PARSONS

# 2016 SITE-WIDE OPERATIONS AND MAINTENANCE (O&M) REPORT (REVISION 1)

## AVTEX FIBERS SUPERFUND SITE
## FRONT ROYAL, VIRGINIA

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**2016 SITE-WIDE OPERATIONS AND MAINTENANCE (O&M) REPORT (REVISION 1)**
**AVTEX FIBERS SUPERFUND SITE**
**FRONT ROYAL, VIRGINIA**

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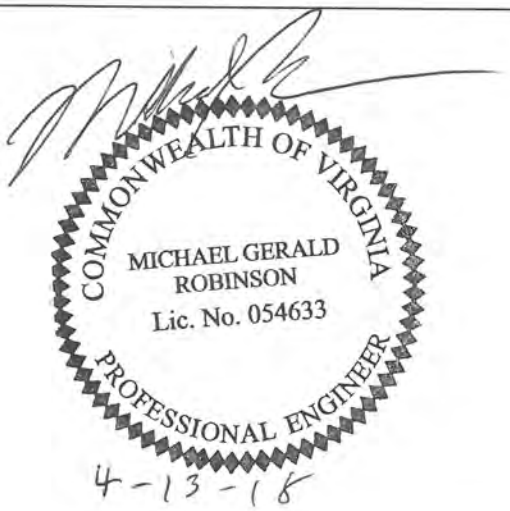

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# EXECUTIVE SUMMARY

This Site-Wide Operation and Maintenance (O&M) Report has been prepared by Parsons on behalf of FMC Corporation (FMC) to summarize the O&M and post-closure care activities conducted during the 2016 calendar year at the Avtex Fibers Superfund Site in Front Royal, Virginia. The report has been prepared in accordance with the Site-Wide Operation and Maintenance (O&M) Plan. This report is divided into the following three parts to mirror the site-wide O&M plan:

- Part 1 – Landfill / Basin Cover Systems
- Part 2 – Groundwater & Leachate Extraction Systems
- Part 3 – Groundwater & Leachate Treatment Plant

Part 1 of the site-wide O&M plan was prepared by ERM and submitted to the U.S. Environmental Protection Agency (USEPA) on May 8, 2015. Part 2 of the O&M plan was prepared by Arcadis and submitted to USEPA in May 2015. Part 3 was prepared by Parsons and also submitted to USEPA in May 2015.

O&M activities associated with the Landfill / Basin Cover Systems were completed in accordance with the requirements of Part 1 of the site-wide O&M plan. A few minor post-construction repairs were required in 2016; however, all system components are functioning as designed. Quarterly monitoring of the gas vents was continued through 2016. However, based on the results from the first three years (2014 – 2016), it is recommended that organic vapor monitoring be discontinued at all gas vents and that, with the exception of gas vents GV-4 and GV-5 at OU-10, breathing zone readings be discontinued. As proposed in the 2015 O&M report, the monitoring frequency of a vent will be reduced to annually if the maximum concentration detected in 2016 is less than the baseline value or the maximum LEL detected is 25% or less. Therefore, it is proposed that quarterly sampling be continued at all OU-7 and OU-10 gas vents, but that sampling at the SB vents be reduced to annual monitoring with the exception of the following vents (to continue to be monitored quarterly): SB-1 GV-06, SB-1 GV-18, SB-1 GV-20, SB-1 GV-21, SB-3 GV-02, SB-3 GV-03, SB-3 GV-04, SB-3 GV-05, SB-3 GV-06, SB-3 GV-10, SB-3 GV-11, SB-4 GV-02, SB-4 GV-03, SB-4 GV-04, SB-4 GV-11, SB-4 GV-18, SB-4 GV-22.

O&M activities associated with the groundwater and leachate extraction systems were completed in accordance with the requirements of Part 2 of the site-wide O&M plan. Performance and reporting criteria were met, and no spills, leaks or emergency responses were reported in 2016.

O&M activities associated with the groundwater and leachate treatment plant were completed in accordance with Part 3 of the Site-Wide O&M plan. Performance and reporting criteria were met and no exceedances of effluent standards occurred in 2016.

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# ACRONYMS

| Acronym | Definition / Description |
|---|---|
| ARARs | Applicable or Relevant and Appropriate Requirements |
| BOD | Biological oxygen demand |
| CFR | Code of Federal Regulations |
| COD | Chemical oxygen demand |
| COPCs | Constituents of primary concern |
| DMR | Discharge Monitoring Report |
| EL | Emergency Lagoon |
| ECCI | Environmental Chemistry Consultants, Inc. |
| ESS | Environmental Systems Services, Ltd. |
| eV | Electrovolt |
| FACW | Facultative wetland |
| FAB | Fly ash basins |
| FARA | Fly ash removal area |
| FAS | Fly ash stockpile |
| FMC | FMC Corporation |
| GAC | Granular activated carbon |
| GLTP | Groundwater and Leachate Treatment Plant |
| $H_2S$ | Hydrogen sulfide |
| LEL | Lower explosive limit |
| LS | Lift station |
| µg/L | Microgram(s) per liter |
| MH | Manhole |
| NLF | New Landfill |
| NPL | National Priorities List |
| NTCRA | Non-Time Critical Removal Action |
| O&M | Operation and maintenance |
| OBL | Obligate wetland species |
| OMM | Operations, maintenance and monitoring |
| OU | Operable Unit |
| Pace | Pace Analytical Services, Inc. |
| PB | Polishing basins |
| PCB | Polychlorinated biphenyl |
| PLC | Programmable logic controller |
| ppm | Part(s) per million |
| QA/QC | Quality assurance / quality control |
| RD | Remedial Design |
| SVOC | Semivolatile organic compounds |

| Acronym | Definition / Description |
|---|---|
| SB | Sulfate basins |
| TCE | Trichloroethene |
| TDS | Total dissolved solids |
| TSS | Total suspended solids |
| UCL | Upper confidence level |
| USEPA | United States Environmental Protection Agency |
| VADEQ | Virginia Department of Environmental Quality |
| VB | Viscose basins |
| VOC | Volatile organic compound |
| WSG | Warm season grasses |
| WWTP | Wastewater treatment plant |
| WET | Whole effluent toxicity |

# PART 1 LANDFILL / BASINS COVER SYSTEM

## 1.1 Introduction

Parsons has prepared this Site-Wide Operation and Maintenance (O&M) Report on behalf of FMC Corporation (FMC) to summarize the post-closure care activities conducted during the 2016 calendar year at the Avtex Fibers Superfund Site in Front Royal, Virginia (the Site). The report has been prepared in accordance with the Site-Wide Operation and Maintenance Plan. Part 1 of this report addresses O&M of the Landfill/Basin Cover Systems as required by Part 1 of the site-wide O&M plan (ERM 2015). Specifically, these O&M activities are associated with Non-Time Critical Removal Action (NTCRA) - Basins, Operable Unit (OU) 7, and OU-10 as follows:

- NTCRA-Basins Units - sulfate basins (SBs) 1, 2, 3, 4, and 5; fly ash basins (FABs) 1, 2, 3, and 6; fly ash stockpile (FAS) area; fly ash removal area (FARA, which is generally located between FAS and FAB 6); Polishing Basins (PBs) 1, 2, and 3; and the Emergency Lagoon (EL)
- OU-7 Units - viscose basins (VBs) 9, 10 and 11
- OU-10 Units - VB 1, 2, 3, 4, 5, 6, 7 and 8; the New Landfill (NLF); and the wastewater treatment plant (WWTP) area
- Gas vent and gas vent filter system associated with the above units
- Stormwater management controls associated with the above units

Post-closure groundwater and stormwater monitoring are not addressed by this report. The results of those sampling events will be presented in the *Annual Site-Wide Groundwater, Surface Water, and Sediment Monitoring Report for OU-7, OU-10, and NTCRA Basins.*

### 1.1.1 Background

FMC has conducted removal and remedial activities at the Site. The removal action, remedial design, and remedial action activities were performed pursuant to the 1999 Consent Decree between the United States of America and FMC (effective October 21, 1999).

