboratory sieve, bulk density, and effective porosity analyses)
- ZVI treatability study (bench-scale column test) using Site soil and groundwater

The results of the PDI indicated that the plume location had shifted to the south/southeast from the estimated plume delineation shown in the 2010 ROD (see Figure 3 from the ROD and Figures 6 and 10 from Final PDI Report) (Stone, 2013). The PDI also delineated the vertical and horizontal limits of the plume across a transect of groundwater profile locations, which had not been well defined in previous investigations. The results of the ZVI treatability study indicated that ZVI would be effective in remediating the TCE plume at the detected maximum concentrations and Site-specific geochemical conditions. The PDI evaluated a preliminary PRB design approximately 850-feet long centered on the highest concentration axis of the TCE plume and extending to estimated lateral limits of the plume based on the results of the vertical groundwater profile locations. Subsequent evaluation of the data to maximize effectiveness and efficiency of the remedial design suggested a 700-feet long deep section centered on the TCE plume with a shallower 250-feet long section to treat lower TCE concentrations would be effective at mitigating the groundwater contamination.

1.2.3 Baseline Groundwater Investigation

As part of the remedial design investigation work plan (RDIWP) (AECOM, 2015) various field activities were conducted during the fall of 2015 in order to gather data and information needed to complete the final PRB design. The main components of the remedial design investigation (RDI) field activities that related to the PRB design included:

- Installation and development of four compliance well pairs (MW-28 to MW-35) and one additional monitoring well (MW-36) to confirm upgradient edge of groundwater plume

- Collection of 33 baseline groundwater samples
- Performance of a confirmatory ZVI bench scale test
- Performance of aquifer tests including slug testing and hydraulic pulse interference testing (HPIT)

Detailed methods and results of these field activities were presented in the Remedial Action Work Plan (PRB-RAWP) (AECOM, 2016) and the 2015 RDI Work Summary Memo presented in Appendix A of the PRB-RAWP.

1.3 PRB Design Summary

The remedial investigation activities at the Site indicated that variable hydraulic conductivity and hydraulic gradient, and therefore groundwater velocity, conditions may exist at the Site. Therefore, various design cases were analyzed within the range of the measured values to determine the optimum design for the PRB. Three design cases in particular were outlined in the (PRB-RAWP) (AECOM, 2016). These design cases were based on average values from the slug test data and HPIT data from the 2015 RDI activities and historic data from the Stone PDI (Stone, 2013). The three design cases used an average value of 0.004 ft/ft for the hydraulic gradient and varied the hydraulic conductivity from 15.66 ft/day to 193.8 ft/day. This variability of hydraulic conductivity results in a range of groundwater velocity at the Site from 0.128 ft/day to 2.83 ft/day. GeoSierra Environmental, Inc. (GeoSierra), the PRB installation subcontractor, performed a sensitivity analysis based on these design cases and the design of the PRB was chosen based on design scenarios that reflected a conservative approach. A full description of the PRB design including details of each design case is presented in the PRB-RAWP (AECOM, 2016).

1.4 Remedial Action Implementation

In accordance with the ROD for the remedial action at the FSND, a ZVI PRB was installed in order to mitigate the impacted groundwater plume at the Site. AECOM, and its subcontractor GeoSierra, performed the installation of the PRB over the course of 10 months in 2016. The design and installation procedures of the PRB are outlined in the PRB-RAWP (AECOM, 2016). The main components of PRB installation were as follows:

- Installation of 77 injection wells
- Installation of 31 Resistivity strings
- Placement of ZVI into the formation via injection wells
- Post PRB installation HPIT testing

The installation of the ZVI PRB was successfully completed in November of 2016. Details of the PRB construction activities of the PRB are provided in the FER (AECOM, 2017a) for the Site.

2 QUARTERLY GROUNDWATER MONITORING PROGRAM

Site-wide groundwater monitoring is conducted on an annual basis and includes groundwater monitoring at 36 locations. The June 2018 monitoring event was the second Site-wide sampling event since the completion of the PRB installation. Monitoring well locations are shown on Figure 1-2 and are described in Table 2-1. Table 2-1 also provides the monitoring well sampling schedule for quarterly and annually sampling and analytical information for the groundwater monitoring program. The groundwater monitoring program will be carried out in accordance with the schedule and sampling protocol outlined in the Draft Site Management Plan (SMP) (AECOM, 2017b).

Three monitoring wells included in the annual sampling program were not sampled during the June 2018 event. Monitoring wells MW-8 and MW-11 had damaged casings rendering them unable to be sampled, and MW-12 was not located, and likely paved over. Therefore, the total number of wells that were sampled during the June 2018 event was 31. MW-8, MW-11 and MW-12 are scheduled to be repaired/replaced as needed during the fourth quarter of 2018.

The eight compliance monitoring wells (MW-28 through MW-35) were installed in pairs so that groundwater quality could be monitored directly upgradient and directly downgradient of the PRB. The four monitoring well pairs are installed 20 feet apart on opposite sides of the wall, one being upgradient and one being downgradient, with corresponding screen depths. Figure 2-1 provides a profile of the compliance monitoring wells showing the screened interval in relation to the PRB. Results from the groundwater monitoring program will be used to evaluate the effectiveness of the remedy at decreasing chlorinated VOC concentrations in groundwater and preventing the migration of contaminated groundwater off-site. The compliance well pairs, in addition to MW-24 (downgradient), MW-26 (downgradient), MW-15 (upgradient) and MW-16 (outside of plume), will be sampled quarterly for the first two years (eight quarters) then annually thereafter. The first quarterly sampling event was conducted in December 2016.

2.1 Sample Collection Methods

Prior to sample collection, depth to water measurements were collected with an electronic water level meter from all accessible wells on Site. Depth to water measurements were taken to the hundredth of a foot from a designated measuring point on the well casing.

The groundwater sampling event was performed in accordance with EPA's low stress, often referred to as low-flow, sampling technique (Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures, EPA/540/S-95/504) (EPA, 2010) and is discussed below.

A bladder pump was used to purge the monitoring wells with the pump intake set at the midpoint of the saturated screened interval. During purging, the pump was operated at a flow rate of approximately 100 to 500 milliliters per minute (mL/min) and water levels were monitored to ensure that the pumping rate caused minimal/no drawdown. Dedicated tubing for each monitoring well was used for groundwater sample collection. Field parameters were recorded on the Well Sampling Forms every five minutes during purging, including:

- Purge rate (mL/min)
- Depth to water (0.01 ft)
- Temperature (degrees Celsius)
- pH
- Specific conductance (millisiemens per centimeter [ms/cm])
- Dissolved Oxygen (DO) (milligrams per liter [mg/L])
- Oxidation-Reduction Potential (ORP) (millivolts [mV])
- Turbidity (NTU)

A flow-through cell was used to obtain temperature, pH, specific conductance, DO, and ORP. Turbidity will be measured using a separate instrument. Purging was considered complete when the indicator parameters have stabilized over three consecutive readings. Stabilization parameters include the following:

- Drawdown: less than 0.3 ft drawdown during purging
- pH: ± 0.1 standard unit
- Specific Conductivity: ± 3%
- DO: ± 10 % (mg/L) for values greater than 0.5 mg/L or 3 readings < 0.5 mg/L
- ORP: ±10 mV
- Turbidity: < 5 NTU or ± 10% for readings >5 NTU

Groundwater sample collection forms with the field parameter readings for each monitoring well are included as Appendix A. Sampling instruments were calibrated daily prior to starting sampling activities, or as needed throughout the day. A log of the field equipment calibration records is provided in Appendix B.

Prior to sample collection, the flow-through cell was disconnected from the dedicated sample tubing and the sample was collected directly from the tubing into the laboratory supplied sample containers. The target flow rate during sample collection was approximately 100 mL/min and sample collection was completed within a single bladder pulse for VOC analysis. Once sampling was complete, the purge water was placed in a 55-gallon drum the conclusion of the sampling event. More detailed procedures for sample collection and handling and waste handling, are included in Appendix H of the SMP (AECOM, 2017b). Appendix G of the SMP includes the

analytical QAPP for the site management activities. Appendix I of the SMP includes the HASP for the site management activities.

Groundwater samples were packaged on ice and delivered to ALS Laboratory daily via courier during the sample collection timeframe. Standard chain of custody procedures were used for sample transport. In total, 31 groundwater samples were collected and analyzed for targeted VOCs (EPA method 8260C) and monitored natural attenuation (MNA) parameters including TOC (SM 5310B), alkalinity (SM 2320B), chloride, nitrate, sulfate (EPA Method 300.0), and dissolved gases (methane, ethane, and ethene; Method RSK 175). During this quarter groundwater was also analyzed for acetylene since this is a unique byproduct of abiotic TCE reduction and could serve as an indicator for CVOC degradation activity.

3 RESULTS

3.1 Hydrogeologic Results

The groundwater elevations for the Site were determined based on the initial depth to groundwater measurements that were taken prior to sample collection. Table 3-1 shows the groundwater elevation data for the June 2018 sampling event and compares it to the December 2015 baseline sampling event and past sampling event levels. A potentiometric Site map indicating the overburden, groundwater elevation and direction of groundwater flow during the June 2018 sampling event is included as Figure 3-1. Observed general groundwater flow direction in June 2018 was from northeast to southwest. Groundwater elevations in June 2018 were slightly different than past sampling events and there appears to be some slight depression in the area of MW-28 and MW-29. There appears to be a flat gradient during some sampling events including the June 2018 event.

Based on observed trends during the past sampling events it appears that the groundwater elevation at the Site is subject to seasonal variability. The December and March sampling events exhibit lower groundwater elevations than the June and September sampling events. The similarities between the winter events and summer events indicate a seasonal groundwater level trend. Groundwater elevation data for the June 2018 event indicate that groundwater levels are currently equal to top of the PRB wall at the north most monitoring well pairs along the PRB. Meanwhile, the groundwater elevation levels are slightly above the top of the PRB for the south most monitoring well pairs. The current potentiometric surface in relation to the PRB is shown in profile on Figure 2-1A and in relation to along the axis of the estimate plume in Figure 2-1B. AECOM has reviewed the vertical COC groundwater concentration data from the 2013 PDI and found that there were no detected COCs at elevations above the wall in this area. AECOM does not believe that groundwater being slightly above the top of the wall in this area is cause for concern.

The hydraulic gradient is change in hydraulic head, or water level, per unit distance. The average hydraulic gradient at the Site in the vicinity of the PRB, estimated based on the June 2018 hydrogeologic conditions, was determined to be 0.0028 ft/ft. The June 2018 hydraulic gradient is consistent with the past three quarterly sampling events where the hydraulic gradient was 0.0031 ft/ft in March 2018, 0.0037ft/ft in June 2017, and 0.0028 ft/ft in September 2017. The groundwater seepage velocity is the rate of solute transport through the open pore space in the soil. Based on the June 2018 hydraulic gradient of 0.0028 ft/ft and the range of hydraulic conductivities evaluated for the PRB design (15.66 ft/day to 193.8 ft/day) groundwater seepage velocity at the Site could vary between approximately 0.11 ft/day and 1.36 ft/day. The range of estimated groundwater seepage velocities based on the June 2018 Site conditions (0.11 ft/day-1.36 ft/day) is comparable to the range of estimated groundwater velocities used for the PRB design (0.128 ft/day-2.83 ft/day). Calculations for hydraulic gradient and velocity estimates are included in Appendix C.

The drum of purge water from the June 2018 sampling event was removed from the Site on June 22, 2018 and its contents properly disposed of by the environmental waste services contractor.

3.2 Groundwater MNA Parameter Results

Results of groundwater MNA parameters obtained from the baseline sampling event through the June 2018 quarterly sampling event for the PRB monitoring compliance wells are presented in Table 3-2 and Table 3-3. MNA parameters were compared between compliance well pairs. In general, specific conductivity values are significantly higher throughout all the compliance well pairs when compared to past sampling events.

During previous quarterly sampling events no significant changes have been observed in DO and ORP concentrations and measurements were variable with some well pairs showing an increase and some pairs showing a decrease. DO measurements during the June 2018 event were more variable and some monitoring wells showed a significant increase or decrease in DO since the past monitoring event. ORP levels also showed decreases between each upgradient and downgradient pair. ORP levels decreased significantly from upgradient to downgradient at well pairs MW-33/32 and MW-34/35. These conditions are expected downgradient of the PRB indicating reducing conditions as the groundwater passes through the PRB; however, we expect to see ORP levels in the range of the -300 to -400 mV e for the Beta elimination CVOC reduction to occur. However, it should be noted that there were some increases in DO concentrations noted during the past two sampling events suggesting that anaerobic conditions may not be sustained.

The June 2018 groundwater results showed a general increase in methane, ethane, and ethene in most downgradient compliance monitoring wells. For methane, there was a particular increase in downgradient monitoring wells MW-28 and MW-30, and. The largest increase in methane, was seen in compliance monitoring well pairs in the middle and northern end of the PRB. The June 2018 event was the first time that an increase in methane was observed in the northern end of the wall. Initially methane, ethane and ethene concentrations increased from the breakdown of the ZVI carrier fluids (guar). The continued presence of ethane and ethene in downgradient well pairs is indicative of the β-elimination abiotic reaction of CVOCs with the PRB. These compounds, along with acetylene, are final products from the interaction of the ZVI and CVOCs. The June 2018 results did not indicate the presence of acetylene, however the detection of acetylene is very rare since it is extremely volatile, so the lack of detection was not very surprising and is not a cause for concern. To date nitrate and sulfate levels have been variable since the 2015 baseline sampling event including for the June 2018 event. Some downgradient wells showed an increase in nitrate and sulfate from their upgradient counterparts, while others showed a decrease. Nitrate and sulfate concentrations are expected to decrease from upgradient to downgradient wells as this would further indicate that bioactivity is occurring.

Overall the MNA data does not show consistency in the well pairs throughout the expanse of the PRB. The well pair MW-28/MW-29 is screened in the more transmissive upper sand and gravel and does not appear to show the same MNA parameter behavior as the other well pairs. The June 2018 monitoring data may indicate that the groundwater conditions at the site are shifting away from the anaerobic conditions that were created in the wake of the PRB wall installation, to conditions that indicate that abiotic reductive dechlorination reactions are occurring in the middle

of the wall. AECOM will continue to monitoring MNA parameters during subsequent sampling events to confirm this trend.

3.3 Groundwater VOC results

The VOC results from the June 2018 quarterly sampling event are presented in Table 3-2 and Table 3-3. This groundwater sampling event included collection of 33 groundwater samples. Figure 3-2 provides a summary of the groundwater VOC results for the monitoring well compliance pairs, and quarterly wells that exceed the NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (GV) found in the Technical and Operational Guidance Series (TOGS) 1.1.1 (NYSDEC, 1998) and compares the June 2018 sampling event results to the historic sampling event results. Figure 3-3 provides a summary of the groundwater VOC exceedances for the Site-wide sampling event. Figure 3-4 is a TCE isoconcentration map based on the Site-wide June 2018 results.

Full analytical reports are included in Appendix D.

The laboratory data was validated by an AECOM chemist and a full data usability summary report (DUSR) was prepared. The DUSR, included in Appendix E, indicated that all data points were usable and no data points were rejected.

A narrative summary of the results is presented below:

- TCE, the primary constituent of concern, was detected in all 8 of the compliance wells, all of which were above the AWQS of 5 µg/L. TCE was also detected at varying levels in many of the other wells that were sampled. At this time there does not seem to be a clear pattern in the results.

- For the June 2018 event all downgradient wells of the compliance well monitoring pairs showed lower levels of TCE concentrations than their upgradient counterparts. The downgradient TCE concentrations ranged from 8.1 µg/L (MW-30) to 248 µg/L (MW-29). These reduced downgradient concentrations could be due to either groundwater interaction with the ZVI or enhanced reductive dechlorination (ERD).

- In general detected concentrations of TCE, as well as other CVOCs, for the June 2018 sampling event were consistent with previous groundwater sample results. However, as noted in the preceding bullet, there appears to be some reduction in TCE concentrations downgradient of the PRB based on the results of the compliance well pairs.

- Wells with detectable levels of tetrachloroethene (PCE) were GEP-2, GEP-3, MW-14, MW-15, MW-22, MW-28, and MW-29. The concentration of PCE measured in MW-14, MW-22, MW-28 and MW-29 were above the AWGS of 5 µg/L and in MW-15 was below the AWQS.

Graphs showing concentrations of CVOCS were created for the monitoring well compliance pairs to monitor groundwater concentration trends. Data shown includes the baseline sampling event in December 2015 through the most recent sampling event in June 2018. These trend plots are included in Appendix F as Figures F-1 through F-4. To date no definitive trends have been observed as groundwater concentrations have been generally consistent with the baseline sampling event.

4 SUMMARY AND CONCLUSIONS

The June 2018 groundwater monitoring event was the seventh quarterly groundwater sampling event. Quarterly groundwater sampling will continue on the selected subset of monitoring wells listed in Table 2-1. The next quarterly sampling event will be conducted in the third quarter of 2018. Details regarding the groundwater sampling program for the Site are included in the SMP (AECOM 2017b). To help with analyzing groundwater and subsurface trends dissolved hydrogen, dissolved iron and total iron will be added to the list of analyses for MNA parameters at the quarterly sampling locations.

The laboratory results suggest that concentrations of dissolved VOCs in Site groundwater are currently similar to the baseline concentrations before installation of the ZVI PRB and no significant changes has been observed to date. Recent increased methane and ethane concentrations at some downgradient monitoring wells, particularly in the center of the wall, indicate the presence of anaerobic conditions within the subsurface in the vicinity of the PRB. While there had been increased TOC concentrations at the MW compliance pairs noted in the previous sampling events it appears TOC has moved toward baseline conditions. Results from the future sampling rounds will help to verify this trend. Since the installation of the wall downgradient parameters including the presence of ethane, ethene, and methane suggest that the abiotic degradation of TCE may be taking place as impacted groundwater flows through the PRB in most well pairs. However, more recent data indicates that a shift from biotic reductive dechlorination to abiotic reductive dechlorination conditions and reactions may be occurring in the subsurface. The data from the MW-28/MW-29 well pair at the northern end of the wall indicates that the wall may be less effective in the more transmissive sand and gravel or groundwater flow conditions are not optimal in this area of the Site.

Current Site groundwater flow conditions indicate that the on average the hydraulic gradient is consistent with the design. The PRB was designed based on a hydraulic gradient of 0.004 ft/ft which is similar to the estimated hydraulic gradient of 0.0028 ft/ft measured in June 2018. There appears to be a seasonal variability in groundwater elevation and hydraulic gradient which will be better understood as the quarterly monitoring continues. The gradient at the site is slight and at times there appears to be a reverse gradient in the MW-28/MW-29 well pair at the northern edge of the wall. In actuality this is likely an area with a flat gradient and the minor vairability in groundwater levels between the well pair is due to margin of error in the survey of the well casing or with the field measurments. Historic data indicates a range of gradients from 0.001 to 0.006 ft/ft measured at the Site (Stone 2013). Based on the current gradient and estimated groundwater seepage velocity groundwater flowing though the PRB should have traveled the distance between the compliance monitoring well pairs.

A number of monitoring wells, including MW-8, MW-11 and MW-12, are scheduled to be repaired/replaced as needed at during the fourth quarter of 2018 or early 2019. These wells will be sampled during the next scheduled Site-wide groundwater sampling event scheduled for June 2019.

5 REFERENCES

AECOM, 2015. Remedial Design Investigation Work Plan for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. November.

AECOM, 2016. Permeable Reactive Barrier Remedial Action Work Plan for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. April.

AECOM, 2017a. Final Engineering Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY.

AECOM, 2017b. Site Management Plan for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY.

AECOM, 2017c. Groundwater Monitoring Program 2016 Fourth Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. April.

AECOM, 2017d. Groundwater Monitoring Program 2017 First Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. May.

AECOM, 2017e. Groundwater Monitoring Program 2016 Second Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. November.

AECOM, 2018. Groundwater Monitoring Program 2017 Third Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. February.

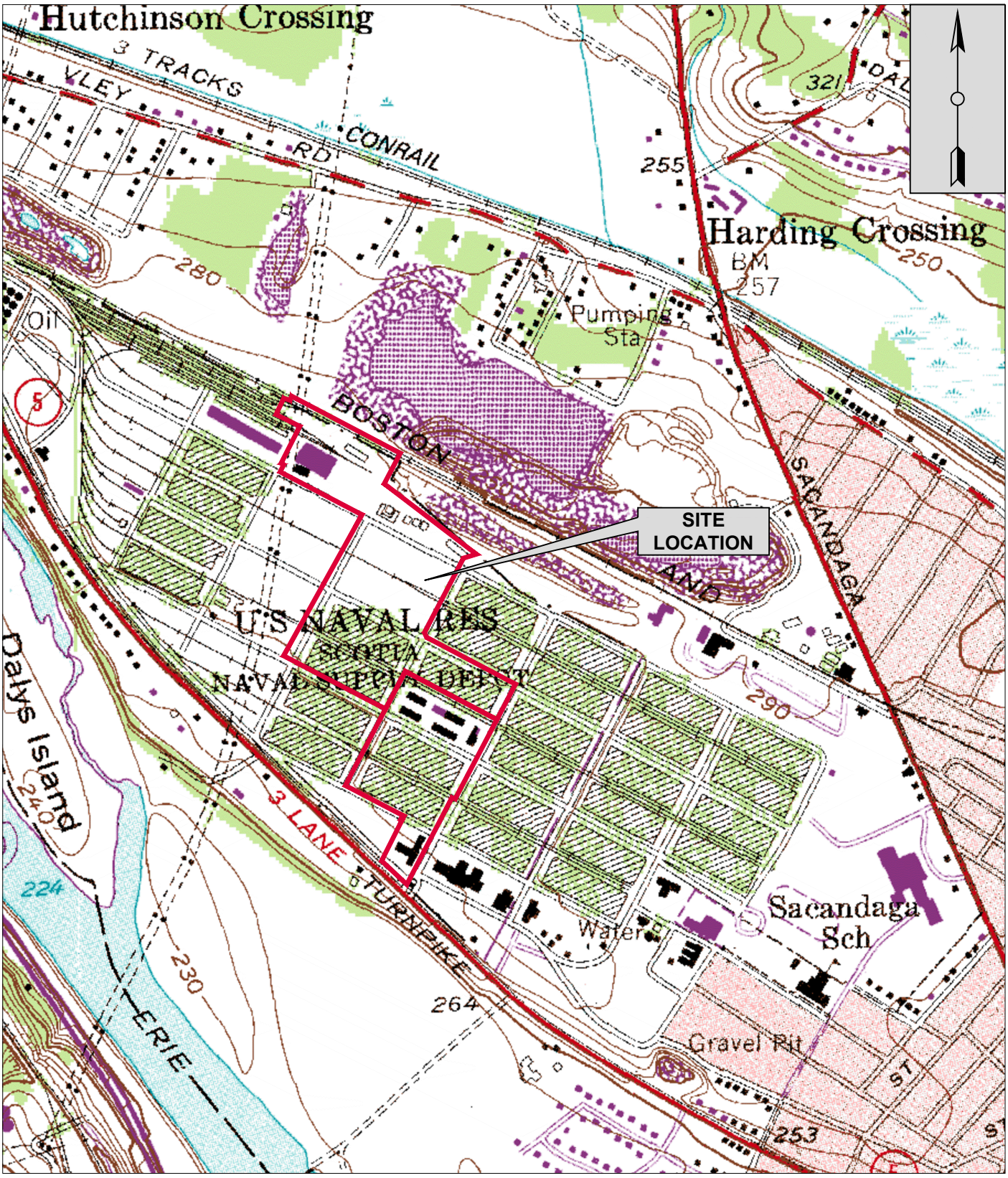
AECOM, 2018a. Groundwater Monitoring Program 2017 Fourth Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. May.

AECOM, 2018b. Groundwater Monitoring Program 2018 First Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. June.

NYSDEC, 2010. Record of Decision for Defense National Stockpile Center Scotia Depot Site State Superfund Project, Site Number 447023, Town of Glenville, NY, March.

Stone Environmental, 2013. Final Pre-Design Investigation Report, Defense Nation Stockpile Center Scotia Depot Site, Town of Glenville, NY, December.

FIGURES



2018 2nd QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: September 2018

US ARMY Corps
of Engineers

SITE LOCATION MAP

AECOM

Figure: 1-1

AECOM

Figure: 1-2

SITE LAYOUT MAP

250.0 FT. NATIONAL GRID POWER COMPANY EASEMENT

TOWERS

15.0 FT. (TYP.)

250.0 FT. (SHALLOW ZONE)

900.0 FT.

650.0 FT. (DEEP ZONE)

PROPERTY BOUNDARY (TYP.)

CONCRETE REMAINS

80.0'

1st STREET

5th STREET

AVENUE A

AVENUE B

AVENUE C

BUILDING 201

BUILDING 202

BUILDING 203

BUILDING 204

BUILDING 403

BUILDING 404

BUILDING 405

BUILDING 406

MW-5, MW-6, MW-7, MW-8, MW-9, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22, MW-24, MW-25, MW-26, MW-27, MW-28, MW-29, MW-30, MW-31, MW-32, MW-33, MW-34, MW-35, MW-36, MW B-1, PMW-2

GEP-1, GEP-2, GEP-3, GEP-4

A, A', B, B'

LEGEND

- 15 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 80' BGS
- 45 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 110' BGS
- MW-25 MONITORING WELL
- APPROXIMATE EXTENT OF TCE - TRICHLOROETHENE GROUNDWATER PLUME
- APPROXIMATE EXTENT OF CT - CARBON TETRACHLORIDE GROUNDWATER PLUME

0 200' 400'

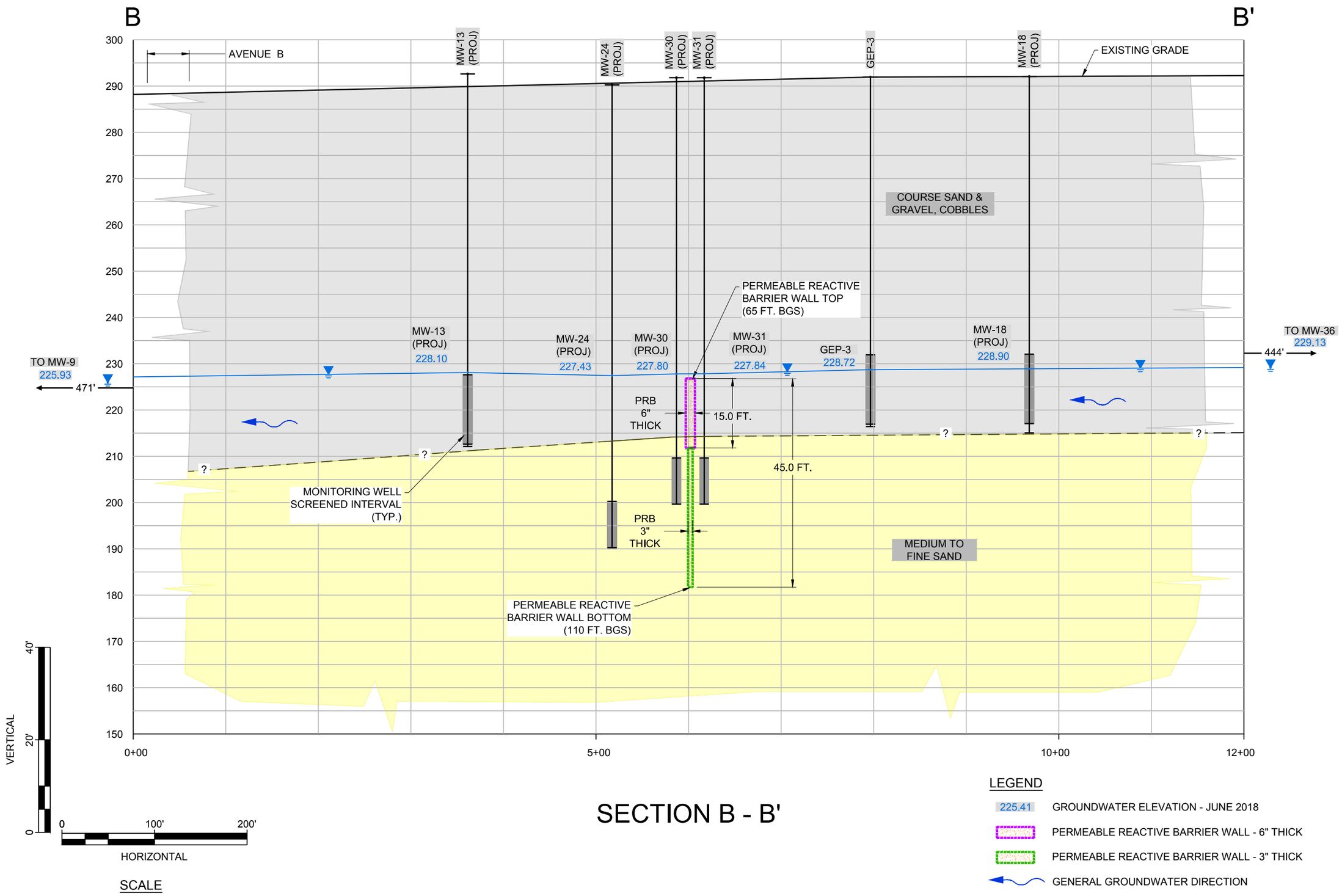
US ARMY Corps of Engineers

2018 2nd QUARTER GROUNDWATER REPORT

DEFENSE NATIONAL STOCKPILE CENTER

SCOTIA DEPOT SITE - SCOTIA, NY

Project No.: 60440641 Date: September 2018



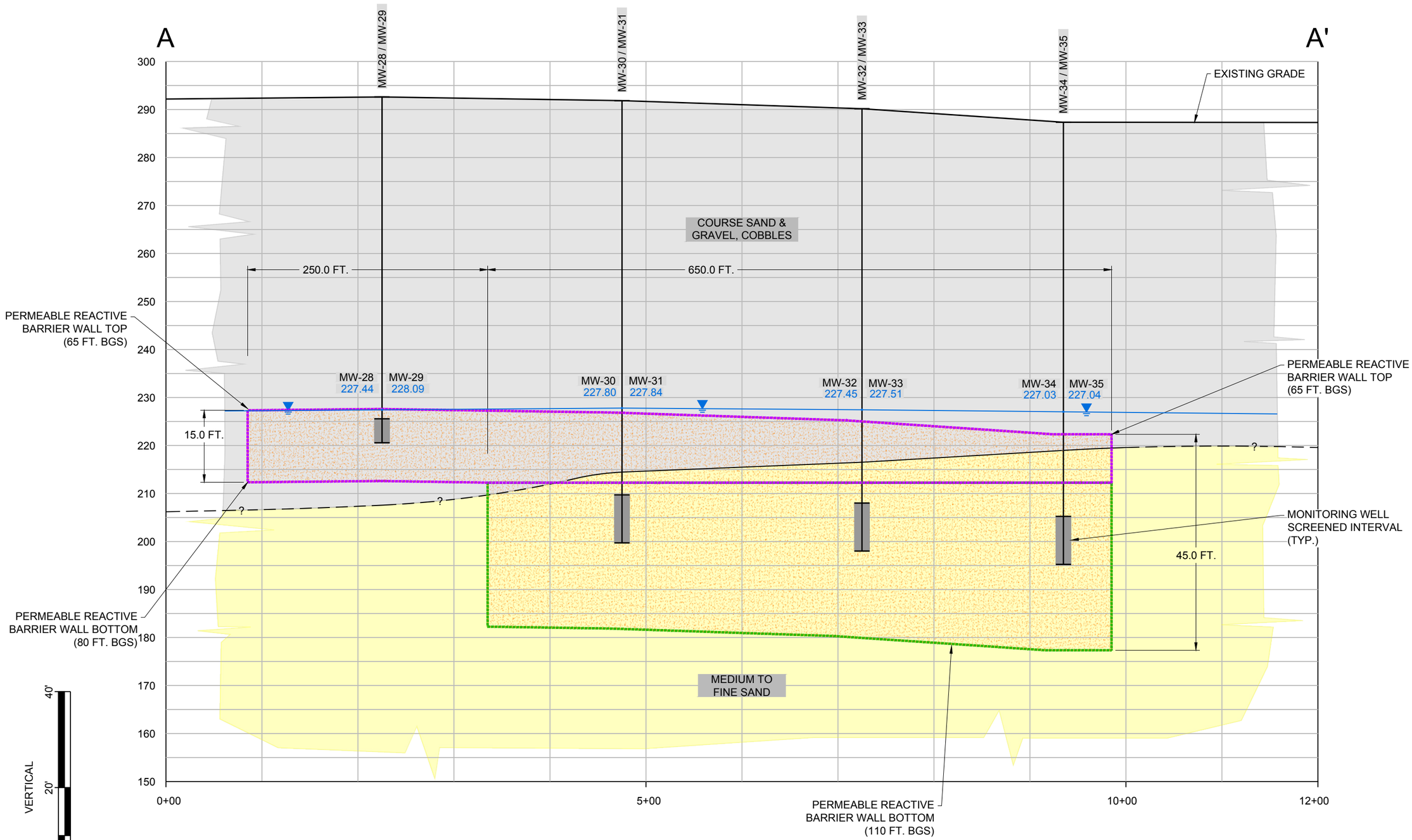
AECOM

Figure: 2-1B

GROUNDWATER
SECTION B - B'
JUNE 2018

US ARMY Corps of Engineers

2018 2nd QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: September 2018



SECTION A - A'

LEGEND

- 225.41 GROUNDWATER ELEVATION - JUNE 2018
- PERMEABLE REACTIVE BARRIER WALL - 6" THICK
- PERMEABLE REACTIVE BARRIER WALL - 3" THICK

AECOM

Figure: 2-1A

COMPLIANCE MONITORING WELLS AND PRB WALL PROFILE GROUNDWATER SECTION A - A' JUNE 2018

US ARMY Corps of Engineers

2018 2nd QUARTER GROUNDWATER REPORT

DEFENSE NATIONAL STOCKPILE CENTER

SCOTIA DEPOT SITE - SCOTIA, NY

Project No.: 60440641 Date: September 2018

LEGEND

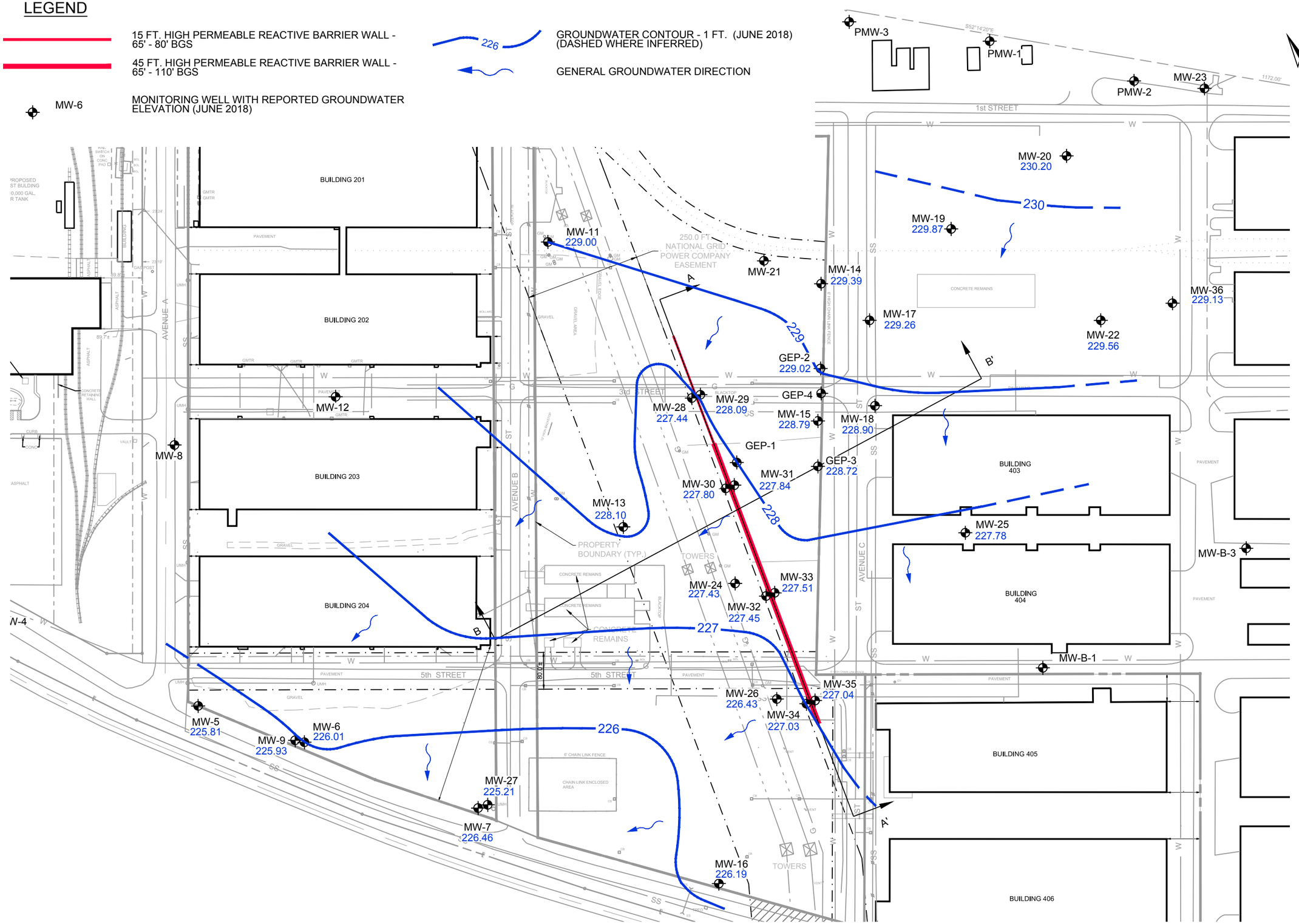
15 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 80' BGS

45 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 110' BGS

MW-6 — MONITORING WELL WITH REPORTED GROUNDWATER ELEVATION (JUNE 2018)

226 — GROUNDWATER CONTOUR - 1 FT. (JUNE 2018) (DASHED WHERE INFERRED)

GENERAL GROUNDWATER DIRECTION



POTENTIOMETRIC SITE MAP
JUNE 2018

Figure: 3-1

AECOM

US ARMY Corps of Engineers

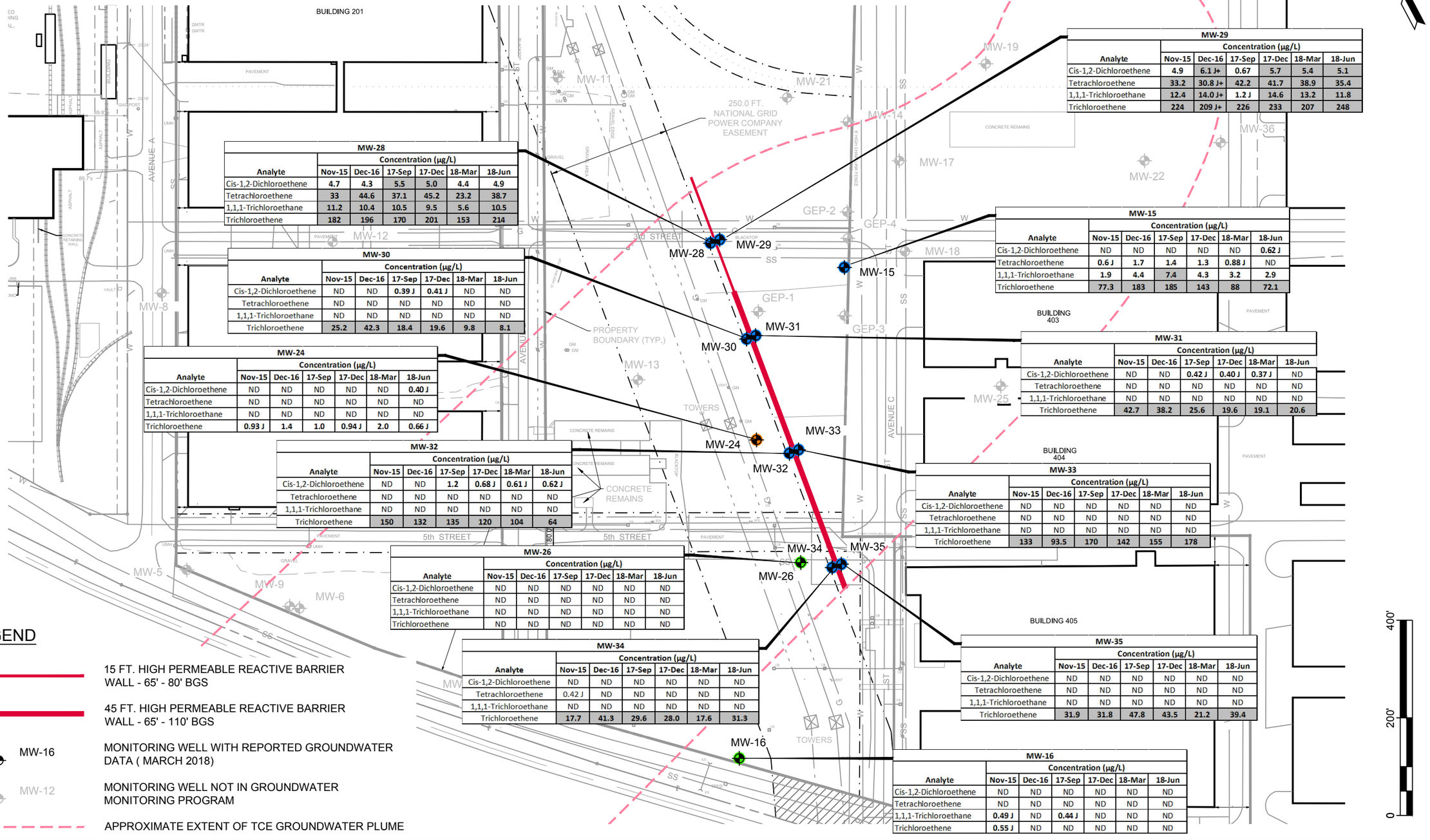
2018 2nd QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: September 2018

SAMPLE KEY

- VOC's NOT DETECTED
- VOC's DETECTED OF CONCENTRATIONS BELOW NYSDEC AWQSGV
- VOC's DETECTED OF CONCENTRATIONS AT OR ABOVE NYSDEC AWQSGV

SAMPLE NOTES

1. Detected concentrations are in bold font.
2. Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray. For listed compounds the NYSDEC AWQS is 5 mg/L.
3. J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
4. J+ - The result is an estimated quantity, likely to be biased high.
5. ND - Indicates that the analyte was not detected above the method detection limit



MW-28

Analyte	Concentration (µg/L)					
	Nov-15	Dec-16	17-Sep	17-Dec	18-Mar	18-Jun
Cis-1,2-Dichloroethene	4.7	4.3	5.5	5.0	4.4	4.9
Tetrachloroethene	33	44.6	37.1	45.2	23.2	38.7
1,1,1-Trichloroethane	11.2	10.4	10.5	9.5	5.6	10.5
Trichloroethene	182	196	170	201	153	214

MW-30

Analyte	Concentration (µg/L)					
	Nov-15	Dec-16	17-Sep	17-Dec	18-Mar	18-Jun
Cis-1,2-Dichloroethene	ND	ND	0.39 J	0.41 J	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	25.2	42.3	18.4	19.6	9.8	8.1

MW-24

Analyte	Concentration (µg/L)					
	Nov-15	Dec-16	17-Sep	17-Dec	18-Mar	18-Jun
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.40 J
Tetrachloroethene	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	0.93 J	1.4	1.0	0.94 J	2.0	0.66 J

MW-32

Analyte	Concentration (µg/L)					
	Nov-15	Dec-16	17-Sep	17-Dec	18-Mar	18-Jun
Cis-1,2-Dichloroethene	ND	ND	1.2	0.68 J	0.61 J	0.62 J
Tetrachloroethene	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	150	132	135	120	104	64

MW-26

Analyte	Concentration (µg/L)					
	Nov-15	Dec-16	17-Sep	17-Dec	18-Mar	18-Jun
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND

MW-34

Analyte	Concentration (µg/L)					
	Nov-15	Dec-16	17-Sep	17-Dec	18-Mar	18-Jun
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.42 J	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	17.7	41.3	29.6	28.0	17.6	31.3

MW-29

Analyte	Concentration (µg/L)					
	Nov-15	Dec-16	17-Sep	17-Dec	18-Mar	18-Jun
Cis-1,2-Dichloroethene	4.9	6.1 J+	0.67	5.7	5.4	5.1
Tetrachloroethene	33.2	30.8 J+	42.2	41.7	38.9	35.4
1,1,1-Trichloroethane	12.4	14.0 J+	1.2 J	14.6	13.2	11.8
Trichloroethene	224	209 J+	226	233	207	248

MW-15

Analyte	Concentration (µg/L)					
	Nov-15	Dec-16	17-Sep	17-Dec	18-Mar	18-Jun
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.62 J
Tetrachloroethene	0.6 J	1.7	1.4	1.3	0.88 J	ND
1,1,1-Trichloroethane	1.9	4.4	7.4	4.3	3.2	2.9
Trichloroethene	77.3	183	185	143	88	72.1

MW-31

Analyte	Concentration (µg/L)					
	Nov-15	Dec-16	17-Sep	17-Dec	18-Mar	18-Jun
Cis-1,2-Dichloroethene	ND	ND	0.42 J	0.40 J	0.37 J	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	42.7	38.2	25.6	19.6	19.1	20.6

MW-33

Analyte	Concentration (µg/L)					
	Nov-15	Dec-16	17-Sep	17-Dec	18-Mar	18-Jun
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	133	93.5	170	142	155	178

MW-35

Analyte	Concentration (µg/L)					
	Nov-15	Dec-16	17-Sep	17-Dec	18-Mar	18-Jun
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	31.9	31.8	47.8	43.5	21.2	39.4

MW-16

Analyte	Concentration (µg/L)					
	Nov-15	Dec-16	17-Sep	17-Dec	18-Mar	18-Jun
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	0.49 J	ND	0.44 J	ND	ND	ND
Trichloroethene	0.55 J	ND	ND	ND	ND	ND

LEGEND

- 15 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 80' BGS
- 45 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 110' BGS
- MW-16 — MONITORING WELL WITH REPORTED GROUNDWATER DATA (MARCH 2018)
- MW-12 — MONITORING WELL NOT IN GROUNDWATER MONITORING PROGRAM
- APPROXIMATE EXTENT OF TCE GROUNDWATER PLUME

0 200' 400'

AECOM

Figure: 3-2

GROUNDWATER RESULTS
QUARTERLY MONITORING LOCATIONS
JUNE 2018

US ARMY Corps of Engineers

2018 2nd QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: September 2018

GEP-2			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
1,1,1-Trichloroethane (1,1,1-TCA)	19.7	16.3	NE
Trichloroethene (TCE)	210	167	51.3
Total CVOCs	236	190	56.9

MW-19			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	30	14.3	11.4
Total CVOCs	32	17.2	13.1

MW-20			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	52.3	86.8	69.9
Total CVOCs	53.8	90.5	72.9

MW-14			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Tetrachloroethene (PCE)	10.8	10.5	13.8
Total CVOCs	21.2	15.0	22.4

MW-23		
Nov. 2015	Jun. 2017	Jun. 2018
NE	NE	NE

MW-29			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
cis-1,2-Dichloroethene (cis-1,2-DCE)	NE	5.8 J+	5.1
Tetrachloroethene (PCE)	33.2	38.1 J+	35.4
1,1,1-Trichloroethane (1,1,1-TCA)	12.4	11.8 J+	11.8
Trichloroethene (TCE)	224	264	248
Total CVOCs	276	322	303

MW-17			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
1,1,1-Trichloroethane (1,1,1-TCA)	17	22	19.8
Trichloroethene (TCE)	15.2	35.2	20.5
Total CVOCs	34	60	43.4

MW-22			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	282	238	331
Tetrachloroethene (PCE)	5.6	NE	6.3
Total CVOCs	288	242	337

MW-28			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Tetrachloroethene (PCE)	33	36.3 J+	38.7
1,1,1-Trichloroethane (1,1,1-TCA)	11.2	8.9 J+	10.5
Trichloroethene (TCE)	182	195	214
Total CVOCs	234	247	271

MW-36		
Nov. 2015	Jun. 2017	Jun. 2018
NE	NE	NE

GEP-1			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	180	152 J+	NS
Total CVOCs	186	155	NS

GEP-4		
Analytes	Concentration (µg/L)	
	Nov. 2015	Jun. 2017
1,1,1-Trichloroethane (1,1,1-TCA)	5.1	NE
Trichloroethene (TCE)	85.9	72.4
Total CVOCs	91.7	77.9

MW-30			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	25.2	24.3	8.1
Total CVOCs	25.2	24.9	8.1

MW-18			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	153	117	26.8
Total CVOCs	158	121	26.8

MW-13		
Analytes	Concentration (µg/L)	
	Jun. 2018	
1,1,1-Trichloroethane (1,1,1-TCA)	NE	
Trichloroethene (TCE)	117	
Total CVOCs	121	

MW-B-3			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Tetrachloroethene (PCE; PERC)	NE	NE	5
Total CVOCs	NE	NE	5

MW-24		
Nov. 2015	Jun. 2017	Jun. 2018
NE	NE	NE

MW-15			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	77.3	122	72.1
Total CVOCs	79.8	126	75.6

MW-26		
Nov. 2015	Jun. 2017	Jun. 2018
NE	NE	NE

MW-32			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	150	130	64.1
Total CVOCs	150	132	64.7

MW-25			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	96.7	76.7	80.3
Total CVOCs	96.7	76.7	80.3

MW-5		
Nov. 2015	Jun. 2017	Jun. 2018
NE	NE	NE

MW-9		
Nov. 2015	Jun. 2017	Jun. 2018
NE	NE	NE

GEP-3			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	143	131	74.9
Total CVOCs	145	133	75.8

MW-6			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	59.8	26.0	24.4
Total CVOCs	62.4	27.2	25.2

MW-7			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	NE	NE	32.6
Total CVOCs	NE	NE	32.9

MW-31			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	42.7	29.0	20.6
Total CVOCs	42.7	29.5	20.6

MW-27			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	189	211	NE
Total CVOCs	190	212	NE

MW-34			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	17.7	34.0	31.3
Total CVOCs	18.1	34.0	31.3

MW-16		
Nov. 2015	Jun. 2017	Jun. 2018
NE	NE	NE

MW-35			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	31.9	43.8 J+	39.4
Total CVOCs	31.9	43.8	39.4

MW-33			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	133	152	178
Total CVOCs	133	152	178

SAMPLE KEY

SAMPLE NAME

MW-32			
Analytes	Concentration (µg/L)		
	Nov. 2015	Jun. 2017	Jun. 2018
Trichloroethene (TCE)	150	130	64.1
Total CVOCs	150	132	64.7

DATE

ANALYTE

CONCENTRATION

NOTES:

1) TOTAL CVOCS WERE CALCULATED USING DETECTED CONCENTRATIONS FOR CHLORINATED VOLATILE ORGANIC COMPOUNDS.

2) NE = COMPOUNDS NOT DETECTED ABOVE NYSDEC AWQS. FOR ALL LISTED COMPOUNDS THE NYSDEC AWQS EXCEEDANCE LEVEL IS 5 mg/L

3) NS = NOT SAMPLED

4) J = INDICATES AN ESTIMATED VALUE BETWEEN THE METHOD DETECTION LIMIT (MDL) AND THE PRACTICAL QUANTITATION LIMIT (PQL) FOR THE ANALYTE.

5) J+ = THE RESULT IS AN ESTIMATE QUANTITY, LIKELY TO BE BIASED HIGH.

LEGEND

- MW-13 — MONITORING WELL (ANNUALLY SAMPLED)
- MW-30 — MONITORING WELL WITH GROUNDWATER EXCEEDANCE DURING CURRENT SAMPLING EVENT
- GENERAL GROUNDWATER DIRECTION
- APPROXIMATE EXTENT OF TCE GROUNDWATER PLUME

NOTE:
FOR TYPICAL LEGEND SEE FIGURE 1-2.

600'
300'
0

AECOM

Figure: 3-3

SITEWIDE GROUNDWATER EXCEEDANCE RESULTS
ANNUAL MONITORING LOCATIONS
JUNE 2018

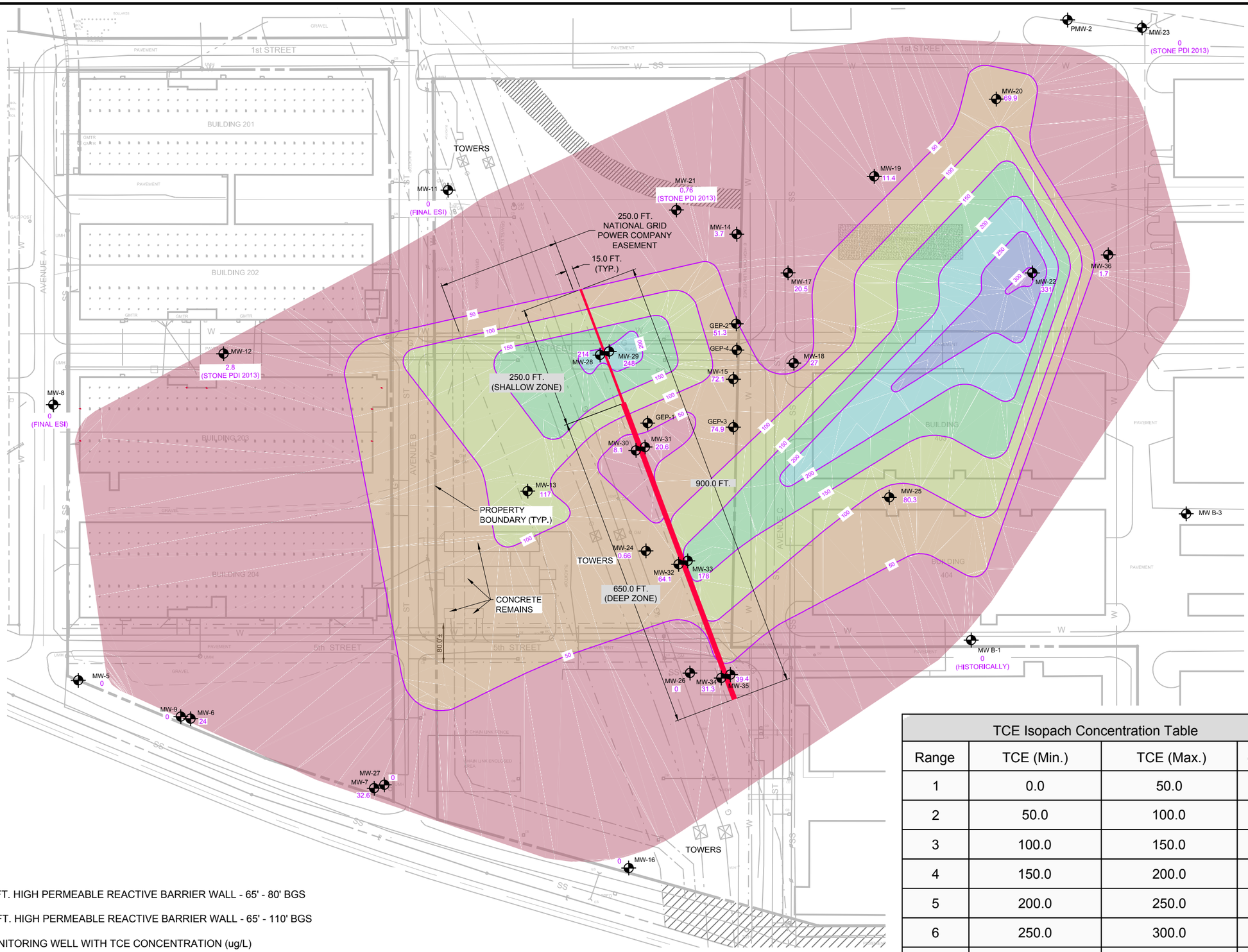
US ARMY Corps of Engineers

2018 2nd QUARTER GROUNDWATER REPORT
DEFENCE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: September 2018

AECOM

Figure: 3-4

TCE ISOPACH CONCENTRATION MAP



TCE Isopach Concentration Table			
Range	TCE (Min.)	TCE (Max.)	Color
1	0.0	50.0	
2	50.0	100.0	
3	100.0	150.0	
4	150.0	200.0	
5	200.0	250.0	
6	250.0	300.0	
7	300.0	350.0	

LEGEND

- 15 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 80' BGS
- 45 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 110' BGS
- MW-25 80.3 — MONITORING WELL WITH TCE CONCENTRATION (ug/L)
- 100 — TCE CONCENTRATION ISOPACH INTERVAL (50 ug/L)

US ARMY Corps of Engineers

2018 2nd QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: September 2018

TABLES

Table 2-1
Monitoring Well Sampling Schedule and Guidelines
The Defense National Stockpile Center Scotia Depot

Monitoring Well ID[1]	Rationale[2]	Sampling Frequency	Analytes[3]	Screen Interval (ft bgs)
MW-15	Upgradient	Quarterly for 2 years then anually	VOCs/MNA	65-80
MW-16	Outside Plume	Quarterly for 2 years then anually	VOCs/MNA	55-70
MW-24	Downgradient	Quarterly for 2 years then anually	VOCs/MNA	100-110
MW-26	Downgradient	Quarterly for 2 years then anually	VOCs/MNA	100-110
MW-28	Downgradient	Quarterly for 2 years then anually	VOCs/MNA	67-72
MW-29	Upgradient	Quarterly for 2 years then anually	VOCs/MNA	67-72
MW-30	Downgradient	Quarterly for 2 years then anually	VOCs/MNA	82-92
MW-31	Upgradient	Quarterly for 2 years then anually	VOCs/MNA	82-92
MW-32	Downgradient	Quarterly for 2 years then anually	VOCs/MNA	82-92
MW-33	Upgradient	Quarterly for 2 years then anually	VOCs/MNA	82-92
MW-34	Downgradient	Quarterly for 2 years then anually	VOCs/MNA	82-92
MW-35	Upgradient	Quarterly for 2 years then anually	VOCs/MNA	82-92
GEP-3	Upgradient	Annually	VOCs	59.6-74.6
MW-B-3	Outside Plume	Annually	VOCs	47.5-67.5
MW-5	Downgradient	Annually	VOCs	62.5-72.5
MW-6	Downgradient	Annually	VOCs	58.5-68.5
MW-7	Outside Plume	Annually	VOCs	61-71
MW-8	CT Plume	Annually	VOCs	66-76
MW-9	Downgradient	Annually	VOCs	110-120

Table 2-1
Monitoring Well Sampling Schedule and Guidelines
The Defense National Stockpile Center Scotia Depot

Monitoring Well ID[1]	Rationale[2]	Sampling Frequency	Analytes[3]	Screen Interval (ft bgs)
MW-11	CT Plume	Annually	VOCs	65-80
MW-12	CT Plume	Annually	VOCs	65-80
MW-14	Upgradient	Annually	VOCs	65-80
MW-17	Upgradient	Annually	VOCs	60-75
MW-18	Upgradient	Annually	VOCs	60-75
MW-19	Upgradient	Annually	VOCs	62-77
MW-20	Upgradient	Annually	VOCs	63-78
MW-22	Upgradient	Annually	VOCs	63-78
MW-23	Outside Plume	Annually	VOCs	63-78
MW-24	Downgradient	Annually	VOCs	90-100
MW-25	Upgradient	Annually	VOCs	65-75
MW-26	Downgradient	Annually	VOCs	100-110
MW-27	Downgradient	Annually	VOCs	100-110
MW-36	Upgradient	Annually	VOCs	70-80
GEP-2	Upgradient	Annually	VOCs	60.6-75.6
GEP-1	Upgradient	Annually	VOCs	59.6-74.6
GEP-4	Upgradient	Annually	VOCs	60.15-75.15

Notes:

[1] *2015 Compliance monitoring well

[2] Rationale: Upgradient of PRB wall; Downgradient of PRB wall; Outside of any plume; Within Carbon Tetrachloride (CT) plume

[3] Monitored natural attenuation (MNA) parameters include TOC (EPA SM 5310B), alkalinity (EPA SM 2320B), Chloride, nitrate, sulfate (EPA Method 300.0), and Dissolved Gases (Methane, ethane, and ethene; Method RSK 175).

Table 3-1
Groundwater Elevations Data
The Defense National Stockpile Center Scotia Depot
2nd Quarter 2018 Status Report
AECOM Project 60440641

Well IDs	Screened Interval (ft bgs)	Ground Surface Elevation (ft)	Reference Point Elevation (ft)	Depth To Water (ft bgs) Q1 2017	Depth to Water (ft bgs) Q2 2017	Depth To Water (ft bgs) Q3 2017	Depth To Water (ft bgs) Q4 2017	Depth To Water (ft bgs) Q1 2018	Depth To Water (ft bgs) Q2 2018	Groundwater Elevation 2015	Groundwater Elevation 2016	Groundwater Elevation Q1 2017	Groundwater Elevation Q2 2017	Groundwater Elevation Q3 2017	Groundwater Elevation Q4 2017	Groundwater Elevation Q1 2018	Groundwater Elevation Q2 2018
B-1	48-68	-	287.14	-	57.34		-		-	**227.74**	**-**	**-**	**229.80**	**-**	**-**	**-**	**-**
B-3	47.5-67.5	-	287.05	-	-		-	-	58.61	**227.95**	**-**	**-**	**-**	**-**	**-**	**-**	**228.44**
MW-4	63.8-73.8	289.58	291.74	-	-		-	-	-	**225.74**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
MW-5	62.5-72.5	287.95	290.11	70.50	63.82	64.00	72.12	71.83	64.30	**225.75**	**219.29**	**219.61**	**226.29**	**226.11**	**217.99**	**218.28**	**225.81**
MW-6	58.5-68.5	286.28	288.58	68.78	62.03	62.27	70.19	69.96	62.57	**225.86**	**219.80**	**219.80**	**226.55**	**226.31**	**218.39**	**218.62**	**226.01**
MW-7	61-71	286.8	289.26	68.47	61.96	61.95	67.84	68.22	62.80	**226.28**	**223.16**	**220.79**	**227.30**	**227.31**	**221.42**	**221.04**	**226.46**
MW-9	110-120	285.98	288.33	68.55	61.85	62.04	69.70	69.74	62.40	**225.83**	**219.75**	**219.78**	**226.48**	**226.29**	**218.63**	**218.59**	**225.93**
MW-10	65-80	290.94	288.33	-	-	-	-	-	-	**228.24**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
MW-11	65-80	295.73	288.33	70.12	64.36	65.36	69.55	70.15	66.12	**227.7**	**225.91**	**218.21**	**223.97**	**222.97**	**218.78**	**218.18**	**222.21**
MW-13	65-80	292.62	293.85	69.90	64.25	64.40	68.86	69.72	65.75	**227.32**	**225.43**	**223.95**	**229.60**	**229.45**	**224.99**	**224.13**	**228.10**
MW-14	65-80	-	296.2	70.13	64.88	65.60	69.13	70.17	66.81	**228.08**	**226.56**	**226.07**	**231.32**	**230.60**	**227.07**	**226.03**	**229.39**
MW-15	65-80	-	293.67	68.35	63.07	63.49	67.00	68.20	64.88	**227.8**	**226.27**	**225.32**	**230.60**	**230.18**	**226.67**	**225.47**	**228.79**
MW-16	55-70	-	288.33	66.38	60.7	60.28	63.72	65.13	62.14	**226.39**	**225.38**	**221.95**	**227.63**	**228.05**	**224.61**	**223.20**	**226.19**
MW-17	60-75	-	295.24	69.25	64.09	64.66	67.99	69.20	65.98	**228.08**	**226.55**	**225.99**	**231.15**	**230.58**	**227.25**	**226.04**	**229.26**
MW-18	60-75	-	295.24	69.56	64.49	64.86	68.15	69.48	66.34	**227.94**	**226.46**	**225.68**	**230.75**	**230.38**	**227.09**	**225.76**	**228.90**
MW-19	62-77	-	297.67	70.54	65.74	66.42	69.63	70.80	67.80	**228.43**	**226.85**	**227.13**	**231.93**	**231.25**	**228.04**	**226.87**	**229.87**
MW-20	63-78	-	301.55	73.72	69.22	69.90	72.93	74.10	71.35	**228.71**	**227.01**	**227.83**	**232.33**	**231.65**	**228.62**	**227.45**	**230.20**
MW-21	57-72	-	296.52	70.55	65.19	65.40	69.70	-	*	*	*	*	*	*	*	*	*
MW-22	63-78	-	298.91	72.08	67.64	67.80	70.61	72.20	69.65	**228.29**	**226.73**	**226.83**	**231.27**	**231.11**	**228.30**	**226.71**	**229.26**
MW-23	63-78	-	300.54	72.14	67.98	68.55	-	-	70.70	**228.9**	**227.06**	**228.40**	**232.56**	**231.99**	**-**	**-**	**229.84**
MW-24	90-100	290.24	292.45	68.85	63.4	63.62	67.33	68.46	65.02	**226.79**	**225.30**	**223.60**	**229.05**	**228.83**	**225.12**	**223.99**	**227.43**
MW-25	65-75	288.16	290.26	65.44	60.61	60.57	63.56	65.13	62.48	**227.16**	**225.82**	**224.82**	**229.65**	**229.69**	**226.70**	**225.13**	**227.78**
MW-26	100-110	287.23	286.45	63.85	58.44	58.35	61.80	63.19	60.02	**226.06**	**224.75**	**222.60**	**228.01**	**228.10**	**224.65**	**223.26**	**226.43**
MW-27	100-110	286.08	288.32	68.67	61.89	62.00	67.35	67.93	63.11	**225.5**	**223.44**	**219.65**	**226.43**	**226.32**	**220.97**	**220.39**	**225.21**
MW-28	67-72	292.55	292.25	67.94	62.46	63.06	66.72	67.81	64.18	**227.07**	**225.41**	**224.31**	**229.79**	**229.19**	**225.53**	**224.44**	**228.07**
MW-29	67-72	292.50	292.13	67.80	62.31	62.94	66.90	67.70	64.04	**227.05**	**225.38**	**224.33**	**229.82**	**229.19**	**225.23**	**224.43**	**228.09**
MW-30	82-92	291.76	291.63	67.65	62.19	62.59	66.35	67.35	63.83	**226.98**	**225.35**	**223.98**	**229.44**	**229.04**	**225.28**	**224.28**	**227.80**
MW-31	82-92	291.80	291.54	67.42	62.02	62.43	66.14	67.20	63.70	**226.95**	**225.40**	**224.12**	**229.52**	**229.11**	**225.40**	**224.34**	**227.84**
MW-32	82-92	290.12	289.75	66.05	60.7	60.82	64.33	65.57	62.30	**226.86**	**225.45**	**223.70**	**229.05**	**228.93**	**225.42**	**224.18**	**227.45**
MW-33	82-92	290.27	289.91	66.11	60.8	60.86	64.37	65.65	62.40	**226.89**	**225.51**	**223.80**	**229.11**	**229.05**	**225.54**	**224.26**	**227.51**
MW-34	82-92	287.30	287.05	63.70	58.39	58.28	61.54	63.16	60.02	**226.73**	**225.48**	**223.35**	**228.66**	**228.77**	**225.51**	**223.89**	**227.03**
MW-35	82-92	287.25	286.96	63.56	58.28	58.15	61.40	62.88	59.92	**226.69**	**225.46**	**223.40**	**228.68**	**228.81**	**225.56**	**224.08**	**227.04**
MW-36	70-80	292.61	292.36	66.10	61.87	60.98	64.42	66.40	63.23	**227.8**	**226.12**	**226.26**	**230.49**	**231.38**	**227.94**	**225.96**	**229.13**
GEP-1	59.6-74.6	-	294.98	70.55	65.06	-	69.30	70.33	-	**227.36**	**-**	**224.43**	**229.92**	**-**	**225.68**	**224.65**	**-**
GEP-2	60.6-75.6	-	296.02	70.43	65.18	65.69	69.19	70.35	67.00	**227.9**	**226.38**	**225.59**	**230.84**	**230.33**	**226.83**	**225.67**	**229.02**
GEP-3	59.6-74.6	-	292.97	67.71	62.47	62.85	66.30	67.54	64.25	**227.81**	**226.31**	**225.26**	**230.50**	**230.12**	**226.67**	**225.43**	**228.72**
GEP-4	60.15-75.15	-	295.62	70.23	65.01	65.50	68.98	-	-	**227.73**	**226.22**	**225.39**	**230.61**	**230.12**	**226.64**	**-**	**-**

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-15							
		11/9/2015	12/14/2016	3/22/2017	6/21/2017	9/28/2017	12/14/2017	3/14/2018	6/20/2018
		Upgradient							
VOCs (µg/L)									
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**1.9**	**4.4**	**1.9**	**3.8**	**7.4**	**4.3**	**3.2**	**2.9**
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	**0.44 J**	0.75 U	0.75 U	**0.69 J**	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	**0.45 J**	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	**0.6 J**	**1.7**	**0.84 J**	**0.66 J**	**1.4**	**1.3**	**0.88 J**	**0.62 J**
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**77.3**	**183**	**80.5**	**122**	**185**	**143**	**88**	**72.1**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters									
Acetylene		NA	NA	NA	NA	NA	NA	NA	1.0 U
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**182**	**212**	**201**	**217**	**229**	**216**	**223**	**209**
Chloride (mg/L)	NS	**28.9**	**14.3**	**28.3**	**40.1**	**30.6**	**39.7**	**24.0**	**46.4**
Nitrate (mg/L)	NS	**0.58**	**0.56**	**0.90**	**0.52**	**0.58**	**0.60**	**0.70**	**0.48**
Sulfate (mg/L)	NS	**12.3**	**12.4**	**21.3**	**20.5**	**14.3**	**20.5**	**12.4**	**15.2**
Methane (µg/L)	NS	**0.19 J**	**0.21 J**	**0.21 J**	**0.25 J**	**0.21 J**	0.50 U	**0.18 J**	**1.3 J+**
Ethane (µg/L)	NS	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethene (µg/L)	NS	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Total Organic Carbon (mg/L)	NS	**0.55 J**	**0.57 J**	**0.47 J**	**0.21 J**	**0.59 J**	**0.33 J**	**0.26 J**	**0.41 J**
Field Parameters									
pH (pH Unit)	NS	7.73	7.31	7.53	7.42	7.16	7.38	7.94	7.62
Turbidity (NTU)	NS	11.1	7.00	15.7	2.10	52.1	6.30	9.22	153.0
ORP (MeV)	NS	91.4	54.6	-0.6	114.6	92.8	16.6	-1.1	67.2
Conductivity (mS/cm)	NS	0.358	0.250	0.387	0.487	0.709	0.416	0.295	0.369
Dissolved Oxygen (mg/L)	NS	31.45	8.04	6.37	4.90	9.22	8.38	7.64	6.72
Groundwater Elevation (ft)	NS	227.80	226.27	225.32	230.60	230.18	226.67	225.47	228.79

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-16							
		11/11/2015	12/12/2016	3/20/2017	6/20/2017	9/25/2017	12/11/2017	3/13/2018	6/19/2018
		Outside Plume							
VOCs (µg/L)									
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**0.49 J**	0.75 U	**0.53 J**	**0.50 J**	**0.44 J**	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**0.55 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters									
Acetylene		NA	NA	NA	NA	NA	NA	NA	1.0 U
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**248**	**312**	**317**	**322**	**480**	**322**	**295**	**317**
Chloride (mg/L)	NS	**13.6**	**9.0**	**5.6**	**20.2**	**4.3**	**4.0**	**2.9**	**3.9**
Nitrate (mg/L)	NS	**1.6**	**1.6**	**2.1**	**3.7**	**1.4**	**1.1**	**1.6**	**2.0**
Sulfate (mg/L)	NS	**35.2**	**44.8**	**65.3**	**75.5**	**64.8**	**119**	**123**	**27.3**
Methane (µg/L)	NS	0.25 U	**0.14 J**	0.50 U	0.19 J	**0.23 J**	0.50 U	0.25 U	1.1 U
Ethane (µg/L)	NS	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethene (µg/L)	NS	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Total Organic Carbon (mg/L)	NS	**3.6**	**0.96 J**	**1.1**	**0.67 J**	**0.64 J**	**0.9 J**	**0.86 J**	**1.2**
Field Parameters									
pH (pH Unit)	NS	7.64	7.27	10.8	6.57	7.12	7.1	6.76	7.89
Turbidity (NTU)	NS	8.01	14.8	7.71	4.40	199	30.9	8.14	10.77
ORP (MeV)	NS	137.6	139.9	115.9	298.7	82.2	94.5	118.7	16.2
Conductivity (mS/cm)	NS	0.361	0.388	0.436	0.486	0.928	0.596	0.462	0.441
Dissolved Oxygen (mg/L)	NS	22.27	9.50	10.40	10.82	9.81	10.30	10.09	11.71
Groundwater Elevation (ft)	NS	226.39	225.38	221.95	227.63	228.05	224.61	223.20	226.19

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-24							
		11/10/2015	12/13/2016	3/21/2017	6/26/2017	9/26/2017	12/12/2017	3/14/2018	6/21/2018
		Downgradient							
VOCs (µg/L)									
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.37 J**	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.40 J**
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**0.93 J**	**1.4**	**1.7**	**1.2**	**1.0**	**0.94 J**	**2.00**	**0.66 J**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters									
Acetylene		NA	NA	NA	NA	NA	NA	NA	1.0 U
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**168**	**198**	**205**	**195**	**282**	**352**	**313**	**159**
Chloride (mg/L)	NS	**36.3**	**38.5**	**59.0**	**41.0**	**110**	**155**	**60.8**	**37.1**
Nitrate (mg/L)	NS	**0.9**	0.06 U	0.06 U	**0.04 J**	0.06 U	0.06 U	0.06 U	0.06 U
Sulfate (mg/L)	NS	**15.5**	**21.4**	**24.1**	**22.1**	0.5 U	**0.48 J**	**0.22 J**	**21.5**
Methane (µg/L)	NS	**0.82**	**1.6**	**1.7**	**2.2**	**7.8**	**431**	**927**	**1.3 J+**
Ethane (µg/L)	NS	**0.34 J**	0.50 U	0.50 U	0.50 U	**0.29 J**	0.50 U	0.50 U	0.50 U
Ethene (µg/L)	NS	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**1.0 J**	**0.20 J**
Total Organic Carbon (mg/L)	NS	**3.5**	**1.9**	**1.0 J**	**0.79 J**	**94.6**	**96.2**	**44.1**	**4.5**
Field Parameters									
pH (pH Unit)	NS	7.75	7.22	7.83	7.78	7.40	7.29	7.97	7.95
Turbidity (NTU)	NS	9.33	13.9	16.3	35.2	88.37	2.8	16.0	19.5
ORP (MeV)	NS	-80.2	-93.2	-111.3	-108.6	-169.9	-83.1	-127.6	-147.3
Conductivity (mS/cm)	NS	0.327	0.570	0.438	0.365	1.396	8.411	0.409	0.204
Dissolved Oxygen (mg/L)	NS	0.94	0.44	0.55	1.20	0.30	0.15	0.55	11.71
Groundwater Elevation (ft)	NS	226.79	225.30	223.60	229.05	228.83	225.12	223.99	227.43

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-26							
		11/17/2015	12/13/2016	3/21/2017	6/26/2017	9/25/2017	12/12/2017	3/14/2018	6/20/2018
		Downgradient							
VOCs (µg/L)									
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	**0.57 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters									
Acetylene		NA	NA	NA	NA	NA	NA	NA	1.0 U
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**204**	**197**	**196**	**223**	**317**	**204**	**196**	**225**
Chloride (mg/L)	NS	**45.2**	**44.9**	**53.4**	**133**	**86.2**	**56.7**	**32.3**	**49.1**
Nitrate (mg/L)	NS	0.06 U	**0.04 J**	0.06 U	**0.02 J**	0.06 U	0.06 U	0.06 U	0.06 U
Sulfate (mg/L)	NS	**25.1**	**24.6**	**29.4**	**20.9**	**5.9**	**25.7**	**10.6**	**16.3**
Methane (µg/L)	NS	**34.8**	**2.7**	**1.4 J**	**2.1**	**444**	**20.7**	**26.6**	**80**
Ethane (µg/L)	NS	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethene (µg/L)	NS	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Total Organic Carbon (mg/L)	NS	**9.3**	**2.6**	**1.3 J**	**30.7**	**52.1**	**1.1**	**5.8 J**	**0.50 J**
Field Parameters									
pH (pH Unit)	NS	7.52	7.22	7.80	7.23	7.39	7.65	7.56	7.57
Turbidity (NTU)	NS	68.3	21.8	31.9	0.4	60.96	57.38	18.6	36.2
ORP (MeV)	NS	-103.6	-28.9	-46.4	-26.9	-138.7	-173.0	-89.4	-75.3
Conductivity (mS/cm)	NS	0.324	0.590	0.469	0.630	1.347	0.426	0.260	0.415
Dissolved Oxygen (mg/L)	NS	0.00	0.33	0.27	0.62	0.33	0.66	0.27	1.38
Groundwater Elevation (ft)	NS	226.06	224.75	222.60	228.01	228.10	224.65	223.26	226.43

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well							
		MW-28							
		12/1/2015	12/14/2016	3/22/2017	6/27/2017	9/27/2017	12/14/2017	3/15/2018	6/22/2018
		Downgradient							
VOCs (µg/L)									
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**11.2**	**10.4**	**9.9**	**8.9 J**	**10.5**	**9.5**	**5.6**	**10.5**
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	**0.46 J**	0.75 U	0.75 U	0.75 U	0.75 U	**0.33 J**	0.75 U	**0.44 J**
1,1-Dichloroethane (1,1-DCA)	5	**1.0**	**0.77 J**	**0.88 J**	**1.0 J**	**1.3**	**0.84 J**	**0.69 J**	**0.86 J**
1,1-Dichloroethene (1,1-DCE)	5	**0.53 J**	**0.43 J**	**0.53 J**	**0.38 J**	**0.76 J**	**0.45 J**	0.75 U	**0.39 J**
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	**0.61 J**	0.75 U	**0.62 J**	0.75 U	**0.53 J**	**0.57 J**	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	**4.7**	**4.3**	**4.4**	**4.7 J**	**5.5**	**5.0**	**4.4**	**4.9**
Tetrachloroethene (PCE; PERC)	5	**33**	**44.6**	**42.4**	**36.3 J**	**37.1**	**45.2**	**23.2**	**38.7**
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	**0.47 J**	**0.42 J**	**0.37 J**	**0.35 J**	**0.49 J**	0.75 U	**0.36 J**
Trichloroethene (TCE)	5	**182**	**196**	**181**	**195**	**170**	**201**	**153**	**214**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters									
Acetylene		NA	NA	NA	NA	NA	NA	NA	1.0 U
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**352**	**316**	**295**	**352**	**380**	**383**	**360**	**422**
Chloride (mg/L)	NS	**22.1**	**32.4**	**25.7**	**29.0**	**25.7**	**20.4**	**20.9**	**33.1**
Nitrate (mg/L)	NS	0.06 U	**0.06 J**	**0.44**	**1.5**	**0.18 J**	**1.2**	**1.5**	**0.58**
Sulfate (mg/L)	NS	**22.4**	**20.9**	**21.6**	**13.0**	**10.3**	**22.4**	**20.2**	**23.1**
Methane (µg/L)	NS	**3.4**	**3.0**	**0.94**	**1.0**	**0.37 J**	0.50 U	0.25 U	**1800**
Ethane (µg/L)	NS	0.50 U	**3.6**	**1.0**	0.50 U	**0.45 J**	0.50 U	0.50 U	0.50 U
Ethene (µg/L)	NS	0.75 U	**1.3 J**	**1.9**	0.75 U	**0.72 J**	0.75 U	0.75 U	0.75 U
Total Organic Carbon (mg/L)	NS	**1.9**	**2.3**	**0.81 J**	**0.76 J**	**1.9**	**0.94 J**	**0.36 J**	**4.1**
Field Parameters									
pH (pH Unit)	NS	6.83	7.03	7.12	7.05	6.87	7.15	8.17	7.33
Turbidity (NTU)	NS	209	1.5	2.07	-3	61.1	229.80	8.52	1.32
ORP (MeV)	NS	273	71.2	77.1	97.4	32.1	19.0	-16.3	11.1
Conductivity (mS/cm)	NS	0.324	0.366	0.520	0.554	1.045	0.564	0.406	7.33
Dissolved Oxygen (mg/L)	NS	6.75	3.94	5.2	7.59	4.3	8.45	11.96	0.63
Groundwater Elevation (ft)	NS	227.07	225.41	224.31	229.79	229.19	225.53	224.44	228.07

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well							
		MW-29							
		12/1/2015	12/14/2016	3/22/2017	6/27/2017	9/27/2017	12/14/2017	3/15/2018	6/22/2018
		Upgradient							
VOCs (µg/L)									
1,1,1,2-Tetrachloroethane	5	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**12.4**	**14.0 J**	**10.4**	**11.8 J**	**13.6**	**14.6**	**13.2**	**11.8**
1,1,2,2-Tetrachloroethane	5	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.45 J**
1,1-Dichloroethane (1,1-DCA)	5	**0.97 J**	3.8 U	**0.45 J**	**1.0 J**	**1.2**	**0.88 J**	**0.91 J**	**0.84 J**
1,1-Dichloroethene (1,1-DCE)	5	**0.68 J**	3.8 U	**0.55 J**	**0.63 J**	**0.99 J**	**0.96 J**	**0.77 J**	**0.48 J**
1,2-Dichloroethane (EDC)	0.6	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	3.8 U	**0.63 J**	0.75 U	**0.85 J**	**0.71 J**	**0.72 J**	**0.82 J**
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	**4.9**	**6.1 J**	**3.1**	**5.8 J**	**5.6**	**5.7**	**5.4**	**5.1**
Tetrachloroethene (PCE; PERC)	5	**33.2**	**30.8 J**	**37.2**	**38.1 J**	**42.2**	**41.7**	**38.9**	**35.4**
Toluene	5	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	3.8 U	**0.61 J**	**0.70 J**	**0.67 J**	**0.62 J**	**0.44 J**	**0.59 J**
Trichloroethene (TCE)	5	**224**	**209 J**	**197**	**264**	**226**	**233**	**207**	**248**
Vinyl Chloride (VC)	2	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters									
Acetylene		NA	NA	NA	NA	NA	NA	NA	1.0 U
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**327**	**301**	**258**	**361**	**374**	**348**	**360**	**370**
Chloride (mg/L)	NS	**28.2**	**28.4**	**21.3**	**49.4**	**24.2**	**21.3**	**23.4**	**28**
Nitrate (mg/L)	NS	**0.1 J**	**0.26**	**0.52**	**1.3**	**0.12 J**	**0.86**	**1.3**	**0.38**
Sulfate (mg/L)	NS	**29.2**	**24.9**	**20.1**	**13.8**	**16.1**	**22.7**	**15**	**21**
Methane (µg/L)	NS	**13.9**	**0.62**	**1.1**	**0.20 J**	**0.21 J**	0.50 U	0.25 U	**210**
Ethane (µg/L)	NS	**0.81 J**	0.50 U	0.5 U	0.50	0.50 U	0.50 U	0.50 U	0.50 U
Ethene (µg/L)	NS	**0.59 J**	0.75 U	0.75 U	0.75	0.75 U	0.75 U	0.75 U	0.75 U
Total Organic Carbon (mg/L)	NS	**2.3**	**1.4**	**0.91 J**	**0.92 J**	**2.1**	**1.2**	**0.38 J**	**3.2**
Field Parameters									
pH (pH Unit)	NS	7.06	7.02	7.43	7.02	6.91	7.01	7.79	7.33
Turbidity (NTU)	NS	82.4	0.62	2.73	2.80	65.1	1.50	8.11	15.2
ORP (MeV)	NS	-25.1	60.9	46.1	120	41.7	33.7	2.8	52.3
Conductivity (mS/cm)	NS	0.325	0.354	0.424	0.619	1.058	0.559	0.420	0.61
Dissolved Oxygen (mg/L)	NS	4.29	6.17	9.26	7.12	6.46	8.65	7.42	2.98
Groundwater Elevation (ft)	NS	227.05	225.38	224.33	229.79	229.19	225.23	224.43	228.09

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well							
		MW-30							
		12/1/2015	12/13/2016	3/21/2017	6/26/2017	9/27/2017	12/13/2017	3/15/2018	6/21/2018
		Downgradient							
VOCs (µg/L)									
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	**0.74 J**	**0.61 J**	**0.39 J**	**0.41 J**	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**25.2**	**42.3**	**66.3**	**24.3**	**18.4**	**19.6**	**9.8**	**8.1**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters									
Acetylene		NA	NA	NA	NA	NA	NA	NA	1.0 UJ
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**143**	**319**	**210**	**154**	**104**	**347**	**141**	**58**
Chloride (mg/L)	NS	**38.4**	**182**	**136**	**49.6**	**35.3**	**87.3**	**43.6**	**38.8**
Nitrate (mg/L)	NS	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Sulfate (mg/L)	NS	**35.9**	**2.9**	0.5 U	**0.32 J**	0.5 U	**0.22 J**	0.50 U	**0.34 J**
Methane (µg/L)	NS	**47.4**	**146**	**870**	**3210**	**3560**	**12900**	**5860**	**3700**
Ethane (µg/L)	NS	**4.7**	**5.4**	**23.5**	**36.7**	**39.7**	**40.5**	**31.1**	**52**
Ethene (µg/L)	NS	**2.2**	**3.3**	**9.1**	**12.7**	**8.5**	**4.2**	**2.2**	**6.3**
Total Organic Carbon (mg/L)	NS	**2.2**	**225**	**139**	**75.2**	**27.0**	**366**	**50.9**	**9.7 J**
Field Parameters									
pH (pH Unit)	NS	8.91	6.83	7.60	8.01	8.01	7.41	8.54	8.28
Turbidity (NTU)	NS	58.2	3.55	3.82	3	69.1	16.1	3.12	950.5
ORP (MeV)	NS	-278.4	-166.3	-166.9	-173.3	-212.2	-170.1	-122.8	12.1
Conductivity (mS/cm)	NS	0.210	1.410	0.740	0.320	0.412	0.758	0.212	0.238
Dissolved Oxygen (mg/L)	NS	3.70	0.29	0.17	0.48	0.06	0.80	0.19	0.98
Groundwater Elevation (ft)	NS	226.98	225.35	223.98	229.44	229.04	225.28	224.28	227.80

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well							
		MW-31							
		12/1/2015	12/14/2016	3/22/2017	6/26/2017	9/27/2017	12/13/2017	3/15/2018	6/21/2018
		Upgradient							
VOCs (µg/L)									
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	**0.41 J**	**0.50 J**	**0.42 J**	**0.40 J**	**0.37 J**	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**42.7**	**38.2**	**35.0**	**29.0**	**25.6**	**19.6**	**19.1**	**20.6**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters									
Acetylene		NA	NA	NA	NA	NA	NA	NA	1.0 U
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**178**	**222**	**381**	**150**	**132**	**119**	**143**	**169**
Chloride (mg/L)	NS	**41.9**	**56.6**	**98.5**	**31.0**	**31.7**	**36.3**	**50.6**	**39.9**
Nitrate (mg/L)	NS	0.06 U	0.06 U	**0.04 J**	**0.02 J**	0.06 U	0.06 U	0.06 U	0.06 U
Sulfate (mg/L)	NS	**26.3**	**10.9**	**2.6**	**5.6**	**5.6**	**7.8**	**6.7**	**7.8**
Methane (µg/L)	NS	**20.7**	**3.5**	**106**	**56.5**	**29.1**	**59.4**	**34.4**	**120**
Ethane (µg/L)	NS	**2.2**	**1.5**	**10.1**	**2.7**	**2.6**	**3.3**	**2.6**	**5.7**
Ethene (µg/L)	NS	**0.91 J**	**0.84 J**	**4.7**	**3.2**	**2.3**	**1.9**	**1.6**	**104**
Total Organic Carbon (mg/L)	NS	**2.1**	**43.9**	**257**	**2.8**	**1.5**	**1.3**	**1.1**	**2.1**
Field Parameters									
pH (pH Unit)	NS	7.80	7.20	7.61	9.79	7.63	7.68	8.31	7.83
Turbidity (NTU)	NS	51.7	8.03	11.4	4.60	8.60	8.62	2.95	2.6
ORP (MeV)	NS	-319.7	-163.1	-201.5	-283.2	-174.4	-208.0	-161.7	-155.1
Conductivity (mS/cm)	NS	0.243	0.348	0.850	0.280	0.526	0.294	0.261	0.324
Dissolved Oxygen (mg/L)	NS	1.29	0.28	0.22	0.70	0.13	0.19	0.17	0.22
Groundwater Elevation (ft)	NS	226.95	225.40	224.12	229.52	229.11	225.40	224.34	227.84

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well							
		MW-32							
		11/30/2015	12/13/2016	3/21/2017	6/26/2017	9/26/2017	12/13/2017	3/14/2018	6/21/2018
		Downgradient							
VOCs (µg/L)									
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	**0.40 J**	**0.48 J**	**0.60 J**	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	**1.2**	**1.3**	**1.2**	**0.68 J**	**0.61 J**	**0.62 J**
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**150**	**132**	**191**	**130**	**135**	**120**	**104**	**64**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters									
Acetylene		NA	NA	NA	NA	NA	NA	NA	1.0 U
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**196**	**277**	**214**	**129**	**129**	**141**	**162**	**128**
Chloride (mg/L)	NS	**35.6**	**138**	**84.6**	**38.0**	**30.7**	**28.2**	**25.4**	**29.5**
Nitrate (mg/L)	NS	0.06 U	0.06 U	**0.02 J**	**0.02 J**	0.06 U	0.06 U	0.06 U	0.06 U
Sulfate (mg/L)	NS	**21.1**	**2.8**	**0.68 J**	**0.50 J**	**0.4 J**	**6.0**	**7.1**	**2.3**
Methane (µg/L)	NS	**6.8**	**16.5**	**309**	**817**	**835**	**233 J**	**583**	**130**
Ethane (µg/L)	NS	**0.5 J**	**1.5**	**19.3**	**35.9**	**29.4**	**5.6 J**	**10.7**	**2**
Ethene (µg/L)	NS	0.75 U	**1.8**	**10.3**	**15.6**	**5.4**	**2.3 J**	**3.3**	**0.25 J**
Total Organic Carbon (mg/L)	NS	**2.6**	**133**	**98.0**	**22.0**	**5.0**	**5.4 J**	**2.7**	**6.4**
Field Parameters									
pH (pH Unit)	NS	8.00	6.69	7.54	9.28	7.65	7.43	7.97	8.03
Turbidity (NTU)	NS	180	5.92	4.01	5.10	3.91	5.11	1.36	0.02
ORP (MeV)	NS	-234.2	-107.7	-140.7	-238.7	-149.4	-181.9	-106.4	-149.4
Conductivity (mS/cm)	NS	0.239	1.180	0.640	0.261	0.478	0.257	0.239	0.206
Dissolved Oxygen (mg/L)	NS	0.64	1.81	1.77	2.50	1.80	1.50	0.25	8.26
Groundwater Elevation (ft)	NS	226.86	225.45	223.70	229.05	228.93	225.42	224.18	227.45

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well MW-33							
		11/24/2015	12/14/2016	3/22/2017	6/26/2017	9/26/2017	12/13/2017	3/14/2018	6/21/2018
		Upgradient							
VOCs (µg/L)									
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**133**	**93.5**	**151**	**152**	**170**	**142**	**155**	**178**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters									
Acetylene		NA	NA	NA	NA	NA	NA	NA	1.0 U
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**172**	**218**	**194**	**205**	**202**	**212**	**215**	**215**
Chloride (mg/L)	NS	**41.8**	**43.2**	**29.2**	**22.8**	**24.6**	**28.1**	**23.0**	**22.5**
Nitrate (mg/L)	NS	0.06 U	0.06 U	**0.32**	**0.32**	**0.30**	**0.32**	**0.34**	**0.42**
Sulfate (mg/L)	NS	**25.1**	**8.2**	**15.0**	**11.8**	**12.6**	**14.8**	**11.6**	**14.3**
Methane (µg/L)	NS	**64**	**3.4**	**9.2**	**16.0**	**17.8**	**7.2**	**6.1**	**17**
Ethane (µg/L)	NS	**7**	**0.25 J**	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethene (µg/L)	NS	**3.6**	**0.48 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Total Organic Carbon (mg/L)	NS	**8.1**	**30.9**	**2.1**	**0.54 J**	**0.44 J**	**0.44 J**	**0.83 J**	**1.6**
Field Parameters									
pH (pH Unit)	NS	8.39	7.18	7.58	8.8	7.51	7.53	7.99	7.66
Turbidity (NTU)	NS	23.1	9.31	11.7	3.40	51.2	6.38	9.18	2.78
ORP (MeV)	NS	-471.2	-126.8	-64.3	44.9	-3.2	-20.4	-49.9	17.6
Conductivity (mS/cm)	NS	0.247	0.303	0.386	0.350	0.648	0.370	0.285	0.385
Dissolved Oxygen (mg/L)	NS	0.92	0.41	2.50	2.99	2.87	6.80	1.89	3.41
Groundwater Elevation (ft)	NS	226.89	225.51	223.80	229.11	229.05	225.54	224.26	227.51

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well MW-34 Downgradient							
		11/24/2015	12/13/2016	3/21/2017	6/26/2017	9/26/2017	12/12/2017	3/13/2018	6/20/2018
VOCs (µg/L)									
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	**0.42 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**17.7**	**41.3**	**48.3**	**34.0**	**29.6**	**28.0**	**17.6**	**31.3**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters									
Acetylene		NA	NA	NA	NA	NA	NA	NA	1.0 U
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**99**	**191**	**597**	**201**	**197**	**203**	**174**	**226**
Chloride (mg/L)	NS	**48.5**	**62.3**	**461**	**15.7**	**11.7**	**12.9**	**15.4**	**16.3**
Nitrate (mg/L)	NS	**0.56**	**0.06 J**	0.06 U	**0.04 J**	0.06 U	**0.02 J**	**0.02 J**	0.06 U
Sulfate (mg/L)	NS	**64.3**	**23.8**	**0.56 J**	**13.4**	**9.0**	**7.3**	**8.5**	**11.2**
Methane (µg/L)	NS	**14.5**	**1.2**	**1780**	**12.4**	**88.1**	**531**	**1260**	**35**
Ethane (µg/L)	NS	**2.2**	0.50 U	**17.3**	0.50 U	**0.45 J**	**1.1**	**1.3**	0.50 U
Ethene (µg/L)	NS	**1.8**	0.75 U	**4.4**	0.75 U	**0.58 J**	0.75 U	0.75 U	0.75 U
Total Organic Carbon (mg/L)	NS	**5.9**	**12.0**	**631**	**3.3**	**3.8**	**4.1**	**3.4**	**0.93 J**
Field Parameters									
pH (pH Unit)	NS	12.68	7.14	7.45	7.26	7.26	7.40	7.37	7.30
Turbidity (NTU)	NS	44.7	3.23	4.59	-4	4.40	4.20	5.63	1.4
ORP (MeV)	NS	-185.4	-8.4	-144.0	-139.4	-63.1	-133.4	25.0	-76.3
Conductivity (mS/cm)	NS	0.361	0.630	2.280	0.332	0.578	0.310	0.234	0.332
Dissolved Oxygen (mg/L)	NS	6.9	1.12	0.12	0.46	0.62	2.70	0.34	1.31
Groundwater Elevation (ft)	NS	226.73	225.48	223.35	228.66	228.77	225.51	223.89	227.03

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well							
		MW-35							
		11/24/2015	12/15/2016	3/22/2017	6/26/2017	9/26/2017	12/12/2017	3/13/2018	6/20/2018
		Upgradient							
VOCs (µg/L)									
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**31.9**	**31.8**	**12.5**	**43.8 J**	**47.8**	**43.5**	**21.2**	**39.4**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters									
Acetylene		NA	NA	NA	NA	NA	NA	NA	1.0 U
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**181**	**223**	**51**	**202**	**192**	**210**	**171**	**197**
Chloride (mg/L)	NS	**42.2**	**53.9**	**2.0**	**17.1**	**14.4**	**22.2 J+**	**14.5**	**15.7**
Nitrate (mg/L)	NS	0.06 U	**0.04 J**	**0.14 J**	**0.66**	**0.6**	**0.44**	**0.44**	**0.64**
Sulfate (mg/L)	NS	**48.1**	**7.2**	**3.5**	**13.6**	**10.8**	**10.2**	**8.5**	**10.7**
Methane (µg/L)	NS	**13.8**	**0.90**	**5.8**	**7.2**	**7.5**	**7.9**	**32.7**	**23**
Ethane (µg/L)	NS	**2.9**	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethene (µg/L)	NS	**1.6**	0.75 U	**0.32 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Total Organic Carbon (mg/L)	NS	**7.7**	**18.3**	**1.4**	**0.75 J**	**0.68 J**	**0.56 J**	**1.2**	**0.6 J**
Field Parameters									
pH (pH Unit)	NS	9.68	7.09	8.79	7.66	7.46	7.44	7.46	7.55
Turbidity (NTU)	NS	381	5.99	16.3	38.2	31.91	13.81	11.00	25.8
ORP (MeV)	NS	-404	-167.9	-68.4	-10.6	30	0.40	57.10	69.5
Conductivity (mS/cm)	NS	0.287	0.329	0.078	0.324	0.600	0.338	0.218	0.335
Dissolved Oxygen (mg/L)	NS	0.79	0.41	6.63	3.67	4.58	4.84	1.32	3.54
Groundwater Elevation (ft)	NS	226.69	225.46	223.40	228.68	228.81	225.56	224.08	227.04

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	GEP-1		GEP-2			GEP-3			GEP-4		MW-B-3		
		11/10/2015	6/23/2017	11/10/2015	6/21/2017	6/20/2018	11/9/2015	6/23/2017	6/20/2018	11/9/2015	6/21/2017	11/13/2015	6/22/2017	7/18/2018
		Upgradient		Upgradient			Upgradient			Upgradient		Outside Plume		
VOCs (µg/L)														
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**4.6**	**3.3 J+**	**19.7**	**16.3**	**3.7**	**0.93 J**	**1.2**	**0.58 J**	**5.1**	**4.7**	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	**0.56 J**	**0.68 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	**0.43 J**	0.75 U	**1.1**	**1.1**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	**1.2**	**1.8**	**1.1**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	**1.0**	**0.45 J**	**3.5**	**3.2**	**0.80 J**	**1.1**	**0.57 J**	**0.36 J**	**0.68 J**	**0.80 J**	**1.8**	**3.9**	**5**
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**180**	**152 J+**	**210**	**167**	**51.3**	**143**	**131**	**74.9**	**85.9**	**72.4**	0.75 U	0.75 U	0.75 U
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters														
Acetylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	223	NA	**335**	NA	NA	**217**	NA	NA	**227**	NA	**110**	NA	NA
Chloride (mg/L)	NS	13.2	NA	**5.6**	NA	NA	**15.4**	NA	NA	**22.5**	NA	**155**	NA	NA
Nitrate (mg/L)	NS	1.0	NA	**0.38 J**	NA	NA	**0.79**	NA	NA	**0.71**	NA	**0.66 J,H**	NA	NA
Sulfate (mg/L)	NS	10.2	NA	**9.9**	NA	NA	**10.8**	NA	NA	**13.2**	NA	**25.3**	NA	NA
Methane (µg/L)	NS	0.32 J	NA	**0.33 J**	NA	NA	**0.16 J**	NA	NA	**0.4 J**	NA	**0.39 J**	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	0.5 U	NA	NA	0.5 U	NA	NA	0.5 U	NA	0.5 U	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	0.75 U	NA	NA	0.75 U	NA	NA	0.75 U	NA	0.75 U	NA	NA
Total Organic Carbon (mg/L)	NS	3.4	NA	**2.9**	NA	NA	**0.47 J**	NA	NA	**2.7**	NA	**5.2**	NA	NA
Field Parameters														
pH (pH Unit)	NS	7.52	8.31	7.18	6.6	7.57	7.69	7.40	7.40	7.67	7.39	7.86	8.31	7.4
Turbidity (NTU)	NS	33.1	45.6	28.2	0	107	13.9	113.1	78.7	41.8	9.4	4.95	8	217.9
ORP (MeV)	NS	141.8	203.5	180.3	336.1	61.1	131.4	171.5	31.2	110.7	109.9	157.4	180.2	218.0
Conductivity (mS/cm)	NS	0.308	0.396	0.371	0.476	0.417	0.329	0.363	0.364	0.363	0.51	0.461	0.385	0.124
Dissolved Oxygen (mg/L)	NS	19.53	9.9	30.01	8.63	11.49	114.75	9.44	8.91	14.93	5.05	19.91	10.1	9.06
Groundwater Elevation (ft)	NS	224.81	NA	227.90	230.84	229.02	227.81	292.97	228.72	227.73	230.61	227.95	NA	228.44

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-5			MW-6			MW-7			MW-9			MW-13
		11/12/2015	6/20/2017	6/19/2018	11/12/2015	6/20/2017	6/18/2018	11/11/2015	6/20/2017	6/18/2018	11/12/2015	6/20/2017	6/19/2018	6/20/2018
		Downgradient			Downgradient			Outside Plume			Downgradient			
VOCs (µg/L)														
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**0.51 J**	**0.41 J**	0.75 U	**2.1**	**0.77 J**	0.75 J	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**4.0**
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.34 J**	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	**2.0**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	**0.45 J**	**0.39 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**0.46 J**	**0.58 J**	0.75 U	**59.8**	**26.0**	**24.4**	**1.3**	0.75 U	**32.6**	**0.68 J**	0.75 U	0.75 U	**117**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters														
Acetylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**221**	NA	NA	**281**	NA	NA	**353**	NA	NA	**186**	NA	NA	NA
Chloride (mg/L)	NS	**197**	NA	NA	**28.4**	NA	NA	**26.7**	NA	NA	**12**	NA	NA	NA
Nitrate (mg/L)	NS	**6.7**	NA	NA	**1.7**	NA	NA	**1.1**	NA	NA	0.5 U	NA	NA	NA
Sulfate (mg/L)	NS	**36.7 J**	NA	NA	**23.2 J**	NA	NA	**15**	NA	NA	**56.7 J**	NA	NA	NA
Methane (µg/L)	NS	**0.19 J**	NA	NA	0.25 U	NA	NA	**1.7**	NA	NA	**2.7**	NA	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	NA	0.5 U	NA	NA	0.5 U	NA	NA	0.5 U	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	NA	0.75 U	NA	NA	0.75 U	NA	NA	0.75 U	NA	NA	NA
Total Organic Carbon (mg/L)	NS	**7.3**	NA	NA	**5.5**	NA	NA	**5.5**	NA	NA	**3.3**	NA	NA	NA
Field Parameters														
pH (pH Unit)	NS	7.37	6.19	7.10	7.3	7.30	7.31	7.76	7.04	7.31	7.82	6.64	6.96	7.27
Turbidity (NTU)	NS	23.9	4.7	0.02	2.76	3.9	0.02	4.64	7.4	2.60	3.75	0.1	8.11	14.4
ORP (MeV)	NS	74.3	26.3	85.9	151.8	121.4	111.2	165.8	126.4	3.10	-121.4	-1.0	-22.0	28.5
Conductivity (mS/cm)	NS	0.654	0.701	1.59	0.317	0.419	0.358	0.32	0.732	0.58	0.237	0.386	0.39	0.401
Dissolved Oxygen (mg/L)	NS	17.86	12.4	9.60	24.39	8.9	9.98	11.81	7.38	1.31	0	0.59	0.44	8.62
Groundwater Elevation (ft)	NS	225.75	226.29	225.81	225.86	226.55	226.01	226.28	227.30	226.46	225.83	226.48	225.93	228.10

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-14			MW-15				MW-16				MW-17		
		11/12/2015	6/21/2017	6/20/2018	11/9/2015	12/14/2016	6/21/2017	6/20/2018	11/11/2015	12/12/2016	6/20/2017	6/19/2018	11/16/2015	6/23/2017	6/20/2018
		Upgradient			Upgradient				Outside Plume				Upgradient		
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**3.9**	**1.2**	**2.5**	**1.9**	**4.4**	**3.8**	**2.9**	**0.49 J**	0.75 U	**0.50 J**	0.75 U	**17**	**22**	**19.8**
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	**0.43 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.63 J**	**1.1**	**0.84 J**
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	**0.44 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	**0.49 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.45 J**
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	**2.4**	**0.85 J**	**1.9**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**1.0**	**2.1**	**1.8**
Tetrachloroethene (PCE; PERC)	5	**10.8**	**10.5**	**13.8**	**0.60 J**	**1.7**	**0.66 J**	**0.62 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**3.7**	**2.4**	**3.7**	**77.3**	**183**	**122**	**72.1**	**0.55 J**	0.75 U	0.75 U	0.75 U	**15.2**	**35.2**	**20.5**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Acetylene		NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	NA	1.0 U	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**242**	NA	NA	**182**	**212**	**217**	**209**	**248**	**312**	**322**	**317**	**310**	NA	NA
Chloride (mg/L)	NS	**26.4**	NA	NA	**28.9**	**14.3**	**40.1**	**46.4**	**13.6**	**9.0**	**20.2**	**3.9**	**4.9**	NA	NA
Nitrate (mg/L)	NS	**0.96**	NA	NA	**0.58**	**0.56**	**0.52**	**0.48**	**1.6**	**1.6**	**3.7**	**2**	**0.96**	NA	NA
Sulfate (mg/L)	NS	**21 J**	NA	NA	**12.3**	**12.4**	**20.5**	**15.2**	**35.2**	**44.8**	**75.5**	**27.3**	**14.3**	NA	NA
Methane (µg/L)	NS	**0.86**	NA	NA	**0.19 J**	0.5 U	0.5 U	**1.3 J+**	0.25 U	0.5 U	0.5 U	1.1 U	**0.13 J**	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	NA	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	NA	NA
Total Organic Carbon (mg/L)	NS	**6**	NA	NA	**0.55 J**	**0.57 J**	**0.21 J**	**0.41 J**	**3.6**	**0.96 J**	**0.67 J**	**1.2**	**2.7**	NA	NA
Field Parameters															
pH (pH Unit)	NS	7.39	7.28	7.01	7.73	7.31	7.42	7.62	7.64	7.27	6.57	7.89	7.38	7.13	7.15
Turbidity (NTU)	NS	136	5	3.80	11.1	7	2.1	153.0	8.01	14.8	4.4	10.77	9.02	3.1	30.7
ORP (MeV)	NS	119.4	122.6	52.1	91.4	54.6	114.6	67.2	137.6	139.9	298.7	16.2	118.6	159.7	134.1
Conductivity (mS/cm)	NS	0.302	0.479	0.426	0.358	0.25	0.5	0.369	0.361	0.388	0.486	0.441	0.257	0.462	0.423
Dissolved Oxygen (mg/L)	NS	14.94	-13.54	6.7	31.45	8.04	4.9	6.72	22.27	9.5	10.82	11.71	16.42	9.99	8.7
Groundwater Elevation (ft)	NS	228.08	231.32	229.39	227.80	226.27	230.60	228.79	226.39	225.38	227.63	226.19	228.08	231.15	229.26

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-18			MW-19			MW-20			MW-22			MW-23		
		1/4/1900	6/21/2017	6/19/2018	11/16/2015	6/21/2017	6/19/2018	11/17/2015	6/22/2017	6/19/2018	11/16/2015	6//22/2017	6/21/2018	11/17/2015	6/22/2017	7/18/2018
		Upgradient			Upgradient			Upgradient			Upgradient			Outside Plume		
VOCs (µg/L)																
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ
1,1,1-Trichloroethane (1,1,1-TCA)	5	**2.7**	**2.4**	0.75 U	**2.1**	**2.9**	**1.7**	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ
1,1-Dichloroethene (1,1-DCE)	5	**0.39 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ
Tetrachloroethene (PCE; PERC)	5	**1.6**	**1.8**	0.75 U	0.75 U	0.75 U	0.75 U	**1.5**	**3.7**	**3.0**	**5.6**	**3.8 J**	**6.3**	0.75 U	0.75 U	1 UJ
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ
Trichloroethene (TCE)	5	**153**	**117**	**27**	**30**	**14.3**	**11.4**	**52.3**	**86.8**	**69.9**	**282**	**238**	**331**	0.75 U	0.75 U	1 UJ
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ
MNA Parameters																
Acetylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**197**	NA	NA	**267**	NA	NA	**260**	NA	NA	**246**	NA	NA	**211**	NA	NA
Chloride (mg/L)	NS	**16.9**	NA	NA	**3.9**	NA	NA	**2.3**	NA	NA	2 U	NA	NA	**27.6**	NA	NA
Nitrate (mg/L)	NS	0.50 U	NA	NA	**0.48**	NA	NA	**0.74**	NA	NA	**4.5**	NA	NA	**0.66**	NA	NA
Sulfate (mg/L)	NS	**13.2**	NA	NA	**9.8**	NA	NA	**7.7 J**	NA	NA	**7.2**	NA	NA	**30.4 J**	NA	NA
Methane (µg/L)	NS	**1.1**	NA	NA	**0.65**	NA	NA	**1.4 J**	NA	NA	0.25 U	NA	NA	**0.17 J**	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	NA	0.5 U	NA	NA	0.5 U	NA	NA	0.5 U	NA	NA	0.5 U	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	NA	0.75 U	NA	NA	0.75 U	NA	NA	0.75 U	NA	NA	0.75 U	NA	NA
Total Organic Carbon (mg/L)	NS	**9.5**	NA	NA	**5**	NA	NA	**3.9**	NA	NA	**2.2**	NA	NA	**2.5**	NA	NA
Field Parameters																
pH (pH Unit)	NS	7.72	7.03	7.82	7.62	7.82	6.87	7.40	7.83	7.08	7.63	7.18	7.57	7.53	6.60	7.43
Turbidity (NTU)	NS	40.1	3.8	2.33	35.4	19.4	30.8	85.7	26.3	30.8	3.79	40.1	120	13	15.1	Over Range
ORP (MeV)	NS	88.7	298.7	38.5	93.0	297.8	141.6	184.8	136.1	103.5	115.6	178.4	88.6	134.3	169.4	189.4
Conductivity (mS/cm)	NS	0.301	0.394	0.402	0.244	0.428	0.382	0.264	0.36	0.331	0.224	0.36	0.342	0.273	0.405	0.463
Dissolved Oxygen (mg/L)	NS	18.46	6.33	12.25	14.23	8.82	8.80	17.61	9.46	9.55	16.55	11.11	9.92	12.71	9.07	9.07
Groundwater Elevation (ft)	NS	227.94	230.75	228.90	228.43	231.93	229.87	228.71	232.33	230.20	228.29	231.27	229.26	228.90	232.56	229.84

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-24				MW-25			MW-26				MW-27			MW-36		
		11/10/2015	12/13/2016	6/26/2017	6/21/2018	11/16/2015	6/21/2017	6/21/2018	11/17/2015	12/13/2016	6/26/2017	6/20/2018	11/11/2015	6/23/2017	6/19/2018	12/2/2015	6/22/2017	6/21/2018
		Downgradient				Upgradient			Downgradient				Downgradient			Upgradient		
VOCs (µg/L)																		
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.81 J**	**0.73 J**	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.51 J**	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	**0.40 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.57 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**0.93 J**	**1.4**	**1.2**	**0.66 J**	**96.7**	**76.7**	**80.3**	0.75 U	0.75 U	0.75 U	0.75 U	**189**	**211**	0.75 U	**1.0**	**0.81 J**	**1.7**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters																		
Acetylene		NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**168**	**198**	**195**	**159**	**198**	NA	NA	**204**	**197**	**223**	**225**	**282**	NA	NA	**197**	NA	NA
Chloride (mg/L)	NS	**36.3**	**38.5**	**41.0**	**37.1**	**16.3**	NA	NA	**45.2**	**44.9**	**133**	**49.1**	**13.8**	NA	NA	**46.6**	NA	NA
Nitrate (mg/L)	NS	**0.90**	0.06 U	0.2 U	0.06 U	**0.52**	NA	NA	0.06 U	**0.04 J**	0.02 U	0.06 U	**1.2**	NA	NA	0.06 U	NA	NA
Sulfate (mg/L)	NS	**15.5**	**21.4**	**22.1**	**21.5**	**9**	NA	NA	**25.1**	**24.6**	**20.9**	**16.3**	**22**	NA	NA	**21.2 J,L**	NA	NA
Methane (µg/L)	NS	**0.82**	**1.6**	**2.2**	**1.3 J+**	**0.45 J**	NA	NA	**34.8**	**2.7**	**2.1**	**80**	**0.24 J**	NA	NA	**25.6**	NA	NA
Ethane (µg/L)	NS	**0.34 J**	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.50 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	**2.7**	NA	NA
Ethene (µg/L)	NS	0.75 U	0.75 U	0.8 U	**0.2 J**	0.75 U	NA	NA	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	NA	NA	**1.2 J**	NA	NA
Total Organic Carbon (mg/L)	NS	**3.5**	**1.9**	**0.79 J**	**4.5**	**5.6**	NA	NA	**9.3**	**2.6**	**30.7**	**0.5 J**	**2.9**	NA	NA	**1.7**	NA	NA
Field Parameters																		
pH (pH Unit)	NS	7.75	7.22	7.78	7.95	7.85	7.51	7.80	7.52	7.22	7.23	7.57	7.50	7.87	7.29	7.76	8.05	7.86
Turbidity (NTU)	NS	9.33	13.9	35.2	19.5	30.9	1.5	128	68.3	21.8	0.4	36.2	86.8	1.9	33.8	66.7	6.3	17.2
ORP (MeV)	NS	-80.2	-93.2	-108.6	-147.3	85.4	97.5	101.1	-103.6	-28.9	-26.9	-75.3	169.9	310.7	-46.0	-224.3	-71.7	85.5
Conductivity (mS/cm)	NS	0.327	0.57	0.365	0.204	0.201	0.446	0.349	0.324	0.59	0.63	0.415	0.411	0.429	0.85	0.282	0.422	7.86
Dissolved Oxygen (mg/L)	NS	0.94	0.44	1.2	11.71	11.25	4.6	7.6	0	0.33	0.62	1.38	21.89	5.3	9.00	5.29	1.08	3.27
Groundwater Elevation (ft)	NS	226.79	225.30	229.05	227.43	227.16	229.65	227.78	226.06	224.75	228.01	226.43	225.50	226.43	225.21	227.80	230.49	229.13

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well Pair								Confirmation Well Pair							
		MW-28				MW-29				MW-30				MW-31			
		12/1/2015	12/14/2016	6/27/2017	6/22/2018	12/1/2015	12/14/2016	6/27/2017	6/22/2018	12/1/2015	12/13/2016	6/26/2017	7/18/2018	12/1/2015	12/14/2016	6/26/2017	6/21/2018
		Downgradient				Upgradient				Downgradient				Upgradient			
VOCs (µg/L)																	
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	1.0 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**11.2**	**10.4**	**8.9 J+**	**10.5**	**12.4**	**14.0** J+	**11.8 J+**	**11.8**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	1.0 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	**0.46 J**	0.75 U	1.0 U	**0.44 J**	0.75 U	3.8 U	0.75 U	**0.45 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	**1.0**	**0.77 J**	**1.0 J+**	**0.86 J**	**0.97 J**	3.8 U	**1.0 J+**	**0.84 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	**0.53 J**	**0.43 J**	**0.38 J**	**0.39 J**	**0.68 J**	3.8 U	**0.63 J**	**0.48 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	**0.61 J**	0.75 U	0.75 U	**0.75 J**	0.75 U	3.8 U	0.75 U	**0.82 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	**4.7**	**4.3**	**4.7 J+**	**4.9**	**4.9**	**6.1** J+	**5.8 J+**	**5.1**	0.75 U	0.75 U	**0.61 J**	0.75 U	0.75 U	0.75 U	**0.50 J**	0.75 U
Tetrachloroethene (PCE; PERC)	5	**33**	**44.6**	**36.3 J+**	**38.7**	**33.2**	**30.8** J+	**38.1 J+**	**35.4**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	**0.47 J**	**0.37 J**	**0.36 J**	0.75 U	3.8 U	**0.70 J**	**0.59 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**182**	**196**	**195**	**214**	**224**	**209** J+	**264**	**248**	**25.2**	**42.3**	**24.3**	**8.1**	**42.7**	**38.2**	**29.0**	**20.6**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters																	
Acetylene		NA	NA	NA	1 U	NA	NA	NA	1.0 U	NA	NA	NA	1.0 UJ	NA	NA	NA	1 U
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**352**	**316**	**352**	**422**	**327**	**301**	**361**	**370**	**143**	**319**	**154**	**58**	**178**	**222**	**150**	**169**
Chloride (mg/L)	NS	**22.1**	**32.4**	**29.0**	**33.1**	**28.2**	**28.4**	**49.4**	**28**	**38.4**	**182**	**49.6**	**38.8**	**41.9**	**56.6**	**31**	**39.9**
Nitrate (mg/L)	NS	0.06 U	**0.06 J**	**1.5**	**0.58**	**0.1 J**	**0.26**	**1.3 J**	**0.38**	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.2 U	0.06 U
Sulfate (mg/L)	NS	**22.4**	**20.9**	**13.0**	**23.1**	**29.2**	**24.9**	**13.8**	**21**	**35.9**	**2.9**	2.0 U	**0.34 J**	**26.3**	**10.9**	**5.6**	**7.8**
Methane (µg/L)	NS	**3.4**	**3.0**	**1.0**	**1800**	**13.9**	**0.62**	0.05 U	**210**	**47.4**	**146**	**3210**	**3700**	**20.7**	**3.5**	**56.5**	**120**
Ethane (µg/L)	NS	0.5 U	**3.6**	0.5 U	0.5 U	**0.81 J**	0.5 U	0.5 U	0.5 U	**4.7**	**5.4**	**36.7**	**52**	**2.2**	**1.5**	**2.7**	**5.7**
Ethene (µg/L)	NS	0.75 U	**1.3 J**	0.75 U	0.75 U	**0.59 J**	0.75 U	0.75 U	0.75 U	**2.2**	**3.3**	**12.7**	**6.3**	**0.91 J**	**0.84 J**	**3.2**	**2.4**
Total Organic Carbon (mg/L)	NS	**1.9**	**2.3**	**0.76 J**	**4.1**	**2.3**	**1.4**	**0.92 J**	**3.2**	**2.2**	**225**	**75.2**	**9.7 J**	**2.1**	**43.9**	**2.8**	**2.1**
Field Parameters																	
pH (pH Unit)	NS	6.83	7.03	7.05	7.33	7.06	7.02	7.02	7.33	8.91	6.83	7.77	8.28	7.80	7.20	9.79	7.83
Turbidity (NTU)	NS	209	1.5	-3	1.32	82.4	0.62	2.8	15.2	58.2	3.55	3	950.5	51.7	8.03	4.6	2.6
ORP (MeV)	NS	273.2	71.2	97.4	11.1	-25.1	60.9	120.2	52.3	-278.4	-166.3	-173.3	12.1	-319.7	-163.1	-283.2	-155.1
Conductivity (mS/cm)	NS	0.324	0.366	0.554	7.33	0.325	0.354	0.619	0.61	0.21	1.41	0.32	0.238	0.243	0.348	0.28	0.324
Dissolved Oxygen (mg/L)	NS	6.75	3.94	7.59	0.63	4.29	6.17	7.12	2.98	3.7	0.29	0.48	0.98	1.29	0.28	0.7	0.22
Groundwater Elevation (ft)	NS	227.07	225.41	229.79	228.07	227.05	225.38	229.82	228.09	226.98	225.35	229.44	227.80	226.95	225.40	229.52	227.84

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well Pair								Confirmation Well Pair							
		MW-32				MW-33				MW-34				MW-35			
		11/30/2015	3/21/2017	6/26/2017	6/21/2018	11/24/2015	12/14/2016	6/26/2017	6/21/2018	11/24/2015	12/13/2016	6/26/2017	6/20/2018	11/24/2015	12/15/2016	6/26/2017	6/20/2018
		Downgradient				Upgradient				Downgradient				Upgradient			
VOCs (µg/L)																	
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	**0.40 J**	**0.48 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	**1.2**	**1.3**	**0.62 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.42 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**150**	**191**	**130**	**64.1**	**133**	**93.5**	**152**	**178**	**17.7**	**41.3**	**34.0**	**31.3**	**31.9**	**31.8**	**43.8 J+**	**39.4**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters																	
Acetylene		NA	NA	NA	1 U	NA	NA	NA	1 U	NA	NA	NA	1 U	NA	NA	NA	1 U
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**196**	**214**	**129**	**128**	**172**	**218**	**205**	**215**	**99**	**191**	**201**	**226**	**181**	**223**	**202**	**197**
Chloride (mg/L)	NS	**35.6**	**84.6**	**38.0**	**29.5**	**41.8**	**43.2**	**22.8**	**22.5**	**48.5**	**62.3**	**15.7**	**16.3**	**42.2**	**53.9**	**17.1**	**15.7**
Nitrate (mg/L)	NS	0.06 U	**0.02 J**	0.2 U	0.06 U	0.06 U	0.06 U	**0.32**	**0.42**	**0.56**	**0.06 J**	0.2 U	0.06 U	0.06 U	**0.040 J**	**0.66**	**0.64**
Sulfate (mg/L)	NS	**21.1**	**0.68 J**	2 U	**2.3**	**25.1**	**8.2**	**11.8**	**14.3**	**64.3**	**23.8**	**13.4**	**11.2**	**48.1**	**7.2**	**13.6**	**10.7**
Methane (µg/L)	NS	**6.8**	**309**	**817**	**130**	**64**	**3.4**	**16**	**17**	**14.5**	**1.2**	**12.4**	**35**	**13.8**	**0.90**	**7.2**	**23**
Ethane (µg/L)	NS	**0.5 J**	**19.3**	**35.9**	**2**	**7**	**0.25 J**	0.5 U	0.5 U	**2.2**	0.5 U	0.5 U	0.5 U	**2.9**	0.5 U	0.5 U	0.5 U
Ethene (µg/L)	NS	0.75 U	**10.3**	**15.6**	**0.25 J**	**3.6**	**0.48 J**	0.75 U	0.75 U	**1.8**	0.75 U	0.75 U	0.75 U	**1.6**	0.75 U	0.75 U	0.75 U
Total Organic Carbon (mg/L)	NS	**2.6**	**98**	**22**	**6.4**	**8.1**	**30.9**	**0.54 J**	**1.6**	**5.9**	**12**	**3.3**	**0.93 J**	**7.7**	**18.3**	**0.75** J	**0.6 J**
Field Parameters																	
pH (pH Unit)	NS	8.00	7.54	9.28	8.03	8.39	7.18	8.8	7.66	12.68	7.14	7.26	7.30	9.68	7.09	7.66	7.55
Turbidity (NTU)	NS	180	4.01	5.1	0.02	23.1	9.31	3.4	2.78	44.7	3.23	-4	1.4	381	5.99	38.2	25.8
ORP (MeV)	NS	-234.2	-140.7	-238.7	-149.4	-471.2	-126.8	44.9	17.6	-185.4	-8.4	-139.4	-76.3	-404	-167.9	-10.6	69.5
Conductivity (mS/cm)	NS	0.239	0.64	0.261	0.206	0.247	0.303	0.35	0.382	0.361	0.63	0.332	0.332	0.287	0.329	0.324	0.335
Dissolved Oxygen (mg/L)	NS	0.64	1.77	2.5	8.26	0.92	0.41	2.99	3.41	6.9	1.12	0.46	1.31	0.79	0.41	3.67	3.54
Groundwater Elevation (ft)	NS	226.86	223.70	229.05	227.45	226.89	225.51	229.11	227.51	226.73	225.48	228.66	227.03	226.69	225.46	228.68	227.04

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

APPENDICES

APPENDIX A: Groundwater Sample Collection Field Forms

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-6 Date: 6/18/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-6 061818 QA/QC Collected? No

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	71.50	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	62.57	feet
4. C = Column of Water in Well:	8.93	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.45	gal
6. 3(V) = Target Purge Volume	4.37	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

61-71
68'

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pro plus / Geotech Turb

Parameter	Units	Readings					
Time	24 hr	1150	1155	1200	1205	1210	1215
Water Level (0.33)	feet	62.60	62.60	62.60	62.60	62.60	62.60
Volume Purged	gal	0	0.45	0.74	1.00	1.34	1.60
Flow Rate	mL/min	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	1.80	0.02	0.02	0.02	0.02	0.02
Dissolved Oxygen (+/- 10%)	%	104.2	99.6	99.3	98.1	97.9	98.1
Dissolved Oxygen (+/- 10%)	mg/L	10.59	9.87	10.08	10.01	9.94	9.99
Eh / ORP (+/- 10)	MeV	132.0	132.2	122.5	119.8	116.7	111.2
Specific Conductivity (+/- 3%)	mS/cm[c]	0.445	0.445	0.443	0.444	0.443	0.445
Conductivity (+/- 3%)	mS/cm	0.358	0.358	0.360	0.356	0.356	0.358
pH (+/- 0.1)	pH unit	7.17	6.98	7.09	7.15	7.24	7.31
Temp (+/- 0.5)	C°	15.7	14.8	15.0	14.6	14.9	14.9
Color	Visual	clear	clear	clear	clear	clear	clear
Odor	Olfactory	NO	NO	NO	NO	NO	NO

Comments: Sampled @ 1215

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-7 Date: 6/18/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-7 061818 QA/QC Collected? —

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	112.52	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	62.80	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

61-71
pump set @ 67'

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI + NTU

Parameter	Units	Readings					✓	✓	✓
Time	24 hr	1134	1139	1144	1149	1154	1159	1204	1209
Water Level (0.33)	feet	64.90	64.99	64.91	64.96	64.81	64.78	64.62	64.56
Volume Purged	gal	.05	.12	.18	.37	.50	.62	.70	.75
Flow Rate	mL/min	320	320	300	300	300	300	300	300
Turbidity (+/- 10%)	NTU	7.83	2.88	3.80	5.90	4.42	2.48	2.18	2.60
Dissolved Oxygen (+/- 10%)	%	55.8	17.3	14.4	15.7	17.8	18.5	20.5	20.4
Dissolved Oxygen (+/- 10%)	mg/L	3.77	1.24	0.99	1.07	1.20	1.23	1.33	1.31
Eh / ORP (+/- 10)	MeV	151.9	16.9	2.9	3.2	-6.0	1.5	7.7	3.1
Specific Conductivity (+/- 3%)	mS/cm[c]	—	—	—	—	—	—	—	—
Conductivity (+/- 3%)	mS/cm	0.60	0.60	0.59	0.59	0.59	0.59	0.59	.88
pH (+/- 0.1)	pH unit	7.54	7.42	7.38	7.36	7.36	7.34	7.31	7.31
Temp (+/- 0.5)	C°	37.5	33.7	34.5	36.4	37.3	38.4	39.4	39.9
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—

Comments:

Sampled @ 1210

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-5 Date: 6/19/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-5 061918 QA/QC Collected? DuPol - 061918

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	74.82	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	64.30	feet
4. C = Column of Water in Well:	10.52	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.71	gal
6. 3(V) = Target Purge Volume	5.14	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

68

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pro plus / CaT Turb

Parameter	Units	Readings					
Time	24 hr	950	955	1000	1005	1010	1015
Water Level (0.33)	feet	64.30	64.30	64.30	64.30	64.30	64.30
Volume Purged	gal	0	0.20	0.30	0.45	0.55	0.65
Flow Rate	mL/min	150	150	150	150	150	150
Turbidity (+/- 10%)	NTU	1.67	1.45	0.19	0.19	0.02	0.02
Dissolved Oxygen (+/- 10%)	%	99.1	97.1	97.2	94.5	93.8	95.2
Dissolved Oxygen (+/- 10%)	mg/L	9.56	9.86	9.91	9.69	9.53	9.60
Eh / ORP (+/- 10)	MeV	88.0	87.1	86.7	86.6	85.0	85.9
Specific Conductivity (+/- 3%)	mS/cm[c]	1.96	1.96	1.96	1.96	1.98	1.98
Conductivity (+/- 3%)	mS/cm	1.58	1.58	1.58	1.57	1.58	1.59
pH (+/- 0.1)	pH unit	6.97	6.99	7.00	7.04	7.11	7.10
Temp (+/- 0.5)	C°	15.1	14.9	14.7	14.4	14.5	14.6
Color	Visual	clear	clear	clear	clear	clear	clear
Odor	Olfactory	NO	NO	NO	NO	NO	NO

Comments: Sampled @ 1015

+ collected Dup

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-~~32~~9 Date: 6/19/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-~~32~~9 061918 QA/QC Collected? MS/MSD

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	122.00	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	62.40	feet
4. C = Column of Water in Well:	59.6	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	9.71	gal
6. 3(V) = Target Purge Volume	29.14	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

115

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pro plus / GT Turb

Parameter	Units	Readings							
Time	24 hr	850	815	900	905	910	915	920	925
Water Level (0.33)	feet	62.60	62.62	62.60	62.60	62.60	62.60	62.60	62.60
Volume Purged	gal	0	0.20	0.30	0.40	0.60	0.75	0.90	1.0
Flow Rate	mL/min	200	200	175	150	150	150	150	150
Turbidity (+/- 10%)	NTU	9.77	7.32	6.87	7.89	7.92	7.97	8.03	8.11
Dissolved Oxygen (+/- 10%)	%	74.9	36.7	15.0	8.8	5.3	4.8	4.6	4.4
Dissolved Oxygen (+/- 10%)	mg/L	7.48	3.63	1.51	0.88	0.52	0.48	0.43	0.44
Eh / ORP (+/- 10)	MeV	123.8	87.5	52.4	29.7	-6.3	-14.1	-18.2	-22.1
Specific Conductivity (+/- 3%)	mS/cm[c]	0.482	0.472	0.470	0.467	0.464	0.463	0.469	0.468
Conductivity (+/- 3%)	mS/cm	0.396	0.393	0.382	0.386	0.386	0.396	0.399	0.398
pH (+/- 0.1)	pH unit	6.50	6.37	6.43	6.59	6.68	6.80	6.90	6.96
Temp (+/- 0.5)	C°	15.8	16.1	15.1	15.9	16.3	16.9	17.2	17.2
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	No	No	No	No	No	No	No	No

Comments: Sampled @ 925

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-16 Date: 6/19/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-16 061918 QA/QC Collected? —

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	70	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	62.79	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
~~2-inch~~	~~0.17~~
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI + NTU

Parameter	Units	Readings *						1058
Time	24 hr	~~1007~~	1012	1027	1032	1037	1042	~~1047~~
Water Level (0.33)	feet	62.70	62.73	62.71	62.73	62.75	62.73	62.75
Volume Purged	gal	.35	.5	.65	1.00	1.12	1.5	1.65
Flow Rate	mL/min	200	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	121	105	127	123	96.2	68.6	53.9
Dissolved Oxygen (+/- 10%)	%	118.1	109.6	109.2	111.6	116.7	115.9	116.5
Dissolved Oxygen (+/- 10%)	mg/L	12.45	11.48	11.97	11.72	12.14	12.68	12.23
Eh / ORP (+/- 10)	MeV	18.8	7.9	27.4	35.0	38.7	42.6	32.9
Specific Conductivity (+/- 3%)	mS/cm^c	.598	.604	.593	.595	.594	.593	.587
Conductivity (+/- 3%)	mS/cm	.483	.472	.465	.459	.452	.447	.447
pH (+/- 0.1)	pH unit	8.08	8.24	7.91	7.86	7.80	7.94	8.22
Temp (+/- 0.5)	C°	13.0	14.7	13.6	12.8	12.3	12.5	~~8.22~~ 14.5
Color	Visual	Lil Cloudy	"	"	"	"	"	"
Odor	Olfactory	—	None	None	None	None	None	None

Comments: *reconfigured tubing @ 1027 -> 1027
Old tubing had holes
Sampling time @ 1134

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-16 cont. Date: 6/19/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-16 061918 QA/QC Collected? —

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth: _____ feet
2. D = Riser Diameter (I.D.): _____ feet
3. W = Depth to Water: _____ feet
4. C = Column of Water in Well: _____ feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$ _____ gal
6. 3(V) = Target Purge Volume _____ gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter	Units	Readings						
Time	24 hr	1103	1108	1113	1118	1123 ✓	1128 ✓	1133 ✓
Water Level (0.33)	feet	62.81	62.79	62.83	62.82	62.8	62.83	62.8
Volume Purged	gal	1.75	2.00	2.50	2.75	3.00	3.25	3.5
Flow Rate	mL/min	200	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	123	57.2	40.1	30.3	19.7	14.5	10.77
Dissolved Oxygen (+/- 10%)	%	109.7	111.75	109.9	109.9	109.9	109.1	~~108.9~~ 109.0
Dissolved Oxygen (+/- 10%)	mg/L	11.48	12.74	11.78	11.75	11.72	11.70	11.71
Eh / ORP (+/- 10)	MeV	47.5	20.8	-9.1	13.4	14.4	15.7	16.2
Specific Conductivity (+/- 3%)	mS/cm[c]	.581	.586	.584	.585	.584	.584	.582
Conductivity (+/- 3%)	mS/cm	.427	.445	.444	.444	.443	.443	.441
pH (+/- 0.1)	pH unit	7.86	7.95	8.64	8.58	8.00	7.91	7.89
Temp (+/- 0.5)	C°	12.1	12.3	12.0	12.5	12.4	12.4	12.5
Color	Visual	"	"	"	clear	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments:

Sampling time @ 1134

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-18 Date: 6/19/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-18 061918 QA/QC Collected? —

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	77.8	feet
2. D = Riser Diameter (I.D.):	.17	feet
3. W = Depth to Water:	66.82	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI + NTU

Parameter	Units	Readings ✓				✓	✓
Time	24 hr	1242	1247	1252	1257	1302	1307
Water Level (0.33)	feet	66.82	66.84	66.8	66.7	66.82	66.80
Volume Purged	gal	.17	.25	.75	1.10	1.32	1.65
Flow Rate	mL/min	250	250	250	250	250	250
Turbidity (+/- 10%)	NTU	95.0	22.0	9.55	5.43	5.89	2.33
Dissolved Oxygen (+/- 10%)	%	120.9	116.6	115.0	117.5	118.8	118.7
Dissolved Oxygen (+/- 10%)	mg/L	11.47	12.28	11.88	12.22	12.25	12.25
Eh / ORP (+/- 10)	MeV	15.4	34.0	27.9	36.5	38.9	38.5
Specific Conductivity (+/- 3%)	mS/cm[c]	.496	.491	.499	.497	.496	.495
Conductivity (+/- 3%)	mS/cm	.349	.393	.435	.404	.402	.402
pH (+/- 0.1)	pH unit	7.93	7.85	8.04	7.81	7.82	7.82
Temp (+/- 0.5)	C°	17.4	15.2	18.0	14.2	14.8	15.7
Color	Visual	Clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	None	None	None	None	None

Comments:

sample time @ 1308

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-19 Date: 6/19/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-19 061918 QA/QC Collected? NO

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	74.70	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	67.80	feet
4. C = Column of Water in Well:	5.93	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	0.96	gal
6. 3(V) = Target Purge Volume	2.88	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI Pro Plus / GT Turbo

Parameter	Units	Readings					
Time	24 hr	1305	1310	1315	1320	1325	1330
Water Level (0.33)	feet	67.90	67.90	67.90	67.90	67.90	67.90
Volume Purged	gal	0	0.25	0.50	0.65	0.75	0.95
Flow Rate	mL/min	150	<150	150	150	150	150
Turbidity (+/- 10%)	NTU	511	270	165	32.1	21.6	30.8
Dissolved Oxygen (+/- 10%)	%	89.8	85.4	83.4	84.0	82.8	84.1
Dissolved Oxygen (+/- 10%)	mg/L	9.09	8.91	8.62	8.75	8.74	8.80
Eh / ORP (+/- 10)	MeV	153.9	149.0	139.0	136.8	143.5	141.6
Specific Conductivity (+/- 3%)	mS/cm[c]	0.503	0.499	0.497	0.499	0.500	0.498
Conductivity (+/- 3%)	mS/cm	0.400	0.389	0.393	0.384	0.382	0.382
pH (+/- 0.1)	pH unit	6.79	6.81	6.96	7.00	6.87	6.87
Temp (+/- 0.5)	C°	14.2	13.6	14.0	12.9	12.8	13.0
Color	Visual	BR	BR	BR	BR	clear	clear
Odor	Olfactory	NO	NO	NO	NO	NO	NO

Comments: Sampled @ 1330

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-20 Date: 6/19/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-20 061918 QA/QC Collected? No

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	79.08	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	71.35	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pro plus / GT Turb

Parameter	Units	Readings							
Time	24 hr	1145	1150	1155	1200	1205	1210	1215	1220
Water Level (0.33)	feet	71.40	71.42	71.40	71.40	71.40	71.40	71.40	71.40
Volume Purged	gal	0	0.2	0.4	0.60	0.80	1.00	1.20	1.40
Flow Rate	mL/min	150	150	150	150	150	150	150	150
Turbidity (+/- 10%)	NTU	720	120	108	94	37.2	32.2	31.1	30.8
Dissolved Oxygen (+/- 10%)	%	105.3	98.1	94.9	93.4	93.0	92.0	92.4	92.8
Dissolved Oxygen (+/- 10%)	mg/L	10.49	9.88	9.93	9.60	9.49	9.53	9.55	9.55
Eh / ORP (+/- 10)	MeV	85.6	101.3	112.2	109.1	102.9	101.2	102.8	103.5
Specific Conductivity (+/- 3%)	mS/cm^c	0.419	0.414	0.411	0.414	0.416	0.418	0.418	0.417
Conductivity (+/- 3%)	mS/cm	0.346	0.335	0.321	0.326	0.333	0.332	0.331	0.331
pH (+/- 0.1)	pH unit	6.94	6.80	6.77	6.90	6.99	7.08	7.07	7.08
Temp (+/- 0.5)	C°	15.9	14.8	13.6	13.8	14.6	14.6	14.3	14.2
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	No	No	No	No	No	No	No	No

Comments: Sampled @ 1220

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-27 Date: 6/19/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-27 061918 QA/QC Collected? —

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	69.39	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	67.14	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI + NTU

Parameter	Units	Readings				✓	✓	✓
Time	24 hr	0835	0840	0845	0850	0855	0900	0905
Water Level (0.33)	feet	63.8	63.8	63.81	63.85	63.81	63.80	63.81
Volume Purged	gal	~~.10~~.16	~~.34~~.34	.5	1.00	1.25	1.60	2.00
Flow Rate	mL/min	300	300	300	300	300	300	300
Turbidity (+/- 10%)	NTU	58.4	56.1	58.5	47.2	34.2	39.7	33.8
Dissolved Oxygen (+/- 10%)	%	92.4	88.0	87.0	86.3	86.3	86.2	~~8~~ 8.0
Dissolved Oxygen (+/- 10%)	mg/L	9.38	9.23	8.99	9.00	8.98	8.98	~~8~~ 9.00
Eh / ORP (+/- 10)	MeV	122.0	42.9	20.8	-38.5	-50.1	-46.7	-46.0
Specific Conductivity (+/- 3%)	mS/cm^c	1.10	1.10	1.09	1.08	1.09	1.09	1.09
Conductivity (+/- 3%)	mS/cm	.87	.86	.85	.84	.85	.85	.85
pH (+/- 0.1)	pH unit	6.87	7.12	7.20	7.26	7.31	7.30	7.29
Temp (+/- 0.5)	C°	14.2	13.5	13.6	13.5	13.3	13.3	13.4
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments:

Sampling time @ 0906

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: GEP-2 Date: 6/29/2018

Samplers: Ross McCredy Alex Golden

Sample Number: GEP-2 062018 QA/QC Collected? —

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	77.98	feet
2. D = Riser Diameter (I.D.):	.17	feet
3. W = Depth to Water:	67.01	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using —

Parameter	Units	Readings ✓	✓	✓			
Time	24 hr	1010	1015	1020	1025	1030	1035
Water Level (0.33)	feet	67.01	67.38	67.39	67.38	67.39	
Volume Purged	gal	.2	.5	.75	1.00	1.35	1.50
Flow Rate	mL/min	225	225	225	225	225	225
Turbidity (+/- 10%)	NTU	197	144	129	112	108	107
Dissolved Oxygen (+/- 10%)	%	110.1	109.0	110.2	110.2	110.2	110.1
Dissolved Oxygen (+/- 10%)	mg/L	11.11	11.50	11.50	11.50	11.49	11.49
Eh / ORP (+/- 10)	MeV	143.6	104.0	87.2	69.1	61.4	61.1
Specific Conductivity (+/- 3%)	mS/cm^c	.564	.548	.543	.543	.542	.542
Conductivity (+/- 3%)	mS/cm	.428	.418	.416	.415	.417	.417
pH (+/- 0.1)	pH unit	7.60	7.56	7.57	7.59	7.58	7.57
Temp (+/- 0.5)	C°	15.4	13.0	12.9	13.3	13.0	13.0
Color	Visual	Clear	clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None

Comments:

sampling time @ 1035

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: GEP-3 Date: 6/20/2018

Samplers: Ross McCredy Alex Golden

Sample Number: GEP-3 062018 QA/QC Collected? ~~—~~

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	~~74.43~~	feet
2. D = Riser Diameter (I.D.):	~~.17~~	feet
3. W = Depth to Water:	65.40	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
~~2-inch~~	~~0.17~~
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI + NTI ✓

Parameter	Units	Readings						
Time	24 hr	1117	1122	1127	1132	1137	1142	1147
Water Level (0.33)	feet	65.40	65.41	65.42	65.45	65.42	65.43	65.42
Volume Purged	gal	.12	.25	.50	.75	1.12	1.25	1.50
Flow Rate	mL/min	250	250	250	250	250	250	250
Turbidity (+/- 10%)	NTU	580	409	366	235	152	123	90.0
Dissolved Oxygen (+/- 10%)	%	110.2	108.2	97.0	86.3	86.1	85.9	85.8
Dissolved Oxygen (+/- 10%)	mg/L	10.40	10.74	9.72	8.87	8.87	8.90	8.91
Eh / ORP (+/- 10)	MeV	59.6	32.5	29.9	26.3	28.3	29.0	29.1
Specific Conductivity (+/- 3%)	mS/cm[c]	.496	.485	.483	.477	.471	.471	.471
Conductivity (+/- 3%)	mS/cm	.418	.401	.395	.378	.367	.364	.364
pH (+/- 0.1)	pH unit	7.76	~~7.61~~ 7.57	7.41	7.42	7.40	7.40	7.39
Temp (+/- 0.5)	C°	17.4	16.0	15.4	14.2	13.4	13.1	13.0
Color	Visual	cloudy	cloudy	cloudy	cloudy	cloudy	cloudy	cloudy
Odor	Olfactory	None	None	None	None	None	None	None

Comments:

Sampling time @ 1157

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: GEP-3 Date: 6/20/2018

Samplers: Ross McCredy Alex Golden

Sample Number: GEP-3 062018 QA/QC Collected? ✓

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	_____	feet
2. D = Riser Diameter (I.D.):	_____	feet
3. W = Depth to Water:	_____	feet
4. C = Column of Water in Well:	_____	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	_____	gal
6. 3(V) = Target Purge Volume	_____	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI + NTU

Parameter	Units	✓	✓	Readings				
Time	24 hr	1152	1157					
Water Level (0.33)	feet	65.43	65.42					
Volume Purged	gal	2.00	2.17					
Flow Rate	mL/min	250	250					
Turbidity (+/- 10%)	NTU	81.8	78.7					
Dissolved Oxygen (+/- 10%)	%	85.9	85.8					
Dissolved Oxygen (+/- 10%)	mg/L	8.90	8.91					
Eh / ORP (+/- 10)	MeV	33.1	31.2					
Specific Conductivity (+/- 3%)	mS/cm^c	.471	.471					
Conductivity (+/- 3%)	mS/cm	.364	.364					
pH (+/- 0.1)	pH unit	7.41	7.40					
Temp (+/- 0.5)	C°	12.7	13.0					
Color	Visual	cloudy	cloudy					
Odor	Olfactory	None	None					

Comments: cont. pg 1

Sampling time @ 1157

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-13 Date: 6/20/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-13 062018 QA/QC Collected? —

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	78.8	feet
2. D = Riser Diameter (I.D.):	.17	feet
3. W = Depth to Water:	66.58	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI - NTU

Parameter	Units	Readings					✓	✓
Time	24 hr	1256	1300	1305	1310	1315	1320	1325
Water Level (0.33)	feet	66.58	66.54	65.51	66.54	66.53	66.52	66.54
Volume Purged	gal	.07	.30	.55	.65	.90	1.12	1.35
Flow Rate	mL/min	200	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	38.8	41.6	75.9	40.0	32.1	19.7	17.9
Dissolved Oxygen (+/- 10%)	%	108.9	101.0	88.1	86.0	85.2	84.9	84.9
Dissolved Oxygen (+/- 10%)	mg/L	10.51	10.23	8.91	8.69	8.65	8.63	8.63
Eh / ORP (+/- 10)	MeV	25.5	26.3	26.4	26.1	26.4	26.9	28.2
Specific Conductivity (+/- 3%)	mS/cm^c	.507	.506	.506	.504	.501	.501	.500
Conductivity (+/- 3%)	mS/cm	.456	.407	.406	.404	.403	.403	.401
pH (+/- 0.1)	pH unit	7.49	7.33	7.29	7.28	7.28	7.28	7.27
Temp (+/- 0.5)	C°	18.8	15.4	14.5	14.7	14.7	14.7	14.6
Color	Visual	Clear	clear	Clear	clear	clear	clear	Clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments:

Sampling time @ 1330

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-13 cont. Date: 6/20/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-13 062018 QA/QC Collected? ✓

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	_____	feet
2. D = Riser Diameter (I.D.):	_____	feet
3. W = Depth to Water:	_____	feet
4. C = Column of Water in Well:	_____	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	_____	gal
6. 3(V) = Target Purge Volume	_____	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI + NTU ✓

Parameter	Units	Readings						
		1330						
Time	24 hr	~~MW-2~~						
Water Level (0.33)	feet	66.53						
Volume Purged	gal	1.5						
Flow Rate	mL/min	200						
Turbidity (+/- 10%)	NTU	14.4						
Dissolved Oxygen (+/- 10%)	%	84.9						
Dissolved Oxygen (+/- 10%)	mg/L	8.62						
Eh / ORP (+/- 10)	MeV	28.5						
Specific Conductivity (+/- 3%)	mS/cm^c	.500						
Conductivity (+/- 3%)	mS/cm	.401						
pH (+/- 0.1)	pH unit	7.27						
Temp (+/- 0.5)	C°	14.5						
Color	Visual	clear						
Odor	Olfactory	None						

Comments:

Sampling time @ 1330

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-14 Date: 6/20/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-14 062018 QA/QC Collected? —

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	79.82	feet
2. D = Riser Diameter (I.D.):	.17	feet
3. W = Depth to Water:	66.87	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI + NTU

Parameter	Units	Readings						
Time	24 hr	0830	0835	0840	0845	0850	0855	0900
Water Level (0.33)	feet	66.87	66.85	66.82	66.84	66.85	66.87	66.82
Volume Purged	gal	.25	.47	.65	.75	.85	1.10	1.35
Flow Rate	mL/min	250	250	250	250	225	225	225
Turbidity (+/- 10%)	NTU	22.7	15.9	13.4	12.7	11.8	9.64	8.26
Dissolved Oxygen (+/- 10%)	%	65.2	64.3	76.0	73.6	68.9	55.3	65.1
Dissolved Oxygen (+/- 10%)	mg/L	6.02	6.48	7.53	7.15	5.80	5.56	6.61
Eh / ORP (+/- 10)	MeV	203.8	140.0	97.2	74.8	~~287.7~~	75.6	64.9
Specific Conductivity (+/- 3%)	mS/cm[c]	.571	.573	.569	.567	~~297~~ .561	.555	.553
Conductivity (+/- 3%)	mS/cm	.484	.468	.467	.476	~~.454~~	.444	.444
pH (+/- 0.1)	pH unit	6.74	6.81	6.84	6.87	6.90	6.93	6.93
Temp (+/- 0.5)	C°	20.0	15.7	15.5	16.7	14.7	14.7	14.5
Color	Visual	clear	clear	clear	clear	clear	clear	Clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments:

Sampling time @ 0920

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-14 cont. Date: 6/20/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-14 06 2018 QA/QC Collected? —

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	_____	feet
2. D = Riser Diameter (I.D.):	_____	feet
3. W = Depth to Water:	_____	feet
4. C = Column of Water in Well:	_____	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	_____	gal
6. 3(V) = Target Purge Volume	_____	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter	Units		✓	✓	✓ Readings			
Time	24 hr	0905	0910	0915	0920			
Water Level (0.33)	feet	66.84	66.82	66.85	66.82			
Volume Purged	gal	1.42	1.62	1.80	2.00			
Flow Rate	mL/min	225	225	225	225			
Turbidity (+/- 10%)	NTU	6.72	4.95	4.41	3.80			
Dissolved Oxygen (+/- 10%)	%	67.0	67.0	66.9	65.9			
Dissolved Oxygen (+/- 10%)	mg/L	6.79	6.79	6.75	6.70			
Eh / ORP (+/- 10)	MeV	58.5	55.8	55.5	52.1			
Specific Conductivity (+/- 3%)	mS/cm[c]	.554	.536	.535	.534			
Conductivity (+/- 3%)	mS/cm	.444	.426	.425	.426			
pH (+/- 0.1)	pH unit	6.94	6.95	6.99	7.01			
Temp (+/- 0.5)	C°	14.7	14.3	14.3	14.3			
Color	Visual	Clear	Clear	Clear	Clear			
Odor	Olfactory	None	None	None	None			

Comments:

sampling time @ 0920

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-15 Date: 6/20/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-15 062018 QA/QC Collected? No

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth: (see pg 1) feet
2. D = Riser Diameter (I.D.): _____ feet
3. W = Depth to Water: _____ feet
4. C = Column of Water in Well: _____ feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$ _____ gal
6. 3(V) = Target Purge Volume _____ gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pro plus / GT Turbo

Parameter	Units	Readings						
Time	24 hr	1330	1335					
Water Level (0.33)	feet	64.90	64.90					
Volume Purged	gal	1.60	1.80					
Flow Rate	mL/min	175	175					
Turbidity (+/- 10%)	NTU	160	153					
Dissolved Oxygen (+/- 10%)	%	62.9	63.5					
Dissolved Oxygen (+/- 10%)	mg/L	6.71	6.72					
Eh / ORP (+/- 10)	MeV	67.0	67.2					
Specific Conductivity (+/- 3%)	mS/cm^c	0.485	0.485					
Conductivity (+/- 3%)	mS/cm	0.369	0.369					
pH (+/- 0.1)	pH unit	7.61	7.62					
Temp (+/- 0.5)	C°	12.6	12.5					
Color	Visual	cloudy	cloudy					
Odor	Olfactory	No	No					

Comments: Sampled @ 1335

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-15 Date: 6/20/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-15 062018 QA/QC Collected? No

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	81.70	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	64.88	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pro plus / GT Turb

Parameter	Units	Readings							
Time	24 hr	1250	1255	1300	1305	1310	1315	1320	1325
Water Level (0.33)	feet	64.90	64.90	64.90	64.90	64.90	64.90	64.90	64.90
Volume Purged	gal	0	0.2	0.40	0.60	0.80	1.00	1.20	1.40
Flow Rate	mL/min	150	150	175	175	175	175	175	175
Turbidity (+/- 10%)	NTU	174	289	337	294	230	170	162	158
Dissolved Oxygen (+/- 10%)	%	85.7	67.5	67.1	66.7	65.6	65.5	62.9	67.3
Dissolved Oxygen (+/- 10%)	mg/L	8.59	7.17	7.11	6.98	6.98	6.99	6.64	6.75
Eh / ORP (+/- 10)	MeV	50.6	67.1	63.8	60.0	62.0	64.7	63.7	63.9
Specific Conductivity (+/- 3%)	mS/cm^c	0.495	0.487	0.485	0.484	0.484	0.483	0.484	0.484
Conductivity (+/- 3%)	mS/cm	0.412	0.376	0.373	0.373	0.370	0.369	0.370	0.369
pH (+/- 0.1)	pH unit	7.89	7.44	7.52	7.61	7.61	7.58	7.64	7.63
Temp (+/- 0.5)	C°	16.3	13.0	13.0	12.9	12.8	12.5	12.6	12.7
Color	Visual	clear	clear	clear	clear	cloudy	cloudy	cloudy	cloudy
Odor	Olfactory	NO	NO	NO	NO	NO	No	No	NO

Comments: Sampled @ 1335

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-17 Date: 6/20/2018

Samplers: Ross McCredy Alex Golden

Sample Number: _____ QA/QC Collected? DUP02 - 062018

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	74.25	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	65.98	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pro plus / GT Turbo

Parameter	Units	Readings					
Time	24 hr	821	826	831	836	841	846
Water Level (0.33)	feet	66.02	66.01	66.01	66.01	66.01	66.01
Volume Purged	gal	0	0.2	0.4	0.6	0.8	1.0
Flow Rate	mL/min	175	175	175	175	175	175
Turbidity (+/- 10%)	NTU	78.5	76.0	40.1	32.1	30.2	30.7
Dissolved Oxygen (+/- 10%)	%	93.4	89.5	82.8	83.8	81.8	81.9
Dissolved Oxygen (+/- 10%)	mg/L	9.50	9.45	8.89	9.00	8.71	8.70
Eh / ORP (+/- 10)	MeV	173.1	150.7	138.3	135.1	134.4	134.1
Specific Conductivity (+/- 3%)	mS/cm[c]	0.588	0.577	0.553	0.561	0.558	0.560
Conductivity (+/- 3%)	mS/cm	0.463	0.427	0.427	0.427	0.423	0.423
pH (+/- 0.1)	pH unit	6.93	6.91	7.10	7.12	7.14	7.15
Temp (+/- 0.5)	C°	13.7	12.9	12.7	12.5	12.3	12.2
Color	Visual	clear	clear	clear	clear	clear	Clear
Odor	Olfactory	No	No	No	No	No	No

Comments: Sampled @ 846

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-26 Date: 6/20/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-26 062018 QA/QC Collected? Eq Blank EB-062018

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	108.66	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	60.02	feet
4. C = Column of Water in Well:	48.64	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pro plus

Parameter	Units	Readings								
Time	24 hr	1115	1120	1125	1130	1135	1140	1145	1150	1155
Water Level (0.33)	feet	60.06	60.06	60.06	60.06	60.06	60.06	60.06	60.06	60.0
Volume Purged	gal	0	0.15	0.30	0.40	0.80	0.60	0.72	0.80	0.9
Flow Rate	mL/min	200	125	125	125	125	125	125	125	12
Turbidity (+/- 10%)	NTU	28.4	60.5	59.8	46.6	43.1	42.2	40.3	38.1	36
Dissolved Oxygen (+/- 10%)	%	91.7	50.5	35.9	14.4	25.7	17.3	16.3	14.2	15.
Dissolved Oxygen (+/- 10%)	mg/L	9.01	4.83	3.39	1.34	2.55	1.75	1.60	1.42	1.3
Eh / ORP (+/- 10)	MeV	46.8	-7.2	-47.0	-85.4	-72.9	-71.5	-74.8	-72.1	-75.
Specific Conductivity (+/- 3%)	mS/cm[c]	0.362	0.439	0.490	0.515	0.519	0.512	0.512	0.516	0.5
Conductivity (+/- 3%)	mS/cm	0.304	0.377	0.427	0.452	0.429	0.417	0.418	0.415	0.4
pH (+/- 0.1)	pH unit	7.09	7.31	7.66	7.60	7.61	7.53	7.47	7.51	7.5
Temp (+/- 0.5)	C°	16.6	17.5	18.3	18.7	15.6	15.2	15.3	14.7	15.0
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	No	No	No	No	No	No	No	No	No

Comments: Sampled @ 1155

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-34 Date: 6/20/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-34 062018 QA/QC Collected? No

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	88.10	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	60.20	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pro plus / GT Turb

Parameter	Units	Readings							
Time	24 hr	1005	1010	1015	1020	1025	1030	1035	1040
Water Level (0.33)	feet	60.05	60.05	60.05	60.05	60.05	60.05	60.05	60.05
Volume Purged	gal	0	0.2	0.40	0.60	0.80	1.0	1.2	1.4
Flow Rate	mL/min	150	150	150	170	170	175	175	175
Turbidity (+/- 10%)	NTU	8.31	1.89	1.09	1.54	1.62	1.55	1.48	1.40
Dissolved Oxygen (+/- 10%)	%	57.6	43.6	27.3	20.0	14.5	14.7	14.2	13.2
Dissolved Oxygen (+/- 10%)	mg/L	5.18	4.05	2.68	1.95	1.35	1.49	1.40	1.31
Eh / ORP (+/- 10)	MeV	22.3	-1.0	-52.3	-62.1	-83.9	-79.8	-76.2	-76.3
Specific Conductivity (+/- 3%)	mS/cm^c	0.383	0.366	0.404	0.412	0.412	0.415	0.415	0.415
Conductivity (+/- 3%)	mS/cm	0.283	0.317	0.345	0.345	0.362	0.337	0.333	0.332
pH (+/- 0.1)	pH unit	7.26	7.30	7.44	7.41	7.66	7.46	7.38	7.30
Temp (+/- 0.5)	C°	16.9	18.0	17.4	16.6	18.0	15.1	14.6	14.6
Color	Visual	clear	Clear	Clear	clear	clear	clear	clear	clear
Odor	Olfactory	NO	NO	NO	NO	NO	NO	NO	NO

Comments: Sampled @ 1040

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-35 Date: 6/20/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-35 062018 QA/QC Collected? No

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	92.30	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	59.92	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pro plus / GT Turb.