The Site is a former rayon manufacturing facility occupying approximately 440 acres, located in Front Royal, Virginia. The Norfolk Southern railroad runs through the middle of the Site separating the former production facilities on the eastern side of the railroad tracks from the disposal units on the western side of the tracks. Residential areas are located to the east, south and north of the property boundaries. The South Fork Shenandoah River is located along the western portion of the property. The Site location is shown on Figure 1.

Operations at the Site began in 1940, when American Viscose opened a rayon production plant. In 1963, American Viscose sold the plant and property to FMC. In 1976, FMC sold the plant and property to Avtex Fibers, Inc. (Avtex), which was ordered by the State of Virginia to immediately shut down the plant in November 1989. Avtex filed for bankruptcy shortly thereafter in 1990. Plant operations generated three major waste types: a zinc sulfate sludge, fly ash, and viscose waste (a high pH cellulose material containing carbon disulfide). Most of the wastes were disposed in a series of

basins located on the western portion of the property (Figure 2). A significant groundwater plume resulted from chemical discharge from several of the viscose waste basins. Plant operations resulted in chemical impacts to the former manufacturing buildings and associated sewer system. Chemical releases from the plant area also resulted in soil contamination.

The Site was proposed for the National Priorities List (NPL) on October 15, 1984 (49 CFR[1] 40320) due to the discovery of groundwater contamination in residential wells. The Site was listed on the NPL on June 10, 1986 (51 CFR 21054). After Avtex declared bankruptcy, the United States Environmental Protection Agency (USEPA) initiated emergency removal actions to prevent releases from reactive and dangerous materials left in tanks, piping, and buildings. To facilitate management of the cleanup, the remediation activities were divided into 10 OUs and three removal actions. USEPA conducted emergency removal actions and remedial actions for OU2, OU3, OU4, OU5, and OU8 between 1989 and 1999. In 1999, USEPA entered into a Comprehensive Consent Decree with FMC to implement the remaining required remedial activities.

Approximately 240 acres of the Site (western side of tracks) have been designated as a conservancy area. The former plant area comprises approximately 160 acres. A portion of the plant area, a former parking lot occupying approximately five acres, was sold to the town of Front Royal with plans to develop a police station. The Front Royal Economic Development Authority now owns this former plant area and is working to redevelop it into a commercial/light industrial area.

On August 29, 2014, USEPA issued a document titled, “Superfund Preliminary Close-out Report,” which documented construction completion at the Site. The completion of construction at the Site marks its transition into the O&M phase. During the monthly call between USEPA and FMC on September 8, 2014, USEPA agreed that the former monthly progress reporting for the Site could be reduced to quarterly during the O&M phase as specified in paragraph 45 in the Consent Decree.

The following subsections describe the primary components of the closure systems at each area covered by this report.

#### *1.1.1.1 NTCRA-Basins*

The selected remedies for SBs, FABs, FAS, PBs, and the EL were set forth in the Removal Action Memorandum for the NTCRA - Basins, dated January 31, 2000. The closure design for these units was presented in several documents as detailed in Part 1 of the Site-Wide O&M Plan (ERM 2015).

The primary components of the NTCRA-Basin closures include the following elements.

- Cover System:
    - SB-1 cells 1 through 4, SB-3, SB-4, and the EL: combination geomembrane with a two-foot soil cover
    - FAB 1 through 3, FAB 6, FARA, and PB 1 through 3: two-foot soil cover system
    - SB-2 and FAS: combination two-foot soil cover system and clean closed
    - SB-5: clean closed

[1] CFR – Code of Federal Regulations

- Consolidation water collection system
- Cover system drain (FABs only)
- Passive gas vents
- Vegetation consisting of warm season grasses (WSG)
- Stormwater drainage controls (e.g., swales, culverts, and outfalls)

#### *1.1.1.2 OU-7 Units (VBs 9 through 11)*

The selected remedy for VBs 9 through 11 is set forth in the Record of Decision (ROD) for OU-7 issued on January 13, 2010. The closure design for these units was presented in the Final Remedial Design – Viscose Basin Cap System and Groundwater & Leachate Extraction, Operable Unit 7 (ERM 2012).

The following are the primary components of the OU-7 closure system:

- Cover System:
  - VBs 9 through 11 and drainage channel (Ditch 10) north of VB 11: combination geomembrane with a two-foot soil cover
  - Wetlands area north of VB 9: two-foot cover system
- Leachate collection and conveyance system, including sumps and well points on the basins (O&M of these elements and other leachate collection and groundwater collection elements are addressed in Part 2 of the site-wide O&M report)
- Groundwater and Leachate Treatment Plant (GLTP) (O&M of this element is addressed in Part 3 of the site-wide O&M report)
- Passive gas vents
- Vegetation, including wetland species, cool season grasses, and WSG
- Stormwater drainage controls (e.g., swales, culverts, and outfalls)

#### *1.1.1.3 OU-10 Units (VB 1-8 and the New Landfill)*

The selected remedy for OU-10 is set forth in the ROD for OU-10 issued on March 10, 2004. The closure design for these units was presented in several documents as detailed in Part 1 of the O&M Plan (ERM 2015).

The following are the primary components of the OU-10 closure system:

- Cover system: combination geomembrane with a two-foot soil cover
- Leachate collection and conveyance system, including lift stations (LSs) 1, 2, and 3, and French-drain style collection lines
- Vegetation, including wetland species, cool season grasses, and WSG
- Stormwater drainage controls (e.g., swales, culverts, and outfalls)

### 1.1.2 Site-Wide O&M Elements

The site-wide O&M plan requires the following major activities, which are described for this reporting period in subsequent sections of this report:

- Post-closure inspection of the final cover
- Monitoring and maintenance of passive gas vents and gas vent filter systems
- Routine maintenance and repairs to maintain the effectiveness and integrity of the final cover system
- Procedures to be followed in the event of catastrophic events
- Documentation and reporting

### 1.1.3 Report Organization

In addition to this introduction, Part 1 of the report includes the following sections.

- Section 1.2 summarizes the results of the post-closure inspections associated with the cover system, periodic topographic surveys, storm event inspections, and the monitoring of the wetland restoration area.
- Section 1.3 presents the results of the passive gas vent monitoring and inspections and summarizes activities associated with the gas vent filter system.
- Section 1.4 summarizes the routine O&M and repair activities conducted at the Site.
- Section 1.5 describes any catastrophic events that occurred at the Site during this reporting period and the actions taken in response.
- Section 1.6 summarizes the findings presented in the report and the conclusions drawn from them.
- Section 1.7 provides references for documents cited in the report.

## 1.2 Post-Closure Inspections

The site-wide O&M plan requires periodic Site inspections to document the condition of various elements, provide a mechanism for determining when repairs are needed, and document repairs that have been made. The following inspections are required by the O&M plan:

- General quarterly inspections
- Periodic topographic survey of the cover systems
- Inspections of the stormwater management system following major storm events
- Wetland restoration area monitoring

These inspections are discussed in the following sections.

### 1.2.1 Quarterly Inspections

Parsons conducted four quarterly inspections in 2016 (March, June, September, and December). The completed inspection reports are included with the quarterly reports in Appendix A.

The quarterly inspections included the following tasks:

1. The landfill/basin cover systems were inspected for visible evidence of settlement, surface erosion, distressed vegetation, and any other observed damage.
2. The stormwater management and erosion control systems were inspected for erosion, settlement, obstructions, and damage to the following:
    a. Vegetated channels
    b. Riprap-lined channels
    c. Gabion baskets/reno mattresses
    d. Drainage culverts and drop inlets
    e. Stormwater aprons, outfalls and outlets
    f. Articulated block
    g. Pipe slope drains
    h. Erosion control matting edge connections and surfaces
3. The consolidation water collection system (on the SBs), cover drain system (on the FABs), and leachate collection system (on VBs) were inspected for water levels, condition of manholes and pipes, and visual evidence of leaking or overtopping.
4. The access roads were inspected for surface deterioration and erosion of shoulders and slopes.
5. Gas vents and filter systems were inspected for condition and proper operation (these inspections are discussed in Section 1.3 of this report).
6. The landfill/basins were inspected for evidence of seeps or potential migration of contaminants (e.g., staining) throughout the inspection area.
7. The landfill/basins berms and embankments were inspected for evidence of erosion, failure (e.g., cracking, sloughing), or potential migration of contaminants (e.g., staining, seeps). This includes the berms/embankments along the river, including from the river-side.

#### *1.2.1.1 First Quarter Inspection Summary*

During the March inspection, small areas of bare soil were observed along the south side of VB 10, adjacent to the stormwater pond southeast of the NLF, and adjacent to the stormwater basin between VB 2 and 3 and the NLF. Minor erosion was noted in these locations. Consistent with historical observations, areas of standing water were noted in several spots:

- Adjacent to LS 2
- Southeast of VBs 2 and 3
- On the east side of the access road, just west of SB-1 (likely vehicle tire depressions)
- At SB-3 just east of the northernmost inlet structure leading to SB-2

Small trees were noted in the following locations:

- At the northwest corner of VB 4, 5, and 6.

- Along the south side of Sediment Basin 1.
- At the headwall on the east end of the EL.
- At the headwall between VB 1 and VB 7 and 8.
- In the ditch leading to the stormwater pond, southeast of the NLF.
- On the south bank of the constructed wetlands southeast of VB 11.
- At the headwall south of VB 10 and north of SB 3.
- At the northern and central inlets between FAB 6 and SB 5.
- At the headwall east of the access road between FAB 1 and 2 and FAB 6.

Subsequent repairs were made to address the more serious issues discovered during this inspection. The details of the repairs are discussed in Section 1.4.4 below.

#### *1.2.1.2 Second Quarter Inspection Summary*

During the June inspection, the following items were noted:

- Small areas of bare soil were again observed along the south side of VB 10 and adjacent to the stormwater pond southeast of the NLF. Minor erosion was noted in these locations.
- Bare soil was again noted near the retention basin between VBs 2 and 3 and the NLF. Rills were noted on the bank.
- Minor erosion with rills forming was noted north of the headwall on the eastern slope of Sediment Basin 1.
- A damaged downdrain was noted on the south side of VBs 4, 5, and 6. The drain appeared to have been damaged by a large storm.
- Small trees were noted on the bank of the EL.
- The small tree at the headwall between VB 1 and VB 7 and 8 was again noted.
- A small tree was again noted in the ditch leading to the stormwater pond, southeast of the NLF.
- All areas with standing water noted in the first quarter were dry at the time of this inspection. A minor loss of vegetation was noted at SB-3 in the areas of former standing water.
- Minor damage was noted to the culvert under the western access road from SB 2.
- A small tree was noted in the southernmost inlet between FAB 6 and SB 5.
- The remaining small trees noted during the first quarter inspection had been removed.

#### *1.2.1.3 Third Quarter Inspection Summary*

The findings of the September inspection were nearly identical to the June inspection with the following additional findings:

- Areas formerly noted as having standing water remained dry.

- The damaged downdrain noted on the south side of VBs 4, 5, and 6 was repaired.
- An area of soil erosion was noted on the access road to LS 1.
- Small trees were noted on the bank of the outfall channel between the EL and PB 3.
- Large rills were noted at the back gate southwest of VB 10.
- Trees were removed from the southernmost inlet between FAB 6 and SB 5.

#### *1.2.1.4 Fourth Quarter Inspection Summary*

The findings of the December inspection were nearly identical to the September inspection, with the following additional findings:

- Standing water was again present at the areas noted in the March inspection.
- Two additional areas of standing water were noted on top of VB 9.
- Dead trees and limbs were noted obstructing flow at two of the inlets between FAB 6 and SB 5.
- Small trees were noted along the western bank of SB 5.

### 1.2.2 Periodic Topographic Surveys

The O&M plan requires that an annual land surface topographic survey of the cover systems be performed for at least two years following construction completion. The annual topographic survey is to be compared to the baseline topographic survey (i.e., the "as built" survey conducted at construction completion) to assess whether settlement has occurred on any of the units. Prior topographic data will be compared to subsequent topographic data to identify areas of settlement. This comparison is to be used in lieu of settlement monuments.

According to the O&M plan, if settlement is observed at the end of the two years and appears to be significant (e.g., greater than 0.5 foot per year) and ongoing, the annual topographic survey will be continued. If settlement does not appear to be significant, FMC may propose to reduce the survey frequency (e.g., to coincide with the 5-year review cycle) and/or scope. USEPA's approval must be received before modifying the frequency or scope of the surveys.

An initial baseline survey was prepared in 2013 in anticipation of construction completion. However, construction completion was delayed by significant repairs to the basins. The area was consequently resurveyed by Marsh & Legge Land Surveyors of Winchester, Virginia, in 2014. This latter survey is considered the baseline survey and will be used for settlement determination. Therefore, the first annual topographic survey was conducted in 2015 and the second in 2016. The topographic survey is shown on Figure 3, and a sealed copy of the survey is included in Appendix B.

Computer aided design software was used to compare the 2016 survey to the 2015 survey. The resulting output (referred to as a cut/fill map) shows the relative change in elevation between the two surveys at a specified interval. For the Avtex Site, the change in elevation was reported on a 10-foot by 10-foot grid. The results are shown on Figures 4 through 8. Negative numbers indicate a decrease in elevation at the location (settlement or erosion), while positive numbers represent an increase in elevation

(deposition or vegetative growth). The results have also been color coded to aid in locating potential problem areas, as follows:

- Green numbers indicate either no change or an increase in elevation of less than 0.5 foot.
- Light brown numbers indicate an increase in elevation greater than 0.5 foot.
- Blue numbers indicate a decrease in elevation less than 0.5 foot.
- Red numbers indicate a decrease in elevation of greater than 0.5 foot (these areas have also been outlined in red).

In addition, areas with a decrease in elevation greater than 0.5 feet have been marked with a red (2016) or orange (2015). The results of the analysis are summarized below. However, corrective actions (if required) will be discussed in a future report.

As shown on Figure 4, most of the settlement at VBs 1, 4, 5, 6, and 7 has been less than the 0.5-foot per year requirement. A few small and isolated areas exceed this standard, but the settlement is generally relatively minor and within expected ranges. Settlement in 2016 was more widespread than that measured in 2015. However, there is very little overlap between areas where settlement was noted greater than 0.5 feet in 2015 (orange lines) and areas observed in 2016 (red lines). These areas will continue to be monitored to determine if the areas grow or if additional settlement occurs that may impact the performance of the caps at these units.

As previously reported, widespread settlement was noted at the NLF (Figure 4) in 2015. However, the landfill had not been surveyed for 3 years, so the reported settlement occurred over a 3 year period. Most of the previously measured settlement was located at the top of the landfill; while the areas with settlement greater than 0.5 feet in 2016 were mostly observed on the side slopes. The cap at this unit appears to be settling relatively uniformly and within expected tolerances. This unit will continue to be monitored to confirm this finding.

As shown on Figures 4 and 5, most of the settlement at VBs 9, 10, and 11 has been less than the 0.5-foot per year requirement. A few small and isolated areas exceed this standard, but with the exception of the south side of VB 10, settlement is generally relatively minor and within expected ranges. As with other units, there is very little overlap between areas with greater than 0.5 feet of settlement in 2015 versus 2016. These units will continue to be monitored.

Only small, isolated areas of settlement exceeding 0.5 foot were observed on the rest of the site (Figures 5, 6, 7, and 8). As with other units, there was very little overlap between the 2015 and 2016 settlement areas. These areas will be monitored in 2017 to determine if the areas grow or if additional settlement occurs that may impact the performance of the caps at these units.

Cut/fill calculations could not be made for the former FAS due to the inconsistent availability of a next most recent survey of the complete stockpile area. Therefore, the survey conducted in 2015 will serve as the baseline for this area. This area was clean closed and does not have a cover; therefore, the only impact of settlement in this area would be to surface water runoff. Settlement of this area will be analyzed following the 2017 survey.