Parameter	Units	Readings							
Time	24 hr	913	918	923	928	933	938	943	948
Water Level (0.33)	feet	59.99	59.99	60.00	60.00	59.98	59.98	59.94	59.98
Volume Purged	gal	0	0.2	0.40	0.60	0.80	1.00	1.20	1.40
Flow Rate	mL/min	180	180	180	180	200	200	200	200
Turbidity (+/- 10%)	NTU	37.1	40.2	38.2	32.9	28.6	27.4	26.2	25.8
Dissolved Oxygen (+/- 10%)	%	74.6	48.3	41.6	38.4	37.1	36.8	37.1	36.9
Dissolved Oxygen (+/- 10%)	mg/L	7.37	4.77	4.16	3.79	3.73	3.60	3.64	3.54
Eh / ORP (+/- 10)	MeV	145.4	114.8	91.8	80.7	68.9	70.1	71.9	69.5
Specific Conductivity (+/- 3%)	mS/cm[c]	0.326	0.384	0.398	0.397	0.402	0.399	0.395	0.395
Conductivity (+/- 3%)	mS/cm	0.271	0.316	0.325	0.331	0.334	0.334	0.335	0.335
pH (+/- 0.1)	pH unit	7.11	7.25	7.41	7.50	7.60	7.58	7.51	7.55
Temp (+/- 0.5)	C°	16.3	15.7	15.5	16.2	16.4	16.5	17.0	17.3
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	No	No	No	No	No	No	No	No

Comments: Sampled @ 948

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-33 Date: 6/20/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-33 062118 QA/QC Collected? _____

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	92.30	feet
2. D = Riser Diameter (I.D.):	17	feet
3. W = Depth to Water:	62.35	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI + NTU

Parameter	Units	Readings						
Time	24 hr	1200	1205	1210	1215	1220	1225	1230
Water Level (0.33)	feet	62.35	62.36	62.35	62.34	62.35	62.34	62.35
Volume Purged	gal	.25	.50	.85	1.20	1.50	1.70	2.00
Flow Rate	mL/min	300	300	300	300	300	300	300
Turbidity (+/- 10%)	NTU	2.68	1.48	2.20	2.84	2.08	1.91	2.05
Dissolved Oxygen (+/- 10%)	%	11.02	10.7	26.5	34.5	37.6	37.6	37.5
Dissolved Oxygen (+/- 10%)	mg/L	1.97	1.02	2.52	3.29	3.50	3.51	3.52
Eh / ORP (+/- 10)	MeV	-9.1	-7.8	0.8	7.9	13.5	13.6	17.0
Specific Conductivity (+/- 3%)	mS/cm^c	.327	.373	.421	.437	.439	.439	.442
Conductivity (+/- 3%)	mS/cm	~~327~~	.320	.363	.378	.379	.381	.382
pH (+/- 0.1)	pH unit	7.54	7.49	7.60	7.60	7.66	7.69	7.68
Temp (+/- 0.5)	C°	19.4	17.6	17.8	17.9	17.9	17.9	~~18.7~~ 17.9
Color	Visual	clear	clear	clear	clear	clear	clear	Clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments:

Sampling time @ 1250

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-33 cont. Date: 6/21/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-33 062118 QA/QC Collected? _____

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth: _____ feet
2. D = Riser Diameter (I.D.): _____ feet
3. W = Depth to Water: _____ feet
4. C = Column of Water in Well: _____ feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$ _____ gal
6. 3(V) = Target Purge Volume _____ gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI + NTU

Parameter	Units	✓	✓	✓	Readings			
Time	24 hr	1235	1240	1245				
Water Level (0.33)	feet	62.34	62.35	62.34				
Volume Purged	gal	2.35	2.55	3.00				
Flow Rate	mL/min	300	300	300				
Turbidity (+/- 10%)	NTU	2.96	2.67	2.78				
Dissolved Oxygen (+/- 10%)	%	36.4	36.5	36.4				
Dissolved Oxygen (+/- 10%)	mg/L	3.42	3.40	3.41				
Eh / ORP (+/- 10)	MeV	16.5	17.5	17.0				
Specific Conductivity (+/- 3%)	mS/cm^c	.442	.441	.442				
Conductivity (+/- 3%)	mS/cm	.385	.385	.385				
pH (+/- 0.1)	pH unit	7.68	7.67	7.66				
Temp (+/- 0.5)	C°	18.1	18.5	19.0				
Color	Visual	clear	clear	clear				
Odor	Olfactory	None	None	None				

Comments:

Sampling time @ 1250

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-22 Date: 6/21/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-22 062118 QA/QC Collected? MS/MSD

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	72.75	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	69.65	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI Pro plus / GT Turb

Parameter	Units	Readings					
Time	24 hr	905	910	915	920	925	930
Water Level (0.33)	feet	*	-	-	-	-	-
Volume Purged	gal	0	0.15	0.30	0.45	0.60	0.75
Flow Rate	mL/min	125	150	150	150	150	150
Turbidity (+/- 10%)	NTU	323	617	135	132	126	120
Dissolved Oxygen (+/- 10%)	%	109.2	98.7	96.5	95.6	94.8	94.3
Dissolved Oxygen (+/- 10%)	mg/L	11.03	10.25	10.09	9.89	9.80	9.92
Eh / ORP (+/- 10)	MeV	96.4	94.5	94.7	91.1	88.4	88.6
Specific Conductivity (+/- 3%)	mS/cm[c]	0.456	0.446	0.440	0.439	0.439	0.439
Conductivity (+/- 3%)	mS/cm	0.373	0.349	0.342	0.342	0.342	0.342
pH (+/- 0.1)	pH unit	7.69	7.40	7.46	7.51	7.57	7.57
Temp (+/- 0.5)	C°	16.0	13.6	13.4	13.5	13.4	13.3
Color	Visual	cloudy	cloudy	cloudy	cloudy	cloudy	cloudy
Odor	Olfactory	NO	NO	NO	NO	NO	NO

Comments: * Not enough water to get water level measurement w/ pump in well

- High turbidity because pump so close to bottom of well

Sampled @ 930

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-24 Date: 6/27/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-24 062118 QA/QC Collected? —

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	103.8	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	65.60 ~~67.10~~	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI + NTU

Parameter	Units	Readings ✓				✓	✓
Time	24 hr	0910	0915	0920	0925	0930	0935
Water Level (0.33)	feet	65.60	65.61	65.64	65.20	65.61	65.63
Volume Purged	gal	.50	.75	1.15	1.56	2.05	2.75
Flow Rate	mL/min	300	300	300	300	300	300
Turbidity (+/- 10%)	NTU	29.5	23.0	26.2	22.6	21.1	19.5
Dissolved Oxygen (+/- 10%)	%	124.1	115.8	117.4	~~118.0~~	118.2	117.5
Dissolved Oxygen (+/- 10%)	mg/L	12.63	11.59	11.49	11.75	11.71	
Eh / ORP (+/- 10)	MeV	-128.8	-129.0	-148.5	-147.0	-147.2	-147.3
Specific Conductivity (+/- 3%)	mS/cm[c]	.253	.274	.255	.255	.255	.255
Conductivity (+/- 3%)	mS/cm	.202	.278	.203	.203	.202	.204
pH (+/- 0.1)	pH unit	7.89	7.86	7.93	7.93	7.96	7.95
Temp (+/- 0.5)	C°	14.6	14.2	14.1	14.0	14.0	14.1
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	None	None	None	None	None	None

Comments:

Sampling time @ 0936

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-25 Date: 6/21/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-25 062118 QA/QC Collected? No

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	77.54	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	62.48	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pro plus / GT Turb

Parameter	Units	Readings						
Time	24 hr	1110	1115	1120	1125	1130	1135	1140
Water Level (0.33)	feet	63.20	63.22	63.22	63.22	63.22	63.22	63.22
Volume Purged	gal	0	0.2	0.40	0.60	0.80	1.0	1.2
Flow Rate	mL/min	200	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	203	222	154	142	140	131	128
Dissolved Oxygen (+/- 10%)	%	108.2	113.3	79.2	80.3	76.6	76.5	76.3
Dissolved Oxygen (+/- 10%)	mg/L	9.96	10.70	7.82	8.02	7.62	7.65	7.60
Eh / ORP (+/- 10)	MeV	102.5	115.5	111.5	105.0	103.2	101.6	101.1
Specific Conductivity (+/- 3%)	mS/cm^c	0.426	0.427	0.416	0.421	0.422	0.423	0.423
Conductivity (+/- 3%)	mS/cm	0.409	0.380	0.342	0.346	0.347	0.346	0.349
pH (+/- 0.1)	pH unit	8.08	7.54	7.60	7.69	7.74	7.79	7.80
Temp (+/- 0.5)	C°	24.5	20.2	15.7	15.9	15.7	15.5	15.7
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	No	No	No	No	No	No	No

Comments: Sampled @ 1140

A lots of bubble in YSI, could not eliminate them

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-32 Date: 6/21/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-32 062118 QA/QC Collected? —

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	92.50	feet
2. D = Riser Diameter (I.D.):	17	feet
3. W = Depth to Water:	62.25	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	~~0.08~~
2-inch	~~0.17~~
~~3-inch~~	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI + NTU

Parameter	Units	Readings ✓				✓	✓	
Time	24 hr	1035	1040	1045	1050	1055	1100	~~1105~~
Water Level (0.33)	feet	62.25	62.45	62.27	62.25	62.40	62.37	
Volume Purged	gal	.01	.54	1.03	1.64	2.00	2.65	
Flow Rate	mL/min	300	300	300	800	800	800	
Turbidity (+/- 10%)	NTU	55.2	3.02	1.05	0.02	0.02	0.02	
Dissolved Oxygen (+/- 10%)	%	87.6	84.2	78.5	78.4	78.4	78.5	
Dissolved Oxygen (+/- 10%)	mg/L	8.70	8.72	8.24	8.24	8.25	8.26	
Eh / ORP (+/- 10)	MeV	-89.3	-119.3	-140.9	-149.5	-150.8	-149.4	
Specific Conductivity (+/- 3%)	mS/cm^c	.157	.157	.263	.264	.264	.264	
Conductivity (+/- 3%)	mS/cm	.134	.160	.206	.206	.206	.206	
pH (+/- 0.1)	pH unit	7.53	7.67	7.65	8.02	8.03	8.03	
Temp (+/- 0.5)	C°	18.2	13.3	13.0	13.1	13.0	12.8	
Color	Visual	yellowish	clear	clear	clear	clear	clear	
Odor	Olfactory	~~Sulfur~~	None	None	None	None	None	

Comments:

Sampling time @ 1105

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-30 Date: 6/21/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-30 062118 QA/QC Collected? No

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	91.30	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	62.82	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pH ORP/EGT Turb

Parameter	Units	Readings						
Time	24 hr	1210	1215	1220	1225	1230	1235	1240
Water Level (0.33)	feet	62.92	63.90	63.90	63.90	63.90	63.90	63.90
Volume Purged	gal	0	0.2	0.4	0.60	0.80	1.0	1.2
Flow Rate	mL/min	200	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	17.9	4.63	4.20	3.53	3.21	3.11	2.99
Dissolved Oxygen (+/- 10%)	%	35.7	2.9	1.9	1.6	1.8	1.8	1.6
Dissolved Oxygen (+/- 10%)	mg/L	3.62	0.28	0.19	0.16	0.17	0.18	0.16
Eh / ORP (+/- 10)	MeV	44.3	11.7	-23.8	-66.7	-69.9	-78.2	-87.1
Specific Conductivity (+/- 3%)	mS/cm[c]	0.226	0.218	0.229	0.228	0.229	0.229	0.229
Conductivity (+/- 3%)	mS/cm	0.193	0.179	0.183	0.193	0.193	0.189	0.189
pH (+/- 0.1)	pH unit	8.11	7.87	8.11	8.41	8.47	8.40	8.32
Temp (+/- 0.5)	C°	18.2	15.7	15.3	17.0	16.8	15.9	15.5
Color	Visual	clear	clear	clear	clear	clear	clear	Clear
Odor	Olfactory	No	No	No	No	No	No	No

Comments: Sampled @ 1240

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-31 Date: 6/21/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-31 062118 QA/QC Collected? No

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	91.50	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	63.70	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pro plus / GT Turb

Parameter	Units	Readings					
Time	24 hr	1255	1300	1305	1310	1315	1320
Water Level (0.33)	feet	63.80	63.86	63.80	63.82	63.82	63.82
Volume Purged	gal	0	0.2	0.40	0.60	0.80	1.0
Flow Rate	mL/min	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	22.2	6.57	6.27	2.79	2.66	2.60
Dissolved Oxygen (+/- 10%)	%	69.4	4.9	3.0	2.4	2.0	2.1
Dissolved Oxygen (+/- 10%)	mg/L	6.54	0.50	0.30	0.25	0.22	0.22
Eh / ORP (+/- 10)	MeV	-64.3	-117.4	-140.5	-146.4	-149.7	-155.1
Specific Conductivity (+/- 3%)	mS/cm[c]	0.320	0.406	0.408	0.404	0.404	0.405
Conductivity (+/- 3%)	mS/cm	0.288	0.331	0.330	0.320	0.327	0.324
pH (+/- 0.1)	pH unit	7.71	7.55	7.70	7.78	7.77	7.83
Temp (+/- 0.5)	C°	19.1	15.3	15.3	14.6	14.6	14.6
Color	Visual	clear	clear	clear	clear	clear	clear
Odor	Olfactory	NO	NO	NO	NO	NO	NO

Comments: Sampled @ 1320

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-36 Date: 6/21/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-36 062118 QA/QC Collected? DUP03-062118

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	79.44	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	63.23	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI Pro Plus/GT Turb

Parameter	Units	Readings						
Time	24 hr	1005	1010	1015	1020	1025	1030	1035
Water Level (0.33)	feet	64.02	64.00	64.00	64.00	64.00	64.00	64.00
Volume Purged	gal	0	0.2	0.40	0.60	0.80	1.00	1.20
Flow Rate	mL/min	175	175	200	200	200	200	200
Turbidity (+/- 10%)	NTU	163	79.3	36.2	24.1	19.4	18.6	17.2
Dissolved Oxygen (+/- 10%)	%	58.5	38.9	37.7	35.2	33.1	32.1	31.8
Dissolved Oxygen (+/- 10%)	mg/L	5.99	4.12	4.06	3.55	3.41	3.37	3.27
Eh / ORP (+/- 10)	MeV	127.2	105.9	106.5	94.5	88.6	87.1	85.5
Specific Conductivity (+/- 3%)	mS/cm[c]	0.481	0.496	0.495	0.496	0.497	0.499	0.498
Conductivity (+/- 3%)	mS/cm	0.389	0.381	0.379	0.389	0.387	0.387	0389
pH (+/- 0.1)	pH unit	7.52	7.65	7.65	7.80	7.86	7.84	7.86
Temp (+/- 0.5)	C°	15.2	13.1	12.9	13.2	13.4	13.4	13.4
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	No	No	No	No	No	No	No

Comments: Sampled @ 1035

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-28 Date: 6/22/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-28 062218 QA/QC Collected? DUP04 - 062218

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	71.82	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	64.18	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI pro plus / GT Turb

Parameter	Units	Readings					
Time	24 hr	900	905	910	915	920	925
Water Level (0.33)	feet	64.25	64.27	64.27	64.28	64.28	64.28
Volume Purged	gal	0	0.20	0.40	0.60	0.75	0.95
Flow Rate	mL/min	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	55.5	12.6	3.71	3.75	1.47	1.32
Dissolved Oxygen (+/- 10%)	%	19.0	7.9	5.6	5.2	5.8	6.0
Dissolved Oxygen (+/- 10%)	mg/L	2.06	0.78	0.57	0.54	0.60	0.63
Eh / ORP (+/- 10)	MeV	-10.8	+5.5	8.0	9.7	11.1	11.1
Specific Conductivity (+/- 3%)	mS/cm[c]	0.78	0.78	0.77	0.77	0.77	0.77
Conductivity (+/- 3%)	mS/cm	0.65	0.63	0.61	0.61	0.61	0.61
pH (+/- 0.1)	pH unit	7.99	7.37	7.31	7.29	7.32	7.33
Temp (+/- 0.5)	C°	16.2	14.6	14.2	14.1	14.2	14.2
Color	Visual	clear	clear	clear	clear	clear	clear
Odor	Olfactory	No	No	No	NO	No	NO

Comments: Sampled @ 925

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-29 Date: 6/22/2018

Samplers: Ross McCredy Alex Golden

Sample Number: MW-29 062218 QA/QC Collected? No

Purging / Sampling Method: Bladder pump/Dedicated Tubing

1. L = Well Depth:	71.12	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	64.04	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI Pro plus / GT Turb

Parameter	Units	Readings							
Time	24 hr	955	1000	1005	1010	1015	1020	1025	1030
Water Level (0.33)	feet	64.10	64.10	64.10	64.10	64.10	64.10	64.10	64.10
Volume Purged	gal	0	0.2	0.4	0.6	0.8	1.0	1.2	1.4
Flow Rate	mL/min	200	200	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	96.5	74.4	43.8	42.1	40.1	16.1	15.3	15.2
Dissolved Oxygen (+/- 10%)	%	29.7	19.3	23.1	25.8	26.1	30.0	29.8	29.6
Dissolved Oxygen (+/- 10%)	mg/L	2.95	1.98	2.38	2.67	2.80	3.05	3.00	2.98
Eh / ORP (+/- 10)	MeV	94.8	77.7	63.1	57.5	53.8	52.5	51.9	52.3
Specific Conductivity (+/- 3%)	mS/cm[c]	0.62	0.76	0.77	0.77	0.77	0.77	0.77	0.77
Conductivity (+/- 3%)	mS/cm	0.51	0.61	0.60	0.61	0.61	0.61	0.61	0.61
pH (+/- 0.1)	pH unit	7.22	7.20	7.24	7.26	7.29	7.31	7.32	7.33
Temp (+/- 0.5)	C°	15.9	14.4	14.0	14.0	14.3	14.4	14.5	14.3
Color	Visual	clear	Clear	Clear	clear	Clear	Clear	clear	clear
Odor	Olfactory	NO	NO	NO	NO	NO	No	No	No

Comments: Sampled @ 1030

APPENDIX B: Field Calibration Forms

Calibration Log

Date:	6/19/18	Time:	730		Instrument:		YSI pro plus	
PH_1	9.98	->	10.06	ORP	220.4	->	221.0	
PH_2	~~7.49~~	->	6.99	Cond.	1393	->	1419	
PH_3	3.80	->	4.02	Turb.	–	->	–	
Date:	6/20/18	Time:	730		Instrument:		YSI pro plus	
PH_1	4.03	->	4.01	ORP	237.3	->	222.1	
PH_2	6.47	->	7.03	Cond.	1321	->	1419	
PH_3	10.03	->	10.01	Turb.	–	->	–	
Date:	6/21/18	Time:	730		Instrument:		YSI pro plus	
PH_1	7.32	->	7.03	ORP	241.0	->	220.0	
PH_2	4.11	->	4.01	Cond.	1400	->	1413	
PH_3	9.25	->	10.11	Turb.	–	->	–	
Date:	6/22/18	Time:	730		Instrument:		YSI pro plus	
PH_1	7.22	->	7.01	ORP	228.3	->	220.3	
PH_2	4.08	->	4.00	Cond.	1382	->	1409	
PH_3	10.07	->	9.99	Turb.	–	->	–	
Date:		Time:			Instrument:			
PH_1		->		ORP		->		
PH_2		->		Cond.		->		
PH_3		->		Turb.		->		
Date:		Time:			Instrument:			
PH_1		->		ORP		->		
PH_2		->		Cond.		->		
PH_3		->		Turb.		->		

Calibration Log

Date:	6/19/18	Time:	0730		Instrument:		YSI	
	PH_1	9.97	->	10.00	ORP	216	->	220
	PH_2	~~10.00~~ 7.10	->	7.03	Cond.	89N	->	1413
	PH_3	4.15	->	4.01	Turb.		->	
Date:	6/20/18	Time:	0730		Instrument:		YSI	
	PH_1	9.73	->	10.01	ORP	218	->	220
	PH_2	7.32	->	6.99	Cond.	1472	->	1413
	PH_3	4.26	->	4.00	Turb.		->	
Date:	6/21/18	Time:	0815		Instrument:		YSI	
	PH_1	4.22	->	3.99	ORP	237	->	226
	PH_2	6.73	->	7.01	Cond.	1399	->	1413
	PH_3	9.75	->	10.00	Turb.		->	
Date:		Time:			Instrument:			
	PH_1		->		ORP		->	
	PH_2		->		Cond.		->	
	PH_3		->		Turb.		->	
Date:		Time:			Instrument:			
	PH_1		->		ORP		->	
	PH_2		->		Cond.		->	
	PH_3		->		Turb.		->	
Date:		Time:			Instrument:			
	PH_1		->		ORP		->	
	PH_2		->		Cond.		->	
	PH_3		->		Turb.		->	

APPENDIX C: Hydraulic Gradient and Velocity Calculations

June 2018 Quarterly Monitoring Report
The Defense National Stockpile Center Scotia Depot
Appendix C Hydraulic Gradient and Velocity Calculations

Hydraulic Gradient Calculation

$$hydraulic\ gradient = \frac{change\ in\ groundwater\ elevation}{change\ in\ distance} = \frac{\Delta h}{\Delta L}$$

Dec 2017 Data		GW Elevation (ft)	Delta Elevation (ft)	Delta Distance (ft)	Gradient	Average Gradient (ft/ft)
Pair 1	MW-25	227.78	1.35	540	0.0025	**0.002805**
	MW-26	226.43				
Pair 2	GEP-3	228.72	0.62	420	0.001476	
	MW-13	228.1				
Pair 3	MW-17	229.26	1.82	410	0.004439	
	MW-28	227.44				

Groundwater Darcy Velocity

$$Darcy\ Velocty = K \times hydraulic\ gradient = K \times \frac{\Delta h}{\Delta L}$$

Low Hydraulic Conductivity (K) (ft/day)	15.66
High Hydraulic Conductivity (K) (ft/day)	193.8

Darcy Velocity Low (ft/day)	0.04
Darcy Velocity High (ft/day)	0.54

Seepage Velocity

$$\text{Seepage } Velocty = \frac{K \times hydraulic\ gradient}{n} = \frac{Darcy\ Velocity}{n}$$

Porosity (n)	0.4

Seepage Velocity Low (ft/day)	**0.11**
Seepage Velocity High (ft/day)	**1.36**

APPENDIX D: Laboratory Reports

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

August 14, 2018

Mr. John Santacroce
AECOM - LATHAM NY
40 British American Blvd.
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2327398**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN038|2015-SCOTIA NAVY DEPOT-**

Dear Mr. Santacroce:

Enclosed are the analytical results for samples received by the laboratory on Thursday, July 19, 2018.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vanessa N Badman (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

CC: Mr. Greg Malzone , Ms. Kelly Lurie , Mr. Scott Underhill

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

August 14, 2018

Mr. John Santacroce
AECOM - LATHAM NY
40 British American Blvd.
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2327398**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN038|2015-SCOTIA NAVY DEPOT-**

Dear Mr. Santacroce:

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Greg Malzone , Ms. Kelly Lurie , Mr. Scott Underhill

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

Re: Power Outage at ALS – Middletown Facility

To Whom It May Concern,

During the recent weather event in the Northeast and related flooding in our area, ALS–Middletown lost power the evening of Monday, July 23, 2018. Numerous trees damaged both utility poles and fell on power lines in the flooded areas making repair that much more difficult for the emergency repair groups. The laboratory was without power until the afternoon of Wednesday, July 25, 2018.

This power outage prevented ALS from operating our business in a normal manner during this period. The analysis and reporting of samples during this time period was significantly reduced. In addition to continuing to receive samples from our clients, our field service staff and sample receiving groups continued to collect, process and receive samples during this period. Analysis of short hold parameters was accomplished under emergency generator power. As power was restored to our facility, we have brought all systems back online with minimal damage to instruments and computers. In this situation a sudden loss of power can cause damage to sensitive electronic equipment so care is being taken to ensure the instruments are operating at optimal conditions.

As we return to full operational status, we will experience backlogs in our data analysis and processing. The lab staff is working diligently 24/7 to get all delayed projects, results and reports out as quickly as possible to prevent any further delays. If any data was compromised due to the power loss, an appropriate comment will be notated on your laboratory report.

If you have any questions or concerns regarding your sample results, please feel free to contact your ALS Project Manager or our Client Services Manager, Shiloh Summy at Shiloh.summy@alsglobal.com or (717)-577-3515.

Thank you for choosing ALS–Middletown to meet your analytical needs. We are committed to ensuring all data meets our stringent quality standards even in these unfortunate circumstances.

Sincerely,



Scott Brunk

Laboratory Director

ALS Environmental, Middletown

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2327398001	MW-30 071818	Ground Water	7/18/2018 09:06	7/19/2018 08:58	Collected by Client
2327398002	MW-23 071818	Ground Water	7/18/2018 10:25	7/19/2018 08:58	Collected by Client
2327398003	MW-B-3 071818	Ground Water	7/18/2018 12:00	7/19/2018 08:58	Collected by Client

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

PROJECT SUMMARY

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Workorder Comments

ALS Middletown does not hold DOD certification for TOC. VNB 7/23/18

Please see subcontracting results from ALS ROC. VNB 8/9/18

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Lab ID: **2327398001** Date Collected: 7/18/2018 09:06 Matrix: Ground Water

Sample ID: **MW-30 071818** Date Received: 7/19/2018 08:58

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
Trichloroethene	8.1		ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:02	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118			SW846 8260C			7/31/18 17:02	TMP	A
4-Bromofluorobenzene (S)	96.5		%	85 - 114			SW846 8260C			7/31/18 17:02	TMP	A
Dibromofluoromethane (S)	92.8		%	80 - 119			SW846 8260C			7/31/18 17:02	TMP	A
Toluene-d8 (S)	93.1		%	89 - 112			SW846 8260C			7/31/18 17:02	TMP	A
WET CHEMISTRY												
Alkalinity, Total	58	2	mg/L	5	5	0.8	S2320B-97			7/20/18 13:00	MBW	F
Chloride	38.8		mg/L	2.0	0.50	0.16	EPA 300.0			7/20/18 05:18	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			7/20/18 05:18	CHW	E
Sulfate	0.34J	J	mg/L	2.0	0.50	0.20	EPA 300.0			7/20/18 05:18	CHW	E
Total Organic Carbon (TOC)	9.7	1	mg/L	1.0	0.50	0.18	S5310B-00			8/4/18 06:06	PAG	C
SUBCONTRACTED ANALYSIS												
Subcontracted Analysis	See attached						Subcontract			8/1/18 10:25	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Lab ID: **2327398002** Date Collected: 7/18/2018 10:25 Matrix: Ground Water

Sample ID: **MW-23 071818** Date Received: 7/19/2018 08:58

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	*Cntr*
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		8/9/18 12:51	SUB	

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Lab ID: **2327398003** Date Collected: 7/18/2018 12:00 Matrix: Ground Water

Sample ID: **MW-B-3 071818** Date Received: 7/19/2018 08:58

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
Tetrachloroethene	5.0		ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C			7/31/18 17:24	TMP	A
4-Bromofluorobenzene (S)	97.6		%	85 - 114	SW846 8260C			7/31/18 17:24	TMP	A
Dibromofluoromethane (S)	92.1		%	80 - 119	SW846 8260C			7/31/18 17:24	TMP	A
Toluene-d8 (S)	93.2		%	89 - 112	SW846 8260C			7/31/18 17:24	TMP	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2327398001	1	MW-30 071818	S5310B-00	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2327398001	2	MW-30 071818	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Analysis Method	Prep Method
2327398001	MW-30 071818	EPA 300.0	
2327398001	MW-30 071818	S2320B-97	
2327398001	MW-30 071818	S5310B-00	
2327398001	MW-30 071818	SW846 8260C	
2327398001	MW-30 071818	Subcontract	
2327398002	MW-23 071818	Subcontract	
2327398003	MW-B-3 071818	SW846 8260C	

QUALITY CONTROL DATA

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/47544 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 2327398001, 2327398003

METHOD BLANK: 2783490

Parameter	Blank Result	Units	Reporting Limit
Carbon Tetrachloride	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
Trichloroethene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	104	%	81 - 118
4-Bromofluorobenzene (S)	99	%	85 - 114
Dibromofluoromethane (S)	92	%	80 - 119
Toluene-d8 (S)	92.5	%	89 - 112

LABORATORY CONTROL SAMPLE: 2783491

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	100	ug/L	20	20.0	72 - 136
1,1-Dichloroethane	103	ug/L	20	20.5	77 - 125
1,2-Dichloroethane	102	ug/L	20	20.3	73 - 128
1,1-Dichloroethene	124	ug/L	20	24.8	71 - 131
cis-1,2-Dichloroethene	101	ug/L	20	20.2	78 - 123
trans-1,2-Dichloroethene	114	ug/L	20	22.8	75 - 124
1,1,1,2-Tetrachloroethane	100	ug/L	20	20.0	78 - 124
1,1,2,2-Tetrachloroethane	98.3	ug/L	20	19.7	71 - 121
Tetrachloroethene	96.6	ug/L	20	19.3	74 - 129
Toluene	101	ug/L	20	20.1	80 - 121
1,1,1-Trichloroethane	100	ug/L	20	20.1	74 - 131
1,1,2-Trichloroethane	101	ug/L	20	20.2	80 - 119
Trichloroethene	101	ug/L	20	20.2	79 - 123

QUALITY CONTROL DATA

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	83.8	ug/L	20	16.8	58 - 137
1,2-Dichloroethane-d4 (S)	99.4	%			81 - 118
4-Bromofluorobenzene (S)	96.1	%			85 - 114
Dibromofluoromethane (S)	92.2	%			80 - 119
Toluene-d8 (S)	92.7	%			89 - 112

MATRIX SPIKE: 2783757 DUPLICATE: 2783758 ORIGINAL: 2328420001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
1,1-Dichloroethane	0	ug/L	20	23.6334	22.6646	118	113	77 - 125	4.19	30
1,2-Dichloroethane	0	ug/L	20	22.1342	20.602	111	103	73 - 128	7.17	30
1,1-Dichloroethene	0	ug/L	20	29.8816	28.1679	149*	141*	71 - 131	5.9	30
cis-1,2-Dichloroethene	0	ug/L	20	23.4699	22.3491	117	112	78 - 123	4.89	30
trans-1,2-Dichloroethene	0	ug/L	20	27.0317	24.9936	135*	125*	75 - 124	7.84	30
Tetrachloroethene	0	ug/L	20	21.9976	21.2633	110	106	74 - 129	3.39	30
1,1,1-Trichloroethane	0	ug/L	20	23.9935	23.1708	120	116	74 - 131	3.49	30
Trichloroethene	0	ug/L	20	23.3191	22.2777	117	111	79 - 123	4.57	30
Vinyl Chloride	0	ug/L	20	21.588	20.3272	108	102	58 - 137	6.02	30
1,2-Dichloroethane-d4 (S)	108	%				108	101	81 - 118		
4-Bromofluorobenzene (S)	95.6	%				95.6	98.2	85 - 114		
Dibromofluoromethane (S)	91	%				91	92.9	80 - 119		
Toluene-d8 (S)	92.8	%				92.8	91.2	89 - 112		

QUALITY CONTROL DATA

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/207702 **Analysis Method:** S2320B-97

QC Batch Method: S2320B-97

Associated Lab Samples: 2327398001

METHOD BLANK: 2778538

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	2J	mg/L	5

METHOD BLANK: 2778610

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	2J	mg/L	5

SAMPLE DUPLICATE: 2778611 ORIGINAL: 2327049001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	66.89454	mg/L	73.60651	9.55	20

METHOD BLANK: 2778614

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	2J	mg/L	5

SAMPLE DUPLICATE: 2778615 ORIGINAL: 2327178007

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	20.96618	mg/L	22.28067	6.08	20

METHOD BLANK: 2778618

Parameter	Blank Result	Units	Reporting Limit

QUALITY CONTROL DATA

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Alkalinity, Total	2J	mg/L	5

SAMPLE DUPLICATE: 2778619 ORIGINAL: 2327365003

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	111.27588	mg/L	116.75786	4.81	20

METHOD BLANK: 2778622

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/207710 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 2327398001

METHOD BLANK: 2778575

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.18J	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.25U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2778577

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	102	mg/L	20	20.5	87 - 111
Nitrate-N	96	mg/L	2.5	2.4	88 - 111
Sulfate	102	mg/L	20	20.5	87 - 112

METHOD BLANK: 2779144

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.22J	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.25U	mg/L	1.0

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/208338 **Analysis Method:** S5310B-00

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 2327398001

METHOD BLANK: 2785440

Parameter	Blank Result	Units	Reporting Limit
Total Organic Carbon (TOC)	0.50U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2785441

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	99.3	mg/L	1	0.99J	85 - 115

MATRIX SPIKE: 2785442 DUPLICATE: 2785443 ORIGINAL: 2327398001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	9.714	mg/L	6	15.151	15.123	90.6	90.2	85 - 115	.18	20

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2327398001	MW-30 071818			S2320B-97	WETC/207702
2327398001	MW-30 071818			EPA 300.0	WETC/207710
2327398001	MW-30 071818			SW846 8260C	VOMS/47544
2327398003	MW-B-3 071818			SW846 8260C	VOMS/47544
2327398001	MW-30 071818			S5310B-00	WETC/208338

Tuesday, August 14, 2018 7:03:02 PM

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #: 808869893237

* 2 3 2 7 3 9 8 *

Co. Name: AECOM

Contact (Report to): John Santacroce Phone: 518-951-2200

Address: 40 British American BLVD Latham, NY

Bill to (if different than Report to): PO#: 60440641

Project Name/#: Scotia Navy Depot ALS Quote #:

TAT: [✓] Normal-Standard TAT is 10-12 business days. Date Required:
[ ] Rush-Subject to ALS approval and surcharges. Approved By:

Email? [✓] -Y John.Santacroce@aecom.com

Fax? [ ] -Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	***Container Type	***Container Size	*** Preservative	8260 VOCs	Alkalinity	Cl, NO_3, SO_4	RSK 175	TOC	Enter Number of Containers Per Analysis
						G	P	P	G	G				
						.5W	250ml	n	.5ml	.5ml				
						HCl	X	X	HCl	HCl				
1 MW-30 071818		07/18/18	0906	G	GW				2	1	1	2	2	
2 MW-23 071818		↓	1025	G	GW				2					
3 MW-B-3 071818		↓	1200	G	GW				2					
4	ID rubbed off TVL													
5	labels w/ sharpie													
6	Rec'd Trip blanks*													
7	40mL HCl													
8														

Receipt Information (completed by Sample Receiving)

Performed by: MW BW

Cooler Temp: 2

Therm. ID: 407

No. of Coolers:

Notes:

Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
N (Y)	N (Y)	N (Y)	N (Y)	
N	N	N	N (Y)	N
(Y)	(Y)	(Y)	Y	(Y)

Custody seals Present?	(if present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
(Y) N	(Y) N	(Y) N	(Y) N	(Y) N

SAMPLED BY (Please Print): Alex Holden

Project Comments: 7-19-18 2050

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Alex Holden / AECOM	07/18/18	1330	2 COMMON COURIER / ALS COURIER		
3 COMMON COURIER / ALS COURIER			4 [signature] ALS	7-19-18	0858
5			6		
7			8		
9			10		

Data Deliverables: [✓] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other

EDDs Required? [ ] If yes, format type: See QAPP

SDWA Forms? yes yes yes yes

State Samples Collected In? MD NJ NY PA

Other

EFNT PWSID No.

DOD Criteria Required?

ALS FIELD SERVICES: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite

**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

August 08, 2018 Service Request No:R1807029

Vanessa Badman
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

Laboratory Results for: UR115: 2327398

Dear Vanessa,

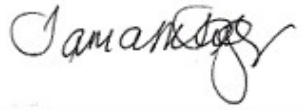
Enclosed are the results of the sample(s) submitted to our laboratory July 26, 2018
For your reference, these analyses have been assigned our service request number **R1807029.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental



Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

ALS Environmental
ALS Group USA, Corp
1565 Jefferson Road, Building 300, Suite 360
Rochester, NY 14623
T: +1 585 288 5380
F: +1 585 288 8475
www.alsglobal.com

Table of Contents

CoverLetter	1
Table of Contents	2
Narrative Documents	4
Case Narrative	5
Sample Receipt Information	6
Sample Cross-Reference	7
Chain Of Custody	8
Internal Chain of Custody	10
Miscellaneous Forms	11
Qualifiers	12
Acronyms	13
Analyst Summary	14
Prep Method Inorganic	15
Sample Results	16
Volatile Organic Compounds by GCMS	17
8260C - Volatile Organic Compounds by GC/MS	
232 7398 002 - VOA GCMS	18
QC Summary Forms	19
Volatile Organic Compounds by GCMS	20
8260C - Volatile Organic Compounds by GC/MS	
VOA GCMS Surrogate Summary	21
MB Summary VOA GCMS	22

Table of Contents (continued)

Method Blank - VOA GCMS 23
LCS Summary VOA GCMS 24
RQ1807867-04 - LCS VOA GCMS 25
Tune Summary 8260C 26
IS Summary VOA GCMS 27
Raw Data 31
Volatile Organic Compounds by GCMS 32
8260C - VOC FP DOD
Form 1s
2327398 002 - VOA GCMS 33
Raw Data 34
ICAL Summary 180
ICV Summary 184
RQ1807867-02 - CCV VOA GCMS 185
RQ1807867-08 - CCV VOA GCMS 186
Run Log 187
Run Log Sheets 189

Narrative Documents

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental

Client: ALS Environmental - US
Project: UR115: 2327398
Sample Matrix: Water

Service Request: R1807029
Date Received: 07/26/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 07/26/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The sample was received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Volatiles by GC/MS:

No significant anomalies were noted with this analysis.

Approved by _____ Date 08/08/2018

Sample Receipt Information

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1807029-001	2327398 002	7/18/2018	0906

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	1 of 2
ALS Quote #:	

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2327398

Bill To: ALS Environmental

TAT [ ] Normal-Standard TAT is 10-12 business days.
[X] Rush-Subject to ALS approval and surcharges.

Date Required: 8/2/2018 Approved By:

Email? [ ] -Y

Fax? [ ] -Y No.:

Container Type: G
Container Size: 40 mL
Preservative: HCl

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	DOD RSK175 (Ethane, , Ethene, Methane, Acetylene)	*Report to the MDL, QC lab report needed, EQUIS EDD.	Enter Number of Containers Per Sample or Field Results Below.	Sample/COC Comments
1 2327398 002	7/18/18	0906	G	WT	2	*		
2								Sub to ALS Rochester
3								
4								
5								
6								
7								
8								
9								
10								

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

ALS Field Services: [ ] Pickup [ ] Labor
[ ] Composite_Sampling [ ] Rental_Equipment
[ ] Other:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	7-23-18	1343	2	7/24/18	0915
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [X] DOD

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [ ] MD

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type

R1807029 5

ALS Group USA, Corp.
UR115: 2327398

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; W

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Cooler Receipt and Preservation Check Form

R1807029
ALS Group USA, Corp.
UR116: 2327398
5

Project/Client ALS- MOI Folder Number

Cooler received on 7/26/18 by: e

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y (N) NA
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate? ALS/ROC	(CLIENT)
4	Circle: **Wet Ice Dry Ice Gel packs** present?	Y (N)	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 7/26/18 Time: 0913 ID: (IR#7) IR#9 From: Temp Blank (Sample Bottle)

Observed Temp (°C)	23.6						
Correction Factor (°C)	—						
Corrected Temp (°C)	23.6						
Temp from:Type of bottle	—						
Within 0-6°C?	Y (N)	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: (NA) 7/26/18

All samples held in storage location: Room by e on 7/26/18 at 0920
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 7/26/18 Time: 1551 by: e

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-						
		HCl	**	**	client					

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: client

Explain all Discrepancies/ Other Comments:

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: e

PC Secondary Review: JMM 7/27/18

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Internal Chain of Custody Report

Client: ALS Environmental **Service Request:** R1807029

Project: UR115: 2327398

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R1807029-001.01					
	8260C				
		7/26/2018	1552	SMO / GLAFORCE	
		7/26/2018	1552	R-001 / GLAFORCE	
		8/1/2018	1257	In Lab / FNAEGLER	
		8/1/2018	1421	R-001-S08 / FNAEGLER	
R1807029-001.02					
		7/26/2018	1552	SMO / GLAFORCE	
		7/26/2018	1552	R-001 / GLAFORCE	

Miscellaneous Forms

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Delaware Approved	New Jersey ID # NY004	
DoD ELAP #65817	New York ID # 10145	Pennsylvania ID# 68-786
Florida ID # E87674	North Carolina #676	Rhode Island ID # 158
		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Analyst Summary report

Client:	ALS Environmental - US	**Service Request:**	R1807029
Project:	UR115: 2327398		

Sample Name:	2327398 002	**Date Collected:**	07/18/18
Lab Code:	R1807029-001	**Date Received:**	07/26/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
8260C		FNAEGLER

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

Sample Results

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Volatile Organic Compounds by GC/MS

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	R1807029
Project:	UR115: 2327398	**Date Collected:**	07/18/18 09:06
Sample Matrix:	Water	**Date Received:**	07/26/18 09:05
Sample Name:	2327398 002	**Units:**	ug/L
Lab Code:	R1807029-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	5.0	1.0	0.25	1	08/01/18 13:40	
1,1,1-Trichloroethane (TCA)	ND U	5.0	1.0	0.25	1	08/01/18 13:40	
1,1,2,2-Tetrachloroethane	ND U	5.0	1.0	0.20	1	08/01/18 13:40	
1,1,2-Trichloroethane	ND U	5.0	1.0	0.25	1	08/01/18 13:40	
1,1-Dichloroethane (1,1-DCA)	ND U	5.0	1.0	0.20	1	08/01/18 13:40	
1,1-Dichloroethene (1,1-DCE)	ND U	5.0	1.0	0.28	1	08/01/18 13:40	
1,2-Dichloroethane	ND U	5.0	1.0	0.20	1	08/01/18 13:40	
Carbon Tetrachloride	ND U	5.0	1.0	0.34	1	08/01/18 13:40	
Tetrachloroethene (PCE)	ND U	5.0	1.0	0.28	1	08/01/18 13:40	
Toluene	ND U	5.0	1.0	0.20	1	08/01/18 13:40	
Trichloroethene (TCE)	ND U	5.0	1.0	0.20	1	08/01/18 13:40	
Vinyl Chloride	ND U	5.0	1.0	0.22	1	08/01/18 13:40	
cis-1,2-Dichloroethene	ND U	5.0	1.0	0.26	1	08/01/18 13:40	
trans-1,2-Dichloroethene	ND U	5.0	1.0	0.26	1	08/01/18 13:40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85 - 114	08/01/18 13:40	
Dibromofluoromethane	94	80 - 119	08/01/18 13:40	
Toluene-d8	99	89 - 112	08/01/18 13:40	

August 13, 2018 Service Request No:R1807201

Vanessa Badman
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

Laboratory Results for: UR115: 2327398

Dear Vanessa,

Enclosed are the results of the sample(s) submitted to our laboratory August 01, 2018
For your reference, these analyses have been assigned our service request number **R1807201.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

ALS Environmental
ALS Group USA, Corp
1565 Jefferson Road, Building 300, Suite 360
Rochester, NY 14623
T: +1 585 288 5380
F: +1 585 288 8475
www.alsglobal.com

Table of Contents

CoverLetter 1
Table of Contents 2
Narrative Documents 4
Case Narrative 5
Hit Summary List 6
Sample Receipt Information 7
Sample Cross-Reference 8
Chain Of Custody 9
Internal Chain of Custody 11
Miscellaneous Forms 12
Qualifiers 13
Acronyms 14
Analyst Summary 15
Prep Method Inorganic 16
Sample Results 17
Volatile Organic Compounds by GC 18
RSK 175 - Dissolved Gases by GC/FID
2327398 001 - VOA GC 19
QC Summary Forms 20
Volatile Organic Compounds by GC 21
RSK 175 - Dissolved Gases by GC/FID
MB Summary VOA GC 22

Table of Contents (continued)

Method Blank - VOA GC	23
LCS Summary VOA GC	24
RQ1808100-03 - DLCS VOA GC	25
Raw Data	26
Volatile Organic Compounds by GC	27
RSK 175 - Gases DOD	
Form 1s	
2327398 001 - VOA GC	28
Raw Data	29
ICAL Summary	97
ICV Summary	99
RQ1808100-04 - CCV VOA GC	100
RQ1808100-05 - CCV VOA GC	101
Run Log	102
Run Log Sheets	103

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental

Client: ALS Environmental - US
Project: UR115: 2327398
Sample Matrix: Water

Service Request: R1807201
Date Received: 08/01/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 08/01/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The sample was received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Volatiles by GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 08/13/2018

SAMPLE DETECTION SUMMARY

CLIENT ID: 2327398 001			Lab ID: R1807201-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Ethane, Dissolved	52		0.17	1.0	ug/L	RSK 175
Ethene, Dissolved	6.3		0.14	1.0	ug/L	RSK 175
Methane, Dissolved	3700	D	5.8	53	ug/L	RSK 175

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1807201-001	2327398 001	7/18/2018	0906

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	1 of 2
ALS Quote #:	

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2327398

Bill To: ALS Environmental

TAT [ ] Normal-Standard TAT is 10-12 business days.
[X] Rush-Subject to ALS approval and surcharges.

Date Required: 8/2/2018 Approved By:

Email? [ ] Y

Fax? [ ] Y No.:

Container Type	G									
Container Size	40 mL									
Preservative	HCl									

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	DOD RSK175 (Ethane, , Ethene, Methane, Acetylene)	*Report to the MDL, QC lab report needed, EQUIS EDD.	Enter Number of Containers Per Sample or Field Results Below.
1 2327398 001	7/18/18	0906	G	WT	2	*	
2							
3							
4							
5							
6							
7							
8							
9							
10							

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

Sample/COC Comments

Sub to ALS Rochester

ALS Field Services: [ ] Pickup [ ] Labor
[ ] Composite_Sampling [ ] Rental_Equipment
[ ] Other:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	7/31/18	1456	2 ALS	8-1-18	0925
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [X] DOD

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC

Reportable to PADEP? Yes [ ]

Sample Disposal: Lab [X]

PWSID #

EDDS: Format Type

R1807201 5
ALS Group USA, Corp.
UR115: 2327398

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WI

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Cooler Receipt and Preservation Check Form

R1807201 5
ALS Group USA, Corp.
UR116: 2327399

Project/Client ALS-Middletown Folder Number

Cooler received on 8-1-18 by: MC

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	
2	**Custody papers** properly completed (ink, signed)?	(Y) N	
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y) N	
5a	**Perchlorate** samples have required headspace?	Y N (NA)	
5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	(Y) N NA	*
6	Where did the bottles originate?	ALS/ROC (CLIENT)	
7	Soil VOA received as:	Bulk Encore 5035set (NA)	

8. Temperature Readings Date: 8-1-18 Time: 09:28 ID: (IR#7) IR#9 From: Temp Blank (Sample Bottle)

Observed Temp (°C)	4.4						
Correction Factor (°C)	+0.3						
Corrected Temp (°C)	4.7						
Temp from:Type of bottle	Vo a/						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: MC 8-1-18 Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: ~~RO~~ by MC on 8-1-18 at 09:37
5035 samples placed in storage location: Analyst by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 8/1/18 Time: 1138 by: C

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**	Client					

Bottle lot numbers: Client

Explain all Discrepancies/ Other Comments:

* 1 of 2 vials.

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: C
PC Secondary Review: SMS 8/3/18

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Internal Chain of Custody Report

Client: ALS Environmental **Service Request:** R1807201
Project: UR115: 2327398

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R1807201-001.01					
	RSK 175,RSK 175				
		8/1/2018	1141	SMO / DWARD	
		8/9/2018	1336	R-001-S02 / FNAEGLER	
R1807201-001.02					
		8/1/2018	1141	SMO / DWARD	
		8/9/2018	1336	R-001-S02 / FNAEGLER	
R1807201-001.03					
		8/1/2018	1141	SMO / DWARD	

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Delaware Approved	New Jersey ID # NY004	
DoD ELAP #65817	New York ID # 10145	Pennsylvania ID# 68-786
Florida ID # E87674	North Carolina #676	Rhode Island ID # 158
		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	ALS Environmental - US	**Service Request:**	R1807201
Project:	UR115: 2327398		

Sample Name:	2327398 001	**Date Collected:**	07/18/18
Lab Code:	R1807201-001	**Date Received:**	08/1/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

Sample Results

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	R1807201
Project:	UR115: 2327398	**Date Collected:**	07/18/18 09:06
Sample Matrix:	Water	**Date Received:**	08/01/18 09:25
Sample Name:	2327398 001	**Units:**	ug/L
Lab Code:	R1807201-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND	U	2.0	1.0	0.53	1	08/01/18 10:25	
Ethane	**52**		1.0	0.50	0.17	1	08/01/18 10:25	
Ethene	**6.3**		1.0	0.50	0.14	1	08/01/18 10:25	
Methane	**3700**	**D**	53	25	5.8	50	08/01/18 10:58	

QC Summary Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client: ALS Environmental - US
Project: UR115: 2327398
Sample Matrix: Water

Service Request: R1807201
Date Analyzed: 08/01/18 09:42

Method Blank Summary
Dissolved Gases by GC/FID

Sample Name: Method Blank
Lab Code: RQ1808100-01

Instrument ID: R-GC-02
File ID: I:\ACQUDATA\V2\DATA\080118\AB761.D\

Analysis Method: RSK 175
Analysis Lot: 601704

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1808100-02	I:\ACQUDATA\V2\DATA\080118\AB762.D\	08/01/18 09:52
Duplicate Lab Control Sample	RQ1808100-03	I:\ACQUDATA\V2\DATA\080118\AB763.D\	08/01/18 10:02
2327398 001	R1807201-001	I:\ACQUDATA\V2\DATA\080118\AB764.D\	08/01/18 10:25
2327398 001	R1807201-001	I:\ACQUDATA\V2\DATA\080118\AB766.D\	08/01/18 10:58

Client:	ALS Environmental - US	**Service Request:**	R1807201
Project:	UR115: 2327398	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ1808100-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	08/01/18 09:42	
Ethane	ND U	1.0	0.50	0.17	1	08/01/18 09:42	
Ethene	ND U	1.0	0.50	0.14	1	08/01/18 09:42	
Methane	**0.36 J**	1.1	0.50	0.12	1	08/01/18 09:42	

Client: ALS Environmental - US
Project: UR115: 2327398
Sample Matrix: Water

Service Request: R1807201
Date Analyzed: 08/01/18 09:52

Lab Control Sample Summary
Dissolved Gases by GC/FID

Sample Name: Lab Control Sample
Lab Code: RQ1808100-02

Instrument ID: R-GC-02
File ID: I:\ACQUDATA\V2\DATA\080118\AB762.D\

Analysis Method: RSK 175

Analysis Lot: 601704

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	RQ1808100-01	I:\ACQUDATA\V2\DATA\080118\AB761.D\	08/01/18 09:42
Duplicate Lab Control Sample	RQ1808100-03	I:\ACQUDATA\V2\DATA\080118\AB763.D\	08/01/18 10:02
2327398 001	R1807201-001	I:\ACQUDATA\V2\DATA\080118\AB764.D\	08/01/18 10:25
2327398 001	R1807201-001	I:\ACQUDATA\V2\DATA\080118\AB766.D\	08/01/18 10:58

Client: ALS Environmental - US
Project: UR115: 2327398
Sample Matrix: Water

Service Request: R1807201
Date Analyzed: 08/01/18

Duplicate Lab Control Sample Summary
Dissolved Gases by GC/FID

Units:ug/L
Basis:NA

		Lab Control Sample RQ1808100-02			Duplicate Lab Control Sample RQ1808100-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Acetylene	RSK 175	50.6	50.1	101	49.5	50.1	99	70-129	2	30
Ethane	RSK 175	28.8	26.0	111	27.6	26.0	106	74-131	4	30
Ethene	RSK 175	27.4	24.3	113	26.5	24.3	109	72-133	3	30
Methane	RSK 175	27.6	26.2	105	26.6	26.2	101	73-125	4	30

Raw Data

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	R1807201
Project:	UR115: 2327398	**Date Collected:**	07/18/18 09:06
Sample Matrix:	Water	**Date Received:**	08/01/18 09:25
Sample Name:	2327398 001	**Units:**	ug/L
Lab Code:	R1807201-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

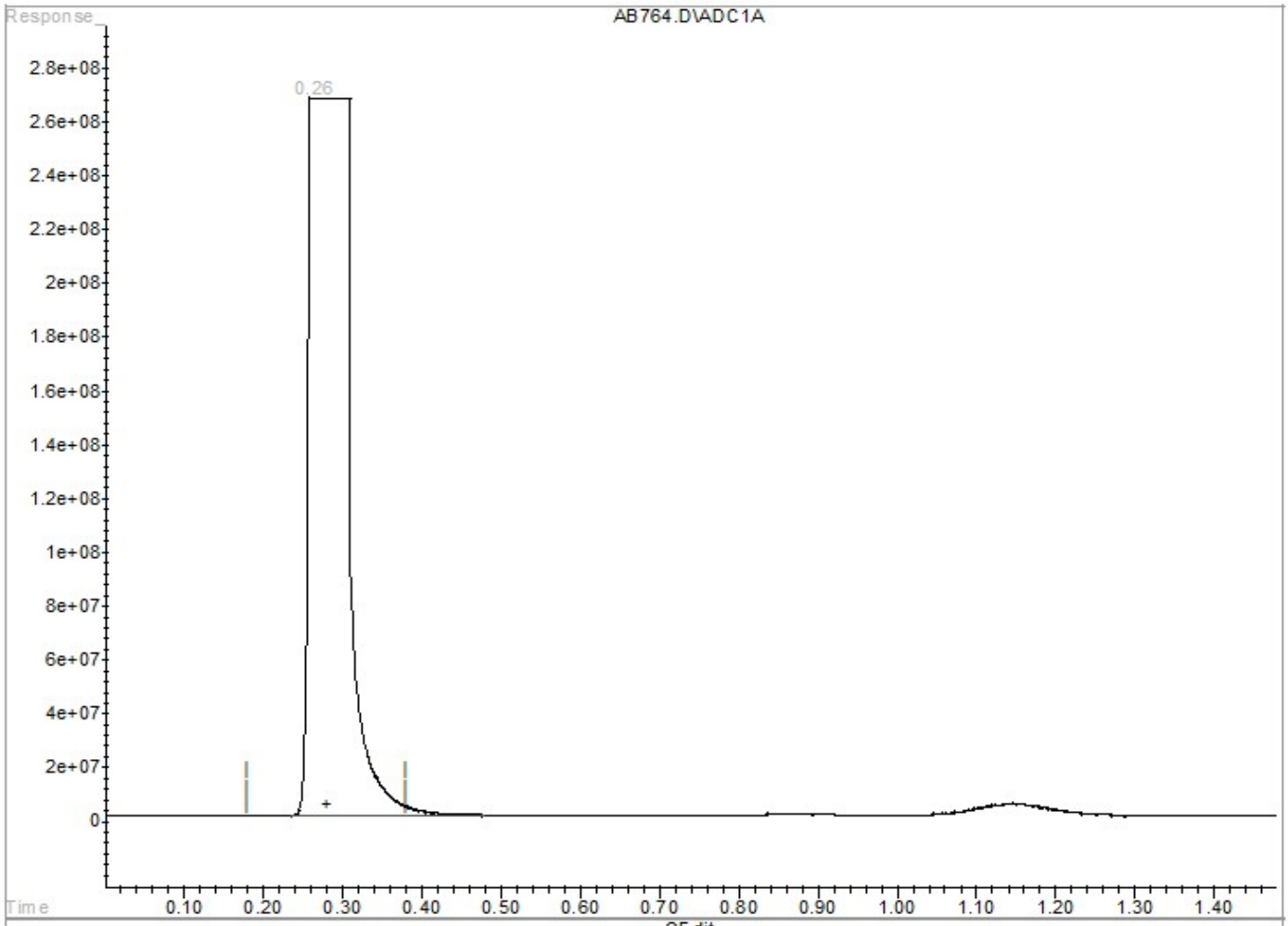
Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND	U	2.0	1.0	0.53	1	08/01/18 10:25	
Ethane	**52**		1.0	0.50	0.17	1	08/01/18 10:25	
Ethene	**6.3**		1.0	0.50	0.14	1	08/01/18 10:25	
Methane	**3700**	**D**	53	25	5.8	50	08/01/18 10:58	

1st fJ 08/08/18
2nd fJ 08/08/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\080118\AB764.D Vial: 7
Acq On : 1 Aug 2018 10:25 am Operator: b.allgeier
Sample : ALS Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 10:33 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration



(1) Methane

0.26min 1687.390ug/L m

response 9599519126

Manual Integration:

After

Poor integration.

08/08/18

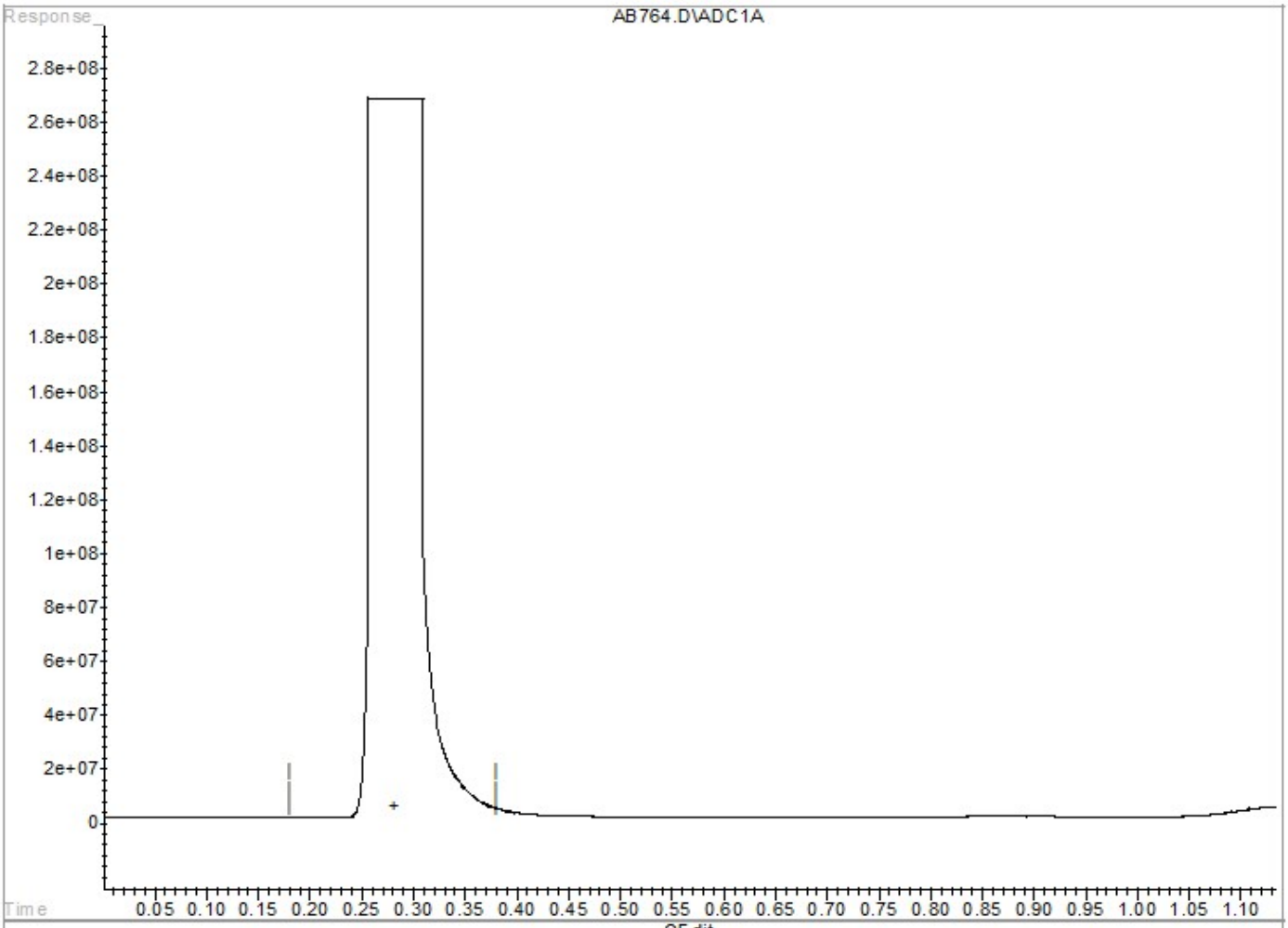
(+) = Expected Retention Time
AB764.D RSK0727.M Wed Aug 08 16:46:54 2018
Page 29 of 103

1st BA 08/08/18
2nd fJ 08/08/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\080118\AB764.D Vial: 7
Acq On : 1 Aug 2018 10:25 am Operator: b.allgeier
Sample : ALS Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 10:33 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.000ug/L

response 0

Manual Integration:

Before

08/01/18

(+) = Expected Retention Time
AB764.D RSK0727.M Wed Aug 01 10:33:26 2018
Page 30 of 103

1st BA 08/08/18
2nd FJ 08/08/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\080118\AB764.D Vial: 7
Acq On : 1 Aug 2018 10:25 am Operator: b.allgeier
Sample : ALS Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 10:33 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Target Compounds					
1)	Methane	0.26	9599519126	1687.390	ug/L	m E-Over Calibration
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.88	25851833	6.318	ug/L	
4)	Ethane	1.15	288606048	51.584	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.84	133793606	23.584	ug/L	

(f)=RT Delta > 1/2 Window (m)=manual int.

ALS

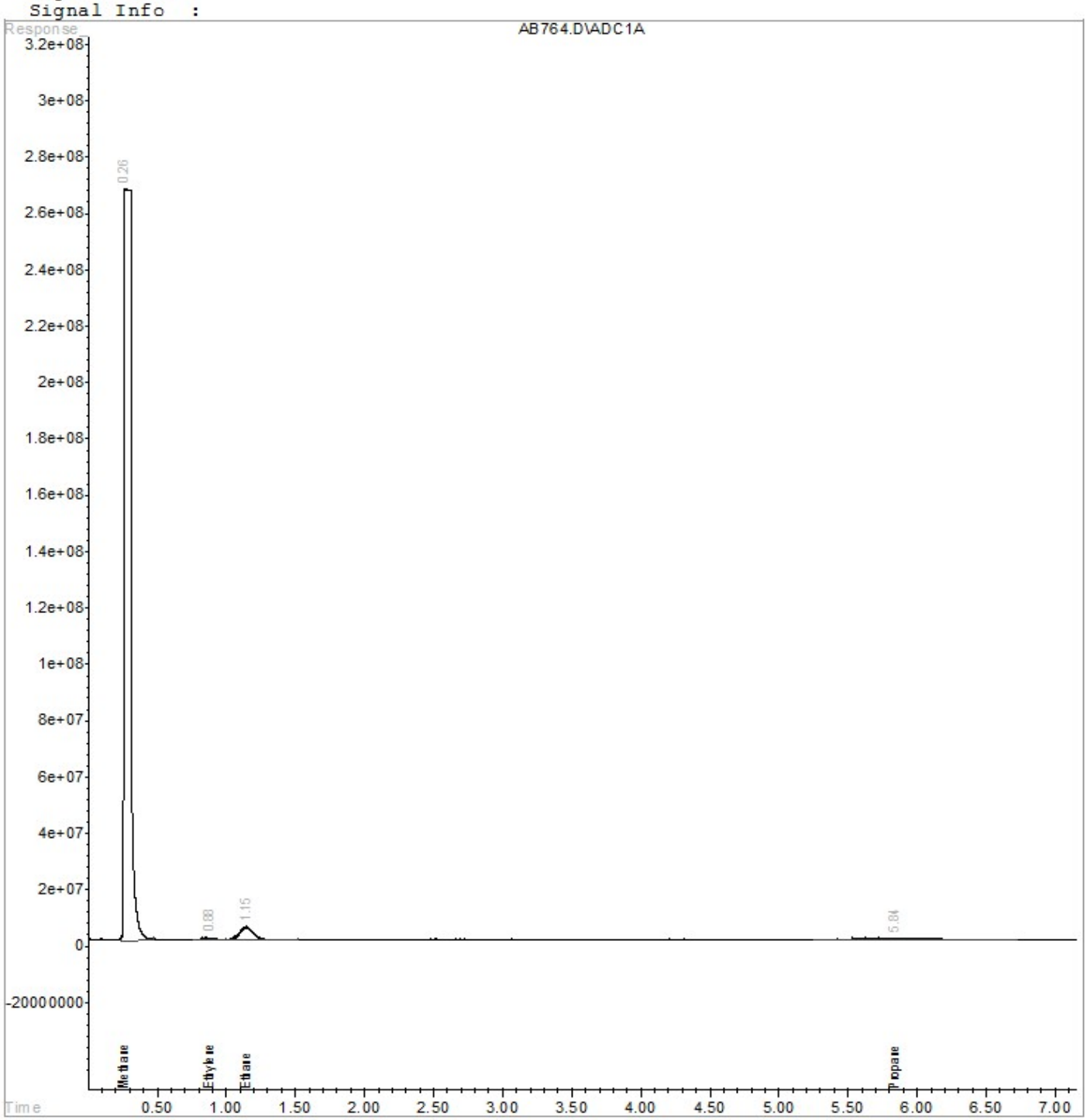
1st BA 08/08/18
2nd FJ 08/08/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\080118\AB764.D Vial: 7
Acq On : 1 Aug 2018 10:25 am Operator: b.allgeier
Sample : ALS Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 10:33 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

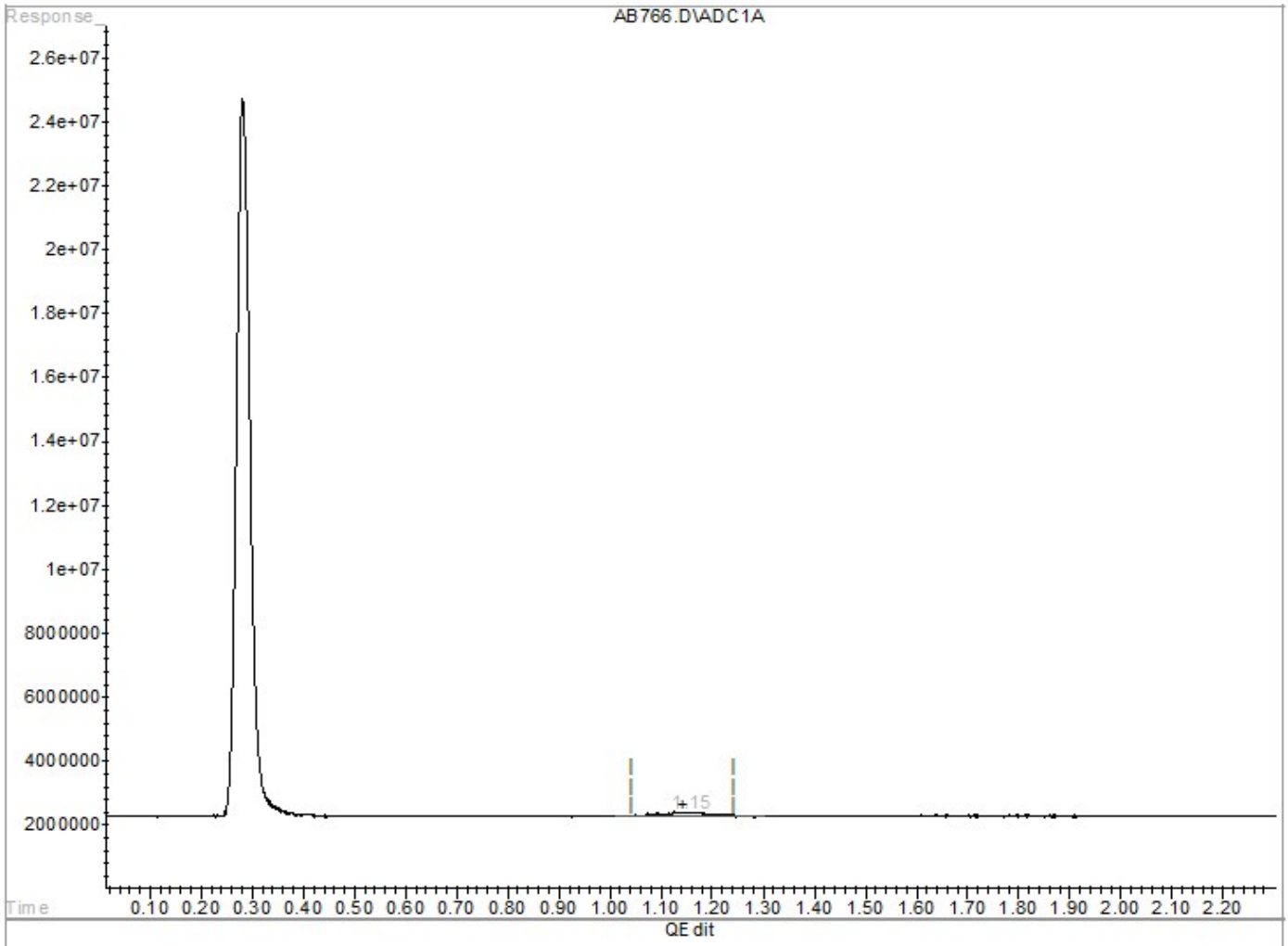


1st fJ 08/08/18
2nd fJ 08/08/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\080118\AB766.D Vial: 9
Acq On : 1 Aug 2018 10:58 am Operator: b.allgeier
Sample : ALS|50 Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 11:05 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration



(4) Ethane

1.15min 0.971ug/L m

response 5435005

Manual Integration:

After

Poor integration.

08/08/18

(+) = Expected Retention Time

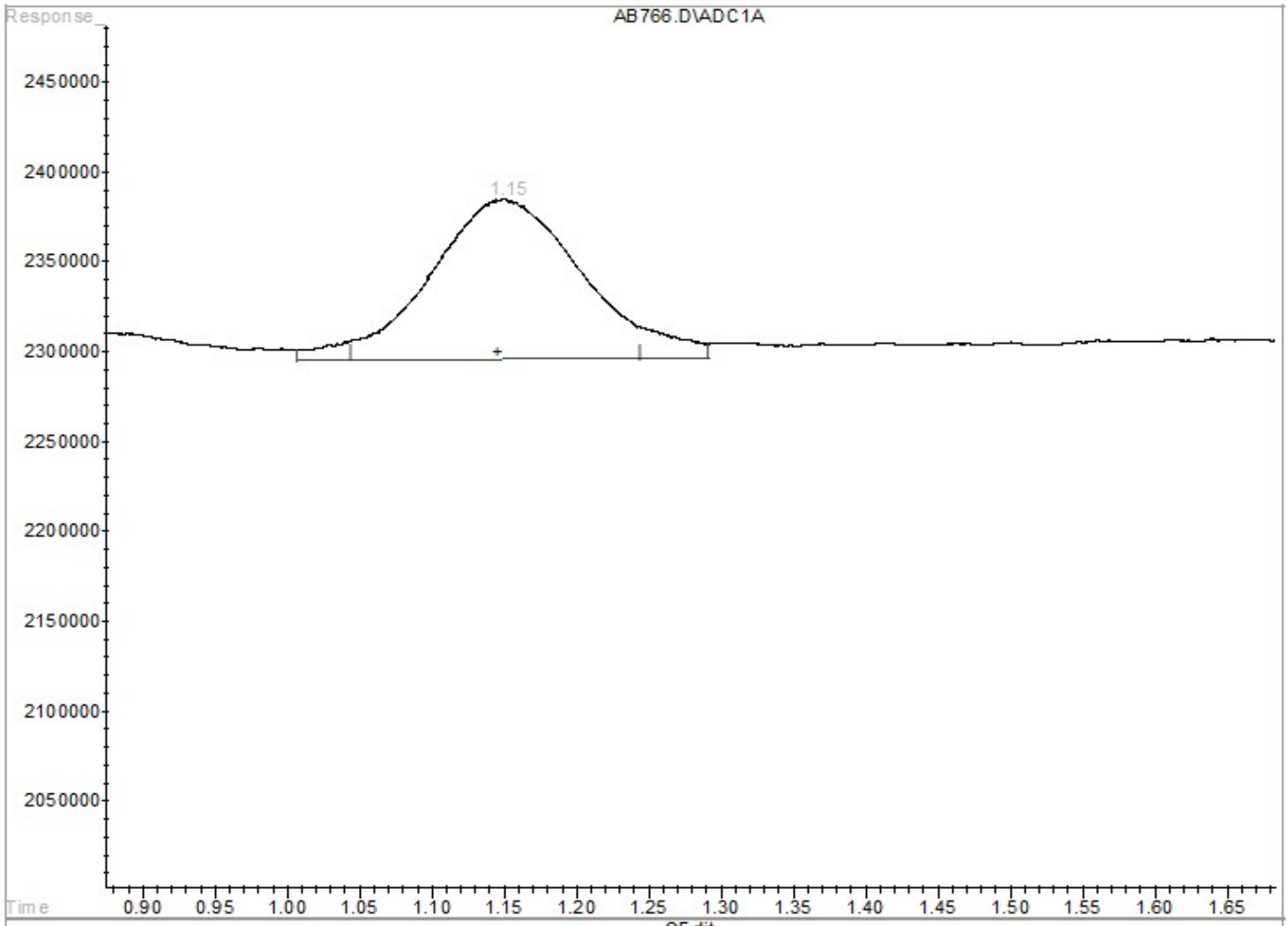
AB766.D RSK0727.M Wed Aug 08 16:48:37 2018

1st BA 08/08/18
2nd FJ 08/08/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\080118\AB766.D Vial: 9
Acq On : 1 Aug 2018 10:58 am Operator: b.allgeier
Sample : ALS|50 Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 11:05 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration



(4) Ethane

1.15min 1.169ug/L

response 6540961

Manual Integration:

Before

08/01/18

(+) = Expected Retention Time
AB766.D RSK0727.M Wed Aug 01 11:05:56 2018
Page 34 of 103

1st BA 08/08/18
2nd fJ 08/08/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\080118\AB766.D Vial: 9
Acq On : 1 Aug 2018 10:58 am Operator: b.allgeier
Sample : ALS|50 Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 11:05 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Target Compounds					
1)	Methane	0.28	421414253	74.076	ug/L	
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.88	958564	0.234	ug/L	
4)	Ethane	1.15	5435005	0.971	ug/L	m
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	0.00	0	N.D.	ug/L	

(f)=RT Delta > 1/2 Window (m)=manual int.

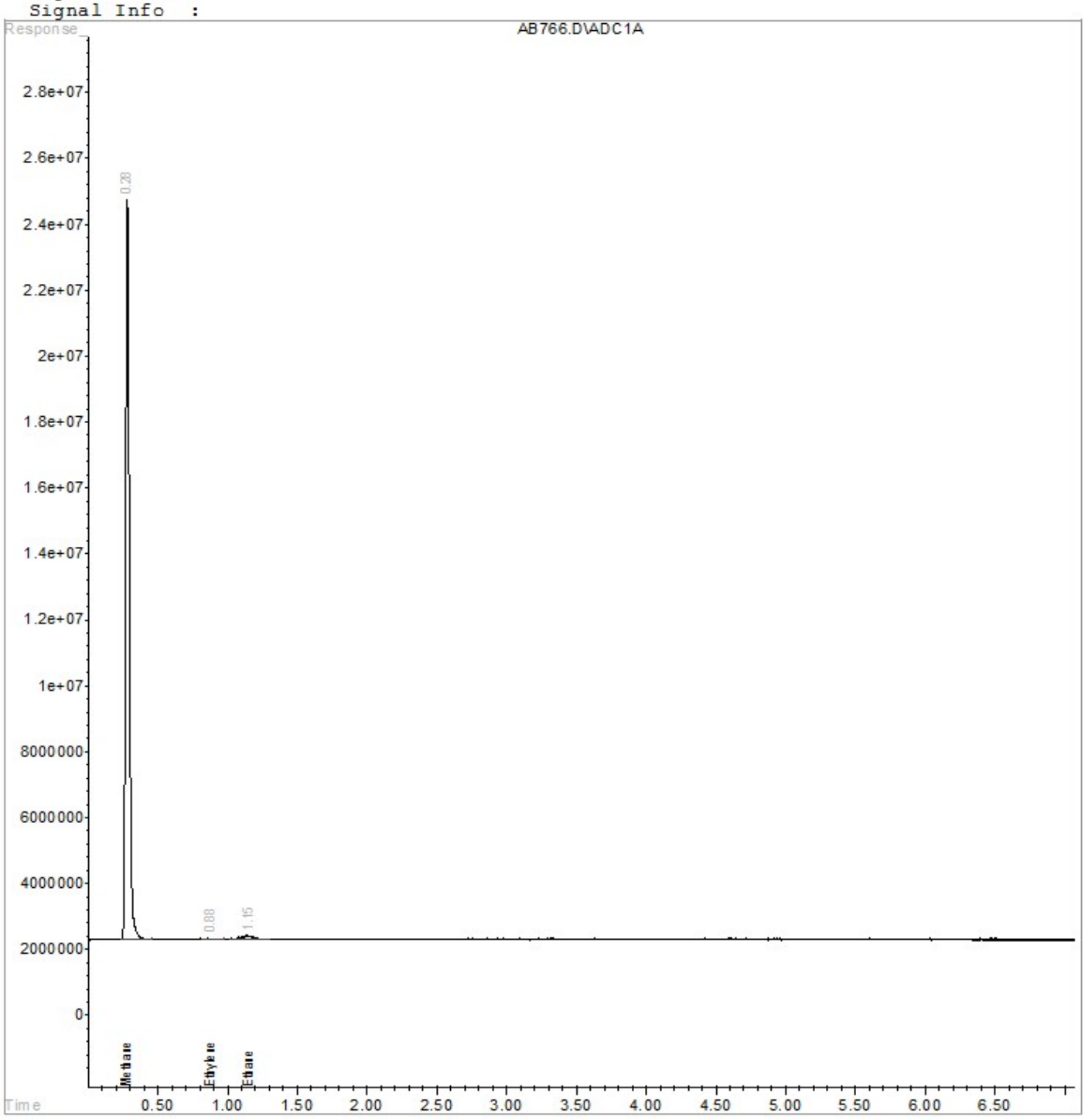
1st BA 08/08/18
2nd FJ 08/08/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\080118\AB766.D Vial: 9
Acq On : 1 Aug 2018 10:58 am Operator: b.allgeier
Sample : ALS|50 Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 11:05 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 08/08/18
2nd fJ 08/08/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\080118\AB761.D Vial: 4
Acq On : 1 Aug 2018 9:42 am Operator: b.allgeier
Sample : MET BLK Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 10:01 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	2040167	0.359	ug/L
2)	Acetylene	0.00	0	N.D.	ug/L
3)	Ethylene	0.00	0	N.D.	ug/L
4)	Ethane	0.00	0	N.D.	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	0.00	0	N.D.	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

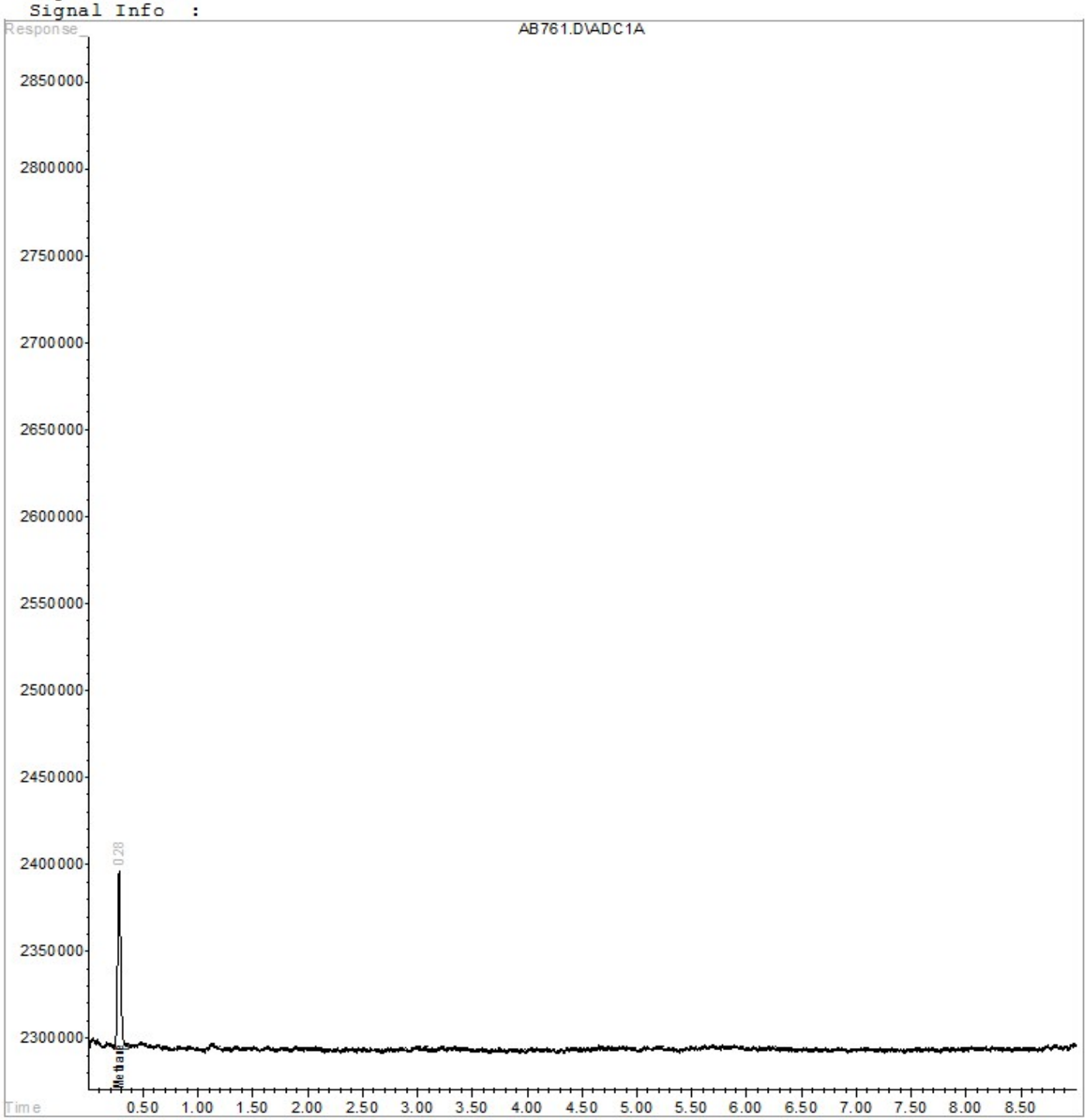
1st BA 08/08/18
2nd FJ 08/08/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\080118\AB761.D Vial: 4
Acq On : 1 Aug 2018 9:42 am Operator: b.allgeier
Sample : MET BLK Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 10:01 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 08/08/18
2nd fJ 08/08/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\080118\AB762.D Vial: 5
Acq On : 1 Aug 2018 9:52 am Operator: b.allgeier
Sample : LCS Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 10:01 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	156874868	27.575 ug/L
2)	Acetylene	0.64	52541308	50.573 ug/L
3)	Ethylene	0.88	112156168	27.408 ug/L
4)	Ethane	1.15	161291123	28.828 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	160065154	28.215 ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

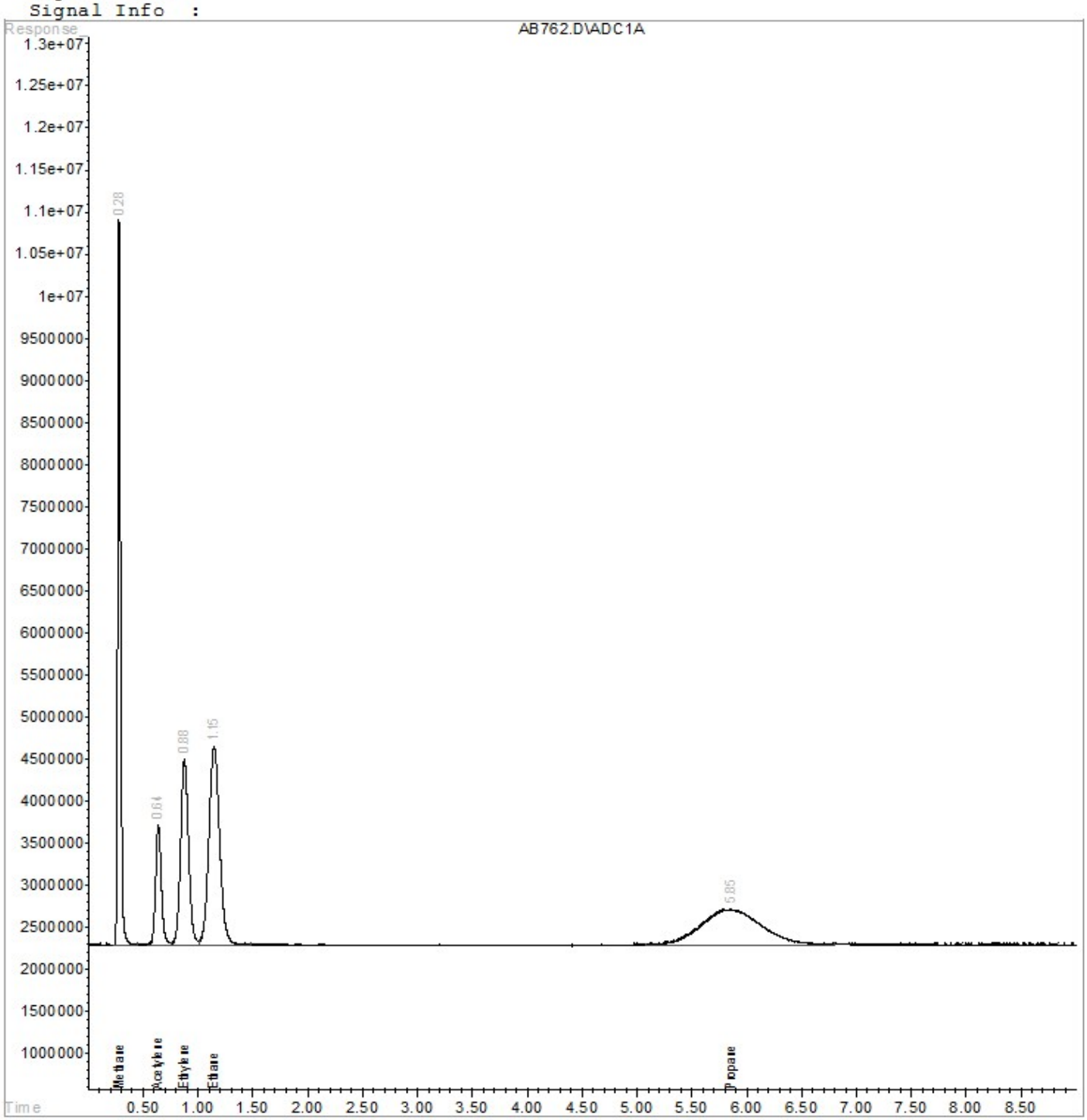
1st BA 08/08/18
2nd FJ 08/08/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\080118\AB762.D Vial: 5
Acq On : 1 Aug 2018 9:52 am Operator: b.allgeier
Sample : LCS Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 10:01 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 08/08/18
2nd FJ 08/08/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\080118\AB763.D Vial: 6
Acq On : 1 Aug 2018 10:02 am Operator: b.allgeier
Sample : LCSD Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 10:12 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	151048447	26.551 ug/L
2)	Acetylene	0.64	51398527	49.473 ug/L
3)	Ethylene	0.88	108365212	26.482 ug/L
4)	Ethane	1.15	154656136	27.642 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	152991626	26.968 ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

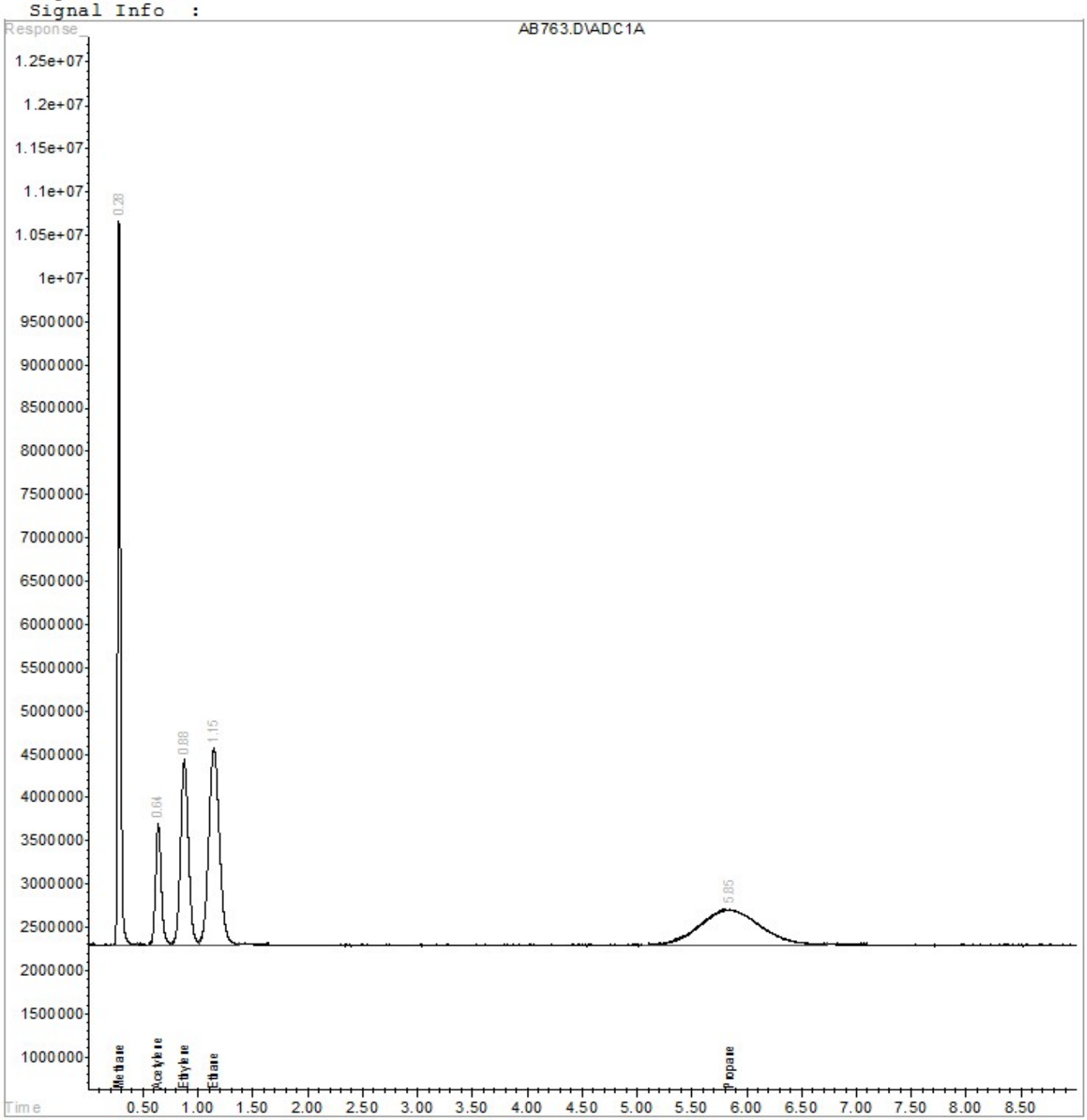
1st BA 08/08/18
2nd FJ 08/08/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\080118\AB763.D Vial: 6
Acq On : 1 Aug 2018 10:02 am Operator: b.allgeier
Sample : LCSD Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 10:12 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 08/08/18
2nd FJ 08/08/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\080118\AB760.D Vial: 3
Acq On : 1 Aug 2018 9:31 am Operator: b.allgeier
Sample : CCV Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	
1	Methane	5.689	5.305 E6	6.7	98	0.00	
2	Acetylene	1.039	0.823 E6	20.8	87	0.00	*
3	Ethylene	4.092	4.010 E6	2.0	97	0.00	
4	Ethane	5.595	5.506 E6	1.6	100	0.00	
6	Propane	5.673	5.583 E6	1.6	101	0.00	

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB760.D RSK0727.M Wed Aug 01 09:41:28 2018 Page 1

1st BA 08/08/18
2nd FJ 08/08/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\080118\AB760.D Vial: 3
Acq On : 1 Aug 2018 9:31 am Operator: b.allgeier
Sample : CCV Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB760.D RSK0727.M Wed Aug 01 09:41:28 2018 Page 2

1st BA 08/08/18
2nd fJ 08/08/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\080118\AB760.D Vial: 3
Acq On : 1 Aug 2018 9:31 am Operator: b.allgeier
Sample : CCV Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 9:41 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	278516908	48.957 ug/L
2)	Acetylene	0.64	82442579	79.354 ug/L
3)	Ethylene	0.88	194882177	47.624 ug/L
4)	Ethane	1.15	286879649	51.275 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.84	284154672	50.089 ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

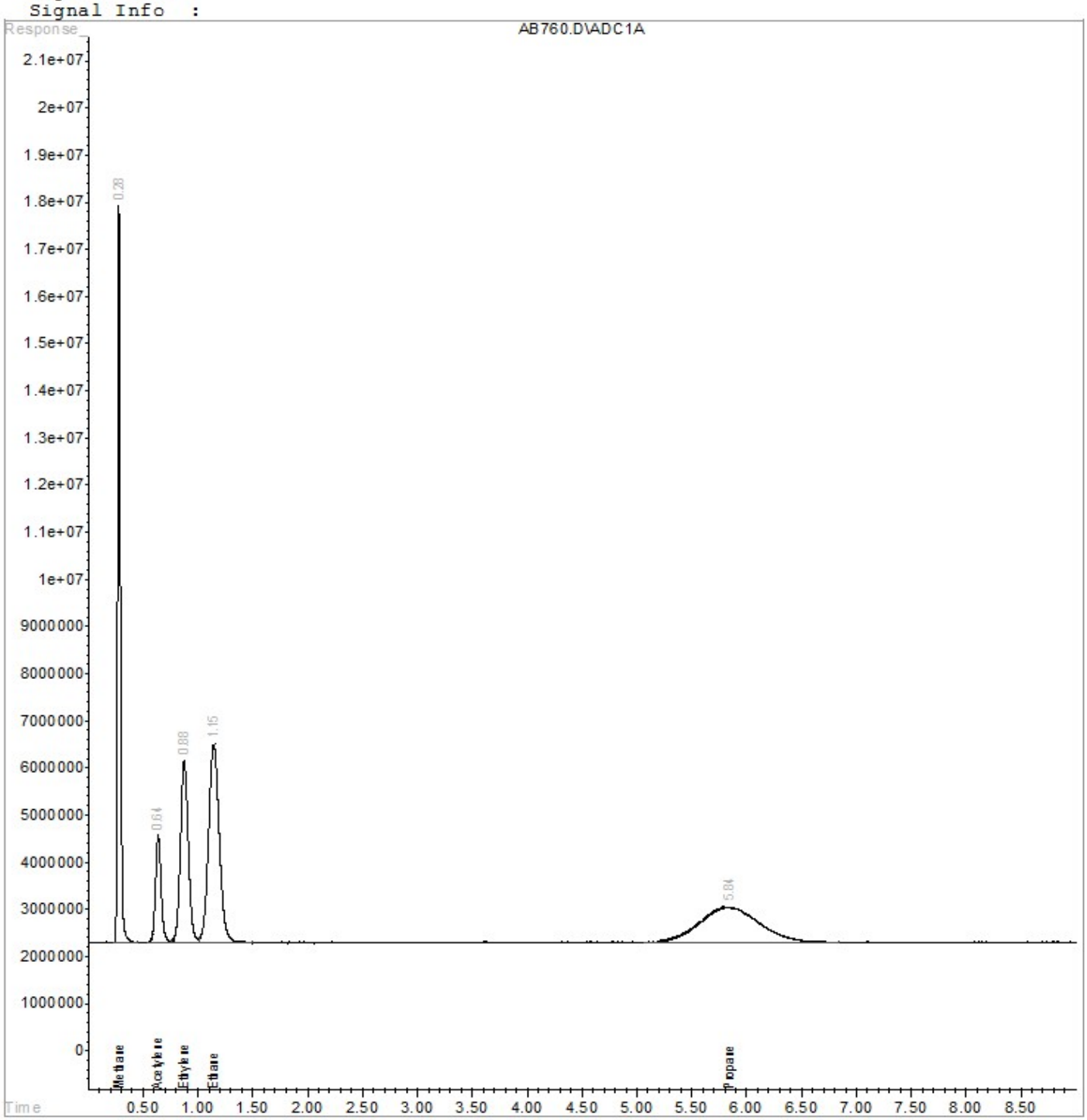
1st BA 08/08/18
2nd FJ 08/08/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\080118\AB760.D Vial: 3
Acq On : 1 Aug 2018 9:31 am Operator: b.allgeier
Sample : CCV Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 9:41 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 08/08/18
2nd FJ 08/08/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\080118\AB767.D Vial: 10
Acq On : 1 Aug 2018 11:07 am Operator: b.allgeier
Sample : CCV Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	Methane	5.689	5.202 E6	8.6	96	0.00
2	Acetylene	1.039	0.950 E6	8.6	100	0.00
3	Ethylene	4.092	4.088 E6	0.1	99	0.00
4	Ethane	5.595	5.407 E6	3.4	98	0.00
6	Propane	5.673	5.419 E6	4.5	98	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB767.D RSK0727.M Wed Aug 08 15:04:25 2018 Page 1

1st BA 08/08/18
2nd FJ 08/08/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\080118\AB767.D Vial: 10
Acq On : 1 Aug 2018 11:07 am Operator: b.allgeier
Sample : CCV Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB767.D RSK0727.M Wed Aug 08 15:04:25 2018 Page 2

1st BA 08/08/18
2nd FJ 08/08/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\080118\AB767.D Vial: 10
Acq On : 1 Aug 2018 11:07 am Operator: b.allgeier
Sample : CCV Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 11:14 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	273093028	48.004 ug/L
2)	Acetylene	0.64	95225930	91.659 ug/L
3)	Ethylene	0.88	198696600	48.556 ug/L
4)	Ethane	1.15	281730675	50.355 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	275835824	48.622 ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

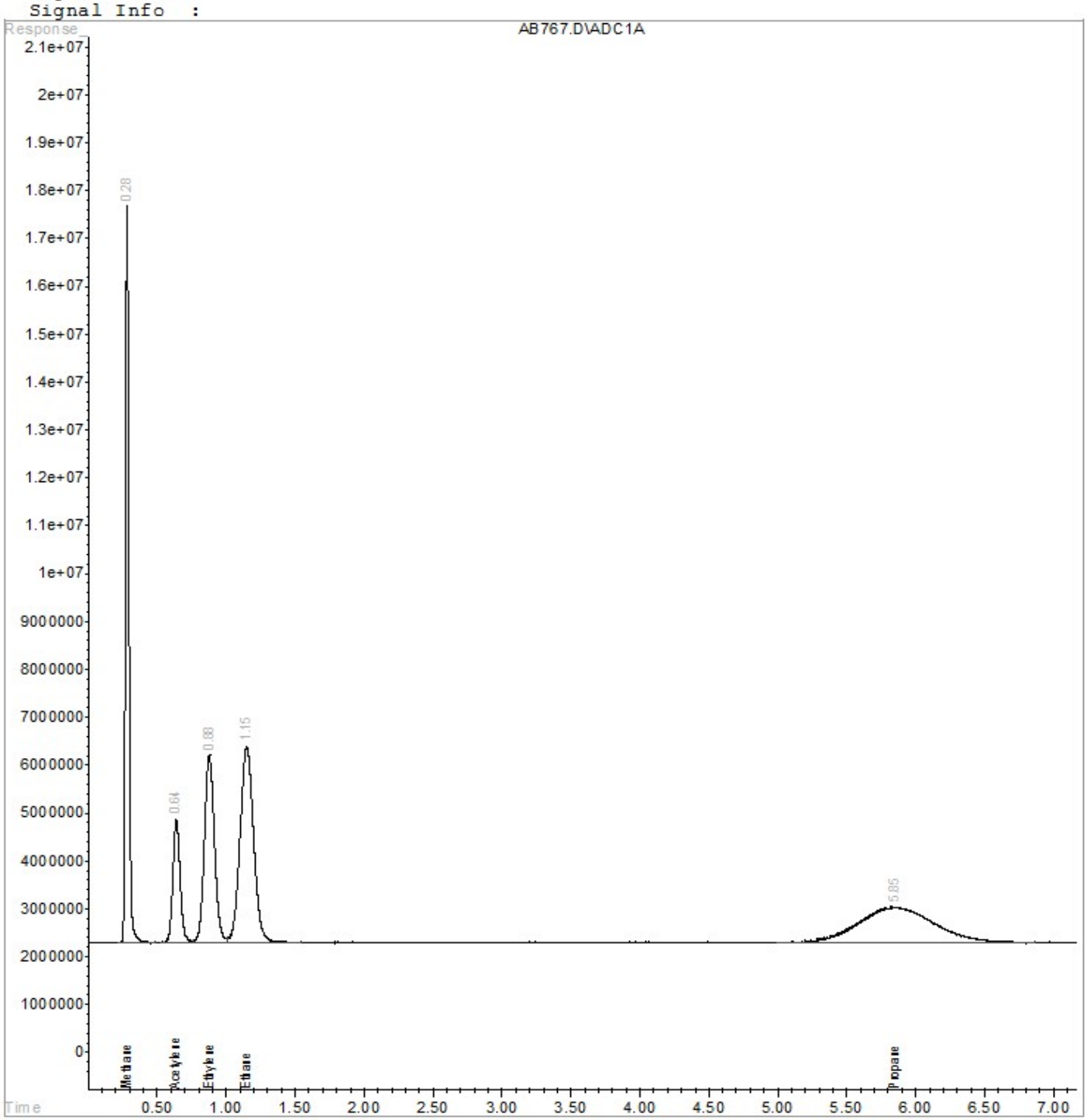
1st BA 08/08/18
2nd FJ 08/08/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\080118\AB767.D Vial: 10
Acq On : 1 Aug 2018 11:07 am Operator: b.allgeier
Sample : CCV Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Aug 1 11:14 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\072718\AB736.D Vial: 14
Acq On : 27 Jul 2018 11:02 am Operator: b.allgeier
Sample : icv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 11:12 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	280266024	49.265	ug/L
2)	Acetylene	0.64	110454128	106.317	ug/L
3)	Ethylene	0.88	208015974	50.834	ug/L
4)	Ethane	1.15	290697357	51.958	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	5.86	283900574	50.044	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

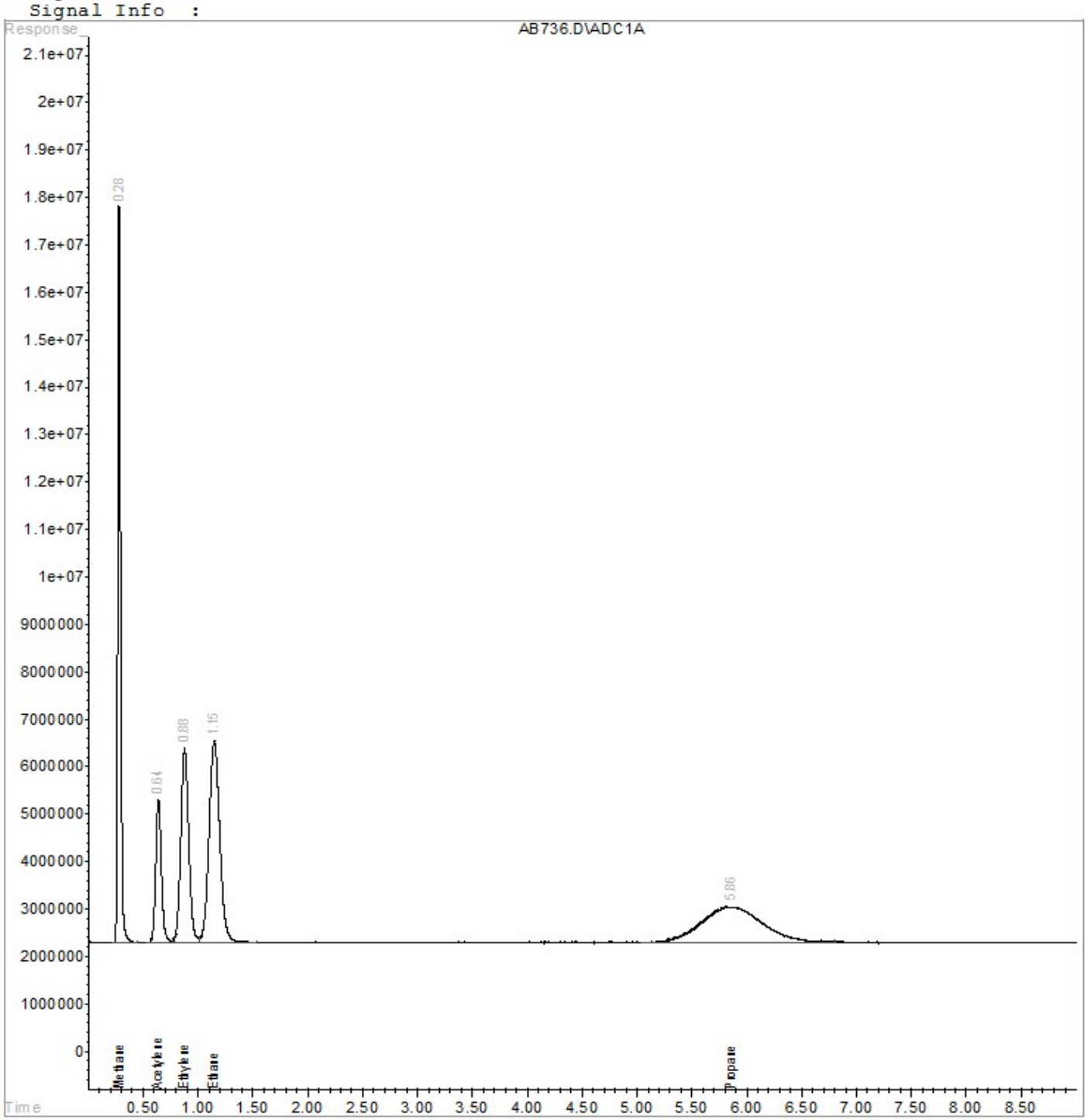
1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\072718\AB736.D Vial: 14
Acq On : 27 Jul 2018 11:02 am Operator: b.allgeier
Sample : icv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 11:12 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

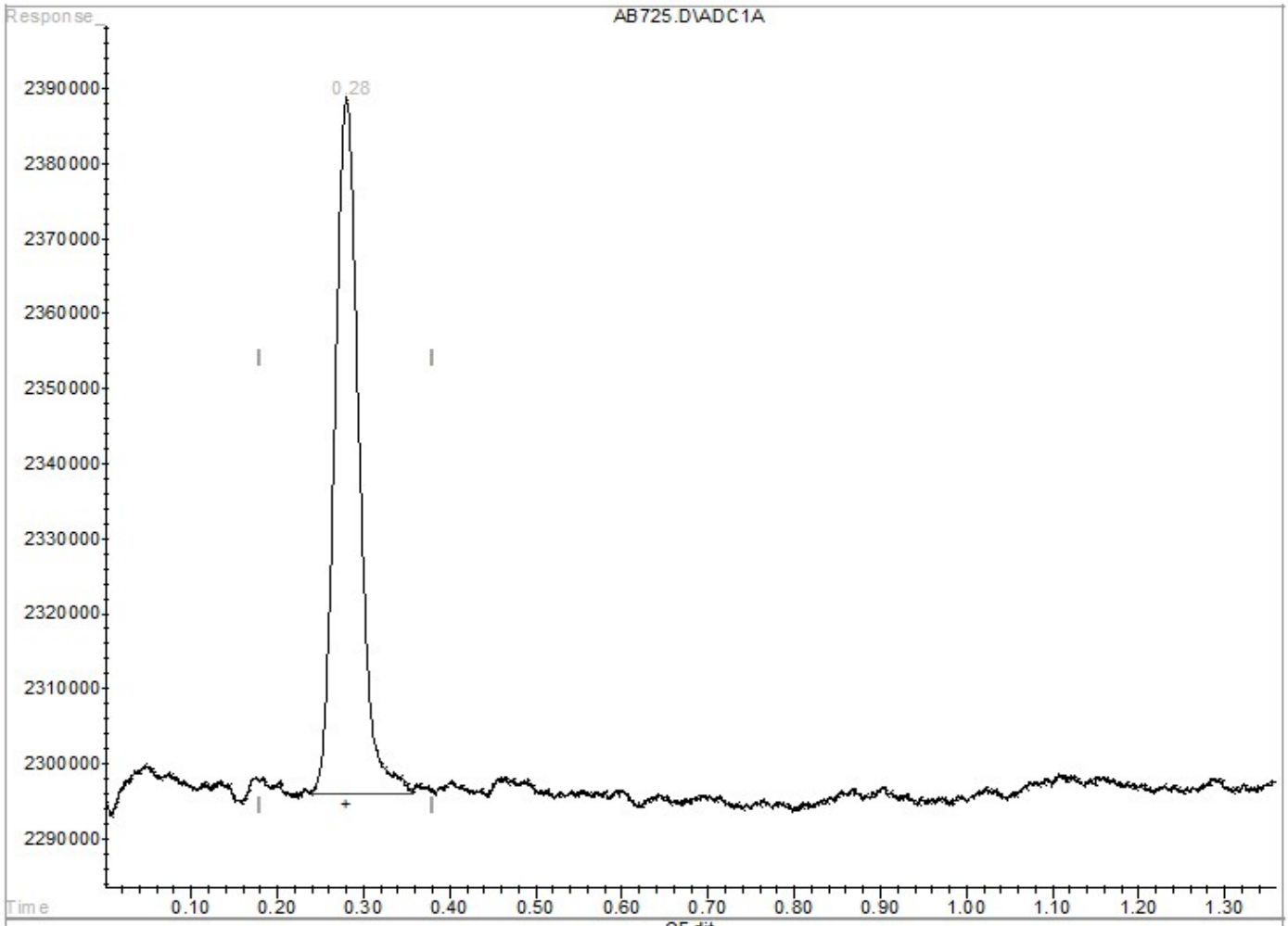


1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB725.D Vial: 3
Acq On : 27 Jul 2018 8:52 am Operator: b.allgeier
Sample : inst blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 30 9:20 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.321ug/L m

response 1826630

Manual Integration:

After

Poor integration.

07/30/18

(+) = Expected Retention Time

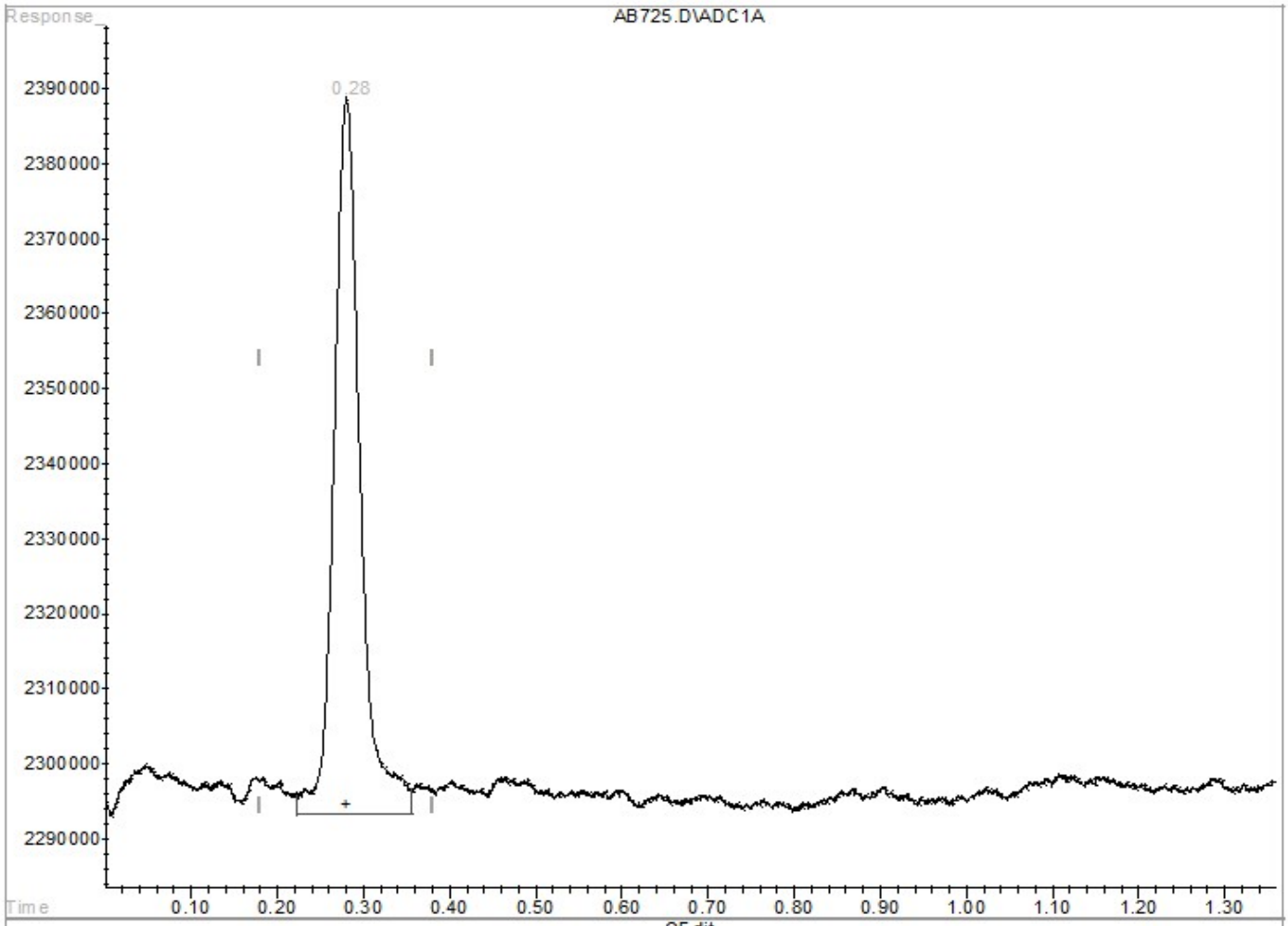
AB725.D RSK0727.M Mon Jul 30 09:20:22 2018

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB725.D Vial: 3
Acq On : 27 Jul 2018 8:52 am Operator: b.allgeier
Sample : inst blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 30 9:20 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.358ug/L

response 2036859

Manual Integration:

Before

07/30/18

(+) = Expected Retention Time
AB725.D RSK0727.M Mon Jul 30 09:20:15 2018
Page 54 of 103

1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\072718\AB725.D Vial: 3
Acq On : 27 Jul 2018 8:52 am Operator: b.allgeier
Sample : inst blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 30 9:20 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	1826630	0.321	ug/L m
2)	Acetylene	0.00	0	N.D.	ug/L
3)	Ethylene	0.00	0	N.D.	ug/L
4)	Ethane	0.00	0	N.D.	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	0.00	0	N.D.	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

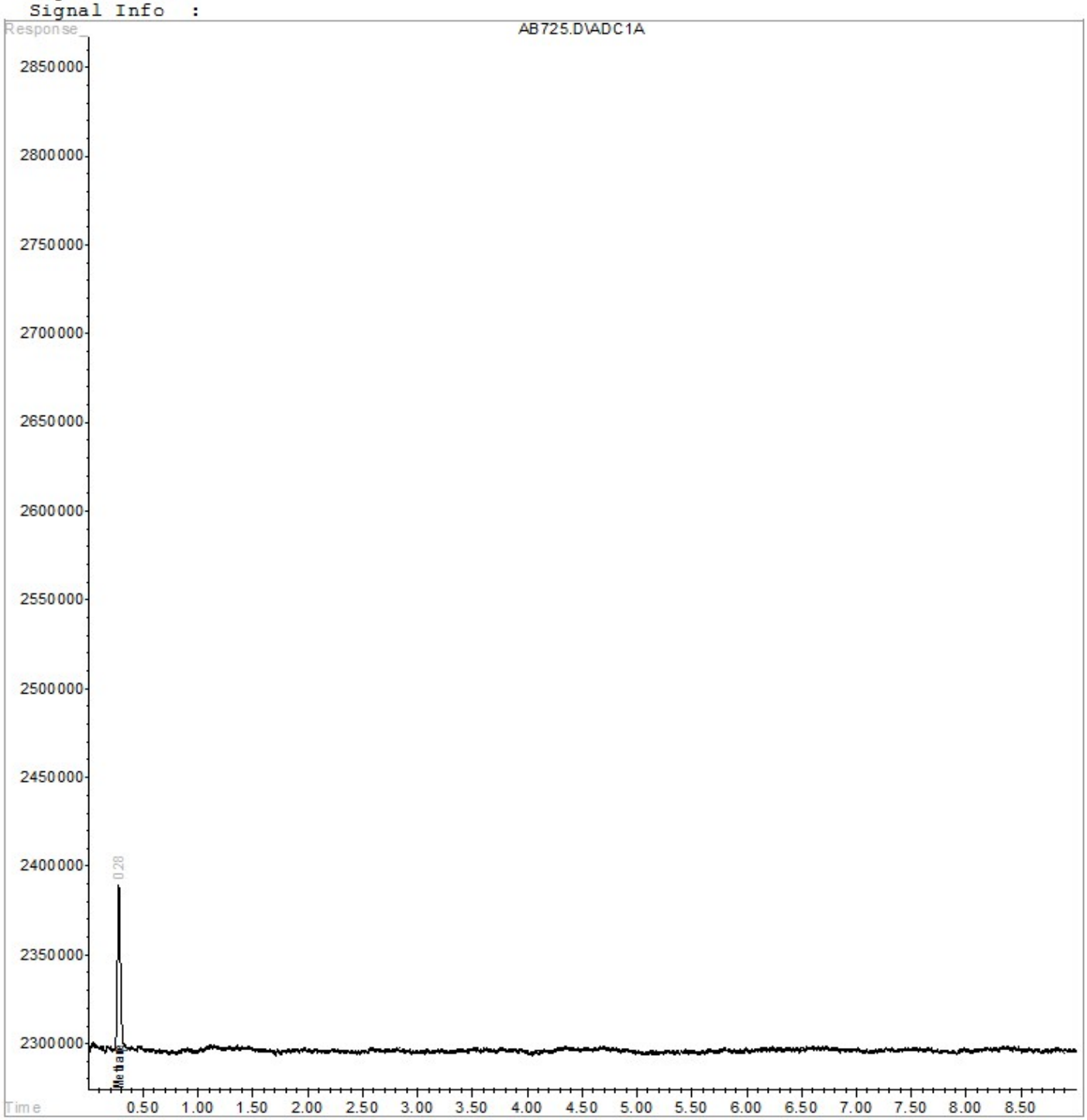
1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\072718\AB725.D Vial: 3
Acq On : 27 Jul 2018 8:52 am Operator: b.allgeier
Sample : inst blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 30 9:20 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



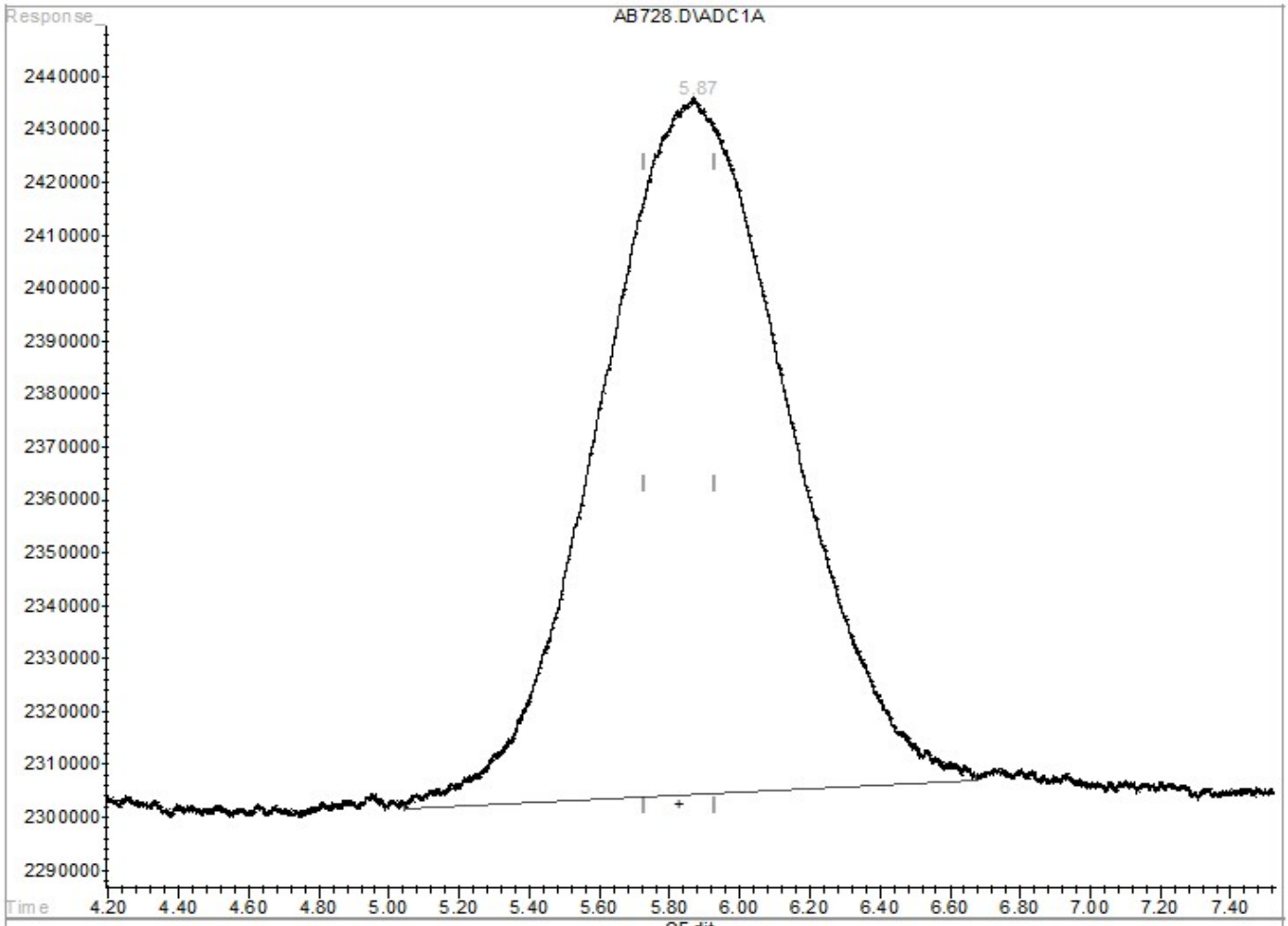
AB725.D RSK0727.M Mon Jul 30 09:20:30 2018 Page 2

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB728.D Vial: 6
Acq On : 27 Jul 2018 9:24 am Operator: b.allgeier
Sample : 10ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 9:36 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 09:34:45 2018
Response via : Multiple Level Calibration



(6) Propane

5.87min 7.444ug/L m

response 49043472

Manual Integration:

After

Poor integration.

07/27/18

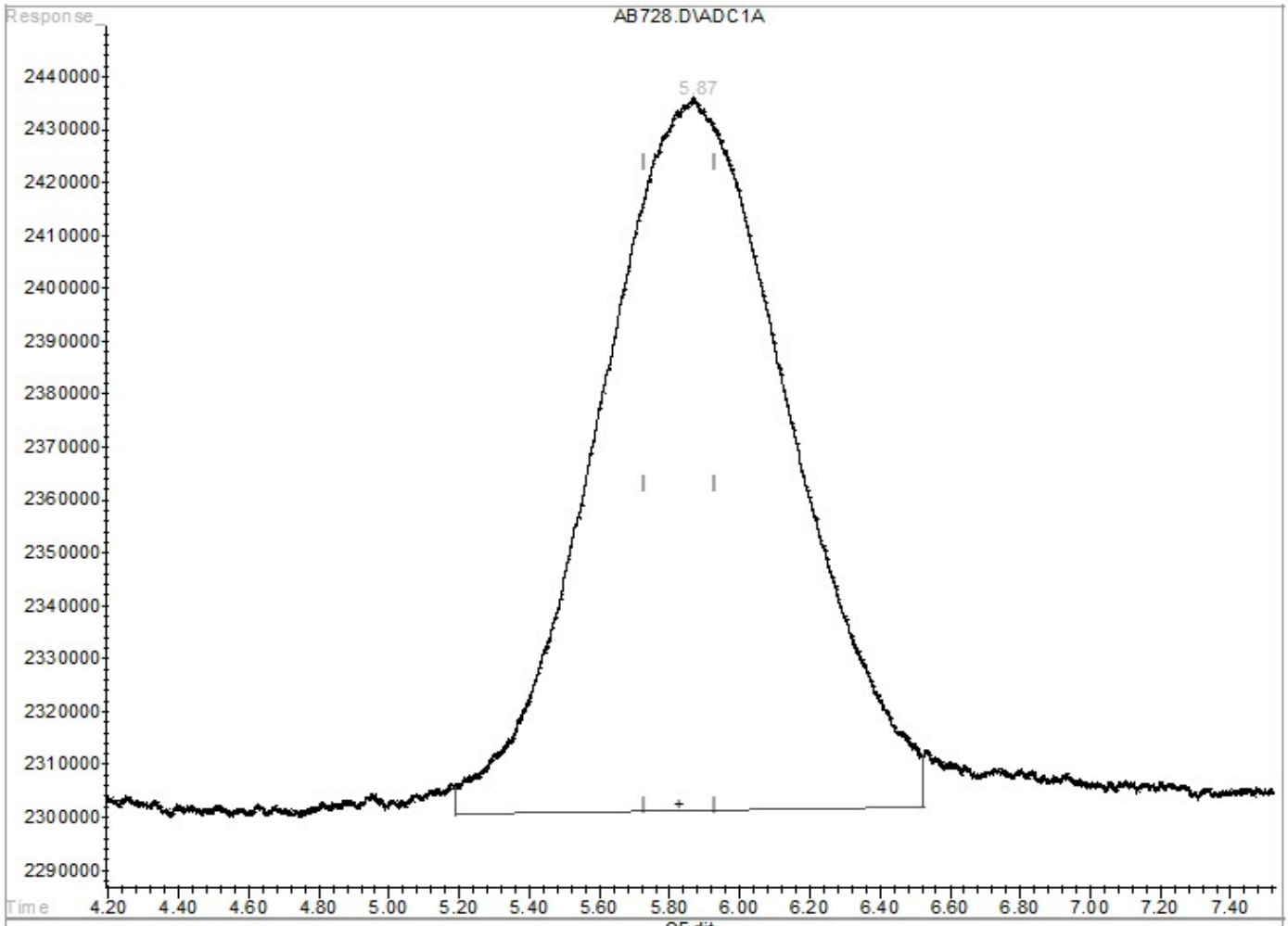
(+) = Expected Retention Time
AB728.D RSK0727.M Fri Jul 27 09:36:22 2018
Page 57 of 103

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB728.D Vial: 6
Acq On : 27 Jul 2018 9:24 am Operator: b.allgeier
Sample : 10ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 9:36 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 09:34:45 2018
Response via : Multiple Level Calibration



(6) Propane

5.87min 7.736ug/L

response 50963883

Manual Integration:

Before

07/27/18

(+) = Expected Retention Time
AB728.D RSK0727.M Fri Jul 27 09:36:16 2018
Page 58 of 103

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\072718\AB728.D Vial: 6
Acq On : 27 Jul 2018 9:24 am Operator: b.allgeier
Sample : 10ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 9:36 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 09:34:45 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	49590832	8.098	ug/L	
2)	Acetylene	0.64	13277816	10.262	ug/L	
3)	Ethylene	0.88	33279767	6.906	ug/L	
4)	Ethane	1.15	50944996	8.073	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.87	49043472	7.444	ug/L	m

(f)=RT Delta > 1/2 Window (m)=manual int.

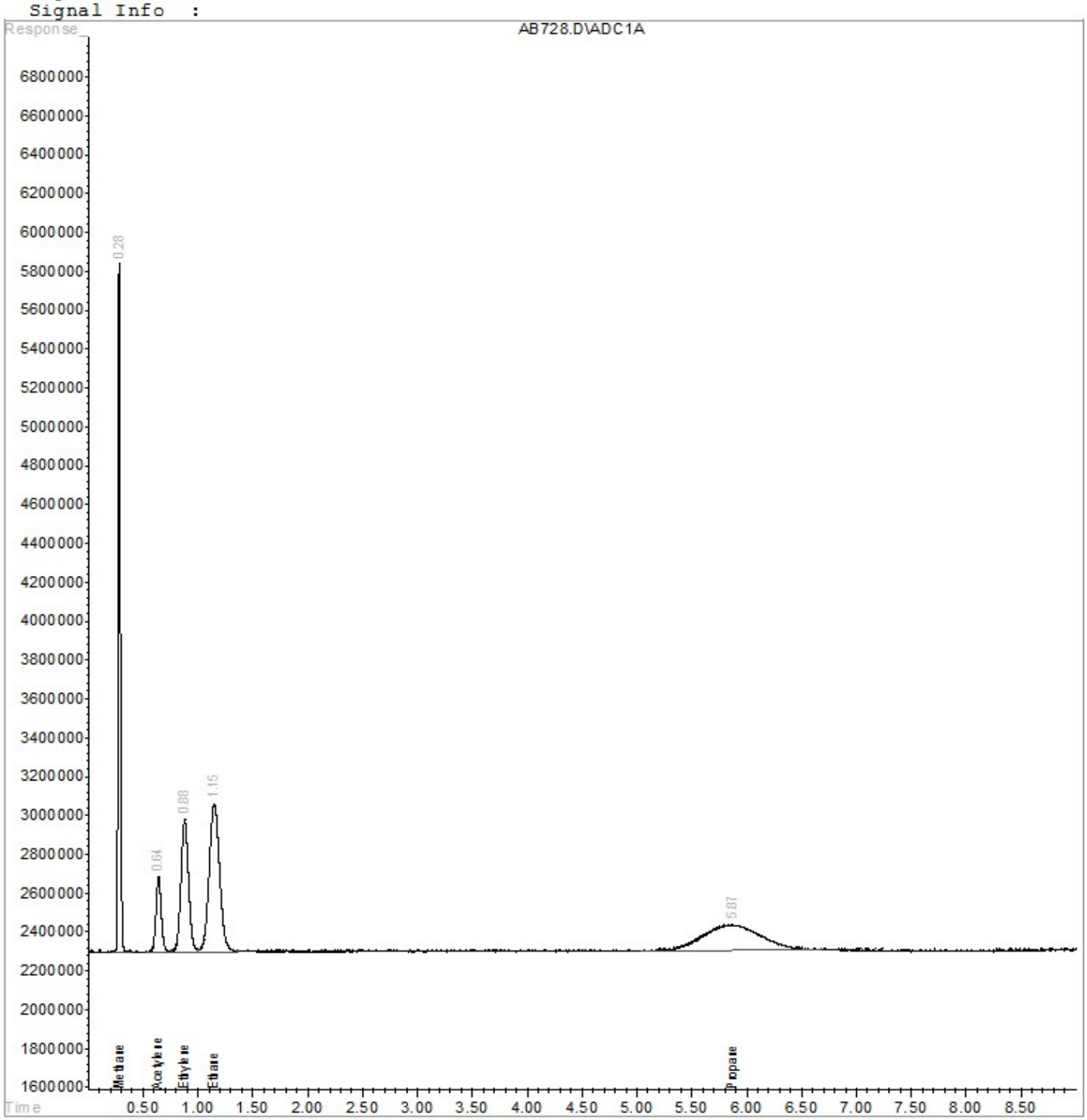
1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\072718\AB728.D Vial: 6
Acq On : 27 Jul 2018 9:24 am Operator: b.allgeier
Sample : 10ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 9:36 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 09:34:45 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

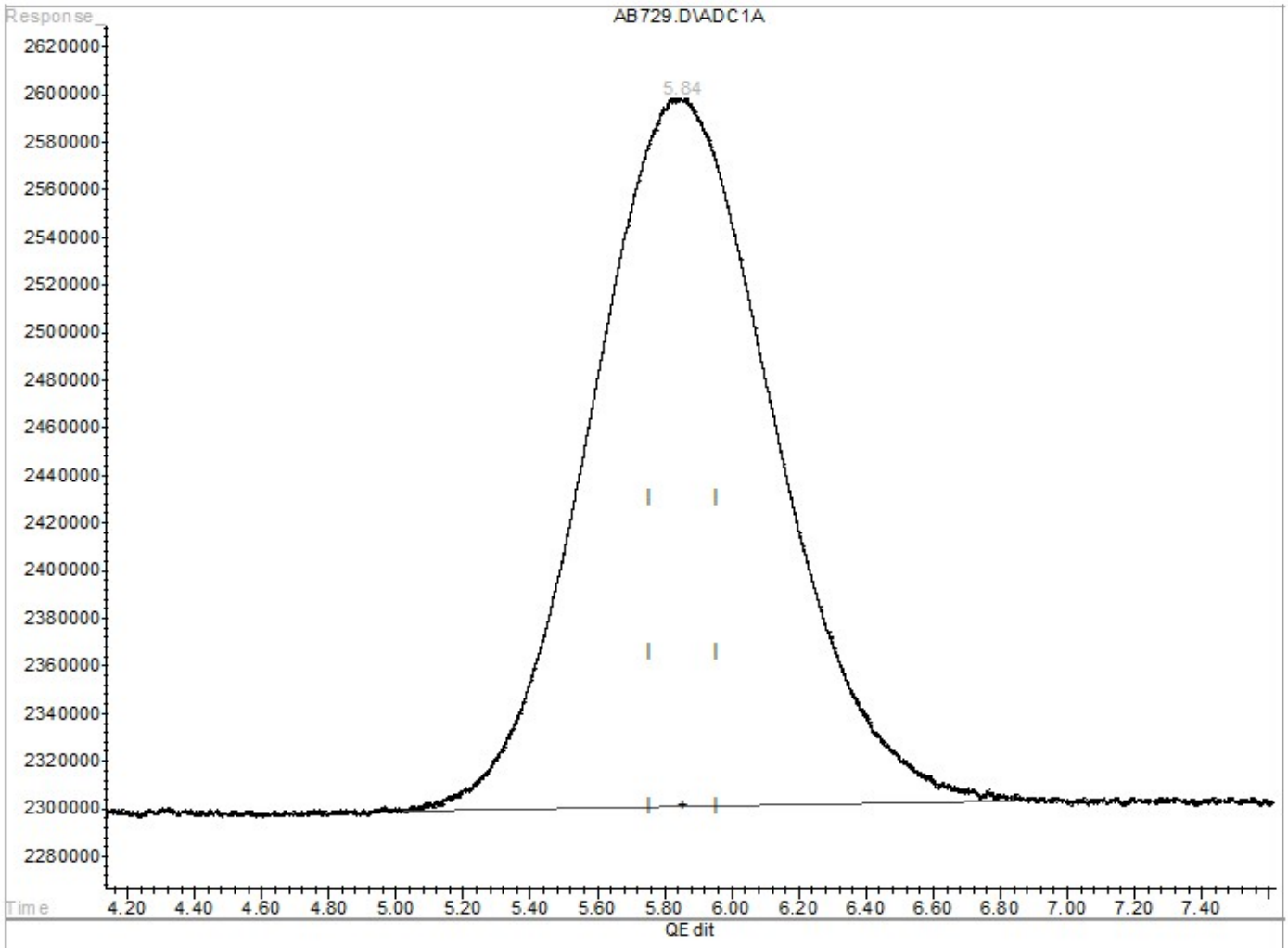


1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB729.D Vial: 7
Acq On : 27 Jul 2018 9:38 am Operator: b.allgeier
Sample : 20ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 9:47 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 09:37:02 2018
Response via : Multiple Level Calibration



(6) Propane

5.84min 25.833ug/L m

response 112646510

Manual Integration:

After

Poor integration.

07/27/18

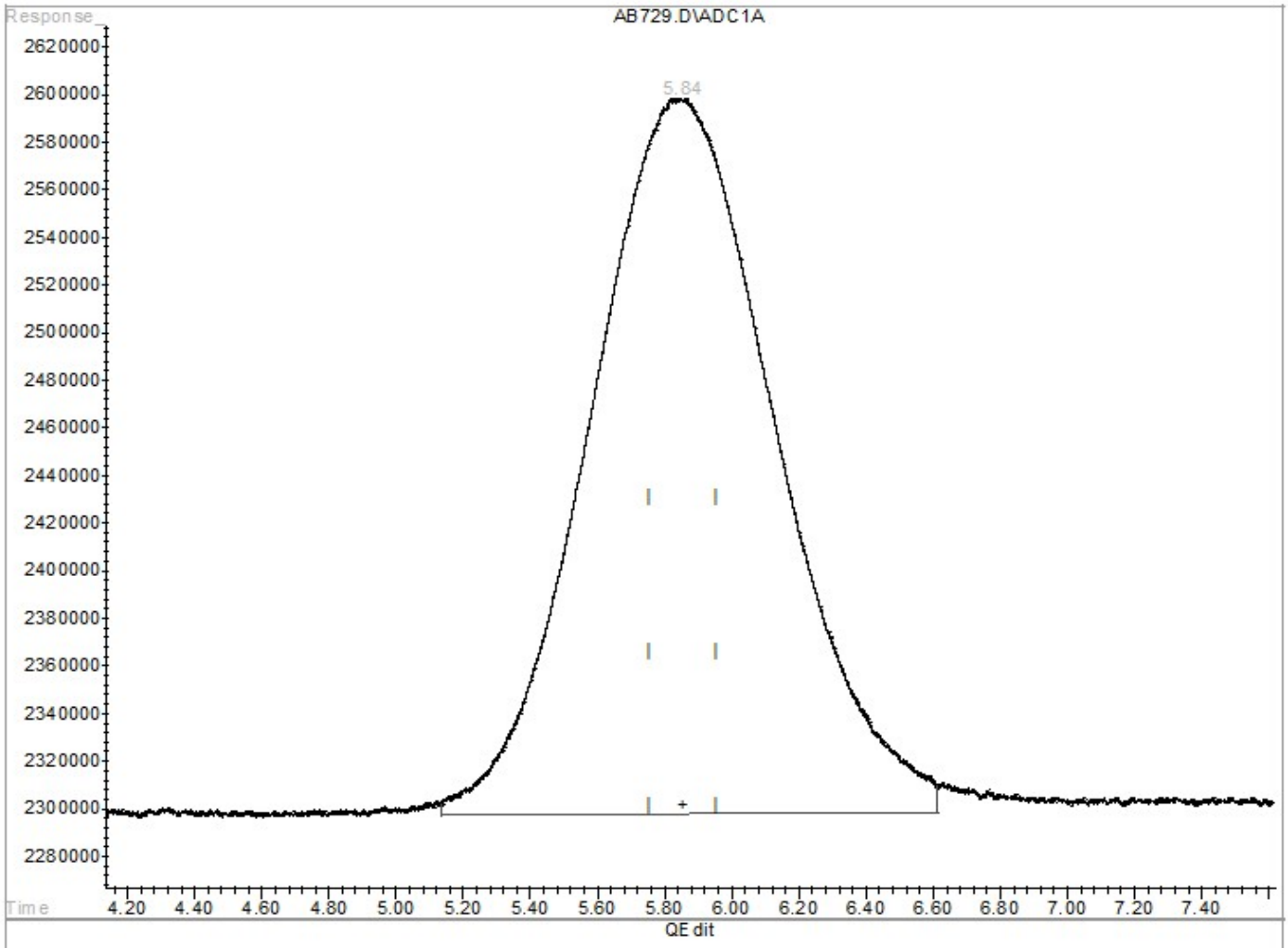
(+) = Expected Retention Time
AB729.D RSK0727.M Fri Jul 27 09:48:05 2018
Page 61 of 103

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB729.D Vial: 7
Acq On : 27 Jul 2018 9:38 am Operator: b.allgeier
Sample : 20ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 9:47 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 09:37:02 2018
Response via : Multiple Level Calibration



(6) Propane

5.84min 26.382ug/L

response 115042922

Manual Integration:

Before

07/27/18

(+) = Expected Retention Time

AB729.D RSK0727.M Fri Jul 27 09:47:59 2018

1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\072718\AB729.D Vial: 7
Acq On : 27 Jul 2018 9:38 am Operator: b.allgeier
Sample : 20ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 9:48 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 09:37:02 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	113376784	27.158 ug/L
2)	Acetylene	0.64	31195057	58.286 ug/L
3)	Ethylene	0.88	77033614	26.960 ug/L
4)	Ethane	1.15	115413749	27.110 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.84	112646510	25.833 ug/L m

(f)=RT Delta > 1/2 Window (m)=manual int.

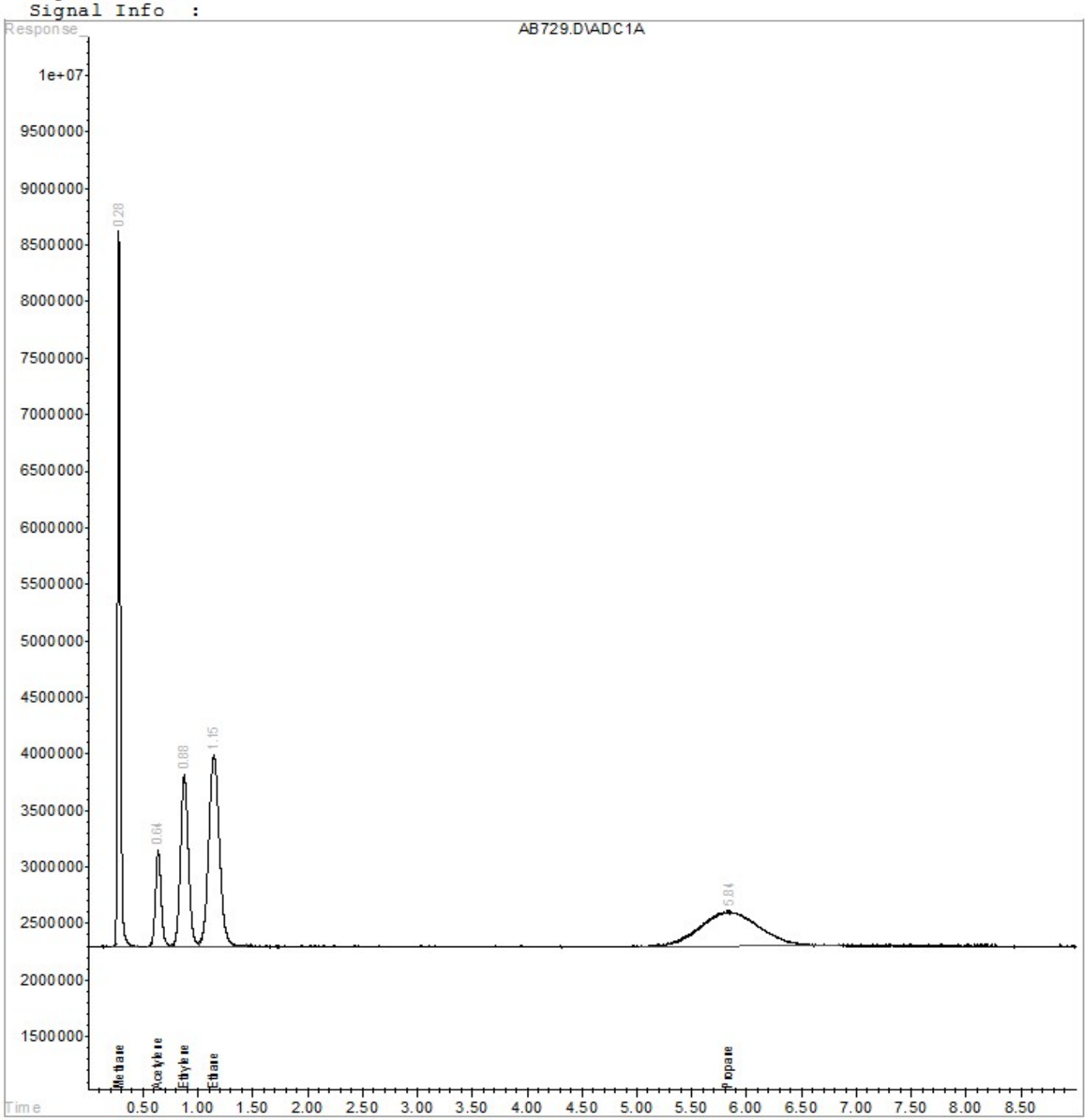
1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\072718\AB729.D Vial: 7
Acq On : 27 Jul 2018 9:38 am Operator: b.allgeier
Sample : 20ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 9:48 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 09:37:02 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



AB729.D RSK0727.M Mon Jul 30 08:59:32 2018 Page 2

1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\072718\AB730.D Vial: 8
Acq On : 27 Jul 2018 9:49 am Operator: b.allgeier
Sample : 50ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 9:58 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 09:48:14 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	283209744	63.206	ug/L
2)	Acetylene	0.64	94866800	159.202	ug/L
3)	Ethylene	0.88	199926512	63.759	ug/L
4)	Ethane	1.15	287748249	62.825	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	5.85	282593754	60.761	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.
AB730.D RSK0727.M Mon Jul 30 08:59:38 2018 Page 65 of 103 Page 1

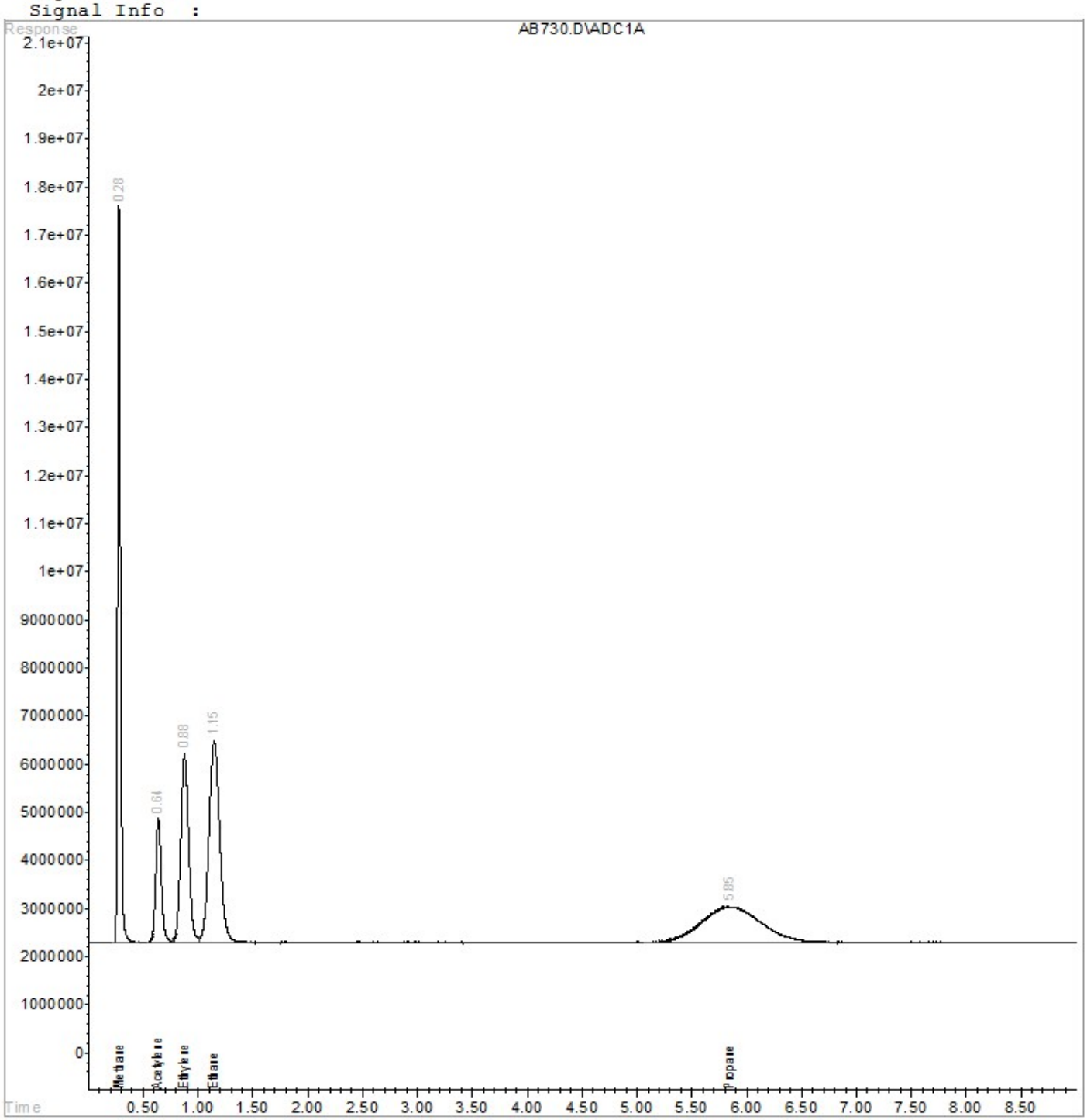
1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\072718\AB730.D Vial: 8
Acq On : 27 Jul 2018 9:49 am Operator: b.allgeier
Sample : 50ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 9:58 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 09:48:14 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

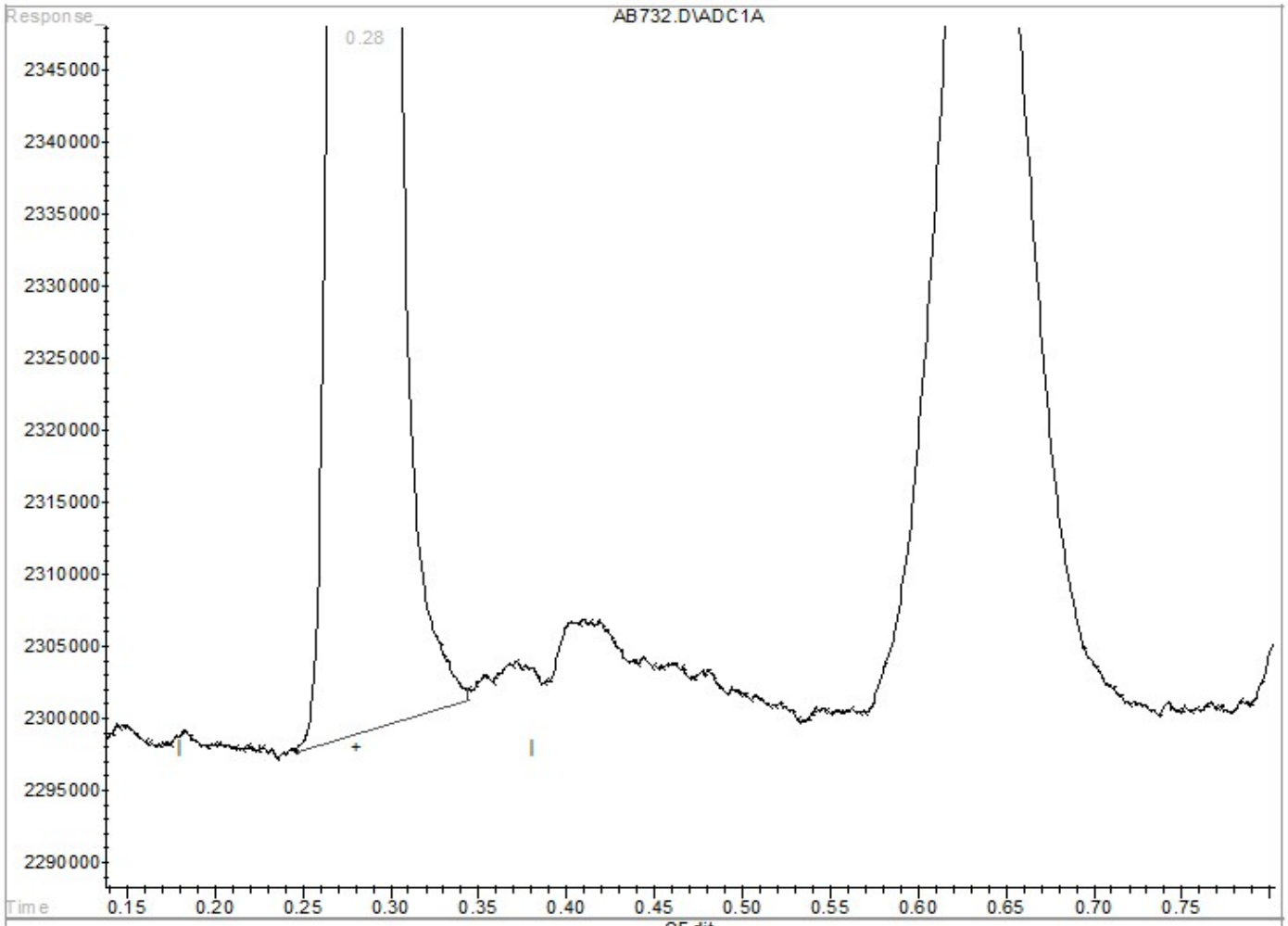


1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB732.D Vial: 10
Acq On : 27 Jul 2018 10:11 am Operator: b.allgeier
Sample : 1ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:21 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:21:26 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 1.366ug/L m

response 7898330

Manual Integration:

After

Poor integration.