### 1.2.3 Storm Event Inspections

Additional inspections of the cover and stormwater management systems are required after two-year or greater storm events. These storm events are defined as 3.5 inches or more of rainfall in 24 hours or any storm event that results in inundation of the cover system(s) as a result of the South Fork Shenandoah River overtopping the riverside dikes. The inspections are to include the same items as those employed during the quarterly inspections.

No qualified storm events have occurred in 2016.

### 1.2.4 Wetland Restoration Monitoring

A wetland restoration area was completed as part of the OU-7 remediation. The overall Site and OU-7 wetland restoration areas are shown on Figure 2. According to the site-wide O&M plan, this wetland restoration area must be monitored annually for five full growing seasons after its construction and planting (that is, from 2014 through 2018). The initial wetland monitoring effort occurred from September 23 through 25, 2014. The monitoring effort focused on the hydrology, soils, and vegetative plant communities to document success of the restoration effort. The scope of work for the inspections and criteria for evaluating the success of the wetlands area are presented in the site-wide O&M plan.

The third annual wetland survey was conducted on October 18 – 20, 2016. During the October 2016 wetland survey, the success of the hydrologic regime, evidence of reducing soil conditions, and the establishment of hydrophytic vegetation was evaluated and documented with photographs and field observation notes. Field observations included recording the location of the water table, noting indications of the oxidation/reduction process in the emergent wetland area, and documenting the presence of facultative wetland (FACW) and obligate wetland (OBL) plant species. Comparison in previous wetland monitoring efforts (2014-2015) were made to document the annual change in hydrology and hydrophytic vegetation. The establishment of hydrophytic vegetation was assessed based on the presence of the desired plant community types within the restoration area. The goal at the end of the five-year monitoring period is to have an overall species composition consisting of greater than 50%. facultative (FAC) or wetter (FACW or OBL) vegetation.

The results of the October 2016 survey are presented in detail in the Wetland Monitoring Report included as Appendix C. The results of the 2016 survey were consistent with the results reported in 2014 and 2015. Overall, the survey indicates that the wetland restoration area is becoming established with wetland vegetation.

During the September 2014 and 2015 wetland survey and again in the October 2016 survey, two very small populations of common reed or Phragmites (Phragmites australis) were identified in the east end of the wetland restoration area. The population coverage appears to be growing slightly from the previous surveys, which is a concern. This invasive species has the potential to expand and dominate the wetland habitats. If possible, these small stands of Phragmites should be mowed prior to seed setting, usually around August 1st, and spot treated with herbicide. An aggressive approach to controlling this species would help ensure that a diverse wetland plant community is maintained throughout the five-year monitoring period. No visible treatment had occurred in 2016, and the populations appear to be expanding slightly. Control of this species was discussed with the local support staff, and the area of concern was visited.

Two other species of concern in the wetland restoration area include broadleaf cattail and narrowleaf cattail. These species are colonial and have the ability to overtake a wetland plant community. Herbicide application is not recommended to control cattails, because cattails are present throughout the entire wetland restoration area, and herbicides would adversely affect the planted and native wetland species. The cattails should be mowed at a height of approximately 18-24 inches in mid-July to stunt their colonization/progression throughout the Site. A sickle mower would be advantageous for mowing in areas of the wetland fringe where cattails grow but are difficult to reach with normal mowing equipment. No evidence of cattail control was observed during the 2016 survey, but it is still recommended for 2017.

## 1.3 Passive Gas Vent and Gas Vent Filter System Inspection, Monitoring, and Maintenance

Passive gas vents were installed as a component of the selected remedy for all three units at the site (OU-7, OU-10, and the NTCRA Basins). The vents are specifically located on the SBs, VBs, and the NLF. Due to historically high levels of hydrogen sulfide ($H_2S$) and other gases, gas vent filter systems (carbon canisters) have been installed at two of the vents (OU10-GV-4 and OU10-GV-5) to treat the vapors from these vents and prevent exposure to hazardous vapors.

### 1.3.1 Passive Gas Vent Monitoring and Inspections

In accordance with the site-wide O&M plan, quarterly inspections and monitoring were performed at all vents. Each vent was monitored for the following parameters:

- Methane
- $H_2S$
- Lower explosive limit (LEL)
- Carbon monoxide
- Oxygen
- Volatile organic compounds (VOCs) / also known as organic vapors

Methane, LEL, carbon monoxide, $H_2S$, and oxygen readings were measured using a CES-Landtec GEM-5000 Portable Gas Analyzer. Organic vapor readings were taken using a photoionization detector (with a 10.6 electrovolt [eV] lamp). The meters were calibrated and operated in accordance with the manufacturers' standard operating procedures and recommendations.

The passive gas vents were inspected and monitored quarterly for two years beginning in 2014 to establish the baseline for future comparisons. The two-year baseline monitoring was completed in 2015. Four quarterly gas monitoring events were performed in 2016 (March, June, September, and December). The gas vent monitoring and inspection forms for these events are included in Appendix D. Tables 1 through 4 summarize the quarterly monitoring results compared to the baseline for hydrogen sulfide, methane, LEL, and organic vapor, respectively.

Twelve vents at SB-1 (GV-1, GV-4, GV-9, GV-10, GV-11, GV-15, GV-19, GV-21, GV-24, GV-25, GV-29, and GV-33) and two vents at SB-4 (GV-9 and GV-18) were noted to be leaning approximately 5 to 20 degrees from vertical; however, the minor damage is not

impacting the function of the vents, and no other damage to the vents was observed. Particular attention will be paid to these vents during future inspections, and they will be repaired if they are further damaged so that their function is inhibited.

As shown on Table 1, there have been very few detections of $H_2S$ above 2 parts per million (ppm). With the exception of two vents (OU10GV04 and OU10GV05), detections of $H_2S$ have been sporadic. During the first quarter of 2016, $H_2S$ was detected at 1 ppm at nearly all the vents located at SB-1 and SB-3 and a few vents at SB-4 (51 total vents). Hydrogen sulfide has not been historically detected at 43 of these locations and with the exception of eight vents, $H_2S$ was not detected at these vents in the subsequent 3 quarters. The breathing zone reading at each of these locations was also recorded as 1 ppm during the first quarter event. Therefore, it is believed that these results are anomalous and do not present a changed condition. The vents will be monitored quarterly in 2017 to confirm this conclusion.

Table 2 presents the results for methane (the most widely detected constituent across the Site). The highest concentrations were observed at OU-7 and OU-10 where a significant number of the methane results exceeded the calculated baseline values. Particularly in the third quarter when 27 of the 38 vents had methane concentrations exceeding their baseline values. Maximum methane concentrations measured at these two units ranged from 37 to 54.7 percent. The maximum methane concentrations detected at SB-1, SB-3, and SB-4 were significantly lower (2.4 to 12.2 percent) and only a small number of these results exceeded their baseline value (three vents out of 68 in the second quarter and only one exceedance each in the other three quarters).

Table 3 presents the results for LEL. Similar to methane, the highest LEL readings were observed at OU-7 and OU-10 and LEL was only sporadically detected at the SBs. An arbitrary screening criterion of 25% was established for this constituent. With only one exception (OU-7 GV-08), the screening criterion was exceeded at all of the OU-7 and OU-10 vents in at least two of the four quarterly events. Many vents in these two units exceeded the criterion in all four quarters. With the exception of vent GV-11 at SB-3, LEL was only sporadically detected above the screening criterion at the SBs.

The organic vapor results are presented on Table 4. With the exception of GV-04 and GV-05 at OU-10, organic vapor continues to be only sporadically detected at very low levels. The maximum detected value excluding these two vents was 0.5 ppm.

Throughout the last three years of monitoring, there have been only sporadic detections of $H_2S$ in the breathing zone and none of the detections exceeded 1 ppm. In many cases, $H_2S$ was not detected in the associated vent and the detections were rarely associated with any odors. Given the lack of odors or pattern to the detections, it is believed these detections may be related to drift in the instrument and not actual breathing zone results. Methane and LEL were only detected in the breathing zone at one location in 2016 (OU-10 GV-07) and the concentrations were relatively low at 0.1 and 2 percent respectively. There were no detections of organic vapors in the breathing zone in 2016.

Quarterly monitoring will be continued through 2017. Based on the last three years of quarterly monitoring, it is recommended that organic vapor monitoring be discontinued. In addition, it is recommended that with the exception of OU-10 GV-4 and GV-5, breathing zone readings be discontinued.

$H_2S$ and methane sampling results for 2016 were compared to the calculated baseline and LEL results were compared to a standard of 25%. Exceedances of the methane

baseline and LEL standard were widespread at OU-7 and OU-10. Exceedances of the $H_2S$ baseline were observed at 12 of the 38 gas vents associated with these units and exceedances of the organic vapor baseline were observed at 20 of the 38 vents. Excluding the anomalous $H_2S$ results from the first quarter sampling event, exceedances were detected at the following SB vents:

- SB-1 GV-06 ($H_2S$ and LEL)
- SB-1 GV-18 ($H_2S$)
- SB-1 GV-20 ($H_2S$)
- SB-1 GV-21 (methane)
- SB-3 GV-02 (LEL)
- SB-3 GV-03 (LEL)
- SB-3 GV-04 ($H_2S$ and LEL)
- SB-3 GV-05 ($H_2S$ and methane)
- SB-3 GV-06 (LEL)
- SB-3 GV-10 (methane and LEL)
- SB-3 GV-11 ($H_2S$ and LEL)
- SB-4 GV-02 ($H_2S$)
- SB-4 GV-03 (methane)
- SB-4 GV-04 (LEL)
- SB-4 GV-11 ($H_2S$ and methane)
- SB-4 GV-18 ($H_2S$)
- SB-4 GV-22 ($H_2S$)

As proposed in the 2015 O&M report, the monitoring frequency of a vent will be reduced to annually if the maximum concentration detected in 2016 is less than the baseline value or the maximum LEL detected is 25% or less. Quarterly monitoring will be continued at vents that exceed the baseline range or where LEL exceeds 25%. Therefore, it is proposed that quarterly sampling be continued at all OU-7 and OU-10 gas vents, but that sampling at SB vents not listed above be reduced to annual monitoring (the vents listed above will continue to be monitored quarterly for 2017).

### 1.3.2 Gas Vent Filter System

The gas vent filter systems are monitored for the same parameters measured during the quarterly events but on the following schedule:

- Twice per week from May 1 to October 31
- Monthly from November 1 to April 31

Inspection and monitoring of these vents began in July 2014 and continued through 2016 on the above schedule with two exceptions. The January 2016 reading was not obtained due to the GEM 5000 being repaired during the first half of the month and poor weather at the end of the month. In addition, only one reading was obtained during the first week of May due to poor weather. The gas vent filter inspection and monitoring

forms for calendar year 2016 are included in Appendix E. A summary of the results is provided on Table 5.

The influent hydrogen sulfide concentration at each vent remained relatively low (less than 10 ppm) through March. Beginning in April, the concentrations began to increase, and by the end of July, influent concentrations of $H_2S$ at both vents were routinely reading above 800 ppm. By August, the readings routinely exceeded the capability of the instrument (greater than 1,000 ppm). The elevated influent $H_2S$ readings continued through the remainder of the year.

Similar to past years, both filters functioned adequately from January through late July. Beginning on July 22, the concentration of $H_2S$ after the filter at GV-4 exceeded 10 ppm until the carbon was changed out on August 10, 2016. The filter at GV-05 functioned adequately for the entire year and $H_2S$ concentrations after the filter remained below 1 ppm. Following the carbon changeout at GV-05, the concentrations after the filter returned to less than 10 ppm through the middle of September (except for elevated readings on August 25$^{th}$ and 30$^{th}$). From September 16$^{th}$ through October 13$^{th}$, the concentrations of $H_2S$ after the filter remained elevated (greater than 300 ppm), before returning to zero in November and December.

Based on the observed H2S readings, the media at GV-4 was changed once during 2016 (August 10). No media changes were performed at GV-5.

## 1.4 Routine Operation, Maintenance, and Repairs

This section describes the routine actions taken at various areas of the Site to maintain the covers, drainage system, and access roads.

### 1.4.1 Settlement

Settled areas of the cover system where visible evidence of water ponding exists will be built up and reseeded. Any repairs must also be noted in the annual report (with details pertaining to location, approximate dimensions, and observed conditions) and then be re-inspected during subsequent quarterly inspections. If continued evidence of differential settlement is noted, the designated professional engineer will conduct an investigation of the problem and prepare a recommended corrective action plan. Corrective actions will then be implemented and appended to the next scheduled annual report. Subsequent monitoring will be performed to measure the adequacy of the corrective action implemented.

As noted in Section 1.2 above, small areas of standing water were noted in the following locations:

- Adjacent to LS 2
- Southeast of VBs 2 and 3
- On the east side of the access road, just west of SB-1 (likely vehicle tire depressions)
- At SB-3 just east of the northernmost inlet structure leading to SB-2

None of the locations appear to be the results of settlement. All of the areas are limited in size and will be monitored to determine if corrective actions are necessary. A more detailed analysis of settlement at the Site is presented in Section 1.2.2, above. No repairs were made in 2016 as a result of settlement.

### 1.4.2 Vegetative Cover

Vegetative coverage requirements are as follows:

- Annual grass nurse crop - a minimum of 85 percent ground coverage
- WSG (initial) - two to four vigorous seedlings per square foot in the late summer of the seeding year
- WSG (permanent) - a minimum 85 percent coverage as viewed from above by mid-summer of the fourth year following planting
- Reseeding will be in accordance with the construction specifications for the respective units.

According to the plan, periodic maintenance of the warm season grasses will be performed by mowing once every three years, between March 1 and April 1. However, the three-year mowing cycle may be modified (shortened or extended) to account for Site conditions. For example, the mowing cycle may be shortened if cottonwoods or other trees or invasive species are identified as out-competing desired meadow habitat. Conversely, it may be extended if, after WSG stands are established, the weather prevents access during the specified time period (i.e., March 1 to April 1). In this situation, the maintenance mowing cycle may be extended to a maximum of 5 years.

The following basins were mowed in 2016:

- Viscose Basins 1,2,3,4,5,6,7 & 8
- FAS (Fly Ash Stockpile) & FAR (Fly Ash Removal Area)

### 1.4.3 Cover Erosion

Areas of erosion are evaluated and repaired as needed. Any area of unintended exposed geosynthetic, other remedy component, seeps, or fly ash will be investigated by the designated professional engineer, and a corrective action plan will be developed to address the issue. Actions taken will be reported in the annual report, or separately if the condition warrants prompt reporting.

The site-wide O&M plan lists several criteria to be considered in evaluating erosion and the need for repairs. These include:

- Severity of erosion
- Erosion location
- Causes of erosion
- Erosion extent

No significant areas of cover erosion were observed during the monitoring period.

### 1.4.4 Stormwater Management and Erosion Control Systems

The drainage features are designed to create controlled conditions that help move rainfall toward the designated outfalls and outlets while minimizing erosion. Inspection and maintenance is required to ensure they are functioning properly. Inspection of the stormwater management and erosion control systems is discussed in Section 1.2.3 of this report. Timber logs, brush, rubbish, vegetative matter, and sediment that interfere with drainage-ways or affect the planned stability of adjacent embankments are removed

as required. Drainage ways that have eroded more than 6 inches in depth are repaired in accordance with the work plan. Aprons at outlet structures are inspected to evaluate if erosion around or below the apron (possibly indicated by apron settlement) has occurred. If erosion is noted, repairs are made to prevent further damage. Trash and other debris are removed from grates on inlet structures on a regular basis to prevent clogging or significant reduction in flow rates. Culverts are inspected for brush and other objectionable obstructions. Any such obstructions are removed so as not to interfere with proper culvert functioning. Culvert deposits greater than 1/4 of the original culvert diameter are removed by jetting or other appropriate methods as required by the work plan.