07/27/18

(+) = Expected Retention Time

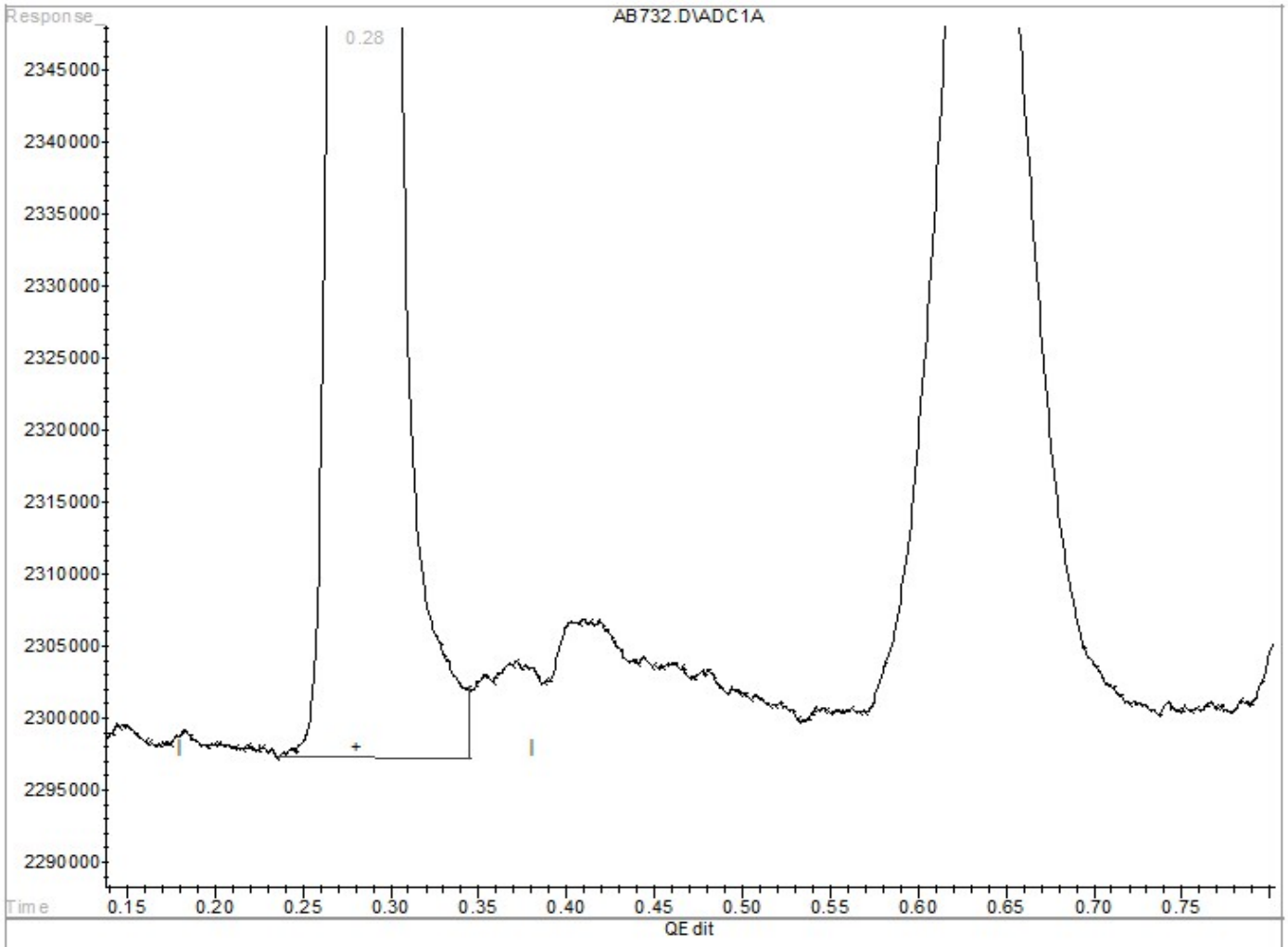
AB732.D RSK0727.M Fri Jul 27 10:22:05 2018

1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB732.D Vial: 10
Acq On : 27 Jul 2018 10:11 am Operator: b.allgeier
Sample : 1ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:21 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:21:26 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 1.389ug/L

response 8030781

Manual Integration:

Before

07/27/18

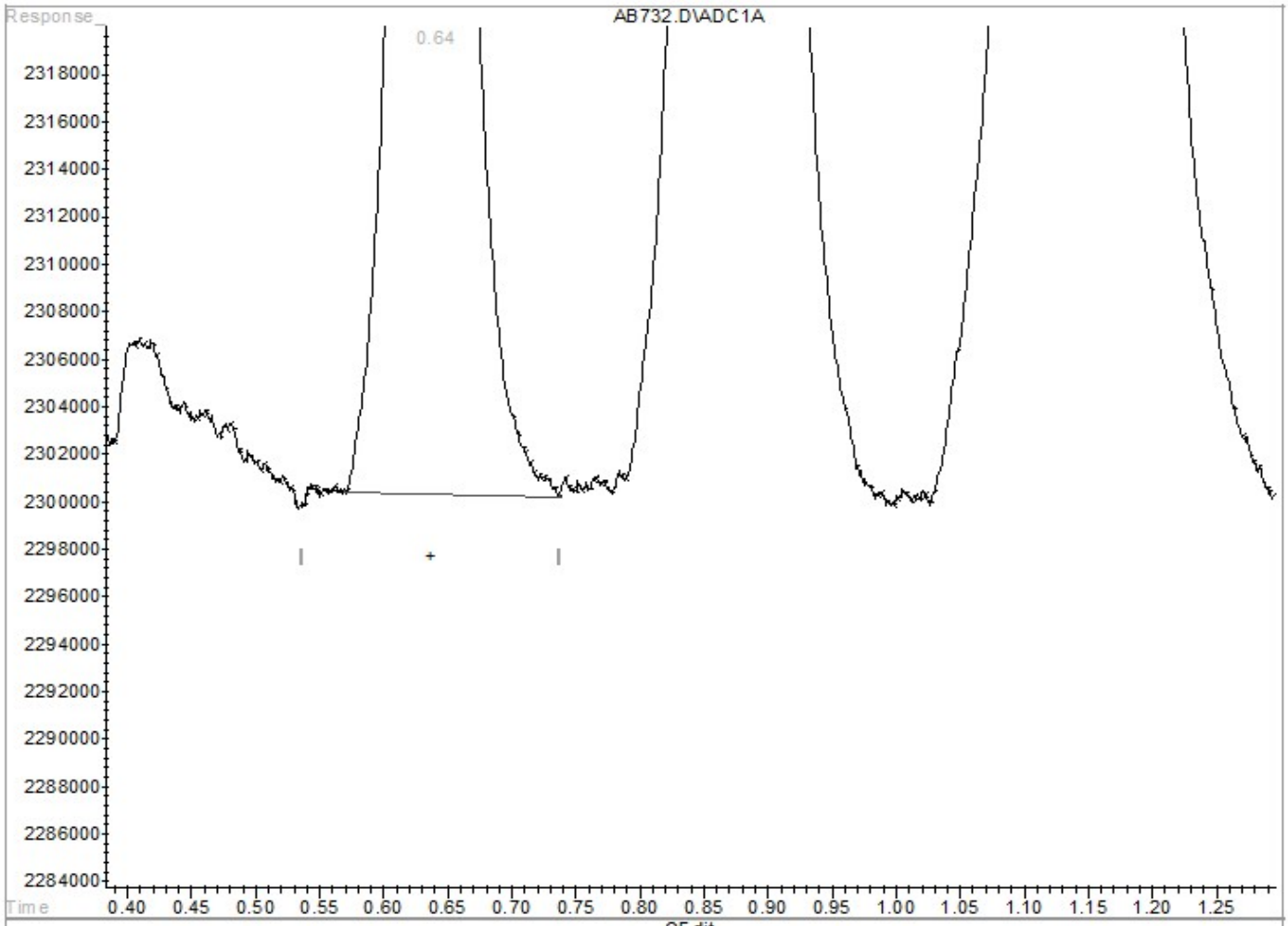
(+) = Expected Retention Time
AB732.D RSK0727.M Fri Jul 27 10:21:57 2018
Page 68 of 103

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB732.D Vial: 10
Acq On : 27 Jul 2018 10:11 am Operator: b.allgeier
Sample : 1ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:21 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:21:26 2018
Response via : Multiple Level Calibration



(2) Acetylene

0.64min 1.404ug/L m

response 2549191

Manual Integration:

After

Poor integration.

07/27/18

(+) = Expected Retention Time

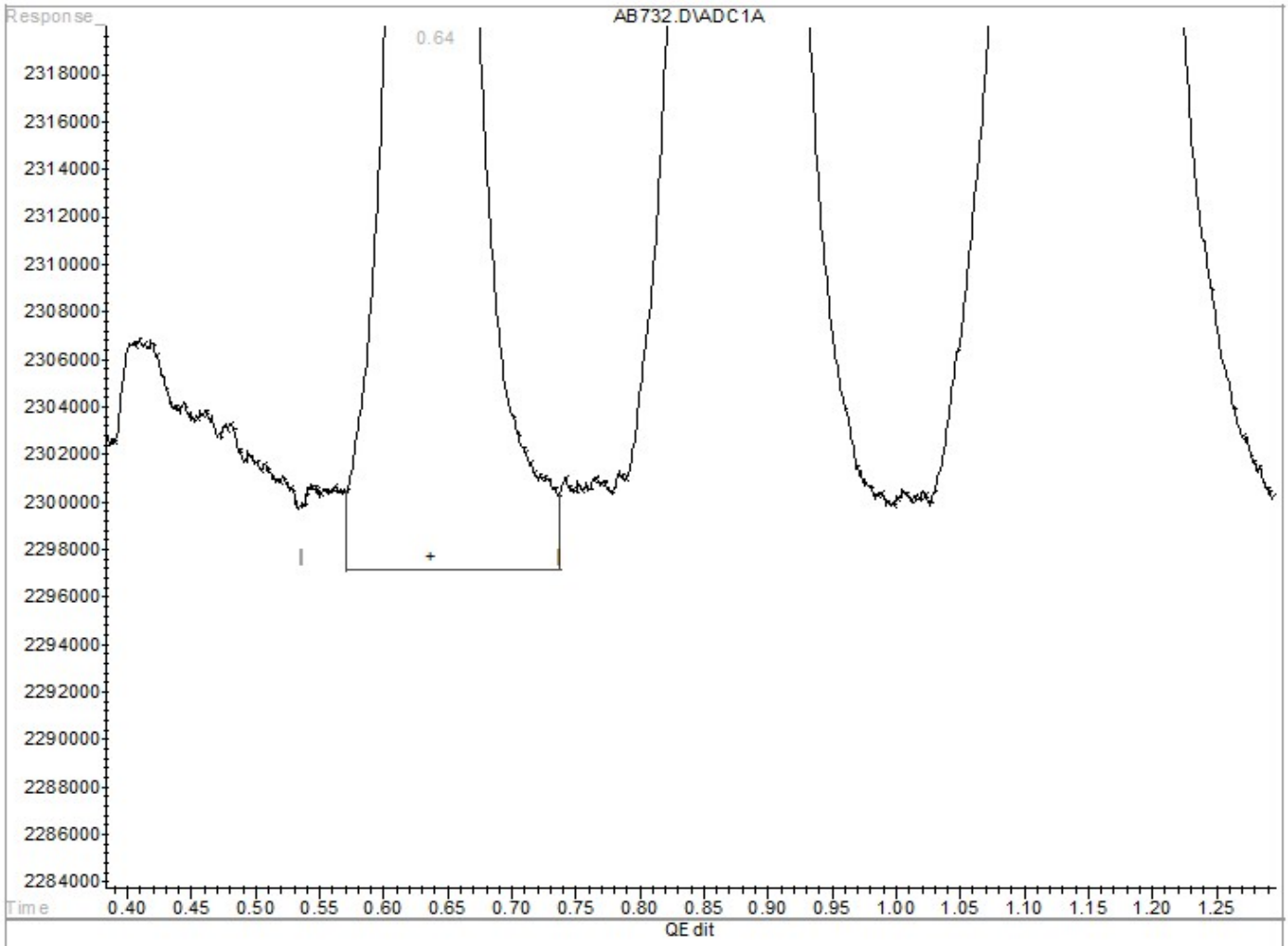
AB732.D RSK0727.M Fri Jul 27 10:22:16 2018

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB732.D Vial: 10
Acq On : 27 Jul 2018 10:11 am Operator: b.allgeier
Sample : 1ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:21 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:21:26 2018
Response via : Multiple Level Calibration



(2) Acetylene

0.64min 1.576ug/L

response 2861332

Manual Integration:

Before

07/27/18

(+) = Expected Retention Time

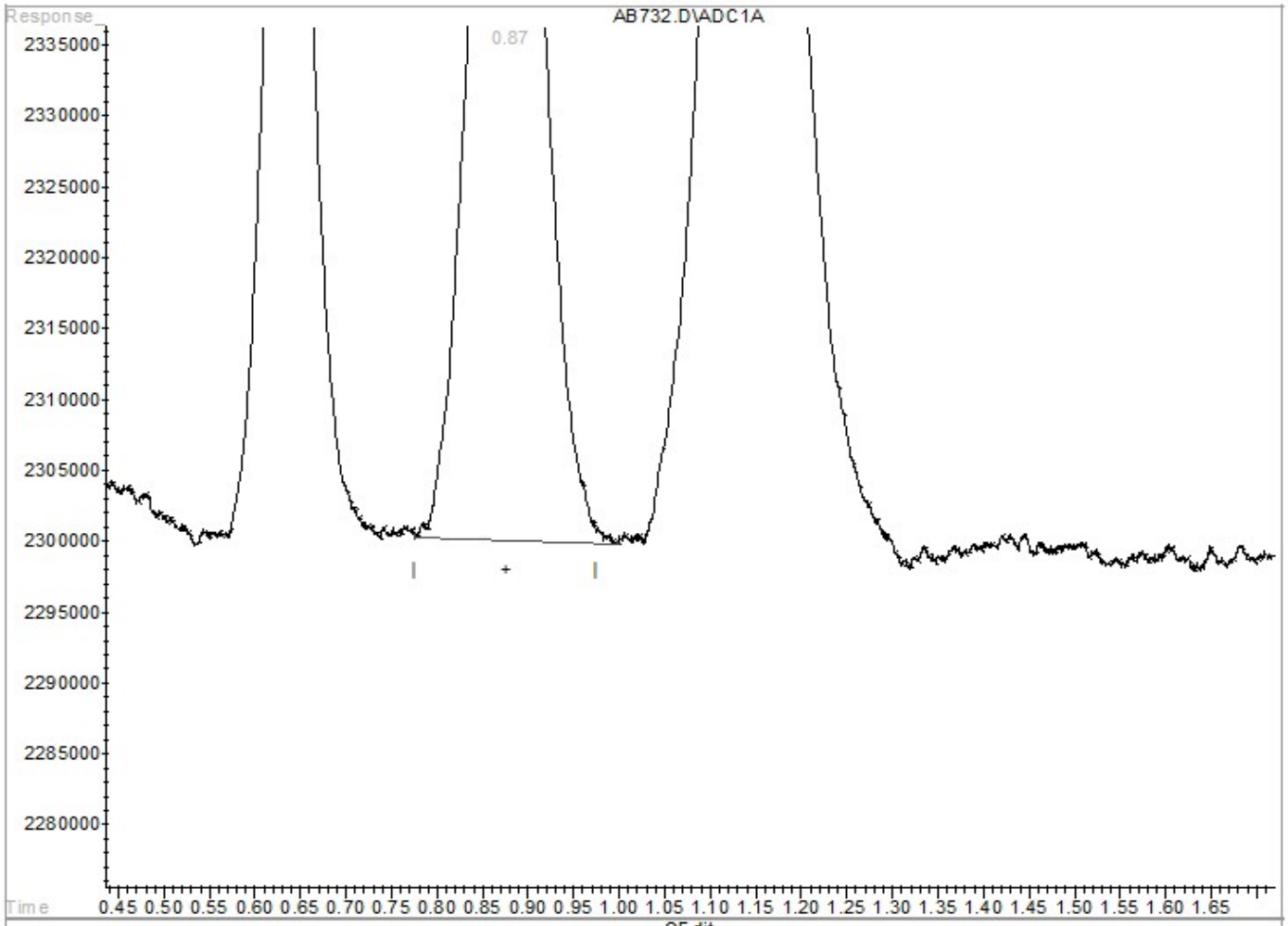
AB732.D RSK0727.M Fri Jul 27 10:22:11 2018 Page 70 of 103

1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB732.D Vial: 10
Acq On : 27 Jul 2018 10:11 am Operator: b.allgeier
Sample : 1ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:21 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:21:26 2018
Response via : Multiple Level Calibration



(3) Ethylene

0.87min 0.991ug/L m

response 4245313

Manual Integration:

After

Poor integration.

07/27/18

(+) = Expected Retention Time

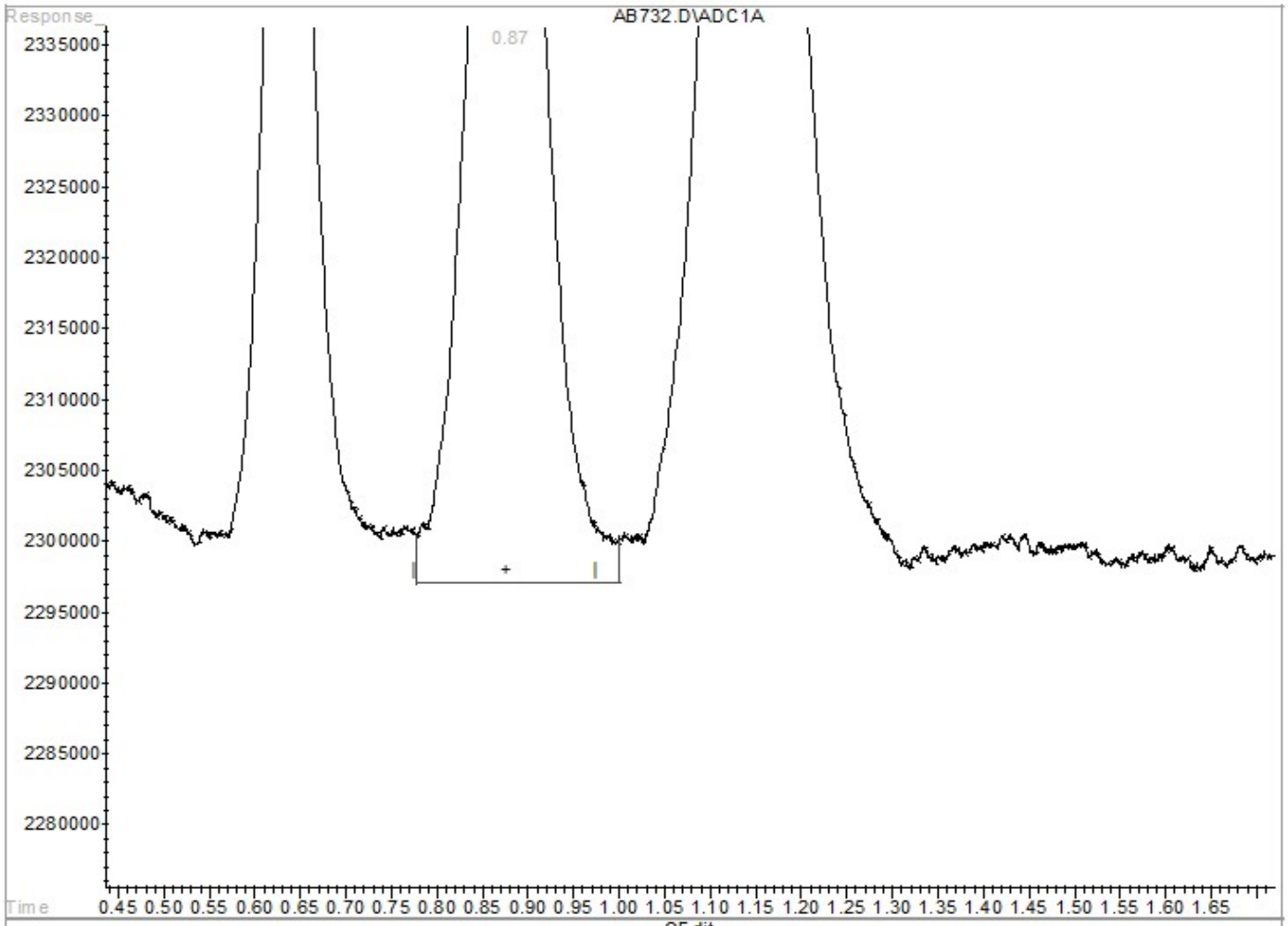
AB732.D RSK0727.M Fri Jul 27 10:22:27 2018

1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB732.D Vial: 10
Acq On : 27 Jul 2018 10:11 am Operator: b.allgeier
Sample : 1ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:21 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:21:26 2018
Response via : Multiple Level Calibration



(3) Ethylene

0.87min 1.081ug/L

response 4632850

Manual Integration:

Before

07/27/18

(+) = Expected Retention Time

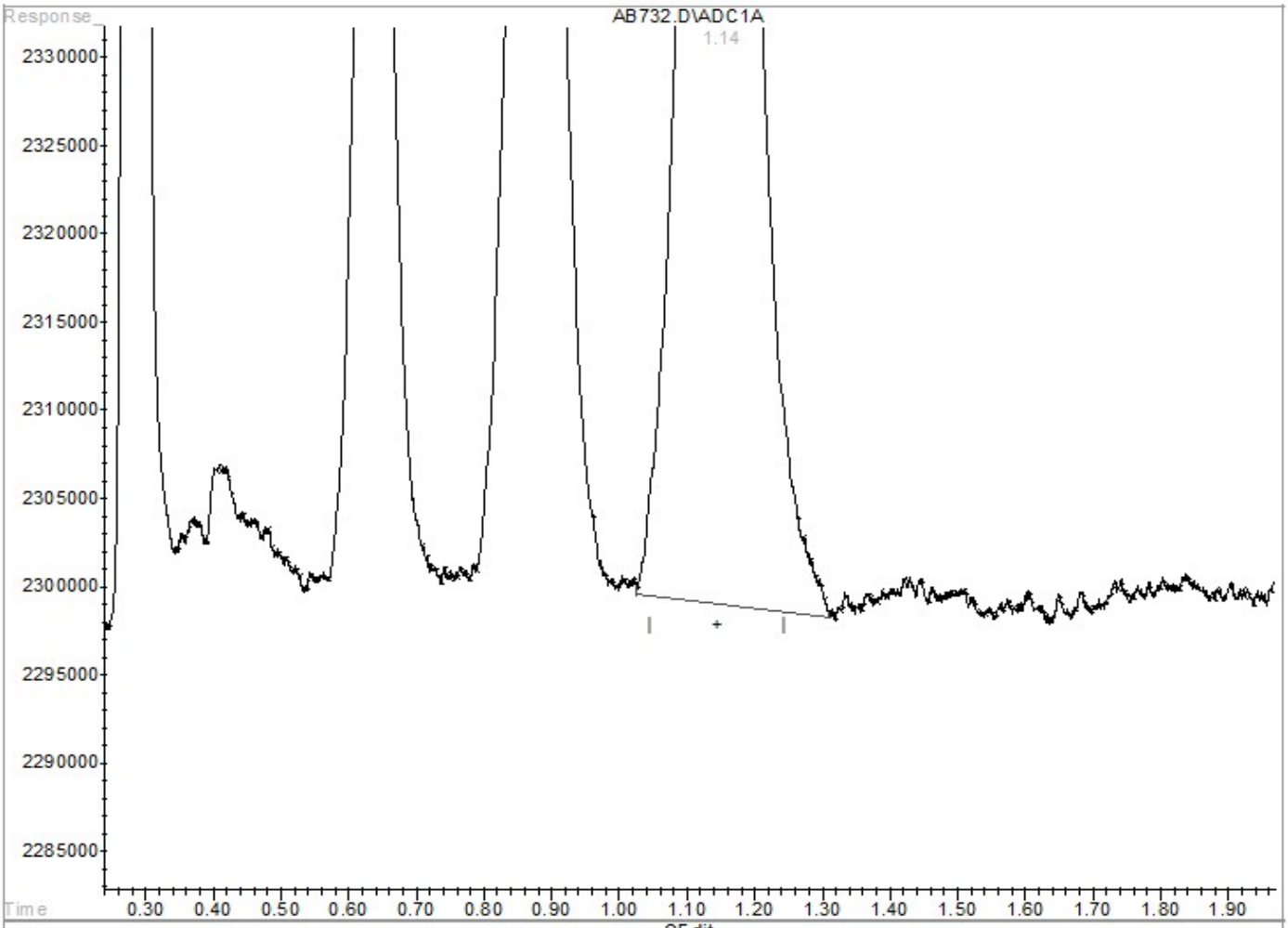
AB732.D RSK0727.M Fri Jul 27 10:22:23 2018

1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB732.D Vial: 10
Acq On : 27 Jul 2018 10:11 am Operator: b.allgeier
Sample : 1ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:21 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:21:26 2018
Response via : Multiple Level Calibration



(4) Ethane

1.14min 1.109ug/L m

response 6446412

Manual Integration:

After

Poor integration.

07/27/18

(+) = Expected Retention Time

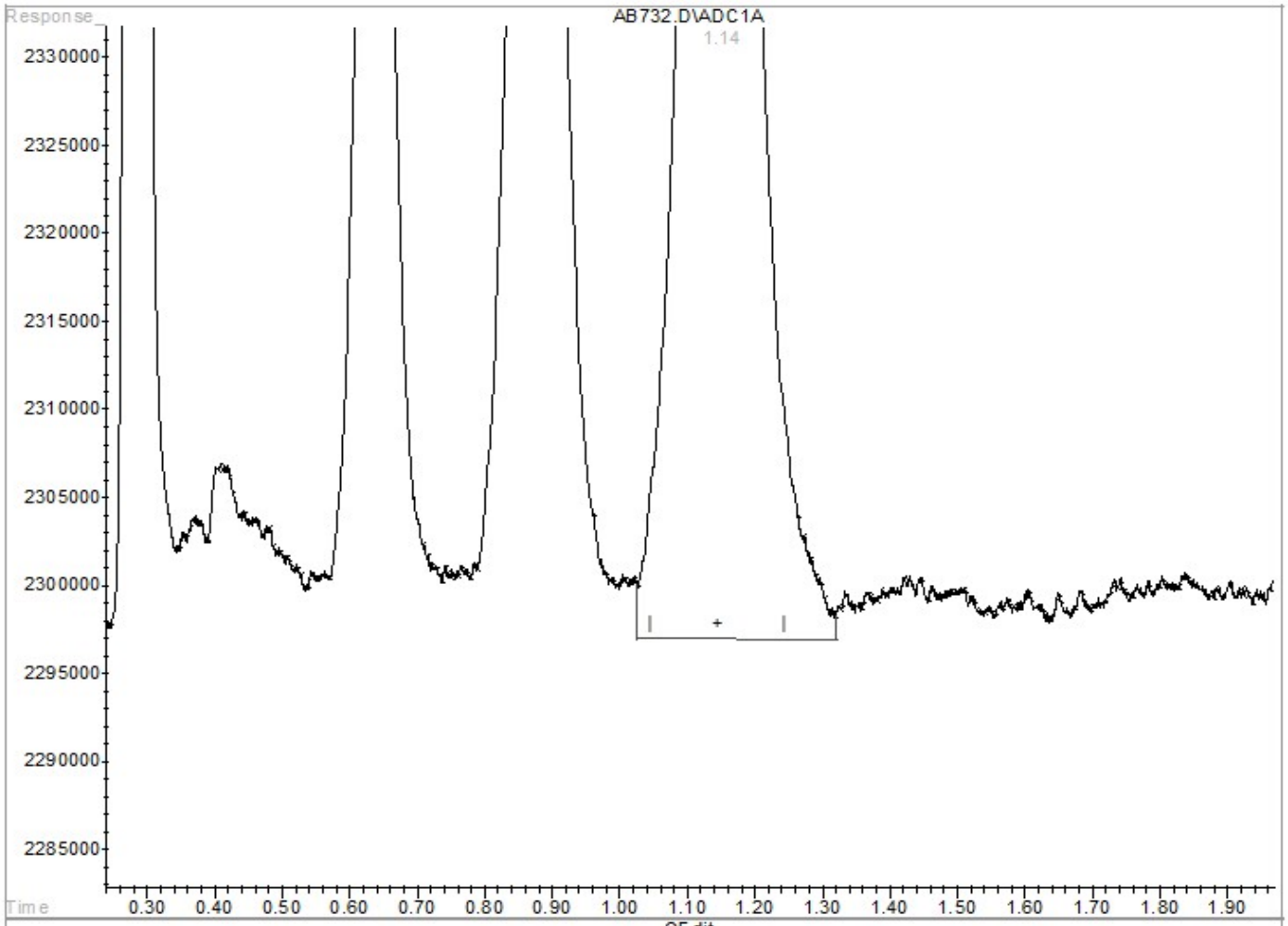
AB732.D RSK0727.M Fri Jul 27 10:22:38 2018

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB732.D Vial: 10
Acq On : 27 Jul 2018 10:11 am Operator: b.allgeier
Sample : 1ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:21 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:21:26 2018
Response via : Multiple Level Calibration



(4) Ethane

1.14min 1.168ug/L

response 6787385

Manual Integration:

Before

07/27/18

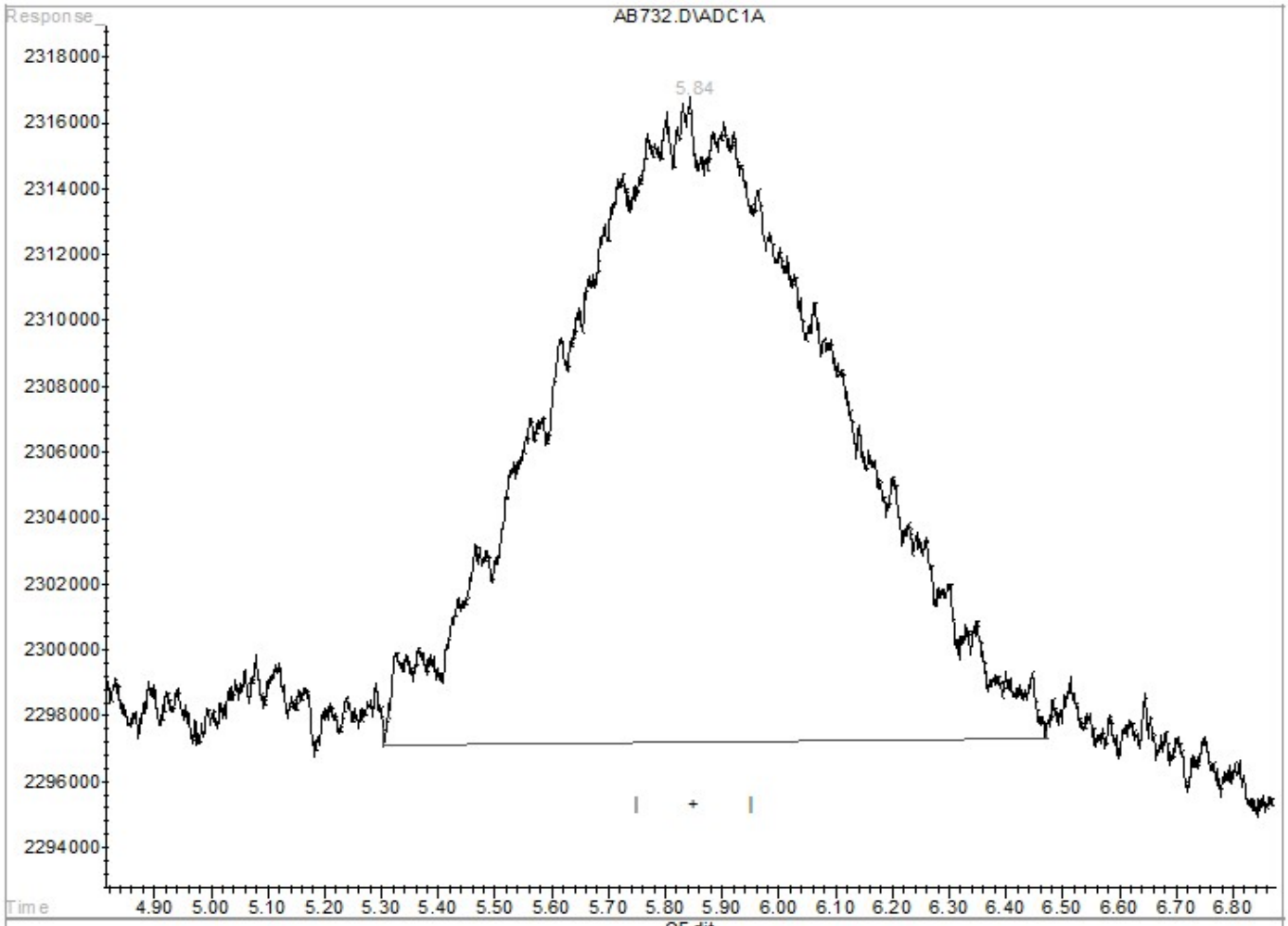
(+) = Expected Retention Time
AB732.D RSK0727.M Fri Jul 27 10:22:32 2018
Page 74 of 103

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB732.D Vial: 10
Acq On : 27 Jul 2018 10:11 am Operator: b.allgeier
Sample : 1ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:21 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:09:24 2018
Response via : Multiple Level Calibration



(6) Propane

5.84min 1.110ug/L m

response 6678831

Manual Integration:

After

Poor integration.

07/27/18

(+) = Expected Retention Time

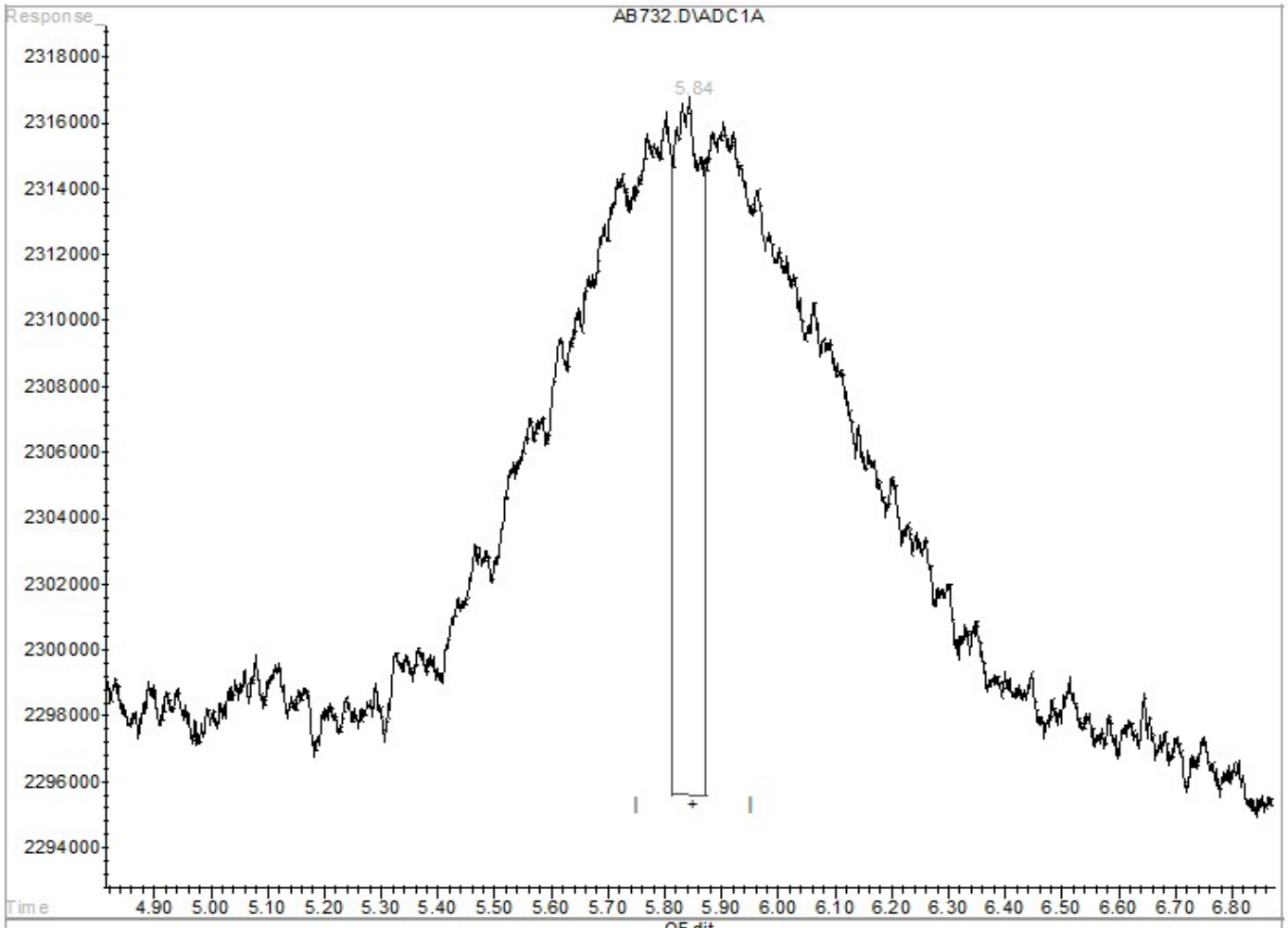
AB732.D RSK0727.M Fri Jul 27 10:21:19 2018 Page 75 of 103

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB732.D Vial: 10
Acq On : 27 Jul 2018 10:11 am Operator: b.allgeier
Sample : 1ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:21 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:09:24 2018
Response via : Multiple Level Calibration



(6) Propane

5.84min 0.112ug/L

response 670922

Manual Integration:

Before

07/27/18

(+) = Expected Retention Time

AB732.D RSK0727.M Fri Jul 27 10:21:13 2018

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\072718\AB732.D Vial: 10
Acq On : 27 Jul 2018 10:11 am Operator: b.allgeier
Sample : 1ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:22 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:09:24 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	7898330	1.366 ug/L m
2)	Acetylene	0.64	2549191	1.404 ug/L m
3)	Ethylene	0.87	4245313	0.991 ug/L m
4)	Ethane	1.14	6446412	1.109 ug/L m
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.84	6678831	1.110 ug/L m

(f)=RT Delta > 1/2 Window (m)=manual int.

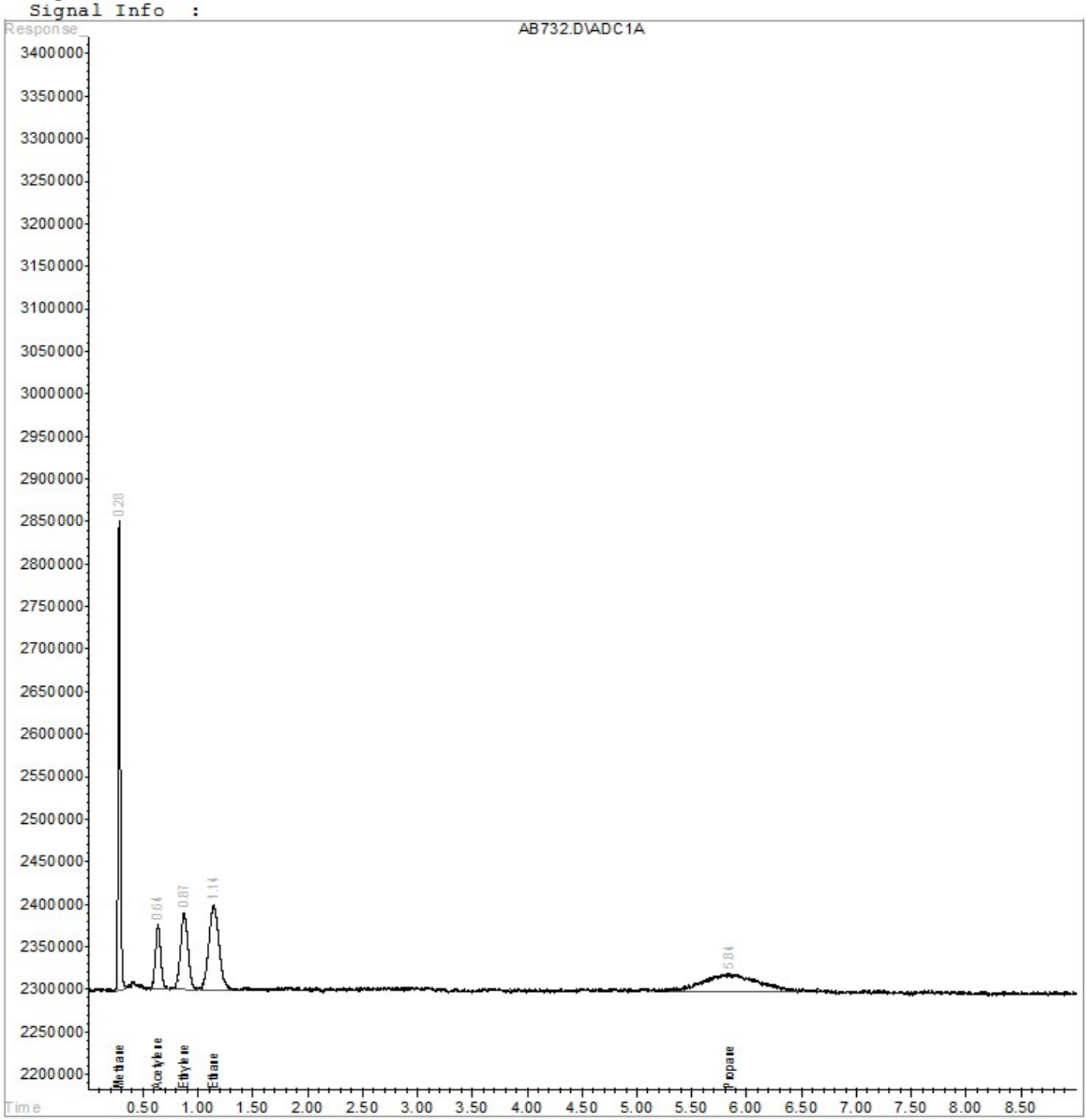
1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\072718\AB732.D Vial: 10
Acq On : 27 Jul 2018 10:11 am Operator: b.allgeier
Sample : 1ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:22 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:09:24 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

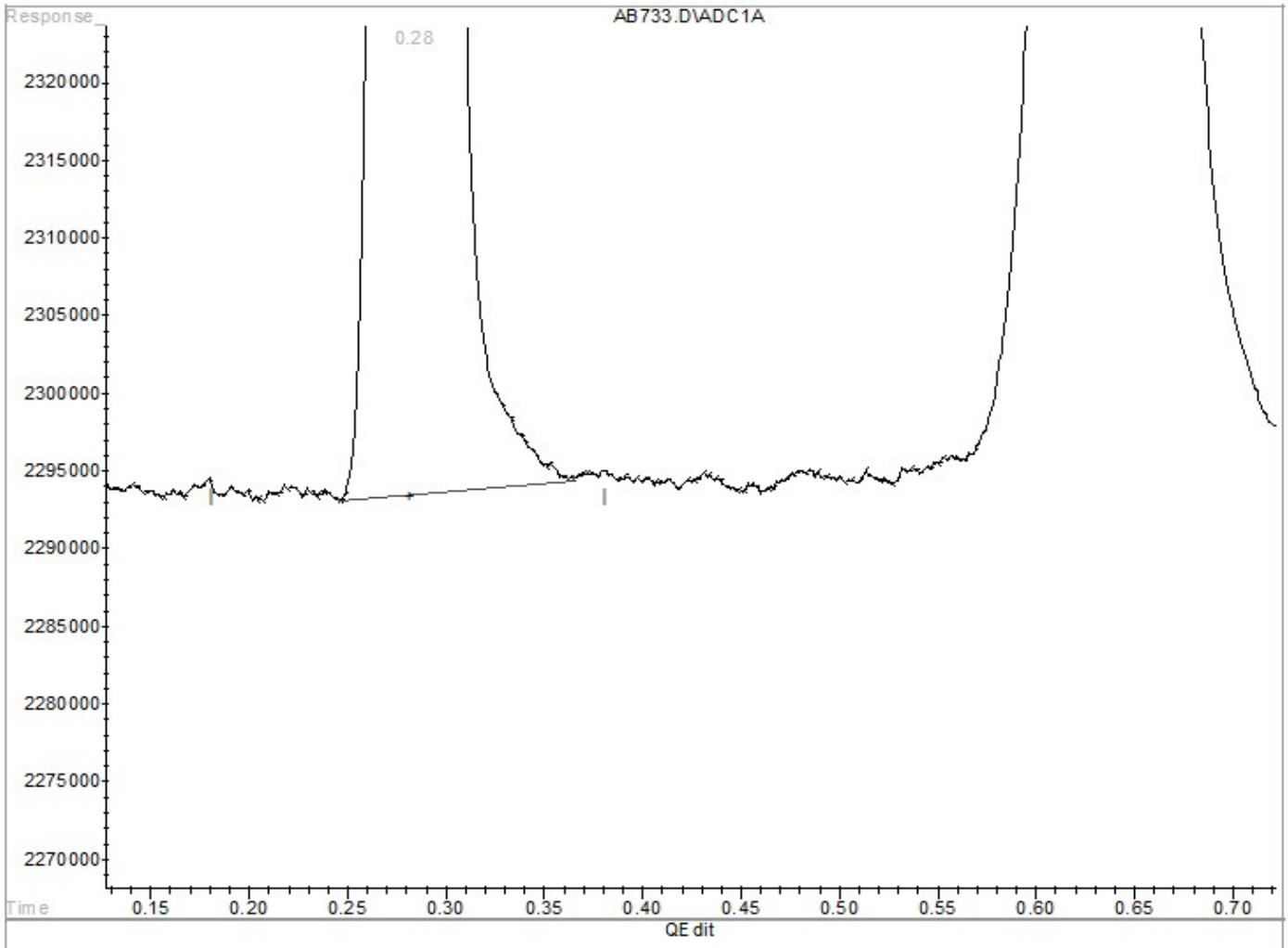


1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB733.D Vial: 11
Acq On : 27 Jul 2018 10:23 am Operator: b.allgeier
Sample : 2ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:31 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:22:49 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 2.459ug/L m

response 13349850

Manual Integration:

After

Poor integration.

07/27/18

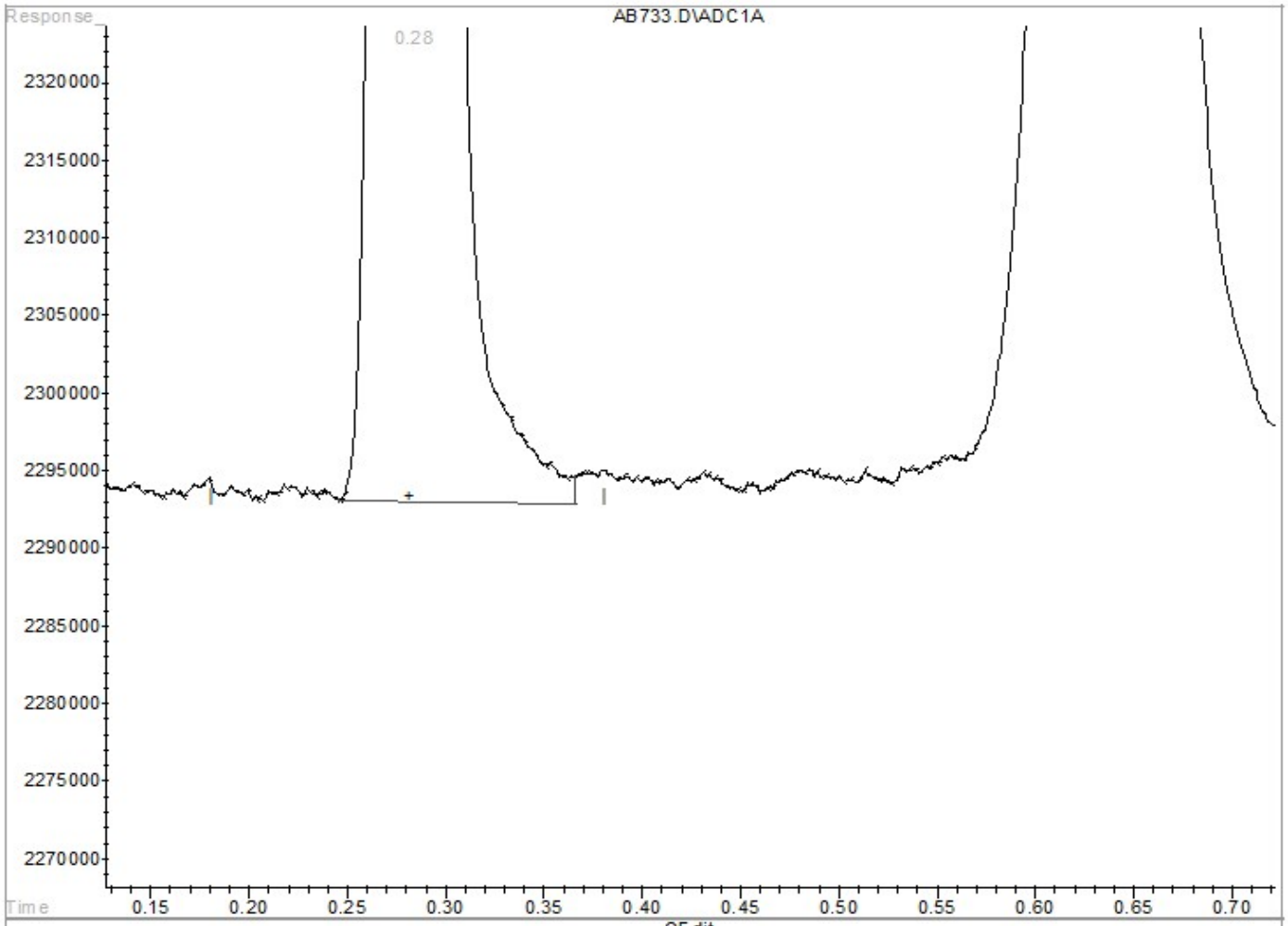
(+) = Expected Retention Time
AB733.D RSK0727.M Fri Jul 27 10:31:56 2018
Page 79 of 103

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB733.D Vial: 11
Acq On : 27 Jul 2018 10:23 am Operator: b.allgeier
Sample : 2ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:31 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:22:49 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 2.468ug/L

response 13402696

Manual Integration:

Before

07/27/18

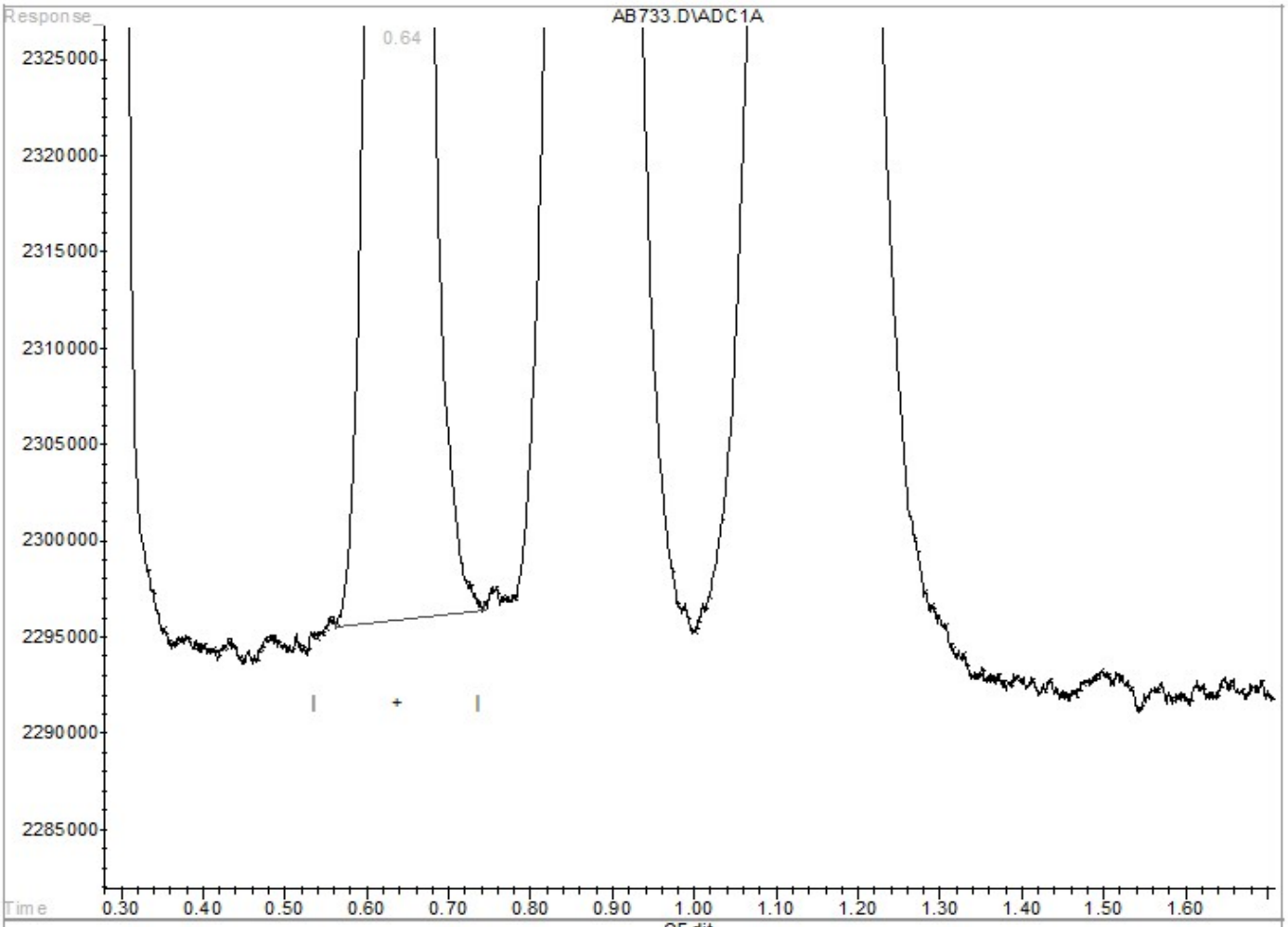
(+) = Expected Retention Time
AB733.D RSK0727.M Fri Jul 27 10:31:50 2018
Page 80 of 103

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB733.D Vial: 11
Acq On : 27 Jul 2018 10:23 am Operator: b.allgeier
Sample : 2ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:31 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:22:49 2018
Response via : Multiple Level Calibration



(2) Acetylene

0.64min 7.606ug/L m

response 6300799

Manual Integration:

After

Poor integration.

07/27/18

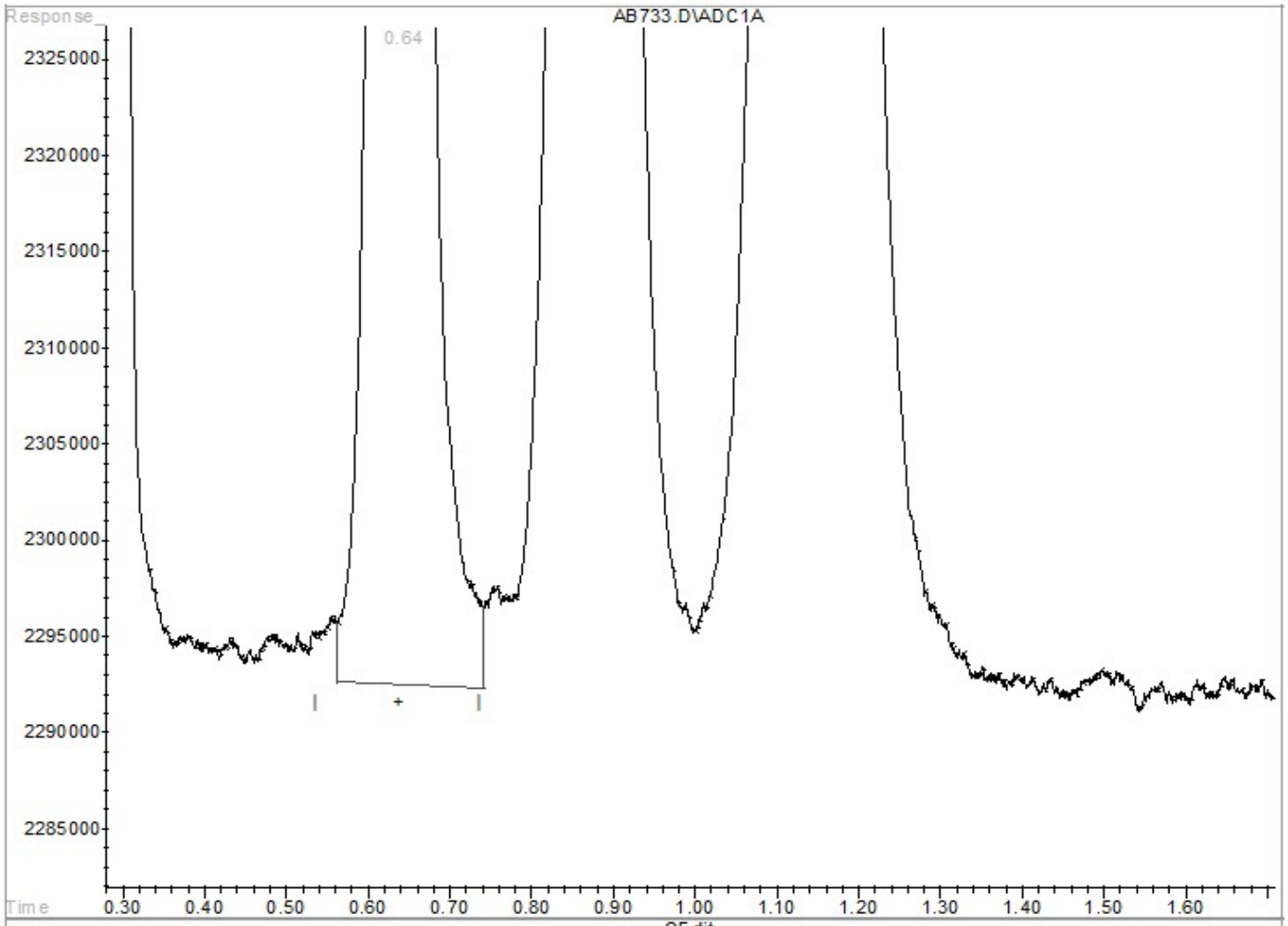
(+) = Expected Retention Time
AB733.D RSK0727.M Fri Jul 27 10:32:06 2018
Page 81 of 103

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB733.D Vial: 11
Acq On : 27 Jul 2018 10:23 am Operator: b.allgeier
Sample : 2ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:31 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:22:49 2018
Response via : Multiple Level Calibration



(2) Acetylene

0.64min 8.057ug/L

response 6674749

Manual Integration:

Before

07/27/18

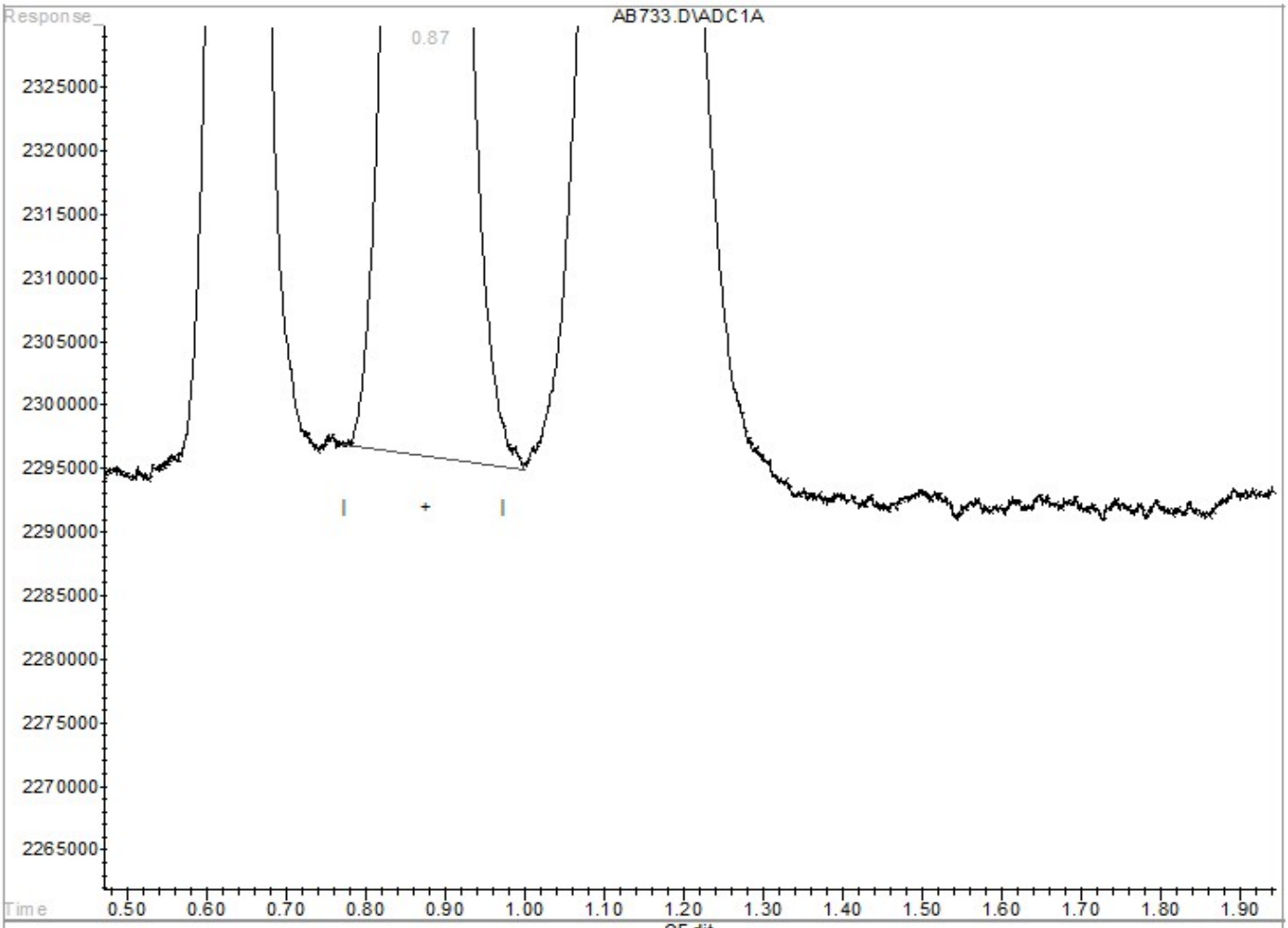
(+) = Expected Retention Time
AB733.D RSK0727.M Fri Jul 27 10:32:01 2018
Page 82 of 103

1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB733.D Vial: 11
Acq On : 27 Jul 2018 10:23 am Operator: b.allgeier
Sample : 2ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:31 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:22:49 2018
Response via : Multiple Level Calibration



(3) Ethylene

0.87min 2.335ug/L m

response 8718669

Manual Integration:

After

Poor integration.

07/27/18

(+) = Expected Retention Time

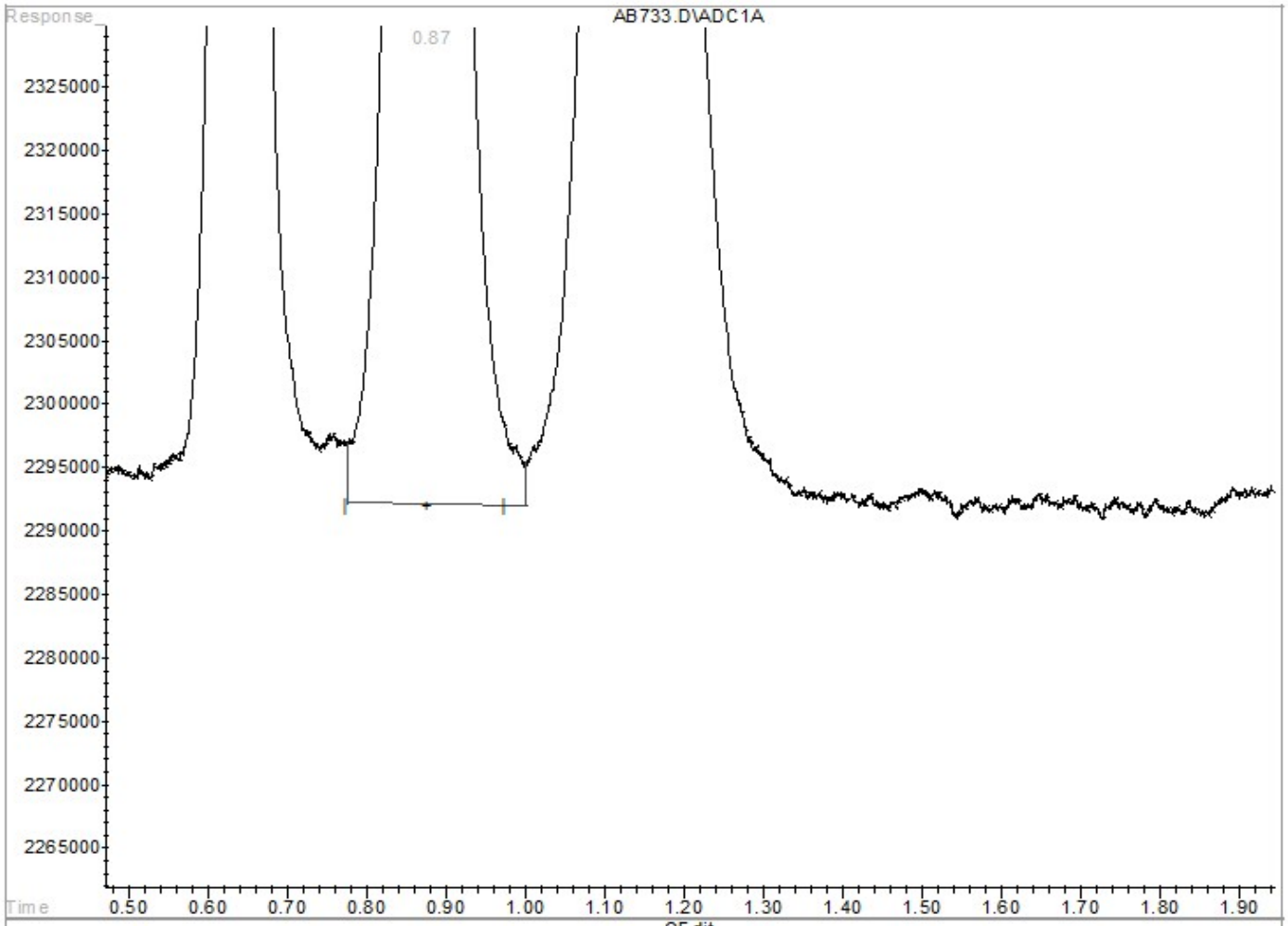
AB733.D RSK0727.M Fri Jul 27 10:32:16 2018

1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB733.D Vial: 11
Acq On : 27 Jul 2018 10:23 am Operator: b.allgeier
Sample : 2ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:31 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:22:49 2018
Response via : Multiple Level Calibration



(3) Ethylene

0.87min 2.470ug/L

response 9222088

Manual Integration:

Before

07/27/18

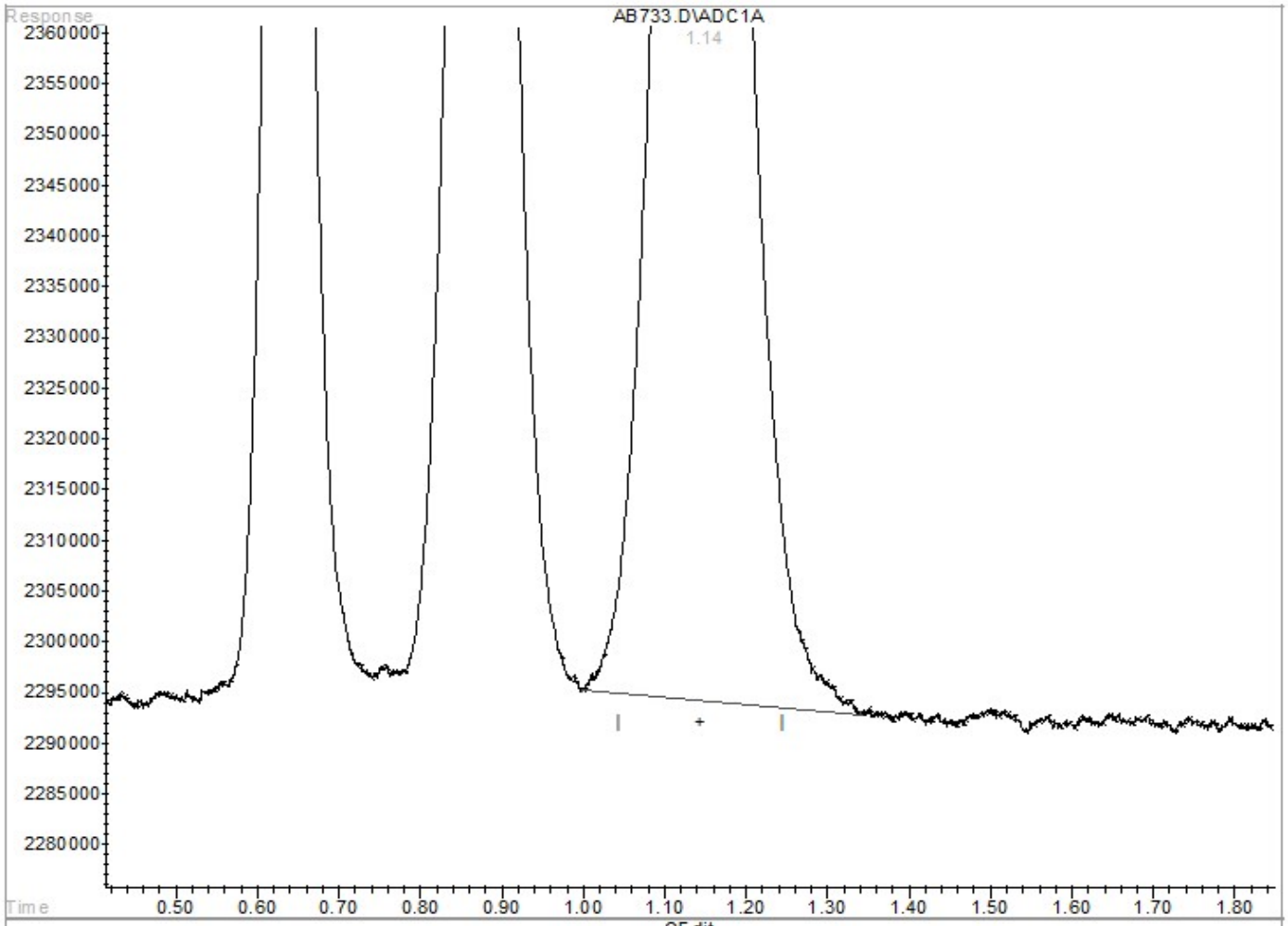
(+) = Expected Retention Time
AB733.D RSK0727.M Fri Jul 27 10:32:11 2018
Page 84 of 103

1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB733.D Vial: 11
Acq On : 27 Jul 2018 10:23 am Operator: b.allgeier
Sample : 2ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:31 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:22:49 2018
Response via : Multiple Level Calibration



(4) Ethane

1.14min 2.415ug/L m

response 12764737

Manual Integration:

After

Poor integration.

07/27/18

(+) = Expected Retention Time

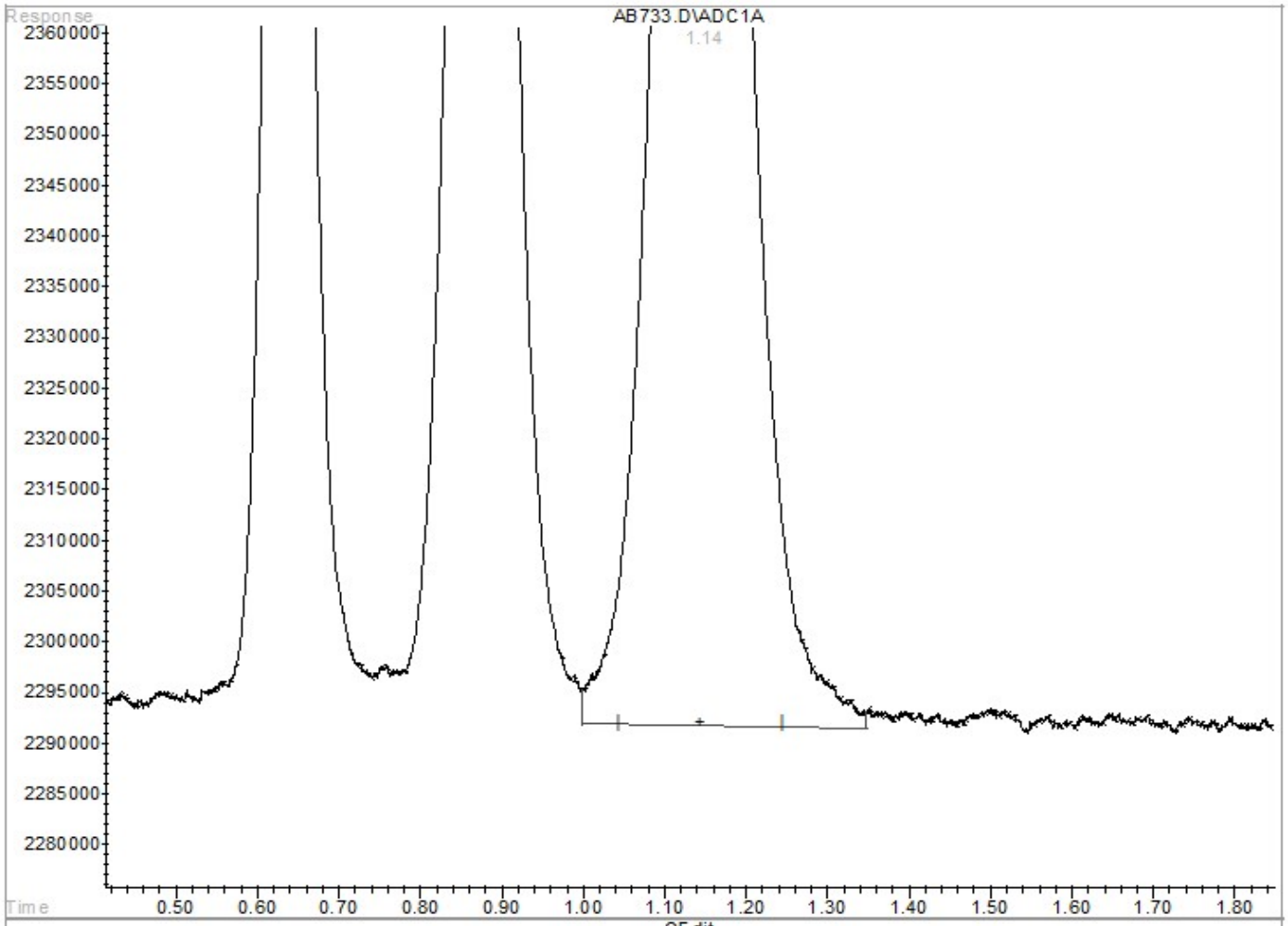
AB733.D RSK0727.M Fri Jul 27 10:32:27 2018

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB733.D Vial: 11
Acq On : 27 Jul 2018 10:23 am Operator: b.allgeier
Sample : 2ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:31 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:22:49 2018
Response via : Multiple Level Calibration



(4) Ethane

1.14min 2.502ug/L

response 13226978

Manual Integration:

Before

07/27/18

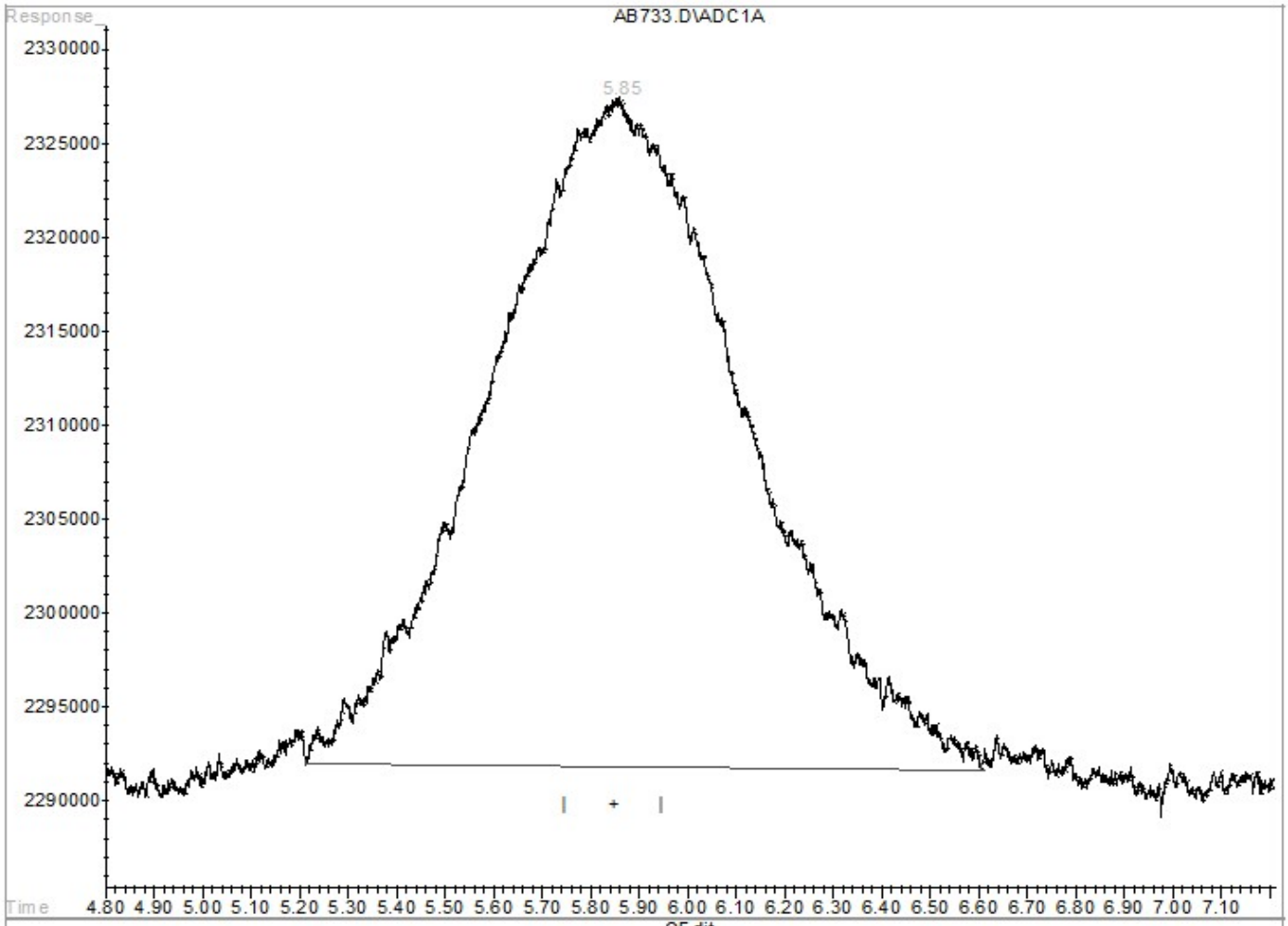
(+) = Expected Retention Time
AB733.D RSK0727.M Fri Jul 27 10:32:21 2018
Page 86 of 103

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB733.D Vial: 11
Acq On : 27 Jul 2018 10:23 am Operator: b.allgeier
Sample : 2ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:31 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:22:49 2018
Response via : Multiple Level Calibration



QEdit

(6) Propane

5.85min 2.411ug/L m

response 12994130

Manual Integration:

After

Poor integration.

07/27/18

(+) = Expected Retention Time

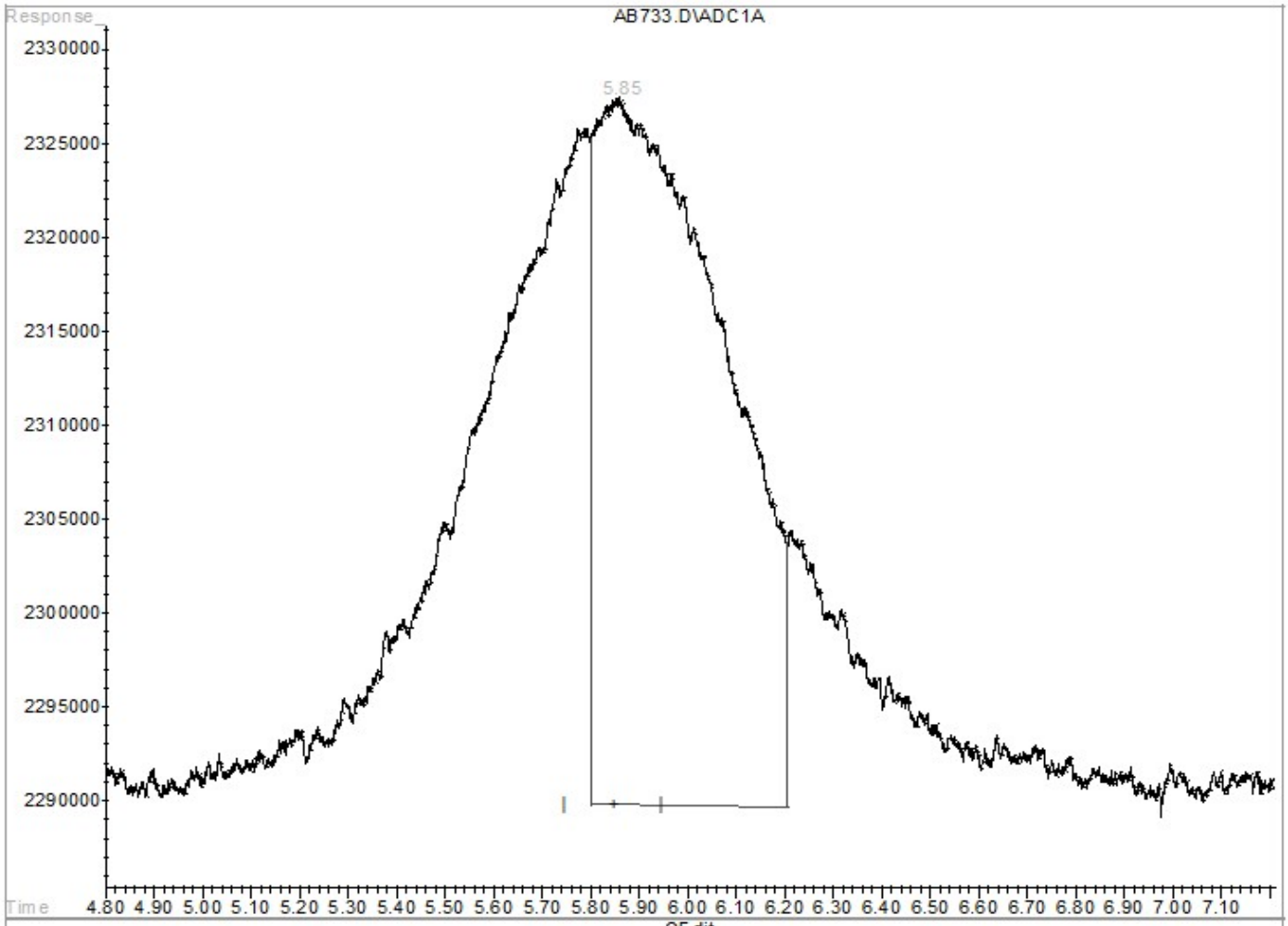
AB733.D RSK0727.M Fri Jul 27 10:32:36 2018 Page 87 of 103

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\072718\AB733.D Vial: 11
Acq On : 27 Jul 2018 10:23 am Operator: b.allgeier
Sample : 2ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:31 2018 Quant Results File: RSK0727.RES

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:22:49 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 1.299ug/L

response 7002283

Manual Integration:

Before

07/27/18

(+) = Expected Retention Time
AB733.D RSK0727.M Fri Jul 27 10:32:31 2018
Page 88 of 103

1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\072718\AB733.D Vial: 11
Acq On : 27 Jul 2018 10:23 am Operator: b.allgeier
Sample : 2ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:32 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:22:49 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	13349850	2.459 ug/L m
2)	Acetylene	0.64	6300799	7.606 ug/L m
3)	Ethylene	0.87	8718669	2.335 ug/L m
4)	Ethane	1.14	12764737	2.415 ug/L m
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	12994130	2.411 ug/L m

(f)=RT Delta > 1/2 Window (m)=manual int.

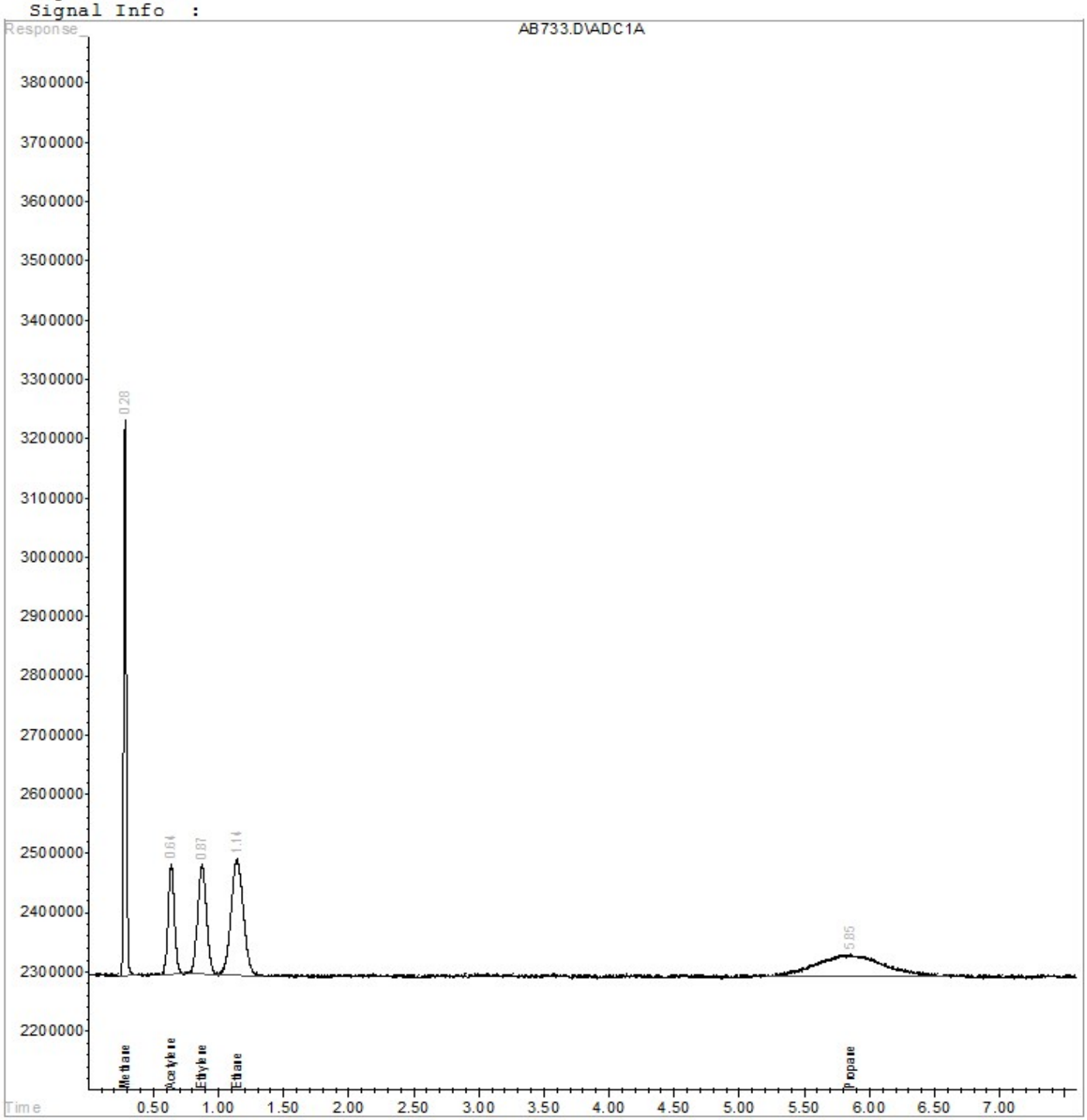
1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\072718\AB733.D Vial: 11
Acq On : 27 Jul 2018 10:23 am Operator: b.allgeier
Sample : 2ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:32 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:22:49 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\072718\AB734.D Vial: 12
Acq On : 27 Jul 2018 10:33 am Operator: b.allgeier
Sample : 75ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:51 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:32:48 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	417678652	71.034	ug/L
2)	Acetylene	0.64	149701601	143.023	ug/L
3)	Ethylene	0.88	302497210	74.205	ug/L
4)	Ethane	1.15	430085971	75.984	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	5.84	422627951	73.350	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

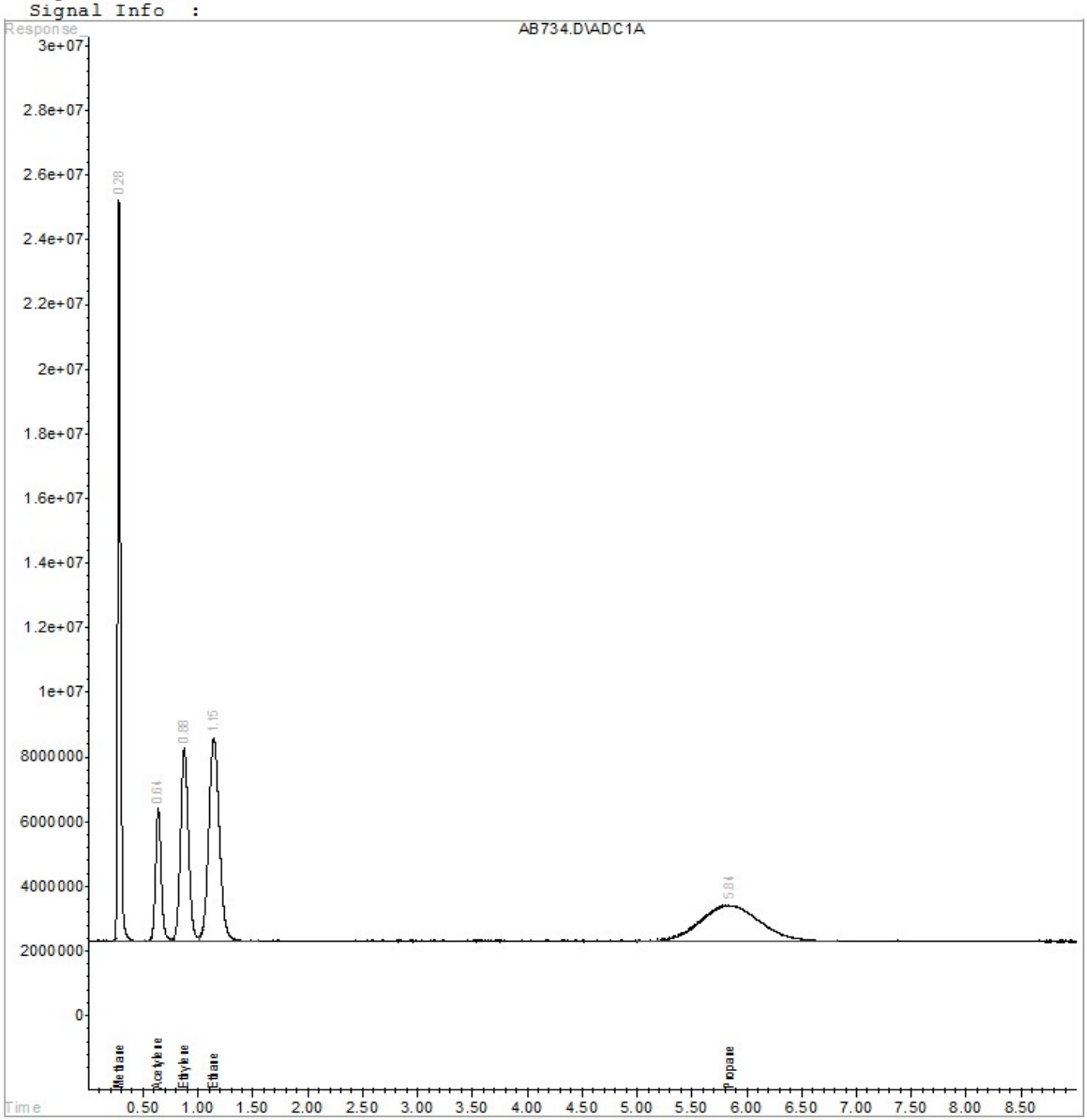
1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\072718\AB734.D Vial: 12
Acq On : 27 Jul 2018 10:33 am Operator: b.allgeier
Sample : 75ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 10:51 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:32:48 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 07/30/18
2nd fJ 07/30/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\072718\AB735.D Vial: 13
Acq On : 27 Jul 2018 10:52 am Operator: b.allgeier
Sample : 100ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 11:01 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:51:31 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	536615310	92.767 ug/L
2)	Acetylene	0.64	208896185	201.201 ug/L
3)	Ethylene	0.88	399312892	97.663 ug/L
4)	Ethane	1.15	557587848	98.957 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	545976463	95.373 ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

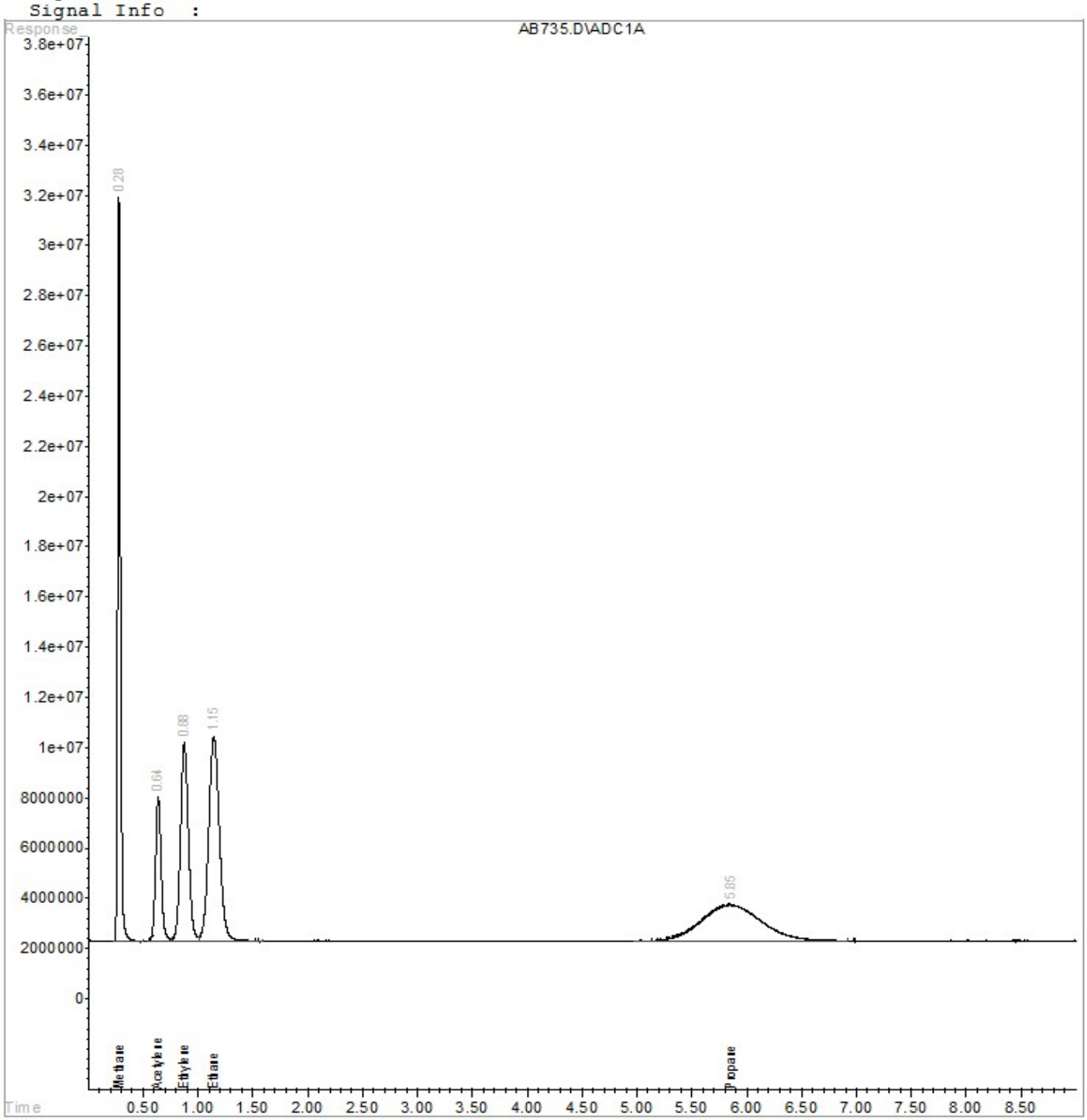
1st BA 07/30/18
2nd FJ 07/30/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\072718\AB735.D Vial: 13
Acq On : 27 Jul 2018 10:52 am Operator: b.allgeier
Sample : 100ppb Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jul 27 11:01 2018 Quant Results File: RSK0727.RES

Quant Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 10:51:31 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



AB735.D RSK0727.M Mon Jul 30 08:59:54 2018 Page 2

1st BA 07/30/18
2nd fJ 07/30/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\072718\AB736.D Vial: 14
Acq On : 27 Jul 2018 11:02 am Operator: b.allgeier
Sample : icv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	Methane	5.689	5.338 E6	6.2	99	0.00
2	Acetylene	1.039	1.102 E6	-6.1	116	0.00
3	Ethylene	4.092	4.280 E6	-4.6	104	0.00
4	Ethane	5.595	5.580 E6	0.3	101	0.00
6	Propane	5.673	5.578 E6	1.7	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB736.D RSK0727.M Fri Jul 27 11:12:59 2018 Page 1

1st BA 07/30/18
2nd FJ 07/30/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\072718\AB736.D Vial: 14
Acq On : 27 Jul 2018 11:02 am Operator: b.allgeier
Sample : icv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\METHODS\RSK0727.M (Chemstation Integrator)
Title :
Last Update : Fri Jul 27 11:02:03 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB736.D RSK0727.M Fri Jul 27 11:12:59 2018 Page 2

Client: ALS Environmental - US
Project: UR115: 2327398

Service Request: R1807201
Calibration Date: 7/27/2018

Initial Calibration Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800083
Instrument ID: R-GC-02

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	RC1800083-01	10ppb		07/27/2018 09:24
02	RC1800083-02	20ppb		07/27/2018 09:38
03	RC1800083-03	50ppb		07/27/2018 09:49
04	RC1800083-04	1ppb		07/27/2018 10:11
05	RC1800083-05	2ppb		07/27/2018 10:23
06	RC1800083-06	75ppb		07/27/2018 10:33
07	RC1800083-07	100ppb		07/27/2018 10:52

Analyte

Acetylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	2.000	1.275E6	05	4.010	1.571E6	01	20.030	6.629E5	02	40.100	7.779E5
03	100.200	9.468E5	06	150.300	9.96E5	07	200.300	1.043E6			

Ethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	1.040	6.198E6	05	2.080	6.137E6	01	10.410	4.894E6	02	20.800	5.549E6
03	52.100	5.523E6	06	78.100	5.507E6	07	104.100	5.356E6			

Ethene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	0.970	4.377E6	05	1.940	4.494E6	01	9.710	3.427E6	02	19.400	3.971E6
03	48.600	4.114E6	06	72.900	4.149E6	07	97.100	4.112E6			

Methane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	1.050	7.522E6	05	2.100	6.357E6	01	10.490	4.727E6	02	21.000	5.399E6
03	52.500	5.394E6	06	78.700	5.307E6	07	104.900	5.115E6			

Client: ALS Environmental - US
Project: UR115: 2327398

Service Request: R1807201
Calibration Date: 7/27/2018

Initial Calibration Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800083
Instrument ID: R-GC-02

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Acetylene	TRG	AverageRF	% RSD	29.4	≤20	1.039E6	
Ethane	TRG	AverageRF	% RSD	8.1	≤20	5.595E6	
Ethene	TRG	AverageRF	% RSD	8.4	≤20	4.092E6	
Methane	TRG	AverageRF	% RSD	16.6	≤20	5.689E6	

Client: ALS Environmental - US
Project: UR115: 2327398

Service Request: R1807201
Calibration Date: 7/27/2018

Initial Calibration Verification Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800083
Instrument ID: R-GC-02

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
08	RC1800083-08	icv		07/27/2018 11:02

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
Acetylene	100	106	1.039E6	1.102E6	106	85-115	Average RF
Ethane	52.1	52.0	5.595E6	5.58E6	99.8	85-115	Average RF
Ethene	48.6	50.8	4.092E6	4.28E6	105	85-115	Average RF
Methane	52.5	49.3	5.689E6	5.338E6	93.9	85-115	Average RF

Client: ALS Environmental - US
Project: UR115: 2327398

Service Request: R1807201
Date Analyzed: 08/01/18 09:31

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method: RSK 175
File ID: I:\ACQUDATA\V2\DATA\080118\AB760.D\
Signal ID: 1

Calibration Date: 7/27/2018
Calibration ID: RC1800083
Analysis Lot: 601704
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
Acetylene	100	79.4	1.039E6	8.23E5	79.2*	NA	85-115	Average RF
Ethane	52.1	51.3	5.595E6	5.51E6	98.5	NA	85-115	Average RF
Ethene	48.6	47.6	4.092E6	4.012E6	98.1	NA	85-115	Average RF
Methane	52.5	49.0	5.689E6	5.309E6	93.3	NA	85-115	Average RF

Client: ALS Environmental - US
Project: UR115: 2327398

Service Request: R1807201
Date Analyzed: 08/01/18 11:07

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method: RSK 175
File ID: I:\ACQUDATA\V2\DATA\080118\AB767.D\
Signal ID: 1

Calibration Date: 7/27/2018
Calibration ID: RC1800083
Analysis Lot: 601704
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
Acetylene	100	91.7	1.039E6	9.506E5	91.5	NA	85-115	Average RF
Ethane	52.1	50.4	5.595E6	5.411E6	96.7	NA	85-115	Average RF
Ethene	48.6	48.6	4.092E6	4.091E6	100	NA	85-115	Average RF
Methane	52.5	48.0	5.689E6	5.206E6	91.5	NA	85-115	Average RF

Client: ALS Environmental - US **Service Request:** R1807201
Project: UR115: 2327398

Analysis Run Log
Dissolved Gases by GC/FID

Analysis Method: RSK 175 **Analysis Lot:** 601704
Instrument ID: R-GC-02

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
I:\ACQUDATA\V2\DATA\080118\AB760.D\	Continuing Calibration Verification	RQ1808100-04	8/1/2018	09:31:00	
I:\ACQUDATA\V2\DATA\080118\AB761.D\	Method Blank	RQ1808100-01	8/1/2018	09:42:00	
I:\ACQUDATA\V2\DATA\080118\AB762.D\	Lab Control Sample	RQ1808100-02	8/1/2018	09:52:00	
I:\ACQUDATA\V2\DATA\080118\AB763.D\	Duplicate Lab Control Sample	RQ1808100-03	8/1/2018	10:02:00	
I:\ACQUDATA\V2\DATA\080118\AB764.D\	2327398 001	R1807201-001	8/1/2018	10:25:00	
I:\ACQUDATA\V2\DATA\080118\AB766.D\	2327398 001	R1807201-001	8/1/2018	10:58:00	
I:\ACQUDATA\V2\DATA\080118\AB767.D\	Continuing Calibration Verification	RQ1808100-05	8/1/2018	11:07:00	

Printed 8/13/2018 4:04:20 PM Superset Reference:

Analysis: RSK.175 Analyst: BA Run Method: RSK

Date: 7/1/18 Data Path: J:\Acqudata\V2Data\080118 RSK.0727

Instr. V2 LIMS Run#: 601704

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
	BLK								AB58	—	
	BLK								59	—	
	CCV								60	Yc	
	MET BLK								61	Y	
	LCS								62	Y	
	LCSD								63	Y	
	ALS (R1807201-BD1)					IV	1	12	64	Y	RPT 1/20
	ALS	20.0	25ml			"	1	"	65	Y	RPT 1/50
	ALS "	50.0	1ml/50ml → 500ul			"	2	"	66	Y	
	CCV								67	Yc	

8/1/18

All samples = _____mL + _____uL Surrogate _____mL purged

Primary : 190132 200ul/42.5ml (CCV) Secondary : 190133 100ul/42.5ml (LCS) Surrogate : _____

Primary : _____ Secondary : _____

Primary : _____ Secondary : _____

Primary : _____ Secondary : _____

ALS

Tuesday, August 14, 2018 7:03:03 PM

Page 140 of 140

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

July 6, 2018

Ms. Kelly Lurie
AECOM - Mechanicsburg
100 Sterling Parkway
Suite 205
Mechanicsburg, PA 17055

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2321639**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN034|2015-SCOTIA NAVY DEPOT-**

Dear Ms. Lurie:

Enclosed are the analytical results for samples received by the laboratory between Thursday, June 14, 2018 and Wednesday, June 20, 2018.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vanessa N Badman (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

CC: Mr. Greg Malzone , Mr. John Santacroce , Mr. Scott Underhill

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

July 6, 2018

Ms. Kelly Lurie
AECOM - Mechanicsburg
100 Sterling Parkway
Suite 205
Mechanicsburg, PA 17055

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2321639**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN034|2015-SCOTIA NAVY DEPOT-**

Dear Ms. Lurie:

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Greg Malzone , Mr. John Santacroce , Mr. Scott Underhill

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2321639001	MW-6 061818	Ground Water	6/18/2018 12:15	6/20/2018 08:52	Collected by Client
2321639002	MW-7 061818	Ground Water	6/18/2018 12:10	6/20/2018 08:52	Collected by Client
2321639003	MW-9 061918	Ground Water	6/19/2018 09:25	6/20/2018 08:52	Collected by Client
2321639004	MW-27 061918	Ground Water	6/19/2018 09:06	6/20/2018 08:52	Collected by Client
2321639005	MW-16 061918	Ground Water	6/19/2018 11:04	6/20/2018 08:52	Collected by Client
2321639006	DUP01-061918	Ground Water	6/19/2018 00:00	6/20/2018 08:52	Collected by Client
2321639007	MW-5 061918	Ground Water	6/19/2018 10:15	6/20/2018 08:52	Collected by Client
2321639008	MW-20 061918	Ground Water	6/19/2018 12:20	6/20/2018 08:52	Collected by Client
2321639009	MW-19 061918	Ground Water	6/19/2018 13:30	6/20/2018 08:52	Collected by Client
2321639010	MW-18 061918	Ground Water	6/19/2018 13:08	6/20/2018 08:52	Collected by Client
2321639011	Trip Blank	Ground Water	6/20/2018 08:52	6/20/2018 08:52	Collected by Client

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

PROJECT SUMMARY

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Workorder Comments

Please see attached subcontracting from ALS Rochester. VNB 7/6/18

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639001** Date Collected: 6/18/2018 12:15 Matrix: Ground Water

Sample ID: **MW-6 061818** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,1,1-Trichloroethane	0.75J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
Trichloroethene	24.4		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.7		%	81 - 118	SW846 8260C			6/29/18 13:15	DD	A
4-Bromofluorobenzene (S)	102		%	85 - 114	SW846 8260C			6/29/18 13:15	DD	A
Dibromofluoromethane (S)	87.1		%	80 - 119	SW846 8260C			6/29/18 13:15	DD	A
Toluene-d8 (S)	95.7		%	89 - 112	SW846 8260C			6/29/18 13:15	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639002** Date Collected: 6/18/2018 12:10 Matrix: Ground Water

Sample ID: **MW-7 061818** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A
1,1,2-Trichloroethane	0.34J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A
Trichloroethene	32.6		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:37	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100		%	81 - 118	SW846 8260C			6/29/18 13:37	DD	A
4-Bromofluorobenzene (S)	103		%	85 - 114	SW846 8260C			6/29/18 13:37	DD	A
Dibromofluoromethane (S)	88.2		%	80 - 119	SW846 8260C			6/29/18 13:37	DD	A
Toluene-d8 (S)	96.5		%	89 - 112	SW846 8260C			6/29/18 13:37	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639003** Date Collected: 6/19/2018 09:25 Matrix: Ground Water

Sample ID: **MW-9 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:53	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.3		%	81 - 118	SW846 8260C			6/29/18 12:53	DD	A
4-Bromofluorobenzene (S)	101		%	85 - 114	SW846 8260C			6/29/18 12:53	DD	A
Dibromofluoromethane (S)	87.3		%	80 - 119	SW846 8260C			6/29/18 12:53	DD	A
Toluene-d8 (S)	94.3		%	89 - 112	SW846 8260C			6/29/18 12:53	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639004** Date Collected: 6/19/2018 09:06 Matrix: Ground Water

Sample ID: **MW-27 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 17:16	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118	SW846 8260C			6/29/18 17:16	DD	A
4-Bromofluorobenzene (S)	99.8		%	85 - 114	SW846 8260C			6/29/18 17:16	DD	A
Dibromofluoromethane (S)	89		%	80 - 119	SW846 8260C			6/29/18 17:16	DD	A
Toluene-d8 (S)	94.9		%	89 - 112	SW846 8260C			6/29/18 17:16	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639005** Date Collected: 6/19/2018 11:04 Matrix: Ground Water

Sample ID: **MW-16 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118			SW846 8260C		6/29/18 13:58	DD	B
4-Bromofluorobenzene (S)	104		%	85 - 114			SW846 8260C		6/29/18 13:58	DD	B
Dibromofluoromethane (S)	90.1		%	80 - 119			SW846 8260C		6/29/18 13:58	DD	B
Toluene-d8 (S)	94.9		%	89 - 112			SW846 8260C		6/29/18 13:58	DD	B
WET CHEMISTRY											
Alkalinity, Total	317	1	mg/L	5	5	0.8	S2320B-97		6/22/18 04:18	MSA	H
Chloride	3.9		mg/L	2.0	0.50	0.16	EPA 300.0		6/21/18 08:41	CHW	G
Nitrate-N	2.0		mg/L	0.20	0.060	0.020	EPA 300.0		6/21/18 08:41	CHW	G
Sulfate	27.3		mg/L	2.0	0.50	0.20	EPA 300.0		6/21/18 08:41	CHW	G
Total Organic Carbon (TOC)	1.2		mg/L	1.0	0.50	0.18	S5310B-00		6/28/18 16:01	AK	E
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/19/18 11:04	SUB	

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639006** Date Collected: 6/19/2018 00:00 Matrix: Ground Water

Sample ID: **DUP01-061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	2.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:32	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118	SW846 8260C			6/29/18 16:32	DD	A
4-Bromofluorobenzene (S)	102		%	85 - 114	SW846 8260C			6/29/18 16:32	DD	A
Dibromofluoromethane (S)	91.4		%	80 - 119	SW846 8260C			6/29/18 16:32	DD	A
Toluene-d8 (S)	95.4		%	89 - 112	SW846 8260C			6/29/18 16:32	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639007** Date Collected: 6/19/2018 10:15 Matrix: Ground Water

Sample ID: **MW-5 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	2.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100		%	81 - 118	SW846 8260C		6/29/18 14:20	DD	A
4-Bromofluorobenzene (S)	103		%	85 - 114	SW846 8260C		6/29/18 14:20	DD	A
Dibromofluoromethane (S)	88.9		%	80 - 119	SW846 8260C		6/29/18 14:20	DD	A
Toluene-d8 (S)	96.2		%	89 - 112	SW846 8260C		6/29/18 14:20	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639008** Date Collected: 6/19/2018 12:20 Matrix: Ground Water

Sample ID: **MW-20 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
Tetrachloroethene	3.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
Trichloroethene	69.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118	SW846 8260C			6/29/18 14:42	DD	A
4-Bromofluorobenzene (S)	100		%	85 - 114	SW846 8260C			6/29/18 14:42	DD	A
Dibromofluoromethane (S)	90.6		%	80 - 119	SW846 8260C			6/29/18 14:42	DD	A
Toluene-d8 (S)	93.8		%	89 - 112	SW846 8260C			6/29/18 14:42	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639009** Date Collected: 6/19/2018 13:30 Matrix: Ground Water

Sample ID: **MW-19 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A
1,1,1-Trichloroethane	1.7		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A
Trichloroethene	11.4		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:04	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118	SW846 8260C			6/29/18 15:04	DD	A
4-Bromofluorobenzene (S)	99.8		%	85 - 114	SW846 8260C			6/29/18 15:04	DD	A
Dibromofluoromethane (S)	87.8		%	80 - 119	SW846 8260C			6/29/18 15:04	DD	A
Toluene-d8 (S)	95		%	89 - 112	SW846 8260C			6/29/18 15:04	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639010** Date Collected: 6/19/2018 13:08 Matrix: Ground Water

Sample ID: **MW-18 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A
Trichloroethene	26.8		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:26	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118	SW846 8260C			6/29/18 15:26	DD	A
4-Bromofluorobenzene (S)	99.8		%	85 - 114	SW846 8260C			6/29/18 15:26	DD	A
Dibromofluoromethane (S)	90.2		%	80 - 119	SW846 8260C			6/29/18 15:26	DD	A
Toluene-d8 (S)	95.3		%	89 - 112	SW846 8260C			6/29/18 15:26	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639011** Date Collected: 6/20/2018 08:52 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.7		%	81 - 118	SW846 8260C			6/29/18 12:31	DD	A
4-Bromofluorobenzene (S)	100		%	85 - 114	SW846 8260C			6/29/18 12:31	DD	A
Dibromofluoromethane (S)	89.3		%	80 - 119	SW846 8260C			6/29/18 12:31	DD	A
Toluene-d8 (S)	94.7		%	89 - 112	SW846 8260C			6/29/18 12:31	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2321639005	1	MW-16 061918	S2320B-97	Alkalinity, Total

The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Analysis Method	Prep Method
2321639001	MW-6 061818	SW846 8260C	
2321639002	MW-7 061818	SW846 8260C	
2321639003	MW-9 061918	SW846 8260C	
2321639004	MW-27 061918	SW846 8260C	
2321639005	MW-16 061918	EPA 300.0	
2321639005	MW-16 061918	S2320B-97	
2321639005	MW-16 061918	S5310B-00	
2321639005	MW-16 061918	SW846 8260C	
2321639005	MW-16 061918	Subcontract	
2321639006	DUP01-061918	SW846 8260C	
2321639007	MW-5 061918	SW846 8260C	
2321639008	MW-20 061918	SW846 8260C	
2321639009	MW-19 061918	SW846 8260C	
2321639010	MW-18 061918	SW846 8260C	
2321639011	Trip Blank	SW846 8260C	

QUALITY CONTROL DATA

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/47271 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 2321639001, 2321639002, 2321639003, 2321639004, 2321639005, 2321639006, 2321639007, 2321639008, 2321639009, 2321639010, 2321639011

METHOD BLANK: 2767165

Parameter	Blank Result	Units	Reporting Limit
Carbon Tetrachloride	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
Trichloroethene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	95.8	%	81 - 118
4-Bromofluorobenzene (S)	101	%	85 - 114
Dibromofluoromethane (S)	84.5	%	80 - 119
Toluene-d8 (S)	95.4	%	89 - 112

LABORATORY CONTROL SAMPLE: 2767166

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	104	ug/L	20	20.8	72 - 136
1,1-Dichloroethane	99.8	ug/L	20	20.0	77 - 125
1,2-Dichloroethane	94.1	ug/L	20	18.8	73 - 128
1,1-Dichloroethene	110	ug/L	20	22.0	71 - 131
cis-1,2-Dichloroethene	98.8	ug/L	20	19.8	78 - 123
trans-1,2-Dichloroethene	106	ug/L	20	21.2	75 - 124
1,1,1,2-Tetrachloroethane	97	ug/L	20	19.4	78 - 124
1,1,2,2-Tetrachloroethane	97.1	ug/L	20	19.4	71 - 121
Tetrachloroethene	98	ug/L	20	19.6	74 - 129
Toluene	105	ug/L	20	20.9	80 - 121
1,1,1-Trichloroethane	105	ug/L	20	21.0	74 - 131
1,1,2-Trichloroethane	92.4	ug/L	20	18.5	80 - 119
Trichloroethene	99.4	ug/L	20	19.9	79 - 123

QUALITY CONTROL DATA

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	102	ug/L	20	20.3	58 - 137
1,2-Dichloroethane-d4 (S)	95.3	%			81 - 118
4-Bromofluorobenzene (S)	101	%			85 - 114
Dibromofluoromethane (S)	87.5	%			80 - 119
Toluene-d8 (S)	96	%			89 - 112

MATRIX SPIKE: 2767167 DUPLICATE: 2767168 ORIGINAL: 2321639003

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Carbon Tetrachloride	0	ug/L	20	23.3747	23.5732	117	118	72 - 136	.85	30
1,1-Dichloroethane	0	ug/L	20	22.1284	22.3246	111	112	77 - 125	.88	30
1,2-Dichloroethane	0	ug/L	20	20.4364	20.4813	102	102	73 - 128	.22	30
1,1-Dichloroethene	0	ug/L	20	24.8799	25.4502	124	127	71 - 131	2.27	30
cis-1,2-Dichloroethene	0	ug/L	20	21.6589	21.9754	108	110	78 - 123	1.45	30
trans-1,2-Dichloroethene	0	ug/L	20	23.7405	23.8732	119	119	75 - 124	.56	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	19.9113	20.382	99.6	102	78 - 124	2.34	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	21.031	20.6274	105	103	71 - 121	1.94	30
Tetrachloroethene	0	ug/L	20	20.2708	20.8607	101	104	74 - 129	2.87	30
Toluene	0	ug/L	20	22.0232	22.3622	110	112	80 - 121	1.53	30
1,1,1-Trichloroethane	0	ug/L	20	23.1797	23.7015	116	119	74 - 131	2.23	30
1,1,2-Trichloroethane	0	ug/L	20	18.4862	19.1065	92.4	95.5	80 - 119	3.3	30
Trichloroethene	0	ug/L	20	21.9729	22.1537	110	111	79 - 123	.82	30
Vinyl Chloride	0	ug/L	20	22.2092	17.2809	111	86.4	58 - 137	25	30
1,2-Dichloroethane-d4 (S)	101	%				101	99.6	81 - 118		
4-Bromofluorobenzene (S)	100	%				100	98.1	85 - 114		
Dibromofluoromethane (S)	90.2	%				90.2	88.6	80 - 119		
Toluene-d8 (S)	91.8	%				91.8	92.2	89 - 112		

QUALITY CONTROL DATA

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/206289 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 2321639005

METHOD BLANK: 2761689

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.25U	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.25U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2761691

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	97.8	mg/L	20	19.6	87 - 111
Nitrate-N	96	mg/L	2.5	2.4	88 - 111
Sulfate	98	mg/L	20	19.6	87 - 112

MATRIX SPIKE: 2762533 DUPLICATE: 2762534 ORIGINAL: 2320794008

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Chloride	131.44	mg/L	40	173.26	171.74	105	101	87 - 111	.88	15

METHOD BLANK: 2762536

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.090J	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.25U	mg/L	1.0

QUALITY CONTROL DATA

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/206359 **Analysis Method:** S2320B-97

QC Batch Method: S2320B-97

Associated Lab Samples: 2321639005

METHOD BLANK: 2762486

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	1J	mg/L	5

SAMPLE DUPLICATE: 2762488 ORIGINAL: 2321652001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	254.20335	mg/L	260.85168	2.58	20

METHOD BLANK: 2762491

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762492 ORIGINAL: 2321656001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	255.70946	mg/L	242.48804	5.31	20

METHOD BLANK: 2762495

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762496 ORIGINAL: 2321656004

Parameter	Original Result	Units	DUP Result	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Alkalinity, Total	405.03543	mg/L	403.4516	.39	20

METHOD BLANK: 2762499

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762500 ORIGINAL: 2321694002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	10.52636	mg/L	10.58955	.6	20

METHOD BLANK: 2762503

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762504 ORIGINAL: 2321781004

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	177.2571	mg/L	169.63808	4.39	20

METHOD BLANK: 2762507

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762508 ORIGINAL: 2321837001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	424.33551	mg/L	417.61646	1.6	20

QUALITY CONTROL DATA

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

METHOD BLANK: 2762511

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762512 ORIGINAL: 2321837002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	264.78992	mg/L	272.32355	2.81	20

METHOD BLANK: 2762515

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762516 ORIGINAL: 2321847001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	59.8885	mg/L	58.58852	2.19	20

METHOD BLANK: 2762519

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762520 ORIGINAL: 2321887001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	101.30898	mg/L	99.73462	1.57	20

QUALITY CONTROL DATA

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

METHOD BLANK: 2762523

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762524 ORIGINAL: 2321940001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	134.74951	mg/L	137.12802	1.75	20

METHOD BLANK: 2763301

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/206697 **Analysis Method:** S5310B-00

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 2321639005

METHOD BLANK: 2766517

Parameter	Blank Result	Units	Reporting Limit
Total Organic Carbon (TOC)	0.50U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2766518

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	102	mg/L	1	1.0	85 - 115

MATRIX SPIKE: 2766519 DUPLICATE: 2766520 ORIGINAL: 2321536009

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	2.655	mg/L	6	8.583	8.684	98.8	100	85 - 115	1.17	20

MATRIX SPIKE: 2766521 DUPLICATE: 2766522 ORIGINAL: 2321822001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	2.404	mg/L	6	8.335	8.355	98.9	99.2	85 - 115	.24	20

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2321639005	MW-16 061918			EPA 300.0	WETC/206289
2321639005	MW-16 061918			S2320B-97	WETC/206359
2321639005	MW-16 061918			S5310B-00	WETC/206697
2321639001	MW-6 061818			SW846 8260C	VOMS/47271
2321639002	MW-7 061818			SW846 8260C	VOMS/47271
2321639003	MW-9 061918			SW846 8260C	VOMS/47271
2321639004	MW-27 061918			SW846 8260C	VOMS/47271
2321639005	MW-16 061918			SW846 8260C	VOMS/47271
2321639006	DUP01-061918			SW846 8260C	VOMS/47271
2321639007	MW-5 061918			SW846 8260C	VOMS/47271
2321639008	MW-20 061918			SW846 8260C	VOMS/47271
2321639009	MW-19 061918			SW846 8260C	VOMS/47271
2321639010	MW-18 061918			SW846 8260C	VOMS/47271
2321639011	Trip Blank			SW846 8260C	VOMS/47271

Friday, July 06, 2018 7:05:36 PM
Page 28 of 98

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #: 6410 8316 4363

* 2 3 2 1 6 3 9 *

CD 6/20/18

Co. Name: AECOM
Contact (Report to): John Santacroce Phone: 518 951 2000
Address: 40 British American BLVD
Latham NY 12110

Bill to (if different than Report to): PO#:

Project Name/#: Scotia Navy Depot 60440641 ALS Quote #:

TAT: [✓] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges. Date Required: Approved By:

Email? [✓] Y John.Santacroce@aecom.com
Fax? [ ] Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	Enter Number of Containers Per Analysis
1 MW-6 061818		6/18/18	1215	G	GW	2 Amber
2 MW-7 061818		6/18/18	1210	G	GW	2 Amber
3 MW-9 061918	MS/MSD	6/19/18	925	G	GW	6 Glass
4 MW-27 061918			906	G	GW	2 Amber
5 MW-16 061918			1104	G	GW	1 Amber
6 DUP01 - 061918	Duplicate		-	G	GW	2 Glass
7 MW-5 - 061918			1015	G	GW	2 Glass
8 MW-20 061918			1220	G	GW	2

	Container Type	Container Size	Preservative	8260 VOCs	Alkalinity	Cl, NO3, SO4	7196 175	TOC
	A	40mL	1+1 HCL	P	P	G	A	
		250	-	250	40	HCL	HCL	

CD 6/20/18 ANALYSES/METHOD REQUESTED

(completed by Sample Receiving)
Performed by:
Cooler Temp: 1
Therm. ID: 402
No. of Coolers:
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
N	Y	Y	Y	N	
N	N	N	N	N	

	Custody seals Present?	(if present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Ross McCready / Alex Golden

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/19/18		2	6/19/18	330
3 Brian McStuart	6/19/18	330	4 COMMON COURIER / ALS COURIER		
5 COMMON COURIER / ALS COURIER			6	6/20	0852
7			8		
9			10		

Data Deliverables: [✓] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other
EDDs Required? [ ] If yes, format type: See QAPP
OOD Criteria Required?

SDWA Forms? ⇨ yes [ ] yes [ ] yes [ ] yes [ ]
State Samples Collected In? MD [ ] NJ [ ] NY [ ] PA [ ]
Other

ALS FIELD SERVICES
[ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

Friday, July 06, 2018 7:05:36 PM
Page 29 of 98

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #: 6476 8310 4363

COC# 232659

Co. Name:

Contact (Report to): (See COC #1) Phone:

Address:

Bill to (if different than Report to): (See COC #1) PO#:

Project Name/#: ALS Quote #:

TAT: ☑ Normal-Standard TAT is 10-12 business days. Date Required:
☐ Rush-Subject to ALS approval and surcharges. Approved By:

Email? ☑ Y John.Santacroce@aecom.com
Fax? ☐ Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	Enter Number of Containers Per Analysis
1 MW-19 061918		6/19/18	1330	G	GW	2
2 MW-18 061918		6/19/18	1308	G	GW	2
3 TRIP BLANK		-	-	-	-	2
4						
5						
6						
7						
8						

***Container Type: G
***Container Size: 40mL
***Preservative: HCL
6/19/18

ANALYSES/METHOD REQUESTED: 8260 VOCs

Receipt Information (completed by Sample Receiving)
Received by:
Cooler Temp: 4.5
Therm. ID: 207
No. of Coolers:
Notes:

	Circle appropriate Y or N.
Correct containers?	Y N
Correct sample volume?	Y N
Correct preservation?	Y N
Headspace/Volatiles?	Y N
Custody seals Present?	Y N
(if present) Seals intact?	Y N
Received on ice?	Y N
COC/Labels complete/accurate?	Y N
Container in good condition?	Y N

SAMPLED BY (Please Print): Rick McCall / Alex Golden

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/19/18	310	2 [illegible] COMMON COURIER / ALS COURIER	6/19/18	310
3 Brian McCall	6/19/18	3:30	4 COMMON COURIER / ALS COURIER		
5 COMMON COURIER / ALS COURIER			6 [illegible]	6/20/18	0852
7			8		
9			10		

Data Deliverables: ☐ Standard ☐ CLP-like ☐ NJ-Reduced ☐ NJ-Full

EDDs Required? ☐ If yes, format type: SEE QAPP

SDWA Forms? ⇨ yes ☐ yes ☐ yes ☐ yes ☐ Other

State Samples Collected In? MD ☐ NJ ☐ NY ☐ PA ☐

DOD Criteria Required?

ALS FIELD SERVICES
☐ Pickup
☐ Labor
☐ Composite Sampling
☐ Rental Equipment
☐ Other:

* G=Grab; C=Composite

**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Rev 01-2013

June 29, 2018 Service Request No:R1805890

Vanessa Badman
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

Laboratory Results for: UR115: 2321639

Dear Vanessa,

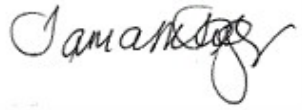
Enclosed are the results of the sample(s) submitted to our laboratory June 22, 2018
For your reference, these analyses have been assigned our service request number **R1805890.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental



Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

ALS Environmental
ALS Group USA, Corp
1565 Jefferson Road, Building 300, Suite 360
Rochester, NY 14623
T: +1 585 288 5380
F: +1 585 288 8475
www.alsglobal.com

Table of Contents

CoverLetter	1
Table of Contents	2
Narrative Documents	4
Case Narrative	5
Hit Summary List	6
Sample Receipt Information	7
Sample Cross-Reference	8
Chain Of Custody	9
Internal Chain of Custody	11
Miscellaneous Forms	12
Qualifiers	13
Acronyms	14
Analyst Summary	15
Prep Method Inorganic	16
Sample Results	17
Volatile Organic Compounds by GC	18
RSK 175 - Dissolved Gases by GC/FID	
2321639 005 - VOA GC	19
QC Summary Forms	20
Volatile Organic Compounds by GC	21
RSK 175 - Dissolved Gases by GC/FID	
MB Summary VOA GC	22

Table of Contents (continued)

Method Blank - VOA GC 23
LCS Summary VOA GC 24
RQ1806590-03 - DLCS VOA GC 25
Raw Data 26
Volatile Organic Compounds by GC 27
RSK 175 - Gases DOD
Form 1s
2321639 005 - VOA GC 28
Raw Data 29
ICAL Summary 61
ICV Summary 63
RQ1806590-04 - CCV VOA GC 64
RQ1806590-05 - CCV VOA GC 65
RQ1806590-06 - CCV VOA GC 66
RQ1806590-07 - CCV VOA GC 67
Run Log 68
Run Log Sheets 69

Narrative Documents

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental

Client: ALS Environmental - US
Project: UR115: 2321639
Sample Matrix: Water

Service Request: R1805890
Date Received: 06/22/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 06/22/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The sample was received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Volatiles by GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 06/29/2018

SAMPLE DETECTION SUMMARY

CLIENT ID: 2321639 005			Lab ID: R1805890-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Methane	0.91	J	0.12	1.1	ug/L	RSK 175

Sample Receipt Information

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1805890-001	2321639 005	6/19/2018	1104

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	1 of 2
ALS Quote #:	

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2321639

Bill To: ALS Environmental

TAT [ ] Normal-Standard TAT is 10-12 business days.
[X] Rush-Subject to ALS approval and surcharges.

Date Required: 4/30/2018 Approved By:

Email? [ ] -Y

Fax? [ ] -Y No.:

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

ANALYSES/METHOD REQUESTED

Container Type	G										
Container Size	40 mL										
Preservative	HCl										

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	DOD RSK175 (Ethane, , Ethene, Methane, Acetylene)	*Report to the MDL, QC lab report needed, EQUIS EDD.								Sample/COC Comments
					Enter Number of Containers Per Sample or Field Results Below.									
1 2321639 005	6/19/18	1104	G	WT	2	*								
2														Sub to ALS Rochester
3														
4														
5														
6														
7														
8														
9														
10														

R1805890 5
ALS Group USA, Corp.
UR115: 2321639

ALS Field Services: ☐Pickup ☐Labor ☐Composite_Sampling ☐Rental_Equipment ☐Other:

Project Comments:

LOGGED BY(signature): DATE: TIME:

REVIEWED BY(signature): DATE: TIME:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/21/18	1555	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [X] DOD

Special Processing: USACE [ ] Navy [ ]

Reportable to PADEP? Yes [ ] PWSID #

Sample Disposal: Lab [X] Special [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] MD

EDDS: Format Type- EQUIS EDD

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Rev 8/04

Cooler Receipt and Preservation Check Form

R1805890 5
ALS Group USA, Corp.
UR115: 2321639

Project/Client_____ Folder Number_____

Cooler received on 6/22/18 by: AM COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	(Y) N NA
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate? ALS/ROC	(CLIENT)
4	Circle: ~~Wet Ice~~ **Dry Ice** **Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 6/22 Time: 9:38 ID: IR#7 (IR#9) From: Temp Blank (Sample Bottle)

Observed Temp (°C)	2.0						
Correction Factor (°C)	+1.0						
Corrected Temp (°C)	3.0						
Temp from:Type of bottle	VOA						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R002 by kn on 6/22 at 9:40
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 6/22/18 Time: 14:35 by: BA

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: _____
Explain all Discrepancies/ Other Comments:

(5b) Both vials have headspace/bubbles

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: _____
PC Secondary Review: MM 6/25/18 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Internal Chain of Custody Report

Client: ALS Environmental **Service Request:** R1805890

Project: UR115: 2321639

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R1805890-001.01					
	RSK 175				
		6/22/2018	1432	SMO / GESMERIAN	
		6/22/2018	1432	R-002 / GESMERIAN	
		6/22/2018	1433	R-001 / GESMERIAN	
		6/29/2018	1121	In Lab / BALLGEIER	
R1805890-001.02					
		6/22/2018	1432	SMO / GESMERIAN	
		6/22/2018	1432	R-002 / GESMERIAN	
		6/22/2018	1433	R-001 / GESMERIAN	

Miscellaneous Forms

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Delaware Approved	New Jersey ID # NY004	
DoD ELAP #65817	New York ID # 10145	Pennsylvania ID# 68-786
Florida ID # E87674	North Carolina #676	Rhode Island ID # 158
		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	ALS Environmental - US	**Service Request:**	R1805890
Project:	UR115: 2321639		

Sample Name:	2321639 005	**Date Collected:**	06/19/18
Lab Code:	R1805890-001	**Date Received:**	06/22/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

Sample Results

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	R1805890
Project:	UR115: 2321639	**Date Collected:**	06/19/18 11:04
Sample Matrix:	Water	**Date Received:**	06/22/18 09:20
Sample Name:	2321639 005	**Units:**	ug/L
Lab Code:	R1805890-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 10:40	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 10:40	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 10:40	
Methane	**0.91 J**	1.1	0.50	0.12	1	06/29/18 10:40	

QC Summary Forms

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client: ALS Environmental - US
Project: UR115: 2321639
Sample Matrix: Water

Service Request: R1805890
Date Analyzed: 06/29/18 09:32

Method Blank Summary
Dissolved Gases by GC/FID

Sample Name: Method Blank
Lab Code: RQ1806590-01

Instrument ID: R-GC-02
File ID: I:\ACQUDATA\W2\DATA\062918\AB679.D\

Analysis Method: RSK 175
Analysis Lot: 596833

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1806590-02	I:\ACQUDATA\W2\DATA\062918\AB680.D\	06/29/18 09:49
Duplicate Lab Control Sample	RQ1806590-03	I:\ACQUDATA\W2\DATA\062918\AB681.D\	06/29/18 10:08
2321639 005	R1805890-001	I:\ACQUDATA\W2\DATA\062918\AB682.D\	06/29/18 10:40

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1805890
Project:	UR115: 2321639	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ1806590-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 09:32	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 09:32	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 09:32	
Methane	**0.39 J**	1.1	0.50	0.12	1	06/29/18 09:32	

Client: ALS Environmental - US
Project: UR115: 2321639
Sample Matrix: Water

Service Request: R1805890
Date Analyzed: 06/29/18 09:49

Lab Control Sample Summary
Dissolved Gases by GC/FID

Sample Name: Lab Control Sample
Lab Code: RQ1806590-02

Instrument ID: R-GC-02
File ID: I:\ACQUDATA\W2\DATA\062918\AB680.D\

Analysis Method: RSK 175
Analysis Lot: 596833

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	RQ1806590-01	I:\ACQUDATA\W2\DATA\062918\AB679.D\	06/29/18 09:32
Duplicate Lab Control Sample	RQ1806590-03	I:\ACQUDATA\W2\DATA\062918\AB681.D\	06/29/18 10:08
2321639 005	R1805890-001	I:\ACQUDATA\W2\DATA\062918\AB682.D\	06/29/18 10:40

Client: ALS Environmental - US
Project: UR115: 2321639
Sample Matrix: Water

Service Request: R1805890
Date Analyzed: 06/29/18

Duplicate Lab Control Sample Summary
Dissolved Gases by GC/FID

Units:ug/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ1806590-02			RQ1806590-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Acetylene	RSK 175	53.6	50.1	107	55.4	50.1	111	70-129	3	30
Ethane	RSK 175	26.5	26.0	102	27.7	26.0	106	74-131	4	30
Ethene	RSK 175	24.2	24.3	99	25.5	24.3	105	72-133	5	30
Methane	RSK 175	26.8	26.2	102	28.3	26.2	108	73-125	5	30

Raw Data

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	R1805890
Project:	UR115: 2321639	**Date Collected:**	06/19/18 11:04
Sample Matrix:	Water	**Date Received:**	06/22/18 09:20
Sample Name:	2321639 005	**Units:**	ug/L
Lab Code:	R1805890-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 10:40	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 10:40	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 10:40	
Methane	**0.91 J**	1.1	0.50	0.12	1	06/29/18 10:40	

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB682.D Vial: 41
Acq On : 29 Jun 2018 10:40 am Operator: b.allgeier
Sample : r1805890-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:06 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	4945245	0.910	ug/L
2)	Acetylene	0.00	0	N.D.	ug/L
3)	Ethylene	0.00	0	N.D.	ug/L
4)	Ethane	0.00	0	N.D.	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	0.00	0	N.D.	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

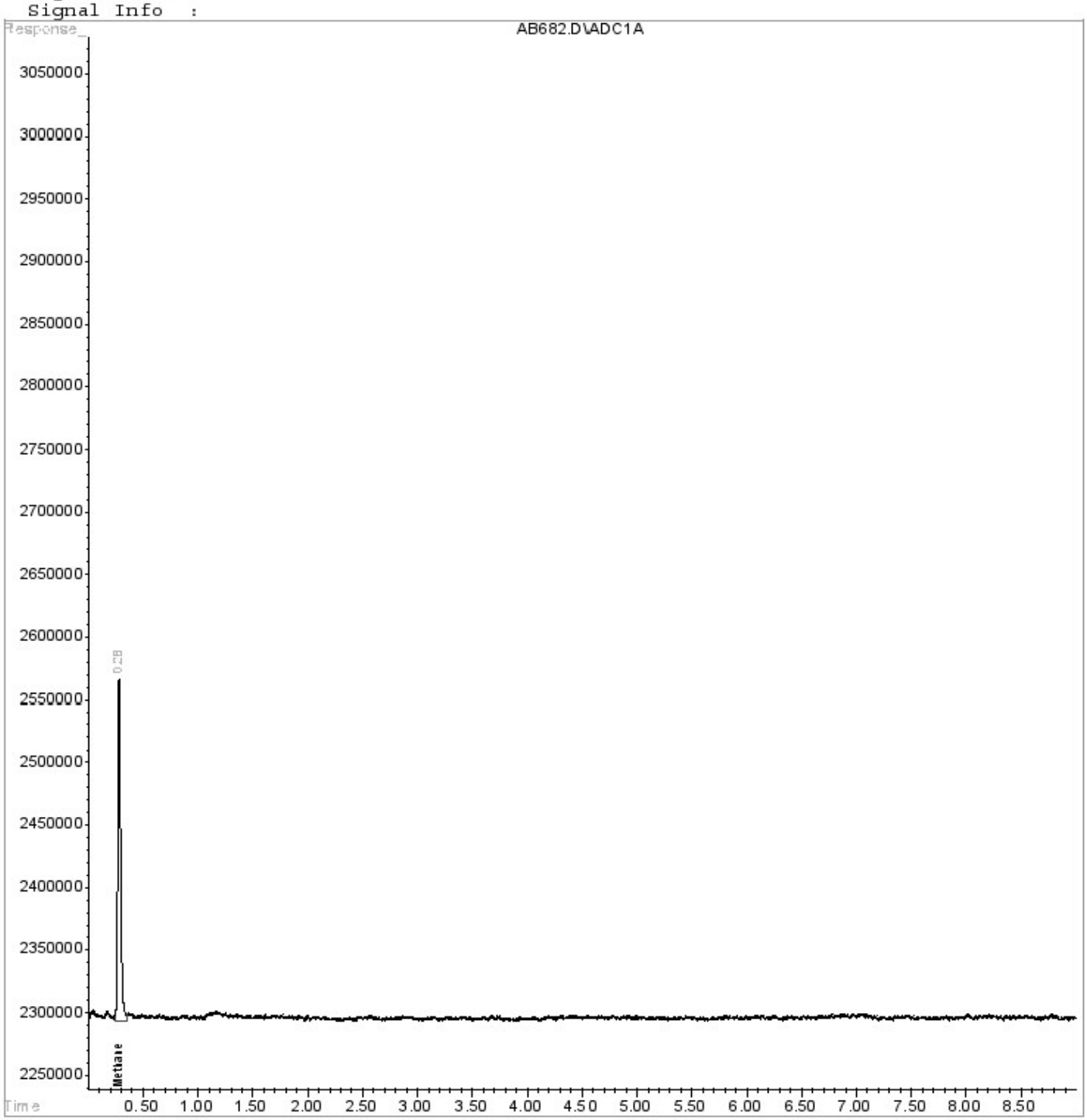
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB682.D Vial: 41
Acq On : 29 Jun 2018 10:40 am Operator: b.allgeier
Sample : r1805890-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:06 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



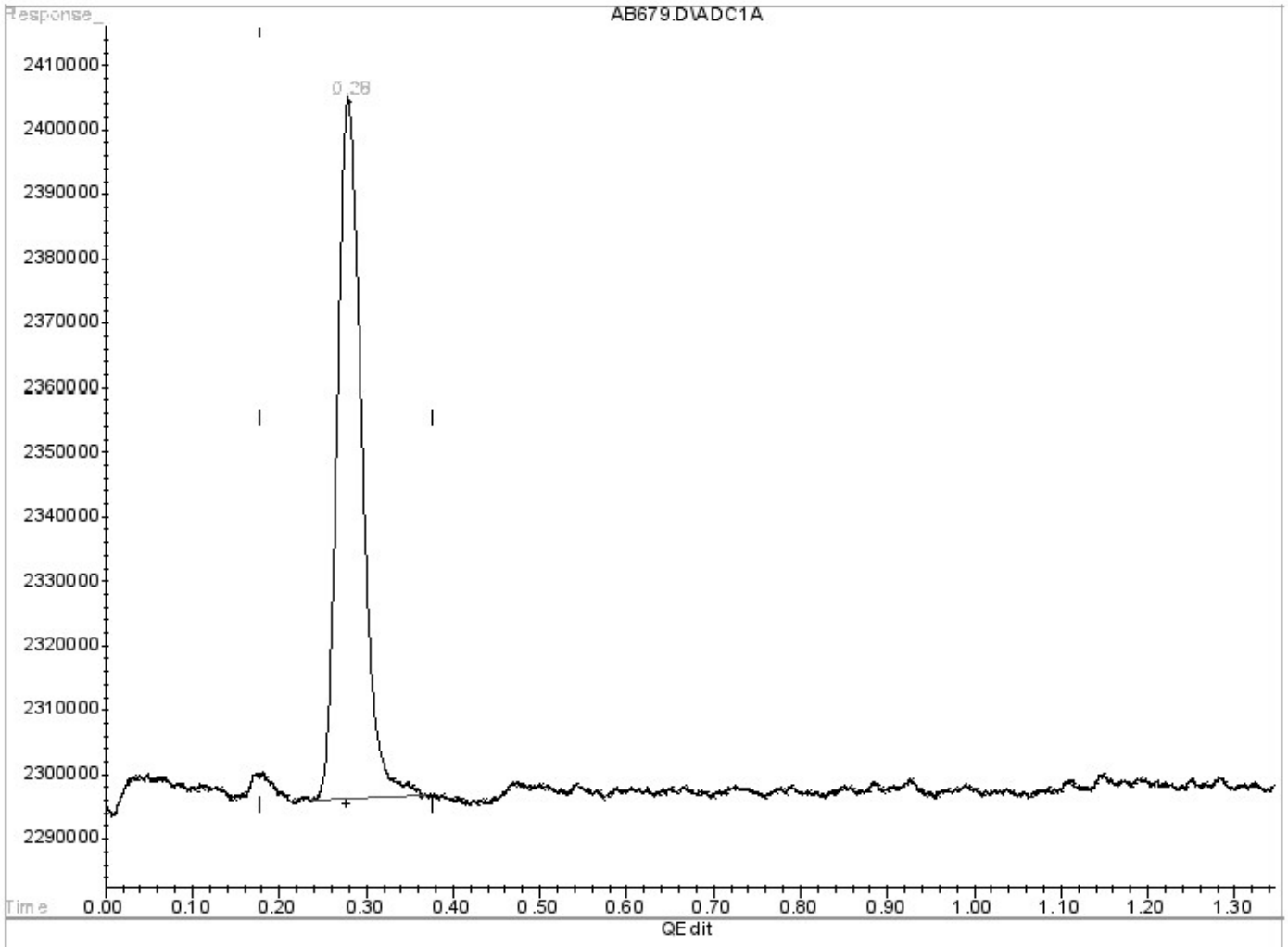
AB682.D RSK0626.M Fri Jun 29 11:07:05 2018 Page 2

1st BA 06/29/18
2nd Mwl 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.392ug/L m

response 2133017

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

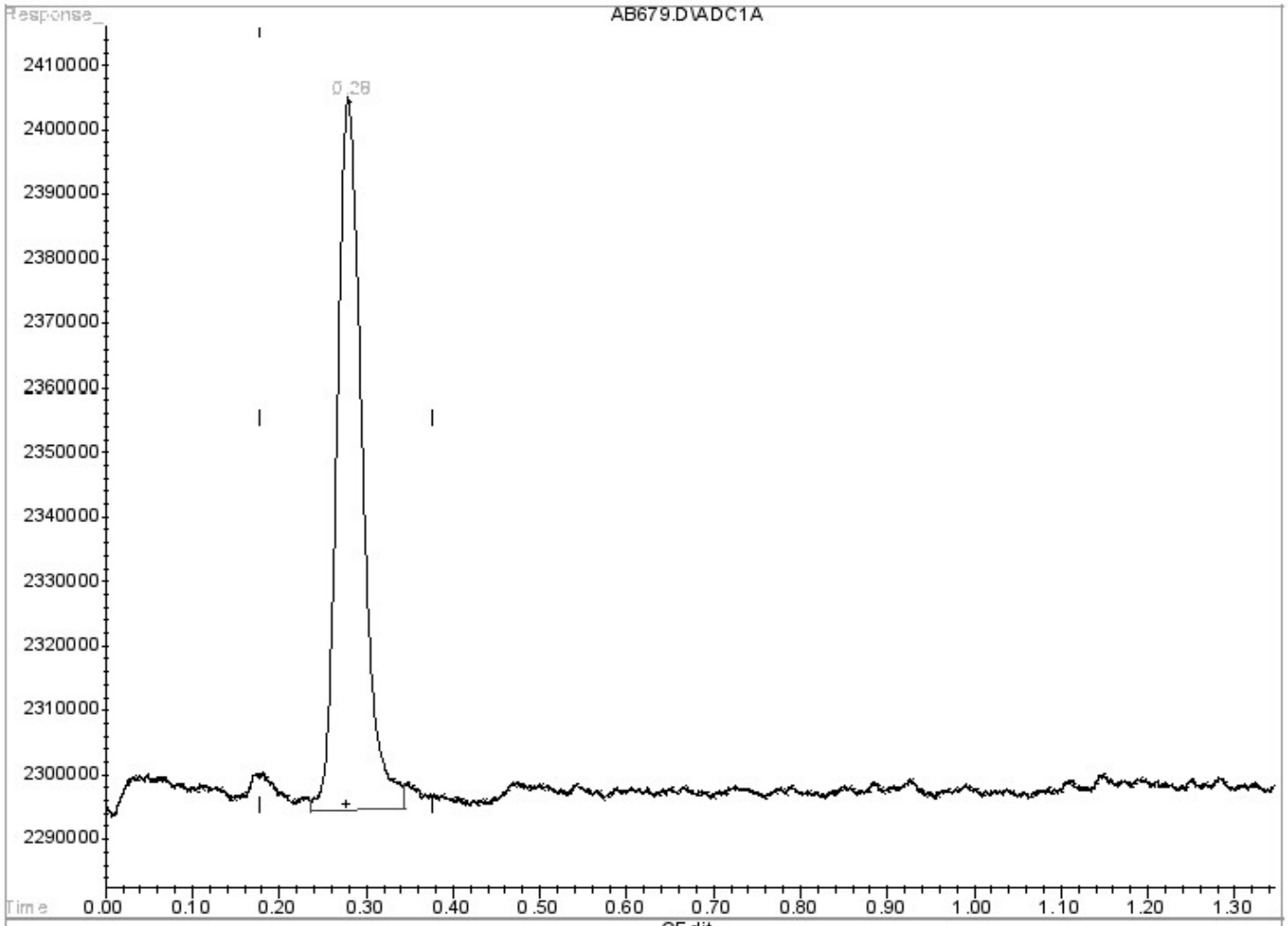
AB679.D RSK0626.M Fri Jun 29 09:48:34 2018
Page 31 of 69

1st BA 06/29/18
2nd MWL 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.410ug/L

response 2228671

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB679.D RSK0626.M Fri Jun 29 09:48:26 2018
Page 32 of 69

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	2133017	0.392	ug/L	m
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.00	0	N.D.	ug/L	
4)	Ethane	0.00	0	N.D.	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	0.00	0	N.D.	ug/L	

(f)=RT Delta > 1/2 Window (m)=manual int.