As noted in Section 1.2 above, several areas of the Site required repair work due to general erosion. The following repairs were conducted in 2016:

- Numerous trees were removed.
- Repair drainage ditch at west gate at VB #10, water was leaving ditch line and eroding roadway under west gate.

A figure showing the locations of these repairs is included in Attachment 3 of the second quarterly report included in Appendix A.

### 1.4.5 Consolidation Water Collection System (Sulfate Basins)

The consolidation water collection system consists of piping located within the limits of SB-1, SB-3 and SB-4, and the collection sumps. The consolidation water collection system is no longer necessary. Currently, FMC continues to monitor water levels (depth to water) in the collection sumps annually; however, since the consolidation system is no longer necessary, FMC may elect to grout the collection sumps shut in future. The depth to water measured in 2016 at each of the sumps is presented in the table below:

| Sump | Depth to Water (feet) | Date Measured |
|---|---|---|
| SB-1-1 | 7.97 | 8/8/16 |
| SB-1-2 | 3.98 | 8/8/16 |
| SB-1-3 | 8.09 | 8/8/16 |
| SB-1-4 | 5.53 | 8/8/16 |
| SB-3-1 | 0.72 | 8/8/16 |
| SB-4-1 | 3.33 | 8/8/16 |
| SB-4-2 | 7.91 | 8/8/16 |

The levels are similar to those recorded in 2014 and 2015.

### 1.4.6 Cover System Drain (Fly Ash Basins)

The cover system drain consists of a perimeter drain (including associated cleanouts and manholes/sumps) that are located generally around the inside perimeter of FAB-1, -2, and –6. In the case of FAB-3, the cover system drain consists of a single pipe aligned in an approximate north-south orientation. The purpose of the cover system drain was to collect and discharge excess water that may infiltrate through the cover system. The valves located on the outlet side of each sump are closed such that water (if present) is retained in the sump and piping system. The system is no longer in use; however, FMC

will continue to monitor water levels in the collection sumps annually. FMC may grout the sumps shut in future. The depth to water measured in 2016 at each of the sumps is presented in the table below:

| Sump | Depth to Water (feet) | Date Measured |
|---|---|---|
| FAB-6-South | 5.59 | 8/8/16 |
| FAB-6-North | 5.60 | 8/8/16 |
| FAB-1-2 | 2.19 | 8/8/16 |
| FAB-3-1 | 4.91 | 8/8/16 |

The levels are all slightly lower than those recorded in 2015.

### 1.4.7 Access Roads

The access road surfaces were repaired at the completion of construction activities in 2014. Minor repairs to the gravel access roads were completed at five locations:

- A section of the access road leading to the site outfall was repaired between PB 1 & 2 and the metal storage building
- Minor erosion at the “T” intersection between VB-1, VB 2&3, and VB 4,5,&6. Erosion eels installed at problem areas.
- Rills across the road southeast of VB10.
- Main access road from Kendrick Lane to GLTP facility was repaired with tar & chip at two locations (front gate area to scales, railroad tie pile to at grade RR crossing)

A figure showing the locations of these repairs is included in Attachment 3 of the second quarterly report included in Appendix A.

## 1.5 Catastrophic Events

Catastrophic events include any natural event or man-made event that may potentially result in severe damage to the Basin Closure cover systems. Examples of catastrophic events include:

- Severe storm or inundation event that exceeds design events
- Severe weather such as tornado or hurricane
- Floods
- Brush fire
- Any event that may result in dike instability (e.g., earthquake)
- Any other event that may result in widespread waste exposure

In the event of a catastrophic event, FMC will arrange for the Site to be inspected by a qualified professional as soon as practicable following that event. Significant damage will be reported to USEPA, and a corrective action plan will be developed and implemented (following USEPA approval). Inspection activities described in the O&M plan will be used as general guidance for the inspection of the Site.

No catastrophic events occurred at the Site in 2016.

## 1.6 Summary and Conclusions

O&M activities in 2016 associated with the Landfill / Basin Cover Systems were completed in accordance with the requirements of the site-wide O&M plan. All system components are functioning as designed, and no major post-construction repairs were required in 2016.

Quarterly monitoring of the gas vents was continued through 2016. However, based on the results from the first three years (2014 – 2016), the following recommendations are made for future monitoring events:

- It is recommended that organic vapor monitoring be discontinued at all gas vents and that with the exception of OU-10 GV-4 and GV-5.
- It is recommended that breathing zone readings be discontinued.
- It is proposed that quarterly sampling be continued at all OU-7 and OU-10 gas vents, but that sampling at the SB vents be reduced to annual monitoring with the exception of the following vents (to continue to be monitored quarterly): SB-1 GV-06, SB-1 GV-18, SB-1 GV-20, SB-1 GV-21, SB-3 GV-02, SB-3 GV-03, SB-3 GV-04, SB-3 GV-05, SB-3 GV-06, SB-3 GV-10, SB-3 GV-11, SB-4 GV-02, SB-4 GV-03, SB-4 GV-04, SB-4 GV-11, SB-4 GV-18, SB-4 GV-22.

## 1.7 References

ERM 2015. Site-Wide Operation and Maintenance (O&M) Plan, Avtex Fibers Superfund Site, Front Royal, Virginia. February 24.

ERM 2012. Final Remedial Design – Viscose Basin Cap System and Groundwater & Leachate Extraction, Operable Unit 7. February 29.

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# PART 2 GROUNDWATER AND LEACHATE EXTRACTION SYSTEMS

## 2.1 Introduction

Part 2 of this site-wide O&M report has been prepared in accordance with Part 2 of the site-wide O&M plan, the Operations, Maintenance and Monitoring (OMM) Manual, Groundwater and Leachate Extraction System Operable Unit 7 (Arcadis 2015). It summarizes the O&M and post-closure care activities conducted on the groundwater and leachate extraction system during the 2016 calendar year. The system consists of the following elements:

- Groundwater extraction (extraction wells TW-01, TW-02 and TW- 03)
- The VB 9,10,and 11 leachate extraction system (VB extraction wells and VB sumps)
- OU-10 leachate extraction system (LS 1, 2, 3 and 4)
- Conveyance (e.g., piping, vaults),power and signal (e.g., power and controls enclosures) components
- VB Extraction Building

### 2.1.1 System Overview

The OU-7 groundwater and leachate extraction system contains three primary components, which are briefly described below.

- **VB 9, VB 10, and VB 11 leachate extraction system**: Leachate is extracted from a series of wells in each VB and is conveyed, via belowground piping, to the GLTP. The leachate from each VB is conveyed by a pipe from each VB and is combined into a single pipe, which then conveys the leachate to the GLTP. The VB Extraction Building contains such components as compressors, pumps, piping manifolds, and programmable logic controller (PLC). The PLC is used for all components of the groundwater and leachate extraction system. The operation of the leachate extraction systems is solely controlled by the system operator. The VB leachate extraction system design allows it to operate on a full- or part-time basis. The system may be shut down as needed.
- **OU-10 and NLF leachate conveyance system (lift stations)**: LS 2 collects leachate from VBs 4 through 6 and pumps it to LS 1. LS 1 collects leachate from VBs 1 through 3, 4 through 6, and 7/8, and pumps it to the GLTP. LS 4 was installed as a 6–inch-diameter “underdrain” system within the channel identified as ditch 10 in the RD and collects and pumps leachate to the GLTP. The LS 1 and LS 4 force mains are combined in Manhole 5 (MH-5) into one 3–inch-diameter pipe. LS 3 collects leachate from the NLF leachate collection system and pumps it to the GLTP. The combined LS 1/4 force main is combined with the LS 3 force main in Manhole 2 (MH-2), which in turn discharges at the GLTP through one 3–inch-diameter pipe. All piping is below ground. Note: VBs 4 through 6 collect at both LS-1 and LS-2. The on/off operation of the LS pumps is automatically controlled by float switches located in each sump.

- **OU-7 groundwater extraction system**: Groundwater is extracted from three deep wells, TW-01, TW-02 and TW-03. The force mains from each well are combined in Manhole 1 (MH-1) into one 4-inch–diameter pipe, which then discharges at the GLTP. All piping is below ground. The on/off operation of the groundwater extraction pumps is automatically controlled by level transducers set within each well. The instrumentation and control components for the deep wells are located in each of the well vaults and in MH-1.

## 2.2 System Performance

Periodic performance monitoring and sampling is necessary during system operation to track remedial progress and to ensure proper system operation. The following sections document the results of the monitoring and sampling.

### 2.2.1 Performance Monitoring

System operations (i.e., flows and run times) are tracked using the SCADA system. Table 6 summarizes the operation of the system for 2016. The VB extraction wells were down for a few months during the middle of the year while the pumps were being replaced. Otherwise, the system performed as designed with only minimal downtime.

### 2.2.2 Performance Sampling

The O&M plan requires sampling of the extracted VB leachate and groundwater to monitor and track any changes in the leachate characteristics. Semiannual sampling was required for the first year of operation (2015) followed by annual sampling thereafter. The sampling includes extracted leachate from each of the VBs (VB 9, VB 10, and VB 11), the four OU-10 LSs (LS 1, LS 2, LS 3, and LS 4), and groundwater samples from the three extraction wells (TW-1, TW-2, and TW-3). The annual samples were collected in August.

#### *2.2.2.1 Sampling Procedures and Analysis*

Samples from each of the three VBs (VB 9, VB 10, and VB 11) were collected from dedicated sample taps located on the south side of the GLTP tank structure. In addition to these sample taps, there is a single sample tap for the combined flow from the three extraction wells (TW-01, TW-02, and TW-03). In order to collect samples from each well independently, operations were modified during the sampling time, so that only one extraction well was running at a time. Operation of the single extraction well was maintained for at least 40 minutes prior to collecting the sample in order to completely purge the header and ensure that only water from the pumping well was collected. After collecting the sample, the procedure was repeated for the second and third extraction wells. The O&M plan calls for using a similar method to collect samples from the four LSs. However, they are controlled by local float switches and water is only pumped when present. Since it is impossible to predict when enough water will be present for pumping, these samples were collected directly from the LS sumps using a peristaltic pump (the same method used for the 2015 sampling).

Two quality assurance / quality control (QA/QC) samples were also collected (a duplicate sample and a trip blank). All samples were packed on ice and shipped via laboratory courier to Test America Laboratories (TAL) in Nashville, Tennessee for analysis of the following constituents:

- Total dissolved solids (TDS)

- Total chemical oxygen demand (COD)
- Soluble COD (field filtered)
- Total biological oxygen demand (BOD)
- Soluble BOD
- Alkalinity
- Arsenic
- Antimony
- Iron
- Carbon disulfide
- $H_2S$
- Total nitrogen
- Total phosphorus
- Density
- pH (measured on-site using an electronic pH meter)

Test America performed the analyses using USEPA-approved analytical methods as described in the Site-Wide Quality Assurance Project Plan (QAPP). The laboratory reports are provided in Appendix F. GHD Services Inc., performed data review, verification and validation to Level 2 criteria as defined in Section 5.1 and Table 7 of the QAPP. The Level 2 verification includes a review/evaluation of blanks, retention times, mass spectra, chromatograms, raw instrument outputs, and other information, including laboratory reporting forms, run logs, and all supporting data provided by the laboratory. Data validation reports are provided as Appendix G. All data were determined to be usable.

#### *2.2.2.2 Results*

The results of the 2016 sampling are summarized along with the 2015 results on Table 7. Trend plots have also been generated for the following constituents: carbon disulfide, arsenic, COD, $H_2S$, and BOD. The plots can be found in Appendix H. The results are summarized below.

- Carbon Disulfide (Figures H-1, H-6, and H-11 in Appendix H): With the exception of LS-01, carbon disulfide concentrations have decreased or remained stable at all locations. Significant decreases (one or more orders of magnitude) were observed at locations TW-01, TW-02, VB-09, and VB-10. A slight increase in the concentration of carbon disulfide was noted at location LS-01 (Figure H-11).
- Arsenic (Figures H-2, H-7, and H-12 in Appendix H): With the exception of LS-01 and LS-02, arsenic concentrations have remained relatively stable or decreased slightly. Arsenic concentrations increased by an order of magnitude at LS-01 and LS-02 (Figure H-12).
- COD (Figures H-3, H-8, and H-13 in Appendix H): With the exception of VB-11 and LS-02, COD results have decreased or remained stable. In addition, as shown on Table 7, there is very little difference between total and soluble COD

(indicating that the detected COD is nearly all soluble and not associated with suspended solids).

- Sulfide as $H_2S$ / Unionized $H_2S$ (Figures H-4, H-9, and H-14 in Appendix H): Due to a change in the analytical laboratory being utilized, the method for this analysis was changed. Therefore, it is difficult to draw any conclusions on this data.
- BOD (Figures H-5, H-10, and H-15 in Appendix H): With the exception of LS-04, BOD results have also decreased or remained relatively stable. With the exception of LS-03, there is very little difference between total and soluble BOD (Table 7).
- Iron: With the exception of LS-01, iron concentrations have remained relatively stable.

While other parameters showed significant variations at each sample location, there was no apparent pattern.

## 2.3 Catastrophic Events

Catastrophic events include any natural or man-made event that may potentially result in severe damage to the remedial systems. Examples of potentially catastrophic events include:

- Severe storm events that exceed design basis events
- Severe weather such as tornadoes and hurricane events
- Brush fires
- Any event that may result in slope instability (e.g., earthquake)
- Any other event that may result in widespread waste exposure

No catastrophic events occurred in 2016.

## 2.4 Documentation and Reporting

Parsons maintains a Site activities log to document all activities performed on-Site during the OMM period. A record of persons entering the Site to observe, inspect, maintain, repair, or otherwise conduct Site activities is also be kept in the Site activities log.

As described in the O&M plan, daily, quarterly, and annual reporting is required at the Site. The daily and quarterly reporting is described below. This report satisfies the annual reporting requirements.

### 2.4.1 Daily Operating Records

An equipment maintenance program is used to record the routine maintenance activities performed and non-routine repairs and updates. Records are kept on the maintenance program, the SCADA system, daily operating sheets, and in a log book. The records include the following items:

- Leachate/groundwater flow totals
- System and pump inspections
- Record of power/pump failures including the time out of service

- Equipment calibrations
- Equipment maintenance
- Daily plant activities
- Air monitoring
- Inspections

These records are maintained on-site as required by the O&M plan.

### 2.4.2 Quarterly Reports

Parsons prepares and submits to the owner a quarterly report summarizing operations of the Groundwater and Leachate Extraction System as required by the O&M plan. The quarterly report includes:

- Daily operating logs including data sheets
- Operational problems
- Unusual/emergency operations or events
- Inquiries/complaints

No major issues or exceedances were reported in any of the quarterly reports. Copies of the quarterly reports for 2016 are provided in Appendix A.

### 2.4.3 Spills, Leaks, or Emergency Response Actions

According to the O&M plan, in the event of an environmental release, spill, or leak, personnel will:

- Locate the source of the spillage and stop flow if it can be done safely, or if not, identify the material and estimate quantity.
- Inform the Site Manager immediately and initiate agency notifications as appropriate.
- Begin containment and recovery of the spilled materials in accordance with the spill response standard operating procedure.

In addition and as necessary, FMC will notify USEPA, the Virginia Department of Environmental Quality (VADEQ), and emergency response companies.

No spills or leaks occurred at the Site in 2016.

## 2.5 References

Arcadis 2015. Operations, Maintenance and Monitoring Manual: Groundwater and Leachate Extraction System Operable Unit 7, Avtex Fibers Superfund Site. May.