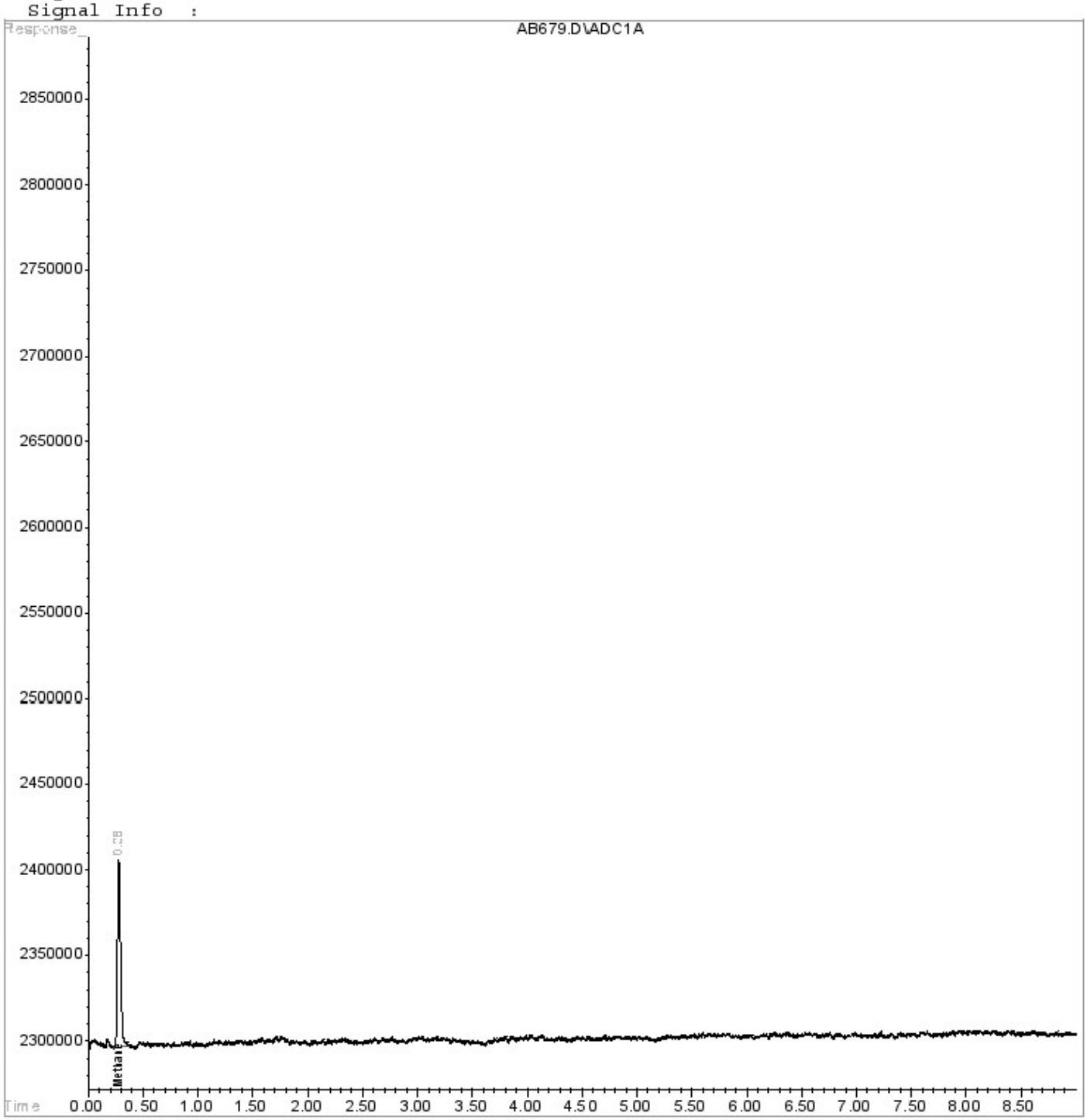
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

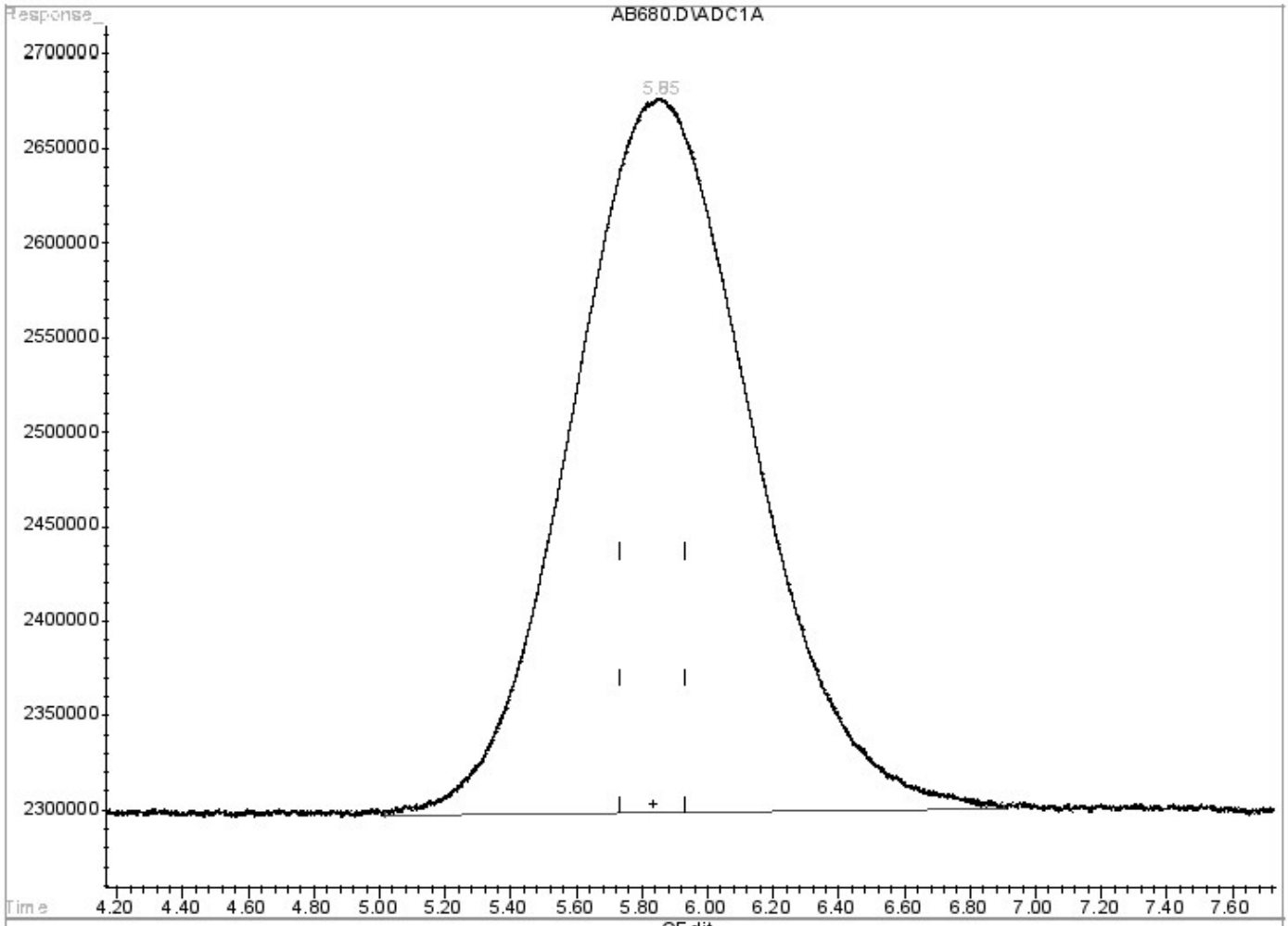


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 24.893ug/L m

response 144051743

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

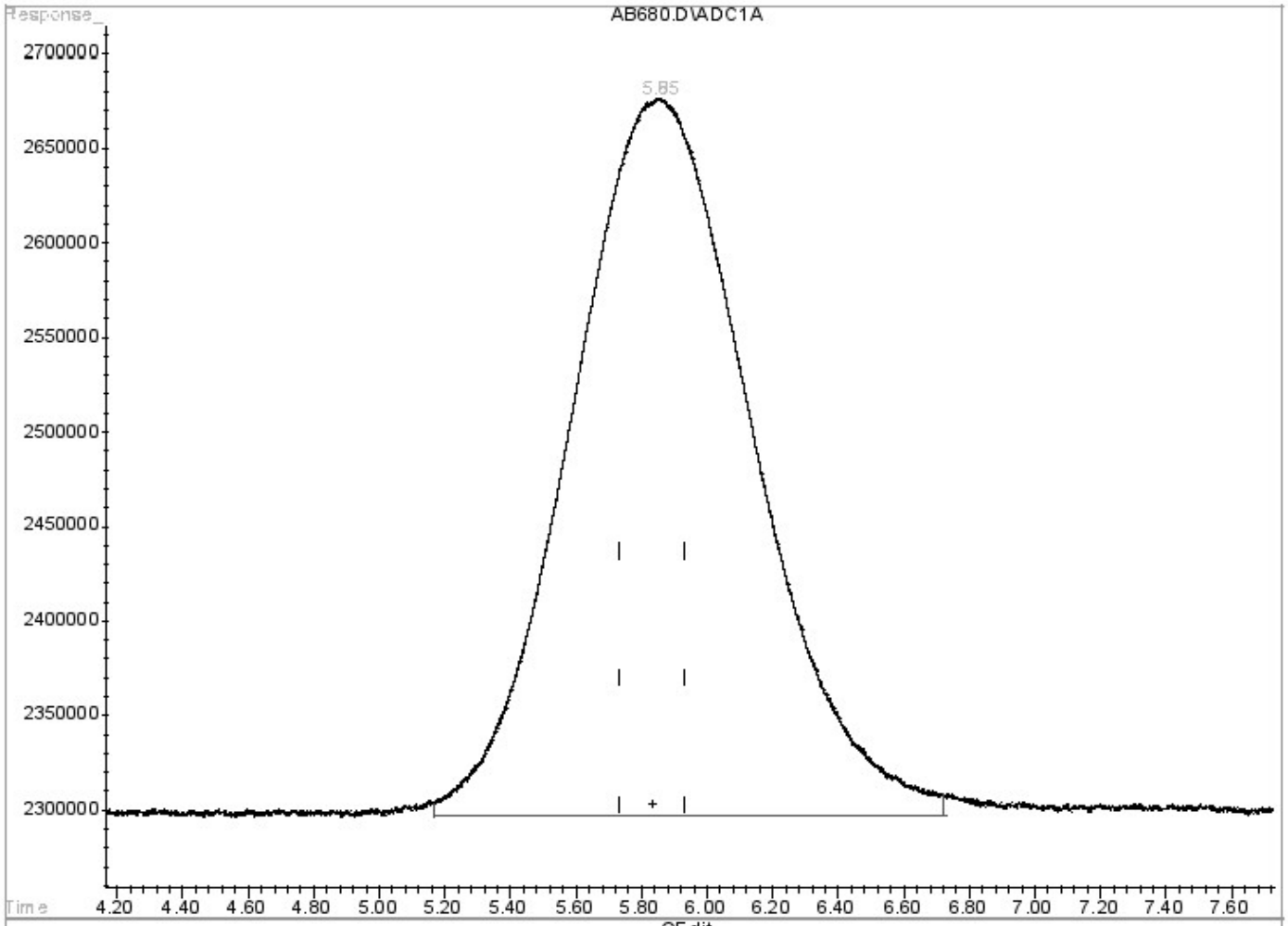
AB680.D RSK0626.M Fri Jun 29 10:07:20 2018

1st BA 06/29/18
2nd Mwi 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 25.059ug/L

response 145011233

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB680.D RSK0626.M Fri Jun 29 10:07:13 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	145885558	26.831 ug/L
2)	Acetylene	0.64	45010985	53.621 ug/L
3)	Ethylene	0.88	98278040	24.163 ug/L
4)	Ethane	1.15	147951794	26.474 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	144051743	24.893 ug/L m

(f)=RT Delta > 1/2 Window (m)=manual int.

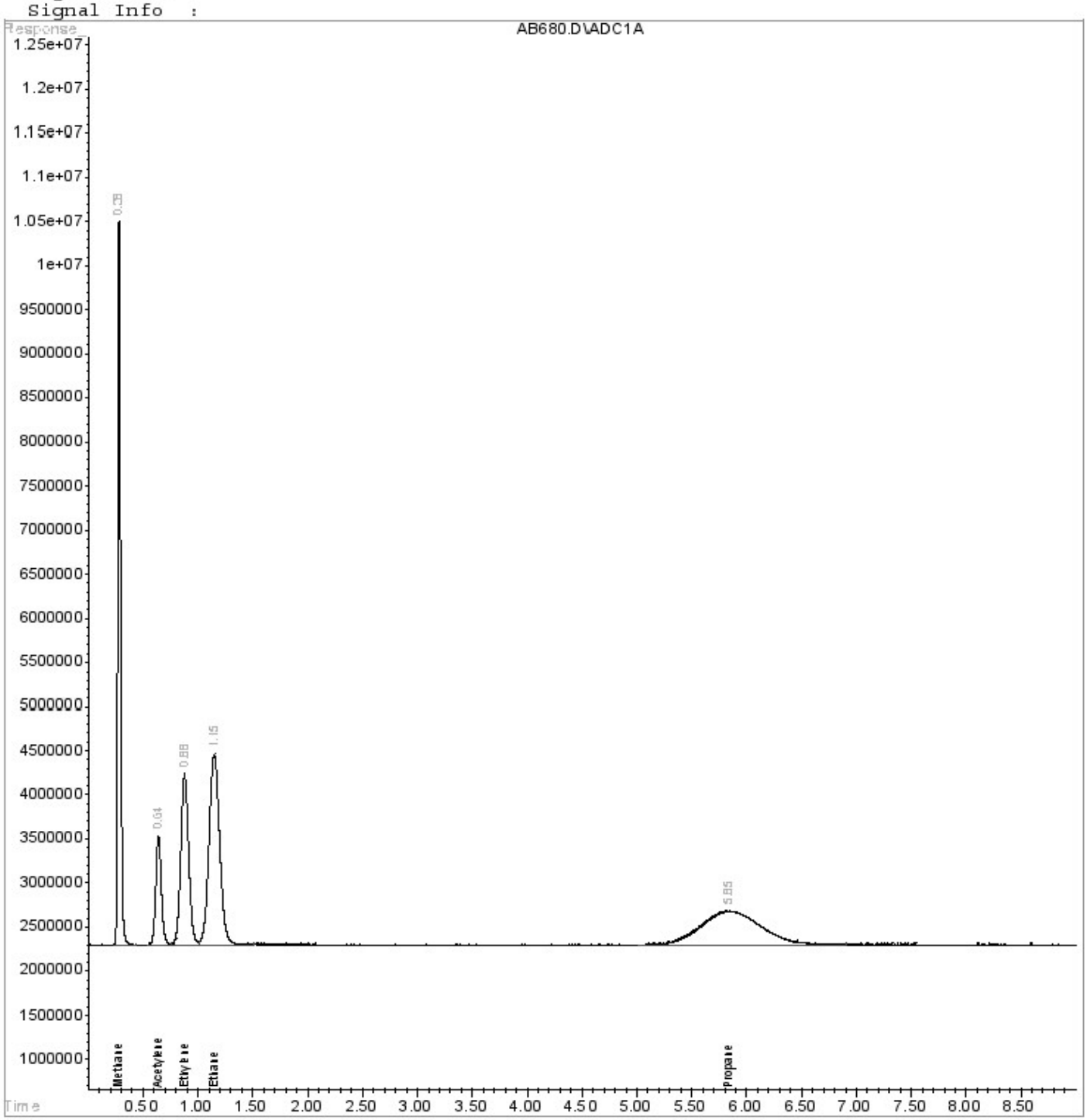
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB681.D Vial: 40
Acq On : 29 Jun 2018 10:08 am Operator: b.allgeier
Sample : lcsd Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:19 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	153990990	28.322 ug/L
2)	Acetylene	0.64	46683382	55.382 ug/L
3)	Ethylene	0.88	103659137	25.486 ug/L
4)	Ethane	1.15	154586781	27.662 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	151080271	26.108 ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

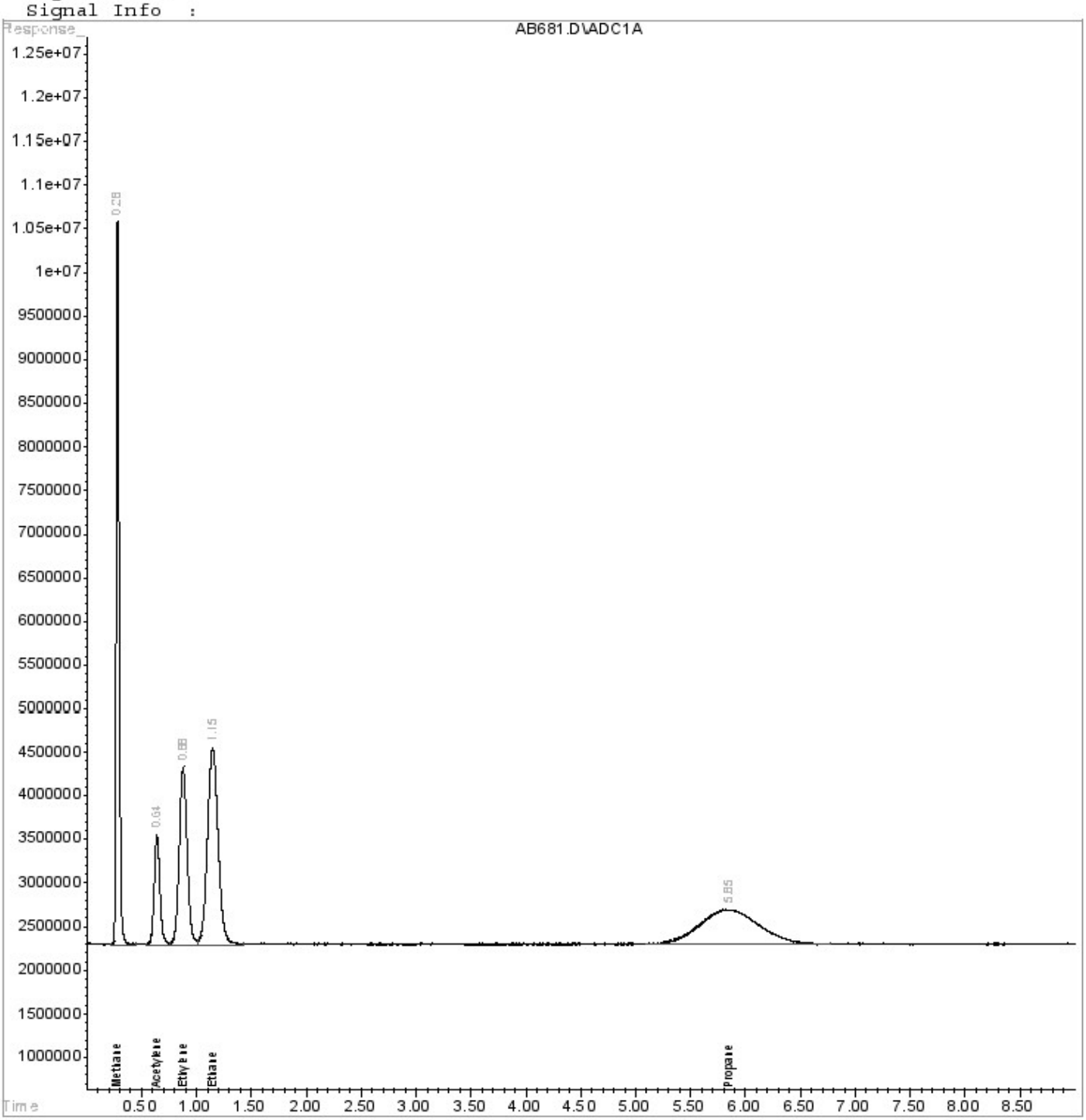
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB681.D Vial: 40
Acq On : 29 Jun 2018 10:08 am Operator: b.allgeier
Sample : lcsd Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:19 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

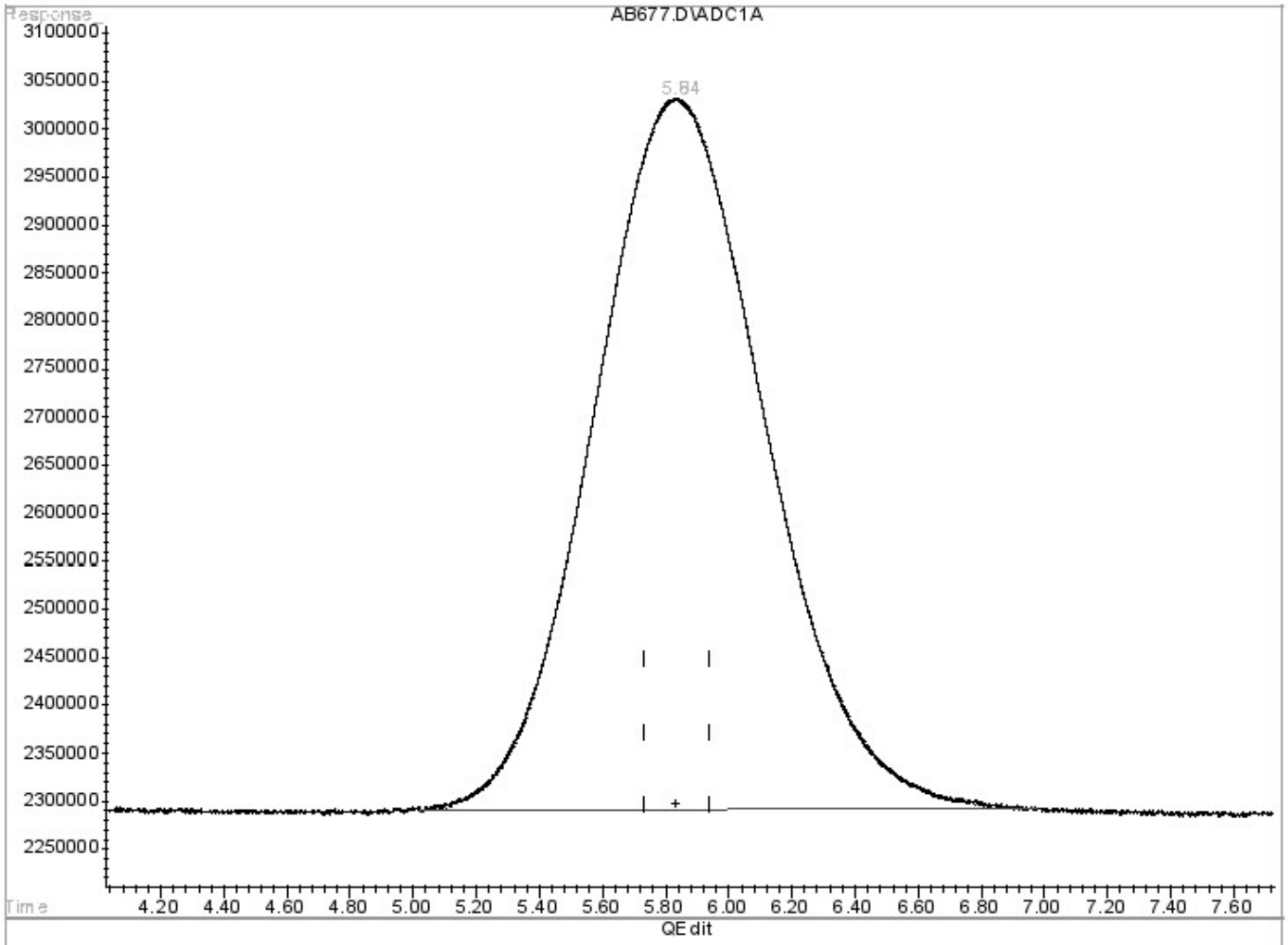


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:16 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.84min 48.388ug/L m

response 280008014

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

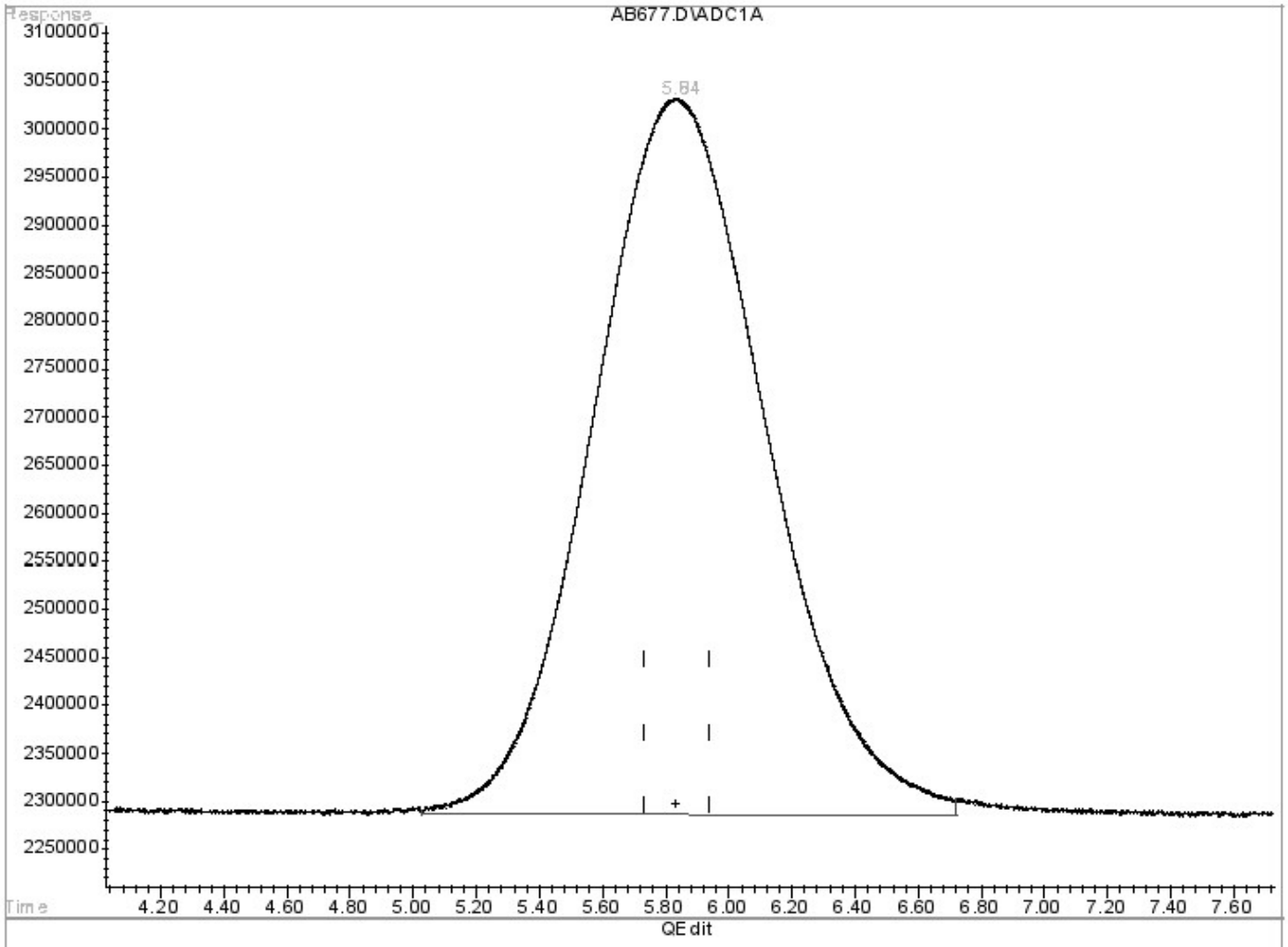
AB677.D RSK0626.M Fri Jun 29 09:17:08 2018

1st BA 06/29/18
2nd Mwi 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:16 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.84min 49.108ug/L

response 284175202

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB677.D RSK0626.M Fri Jun 29 09:17:02 2018

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
1	Methane	5.437	5.447	E6	-0.2	96	0.00
2	Acetylene	823.699	826.652	E3	~~-0.4~~ -9	84	0.00
3	Ethylene	4.067	3.963	E6	2.6	91	0.00
4	Ethane	5.589	5.541	E6	0.9	95	0.00
6	Propane	5.787	5.501	E6	4.9	94	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB677.D RSK0626.M Fri Jun 29 11:06:30 2018 Page 1
Page 43 of 69

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB677.D RSK0626.M Fri Jun 29 11:06:30 2018 Page 2

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:17 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Target Compounds					
1)	Methane	0.28	285962955	52.595	ug/L	
2)	Acetylene	0.64	82830567	90.912	ug/L	
3)	Ethylene	0.88	192579890	47.348	ug/L	
4)	Ethane	1.14	288692580	51.658	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.84	280008014	48.388	ug/L	m

(f)=RT Delta > 1/2 Window (m)=manual int.

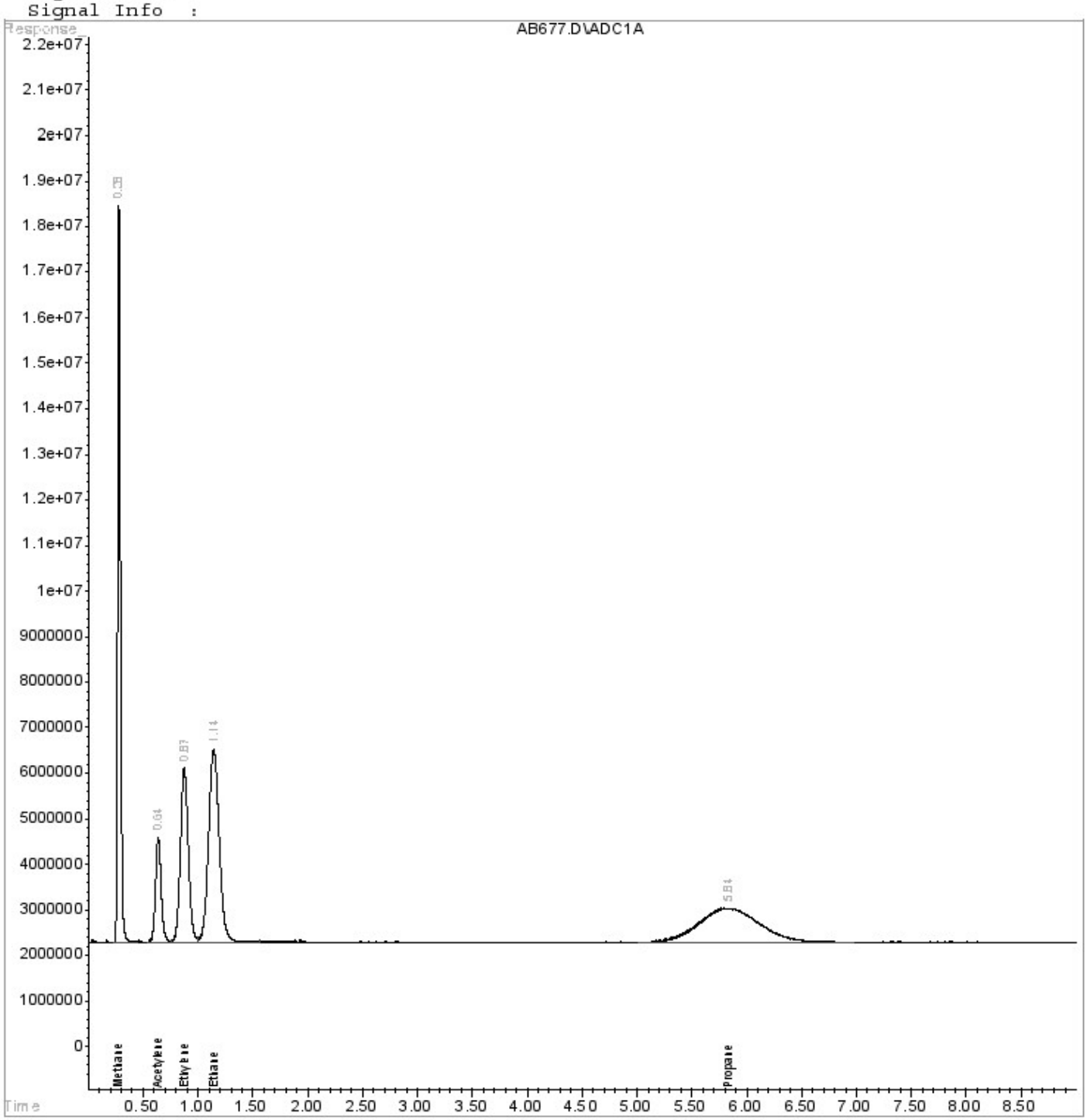
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:17 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

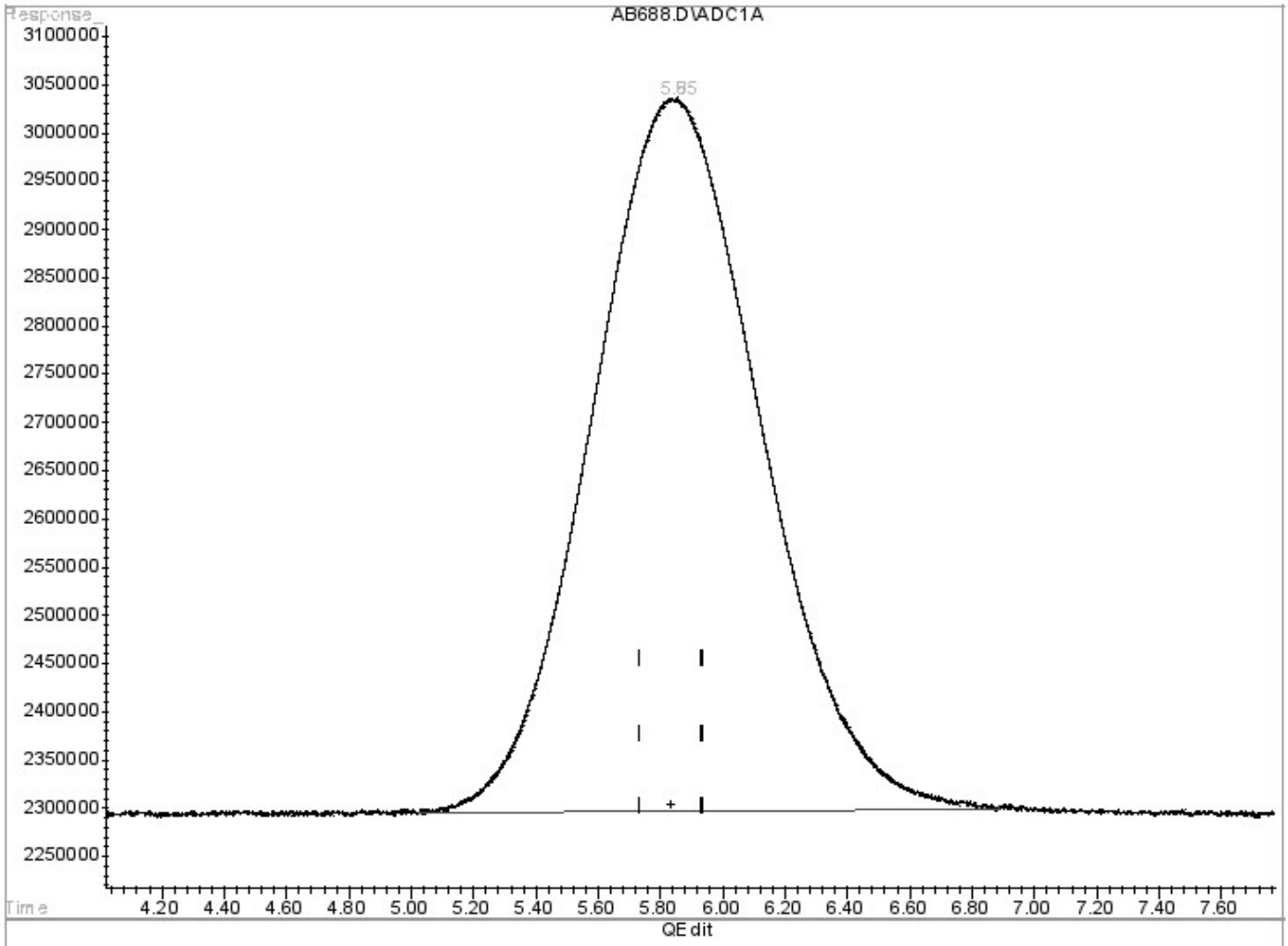


1st BA 06/29/18
2nd Mwi 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:52 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 48.225ug/L m

response 279066560

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

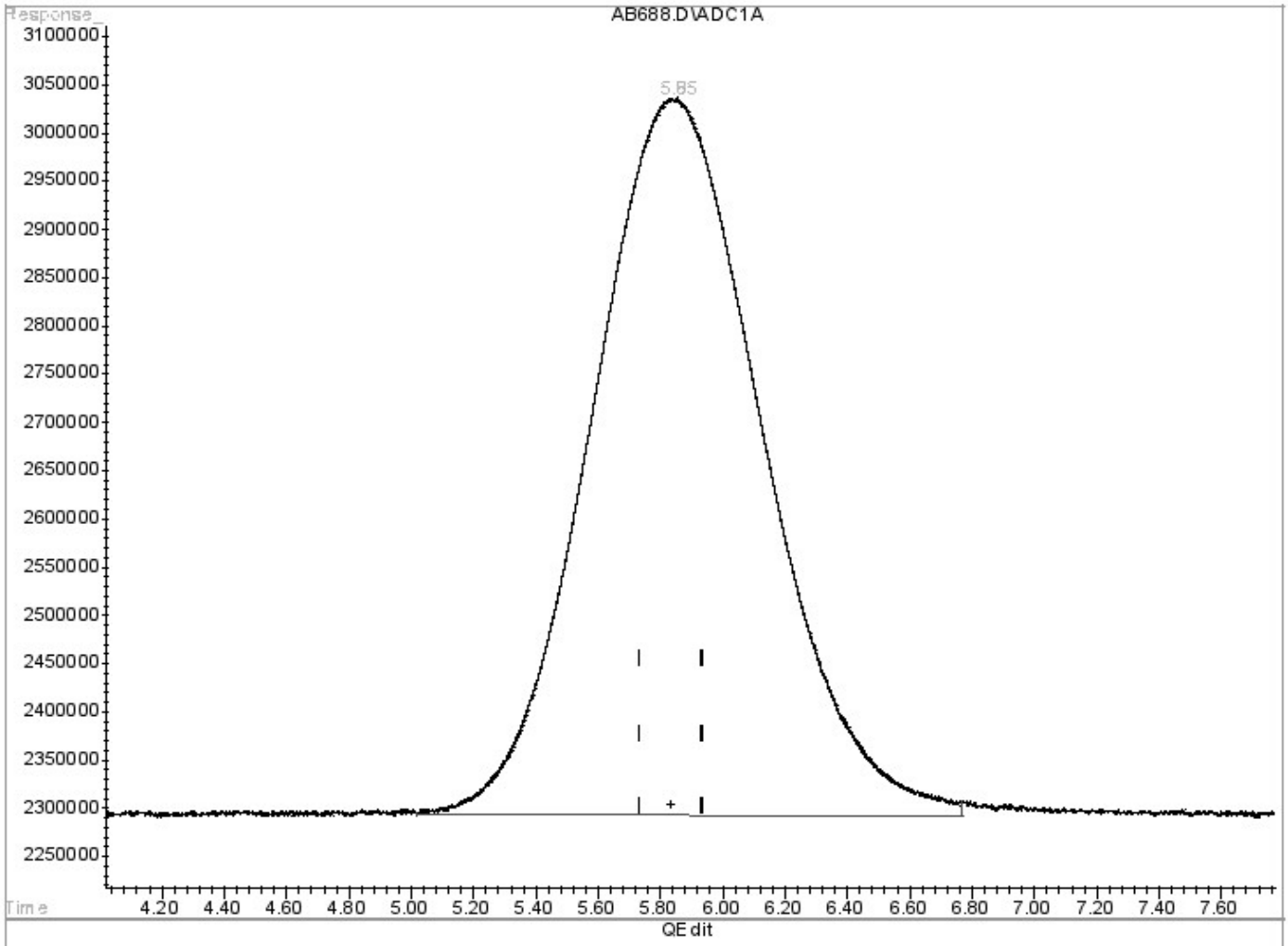
AB688.D RSK0626.M Fri Jun 29 11:53:11 2018

1st BA 06/29/18
2nd Mwl 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:52 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 48.804ug/L

response 282416299

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB688.D RSK0626.M Fri Jun 29 11:53:05 2018
Page 48 of 69

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
1	Methane	5.437	5.383	E6	1.0	94	0.00
2	Acetylene	823.699	945.501	E3	~~-14.8~~	96	0.00
3	Ethylene	4.067	4.000	E6	1.6	92	0.00
4	Ethane	5.589	5.497	E6	1.6	94	0.00
6	Propane	5.787	5.483	E6	5.3	94	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB688.D RSK0626.M Fri Jun 29 11:53:42 2018 Page 1
Page 49 of 69

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB688.D RSK0626.M Fri Jun 29 11:53:42 2018 Page 2
Page 50 of 69

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:53 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	282623484	51.981	ug/L	
2)	Acetylene	0.64	94739238	101.723	ug/L	
3)	Ethylene	0.88	194387063	47.793	ug/L	
4)	Ethane	1.15	286416923	51.251	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.85	279066560	48.225	ug/L	m

(f)=RT Delta > 1/2 Window (m)=manual int.

ALS

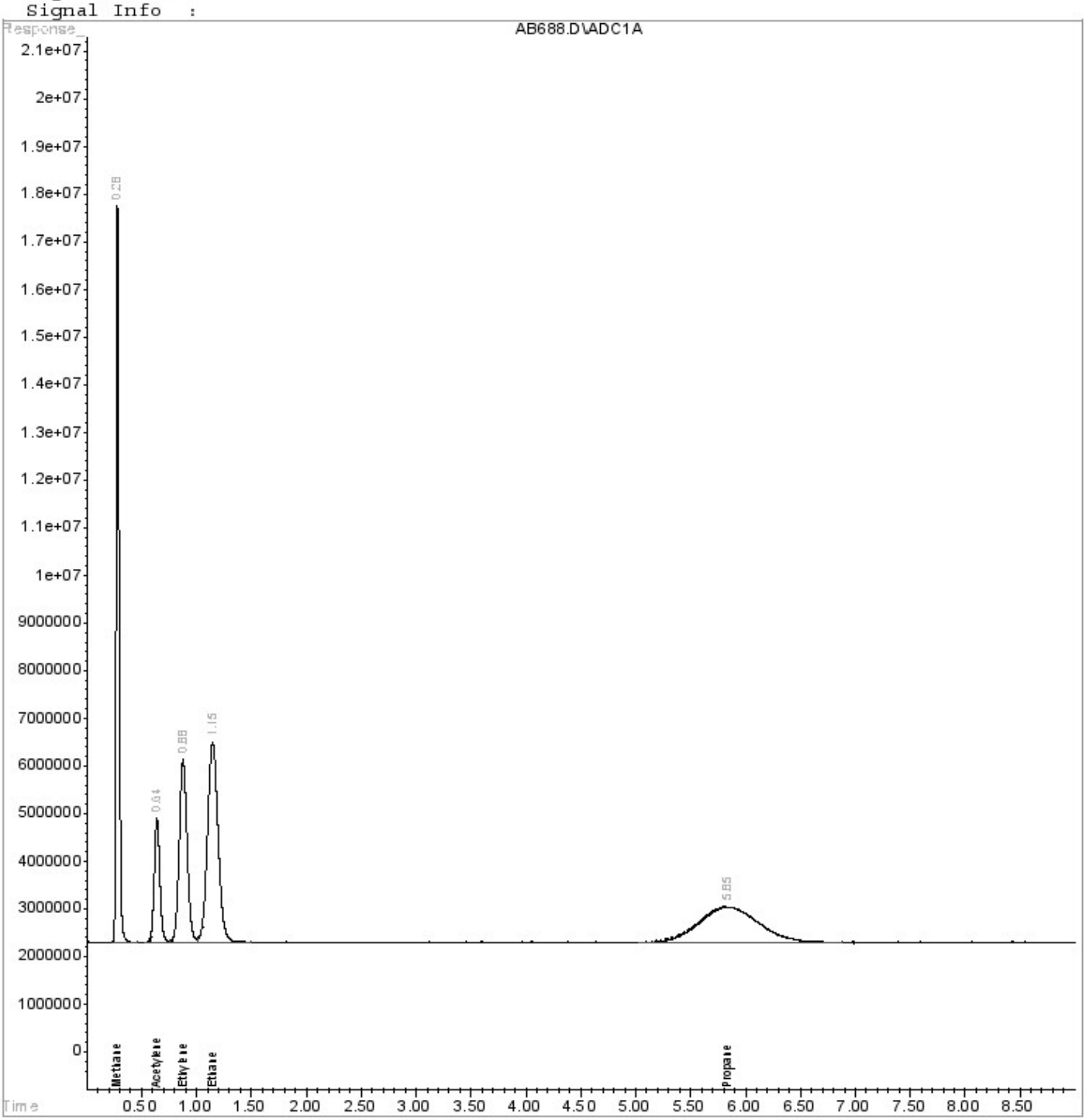
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:53 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
1	Methane	5.437	5.655	E6	-4.0	99	0.00
2	Acetylene	823.699	995.755	E3	~~-20.9~~ 6	101	0.00
3	Ethylene	4.067	4.249	E6	-4.5	97	0.00
4	Ethane	5.589	5.750	E6	-2.9	99	0.00
6	Propane	5.787	5.775	E6	0.2	99	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB698.D RSK0626.M Fri Jun 29 13:30:02 2018 Page 1
Page 53 of 69

1st BA 6/29/18
2nd MW 6/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB698.D RSK0626.M Fri Jun 29 13:30:02 2018 Page 2

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:29 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	296872545	54.601	ug/L
2)	Acetylene	0.64	99774672	106.182	ug/L
3)	Ethylene	0.88	206490468	50.769	ug/L
4)	Ethane	1.15	299594096	53.609	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	5.85	293970732	50.801	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

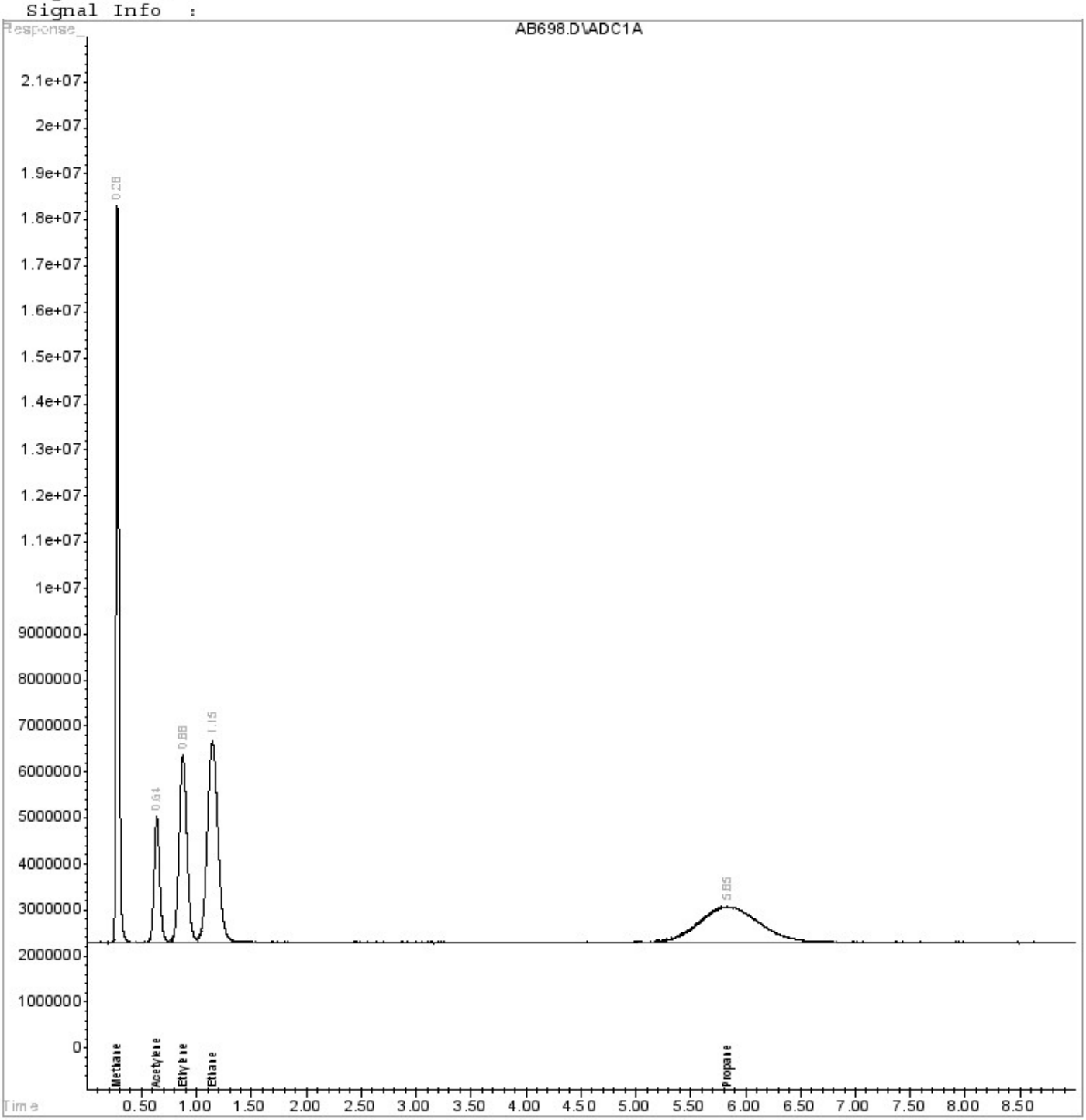
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:29 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



AB698.D RSK0626.M Fri Jun 29 13:29:57 2018 Page 2

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	Methane	52.500	50.931	3.0	93	0.00
2	Acetylene	100.200	103.260	~~-3.1~~ 3	98	0.00
3	Ethylene	48.600	47.799	1.6	92	0.00
4	Ethane	52.100	50.490	3.1	93	0.00
6	Propane	50.900	47.559	6.6	93	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB704.D RSK0626.M Fri Jun 29 14:27:07 2018 Page 1

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
5	Propene	48.100	0.000	100.0#	0	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB704.D RSK0626.M Fri Jun 29 14:27:07 2018 Page 2

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:26 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	276916125	50.931	ug/L
2)	Acetylene	0.64	96467671	103.260	ug/L
3)	Ethylene	0.88	194411982	47.799	ug/L
4)	Ethane	1.14	282165685	50.490	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	5.85	275213378	47.559	ug/L

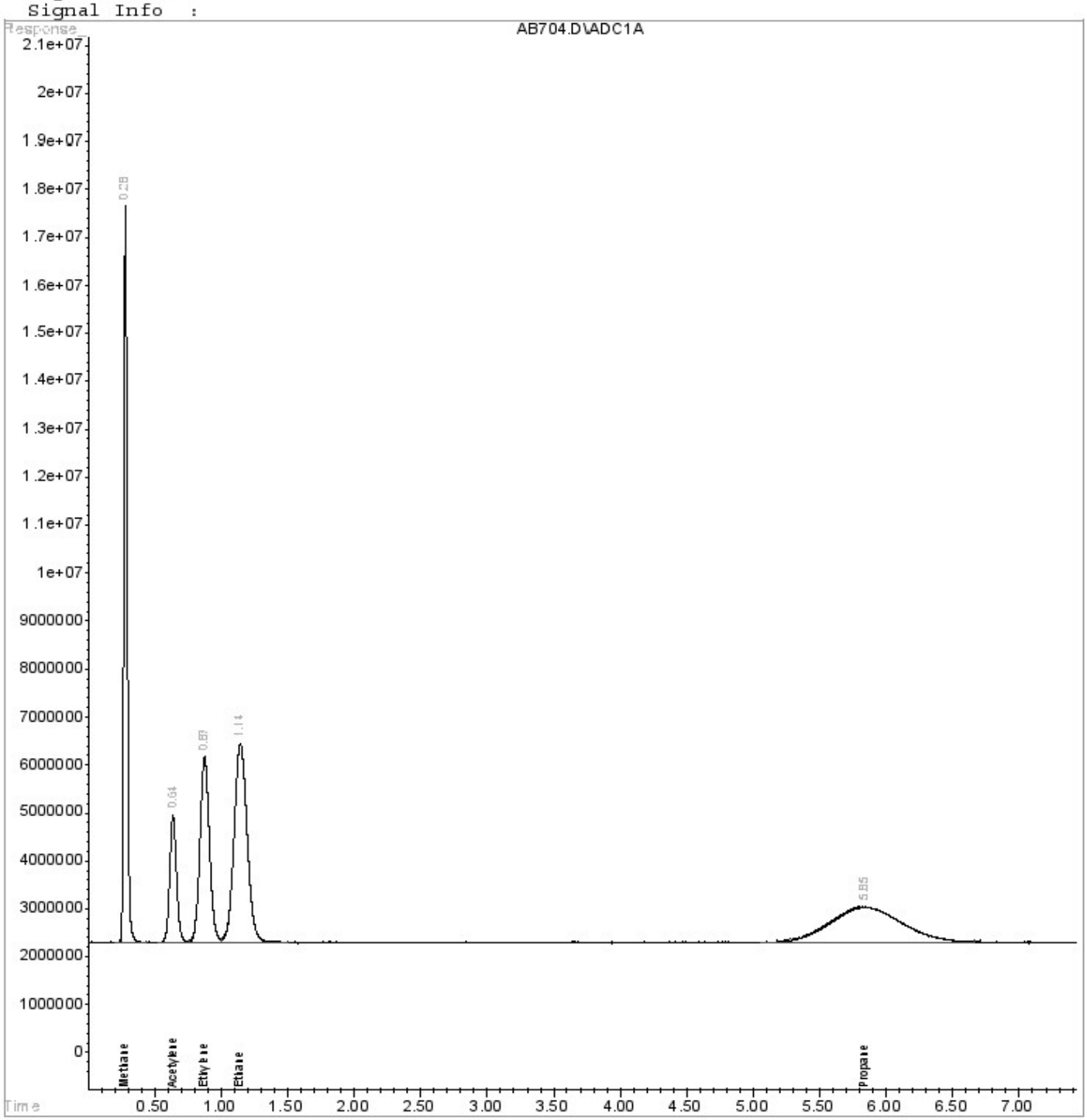
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:26 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



Client: ALS Environmental - US
Project: UR115: 2321639

Service Request: R1805890
Calibration Date: 6/26/2018

Initial Calibration Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800072
Instrument ID: R-GC-02

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
08	RC1800072-08	1PPB		06/26/2018 11:23
07	RC1800072-07	2PPB		06/26/2018 11:33
06	RC1800072-06	10PPB		06/26/2018 11:46
05	RC1800072-05	20PPB		06/26/2018 11:56
04	RC1800072-04	50PPB		06/26/2018 12:06
03	RC1800072-03	75PPB		06/26/2018 12:48
02	RC1800072-02	100PPB		06/26/2018 12:58

Analyte

Acetylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	2.000	5.438E5	07	4.010	5.433E5	06	20.030	6.889E5	05	40.100	9.101E5
04	100.200	9.87E5	03	150.300	1.017E6	02	200.300	1.076E6			

Ethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	1.040	5.598E6	07	2.080	5.05E6	06	10.410	5.132E6	05	20.800	6.227E6
04	52.100	5.823E6	03	78.100	5.711E6	02	104.100	5.58E6			

Ethene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.970	3.745E6	07	1.940	3.421E6	06	9.710	3.705E6	05	19.400	4.595E6
04	48.600	4.366E6	03	72.900	4.348E6	02	97.100	4.291E6			

Methane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	1.050	5.401E6	07	2.100	4.941E6	06	10.490	5.024E6	05	21.000	6.123E6
04	52.500	5.699E6	03	78.700	5.521E6	02	104.900	5.352E6			

Client: ALS Environmental - US
Project: UR115: 2321639

Service Request: R1805890
Calibration Date: 6/26/2018

Initial Calibration Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800072
Instrument ID: R-GC-02

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Acetylene	TRG	Quadratic	COD	0.9969	≥	8.237E5	
Ethane	TRG	Average RF	% RSD	7.2	≤20	5.589E6	
Ethene	TRG	Average RF	% RSD	10.8	≤20	4.067E6	
Methane	TRG	Average RF	% RSD	7.4	≤20	5.437E6	

Client: ALS Environmental - US **Service Request:** R1805890
Project: UR115: 2321639 **Calibration Date:** 6/26/2018

Initial Calibration Verification Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800072 **Signal ID:** 1
Instrument ID: R-GC-02

#	Lab Code	Sample Name	File Location	Acquisition Date
01	RC1800072-01	ICV		06/26/2018 13:28

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
Acetylene	100	109	8.237E5	1.029E6	109	85-115	Quadratic
Ethane	52.1	52.4	5.589E6	5.617E6	101	85-115	Average RF
Ethene	48.6	51.6	4.067E6	4.315E6	106	85-115	Average RF
Methane	52.5	51.9	5.437E6	5.378E6	98.9	85-115	Average RF

Client: ALS Environmental - US
Project: UR115: 2321639

Service Request: R1805890
Date Analyzed: 06/29/18 09:07

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method: RSK 175
File ID: I:\ACQUDATA\V2\DATA\062918\AB677.D\
Signal ID: 1

Calibration Date: 6/26/2018
Calibration ID: RC1800072
Analysis Lot: 596833
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	90.9	8.237E5	8.269E5	90.8	-9.2	85-115	Quadratic
Ethane	52.1	51.7	5.589E6	5.545E6	99.2	NA	85-115	Average RF
Ethene	48.6	47.3	4.067E6	3.965E6	97.5	NA	85-115	Average RF
Methane	52.5	52.6	5.437E6	5.451E6	100	NA	85-115	Average RF

Client: ALS Environmental - US
Project: UR115: 2321639

Service Request: R1805890
Date Analyzed: 06/29/18 11:43

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method: RSK 175
File ID: I:\ACQUDATA\V2\DATA\062918\AB688.D\
Signal ID: 1

Calibration Date: 6/26/2018
Calibration ID: RC1800072
Analysis Lot: 596833
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	102	8.237E5	9.458E5	102	1.6	85-115	Quadratic
Ethane	52.1	51.3	5.589E6	5.501E6	98.4	NA	85-115	Average RF
Ethene	48.6	47.8	4.067E6	4.002E6	98.4	NA	85-115	Average RF
Methane	52.5	52.0	5.437E6	5.387E6	99.1	NA	85-115	Average RF

Client: ALS Environmental - US
Project: UR115: 2321639

Service Request: R1805890
Date Analyzed: 06/29/18 13:15

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method: RSK 175
File ID: I:\ACQUDATA\V2\DATA\062918\AB698.D\
Signal ID: 1

Calibration Date: 6/26/2018
Calibration ID: RC1800072
Analysis Lot: 596833
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	106	8.237E5	9.961E5	106	6.0	85-115	Quadratic
Ethane	52.1	53.6	5.589E6	5.754E6	103	NA	85-115	Average RF
Ethene	48.6	50.8	4.067E6	4.251E6	105	NA	85-115	Average RF
Methane	52.5	54.6	5.437E6	5.659E6	104	NA	85-115	Average RF

Client: ALS Environmental - US
Project: UR115: 2321639

Service Request: R1805890
Date Analyzed: 06/29/18 14:19

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method: RSK 175
File ID: I:\ACQUDATA\V2\DATA\062918\AB704.D\
Signal ID: 1

Calibration Date: 6/26/2018
Calibration ID: RC1800072
Analysis Lot: 596833
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	103	8.237E5	9.63E5	103	3.1	85-115	Quadratic
Ethane	52.1	50.5	5.589E6	5.419E6	97.0	NA	85-115	Average RF
Ethene	48.6	47.8	4.067E6	4.003E6	98.4	NA	85-115	Average RF
Methane	52.5	50.9	5.437E6	5.278E6	97.1	NA	85-115	Average RF

Client: ALS Environmental - US **Service Request:** R1805890
Project: UR115: 2321639

Analysis Run Log
Dissolved Gases by GC/FID

Analysis Method: RSK 175 **Analysis Lot:** 596833
Instrument ID: R-GC-02

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
I:\ACQUDATA\W2\DATA\062918\AB677.D\	Continuing Calibration Verification	RQ1806590-04	6/29/2018	09:07:00	
I:\ACQUDATA\W2\DATA\062918\AB679.D\	Method Blank	RQ1806590-01	6/29/2018	09:32:00	
I:\ACQUDATA\W2\DATA\062918\AB680.D\	Lab Control Sample	RQ1806590-02	6/29/2018	09:49:00	
I:\ACQUDATA\W2\DATA\062918\AB681.D\	Duplicate Lab Control Sample	RQ1806590-03	6/29/2018	10:08:00	
I:\ACQUDATA\W2\DATA\062918\AB682.D\	2321639 005	R1805890-001	6/29/2018	10:40:00	
I:\ACQUDATA\W2\DATA\062918\AB683.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	10:51:00	
I:\ACQUDATA\W2\DATA\062918\AB684.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	11:03:00	
I:\ACQUDATA\W2\DATA\062918\AB685.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	11:14:00	
I:\ACQUDATA\W2\DATA\062918\AB686.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	11:24:00	
I:\ACQUDATA\W2\DATA\062918\AB688.D\	Continuing Calibration Verification	RQ1806590-05	6/29/2018	11:43:00	
I:\ACQUDATA\W2\DATA\062918\AB689.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	11:54:00	
I:\ACQUDATA\W2\DATA\062918\AB690.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:03:00	
I:\ACQUDATA\W2\DATA\062918\AB691.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:12:00	
I:\ACQUDATA\W2\DATA\062918\AB692.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:22:00	
I:\ACQUDATA\W2\DATA\062918\AB693.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:30:00	
I:\ACQUDATA\W2\DATA\062918\AB694.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:39:00	
I:\ACQUDATA\W2\DATA\062918\AB695.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:50:00	
I:\ACQUDATA\W2\DATA\062918\AB696.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:58:00	
I:\ACQUDATA\W2\DATA\062918\AB697.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:07:00	
I:\ACQUDATA\W2\DATA\062918\AB698.D\	Continuing Calibration Verification	RQ1806590-06	6/29/2018	13:15:00	
I:\ACQUDATA\W2\DATA\062918\AB699.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:31:00	
I:\ACQUDATA\W2\DATA\062918\AB700.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:41:00	
I:\ACQUDATA\W2\DATA\062918\AB701.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:50:00	
I:\ACQUDATA\W2\DATA\062918\AB702.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:59:00	
I:\ACQUDATA\W2\DATA\062918\AB703.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	14:07:00	
I:\ACQUDATA\W2\DATA\062918\AB704.D\	Continuing Calibration Verification	RQ1806590-07	6/29/2018	14:19:00	

Friday, July 06, 2018 7:05:36 PM
Page 98 of 98

Analysis: RSK.175 Analyst: BA
Date: 6/29/12 Data Path: J:\Acqudata\V2\Data\062912\
Instr. V2 Run Method: RSK / RSK0626
LIMS Run# :

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
	BLK								AB675	—	
	BLK								76	—	
	CCV								77	Y	
	MET BLK								78	N	
	MET BLK								79	Y	
	LCS								80	Y	
	DCS								81	Y	
	R1805290-001										
	R1805941-001				19182	IV	1	<2	82	Y	
	-002				19182	IV	1		83	Y	
	-003								84	Y	
	-004								85	Y	
	R1805985-001								86	Y	
	CCV				19182	IV	1		87	Y	
	R1805985-001								88	YC	
	-002				19182	IV	1	<2	89	Y	
	-003								90	Y	RPT 1/2
	-002	2.0	250ul						91	Y	
	-004								92	Y	
	-005								93	Y	RPT 1/50
	-006	2.0	250ul						94	Y	RPT 1/2
	R1805986-001								95	Y	
	-001	20.	25ul		19182	IV	1		96	Y	RPT 1/20
	CCV								97	Y	
	R1805986-002								98	YC	
	-002	20	25ul		19182	IV	1	<2	99	Y	RPT 1/20
	-003								700	Y	
	-003	5.0	100ul						01	Y	RPT 1/5
	-004	100	1mL/50ml → 250ul						02	Y	
	CCV								03	Y	
									04	YC	

All samples = _____mL + _____uL Surrogate _____mL purged

Primary : 190132 200ul/42.5ml (CCV)
Primary :
Primary :
Primary :

Secondary : 190133 100ul/42.5ml(LCS) Surrogate :
Secondary :
Secondary :
Secondary :

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

July 6, 2018

Ms. Kelly Lurie
AECOM - Mechanicsburg
100 Sterling Parkway
Suite 205
Mechanicsburg, PA 17055

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2321910**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN035|2015-SCOTIA NAVY DEPOT-**

Dear Ms. Lurie:

Enclosed are the analytical results for samples received by the laboratory on Thursday, June 21, 2018.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vanessa N Badman (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

CC: Mr. Greg Malzone , Mr. John Santacroce , Mr. Scott Underhill

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

July 6, 2018

Ms. Kelly Lurie
AECOM - Mechanicsburg
100 Sterling Parkway
Suite 205
Mechanicsburg, PA 17055

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2321910**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN035|2015-SCOTIA NAVY DEPOT-**

Dear Ms. Lurie:

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Greg Malzone , Mr. John Santacroce , Mr. Scott Underhill

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2321910001	Dup02-062018	Ground Water	6/20/2018 00:00	6/21/2018 10:04	Collected by Client
2321910002	MW-17 062018	Ground Water	6/20/2018 08:46	6/21/2018 10:04	Collected by Client
2321910003	MW-14 062018	Ground Water	6/20/2018 09:20	6/21/2018 10:04	Collected by Client
2321910004	MW-35 062018	Ground Water	6/20/2018 09:48	6/21/2018 10:04	Collected by Client
2321910005	MW-34 062018	Ground Water	6/20/2018 10:40	6/21/2018 10:04	Collected by Client
2321910006	GEP-2 062018	Ground Water	6/20/2018 10:35	6/21/2018 10:04	Collected by Client
2321910007	GEP-3 062018	Ground Water	6/20/2018 11:57	6/21/2018 10:04	Collected by Client
2321910008	MW-26 062018	Ground Water	6/20/2018 11:55	6/21/2018 10:04	Collected by Client
2321910009	EB-062018	Ground Water	6/20/2018 11:00	6/21/2018 10:04	Collected by Client
2321910010	MW-13 062018	Ground Water	6/20/2018 13:30	6/21/2018 10:04	Collected by Client
2321910011	MW-15 062018	Ground Water	6/20/2018 13:35	6/21/2018 10:04	Collected by Client
2321910012	Trip Blank	Ground Water	6/20/2018 10:04	6/21/2018 10:04	Collected by Client

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

PROJECT SUMMARY

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Workorder Comments

Please see attached subcontracting from ALS Rochester. VNB 7/6/18

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910001** Date Collected: 6/20/2018 00:00 Matrix: Ground Water

Sample ID: **Dup02-062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.51J	J,2	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
1,1-Dichloroethane	0.89J	J	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
cis-1,2-Dichloroethene	1.8		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
1,1,1-Trichloroethane	20.8		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
Trichloroethene	21.2		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118	SW846 8260C			7/2/18 11:13	DD	A
4-Bromofluorobenzene (S)	99.5		%	85 - 114	SW846 8260C			7/2/18 11:13	DD	A
Dibromofluoromethane (S)	90.6		%	80 - 119	SW846 8260C			7/2/18 11:13	DD	A
Toluene-d8 (S)	92.6		%	89 - 112	SW846 8260C			7/2/18 11:13	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910002** Date Collected: 6/20/2018 08:46 Matrix: Ground Water

Sample ID: **MW-17 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.45J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,1-Dichloroethane	0.84J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
cis-1,2-Dichloroethene	1.8		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,1,1-Trichloroethane	19.8		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
Trichloroethene	20.5		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118	SW846 8260C			6/29/18 15:48	DD	A
4-Bromofluorobenzene (S)	97.9		%	85 - 114	SW846 8260C			6/29/18 15:48	DD	A
Dibromofluoromethane (S)	89.9		%	80 - 119	SW846 8260C			6/29/18 15:48	DD	A
Toluene-d8 (S)	94.4		%	89 - 112	SW846 8260C			6/29/18 15:48	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910003** Date Collected: 6/20/2018 09:20 Matrix: Ground Water

Sample ID: **MW-14 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.49J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A
cis-1,2-Dichloroethene	1.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A
Tetrachloroethene	13.8		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A
1,1,1-Trichloroethane	2.5		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A
Trichloroethene	3.7		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 16:10	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118	SW846 8260C			6/29/18 16:10	DD	A
4-Bromofluorobenzene (S)	99.8		%	85 - 114	SW846 8260C			6/29/18 16:10	DD	A
Dibromofluoromethane (S)	90		%	80 - 119	SW846 8260C			6/29/18 16:10	DD	A
Toluene-d8 (S)	95.2		%	89 - 112	SW846 8260C			6/29/18 16:10	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910004** Date Collected: 6/20/2018 09:48 Matrix: Ground Water

Sample ID: **MW-35 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
Trichloroethene	39.4		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:35	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118			SW846 8260C			7/2/18 11:35	DD	A
4-Bromofluorobenzene (S)	101		%	85 - 114			SW846 8260C			7/2/18 11:35	DD	A
Dibromofluoromethane (S)	90.6		%	80 - 119			SW846 8260C			7/2/18 11:35	DD	A
Toluene-d8 (S)	94.3		%	89 - 112			SW846 8260C			7/2/18 11:35	DD	A
WET CHEMISTRY												
Alkalinity, Total	197	1	mg/L	5	5	0.8	S2320B-97			6/22/18 18:23	MSA	F
Chloride	15.7		mg/L	2.0	0.50	0.16	EPA 300.0			6/22/18 04:46	CHW	E
Nitrate-N	0.64		mg/L	0.20	0.060	0.020	EPA 300.0			6/22/18 04:46	CHW	E
Sulfate	10.7		mg/L	2.0	0.50	0.20	EPA 300.0			6/22/18 04:46	CHW	E
Total Organic Carbon (TOC)	0.60J	J	mg/L	1.0	0.50	0.18	S5310B-00			6/29/18 21:11	AK	C
SUBCONTRACTED ANALYSIS												
Subcontracted Analysis	See attached.						Subcontract			6/20/18 09:48	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910005** Date Collected: 6/20/2018 10:40 Matrix: Ground Water
Sample ID: **MW-34 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
Trichloroethene	31.3		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118			SW846 8260C		7/2/18 11:57	DD	A
4-Bromofluorobenzene (S)	101		%	85 - 114			SW846 8260C		7/2/18 11:57	DD	A
Dibromofluoromethane (S)	93.1		%	80 - 119			SW846 8260C		7/2/18 11:57	DD	A
Toluene-d8 (S)	93.6		%	89 - 112			SW846 8260C		7/2/18 11:57	DD	A
WET CHEMISTRY											
Alkalinity, Total	226	1	mg/L	5	5	0.8	S2320B-97		6/22/18 18:33	MSA	F
Chloride	16.3		mg/L	2.0	0.50	0.16	EPA 300.0		6/22/18 05:05	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/22/18 05:05	CHW	E
Sulfate	11.2		mg/L	2.0	0.50	0.20	EPA 300.0		6/22/18 05:05	CHW	E
Total Organic Carbon (TOC)	0.93J	J	mg/L	1.0	0.50	0.18	S5310B-00		6/29/18 21:11	AK	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/20/18 10:40	SUB	H

Vanessa N. Badman
Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910006** Date Collected: 6/20/2018 10:35 Matrix: Ground Water

Sample ID: **GEP-2 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A
cis-1,2-Dichloroethene	1.1		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A
Tetrachloroethene	0.80J	J	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A
1,1,1-Trichloroethane	3.7		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A
Trichloroethene	51.3		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:43	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118	SW846 8260C			7/2/18 16:43	DD	A
4-Bromofluorobenzene (S)	96.7		%	85 - 114	SW846 8260C			7/2/18 16:43	DD	A
Dibromofluoromethane (S)	94.8		%	80 - 119	SW846 8260C			7/2/18 16:43	DD	A
Toluene-d8 (S)	91.8		%	89 - 112	SW846 8260C			7/2/18 16:43	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910007** Date Collected: 6/20/2018 11:57 Matrix: Ground Water

Sample ID: **GEP-3 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A
Tetrachloroethene	0.36J	J	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A
1,1,1-Trichloroethane	0.58J	J	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A
Trichloroethene	74.9		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 16:21	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	109		%	81 - 118	SW846 8260C			7/2/18 16:21	DD	A
4-Bromofluorobenzene (S)	100		%	85 - 114	SW846 8260C			7/2/18 16:21	DD	A
Dibromofluoromethane (S)	96.9		%	80 - 119	SW846 8260C			7/2/18 16:21	DD	A
Toluene-d8 (S)	94.3		%	89 - 112	SW846 8260C			7/2/18 16:21	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910008** Date Collected: 6/20/2018 11:55 Matrix: Ground Water

Sample ID: **MW-26 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118			SW846 8260C		7/2/18 12:19	DD	A
4-Bromofluorobenzene (S)	98.2		%	85 - 114			SW846 8260C		7/2/18 12:19	DD	A
Dibromofluoromethane (S)	93.2		%	80 - 119			SW846 8260C		7/2/18 12:19	DD	A
Toluene-d8 (S)	93.5		%	89 - 112			SW846 8260C		7/2/18 12:19	DD	A
WET CHEMISTRY											
Alkalinity, Total	225	1	mg/L	5	5	0.8	S2320B-97		6/22/18 18:43	MSA	F
Chloride	49.1		mg/L	2.0	0.50	0.16	EPA 300.0		6/22/18 05:23	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/22/18 05:23	CHW	E
Sulfate	16.3		mg/L	2.0	0.50	0.20	EPA 300.0		6/22/18 05:23	CHW	E
Total Organic Carbon (TOC)	0.50J	J	mg/L	1.0	0.50	0.18	S5310B-00		6/29/18 21:11	AK	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/20/18 11:55	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910009** Date Collected: 6/20/2018 11:00 Matrix: Ground Water
Sample ID: **EB-062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:51	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100		%	81 - 118	SW846 8260C			7/2/18 10:51	DD	A
4-Bromofluorobenzene (S)	97.6		%	85 - 114	SW846 8260C			7/2/18 10:51	DD	A
Dibromofluoromethane (S)	89.2		%	80 - 119	SW846 8260C			7/2/18 10:51	DD	A
Toluene-d8 (S)	92.7		%	89 - 112	SW846 8260C			7/2/18 10:51	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910010** Date Collected: 6/20/2018 13:30 Matrix: Ground Water

Sample ID: **MW-13 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A
1,1,1-Trichloroethane	4.0		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A
Trichloroethene	117		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 12:41	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C			7/2/18 12:41	DD	A
4-Bromofluorobenzene (S)	101		%	85 - 114	SW846 8260C			7/2/18 12:41	DD	A
Dibromofluoromethane (S)	94.1		%	80 - 119	SW846 8260C			7/2/18 12:41	DD	A
Toluene-d8 (S)	95.6		%	89 - 112	SW846 8260C			7/2/18 12:41	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910011** Date Collected: 6/20/2018 13:35 Matrix: Ground Water

Sample ID: **MW-15 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
Tetrachloroethene	0.62J	J	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
1,1,1-Trichloroethane	2.9		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
Trichloroethene	72.1		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 13:03	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118			SW846 8260C			7/2/18 13:03	DD	A
4-Bromofluorobenzene (S)	102		%	85 - 114			SW846 8260C			7/2/18 13:03	DD	A
Dibromofluoromethane (S)	95.6		%	80 - 119			SW846 8260C			7/2/18 13:03	DD	A
Toluene-d8 (S)	95.1		%	89 - 112			SW846 8260C			7/2/18 13:03	DD	A
WET CHEMISTRY												
Alkalinity, Total	209	1	mg/L	5	5	0.8	S2320B-97			6/22/18 18:53	MSA	F
Chloride	46.4		mg/L	2.0	0.50	0.16	EPA 300.0			6/22/18 05:42	CHW	E
Nitrate-N	0.48		mg/L	0.20	0.060	0.020	EPA 300.0			6/22/18 05:42	CHW	E
Sulfate	15.2		mg/L	2.0	0.50	0.20	EPA 300.0			6/22/18 05:42	CHW	E
Total Organic Carbon (TOC)	0.41J	J	mg/L	1.0	0.50	0.18	S5310B-00			6/29/18 21:11	AK	C
SUBCONTRACTED ANALYSIS												
Subcontracted Analysis	See attached.						Subcontract			6/20/18 13:35	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910012** Date Collected: 6/20/2018 10:04 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 10:29	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99.1		%	81 - 118	SW846 8260C			7/2/18 10:29	DD	A
4-Bromofluorobenzene (S)	98.7		%	85 - 114	SW846 8260C			7/2/18 10:29	DD	A
Dibromofluoromethane (S)	88.5		%	80 - 119	SW846 8260C			7/2/18 10:29	DD	A
Toluene-d8 (S)	93.5		%	89 - 112	SW846 8260C			7/2/18 10:29	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2321910001	2	Dup02-062018	SW846 8260C	Carbon Tetrachloride
Methods for the analysis of volatile organics require that the sample be preserved to a pH less than 2 using HCl. This sample had a pH greater than 2 when received by the lab.				
2321910004	1	MW-35 062018	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2321910005	1	MW-34 062018	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2321910008	1	MW-26 062018	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2321910011	1	MW-15 062018	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Analysis Method	Prep Method
2321910001	Dup02-062018	SW846 8260C	
2321910002	MW-17 062018	SW846 8260C	
2321910003	MW-14 062018	SW846 8260C	
2321910004	MW-35 062018	EPA 300.0	
2321910004	MW-35 062018	S2320B-97	
2321910004	MW-35 062018	S5310B-00	
2321910004	MW-35 062018	SW846 8260C	
2321910004	MW-35 062018	Subcontract	
2321910005	MW-34 062018	EPA 300.0	
2321910005	MW-34 062018	S2320B-97	
2321910005	MW-34 062018	S5310B-00	
2321910005	MW-34 062018	SW846 8260C	
2321910005	MW-34 062018	Subcontract	
2321910006	GEP-2 062018	SW846 8260C	
2321910007	GEP-3 062018	SW846 8260C	
2321910008	MW-26 062018	EPA 300.0	
2321910008	MW-26 062018	S2320B-97	
2321910008	MW-26 062018	S5310B-00	
2321910008	MW-26 062018	SW846 8260C	
2321910008	MW-26 062018	Subcontract	
2321910009	EB-062018	SW846 8260C	
2321910010	MW-13 062018	SW846 8260C	
2321910011	MW-15 062018	EPA 300.0	
2321910011	MW-15 062018	S2320B-97	
2321910011	MW-15 062018	S5310B-00	
2321910011	MW-15 062018	SW846 8260C	
2321910011	MW-15 062018	Subcontract	
2321910012	Trip Blank	SW846 8260C	

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/47271 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 2321910001, 2321910002, 2321910003

METHOD BLANK: 2767165

Parameter	Blank Result	Units	Reporting Limit
Carbon Tetrachloride	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
Trichloroethene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	95.8	%	81 - 118
4-Bromofluorobenzene (S)	101	%	85 - 114
Dibromofluoromethane (S)	84.5	%	80 - 119
Toluene-d8 (S)	95.4	%	89 - 112

LABORATORY CONTROL SAMPLE: 2767166

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	104	ug/L	20	20.8	72 - 136
1,1-Dichloroethane	99.8	ug/L	20	20.0	77 - 125
1,2-Dichloroethane	94.1	ug/L	20	18.8	73 - 128
1,1-Dichloroethene	110	ug/L	20	22.0	71 - 131
cis-1,2-Dichloroethene	98.8	ug/L	20	19.8	78 - 123
trans-1,2-Dichloroethene	106	ug/L	20	21.2	75 - 124
1,1,1,2-Tetrachloroethane	97	ug/L	20	19.4	78 - 124
1,1,2,2-Tetrachloroethane	97.1	ug/L	20	19.4	71 - 121
Tetrachloroethene	98	ug/L	20	19.6	74 - 129
Toluene	105	ug/L	20	20.9	80 - 121
1,1,1-Trichloroethane	105	ug/L	20	21.0	74 - 131
1,1,2-Trichloroethane	92.4	ug/L	20	18.5	80 - 119
Trichloroethene	99.4	ug/L	20	19.9	79 - 123

QUALITY CONTROL DATA

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	102	ug/L	20	20.3	58 - 137
1,2-Dichloroethane-d4 (S)	95.3	%			81 - 118
4-Bromofluorobenzene (S)	101	%			85 - 114
Dibromofluoromethane (S)	87.5	%			80 - 119
Toluene-d8 (S)	96	%			89 - 112

MATRIX SPIKE: 2767167 DUPLICATE: 2767168 ORIGINAL: 2321639003

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Carbon Tetrachloride	0	ug/L	20	23.3747	23.5732	117	118	72 - 136	.85	30
1,1-Dichloroethane	0	ug/L	20	22.1284	22.3246	111	112	77 - 125	.88	30
1,2-Dichloroethane	0	ug/L	20	20.4364	20.4813	102	102	73 - 128	.22	30
1,1-Dichloroethene	0	ug/L	20	24.8799	25.4502	124	127	71 - 131	2.27	30
cis-1,2-Dichloroethene	0	ug/L	20	21.6589	21.9754	108	110	78 - 123	1.45	30
trans-1,2-Dichloroethene	0	ug/L	20	23.7405	23.8732	119	119	75 - 124	.56	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	19.9113	20.382	99.6	102	78 - 124	2.34	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	21.031	20.6274	105	103	71 - 121	1.94	30
Tetrachloroethene	0	ug/L	20	20.2708	20.8607	101	104	74 - 129	2.87	30
Toluene	0	ug/L	20	22.0232	22.3622	110	112	80 - 121	1.53	30
1,1,1-Trichloroethane	0	ug/L	20	23.1797	23.7015	116	119	74 - 131	2.23	30
1,1,2-Trichloroethane	0	ug/L	20	18.4862	19.1065	92.4	95.5	80 - 119	3.3	30
Trichloroethene	0	ug/L	20	21.9729	22.1537	110	111	79 - 123	.82	30
Vinyl Chloride	0	ug/L	20	22.2092	17.2809	111	86.4	58 - 137	25	30
1,2-Dichloroethane-d4 (S)	101	%				101	99.6	81 - 118		
4-Bromofluorobenzene (S)	100	%				100	98.1	85 - 114		
Dibromofluoromethane (S)	90.2	%				90.2	88.6	80 - 119		
Toluene-d8 (S)	91.8	%				91.8	92.2	89 - 112		

QUALITY CONTROL DATA

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/47277 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 2321910001, 2321910004, 2321910005, 2321910006, 2321910007, 2321910008, 2321910009, 2321910010, 2321910011, 2321910012

METHOD BLANK: 2767939

Parameter	Blank Result	Units	Reporting Limit
Carbon Tetrachloride	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
Trichloroethene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	101	%	81 - 118
4-Bromofluorobenzene (S)	100	%	85 - 114
Dibromofluoromethane (S)	88.9	%	80 - 119
Toluene-d8 (S)	95.3	%	89 - 112

LABORATORY CONTROL SAMPLE: 2767940

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	106	ug/L	20	21.2	72 - 136
1,1-Dichloroethane	101	ug/L	20	20.1	77 - 125
1,2-Dichloroethane	97	ug/L	20	19.4	73 - 128
1,1-Dichloroethene	112	ug/L	20	22.4	71 - 131
cis-1,2-Dichloroethene	101	ug/L	20	20.1	78 - 123
trans-1,2-Dichloroethene	106	ug/L	20	21.3	75 - 124
1,1,1,2-Tetrachloroethane	95.2	ug/L	20	19.0	78 - 124
1,1,2,2-Tetrachloroethane	101	ug/L	20	20.3	71 - 121
Tetrachloroethene	93.5	ug/L	20	18.7	74 - 129
Toluene	101	ug/L	20	20.2	80 - 121
1,1,1-Trichloroethane	107	ug/L	20	21.4	74 - 131
1,1,2-Trichloroethane	91.3	ug/L	20	18.3	80 - 119
Trichloroethene	96.9	ug/L	20	19.4	79 - 123

QUALITY CONTROL DATA

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	92.4	ug/L	20	18.5	58 - 137
1,2-Dichloroethane-d4 (S)	96.1	%			81 - 118
4-Bromofluorobenzene (S)	97.4	%			85 - 114
Dibromofluoromethane (S)	88	%			80 - 119
Toluene-d8 (S)	91.5	%			89 - 112

MATRIX SPIKE: 2768055 DUPLICATE: 2768056 ORIGINAL: 2321910004

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Carbon Tetrachloride	0	ug/L	20	23.8508	23.3202	119	117	72 - 136	2.25	30
1,1-Dichloroethane	0	ug/L	20	22.396	22.0307	112	110	77 - 125	1.64	30
1,2-Dichloroethane	0	ug/L	20	20.6998	20.5011	103	103	73 - 128	.96	30
1,1-Dichloroethene	0	ug/L	20	24.9155	23.8447	125	119	71 - 131	4.39	30
cis-1,2-Dichloroethene	0	ug/L	20	22.1286	21.7442	111	109	78 - 123	1.75	30
trans-1,2-Dichloroethene	0	ug/L	20	23.8713	23.1442	119	116	75 - 124	3.09	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	20.4131	19.5621	102	97.8	78 - 124	4.26	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	21.1447	21.0863	106	105	71 - 121	.28	30
Tetrachloroethene	0	ug/L	20	19.975	19.4134	99.9	97.1	74 - 129	2.85	30
Toluene	0	ug/L	20	21.5245	20.9549	108	105	80 - 121	2.68	30
1,1,1-Trichloroethane	0	ug/L	20	23.7588	22.9321	119	115	74 - 131	3.54	30
1,1,2-Trichloroethane	0	ug/L	20	19.1886	19.2447	95.9	96.2	80 - 119	.29	30
Trichloroethene	39.4273	ug/L	20	59.9655	57.224	103	89	79 - 123	4.68	30
Vinyl Chloride	0	ug/L	20	22.7868	21.8131	114	109	58 - 137	4.37	30
1,2-Dichloroethane-d4 (S)	95.6	%				95.6	95.6	81 - 118		
4-Bromofluorobenzene (S)	95.3	%				95.3	96	85 - 114		
Dibromofluoromethane (S)	90.8	%				90.8	91.8	80 - 119		
Toluene-d8 (S)	89	%				89	89	89 - 112		

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/206359 **Analysis Method:** S2320B-97

QC Batch Method: S2320B-97

Associated Lab Samples: 2321910004, 2321910005, 2321910008, 2321910011

METHOD BLANK: 2762486

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	1J	mg/L	5

SAMPLE DUPLICATE: 2762488 ORIGINAL: 2321652001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	254.20335	mg/L	260.85168	2.58	20

METHOD BLANK: 2762491

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762492 ORIGINAL: 2321656001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	255.70946	mg/L	242.48804	5.31	20

METHOD BLANK: 2762495

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762496 ORIGINAL: 2321656004

Parameter	Original Result	Units	DUP Result	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Alkalinity, Total	405.03543	mg/L	403.4516	.39	20

METHOD BLANK: 2762499

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762500 ORIGINAL: 2321694002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	10.52636	mg/L	10.58955	.6	20

METHOD BLANK: 2762503

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762504 ORIGINAL: 2321781004

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	177.2571	mg/L	169.63808	4.39	20

METHOD BLANK: 2762507

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762508 ORIGINAL: 2321837001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	424.33551	mg/L	417.61646	1.6	20

QUALITY CONTROL DATA

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

METHOD BLANK: 2762511

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762512 ORIGINAL: 2321837002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	264.78992	mg/L	272.32355	2.81	20

METHOD BLANK: 2762515

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762516 ORIGINAL: 2321847001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	59.8885	mg/L	58.58852	2.19	20

METHOD BLANK: 2762519

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762520 ORIGINAL: 2321887001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	101.30898	mg/L	99.73462	1.57	20

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

METHOD BLANK: 2762523

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2762524 ORIGINAL: 2321940001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	134.74951	mg/L	137.12802	1.75	20

METHOD BLANK: 2763301

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

QUALITY CONTROL DATA

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/206368 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 2321910004, 2321910005, 2321910008, 2321910011

METHOD BLANK: 2762619

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.25U	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.13J	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2762621

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	97.6	mg/L	20	19.5	87 - 111
Nitrate-N	95.6	mg/L	2.5	2.4	88 - 111
Sulfate	98.6	mg/L	20	19.7	87 - 112

METHOD BLANK: 2762646

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.11J	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.13J	mg/L	1.0

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/206717 **Analysis Method:** S5310B-00

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 2321910004, 2321910005, 2321910008, 2321910011

METHOD BLANK: 2766770

Parameter	Blank Result	Units	Reporting Limit
Total Organic Carbon (TOC)	0.50U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2766771

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	102	mg/L	1	1.0	85 - 115

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2321910004	MW-35 062018			S2320B-97	WETC/206359
2321910005	MW-34 062018			S2320B-97	WETC/206359
2321910008	MW-26 062018			S2320B-97	WETC/206359
2321910011	MW-15 062018			S2320B-97	WETC/206359
2321910004	MW-35 062018			EPA 300.0	WETC/206368
2321910005	MW-34 062018			EPA 300.0	WETC/206368
2321910008	MW-26 062018			EPA 300.0	WETC/206368
2321910011	MW-15 062018			EPA 300.0	WETC/206368
2321910004	MW-35 062018			S5310B-00	WETC/206717
2321910005	MW-34 062018			S5310B-00	WETC/206717
2321910008	MW-26 062018			S5310B-00	WETC/206717
2321910011	MW-15 062018			S5310B-00	WETC/206717
2321910002	MW-17 062018			SW846 8260C	VOMS/47271
2321910003	MW-14 062018			SW846 8260C	VOMS/47271
2321910001	Dup02-062018			SW846 8260C	VOMS/47277
2321910004	MW-35 062018			SW846 8260C	VOMS/47277
2321910005	MW-34 062018			SW846 8260C	VOMS/47277
2321910006	GEP-2 062018			SW846 8260C	VOMS/47277
2321910007	GEP-3 062018			SW846 8260C	VOMS/47277
2321910008	MW-26 062018			SW846 8260C	VOMS/47277
2321910009	EB-062018			SW846 8260C	VOMS/47277
2321910010	MW-13 062018			SW846 8260C	VOMS/47277
2321910011	MW-15 062018			SW846 8260C	VOMS/47277
2321910012	Trip Blank			SW846 8260C	VOMS/47277

Friday, July 06, 2018 7:08:42 PM
Page 31 of 117
ALS

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page ___ of ___
Courier:
Tracking #: 785 1236 5900

23219108

Co. Name: AECOM
Contact (Report to): John Santacruce Phone: 518 951-2200
Address: 40 British American BLVD
Latham NY 12110

Bill to (if different than Report to): SAME PO#:

Project Name/#: Scotia Navy Dept 60440691 ALS Quote #:

TAT: [✓] Normal-Standard TAT is 10-12 business days. Date Required:
[ ] Rush-Subject to ALS approval and surcharges. Approved By:

Email? [✓] -Y John.Santacruce@aecom.com
Fax? [ ] -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	8260c VOCs	RSK 175	TOC	Alkalinity	Cl, NO3, SO4	Acetylene				
	***Container Type						G	G	G	P	P					
	***Container Size						40	40	40	250	250					
	*** Preservative						HCl	HCl	HCl	-	-					
1	Dup02-062018	* Duplicate	6/20/18	-	G	GW	2	*	*	*	*	✓				
2	MW-17 062018			846			2	*	*	*	*	✓				
3	MW-14 062018			926			2	*	*	*	*					
4	MW-35 062018			948			2	2	2	1	1	✓				
5	MW-34 062018			1020			2	2	2	1	1	✓				
6	GEP-2 062018			1035			2									
7	GEP-3 062018			1157			2									
8	MW-26 062018			1155			2	2	2	1	1	✓				

Enter Number of Containers Per Analysis

ANALYSES/METHOD REQUESTED

Receipt Information (completed by Sample Receiver)
Performed by: [signature] Date/Time
Cooler Temp: 0°
Therm. ID: 402
No. of Coolers:
Notes:

Circle appropriate Y or N.	Container in good condition?	COC/Labels complete/accurate?	Received on ice?	(if present) Seals intact?	Custody seals Present?
N	N	N	N	N	N
✓	✓	✓	✓	✓	✓
Y	Y	Y	Y	Y	Y
✓	✓	✓	✓	✓	✓

SAMPLED BY (Please Print): Ross McCurdy / Alex Golden

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 AECOM	6/20/18	2220	2 Brianna McGuire	6/20/18	2220
3 Brianna McGuire	6/21/18	1400	4 COMMON COURIER / ALS COURIER		
5 COMMON COURIER / ALS COURIER			6 [signature]	6/21/18	1004
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other
EDDs Required? [ ] If yes, format type: SEE QAPP
SDWA Forms? ⇨ yes [ ] yes [ ] yes [ ] yes [ ]
State Samples Collected In? MD [ ] NJ [ ] NY [ ] PA [ ]
Other: SEE QAPP
DOD Criteria Required?

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite
**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Of=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

Friday, July 06, 2018 7:08:42 PM
Page 32 of 117

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #: 2815 1934 5982

COC#

Co. Name:

Contact (Report to): Phone:

Address: See Pg 1

Bill to (if different than Report to): See Pg 1 PO#:

Project Name/#: ALS Quote #:

TAT: [✓] Normal-Standard TAT is 10-12 business days. Date Required:
[ ] Rush-Subject to ALS approval and surcharges. Approved By:

Email? [✓] Y Pg 1.
Fax? [ ] Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	***Container Type	***Container Size	*** Preservative	8260 VOCs	RSK 175	TOC	Alkalinity	Cl, NO3, SO4	*Acetylene	Enter Number of Containers Per Analysis
						G	40	HCl							
						G	40	HCl							
						G	40	HCl							
						P	250	-							
						P	250	-							
1 EB-062018	EQ Blank	6/20/18	1100	G	W				2						
2 MW-13 062018			1330						2						
3 MW-15 062018			1335						2	2	2	1	1	✓	
4 TRIP BLANK		-	-	-	-				2						
5															
6															
7															
8															

Receipt Information (completed by Sample Receipt)
Received by: [SIGNATURE HERE]
Cooler Temp: 0
Therm. ID: 402
No. of Coolers:
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	Y	Y	Y	Y	
	Y	Y	Y	Y	
	Y	Y	Y	Y	
	N	N	N	N	N
	N	N	N	N	N
	Custody seals Present?	(if present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Ross McCurdy / Alex Golden

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 COMMON COURIER/ALS COURIER	6/20/18	2200	2 Brian McGuirk	6/21/18	0820
3 Brian McGuirk	6/21/18	1400	4		
5			6 COMMON COURIER / ALS COURIER	6/21/18	1000
7			8		
9			10		

Data Deliverables: [✓] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [ ] PA [ ]

EDDs Required? [ ] If yes, format type:

Other Pg 1

DOD Criteria Required?

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite
** Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Oi=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
*** Container Type: AG-Amber Glass; CG-Clear Glass; PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

June 29, 2018 Service Request No:R1805941

Vanessa Badman
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

Laboratory Results for: UR115: 2321910

Dear Vanessa,

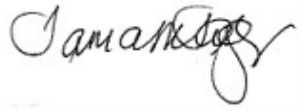
Enclosed are the results of the sample(s) submitted to our laboratory June 26, 2018
For your reference, these analyses have been assigned our service request number **R1805941.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental



Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

ALS Environmental
ALS Group USA, Corp
1565 Jefferson Road, Building 300, Suite 360
Rochester, NY 14623
T: +1 585 288 5380
F: +1 585 288 8475
www.alsglobal.com

Table of Contents

CoverLetter 1
Table of Contents 2
Narrative Documents 4
Case Narrative 5
Hit Summary List 6
Sample Receipt Information 7
Sample Cross-Reference 8
Chain Of Custody 9
Internal Chain of Custody 11
Miscellaneous Forms 12
Qualifiers 13
Acronyms 14
Analyst Summary 15
Prep Method Inorganic 16
Sample Results 17
Volatile Organic Compounds by GC 18
RSK 175 - Dissolved Gases by GC/FID
2321910 004 - VOA GC 19
2321910 005 - VOA GC 20
2321910 008 - VOA GC 21
2321910 011 - VOA GC 22
QC Summary Forms 23

Table of Contents (continued)

Volatile Organic Compounds by GC 24

RSK 175 - Dissolved Gases by GC/FID

MB Summary VOA GC 25

Method Blank - VOA GC 26

LCS Summary VOA GC 27

RQ1806590-03 - DLCS VOA GC 28

Raw Data 29

Volatile Organic Compounds by GC 30

RSK 175 - Gases DOD

Form 1s

2321910 004 - VOA GC 31

2321910 005 - VOA GC 32

2321910 008 - VOA GC 33

2321910 011 - VOA GC 34

Raw Data 35

ICAL Summary 77

ICV Summary 79

RQ1806590-04 - CCV VOA GC 80

RQ1806590-05 - CCV VOA GC 81

RQ1806590-06 - CCV VOA GC 82

RQ1806590-07 - CCV VOA GC 83

Run Log 84

Run Log Sheets 85

Narrative Documents

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental

Client: ALS Environmental - US
Project: UR115: 2321910
Sample Matrix: Water

Service Request: R1805941
Date Received: 06/26/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt:

Four water samples were received for analysis at ALS Environmental on 06/26/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Volatiles by GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 06/29/2018

SAMPLE DETECTION SUMMARY

CLIENT ID: 2321910 004			Lab ID: R1805941-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Methane	23		0.12	1.1	ug/L	RSK 175

CLIENT ID: 2321910 005			Lab ID: R1805941-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Methane	35		0.12	1.1	ug/L	RSK 175

CLIENT ID: 2321910 008			Lab ID: R1805941-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Methane	80		0.12	1.1	ug/L	RSK 175

CLIENT ID: 2321910 011			Lab ID: R1805941-004			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Methane	1.3		0.12	1.1	ug/L	RSK 175

Sample Receipt Information

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1805941-001	2321910 004	6/20/2018	0948
R1805941-002	2321910 005	6/20/2018	1040
R1805941-003	2321910 008	6/20/2018	1155
R1805941-004	2321910 011	6/20/2018	1335

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	1 of 2
ALS Quote #:	

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2321910

Bill To: ALS Environmental

TAT [ ] Normal-Standard TAT is 10-12 business days.
[X] Rush-Subject to ALS approval and surcharges.

Date Required: 7/5/2018 Approved By:

Email? [ ] Y

Fax? [ ] Y No.:

Container Type: G | Container Size: 40 mL | Preservative: HCl

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	DOD RSK175 (Ethane, , Ethene, Methane, Acetylene)	*Report to the MDL, QC lab report needed, EQUIS EDD.	Sample/COC Comments
1 2321910 004	6/20/18	0948	G	WT	2	*	
2 2321910 005	6/20/18	1040	G	WT	2	*	Sub to ALS Rochester
3 2321910 008	6/20/18	1155	G	WT	2	*	
4 2321910 011	6/20/18	1335	G	WT	2	*	
5							
6							
7							
8							
9							
10							

Enter Number of Containers Per Sample or Field Results Below.

R1805941 5
ALS Group USA, Corp.
UR115: 2321910

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

ALS Field Services: ☐Pickup ☐Labor ☐Composite_Sampling ☐Rental_Equipment ☐Other:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/25/18	1315	2 ALS	6/26/18	0930
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [X] DOD

Special Processing: USACE [ ] Navy [ ]

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [X] Special [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] MD

EDDS: Format Type- EQUIS EDD

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Oil=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Rev 8/04

Cooler Receipt and Preservation Check Form

R1805941 5
ALS Group USA, Corp.
UR116: 2321910

Project/Client ALS-Middletown Folder Number

Cooler received on 6-26-18 by: HE

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	(Y) N NA *
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 6-26-18 Time: 09:45 ID: (IR#7) IR#9 From: Temp Blank (Sample Bottle)

Observed Temp (°C)	2.3						
Correction Factor (°C)	+0.5						
Corrected Temp (°C)	2.8						
Temp from:Type of bottle	Voa Vial						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by HE on 6.26.18 at 09:46
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 6/26/18 Time: 1746 by: DW

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-						
		HCl	**	**	Client label					

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: Client.

Explain all Discrepancies/ Other Comments:

*2321910004: 1 of 2 vials
2321910611: Both vials

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: JL
PC Secondary Review: KMD 6/28/18

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Internal Chain of Custody Report

Client: ALS Environmental **Service Request:** R1805941

Project: UR115: 2321910

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R1805941-001.01					
	RSK 175				
		6/26/2018	1718	SMO / DWARD	
		6/26/2018	1719	R-001 / DWARD	
		6/29/2018	1121	In Lab / BALLGEIER	
R1805941-001.02					
		6/26/2018	1718	SMO / DWARD	
		6/26/2018	1719	R-001 / DWARD	
R1805941-002.01					
	RSK 175				
		6/26/2018	1718	SMO / DWARD	
		6/26/2018	1719	R-001 / DWARD	
		6/29/2018	1121	In Lab / BALLGEIER	
R1805941-002.02					
		6/26/2018	1718	SMO / DWARD	
		6/26/2018	1719	R-001 / DWARD	
R1805941-003.01					
	RSK 175				
		6/26/2018	1718	SMO / DWARD	
		6/26/2018	1719	R-001 / DWARD	
		6/29/2018	1121	In Lab / BALLGEIER	
R1805941-003.02					
		6/26/2018	1718	SMO / DWARD	
		6/26/2018	1719	R-001 / DWARD	
R1805941-004.01					
	RSK 175				
		6/26/2018	1718	SMO / DWARD	
		6/26/2018	1719	R-001 / DWARD	
		6/29/2018	1121	In Lab / BALLGEIER	
R1805941-004.02					
		6/26/2018	1718	SMO / DWARD	
		6/26/2018	1719	R-001 / DWARD	

Miscellaneous Forms

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Delaware Approved	New Jersey ID # NY004	
DoD ELAP #65817	New York ID # 10145	Pennsylvania ID# 68-786
Florida ID # E87674	North Carolina #676	Rhode Island ID # 158
		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: ALS Environmental - US
Project: UR115: 2321910

Service Request: R1805941

Sample Name: 2321910 004
Lab Code: R1805941-001
Sample Matrix: Water

Date Collected: 06/20/18
Date Received: 06/26/18

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

Sample Name: 2321910 005
Lab Code: R1805941-002
Sample Matrix: Water

Date Collected: 06/20/18
Date Received: 06/26/18

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

Sample Name: 2321910 008
Lab Code: R1805941-003
Sample Matrix: Water

Date Collected: 06/20/18
Date Received: 06/26/18

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

Sample Name: 2321910 011
Lab Code: R1805941-004
Sample Matrix: Water

Date Collected: 06/20/18
Date Received: 06/26/18

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

Sample Results

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Collected:**	06/20/18 09:48
Sample Matrix:	Water	**Date Received:**	06/26/18 09:30
Sample Name:	2321910 004	**Units:**	ug/L
Lab Code:	R1805941-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 10:51	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 10:51	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 10:51	
Methane	**23**	1.1	0.50	0.12	1	06/29/18 10:51	

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Collected:**	06/20/18 10:40
Sample Matrix:	Water	**Date Received:**	06/26/18 09:30
Sample Name:	2321910 005	**Units:**	ug/L
Lab Code:	R1805941-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 11:03	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 11:03	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 11:03	
Methane	**35**	1.1	0.50	0.12	1	06/29/18 11:03	

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Collected:**	06/20/18 11:55
Sample Matrix:	Water	**Date Received:**	06/26/18 09:30
Sample Name:	2321910 008	**Units:**	ug/L
Lab Code:	R1805941-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 11:14	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 11:14	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 11:14	
Methane	**80**	1.1	0.50	0.12	1	06/29/18 11:14	

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Collected:**	06/20/18 13:35
Sample Matrix:	Water	**Date Received:**	06/26/18 09:30
Sample Name:	2321910 011	**Units:**	ug/L
Lab Code:	R1805941-004	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 11:24	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 11:24	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 11:24	
Methane	**1.3**	1.1	0.50	0.12	1	06/29/18 11:24	

QC Summary Forms

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client: ALS Environmental - US
Project: UR115: 2321910
Sample Matrix: Water

Service Request: R1805941
Date Analyzed: 06/29/18 09:32

Method Blank Summary
Dissolved Gases by GC/FID

Sample Name: Method Blank
Lab Code: RQ1806590-01

Instrument ID: R-GC-02
File ID: I:\ACQUDATA\W2\DATA\062918\AB679.D\

Analysis Method: RSK 175
Analysis Lot: 596833

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1806590-02	I:\ACQUDATA\W2\DATA\062918\AB680.D\	06/29/18 09:49
Duplicate Lab Control Sample	RQ1806590-03	I:\ACQUDATA\W2\DATA\062918\AB681.D\	06/29/18 10:08
2321910 004	R1805941-001	I:\ACQUDATA\W2\DATA\062918\AB683.D\	06/29/18 10:51
2321910 005	R1805941-002	I:\ACQUDATA\W2\DATA\062918\AB684.D\	06/29/18 11:03
2321910 008	R1805941-003	I:\ACQUDATA\W2\DATA\062918\AB685.D\	06/29/18 11:14
2321910 011	R1805941-004	I:\ACQUDATA\W2\DATA\062918\AB686.D\	06/29/18 11:24

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ1806590-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 09:32	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 09:32	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 09:32	
Methane	**0.39 J**	1.1	0.50	0.12	1	06/29/18 09:32	

Client: ALS Environmental - US
Project: UR115: 2321910
Sample Matrix: Water

Service Request: R1805941
Date Analyzed: 06/29/18 09:49

Lab Control Sample Summary
Dissolved Gases by GC/FID

Sample Name: Lab Control Sample
Lab Code: RQ1806590-02

Instrument ID: R-GC-02
File ID: I:\ACQUDATA\W2\DATA\062918\AB680.D\

Analysis Method: RSK 175
Analysis Lot: 596833

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	RQ1806590-01	I:\ACQUDATA\W2\DATA\062918\AB679.D\	06/29/18 09:32
Duplicate Lab Control Sample	RQ1806590-03	I:\ACQUDATA\W2\DATA\062918\AB681.D\	06/29/18 10:08
2321910 004	R1805941-001	I:\ACQUDATA\W2\DATA\062918\AB683.D\	06/29/18 10:51
2321910 005	R1805941-002	I:\ACQUDATA\W2\DATA\062918\AB684.D\	06/29/18 11:03
2321910 008	R1805941-003	I:\ACQUDATA\W2\DATA\062918\AB685.D\	06/29/18 11:14
2321910 011	R1805941-004	I:\ACQUDATA\W2\DATA\062918\AB686.D\	06/29/18 11:24

Client: ALS Environmental - US
Project: UR115: 2321910
Sample Matrix: Water

Service Request: R1805941
Date Analyzed: 06/29/18

Duplicate Lab Control Sample Summary
Dissolved Gases by GC/FID

Units: ug/L
Basis: NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ1806590-02			RQ1806590-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Acetylene	RSK 175	53.6	50.1	107	55.4	50.1	111	70-129	3	30
Ethane	RSK 175	26.5	26.0	102	27.7	26.0	106	74-131	4	30
Ethene	RSK 175	24.2	24.3	99	25.5	24.3	105	72-133	5	30
Methane	RSK 175	26.8	26.2	102	28.3	26.2	108	73-125	5	30

Raw Data

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Collected:**	06/20/18 09:48
Sample Matrix:	Water	**Date Received:**	06/26/18 09:30
Sample Name:	2321910 004	**Units:**	ug/L
Lab Code:	R1805941-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 10:51	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 10:51	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 10:51	
Methane	**23**	1.1	0.50	0.12	1	06/29/18 10:51	

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Collected:**	06/20/18 10:40
Sample Matrix:	Water	**Date Received:**	06/26/18 09:30
Sample Name:	2321910 005	**Units:**	ug/L
Lab Code:	R1805941-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 11:03	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 11:03	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 11:03	
Methane	**35**	1.1	0.50	0.12	1	06/29/18 11:03	

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Collected:**	06/20/18 11:55
Sample Matrix:	Water	**Date Received:**	06/26/18 09:30
Sample Name:	2321910 008	**Units:**	ug/L
Lab Code:	R1805941-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 11:14	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 11:14	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 11:14	
Methane	**80**	1.1	0.50	0.12	1	06/29/18 11:14	

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Collected:**	06/20/18 13:35
Sample Matrix:	Water	**Date Received:**	06/26/18 09:30
Sample Name:	2321910 011	**Units:**	ug/L
Lab Code:	R1805941-004	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 11:24	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 11:24	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 11:24	
Methane	**1.3**	1.1	0.50	0.12	1	06/29/18 11:24	

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB683.D Vial: 42
Acq On : 29 Jun 2018 10:51 am Operator: b.allgeier
Sample : r1805941-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:07 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	126958781	23.350	ug/L
2)	Acetylene	0.00	0	N.D.	ug/L
3)	Ethylene	0.00	0	N.D.	ug/L
4)	Ethane	0.00	0	N.D.	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	0.00	0	N.D.	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

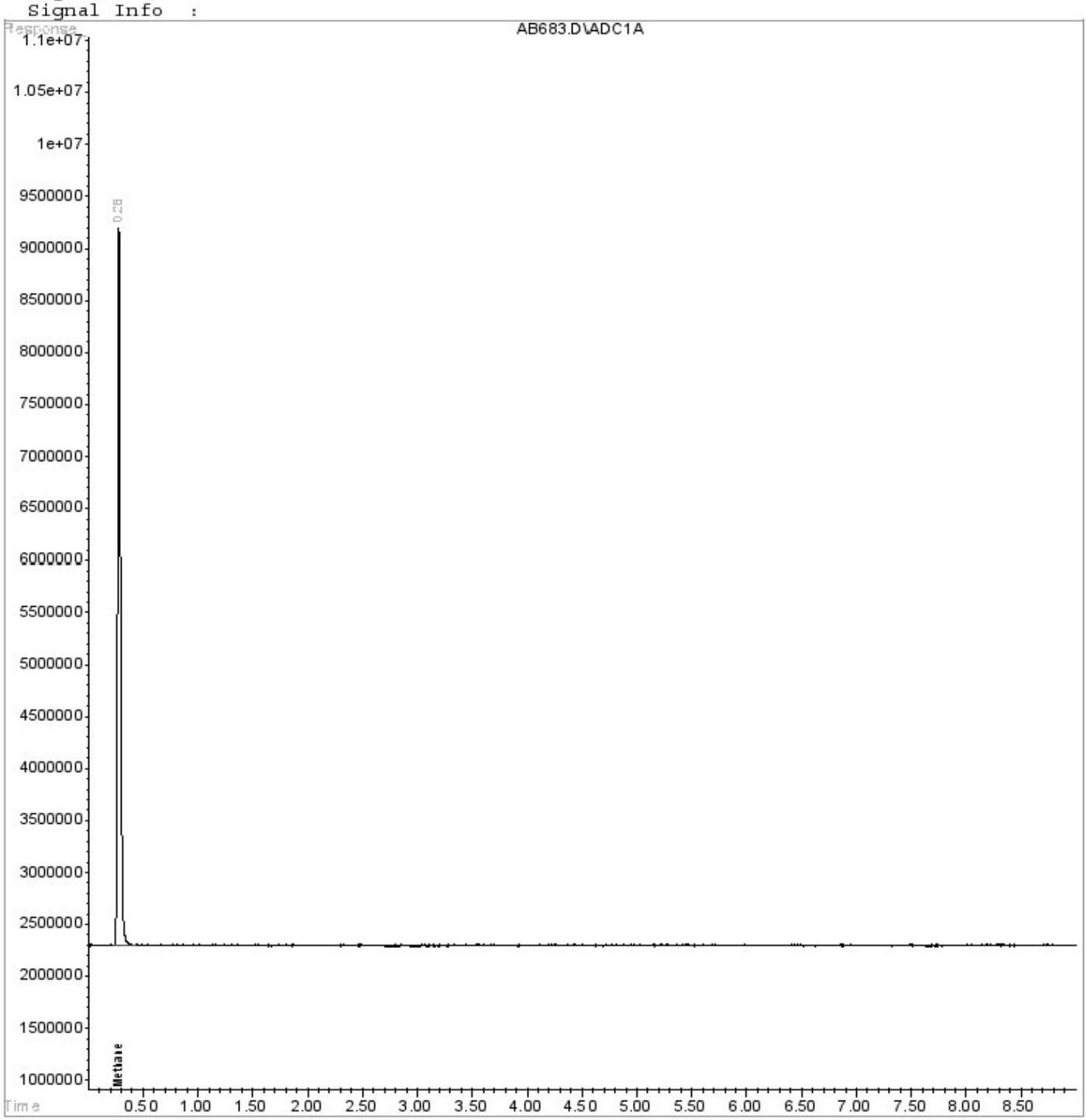
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB683.D Vial: 42
Acq On : 29 Jun 2018 10:51 am Operator: b.allgeier
Sample : r1805941-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:07 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

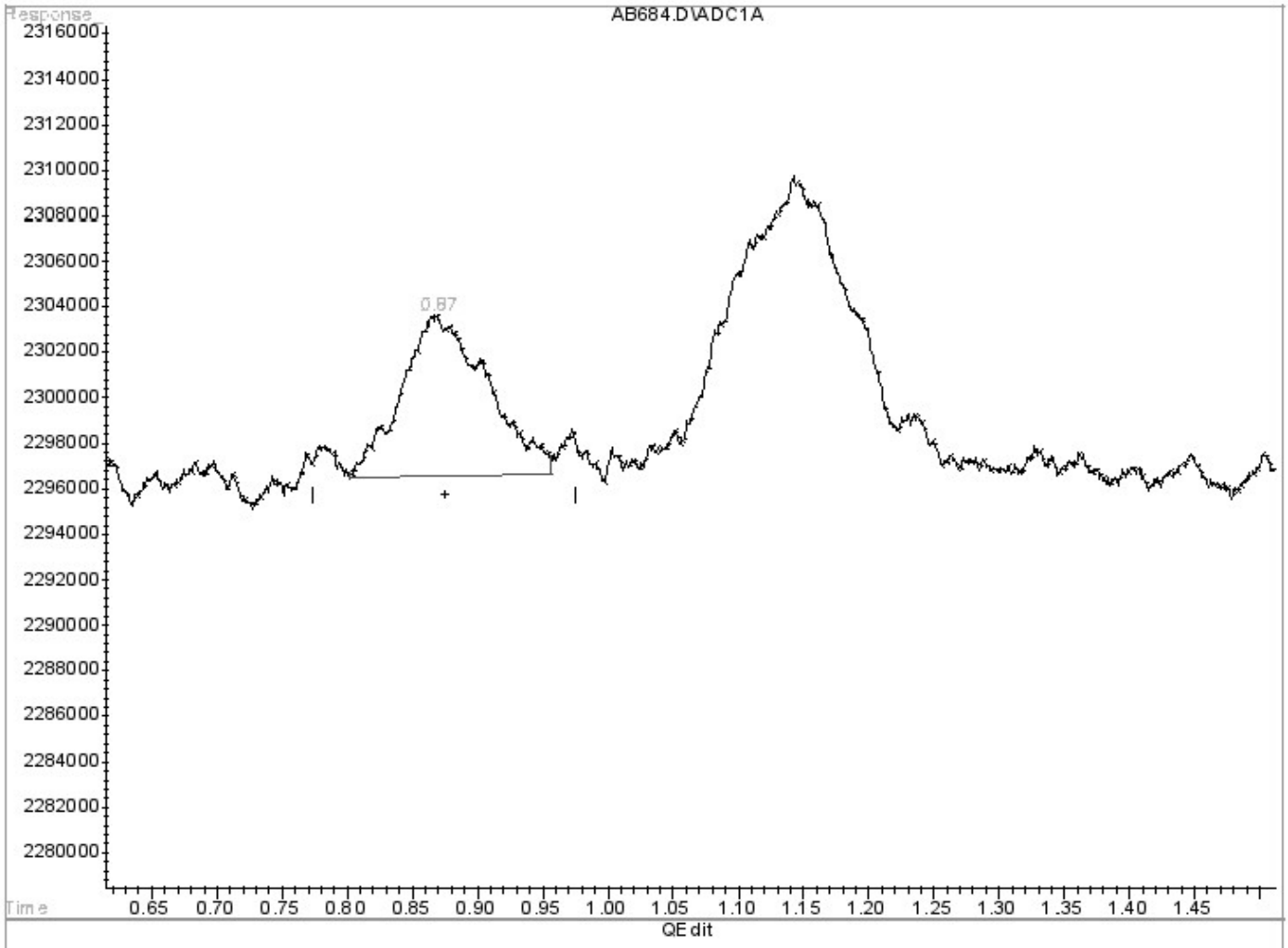


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB684.D Vial: 43
Acq On : 29 Jun 2018 11:03 am Operator: b.allgeier
Sample : r1805941-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:13 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(3) Ethylene

0.87min 0.079ug/L m

response 322052

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

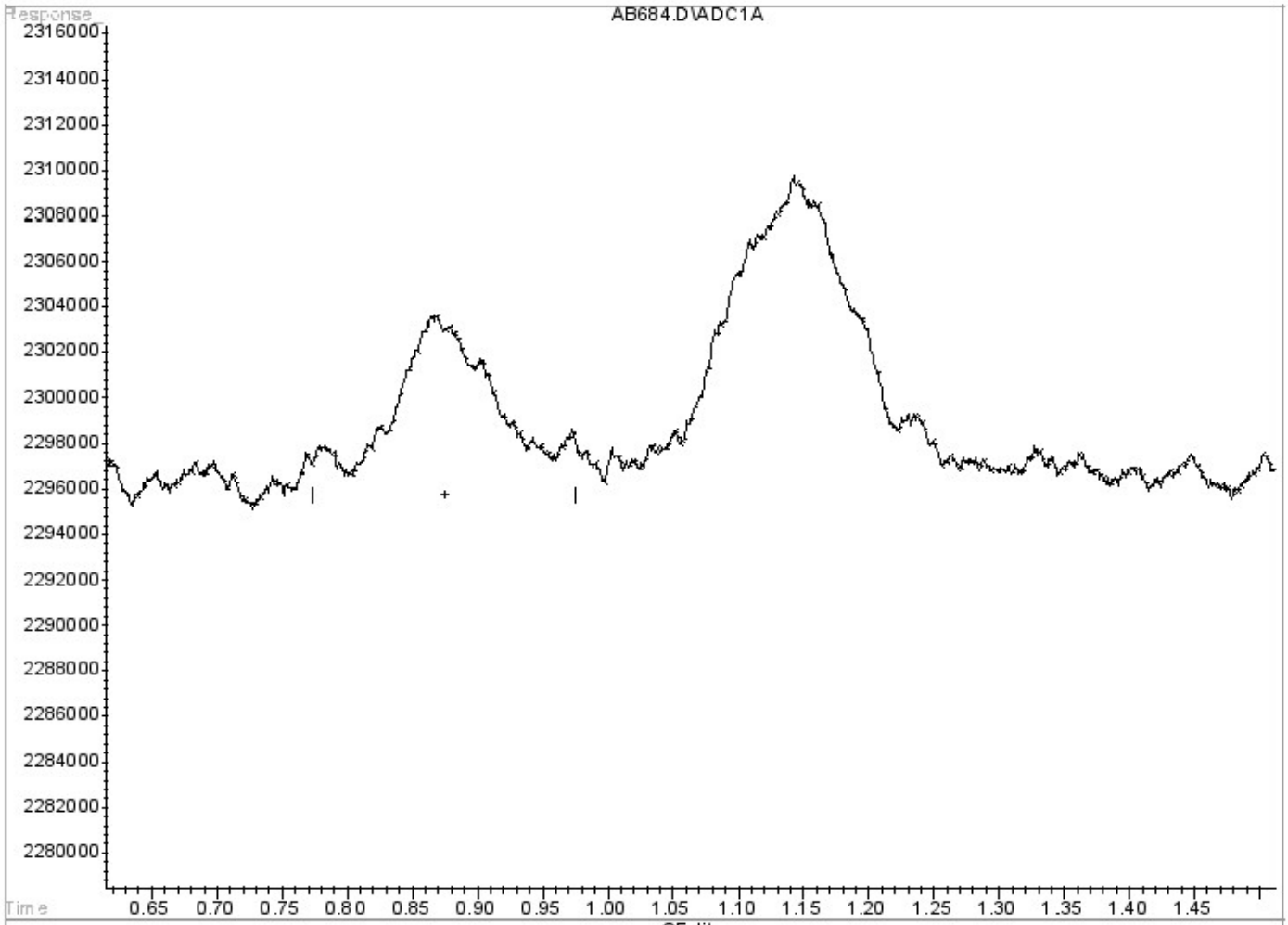
AB684.D RSK0626.M Fri Jun 29 11:13:52 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB684.D Vial: 43
Acq On : 29 Jun 2018 11:03 am Operator: b.allgeier
Sample : r1805941-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:13 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



QEdit

(3) Ethylene

0.88min 0.000ug/L

response 0

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB684.D RSK0626.M Fri Jun 29 11:13:47 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB684.D Vial: 43
Acq On : 29 Jun 2018 11:03 am Operator: b.allgeier
Sample : r1805941-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:13 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.88min 0.682ug/L m

response 3949347

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

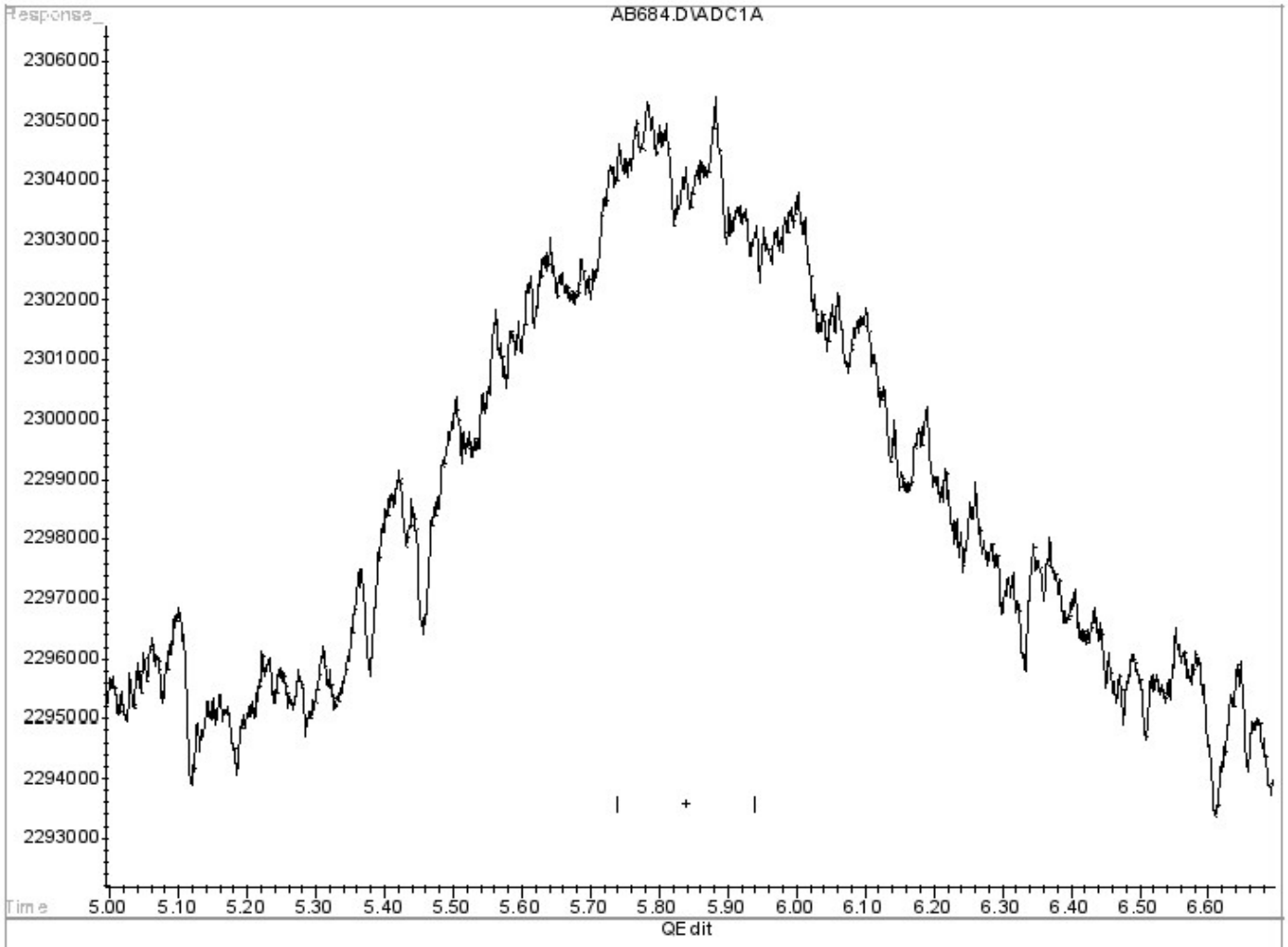
AB684.D RSK0626.M Fri Jun 29 11:13:41 2018

1st BA 06/29/18
2nd MWL 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB684.D Vial: 43
Acq On : 29 Jun 2018 11:03 am Operator: b.allgeier
Sample : r1805941-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:13 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.84min 0.000ug/L

response 0

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB684.D RSK0626.M Fri Jun 29 11:13:35 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB684.D Vial: 43
Acq On : 29 Jun 2018 11:03 am Operator: b.allgeier
Sample : r1805941-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:13 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	188420193	34.655	ug/L	
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.87	322052	<MDL	ug/L	m
4)	Ethane	1.14	817019	0.146	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.88	3949347	0.682	ug/L	m

(f)=RT Delta > 1/2 Window (m)=manual int.

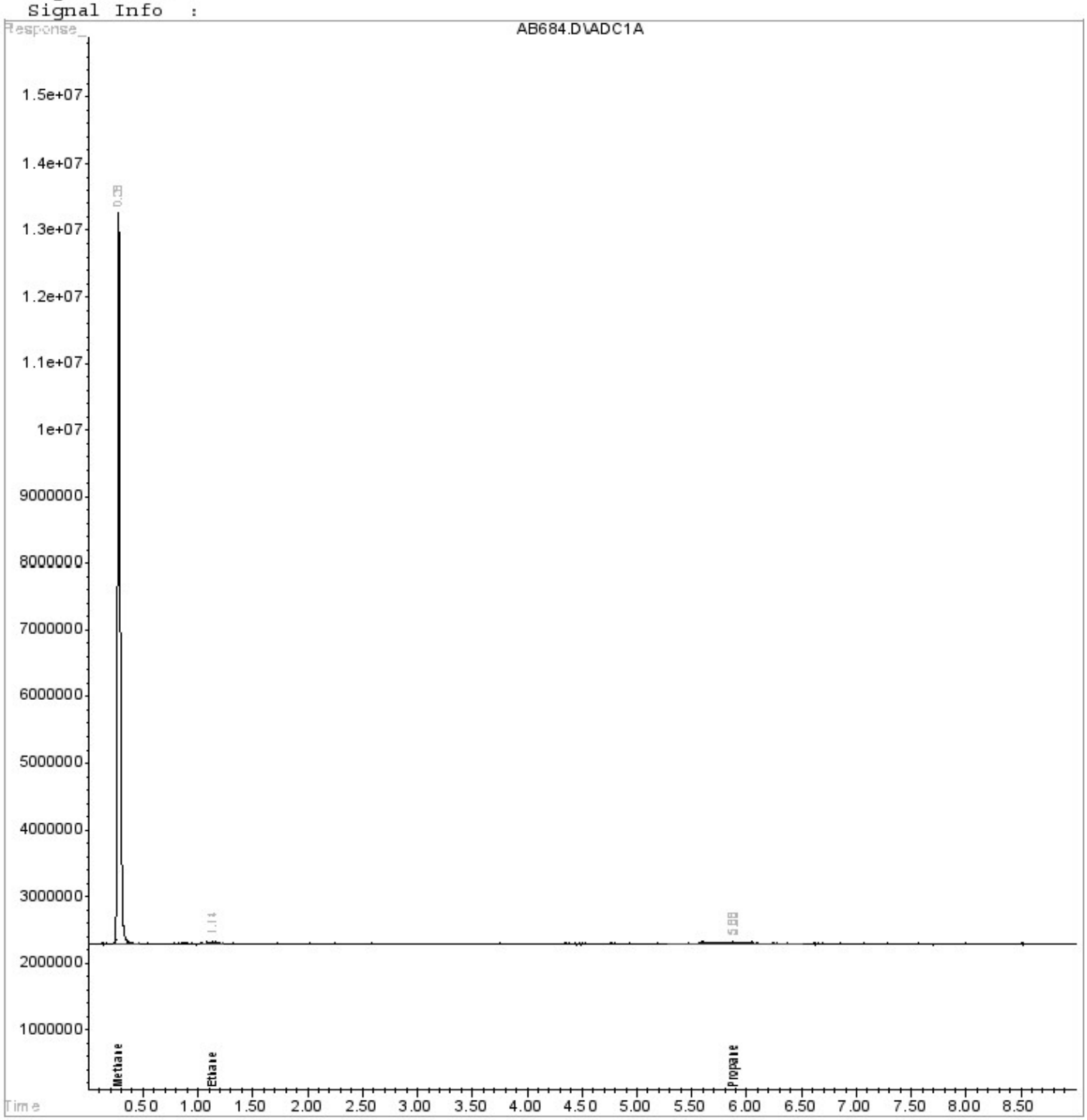
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB684.D Vial: 43
Acq On : 29 Jun 2018 11:03 am Operator: b.allgeier
Sample : r1805941-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:13 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

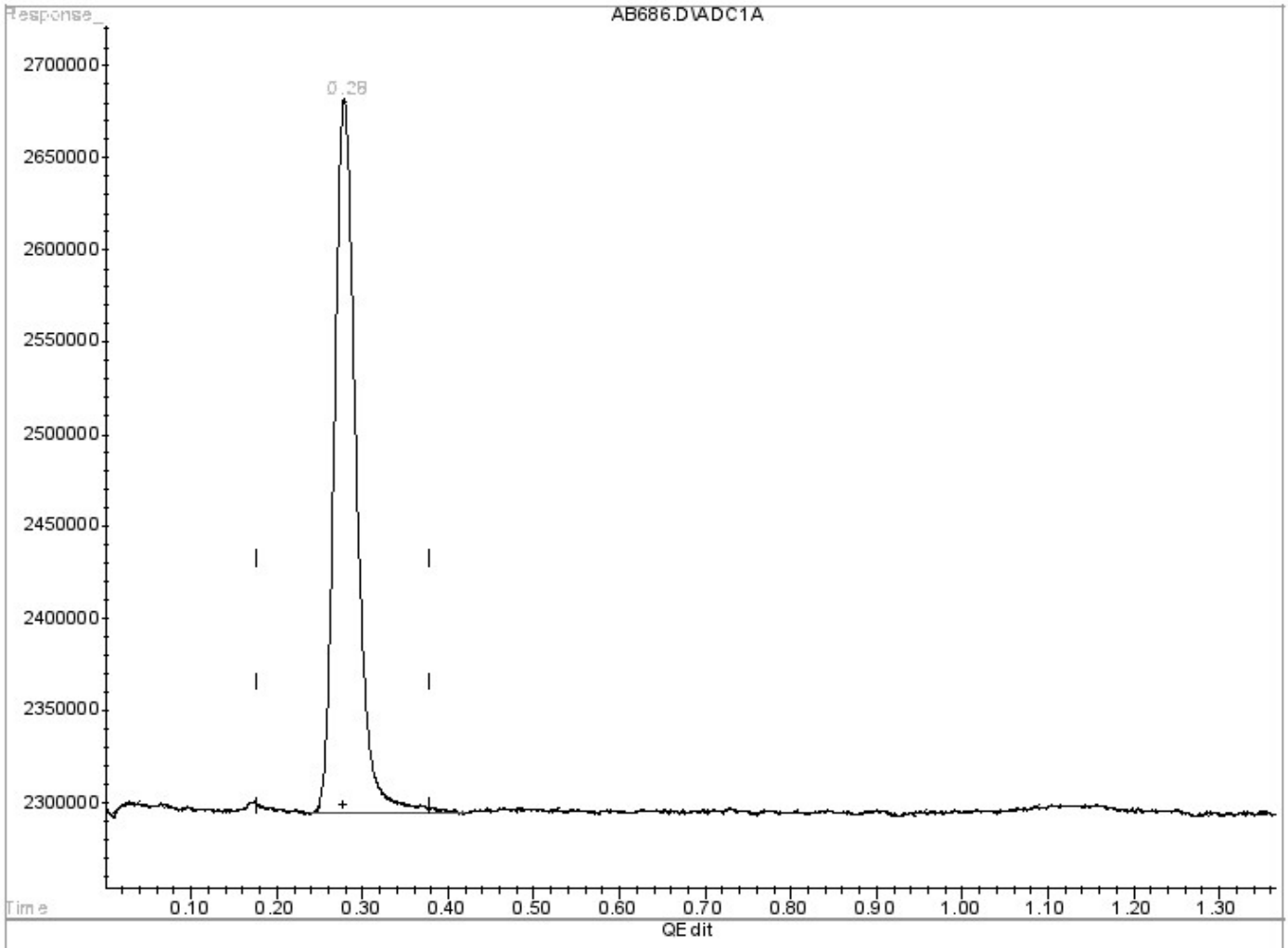


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB686.D Vial: 45
Acq On : 29 Jun 2018 11:24 am Operator: b.allgeier
Sample : r1805941-004 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:34 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 1.272ug/L m

response 6915321

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

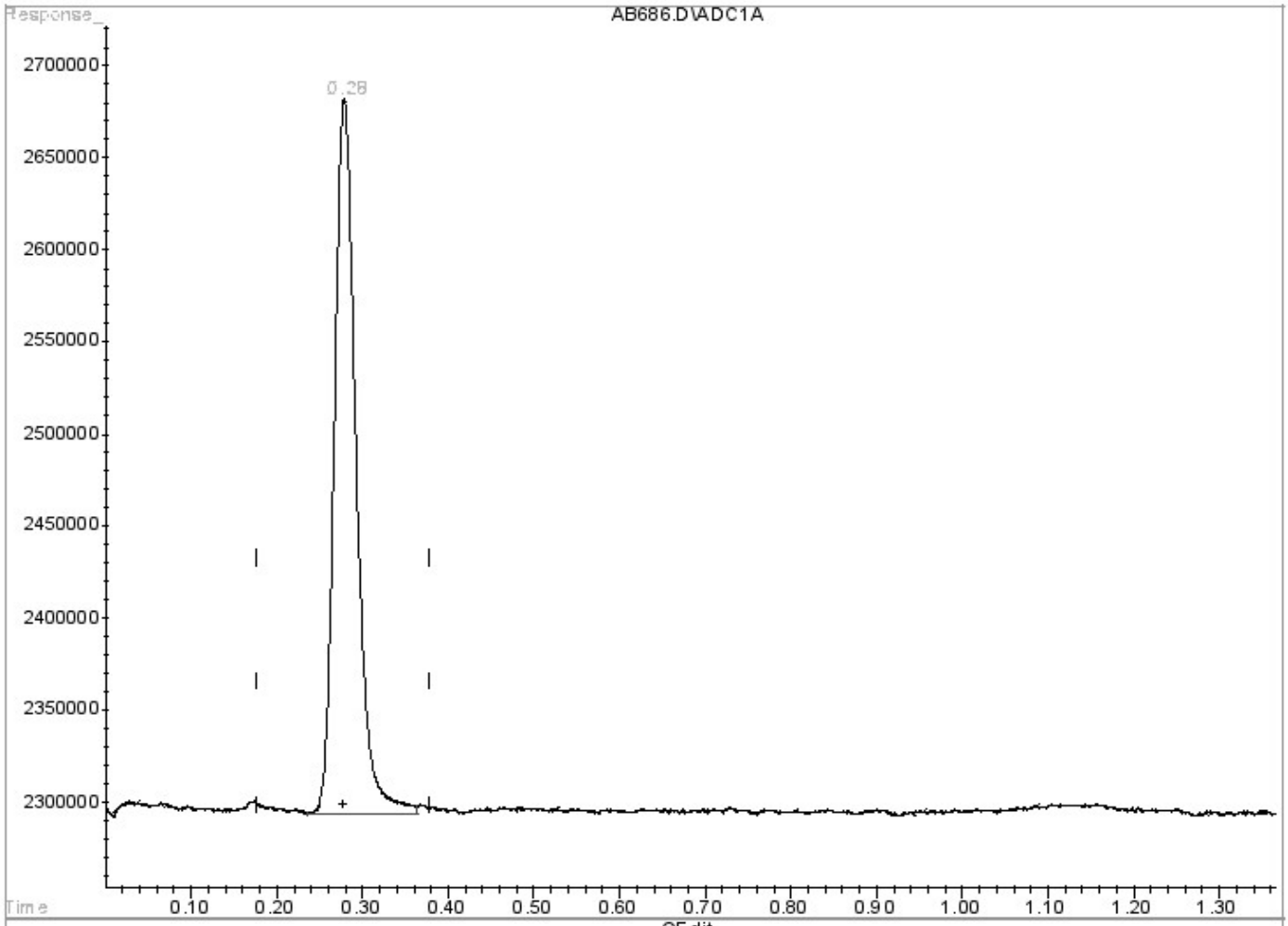
AB686.D RSK0626.M Fri Jun 29 11:34:46 2018
Page 43 of 85

1st BA 06/29/18
2nd MWL 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB686.D Vial: 45
Acq On : 29 Jun 2018 11:24 am Operator: b.allgeier
Sample : r1805941-004 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:34 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 1.269ug/L

response 6898049

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB686.D RSK0626.M Fri Jun 29 11:34:38 2018

ALS

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB686.D Vial: 45
Acq On : 29 Jun 2018 11:24 am Operator: b.allgeier
Sample : r1805941-004 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:34 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	6915321	1.272	ug/L	m
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.00	0	N.D.	ug/L	
4)	Ethane	0.00	0	N.D.	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	0.00	0	N.D.	ug/L	

(f)=RT Delta > 1/2 Window (m)=manual int.

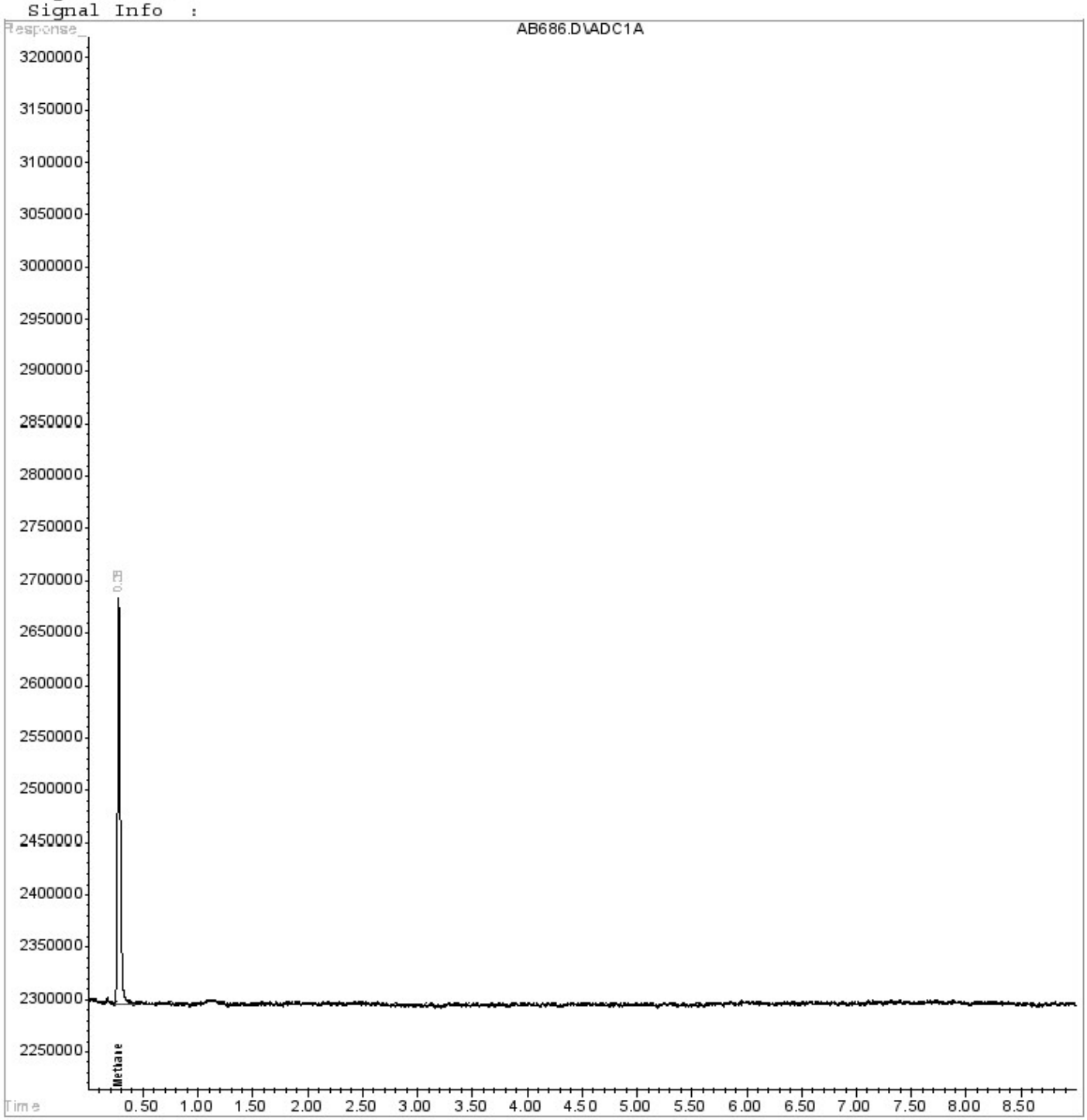
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB686.D Vial: 45
Acq On : 29 Jun 2018 11:24 am Operator: b.allgeier
Sample : r1805941-004 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:34 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

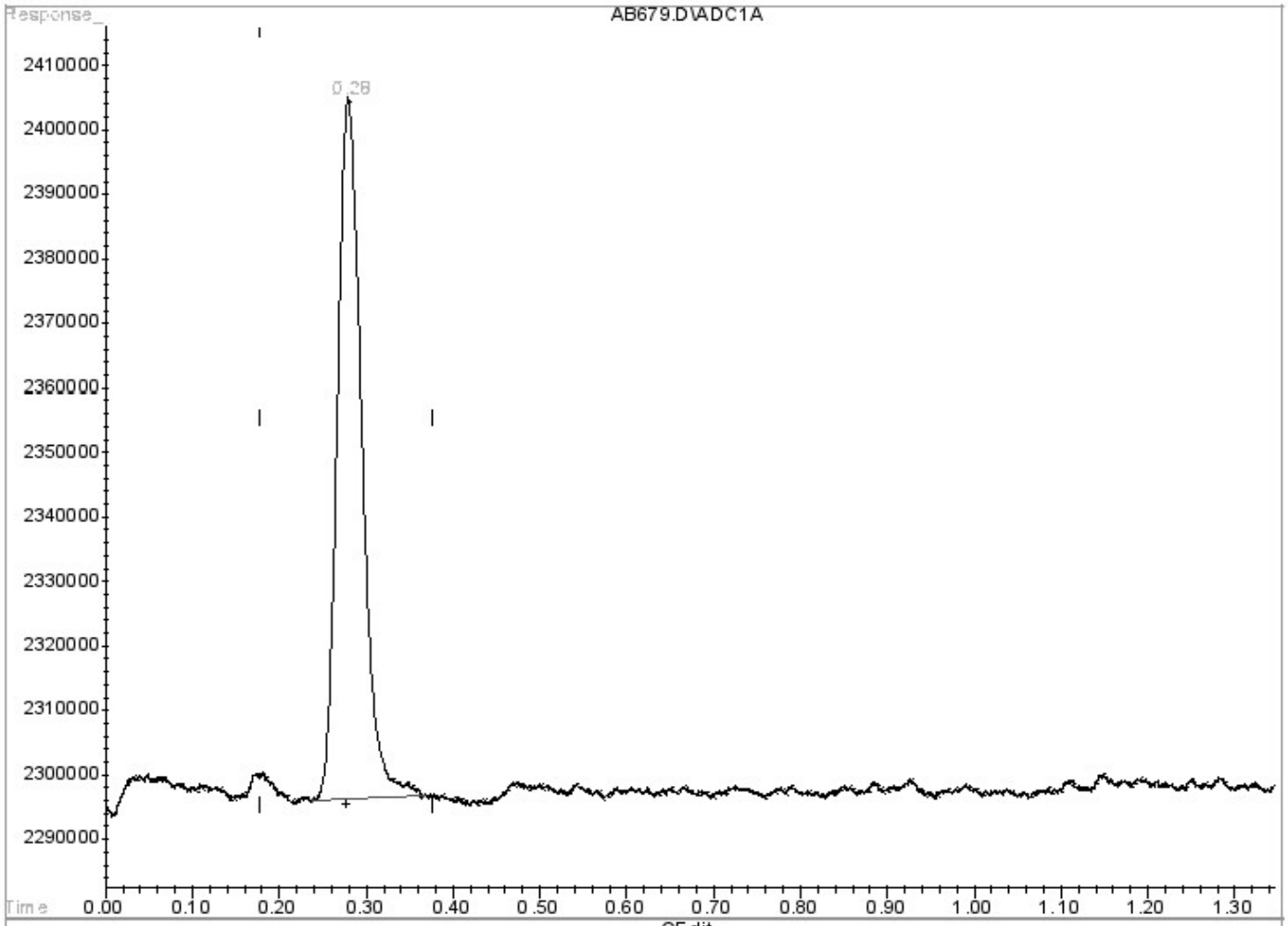


1st BA 06/29/18
2nd MWL 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.392ug/L m

response 2133017

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

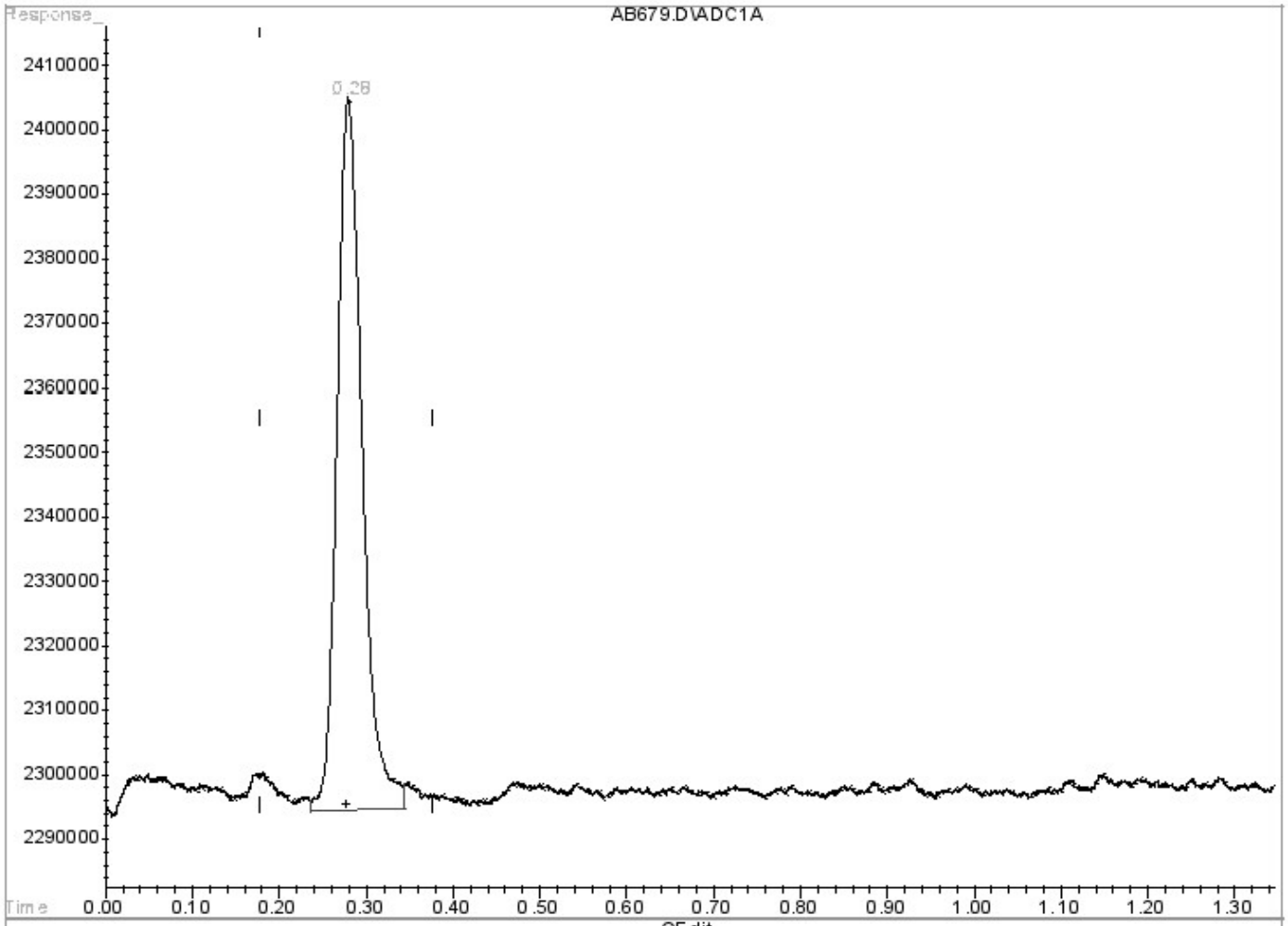
AB679.D RSK0626.M Fri Jun 29 09:48:34 2018

1st BA 06/29/18
2nd MWL 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.410ug/L

response 2228671

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB679.D RSK0626.M Fri Jun 29 09:48:26 2018

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	2133017	0.392	ug/L	m
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.00	0	N.D.	ug/L	
4)	Ethane	0.00	0	N.D.	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	0.00	0	N.D.	ug/L	

(f)=RT Delta > 1/2 Window (m)=manual int.

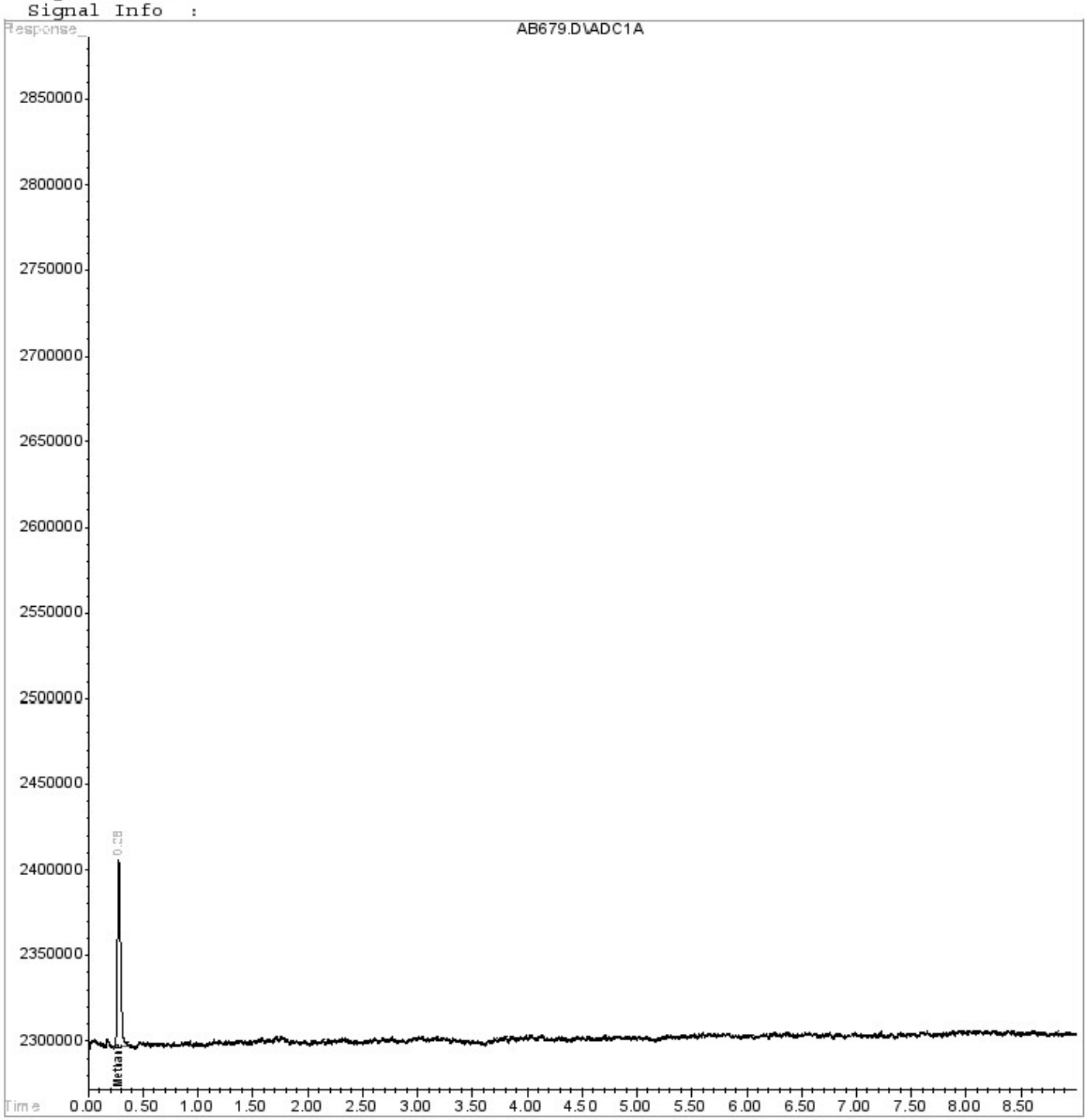
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

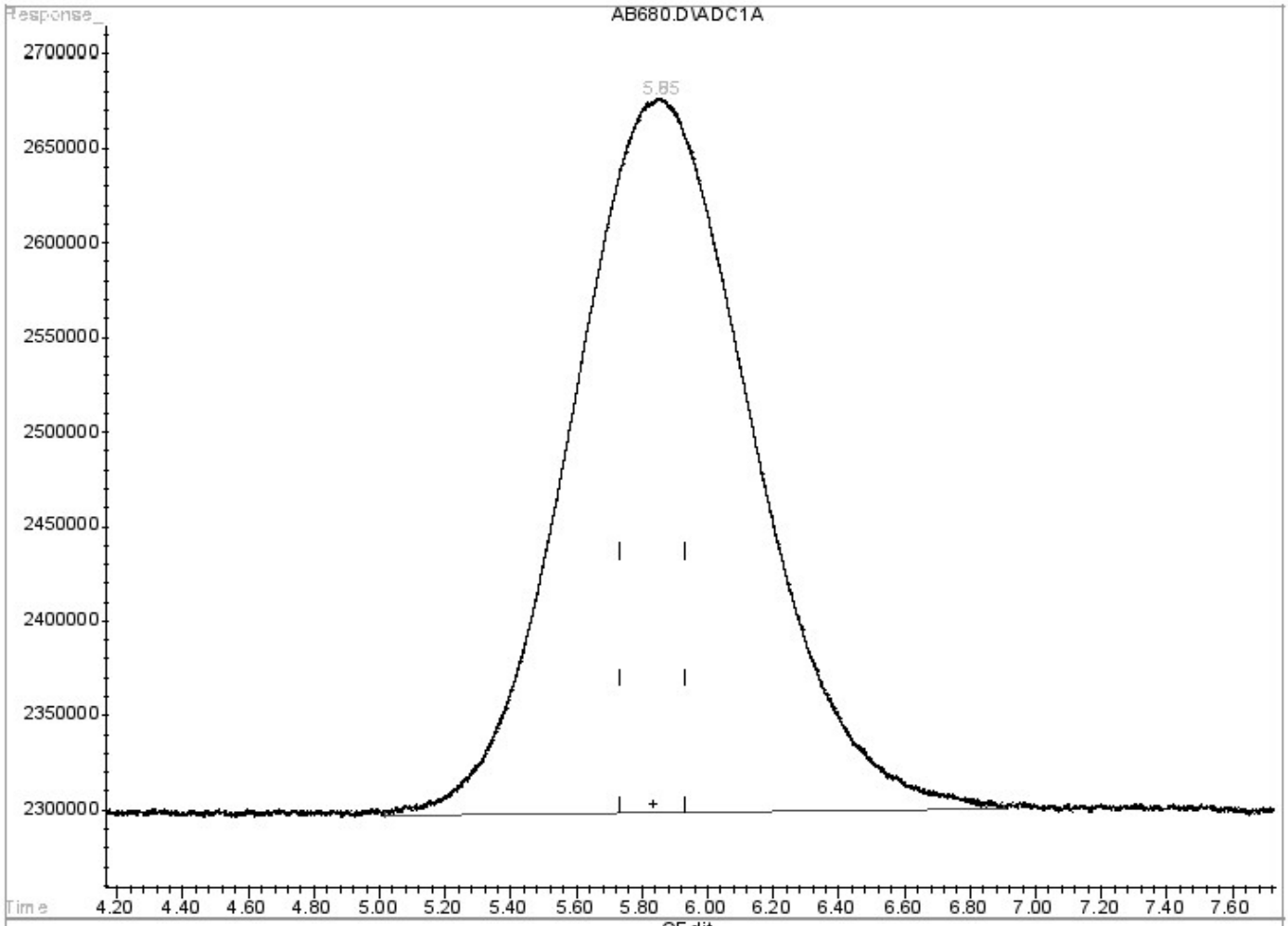


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 24.893ug/L m

response 144051743

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

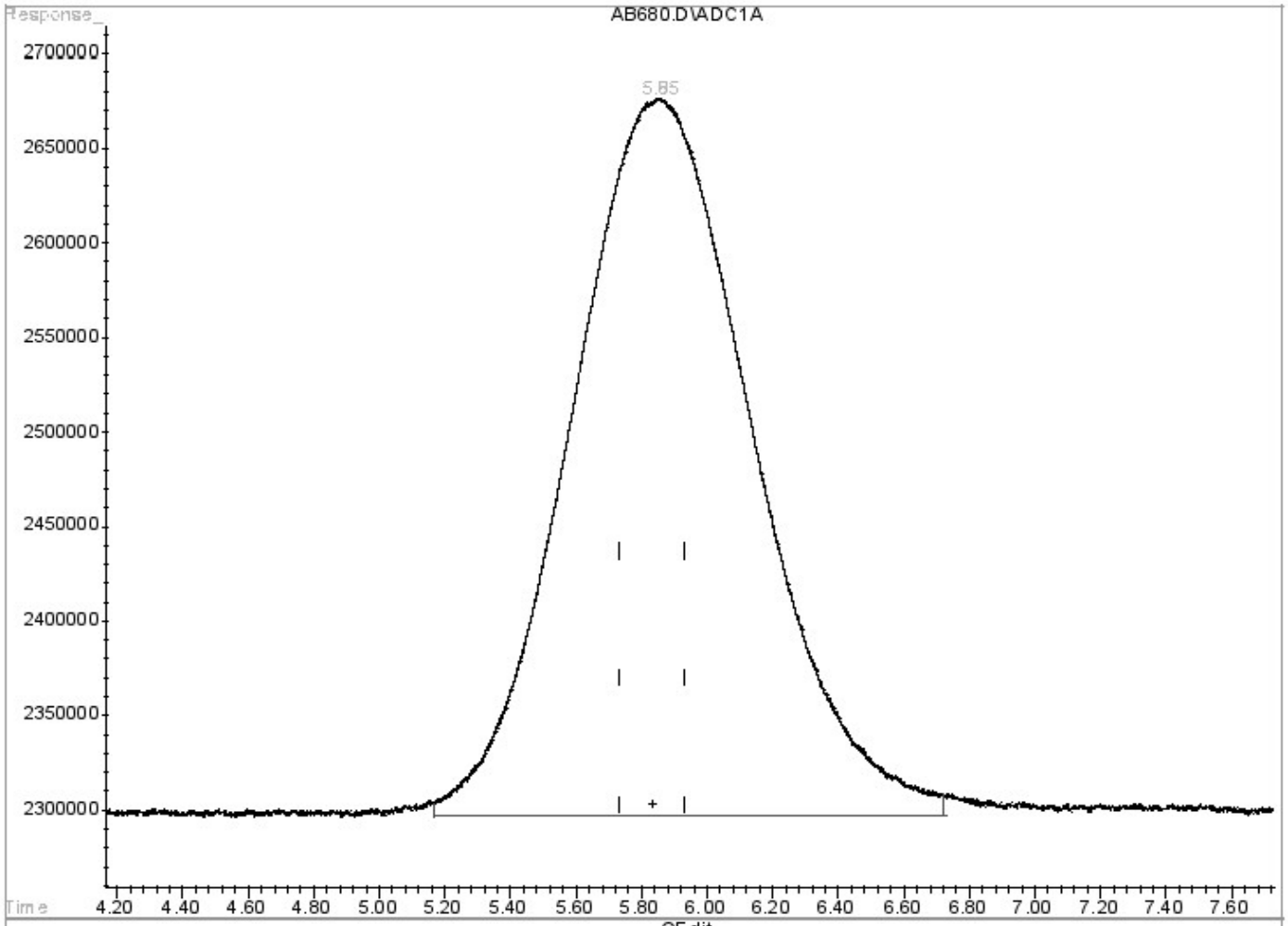
AB680.D RSK0626.M Fri Jun 29 10:07:20 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 25.059ug/L

response 145011233

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	145885558	26.831 ug/L
2)	Acetylene	0.64	45010985	53.621 ug/L
3)	Ethylene	0.88	98278040	24.163 ug/L
4)	Ethane	1.15	147951794	26.474 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	144051743	24.893 ug/L m

(f)=RT Delta > 1/2 Window (m)=manual int.

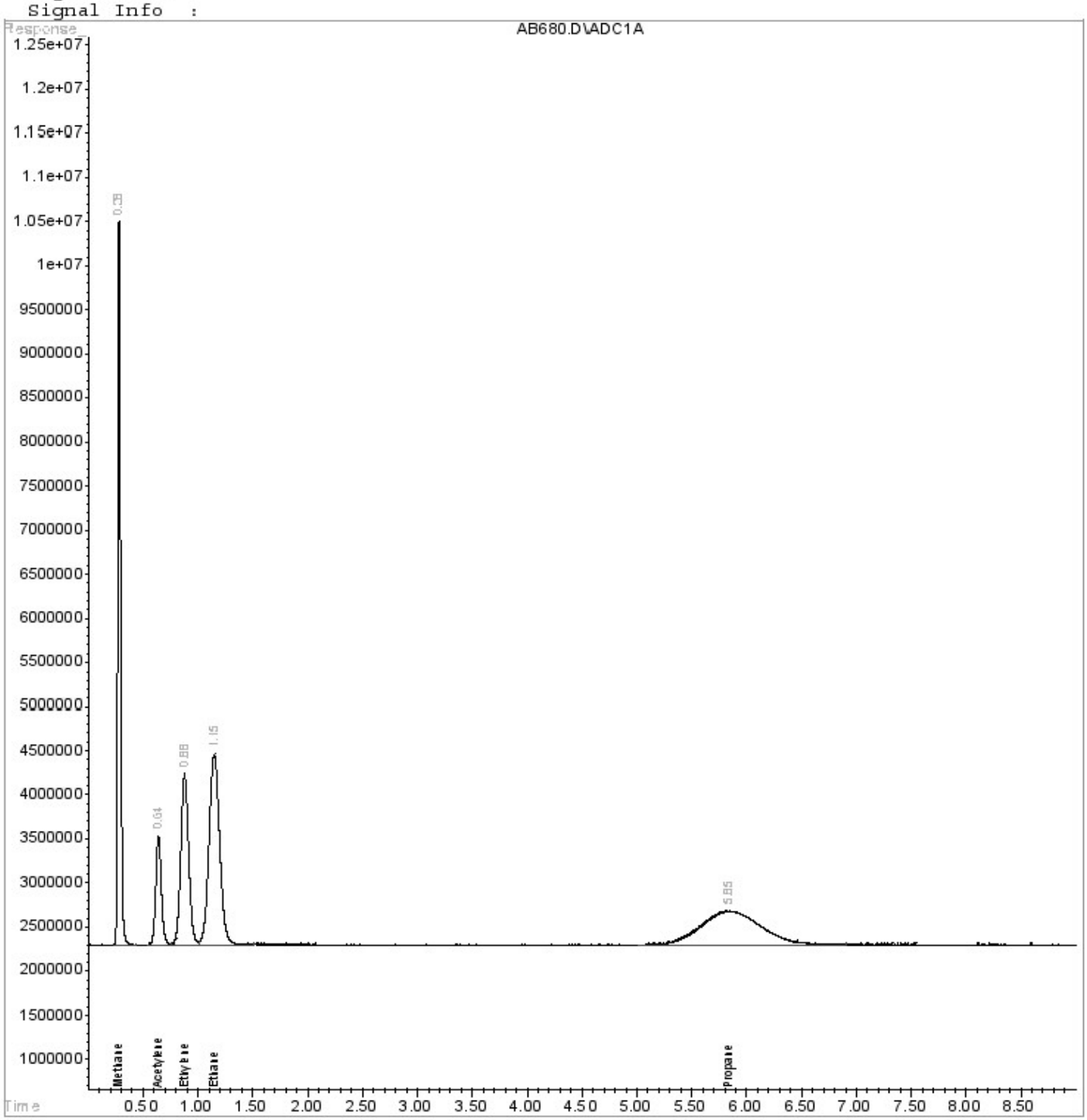
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB681.D Vial: 40
Acq On : 29 Jun 2018 10:08 am Operator: b.allgeier
Sample : lcsd Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:19 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	153990990	28.322 ug/L
2)	Acetylene	0.64	46683382	55.382 ug/L
3)	Ethylene	0.88	103659137	25.486 ug/L
4)	Ethane	1.15	154586781	27.662 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	151080271	26.108 ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

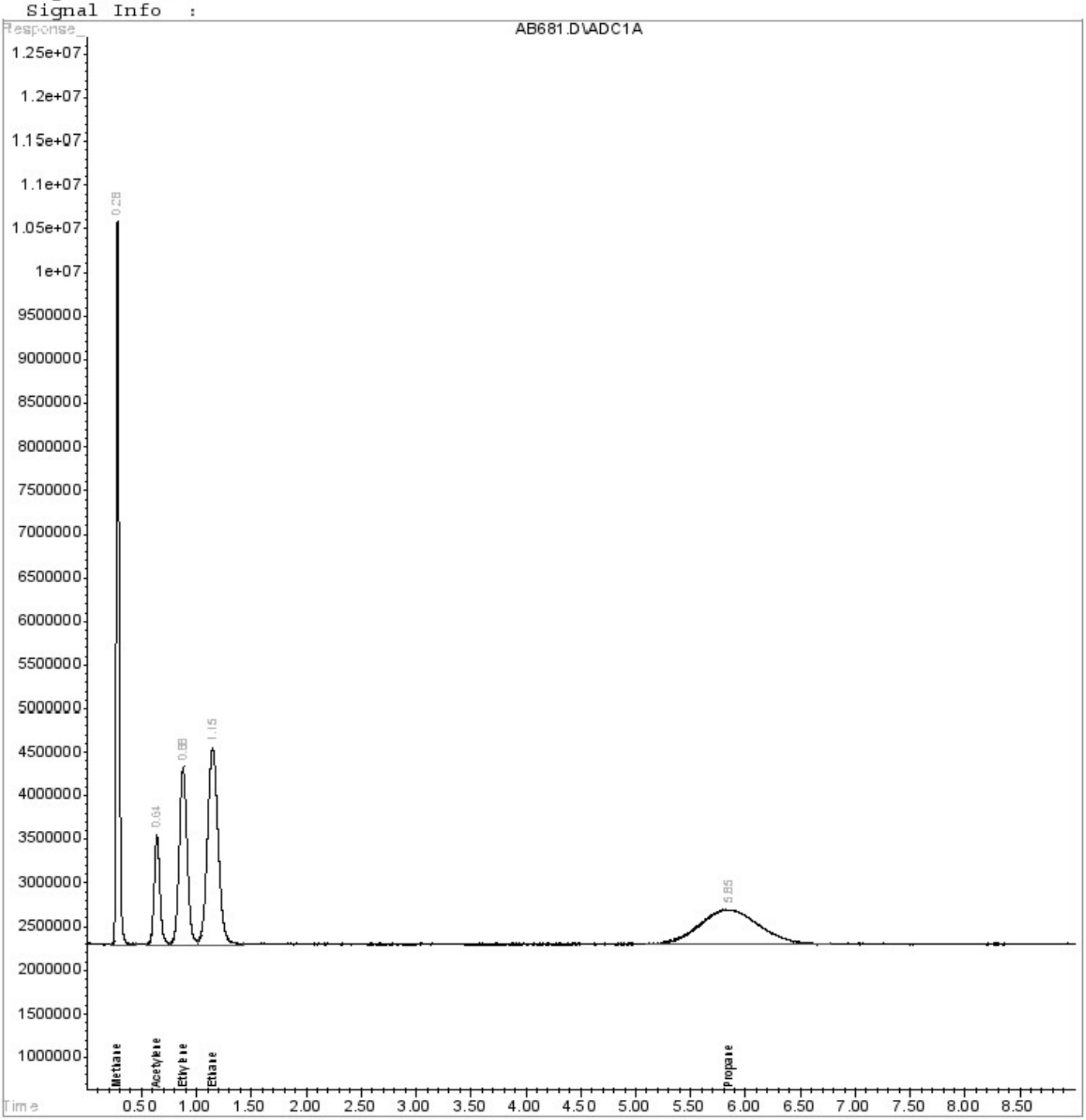
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB681.D Vial: 40
Acq On : 29 Jun 2018 10:08 am Operator: b.allgeier
Sample : lcsd Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:19 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

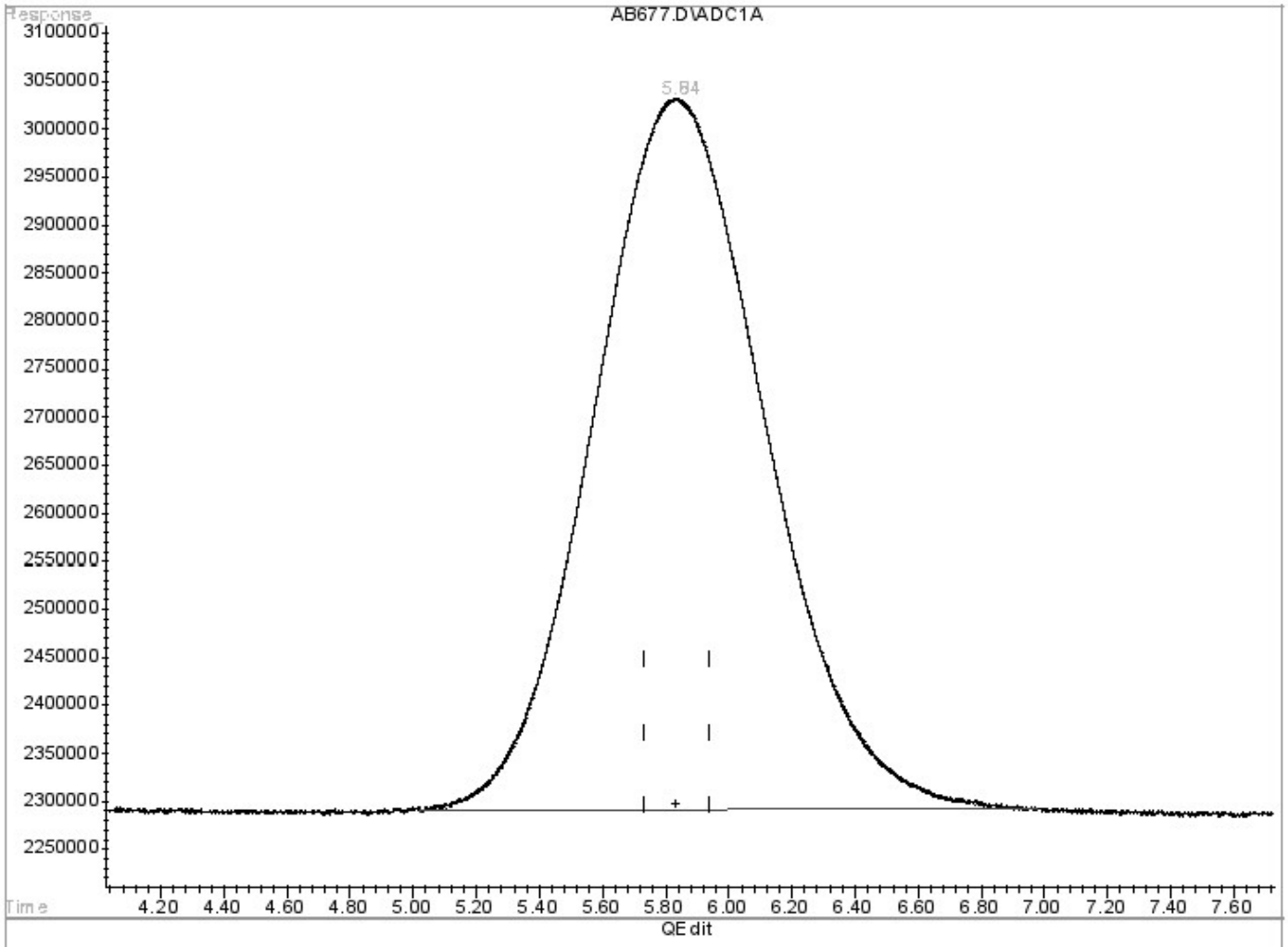


1st BA 06/29/18
2nd Mwi 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:16 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.84min 48.388ug/L m

response 280008014

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

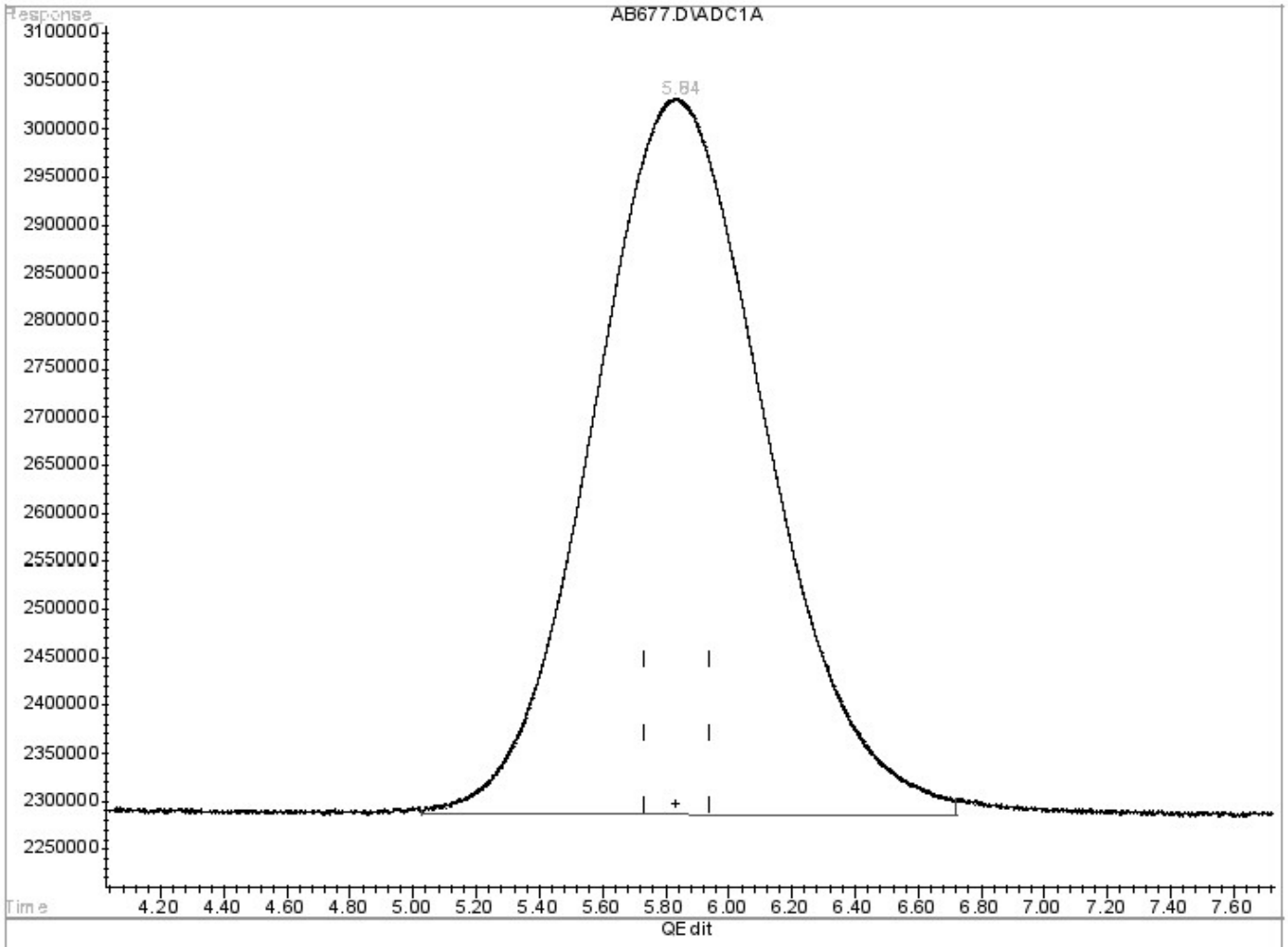
AB677.D RSK0626.M Fri Jun 29 09:17:08 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:16 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.84min 49.108ug/L

response 284175202

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB677.D RSK0626.M Fri Jun 29 09:17:02 2018

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
1	Methane	5.437	5.447	E6	-0.2	96	0.00
2	Acetylene	823.699	826.652	E3	~~-0.4~~ -9	84	0.00
3	Ethylene	4.067	3.963	E6	2.6	91	0.00
4	Ethane	5.589	5.541	E6	0.9	95	0.00
6	Propane	5.787	5.501	E6	4.9	94	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB677.D RSK0626.M Fri Jun 29 11:06:30 2018 Page 1

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB677.D RSK0626.M Fri Jun 29 11:06:30 2018 Page 2

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:17 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	285962955	52.595	ug/L	
2)	Acetylene	0.64	82830567	90.912	ug/L	
3)	Ethylene	0.88	192579890	47.348	ug/L	
4)	Ethane	1.14	288692580	51.658	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.84	280008014	48.388	ug/L	m

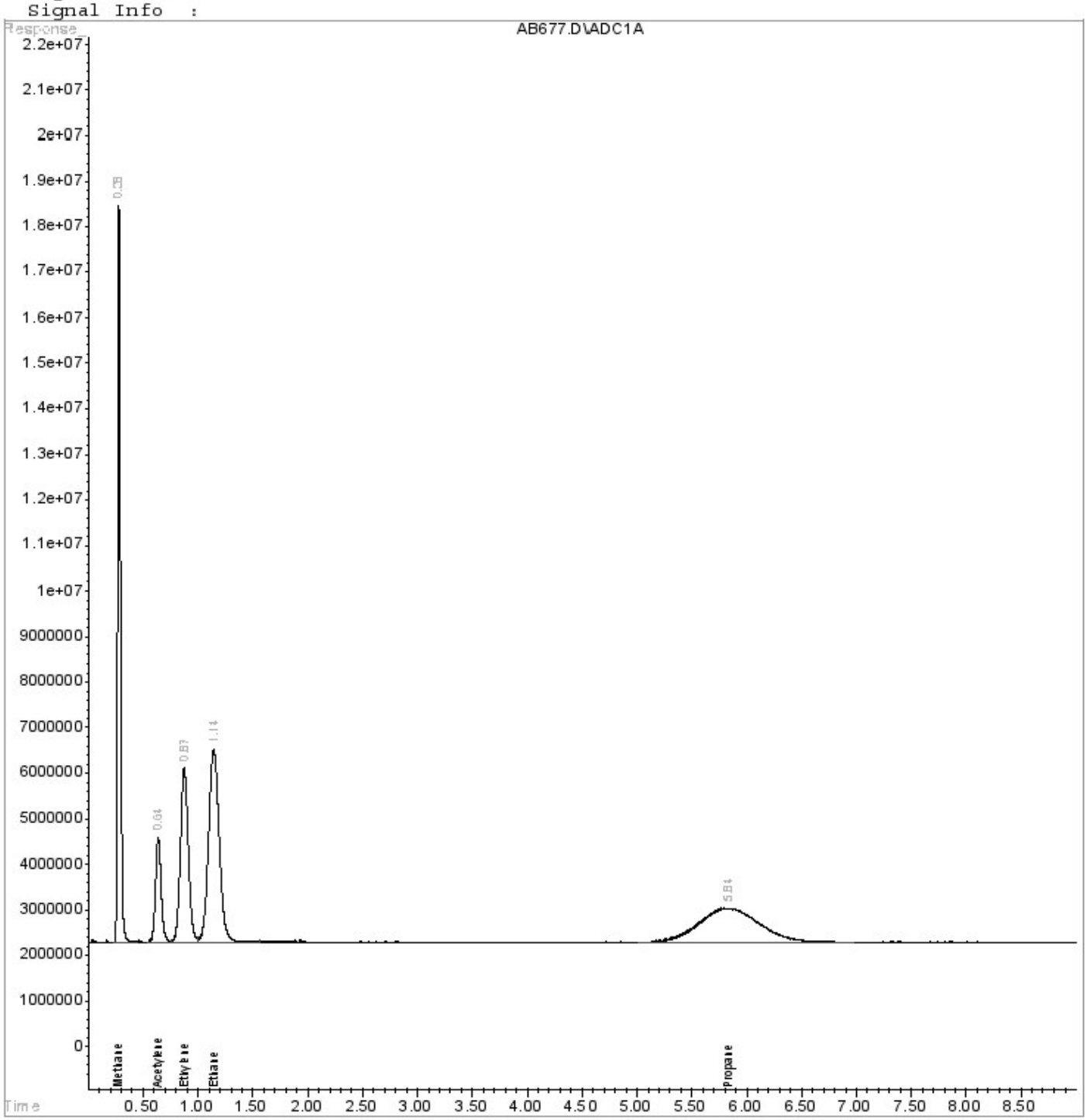
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:17 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

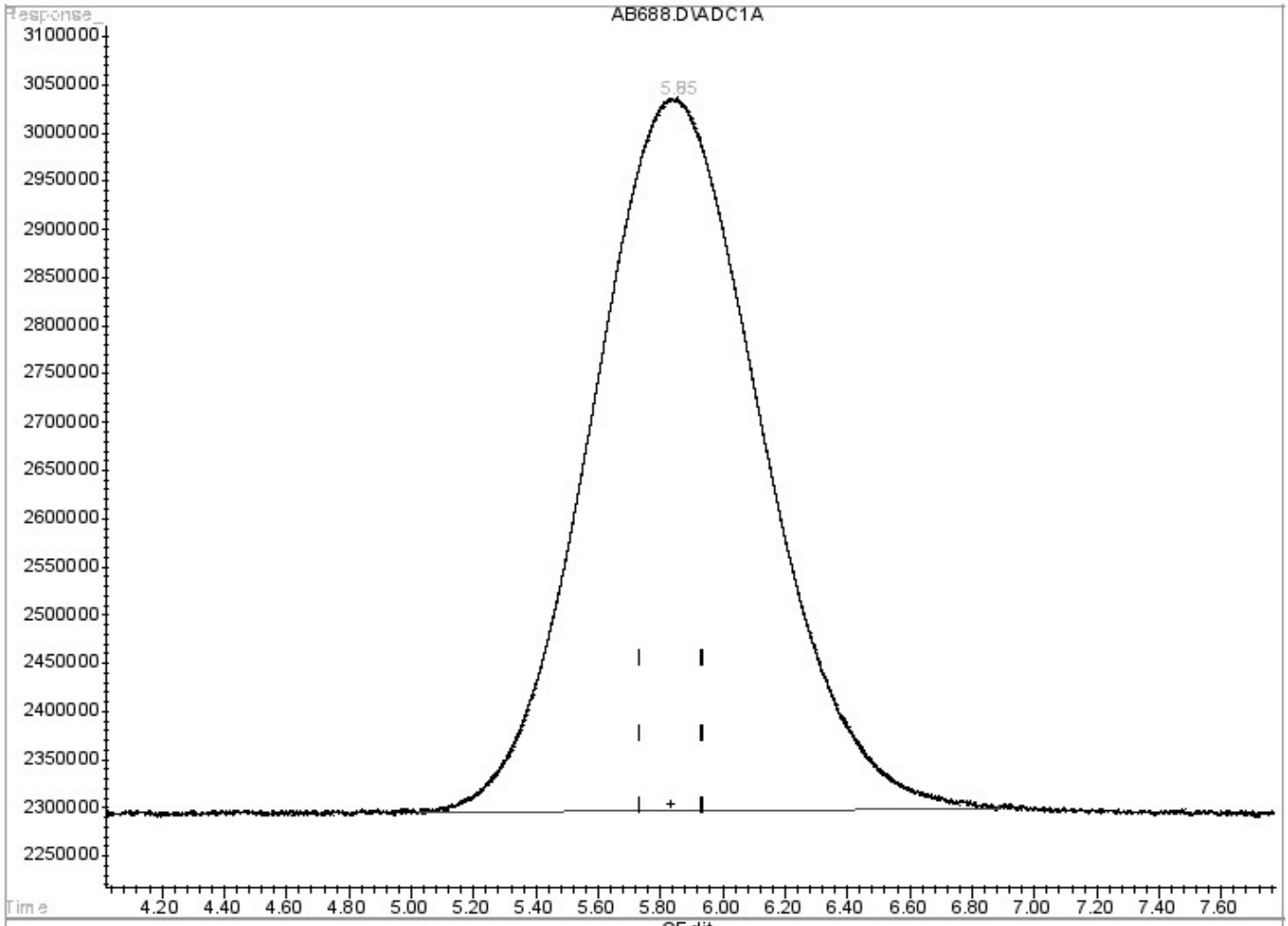


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:52 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 48.225ug/L m

response 279066560

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

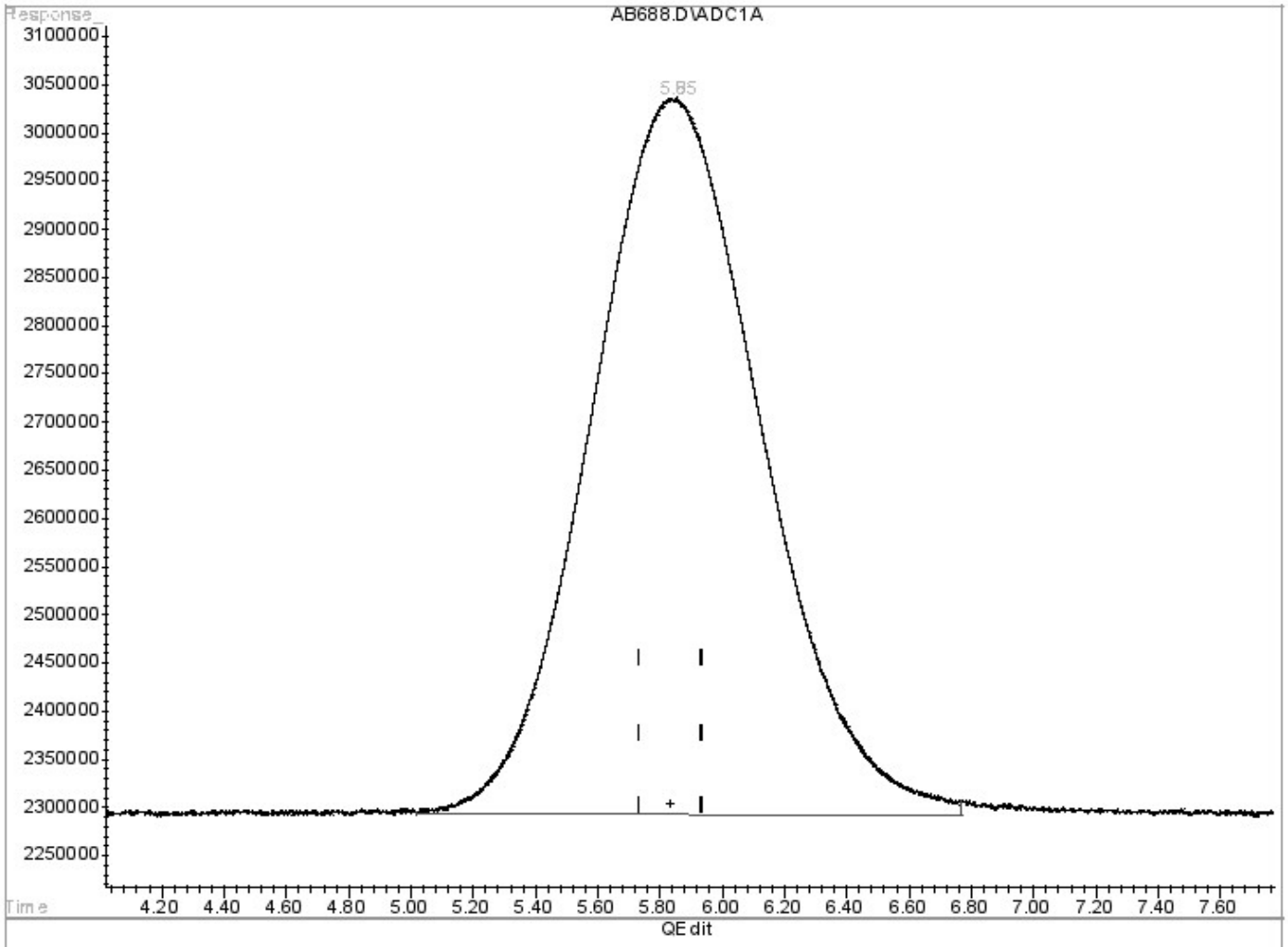
AB688.D RSK0626.M Fri Jun 29 11:53:11 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:52 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 48.804ug/L

response 282416299

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB688.D RSK0626.M Fri Jun 29 11:53:05 2018
Page 64 of 85

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
1	Methane	5.437	5.383	E6	1.0	94	0.00
2	Acetylene	823.699	945.501	E3	~~-14.8~~	96	0.00
3	Ethylene	4.067	4.000	E6	1.6	92	0.00
4	Ethane	5.589	5.497	E6	1.6	94	0.00
6	Propane	5.787	5.483	E6	5.3	94	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB688.D RSK0626.M Fri Jun 29 11:53:42 2018 Page 1
Page 65 of 85

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB688.D RSK0626.M Fri Jun 29 11:53:42 2018 Page 2

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:53 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	282623484	51.981	ug/L	
2)	Acetylene	0.64	94739238	101.723	ug/L	
3)	Ethylene	0.88	194387063	47.793	ug/L	
4)	Ethane	1.15	286416923	51.251	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.85	279066560	48.225	ug/L	m

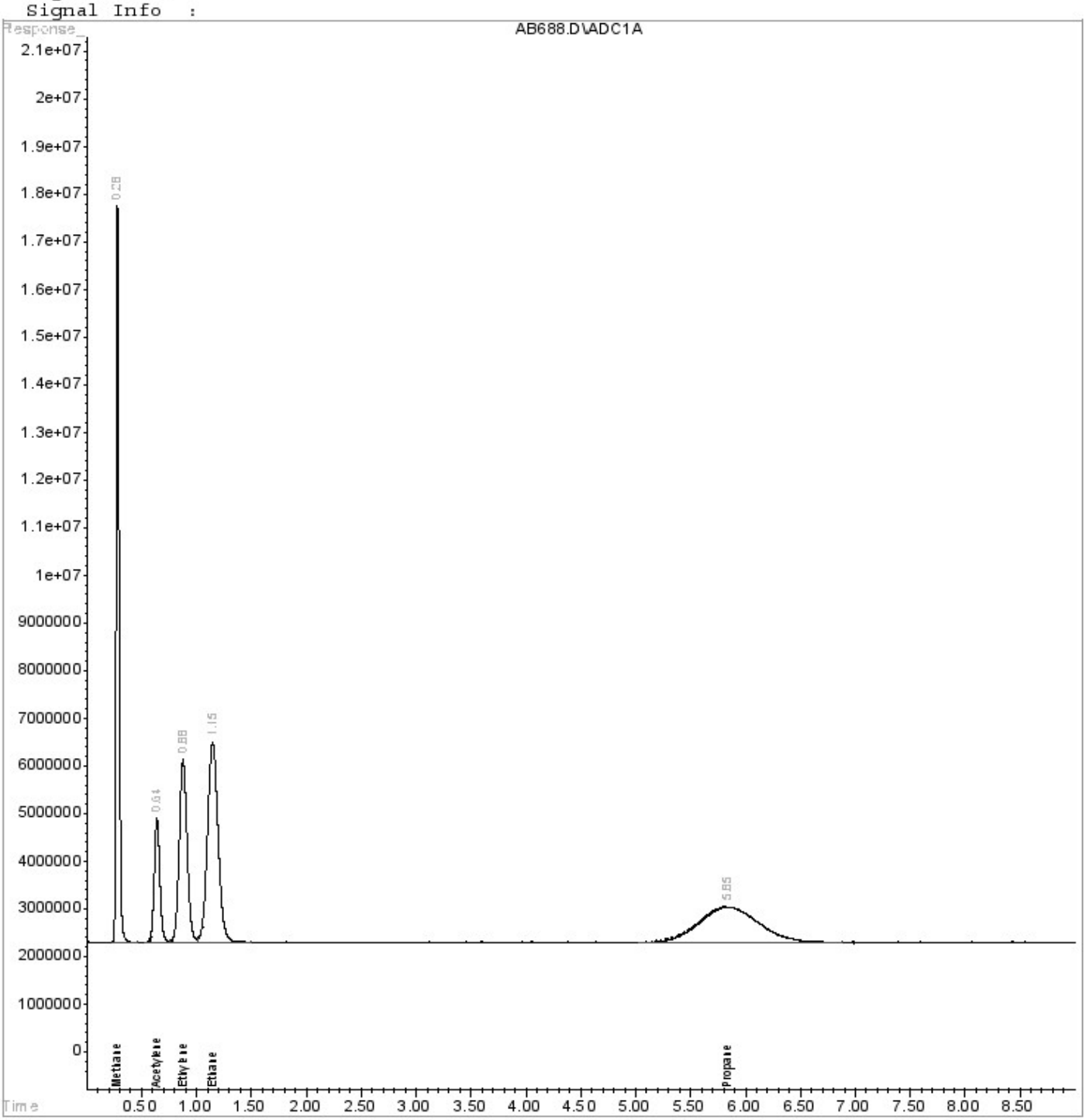
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:53 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
1	Methane	5.437	5.655	E6	-4.0	99	0.00
2	Acetylene	823.699	995.755	E3	~~-20.9~~ 6	101	0.00
3	Ethylene	4.067	4.249	E6	-4.5	97	0.00
4	Ethane	5.589	5.750	E6	-2.9	99	0.00
6	Propane	5.787	5.775	E6	0.2	99	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB698.D RSK0626.M Fri Jun 29 13:30:02 2018 Page 1

1st BA 6/29/18
2nd MW 6/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB698.D RSK0626.M Fri Jun 29 13:30:02 2018 Page 2

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:29 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	296872545	54.601	ug/L
2)	Acetylene	0.64	99774672	106.182	ug/L
3)	Ethylene	0.88	206490468	50.769	ug/L
4)	Ethane	1.15	299594096	53.609	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	5.85	293970732	50.801	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

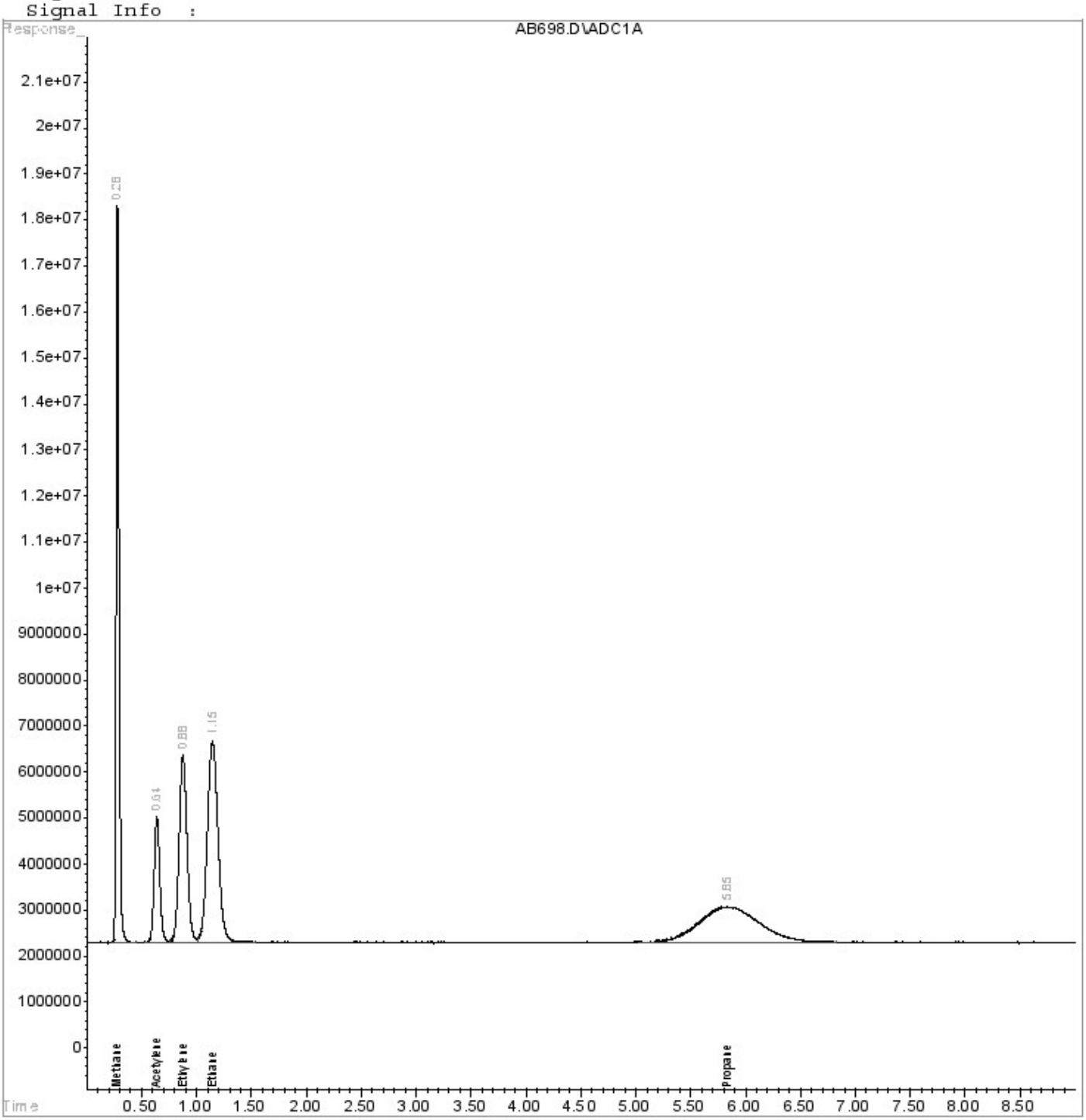
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:29 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



AB698.D RSK0626.M Fri Jun 29 13:29:57 2018 Page 2

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	Methane	52.500	50.931	3.0	93	0.00
2	Acetylene	100.200	103.260	~~-3.1~~ 3	98	0.00
3	Ethylene	48.600	47.799	1.6	92	0.00
4	Ethane	52.100	50.490	3.1	93	0.00
6	Propane	50.900	47.559	6.6	93	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB704.D RSK0626.M Fri Jun 29 14:27:07 2018 Page 1
Page 73 of 85

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
5	Propene	48.100	0.000	100.0#	0	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB704.D RSK0626.M Fri Jun 29 14:27:07 2018 Page 2

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:26 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	276916125	50.931 ug/L
2)	Acetylene	0.64	96467671	103.260 ug/L
3)	Ethylene	0.88	194411982	47.799 ug/L
4)	Ethane	1.14	282165685	50.490 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	275213378	47.559 ug/L

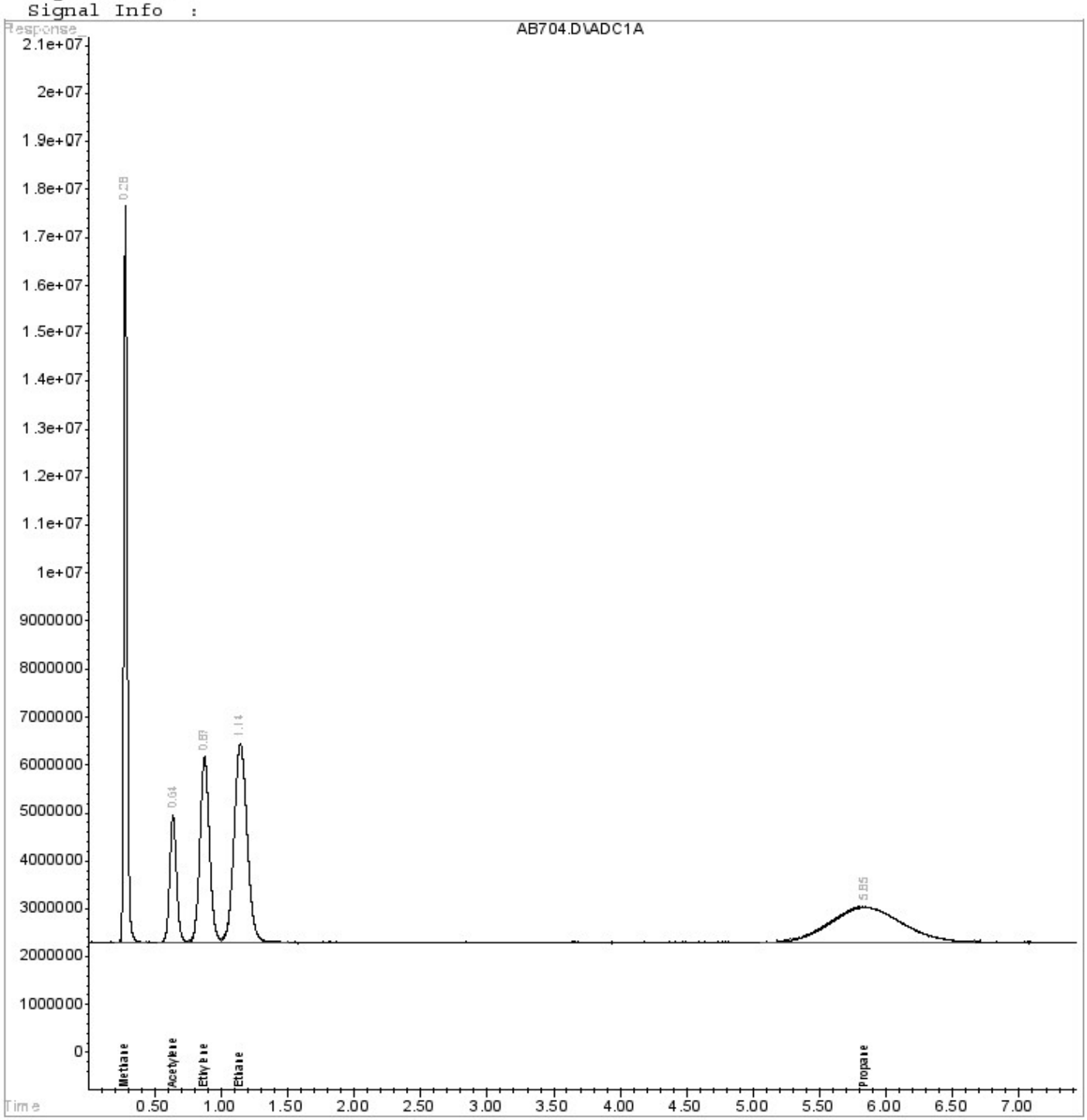
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:26 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



Client: ALS Environmental - US
Project: UR115: 2321910

Service Request: R1805941
Calibration Date: 6/26/2018

Initial Calibration Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800072
Instrument ID: R-GC-02

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
08	RC1800072-08	1PPB		06/26/2018 11:23
07	RC1800072-07	2PPB		06/26/2018 11:33
06	RC1800072-06	10PPB		06/26/2018 11:46
05	RC1800072-05	20PPB		06/26/2018 11:56
04	RC1800072-04	50PPB		06/26/2018 12:06
03	RC1800072-03	75PPB		06/26/2018 12:48
02	RC1800072-02	100PPB		06/26/2018 12:58

Analyte

Acetylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	2.000	5.438E5	07	4.010	5.433E5	06	20.030	6.889E5	05	40.100	9.101E5
04	100.200	9.87E5	03	150.300	1.017E6	02	200.300	1.076E6			

Ethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	1.040	5.598E6	07	2.080	5.05E6	06	10.410	5.132E6	05	20.800	6.227E6
04	52.100	5.823E6	03	78.100	5.711E6	02	104.100	5.58E6			

Ethene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.970	3.745E6	07	1.940	3.421E6	06	9.710	3.705E6	05	19.400	4.595E6
04	48.600	4.366E6	03	72.900	4.348E6	02	97.100	4.291E6			

Methane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	1.050	5.401E6	07	2.100	4.941E6	06	10.490	5.024E6	05	21.000	6.123E6
04	52.500	5.699E6	03	78.700	5.521E6	02	104.900	5.352E6			

Client: ALS Environmental - US
Project: UR115: 2321910

Service Request: R1805941
Calibration Date: 6/26/2018

Initial Calibration Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800072
Instrument ID: R-GC-02

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Acetylene	TRG	Quadratic	COD	0.9969	≥	8.237E5	
Ethane	TRG	Average RF	% RSD	7.2	≤20	5.589E6	
Ethene	TRG	Average RF	% RSD	10.8	≤20	4.067E6	
Methane	TRG	Average RF	% RSD	7.4	≤20	5.437E6	

Client: ALS Environmental - US **Service Request:** R1805941
Project: UR115: 2321910 **Calibration Date:** 6/26/2018

Initial Calibration Verification Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800072 **Signal ID:** 1
Instrument ID: R-GC-02

#	Lab Code	Sample Name	File Location	Acquisition Date
01	RC1800072-01	ICV		06/26/2018 13:28

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
Acetylene	100	109	8.237E5	1.029E6	109	85-115	Quadratic
Ethane	52.1	52.4	5.589E6	5.617E6	101	85-115	Average RF
Ethene	48.6	51.6	4.067E6	4.315E6	106	85-115	Average RF
Methane	52.5	51.9	5.437E6	5.378E6	98.9	85-115	Average RF

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Analyzed:**	06/29/18 09:07

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method:	RSK 175	**Calibration Date:**	6/26/2018
File ID:	I:\ACQUDATA\V2\DATA\062918\AB677.D\	**Calibration ID:**	RC1800072
Signal ID:	1	**Analysis Lot:**	596833
		Units:	ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	90.9	8.237E5	8.269E5	90.8	-9.2	85-115	Quadratic
Ethane	52.1	51.7	5.589E6	5.545E6	99.2	NA	85-115	Average RF
Ethene	48.6	47.3	4.067E6	3.965E6	97.5	NA	85-115	Average RF
Methane	52.5	52.6	5.437E6	5.451E6	100	NA	85-115	Average RF

Client: ALS Environmental - US
Project: UR115: 2321910

Service Request: R1805941
Date Analyzed: 06/29/18 11:43

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method: RSK 175
File ID: I:\ACQUDATA\V2\DATA\062918\AB688.D\
Signal ID: 1

Calibration Date: 6/26/2018
Calibration ID: RC1800072
Analysis Lot: 596833
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	102	8.237E5	9.458E5	102	1.6	85-115	Quadratic
Ethane	52.1	51.3	5.589E6	5.501E6	98.4	NA	85-115	Average RF
Ethene	48.6	47.8	4.067E6	4.002E6	98.4	NA	85-115	Average RF
Methane	52.5	52.0	5.437E6	5.387E6	99.1	NA	85-115	Average RF

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Analyzed:**	06/29/18 13:15

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method:	RSK 175	**Calibration Date:**	6/26/2018
File ID:	I:\ACQUDATA\V2\DATA\062918\AB698.D\	**Calibration ID:**	RC1800072
Signal ID:	1	**Analysis Lot:**	596833
		Units:	ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	106	8.237E5	9.961E5	106	6.0	85-115	Quadratic
Ethane	52.1	53.6	5.589E6	5.754E6	103	NA	85-115	Average RF
Ethene	48.6	50.8	4.067E6	4.251E6	105	NA	85-115	Average RF
Methane	52.5	54.6	5.437E6	5.659E6	104	NA	85-115	Average RF

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Analyzed:**	06/29/18 14:19

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method:	RSK 175	**Calibration Date:**	6/26/2018
File ID:	I:\ACQUDATA\V2\DATA\062918\AB704.D\	**Calibration ID:**	RC1800072
Signal ID:	1	**Analysis Lot:**	596833
		Units:	ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	103	8.237E5	9.63E5	103	3.1	85-115	Quadratic
Ethane	52.1	50.5	5.589E6	5.419E6	97.0	NA	85-115	Average RF
Ethene	48.6	47.8	4.067E6	4.003E6	98.4	NA	85-115	Average RF
Methane	52.5	50.9	5.437E6	5.278E6	97.1	NA	85-115	Average RF

Client: ALS Environmental - US **Service Request:** R1805941

Project: UR115: 2321910

Analysis Run Log
Dissolved Gases by GC/FID

Analysis Method: RSK 175 **Analysis Lot:** 596833

Instrument ID: R-GC-02

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
I:\ACQUDATA\W2\DATA\062918\AB677.D\	Continuing Calibration Verification	RQ1806590-04	6/29/2018	09:07:00	
I:\ACQUDATA\W2\DATA\062918\AB679.D\	Method Blank	RQ1806590-01	6/29/2018	09:32:00	
I:\ACQUDATA\W2\DATA\062918\AB680.D\	Lab Control Sample	RQ1806590-02	6/29/2018	09:49:00	
I:\ACQUDATA\W2\DATA\062918\AB681.D\	Duplicate Lab Control Sample	RQ1806590-03	6/29/2018	10:08:00	
I:\ACQUDATA\W2\DATA\062918\AB682.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	10:40:00	
I:\ACQUDATA\W2\DATA\062918\AB683.D\	2321910 004	R1805941-001	6/29/2018	10:51:00	
I:\ACQUDATA\W2\DATA\062918\AB684.D\	2321910 005	R1805941-002	6/29/2018	11:03:00	
I:\ACQUDATA\W2\DATA\062918\AB685.D\	2321910 008	R1805941-003	6/29/2018	11:14:00	
I:\ACQUDATA\W2\DATA\062918\AB686.D\	2321910 011	R1805941-004	6/29/2018	11:24:00	
I:\ACQUDATA\W2\DATA\062918\AB688.D\	Continuing Calibration Verification	RQ1806590-05	6/29/2018	11:43:00	
I:\ACQUDATA\W2\DATA\062918\AB689.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	11:54:00	
I:\ACQUDATA\W2\DATA\062918\AB690.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:03:00	
I:\ACQUDATA\W2\DATA\062918\AB691.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:12:00	
I:\ACQUDATA\W2\DATA\062918\AB692.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:22:00	
I:\ACQUDATA\W2\DATA\062918\AB693.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:30:00	
I:\ACQUDATA\W2\DATA\062918\AB694.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:39:00	
I:\ACQUDATA\W2\DATA\062918\AB695.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:50:00	
I:\ACQUDATA\W2\DATA\062918\AB696.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:58:00	
I:\ACQUDATA\W2\DATA\062918\AB697.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:07:00	
I:\ACQUDATA\W2\DATA\062918\AB698.D\	Continuing Calibration Verification	RQ1806590-06	6/29/2018	13:15:00	
I:\ACQUDATA\W2\DATA\062918\AB699.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:31:00	
I:\ACQUDATA\W2\DATA\062918\AB700.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:41:00	
I:\ACQUDATA\W2\DATA\062918\AB701.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:50:00	
I:\ACQUDATA\W2\DATA\062918\AB702.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:59:00	
I:\ACQUDATA\W2\DATA\062918\AB703.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	14:07:00	
I:\ACQUDATA\W2\DATA\062918\AB704.D\	Continuing Calibration Verification	RQ1806590-07	6/29/2018	14:19:00	

Printed 6/29/2018 3:07:24 PM Superset Reference:

Friday, July 06, 2018 7:08:42 PM
Page 117 of 117

Analysis: RSK.175 Analyst: BA

Date: 6/29/12 Data Path: J:\Acqudata\V2\Data\062912\

Instr. V2 Run Method: RSK / RSK0626

LIMS Run# :

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
	BLK								AB675	—	
	BLK								76	—	
	CCV								77	Yc	
	MET BLK								78	N	
	MET BLK								79	Y	
	LCS								80	Y	
	DCS								81	Y	
	R1805290-001										
	R1805941-001				19182	IV	1	<2	82	Y	
	-002				19182	IV	1		83	Y	
	-003								84	Y	
	-004								85	Y	
	R1805985-001								86	Y	
	CCV				19182	IV	1		87	Y	
	R1805985-001								88	Yc	
	-002				19182	IV	1	<2	89	Y	
	-003								90	Y	RPT 1/2
	-002	2.0	25ml						91	Y	
	-004								92	Y	
	-005								93	Y	RPT 1/50
	-006	2.0	25ml						94	Y	RPT 1/2
	R1805986-001								95	Y	
	-001	20	25ml		19182	IV	1		96	Y	RPT 1/20
	CCV								97	Y	
	R1805986-002								98	Yc	
	-002	20	25ml		19182	IV	1	<2	99	Y	RPT 1/20
	-003								700	Y	
	-003	5.0	100ml						01	Y	RPT 1/5
	-004	100	10ml/50ml → 250ml						02	Y	
	CCV								03	Y	
									04	Yc	

All samples = _____mL + _____uL Surrogate _____mL purged

Primary : 190132 200ul/42.5ml (CCV)
Primary :
Primary :
Primary :

Secondary : 190133 100ul/42.5ml (LCS) Surrogate :
Secondary :
Secondary :
Secondary :

ALS

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

July 6, 2018

Ms. Kelly Lurie
AECOM - Mechanicsburg
100 Sterling Parkway
Suite 205
Mechanicsburg, PA 17055

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2322348**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN036|2015-SCOTIA NAVY DEPOT**

Dear Ms. Lurie:

Enclosed are the analytical results for samples received by the laboratory on Friday, June 22, 2018.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vanessa N Badman (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Greg Malzone , Mr. John Santacroce , Mr. Scott Underhill

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2322348001	MW-22 062118	Ground Water	6/21/2018 09:30	6/22/2018 09:45	Collected by Client
2322348002	MW-24 062118	Ground Water	6/21/2018 09:36	6/22/2018 09:45	Collected by Client
2322348003	MW-36 062118	Ground Water	6/21/2018 10:35	6/22/2018 09:45	Collected by Client
2322348004	MW-32 062118	Ground Water	6/21/2018 11:05	6/22/2018 09:45	Collected by Client
2322348005	DUP03-062118	Ground Water	6/21/2018 00:00	6/22/2018 09:45	Collected by Client
2322348006	MW-25 062118	Ground Water	6/21/2018 11:40	6/22/2018 09:45	Collected by Client
2322348007	MW-33 062118	Ground Water	6/21/2018 12:50	6/22/2018 09:45	Collected by Client
2322348008	MW-30 062118	Ground Water	6/21/2018 12:40	6/22/2018 09:45	Collected by Client
2322348009	MW-31 062118	Ground Water	6/21/2018 13:20	6/22/2018 09:45	Collected by Client

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

PROJECT SUMMARY

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Workorder Comments

Please see attached subcontracting from ALS Rochester. VNB 7/6/18

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348001** Date Collected: 6/21/2018 09:30 Matrix: Ground Water

Sample ID: **MW-22 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	3.8U	U,2	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,1-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,2-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,1-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
cis-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
trans-1,2-Dichloroethene	3.8U	U,1	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,1,1,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,1,2,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
Tetrachloroethene	6.3		ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
Toluene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,1,1-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,1,2-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
Trichloroethene	331		ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
Vinyl Chloride	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	110		%	81 - 118	SW846 8260C			7/3/18 02:36	PDK	A
4-Bromofluorobenzene (S)	97.3		%	85 - 114	SW846 8260C			7/3/18 02:36	PDK	A
Dibromofluoromethane (S)	95.1		%	80 - 119	SW846 8260C			7/3/18 02:36	PDK	A
Toluene-d8 (S)	92.8		%	89 - 112	SW846 8260C			7/3/18 02:36	PDK	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348002** Date Collected: 6/21/2018 09:36 Matrix: Ground Water

Sample ID: **MW-24 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
cis-1,2-Dichloroethene	0.40J	J	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
Trichloroethene	0.66J	J	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:57	PDK	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118			SW846 8260C			7/2/18 22:57	PDK	H
4-Bromofluorobenzene (S)	97		%	85 - 114			SW846 8260C			7/2/18 22:57	PDK	H
Dibromofluoromethane (S)	92.7		%	80 - 119			SW846 8260C			7/2/18 22:57	PDK	H
Toluene-d8 (S)	92.9		%	89 - 112			SW846 8260C			7/2/18 22:57	PDK	H
WET CHEMISTRY												
Alkalinity, Total	159	1	mg/L	5	5	0.8	S2320B-97			6/24/18 23:30	MSA	F
Chloride	37.1		mg/L	2.0	0.50	0.16	EPA 300.0			6/23/18 07:56	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/23/18 07:56	CHW	E
Sulfate	21.5		mg/L	2.0	0.50	0.20	EPA 300.0			6/23/18 07:56	CHW	E
Total Organic Carbon (TOC)	4.5		mg/L	1.0	0.50	0.18	S5310B-00			6/30/18 01:45	AK	C
SUBCONTRACTED ANALYSIS												
Subcontracted Analysis	See attached.						Subcontract			6/21/18 09:36	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348003** Date Collected: 6/21/2018 10:35 Matrix: Ground Water

Sample ID: **MW-36 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
Trichloroethene	1.7		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118	SW846 8260C		7/2/18 23:19	PDK	A
4-Bromofluorobenzene (S)	97.4		%	85 - 114	SW846 8260C		7/2/18 23:19	PDK	A
Dibromofluoromethane (S)	92.7		%	80 - 119	SW846 8260C		7/2/18 23:19	PDK	A
Toluene-d8 (S)	92.2		%	89 - 112	SW846 8260C		7/2/18 23:19	PDK	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348004** Date Collected: 6/21/2018 11:05 Matrix: Ground Water

Sample ID: **MW-32 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
cis-1,2-Dichloroethene	0.62J	J	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
Trichloroethene	64.1		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 23:41	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118			SW846 8260C			7/2/18 23:41	PDK	A
4-Bromofluorobenzene (S)	97.8		%	85 - 114			SW846 8260C			7/2/18 23:41	PDK	A
Dibromofluoromethane (S)	94.5		%	80 - 119			SW846 8260C			7/2/18 23:41	PDK	A
Toluene-d8 (S)	92.1		%	89 - 112			SW846 8260C			7/2/18 23:41	PDK	A
WET CHEMISTRY												
Alkalinity, Total	128	1	mg/L	5	5	0.8	S2320B-97			6/24/18 23:39	MSA	G
Chloride	29.5		mg/L	2.0	0.50	0.16	EPA 300.0			6/23/18 08:14	CHW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/23/18 08:14	CHW	F
Sulfate	2.3		mg/L	2.0	0.50	0.20	EPA 300.0			6/23/18 08:14	CHW	F
Total Organic Carbon (TOC)	6.4		mg/L	1.0	0.50	0.18	S5310B-00			6/30/18 01:45	AK	D
SUBCONTRACTED ANALYSIS												
Subcontracted Analysis	See attached.						Subcontract			6/21/18 11:05	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348005** Date Collected: 6/21/2018 00:00 Matrix: Ground Water

Sample ID: **DUP03-062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A
Trichloroethene	1.7		ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:02	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C			7/3/18 00:02	PDK	A
4-Bromofluorobenzene (S)	98.3		%	85 - 114	SW846 8260C			7/3/18 00:02	PDK	A
Dibromofluoromethane (S)	93.7		%	80 - 119	SW846 8260C			7/3/18 00:02	PDK	A
Toluene-d8 (S)	91.7		%	89 - 112	SW846 8260C			7/3/18 00:02	PDK	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348006** Date Collected: 6/21/2018 11:40 Matrix: Ground Water

Sample ID: **MW-25 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
Trichloroethene	80.3		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C		7/3/18 00:24	PDK	A
4-Bromofluorobenzene (S)	98.1		%	85 - 114	SW846 8260C		7/3/18 00:24	PDK	A
Dibromofluoromethane (S)	94.4		%	80 - 119	SW846 8260C		7/3/18 00:24	PDK	A
Toluene-d8 (S)	94		%	89 - 112	SW846 8260C		7/3/18 00:24	PDK	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348007** Date Collected: 6/21/2018 12:50 Matrix: Ground Water

Sample ID: **MW-33 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
Trichloroethene	178		ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/3/18 00:46	PDK	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118			SW846 8260C			7/3/18 00:46	PDK	H
4-Bromofluorobenzene (S)	98.4		%	85 - 114			SW846 8260C			7/3/18 00:46	PDK	H
Dibromofluoromethane (S)	94.1		%	80 - 119			SW846 8260C			7/3/18 00:46	PDK	H
Toluene-d8 (S)	92.6		%	89 - 112			SW846 8260C			7/3/18 00:46	PDK	H
WET CHEMISTRY												
Alkalinity, Total	215	1	mg/L	5	5	0.8	S2320B-97			6/24/18 23:49	MSA	G
Chloride	22.5		mg/L	2.0	0.50	0.16	EPA 300.0			6/23/18 08:33	CHW	F
Nitrate-N	0.42		mg/L	0.20	0.060	0.020	EPA 300.0			6/23/18 08:33	CHW	F
Sulfate	14.3		mg/L	2.0	0.50	0.20	EPA 300.0			6/23/18 08:33	CHW	F
Total Organic Carbon (TOC)	1.6		mg/L	1.0	0.50	0.18	S5310B-00			6/30/18 01:45	AK	D
SUBCONTRACTED ANALYSIS												
Subcontracted Analysis	See attached.						Subcontract			6/21/18 12:50	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348008** Date Collected: 6/21/2018 12:40 Matrix: Ground Water

Sample ID: **MW-30 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
Trichloroethene	178		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:13	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118			SW846 8260C			7/2/18 22:13	PDK	A
4-Bromofluorobenzene (S)	100		%	85 - 114			SW846 8260C			7/2/18 22:13	PDK	A
Dibromofluoromethane (S)	90.2		%	80 - 119			SW846 8260C			7/2/18 22:13	PDK	A
Toluene-d8 (S)	94.7		%	89 - 112			SW846 8260C			7/2/18 22:13	PDK	A
WET CHEMISTRY												
Alkalinity, Total	66	1	mg/L	5	5	0.8	S2320B-97			6/25/18 00:34	MSA	G
Chloride	37.3		mg/L	2.0	0.50	0.16	EPA 300.0			6/23/18 08:52	CHW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/23/18 08:52	CHW	F
Sulfate	0.38J	J	mg/L	2.0	0.50	0.20	EPA 300.0			6/23/18 08:52	CHW	F
Total Organic Carbon (TOC)	7.9		mg/L	1.0	0.50	0.18	S5310B-00			6/30/18 01:45	AK	D
SUBCONTRACTED ANALYSIS												
Subcontracted Analysis	See attached.						Subcontract			6/21/18 12:40	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348009** Date Collected: 6/21/2018 13:20 Matrix: Ground Water

Sample ID: **MW-31 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
Trichloroethene	20.6		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 22:34	PDK	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118			SW846 8260C			7/2/18 22:34	PDK	H
4-Bromofluorobenzene (S)	99.1		%	85 - 114			SW846 8260C			7/2/18 22:34	PDK	H
Dibromofluoromethane (S)	91.5		%	80 - 119			SW846 8260C			7/2/18 22:34	PDK	H
Toluene-d8 (S)	92.6		%	89 - 112			SW846 8260C			7/2/18 22:34	PDK	H
WET CHEMISTRY												
Alkalinity, Total	169	1	mg/L	5	5	0.8	S2320B-97			6/25/18 00:44	MSA	G
Chloride	39.9		mg/L	2.0	0.50	0.16	EPA 300.0			6/23/18 09:10	CHW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/23/18 09:10	CHW	F
Sulfate	7.8		mg/L	2.0	0.50	0.20	EPA 300.0			6/23/18 09:10	CHW	F
Total Organic Carbon (TOC)	2.1		mg/L	1.0	0.50	0.18	S5310B-00			6/30/18 01:45	AK	D
SUBCONTRACTED ANALYSIS												
Subcontracted Analysis	See attached.						Subcontract			6/21/18 13:20	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2322348001	1	MW-22 062118	SW846 8260C	trans-1,2-Dichloroethene
The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte trans-1,2-Dichloroethene. The % Recovery was reported as 127 and the control limits were 75 to 124.				
2322348001	2	MW-22 062118	SW846 8260C	Carbon Tetrachloride
The GCMS volatiles analysis was performed at a dilution due to the level of target compounds.				
2322348002	1	MW-24 062118	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2322348004	1	MW-32 062118	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2322348007	1	MW-33 062118	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2322348008	1	MW-30 062118	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2322348009	1	MW-31 062118	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID	Sample ID	Analysis Method	Prep Method
2322348001	MW-22 062118	SW846 8260C	
2322348002	MW-24 062118	EPA 300.0	
2322348002	MW-24 062118	S2320B-97	
2322348002	MW-24 062118	S5310B-00	
2322348002	MW-24 062118	SW846 8260C	
2322348002	MW-24 062118	Subcontract	
2322348003	MW-36 062118	SW846 8260C	
2322348004	MW-32 062118	EPA 300.0	
2322348004	MW-32 062118	S2320B-97	
2322348004	MW-32 062118	S5310B-00	
2322348004	MW-32 062118	SW846 8260C	
2322348004	MW-32 062118	Subcontract	
2322348005	DUP03-062118	SW846 8260C	
2322348006	MW-25 062118	SW846 8260C	
2322348007	MW-33 062118	EPA 300.0	
2322348007	MW-33 062118	S2320B-97	
2322348007	MW-33 062118	S5310B-00	
2322348007	MW-33 062118	SW846 8260C	
2322348007	MW-33 062118	Subcontract	
2322348008	MW-30 062118	EPA 300.0	
2322348008	MW-30 062118	S2320B-97	
2322348008	MW-30 062118	S5310B-00	
2322348008	MW-30 062118	SW846 8260C	
2322348008	MW-30 062118	Subcontract	
2322348009	MW-31 062118	EPA 300.0	
2322348009	MW-31 062118	S2320B-97	
2322348009	MW-31 062118	S5310B-00	
2322348009	MW-31 062118	SW846 8260C	
2322348009	MW-31 062118	Subcontract	

QUALITY CONTROL DATA

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

QC Batch: VOMS/47288 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 2322348001, 2322348002, 2322348003, 2322348004, 2322348005, 2322348006, 2322348007, 2322348008, 2322348009

METHOD BLANK: 2768342

Parameter	Blank Result	Units	Reporting Limit
Carbon Tetrachloride	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
Trichloroethene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	102	%	81 - 118
4-Bromofluorobenzene (S)	99	%	85 - 114
Dibromofluoromethane (S)	90.4	%	80 - 119
Toluene-d8 (S)	93.2	%	89 - 112

LABORATORY CONTROL SAMPLE: 2768343

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	111	ug/L	20	22.2	72 - 136
1,1-Dichloroethane	108	ug/L	20	21.6	77 - 125
1,2-Dichloroethane	103	ug/L	20	20.5	73 - 128
1,1-Dichloroethene	121	ug/L	20	24.2	71 - 131
cis-1,2-Dichloroethene	108	ug/L	20	21.5	78 - 123
trans-1,2-Dichloroethene	115	ug/L	20	23.0	75 - 124
1,1,1,2-Tetrachloroethane	99.3	ug/L	20	19.9	78 - 124
1,1,2,2-Tetrachloroethane	107	ug/L	20	21.4	71 - 121
Tetrachloroethene	97.9	ug/L	20	19.6	74 - 129
Toluene	106	ug/L	20	21.2	80 - 121
1,1,1-Trichloroethane	113	ug/L	20	22.6	74 - 131
1,1,2-Trichloroethane	94.7	ug/L	20	18.9	80 - 119
Trichloroethene	103	ug/L	20	20.6	79 - 123

QUALITY CONTROL DATA

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Vinyl Chloride	102	ug/L	20	20.4	58 - 137
1,2-Dichloroethane-d4 (S)	90.7	%			81 - 118
4-Bromofluorobenzene (S)	98.2	%			85 - 114
Dibromofluoromethane (S)	88	%			80 - 119
Toluene-d8 (S)	90.3	%			89 - 112

MATRIX SPIKE: 2768603 DUPLICATE: 2768604 ORIGINAL: 2322348001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Carbon Tetrachloride	0	ug/L	100	126.02	124.655	126	125	72 - 136	1.09	30
1,1-Dichloroethane	0	ug/L	100	103.236	118.743	103	119	77 - 125	14	30
1,2-Dichloroethane	0	ug/L	100	109.533	108.625	110	109	73 - 128	.83	30
1,1-Dichloroethene	0	ug/L	100	110.242	131.31	110	131	71 - 131	17.4	30
cis-1,2-Dichloroethene	0	ug/L	100	122.11	118.47	122	118	78 - 123	3.03	30
trans-1,2-Dichloroethene	0	ug/L	100	105.562	126.518	106	127*	75 - 124	18.1	30
1,1,1,2-Tetrachloroethane	0	ug/L	100	102.907	101.66	103	102	78 - 124	1.22	30
1,1,2,2-Tetrachloroethane	0	ug/L	100	109.904	104.334	110	104	71 - 121	5.2	30
Tetrachloroethene	6.30415	ug/L	100	107.614	108.674	101	102	74 - 129	.98	30
Toluene	0	ug/L	100	110.543	109.809	111	110	80 - 121	.67	30
1,1,1-Trichloroethane	0	ug/L	100	124.412	123.154	124	123	74 - 131	1.02	30
1,1,2-Trichloroethane	0	ug/L	100	96.803	95.0433	96.8	95	80 - 119	1.83	30
Trichloroethene	331.365	ug/L	100	432.786	424.682	101	93.3	79 - 123	1.89	30
Vinyl Chloride	0	ug/L	100	106.975	104.28	107	104	58 - 137	2.55	30
1,2-Dichloroethane-d4 (S)	100	%				100	96.2	81 - 118		
4-Bromofluorobenzene (S)	96.8	%				96.8	96.8	85 - 114		
Dibromofluoromethane (S)	91.8	%				91.8	91.6	80 - 119		
Toluene-d8 (S)	87.6	%				87.6*	89.5	89 - 112		

QUALITY CONTROL DATA

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

QC Batch: WETC/206421 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 2322348002, 2322348004, 2322348007, 2322348008, 2322348009

METHOD BLANK: 2763190

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.12J	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.25U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2763192

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	103	mg/L	20	20.7	87 - 111
Nitrate-N	97.6	mg/L	2.5	2.4	88 - 111
Sulfate	104	mg/L	20	20.8	87 - 112

MATRIX SPIKE: 2764172 DUPLICATE: 2764173 ORIGINAL: 2322541006

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Chloride	22.92	mg/L	40	59.94	60.3	92.5	93.4	87 - 111	.6	15
Nitrate-N	2.7	mg/L	5	7.68	7.74	99.6	101	88 - 111	.78	15
Sulfate	133.14	mg/L	40	174.24	178.28	103	113*	87 - 112	2.29	15

METHOD BLANK: 2764175

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.080J	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.15J	mg/L	1.0

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

LABORATORY CONTROL SAMPLE: 2764178

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	101	mg/L	20	20.2	87 - 111
Nitrate-N	95.2	mg/L	2.5	2.4	88 - 111
Sulfate	102	mg/L	20	20.3	87 - 112

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

QC Batch: WETC/206433 **Analysis Method:** S2320B-97

QC Batch Method: S2320B-97

Associated Lab Samples: 2322348002, 2322348004, 2322348007, 2322348008, 2322348009

METHOD BLANK: 2763375

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	1J	mg/L	5

SAMPLE DUPLICATE: 2763377 ORIGINAL: 2321432001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	61.91687	mg/L	63.95481	3.24	20

METHOD BLANK: 2763380

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	4J	mg/L	5

SAMPLE DUPLICATE: 2763381 ORIGINAL: 2321446001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	26.79505	mg/L	26.14971	2.44	20

METHOD BLANK: 2763384

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2763385 ORIGINAL: 2321988003

Parameter	Original Result	Units	DUP Result	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Alkalinity, Total	61.70994	mg/L	60.35435	2.22	20

METHOD BLANK: 2763388

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2763389 ORIGINAL: 2322037002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	122.40206	mg/L	122.45348	.04	20

METHOD BLANK: 2763392

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2763393 ORIGINAL: 2322135001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	5.73167	mg/L	5.5714	2.84	20

METHOD BLANK: 2763396

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	4J	mg/L	5

SAMPLE DUPLICATE: 2763397 ORIGINAL: 2322158001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	14.96421	mg/L	15.0282	.43	20

QUALITY CONTROL DATA

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

METHOD BLANK: 2763400

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	4J	mg/L	5

SAMPLE DUPLICATE: 2763401 ORIGINAL: 2322164004

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	13.06888	mg/L	13.09908	.23	20

METHOD BLANK: 2763404

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

METHOD BLANK: 2763435

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	2J	mg/L	5

SAMPLE DUPLICATE: 2763436 ORIGINAL: 2322348008

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	66.45416	mg/L	63.89414	3.93	20

METHOD BLANK: 2763439

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

QUALITY CONTROL DATA

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

SAMPLE DUPLICATE: 2763440 ORIGINAL: 2322365001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	118.5722	mg/L	113.50629	4.37	20

METHOD BLANK: 2763443

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

QC Batch: WETC/206769 **Analysis Method:** S5310B-00

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 2322348002, 2322348004, 2322348007, 2322348008, 2322348009

METHOD BLANK: 2767303

Parameter	Blank Result	Units	Reporting Limit
Total Organic Carbon (TOC)	0.50U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2767304

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	102	mg/L	1	1.0	85 - 115

MATRIX SPIKE: 2767305 DUPLICATE: 2767306 ORIGINAL: 2322137005

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	4.703	mg/L	6	9.929	9.998	87.1	88.3	85 - 115	.69	20

MATRIX SPIKE: 2767307 DUPLICATE: 2767308 ORIGINAL: 2322157001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	.315	mg/L	6	6.561	6.56	104	104	85 - 115	.02	20

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2322348002	MW-24 062118			EPA 300.0	WETC/206421
2322348004	MW-32 062118			EPA 300.0	WETC/206421
2322348007	MW-33 062118			EPA 300.0	WETC/206421
2322348008	MW-30 062118			EPA 300.0	WETC/206421
2322348009	MW-31 062118			EPA 300.0	WETC/206421
2322348002	MW-24 062118			S2320B-97	WETC/206433
2322348004	MW-32 062118			S2320B-97	WETC/206433
2322348007	MW-33 062118			S2320B-97	WETC/206433
2322348008	MW-30 062118			S2320B-97	WETC/206433
2322348009	MW-31 062118			S2320B-97	WETC/206433
2322348002	MW-24 062118			S5310B-00	WETC/206769
2322348004	MW-32 062118			S5310B-00	WETC/206769
2322348007	MW-33 062118			S5310B-00	WETC/206769
2322348008	MW-30 062118			S5310B-00	WETC/206769
2322348009	MW-31 062118			S5310B-00	WETC/206769
2322348001	MW-22 062118			SW846 8260C	VOMS/47288
2322348002	MW-24 062118			SW846 8260C	VOMS/47288
2322348003	MW-36 062118			SW846 8260C	VOMS/47288
2322348004	MW-32 062118			SW846 8260C	VOMS/47288
2322348005	DUP03-062118			SW846 8260C	VOMS/47288
2322348006	MW-25 062118			SW846 8260C	VOMS/47288
2322348007	MW-33 062118			SW846 8260C	VOMS/47288
2322348008	MW-30 062118			SW846 8260C	VOMS/47288
2322348009	MW-31 062118			SW846 8260C	VOMS/47288

Friday, July 06, 2018 7:11:50 PM
Page 26 of 137

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #: 7815 3024 5629

* 2 3 2 2 3 4 8 *

Co. Name: AECOM

Contact (Report to): John Santacroce Phone: 518 951 2200

Address: 40 British American BLVD Latham NY

Bill to (if different than Report to): Same PO#:

Project Name/#: Seneca Navy Depot ALS Quote #:

TAT: [✓] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges. Date Required: Approved By:

Email? [✓] Y John.Santacroce@aecom.com

Fax? [ ] Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	8260 VOCs	RSK 175	TOC	Alkalinity	Cl, SO4, NO3	Acetylene				
	***Container Type				G	G	G	P	P							
	***Container Size				40	40	40	250	250							
	*** Preservative				HCl	HCl	HCl	-	-							
1	MW-22 062118	*MS/MSD	6/21/18	930	G	GW	6									
2	MW-24 062118			0936			2	2	2	1	1	✓				
3	MW-36 062118			1035			2									
4	MW-32 062118			1105			2	2	2	1	1	✓				
5	DUP03-062118	* Duplicate		-			2									
6	MW-25 062118			1140			2									
7	MW-33 062118			1250			2	2	2	1	1	✓				
8	MW-30 062118			1240			2	2	2	1	1	✓				

Enter Number of Containers Per Analysis

(completed by Sample Receiving)

Performed by: TMG

Cooler Temp: 2

Therm. ID: T02

No. of Coolers:

Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	N	N	N	Y	
	Y	Y	Y	Y	

	Custody seals Present?	(if present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
	N	N	N	N	N
	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Ross McCredi / Alex Golden

Project Comments: 6/23/18 0821

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 AECOM	6/21/18	2330	2 Brian McGuire	6/21/18	2330
3 Brian McGuire	6/21/18	400	4 COMMON COURIER / ALS COURIER		
5 COMMON COURIER / ALS COURIER			6	6/22/18	0945
7			8		
9			10		

Data Deliverables: [✓] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other

EDDs Required? [ ] If yes, format type: see QAPP

SDWA Forms?⇒ yes yes yes yes

State Samples Collected In? MD NJ NY PA

Other: send QAPP

DOD Criteria Required?

ALS FIELD SERVICES: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite

**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:
Tracking #: 232258

Co. Name:
Contact (Report to): Phone:
Address: See pg 1

Bill to (if different than Report to): See pg 1 PO#:

Project Name/#: ALS Quote #:

TAT: [✓] Normal-Standard TAT is 10-12 business days. Date Required:
[ ] Rush-Subject to ALS approval and surcharges. Approved By:

Email? -Y pg 1
Fax? -Y No.:

	***Container Type	***Container Size	*** Preservative									
	G	G	G	P	P							
	2oz-Comp	4oz	250ml	250ml	8oz							
	HCl	HCl	HCl	-	-							

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	8260 VOCs	RSK 175	TOC	Alkalinity	Cl, SO4, NO3	Acetylene					
1 MW-31 062118		6/21/18	1320	G	GW	2	2	2	1	1	✓					
2 Trip Blank		-	-	-	-	2	no trip blank									
3																
4																
5																
6																
7																
8																

Enter Number of Containers Per Analysis

Receipt Information (completed by Sample Receiving)
Performed by: TBM
Cooler Temp: 2
Therm. ID: 402
No. of Coolers:
Notes:

Circle appropriate Y or N.	Container in good condition?	COC/Labels complete/accurate?	Received on ice?	(if present) Seals intact?	Custody seals Present?
N	Y	Y	Y	N	N
N	Y	Y	Y	N	N
N	Y	Y	Y	N	N
N	Y	Y	Y	N	N
N	Y	Y	Y	N	N

Correct containers? Correct sample volume? Correct preservation? Headspace/Volatiles?

SAMPLED BY (Please Print): Kara McGurk

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 AECOM	6/21/18	2330	2 Brian McGuirk	6/22/18	230
3 Brian McGuirk	6/22/18	400	4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full
EDDs Required? [ ] If yes, format type: See pg 1
DOD Criteria Required?

SDWA Forms? ⇨ yes [ ]
State Samples Collected In? MD [ ] NJ [ ] NY [ ] PA [ ]
Other: See pg 1

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

Friday, July 06, 2018 7:11:50 PM
Page 27 of 137
ALS

July 02, 2018

Service Request No:R1805985

Vanessa Badman
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

Laboratory Results for: UR115: 2322348

Dear Vanessa,

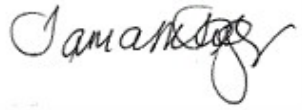
Enclosed are the results of the sample(s) submitted to our laboratory June 27, 2018
For your reference, these analyses have been assigned our service request number **R1805985.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental



Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

ALS Environmental
ALS Group USA, Corp
1565 Jefferson Road, Building 300, Suite 360
Rochester, NY 14623
T: +1 585 288 5380
F: +1 585 288 8475
www.alsglobal.com

Table of Contents

CoverLetter 1
Table of Contents 2
Narrative Documents 4
Case Narrative 5
Hit Summary List 6
Sample Receipt Information 7
Sample Cross-Reference 8
Chain Of Custody 9
Internal Chain of Custody 11
Miscellaneous Forms 13
Qualifiers 14
Acronyms 15
Analyst Summary 16
Prep Method Inorganic 17
Sample Results 18
Volatile Organic Compounds by GC 19
RSK 175 - Dissolved Gases by GC/FID
2322348 002 - VOA GC 20
2322348 004 - VOA GC 21
2322348 007 - VOA GC 22
2322348 008 - VOA GC 23
2322348 009 - VOA GC 24

Table of Contents (continued)

QC Summary Forms 25

Volatile Organic Compounds by GC 26

RSK 175 - Dissolved Gases by GC/FID

MB Summary VOA GC 27

Method Blank - VOA GC 28

LCS Summary VOA GC 29

RQ1806590-03 - DLCS VOA GC 30

Raw Data 31

Volatile Organic Compounds by GC 32

RSK 175 - Gases DOD

Form 1s

2322348 002 - VOA GC 33

2322348 004 - VOA GC 34

2322348 007 - VOA GC 35

2322348 008 - VOA GC 36

2322348 009 - VOA GC 37

Raw Data 38

ICAL Summary 102

ICV Summary 104

RQ1806590-04 - CCV VOA GC 105

RQ1806590-05 - CCV VOA GC 106

RQ1806590-06 - CCV VOA GC 107

RQ1806590-07 - CCV VOA GC 108

Run Log 109

Run Log Sheets 110

Narrative Documents

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental

Client: ALS Environmental - US
Project: UR115: 2322348
Sample Matrix: Water

Service Request: R1805985
Date Received: 06/27/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt:

Five water samples were received for analysis at ALS Environmental on 06/27/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Volatiles by GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 07/02/2018

SAMPLE DETECTION SUMMARY

CLIENT ID: 2322348 002			Lab ID: R1805985-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Ethene	0.20	J	0.14	1.0	ug/L	RSK 175
Methane	1.3		0.12	1.1	ug/L	RSK 175

CLIENT ID: 2322348 004			Lab ID: R1805985-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Ethane	2.0		0.17	1.0	ug/L	RSK 175
Ethene	0.25	J	0.14	1.0	ug/L	RSK 175
Methane	130	D	0.23	2.1	ug/L	RSK 175

CLIENT ID: 2322348 007			Lab ID: R1805985-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Methane	17		0.12	1.1	ug/L	RSK 175

CLIENT ID: 2322348 008			Lab ID: R1805985-004			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Ethane	47		0.17	1.0	ug/L	RSK 175
Ethene	6.6		0.14	1.0	ug/L	RSK 175
Methane	5100	D	12	110	ug/L	RSK 175

CLIENT ID: 2322348 009			Lab ID: R1805985-005			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Ethane	5.7		0.17	1.0	ug/L	RSK 175
Ethene	2.4		0.14	1.0	ug/L	RSK 175
Methane	120	D	0.23	2.1	ug/L	RSK 175

Sample Receipt Information

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1805985-001	2322348 002	6/21/2018	0936
R1805985-002	2322348 004	6/21/2018	1105
R1805985-003	2322348 007	6/21/2018	1250
R1805985-004	2322348 008	6/21/2018	1240
R1805985-005	2322348 009	6/21/2018	1320

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	1 of 2
ALS Quote #:	

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2322348

Bill To: ALS Environmental

TAT [ ] Normal-Standard TAT is 10-12 business days.
[X] Rush-Subject to ALS approval and surcharges.

Date Required: 7/9/2018 Approved By:

Email? [ ] Y

Fax? [ ] Y No.:

Container Type: G
Container Size: 40 mL
Preservative: HCl

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	DOD RSK175 (Ethane, , Ethene, Methane, Acetylene)	*Report to the MDL, QC lab report needed. EQUIS EDD.	Enter Number of Containers Per Sample or Field Results Below.	Sample/COC Comments
1 2322348 002	6/21/18	0936	G	WT	2	*		
2 2322348 004	6/21/18	1105	G	WT	2	*		Sub to ALS Rochester
3 2322348 007	6/21/18	1250	G	WT	2	*		
4 2322348 008	6/21/18	1240	G	WT	2	*		
5 2322348 009	6/21/18	1320	G	WT	2	*		
6								
7								
8								
9								
10								

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

ALS Field Services: ☐Pickup ☐Labor ☐Composite_Sampling ☐Rental_Equipment ☐Other:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/26/18	1600	2	6/27/18	0950
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [X] DOD

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] MD

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

R1805985 5

ALS Group USA, Corp.
UR115: 2322348

* G=Grab; C=Composite ** Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; W

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Cooler Receipt and Preservation Check Form

R1805985 5
ALS Group USA, Corp.
UR115: 2322348

Project/Client ARS- MDT Folder Number

Cooler received on 6/27/18 by: @

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk, or Sulfide have sig* **bubbles**?	(Y) (N) NA
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 6/27/18 Time: 0955 ID: IR#7 (IR#9) From: Temp Blank (Sample Bottle)

Observed Temp (°C)	21						
Correction Factor (°C)	–						
Corrected Temp (°C)	2.1						
Temp from: Type of bottle	–						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by @ on 6/27/18 at 1000
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 6/27/18 Time: 1502 by: @

9.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
10.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
11.	Were correct containers used for the tests indicated?	(YES)	NO
12.	Were 5035 vials acceptable (no extra labels, not leaking)?	YES	NO (N/A)
13.	Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized	Tedlar® Bags Inflated	(N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**	Client					

Bottle lot numbers: Client

Explain all Discrepancies/ Other Comments:

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: @

PC Secondary Review: JMS 6/28/18

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Internal Chain of Custody Report

Client: ALS Environmental **Service Request:** R1805985

Project: UR115: 2322348

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R1805985-001.01					
	RSK 175				
		6/27/2018	1502	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
		6/29/2018	1121	In Lab / BALLGEIER	
R1805985-001.02					
		6/27/2018	1502	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
R1805985-002.01					
	RSK 175,RSK 175				
		6/27/2018	1502	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
		6/29/2018	1121	In Lab / BALLGEIER	
R1805985-002.02					
		6/27/2018	1502	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
R1805985-003.01					
	RSK 175				
		6/27/2018	1502	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
		6/29/2018	1121	In Lab / BALLGEIER	
R1805985-003.02					
		6/27/2018	1502	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
R1805985-004.01					
	RSK 175,RSK 175				
		6/27/2018	1502	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
		6/29/2018	1121	In Lab / BALLGEIER	
R1805985-004.02					
		6/27/2018	1502	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
R1805985-005.01					
	RSK 175,RSK 175				
		6/27/2018	1502	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
		6/29/2018	1121	In Lab / BALLGEIER	

Internal Chain of Custody Report

Client: ALS Environmental **Service Request:** R1805985

Project: UR115: 2322348

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R1805985-005.02					
		6/27/2018	1502	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	

Miscellaneous Forms

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Delaware Approved	New Jersey ID # NY004	
DoD ELAP #65817	New York ID # 10145	Pennsylvania ID# 68-786
Florida ID # E87674	North Carolina #676	Rhode Island ID # 158
		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: ALS Environmental - US **Service Request:** R1805985
Project: UR115: 2322348

Sample Name: 2322348 002 **Date Collected:** 06/21/18
Lab Code: R1805985-001 **Date Received:** 06/27/18
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

Sample Name: 2322348 004 **Date Collected:** 06/21/18
Lab Code: R1805985-002 **Date Received:** 06/27/18
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

Sample Name: 2322348 007 **Date Collected:** 06/21/18
Lab Code: R1805985-003 **Date Received:** 06/27/18
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

Sample Name: 2322348 008 **Date Collected:** 06/21/18
Lab Code: R1805985-004 **Date Received:** 06/27/18
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

Sample Name: 2322348 009 **Date Collected:** 06/21/18
Lab Code: R1805985-005 **Date Received:** 06/27/18
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

Sample Results

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 09:36
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 002	**Units:**	ug/L
Lab Code:	R1805985-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND	U	2.0	1.0	0.53	1	06/29/18 11:54	
Ethane	ND	U	1.0	0.50	0.17	1	06/29/18 11:54	
Ethene	**0.20**	**J**	1.0	0.50	0.14	1	06/29/18 11:54	
Methane	**1.3**		1.1	0.50	0.12	1	06/29/18 11:54	

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 11:05
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 004	**Units:**	ug/L
Lab Code:	R1805985-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND	U	2.0	1.0	0.53	1	06/29/18 12:03	
Ethane	**2.0**		1.0	0.50	0.17	1	06/29/18 12:03	
Ethene	**0.25**	**J**	1.0	0.50	0.14	1	06/29/18 12:03	
Methane	**130**	**D**	2.1	1.0	0.23	2	06/29/18 12:22	

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 12:50
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 007	**Units:**	ug/L
Lab Code:	R1805985-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 12:12	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 12:12	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 12:12	
Methane	**17**	1.1	0.50	0.12	1	06/29/18 12:12	

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 12:40
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 008	**Units:**	ug/L
Lab Code:	R1805985-004	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND	U	2.0	1.0	0.53	1	06/29/18 12:30	
Ethane	**47**		1.0	0.50	0.17	1	06/29/18 12:30	
Ethene	**6.6**		1.0	0.50	0.14	1	06/29/18 12:30	
Methane	**5100**	**D**	110	50	12	100	06/29/18 14:07	

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 13:20
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 009	**Units:**	ug/L
Lab Code:	R1805985-005	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 12:39	
Ethane	**5.7**	1.0	0.50	0.17	1	06/29/18 12:39	
Ethene	**2.4**	1.0	0.50	0.14	1	06/29/18 12:39	
Methane	**120 D**	2.1	1.0	0.23	2	06/29/18 12:50	

QC Summary Forms

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client: ALS Environmental - US
Project: UR115: 2322348
Sample Matrix: Water

Service Request: R1805985
Date Analyzed: 06/29/18 09:32

Method Blank Summary
Dissolved Gases by GC/FID

Sample Name: Method Blank
Lab Code: RQ1806590-01

Instrument ID: R-GC-02
File ID: I:\ACQUDATA\W2\DATA\062918\AB679.D\

Analysis Method: RSK 175
Analysis Lot: 596833

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1806590-02	I:\ACQUDATA\W2\DATA\062918\AB680.D\	06/29/18 09:49
Duplicate Lab Control Sample	RQ1806590-03	I:\ACQUDATA\W2\DATA\062918\AB681.D\	06/29/18 10:08
2322348 002	R1805985-001	I:\ACQUDATA\W2\DATA\062918\AB689.D\	06/29/18 11:54
2322348 004	R1805985-002	I:\ACQUDATA\W2\DATA\062918\AB690.D\	06/29/18 12:03
2322348 007	R1805985-003	I:\ACQUDATA\W2\DATA\062918\AB691.D\	06/29/18 12:12
2322348 004	R1805985-002	I:\ACQUDATA\W2\DATA\062918\AB692.D\	06/29/18 12:22
2322348 008	R1805985-004	I:\ACQUDATA\W2\DATA\062918\AB693.D\	06/29/18 12:30
2322348 009	R1805985-005	I:\ACQUDATA\W2\DATA\062918\AB694.D\	06/29/18 12:39
2322348 009	R1805985-005	I:\ACQUDATA\W2\DATA\062918\AB695.D\	06/29/18 12:50
2322348 008	R1805985-004	I:\ACQUDATA\W2\DATA\062918\AB703.D\	06/29/18 14:07

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ1806590-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 09:32	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 09:32	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 09:32	
Methane	**0.39 J**	1.1	0.50	0.12	1	06/29/18 09:32	

Client: ALS Environmental - US
Project: UR115: 2322348
Sample Matrix: Water

Service Request: R1805985
Date Analyzed: 06/29/18 09:49

Lab Control Sample Summary
Dissolved Gases by GC/FID

Sample Name: Lab Control Sample
Lab Code: RQ1806590-02

Instrument ID: R-GC-02
File ID: I:\ACQUDATA\W2\DATA\062918\AB680.D\

Analysis Method: RSK 175
Analysis Lot: 596833

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	RQ1806590-01	I:\ACQUDATA\W2\DATA\062918\AB679.D\	06/29/18 09:32
Duplicate Lab Control Sample	RQ1806590-03	I:\ACQUDATA\W2\DATA\062918\AB681.D\	06/29/18 10:08
2322348 002	R1805985-001	I:\ACQUDATA\W2\DATA\062918\AB689.D\	06/29/18 11:54
2322348 004	R1805985-002	I:\ACQUDATA\W2\DATA\062918\AB690.D\	06/29/18 12:03
2322348 007	R1805985-003	I:\ACQUDATA\W2\DATA\062918\AB691.D\	06/29/18 12:12
2322348 004	R1805985-002	I:\ACQUDATA\W2\DATA\062918\AB692.D\	06/29/18 12:22
2322348 008	R1805985-004	I:\ACQUDATA\W2\DATA\062918\AB693.D\	06/29/18 12:30
2322348 009	R1805985-005	I:\ACQUDATA\W2\DATA\062918\AB694.D\	06/29/18 12:39
2322348 009	R1805985-005	I:\ACQUDATA\W2\DATA\062918\AB695.D\	06/29/18 12:50
2322348 008	R1805985-004	I:\ACQUDATA\W2\DATA\062918\AB703.D\	06/29/18 14:07

Client: ALS Environmental - US
Project: UR115: 2322348
Sample Matrix: Water

Service Request: R1805985
Date Analyzed: 06/29/18

Duplicate Lab Control Sample Summary
Dissolved Gases by GC/FID

Units: ug/L
Basis: NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ1806590-02			RQ1806590-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Acetylene	RSK 175	53.6	50.1	107	55.4	50.1	111	70-129	3	30
Ethane	RSK 175	26.5	26.0	102	27.7	26.0	106	74-131	4	30
Ethene	RSK 175	24.2	24.3	99	25.5	24.3	105	72-133	5	30
Methane	RSK 175	26.8	26.2	102	28.3	26.2	108	73-125	5	30

Raw Data

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 09:36
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 002	**Units:**	ug/L
Lab Code:	R1805985-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 11:54	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 11:54	
Ethene	**0.20 J**	1.0	0.50	0.14	1	06/29/18 11:54	
Methane	**1.3**	1.1	0.50	0.12	1	06/29/18 11:54	

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 11:05
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 004	**Units:**	ug/L
Lab Code:	R1805985-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND	U	2.0	1.0	0.53	1	06/29/18 12:03	
Ethane	**2.0**		1.0	0.50	0.17	1	06/29/18 12:03	
Ethene	**0.25**	**J**	1.0	0.50	0.14	1	06/29/18 12:03	
Methane	**130**	**D**	2.1	1.0	0.23	2	06/29/18 12:22	

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 12:50
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 007	**Units:**	ug/L
Lab Code:	R1805985-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 12:12	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 12:12	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 12:12	
Methane	**17**	1.1	0.50	0.12	1	06/29/18 12:12	

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 12:40
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 008	**Units:**	ug/L
Lab Code:	R1805985-004	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 12:30	
Ethane	**47**	1.0	0.50	0.17	1	06/29/18 12:30	
Ethene	**6.6**	1.0	0.50	0.14	1	06/29/18 12:30	
Methane	**5100 D**	110	50	12	100	06/29/18 14:07	

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 13:20
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 009	**Units:**	ug/L
Lab Code:	R1805985-005	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

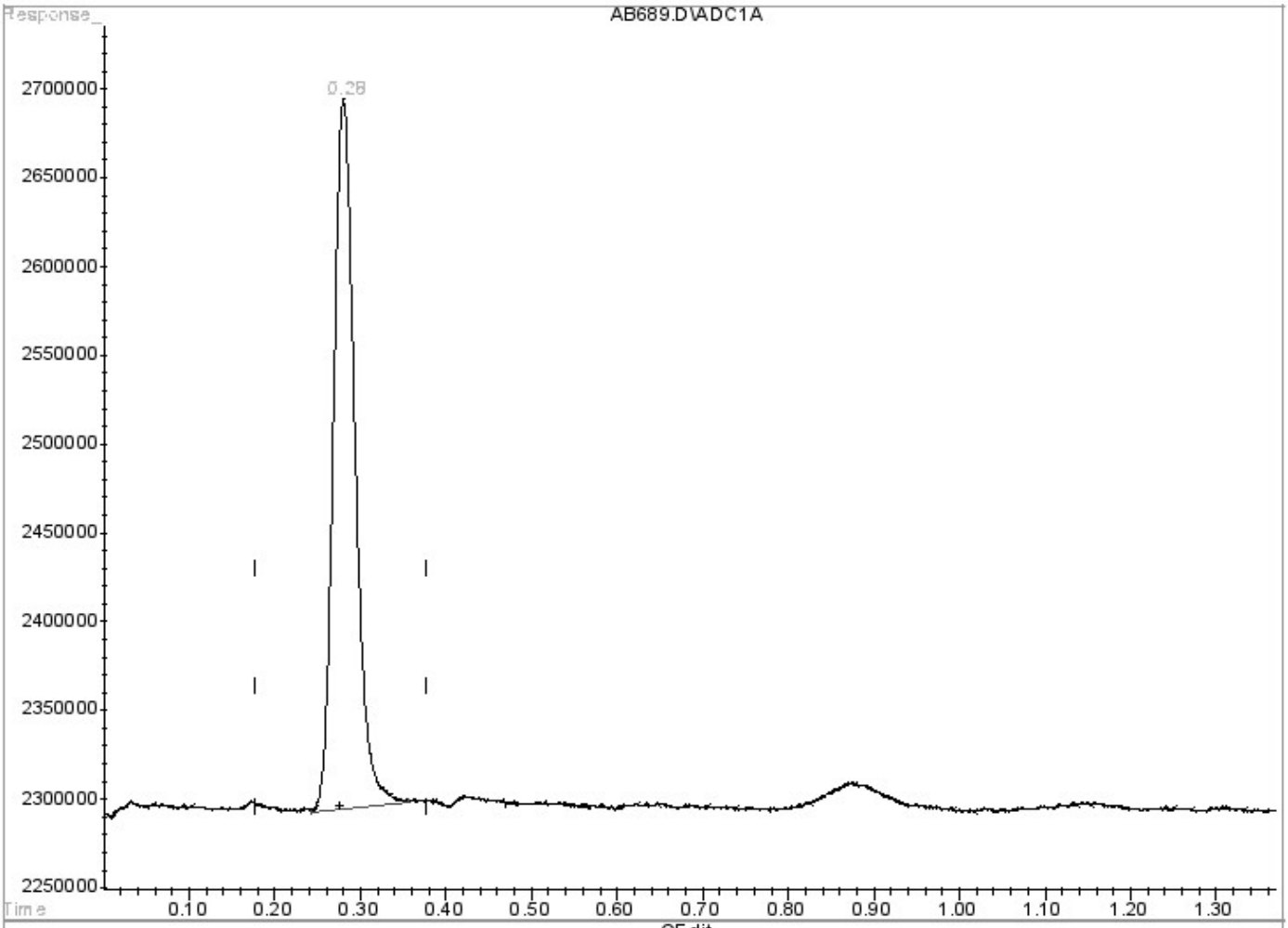
Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 12:39	
Ethane	**5.7**	1.0	0.50	0.17	1	06/29/18 12:39	
Ethene	**2.4**	1.0	0.50	0.14	1	06/29/18 12:39	
Methane	**120 D**	2.1	1.0	0.23	2	06/29/18 12:50	

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB689.D Vial: 48
Acq On : 29 Jun 2018 11:54 am Operator: b.allgeier
Sample : r1805985-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:55 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 1.296ug/L m

response 7044757

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

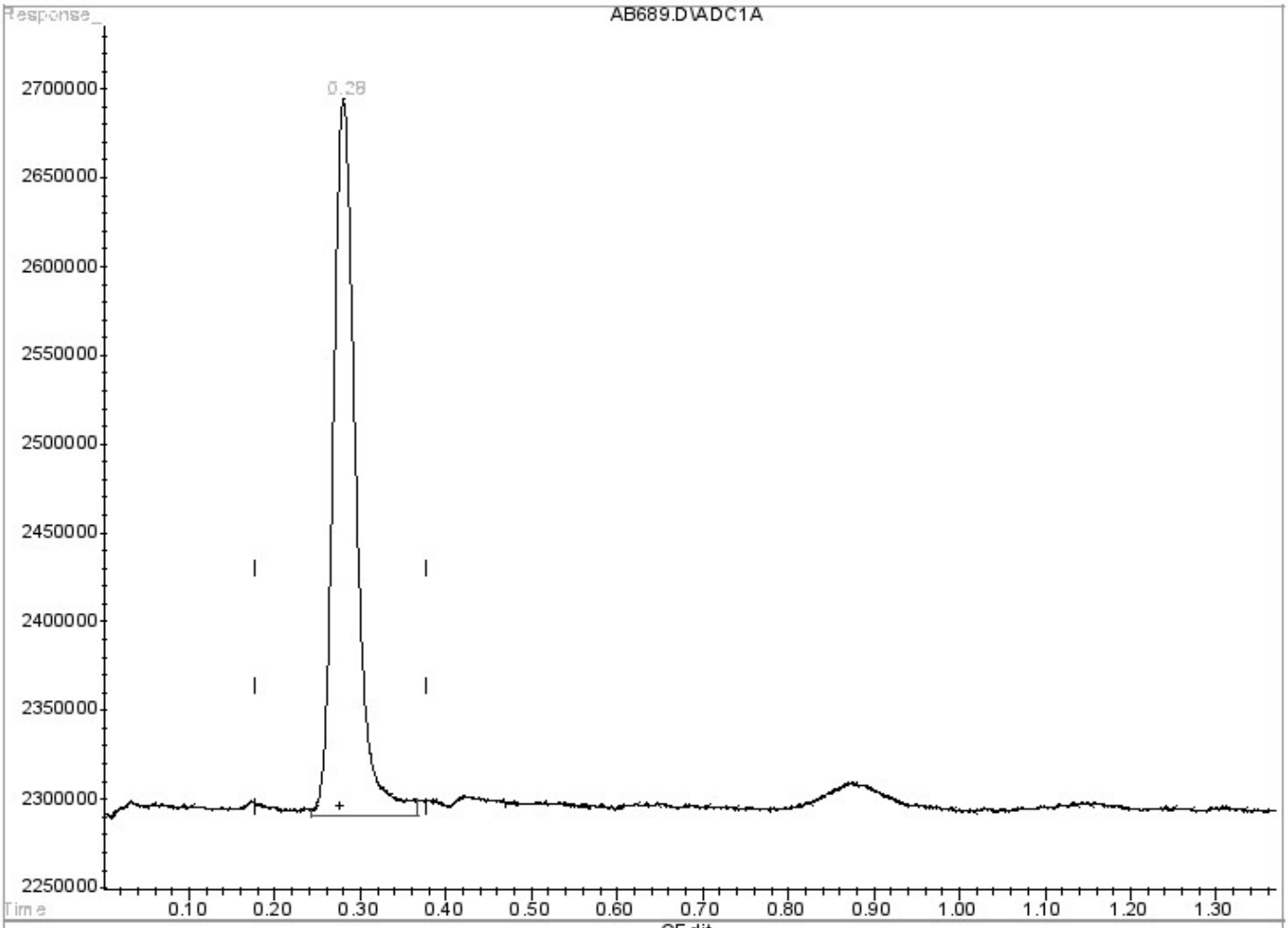
AB689.D RSK0626.M Fri Jun 29 13:55:22 2018

1st BA 06/29/18
2nd MWL 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB689.D Vial: 48
Acq On : 29 Jun 2018 11:54 am Operator: b.allgeier
Sample : r1805985-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:55 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 1.363ug/L

response 7412261

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

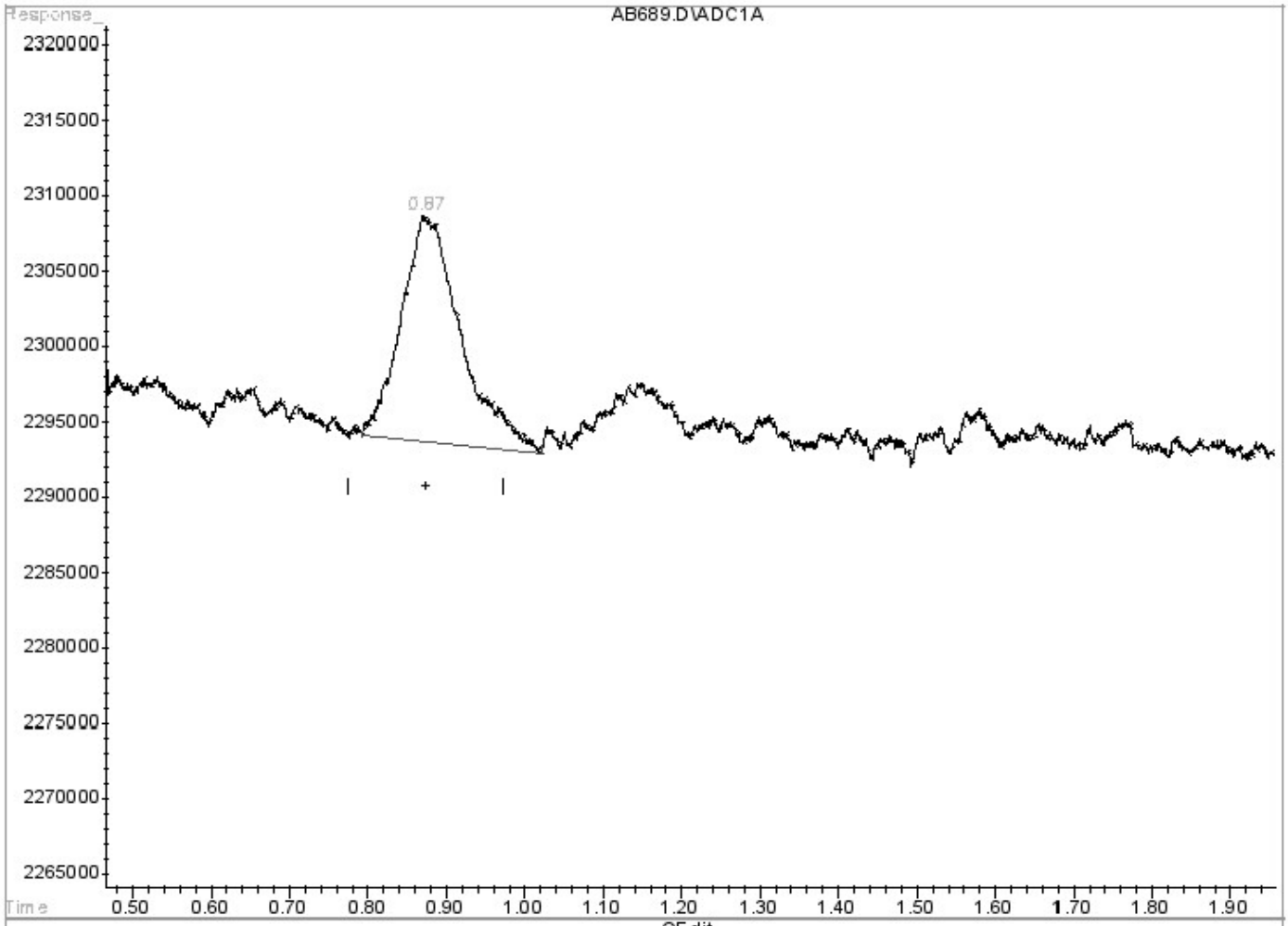
AB689.D RSK0626.M Fri Jun 29 13:55:17 2018

1st BA 06/29/18
2nd Mwi 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB689.D Vial: 48
Acq On : 29 Jun 2018 11:54 am Operator: b.allgeier
Sample : r1805985-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:55 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(3) Ethylene

0.87min 0.195ug/L m

response 793229

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

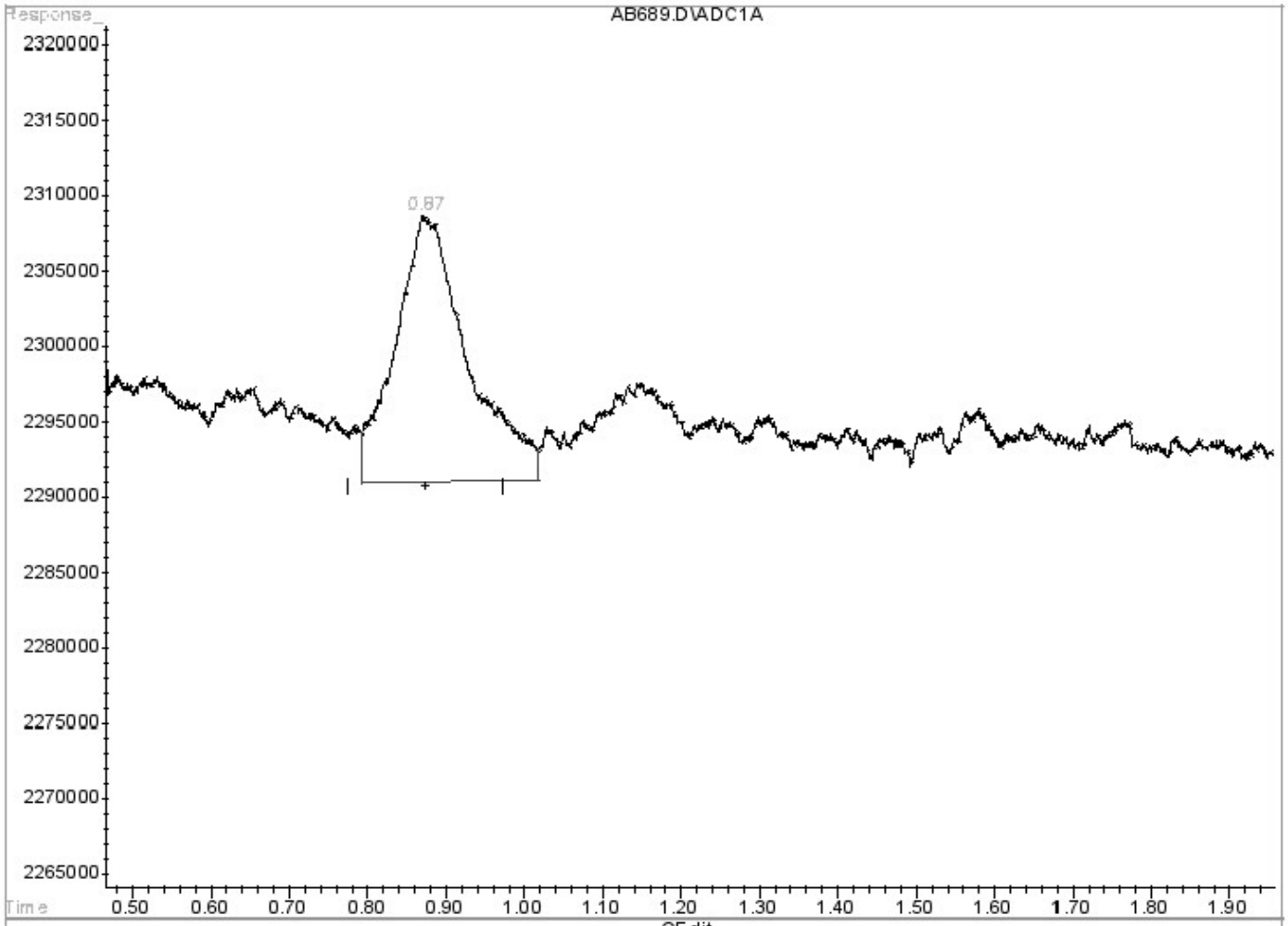
AB689.D RSK0626.M Fri Jun 29 13:55:34 2018
Page 40 of 110

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB689.D Vial: 48
Acq On : 29 Jun 2018 11:54 am Operator: b.allgeier
Sample : r1805985-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:55 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(3) Ethylene

0.87min 0.277ug/L

response 1127088

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

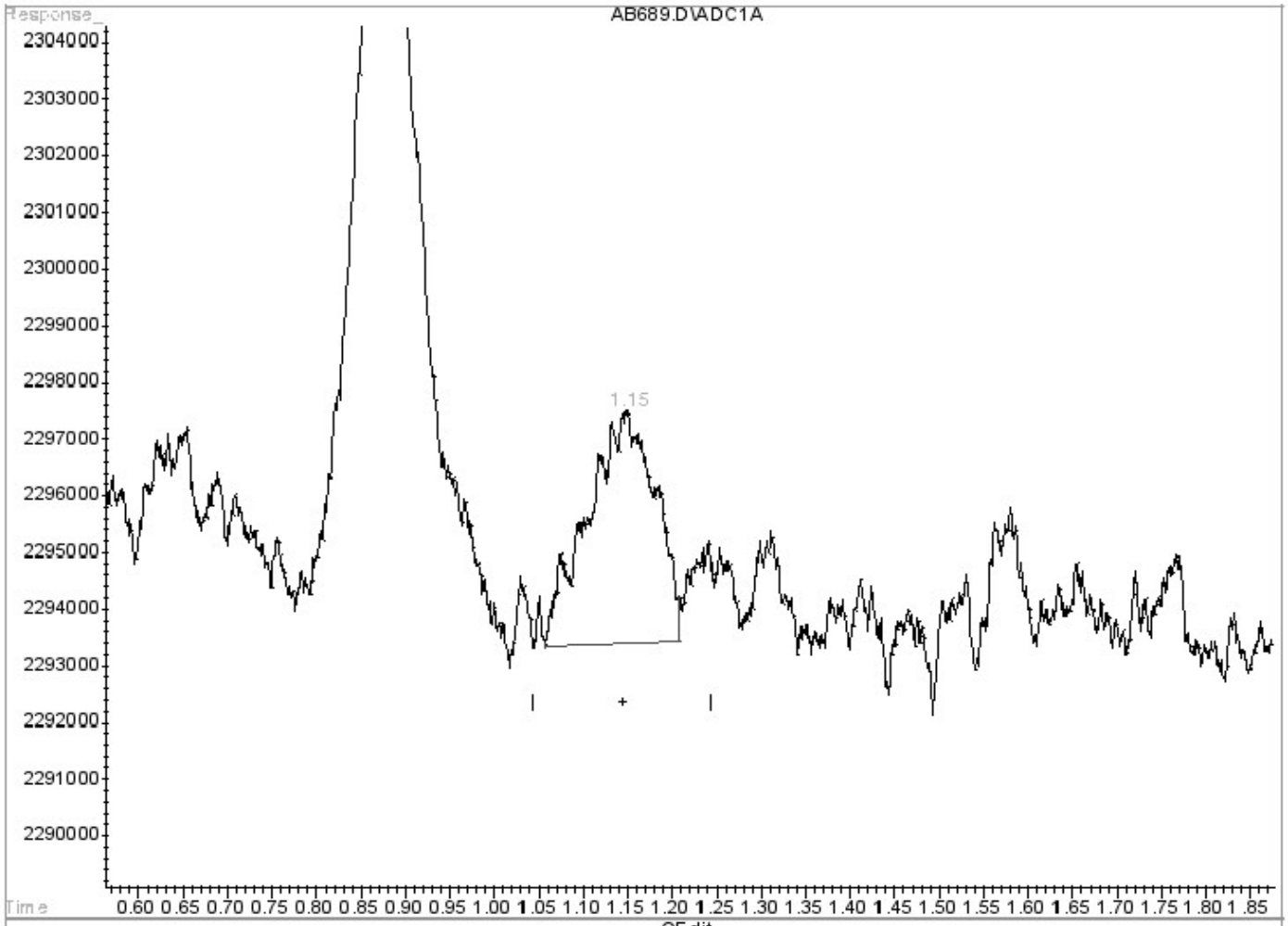
AB689.D RSK0626.M Fri Jun 29 13:55:29 2018
Page 41 of 110

1st BA 06/29/18
2nd Mwi 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB689.D Vial: 48
Acq On : 29 Jun 2018 11:54 am Operator: b.allgeier
Sample : r1805985-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:55 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



QEdit

(4) Ethane

1.15min 0.039ug/L m

response 215725

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

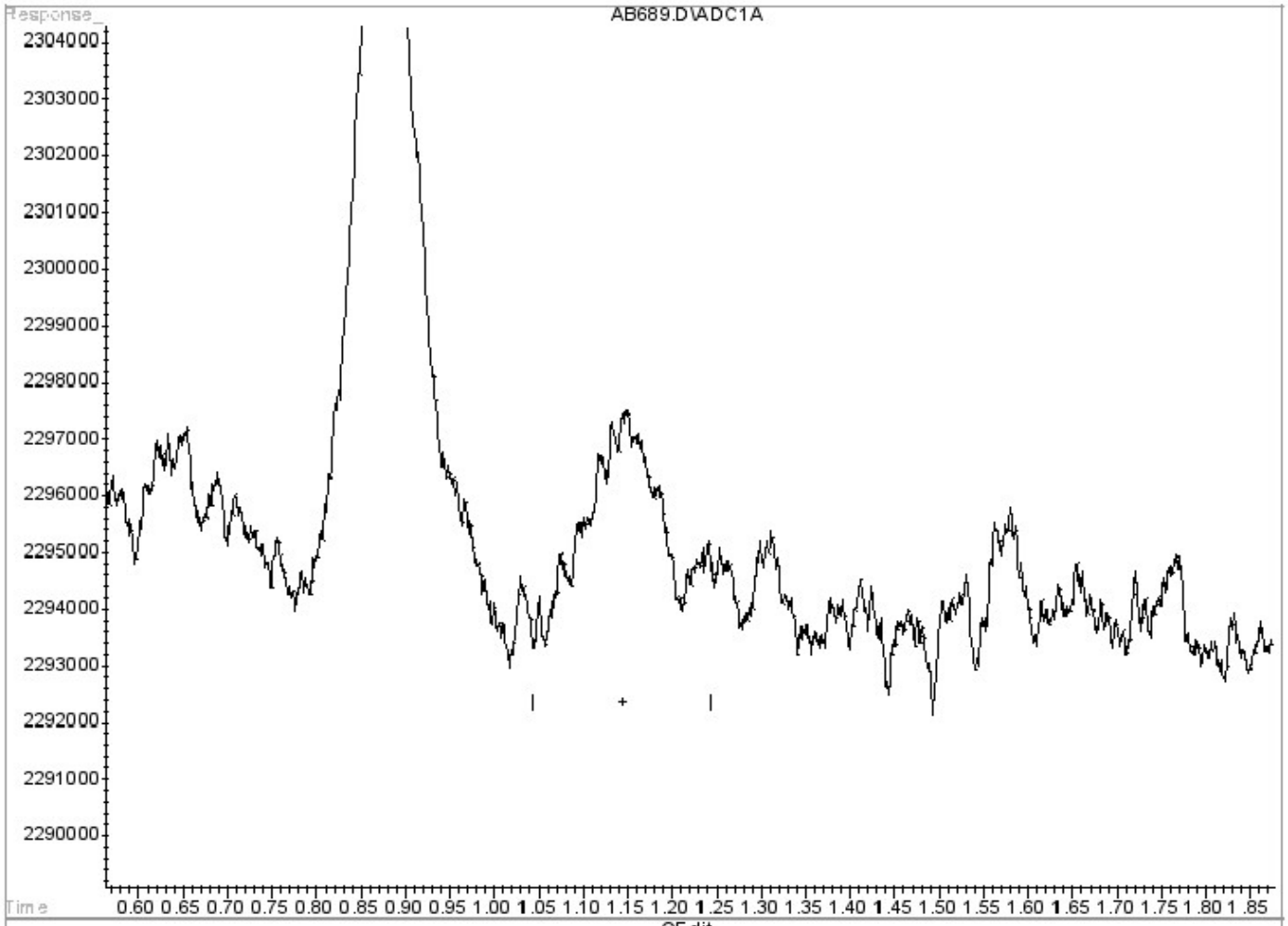
AB689.D RSK0626.M Fri Jun 29 13:55:44 2018

1st BA 06/29/18
2nd Mwi 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB689.D Vial: 48
Acq On : 29 Jun 2018 11:54 am Operator: b.allgeier
Sample : r1805985-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:55 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



QEdit

(4) Ethane

1.15min 0.000ug/L

response 0

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB689.D RSK0626.M Fri Jun 29 13:55:40 2018

ALS

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB689.D Vial: 48
Acq On : 29 Jun 2018 11:54 am Operator: b.allgeier
Sample : r1805985-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:55 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Target Compounds					
1)	Methane	0.28	7044757	1.296	ug/L	m
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.87	793229	0.195	ug/L	m
4)	Ethane	1.15	215725	<MDL	ug/L	m
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	0.00	0	N.D.	ug/L	

(f)=RT Delta > 1/2 Window (m)=manual int.

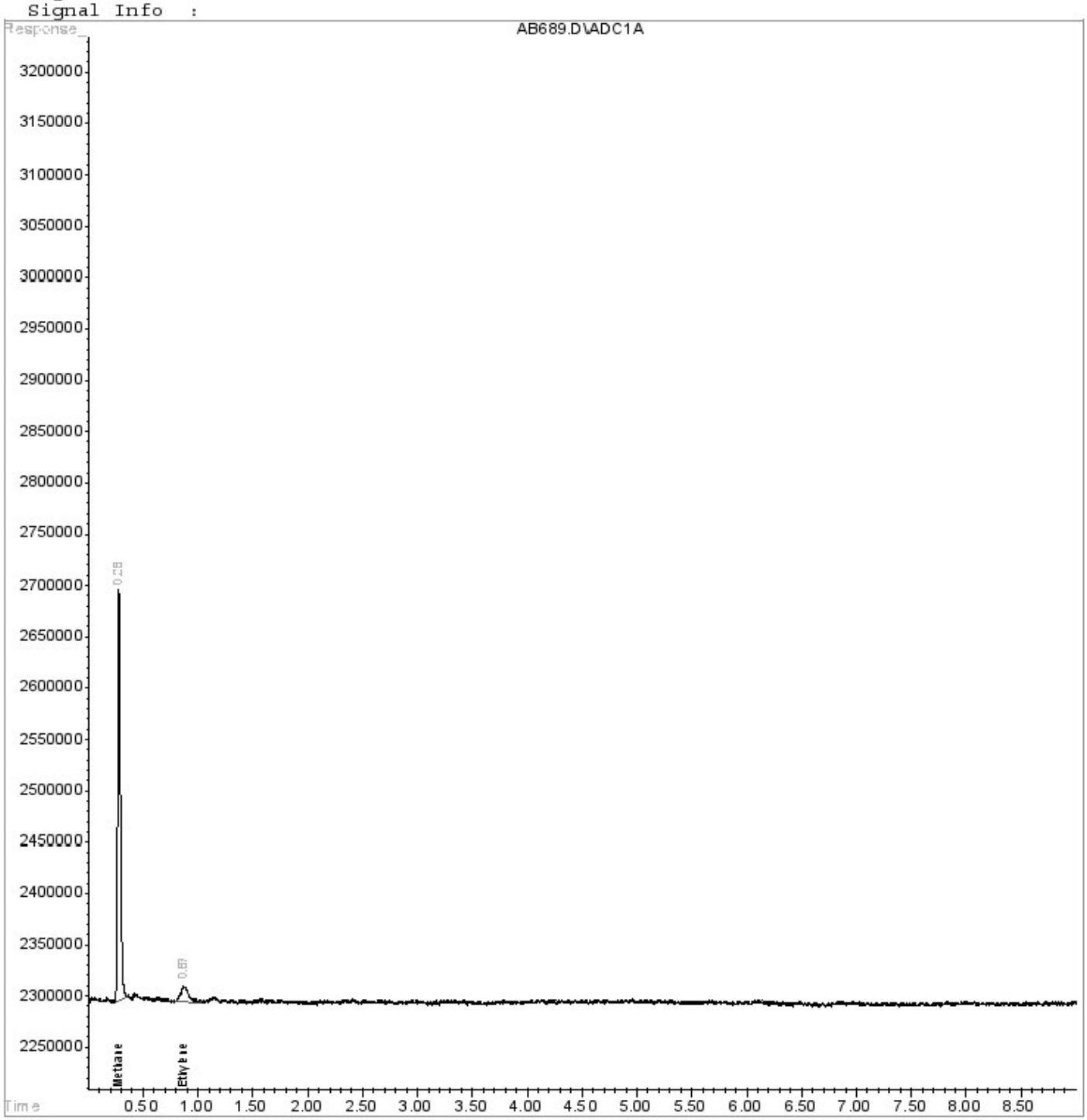
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB689.D Vial: 48
Acq On : 29 Jun 2018 11:54 am Operator: b.allgeier
Sample : r1805985-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:55 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

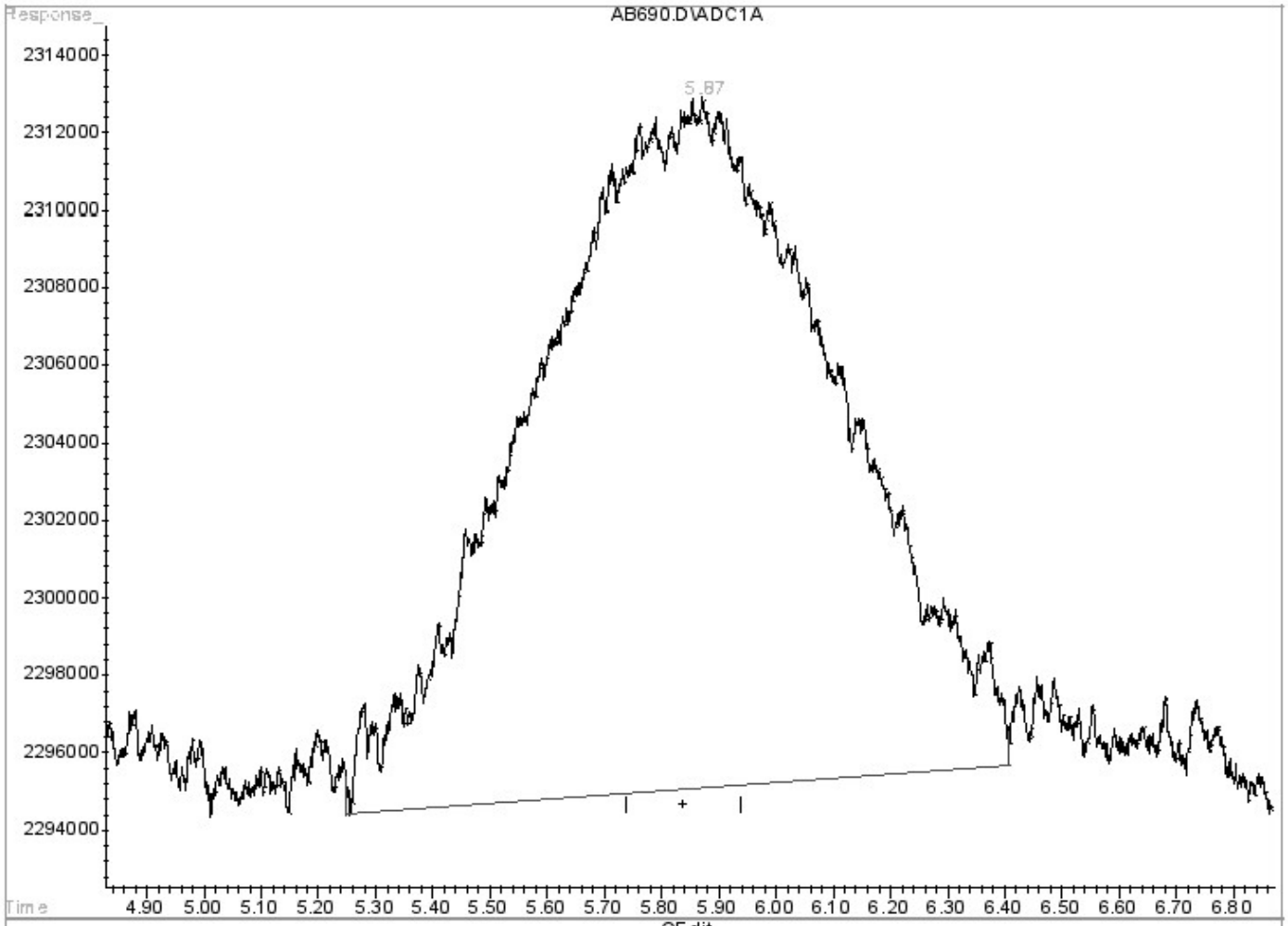


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB690.D Vial: 49
Acq On : 29 Jun 2018 12:03 pm Operator: b.allgeier
Sample : r1805985-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:11 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.87min 1.137ug/L m

response 6582192

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

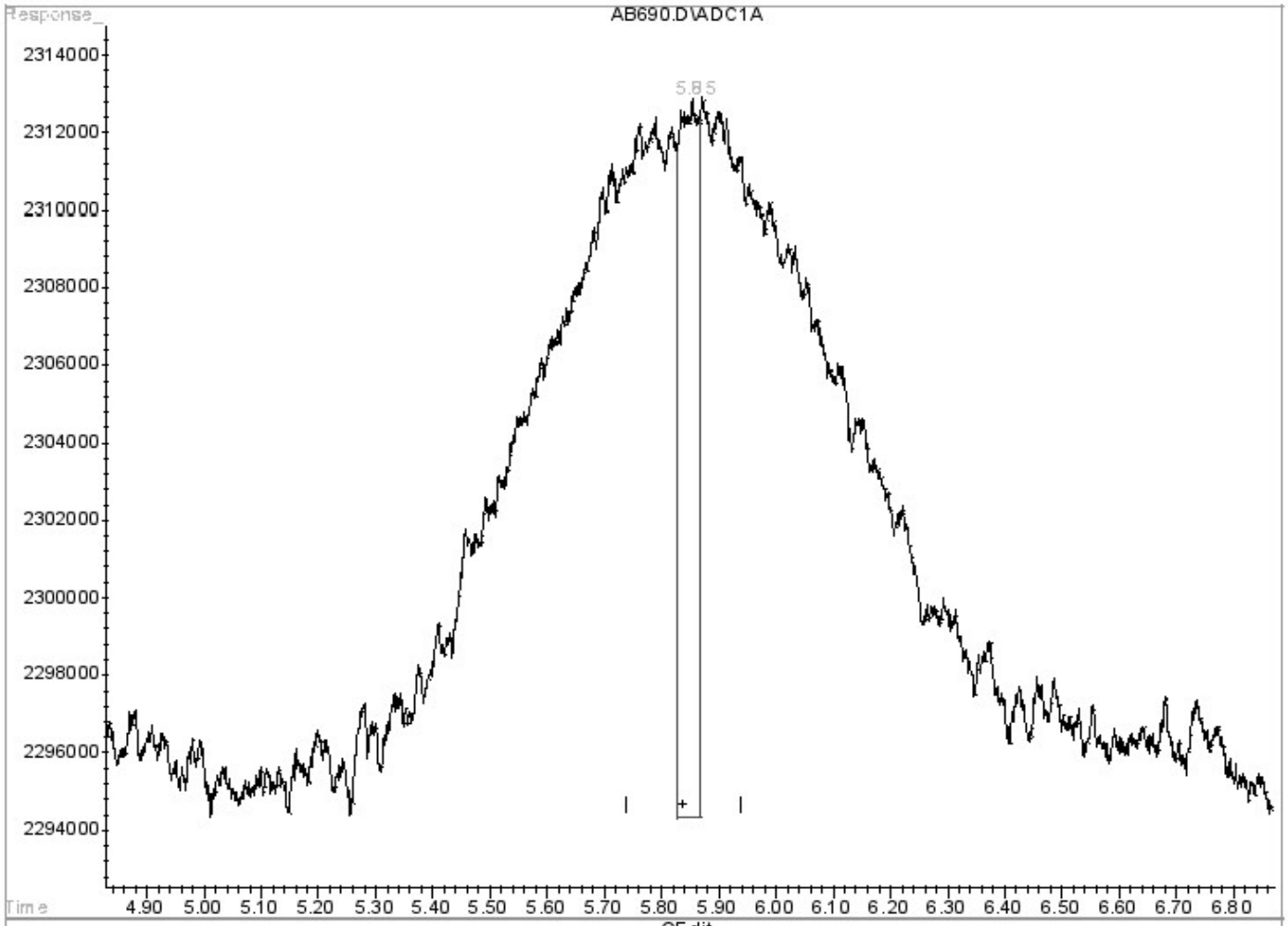
AB690.D RSK0626.M Fri Jun 29 13:56:14 2018

1st BA 06/29/18
2nd MWL 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB690.D Vial: 49
Acq On : 29 Jun 2018 12:03 pm Operator: b.allgeier
Sample : r1805985-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:11 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 0.074ug/L

response 431026

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

1st BA 6/29/18
2nd Mwi 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB690.D Vial: 49
Acq On : 29 Jun 2018 12:03 pm Operator: b.allgeier
Sample : r1805985-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:56 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Target Compounds					
1)	Methane	0.28	689856981	126.880	ug/L	E-Over Calibration
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.88	1034031	0.254	ug/L	
4)	Ethane	1.15	11099716	1.986	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.87	6582192	1.137	ug/L	m

(f)=RT Delta > 1/2 Window (m)=manual int.

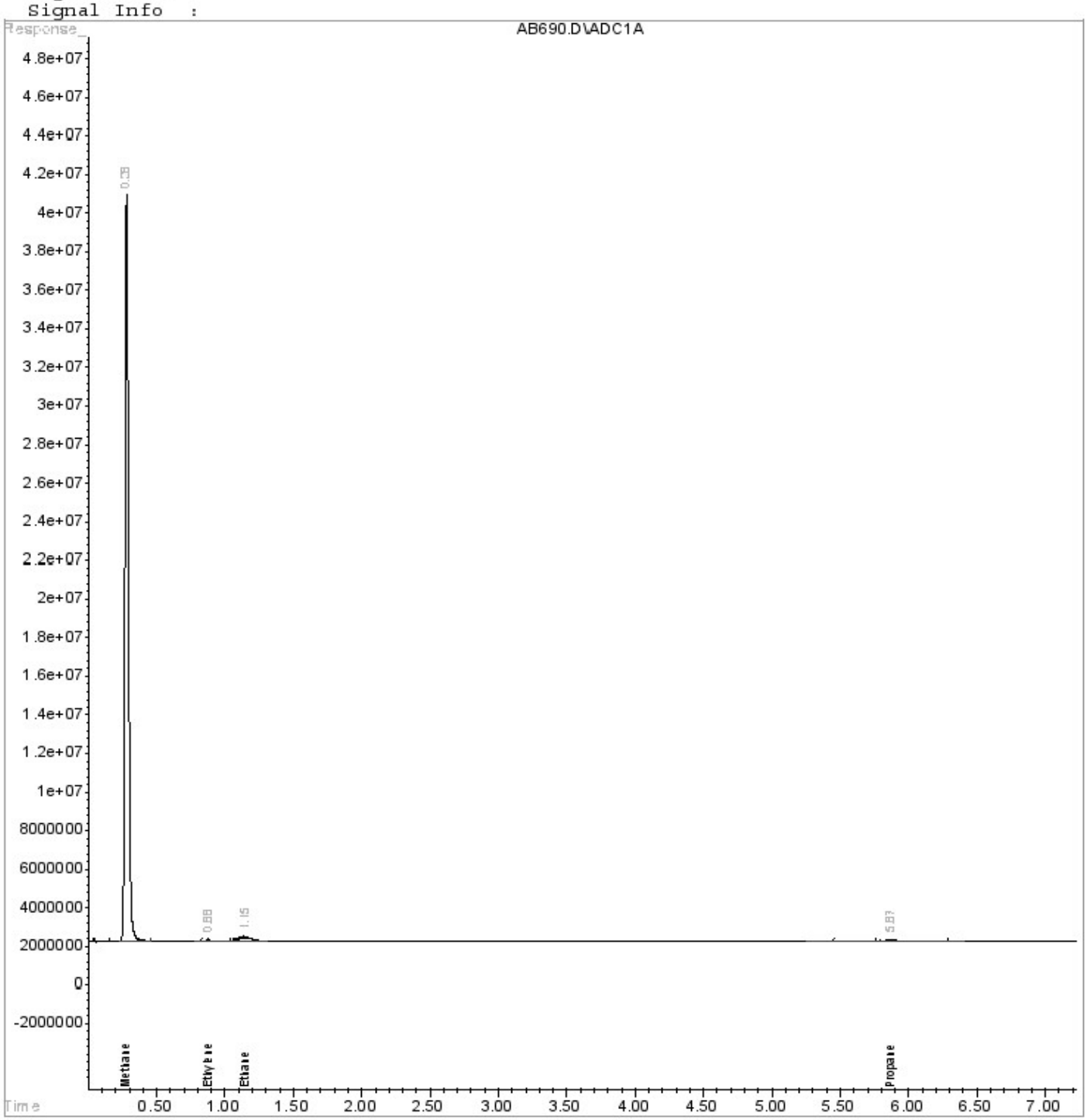
1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB690.D Vial: 49
Acq On : 29 Jun 2018 12:03 pm Operator: b.allgeier
Sample : r1805985-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:56 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

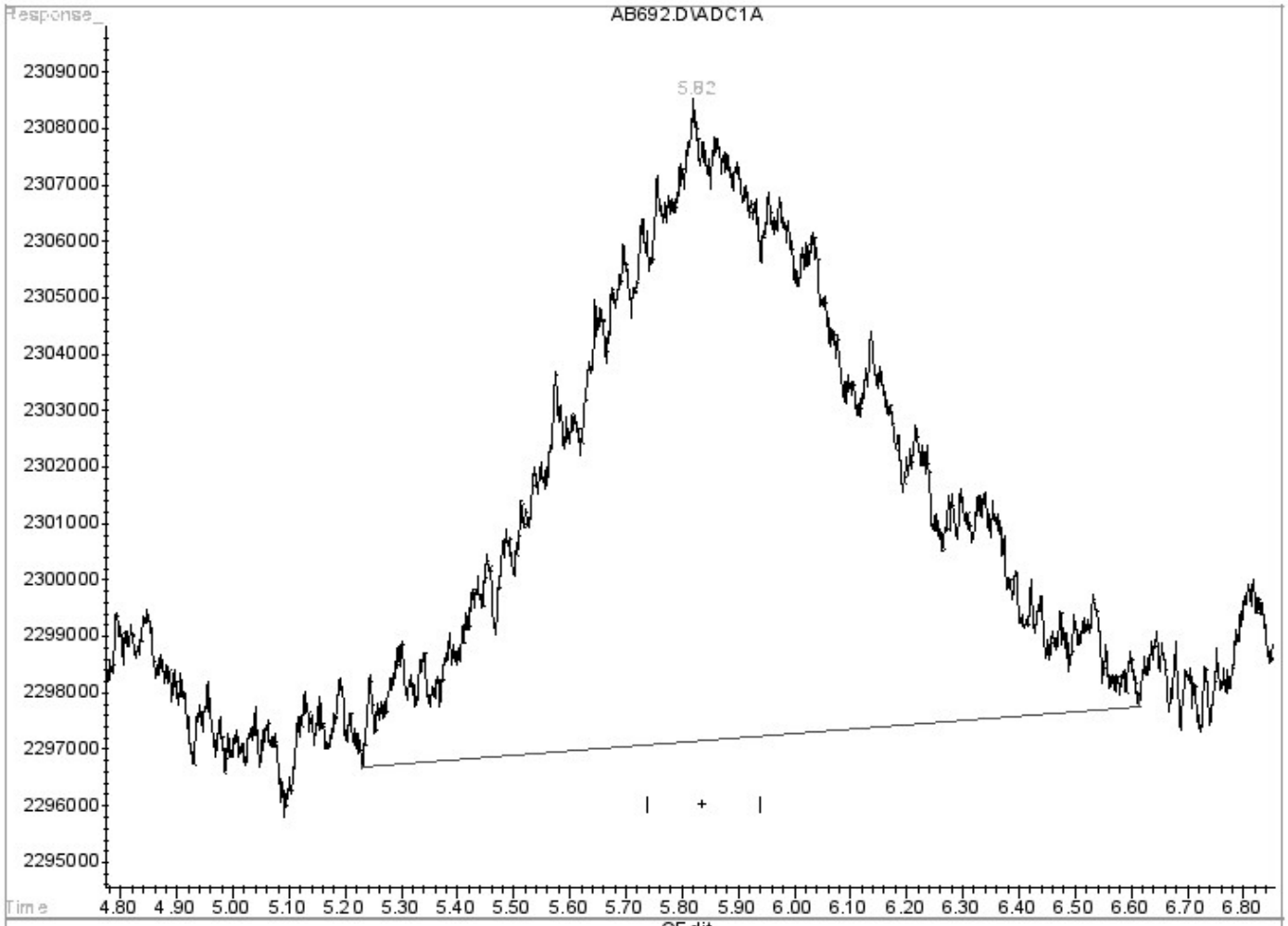


1st BA 06/29/18
2nd MWL 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB692.D Vial: 51
Acq On : 29 Jun 2018 12:22 pm Operator: b.allgeier
Sample : r1805985-002|2.0 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:32 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.82min 0.715ug/L m

response 4138907

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

AB692.D RSK0626.M Fri Jun 29 12:32:21 2018 Page 50 of 110

1st BA 06/29/18
2nd Mwi 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB692.D Vial: 51
Acq On : 29 Jun 2018 12:22 pm Operator: b.allgeier
Sample : r1805985-002|2.0 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:32 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.82min 0.089ug/L

response 513030

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB692.D RSK0626.M Fri Jun 29 12:32:15 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB692.D Vial: 51
Acq On : 29 Jun 2018 12:22 pm Operator: b.allgeier
Sample : r1805985-002|2.0 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:32 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Target Compounds					
1)	Methane	0.28	341280111	62.769	ug/L	
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.88	624858	0.154	ug/L	
4)	Ethane	1.15	5593294	1.001	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.82	4138907	0.715	ug/L	m

(f)=RT Delta > 1/2 Window (m)=manual int.

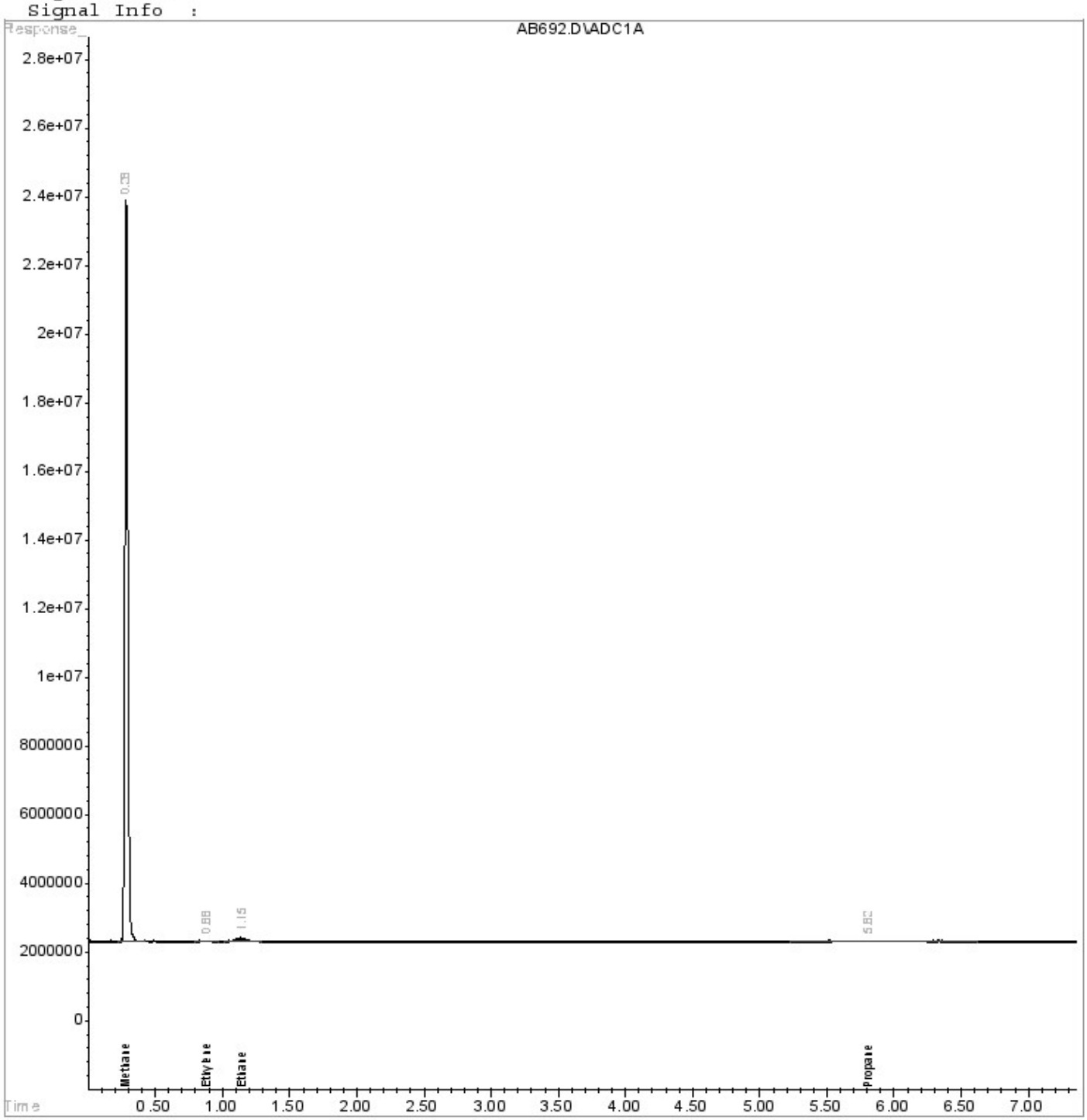
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB692.D Vial: 51
Acq On : 29 Jun 2018 12:22 pm Operator: b.allgeier
Sample : r1805985-002|2.0 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:32 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB691.D Vial: 50
Acq On : 29 Jun 2018 12:12 pm Operator: b.allgeier
Sample : r1805985-003 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:31 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	92447433	17.003	ug/L
2)	Acetylene	0.00	0	N.D.	ug/L
3)	Ethylene	0.00	0	N.D.	ug/L
4)	Ethane	0.00	0	N.D.	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	0.00	0	N.D.	ug/L

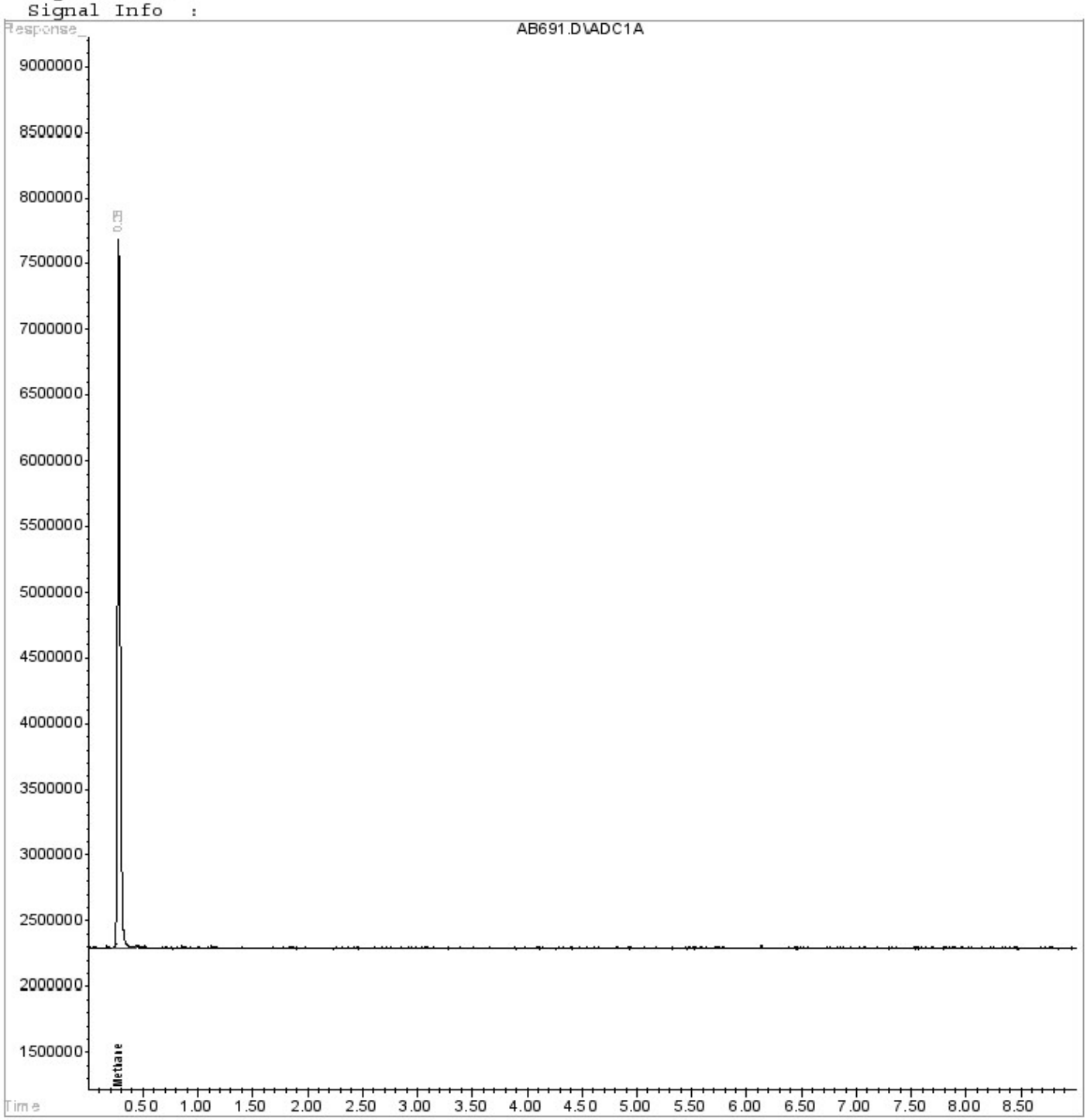
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB691.D Vial: 50
Acq On : 29 Jun 2018 12:12 pm Operator: b.allgeier
Sample : r1805985-003 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:31 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

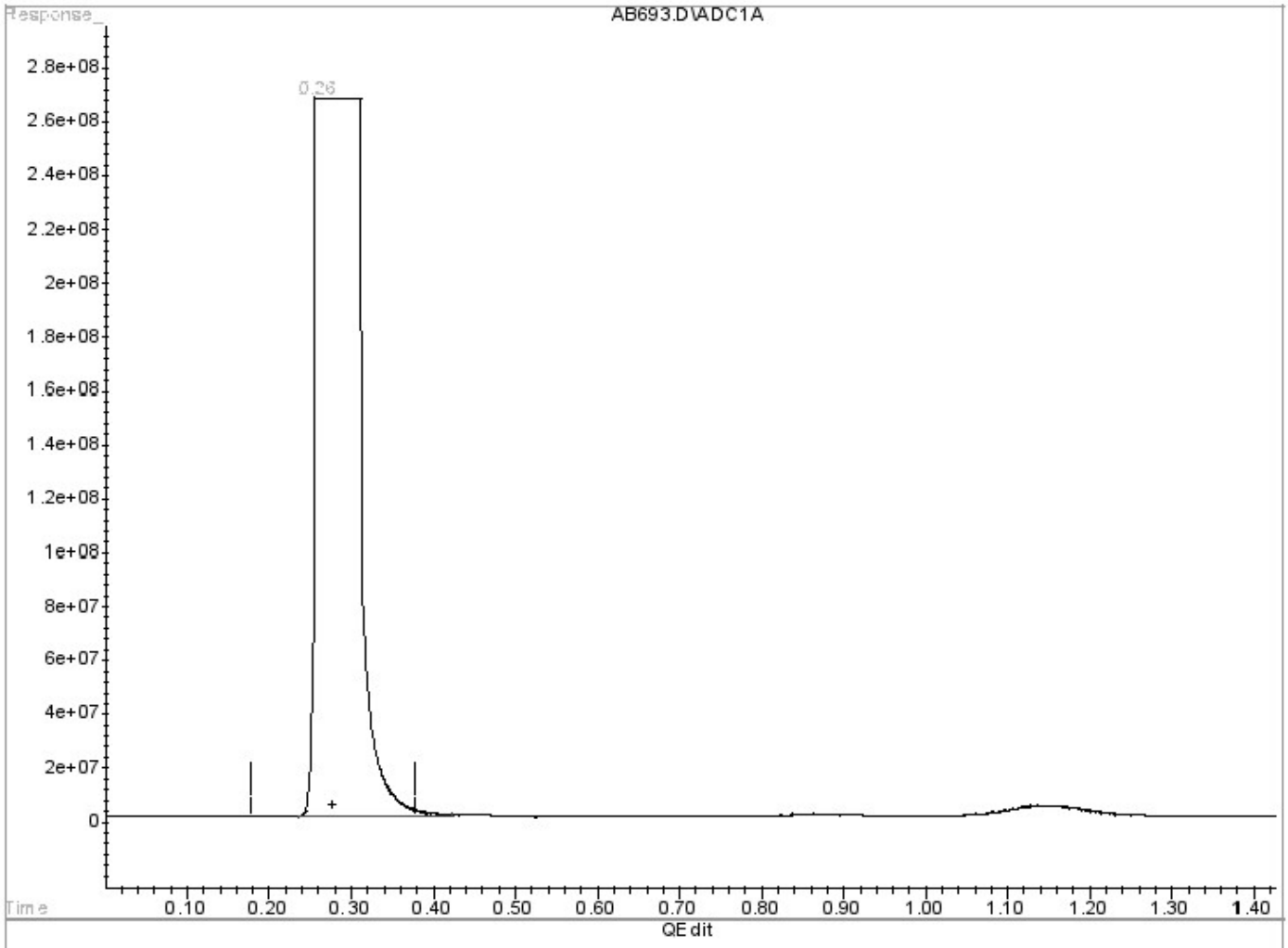


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB693.D Vial: 52
Acq On : 29 Jun 2018 12:30 pm Operator: b.allgeier
Sample : r1805985-004 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:38 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.26min 1869.940ug/L m

response 10167052121

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

AB693.D RSK0626.M Fri Jun 29 14:05:12 2018

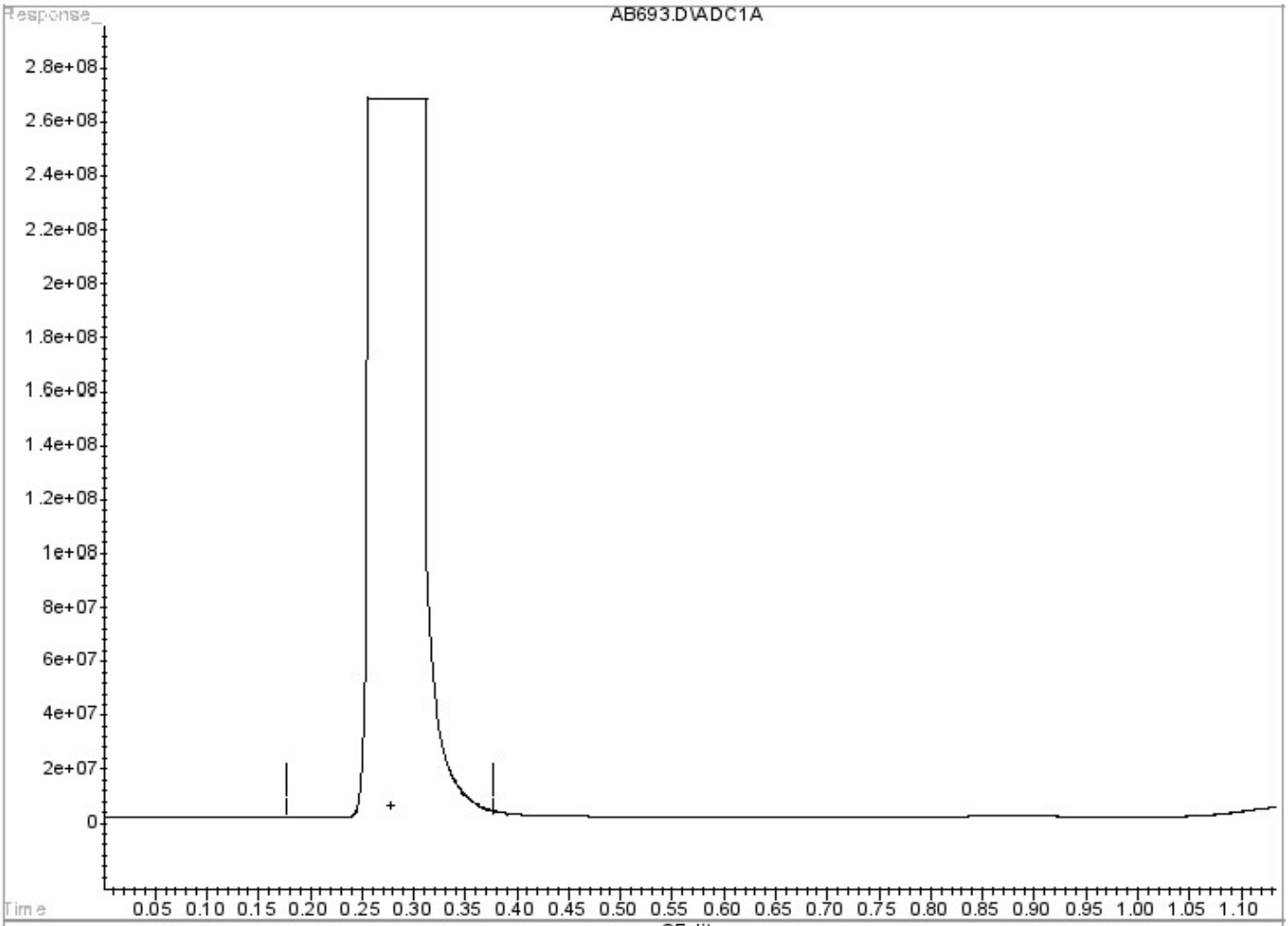
ALS

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB693.D Vial: 52
Acq On : 29 Jun 2018 12:30 pm Operator: b.allgeier
Sample : r1805985-004 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:38 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.000ug/L

response 0

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB693.D RSK0626.M Fri Jun 29 12:38:39 2018

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB693.D Vial: 52
Acq On : 29 Jun 2018 12:30 pm Operator: b.allgeier
Sample : r1805985-004 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:38 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Target Compounds					
1)	Methane	0.26	10167052121	1869.940	ug/L m	E-Over Calibration
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.88	26733830	6.573	ug/L	
4)	Ethane	1.15	263726730	47.191	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.85	123648020	21.367	ug/L	

(f)=RT Delta > 1/2 Window (m)=manual int.

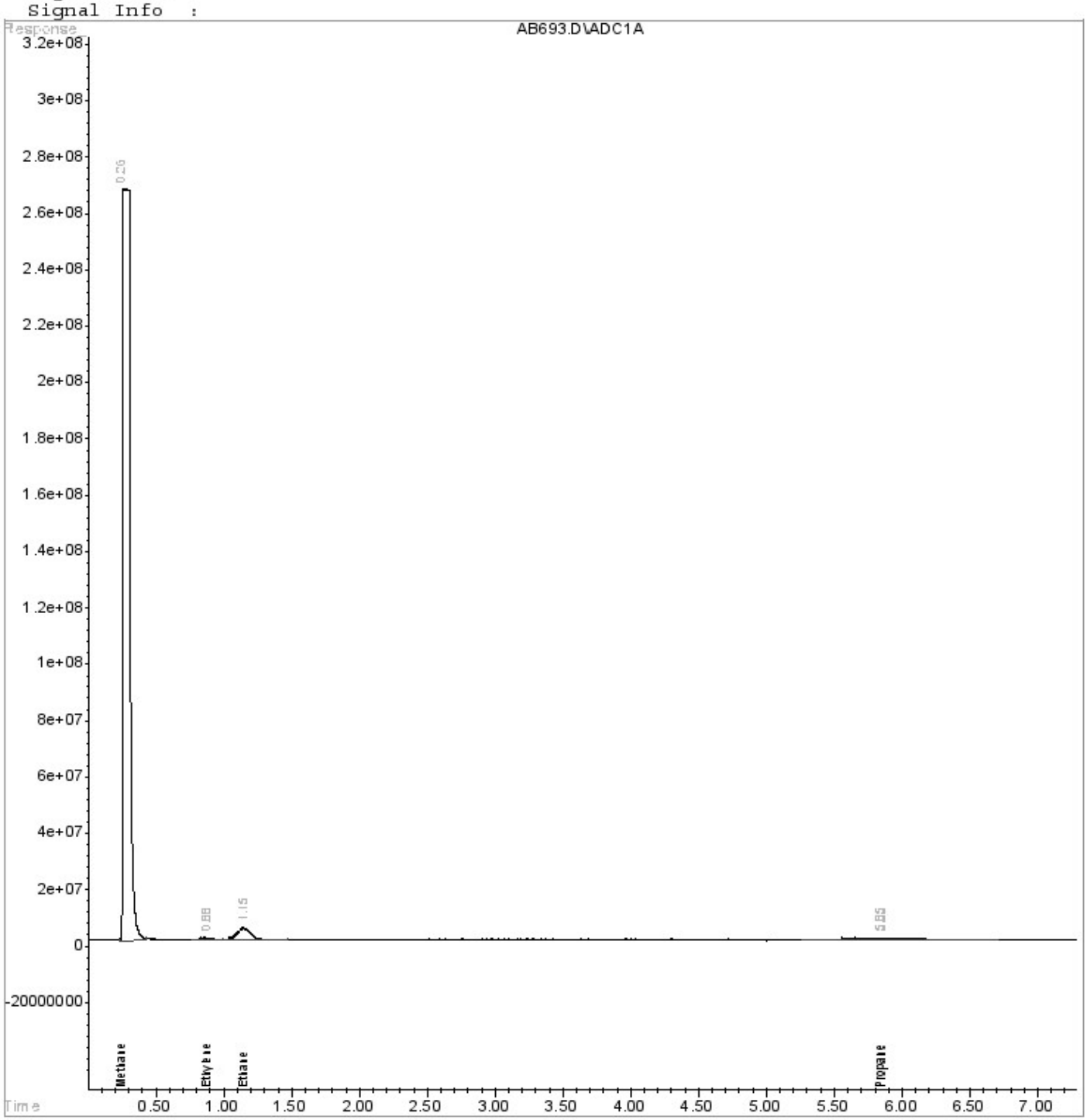
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB693.D Vial: 52
Acq On : 29 Jun 2018 12:30 pm Operator: b.allgeier
Sample : r1805985-004 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:38 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

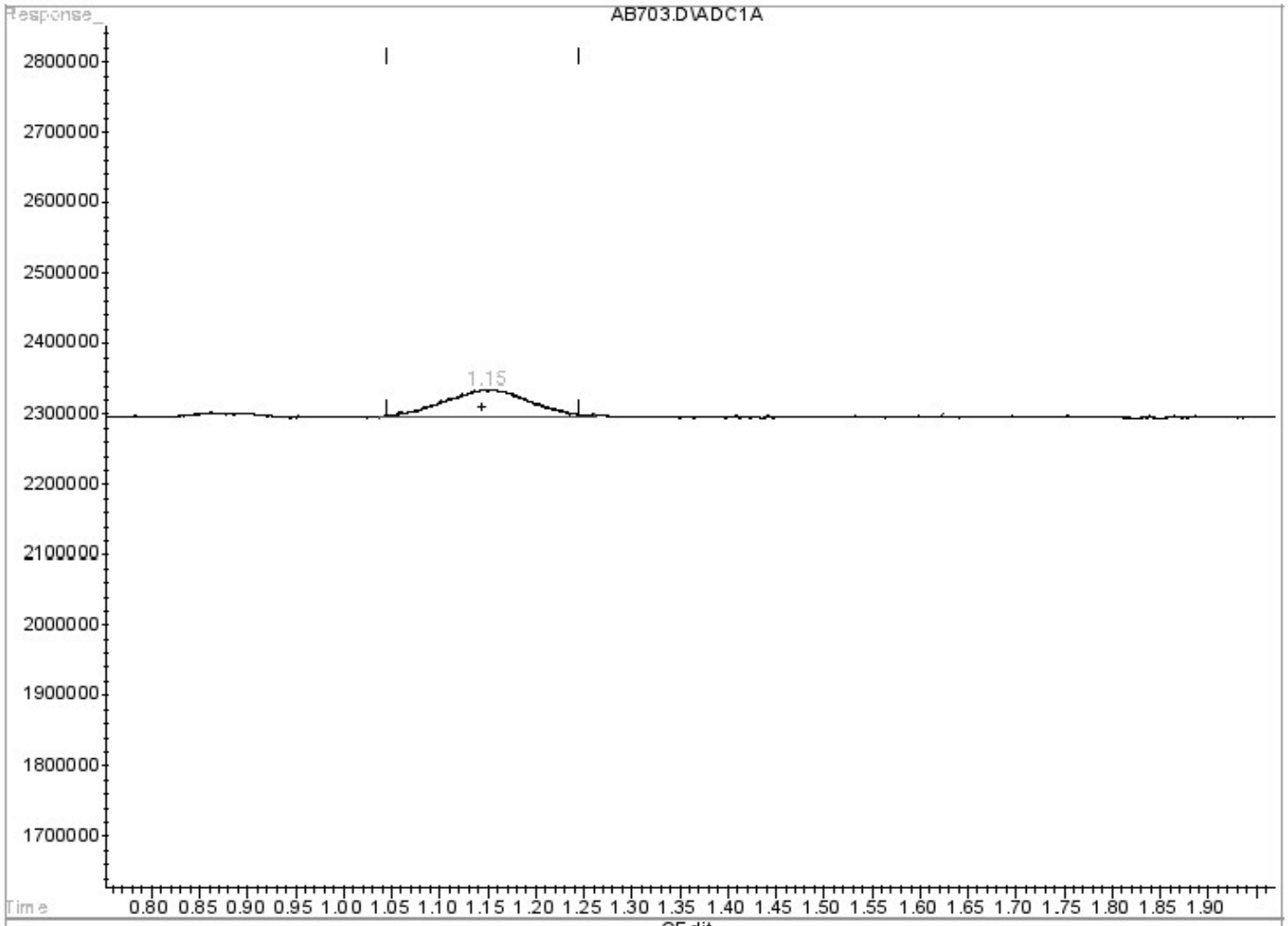


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB703.D Vial: 62
Acq On : 29 Jun 2018 2:07 pm Operator: b.allgeier
Sample : r1805985-004|100 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:17 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(4) Ethane

1.15min 0.425ug/L m

response 2373013

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

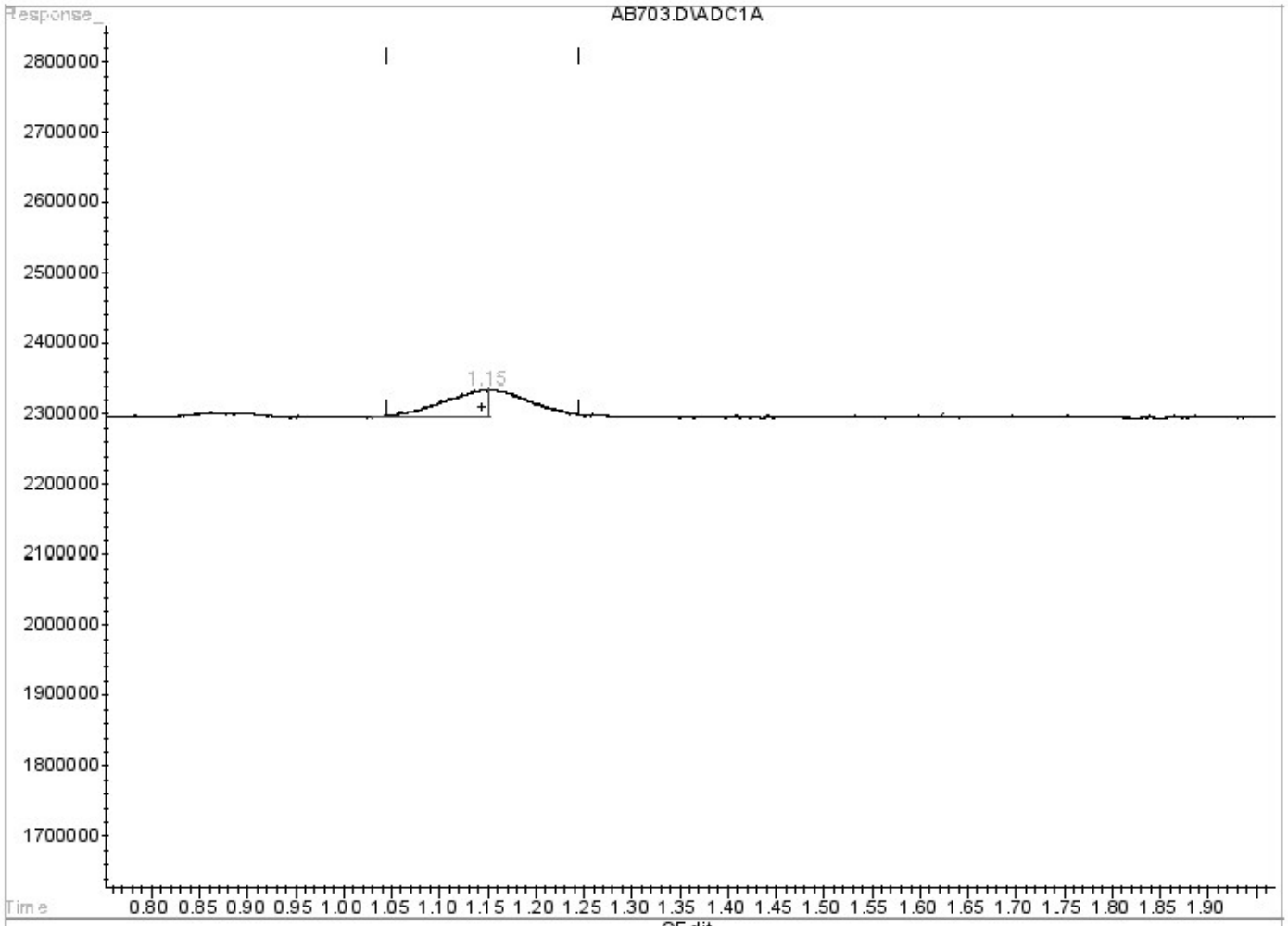
AB703.D RSK0626.M Fri Jun 29 14:18:15 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB703.D Vial: 62
Acq On : 29 Jun 2018 2:07 pm Operator: b.allgeier
Sample : r1805985-004|100 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:17 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(4) Ethane

1.15min 0.231ug/L

response 1288320

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB703.D RSK0626.M Fri Jun 29 14:18:07 2018

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB703.D Vial: 62
Acq On : 29 Jun 2018 2:07 pm Operator: b.allgeier
Sample : r1805985-004|100 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:18 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Target Compounds					
1)	Methane	0.28	277668827	51.069	ug/L	
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.00	0	N.D.	ug/L	
4)	Ethane	1.15	2373013	0.425	ug/L	m
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	0.00	0	N.D.	ug/L	

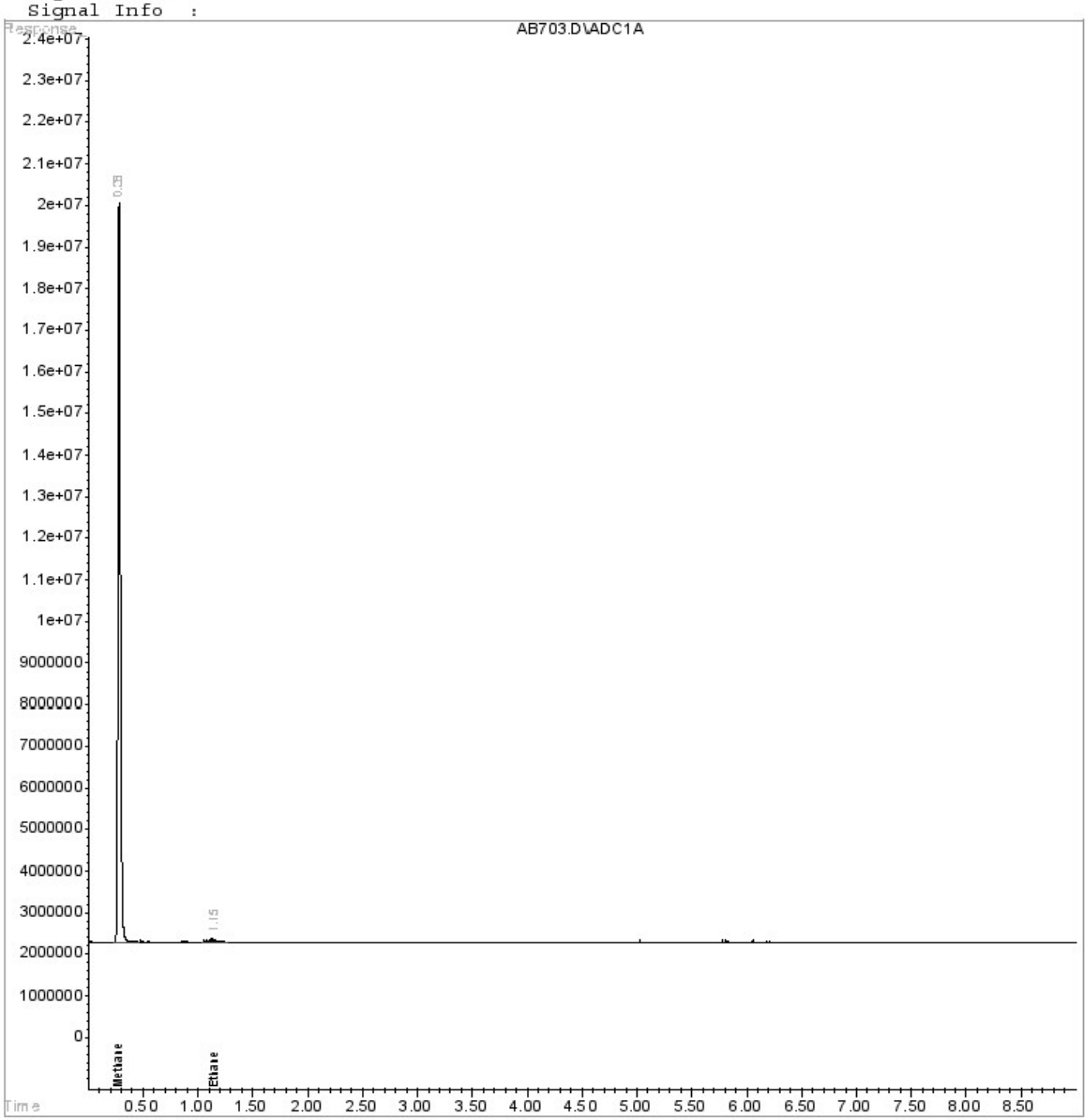
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB703.D Vial: 62
Acq On : 29 Jun 2018 2:07 pm Operator: b.allgeier
Sample : r1805985-004|100 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:18 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

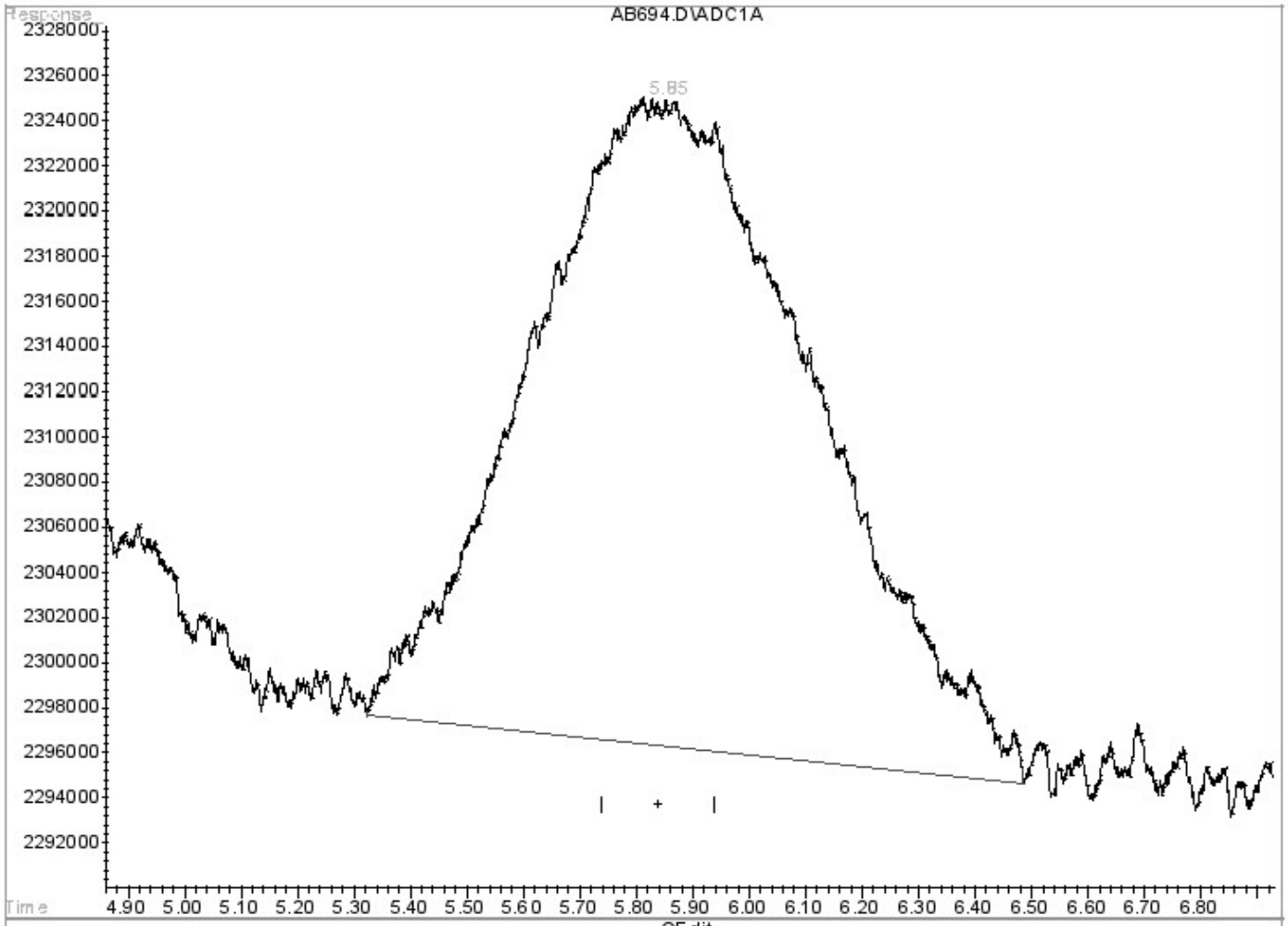


1st BA 06/29/18
2nd Mwi 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB694.D Vial: 53
Acq On : 29 Jun 2018 12:39 pm Operator: b.allgeier
Sample : r1805985-005 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:49 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 1.742ug/L m

response 10083137

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

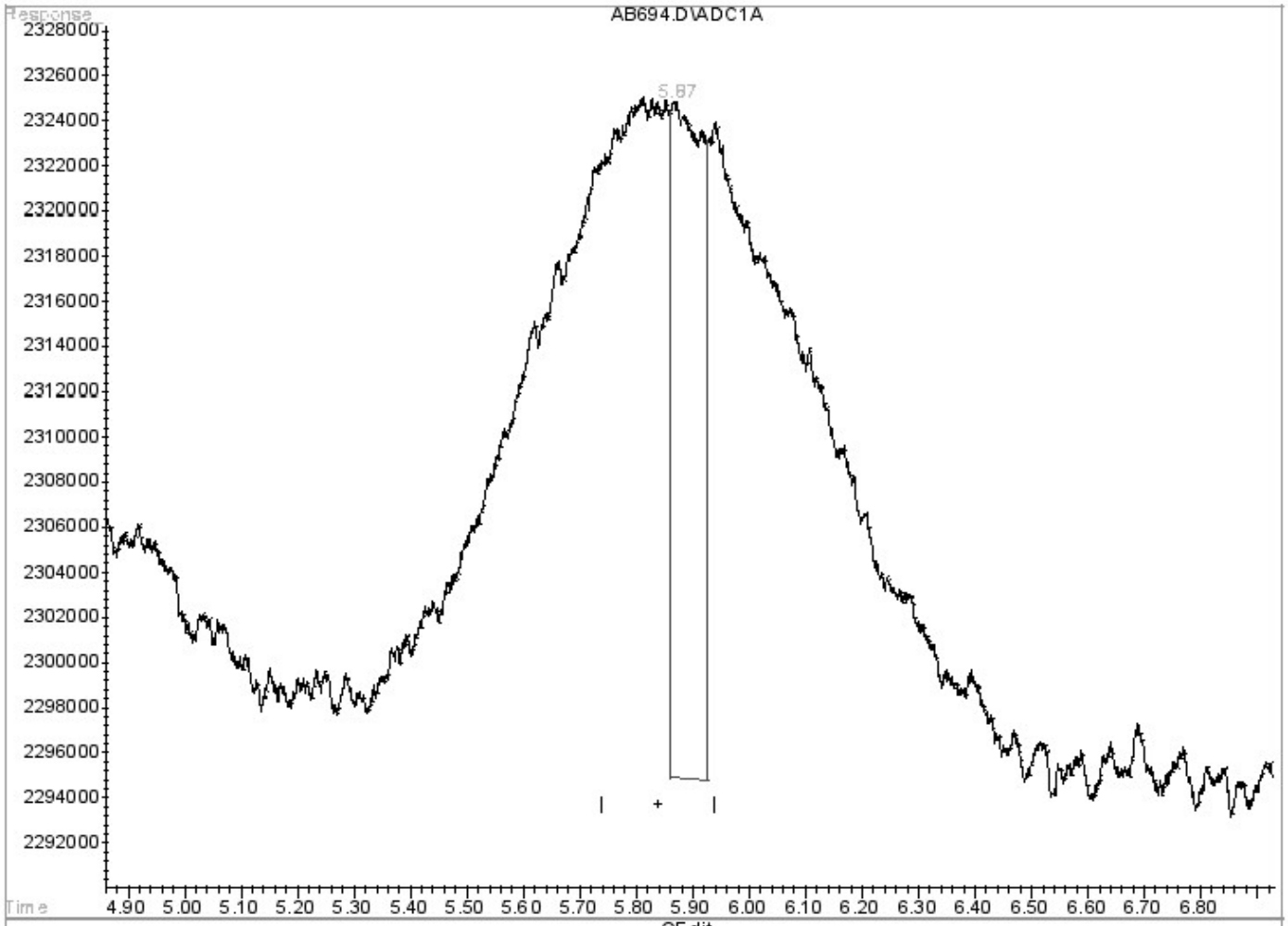
AB694.D RSK0626.M Fri Jun 29 12:49:18 2018 Page 64 of 110

1st BA 06/29/18
2nd MWL 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB694.D Vial: 53
Acq On : 29 Jun 2018 12:39 pm Operator: b.allgeier
Sample : r1805985-005 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:49 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.87min 0.201ug/L

response 1160819

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB694.D RSK0626.M Fri Jun 29 12:49:12 2018
Page 65 of 110

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB694.D Vial: 53
Acq On : 29 Jun 2018 12:39 pm Operator: b.allgeier
Sample : r1805985-005 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:49 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	687758784	126.494	ug/L	
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.88	9659483	2.375	ug/L	
4)	Ethane	1.15	32087853	5.742	ug/L	
5)	Propene	4.79f	318741	NoCal	ug/L	
6)	Propane	5.85	10083137	1.742	ug/L	m

(f)=RT Delta > 1/2 Window (m)=manual int.

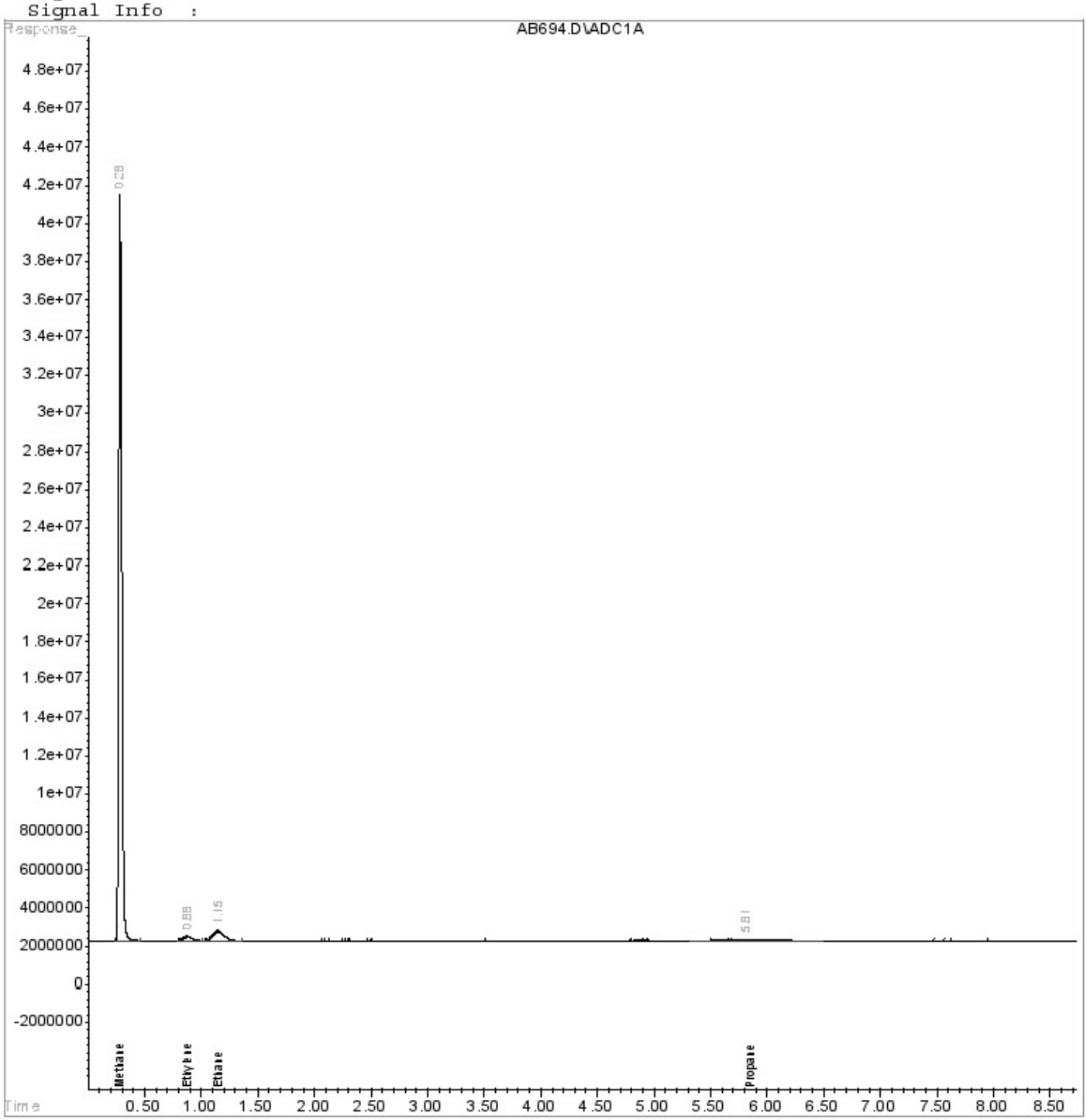
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB694.D Vial: 53
Acq On : 29 Jun 2018 12:39 pm Operator: b.allgeier
Sample : r1805985-005 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:49 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

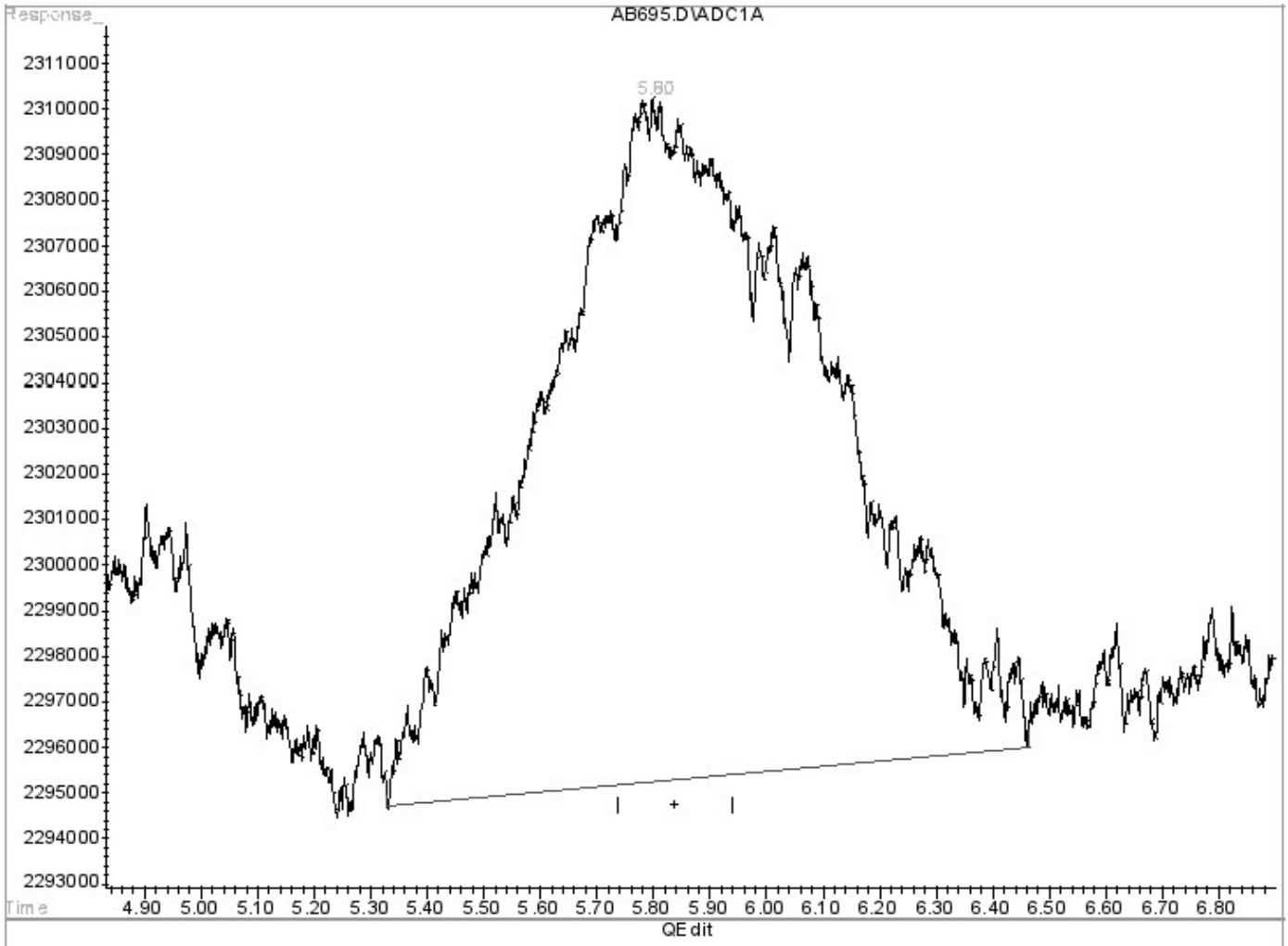


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB695.D Vial: 54
Acq On : 29 Jun 2018 12:50 pm Operator: b.allgeier
Sample : r1805985-005|2.0 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:59 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.80min 0.893ug/L m

response 5167427

Manual Integration:

After

Poor integration.

06/29/18

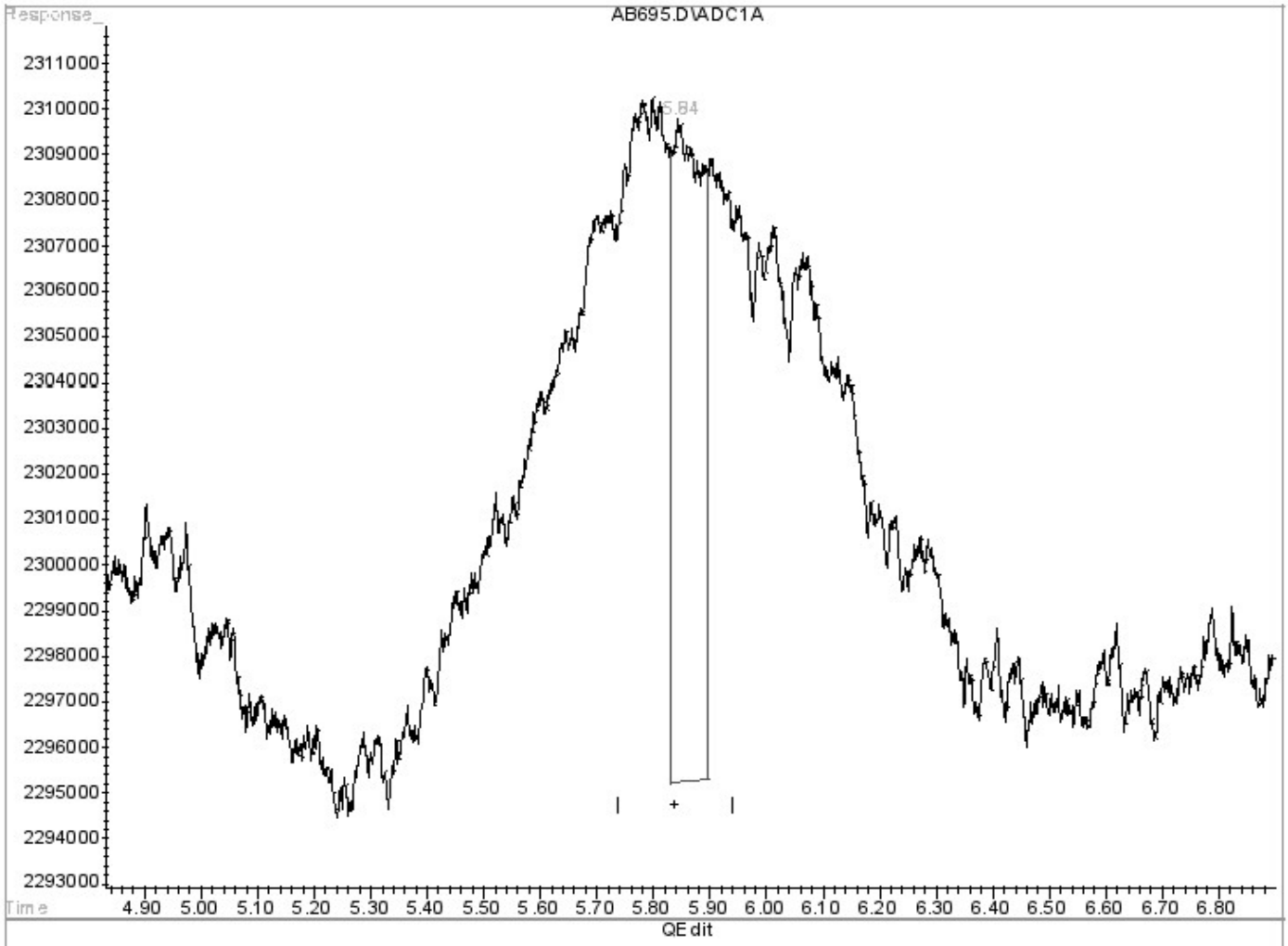
(+) = Expected Retention Time

1st BA 06/29/18
2nd Mwl 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB695.D Vial: 54
Acq On : 29 Jun 2018 12:50 pm Operator: b.allgeier
Sample : r1805985-005|2.0 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:59 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 0.092ug/L

response 532106

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB695.D RSK0626.M Fri Jun 29 12:59:32 2018

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB695.D Vial: 54
Acq On : 29 Jun 2018 12:50 pm Operator: b.allgeier
Sample : r1805985-005|2.0 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:59 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Target Compounds					
1)	Methane	0.28	338874467	62.326	ug/L	
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.88	4945955	1.216	ug/L	
4)	Ethane	1.15	15961762	2.856	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.80	5167427	0.893	ug/L	m

(f)=RT Delta > 1/2 Window (m)=manual int.

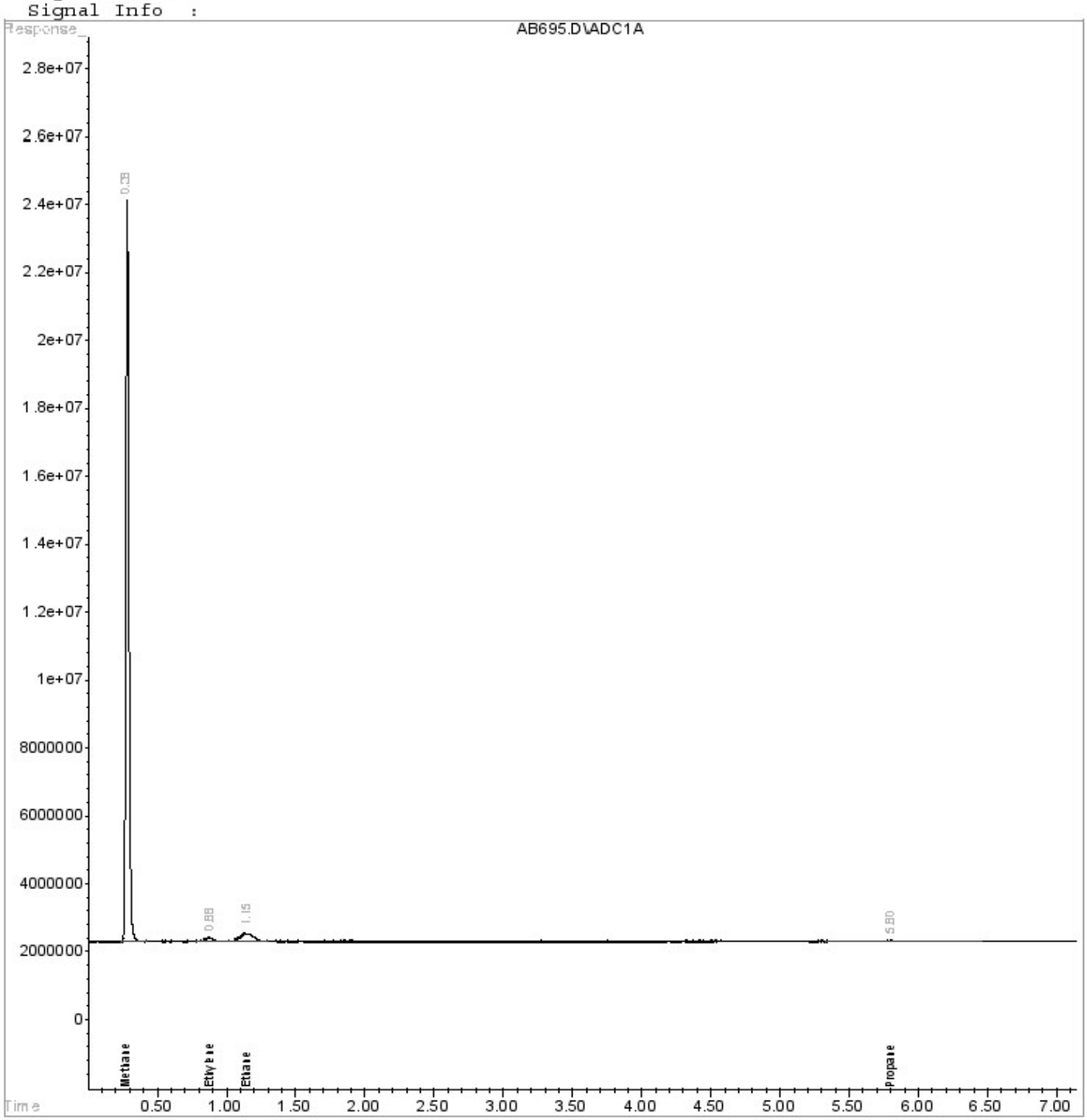
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB695.D Vial: 54
Acq On : 29 Jun 2018 12:50 pm Operator: b.allgeier
Sample : r1805985-005|2.0 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 12:59 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

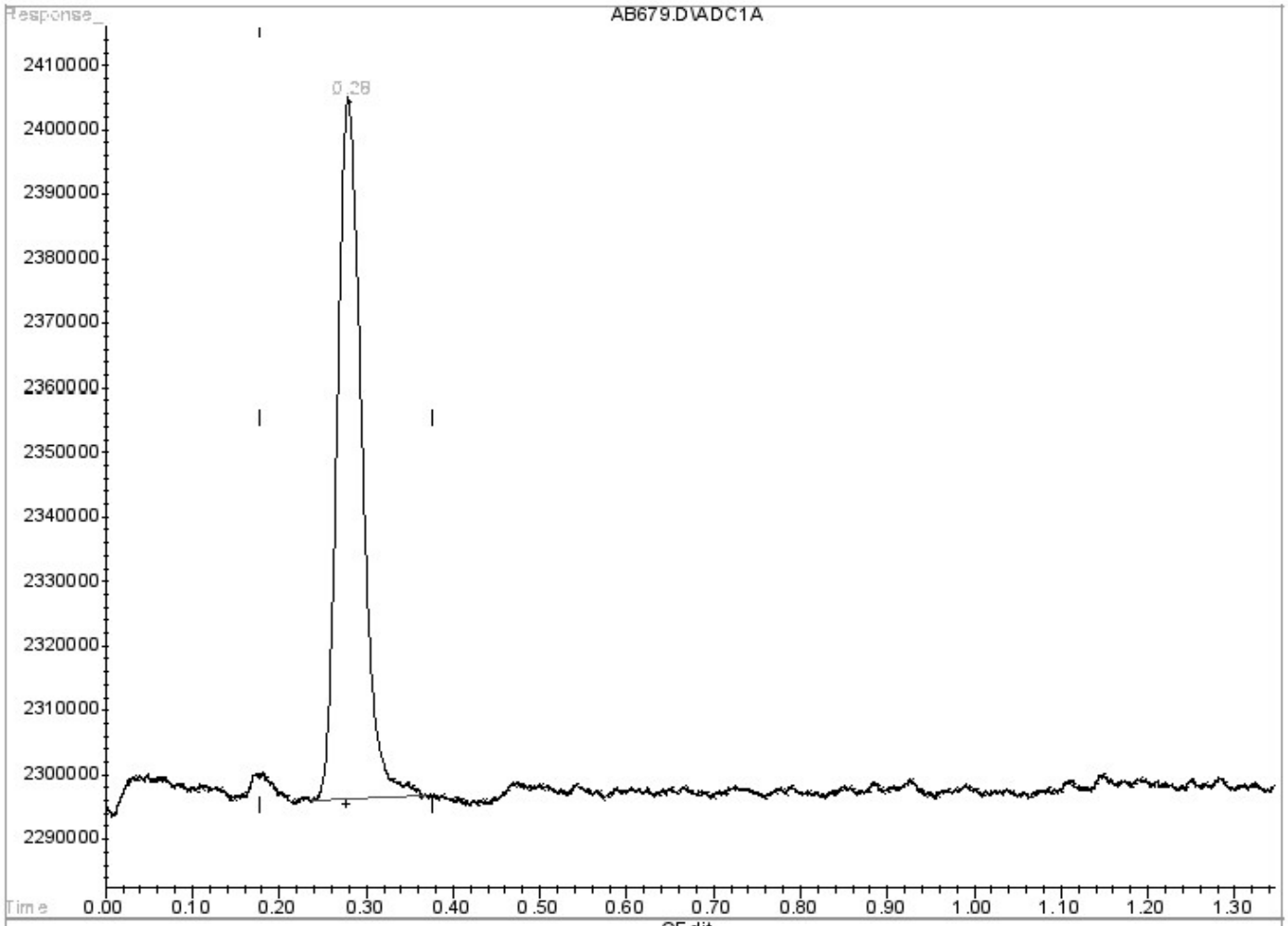


1st BA 06/29/18
2nd MWL 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.392ug/L m

response 2133017

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

AB679.D RSK0626.M Fri Jun 29 09:48:34 2018

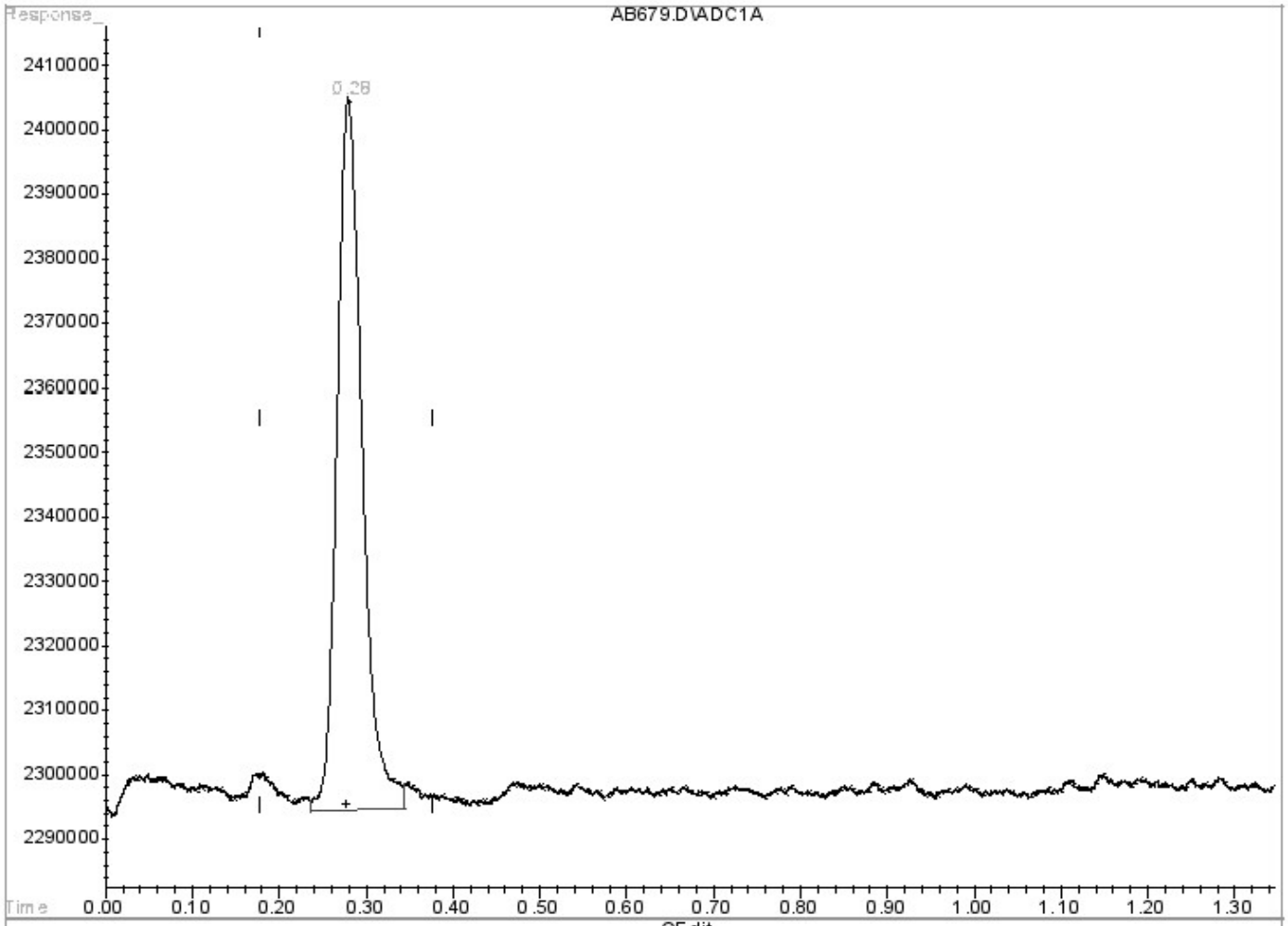
ALS

1st BA 06/29/18
2nd MWL 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.410ug/L

response 2228671

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB679.D RSK0626.M Fri Jun 29 09:48:26 2018

ALS

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	2133017	0.392	ug/L	m
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.00	0	N.D.	ug/L	
4)	Ethane	0.00	0	N.D.	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	0.00	0	N.D.	ug/L	

(f)=RT Delta > 1/2 Window (m)=manual int.

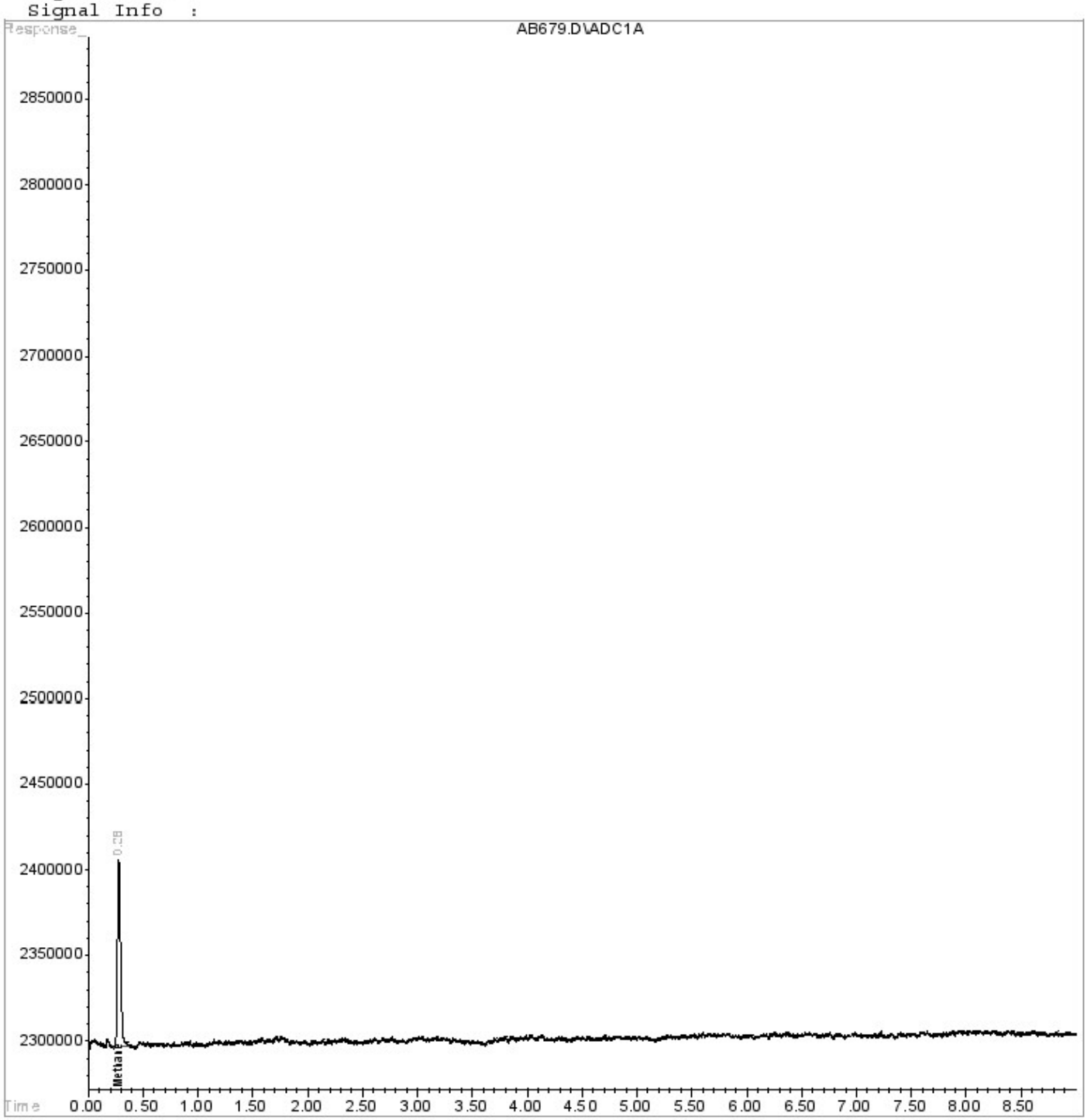
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

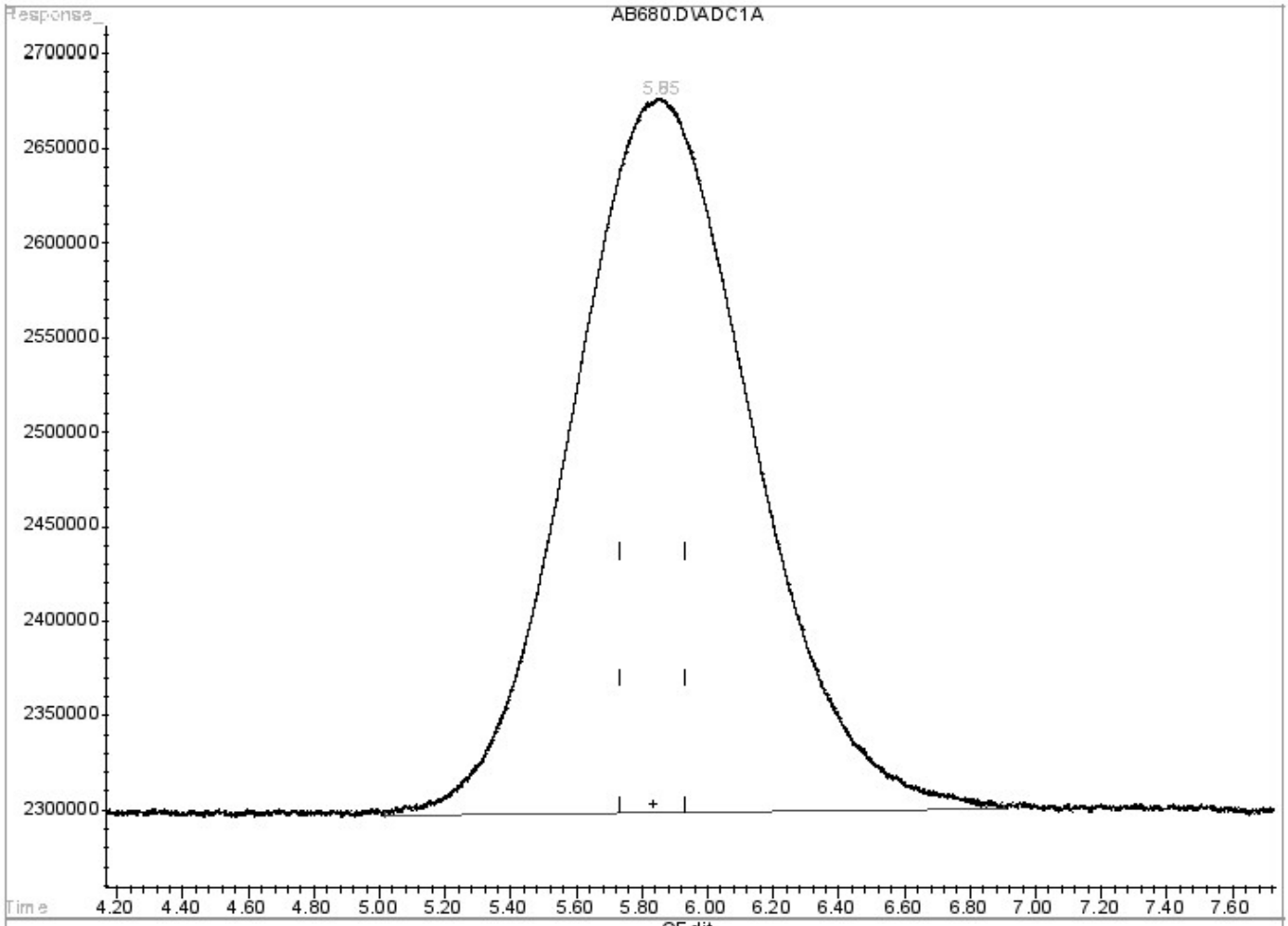


1st BA 06/29/18
2nd Mwi 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 24.893ug/L m

response 144051743

Manual Integration:

After

Poor integration.

06/29/18

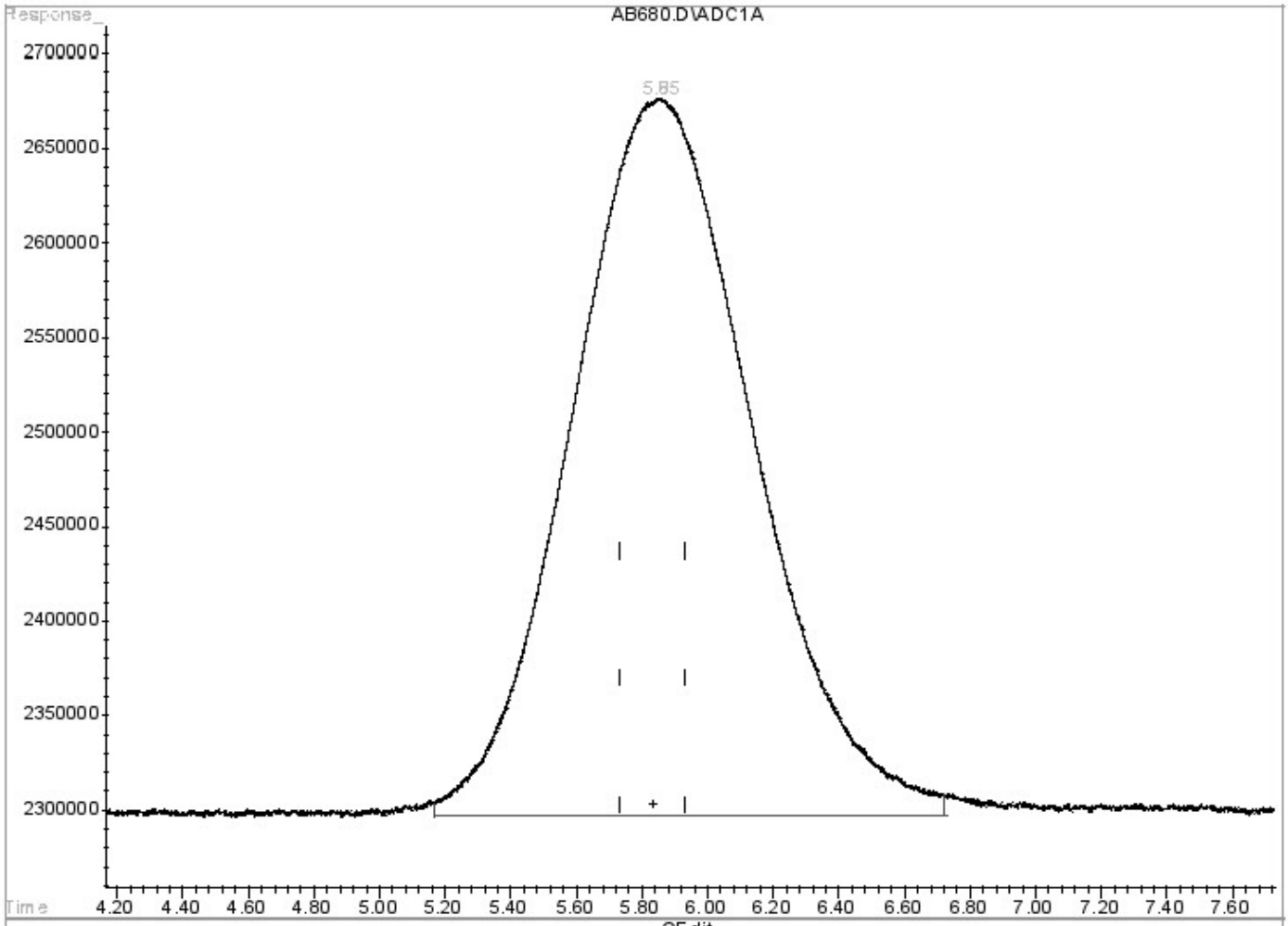
(+) = Expected Retention Time

1st BA 06/29/18
2nd Mwi 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 25.059ug/L

response 145011233

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	145885558	26.831 ug/L
2)	Acetylene	0.64	45010985	53.621 ug/L
3)	Ethylene	0.88	98278040	24.163 ug/L
4)	Ethane	1.15	147951794	26.474 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	144051743	24.893 ug/L m

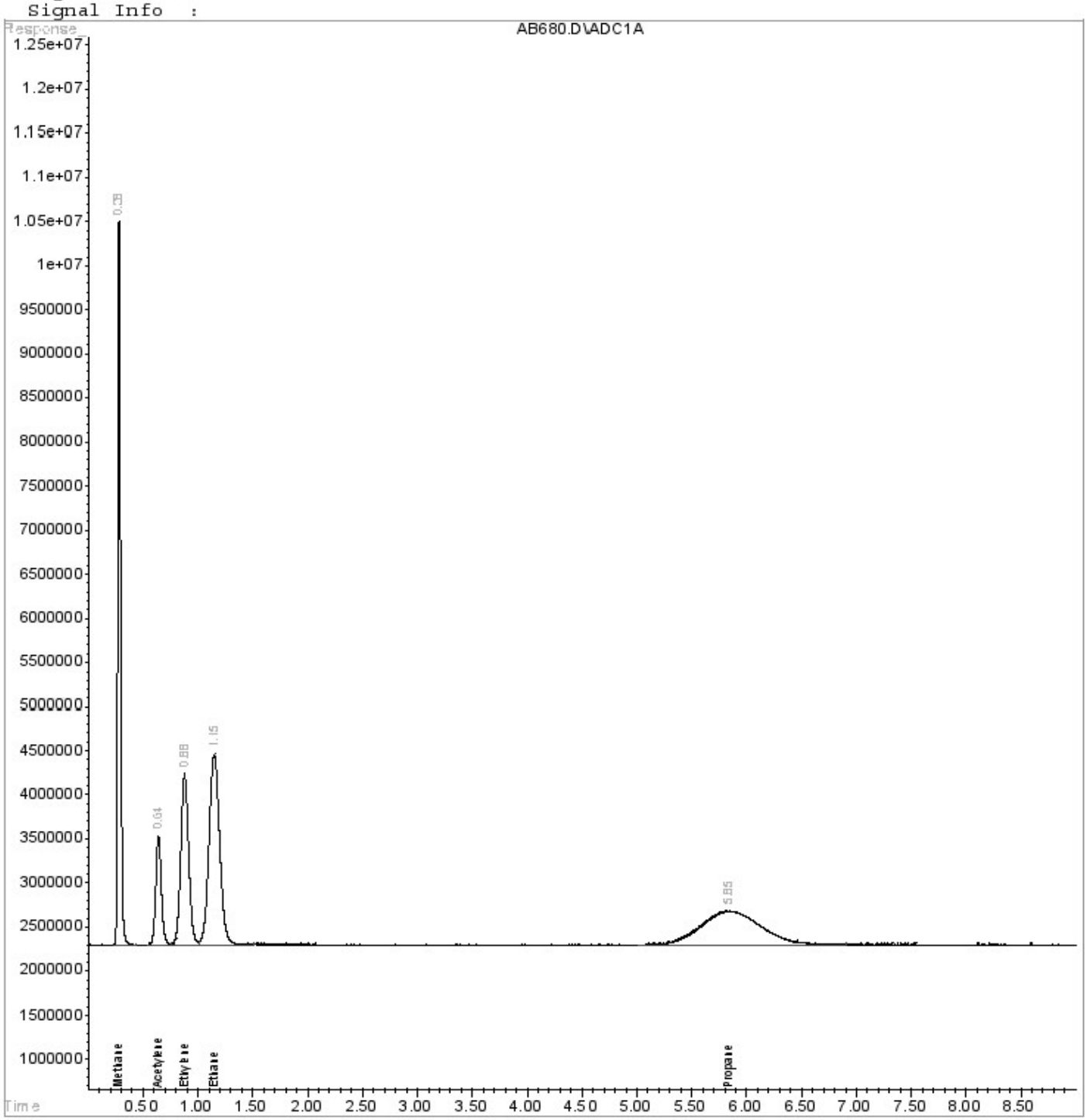
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB681.D Vial: 40
Acq On : 29 Jun 2018 10:08 am Operator: b.allgeier
Sample : lcsd Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:19 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	153990990	28.322 ug/L
2)	Acetylene	0.64	46683382	55.382 ug/L
3)	Ethylene	0.88	103659137	25.486 ug/L
4)	Ethane	1.15	154586781	27.662 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	151080271	26.108 ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

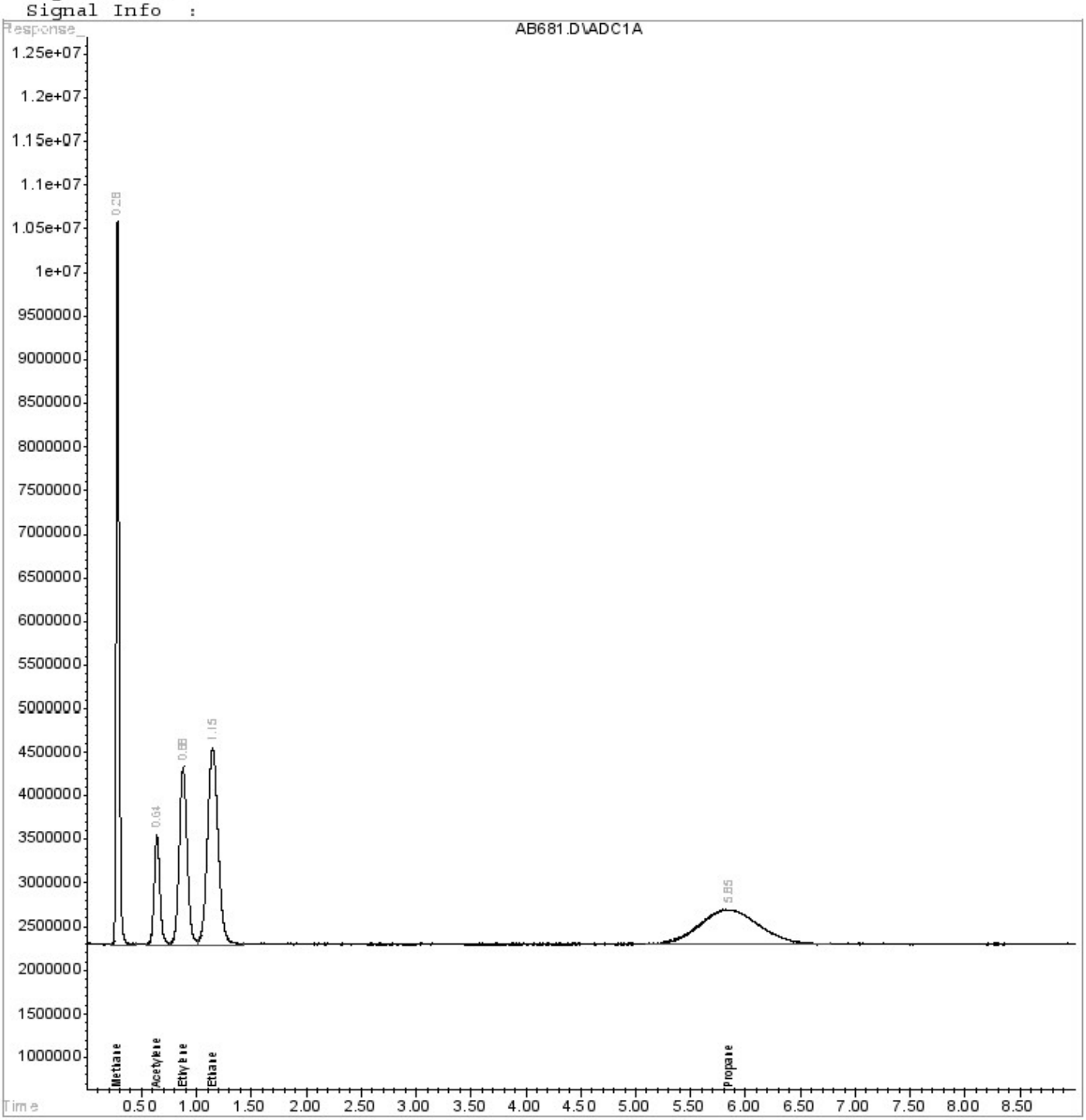
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB681.D Vial: 40
Acq On : 29 Jun 2018 10:08 am Operator: b.allgeier
Sample : lcsd Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:19 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

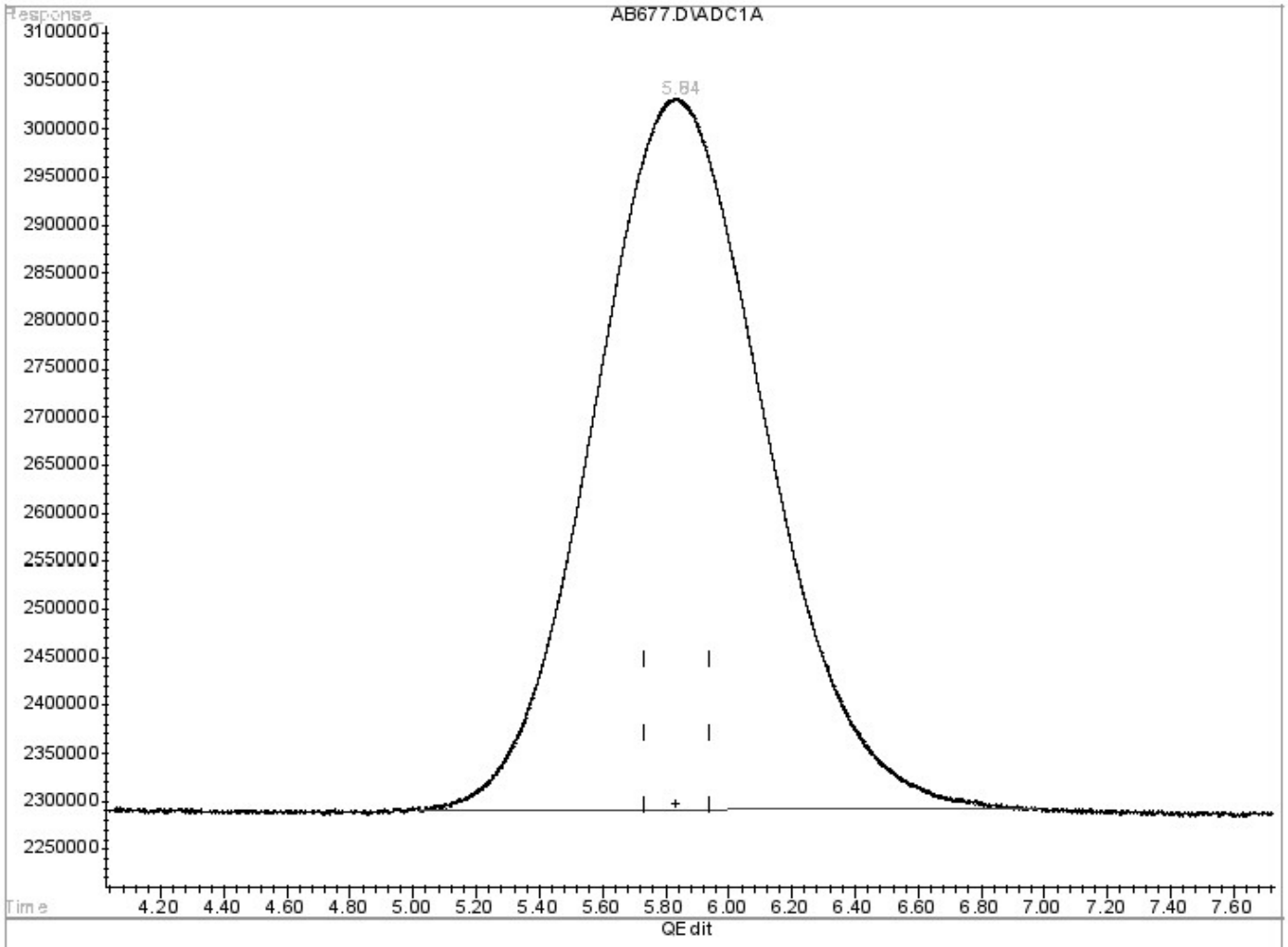


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:16 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.84min 48.388ug/L m

response 280008014

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

AB677.D RSK0626.M Fri Jun 29 09:17:08 2018

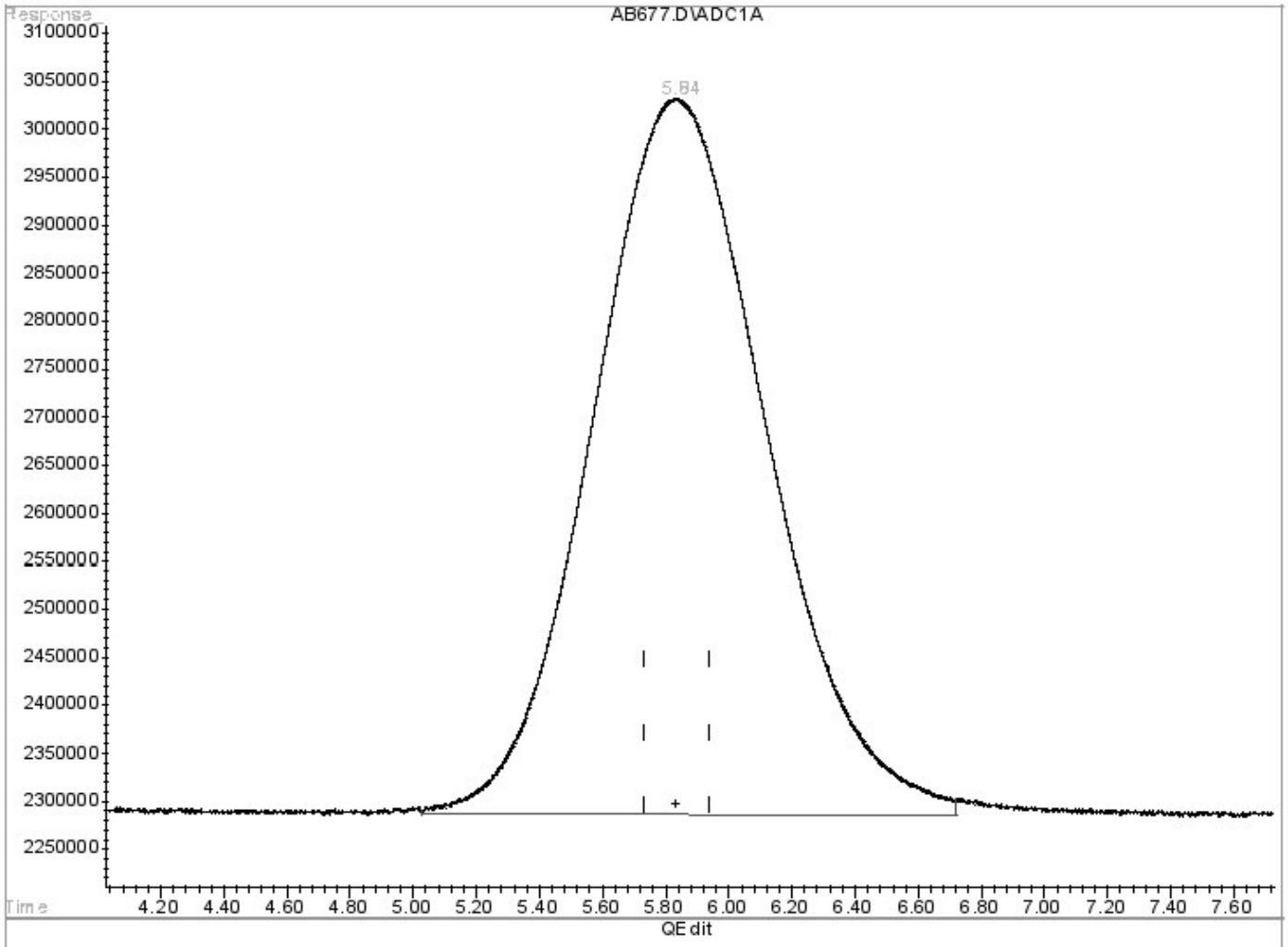
ALS

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:16 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.84min 49.108ug/L

response 284175202

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB677.D RSK0626.M Fri Jun 29 09:17:02 2018

ALS

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
1	Methane	5.437	5.447	E6	-0.2	96	0.00
2	Acetylene	823.699	826.652	E3	~~-0.4~~ -9	84	0.00
3	Ethylene	4.067	3.963	E6	2.6	91	0.00
4	Ethane	5.589	5.541	E6	0.9	95	0.00
6	Propane	5.787	5.501	E6	4.9	94	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB677.D RSK0626.M Fri Jun 29 11:06:30 2018 Page 1
Page 84 of 110

1st BA 6/29/18
2nd MW 6/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB677.D RSK0626.M Fri Jun 29 11:06:30 2018 Page 2
Page 85 of 110

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:17 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	285962955	52.595	ug/L	
2)	Acetylene	0.64	82830567	90.912	ug/L	
3)	Ethylene	0.88	192579890	47.348	ug/L	
4)	Ethane	1.14	288692580	51.658	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.84	280008014	48.388	ug/L	m

(f)=RT Delta > 1/2 Window (m)=manual int.

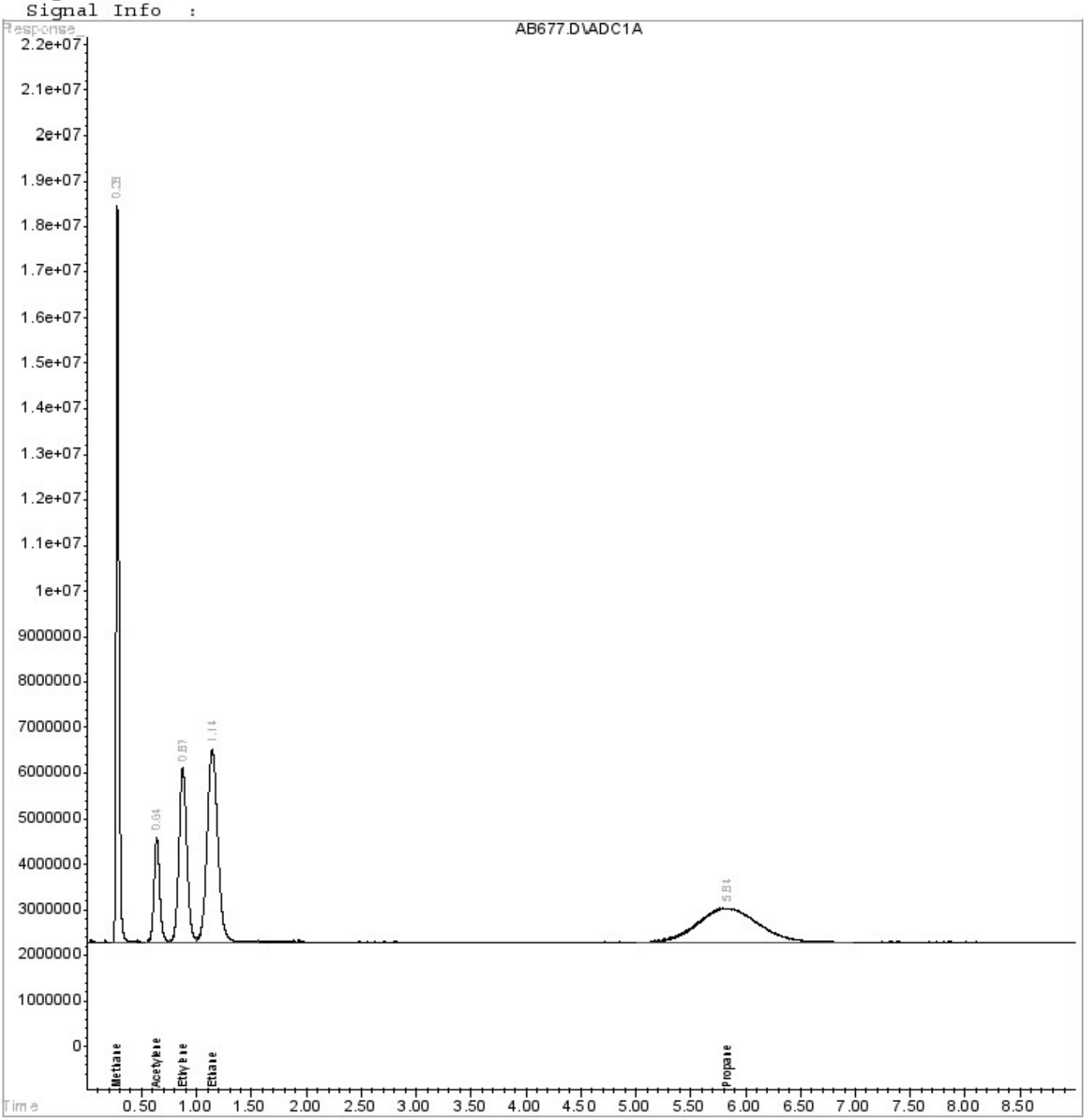
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:17 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

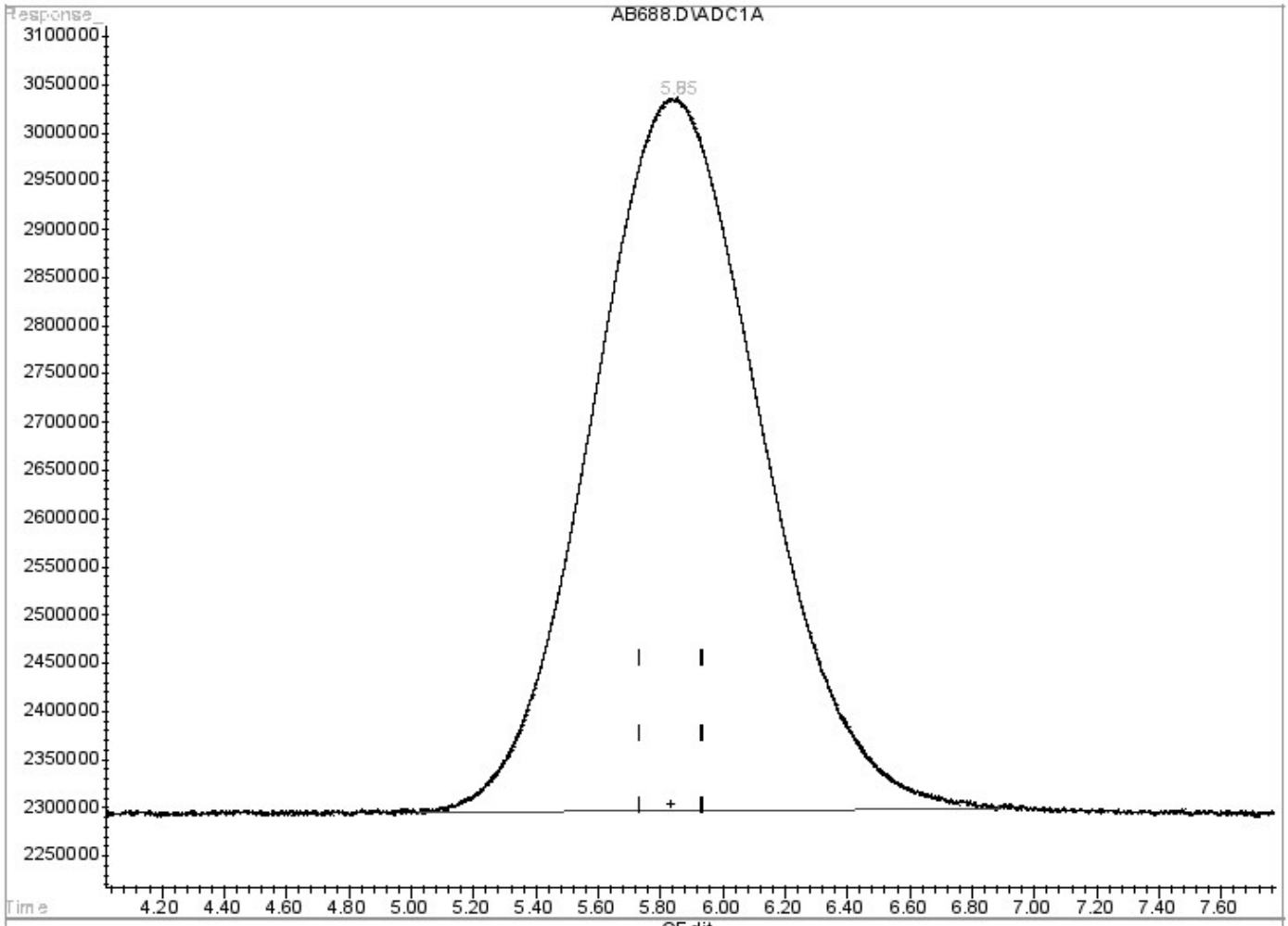


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:52 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 48.225ug/L m

response 279066560

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

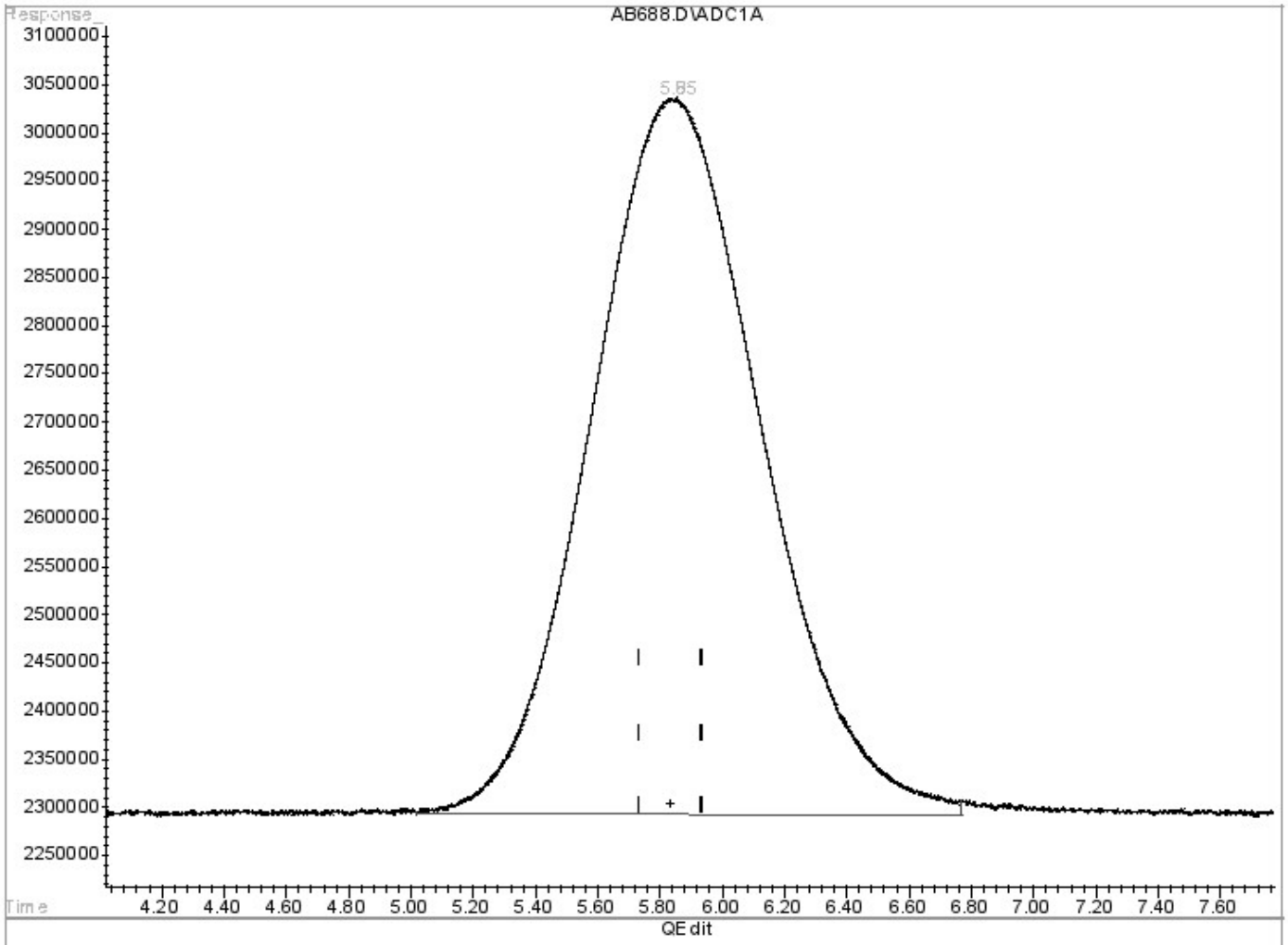
AB688.D RSK0626.M Fri Jun 29 11:53:11 2018 Page 88 of 110

1st BA 06/29/18
2nd Mwl 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:52 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 48.804ug/L

response 282416299

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB688.D RSK0626.M Fri Jun 29 11:53:05 2018

ALS

1st BA 6/29/18
2nd MW 6/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
1	Methane	5.437	5.383	E6	1.0	94	0.00
2	Acetylene	823.699	945.501	E3	~~-14.8~~	96	0.00
3	Ethylene	4.067	4.000	E6	1.6	92	0.00
4	Ethane	5.589	5.497	E6	1.6	94	0.00
6	Propane	5.787	5.483	E6	5.3	94	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB688.D RSK0626.M Fri Jun 29 11:53:42 2018 Page 1
Page 90 of 110

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB688.D RSK0626.M Fri Jun 29 11:53:42 2018 Page 2
Page 91 of 110

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:53 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	282623484	51.981 ug/L
2)	Acetylene	0.64	94739238	101.723 ug/L
3)	Ethylene	0.88	194387063	47.793 ug/L
4)	Ethane	1.15	286416923	51.251 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	279066560	48.225 ug/L m

(f)=RT Delta > 1/2 Window (m)=manual int.

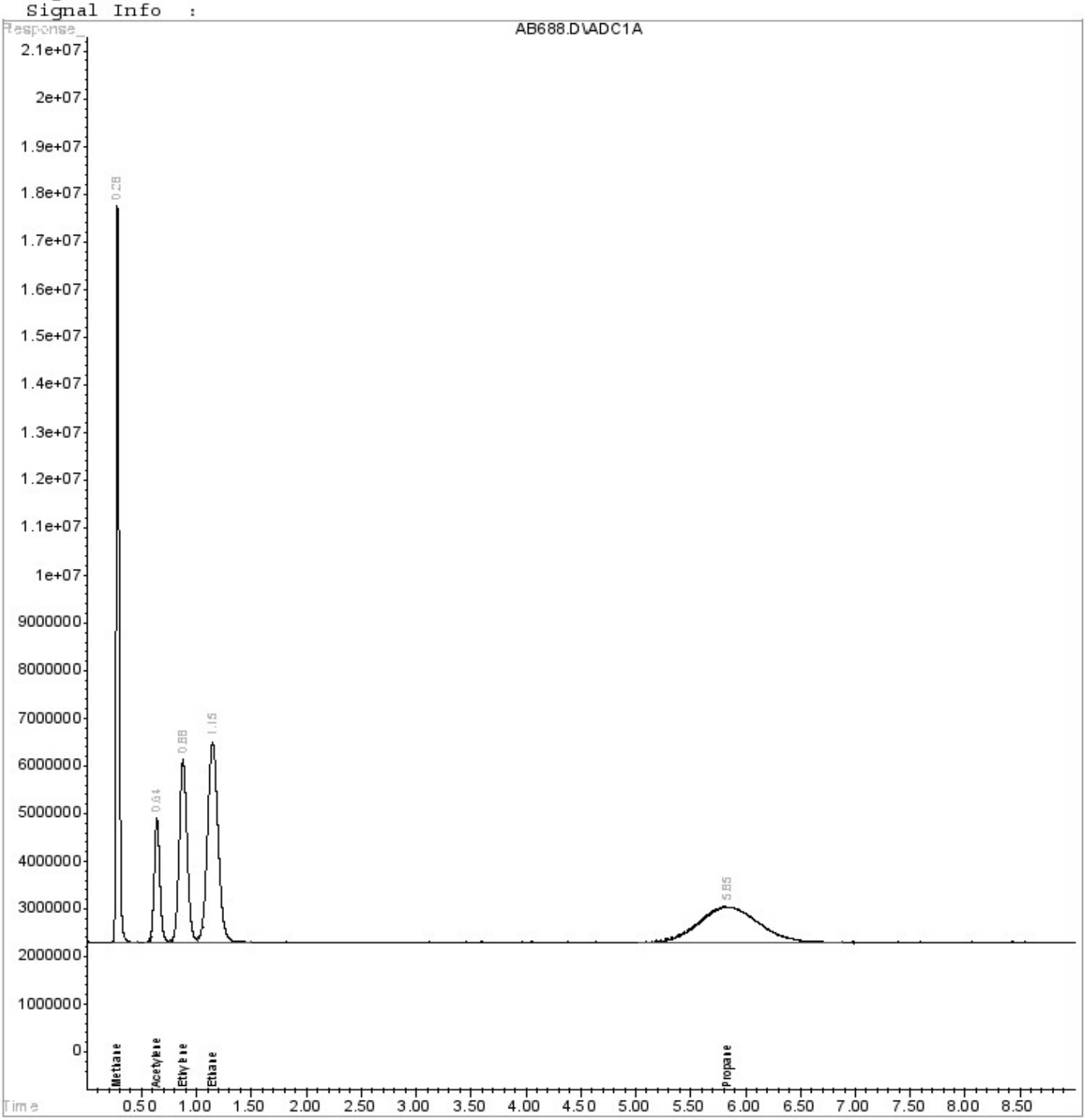
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:53 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
1	Methane	5.437	5.655	E6	-4.0	99	0.00
2	Acetylene	823.699	995.755	E3	~~-20.9~~ 6	101	0.00
3	Ethylene	4.067	4.249	E6	-4.5	97	0.00
4	Ethane	5.589	5.750	E6	-2.9	99	0.00
6	Propane	5.787	5.775	E6	0.2	99	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB698.D RSK0626.M Fri Jun 29 13:30:02 2018 Page 1
Page 94 of 110

1st BA 6/29/18
2nd MW 6/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB698.D RSK0626.M Fri Jun 29 13:30:02 2018 Page 2
Page 95 of 110

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:29 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	296872545	54.601 ug/L
2)	Acetylene	0.64	99774672	106.182 ug/L
3)	Ethylene	0.88	206490468	50.769 ug/L
4)	Ethane	1.15	299594096	53.609 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	293970732	50.801 ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

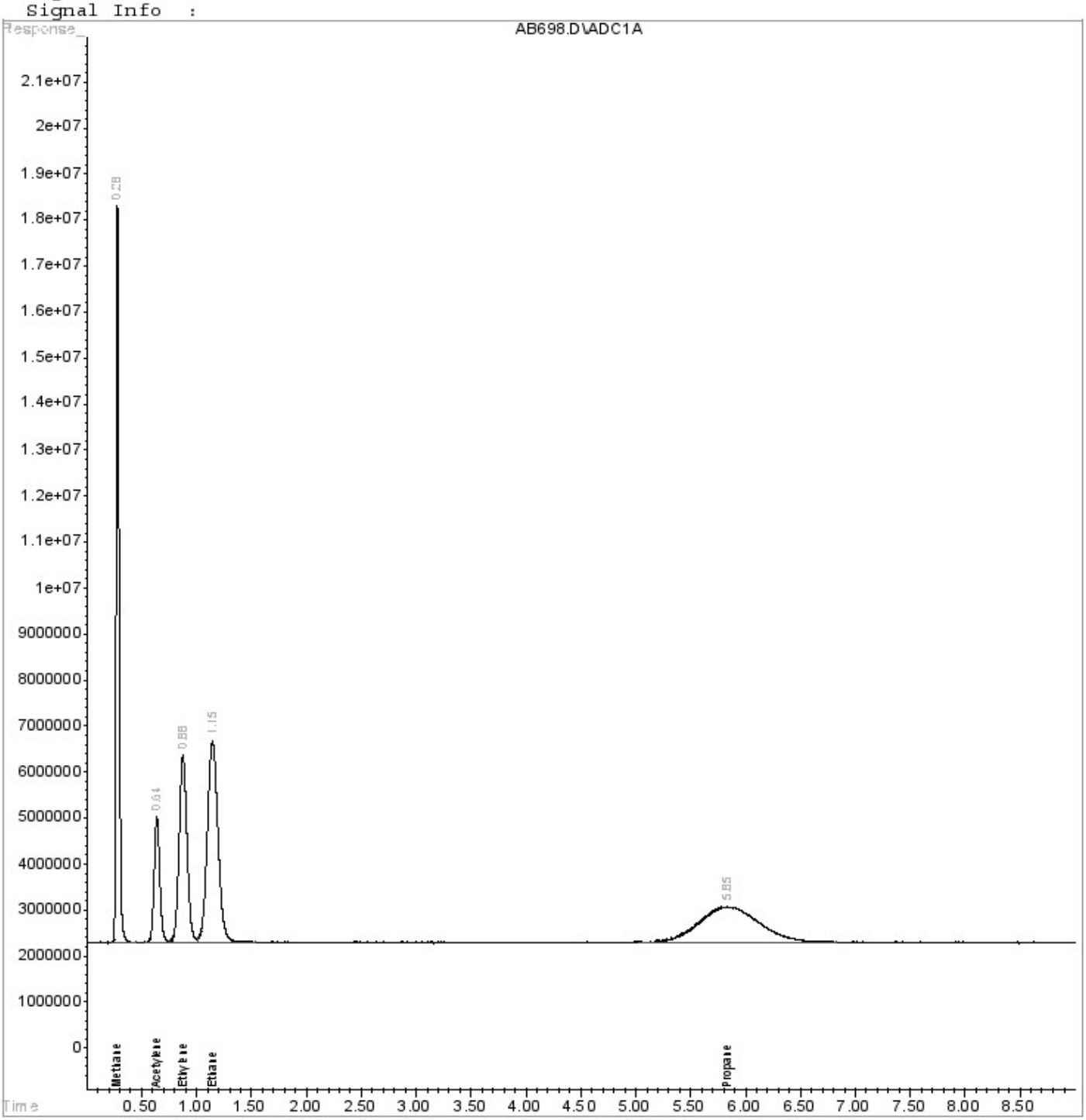
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:29 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	Methane	52.500	50.931	3.0	93	0.00
2	Acetylene	100.200	103.260	~~-3.1~~ 3	98	0.00
3	Ethylene	48.600	47.799	1.6	92	0.00
4	Ethane	52.100	50.490	3.1	93	0.00
6	Propane	50.900	47.559	6.6	93	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB704.D RSK0626.M Fri Jun 29 14:27:07 2018 Page 1
Page 98 of 110

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
5	Propene	48.100	0.000	100.0#	0	-4.70#

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

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:26 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	276916125	50.931	ug/L
2)	Acetylene	0.64	96467671	103.260	ug/L
3)	Ethylene	0.88	194411982	47.799	ug/L
4)	Ethane	1.14	282165685	50.490	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	5.85	275213378	47.559	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

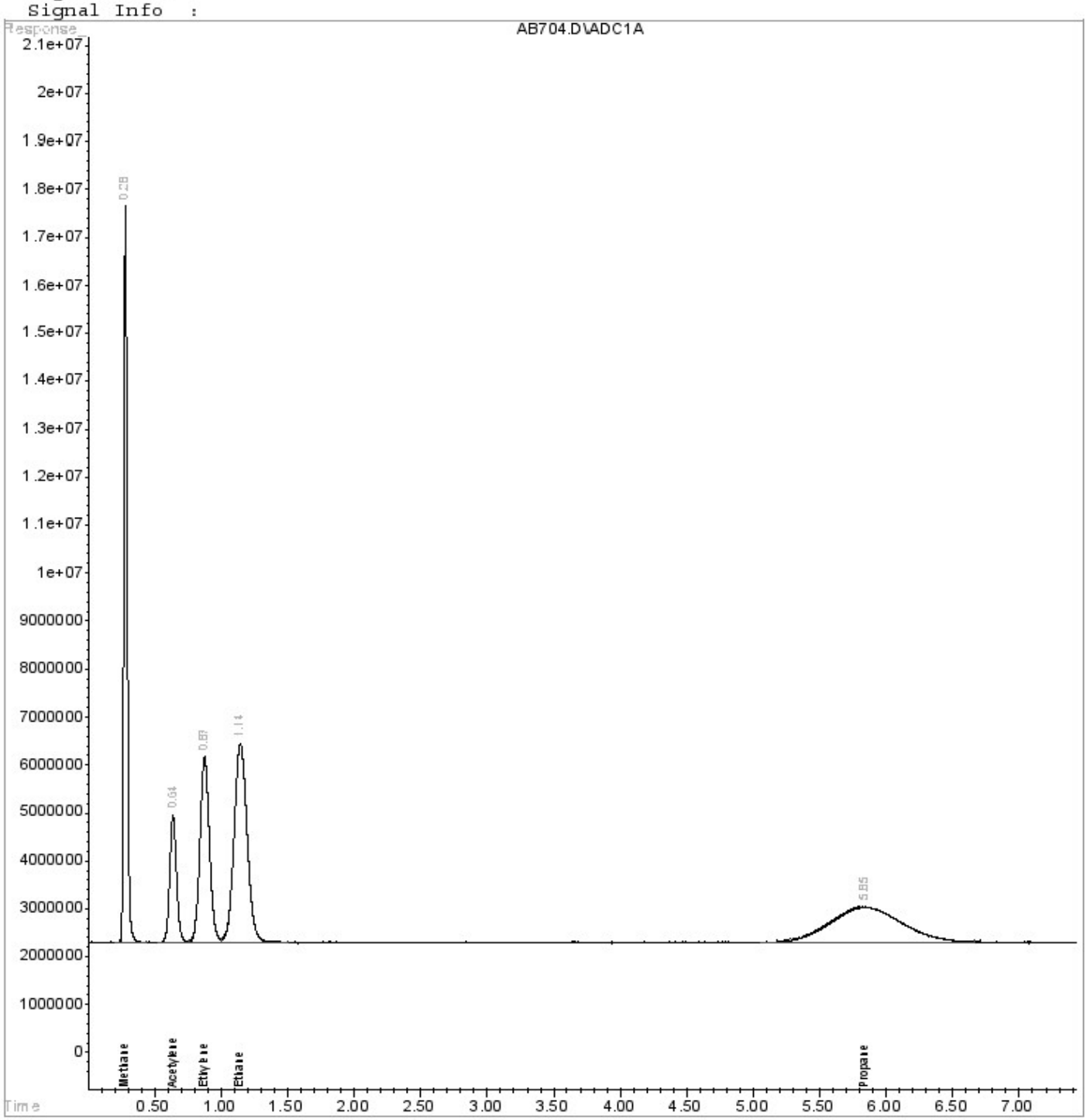
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:26 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



Client: ALS Environmental - US
Project: UR115: 2322348

Service Request: R1805985
Calibration Date: 6/26/2018

Initial Calibration Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800072
Instrument ID: R-GC-02

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
08	RC1800072-08	1PPB		06/26/2018 11:23
07	RC1800072-07	2PPB		06/26/2018 11:33
06	RC1800072-06	10PPB		06/26/2018 11:46
05	RC1800072-05	20PPB		06/26/2018 11:56
04	RC1800072-04	50PPB		06/26/2018 12:06
03	RC1800072-03	75PPB		06/26/2018 12:48
02	RC1800072-02	100PPB		06/26/2018 12:58

Analyte

Acetylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	2.000	5.438E5	07	4.010	5.433E5	06	20.030	6.889E5	05	40.100	9.101E5
04	100.200	9.87E5	03	150.300	1.017E6	02	200.300	1.076E6			

Ethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	1.040	5.598E6	07	2.080	5.05E6	06	10.410	5.132E6	05	20.800	6.227E6
04	52.100	5.823E6	03	78.100	5.711E6	02	104.100	5.58E6			

Ethene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.970	3.745E6	07	1.940	3.421E6	06	9.710	3.705E6	05	19.400	4.595E6
04	48.600	4.366E6	03	72.900	4.348E6	02	97.100	4.291E6			

Methane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	1.050	5.401E6	07	2.100	4.941E6	06	10.490	5.024E6	05	21.000	6.123E6
04	52.500	5.699E6	03	78.700	5.521E6	02	104.900	5.352E6			

Client: ALS Environmental - US
Project: UR115: 2322348

Service Request: R1805985
Calibration Date: 6/26/2018

Initial Calibration Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800072
Instrument ID: R-GC-02

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Acetylene	TRG	Quadratic	COD	0.9969	≥	8.237E5	
Ethane	TRG	Average RF	% RSD	7.2	≤20	5.589E6	
Ethene	TRG	Average RF	% RSD	10.8	≤20	4.067E6	
Methane	TRG	Average RF	% RSD	7.4	≤20	5.437E6	

Client: ALS Environmental - US **Service Request:** R1805985
Project: UR115: 2322348 **Calibration Date:** 6/26/2018

Initial Calibration Verification Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800072 **Signal ID:** 1
Instrument ID: R-GC-02

#	Lab Code	Sample Name	File Location	Acquisition Date
01	RC1800072-01	ICV		06/26/2018 13:28

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
Acetylene	100	109	8.237E5	1.029E6	109	85-115	Quadratic
Ethane	52.1	52.4	5.589E6	5.617E6	101	85-115	Average RF
Ethene	48.6	51.6	4.067E6	4.315E6	106	85-115	Average RF
Methane	52.5	51.9	5.437E6	5.378E6	98.9	85-115	Average RF

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Analyzed:**	06/29/18 09:07

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method:	RSK 175	**Calibration Date:**	6/26/2018
File ID:	I:\ACQUDATA\V2\DATA\062918\AB677.D\	**Calibration ID:**	RC1800072
Signal ID:	1	**Analysis Lot:**	596833
		Units:	ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	90.9	8.237E5	8.269E5	90.8	-9.2	85-115	Quadratic
Ethane	52.1	51.7	5.589E6	5.545E6	99.2	NA	85-115	Average RF
Ethene	48.6	47.3	4.067E6	3.965E6	97.5	NA	85-115	Average RF
Methane	52.5	52.6	5.437E6	5.451E6	100	NA	85-115	Average RF

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Analyzed:**	06/29/18 11:43

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method:	RSK 175	**Calibration Date:**	6/26/2018
File ID:	I:\ACQUDATA\V2\DATA\062918\AB688.D\	**Calibration ID:**	RC1800072
Signal ID:	1	**Analysis Lot:**	596833
		Units:	ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	102	8.237E5	9.458E5	102	1.6	85-115	Quadratic
Ethane	52.1	51.3	5.589E6	5.501E6	98.4	NA	85-115	Average RF
Ethene	48.6	47.8	4.067E6	4.002E6	98.4	NA	85-115	Average RF
Methane	52.5	52.0	5.437E6	5.387E6	99.1	NA	85-115	Average RF

Client: ALS Environmental - US
Project: UR115: 2322348

Service Request: R1805985
Date Analyzed: 06/29/18 13:15

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method: RSK 175
File ID: I:\ACQUDATA\V2\DATA\062918\AB698.D\
Signal ID: 1

Calibration Date: 6/26/2018
Calibration ID: RC1800072
Analysis Lot: 596833
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	106	8.237E5	9.961E5	106	6.0	85-115	Quadratic
Ethane	52.1	53.6	5.589E6	5.754E6	103	NA	85-115	Average RF
Ethene	48.6	50.8	4.067E6	4.251E6	105	NA	85-115	Average RF
Methane	52.5	54.6	5.437E6	5.659E6	104	NA	85-115	Average RF

Client: ALS Environmental - US
Project: UR115: 2322348
Service Request: R1805985
Date Analyzed: 06/29/18 14:19

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method: RSK 175
File ID: I:\ACQUDATA\V2\DATA\062918\AB704.D\
Signal ID: 1
Calibration Date: 6/26/2018
Calibration ID: RC1800072
Analysis Lot: 596833
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	103	8.237E5	9.63E5	103	3.1	85-115	Quadratic
Ethane	52.1	50.5	5.589E6	5.419E6	97.0	NA	85-115	Average RF
Ethene	48.6	47.8	4.067E6	4.003E6	98.4	NA	85-115	Average RF
Methane	52.5	50.9	5.437E6	5.278E6	97.1	NA	85-115	Average RF

Client: ALS Environmental - US **Service Request:** R1805985

Project: UR115: 2322348

Analysis Run Log
Dissolved Gases by GC/FID

Analysis Method: RSK 175 **Analysis Lot:** 596833

Instrument ID: R-GC-02

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
I:\ACQUDATA\W2\DATA\062918\AB677.D\	Continuing Calibration Verification	RQ1806590-04	6/29/2018	09:07:00	
I:\ACQUDATA\W2\DATA\062918\AB679.D\	Method Blank	RQ1806590-01	6/29/2018	09:32:00	
I:\ACQUDATA\W2\DATA\062918\AB680.D\	Lab Control Sample	RQ1806590-02	6/29/2018	09:49:00	
I:\ACQUDATA\W2\DATA\062918\AB681.D\	Duplicate Lab Control Sample	RQ1806590-03	6/29/2018	10:08:00	
I:\ACQUDATA\W2\DATA\062918\AB682.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	10:40:00	
I:\ACQUDATA\W2\DATA\062918\AB683.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	10:51:00	
I:\ACQUDATA\W2\DATA\062918\AB684.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	11:03:00	
I:\ACQUDATA\W2\DATA\062918\AB685.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	11:14:00	
I:\ACQUDATA\W2\DATA\062918\AB686.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	11:24:00	
I:\ACQUDATA\W2\DATA\062918\AB688.D\	Continuing Calibration Verification	RQ1806590-05	6/29/2018	11:43:00	
I:\ACQUDATA\W2\DATA\062918\AB689.D\	2322348 002	R1805985-001	6/29/2018	11:54:00	
I:\ACQUDATA\W2\DATA\062918\AB690.D\	2322348 004	R1805985-002	6/29/2018	12:03:00	
I:\ACQUDATA\W2\DATA\062918\AB691.D\	2322348 007	R1805985-003	6/29/2018	12:12:00	
I:\ACQUDATA\W2\DATA\062918\AB692.D\	2322348 004	R1805985-002	6/29/2018	12:22:00	
I:\ACQUDATA\W2\DATA\062918\AB693.D\	2322348 008	R1805985-004	6/29/2018	12:30:00	
I:\ACQUDATA\W2\DATA\062918\AB694.D\	2322348 009	R1805985-005	6/29/2018	12:39:00	
I:\ACQUDATA\W2\DATA\062918\AB695.D\	2322348 009	R1805985-005	6/29/2018	12:50:00	
I:\ACQUDATA\W2\DATA\062918\AB696.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:58:00	
I:\ACQUDATA\W2\DATA\062918\AB697.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:07:00	
I:\ACQUDATA\W2\DATA\062918\AB698.D\	Continuing Calibration Verification	RQ1806590-06	6/29/2018	13:15:00	
I:\ACQUDATA\W2\DATA\062918\AB699.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:31:00	
I:\ACQUDATA\W2\DATA\062918\AB700.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:41:00	
I:\ACQUDATA\W2\DATA\062918\AB701.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:50:00	
I:\ACQUDATA\W2\DATA\062918\AB702.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	13:59:00	
I:\ACQUDATA\W2\DATA\062918\AB703.D\	2322348 008	R1805985-004	6/29/2018	14:07:00	
I:\ACQUDATA\W2\DATA\062918\AB704.D\	Continuing Calibration Verification	RQ1806590-07	6/29/2018	14:19:00	

Friday, July 06, 2018 7:11:50 PM
Page 137 of 137
Page 110 of 110
ALS

Analysis: RSK.175 Analyst: BA
Date: 6/29/12 Data Path: J:\Acqudata\V2\Data\062912\
Instr. V2 Run Method: RSK / RSK0626
LIMS Run# :

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
	BLK								AB675	—	
	BLK								76	—	
	CCV								77	Y	
	MET BLK								78	N	
	MET BLK								79	Y	
	LCS								80	Y	
	DCS								81	Y	
	R1805290-001								82	Y	
	R1805941-001				19182	IV	1	<2	83	Y	
	-002				19182	IV	1		84	Y	
	-003								85	Y	
	-004								86	Y	
	R1805985-001				19182	IV	1		87	Y	
	CCV								88	Y	
	R1805985-001				19182	IV	1	<2	89	Y	
	-002								90	Y	RPT 1/2
	-003								91	Y	
	-002	2.0	250ul						92	Y	
	-004								93	Y	RPT 1/50
	-005								94	Y	RPT 1/2
	-006	2.0	250ul						95	Y	
	R1805986-001				19182	IV	1		96	Y	RPT 1/20
	-001	20	25ul						97	Y	
	CCV								98	Y	
	R1805986-002				19182	IV	1	<2	99	Y	RPT 1/20
	-002	20	25ul						700	Y	
	-003								01	Y	RPT 1/5
	-003	5.0	100ul						02	Y	
	-004	100	10ml/50ml → 250ul						03	Y	
	CCV								04	Y	

All samples = _____mL + _____uL Surrogate _____mL purged

Primary : 190132 200ul/42.5ml (CCV)
Primary :
Primary :
Primary :

Secondary : 190133 100ul/42.5ml(LCS) Surrogate :
Secondary :
Secondary :
Secondary :

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

July 9, 2018

Ms. Kelly Lurie
AECOM - Mechanicsburg
100 Sterling Parkway
Suite 205
Mechanicsburg, PA 17055

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2322463**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN037|2015-SCOTIA NAVY DEPOT-**

Dear Ms. Lurie:

Enclosed are the analytical results for samples received by the laboratory on Monday, June 25, 2018.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vanessa N Badman (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

CC: Mr. Greg Malzone , Mr. John Santacroce , Mr. Scott Underhill

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

July 9, 2018

Ms. Kelly Lurie
AECOM - Mechanicsburg
100 Sterling Parkway
Suite 205
Mechanicsburg, PA 17055

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2322463**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN037|2015-SCOTIA NAVY DEPOT-**

Dear Ms. Lurie:

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Greg Malzone , Mr. John Santacroce , Mr. Scott Underhill

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2322463001	DUP04-062218	Ground Water	6/22/2018 00:00	6/25/2018 08:20	Collected by Client
2322463002	MW-28 062218	Ground Water	6/22/2018 09:25	6/25/2018 08:20	Collected by Client
2322463003	MW-29 062218	Ground Water	6/22/2018 10:30	6/25/2018 08:20	Collected by Client
2322463004	Trip Blank	Ground Water	6/22/2018 10:30	6/25/2018 08:20	Collected by Client

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

PROJECT SUMMARY

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Workorder Comments

Please see attached subcontracting from ALS Rochester. VNB 7/6/18

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID: **2322463001** Date Collected: 6/22/2018 00:00 Matrix: Ground Water

Sample ID: **DUP04-062218** Date Received: 6/25/2018 08:20

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.74J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,1-Dichloroethane	0.86J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,1-Dichloroethene	0.37J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
cis-1,2-Dichloroethene	5.1		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
trans-1,2-Dichloroethene	0.36J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
Tetrachloroethene	40.8		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,1,1-Trichloroethane	10.7		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
Trichloroethene	202		ug/L	5.0	3.8	1.7	SW846 8260C		7/5/18 17:39	TMP	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	110		%	81 - 118			SW846 8260C		7/5/18 17:39	TMP	B
1,2-Dichloroethane-d4 (S)	110		%	81 - 118			SW846 8260C		7/3/18 02:58	PDK	A
4-Bromofluorobenzene (S)	98.2		%	85 - 114			SW846 8260C		7/3/18 02:58	PDK	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C		7/5/18 17:39	TMP	B
Dibromofluoromethane (S)	99.2		%	80 - 119			SW846 8260C		7/5/18 17:39	TMP	B
Dibromofluoromethane (S)	95.9		%	80 - 119			SW846 8260C		7/3/18 02:58	PDK	A
Toluene-d8 (S)	92.8		%	89 - 112			SW846 8260C		7/3/18 02:58	PDK	A
Toluene-d8 (S)	99.8		%	89 - 112			SW846 8260C		7/5/18 17:39	TMP	B
WET CHEMISTRY											
Alkalinity, Total	399	1	mg/L	5	5	0.8	S2320B-97		6/26/18 13:14	MBW	F
Chloride	32.0		mg/L	2.0	0.50	0.16	EPA 300.0		6/23/18 22:29	CHW	E
Nitrate-N	0.56		mg/L	0.20	0.060	0.020	EPA 300.0		6/23/18 22:29	CHW	E
Sulfate	22.5		mg/L	2.0	0.50	0.20	EPA 300.0		6/23/18 22:29	CHW	E
Total Organic Carbon (TOC)	4.3		mg/L	1.0	0.50	0.18	S5310B-00		6/30/18 11:10	AK	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/22/18 00:00	SUB	H

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID: **2322463001** Date Collected: 6/22/2018 00:00 Matrix: Ground Water

Sample ID: **DUP04-062218** Date Received: 6/25/2018 08:20

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	*Cntr*

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID: **2322463002** Date Collected: 6/22/2018 09:25 Matrix: Ground Water

Sample ID: **MW-28 062218** Date Received: 6/25/2018 08:20

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,1-Dichloroethane	0.86J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,1-Dichloroethene	0.39J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
cis-1,2-Dichloroethene	4.9		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
trans-1,2-Dichloroethene	0.36J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
Tetrachloroethene	38.7		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,1,1-Trichloroethane	10.5		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,1,2-Trichloroethane	0.44J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
Trichloroethene	214		ug/L	5.0	3.8	1.7	SW846 8260C		7/5/18 18:02	TMP	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	111		%	81 - 118			SW846 8260C		7/5/18 18:02	TMP	B
1,2-Dichloroethane-d4 (S)	109		%	81 - 118			SW846 8260C		7/3/18 03:20	PDK	A
4-Bromofluorobenzene (S)	98.8		%	85 - 114			SW846 8260C		7/3/18 03:20	PDK	A
4-Bromofluorobenzene (S)	108		%	85 - 114			SW846 8260C		7/5/18 18:02	TMP	B
Dibromofluoromethane (S)	97.6		%	80 - 119			SW846 8260C		7/5/18 18:02	TMP	B
Dibromofluoromethane (S)	98.1		%	80 - 119			SW846 8260C		7/3/18 03:20	PDK	A
Toluene-d8 (S)	101		%	89 - 112			SW846 8260C		7/5/18 18:02	TMP	B
Toluene-d8 (S)	93.7		%	89 - 112			SW846 8260C		7/3/18 03:20	PDK	A
WET CHEMISTRY											
Alkalinity, Total	422	1	mg/L	5	5	0.8	S2320B-97		6/26/18 14:22	MBW	F
Chloride	33.1		mg/L	2.0	0.50	0.16	EPA 300.0		6/23/18 21:52	CHW	E
Nitrate-N	0.58		mg/L	0.20	0.060	0.020	EPA 300.0		6/23/18 21:52	CHW	E
Sulfate	23.1		mg/L	2.0	0.50	0.20	EPA 300.0		6/23/18 21:52	CHW	E
Total Organic Carbon (TOC)	4.1		mg/L	1.0	0.50	0.18	S5310B-00		6/30/18 11:10	AK	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/22/18 09:25	SUB	H

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID: **2322463002** Date Collected: 6/22/2018 09:25 Matrix: Ground Water

Sample ID: **MW-28 062218** Date Received: 6/25/2018 08:20

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	*Cntr*

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID: **2322463003** Date Collected: 6/22/2018 10:30 Matrix: Ground Water

Sample ID: **MW-29 062218** Date Received: 6/25/2018 08:20

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.82J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,1-Dichloroethane	0.84J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,1-Dichloroethene	0.48J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
cis-1,2-Dichloroethene	5.1		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
trans-1,2-Dichloroethene	0.59J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
Tetrachloroethene	35.4		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,1,1-Trichloroethane	11.8		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,1,2-Trichloroethane	0.45J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
Trichloroethene	248		ug/L	5.0	3.8	1.7	SW846 8260C		7/5/18 18:25	TMP	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	112		%	81 - 118			SW846 8260C		7/5/18 18:25	TMP	B
1,2-Dichloroethane-d4 (S)	109		%	81 - 118			SW846 8260C		7/3/18 03:42	PDK	A
4-Bromofluorobenzene (S)	101		%	85 - 114			SW846 8260C		7/3/18 03:42	PDK	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C		7/5/18 18:25	TMP	B
Dibromofluoromethane (S)	96.9		%	80 - 119			SW846 8260C		7/3/18 03:42	PDK	A
Dibromofluoromethane (S)	99		%	80 - 119			SW846 8260C		7/5/18 18:25	TMP	B
Toluene-d8 (S)	103		%	89 - 112			SW846 8260C		7/5/18 18:25	TMP	B
Toluene-d8 (S)	93.6		%	89 - 112			SW846 8260C		7/3/18 03:42	PDK	A
WET CHEMISTRY											
Alkalinity, Total	370	1	mg/L	5	5	0.8	S2320B-97		6/26/18 14:33	MBW	F
Chloride	28.0		mg/L	2.0	0.50	0.16	EPA 300.0		6/23/18 22:10	CHW	E
Nitrate-N	0.38		mg/L	0.20	0.060	0.020	EPA 300.0		6/23/18 22:10	CHW	E
Sulfate	21.0		mg/L	2.0	0.50	0.20	EPA 300.0		6/23/18 22:10	CHW	E
Total Organic Carbon (TOC)	3.2		mg/L	1.0	0.50	0.18	S5310B-00		7/3/18 00:14	PAG	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/22/18 10:30	SUB	H

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID: **2322463003** Date Collected: 6/22/2018 10:30 Matrix: Ground Water

Sample ID: **MW-29 062218** Date Received: 6/25/2018 08:20

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	*Cntr*

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID: **2322463004** Date Collected: 6/22/2018 10:30 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 6/25/2018 08:20

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 21:51	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118	SW846 8260C			7/2/18 21:51	PDK	A
4-Bromofluorobenzene (S)	98.5		%	85 - 114	SW846 8260C			7/2/18 21:51	PDK	A
Dibromofluoromethane (S)	91.2		%	80 - 119	SW846 8260C			7/2/18 21:51	PDK	A
Toluene-d8 (S)	92.2		%	89 - 112	SW846 8260C			7/2/18 21:51	PDK	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2322463001	1	DUP04-062218	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2322463002	1	MW-28 062218	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2322463003	1	MW-29 062218	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Analysis Method	Prep Method
2322463001	DUP04-062218	EPA 300.0	
2322463001	DUP04-062218	S2320B-97	
2322463001	DUP04-062218	S5310B-00	
2322463001	DUP04-062218	SW846 8260C	
2322463001	DUP04-062218	Subcontract	
2322463002	MW-28 062218	EPA 300.0	
2322463002	MW-28 062218	S2320B-97	
2322463002	MW-28 062218	S5310B-00	
2322463002	MW-28 062218	SW846 8260C	
2322463002	MW-28 062218	Subcontract	
2322463003	MW-29 062218	EPA 300.0	
2322463003	MW-29 062218	S2320B-97	
2322463003	MW-29 062218	S5310B-00	
2322463003	MW-29 062218	SW846 8260C	
2322463003	MW-29 062218	Subcontract	
2322463004	Trip Blank	SW846 8260C	

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/47288 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 2322463001, 2322463002, 2322463003, 2322463004

METHOD BLANK: 2768342

Parameter	Blank Result	Units	Reporting Limit
Carbon Tetrachloride	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
Trichloroethene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	102	%	81 - 118
4-Bromofluorobenzene (S)	99	%	85 - 114
Dibromofluoromethane (S)	90.4	%	80 - 119
Toluene-d8 (S)	93.2	%	89 - 112

LABORATORY CONTROL SAMPLE: 2768343

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	111	ug/L	20	22.2	72 - 136
1,1-Dichloroethane	108	ug/L	20	21.6	77 - 125
1,2-Dichloroethane	103	ug/L	20	20.5	73 - 128
1,1-Dichloroethene	121	ug/L	20	24.2	71 - 131
cis-1,2-Dichloroethene	108	ug/L	20	21.5	78 - 123
trans-1,2-Dichloroethene	115	ug/L	20	23.0	75 - 124
1,1,1,2-Tetrachloroethane	99.3	ug/L	20	19.9	78 - 124
1,1,2,2-Tetrachloroethane	107	ug/L	20	21.4	71 - 121
Tetrachloroethene	97.9	ug/L	20	19.6	74 - 129
Toluene	106	ug/L	20	21.2	80 - 121
1,1,1-Trichloroethane	113	ug/L	20	22.6	74 - 131
1,1,2-Trichloroethane	94.7	ug/L	20	18.9	80 - 119
Trichloroethene	103	ug/L	20	20.6	79 - 123

QUALITY CONTROL DATA

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	102	ug/L	20	20.4	58 - 137
1,2-Dichloroethane-d4 (S)	90.7	%			81 - 118
4-Bromofluorobenzene (S)	98.2	%			85 - 114
Dibromofluoromethane (S)	88	%			80 - 119
Toluene-d8 (S)	90.3	%			89 - 112

MATRIX SPIKE: 2768603 DUPLICATE: 2768604 ORIGINAL: 2322348001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Carbon Tetrachloride	0	ug/L	100	126.02	124.655	126	125	72 - 136	1.09	30
1,1-Dichloroethane	0	ug/L	100	103.236	118.743	103	119	77 - 125	14	30
1,2-Dichloroethane	0	ug/L	100	109.533	108.625	110	109	73 - 128	.83	30
1,1-Dichloroethene	0	ug/L	100	110.242	131.31	110	131	71 - 131	17.4	30
cis-1,2-Dichloroethene	0	ug/L	100	122.11	118.47	122	118	78 - 123	3.03	30
trans-1,2-Dichloroethene	0	ug/L	100	105.562	126.518	106	127*	75 - 124	18.1	30
1,1,1,2-Tetrachloroethane	0	ug/L	100	102.907	101.66	103	102	78 - 124	1.22	30
1,1,2,2-Tetrachloroethane	0	ug/L	100	109.904	104.334	110	104	71 - 121	5.2	30
Tetrachloroethene	6.30415	ug/L	100	107.614	108.674	101	102	74 - 129	.98	30
Toluene	0	ug/L	100	110.543	109.809	111	110	80 - 121	.67	30
1,1,1-Trichloroethane	0	ug/L	100	124.412	123.154	124	123	74 - 131	1.02	30
1,1,2-Trichloroethane	0	ug/L	100	96.803	95.0433	96.8	95	80 - 119	1.83	30
Trichloroethene	331.365	ug/L	100	432.786	424.682	101	93.3	79 - 123	1.89	30
Vinyl Chloride	0	ug/L	100	106.975	104.28	107	104	58 - 137	2.55	30
1,2-Dichloroethane-d4 (S)	100	%				100	96.2	81 - 118		
4-Bromofluorobenzene (S)	96.8	%				96.8	96.8	85 - 114		
Dibromofluoromethane (S)	91.8	%				91.8	91.6	80 - 119		
Toluene-d8 (S)	87.6	%				87.6*	89.5	89 - 112		

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/47313 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 2322463001, 2322463002, 2322463003

METHOD BLANK: 2769740

Parameter	Blank Result	Units	Reporting Limit
Trichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
Carbon Tetrachloride	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	109	%	81 - 118
4-Bromofluorobenzene (S)	108	%	85 - 114
Dibromofluoromethane (S)	94.9	%	80 - 119
Toluene-d8 (S)	99.7	%	89 - 112

LABORATORY CONTROL SAMPLE: 2769741

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Trichloroethene	97.6	ug/L	20	19.5	79 - 123
1,1,1,2-Tetrachloroethane	101	ug/L	20	20.1	78 - 124
1,1,1-Trichloroethane	96.8	ug/L	20	19.4	74 - 131
1,1,2,2-Tetrachloroethane	95	ug/L	20	19.0	71 - 121
1,1,2-Trichloroethane	95.6	ug/L	20	19.1	80 - 119
1,1-Dichloroethane	94	ug/L	20	18.8	77 - 125
1,1-Dichloroethene	101	ug/L	20	20.2	71 - 131
1,2-Dichloroethane	96.1	ug/L	20	19.2	73 - 128
Carbon Tetrachloride	98.9	ug/L	20	19.8	72 - 136
Tetrachloroethene	96.3	ug/L	20	19.3	74 - 129
Toluene	103	ug/L	20	20.5	80 - 121
Vinyl Chloride	81.6	ug/L	20	16.3	58 - 137
cis-1,2-Dichloroethene	98.1	ug/L	20	19.6	78 - 123

QUALITY CONTROL DATA

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

trans-1,2-Dichloroethene	103	ug/L	20	20.6	75 - 124
1,2-Dichloroethane-d4 (S)	99.6	%			81 - 118
4-Bromofluorobenzene (S)	101	%			85 - 114
Dibromofluoromethane (S)	89.9	%			80 - 119
Toluene-d8 (S)	94.7	%			89 - 112

MATRIX SPIKE: 2770087 DUPLICATE: 2770088 ORIGINAL: 2323822001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Trichloroethene	0	ug/L	20	21.352	21.6203	107	108	79 - 123	1.25	30
1,1,1-Trichloroethane	0	ug/L	20	21.893	22.3633	109	112	74 - 131	2.13	30
1,1-Dichloroethane	0	ug/L	20	20.6546	20.7554	103	104	77 - 125	.49	30
1,1-Dichloroethene	0	ug/L	20	23.6778	23.9921	118	120	71 - 131	1.32	30
1,2-Dichloroethane	0	ug/L	20	20.1856	19.5023	101	97.5	73 - 128	3.44	30
Tetrachloroethene	0	ug/L	20	23.8245	23.482	119	117	74 - 129	1.45	30
Vinyl Chloride	0	ug/L	20	22.5331	21.5627	113	108	58 - 137	4.4	30
cis-1,2-Dichloroethene	.49279	ug/L	20	21.6776	22.0943	106	108	78 - 123	1.9	30
trans-1,2-Dichloroethene	0	ug/L	20	23.4464	24.0388	117	120	75 - 124	2.5	30
1,2-Dichloroethane-d4 (S)	103	%				103	102	81 - 118		
4-Bromofluorobenzene (S)	101	%				101	102	85 - 114		
Dibromofluoromethane (S)	89.6	%				89.6	91.2	80 - 119		
Toluene-d8 (S)	95.7	%				95.7	95.8	89 - 112		

QUALITY CONTROL DATA

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/206421 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 2322463001, 2322463002, 2322463003

LABORATORY CONTROL SAMPLE: 2764178

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	101	mg/L	20	20.2	87 - 111
Nitrate-N	95.2	mg/L	2.5	2.4	88 - 111
Sulfate	102	mg/L	20	20.3	87 - 112

METHOD BLANK: 2764183

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.090J	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.13J	mg/L	1.0

MATRIX SPIKE SAMPLE: 2764184 ORIGINAL: 2322540012

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit
Nitrate-N	0	mg/L	5	4.86	97.2	88 - 111
Sulfate	28.02	mg/L	40	66.26	95.6	87 - 112

METHOD BLANK: 2764186

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.080J	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.14J	mg/L	1.0

QUALITY CONTROL DATA

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/206510 **Analysis Method:** S2320B-97

QC Batch Method: S2320B-97

Associated Lab Samples: 2322463001, 2322463002, 2322463003

METHOD BLANK: 2764245

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	2J	mg/L	5

METHOD BLANK: 2764264

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

METHOD BLANK: 2764268

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2764269 ORIGINAL: 2322381001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	146.69566	mg/L	143.08949	2.49	20

METHOD BLANK: 2764272

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2764273 ORIGINAL: 2322463001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Alkalinity, Total	399.32834	mg/L	380.14627	4.92	20

METHOD BLANK: 2764276

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	2J	mg/L	5

SAMPLE DUPLICATE: 2764277 ORIGINAL: 2322473001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	9.18031	mg/L	10.61924	14.5	20

METHOD BLANK: 2764280

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2764281 ORIGINAL: 2322540005

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	255.37685	mg/L	256.84586	.57	20

METHOD BLANK: 2764284

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 2764285 ORIGINAL: 2322541007

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	133.04802	mg/L	131.81677	.93	20

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

METHOD BLANK: 2764288

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	4J	mg/L	5

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/206781 **Analysis Method:** S5310B-00

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 2322463001, 2322463002

METHOD BLANK: 2767365

Parameter	Blank Result	Units	Reporting Limit
Total Organic Carbon (TOC)	0.50U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2767366

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	102	mg/L	1	1.0	85 - 115

MATRIX SPIKE: 2767368 DUPLICATE: 2767369 ORIGINAL: 2322463002

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	4.09	mg/L	6	9.975	10.266	98.1	103	85 - 115	2.88	20

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/206856 **Analysis Method:** S5310B-00

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 2322463003

METHOD BLANK: 2768241

Parameter	Blank Result	Units	Reporting Limit
Total Organic Carbon (TOC)	0.50U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2768242

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	89.3	mg/L	1	0.89J	85 - 115

MATRIX SPIKE: 2768243 DUPLICATE: 2768244 ORIGINAL: 2322540002

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	10.3	mg/L	30	41.41	41.8	104	105	85 - 115	.94	20

MATRIX SPIKE: 2768245 DUPLICATE: 2768246 ORIGINAL: 2322463003

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	3.152	mg/L	6	9.201	9.438	101	105	85 - 115	2.54	20

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2322463001	DUP04-062218			EPA 300.0	WETC/206421
2322463002	MW-28 062218			EPA 300.0	WETC/206421
2322463003	MW-29 062218			EPA 300.0	WETC/206421
2322463001	DUP04-062218			S2320B-97	WETC/206510
2322463002	MW-28 062218			S2320B-97	WETC/206510
2322463003	MW-29 062218			S2320B-97	WETC/206510
2322463001	DUP04-062218			S5310B-00	WETC/206781
2322463002	MW-28 062218			S5310B-00	WETC/206781
2322463003	MW-29 062218			S5310B-00	WETC/206856
2322463001	DUP04-062218			SW846 8260C	VOMS/47288
2322463002	MW-28 062218			SW846 8260C	VOMS/47288
2322463003	MW-29 062218			SW846 8260C	VOMS/47288
2322463004	Trip Blank			SW846 8260C	VOMS/47288
2322463001	DUP04-062218			SW846 8260C	VOMS/47313
2322463002	MW-28 062218			SW846 8260C	VOMS/47313
2322463003	MW-29 062218			SW846 8260C	VOMS/47313

Monday, July 09, 2018 7:13:19 PM
Page 26 of 119

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #:

* 2 3 2 2 4 6 3 *

Co. Name: AECOM

Contact (Report to): John Santacroce Phone: 518 951 2200

Address: 40 British American Blvd
Latham NY 12110

Bill to (if different than Report to): PO#:

Project Name/#: Seneca Army Depot 60440641 ALS Quote #:

TAT: ☑ Normal-Standard TAT is 10-12 business days. Date Required:
☐ Rush-Subject to ALS approval and surcharges. Approved By:

Email? ☑ -Y John.Santacroce@aecom.com
Fax? ☐ -Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	Enter Number of Containers Per Analysis: 8260 VOCs	TCL/TAL Metals	TOC	Alkalinity	Sulfate, Cl, NO3	Acetylene					Circle appropriate Y or N.
***Container Type						G	G	G	P	P	-					
***Container Size						40	40	40	250	250	-					
*** Preservative						HCL	HCL	HCL	-	-	-					
1 DuPont-062218	+ Duplicate	6/22/18	-	G	GW	2	2	2	1	1	✓					
2 MW-28 062218		↓	925	↓	↓	2	2	2	1	1	✓					
3 MW-29 062218		↓	1030	↓	↓	2	2	2	1	1	✓					
4 Trip Blank		-	-	-	-	2										
5																
6																
7																
8																

Receipt Information (completed by Sample Receiving)
Performed by: [illegible]
Cooler Temp: 3.1
Therm. ID: IR40
No. of Coolers:
Notes: TBLS 4127 1005

	1	2	3	4
Correct containers?	Y	Y	Y	Y
Correct sample volume?	Y	Y	Y	Y
Correct preservation?	Y	Y	Y	Y
Headspace/Volatiles?	N	N	N	N
Custody seals Present?	Y	Y	Y	Y
(if present) Seals intact?	Y	Y	Y	Y
Received on ice?	Y	Y	N	Y
COC/Labels complete/accurate?	Y	Y	Y	Y
Container in good condition?	Y	Y	Y	Y

SAMPLED BY (Please Print): Ross McCready

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Ross McCready AECOM	6/22/18	11 AM	2 Brian McGuire COMMON COURIER / ALS COURIER	6/22/18	1100
3 Brian McGuire COMMON COURIER / ALS COURIER	6/22/18	11 AM	4		
5		0926	6 [illegible]	6/22/18	0926
7			8		
9			10		

Data Deliverables: ☐ Standard ☐ CLP-like ☐ NJ-Reduced ☐ NJ-Full ☐ If yes, format type:
EDDs Required?

SDWA Forms? ⇨ yes ☐ yes ☐ yes ☐ yes ☐ Other
Enter PWSID No.

State Samples Collected In? MD ☐ NJ ☐ NY ☐ PA ☐

DOD Criteria Required?

ALS FIELD SERVICES
☐ Pickup
☐ Labor
☐ Composite Sampling
☐ Rental Equipment
☐ Other:

* G=Grab; C=Composite
**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

July 02, 2018 Service Request No:R1805986

Vanessa Badman
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

Laboratory Results for: UR115: 2322463

Dear Vanessa,

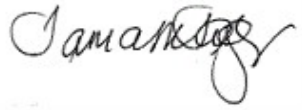
Enclosed are the results of the sample(s) submitted to our laboratory June 27, 2018
For your reference, these analyses have been assigned our service request number **R1805986.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental



Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

ALS Environmental
ALS Group USA, Corp
1565 Jefferson Road, Building 300, Suite 360
Rochester, NY 14623
T: +1 585 288 5380
F: +1 585 288 8475
www.alsglobal.com

Table of Contents

CoverLetter	1
Table of Contents	2
Narrative Documents	4
Case Narrative	5
Hit Summary List	6
Sample Receipt Information	7
Sample Cross-Reference	8
Chain Of Custody	9
Internal Chain of Custody	11
Miscellaneous Forms	12
Qualifiers	13
Acronyms	14
Analyst Summary	15
Prep Method Inorganic	16
Sample Results	17
Volatile Organic Compounds by GC	18
RSK 175 - Dissolved Gases by GC/FID	
2322463 001 - VOA GC	19
2322463 002 - VOA GC	20
2322463 003 - VOA GC	21
QC Summary Forms	22
Volatile Organic Compounds by GC	23

Table of Contents (continued)

RSK 175 - Dissolved Gases by GC/FID

MB Summary VOA GC 24

Method Blank - VOA GC 25

LCS Summary VOA GC 26

RQ1806590-03 - DLCS VOA GC 27

Raw Data 28

Volatile Organic Compounds by GC 29

RSK 175 - Gases DOD

Form 1s

2322463 001 - VOA GC 30

2322463 002 - VOA GC 31

2322463 003 - VOA GC 32

Raw Data 33

ICAL Summary 85

ICV Summary 87

RQ1806590-04 - CCV VOA GC 88

RQ1806590-05 - CCV VOA GC 89

RQ1806590-06 - CCV VOA GC 90

RQ1806590-07 - CCV VOA GC 91

Run Log 92

Run Log Sheets 93

Narrative Documents

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental

Client: ALS Environmental - US
Project: UR115: 2322463
Sample Matrix: Water

Service Request: R1805986
Date Received: 06/27/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt:

Three water samples were received for analysis at ALS Environmental on 06/27/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Volatiles by GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 07/02/2018

SAMPLE DETECTION SUMMARY

CLIENT ID: 2322463 001			Lab ID: R1805986-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Methane	2000	D	2.3	21	ug/L	RSK 175

CLIENT ID: 2322463 002			Lab ID: R1805986-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Methane	1800	D	2.3	21	ug/L	RSK 175

CLIENT ID: 2322463 003			Lab ID: R1805986-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Methane	210	D	0.58	5.3	ug/L	RSK 175

Sample Receipt Information

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1805986-001	2322463 001	6/22/2018	0000
R1805986-002	2322463 002	6/22/2018	0925
R1805986-003	2322463 003	6/22/2018	1030

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	1 of 2
ALS Quote #:	

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2322463

Bill To: ALS Environmental

TAT [ ] Normal-Standard TAT is 10-12 business days.
[X] Rush-Subject to ALS approval and surcharges.

Date Required: 7/10/2018 Approved By:

Email? [ ] -Y

Fax? [ ] -Y No.:

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____ Y N Initial

Custody Seals Present? [ ] [ ]
(if present) Seals Intact? [ ] [ ]
Received on Ice? [ ] [ ]
COC/Labels Complete/Accurate? [ ] [ ]
Cont. in Good Cond.? [ ] [ ]
Correct Containers? [ ] [ ]
Correct Sample Volumes? [ ] [ ]
Correct Preservation? [ ] [ ]
Headspace/Volatiles? [ ] [ ]

Courier/Tracking #:

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	DOD RSK175 (Ethane, , Ethene, Methane, Acetylene)	*Report to the MDL, QC lab report needed, EQUIS EDD.	Sample/COC Comments
					Enter Number of Containers Per Sample or Field Results Below.		
1 2322463 001	6/22/18	0000	G	WT	2	*	
2 2322463 002	6/22/18	0925	G	WT	2	*	Sub to ALS Rochester
3 2322463 003	6/22/18	1030	G	WT	2	*	
4							
5							
6							
7							
8							
9							
10							

Container Type: G
Container Size: 40 mL
Preservative: HCl

ALS Field Services: ☐Pickup ☐Labor ☐Composite_Sampling ☐Rental_Equipment ☐Other:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	6/26/18	1605	2 [signature]	6/27/18	0900
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [X] DOD

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC

Reportable to PADEP? Yes [ ]

Sample Disposal: Lab [X]

PWSID #:

EDDS: Format Typ

R1805986 5
ALS Group USA, Corp.
UR115: 2322463

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; V

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Cooler Receipt and Preservation Check Form

R1805986 5
ALS Group USA, Corp.
UR116: 2322463

Project/Client ALS - MDT Folder Number

Cooler received on 6/27/18 by: C

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	(Y) (N) NA
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 6/27/18 Time: 0955 ID: IR#7 (IR#9) From: Temp Blank (Sample Bottle)

Observed Temp (°C)	2.1						
Correction Factor (°C)	-						
Corrected Temp (°C)	2.1						
Temp from:Type of bottle	-						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by C on 6/27/18 at 1000
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 6/27/18 Time: 1505 by: C

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**	Client					

Bottle lot numbers: Client

Explain all Discrepancies/ Other Comments:

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: C

PC Secondary Review: JMS 6/28/18

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Internal Chain of Custody Report

Client: ALS Environmental **Service Request:** R1805986

Project: UR115: 2322463

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R1805986-001.01					
	RSK 175,RSK 175				
		6/27/2018	1503	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
		6/29/2018	1121	In Lab / BALLGEIER	
R1805986-001.02					
		6/27/2018	1503	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
R1805986-002.01					
	RSK 175,RSK 175				
		6/27/2018	1503	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
		6/29/2018	1121	In Lab / BALLGEIER	
R1805986-002.02					
		6/27/2018	1503	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
R1805986-003.01					
	RSK 175,RSK 175				
		6/27/2018	1503	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	
		6/29/2018	1121	In Lab / BALLGEIER	
R1805986-003.02					
		6/27/2018	1503	SMO / GLAFORCE	
		6/27/2018	1503	R-001 / GLAFORCE	

Miscellaneous Forms

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Delaware Approved	New Jersey ID # NY004	
DoD ELAP #65817	New York ID # 10145	Pennsylvania ID# 68-786
Florida ID # E87674	North Carolina #676	Rhode Island ID # 158
		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	ALS Environmental - US	**Service Request:**	R1805986
Project:	UR115: 2322463		

Sample Name:	2322463 001	**Date Collected:**	06/22/18
Lab Code:	R1805986-001	**Date Received:**	06/27/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

Sample Name:	2322463 002	**Date Collected:**	06/22/18
Lab Code:	R1805986-002	**Date Received:**	06/27/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

Sample Name:	2322463 003	**Date Collected:**	06/22/18
Lab Code:	R1805986-003	**Date Received:**	06/27/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
RSK 175		BALLGEIER

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

Sample Results

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	R1805986
Project:	UR115: 2322463	**Date Collected:**	06/22/18 00:00
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322463 001	**Units:**	ug/L
Lab Code:	R1805986-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 12:58	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 12:58	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 12:58	
Methane	**2000 D**	21	10	2.3	20	06/29/18 13:07	

Client:	ALS Environmental - US	**Service Request:**	R1805986
Project:	UR115: 2322463	**Date Collected:**	06/22/18 09:25
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322463 002	**Units:**	ug/L
Lab Code:	R1805986-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 13:31	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 13:31	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 13:31	
Methane	**1800 D**	21	10	2.3	20	06/29/18 13:41	

Client:	ALS Environmental - US	**Service Request:**	R1805986
Project:	UR115: 2322463	**Date Collected:**	06/22/18 10:30
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322463 003	**Units:**	ug/L
Lab Code:	R1805986-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 13:50	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 13:50	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 13:50	
Methane	**210 D**	5.3	2.5	0.58	5	06/29/18 13:59	

QC Summary Forms

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client: ALS Environmental - US
Project: UR115: 2322463
Sample Matrix: Water

Service Request: R1805986
Date Analyzed: 06/29/18 09:32

Method Blank Summary
Dissolved Gases by GC/FID

Sample Name: Method Blank
Lab Code: RQ1806590-01

Instrument ID: R-GC-02
File ID: I:\ACQUDATA\W2\DATA\062918\AB679.D\

Analysis Method: RSK 175
Analysis Lot: 596833

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1806590-02	I:\ACQUDATA\W2\DATA\062918\AB680.D\	06/29/18 09:49
Duplicate Lab Control Sample	RQ1806590-03	I:\ACQUDATA\W2\DATA\062918\AB681.D\	06/29/18 10:08
2322463 001	R1805986-001	I:\ACQUDATA\W2\DATA\062918\AB696.D\	06/29/18 12:58
2322463 001	R1805986-001	I:\ACQUDATA\W2\DATA\062918\AB697.D\	06/29/18 13:07
2322463 002	R1805986-002	I:\ACQUDATA\W2\DATA\062918\AB699.D\	06/29/18 13:31
2322463 002	R1805986-002	I:\ACQUDATA\W2\DATA\062918\AB700.D\	06/29/18 13:41
2322463 003	R1805986-003	I:\ACQUDATA\W2\DATA\062918\AB701.D\	06/29/18 13:50
2322463 003	R1805986-003	I:\ACQUDATA\W2\DATA\062918\AB702.D\	06/29/18 13:59

Client:	ALS Environmental - US	**Service Request:**	R1805986
Project:	UR115: 2322463	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ1806590-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 09:32	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 09:32	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 09:32	
Methane	**0.39 J**	1.1	0.50	0.12	1	06/29/18 09:32	

Client: ALS Environmental - US
Project: UR115: 2322463
Sample Matrix: Water

Service Request: R1805986
Date Analyzed: 06/29/18 09:49

Lab Control Sample Summary
Dissolved Gases by GC/FID

Sample Name: Lab Control Sample
Lab Code: RQ1806590-02

Instrument ID: R-GC-02
File ID: I:\ACQUDATA\W2\DATA\062918\AB680.D\

Analysis Method: RSK 175
Analysis Lot: 596833

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	RQ1806590-01	I:\ACQUDATA\W2\DATA\062918\AB679.D\	06/29/18 09:32
Duplicate Lab Control Sample	RQ1806590-03	I:\ACQUDATA\W2\DATA\062918\AB681.D\	06/29/18 10:08
2322463 001	R1805986-001	I:\ACQUDATA\W2\DATA\062918\AB696.D\	06/29/18 12:58
2322463 001	R1805986-001	I:\ACQUDATA\W2\DATA\062918\AB697.D\	06/29/18 13:07
2322463 002	R1805986-002	I:\ACQUDATA\W2\DATA\062918\AB699.D\	06/29/18 13:31
2322463 002	R1805986-002	I:\ACQUDATA\W2\DATA\062918\AB700.D\	06/29/18 13:41
2322463 003	R1805986-003	I:\ACQUDATA\W2\DATA\062918\AB701.D\	06/29/18 13:50
2322463 003	R1805986-003	I:\ACQUDATA\W2\DATA\062918\AB702.D\	06/29/18 13:59

Client: ALS Environmental - US
Project: UR115: 2322463
Sample Matrix: Water

Service Request: R1805986
Date Analyzed: 06/29/18

Duplicate Lab Control Sample Summary
Dissolved Gases by GC/FID

Units: ug/L
Basis: NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ1806590-02			RQ1806590-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Acetylene	RSK 175	53.6	50.1	107	55.4	50.1	111	70-129	3	30
Ethane	RSK 175	26.5	26.0	102	27.7	26.0	106	74-131	4	30
Ethene	RSK 175	24.2	24.3	99	25.5	24.3	105	72-133	5	30
Methane	RSK 175	26.8	26.2	102	28.3	26.2	108	73-125	5	30

Raw Data

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Volatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	R1805986
Project:	UR115: 2322463	**Date Collected:**	06/22/18 00:00
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322463 001	**Units:**	ug/L
Lab Code:	R1805986-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 12:58	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 12:58	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 12:58	
Methane	**2000 D**	21	10	2.3	20	06/29/18 13:07	

Client:	ALS Environmental - US	**Service Request:**	R1805986
Project:	UR115: 2322463	**Date Collected:**	06/22/18 09:25
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322463 002	**Units:**	ug/L
Lab Code:	R1805986-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 13:31	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 13:31	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 13:31	
Methane	**1800 D**	21	10	2.3	20	06/29/18 13:41	

Client:	ALS Environmental - US	**Service Request:**	R1805986
Project:	UR115: 2322463	**Date Collected:**	06/22/18 10:30
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322463 003	**Units:**	ug/L
Lab Code:	R1805986-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

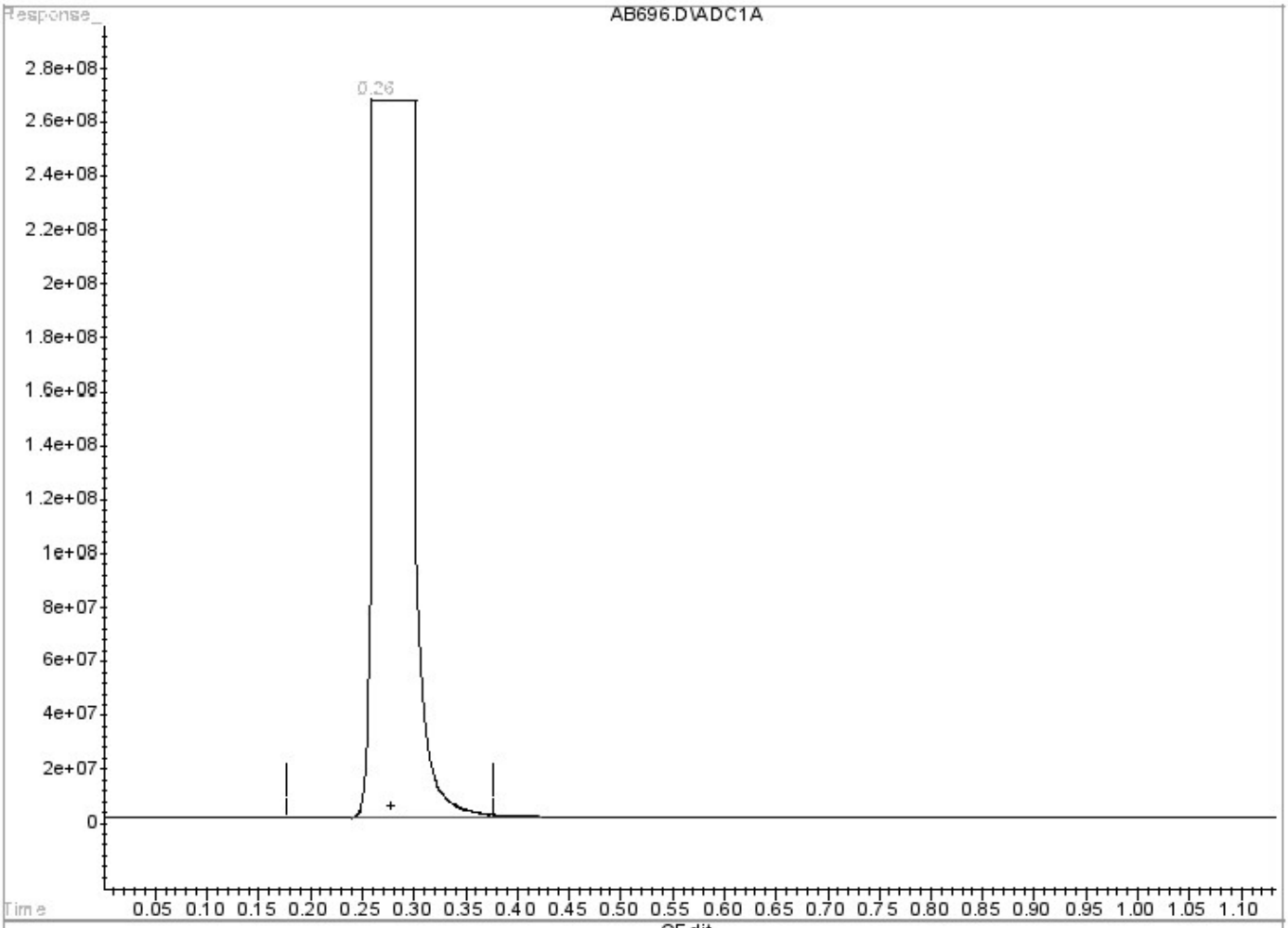
Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 13:50	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 13:50	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 13:50	
Methane	**210 D**	5.3	2.5	0.58	5	06/29/18 13:59	

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB696.D Vial: 55
Acq On : 29 Jun 2018 12:58 pm Operator: b.allgeier
Sample : r1805986-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:05 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.26min 1405.918ug/L m

response 7644117962

Manual Integration:

After

Poor integration.

06/29/18

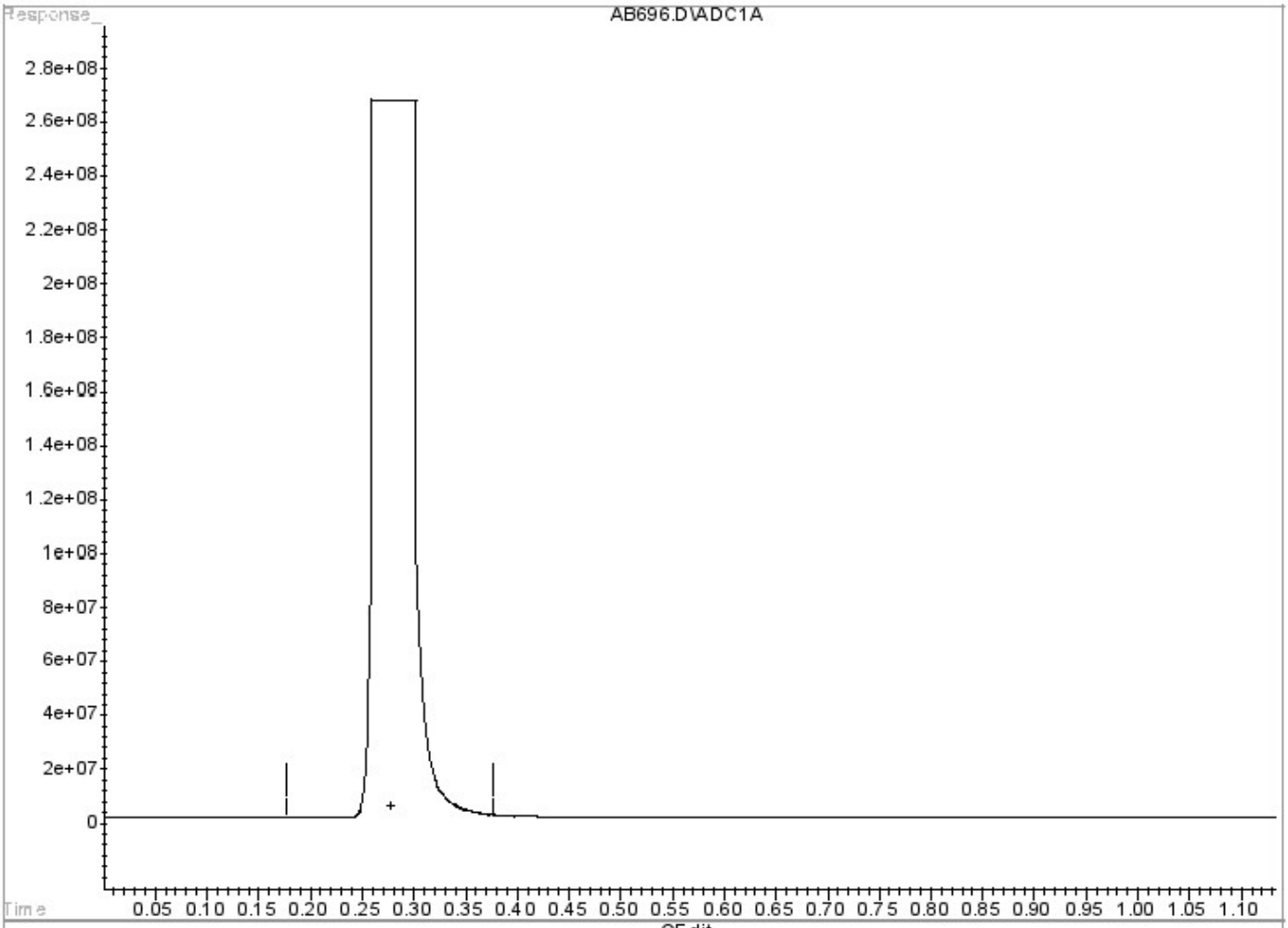
(+) = Expected Retention Time

AB696.D RSK0626.M Fri Jun 29 13:05:51 2018

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB696.D Vial: 55
Acq On : 29 Jun 2018 12:58 pm Operator: b.allgeier
Sample : r1805986-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:05 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.000ug/L

response 0

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

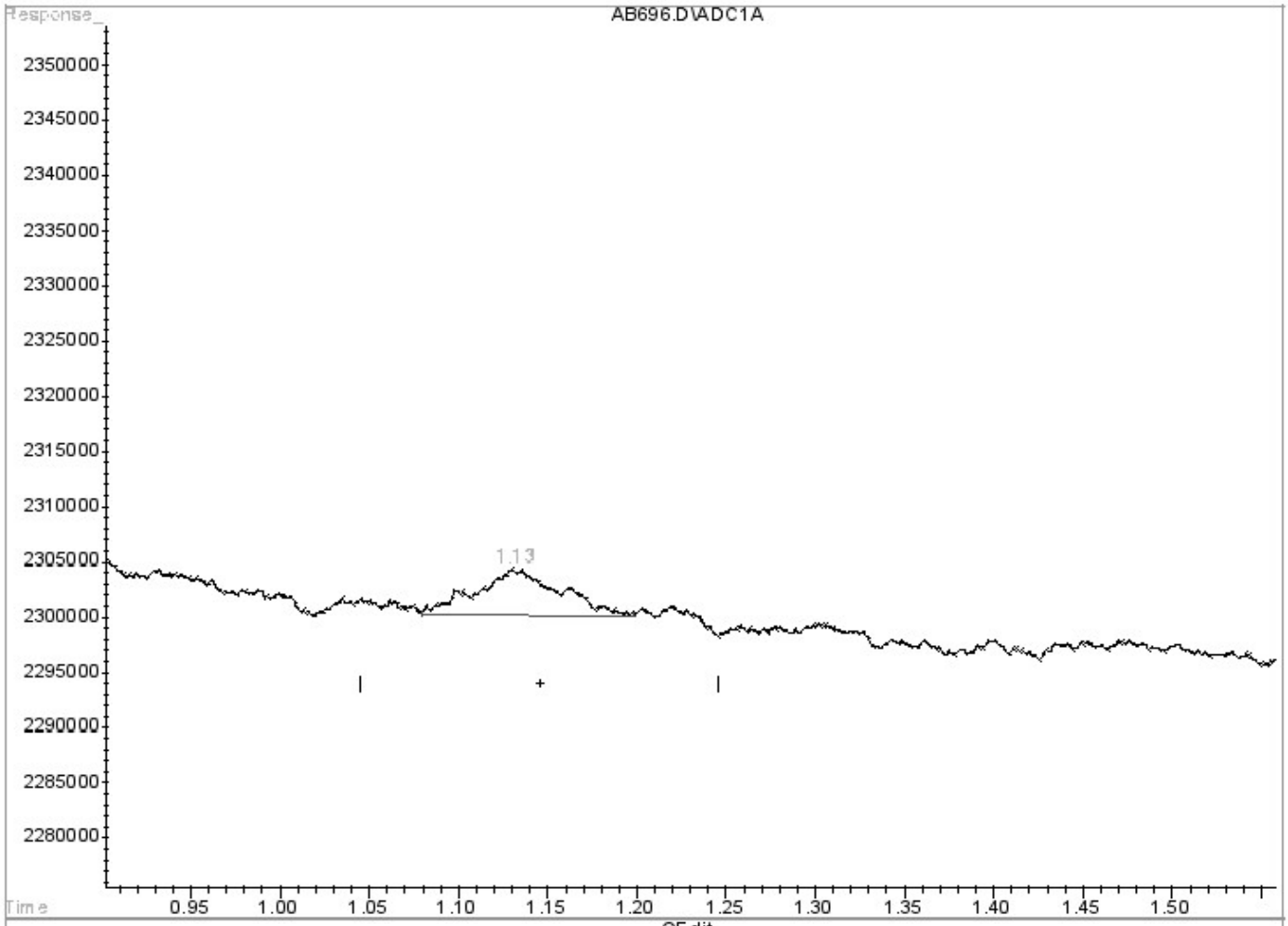
AB696.D RSK0626.M Fri Jun 29 13:05:39 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB696.D Vial: 55
Acq On : 29 Jun 2018 12:58 pm Operator: b.allgeier
Sample : r1805986-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:05 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(4) Ethane

1.13min 0.024ug/L m

response 136691

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

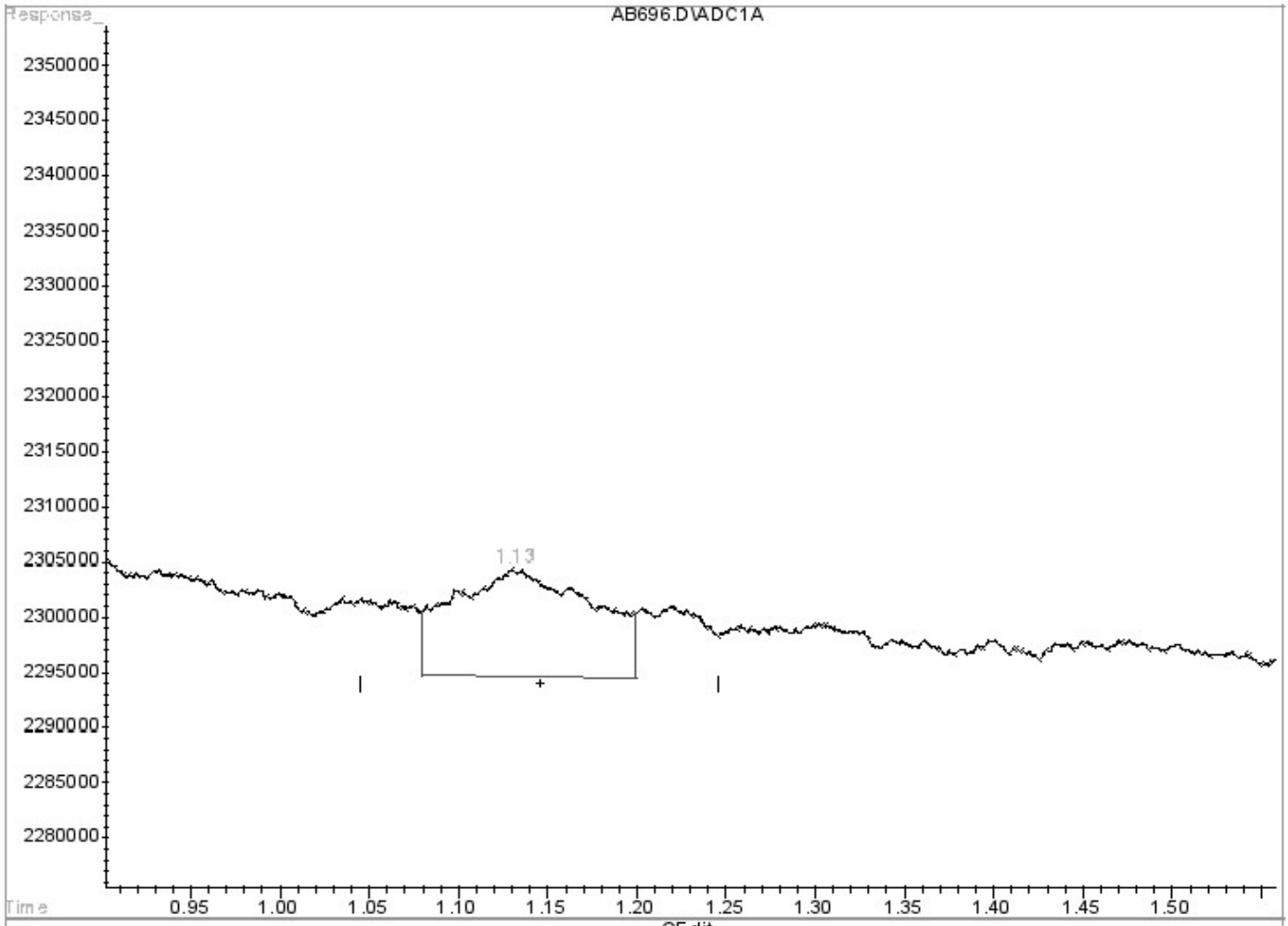
AB696.D RSK0626.M Fri Jun 29 13:06:11 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB696.D Vial: 55
Acq On : 29 Jun 2018 12:58 pm Operator: b.allgeier
Sample : r1805986-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:05 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(4) Ethane

1.13min 0.096ug/L

response 533789

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB696.D RSK0626.M Fri Jun 29 13:06:04 2018

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB696.D Vial: 55
Acq On : 29 Jun 2018 12:58 pm Operator: b.allgeier
Sample : r1805986-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:06 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units		
	Target Compounds						
1)	Methane	0.26	7644117962	1405.918	ug/L	m	E-Over Calibration
2)	Acetylene	0.00	0	N.D.	ug/L		
3)	Ethylene	0.00	0	N.D.	ug/L		
4)	Ethane	1.13	136691	<MDL	ug/L	m	
5)	Propene	0.00	0	N.D.	ug/L		
6)	Propane	0.00	0	N.D.	ug/L		

(f)=RT Delta > 1/2 Window (m)=manual int.

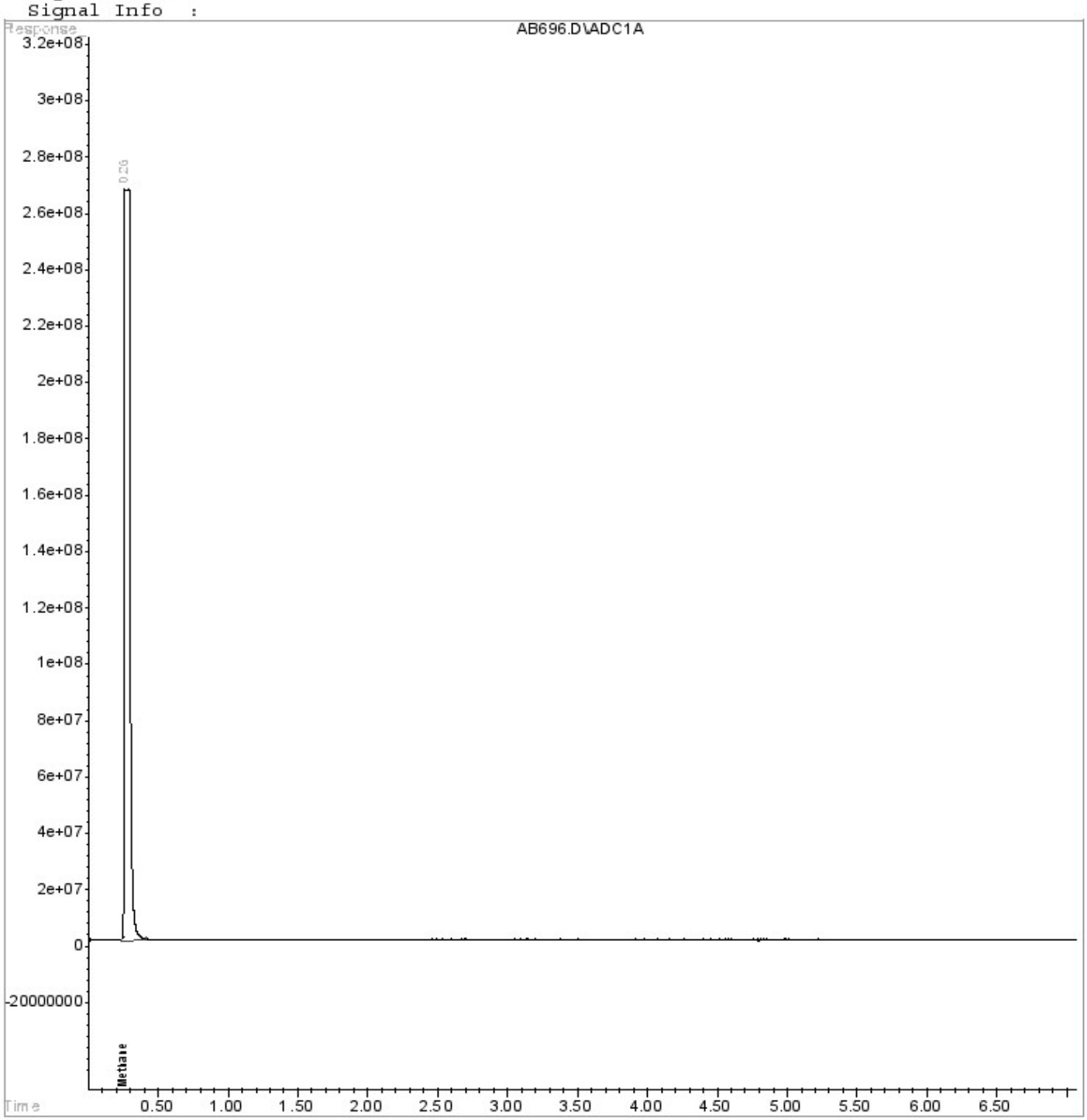
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB696.D Vial: 55
Acq On : 29 Jun 2018 12:58 pm Operator: b.allgeier
Sample : r1805986-001 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:06 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB697.D Vial: 56
Acq On : 29 Jun 2018 1:07 pm Operator: b.allgeier
Sample : r1805986-001|20 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:15 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	547107119	100.625	ug/L
2)	Acetylene	0.00	0	N.D.	ug/L
3)	Ethylene	0.00	0	N.D.	ug/L
4)	Ethane	0.00	0	N.D.	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	0.00	0	N.D.	ug/L

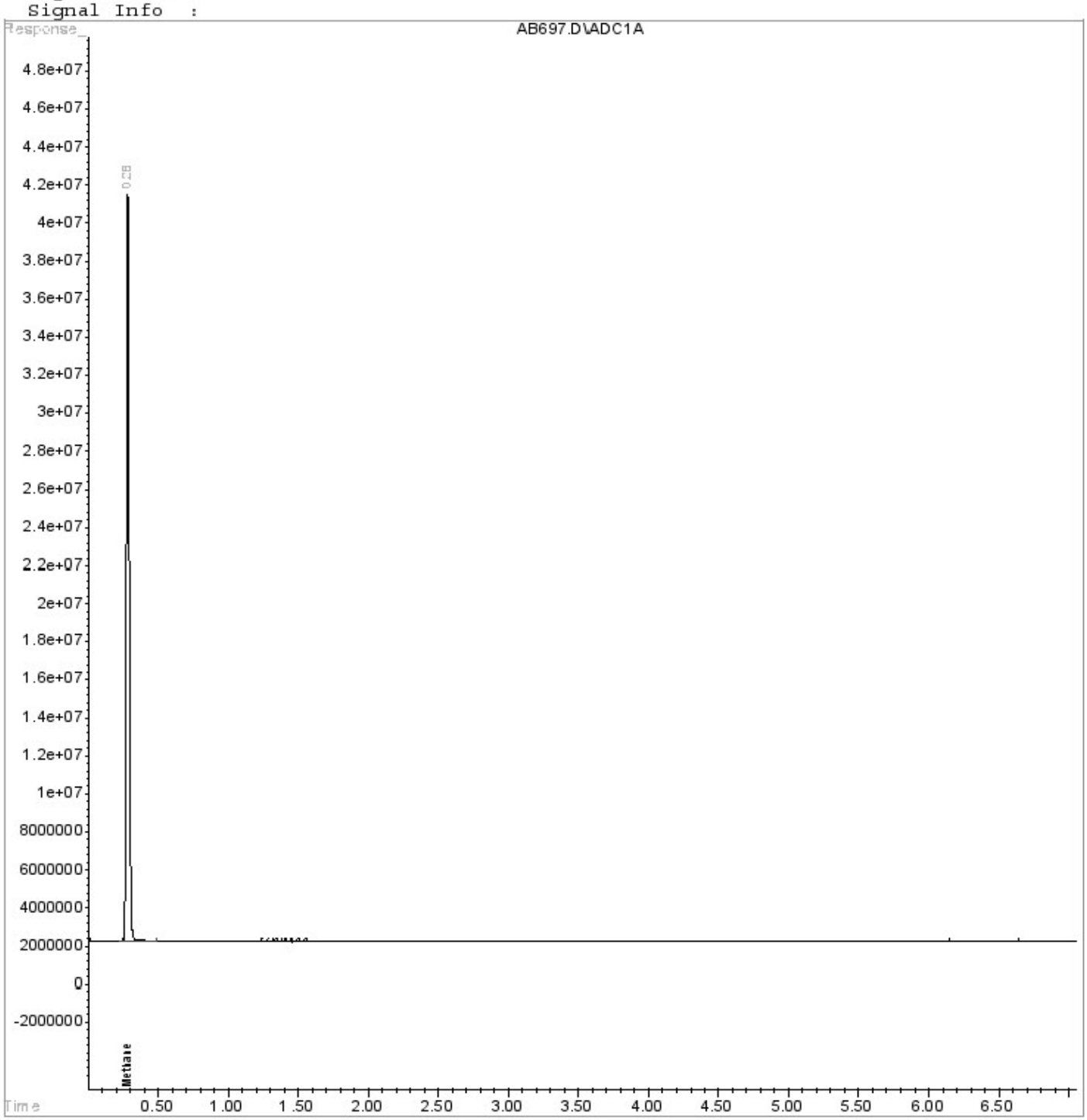
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB697.D Vial: 56
Acq On : 29 Jun 2018 1:07 pm Operator: b.allgeier
Sample : r1805986-001|20 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:15 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

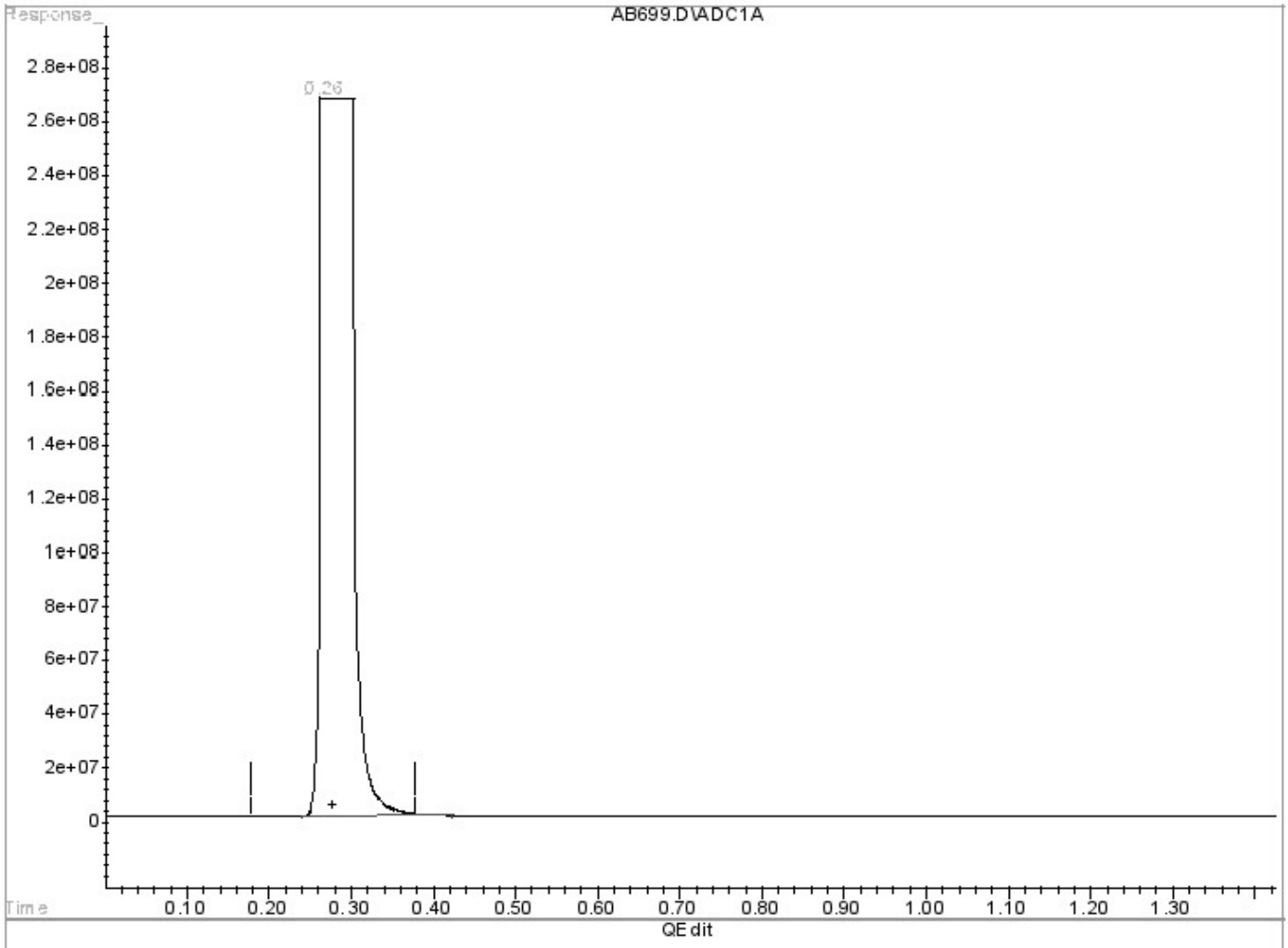


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB699.D Vial: 58
Acq On : 29 Jun 2018 1:31 pm Operator: b.allgeier
Sample : r1805986-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:40 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.26min 1370.487ug/L m

response 7451476218

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

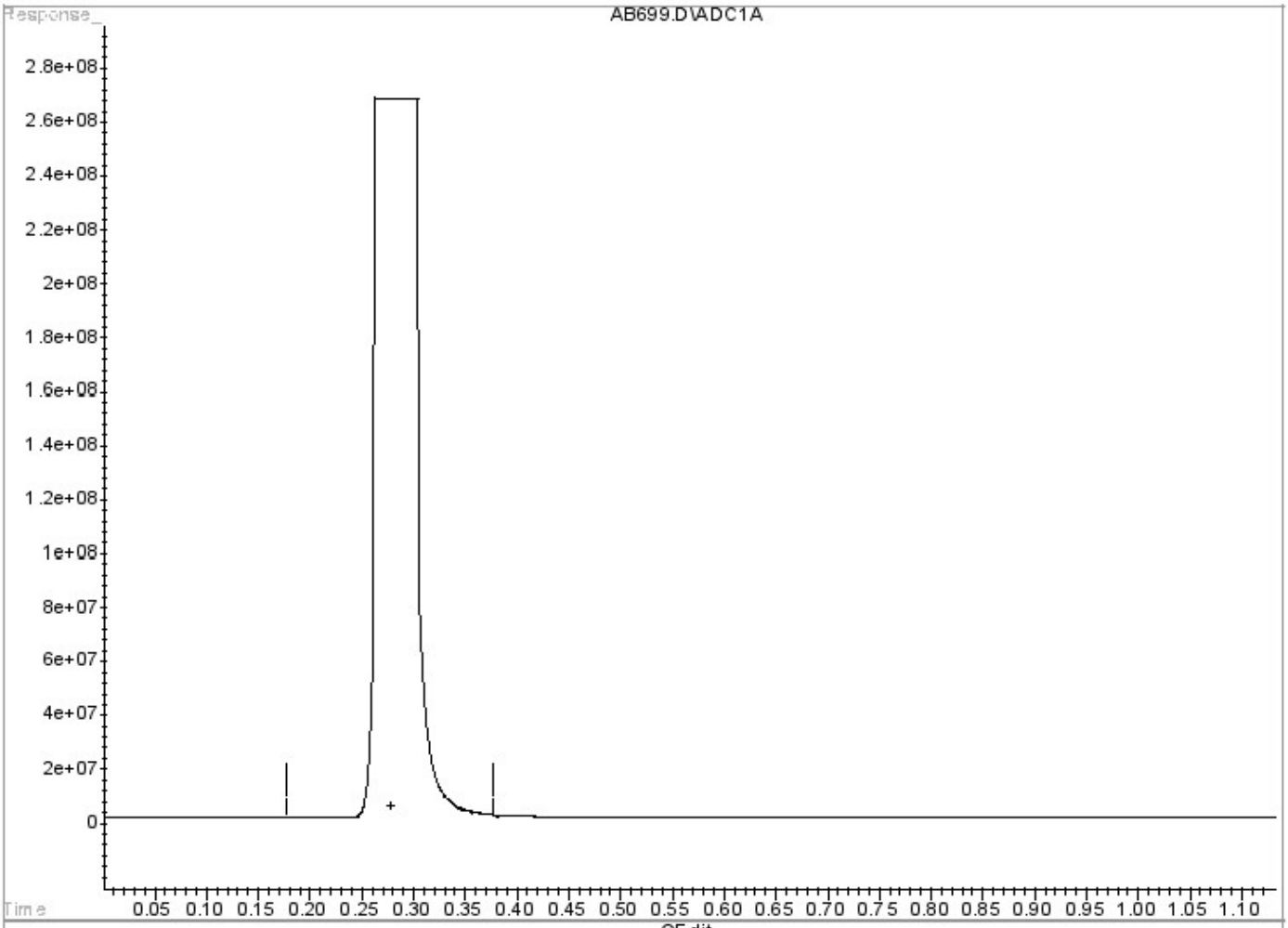
AB699.D RSK0626.M Fri Jun 29 14:05:22 2018

ALS

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB699.D Vial: 58
Acq On : 29 Jun 2018 1:31 pm Operator: b.allgeier
Sample : r1805986-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:39 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.000ug/L

response 0

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

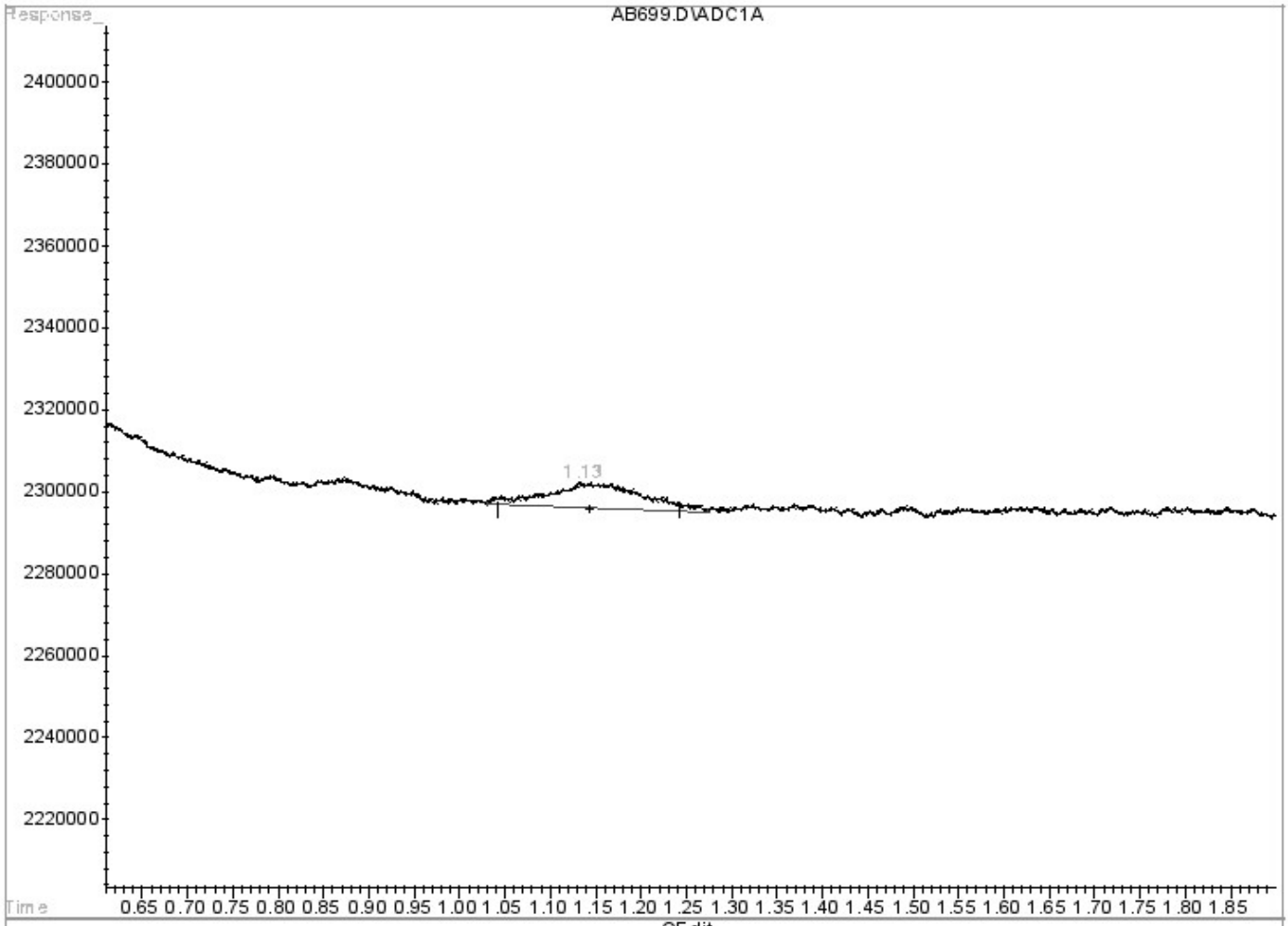
AB699.D RSK0626.M Fri Jun 29 13:39:52 2018
Page 42 of 93

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB699.D Vial: 58
Acq On : 29 Jun 2018 1:31 pm Operator: b.allgeier
Sample : r1805986-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:39 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(4) Ethane

1.13min 0.081ug/L m

response 453306

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

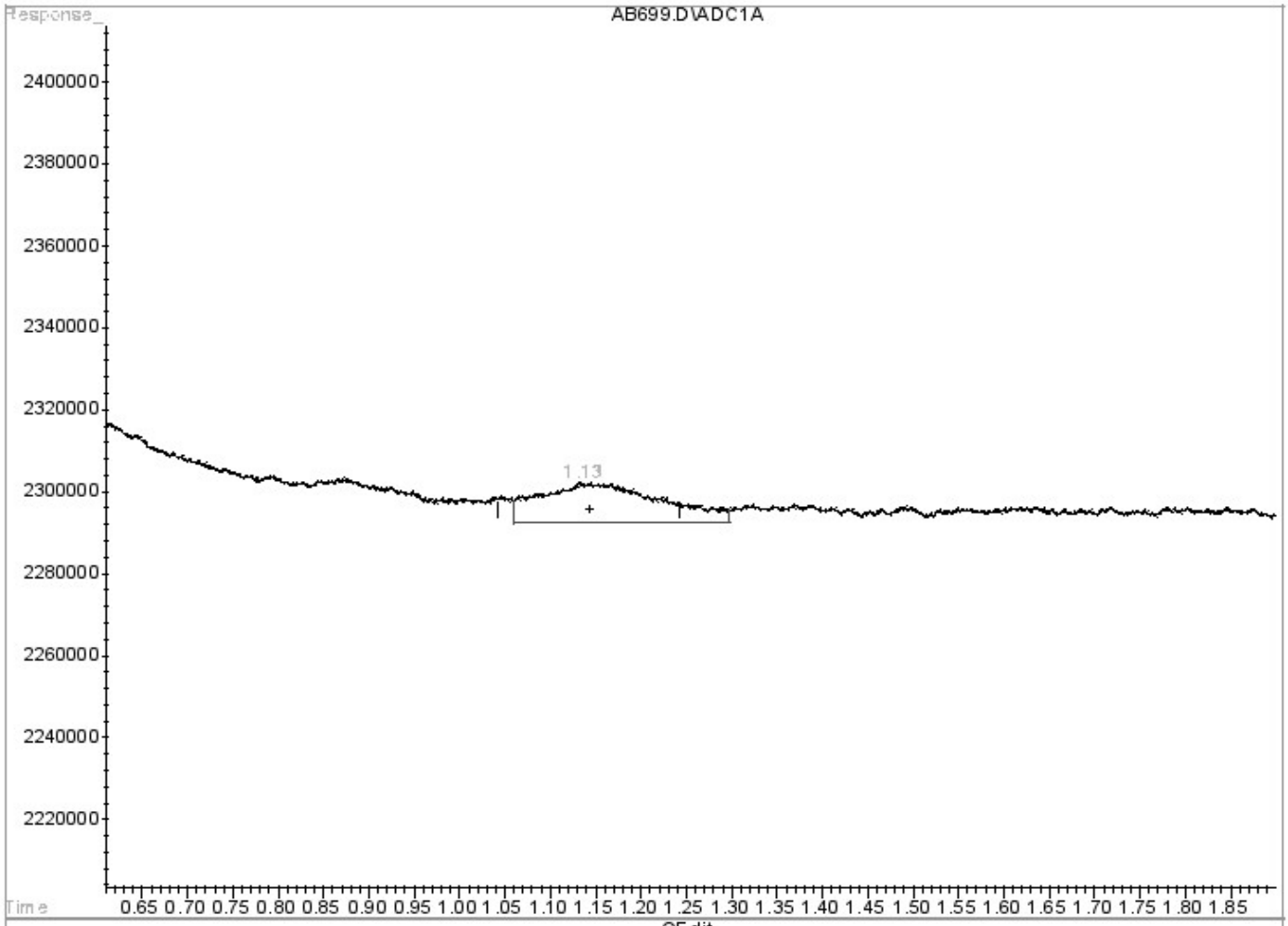
AB699.D RSK0626.M Fri Jun 29 13:40:21 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB699.D Vial: 58
Acq On : 29 Jun 2018 1:31 pm Operator: b.allgeier
Sample : r1805986-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:39 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(4) Ethane

1.13min 0.158ug/L

response 881690

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB699.D RSK0626.M Fri Jun 29 13:40:15 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB699.D Vial: 58
Acq On : 29 Jun 2018 1:31 pm Operator: b.allgeier
Sample : r1805986-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:40 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units		
	Target Compounds						
1)	Methane	0.26	7451476218	1370.487	ug/L	m	E-Over Calibration
2)	Acetylene	0.00	0	N.D.	ug/L		
3)	Ethylene	0.00	0	N.D.	ug/L	d	
4)	Ethane	1.13	453306	<MDL	ug/L	m	
5)	Propene	0.00	0	N.D.	ug/L		
6)	Propane	0.00	0	N.D.	ug/L		

(f)=RT Delta > 1/2 Window (m)=manual int.

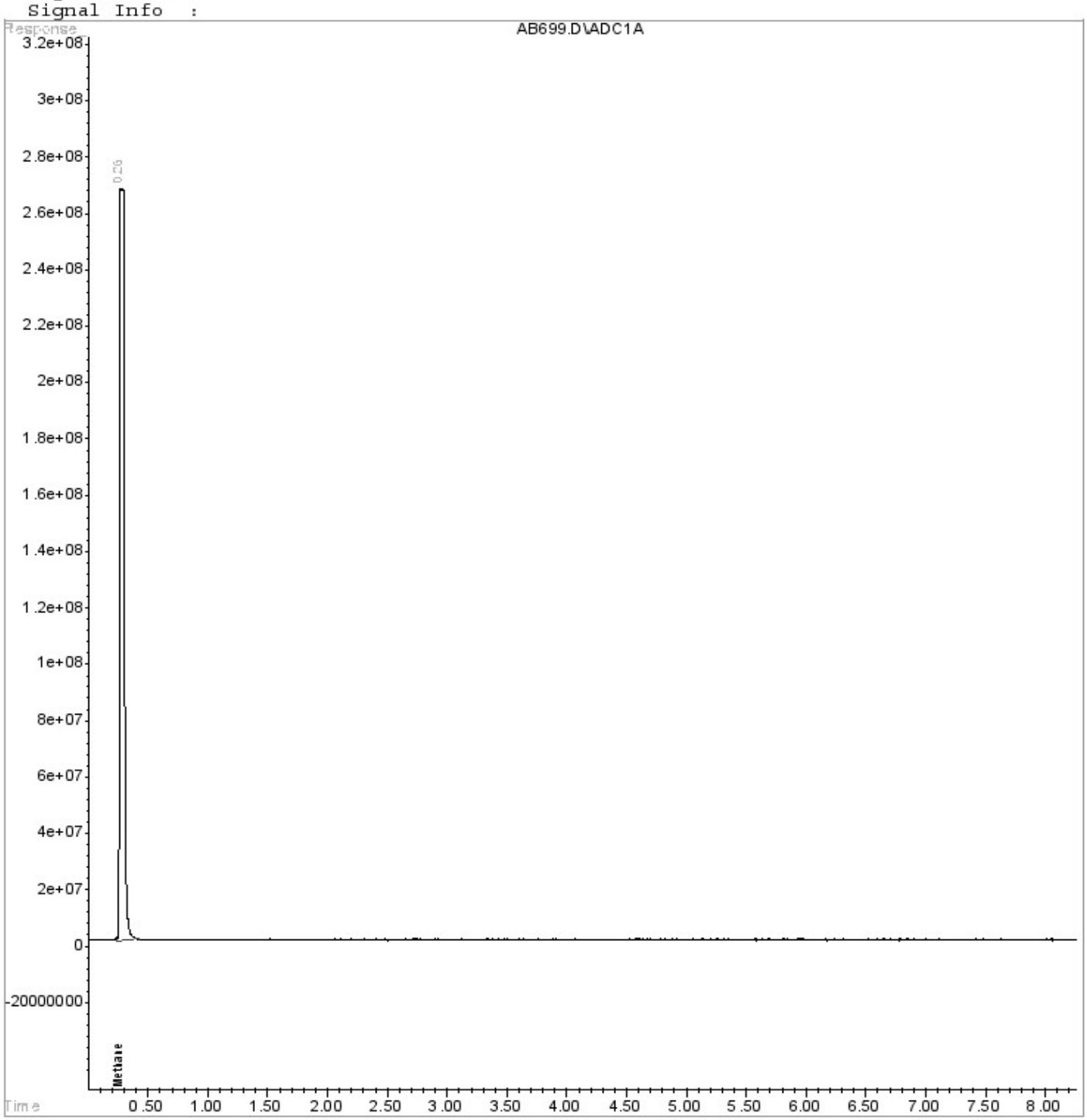
ALS

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB699.D Vial: 58
Acq On : 29 Jun 2018 1:31 pm Operator: b.allgeier
Sample : r1805986-002 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:40 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

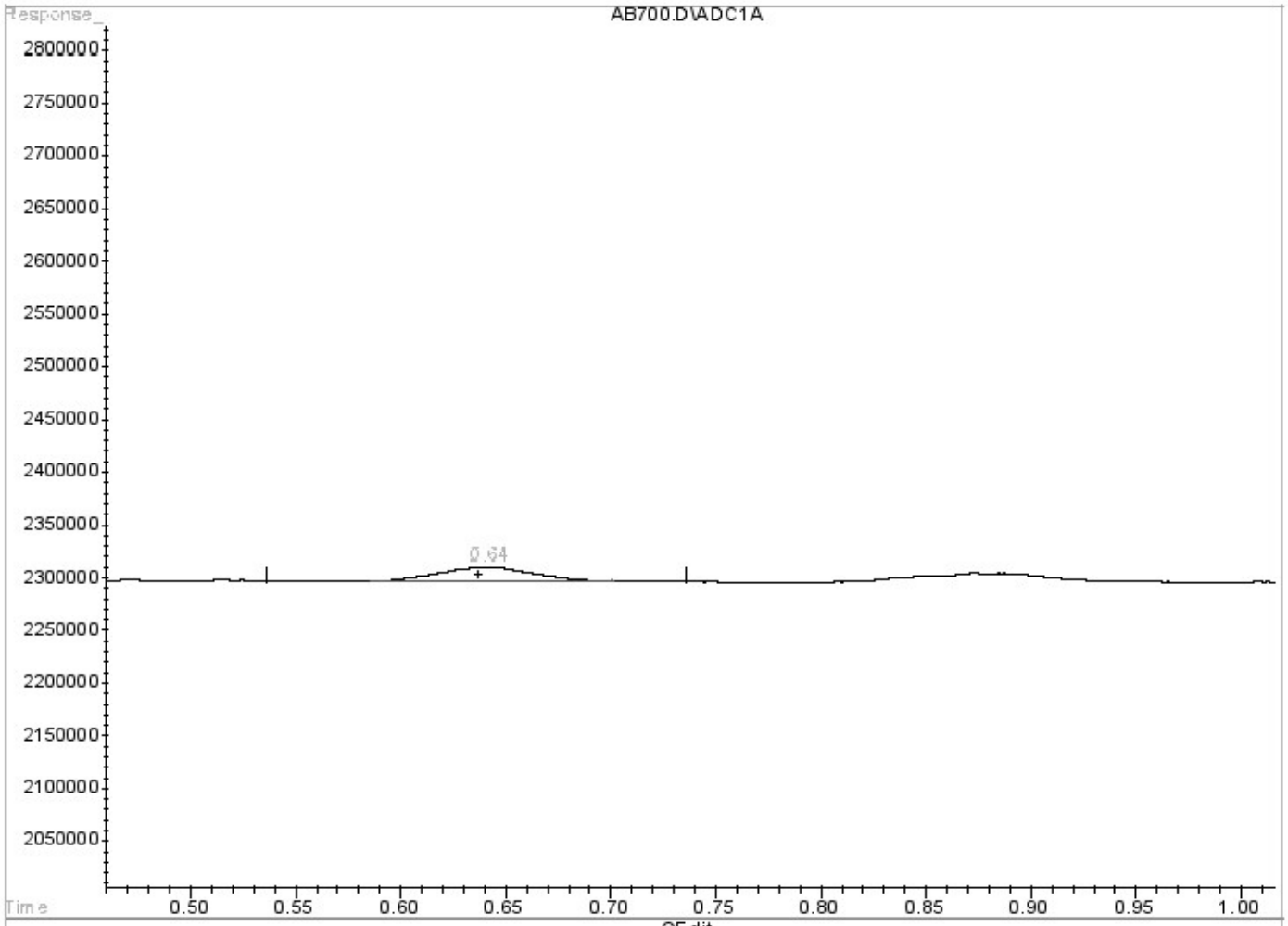


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB700.D Vial: 59
Acq On : 29 Jun 2018 1:41 pm Operator: b.allgeier
Sample : r1805986-002|20 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:49 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(2) Acetylene

0.64min 1.263ug/L m

response 438563

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

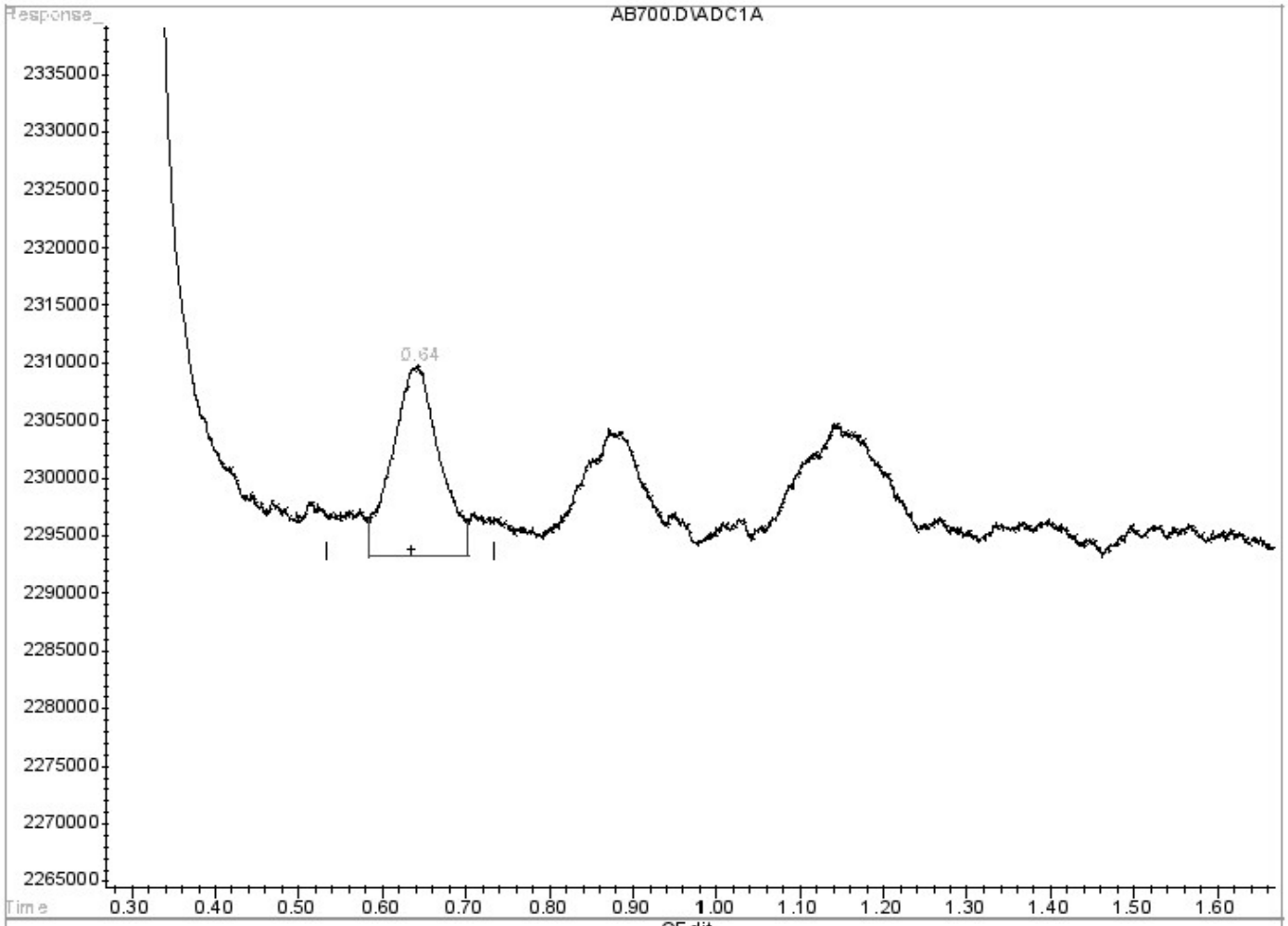
AB700.D RSK0626.M Fri Jun 29 14:05:44 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB700.D Vial: 59
Acq On : 29 Jun 2018 1:41 pm Operator: b.allgeier
Sample : r1805986-002|20 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:48 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(2) Acetylene

0.64min 1.542ug/L

response 649671

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB700.D RSK0626.M Fri Jun 29 13:49:06 2018

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB700.D Vial: 59
Acq On : 29 Jun 2018 1:41 pm Operator: b.allgeier
Sample : r1805986-002|20 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:49 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	492723045	90.622	ug/L	
2)	Acetylene	0.64	438563	1.263	ug/L	m
3)	Ethylene	0.87	570223	0.140	ug/L	
4)	Ethane	1.14	828357	0.148	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	0.00	0	N.D.	ug/L	

(f)=RT Delta > 1/2 Window (m)=manual int.

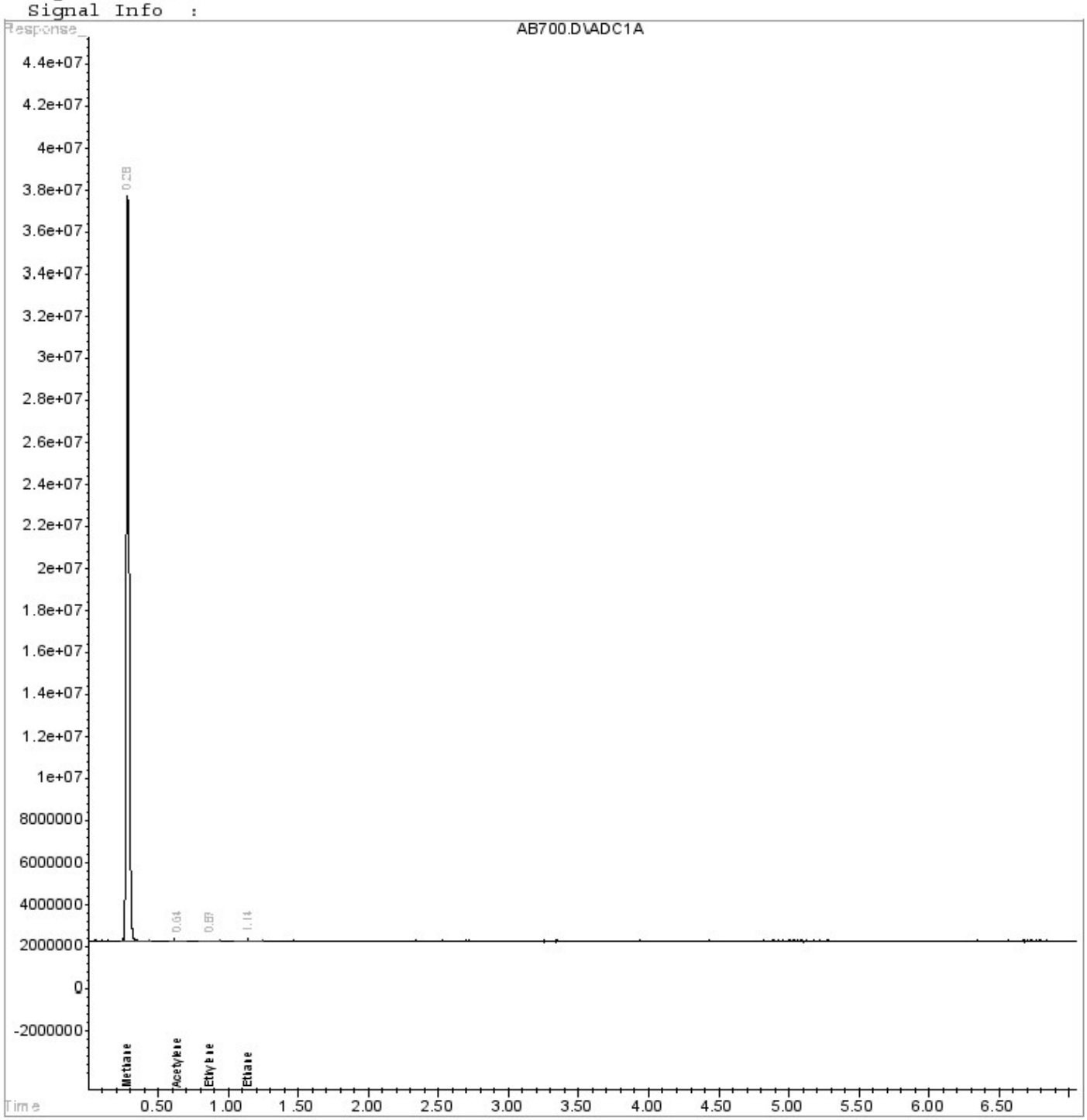
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB700.D Vial: 59
Acq On : 29 Jun 2018 1:41 pm Operator: b.allgeier
Sample : r1805986-002|20 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:49 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



AB700.D RSK0626.M Fri Jun 29 14:05:53 2018 Page 2

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB701.D Vial: 60
Acq On : 29 Jun 2018 1:50 pm Operator: b.allgeier
Sample : r1805986-003 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:58 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	1281643527	235.722	ug/L	E-Over Calibration
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.00	0	N.D.	ug/L	
4)	Ethane	0.00	0	N.D.	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	0.00	0	N.D.	ug/L	

(f)=RT Delta > 1/2 Window (m)=manual int.
AB701.D RSK0626.M Fri Jun 29 14:06:01 2018 Page 51 of 93 Page 1

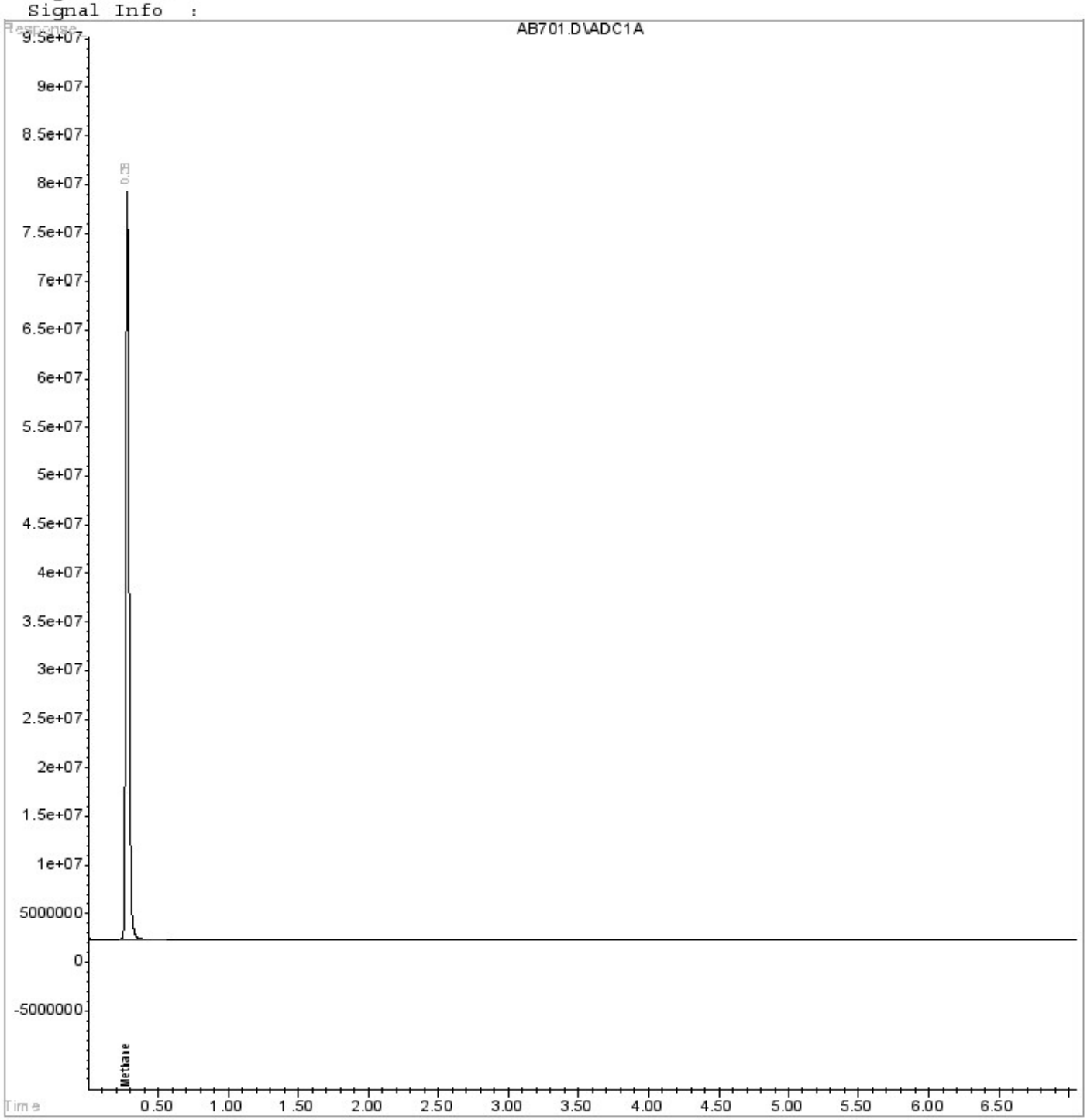
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB701.D Vial: 60
Acq On : 29 Jun 2018 1:50 pm Operator: b.allgeier
Sample : r1805986-003 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:58 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB702.D Vial: 61
Acq On : 29 Jun 2018 1:59 pm Operator: b.allgeier
Sample : r1805986-003|5 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:07 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	230187487	42.336	ug/L
2)	Acetylene	0.00	0	N.D.	ug/L
3)	Ethylene	0.00	0	N.D.	ug/L
4)	Ethane	0.00	0	N.D.	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	0.00	0	N.D.	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

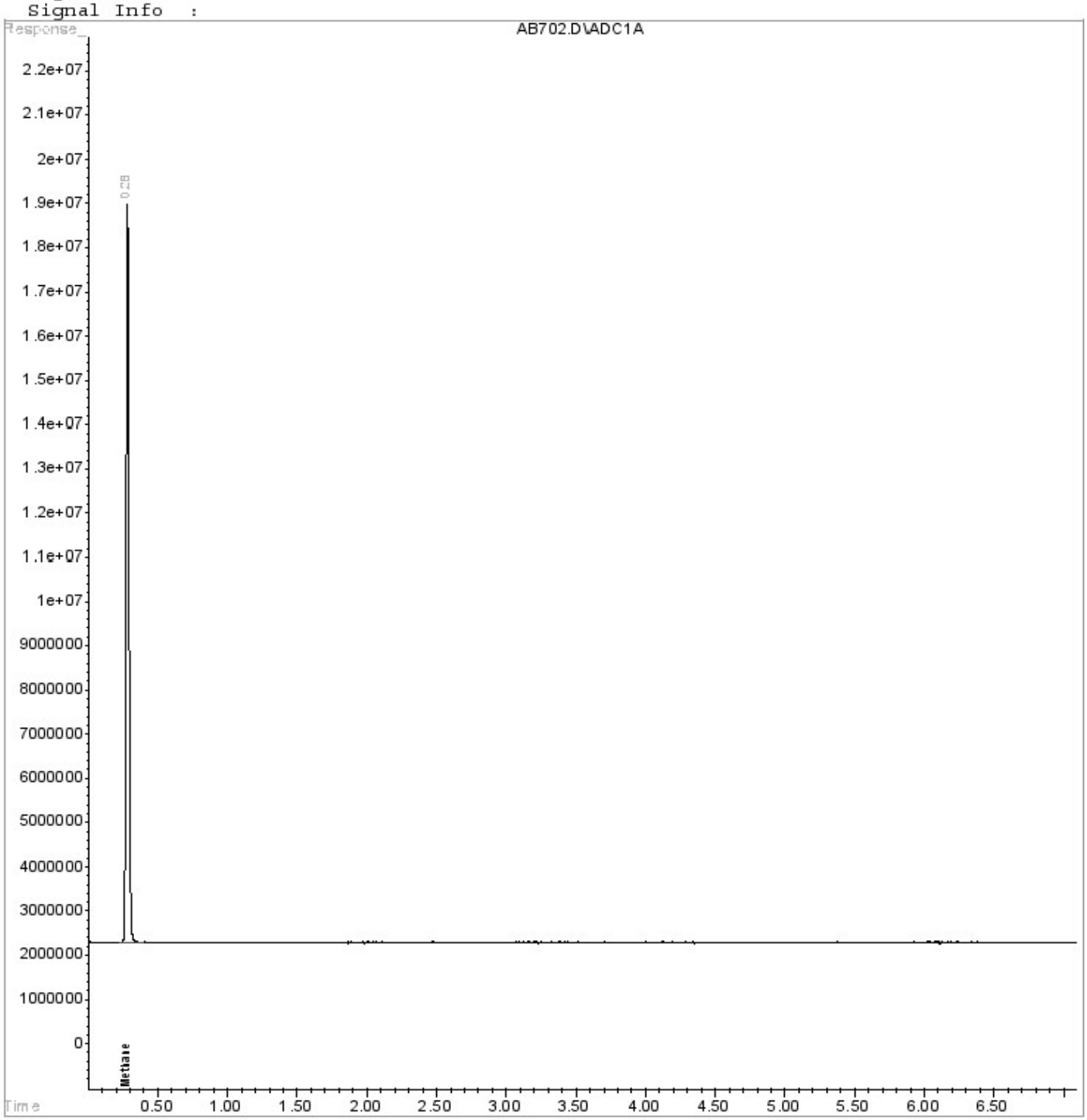
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB702.D Vial: 61
Acq On : 29 Jun 2018 1:59 pm Operator: b.allgeier
Sample : r1805986-003|5 Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:07 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

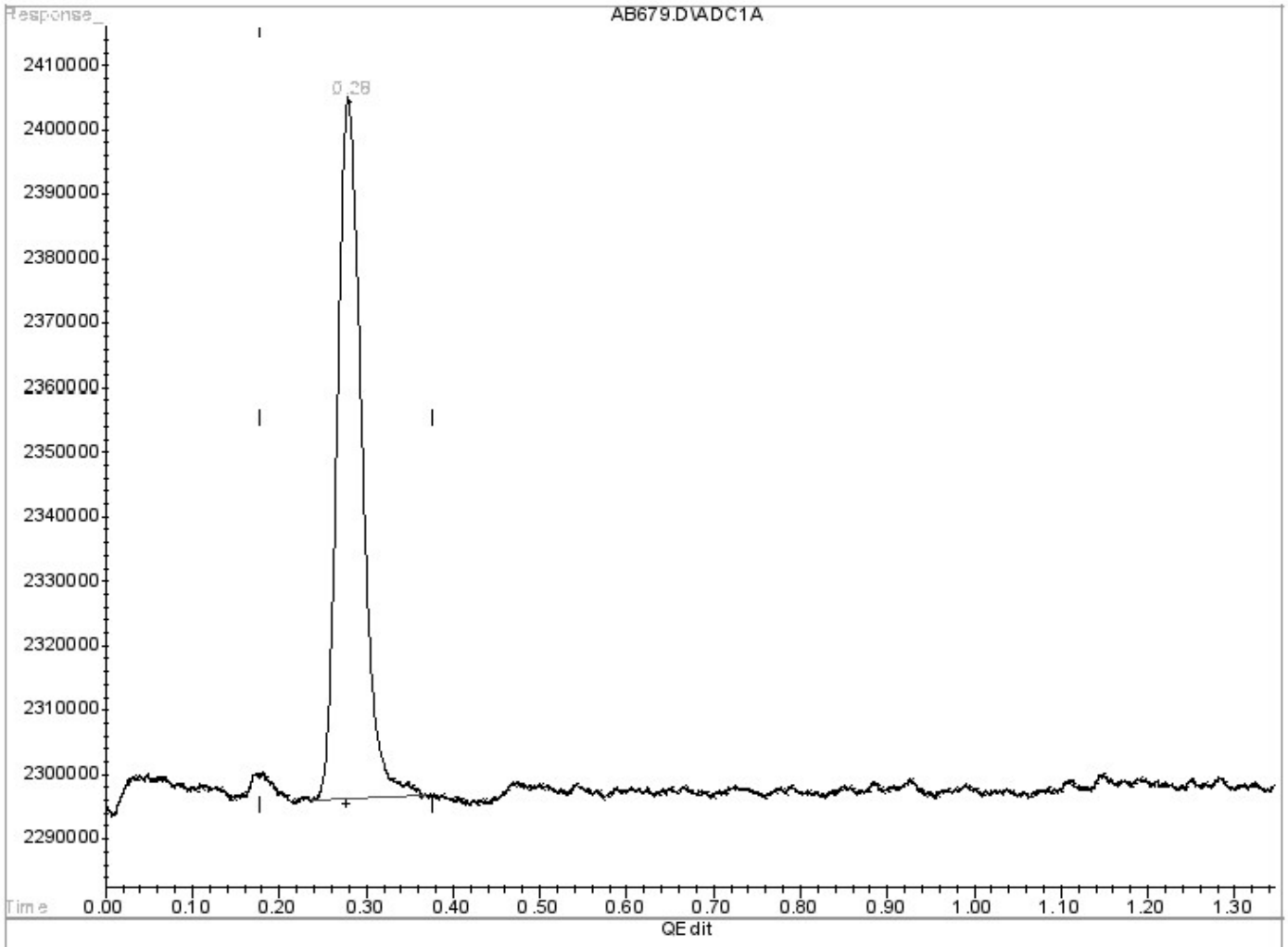


1st BA 06/29/18
2nd MWL 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.392ug/L m

response 2133017

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

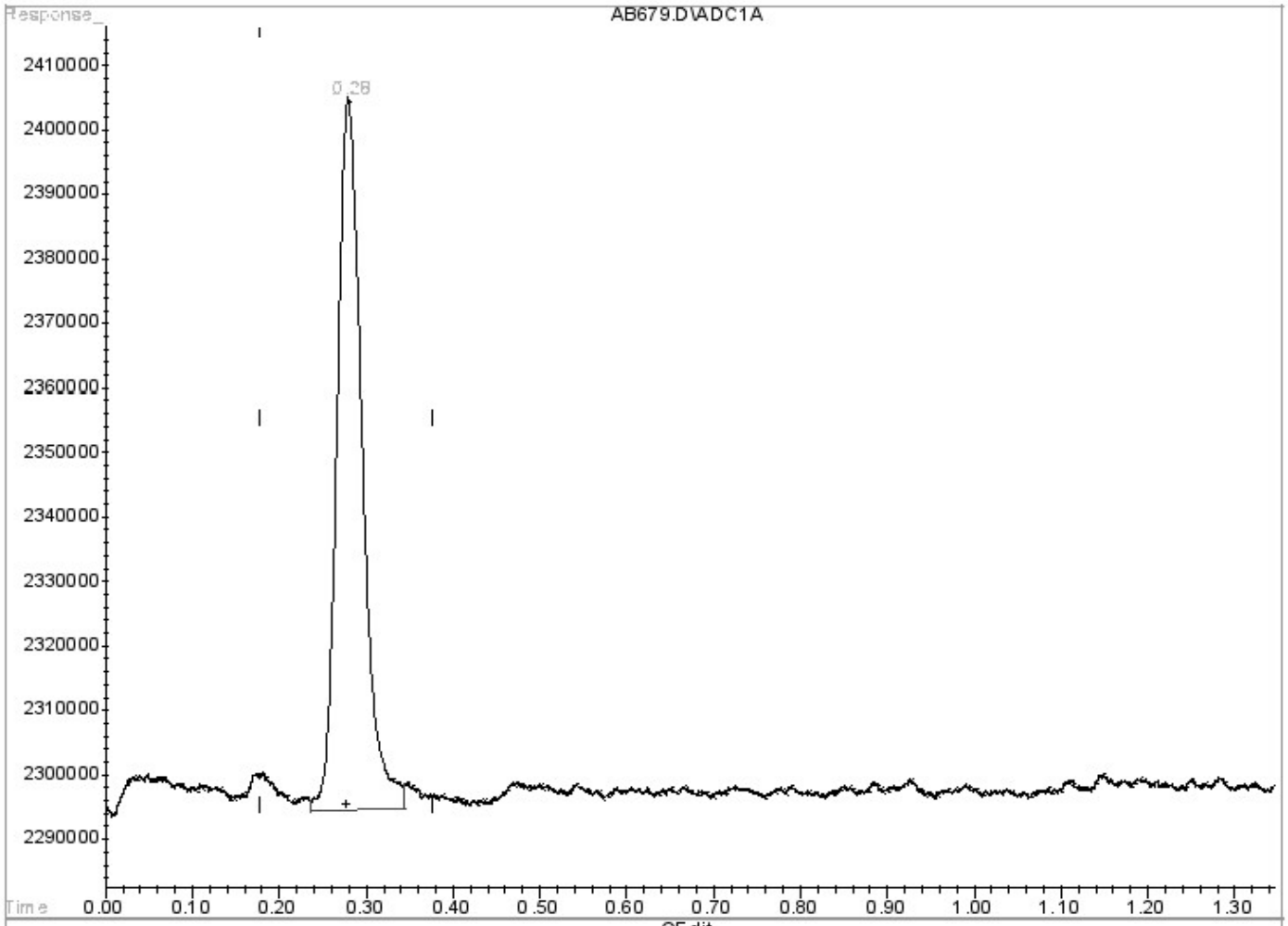
AB679.D RSK0626.M Fri Jun 29 09:48:34 2018

1st BA 06/29/18
2nd MWL 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(1) Methane

0.28min 0.410ug/L

response 2228671

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB679.D RSK0626.M Fri Jun 29 09:48:26 2018

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	2133017	0.392	ug/L	m
2)	Acetylene	0.00	0	N.D.	ug/L	
3)	Ethylene	0.00	0	N.D.	ug/L	
4)	Ethane	0.00	0	N.D.	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	0.00	0	N.D.	ug/L	

(f)=RT Delta > 1/2 Window (m)=manual int.

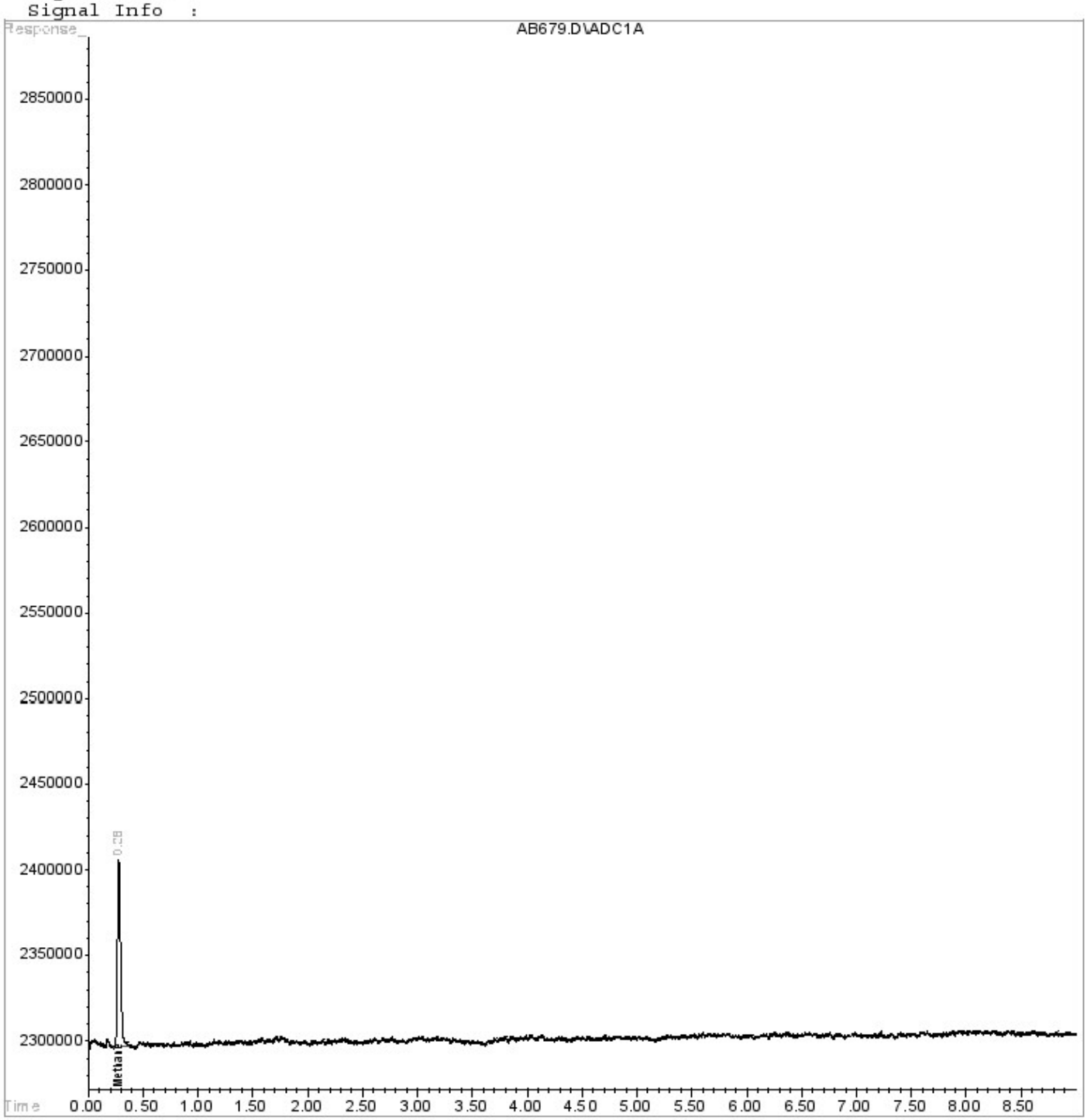
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

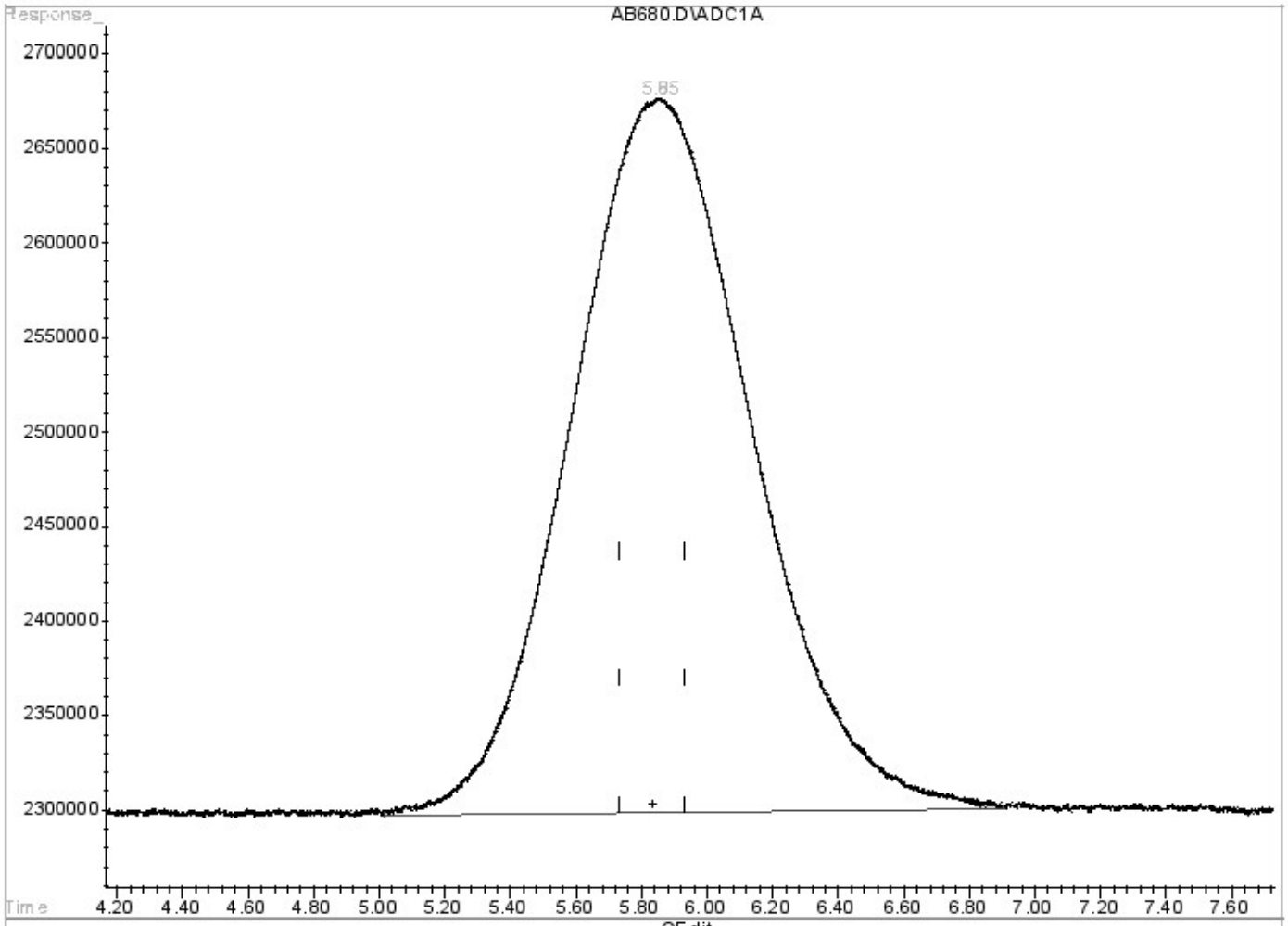


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 24.893ug/L m

response 144051743

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

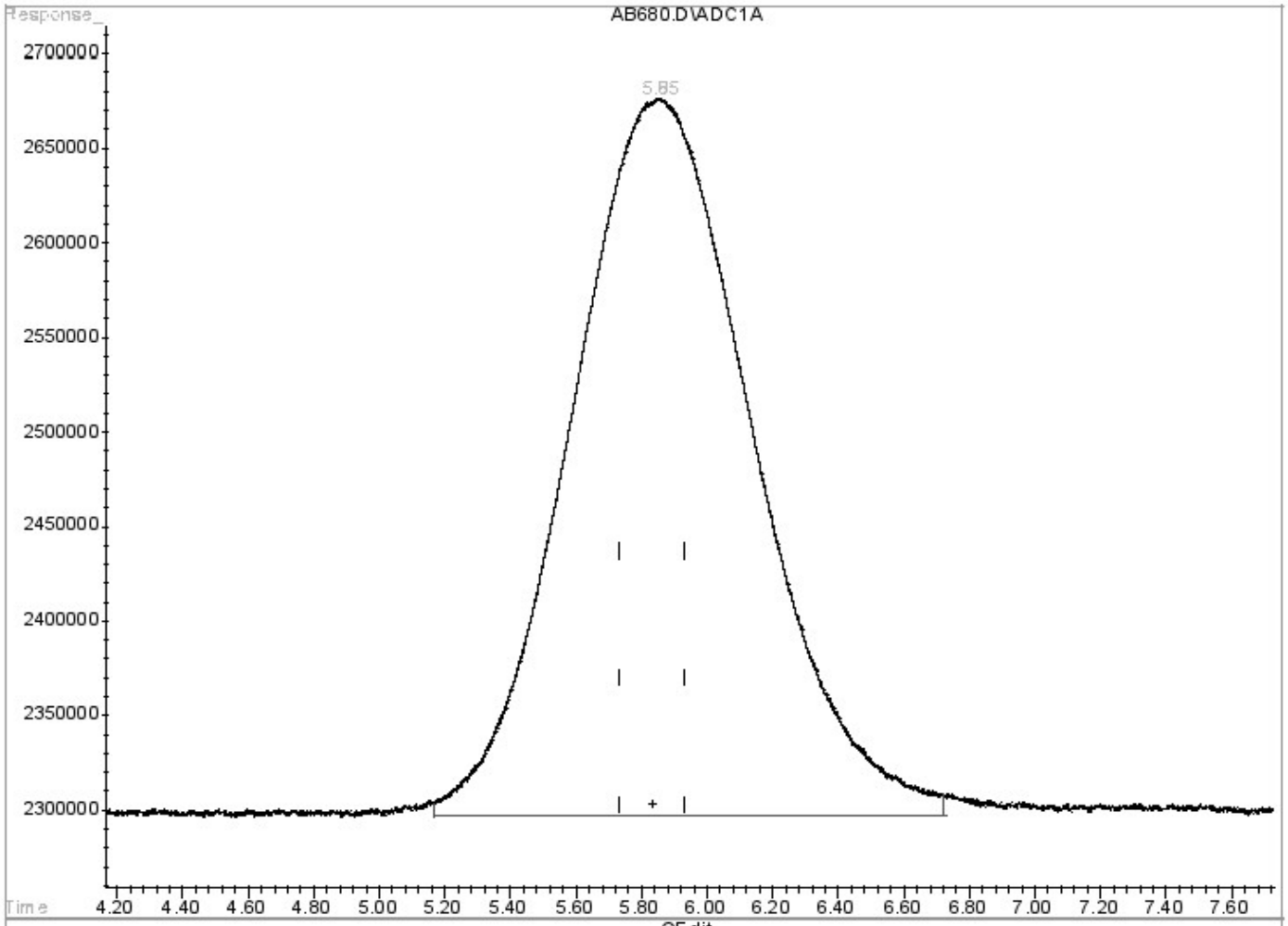
AB680.D RSK0626.M Fri Jun 29 10:07:20 2018

1st BA 06/29/18
2nd Mwi 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 25.059ug/L

response 145011233

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	145885558	26.831 ug/L
2)	Acetylene	0.64	45010985	53.621 ug/L
3)	Ethylene	0.88	98278040	24.163 ug/L
4)	Ethane	1.15	147951794	26.474 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	144051743	24.893 ug/L m

(f)=RT Delta > 1/2 Window (m)=manual int.

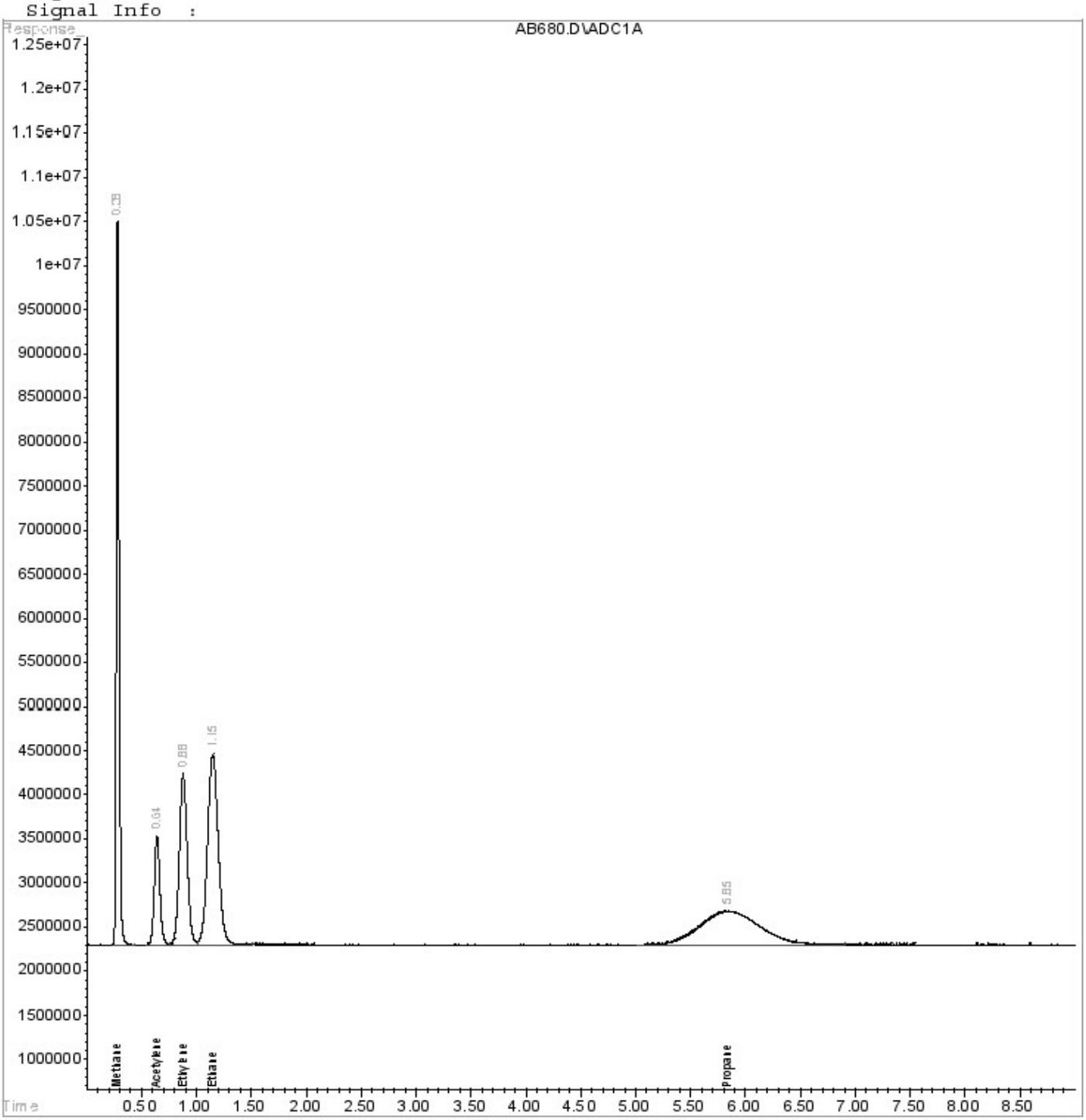
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB680.D Vial: 39
Acq On : 29 Jun 2018 9:49 am Operator: b.allgeier
Sample : lcs Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:07 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB681.D Vial: 40
Acq On : 29 Jun 2018 10:08 am Operator: b.allgeier
Sample : lcsd Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:19 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	153990990	28.322 ug/L
2)	Acetylene	0.64	46683382	55.382 ug/L
3)	Ethylene	0.88	103659137	25.486 ug/L
4)	Ethane	1.15	154586781	27.662 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	151080271	26.108 ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

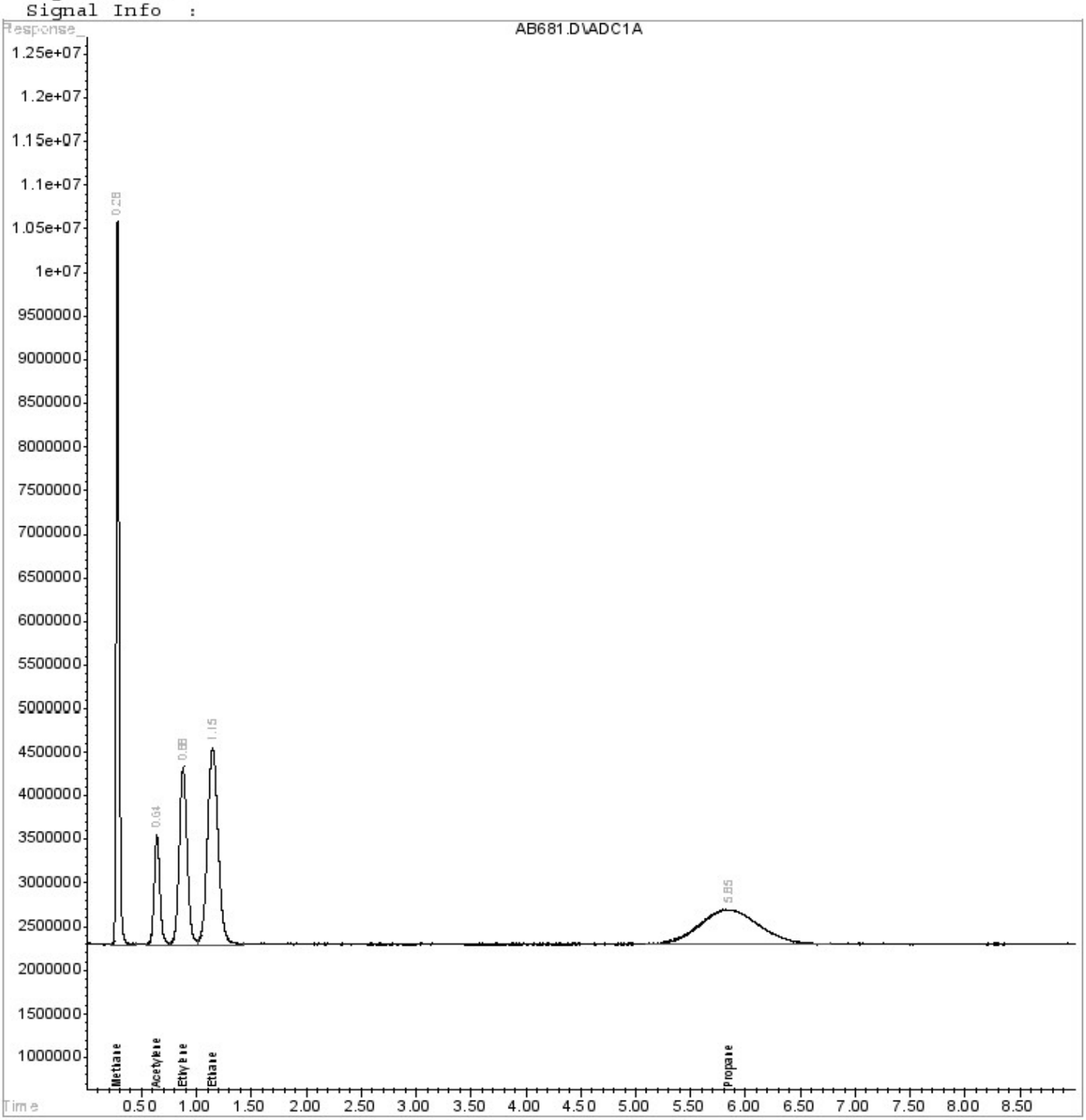
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB681.D Vial: 40
Acq On : 29 Jun 2018 10:08 am Operator: b.allgeier
Sample : lcsd Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 10:19 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

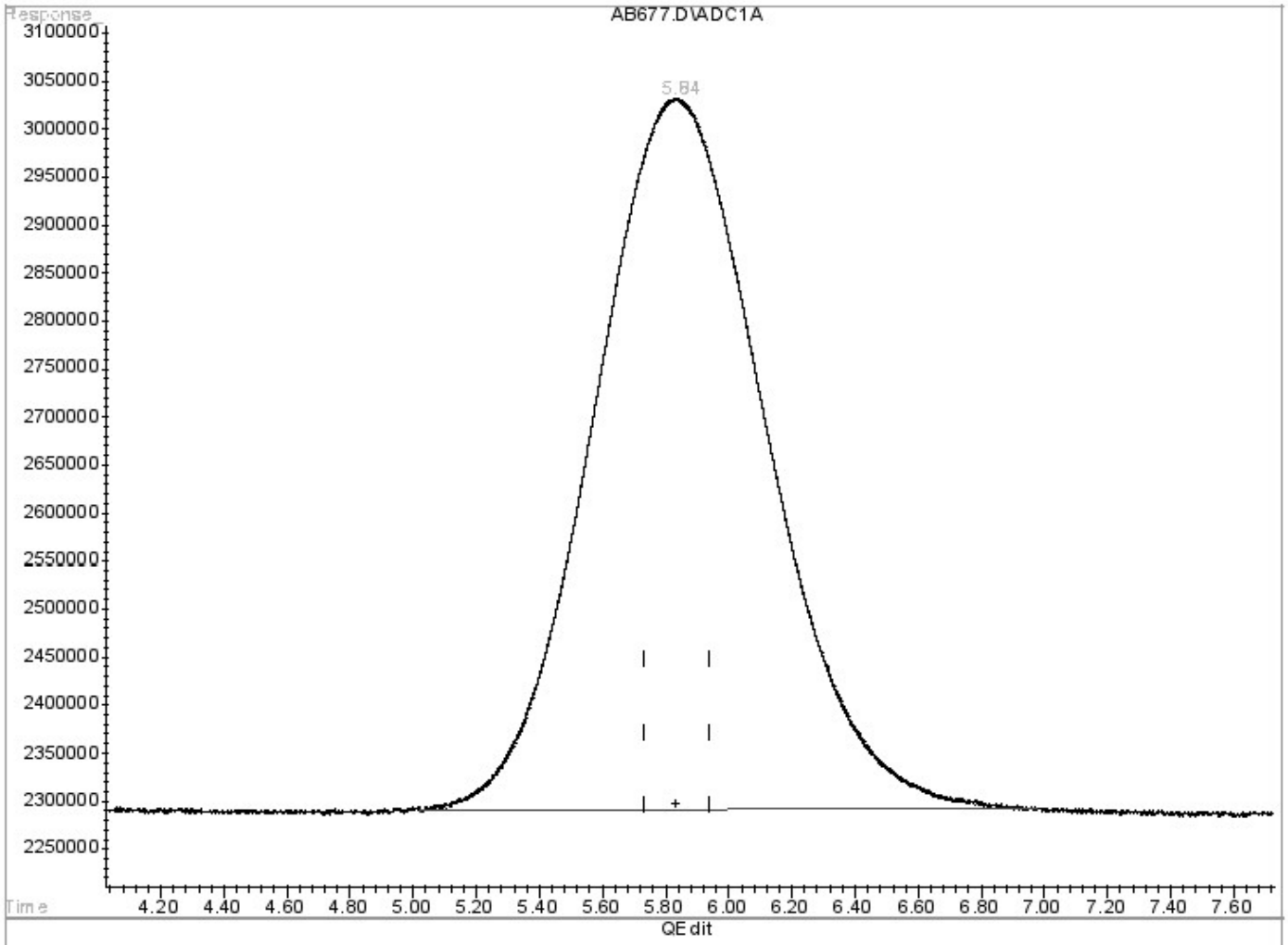


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:16 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.84min 48.388ug/L m

response 280008014

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

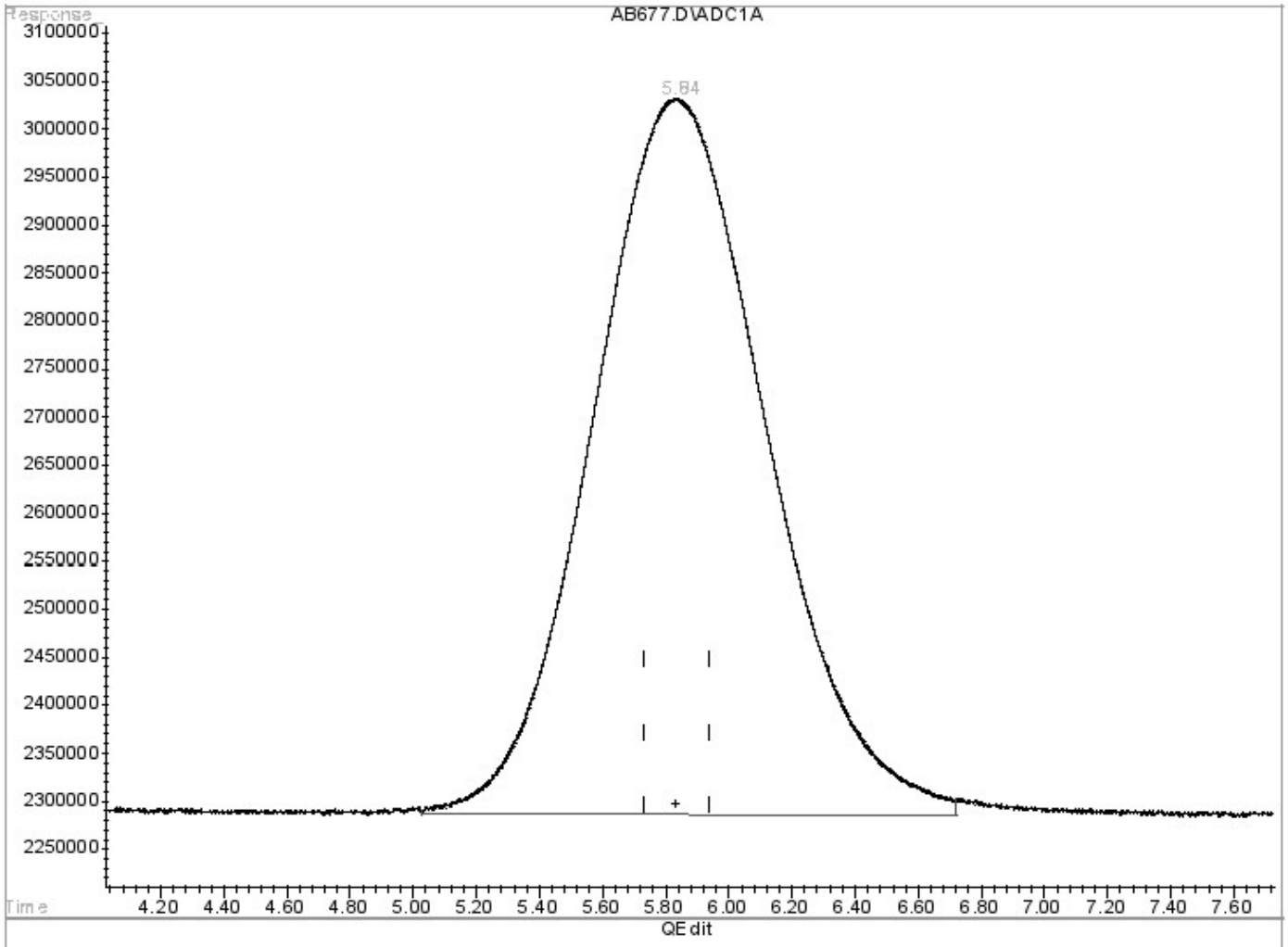
AB677.D RSK0626.M Fri Jun 29 09:17:08 2018

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:16 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.84min 49.108ug/L

response 284175202

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB677.D RSK0626.M Fri Jun 29 09:17:02 2018

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
1	Methane	5.437	5.447	E6	-0.2	96	0.00
2	Acetylene	823.699	826.652	E3	~~-0.4~~ -9	84	0.00
3	Ethylene	4.067	3.963	E6	2.6	91	0.00
4	Ethane	5.589	5.541	E6	0.9	95	0.00
6	Propane	5.787	5.501	E6	4.9	94	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB677.D RSK0626.M Fri Jun 29 11:06:30 2018 Page 1
Page 67 of 93

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB677.D RSK0626.M Fri Jun 29 11:06:30 2018 Page 2
Page 68 of 93

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:17 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	0.28	285962955	52.595	ug/L	
2)	Acetylene	0.64	82830567	90.912	ug/L	
3)	Ethylene	0.88	192579890	47.348	ug/L	
4)	Ethane	1.14	288692580	51.658	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.84	280008014	48.388	ug/L	m

(f)=RT Delta > 1/2 Window (m)=manual int.

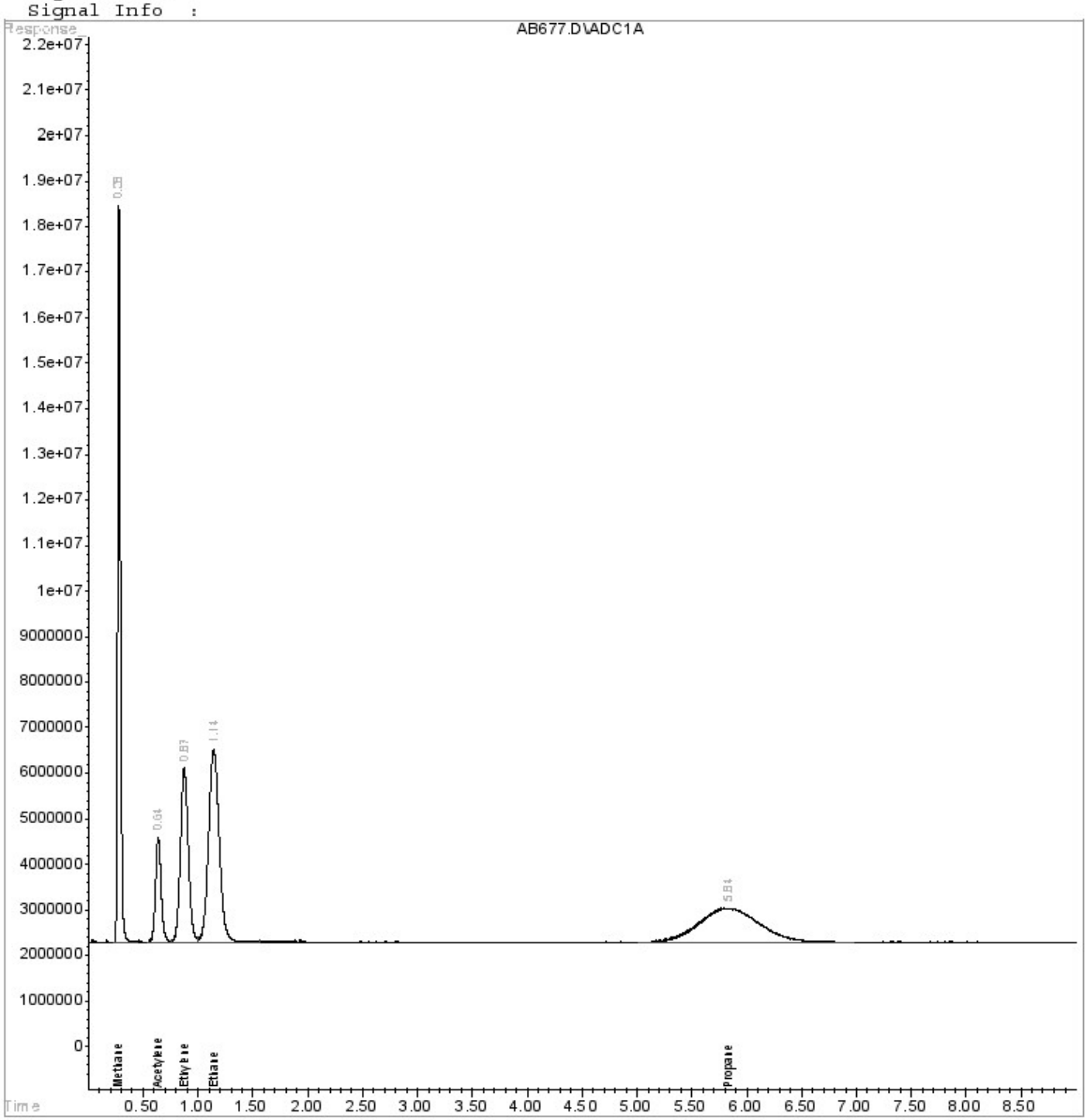
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB677.D Vial: 36
Acq On : 29 Jun 2018 9:07 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:17 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

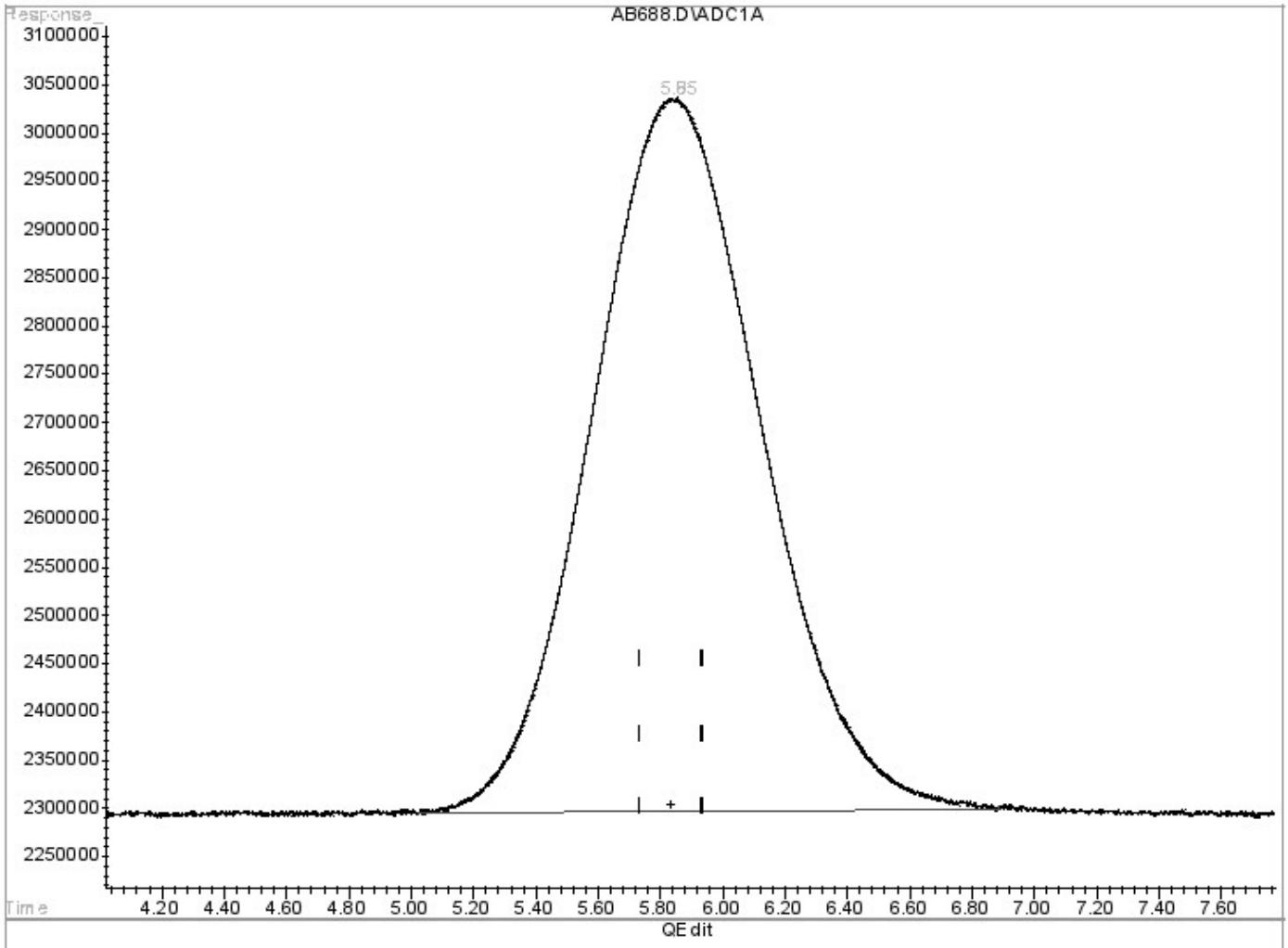


1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:52 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 48.225ug/L m

response 279066560

Manual Integration:

After

Poor integration.

06/29/18

(+) = Expected Retention Time

AB688.D RSK0626.M Fri Jun 29 11:53:11 2018

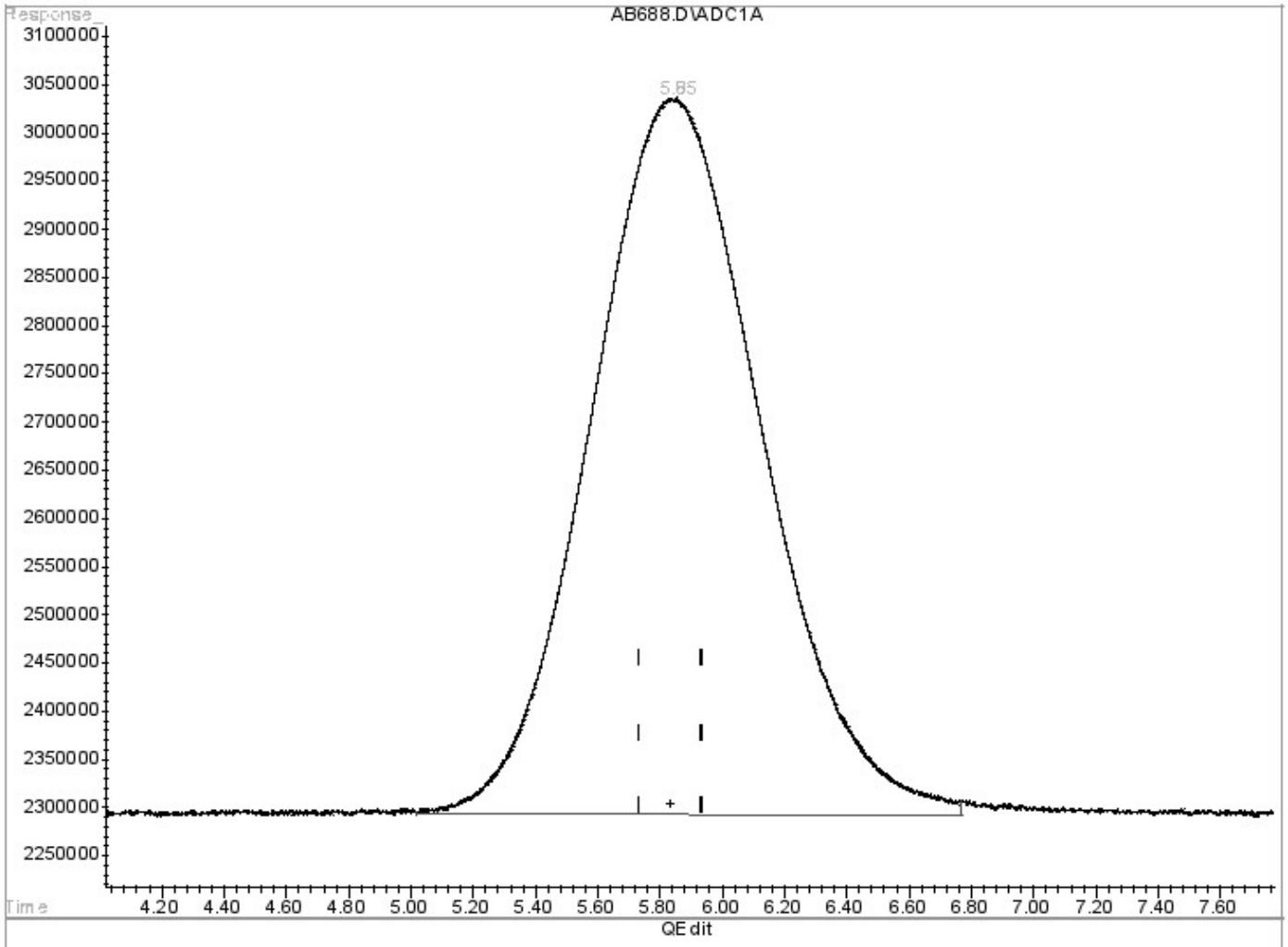
ALS

1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report (Qedit)

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:52 2018 Quant Results File: RSK0626.RES

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration



(6) Propane

5.85min 48.804ug/L

response 282416299

Manual Integration:

Before

06/29/18

(+) = Expected Retention Time

AB688.D RSK0626.M Fri Jun 29 11:53:05 2018
Page 72 of 93

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
1	Methane	5.437	5.383	E6	1.0	94	0.00
2	Acetylene	823.699	945.501	E3	~~-14.8~~	96	0.00
3	Ethylene	4.067	4.000	E6	1.6	92	0.00
4	Ethane	5.589	5.497	E6	1.6	94	0.00
6	Propane	5.787	5.483	E6	5.3	94	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB688.D RSK0626.M Fri Jun 29 11:53:42 2018 Page 1
Page 73 of 93

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB688.D RSK0626.M Fri Jun 29 11:53:42 2018 Page 2
Page 74 of 93

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:53 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Target Compounds					
1)	Methane	0.28	282623484	51.981	ug/L	
2)	Acetylene	0.64	94739238	101.723	ug/L	
3)	Ethylene	0.88	194387063	47.793	ug/L	
4)	Ethane	1.15	286416923	51.251	ug/L	
5)	Propene	0.00	0	N.D.	ug/L	
6)	Propane	5.85	279066560	48.225	ug/L	m

(f)=RT Delta > 1/2 Window (m)=manual int.

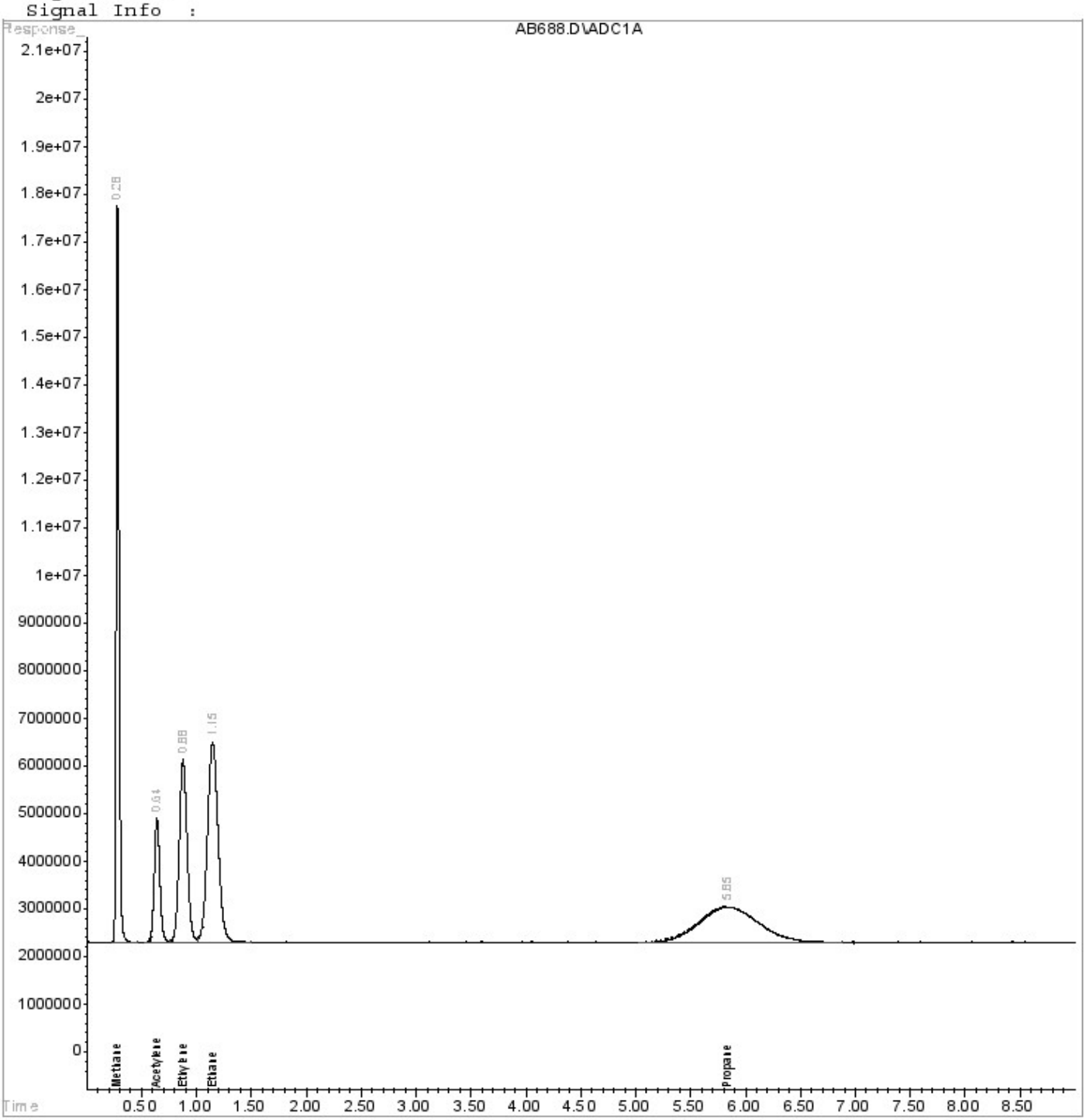
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB688.D Vial: 47
Acq On : 29 Jun 2018 11:43 am Operator: b.allgeier
Sample : ccv Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 11:53 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
1	Methane	5.437	5.655	E6	-4.0	99	0.00
2	Acetylene	823.699	995.755	E3	~~-20.9~~ 6	101	0.00
3	Ethylene	4.067	4.249	E6	-4.5	97	0.00
4	Ethane	5.589	5.750	E6	-2.9	99	0.00
6	Propane	5.787	5.775	E6	0.2	99	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB698.D RSK0626.M Fri Jun 29 13:30:02 2018 Page 1
Page 77 of 93

1st BA 6/29/18
2nd MW 6/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
5	Propene	0.000	0.000	0.0	0#	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB698.D RSK0626.M Fri Jun 29 13:30:02 2018 Page 2
Page 78 of 93

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:29 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Target Compounds			
1)	Methane	0.28	296872545	54.601 ug/L
2)	Acetylene	0.64	99774672	106.182 ug/L
3)	Ethylene	0.88	206490468	50.769 ug/L
4)	Ethane	1.15	299594096	53.609 ug/L
5)	Propene	0.00	0	N.D. ug/L
6)	Propane	5.85	293970732	50.801 ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

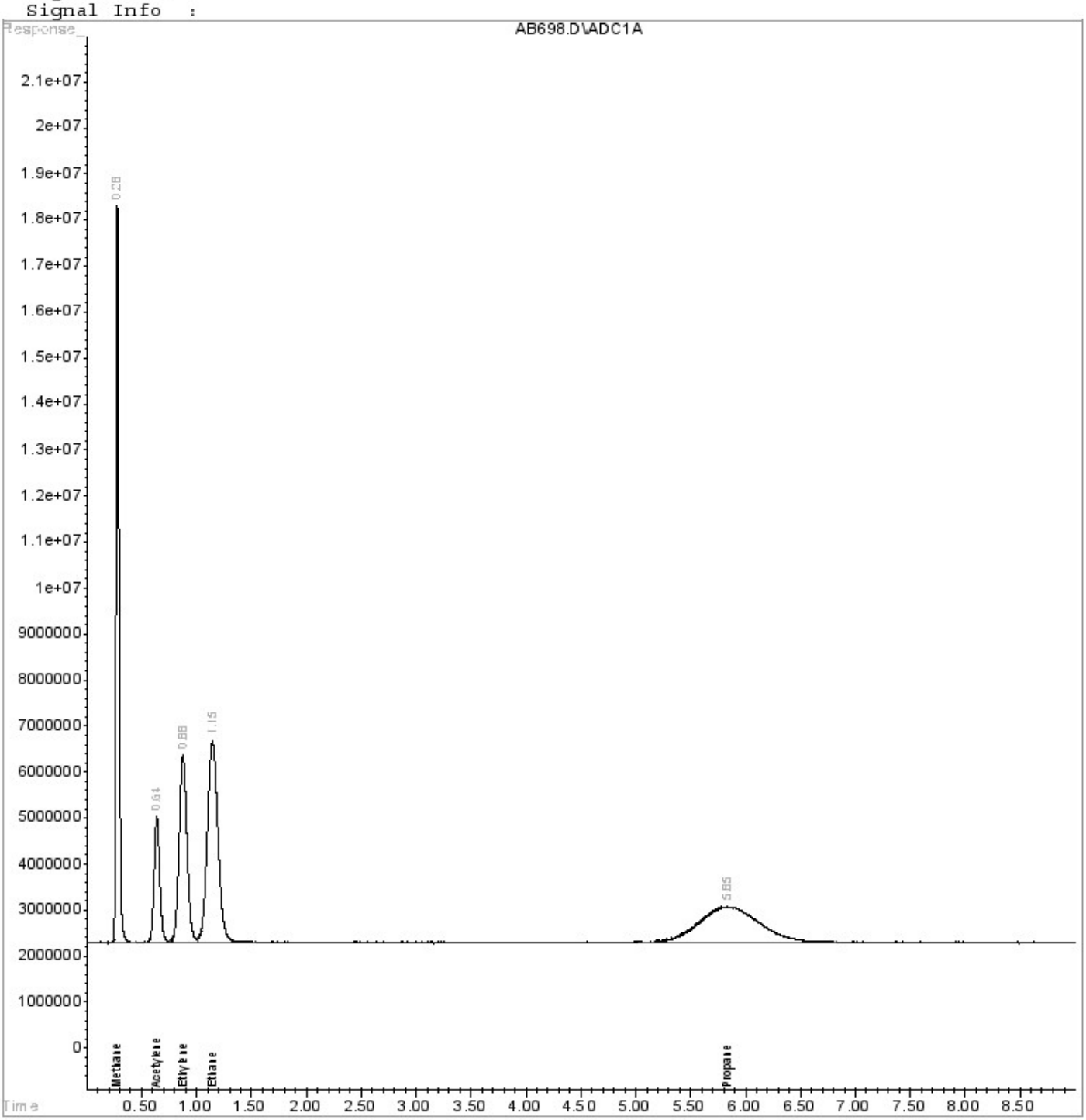
1st BA 06/29/18
2nd MW 06/29/18

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB698.D Vial: 57
Acq On : 29 Jun 2018 1:15 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 13:29 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



1st BA 6/29/18
2nd MW 6/29/18

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	Methane	52.500	50.931	3.0	93	0.00
2	Acetylene	100.200	103.260	~~-3.1~~ 3	98	0.00
3	Ethylene	48.600	47.799	1.6	92	0.00
4	Ethane	52.100	50.490	3.1	93	0.00
6	Propane	50.900	47.559	6.6	93	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB704.D RSK0626.M Fri Jun 29 14:27:07 2018 Page 1
Page 81 of 93

1st BA 06/29/18
2nd MW 06/29/18

Evaluate Continuing Calibration Report - Not Founds

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E

Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
5	Propene	48.100	0.000	100.0#	0	-4.70#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
AB704.D RSK0626.M Fri Jun 29 14:27:07 2018 Page 2
Page 82 of 93

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:26 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	276916125	50.931	ug/L
2)	Acetylene	0.64	96467671	103.260	ug/L
3)	Ethylene	0.88	194411982	47.799	ug/L
4)	Ethane	1.14	282165685	50.490	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	5.85	275213378	47.559	ug/L

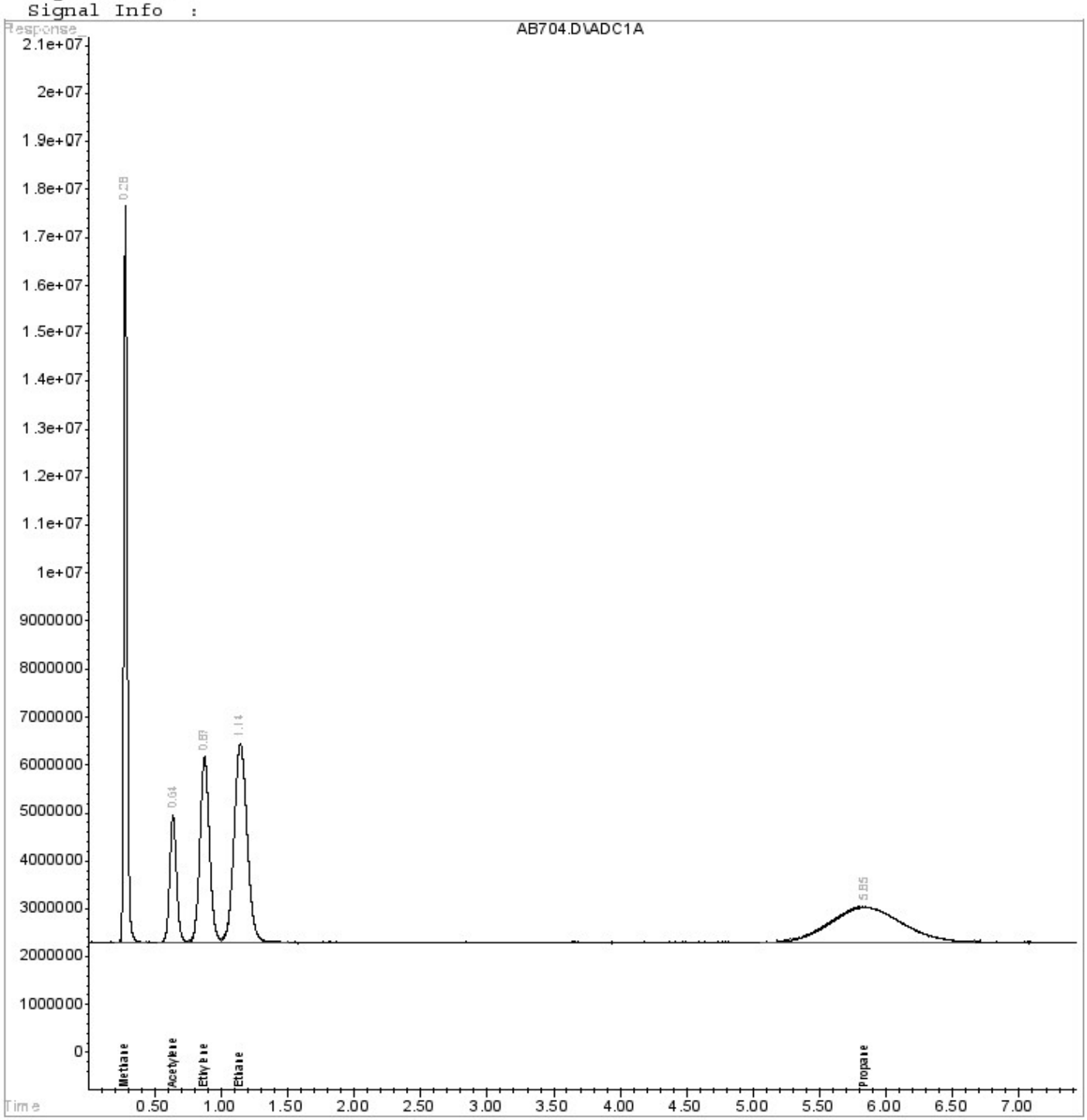
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : I:\ACQUDATA\V2\DATA\062918\AB704.D Vial: 63
Acq On : 29 Jun 2018 2:19 pm Operator: b.allgeier
Sample : ccv Inst : V2
Misc : als 19182 t4 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 14:26 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Multiple Level Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :



Client: ALS Environmental - US
Project: UR115: 2322463

Service Request: R1805986
Calibration Date: 6/26/2018

Initial Calibration Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800072
Instrument ID: R-GC-02

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
08	RC1800072-08	1PPB		06/26/2018 11:23
07	RC1800072-07	2PPB		06/26/2018 11:33
06	RC1800072-06	10PPB		06/26/2018 11:46
05	RC1800072-05	20PPB		06/26/2018 11:56
04	RC1800072-04	50PPB		06/26/2018 12:06
03	RC1800072-03	75PPB		06/26/2018 12:48
02	RC1800072-02	100PPB		06/26/2018 12:58

Analyte

Acetylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	2.000	5.438E5	07	4.010	5.433E5	06	20.030	6.889E5	05	40.100	9.101E5
04	100.200	9.87E5	03	150.300	1.017E6	02	200.300	1.076E6			

Ethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	1.040	5.598E6	07	2.080	5.05E6	06	10.410	5.132E6	05	20.800	6.227E6
04	52.100	5.823E6	03	78.100	5.711E6	02	104.100	5.58E6			

Ethene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.970	3.745E6	07	1.940	3.421E6	06	9.710	3.705E6	05	19.400	4.595E6
04	48.600	4.366E6	03	72.900	4.348E6	02	97.100	4.291E6			

Methane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	1.050	5.401E6	07	2.100	4.941E6	06	10.490	5.024E6	05	21.000	6.123E6
04	52.500	5.699E6	03	78.700	5.521E6	02	104.900	5.352E6			

Client: ALS Environmental - US
Project: UR115: 2322463

Service Request: R1805986
Calibration Date: 6/26/2018

Initial Calibration Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800072
Instrument ID: R-GC-02

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Acetylene	TRG	Quadratic	COD	0.9969	≥	8.237E5	
Ethane	TRG	Average RF	% RSD	7.2	≤20	5.589E6	
Ethene	TRG	Average RF	% RSD	10.8	≤20	4.067E6	
Methane	TRG	Average RF	% RSD	7.4	≤20	5.437E6	

Client: ALS Environmental - US **Service Request:** R1805986
Project: UR115: 2322463 **Calibration Date:** 6/26/2018

Initial Calibration Verification Summary
Dissolved Gases by GC/FID

Calibration ID: RC1800072 **Signal ID:** 1
Instrument ID: R-GC-02

#	Lab Code	Sample Name	File Location	Acquisition Date
01	RC1800072-01	ICV		06/26/2018 13:28

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
Acetylene	100	109	8.237E5	1.029E6	109	85-115	Quadratic
Ethane	52.1	52.4	5.589E6	5.617E6	101	85-115	Average RF
Ethene	48.6	51.6	4.067E6	4.315E6	106	85-115	Average RF
Methane	52.5	51.9	5.437E6	5.378E6	98.9	85-115	Average RF

Client: ALS Environmental - US
Project: UR115: 2322463
Service Request: R1805986
Date Analyzed: 06/29/18 09:07

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method: RSK 175
File ID: I:\ACQUDATA\V2\DATA\062918\AB677.D\
Signal ID: 1
Calibration Date: 6/26/2018
Calibration ID: RC1800072
Analysis Lot: 596833
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	90.9	8.237E5	8.269E5	90.8	-9.2	85-115	Quadratic
Ethane	52.1	51.7	5.589E6	5.545E6	99.2	NA	85-115	Average RF
Ethene	48.6	47.3	4.067E6	3.965E6	97.5	NA	85-115	Average RF
Methane	52.5	52.6	5.437E6	5.451E6	100	NA	85-115	Average RF

Client:	ALS Environmental - US	**Service Request:**	R1805986
Project:	UR115: 2322463	**Date Analyzed:**	06/29/18 11:43

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method:	RSK 175	**Calibration Date:**	6/26/2018
File ID:	I:\ACQUDATA\V2\DATA\062918\AB688.D\	**Calibration ID:**	RC1800072
Signal ID:	1	**Analysis Lot:**	596833
		Units:	ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	102	8.237E5	9.458E5	102	1.6	85-115	Quadratic
Ethane	52.1	51.3	5.589E6	5.501E6	98.4	NA	85-115	Average RF
Ethene	48.6	47.8	4.067E6	4.002E6	98.4	NA	85-115	Average RF
Methane	52.5	52.0	5.437E6	5.387E6	99.1	NA	85-115	Average RF

Client: ALS Environmental - US
Project: UR115: 2322463
Service Request: R1805986
Date Analyzed: 06/29/18 13:15

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method: RSK 175
File ID: I:\ACQUDATA\V2\DATA\062918\AB698.D\
Signal ID: 1
Calibration Date: 6/26/2018
Calibration ID: RC1800072
Analysis Lot: 596833
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	106	8.237E5	9.961E5	106	6.0	85-115	Quadratic
Ethane	52.1	53.6	5.589E6	5.754E6	103	NA	85-115	Average RF
Ethene	48.6	50.8	4.067E6	4.251E6	105	NA	85-115	Average RF
Methane	52.5	54.6	5.437E6	5.659E6	104	NA	85-115	Average RF

Client: ALS Environmental - US
Project: UR115: 2322463
Service Request: R1805986
Date Analyzed: 06/29/18 14:19

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

Analysis Method: RSK 175
File ID: I:\ACQUDATA\V2\DATA\062918\AB704.D\
Signal ID: 1
Calibration Date: 6/26/2018
Calibration ID: RC1800072
Analysis Lot: 596833
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	%Drift	Criteria	Curve Fit
Acetylene	100	103	8.237E5	9.63E5	103	3.1	85-115	Quadratic
Ethane	52.1	50.5	5.589E6	5.419E6	97.0	NA	85-115	Average RF
Ethene	48.6	47.8	4.067E6	4.003E6	98.4	NA	85-115	Average RF
Methane	52.5	50.9	5.437E6	5.278E6	97.1	NA	85-115	Average RF

Client: ALS Environmental - US **Service Request:** R1805986
Project: UR115: 2322463

Analysis Run Log
Dissolved Gases by GC/FID

Analysis Method: RSK 175 **Analysis Lot:** 596833
Instrument ID: R-GC-02

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
I:\ACQUDATA\W2\DATA\062918\AB677.D\	Continuing Calibration Verification	RQ1806590-04	6/29/2018	09:07:00	
I:\ACQUDATA\W2\DATA\062918\AB679.D\	Method Blank	RQ1806590-01	6/29/2018	09:32:00	
I:\ACQUDATA\W2\DATA\062918\AB680.D\	Lab Control Sample	RQ1806590-02	6/29/2018	09:49:00	
I:\ACQUDATA\W2\DATA\062918\AB681.D\	Duplicate Lab Control Sample	RQ1806590-03	6/29/2018	10:08:00	
I:\ACQUDATA\W2\DATA\062918\AB682.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	10:40:00	
I:\ACQUDATA\W2\DATA\062918\AB683.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	10:51:00	
I:\ACQUDATA\W2\DATA\062918\AB684.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	11:03:00	
I:\ACQUDATA\W2\DATA\062918\AB685.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	11:14:00	
I:\ACQUDATA\W2\DATA\062918\AB686.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	11:24:00	
I:\ACQUDATA\W2\DATA\062918\AB688.D\	Continuing Calibration Verification	RQ1806590-05	6/29/2018	11:43:00	
I:\ACQUDATA\W2\DATA\062918\AB689.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	11:54:00	
I:\ACQUDATA\W2\DATA\062918\AB690.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:03:00	
I:\ACQUDATA\W2\DATA\062918\AB691.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:12:00	
I:\ACQUDATA\W2\DATA\062918\AB692.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:22:00	
I:\ACQUDATA\W2\DATA\062918\AB693.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:30:00	
I:\ACQUDATA\W2\DATA\062918\AB694.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:39:00	
I:\ACQUDATA\W2\DATA\062918\AB695.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	12:50:00	
I:\ACQUDATA\W2\DATA\062918\AB696.D\	2322463 001	R1805986-001	6/29/2018	12:58:00	
I:\ACQUDATA\W2\DATA\062918\AB697.D\	2322463 001	R1805986-001	6/29/2018	13:07:00	
I:\ACQUDATA\W2\DATA\062918\AB698.D\	Continuing Calibration Verification	RQ1806590-06	6/29/2018	13:15:00	
I:\ACQUDATA\W2\DATA\062918\AB699.D\	2322463 002	R1805986-002	6/29/2018	13:31:00	
I:\ACQUDATA\W2\DATA\062918\AB700.D\	2322463 002	R1805986-002	6/29/2018	13:41:00	
I:\ACQUDATA\W2\DATA\062918\AB701.D\	2322463 003	R1805986-003	6/29/2018	13:50:00	
I:\ACQUDATA\W2\DATA\062918\AB702.D\	2322463 003	R1805986-003	6/29/2018	13:59:00	
I:\ACQUDATA\W2\DATA\062918\AB703.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	14:07:00	
I:\ACQUDATA\W2\DATA\062918\AB704.D\	Continuing Calibration Verification	RQ1806590-07	6/29/2018	14:19:00	

Monday, July 09, 2018 7:13:19 PM
Page 119 of 119

Analysis: RSK.175 Analyst: BA
Date: 6/29/12 Data Path: J:\Acqudata\V2\Data\062912\
Instr. V2 Run Method: RSK
RSK0626
LIMS Run# :

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
	BLK								AB675	—	
	BLK								76	—	
	CCV								77	Y	
	MET BLK								78	N	
	MET BLK								79	Y	
	LCS								80	Y	
	DCS								81	Y	
	R1805290-001								82	Y	
	R1805941-001				19182	IV	1	<2	83	Y	
	-002				19182	IV	1		84	Y	
	-003								85	Y	
	-004								86	Y	
	R1805985-001				19182	IV	1		87	Y	
	CCV								88	Y	
	R1805985-001				19182	IV	1	<2	89	Y	
	-002								90	Y	RPT 1/2
	-003								91	Y	
	-004	2.0	250ul						92	Y	
	-005								93	Y	RPT 1/50
	-006	2.0	250ul						94	Y	RPT 1/2
	R1805986-001								95	Y	
	-001	20	25ul		19182	IV	1		96	Y	RPT 1/20
	CCV								97	Y	
	R1805986-002								98	Y	
	-002	20	25ul		19182	IV	1	<2	99	Y	RPT 1/20
	-003								700	Y	
	-003	5.0	100ul						01	Y	RPT 1/5
	-004	100	1mL/50ml → 250ul						02	Y	
	CCV								03	Y	
									04	Y	

All samples = _____mL + _____uL Surrogate _____mL purged

Primary : 190132 200ul/42.5ml (CCV)
Primary :
Primary :
Primary :

Secondary : 190133 100ul/42.5ml (LCS) Surrogate :
Secondary :
Secondary :
Secondary :

Page 93 of 93
ALS

APPENDIX E: AECOM Data Usability Summary Report (DUSR)

AECOM

Prepared for:
U.S. Army Corps of Engineers
Huntsville and New York Districts

Prepared by:
AECOM
Pittsburgh, PA
60440641-14
August 2018

August 21, 2018

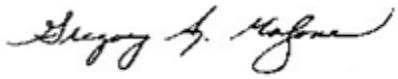
Data Usability Summary Report
Defense National Stockpile Center
Scotia Depot
Glenville, New York
Groundwater Sampling Event
June 2018
Final

Prepared for:
U.S. Army Corps of Engineers
Huntsville and New York Districts

Prepared by:
AECOM
Pittsburgh, PA
60440641-14
August 2018

August 21, 2018

Data Usability Summary Report
Defense National Stockpile Center
Scotia Depot
Glenville, New York
Groundwater Sampling Event
June 2018
Final



Prepared By
Gregory Malzone, Project Chemist
AECOM
Gulf Tower
707 Grant Street, 5th floor
Pittsburgh, PA 15219



Reviewed By
Robert Davis, Data Validator/Database Technician
AECOM
1360 Peachtree Street NE, Suite 500
Atlanta, GA 30309

Contents

Executive Summary ES-1

1.0 Volatile Organic Compounds 1-1

2.0 Acetylene, Methane, Ethane, Ethene 2-1

3.0 Chloride, Sulfate, Nitrate as N 3-1

4.0 Alkalinity 4-1

5.0 Total Organic Carbon 5-1

6.0 Field Duplicate Comparison 6-1

7.0 Notes 7-1

List of Appendices

Appendix A Glossary of Data Qualifier Codes

Appendix B Data Qualification Summaries

Appendix C Support Documentation

Executive Summary

Overview

Data validation was performed by Gregory A. Malzone of AECOM-Pittsburgh on the fixed-laboratory analytical data for groundwater samples collected from the Defense National Stockpile Center Scotia Depot, Glenville, New York, on June 18-22, 2018 and on July 18, 2018. Samples were collected as part of the baseline groundwater sampling round as described in Final Quality Assurance Project Plan for the Defense National Stockpile Center Scotia Depot Glenville, New York (the project-specific QAPP; AECOM, September 2016). Samples were submitted for analysis to ALS Environmental, 34 Dogwood Lane, Middletown, Pennsylvania 17057.

The list of field and field quality control samples submitted, the date sampled and the laboratory work order numbers are presented in Table 1A. Data were reported by ALS in four deliverables. Each laboratory deliverable is identified by both a laboratory work order number and sample delivery group (SDG) number. The following analytical methods were requested on the chain-of-custody (CoC) records.

- Volatile Organic Compounds (VOCs) by USEPA SW-846 Method 8260B
- Acetylene, Methane, Ethane and Ethene by RSK -175
- Chloride, Nitrate as N and Sulfate by USEPA Method 300.0
- Alkalinity by Standard Methods 2320B-1997
- Total Organic Carbon (TOC) by Standard Methods 5310B-2010

The samples for light hydrocarbon gas analyses (acetylene, methane, ethane and ethane) by RSK i75 were subcontracted to ALS Environmental, 1565 Jefferson Road, Building 300, Rochester, NY 14623. The ALS-Rochester sample IDs are cross-referenced with the field IDs in Table 1B below.

Samples MW-9-061918 and MW-22-062118 were designated in the field to be processed as the quality control samples, that is, as the matrix spike/matrix spike duplicates (MS/MSD). Unless otherwise noted, analyses were performed in accordance with the project-specific QAPP which is based on the DoD QSM v5.0.

Table 1A - Sample Submittals

Field ID	ALS ID	Matrix	Field QC	Date Sampled	Work Order Number	SDG Number	8260B VOCs	MNA Tests[1]
MW-6-061818	2321639001	Groundwater		6/18/2018	2321639	ASN034	X	
MW-7-061818	2321639002	Groundwater		6/18/2018	2321639	ASN034	X	
MW-9-061918	2321639003	Groundwater	MS/MSD	6/19/2018	2321639	ASN034	X	
MW-27-061918	2321639004	Groundwater		6/19/2018	2321639	ASN034	X	
MW-16-061918	2321639005	Groundwater		6/19/2018	2321639	ASN034	X	X
DUP01-061918	2321639006	Groundwater (QC)	MW-5-061918	6/19/2018	2321639	ASN034	X	
MW-5-061918	2321639007	Groundwater		6/19/2018	2321639	ASN034	X	
MW-20-061918	2321639008	Groundwater		6/19/2018	2321639	ASN034	X	
MW-19-061918	2321639009	Groundwater		6/19/2018	2321639	ASN034	X	
MW-18-061918	2321639010	Groundwater		6/19/2018	2321639	ASN034	X	
Trip Blank-01	2321639011	Aqueous (QC)	trip blank	6/19/2018	2321639	ASN034	X	
Dup02-062018	2321910001	Groundwater (QC)	MW-17-062018	6/20/2018	2321910	ASN035	X	
MW-17-062018	2321910002	Groundwater		6/20/2018	2321910	ASN035	X	
MW-14-062018	2321910003	Groundwater		6/20/2018	2321910	ASN035	X	

Table 1A (Continued) - Sample Submittals

Field ID	ALS ID	Matrix	Field QC	Date Sampled	Work Order Number	SDG Number	8260B VOCs	MNA Tests[1]
MW-35-062018	2321910004	Groundwater		6/20/2018	2321910	ASN035	X	X
MW-34-062018	2321910005	Groundwater		6/20/2018	2321910	ASN035	X	X
GEP-2-062018	2321910006	Groundwater		6/20/2018	2321910	ASN035	X	
GEP-3-062018	2321910007	Groundwater		6/20/2018	2321910	ASN035	X	
MW-26-062018	2321910008	Groundwater		6/20/2018	2321910	ASN035	X	X
EB-062018	2321910009	Aqueous (QC)	equipment blank	6/20/2018	2321910	ASN035	X	
MW-13-062018	2321910010	Groundwater		6/20/2018	2321910	ASN035	X	
MW-15-062018	2321910011	Groundwater		6/20/2018	2321910	ASN035	X	X
Trip Blank-02	2321910012	Aqueous (QC)	trip blank	6/20/2018	2321910	ASN035	X	
MW-22-062118	2322348001	Groundwater	MS/MSD	6/21/2018	2322348	ASN036	X	
MW-24-062118	2322348002	Groundwater		6/21/2018	2322348	ASN036	X	X
MW-36-062118	2322348003	Groundwater		6/21/2018	2322348	ASN036	X	
MW-32-062118	2322348004	Groundwater		6/21/2018	2322348	ASN036	X	X
DUP03-062118	2322348005	Groundwater (QC)	MW-36-062118	6/21/2018	2322348	ASN036	X	
MW-25-062118	2322348006	Groundwater		6/21/2018	2322348	ASN036	X	
MW-33-062118	2322348007	Groundwater		6/21/2018	2322348	ASN036	X	X
MW-30-062118	2322348008	Groundwater		6/21/2018	2322348	ASN036	X	X
MW-31-062118	2322348009	Groundwater		6/21/2018	2322348	ASN036	X	X
DUP04-062218	2322463001	Groundwater	MW-28-062218	6/22/2018	2322463	ASN037	X	X
MW-28-062218	2322463002	Groundwater		6/22/2018	2322463	ASN037	X	X
MW-29-062218	2322463003	Groundwater		6/22/2018	2322463	ASN037	X	X
Trip Blank-03	2322463004	Aqueous (QC)	trip blank	6/22/2018	2322463	ASN037	X	
MW-30-071818	2327398001	Groundwater		7/18/2018	2327398	ASN038	X	X
MW-23-071818	2327398002	Groundwater		7/18/2018	2327398	ASN038	X	
MW-B-3-071818	2327398003	Groundwater		7/18/2018	2327398	ASN038	X	

(1): The monitored natural attenuation (MNA) parameters included: Acetylene, Methane, Ethane, Ethene, Chloride, Nitrate, Sulfate, Alkalinity and TOC.

Table 1B – Subcontracted Sample Submittals

Field ID	ALS Middletown ID	ALS Rochester ID	Date Sampled
MW-16-061918	2321639005	R1805890-001	6/19/2018
MW-35-062018	2321910004	R1805941-001	6/20/2018
MW-34-062018	2321910005	R1805941-002	6/20/2018
MW-26-062018	2321910008	R1805941-003	6/20/2018
MW-15-062018	2321910011	R1805941-004	6/20/2018
MW-24-062118	2322348002	R1805985-001	6/21/2018
MW-32-062118	2322348004	R1805985-002	6/21/2018
MW-33-062118	2322348007	R1805985-003	6/21/2018
MW-30-062118	2322348008	R1805985-004	6/21/2018
MW-31-062118	2322348009	R1805985-005	6/21/2018
DUP04-062218	2322463001	R1805986-001	6/22/2018
MW-28-062218	2322463002	R1805986-002	6/22/2018
MW-29-062218	2322463003	R1805986-003	6/22/2018
MW-30-071818	2327398001	R1807201-001	7/18/2018

Field ID	ALS Middletown ID	ALS Rochester ID	Date Sampled
MW-23-071818	2327398002	R1807029-001	7/18/2018

The data were evaluated for conformance to method specifications and qualifiers were applied using the USEPA Region II SOPs and the validation criteria set forth in the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review*, EPA-540-R-014-002, August 2014 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review*, EPA-540-R-013-001, August 2014, as they apply to the analytical methods employed.

Field duplicate relative percent difference (RPD) review and applicable control limits were taken from the *USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, December 1996 and *USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses*, June 1988.

Summary

All data have been determined to be useable for the purpose of assessing the presence/absence and quantitative concentrations of the compounds and analytes in the media tested (i.e. groundwater) with the qualifications described below. Completeness of 100% was achieved for this data set. This is within the goal of 90-100% and is acceptable.

A glossary of data qualifier definitions is included in Appendix A of this report. The data qualifier summaries are attached as Appendix B of this report.

Each nonconformance with specific data usability criteria is discussed below. Page references for the supporting documentation in the laboratory reports are provided in each item header. Support documentation for data qualifications was included in Appendix C of this report.

1.0 Volatile Organic Compounds

Measurement performance indicators which did not meet criteria for Volatile Organic Compounds analysis are presented below for each of the five laboratory reports. Analytical results for VOCs were reviewed for the following measurement performance indicators:

- Data Completeness
- Chain of Custody
- Sample Preservation
- Holding Time
- GC/MS Tunes
- Initial Calibration
- Initial Calibration Verification
- Continuing Calibration Verification
- Method Blanks
- Trip and Equipment Blanks
- Surrogates
- Matrix Spike/Matrix Spike Duplicate
- Internal Standards
- Quantitation Limits
- Laboratory Control Samples
- Data package / EDD consistency

Work Order 2321639 (SDG ASN034)

No data quality issues were noted. No data qualification was required.

Work Order 2321910 (SDG ASN035)

Sample Preservation (p.2338): The post-analysis pH measurement for sample Dup02-062018 was greater than 2 SU. Sample Dup02-062018 was analyzed on the twelfth day following the date of sample collection. That is five days beyond the USEPA seven-day holding time for an unpreserved/under-preserved sample, but within the 14 day holding time for a preserved sample. Based on USEPA guidance, the non-detect Dup02-062018 result for toluene was qualified (UJ), as an estimate, biased low because of insufficient sample preservation.

Work Order 2322348 (SDG ASN036)

Sample Dilution (p. 46): Sample MW-22-062118 required analysis at an initial five-fold dilution to bring the trichloroethene concentration into the calibration range. The LODs and LOQs were elevated as required. No data qualifications were required.

Matrix Spike Recoveries (pp.37-38): The MW-22-062118 MS/MSD recoveries for trans-1,2-dichloroethene were 106%, and 127%. The MSD recovery was greater than the upper advisory limit

of 124%. Trans-1,2-dichloroethene was not detected in sample MW-22-062118. No data qualification was required.

Work Order 2322463 (SDG ASN037)

Dilutions: Samples MW-28-062218, MW-29-062218 and DUP04-062218 required analysis at a secondary five-fold dilution to bring the trichloroethene concentration into the calibration range. The surrogate recoveries were within the quality control limits. No data qualifications were required.

Work Order 2327398 (SDG ASN038)

Sample Thermal Preservation (p.11, 1306-1307): ALS-Middletown experienced a power outage from the evening of Monday, July 23, 2018 to the afternoon of Wednesday, July 25, 2018. The cause was a weather event and the related flooding in the area. The VOC analysis for sample MW-23-071818 was shipped to the ALS facility in Rochester, NY for analysis on July 23, 2018. The sample arrived at ALS-Rochester on July 26, 2018 with a cooler temperature of 23.6 degrees Celsius (°C). The VOC results for sample MW-23-071818 were non-detect and were qualified "UJ," as estimates, because of the sample preservation issue.

Laboratory Control Sample Recovery (p. 26): LCS 2783491 had a recovery for 1,1-dichloroethene that was greater than the upper quality control limit. 1,1-Dichloroethene was not detected in associated samples MW-30-071818 and MW-B-3-071818 and did not require qualification in response to the high method bias.

Laboratory Control Sample Recovery (p. 1323): LCS RQ1807867-04 had a recovery for 1,1,2,2-tetrachloroethane that was greater than the upper quality control limit. 1,1,2,2-Tetrachloroethane was not detected in associated sample MW-23-071818 and did not require qualification in response to the high method bias.

2.0 Acetylene, Methane, Ethane, Ethene

Measurement performance indicators which did not meet criteria for acetylene, methane, ethane, ethene analysis are presented below for each of the five laboratory reports. Analytical results for acetylene, methane, ethane, ethene were reviewed for the following measurement performance indicators:

- Data Completeness
- Chain of Custody
- Sample Preservation
- Holding Time
- Initial Calibration
- Initial Calibration Verification
- Continuing Calibration Verification
- Method Blanks
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Duplicate
- Quantitation Limits
- Laboratory Control Samples
- Data package / EDD consistency

Work Order 2321639 (SDG ASN034)

Laboratory Method Blank (p. 2038): Methane was detected in method blank RQ1806590-01 (06/29/18) at a concentration estimated to be less than the LOD (0.39 J µg/L). The result for methane in associated sample MW-16-061918 was less than the LOD and was qualified as non-detect (U) at the LOQ.

Work Order 2321910 (SDG ASN035)

Laboratory Method Blank (p. 2507): Methane was detected in method blank RQ1806590-01 (06/29/18) at a concentration estimated to be less than the LOD (0.39 J µg/L). The result for methane in associated sample MW-15-062018 was greater than the LOQ but less than five times the blank level and was qualified as an estimated concentration biased high (J+) because of laboratory contamination. The results for methane in associated samples MW-34-062018, MW-35-062018 and MW-26-062018 were greater than the LOQ and greater than five times the blank concentration and did not require qualification.

Work Order 2322348 (SDG ASN036)

Laboratory Method Blank (p. 2054): Methane was detected in method blank RQ1806590-01 (06/29/18) at a concentration estimated to be less than the LOD (0.39 J µg/L). The result for methane in associated sample MW-24-062118 was greater than the LOQ but less than five times the blank level and was qualified as an estimated concentration biased high (J+) because of laboratory contamination. The results for methane in associated samples MW-32-062118, MW-33-062118, MW-30-062118 and MW-31-062118 were greater than the LOQ and greater than five times the blank concentration and did not require qualification.

Work Order 2322463 (SDG ASN037)

Laboratory Method Blank (p. 2947): Methane was detected in method blank RQ1806590-01 (06/29/18) at a concentration estimated to be less than the LOD (0.39 J µg/L). The results for methane in associated samples MW-28-062218, DUP04-062218 and MW-29-062218 were greater than the LOQ, and greater than five times the blank level. No data qualification was required.

Work Order 2327398 (SDG ASN038)

Laboratory Method Blank (p. 1510): Methane was detected in method blank RQ1808100-01 (08/01/18) at a concentration estimated to be less than the LOD (0.36 J µg/L). The result for methane in associated sample MW-30-071818 was greater than the LOQ, and greater than five times the blank level. No data qualification was required.

Continuing Calibration Verification (p.1587): The continuing calibration verification percent difference (%D) for acetylene was less than the lower method specification limit of 85%, at 79.2% on August 1, 2018 at 09:31 on instrument GC/FID. The acetylene result for associated sample MW-30-071818 was non-detect and was qualified “UJ,” as an estimate, because of low instrument bias.

3.0 Chloride, Sulfate, Nitrate as N

Measurement performance indicators which did not meet criteria for chloride, sulfate and nitrate as N analysis are presented below for each of the five laboratory reports. Analytical results for these anions were reviewed for the following measurement performance indicators:

- Chain of Custody
- Sample Preservation
- Holding Time
- Quantitation Limits
- Initial Calibration
- Continuing Calibration Verification
- Method Blanks
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Duplicate
- Laboratory Control Samples
- Data package / EDD consistency

Work Order 2321639 (SDG ASN034)

Laboratory Method Blank (p. 1904): Chloride was detected in the method blank (2762536) analyzed on 06/21/18 at a concentration greater than the LOD but less than the LOQ. The chloride result for associated sample MW-16-061918 was greater than the LOQ. No data qualification was required.

Work Order 2321910 (SDG ASN035)

Laboratory Method Blank (p. 2353): Chloride and/or sulfate were detected in the method blanks (2762619 and 2762646) analyzed on 06/22/18 at concentrations greater than the LOD but less than the LOQ. The chloride and sulfate results for associated samples MW-35-062018, MW-34-062018, MW-26-062018 and MW-15-062018 were greater than the LOQ. No data qualification was required.

Work Order 2322348 (SDG ASN036)

Laboratory Method Blank (p. 1879): Sulfate and/or chloride were detected in the method blanks (2763190 and 2764175) analyzed on 06/23/18 at concentrations greater than the LOD but less than the LOQ. The positive sulfate result for sample MW-30-062118 was estimated to be less than the LOQ and was qualified as non-detect (U) at the LOQ. All chloride and all other sulfate results were non-detect or greater than the LOQs and did not require qualification.

Work Order 2322463 (SDG ASN037)

Laboratory Method Blank (p. 2748): Chloride and sulfate were detected in the method blanks (2764183 and 2764186) analyzed on 06/23/18 at concentrations greater than the LOD but less than the LOQ. The positive chloride and sulfate results for associated samples DUP04-062218, MW-28-062218 and MW-29-062218 were greater than the LOQs. No data qualification was required.

Work Order 2327398 (SDG ASN038)

Laboratory Method Blank (p. 1210): Chloride was detected in the method blanks (2778575 and 2779144) analyzed on 07/20/18 at concentrations greater than the LOD but less than the LOQ. The chloride result for associated sample MW-30-071818 was greater than the LOQ. No data qualification was required.

4.0 Alkalinity

Measurement performance indicators which did not meet criteria for alkalinity analysis are presented below for each of the five laboratory reports. Analytical results for alkalinity were reviewed for the following measurement performance indicators:

- Chain of Custody
- Sample Preservation
- Holding Time
- Quantitation Limits
- Initial Calibration
- Continuing Calibration Verification
- Method Blanks
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Duplicate
- Laboratory Control Samples
- Data package / EDD consistency

Work Order 2321639 (SDG ASN034)

Laboratory Method Blank (p. 1891): Method blanks 2762486, 2762491 and 2762495 associated with sample MW-16-062017 were contaminated at concentrations greater than the method detection limit but less than the LOQ. The associated sample result was greater than the LOQ. No qualification was required.

Work Order 2321910 (SDG ASN035)

Laboratory Method Blank (p. 2340): Method blanks 2762486, 2762519 and 276523 associated with samples MW-35-062018, MW-34-062018, MW-26-062018 and MW-15-062018 were contaminated at concentrations greater than the method detection limit but less than the LOQ. The associated sample results were greater than the LOQ, and greater than the highest blank contamination level. No qualification was required.

Work Order 2322348 (SDG ASN036)

Laboratory Method Blank (p. 1865): Method blanks 2763375, 2763404, 2763435 and 2763439 associated with samples MW-24-062118, MW-32-062118, MW-33-062118, MW-30-062118 and MW-31-062118 were contaminated at concentrations greater than the method detection limit but less than the LOQ. The associated sample results were greater than the LOQ, and greater than the highest blank contamination level. No qualification was required.

Work Order 2322463 (SDG ASN037)

Laboratory Method Blank (p. 2735): Method blanks 2764245, 2764272 and 2764276 associated with samples MW-28-062218, MW-29-062218 and DUP-4-062218 were contaminated at concentrations greater than the method detection limit but less than the LOQ. The associated sample results were

greater than the LOQ, and greater than the highest blank contamination level. No qualification was required.

Work Order 2327398 (SDG ASN038)

Laboratory Method Blank (p. 1200): Method blanks 2778538, 2778618 and 2778622 associated with sample MW-30-071818 were contaminated at concentrations greater than the method detection limit but less than the LOQ. The alkalinity result for associated sample MW-30-071818 was greater than the LOQ, and greater than the highest blank contamination level. No qualification was required.

5.0 Total Organic Carbon

Measurement performance indicators which did not meet criteria for total organic carbon (TOC) analysis are presented below for each of the five laboratory reports. Analytical results for TOC were reviewed for the following measurement performance indicators:

- Chain of Custody
- Sample Preservation
- Holding Time
- Quantitation Limits
- Initial Calibration
- Initial Calibration Verification
- Continuing Calibration Verification
- Method Blanks
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Duplicate
- Laboratory Control Samples
- Data package / EDD consistency

Work Order 2321639 (SDG ASN034)

No data quality issues were noted. No data qualification was required.

Work Order 2321910 (SDG ASN035)

No data quality issues were noted. No data qualification was required.

Work Order 2322348 (SDG ASN036)

No data quality issues were noted. No data qualification was required.

Work Order 2322463 (SDG ASN037)

No data quality issues were noted. No data qualification was required.

Work Order 2327398 (SDG ASN038)

Sample Thermal Preservation (p.18): ALS-Middletown experienced a power outage from the evening of Monday, July 23, 2018 to the afternoon of Wednesday, July 25, 2018. The cause was a weather event and the related flooding in the area. The storage temperature for TOC sample MW-30-071818 was greater than 6°C for a 24 hour time period. The TOC result for sample MW-30-071818 was positive and was qualified "J," as an estimated concentration, because of insufficient thermal preservation.

6.0 Field Duplicate Comparison

Field duplicate samples were collected at groundwater wells MW-5, MW-17, MW-28 and MW-36. See Table 2 below for the calculated RPDs for all compounds/analytes for which there were detections. Field duplicate results were evaluated using the following criteria.

Organics: The RPD must be ≤ 30% for groundwaters, for results greater than or equal to two times the reporting limit. If one of the results is non-detect or less than two times the reporting limit, and the duplicate is greater than two times the reporting limit, the difference between the parent and field duplicate results must be less than or equal to two times the reporting limit.

Action applies only to the affected analyte in the organic duplicate sample pair.

Inorganics: The RPD must be ≤ 30% for groundwaters, for results greater than or equal to five times the reporting limit. For results less than five times the reporting limit, the difference between the parent and field duplicate results must be less than or equal to two times the reporting limit.

Action applies to the affected analyte in all inorganic samples of the same matrix prepared and analyzed by the same method.

The following notations are used in the field duplicate precision table.

RPD: Relative percent difference
Qual: Qualification required
NC: RPD could not be calculated
µg/L: micrograms per liter (ppb) and mg/L: milligrams per liter (ppm)

Table 2 – Field Duplicate Precision

Parameter	Units	MW-5-061918	DUP01-061918	RPD (%)	Qual
Carbon tetrachloride	µg/L	2.0	2.0	0	None
Parameter	**Units**	**MW-17-062018**	**Dup02-062018**	**RPD (%)**	**Qual**
Carbon tetrachloride	µg/L	0.51 J	0.45 J	13	None
1,1-Dichloroethane	µg/L	0.89 J	0.84 J	5.8	None
cis-1,2-Dichloroethene	µg/L	1.8	1.8	0	None
1,1,1-Trichloroethane	µg/L	20.8	19.8	4.9	None
Trichloroethene	µg/L	21.2	20.5	3.4	None
Parameter	**Units**	**MW-36-062118**	**DUP03-062118**	**RPD (%)**	**Qual**
Trichloroethene	µg/L	1.7	1.7	0	None
Parameter	**Units**	**MW-28 062218**	**DUP04-062218**	**RPD (%)**	**Qual**
Carbon tetrachloride	µg/L	0.75 J	0.74 J	1.3	None
1,1-Dichloroethane	µg/L	0.86 J	0.86 J	0	None
1,1-Dichloroethene	µg/L	0.39 J	0.37 J	5.3	None
cis-1,2-Dichloroethene	µg/L	4.9	5.1	4.0	None
trans-1,2-Dichloroethene	µg/L	0.36 J	0.36 J	0	None
Tetrachloroethene	µg/L	38.7	40.8	5.3	None
1,1,1-Trichloroethane	µg/L	10.5	10.7	1.9	None

Table 2 (Continued) – Field Duplicate Precision

Parameter	Units	MW-28 062218	DUP04-062218	RPD (%)	Qual
1,1,2-Trichloroethane	µg/L	0.44 J	1.0 U	NC[1]	None
Trichloroethene	µg/L	214	202	5.8	None
Alkalinity, Total	mg/L	422	399	5.6	None
Chloride	mg/L	33.1	32.0	3.4	None
Nitrate	mg/L	0.58	0.56	3.5	None
Sulfate	mg/L	23.1	22.5	2.6	None
TOC	mg/L	4.1	4.3	4.8	None
Methane	µg/L	2000	1800	11	None

(1): The absolute difference between the parent and field duplicate result was less than two times the reporting limit. Variation of this magnitude is acceptable.

The RPDs between the parent and field duplicate results were within the advisory limits of 0-30%. Field sampling/laboratory precision and sample homogeneity were acceptable. No data qualifications were required.

7.0 Notes

Positive organic and inorganic results less than the LOQ, but greater than the method detection limit were qualified “J,” as estimated concentrations, due to increased uncertainty near the detection limit. The (J) qualifiers were maintained in the data validation unless negated due to contamination. These sample results are usable as estimated values with an unknown directional bias.

Matrix spike and matrix spike duplicates and laboratory duplicates that were performed on non-project samples were not evaluated because matrix similarity to project samples could not be assumed.

Appendix A

Glossary of Data Qualifier Codes

Glossary of Data Qualifier Codes

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.

J The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.

J+ The result is an estimated quantity, likely to be biased high. The associated numerical value is the approximate concentration of the analyte in the sample.

J- The result is an estimated quantity, likely to be biased low. The associated numerical value is the approximate concentration of the analyte in the sample.

R The data are unusable. The sample results are rejected due to serious deficiencies in the ability to meet quality control criteria. The presence or absence of the analyte cannot be verified.

N (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.

NJ (Organics) The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.

Appendix B

Data Qualification Summaries

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639001** Date Collected: 6/18/2018 12:15 Matrix: Ground Water

Sample ID: **MW-6 061818** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,1,1-Trichloroethane	0.75J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
Trichloroethene	24.4		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 13:15	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.7		%	81 - 118	SW846 8260C			6/29/18 13:15	DD	A
4-Bromofluorobenzene (S)	102		%	85 - 114	SW846 8260C			6/29/18 13:15	DD	A
Dibromofluoromethane (S)	87.1		%	80 - 119	SW846 8260C			6/29/18 13:15	DD	A
Toluene-d8 (S)	95.7		%	89 - 112	SW846 8260C			6/29/18 13:15	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639002** Date Collected: 6/18/2018 12:10 Matrix: Ground Water

Sample ID: **MW-7 061818** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A
1,1,2-Trichloroethane	0.34J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A
Trichloroethene	32.6		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:37	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100		%	81 - 118	SW846 8260C		6/29/18 13:37	DD	A
4-Bromofluorobenzene (S)	103		%	85 - 114	SW846 8260C		6/29/18 13:37	DD	A
Dibromofluoromethane (S)	88.2		%	80 - 119	SW846 8260C		6/29/18 13:37	DD	A
Toluene-d8 (S)	96.5		%	89 - 112	SW846 8260C		6/29/18 13:37	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639003** Date Collected: 6/19/2018 09:25 Matrix: Ground Water

Sample ID: **MW-9 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 12:53	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.3		%	81 - 118	SW846 8260C		6/29/18 12:53	DD	A
4-Bromofluorobenzene (S)	101		%	85 - 114	SW846 8260C		6/29/18 12:53	DD	A
Dibromofluoromethane (S)	87.3		%	80 - 119	SW846 8260C		6/29/18 12:53	DD	A
Toluene-d8 (S)	94.3		%	89 - 112	SW846 8260C		6/29/18 12:53	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639004** Date Collected: 6/19/2018 09:06 Matrix: Ground Water

Sample ID: **MW-27 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 17:16	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118	SW846 8260C		6/29/18 17:16	DD	A
4-Bromofluorobenzene (S)	99.8		%	85 - 114	SW846 8260C		6/29/18 17:16	DD	A
Dibromofluoromethane (S)	89		%	80 - 119	SW846 8260C		6/29/18 17:16	DD	A
Toluene-d8 (S)	94.9		%	89 - 112	SW846 8260C		6/29/18 17:16	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639005** Date Collected: 6/19/2018 11:04 Matrix: Ground Water

Sample ID: **MW-16 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 13:58	DD	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118			SW846 8260C		6/29/18 13:58	DD	B
4-Bromofluorobenzene (S)	104		%	85 - 114			SW846 8260C		6/29/18 13:58	DD	B
Dibromofluoromethane (S)	90.1		%	80 - 119			SW846 8260C		6/29/18 13:58	DD	B
Toluene-d8 (S)	94.9		%	89 - 112			SW846 8260C		6/29/18 13:58	DD	B
WET CHEMISTRY											
Alkalinity, Total	317	✗	mg/L	5	5	0.8	S2320B-97		6/22/18 04:18	MSA	H
Chloride	3.9		mg/L	2.0	0.50	0.16	EPA 300.0		6/21/18 08:41	CHW	G
Nitrate-N	2.0		mg/L	0.20	0.060	0.020	EPA 300.0		6/21/18 08:41	CHW	G
Sulfate	27.3		mg/L	2.0	0.50	0.20	EPA 300.0		6/21/18 08:41	CHW	G
Total Organic Carbon (TOC)	1.2		mg/L	1.0	0.50	0.18	S5310B-00		6/28/18 16:01	AK	E
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/19/18 11:04	SUB	

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639006** Date Collected: 6/19/2018 00:00 Matrix: Ground Water

Sample ID: **DUP01-061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	2.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:32	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118	SW846 8260C		6/29/18 16:32	DD	A
4-Bromofluorobenzene (S)	102		%	85 - 114	SW846 8260C		6/29/18 16:32	DD	A
Dibromofluoromethane (S)	91.4		%	80 - 119	SW846 8260C		6/29/18 16:32	DD	A
Toluene-d8 (S)	95.4		%	89 - 112	SW846 8260C		6/29/18 16:32	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639007** Date Collected: 6/19/2018 10:15 Matrix: Ground Water

Sample ID: **MW-5 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	2.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 14:20	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100		%	81 - 118	SW846 8260C		6/29/18 14:20	DD	A
4-Bromofluorobenzene (S)	103		%	85 - 114	SW846 8260C		6/29/18 14:20	DD	A
Dibromofluoromethane (S)	88.9		%	80 - 119	SW846 8260C		6/29/18 14:20	DD	A
Toluene-d8 (S)	96.2		%	89 - 112	SW846 8260C		6/29/18 14:20	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639008** Date Collected: 6/19/2018 12:20 Matrix: Ground Water

Sample ID: **MW-20 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
Tetrachloroethene	3.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
Trichloroethene	69.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 14:42	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118	SW846 8260C			6/29/18 14:42	DD	A
4-Bromofluorobenzene (S)	100		%	85 - 114	SW846 8260C			6/29/18 14:42	DD	A
Dibromofluoromethane (S)	90.6		%	80 - 119	SW846 8260C			6/29/18 14:42	DD	A
Toluene-d8 (S)	93.8		%	89 - 112	SW846 8260C			6/29/18 14:42	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639009** Date Collected: 6/19/2018 13:30 Matrix: Ground Water

Sample ID: **MW-19 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A
1,1,1-Trichloroethane	1.7		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A
Trichloroethene	11.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:04	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118	SW846 8260C		6/29/18 15:04	DD	A
4-Bromofluorobenzene (S)	99.8		%	85 - 114	SW846 8260C		6/29/18 15:04	DD	A
Dibromofluoromethane (S)	87.8		%	80 - 119	SW846 8260C		6/29/18 15:04	DD	A
Toluene-d8 (S)	95		%	89 - 112	SW846 8260C		6/29/18 15:04	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639010** Date Collected: 6/19/2018 13:08 Matrix: Ground Water

Sample ID: **MW-18 061918** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A
Trichloroethene	26.8		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 15:26	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118	SW846 8260C		6/29/18 15:26	DD	A
4-Bromofluorobenzene (S)	99.8		%	85 - 114	SW846 8260C		6/29/18 15:26	DD	A
Dibromofluoromethane (S)	90.2		%	80 - 119	SW846 8260C		6/29/18 15:26	DD	A
Toluene-d8 (S)	95.3		%	89 - 112	SW846 8260C		6/29/18 15:26	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321639011** Date Collected: 6/20/2018 08:52 Matrix: Ground Water
Sample ID: **Trip Blank** Date Received: 6/20/2018 08:52

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 12:31	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.7		%	81 - 118	SW846 8260C			6/29/18 12:31	DD	A
4-Bromofluorobenzene (S)	100		%	85 - 114	SW846 8260C			6/29/18 12:31	DD	A
Dibromofluoromethane (S)	89.3		%	80 - 119	SW846 8260C			6/29/18 12:31	DD	A
Toluene-d8 (S)	94.7		%	89 - 112	SW846 8260C			6/29/18 12:31	DD	A

Vanessa N. Badman
Mrs. Vanessa N Badman
Project Coordinator

Client:	ALS Environmental - US	**Service Request:**	R1805890
Project:	UR115: 2321639	**Date Collected:**	06/19/18 11:04
Sample Matrix:	Water	**Date Received:**	06/22/18 09:20
Sample Name:	2321639 005	**Units:**	ug/L
Lab Code:	R1805890-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 10:40	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 10:40	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 10:40	
Methane	~~0.91 J~~ 1.1 U	1.1	0.50	0.12	1	06/29/18 10:40	MB

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910001** Date Collected: 6/20/2018 00:00 Matrix: Ground Water

Sample ID: **Dup02-062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.51J	J	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
1,1-Dichloroethane	0.89J	J	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
cis-1,2-Dichloroethene	1.8		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
Toluene	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A pH>2
1,1,1-Trichloroethane	20.8		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
Trichloroethene	21.2		ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/2/18 11:13	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118	SW846 8260C			7/2/18 11:13	DD	A
4-Bromofluorobenzene (S)	99.5		%	85 - 114	SW846 8260C			7/2/18 11:13	DD	A
Dibromofluoromethane (S)	90.6		%	80 - 119	SW846 8260C			7/2/18 11:13	DD	A
Toluene-d8 (S)	92.6		%	89 - 112	SW846 8260C			7/2/18 11:13	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910002** Date Collected: 6/20/2018 08:46 Matrix: Ground Water

Sample ID: **MW-17 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.45J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,1-Dichloroethane	0.84J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
cis-1,2-Dichloroethene	1.8		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,1,1-Trichloroethane	19.8		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
Trichloroethene	20.5		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/18 15:48	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118	SW846 8260C			6/29/18 15:48	DD	A
4-Bromofluorobenzene (S)	97.9		%	85 - 114	SW846 8260C			6/29/18 15:48	DD	A
Dibromofluoromethane (S)	89.9		%	80 - 119	SW846 8260C			6/29/18 15:48	DD	A
Toluene-d8 (S)	94.4		%	89 - 112	SW846 8260C			6/29/18 15:48	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910003** Date Collected: 6/20/2018 09:20 Matrix: Ground Water

Sample ID: **MW-14 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.49J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A
cis-1,2-Dichloroethene	1.9		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A
Tetrachloroethene	13.8		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A
1,1,1-Trichloroethane	2.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A
Trichloroethene	3.7		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/18 16:10	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118	SW846 8260C		6/29/18 16:10	DD	A
4-Bromofluorobenzene (S)	99.8		%	85 - 114	SW846 8260C		6/29/18 16:10	DD	A
Dibromofluoromethane (S)	90		%	80 - 119	SW846 8260C		6/29/18 16:10	DD	A
Toluene-d8 (S)	95.2		%	89 - 112	SW846 8260C		6/29/18 16:10	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910004** Date Collected: 6/20/2018 09:48 Matrix: Ground Water

Sample ID: **MW-35 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A
Trichloroethene	39.4		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:35	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118	SW846 8260C		7/2/18 11:35	DD	A
4-Bromofluorobenzene (S)	101		%	85 - 114	SW846 8260C		7/2/18 11:35	DD	A
Dibromofluoromethane (S)	90.6		%	80 - 119	SW846 8260C		7/2/18 11:35	DD	A
Toluene-d8 (S)	94.3		%	89 - 112	SW846 8260C		7/2/18 11:35	DD	A

WET CHEMISTRY											
Alkalinity, Total	197	✗	mg/L	5	5	0.8	S2320B-97		6/22/18 18:23	MSA	F
Chloride	15.7		mg/L	2.0	0.50	0.16	EPA 300.0		6/22/18 04:46	CHW	E
Nitrate-N	0.64		mg/L	0.20	0.060	0.020	EPA 300.0		6/22/18 04:46	CHW	E
Sulfate	10.7		mg/L	2.0	0.50	0.20	EPA 300.0		6/22/18 04:46	CHW	E
Total Organic Carbon (TOC)	0.60J	J	mg/L	1.0	0.50	0.18	S5310B-00		6/29/18 21:11	AK	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/20/18 09:48	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910005** Date Collected: 6/20/2018 10:40 Matrix: Ground Water

Sample ID: **MW-34 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
Trichloroethene	31.3		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 11:57	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118	SW846 8260C		7/2/18 11:57	DD	A
4-Bromofluorobenzene (S)	101		%	85 - 114	SW846 8260C		7/2/18 11:57	DD	A
Dibromofluoromethane (S)	93.1		%	80 - 119	SW846 8260C		7/2/18 11:57	DD	A
Toluene-d8 (S)	93.6		%	89 - 112	SW846 8260C		7/2/18 11:57	DD	A

WET CHEMISTRY											
Alkalinity, Total	226		mg/L	5	5	0.8	S2320B-97		6/22/18 18:33	MSA	F
Chloride	16.3		mg/L	2.0	0.50	0.16	EPA 300.0		6/22/18 05:05	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/22/18 05:05	CHW	E
Sulfate	11.2		mg/L	2.0	0.50	0.20	EPA 300.0		6/22/18 05:05	CHW	E
Total Organic Carbon (TOC)	0.93J	J	mg/L	1.0	0.50	0.18	S5310B-00		6/29/18 21:11	AK	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/20/18 10:40	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910006** Date Collected: 6/20/2018 10:35 Matrix: Ground Water

Sample ID: **GEP-2 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A
cis-1,2-Dichloroethene	1.1		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A
Tetrachloroethene	0.80J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A
1,1,1-Trichloroethane	3.7		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A
Trichloroethene	51.3		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:43	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118	SW846 8260C		7/2/18 16:43	DD	A
4-Bromofluorobenzene (S)	96.7		%	85 - 114	SW846 8260C		7/2/18 16:43	DD	A
Dibromofluoromethane (S)	94.8		%	80 - 119	SW846 8260C		7/2/18 16:43	DD	A
Toluene-d8 (S)	91.8		%	89 - 112	SW846 8260C		7/2/18 16:43	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910007** Date Collected: 6/20/2018 11:57 Matrix: Ground Water

Sample ID: **GEP-3 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A
Tetrachloroethene	0.36J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A
1,1,1-Trichloroethane	0.58J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A
Trichloroethene	74.9		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 16:21	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	109		%	81 - 118	SW846 8260C		7/2/18 16:21	DD	A
4-Bromofluorobenzene (S)	100		%	85 - 114	SW846 8260C		7/2/18 16:21	DD	A
Dibromofluoromethane (S)	96.9		%	80 - 119	SW846 8260C		7/2/18 16:21	DD	A
Toluene-d8 (S)	94.3		%	89 - 112	SW846 8260C		7/2/18 16:21	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910008** Date Collected: 6/20/2018 11:55 Matrix: Ground Water

Sample ID: **MW-26 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:19	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118			SW846 8260C		7/2/18 12:19	DD	A
4-Bromofluorobenzene (S)	98.2		%	85 - 114			SW846 8260C		7/2/18 12:19	DD	A
Dibromofluoromethane (S)	93.2		%	80 - 119			SW846 8260C		7/2/18 12:19	DD	A
Toluene-d8 (S)	93.5		%	89 - 112			SW846 8260C		7/2/18 12:19	DD	A
WET CHEMISTRY											
Alkalinity, Total	225	✗	mg/L	5	5	0.8	S2320B-97		6/22/18 18:43	MSA	F
Chloride	49.1		mg/L	2.0	0.50	0.16	EPA 300.0		6/22/18 05:23	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/22/18 05:23	CHW	E
Sulfate	16.3		mg/L	2.0	0.50	0.20	EPA 300.0		6/22/18 05:23	CHW	E
Total Organic Carbon (TOC)	0.50J	J	mg/L	1.0	0.50	0.18	S5310B-00		6/29/18 21:11	AK	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/20/18 11:55	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910009** Date Collected: 6/20/2018 11:00 Matrix: Ground Water

Sample ID: **EB-062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:51	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100		%	81 - 118	SW846 8260C		7/2/18 10:51	DD	A
4-Bromofluorobenzene (S)	97.6		%	85 - 114	SW846 8260C		7/2/18 10:51	DD	A
Dibromofluoromethane (S)	89.2		%	80 - 119	SW846 8260C		7/2/18 10:51	DD	A
Toluene-d8 (S)	92.7		%	89 - 112	SW846 8260C		7/2/18 10:51	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910010** Date Collected: 6/20/2018 13:30 Matrix: Ground Water

Sample ID: **MW-13 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A
1,1,1-Trichloroethane	4.0		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A
Trichloroethene	117		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 12:41	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C		7/2/18 12:41	DD	A
4-Bromofluorobenzene (S)	101		%	85 - 114	SW846 8260C		7/2/18 12:41	DD	A
Dibromofluoromethane (S)	94.1		%	80 - 119	SW846 8260C		7/2/18 12:41	DD	A
Toluene-d8 (S)	95.6		%	89 - 112	SW846 8260C		7/2/18 12:41	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910011** Date Collected: 6/20/2018 13:35 Matrix: Ground Water

Sample ID: **MW-15 062018** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A
Tetrachloroethene	0.62J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A
1,1,1-Trichloroethane	2.9		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A
Trichloroethene	72.1		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 13:03	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C		7/2/18 13:03	DD	A
4-Bromofluorobenzene (S)	102		%	85 - 114	SW846 8260C		7/2/18 13:03	DD	A
Dibromofluoromethane (S)	95.6		%	80 - 119	SW846 8260C		7/2/18 13:03	DD	A
Toluene-d8 (S)	95.1		%	89 - 112	SW846 8260C		7/2/18 13:03	DD	A

WET CHEMISTRY											
Alkalinity, Total	209		mg/L	5	5	0.8	S2320B-97		6/22/18 18:53	MSA	F
Chloride	46.4		mg/L	2.0	0.50	0.16	EPA 300.0		6/22/18 05:42	CHW	E
Nitrate-N	0.48		mg/L	0.20	0.060	0.020	EPA 300.0		6/22/18 05:42	CHW	E
Sulfate	15.2		mg/L	2.0	0.50	0.20	EPA 300.0		6/22/18 05:42	CHW	E
Total Organic Carbon (TOC)	0.41J	J	mg/L	1.0	0.50	0.18	S5310B-00		6/29/18 21:11	AK	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/20/18 13:35	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID: **2321910012** Date Collected: 6/20/2018 10:04 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 6/21/2018 10:04

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 10:29	DD	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99.1		%	81 - 118	SW846 8260C		7/2/18 10:29	DD	A
4-Bromofluorobenzene (S)	98.7		%	85 - 114	SW846 8260C		7/2/18 10:29	DD	A
Dibromofluoromethane (S)	88.5		%	80 - 119	SW846 8260C		7/2/18 10:29	DD	A
Toluene-d8 (S)	93.5		%	89 - 112	SW846 8260C		7/2/18 10:29	DD	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115 2321910	**Date Collected:**	06/20/18 09:48
Sample Matrix:	Water	**Date Received:**	06/26/18 09:30
Sample Name:	2321910 004	**Units:**	ug/L
Lab Code:	R1805941-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 10:51	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 10:51	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 10:51	
Methane	23	1.1	0.50	0.12	1	06/29/18 10:51	

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Collected:**	06/20/18 10:40
Sample Matrix:	Water	**Date Received:**	06/26/18 09:30
Sample Name:	2321910 005	**Units:**	ug/L
Lab Code:	R1805941-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 11:03	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 11:03	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 11:03	
Methane	35	1.1	0.50	0.12	1	06/29/18 11:03	

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115 2321910	**Date Collected:**	06/20/18 11:55
Sample Matrix:	Water	**Date Received:**	06/26/18 09:30
Sample Name:	2321910 008	**Units:**	ug/L
Lab Code:	R1805941-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 11:14	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 11:14	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 11:14	
Methane	**80**	1.1	0.50	0.12	1	06/29/18 11:14	

Client:	ALS Environmental - US	**Service Request:**	R1805941
Project:	UR115: 2321910	**Date Collected:**	06/20/18 13:35
Sample Matrix:	Water	**Date Received:**	06/26/18 09:30
Sample Name:	2321910 011	**Units:**	ug/L
Lab Code:	R1805941-004	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 11:24	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 11:24	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 11:24	
Methane	1.3 J+	1.1	0.50	0.12	1	06/29/18 11:24	mrs.

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348001** Date Collected: 6/21/2018 09:30 Matrix: Ground Water

Sample ID: **MW-22 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,1-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,2-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,1-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
cis-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
trans-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,1,1,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,1,2,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
Tetrachloroethene	6.3		ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
Toluene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,1,1-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
1,1,2-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
Trichloroethene	331		ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A
Vinyl Chloride	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			7/3/18 02:36	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	110		%	81 - 118	SW846 8260C			7/3/18 02:36	PDK	A
4-Bromofluorobenzene (S)	97.3		%	85 - 114	SW846 8260C			7/3/18 02:36	PDK	A
Dibromofluoromethane (S)	95.1		%	80 - 119	SW846 8260C			7/3/18 02:36	PDK	A
Toluene-d8 (S)	92.8		%	89 - 112	SW846 8260C			7/3/18 02:36	PDK	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348002** Date Collected: 6/21/2018 09:36 Matrix: Ground Water

Sample ID: **MW-24 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H
cis-1,2-Dichloroethene	0.40J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H
Trichloroethene	0.66J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:57	PDK	H

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118	SW846 8260C		7/2/18 22:57	PDK	H
4-Bromofluorobenzene (S)	97		%	85 - 114	SW846 8260C		7/2/18 22:57	PDK	H
Dibromofluoromethane (S)	92.7		%	80 - 119	SW846 8260C		7/2/18 22:57	PDK	H
Toluene-d8 (S)	92.9		%	89 - 112	SW846 8260C		7/2/18 22:57	PDK	H

WET CHEMISTRY											
Alkalinity, Total	159		mg/L	5	5	0.8	S2320B-97		6/24/18 23:30	MSA	F
Chloride	37.1		mg/L	2.0	0.50	0.16	EPA 300.0		6/23/18 07:56	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/23/18 07:56	CHW	E
Sulfate	21.5		mg/L	2.0	0.50	0.20	EPA 300.0		6/23/18 07:56	CHW	E
Total Organic Carbon (TOC)	4.5		mg/L	1.0	0.50	0.18	S5310B-00		6/30/18 01:45	AK	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/21/18 09:36	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348003** Date Collected: 6/21/2018 10:35 Matrix: Ground Water

Sample ID: **MW-36 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
Trichloroethene	1.7		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:19	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118	SW846 8260C		7/2/18 23:19	PDK	A
4-Bromofluorobenzene (S)	97.4		%	85 - 114	SW846 8260C		7/2/18 23:19	PDK	A
Dibromofluoromethane (S)	92.7		%	80 - 119	SW846 8260C		7/2/18 23:19	PDK	A
Toluene-d8 (S)	92.2		%	89 - 112	SW846 8260C		7/2/18 23:19	PDK	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348004** Date Collected: 6/21/2018 11:05 Matrix: Ground Water

Sample ID: **MW-32 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
cis-1,2-Dichloroethene	0.62J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
Trichloroethene	64.1		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 23:41	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118			SW846 8260C		7/2/18 23:41	PDK	A
4-Bromofluorobenzene (S)	97.8		%	85 - 114			SW846 8260C		7/2/18 23:41	PDK	A
Dibromofluoromethane (S)	94.5		%	80 - 119			SW846 8260C		7/2/18 23:41	PDK	A
Toluene-d8 (S)	92.1		%	89 - 112			SW846 8260C		7/2/18 23:41	PDK	A
WET CHEMISTRY											
Alkalinity, Total	128	✗	mg/L	5	5	0.8	S2320B-97		6/24/18 23:39	MSA	G
Chloride	29.5		mg/L	2.0	0.50	0.16	EPA 300.0		6/23/18 08:14	CHW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/23/18 08:14	CHW	F
Sulfate	2.3		mg/L	2.0	0.50	0.20	EPA 300.0		6/23/18 08:14	CHW	F
Total Organic Carbon (TOC)	6.4		mg/L	1.0	0.50	0.18	S5310B-00		6/30/18 01:45	AK	D
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/21/18 11:05	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348005** Date Collected: 6/21/2018 00:00 Matrix: Ground Water

Sample ID: **DUP03-062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A
Trichloroethene	1.7		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:02	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C		7/3/18 00:02	PDK	A
4-Bromofluorobenzene (S)	98.3		%	85 - 114	SW846 8260C		7/3/18 00:02	PDK	A
Dibromofluoromethane (S)	93.7		%	80 - 119	SW846 8260C		7/3/18 00:02	PDK	A
Toluene-d8 (S)	91.7		%	89 - 112	SW846 8260C		7/3/18 00:02	PDK	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348006** Date Collected: 6/21/2018 11:40 Matrix: Ground Water

Sample ID: **MW-25 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
Trichloroethene	80.3		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:24	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C		7/3/18 00:24	PDK	A
4-Bromofluorobenzene (S)	98.1		%	85 - 114	SW846 8260C		7/3/18 00:24	PDK	A
Dibromofluoromethane (S)	94.4		%	80 - 119	SW846 8260C		7/3/18 00:24	PDK	A
Toluene-d8 (S)	94		%	89 - 112	SW846 8260C		7/3/18 00:24	PDK	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348007** Date Collected: 6/21/2018 12:50 Matrix: Ground Water

Sample ID: **MW-33 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H
Trichloroethene	178		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 00:46	PDK	H

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C		7/3/18 00:46	PDK	H
4-Bromofluorobenzene (S)	98.4		%	85 - 114	SW846 8260C		7/3/18 00:46	PDK	H
Dibromofluoromethane (S)	94.1		%	80 - 119	SW846 8260C		7/3/18 00:46	PDK	H
Toluene-d8 (S)	92.6		%	89 - 112	SW846 8260C		7/3/18 00:46	PDK	H

WET CHEMISTRY											
Alkalinity, Total	215		mg/L	5	5	0.8	S2320B-97		6/24/18 23:49	MSA	G
Chloride	22.5		mg/L	2.0	0.50	0.16	EPA 300.0		6/23/18 08:33	CHW	F
Nitrate-N	0.42		mg/L	0.20	0.060	0.020	EPA 300.0		6/23/18 08:33	CHW	F
Sulfate	14.3		mg/L	2.0	0.50	0.20	EPA 300.0		6/23/18 08:33	CHW	F
Total Organic Carbon (TOC)	1.6		mg/L	1.0	0.50	0.18	S5310B-00		6/30/18 01:45	AK	D
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/21/18 12:50	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348008** Date Collected: 6/21/2018 12:40 Matrix: Ground Water

Sample ID: **MW-30 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
Trichloroethene	178		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:13	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118			SW846 8260C		7/2/18 22:13	PDK	A
4-Bromofluorobenzene (S)	100		%	85 - 114			SW846 8260C		7/2/18 22:13	PDK	A
Dibromofluoromethane (S)	90.2		%	80 - 119			SW846 8260C		7/2/18 22:13	PDK	A
Toluene-d8 (S)	94.7		%	89 - 112			SW846 8260C		7/2/18 22:13	PDK	A
WET CHEMISTRY											
Alkalinity, Total	66		mg/L	5	5	0.8	S2320B-97		6/25/18 00:34	MSA	G
Chloride	37.3		mg/L	2.0	0.50	0.16	EPA 300.0		6/23/18 08:52	CHW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/23/18 08:52	CHW	F
Sulfate	0.38J	J	mg/L	2.0	0.50	0.20	EPA 300.0		6/23/18 08:52	CHW	F
Total Organic Carbon (TOC)	7.9		mg/L	1.0	0.50	0.18	S5310B-00		6/30/18 01:45	AK	D
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/21/18 12:40	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID: **2322348009** Date Collected: 6/21/2018 13:20 Matrix: Ground Water

Sample ID: **MW-31 062118** Date Received: 6/22/2018 09:45

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
Trichloroethene	20.6		ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 22:34	PDK	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118			SW846 8260C		7/2/18 22:34	PDK	H
4-Bromofluorobenzene (S)	99.1		%	85 - 114			SW846 8260C		7/2/18 22:34	PDK	H
Dibromofluoromethane (S)	91.5		%	80 - 119			SW846 8260C		7/2/18 22:34	PDK	H
Toluene-d8 (S)	92.6		%	89 - 112			SW846 8260C		7/2/18 22:34	PDK	H
WET CHEMISTRY											
Alkalinity, Total	169	✗	mg/L	5	5	0.8	S2320B-97		6/25/18 00:44	MSA	G
Chloride	39.9		mg/L	2.0	0.50	0.16	EPA 300.0		6/23/18 09:10	CHW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/23/18 09:10	CHW	F
Sulfate	7.8		mg/L	2.0	0.50	0.20	EPA 300.0		6/23/18 09:10	CHW	F
Total Organic Carbon (TOC)	2.1		mg/L	1.0	0.50	0.18	S5310B-00		6/30/18 01:45	AK	D
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/21/18 13:20	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 09:36
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 002	**Units:**	ug/L
Lab Code:	R1805985-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 11:54	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 11:54	
Ethene	**0.20 J**	1.0	0.50	0.14	1	06/29/18 11:54	
Methane	**1.3** J+	1.1	0.50	0.12	1	06/29/18 11:54	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 232234S	**Date Collected:**	06/21/18 11:05
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	232234S 004	**Units:**	ug/L
Lab Code:	R1805985-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 12:03	
Ethane	**2.0**	1.0	0.50	0.17	1	06/29/18 12:03	
Ethene	**0.25 J**	1.0	0.50	0.14	1	06/29/18 12:03	
Methane	**130**	2.1	1.0	0.23	2	06/29/18 12:22	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 12:50
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 007	**Units:**	ug/L
Lab Code:	R1805985-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 12:12	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 12:12	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 12:12	
Methane	17	1.1	0.50	0.12	1	06/29/18 12:12	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 12:40
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 008	**Units:**	ug/L
Lab Code:	R1805985-004	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 12:30	
Ethane	47	1.0	0.50	0.17	1	06/29/18 12:30	
Ethene	6.6	1.0	0.50	0.14	1	06/29/18 12:30	
Methane	5100 B	110	50	12	100	06/29/18 14:07	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1805985
Project:	UR115: 2322348	**Date Collected:**	06/21/18 13:20
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322348 009	**Units:**	ug/L
Lab Code:	R1805985-005	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 12:39	
Ethane	5.7	1.0	0.50	0.17	1	06/29/18 12:39	
Ethene	2.4	1.0	0.50	0.14	1	06/29/18 12:39	
Methane	120	2.1	1.0	0.23	2	06/29/18 12:50	

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID: **2322463001** Date Collected: 6/22/2018 00:00 Matrix: Ground Water

Sample ID: **DUP04-062218** Date Received: 6/25/2018 08:20

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.74J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,1-Dichloroethane	0.86J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,1-Dichloroethene	0.37J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
cis-1,2-Dichloroethene	5.1		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
trans-1,2-Dichloroethene	0.36J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
Tetrachloroethene	40.8		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,1,1-Trichloroethane	10.7		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
Trichloroethene	202		ug/L	5.0	3.8	1.7	SW846 8260C		7/5/18 17:39	TMP	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 02:58	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	110		%	81 - 118			SW846 8260C		7/5/18 17:39	TMP	B
1,2-Dichloroethane-d4 (S)	110		%	81 - 118			SW846 8260C		7/3/18 02:58	PDK	A
4-Bromofluorobenzene (S)	98.2		%	85 - 114			SW846 8260C		7/3/18 02:58	PDK	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C		7/5/18 17:39	TMP	B
Dibromofluoromethane (S)	99.2		%	80 - 119			SW846 8260C		7/5/18 17:39	TMP	B
Dibromofluoromethane (S)	95.9		%	80 - 119			SW846 8260C		7/3/18 02:58	PDK	A
Toluene-d8 (S)	92.8		%	89 - 112			SW846 8260C		7/3/18 02:58	PDK	A
Toluene-d8 (S)	99.8		%	89 - 112			SW846 8260C		7/5/18 17:39	TMP	B
WET CHEMISTRY											
Alkalinity, Total	399		mg/L	5	5	0.8	S2320B-97		6/26/18 13:14	MBW	F
Chloride	32.0		mg/L	2.0	0.50	0.16	EPA 300.0		6/23/18 22:29	CHW	E
Nitrate-N	0.56		mg/L	0.20	0.060	0.020	EPA 300.0		6/23/18 22:29	CHW	E
Sulfate	22.5		mg/L	2.0	0.50	0.20	EPA 300.0		6/23/18 22:29	CHW	E
Total Organic Carbon (TOC)	4.3		mg/L	1.0	0.50	0.18	S5310B-00		6/30/18 11:10	AK	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/22/18 00:00	SUB	H

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID:	**2322463001**	Date Collected:	6/22/2018 00:00	Matrix:	Ground Water
Sample ID:	**DUP04-062218**	Date Received:	6/25/2018 08:20		

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr

Vanessa N. Badman
Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID: **2322463002** Date Collected: 6/22/2018 09:25 Matrix: Ground Water

Sample ID: **MW-28 062218** Date Received: 6/25/2018 08:20

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,1-Dichloroethane	0.86J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,1-Dichloroethene	0.39J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
cis-1,2-Dichloroethene	4.9		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
trans-1,2-Dichloroethene	0.36J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
Tetrachloroethene	38.7		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,1,1-Trichloroethane	10.5		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
1,1,2-Trichloroethane	0.44J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A
Trichloroethene	214		ug/L	5.0	3.8	1.7	SW846 8260C		7/5/18 18:02	TMP	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:20	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	111		%	81 - 118	SW846 8260C		7/5/18 18:02	TMP	B
1,2-Dichloroethane-d4 (S)	109		%	81 - 118	SW846 8260C		7/3/18 03:20	PDK	A
4-Bromofluorobenzene (S)	98.8		%	85 - 114	SW846 8260C		7/3/18 03:20	PDK	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C		7/5/18 18:02	TMP	B
Dibromofluoromethane (S)	97.6		%	80 - 119	SW846 8260C		7/5/18 18:02	TMP	B
Dibromofluoromethane (S)	98.1		%	80 - 119	SW846 8260C		7/3/18 03:20	PDK	A
Toluene-d8 (S)	101		%	89 - 112	SW846 8260C		7/5/18 18:02	TMP	B
Toluene-d8 (S)	93.7		%	89 - 112	SW846 8260C		7/3/18 03:20	PDK	A
WET CHEMISTRY									
Alkalinity, Total	422		mg/L	5	S2320B-97		6/26/18 14:22	MBW	F
Chloride	33.1		mg/L	2.0	EPA 300.0		6/23/18 21:52	CHW	E
Nitrate-N	0.58		mg/L	0.20	EPA 300.0		6/23/18 21:52	CHW	E
Sulfate	23.1		mg/L	2.0	EPA 300.0		6/23/18 21:52	CHW	E
Total Organic Carbon (TOC)	4.1		mg/L	1.0	S5310B-00		6/30/18 11:10	AK	C
SUBCONTRACTED ANALYSIS									
Subcontracted Analysis	See attached.				Subcontract		6/22/18 09:25	SUB	H

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID:	**2322463002**	Date Collected:	6/22/2018 09:25	Matrix:	Ground Water
Sample ID:	**MW-28 062218**	Date Received:	6/25/2018 08:20		

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID: **2322463003** Date Collected: 6/22/2018 10:30 Matrix: Ground Water

Sample ID: **MW-29 062218** Date Received: 6/25/2018 08:20

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.82J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,1-Dichloroethane	0.84J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,1-Dichloroethene	0.48J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
cis-1,2-Dichloroethene	5.1		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
trans-1,2-Dichloroethene	0.59J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
Tetrachloroethene	35.4		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,1,1-Trichloroethane	11.8		ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
1,1,2-Trichloroethane	0.45J	J	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
Trichloroethene	248		ug/L	5.0	3.8	1.7	SW846 8260C		7/5/18 18:25	TMP	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/3/18 03:42	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	112		%	81 - 118			SW846 8260C		7/5/18 18:25	TMP	B
1,2-Dichloroethane-d4 (S)	109		%	81 - 118			SW846 8260C		7/3/18 03:42	PDK	A
4-Bromofluorobenzene (S)	101		%	85 - 114			SW846 8260C		7/3/18 03:42	PDK	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C		7/5/18 18:25	TMP	B
Dibromofluoromethane (S)	96.9		%	80 - 119			SW846 8260C		7/3/18 03:42	PDK	A
Dibromofluoromethane (S)	99		%	80 - 119			SW846 8260C		7/5/18 18:25	TMP	B
Toluene-d8 (S)	103		%	89 - 112			SW846 8260C		7/5/18 18:25	TMP	B
Toluene-d8 (S)	93.6		%	89 - 112			SW846 8260C		7/3/18 03:42	PDK	A
WET CHEMISTRY											
Alkalinity, Total	370		mg/L	5	5	0.8	S2320B-97		6/26/18 14:33	MBW	F
Chloride	28.0		mg/L	2.0	0.50	0.16	EPA 300.0		6/23/18 22:10	CHW	E
Nitrate-N	0.38		mg/L	0.20	0.060	0.020	EPA 300.0		6/23/18 22:10	CHW	E
Sulfate	21.0		mg/L	2.0	0.50	0.20	EPA 300.0		6/23/18 22:10	CHW	E
Total Organic Carbon (TOC)	3.2		mg/L	1.0	0.50	0.18	S5310B-00		7/3/18 00:14	PAG	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		6/22/18 10:30	SUB	H

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID:	**2322463003**	Date Collected:	6/22/2018 10:30	Matrix:	Ground Water
Sample ID:	**MW-29 062218**	Date Received:	6/25/2018 08:20		

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr

Vanessa N. Badman
Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID: **2322463004** Date Collected: 6/22/2018 10:30 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 6/25/2018 08:20

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/2/18 21:51	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118	SW846 8260C		7/2/18 21:51	PDK	A
4-Bromofluorobenzene (S)	98.5		%	85 - 114	SW846 8260C		7/2/18 21:51	PDK	A
Dibromofluoromethane (S)	91.2		%	80 - 119	SW846 8260C		7/2/18 21:51	PDK	A
Toluene-d8 (S)	92.2		%	89 - 112	SW846 8260C		7/2/18 21:51	PDK	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1805986
Project:	UR115: 2322463	**Date Collected:**	06/22/18 00:00
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322463 001	**Units:**	ug/L
Lab Code:	R1805986-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 12:58	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 12:58	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 12:58	
Methane	**2000**	21	10	2.3	20	06/29/18 13:07	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1805986
Project:	UR115: 2322463	**Date Collected:**	06/22/18 09:25
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322463 002	**Units:**	ug/L
Lab Code:	R1805986-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 13:31	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 13:31	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 13:31	
Methane	1800 B	21	10	2.3	20	06/29/18 13:41	

Client:	ALS Environmental - US	**Service Request:**	R1805986
Project:	UR115: 2322463	**Date Collected:**	06/22/18 10:30
Sample Matrix:	Water	**Date Received:**	06/27/18 09:50
Sample Name:	2322463 003	**Units:**	ug/L
Lab Code:	R1805986-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	06/29/18 13:50	
Ethane	ND U	1.0	0.50	0.17	1	06/29/18 13:50	
Ethene	ND U	1.0	0.50	0.14	1	06/29/18 13:50	
Methane	210 B	5.3	2.5	0.58	5	06/29/18 13:59	

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Lab ID: **2327398001** Date Collected: 7/18/2018 09:06 Matrix: Ground Water

Sample ID: **MW-30 071818** Date Received: 7/19/2018 08:58

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A
Trichloroethene	8.1		ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		7/31/18 17:02	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118	SW846 8260C		7/31/18 17:02	TMP	A
4-Bromofluorobenzene (S)	96.5		%	85 - 114	SW846 8260C		7/31/18 17:02	TMP	A
Dibromofluoromethane (S)	92.8		%	80 - 119	SW846 8260C		7/31/18 17:02	TMP	A
Toluene-d8 (S)	93.1		%	89 - 112	SW846 8260C		7/31/18 17:02	TMP	A

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
WET CHEMISTRY											
Alkalinity, Total	58	J	mg/L	5	5	0.8	S2320B-97		7/20/18 13:00	MBW	F
Chloride	38.8		mg/L	2.0	0.50	0.16	EPA 300.0		7/20/18 05:18	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		7/20/18 05:18	CHW	E
Sulfate	0.34J	J	mg/L	2.0	0.50	0.20	EPA 300.0		7/20/18 05:18	CHW	E
Total Organic Carbon (TOC)	9.7 J	J	mg/L	1.0	0.50	0.18	S5310B-00		8/4/18 06:06	PAG	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached						Subcontract		8/1/18 10:25	SUB	H

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

Client:	ALS Environmental - US	**Service Request:**	R1807201
Project:	UR115: 2327398	**Date Collected:**	07/18/18 09:06
Sample Matrix:	Water	**Date Received:**	08/01/18 09:25
Sample Name:	2327398 001 MW-30-071818	**Units:**	ug/L
Lab Code:	R1807201-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND UJ	2.0	1.0	0.53	1	08/01/18 10:25	acv
Ethane	52	1.0	0.50	0.17	1	08/01/18 10:25	
Ethene	6.3	1.0	0.50	0.14	1	08/01/18 10:25	
Methane	3700 D	53	25	5.8	50	08/01/18 10:58	

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Lab ID: **2327398002** Date Collected: 7/18/2018 10:25 Matrix: Ground Water

Sample ID: **MW-23 071818** Date Received: 7/19/2018 08:58

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.						Subcontract		8/9/18 12:51	SUB	

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

Client:	ALS Environmental - US	**Service Request:**	R1807029
Project:	UR115 2327398	**Date Collected:**	07/18/18 09:06
Sample Matrix:	Water	**Date Received:**	07/26/18 09:05
Sample Name:	2327398 002 MW-23-071818	**Units:**	ug/L
Lab Code:	R1807029-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND UJ	5.0	1.0	0.25	1	08/01/18 13:40	
1,1,1-Trichloroethane (TCA)	ND UJ	5.0	1.0	0.25	1	08/01/18 13:40	
1,1,2,2-Tetrachloroethane	ND UJ	5.0	1.0	0.20	1	08/01/18 13:40	
1,1,2-Trichloroethane	ND UJ	5.0	1.0	0.25	1	08/01/18 13:40	
1,1-Dichloroethane (1,1-DCA)	ND UJ	5.0	1.0	0.20	1	08/01/18 13:40	
1,1-Dichloroethene (1,1-DCE)	ND UJ	5.0	1.0	0.28	1	08/01/18 13:40	
1,2-Dichloroethane	ND UJ	5.0	1.0	0.20	1	08/01/18 13:40	
Carbon Tetrachloride	ND UJ	5.0	1.0	0.34	1	08/01/18 13:40	
Tetrachloroethene (PCE)	ND UJ	5.0	1.0	0.28	1	08/01/18 13:40	
Toluene	ND UJ	5.0	1.0	0.20	1	08/01/18 13:40	
Trichloroethene (TCE)	ND UJ	5.0	1.0	0.20	1	08/01/18 13:40	
Vinyl Chloride	ND UJ	5.0	1.0	0.22	1	08/01/18 13:40	
cis-1,2-Dichloroethene	ND UJ	5.0	1.0	0.26	1	08/01/18 13:40	
trans-1,2-Dichloroethene	ND UJ	5.0	1.0	0.26	1	08/01/18 13:40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85 - 114	08/01/18 13:40	
Dibromofluoromethane	94	80 - 119	08/01/18 13:40	
Toluene-d8	99	89 - 112	08/01/18 13:40	

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Lab ID: **2327398003** Date Collected: 7/18/2018 12:00 Matrix: Ground Water

Sample ID: **MW-B-3 071818** Date Received: 7/19/2018 08:58

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
Tetrachloroethene	5.0		ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			7/31/18 17:24	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C			7/31/18 17:24	TMP	A
4-Bromofluorobenzene (S)	97.6		%	85 - 114	SW846 8260C			7/31/18 17:24	TMP	A
Dibromofluoromethane (S)	92.1		%	80 - 119	SW846 8260C			7/31/18 17:24	TMP	A
Toluene-d8 (S)	93.2		%	89 - 112	SW846 8260C			7/31/18 17:24	TMP	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

Appendix C

Support Documentation

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #: 640831643631

* 2321639 *

Co. Name: AECOM

Contact (Report to): John Santacroce Phone: 518 9712000

Address: 40 British American BLVD
Latham NY 12110

Bill to (if different than Report to): PO#:

Project Name/#: Scotia Navy Depot 60440641 ALS Quote #:

TAT: ☑ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges. Date Required: Approved By:

Email? ☑ Y John.Santacroce@aecom.com

Fax? ☐ Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	Enter Number of Containers Per Analysis
1 MW-6 061818		6/18/18	1215	G	GW	2 Amber
2 MW-7 061818		6/18/18	1210	G	GW	2 Amber
3 MW-9 061818	MS/MSD	6/18/18	925	G	GW	6 Glass
4 MW-27 061918			906	G	GW	2 Amber
5 MW-16 061918			1104	G	GW	2 Amber 1 2 glass 2 Amber
6 DuPol - 061918	Duplicate		-	G	GW	2 Glass
7 MW-5 - 061918			1015	G	GW	2 Glass
8 MW-20 061918			1120	G	GW	2

Containers: ***Container Type: A, P, P, G, A; ***Container Size: 40mL, 250, 250, 40, 40; ***Preservative: HCl, -, -, HCl, HCl

CD 6/20/18

ANALYSES/METHOD REQUESTED: 8260 VOCs; Alkalinity; Cl, NO3, SO4; 7196 175; TOC

(completed in Sample Receiving) Performed by: Cooler Temp: 1 Therm. ID: 402 No. of Coolers:

Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
Y	Y	Y		Y	
N	N	N	N	N	

	Custody seals Present?	(If present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
Y	Y	Y	Y	Y	Y
N	N	N	N	N	N

SAMPLED BY (Please Print): Ross McCready / Alex Golden

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/19/18		2	6/19/18	1510
3 Brian McElwee	6/19/18	2330	4 COMMON COURIER / ALS COURIER		
5 COMMON COURIER / ALS COURIER			6	6/20/18	0852
7			8		
9			10		

Data Deliverables: ☑ Standard ☐ CLP-like ☐ NJ-Reduced ☐ NJ-Full

EDDs Required? ☐ If yes, format type: See QAPP

SDWA Forms? yes ☐ Samples Collected in? NJ ☐ NY ☐ PA ☐

Other

CHROMATOGRAMS

COD Criteria Required?

ALS FIELD SERVICES: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment ☐ Other:

* G=Grab; C=Composite

**Matrix: A=Air; DW=Drinking Water; GW=Groundwater; O=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Rev 01-2013

Friday, July 06, 2018 7:07:04 PM
Page 29 of 98

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #: 6476 8310 4363

COC# 232659

Co. Name:

Contact (Report to): (See COC #1) Phone:

Address:

Bill to (If different than Report to): PO#: (See COC #1)

Project Name/#: ALS Quote #:

TAT: ☑ Normal-Standard TAT is 10-12 business days. Date Required:
☐ Rush-Subject to ALS approval and surcharges. Approved By:

Email? ☑ Y Jake.Santacroce@aecom.com

Fax? ☐ Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	8260 VOCs												
						***Container Type	P											
						***Container Size	40mL	VOA	6/19/18									
						***Preservative	HCL											
						Enter Number of Containers Per Analysis												
1 MW-19 06/19/18		6/19/18	1330	G	GW	2												
2 MW-18 06/19/18		6/19/18	1308	G	GW	2												
3 TRIP BLANK		-	-	-	-	2												
4																		
5																		
6																		
7																		
8																		

Receipt Information (completed by Sample Receipt)

Received by: SYR

Cooler Temp: 4.5

Therm. ID: 202

No. of Coolers:

Notes:

Correct containers? N	Correct sample volume? N	Correct preservation? N	Headspace/Volatiles? N	Circle appropriate Y or N.
Custody seals Present? N	(if present) Seals Intact? N	Received on ice? Y	COC/Labels complete/accurate? Y	Container in good condition? Y

SAMPLED BY (Please Print): Rick McEuen / Alex Golden

Project Comments:

Data Deliverables: ☐ Standard ☐ CLP-like ☐ NJ-Reduced ☐ NJ-Full ☐ other

SDWA Format? ⇨ yes ☐

State Samples Collected In? MD ☐ NJ ☐ NY ☐ PA ☐

EDDs Required? ☐ If yes, format type: SEE QAPP

Other

Electronic Data Deliverable (EDD) Format

DOD Criteria Required?

ALS FIELD SERVICES: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment ☐ Other

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/19/18	3:10	2 COMMON COURIER / ALS COURIER	6/19/18	3:10
3 Brian McEuen	6/19/18	3:30	4 COMMON COURIER / ALS COURIER		
5 COMMON COURIER / ALS COURIER			6	6/20/18	0855
7			8		
9			10		

* G=Grab; C=Composite

**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Oi=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Rev 01-2013

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	1 of 2
ALS Quote #:	

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2321639

Bill To: ALS Environmental

TAT [ ] Normal-Standard TAT is 10-12 business days.
[X] Rush-Subject to ALS approval and surcharges.

Date Required: 4/30/2018 Approved By:

Email? [ ] -Y

Fax? [ ] -Y No.:

Container Type: G
Container Size: 40 mL
Preservative: HCl

ANALYSES/METHOD REQUESTED

Receipt Information (completed by Receiving Lab)

Cooler Temp: ___ Therm ID: ___

No. of Coolers: ___

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	DOD RSK175 (Ethane, , Ethene, Methane, Acetylene)	*Report to the MDL, QC lab report needed, EQUIS EDD.	Enter Number of Containers Per Sample or Field Results Below.	Sample/COC Comments
1 2321639 005	6/19/18	1104	G	WT	2	*		
2								Sub to ALS Rochester
3								
4								
5								
6								
7								
8								
9								
10								

R1805890 5
ALS Group USA, Corp.
UR115: 2321639

ALS Field Services: [ ] Pickup [ ] Labor
[ ] Composite_Sampling [ ] Rental_Equipment
[ ] Other:

Project Comments:

LOGGED BY(signature): Date: Time:

REVIEWED BY(signature): Date: Time:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/21/18	1555	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [X] DOD

Special Processing: USACE [ ] Navy [ ]

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [X] Special [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] MD

EDDS: Format Type- EQUIS EDD

* G=Grab; C=Composite ** Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Rev 8/04

Cooler Receipt and Preservation Check Form

R1805890 5
ALS Group USA, Corp.
UR116: 2321639

Project/Client _____ Folder Number _____

Cooler received on 6/22/18 by: AM

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	(Y) N NA
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: (Wet Ice) Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 6/22 Time: 9:36 ID: IR#7 (IR#9) From: Temp Blank (Sample Bottle)

Observed Temp (°C)	2.0						
Correction Factor (°C)	+1.0						
Corrected Temp (°C)	3.0						
Temp from:Type of bottle	VOA						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If<0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R002 by kn on 6/22 at 9:40
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 6/22/18 Time: 14:35 by: BH

9.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
10.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
11.	Were correct containers used for the tests indicated?	(YES)	NO
12.	Were 5035 vials acceptable (no extra labels, not leaking)?	YES	NO (N/A)
13.	Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized		Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: _____

Explain all Discrepancies/ Other Comments:

(5b) Both vials have headspace/bubble

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: _____
PC Secondary Review: MM 6/25/18 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2321639001	MW-6 061818	Ground Water	6/18/2018 12:15	6/20/2018 08:52	Collected by Client
2321639002	MW-7 061818	Ground Water	6/18/2018 12:10	6/20/2018 08:52	Collected by Client
2321639003	MW-9 061918	Ground Water	6/19/2018 09:25	6/20/2018 08:52	Collected by Client
2321639004	MW-27 061918	Ground Water	6/19/2018 09:06	6/20/2018 08:52	Collected by Client
2321639005	MW-16 061918	Ground Water	6/19/2018 11:04	6/20/2018 08:52	Collected by Client
2321639006	DUP01-061918	Ground Water	6/19/2018 00:00	6/20/2018 08:52	Collected by Client
2321639007	MW-5 061918	Ground Water	6/19/2018 10:15	6/20/2018 08:52	Collected by Client
2321639008	MW-20 061918	Ground Water	6/19/2018 12:20	6/20/2018 08:52	Collected by Client
2321639009	MW-19 061918	Ground Water	6/19/2018 13:30	6/20/2018 08:52	Collected by Client
2321639010	MW-18 061918	Ground Water	6/19/2018 13:08	6/20/2018 08:52	Collected by Client
2321639011	Trip Blank	Ground Water	6/20/2018 08:52	6/20/2018 08:52	Collected by Client

Client: ALS Environmental - US
Project: UR115: 2321639

Service Request: R1805890

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1805890-001	2321639 005	6/19/2018	1104

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-034 (2321639)

Sample Management

This report contains the results of the analysis of eleven (11) ground water samples collected on June 18 - 20, 2018. Analytical results and quality control information are summarized in this data package.

Qualifier Symbol Definitions:

U = Qualifier indicates that the analyte was not detected above the LOD.
J = Qualifier indicates that the analyte value is between the DL and the LOQ.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds the calibration range.
P = Qualifier indicates that the RPD between the two analytical columns is > 40%.
NSC = Qualifier indicates that spike recoveries were not calculated based on the spiking concentration.

Result Symbol Definitions:

DL = The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence.
LOD = The smallest analyte concentration that must be present in a sample in order to be detected at a high level of confidence.
LOQ = The lowest concentration that produces a quantitative result within specified limits of precision or bias.

Manual Integration Symbol Definitions

I = Peak was not integrated properly by chromatographic software. This may be due to baseline irregularities resulting from sample matrix, elevated baseline, or incorrect integration by software on a sample. Integration was adjusted by operator to ensure proper quantitation.
H = The incorrect peak was identified or the chromatographic software did not identify an analyte peak. Operator manually identified the correct peak as the appropriate target analyte. This flag is automatically assigned by the Target software.
SP = Peak was erroneously split. The operator manually integrated the peak to include all the area of the analyte peak to ensure proper quantitation.
MP = Two peaks were erroneously merged. This may include two discrete peaks separated by a distinguishable valley or a larger peak with a clearly identifiable shoulder. Operator manually split peaks.
AB = Integration of group of adjacent peaks did not follow baseline. Operator manually assigned integration to follow baseline.
NP = Negative spike in the baseline resulted in overstating area of analyte peaks. Analyte peaks were re-assigned.
AC = Integration of aggregate or multi-component analyte to include area off all components of the analyte (i.e., toxaphene).

Sample Receipt

Samples arrived at ALS via courier on June 20, 2018. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Manual Integrations

If manual integrations were performed they are indicated on the raw data quantification files for each method.

Subcontracted Data

One sample was subcontracted to ALS Global in Rochester, New York for the analysis of RSK-175. This data has been attached at the end of this data package.

Volatile Organics by SW-846 Method 8260

Sample Handling. Eleven (11) water samples were analyzed by SW-846 Method 8260 for volatile organic compounds. All analyses were performed within the holding time.

Initial Calibrations. Initial calibrations were properly analyzed and met method criteria for all target analytes. **Note**: The batch LCS also serves as a second source (ICV).

Initial Calibration Verifications. Initial calibration verification samples were properly analyzed and met method criteria.

Continuing Calibration Verification. Continuing Calibration Verification samples were analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank.

Surrogates. Recoveries were within control limits.

Laboratory control samples. Target analytes were recovered within control limits in the laboratory control samples.

Matrix and Matrix Spike samples. Target analytes were recovered within control limits in the laboratory control samples.

Internal Standards. Internal standard results met method criteria

Anions by EPA 300.0

Sample handling. One (1) aqueous sample was analyzed for chloride, nitrate-N, and sulfate by EPA Method 300.0. The sample was analyzed within the method recommended holding time for each analyte.

Calibration. Initial calibrations, identified as Method A (high range) and Method L (low range), were properly established. Initial and continuing calibration verification standards were recovered within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. Anions were not detected above the reporting limits in the blanks.

Laboratory Control Samples. Laboratory control samples identified as SSL and 2761691 were analyzed initially and every 20 samples. Recoveries were within the QC limits.

Spikes. A matrix spike and spike duplicate was not performed on any samples from this data deliverable.

Total Alkalinity by SM 2320B

Sample handling. One (1) aqueous sample was analyzed for total alkalinity by Standard Method 2320B. The sample was analyzed within the 14-day holding time established for the method.

Blanks. Method blanks were analyzed with the samples. Total alkalinity was not detected above the reporting limit in the blanks.

Calibration. The autotitrator was pH calibrated on the day of analysis. Total alkalinity and pH standards were analyzed initially and throughout the analysis. The standards were recovered within the alkalinity QC limits of 90-110% and the pH QC limits of +/- 0.05 pH units.

Duplicate. A duplicate analysis was not performed on any samples from this data deliverable.

Total Organic Carbon by SM 5310B

Sample handling. One (1) aqueous sample was analyzed for total organic carbon by Standard Method 5310B. The sample was analyzed within the 28-day holding time established for the method.

Calibration. Initial calibrations were properly established on the days of analysis. Initial and continuing calibration standards were analyzed for verification, and recoveries were all within the QC limits.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above the reporting limit in the blanks.

Laboratory Control Samples. A laboratory control sample identified as 2766518 was analyzed with the samples. The recovery was within the QC limit of 85-115%.

Spikes. Matrix spike and matrix spike duplicate analyses were not performed on any samples from this data deliverable.

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321639 ASN034|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2321639005	1	MW-16 061918	S2320B-97	Alkalinity, Total

The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.

ALS Environmental

Client: ALS Environmental - US
Project: UR115: 2321639
Sample Matrix: Water

Service Request: R1805890
Date Received: 06/22/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 06/22/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The sample was received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Volatiles by GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 06/29/2018

1st BA 6/29/18
2nd MWL 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	2133017	0.392	ug/L m
2)	Acetylene	0.00	0	N.D.	ug/L
3)	Ethylene	0.00	0	N.D.	ug/L
4)	Ethane	0.00	0	N.D.	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	0.00	0	N.D.	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

Form 4B
Inorganic Blank Summary

Analysis Method: EPA 300.0
Instrument: IC-6

SDG No.: ASN034

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2761689	Chloride	MB	QC-Water	06/21/2018 04:38	0.25	U	mg/L
2761689	Nitrate-N	MB	QC-Water	06/21/2018 04:38	0.030	U	mg/L
2761689	Sulfate	MB	QC-Water	06/21/2018 04:38	0.25	U	mg/L
2762536	Chloride	MB	QC-Water	06/21/2018 10:32	0.09	J	mg/L
2762536	Nitrate-N	MB	QC-Water	06/21/2018 10:32	0.030	U	mg/L
2762536	Sulfate	MB	QC-Water	06/21/2018 10:32	0.25	U	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: S2320B-97
Instrument: AUTOT

SDG No.: ASN034

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2762486	Alkalinity, Total	MB	QC-Water	06/22/2018 00:55	1	J	mg/L
2762491	Alkalinity, Total	MB	QC-Water	06/22/2018 03:19	3	J	mg/L
2762495	Alkalinity, Total	MB	QC-Water	06/22/2018 05:28	3	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: S5310B-00
Instrument: TOC

SDG No.: ASN034

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2766517	Total Organic Carbon (TOC)	MB	QC-Water	06/28/2018 16:01	1.0	U	mg/L
CCB1	Total Organic Carbon (TOC)	CCB	QC-Water	06/28/2018 16:01	0.006	J	mg/L
CCB2	Total Organic Carbon (TOC)	CCB	QC-Water	06/28/2018 16:01	0.073	J	mg/L

LOD was 0.50 mg/L. Not used to qualify data.
sam 07/18/18.

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK

Page ___ of ___
Courier:
Tracking #: 7015 1230 0000 5904 [illegible]

2321910

Co. Name: AECOM
Contact (Report to): John Santacroce Phone: 518 951-2200
Address: 40 British American BLVD
Latham NY 12110

Bill to (if different than Report to): SAME PO#:
Project Name/#: Scotia Navy Depot 60440691 ALS Quote #:
TAT: ☑ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges. Date Required: Approved By:
Email? ☑ Y John.Santacroce@aecom.com
Fax? ☐ Y No.:

	***Container Type	G	G	G	P	P						
	***Container Size	40	40	40	250	250						
	*** Preservative	HCl	HCl	HCl	-	-						
	ANALYSES/METHOD REQUESTED											
	*G or C											
	**Matrix											
		8260c VOCs	RSK 175	TOC	Alkalinity	Cl, NO3, SO4	* Acetylene					
Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time			Enter Number of Containers Per Analysis						
1 DUP02-062018	* Duplicate	6/20/18	-	G	GW	2						
2 MW-17 062018			846			2						
3 MW-14 062018			926			2			6			
4 MW-35 062018			948			2	2	2	1	1	✓	
5 MW-34 062018			1040			2	2	2	1	1	✓	
6 GEP-2 062018			1035			2						
7 GEP-3 062018			1157			2						
8 MW-26 062018		▼	1155	▼	▼	2	2	2	1	1	✓	

Receipt Information (completed by Sample Receiver)
Performed by: Received by:
Cooler Temp: 0°
Therm. ID: 402
No. of Coolers:
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
*	✓	✓	✓	✓	
**	✓	✓	✓	✓	
1	Y	Y	Y	Y	Y
2	N	N	N	N	N
3	Y	Y	Y	Y	Y
4	Y	Y	Y	Y	Y
5	Y	Y	Y	Y	Y
6	Y	Y	Y	Y	Y
7	Y	Y	Y	Y	Y
8	Y	Y	Y	Y	Y

	Custody seals Present?	(if present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
1	Y	Y	Y	Y	Y
2	N	N	N	N	N
3	Y	Y	Y	Y	Y
4	Y	Y	Y	Y	Y
5	Y	Y	Y	Y	Y
6	Y	Y	Y	Y	Y
7	Y	Y	Y	Y	Y
8	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Ross McCurdy / Alix Golden
Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 AECOM	6/20/18	2:20	2 Brian McGinnis	6/20/18	2:20
3 Brian McGinnis	6/21/18	9:00	4 COMMON COURIER / ALS COURIER		
5 COMMON COURIER / ALS COURIER			6 [illegible]	6/21/18	1004
7			8		
9			10		

Data Deliverables: ☐ Standard ☐ CLP-like ☐ NJ-Reduced ☐ NJ-Full ☐ ____
EDDs Required? ☐ If yes, format type: SEE QAPP
SDWA Forms? ☐ yes
State Samples Collected in? ☐ MD ☐ NJ ☐ NY ☐ PA
Other: SEE QAPP
DOD Criteria Required?

ALS FIELD SERVICES
☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment ☐ Other:

* G=Grab; C=Composite **Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Of=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY ***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.
Rev 01-2013

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #: 7815 1934 5980

COC#

Co. Name:

Contact (Report to): Phone:

Address: See Pg 1

Bill to (if different than Report to): See Pg 1 PO#:

Project Name/#: ALS Quote #:

TAT: [✓] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges. Date Required: Approved By:

Email? [✓] -Y Pg 1. Fax? [ ] -Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	ANALYSES/METHOD REQUESTED: 8260 VOCs	RSK 175	TOC	Alkalinity/ Cl, NO3, SO4	* Acetylene	Enter Number of Containers Per Analysis
***Container Type						G	G	G	P	P	
***Container Size						40	40	40	250	250	
*** Preservative						HCl	HCl	HCl	-	-	
1 EB-062018	EQ Blank	6/20/18	1100	G	W	2					
2 MW-13 062018		"	1330	"	"	2					
3 MW-15 062018		"	1335	"	"	2	2	2	1	1	✓
4 TRIP BLANK		-	-	-	-	2					
5											
6											
7											
8											

Receipt Information (completed by Shipper/Courier)
Received by: [ ] FEDEX [ ] UPS
Cooler Temp: 0
Therm. ID: 402
No. of Cooler:
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	N	N	N	✓	
	✓	✓	✓	Y	
	Custody seals Present?	(if present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
	Y	Y	Y	✓	✓

SAMPLED BY (Please Print): Ross McCord / Alex Golden

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 COMMON COURIER/ALS COURIER	6/20/18	2200	2 [illegible]	6/21/18	0850
3 [illegible]	6/21/18	1400	4		
5			6 COMMON COURIER / ALS COURIER	6/21/18	1002
7			8 [illegible]		
9			10		

Data Deliverables: [✓] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other

EDDs Required? [ ] If yes, format type: Pg 1

DOD Criteria Required?

SDWA Forms? yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [ ] PA [ ]

Other: Pg 1

ALS FIELD SERVICES: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite

**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	1 of 2
ALS Quote #:	

Client Name: ALS Environmental

Address: 34 Dogwood Lane

Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2321910

Bill To: ALS Environmental

TAT [ ] Normal-Standard TAT is 10-12 business days. [X] Rush-Subject to ALS approval and surcharges.

Date Required: 7/5/2018 Approved By:

Email? [ ] -Y

Fax? [ ] -Y No.:

Container Type: G | Container Size: 40 mL | Preservative: HCl

ANALYSES/METHOD REQUESTED

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	DOD RSK175 (Ethane, , Ethene, Methane, Acetylene)	*Report to the MDL, QC lab report needed, EQUIS EDD.	Sample/COC Comments
			Enter Number of Containers Per Sample or Field Results Below.				
1 2321910 004	6/20/18	0948	G	WT	2	*	
2 2321910 005	6/20/18	1040	G	WT	2	*	Sub to ALS Rochester
3 2321910 008	6/20/18	1155	G	WT	2	*	
4 2321910 011	6/20/18	1335	G	WT	2	*	
5							
6							
7							
8							
9							
10							

R1805941 5
ALS Group USA, Corp.
UR115: 2321910

ALS Field Services: [ ] Pickup [ ] Labor [ ] Composite_Sampling [ ] Rental_Equipment [ ] Other:

Project Comments:

LOGGED BY(signature): Date: Time:

REVIEWED BY(signature): Date: Time:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/25/18	1315	2 ALS	6/26/18	0930
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [X] DOD

Special Processing: USACE [ ] Navy [ ]

State Samples Collected in: [ ] NY [ ] NJ [ ] PA [ ] NC [X] MD

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type- EQUIS EDD

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057 Rev 8/04

Cooler Receipt and Preservation Check Form

R1805941 5
ALS Group USA, Corp.
UR116: 2321910

Project/Client ALS-Middletown Folder Number

Cooler received on 6-26-18 by: HE

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y	(N)
2	**Custody papers** properly completed (ink, signed)?	(Y)	N
3	Did all bottles arrive in good **condition** (unbroken)?	(Y)	N
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y)	N

5a	**Perchlorate** samples have required headspace?	Y N	(NA)
5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	(Y)	N NA *
6	Where did the bottles originate? ALS/ROC	(CLIENT)	
7	Soil VOA received as: Bulk Encore 5035set	(NA)	

8. Temperature Readings Date: 6-26-18 Time: 09:45 ID: (IR#7) IR#9 From: Temp Blank (Sample Bottle)

Observed Temp (°C)	2.3						
Correction Factor (°C)	+0.5						
Corrected Temp (°C)	2.8						
Temp from:Type of bottle	Voa Vial						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by HE on 6.26.18 at 09:46
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 6/26/18 Time: 1716 by: DW

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol)					
		$Na_2S_2O_3$								
		Zn Acetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**	Client label					

Bottle lot numbers: Client.

Explain all Discrepancies/ Other Comments:

*2321910004: 1 of 2 Vials
2321910611 : Both Vials

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: JL
PC Secondary Review: JMS 6/29/18

*significant air bubbles: VOA > 5-6 mm : WC > 1 in. diameter

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2321910001	Dup02-062018	Ground Water	6/20/2018 00:00	6/21/2018 10:04	Collected by Client
2321910002	MW-17 062018	Ground Water	6/20/2018 08:46	6/21/2018 10:04	Collected by Client
2321910003	MW-14 062018	Ground Water	6/20/2018 09:20	6/21/2018 10:04	Collected by Client
2321910004	MW-35 062018	Ground Water	6/20/2018 09:48	6/21/2018 10:04	Collected by Client
2321910005	MW-34 062018	Ground Water	6/20/2018 10:40	6/21/2018 10:04	Collected by Client
2321910006	GEP-2 062018	Ground Water	6/20/2018 10:35	6/21/2018 10:04	Collected by Client
2321910007	GEP-3 062018	Ground Water	6/20/2018 11:57	6/21/2018 10:04	Collected by Client
2321910008	MW-26 062018	Ground Water	6/20/2018 11:55	6/21/2018 10:04	Collected by Client
2321910009	EB-062018	Ground Water	6/20/2018 11:00	6/21/2018 10:04	Collected by Client
2321910010	MW-13 062018	Ground Water	6/20/2018 13:30	6/21/2018 10:04	Collected by Client
2321910011	MW-15 062018	Ground Water	6/20/2018 13:35	6/21/2018 10:04	Collected by Client
2321910012	Trip Blank	Ground Water	6/20/2018 10:04	6/21/2018 10:04	Collected by Client

Client: ALS Environmental - US
Project: UR115: 2321910

Service Request: R1805941

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1805941-001	2321910 004	6/20/2018	0948
R1805941-002	2321910 005	6/20/2018	1040
R1805941-003	2321910 008	6/20/2018	1155
R1805941-004	2321910 011	6/20/2018	1335

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-035 (2321910)

Sample Management

This report contains the results of the analysis of twelve (12) ground water samples collected on June 20, 2018. Analytical results and quality control information are summarized in this data package.

Qualifier Symbol Definitions:

U = Qualifier indicates that the analyte was not detected above the LOD.
J = Qualifier indicates that the analyte value is between the DL and the LOQ.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds the calibration range.
P = Qualifier indicates that the RPD between the two analytical columns is > 40%.
NSC = Qualifier indicates that spike recoveries were not calculated based on the spiking concentration.

Result Symbol Definitions:

DL = The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence.
LOD = The smallest analyte concentration that must be present in a sample in order to be detected at a high level of confidence.
LOQ = The lowest concentration that produces a quantitative result within specified limits of precision or bias.

Manual Integration Symbol Definitions

I = Peak was not integrated properly by chromatographic software. This may be due to baseline irregularities resulting from sample matrix, elevated baseline, or incorrect integration by software on a sample. Integration was adjusted by operator to ensure proper quantitation.
H = The incorrect peak was identified or the chromatographic software did not identify an analyte peak. Operator manually identified the correct peak as the appropriate target analyte. This flag is automatically assigned by the Target software.
SP = Peak was erroneously split. The operator manually integrated the peak to include all the area of the analyte peak to ensure proper quantitation.
MP = Two peaks were erroneously merged. This may include two discrete peaks separated by a distinguishable valley or a larger peak with a clearly identifiable shoulder. Operator manually split peaks.
AB = Integration of group of adjacent peaks did not follow baseline. Operator manually assigned integration to follow baseline.
NP = Negative spike in the baseline resulted in overstating area of analyte peaks. Analyte peaks were re-assigned.
AC = Integration of aggregate or multi-component analyte to include area off all components of the analyte (i.e., toxaphene).

Sample Receipt

Samples arrived at ALS via courier on June 21, 2018. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Manual Integrations

If manual integrations were performed they are indicated on the raw data quantification files for each method.

Subcontracted Data

Four samples were subcontracted to ALS Global in Rochester, New York for the analysis of RSK-175. This data has been attached at the end of this data package.

Volatile Organics by SW-846 Method 8260

Sample Handling. Eleven (11) water samples were analyzed by SW-846 Method 8260 for volatile organic compounds. All analyses were performed within the holding time.

Initial Calibrations. Initial calibrations were properly analyzed and met method criteria for all target analytes. **Note**: The batch LCS also serves as a second source (ICV).

Initial Calibration Verifications. Initial calibration verification samples were properly analyzed and met method criteria.

Continuing Calibration Verification. Continuing Calibration Verification samples were analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank.

Surrogates. Recoveries were within control limits.

Laboratory control samples. Target analytes were recovered within control limits in the laboratory control samples.

Matrix and Matrix Spike samples. Target analytes were recovered within control limits in the laboratory control samples.

Internal Standards. Internal standard results met method criteria

Anions by EPA 300.0

Sample handling. Four (4) aqueous samples were analyzed for chloride, nitrate-N, and sulfate by EPA Method 300.0. The samples were analyzed within the method recommended holding time for each analyte.

Calibration. Initial calibrations, identified as Method A (high range) and Method L (low range), were properly established. Initial and continuing calibration verification standards were recovered within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. Anions were not detected above the reporting limits in the blanks.

Laboratory Control Samples. Laboratory control samples identified as SSL and 2762621 were analyzed initially and every 20 samples. Recoveries were within the QC limits.

Spikes. A matrix spike and spike duplicate were not prepared on any samples from this data deliverable.

Total Alkalinity by SM 2320B

Sample handling. Four (4) aqueous samples were analyzed for total alkalinity by Standard Method 2320B. The samples were analyzed within the 14-day holding time established for the method.

Blanks. Method blanks were analyzed with the samples. Total alkalinity was not detected above the reporting limit in the blanks.

Calibration. The autotitrator was pH calibrated on the day of analysis. Total alkalinity and pH standards were analyzed initially and throughout the analysis. The standards were recovered within the alkalinity QC limits of 90-110% and the pH QC limits of +/- 0.05 pH units.

Duplicate. A duplicate analysis was not performed on any samples from this data deliverable.

Total Organic Carbon by SM 5310B

Sample handling. Four (4) aqueous samples were analyzed for total organic carbon by Standard Method 5310B. The samples were analyzed within the 28-day holding time established for the method.

Calibration. Initial calibrations were properly established on the days of analysis. Initial and continuing calibration standards were analyzed for verification, and recoveries were all within the QC limits.

Laboratory Control Samples. A laboratory control sample identified as 2766771 was analyzed with the samples. The recovery was within the QC limit of 85-115%.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above the reporting limit in the blanks.

Spikes. Matrix spike and matrix spike duplicate analyses were not performed on any samples from this data deliverable.

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2321910 ASN035|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2321910001	2	Dup02-062018	SW846 8260C	Carbon Tetrachloride
Methods for the analysis of volatile organics require that the sample be preserved to a pH less than 2 using HCl. This sample had a pH greater than 2 when received by the lab.				
2321910004	1	MW-35 062018	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2321910005	1	MW-34 062018	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2321910008	1	MW-26 062018	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2321910011	1	MW-15 062018	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

ALS Environmental

Client: ALS Environmental - US
Project: UR115: 2321910
Sample Matrix: Water

Service Request: R1805941
Date Received: 06/26/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt:

Four water samples were received for analysis at ALS Environmental on 06/26/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Volatiles by GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 06/29/2018

Data File: \\GC01\TargetData\Chem2\ms03.i\03_2018\3180702.b

GCMS ANALYSIS - VOLATILE ORGANICS

DATE(S):	7/2/2018	Analyst:	DD				
DATA FILE:	3180702xx.d	BFB INJ :	7/2/18 7:27	INSTRUMENT: MS03	METHOD(S)	DOD8260W	624NYW MED 624
BATCH:	3180702.b	12-HOUR ENDING:	7/2/18 19:27	ICAL DATE: 6/26/2018	LIMS BATCH:	47277	

Pos #	Run #	ALS Sample ID (w/ Container ID)	Dilution	Test	pH	HDSP / Wt.	CL-	Comment
0	00	1000	1	BFB	-	-	-	
1	01	1800	1	8260	-	-	-	
2	02	2767940	1	8260	-	-	-	
3	03	WP	1	8260	-	-	-	
4	04	WP	1	8260	-	-	-	
5	05	2767939	1	8260	-	-	-	
6	06	2321910012-A	1	D8260W	<2	N	N	
7	07	2321910009-A	1	D8260W	<2	N	N	
8	08	2321910001-B	1	D8260W	>2	N	N	
9	09	2321910004-A	1	D8260W	<2	N	N	MSD
10	10	2321910005-A	1	D8260W	<2	N	N	
11	11	2321910008-A	1	D8260W	<2	N	N	
12	12	2321910010-A	1	D8260W	<2	N	N	
13	13	2321910011-A	1	D8260W	<2	N	N	
14	14	WP	1	8260	-	-	-	
15	15	2321822004-E	1	D8260W		N		(CORR)
16	16	2321822001-E	5	D8260W	<2	N	N	(DL)
17	17	2321822002-E	5	D8260W	<2	N	N	(DL)
18	18	2321822003-E	5	D8260W	<2	N	N	(DL)
19	19	2321822007-E	50	D8260W	<2	N	N	(DL)
20	20	2322540008-C	20	D8260W	<2	N	N	(DL)
21	21	2322540014-A	1	D8260W	<2	N	N	
22	22	2321910007-A	1	D8260W	<2	N	N	
23	23	2321910006-A	1	D8260W	<2	N	N	
24	24	2768055	1	D8260W	<2	N	N	"C"
24	25	2768056	1	D8260W	<2	N	N	"C"
25	26	1801	1	8260	-	-	-	
27	27							
27	28							
28	29							
29	30							
30	31							
31	32							
32	33							

Pos #	Run #	ALS Sample ID (w/ Container ID)	Dilution	Test	pH	HDSP / Wt.	CL-	Comment
34	34							
35	35							
36	36							
37	37							
38	38							
39	39							
40	40							
41	41							
42	42							
43	43							
44	44							
45	45							
46	46							
47	47							
48	48							
49	49							
50	50							
51	51							
52	52							
53	53							
54	54							
55	55							
56	56							
57	57							
58	58							
59	59							
60	60							
61	61							
62	62							
63	63							
64	64							
65	65							
66	66							
67	67							

IS:	VOA14-14-27	Vnew:	VOA14-17-05
SS:	VOA13-100-11	Vgas:	VOA14-17-19
BFB:	VOA14-07-25	Qvoa:	VOA14-17-29
		Qgas:	VOA14-16-20

ABBREVIATIONS

CO: Suspect Carryover	SS: Surrogate Failure
LS: Library Search	IS: ISTD Failure
RR: Rerun same dilution	DNR: Do not Report
DFx: Rerun @ less diln x	NU: Not Used
DLx: Rerun @ diln x	AF: Antifoam was used

10ul : HS812
25ul : HS813
100ul : HS814
1 mL : HS815
5 mL : HS817
10 mL : HS816

	8260	624
Prev		Prev
Current		Current
Total		Total
Needs QC?		Needs QC?
Page 2338 of 2543 Total		Pages

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	2133017	0.392	ug/L m
2)	Acetylene	0.00	0	~~N.D.~~	~~ug/L~~
3)	Ethylene	0.00	0	N.D.	ug/L
4)	Ethane	0.00	0	N.D.	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	0.00	0	N.D.	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.
AB679.D RSK0626.M Fri Jun 29 11:06:36 2018 Page 49 of 85

Form 4B
Inorganic Blank Summary

Analysis Method: EPA 300.0
Instrument: IC-6

SDG No.: ASN035

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2762619	Chloride	MB	QC-Water	06/22/2018 01:22	0.25	U	mg/L
2762619	Nitrate-N	MB	QC-Water	06/22/2018 01:22	0.030	U	mg/L
2762619	Sulfate	MB	QC-Water	06/22/2018 01:22	0.13	J	mg/L
2762646	Chloride	MB	QC-Water	06/22/2018 08:29	0.11	J	mg/L
2762646	Nitrate-N	MB	QC-Water	06/22/2018 08:29	0.030	U	mg/L
2762646	Sulfate	MB	QC-Water	06/22/2018 08:29	0.13	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: S2320B-97
Instrument: AUTOT

SDG No.: ASN035

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2762486	Alkalinity, Total	MB	QC-Water	06/22/2018 00:55	1	J	mg/L
2762519	Alkalinity, Total	MB	QC-Water	06/22/2018 17:48	3	J	mg/L
2762523	Alkalinity, Total	MB	QC-Water	06/22/2018 19:54	3	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: S5310B-00
Instrument: TOC

SDG No.: ASN035

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2766770	Total Organic Carbon (TOC)	MB	QC-Water	06/29/2018 21:11	1.0	U	mg/L
CCB5	Total Organic Carbon (TOC)	CCB	QC-Water	06/29/2018 21:11	0.102	J	mg/L
CCB6	Total Organic Carbon (TOC)	CCB	QC-Water	06/29/2018 21:11	0.168	J	mg/L
				TOC LOD was 0.50 mg/L.	Not used to qualify data		
					conc. 6/14/18		

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #: 7815 3024 5629

* 2 3 2 2 3 4 8 *

Co. Name: AECOM

Contact (Report to): John Santacroce Phone: 518 951 2200

Address: 40 British American Blvd Latham NY

Bill to (if different than Report to): Same PO#:

Project Name/#: Scotia Navy Depot ALS Quote #:

TAT: [x] Normal-Standard TAT is 10-12 business days. Date Required:
[ ] Rush-Subject to ALS approval and surcharges. Approved By:

Email? [x] -Y John.Santacroce@aecom.com

Fax? [ ] -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	8260 VOCs	RSK 175	TOC	Alkalinity	Cl, SO4, NO3	Acetylene					
	***Container Type						G	G	G	P	P						
	***Container Size						40	40	40	250	250						
	*** Preservative						HCl	HCl	HCl	-	-						
1	MW-22 062118	*MS/MSD	6/21/18	930	G	GW	6										
2	MW-24 062118			0936			2	2	2	1	1	✓					
3	MW-36 062118			1035			2										
4	MW-32 062118			1105			2	2	2	1	1	✓					
5	DUP03-062118	* Replicate		-			2										
6	MW-25 062118			1140			2										
7	MW-33 062118			[redacted]			2	2	2	1	1	✓					
8	MW-30 062118			1240			2	2	2	1	1	✓					

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Analysis

Reviewed by / Date: 1TAA 6/22/18

Cooler Temp: 2

Therm. ID: 402

No. of Coolers:

Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	N	N	N	Y	
	Y	Y	Y	Y	

	Custody seals Present?	(if present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
	N	N	N	N	N
	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Ross McCord / Alex Golden

Project Comments: 6/23/18 0821

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 AECOM	6/21/18	2350	2 Brian McGuirk	6/21/18	2350
3 Brian McGuirk	6/21/18	1400	4 COMMON COURIER / ALS COURIER		
5 COMMON COURIER / ALS COURIER			6	6/22/18	0945
7			8		
9			10		

Data Deliverables: [x] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other

EDDs Required? [ ] If yes, format type: SEE QAPP

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected in? MD [ ] NJ [ ] NY [ ] PA [ ]

Other: Send QAPP

DOD Criteria Required?

ALS FIELD SERVICES

[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite

**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #: 232548

Co. Name:

Contact (Report to): Phone:

Address: See pg 1

Bill to (if different than Report to): See pg 1 PO#:

Project Name/#: ALS Quote #:

TAT: ☑ Normal-Standard TAT is 10-12 business days. Date Required:
☐ Rush-Subject to ALS approval and surcharges. Approved By:

Email? ☐ -Y pg 1
Fax? ☐ -Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	Enter Number of Containers Per Analysis: 8260 VOCs	RSK 175	TOC	Alkalinity/ Cl, SO4, NO3	Acetylene								
***Container Type						G	G	G	P-	P								
***Container Size						40ml-Comp	40ml	40ml	250ml	250ml								
Preservative						HCl	HCl	H2SO4	-	-								
1 MW-31 062118		6/21/18	1320	G	GW	2	2	2	1	1	✓							
2 Trip Blank		-	-	-	-	2	no trip blank											
3																		
4																		
5																		
6																		
7																		
8																		

Receipt Information (completed by Sample Receiver)
Performed by: TMH
Cooler Temp: 2
Therm. ID: 402
No. of Coolers:
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	N	N	N	Y	
	Y	Y	Y		
	N	N	N	N	N
	Custody seals Present?	(if present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Ross McGrath

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Ross McGrath	6/21/18	230	2 Brian McGuirk	6/22/18	230
3 Brian McGuirk	6/22/18	400	4		
5			6		
7			8		
9			10		

Data Deliverables: ☐ Standard ☐ CLP-like ☐ NJ-Reduced ☐ NJ-Full ☐ other
EDDs Required? ☐ If yes, format type: See pg 1
DOD Criteria Required?

SDWA Forms? ⇨ yes ☐ yes ☐ yes ☐ yes ☐
State Samples Collected in? MD ☐ NJ ☐ NY ☐ PA ☐
Other: See pg 1

ALS FIELD SERVICES
☐ Pickup
☐ Labor
☐ Composite Sampling
☐ Rental Equipment
☐ Other:

* G=Grab; C=Composite
**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

ALS

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	1 of 2
ALS Quote #:	

Client Name: ALS Environmental

Address: 34 Dogwood Lane, Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2322348

Bill To: ALS Environmental

TAT [ ] Normal-Standard TAT is 10-12 business days. [X] Rush-Subject to ALS approval and surcharges.

Date Required: 7/9/2018 Approved By:

Email? [ ] -Y

Fax? [ ] -Y No.:

Container Type: G | Container Size: 40 mL | Preservative: HCl

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	DOD RSK175 (Ethane, , Ethene, Methane, Acetylene)	*Report to the MDL, QC lab report needed, EQUIS EDD.	Sample/COC Comments
					Enter Number of Containers Per Sample or Field Results Below.		
1 2322348 002	6/21/18	0936	G	WT	2	*	
2 2322348 004	6/21/18	1105	G	WT	2	*	Sub to ALS Rochester
3 2322348 007	6/21/18	1250	G	WT	2	*	
4 2322348 008	6/21/18	1240	G	WT	2	*	
5 2322348 009	6/21/18	1320	G	WT	2	*	
6							
7							
8							
9							
10							

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

ALS Field Services: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

Project Comments:

LOGGED BY(signature): Date: Time:

REVIEWED BY(signature): Date: Time:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/26/18	1600	2	6/27/18	0950
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [X] DOD

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] MD

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

R1805985 5

ALS Group USA, Corp. UR115: 2322348

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WI

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Cooler Receipt and Preservation Check Form

R1805985 5
ALS Group USA, Corp.
UR115: 2322340

Project/Client ALS- MDT Folder Number

Cooler received on 6/27/18 by: C

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y (N)	5a	Perchlorate samples have required headspace?	Y N (NA)
2	Custody papers properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk, or Sulfide have sig* bubbles?	(Y) (N) NA
3	Did all bottles arrive in good condition (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: (Wet Ice) Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 6/27/18 Time: 1755 ID: IR#7 (IR#9) From: Temp Blank (Sample Bottle)

Observed Temp (°C)	2.1						
Correction Factor (°C)	-						
Corrected Temp (°C)	2.1						
Temp from: Type of bottle	-						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R002 by C on 6/27/18 at 1000
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 6/27/18 Time: 1502 by: C

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol)					
		$Na_2S_2O_3$								
		ZnAcetate	-	-						
		HCl	**	**	Client					

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: Client

Explain all Discrepancies/ Other Comments:

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: C

PC Secondary Review: SMS 6/28/18

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2322348001	MW-22 062118	Ground Water	6/21/2018 09:30	6/22/2018 09:45	Collected by Client
2322348002	MW-24 062118	Ground Water	6/21/2018 09:36	6/22/2018 09:45	Collected by Client
2322348003	MW-36 062118	Ground Water	6/21/2018 10:35	6/22/2018 09:45	Collected by Client
2322348004	MW-32 062118	Ground Water	6/21/2018 11:05	6/22/2018 09:45	Collected by Client
2322348005	DUP03-062118	Ground Water	6/21/2018 00:00	6/22/2018 09:45	Collected by Client
2322348006	MW-25 062118	Ground Water	6/21/2018 11:40	6/22/2018 09:45	Collected by Client
2322348007	MW-33 062118	Ground Water	6/21/2018 12:50	6/22/2018 09:45	Collected by Client
2322348008	MW-30 062118	Ground Water	6/21/2018 12:40	6/22/2018 09:45	Collected by Client
2322348009	MW-31 062118	Ground Water	6/21/2018 13:20	6/22/2018 09:45	Collected by Client

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1805985-001	2322348 002	6/21/2018	0936
R1805985-002	2322348 004	6/21/2018	1105
R1805985-003	2322348 007	6/21/2018	1250
R1805985-004	2322348 008	6/21/2018	1240
R1805985-005	2322348 009	6/21/2018	1320

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-036 (2322348)

Sample Management

This report contains the results of the analysis of nine (9) ground water samples collected on June 21, 2018. Analytical results and quality control information are summarized in this data package.

Qualifier Symbol Definitions:

U = Qualifier indicates that the analyte was not detected above the LOD.
J = Qualifier indicates that the analyte value is between the DL and the LOQ.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds the calibration range.
P = Qualifier indicates that the RPD between the two analytical columns is > 40%.
NSC = Qualifier indicates that spike recoveries were not calculated based on the spiking concentration.

Result Symbol Definitions:

DL = The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence.
LOD = The smallest analyte concentration that must be present in a sample in order to be detected at a high level of confidence.
LOQ = The lowest concentration that produces a quantitative result within specified limits of precision or bias.

Manual Integration Symbol Definitions

I = Peak was not integrated properly by chromatographic software. This may be due to baseline irregularities resulting from sample matrix, elevated baseline, or incorrect integration by software on a sample. Integration was adjusted by operator to ensure proper quantitation.
H = The incorrect peak was identified or the chromatographic software did not identify an analyte peak. Operator manually identified the correct peak as the appropriate target analyte. This flag is automatically assigned by the Target software.
SP = Peak was erroneously split. The operator manually integrated the peak to include all the area of the analyte peak to ensure proper quantitation.
MP = Two peaks were erroneously merged. This may include two discrete peaks separated by a distinguishable valley or a larger peak with a clearly identifiable shoulder. Operator manually split peaks.
AB = Integration of group of adjacent peaks did not follow baseline. Operator manually assigned integration to follow baseline.
NP = Negative spike in the baseline resulted in overstating area of analyte peaks. Analyte peaks were re-assigned.
AC = Integration of aggregate or multi-component analyte to include area off all components of the analyte (i.e., toxaphene).

Sample Receipt

Samples arrived at ALS via courier on June 22, 2018. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Manual Integrations

If manual integrations were performed they are indicated on the raw data quantification files for each method.

Subcontracted Data

Five samples were subcontracted to ALS Global in Rochester, New York for the analysis of RSK-175. This data has been attached at the end of this data package.

Volatile Organics by SW-846 Method 8260

Sample Handling. Eleven (11) water samples were analyzed by SW-846 Method 8260 for volatile organic compounds. All analyses were performed within the holding time.

Initial Calibrations. Initial calibrations were properly analyzed and met method criteria for all target analytes. **Note**: The batch LCS also serves as a second source (ICV).

Initial Calibration Verifications. Initial calibration verification samples were properly analyzed and met method criteria.

Continuing Calibration Verification. Continuing Calibration Verification samples were analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank.

Surrogates. Recoveries were within control limits.

Laboratory control samples. Target analytes were recovered within control limits in the laboratory control samples.

Matrix and Matrix Spike samples. Target analytes were recovered within control limits in the laboratory control samples.

Internal Standards. Internal standard results met method criteria

Anions by EPA 300.0

Sample handling. One (1) aqueous sample was analyzed for chloride, nitrate-N, and sulfate by EPA Method 300.0. The sample was analyzed within the method recommended holding time for each analyte.

Calibration. Initial calibrations, identified as Method A (high range) and Method L (low range), were properly established. Initial and continuing calibration verification standards were recovered within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. Anions were not detected above the reporting limits in the blanks.

Laboratory Control Samples. Laboratory control samples identified as SSL and 2761691 were analyzed initially and every 20 samples. Recoveries were within the QC limits.

Spikes. A matrix spike and spike duplicate was not performed on any samples from this data deliverable.

Total Alkalinity by SM 2320B

Sample handling. One (1) aqueous sample was analyzed for total alkalinity by Standard Method 2320B. The sample was analyzed within the 14-day holding time established for the method.

Blanks. Method blanks were analyzed with the samples. Total alkalinity was not detected above the reporting limit in the blanks.

Calibration. The autotitrator was pH calibrated on the day of analysis. Total alkalinity and pH standards were analyzed initially and throughout the analysis. The standards were recovered within the alkalinity QC limits of 90-110% and the pH QC limits of +/- 0.05 pH units.

Duplicate. A duplicate analysis was not performed on any samples from this data deliverable.

Total Organic Carbon by SM 5310B

Sample handling. One (1) aqueous sample was analyzed for total organic carbon by Standard Method 5310B. The sample was analyzed within the 28-day holding time established for the method.

Calibration. Initial calibrations were properly established on the days of analysis. Initial and continuing calibration standards were analyzed for verification, and recoveries were all within the QC limits.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above the reporting limit in the blanks.

Laboratory Control Samples. A laboratory control sample identified as 2766518 was analyzed with the samples. The recovery was within the QC limit of 85-115%.

Spikes. Matrix spike and matrix spike duplicate analyses were not performed on any samples from this data deliverable.

ANALYTICAL RESULTS

Workorder: 2322348 ASN036|2015-SCOTIA NAVY DEPOT

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2322348001	1	MW-22 062118	SW846 8260C	trans-1,2-Dichloroethene
The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte trans-1,2-Dichloroethene. The % Recovery was reported as 127 and the control limits were 75 to 124.				
2322348001	2	MW-22 062118	SW846 8260C	Carbon Tetrachloride
The GCMS volatiles analysis was performed at a dilution due to the level of target compounds.				
2322348002	1	MW-24 062118	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2322348004	1	MW-32 062118	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2322348007	1	MW-33 062118	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2322348008	1	MW-30 062118	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2322348009	1	MW-31 062118	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

ALS Environmental

Client: ALS Environmental - US
Project: UR115: 2322348
Sample Matrix: Water

Service Request: R1805985
Date Received: 06/27/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt:

Five water samples were received for analysis at ALS Environmental on 06/27/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Volatiles by GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 07/02/2018

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

MW-22 062118

Lab Name: ALS Global Contract: VOMS

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-036

Matrix (soil/water): WATER Lab Sample ID: 2322348001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: 318070269.D

Level (low/med): Date Received: 6/22/18

% Moisture: not dec. 100.0 Date Analyzed: 7/3/18

GC Column: RTXVRX ID: 0.25 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
56-23-5	Carbon Tetrachloride	3.8	U
75-34-3	1,1-Dichloroethane	3.8	U
107-06-2	1,2-Dichloroethane	3.8	U
75-35-4	1,1-Dichloroethene	3.8	U
156-59-2	cis-1,2-Dichloroethene	3.8	U
156-60-5	trans-1,2-Dichloroethene	3.8	U
630-20-6	1,1,1,2-Tetrachloroethane	3.8	U
79-34-5	1,1,2,2-Tetrachloroethane	3.8	U
127-18-4	Tetrachloroethene	6.3	
108-88-3	Toluene	3.8	U
71-55-6	1,1,1-Trichloroethane	3.8	U
79-00-5	1,1,2-Trichloroethane	3.8	U
79-01-6	Trichloroethene	331	
75-01-4	Vinyl Chloride	3.8	U

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Global Contract: VOMS

Lab Code: VOA Case No.: _____ SAS No.: _____ SDG No.: ASN-036

Matrix Spike - Sample No: MW-22 062118MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMIT REC
Carbon Tetrachloride	100	0	126	126	(72-136)
1,1-Dichloroethane	100	0	103	103	(77-125)
1,2-Dichloroethane	100	0	110	110	(73-128)
1,1-Dichloroethene	100	0	110	110	(71-131)
cis-1,2-Dichloroethene	100	0	122	122	(78-123)
trans-1,2-Dichloroethene	100	0	106	106	(75-124)
1,1,1,2-Tetrachloroethane	100	0	103	103	(78-124)
1,1,2,2-Tetrachloroethane	100	0	110	110	(71-121)
Tetrachloroethene	100	6.3	108	101	(74-129)
Toluene	100	0	111	111	(80-121)
1,1,1-Trichloroethane	100	0	124	124	(74-131)
1,1,2-Trichloroethane	100	0	96.8	96.8	(80-119)
Trichloroethene	100	331	433	101	(79-123)
Vinyl Chloride	100	0	107	107	(58-137)

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 14 outside limits

Comments: _____

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Global Contract: VOMS

Lab Code: VOA Case No.: _____ SAS No.: _____ SDG No.: ASN-036

Matrix Spike - Sample No: MW-22 062118MSD

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	MSD % RPD #	QC LIMITS RPD	QC LIMITS REC
Carbon Tetrachloride	100	125	125	1.09	30	(72-136)
1,1-Dichloroethane	100	119	119	14	30	(77-125)
1,2-Dichloroethane	100	109	109	.83	30	(73-128)
1,1-Dichloroethene	100	131	131	17.4	30	(71-131)
cis-1,2-Dichloroethene	100	118	118	3.03	30	(78-123)
trans-1,2-Dichloroethene	100	127	127*	18.1	30	(75-124)
1,1,1,2-Tetrachloroethane	100	102	102	1.22	30	(78-124)
1,1,2,2-Tetrachloroethane	100	104	104	5.2	30	(71-121)
Tetrachloroethene	100	109	102	.98	30	(74-129)
Toluene	100	110	110	.67	30	(80-121)
1,1,1-Trichloroethane	100	123	123	1.02	30	(74-131)
1,1,2-Trichloroethane	100	95.0	95	1.83	30	(80-119)
Trichloroethene	100	425	93.3	1.89	30	(79-123)
Vinyl Chloride	100	104	104	2.55	30	(58-137)

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 14 outside limits

Spike Recovery: 1 out of 14 outside limits

Comments: _____

1st BA 6/29/18
2nd MWC 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	2133017	0.392	ug/L m
2)	Acetylene	0.00	0	N.D.	ug/L
3)	Ethylene	0.00	0	N.D.	ug/L
4)	Ethane	0.00	0	N.D.	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	0.00	0	N.D.	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.

Form 4B
Inorganic Blank Summary

Analysis Method: EPA 300.0
Instrument: IC-6

SDG No.: ASN036

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2763190	Chloride	MB	QC-Water	06/23/2018 05:46	0.12	J	mg/L
2763190	Nitrate-N	MB	QC-Water	06/23/2018 05:46	0.030	U	mg/L
2763190	Sulfate	MB	QC-Water	06/23/2018 05:46	0.25	U	mg/L
2764175	Chloride	MB	QC-Water	06/23/2018 11:39	0.08	J	mg/L
2764175	Nitrate-N	MB	QC-Water	06/23/2018 11:39	0.030	U	mg/L
2764175	Sulfate	MB	QC-Water	06/23/2018 11:39	0.15	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: S2320B-97
Instrument: AUTOT

SDG No.: ASN036

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2763375	Alkalinity, Total	MB	QC-Water	06/24/2018 07:13	1	J	mg/L
2763404	Alkalinity, Total	MB	QC-Water	06/24/2018 22:23	3	J	mg/L
2763435	Alkalinity, Total	MB	QC-Water	06/25/2018 00:16	2	J	mg/L
2763439	Alkalinity, Total	MB	QC-Water	06/25/2018 02:16	3	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: S5310B-00
Instrument: TOC

SDG No.: ASN036

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2767303	Total Organic Carbon (TOC)	MB	QC-Water	06/30/2018 01:45	1.0	U	mg/L
CCB7	Total Organic Carbon (TOC)	CCB	QC-Water	06/30/2018 01:45	0.237	J	mg/L
CCB8	Total Organic Carbon (TOC)	CCB	QC-Water	06/30/2018 01:45	0.255	J	mg/L
				TOC LOD was 0.50 mg/L. Not used to qualify data.			
						Conn 07/19/18.	

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 1 of 1
Courier:
Tracking #:

* 2 3 2 2 4 6 3 *

Co. Name: AECOM
Contact (Report to): John Santacroce Phone: 518 951 2200
Address: 46 British American Blvd
Latham NY 12110

Bill to (if different than Report to): PO#:

Project Name/#: Seneca Navy Depot 60440641 ALS Quote #:

TAT: ☑ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges. Date Required: Approved By:

Email? ☑ Y John.Santacroce@aecom.com
Fax? ☐ Y No.:

	***Container Type	G	G	G	P	P	-					
	***Container Size	40	40	40	250	250	-					
	Preservative	HCL	HCL	HCL	-	-	-					
	ANALYSES/METHOD REQUESTED											
		8260 - VOCs	RSK 175	TOC	Alkalinity	Sulfate, Cl, NO3	Acetylene					
Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	Enter Number of Containers Per Analysis						
1 DuPont - 062218	* Duplicate	6/22/18	-	G	GW	2	2	2	1	1	✓	
2 MW-28 062218			925			2	2	2	1	1	✓	
3 MW-29 062218			1030			2	2	2	1	1	✓	
4 Trip Blank		-	-	-	-	2						
5												
6												
7												
8												

Receipt Information (completed by Sample Receiving)
Received by: BKG
Cooler Temp: -3.1
Therm. ID: IR407
No. of Coolers:
Notes: 815 4127 1005

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	Y	Y	Y	Y	
1	Y	Y	Y	Y	
2	Y	Y	Y	N	N
3	Y	Y	Y	Y	Y
4					

	Custody seals Present?	(If present) Seals Intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Ross McCready

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Ross McCready AECOM	6/22/18	11am	2 Brian McGuirk COMMON COURIER / ALS COURIER	6/22/18	1100
3 Brian McGuirk COMMON COURIER / ALS COURIER	6/22/18	11pm	4		
5		0926	6 John Doe	6/23/18	0926
7			8		
9			10		

Data Deliverables: ☐ Standard ☐ CLP-like ☐ NJ-Reduced ☐ NJ-Full ☐ NY
EDDs Required? ☐ If yes, format type:
DOD Criteria Required?

SDWA Forms? yes ☐ yes ☐ yes ☐ yes ☐
State Samples Collected In? MD ☐ NJ ☐ NY ☐ PA ☐
Other
Enter PWSID No.

ALS FIELD SERVICES
☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment ☐ Other:

* G=Grab; C=Composite
**Matrix: A=Air; DW=Drinking Water; GW=Groundwater; O=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	1 of 2
ALS Quote #:	

Client Name: ALS Environmental

Address: 34 Dogwood Lane

Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2322463

Bill To: ALS Environmental

TAT [ ] Normal-Standard TAT is 10-12 business days.
[X] Rush-Subject to ALS approval and surcharges.

Date Required: 7/10/2018 Approved By:

Email? [ ] -Y

Fax? [ ] -Y No.:

Container Type: G | Container Size: 40 mL | Preservative: HCl

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	DOD RSK175 (Ethane, Ethene, Methane, Acetylene)	*Report to the MDL, QC lab report needed, EQUIS EDD.	Enter Number of Containers Per Sample or Field Results Below.	Sample/COC Comments
1 2322463 001	6/22/18	0000	G	WT	2	*		
2 2322463 002	6/22/18	0925	G	WT	2	*		Sub to ALS Rochester
3 2322463 003	6/22/18	1030	G	WT	2	*		
4								
5								
6								
7								
8								
9								
10								

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

ALS Field Services: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

Project Comments:

LOGGED BY(signature): Date: Time:

REVIEWED BY(signature): Date: Time:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/26/18	1605	2	6/27/18	0800
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [X] DOD

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC

Reportable to PADEP? Yes [ ]

Sample Disposal: Lab [X]

PWSID # ____

EDDS: Format Typ

R1805986 5

ALS Group USA, Corp.
UR115: 2322463

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; V

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Cooler Receipt and Preservation Check Form

R1805986 5
ALS Group USA, Corp.
UR116: 3322485

Project/Client ALS - MDT Folder Number

Cooler received on 6/27/18 by: R

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y (N)	5a	Perchlorate samples have required headspace?	Y N (NA)
2	Custody papers properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	(Y) (N) NA
3	Did all bottles arrive in good condition (unbroken)?	(Y) N	6	Where did the bottles originate? ALS/ROC	(CLIENT)
4	Circle: (Wet Ice) Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 6/27/18 Time: 0955 ID: IR#7 (IR#9) From: Temp Blank (Sample Bottle)

Observed Temp (°C)	2.1						
Correction Factor (°C)	–						
Corrected Temp (°C)	2.1						
Temp from:Type of bottle	–						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R002 by R on 6/27/18 at 1000
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 6/27/18 Time: 1505 by: R

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**	Client					

Bottle lot numbers: Client
Explain all Discrepancies/ Other Comments:

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: R
PC Secondary Review: JMS 6/28/18 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2322463001	DUP04-062218	Ground Water	6/22/2018 00:00	6/25/2018 08:20	Collected by Client
2322463002	MW-28 062218	Ground Water	6/22/2018 09:25	6/25/2018 08:20	Collected by Client
2322463003	MW-29 062218	Ground Water	6/22/2018 10:30	6/25/2018 08:20	Collected by Client
2322463004	Trip Blank	Ground Water	6/22/2018 10:30	6/25/2018 08:20	Collected by Client

Client: ALS Environmental - US
Project: UR115: 2322463

Service Request: R1805986

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1805986-001	2322463 001	6/22/2018	0000
R1805986-002	2322463 002	6/22/2018	0925
R1805986-003	2322463 003	6/22/2018	1030

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-037 (2322463)

Sample Management

This report contains the results of the analysis of four (4) ground water samples collected on June 22, 2018. Analytical results and quality control information are summarized in this data package.

Qualifier Symbol Definitions:

U = Qualifier indicates that the analyte was not detected above the LOD.
J = Qualifier indicates that the analyte value is between the DL and the LOQ.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds the calibration range.
P = Qualifier indicates that the RPD between the two analytical columns is > 40%.
NSC = Qualifier indicates that spike recoveries were not calculated based on the spiking concentration.

Result Symbol Definitions:

DL = The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence.
LOD = The smallest analyte concentration that must be present in a sample in order to be detected at a high level of confidence.
LOQ = The lowest concentration that produces a quantitative result within specified limits of precision or bias.

Manual Integration Symbol Definitions

I = Peak was not integrated properly by chromatographic software. This may be due to baseline irregularities resulting from sample matrix, elevated baseline, or incorrect integration by software on a sample. Integration was adjusted by operator to ensure proper quantitation.
H = The incorrect peak was identified or the chromatographic software did not identify an analyte peak. Operator manually identified the correct peak as the appropriate target analyte. This flag is automatically assigned by the Target software.
SP = Peak was erroneously split. The operator manually integrated the peak to include all the area of the analyte peak to ensure proper quantitation.
MP = Two peaks were erroneously merged. This may include two discrete peaks separated by a distinguishable valley or a larger peak with a clearly identifiable shoulder. Operator manually split peaks.
AB = Integration of group of adjacent peaks did not follow baseline. Operator manually assigned integration to follow baseline.
NP = Negative spike in the baseline resulted in overstating area of analyte peaks. Analyte peaks were re-assigned.
AC = Integration of aggregate or multi-component analyte to include area off all components of the analyte (i.e., toxaphene).

Sample Receipt

Samples arrived at ALS via courier on June 25, 2018. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Manual Integrations

If manual integrations were performed they are indicated on the raw data quantification files for each method.

Subcontracted Data

Three samples were subcontracted to ALS Global in Rochester, New York for the analysis of RSK-175. This data has been attached at the end of this data package.

Volatile Organics by SW-846 Method 8260

Sample Handling. Four (4) water samples were analyzed by SW-846 Method 8260 for volatile organic compounds. All analyses were performed within the holding time.

Initial Calibrations. Initial calibrations were properly analyzed and met method criteria for all target analytes. **Note**: The batch LCS also serves as a second source (ICV).

Initial Calibration Verifications. Initial calibration verification samples were properly analyzed and met method criteria.

Continuing Calibration Verification. Continuing Calibration Verification samples were analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank.

Surrogates. Recoveries were within control limits.

Laboratory control samples. Target analytes were recovered within control limits in the laboratory control samples.

Internal Standards. Internal standard results met method criteria

Anions by EPA 300.0

Sample handling. Three (3) aqueous samples were analyzed for chloride, nitrate-N, and sulfate by EPA Method 300.0. The samples were analyzed within the method recommended holding time for each analyte.

Calibration. Initial calibrations, identified as Method A (high range) and Method L (low range), were properly established. Initial and continuing calibration verification standards were recovered within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. Anions were not detected above the reporting limits in the blanks.

Laboratory Control Samples. Laboratory control samples identified as SSL and 2763192 were analyzed initially and every 20 samples. Recoveries were within the QC limits.

Spikes. A matrix spike and spike duplicate analysis was not performed on any samples from this data deliverable.

Total Alkalinity by SM 2320B

Sample handling. Three (3) aqueous samples were analyzed for total alkalinity by Standard Method 2320B. The samples were analyzed within the 14-day holding time established for the method.

Blanks. Method blanks were analyzed with the samples. Total alkalinity was not detected above the reporting limit in the blanks.

Calibration. The autotitrator was pH calibrated on the day of analysis. Total alkalinity and pH standards were analyzed initially and throughout the analysis. The standards were recovered within the alkalinity QC limits of 90-110% and the pH QC limits of +/- 0.05 pH units.

Duplicate. A duplicate analysis identified as 2764273 was performed on sample 2322463001 (DUP04-062218). The relative percent difference between the results was within the QC limit of 20%.

Total Organic Carbon by SM 5310B

Sample handling. Three (3) aqueous samples were analyzed for total organic carbon by Standard Method 5310B. The samples were analyzed within the 28-day holding time established for the method.

Calibration. Initial calibrations were properly established on the days of analysis. Initial and continuing calibration standards were analyzed for verification, and recoveries were all within the QC limits.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above the reporting limit in the blanks.

Laboratory Control Samples. Laboratory control samples identified as 2767366 and 2768242 were analyzed with the samples. Recoveries were within the QC limits of 85-115%.

Spikes. Matrix spike and matrix spike duplicate analyses identified as 2767368 and 2767369 were performed on sample 2322463002 (MW-28 0622180). All recoveries were within QC criteria.

Matrix spike and matrix spike duplicate analyses identified as 2768245 and 2768246 were performed on sample 2322463003 (MW-29 062218). All recoveries were within QC criteria.

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2322463 ASN037|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2322463001	1	DUP04-062218	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2322463002	1	MW-28 062218	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2322463003	1	MW-29 062218	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

ALS Environmental

Client: ALS Environmental - US
Project: UR115: 2322463
Sample Matrix: Water

Service Request: R1805986
Date Received: 06/27/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt:

Three water samples were received for analysis at ALS Environmental on 06/27/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Volatiles by GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 07/02/2018

1st BA 6/29/18
2nd MW 6/29/18

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\V2\DATA\062918\AB679.D Vial: 38
Acq On : 29 Jun 2018 9:32 am Operator: b.allgeier
Sample : met blk Inst : V2
Misc : Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Jun 29 9:48 2018 Quant Results File: RSK0626.RES

Quant Method : I:\ACQUDATA\V2\OLDMTHDS\RSK0626.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 26 13:26:21 2018
Response via : Initial Calibration
DataAcq Meth : RSK.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Methane	0.28	2133017	0.392	ug/L m
2)	Acetylene	0.00	0	N.D.	ug/L
3)	Ethylene	0.00	0	N.D.	ug/L
4)	Ethane	0.00	0	N.D.	ug/L
5)	Propene	0.00	0	N.D.	ug/L
6)	Propane	0.00	0	N.D.	ug/L

(f)=RT Delta > 1/2 Window (m)=manual int.
AB679.D RSK0626.M Fri Jun 29 11:06:36 2018 Page 57 of 93 Page 1

Form 4B
Inorganic Blank Summary

Analysis Method: EPA 300.0
Instrument: IC-6

SDG No.: ASN037

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2763190	Chloride	MB	QC-Water	06/23/2018 05:46	0.12	J	mg/L
2763190	Nitrate-N	MB	QC-Water	06/23/2018 05:46	0.030	U	mg/L
2763190	Sulfate	MB	QC-Water	06/23/2018 05:46	0.25	U	mg/L
2764183	Chloride	MB	QC-Water	06/23/2018 20:19	0.09	J	mg/L
2764183	Nitrate-N	MB	QC-Water	06/23/2018 20:19	0.030	U	mg/L
2764183	Sulfate	MB	QC-Water	06/23/2018 20:19	0.13	J	mg/L
2764186	Chloride	MB	QC-Water	06/23/2018 23:25	0.08	J	mg/L
2764186	Nitrate-N	MB	QC-Water	06/23/2018 23:25	0.030	U	mg/L
2764186	Sulfate	MB	QC-Water	06/23/2018 23:25	0.14	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: S2320B-97
Instrument: AUTOT

SDG No.: ASN037

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2764245	Alkalinity, Total	MB	QC-Water	06/26/2018 05:51	2	J	mg/L
2764272	Alkalinity, Total	MB	QC-Water	06/26/2018 12:53	3	J	mg/L
2764276	Alkalinity, Total	MB	QC-Water	06/26/2018 14:59	2	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: S5310B-00
Instrument: TOC

SDG No.: ASN037

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2767365	Total Organic Carbon (TOC)	MB	QC-Water	06/30/2018 11:10	1.0	U	mg/L
2768241	Total Organic Carbon (TOC)	MB	QC-Water	07/02/2018 20:11	1.0	U	mg/L
CCB11	Total Organic Carbon (TOC)	CCB	QC-Water	06/30/2018 11:10	0.182	J	mg/L
CCB12	Total Organic Carbon (TOC)	CCB	QC-Water	06/30/2018 11:10	0.204	J	mg/L
CCB1	Total Organic Carbon (TOC)	CCB	QC-Water	07/02/2018 20:11	0.050	J	mg/L
CCB2	Total Organic Carbon (TOC)	CCB	QC-Water	07/02/2018 20:11	0.011	J	mg/L
		TOC	LOD was 0.50 mg/L. Not used to qualify data. cbm 7/19/18				

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

ALS Environmental

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 1 of 1

Courier:

Tracking #: 408689893237

2327398

Co. Name: AECOM

Contact (Report to): John Santacroce Phone: 518-951-2200

Address: 40 British American BLVD Latham, NY

Bill to (if different than Report to):

PO#: 604406641

Project Name/#: Scotia Navy Depot ALS Quote #:

TAT: ☑ Normal-Standard TAT is 10-12 business days. Date Required:

☐ Rush-Subject to ALS approval and surcharges. Approved By:

Email? ☑ Y John.Santacroce@aecom.com

Fax? ☐ Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	ANALYSES/METHOD REQUESTED: 8260 VOCs	Alkalinity	Cl, NO_3, SO_4	RSK 175	TOC	Enter Number of Containers Per Analysis
1 MW-30 071818		07/19/18	0906	G	GW	2	1	1	2	2	
2 MW-23 071818		↓	1025	G	GW	2					
3 MW-B-3 071818		↓	1200	G	GW	2					
4	ID rubbed off TVL										
5	labels WT-19										
6	Need Trip blanks										
7	40mL HCl										
8											

***Container Type	G	P	P	G	G
***Container Size	.5mL	250ml	1L	.5mL	.5mL
***Preservative	HCl	X	X	HCl	HCl

Receipt Information (completed by Sample Receiving)

Performed by: [illegible]

Cooler Temp: 2°

Therm. ID: 407

No. of Coolers:

Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	N (Y)	N (Y)	N (Y)	N (Y)	
	N	N	N	N (Y)	N
	N (Y)	N (Y)	N (Y)	Y	N (Y)
	Custody seals Present?	(If present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?

SAMPLED BY (Please Print): Alex Holden

Project Comments: 7-19-18 2050

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Alex Holden / AECOM	07/19/18	1330	2 COMMON COURIER / ALS COURIER		
3 COMMON COURIER / ALS COURIER			4 ALS COURIER	7-19-18	0858
5			6		
7			8		
9			10		

Data Deliverables: ☑ Standard ☐ CLP-like ☐ NJ-Reduced ☐ NJ-Full ☐ [illegible]

EDDs Required? ☐ If yes, format type: See QAPP

DOD Criteria Required?

SDWA Forms? ⇨ yes ☐ yes ☐ yes ☐ yes ☐

State Samples Collected in? MD ☐ NJ ☐ NY ☐ PA ☐ Other

⇨ Enter PWSID No.

ALS FIELD SERVICES

☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment ☐ Other:

* G=Grab; C=Composite

**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Oi=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO_3, NaOH, H_2SO_4

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2327398001	MW-30 071818	Ground Water	7/18/2018 09:06	7/19/2018 08:58	Collected by Client
2327398002	MW-23 071818	Ground Water	7/18/2018 10:25	7/19/2018 08:58	Collected by Client
2327398003	MW-B-3 071818	Ground Water	7/18/2018 12:00	7/19/2018 08:58	Collected by Client

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

Re: Power Outage at ALS – Middletown Facility

To Whom It May Concern,

During the recent weather event in the Northeast and related flooding in our area, ALS–Middletown lost power the evening of Monday, July 23, 2018. Numerous trees damaged both utility poles and fell on power lines in the flooded areas making repair that much more difficult for the emergency repair groups. The laboratory was without power until the afternoon of Wednesday, July 25, 2018.

This power outage prevented ALS from operating our business in a normal manner during this period. The analysis and reporting of samples during this time period was significantly reduced. In addition to continuing to receive samples from our clients, our field service staff and sample receiving groups continued to collect, process and receive samples during this period. Analysis of short hold parameters was accomplished under emergency generator power. As power was restored to our facility, we have brought all systems back online with minimal damage to instruments and computers. In this situation a sudden loss of power can cause damage to sensitive electronic equipment so care is being taken to ensure the instruments are operating at optimal conditions.

As we return to full operational status, we will experience backlogs in our data analysis and processing. The lab staff is working diligently 24/7 to get all delayed projects, results and reports out as quickly as possible to prevent any further delays. If any data was compromised due to the power loss, an appropriate comment will be notated on your laboratory report.

If you have any questions or concerns regarding your sample results, please feel free to contact your ALS Project Manager or our Client Services Manager, Shiloh Summy at Shiloh.summy@alsglobal.com or (717)-577-3515.

Thank you for choosing ALS–Middletown to meet your analytical needs. We are committed to ensuring all data meets our stringent quality standards even in these unfortunate circumstances.

Sincerely,

Scott Brunk

Laboratory Director

ALS Environmental, Middletown

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2327398 ASN038|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2327398001	1	MW-30 071818	S5310B-00	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2327398001	2	MW-30 071818	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-038 (2327398)

Sample Management

This report contains the results of the analysis of three (3) ground water samples collected on July 18, 2018. Analytical results and quality control information are summarized in this data package.

Qualifier Symbol Definitions:

U = Qualifier indicates that the analyte was not detected above the LOD.
J = Qualifier indicates that the analyte value is between the DL and the LOQ.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds the calibration range.
P = Qualifier indicates that the RPD between the two analytical columns is > 40%.
NSC = Qualifier indicates that spike recoveries were not calculated based on the spiking concentration.

Result Symbol Definitions:

DL = The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence.
LOD = The smallest analyte concentration that must be present in a sample in order to be detected at a high level of confidence.
LOQ = The lowest concentration that produces a quantitative result within specified limits of precision or bias.

Manual Integration Symbol Definitions

I = Peak was not integrated properly by chromatographic software. This may be due to baseline irregularities resulting from sample matrix, elevated baseline, or incorrect integration by software on a sample. Integration was adjusted by operator to ensure proper quantitation.
H = The incorrect peak was identified or the chromatographic software did not identify an analyte peak. Operator manually identified the correct peak as the appropriate target analyte. This flag is automatically assigned by the Target software.
SP = Peak was erroneously split. The operator manually integrated the peak to include all the area of the analyte peak to ensure proper quantitation.
MP = Two peaks were erroneously merged. This may include two discrete peaks separated by a distinguishable valley or a larger peak with a clearly identifiable shoulder. Operator manually split peaks.
AB = Integration of group of adjacent peaks did not follow baseline. Operator manually assigned integration to follow baseline.
NP = Negative spike in the baseline resulted in overstating area of analyte peaks. Analyte peaks were re-assigned.
AC = Integration of aggregate or multi-component analyte to include area off all components of the analyte (i.e., toxaphene).

Sample Receipt

Samples arrived at ALS via courier on July 19, 2018. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Manual Integrations

If manual integrations were performed they are indicated on the raw data quantification files for each method.

Subcontracted Data

One (1) sample was subcontracted to ALS Global in Rochester, New York for the analysis of RSK-175. This data has been attached at the end of this data package.

Volatile Organics by SW-846 Method 8260

Sample Handling. Two (2) water samples were analyzed by SW-846 Method 8260 for volatile organic compounds. All analyses were performed within the holding time.

Initial Calibrations. Initial calibrations were properly analyzed and met method criteria for all target analytes. **Note**: The batch LCS also serves as a second source (ICV).

Initial Calibration Verifications. Initial calibration verification samples were properly analyzed and met method criteria.

Continuing Calibration Verification. Samples were run immediately following ICAL.

Blanks. Target analytes were not detected in the method blank.

Surrogates. Recoveries were within control limits.

Laboratory control samples. Target analytes were recovered within control limits in the laboratory control samples, except as follows:

- In 2783491 LCS, 1,1-Dichloroethene was recovered above control limits.

Internal Standards. Internal standard results met method criteria

Anions by EPA 300.0

Sample handling. One (1) aqueous sample was analyzed for chloride, nitrate-N, and sulfate by EPA Method 300.0. The samples were analyzed within the method recommended holding time for each analyte.

Calibration. Initial calibrations, identified as Method A (high range) and Method L (low range), were properly established. Initial and continuing calibration verification standards were recovered within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. Anions were not detected above the reporting limits in the blanks.

Laboratory Control Samples. Laboratory control samples identified as SSL and 2778577 were analyzed initially and every 20 samples. Recoveries were within the QC limits.

Spikes. A matrix spike and spike duplicate analysis was not performed on any samples from this data deliverable.

Total Alkalinity by SM 2320B

Sample handling. One (1) aqueous sample was analyzed for total alkalinity by Standard Method 2320B. The sample was analyzed within the 14-day holding time established for the method.

Blanks. Method blanks were analyzed with the samples. Total alkalinity was not detected above the reporting limit in the blanks.

Calibration. The autotitrator was pH calibrated on the day of analysis. Total alkalinity and pH standards were analyzed initially and throughout the analysis. The standards were recovered within the alkalinity QC limits of 90-110% and the pH QC limits of +/- 0.05 pH units.

Duplicate. A duplicate analysis was not prepared on any samples from this data deliverable.

Total Organic Carbon by SM 5310B

Sample handling. One (1) aqueous samples were analyzed for total organic carbon by Standard Method 5310B. The samples were analyzed within the 28-day holding time established for the method.

Calibration. Initial calibrations were properly established on the days of analysis. Initial and continuing calibration standards were analyzed for verification, and recoveries were all within the QC limits.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above the reporting limit in the blanks.

Laboratory Control Samples. A laboratory control sample identified as 2785441 was analyzed with the samples. Recoveries were within the QC limits of 85-115%.

Spikes. Matrix spike and matrix spike duplicate analyses identified as 2785442 and 2785443 was performed on sample 2327398001 (MW-30 071818). All recoveries were within QC criteria.

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	1 of 2
ALS Quote #:	

Client Name: ALS Environmental

Address: 34 Dogwood Lane, Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2327398

Bill To: ALS Environmental

TAT: [ ] Normal-Standard TAT is 10-12 business days. [X] Rush-Subject to ALS approval and surcharges.

Date Required: 8/2/2018 Approved By:

Email? [ ] -Y

Fax? [ ] -Y No.:

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Container Type	Container Size	Preservative	DOD RSK175 (Ethane, , Ethene, Methane, Acetylene)	*Report to the MDL, QC lab report needed, EQUIS EDD.										Sample/COC Comments
					G	40 mL	HCl	Enter Number of Containers Per Sample or Field Results Below.											
1 2327398 002	7/18/18	0906	G	WT				2	*										
2																			Sub to ALS Rochester
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

ALS Field Services: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

Project Comments:

LOGGED BY(signature): Date: Time:

REVIEWED BY(signature): Date: Time:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	7-23-18	1343	2	7/24	0915
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [X] DOD

Special Processing: USACE [ ] Navy [ ]

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [X] Special [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] MD

EDDS: Format Type

R1807029 5

ALS Group USA, Corp

UR115: 2327398

*G=Grab; C=Composite **Matrix - A=Air; DW=Drinking Water; GW=Groundwater; O=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; W

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Cooler Receipt and Preservation Check Form

R1807029 5

ALS Group USA, Corp. LIR116: 2327388

Project/Client ALS- NDT Folder Number

Cooler received on 7/26/18 by: @ COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y (N) NA
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: **Wet Ice Dry Ice Gel packs** present?	Y (N)	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 7/26/18 Time: 0913 ID: (IR#7) IR#9 From: Temp Blank (Sample Bottle)

Observed Temp (°C)	23.6						
Correction Factor (°C)	—						
Corrected Temp (°C)	23.6						
Temp from:Type of bottle	—						
Within 0-6°C?	Y (N)	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: YMS 7/26/18

All samples held in storage location: R-002 by @ on 7/26/18 at 0920

5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 7/26/18 Time: 1551 by: @

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**	client					

Bottle lot numbers: client

Explain all Discrepancies/ Other Comments:

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: @

PC Secondary Review: YMS 7/27/18 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	1 of 2
ALS Quote #:	

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2327398

Bill To: ALS Environmental

TAT [ ] Normal-Standard TAT is 10-12 business days.
[X] Rush-Subject to ALS approval and surcharges.

Date Required: 8/2/2018 Approved By:

Email? [ ] -Y

Fax? [ ] -Y No:

Container Type: G
Container Size: 40 mL
Preservative: HCl

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	DOD RSK175 (Ethane, , Ethene, Methane, Acetylene)	*Report to the MDL, QC lab report needed, EQUIS EDD.									
					Enter Number of Containers Per Sample or Field Results Below.										
1 2327398 001	7/18/18	0906	G	WT	2	*									
2															
3															
4															
5															
6															
7															
8															
9															
10															

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

Sample/COC Comments

Sub to ALS Rochester

ALS Field Services: [ ] Pickup [ ] Labor
[ ] Composite_Sampling [ ] Rental_Equipment
[ ] Other:

Project Comments:

LOGGED BY(signature): DATE: TIME:

REVIEWED BY(signature): DATE: TIME:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	7/19/18	1456	2 ALS	8/1/18	09:25
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [X] DOD

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC

Reportable to PADEP? Yes [ ]

Sample Disposal: Lab [X]

PWSID #

EDDS: Format Type

R1807201 5

ALS Group USA, Corp.
UR115: 2327398

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Oil=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WI

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Cooler Receipt and Preservation Check Form

R1807201 5
ALS Group USA, Corp.
UR116: 2927398

Project/Client ALS-Middletown Folder Number

Cooler received on 8-1-18 by: ME

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	(Y) N NA *
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate? ALS/ROC	(CLIENT)
4	Circle: (Wet Ice) Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 8-1-18 Time: 09:28 ID: (IR#7) IR#9 From: Temp Blank (Sample Bottle)

Observed Temp (°C)	4.4						
Correction Factor (°C)	+0.3						
Corrected Temp (°C)	4.7						
Temp from:Type of bottle	Vial						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: ~~ME 8-1-18~~ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: ~~RO~~ by ME on 8-1-18 at 09:37
5035 samples placed in storage location: Analyst by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 8/1/18 Time: 1138 by: [signature]

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-						
		HCl	**	**	Client					

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: Client

Explain all Discrepancies/ Other Comments:

* 1 of 2 vials.

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: [signature] 8/1/18

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1807201-001	2327398 001	7/18/2018	0906

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1807029-001	2327398 002	7/18/2018	0906

ALS Environmental

Client: ALS Environmental - US
Project: UR115: 2327398
Sample Matrix: Water

Service Request: R1807029
Date Received: 07/26/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 07/26/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The sample was received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Volatiles by GC/MS:

No significant anomalies were noted with this analysis.

Approved by _____ Date 08/08/2018

3A

WATER VOLATILE LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: ALS Global Contract: VOMS

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-038

Laboratory Control Spike - Sample No: 2783491

COMPOUND	SPIKE ADDED (ug/L)		LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMIT REC
Carbon Tetrachloride	20		20.0	100	(80-120)
1,1-Dichloroethane	20		20.5	103	(80-120)
1,2-Dichloroethane	20		20.3	102	(80-120)
1,1-Dichloroethene	20		24.8	124*	(80-120)
cis-1,2-Dichloroethene	20		20.2	101	(80-120)
trans-1,2-Dichloroethen	20		22.8	114	(80-120)
1,1,1,2-Tetrachloroetha	20		20.0	100	(80-120)
1,1,2,2-Tetrachloroetha	20		19.7	98.3	(80-120)
Tetrachloroethene	20		19.3	96.6	(80-120)
Toluene	20		20.1	101	(80-120)
1,1,1-Trichloroethane	20		20.1	100	(80-120)
1,1,2-Trichloroethane	20		20.2	101	(80-120)
Trichloroethene	20		20.2	101	(80-120)
Vinyl Chloride	20		16.8	83.8	(80-120)

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 1 out of 14 outside limits

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: EPA 300.0
Instrument: IC-8

SDG No.: ASN038

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2778575	Chloride	MB	QC-Water	07/20/2018 02:58	0.18	J	mg/L
2778575	Nitrate-N	MB	QC-Water	07/20/2018 02:58	0.030	U	mg/L
2778575	Sulfate	MB	QC-Water	07/20/2018 02:58	0.25	U	mg/L
2779144	Chloride	MB	QC-Water	07/20/2018 06:59	0.22	J	mg/L
2779144	Nitrate-N	MB	QC-Water	07/20/2018 06:59	0.030	U	mg/L
2779144	Sulfate	MB	QC-Water	07/20/2018 06:59	0.25	U	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: S2320B-97
Instrument: AUTOT

SDG No.: ASN038

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2778538	Alkalinity, Total	MB	QC-Water	07/20/2018 05:25	2	J	mg/L
2778618	Alkalinity, Total	MB	QC-Water	07/20/2018 11:18	2	J	mg/L
2778622	Alkalinity, Total	MB	QC-Water	07/20/2018 13:27	3	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: S5310B-00
Instrument: TOC

SDG No.: ASN038

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
CCB9	Total Organic Carbon (TOC)	CCB	QC-Water	8/4/2018 6:06	0.173	J	mg/L
CCB10	Total Organic Carbon (TOC)	CCB	QC-Water	8/4/2018 6:06	0.228	J	mg/L
		TOC LOD = 0.50 mg/L; Not used to qualify data.					

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Client: ALS Environmental - US
Project: UR115: 2327398
Sample Matrix: Water

Service Request: R1807029
Date Analyzed: 08/01/18

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

Lab Control Sample
RQ1807867-04

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	8260C	20.8	20.0	104	78-124
1,1,1-Trichloroethane (TCA)	8260C	20.1	20.0	101	74-131
1,1,2,2-Tetrachloroethane	8260C	26.1	20.0	130 *	71-121
1,1,2-Trichloroethane	8260C	21.3	20.0	107	80-119
1,1-Dichloroethane (1,1-DCA)	8260C	23.0	20.0	115	77-125
1,1-Dichloroethene (1,1-DCE)	8260C	21.9	20.0	110	71-131
1,2-Dichloroethane	8260C	22.5	20.0	112	73-128
Carbon Tetrachloride	8260C	21.7	20.0	109	72-136
Tetrachloroethene (PCE)	8260C	21.9	20.0	109	74-129
Toluene	8260C	21.3	20.0	107	80-121
Trichloroethene (TCE)	8260C	19.9	20.0	99	79-123
Vinyl Chloride	8260C	23.0	20.0	115	58-137
cis-1,2-Dichloroethene	8260C	20.5	20.0	102	78-123
trans-1,2-Dichloroethene	8260C	21.0	20.0	105	75-124

Client:	ALS Environmental - US	**Service Request:**	R1807201
Project:	UR115: 2327398	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ1808100-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analysis Method: RSK 175

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Acetylene	ND U	2.0	1.0	0.53	1	08/01/18 09:42	
Ethane	ND U	1.0	0.50	0.17	1	08/01/18 09:42	
Ethene	ND U	1.0	0.50	0.14	1	08/01/18 09:42	
Methane	**0.36 J**	1.1	0.50	0.12	1	08/01/18 09:42	

Client: ALS Environmental - US
Project: UR115: 2327398

Service Request: R1807201
Date Analyzed: 08/01/18 09:31

Continuing Calibration Verification (CCV) Summary
Dissolved Gases by GC/FID

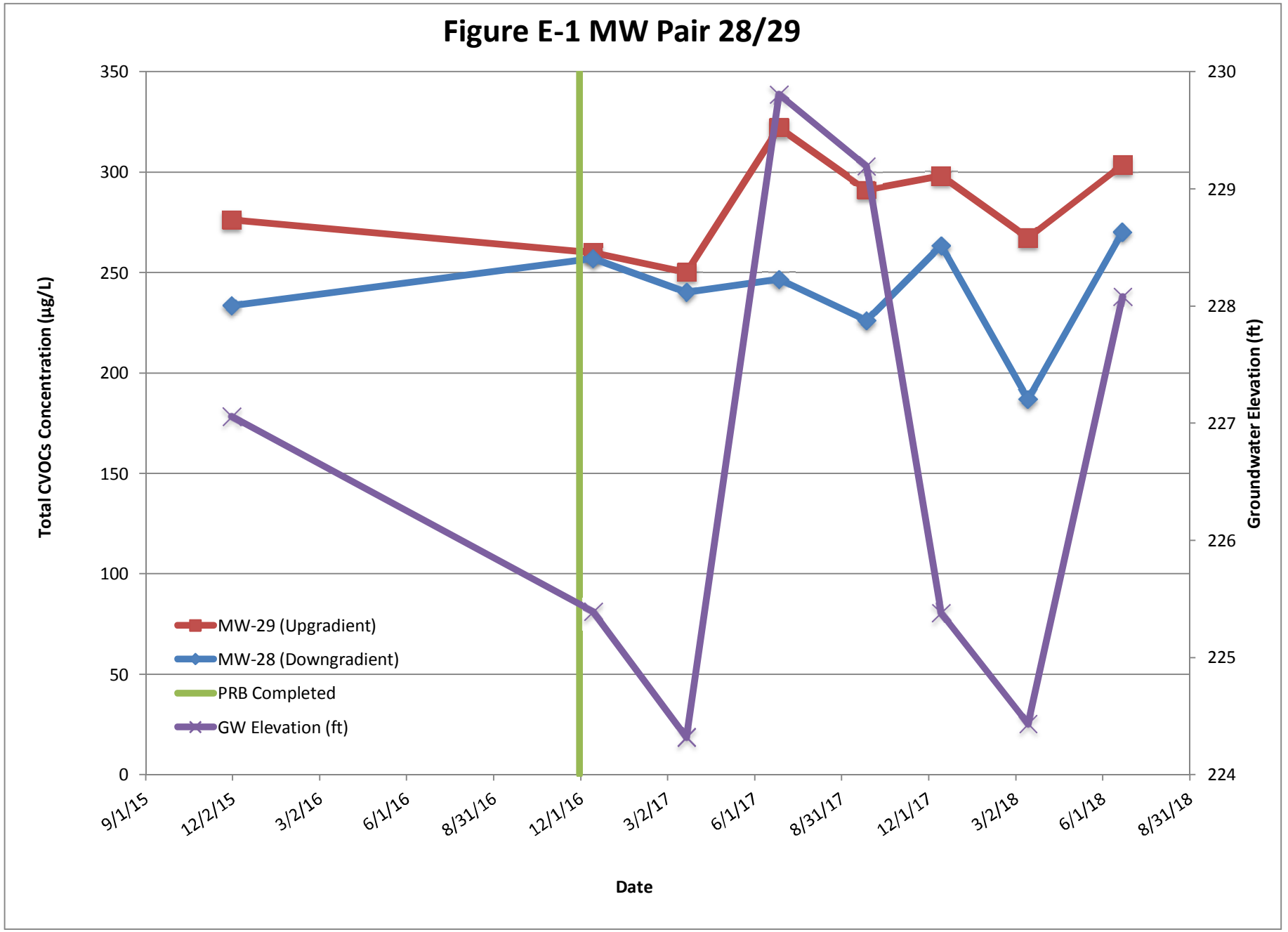
Analysis Method: RSK 175
File ID: I:\ACQUDATA\V2\DATA\080118\AB760.D\
Signal ID: 1

Calibration Date: 7/27/2018
Calibration ID: RC1800083
Analysis Lot: 601704
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
Acetylene	100	79.4	1.039E6	8.23E5	79.2*	NA	85-115	Average RF
Ethane	52.1	51.3	5.595E6	5.51E6	98.5	NA	85-115	Average RF
Ethene	48.6	47.6	4.092E6	4.012E6	98.1	NA	85-115	Average RF
Methane	52.5	49.0	5.689E6	5.309E6	93.3	NA	85-115	Average RF

APPENDIX F: Groundwater Concentration Trend Plots

Figure E-1 MW Pair 28/29



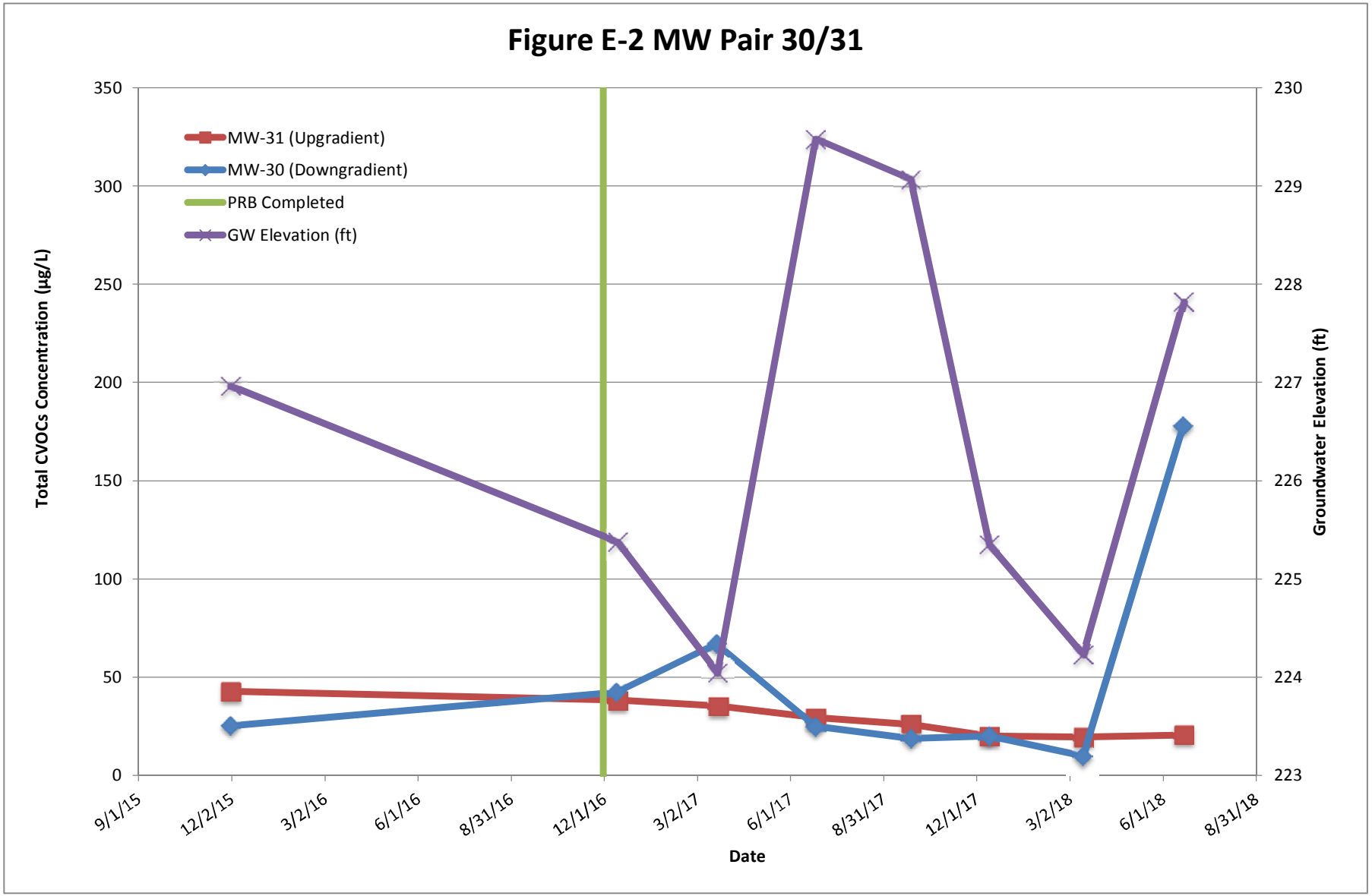

Figure E-2 MW Pair 30/31
MW-31 (Upgradient)
MW-30 (Downgradient)
PRB Completed
GW Elevation (ft)
Total CVOCs Concentration (µg/L)
Groundwater Elevation (ft)
Date
350
300
250
200
150
100
50
0
230
229
228
227
226
225
224
223
9/1/15
12/2/15
3/2/16
6/1/16
8/31/16
12/1/16
3/2/17
6/1/17
8/31/17
12/1/17
3/2/18
6/1/18
8/31/18

Figure E-3 MW Pair 32/33

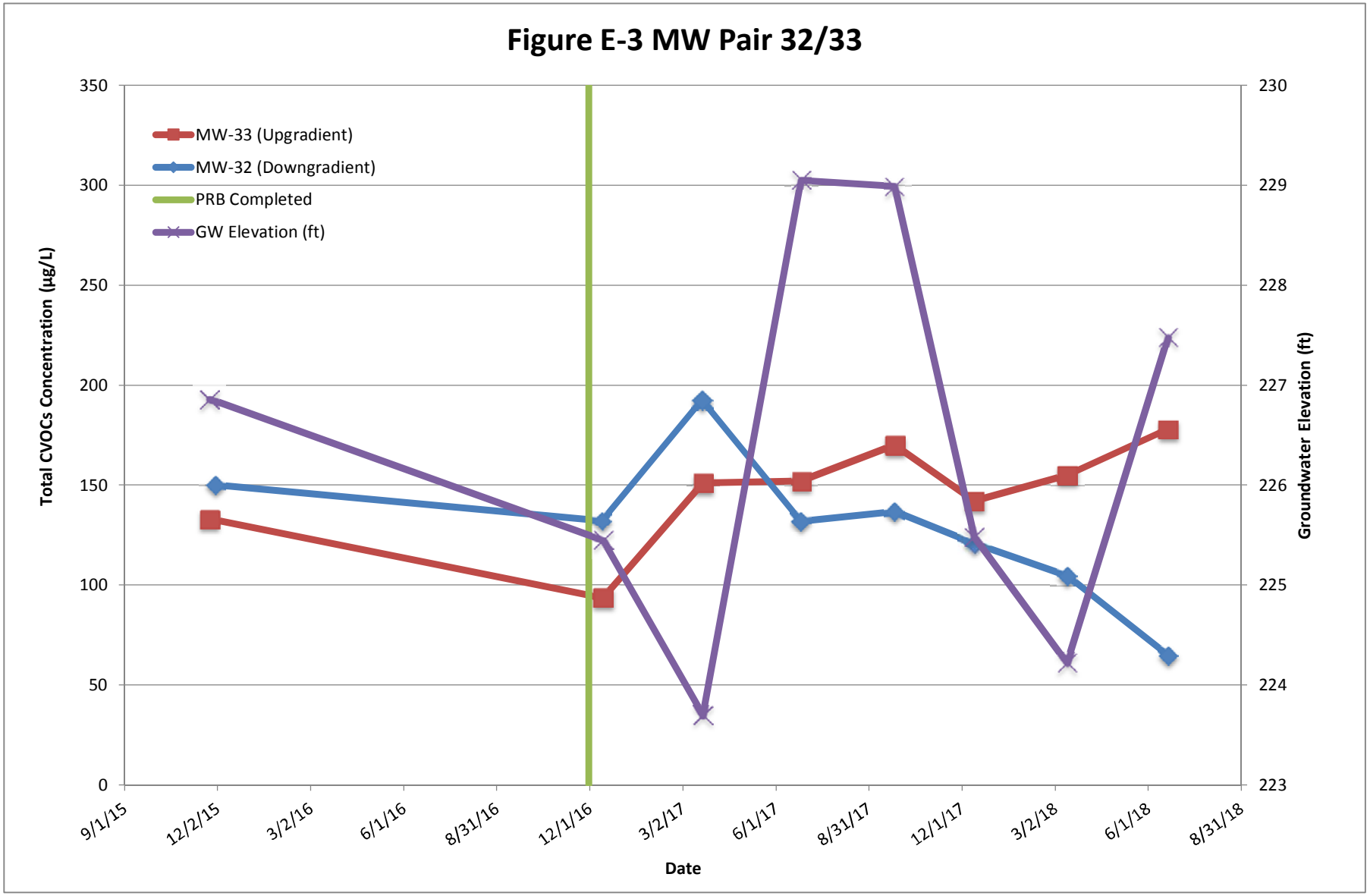


Figure E-4 MW Pair 34/35