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# PART 3 GROUNDWATER AND LEACHATE TREATMENT PLANT (GLTP)

## 3.1 Introduction

Part 3 of the site-wide O&M report has been in accordance with Part 3 of the site-wide O&M plan, the Operations & Maintenance (O&M) Manual: Groundwater and Leachate Treatment Plant (Parsons 2015). It summarizes the O&M and post-closure care activities conducted on the GLTP during the 2016 calendar year.

### 3.1.1 System Overview

The GLTP is designed to treat the influent process streams underlying the former Avtex Fibers Site. These streams are described in Part 2 of this report. The GLTP has been designed to treat a range of constituents of primary concern (COPCs) including, but not limited to, organic content, metals, chlorobenzene, chloroform, 2,4-dimethylphenol, carbon disulfide, ethylbenzene, methylene chloride, phenol, toluene, and trichloroethene (TCE). The design flow rate for the plant is 125 gallons per minute.

The treated water effluent is discharged directly to the South Fork Shenandoah River. The discharge is regulated under the Applicable or Relevant and Appropriate Requirements (ARARs) issued by the VADEQ.

The GLTP treatment system employs the following unit processes to address the COPCs present in the influent wastewater:

- Metals and solids precipitation system
- Moving bed biofilm reactor biological treatment
- Sequencing batch reactor biological treatment
- Multimedia filtration
- Granular activated carbon (GAC) adsorption
- Post-GAC bag filtration
- Solids thickening and dewatering

Ancillary systems include:

- Chemical storage and metering systems
- Compressed air
- Odor control system
- Plant and trucked water systems

A detailed description of the process can be found in the O&M Manual (Parsons 2015).

### 3.1.2 Regulatory Requirements

Treated effluent from the GLTP is discharged through Outfall 004 to the South Fork Shenandoah River. ARARs governing discharge criteria, monitoring and reporting

requirements, and other requirements were issued in July 2014. The ARARs prescribe the:

- Discharge limits
- Water quality criteria monitoring including quantitation levels and required analytical methods
- Polychlorinated biphenyl (PCB) monitoring and reporting requirements
- Notification levels for specified and unspecified pollutants
- Sampling, analytical, and reporting requirements
- General requirements for permit holders

The specific requirements for each of these can be found in Appendix A of the O&M manual.

## 3.2 Compliance and Performance Monitoring

Sampling is required to monitor the performance of the GLTP and to ensure compliance with discharge limitations. Sampling performed to monitor specific unit processes and tweak operating parameters is conducted as needed and at various locations within the process stream (other than effluent compliance sampling locations). Performance monitoring results are recorded in on-site log books. Compliance monitoring is conducted at prescribed locations and intervals for specific parameters as described in the sections below.

### 3.2.1 Compliance Monitoring Objectives and Requirements

The objectives of GLTP regulatory compliance sampling include:

- Characterization of clear well effluent for meeting discharge limits prescribed in Part I, Section A of the ARARs
- Characterization of clear well effluent for whole effluent toxicity (WET) monitoring as prescribed in Part I, Section C of the ARARs, which is to be initiated within six months of commencement of GLTP operation
- Characterization of clear well effluent for water quality criteria monitoring as listed in Attachment A of the ARARs, which is to be initiated within one year of commencement of GLTP operation
- Characterization of clear well effluent for PCB monitoring in accordance with TMDL[2] Guidance Document 09-2001, as described in the ARARs
- Characterization of clear well effluent for carbon disulfide monitoring in accordance with Part I, Section D.9 of the ARARs

In order to meet the monitoring requirements of the ARARs, several monitoring programs have been initiated as summarized below and described in detail in the O&M plan.

[2] Total Maximum Daily Load

### *Discharge Limitation Monitoring*

The following analyses are required to ensure permit compliance:

- pH (continuous monitoring; averaged daily for reporting)
- Weekly:
  - 5-day BOD
  - TSS
- Monthly: carbon disulfide
- Annually:
  - Metals (chromium, copper, lead, nickel, zinc)
  - Cyanide
  - VOCs
  - Semi volatile organic compounds (SVOCs)
  - WET – to be monitored quarterly for the first year and then annually thereafter

Grab samples were collected from Outfall 004 on August 3, 2016, November 16, 2016, and February 9, 2017 for the purpose of the WET testing. With the exception of pH, the other discharge limitation samples are obtained by an 8-hour composite sampler located at the discharge of the clear well and analyzed offsite by an USEPA-approved laboratory. BOD and TSS analyses are completed by Environmental Systems Services, Ltd. (ESS) in Culpepper, Virginia. Carbon disulfide analysis is completed by Pace Analytical Services, Inc. (Pace) in Huntersville, North Carolina. Continuous pH monitoring is obtained by online monitors; discrete analog pH output is queried from the on-line monitoring system, tabulated, and averaged daily for reporting purposes.

### *Water Quality Criteria Monitoring*

The following analyses are required once every five years to monitor the water quality of the effluent discharged to the river and comply with the ARARs:

- Dissolved metals (antimony, arsenic, cadmium, chromium III, chromium VI, mercury, silver, and thallium)
- Total recoverable selenium
- Organochloride and organophosphate pesticides
- Acid extractables
- Base/neutral extractables
- Nonylphenol
- Tributyltin
- $H_2S$
- Volatiles
- Free cyanide
- Hardness

- Ammonia
- Chloride

With the exception of $H_2S$, volatiles, free cyanide, and hardness, the samples are obtained by an 8-hour composite sampler located at the discharge of the clear well. Volatiles, free cyanide, and hardness are obtained by grab samples at the discharge of the clear well. $H_2S$may be obtained by either a composite or grab sample at the discharge of the clear well. All samples are analyzed offsite by an USEPA-approved laboratory. These samples will be collected in 2017.

***Polychlorinated Biphenyls***

PCB analysis is required once every five years to monitor the water quality of the effluent discharged to the river and comply with the ARARs. The plant has not been operating long enough for these samples to be collected. The samples will be collected in 2017. The sample will be obtained by a 24-hour composite sampler at the discharge of the clear well and analyzed offsite by an USEPA-approved laboratory. Sampling protocol will follow TMDL Guidance Document 09-2001. The analysis will be performed using USEPA Method 1668 – low level analysis of 209 PCB congeners.

### 3.2.2 Reporting

Discharge monitoring results (i.e., parameters with discharge limitation) are reported to the VADEQ each month on a Discharge Monitoring Report (DMR) form. If an exceedance of a discharge limitation for any parameter is noted, the exceedance is immediately reported to FMC who, in turn, informs the necessary regulatory agency(ies). No exceedances were reported in 2016. The completed DMRs for 2016 are included in the quarterly reports provided in Appendix A.

Results of the WET testing indicated no toxicity to fathead minnows or C. dubia, with TUa (acute toxic unit) values less than one and 0% mortality in 100% effluent. The WET testing laboratory report can be found in Appendix F.

The GLTP operated and discharged to the South Fork Shenandoah River for 366 days from January 1 to December 31, 2016. As shown on Table 6, the Site discharged a total of 31.95 million gallons of water to the river in 2016.

### 3.2.3 Notifications

In accordance with the “Notification Levels” requirement of the ARARs for the GLTP discharge, any toxic pollutant not limited in the ARARs should also be reported if its concentration exceeds the notification level on a routine/frequent basis or, for certain pollutants, also on an infrequent basis. These notification levels are provided in the O&M plan and are summarized below.

Routine / Frequent Basis

- 100 micrograms per liter (µg/L)
- 200 µg/L for acrolein and acrylonitrile
- 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol
- 1 mg/L for antimony (Sb)

- Five times the maximum concentration value reported for the pollutant in the application
- The level established by VADEQ.

Infrequent Basis

- 500 µg/L for any toxic pollutant, as defined by the USEPA priority pollutant list
- 1 ug/L for antimony
- Ten times the maximum concentration value reported for the pollutant in the application
- The level established by the VADEQ.

None of these levels were exceeded and no notifications were required in 2016.

## 3.3 References

Parsons 2015. Operations & Maintenance (O&M) Manual: Groundwater and Leachate Treatment Plant, Avtex Site, Front Royal, VA. May.

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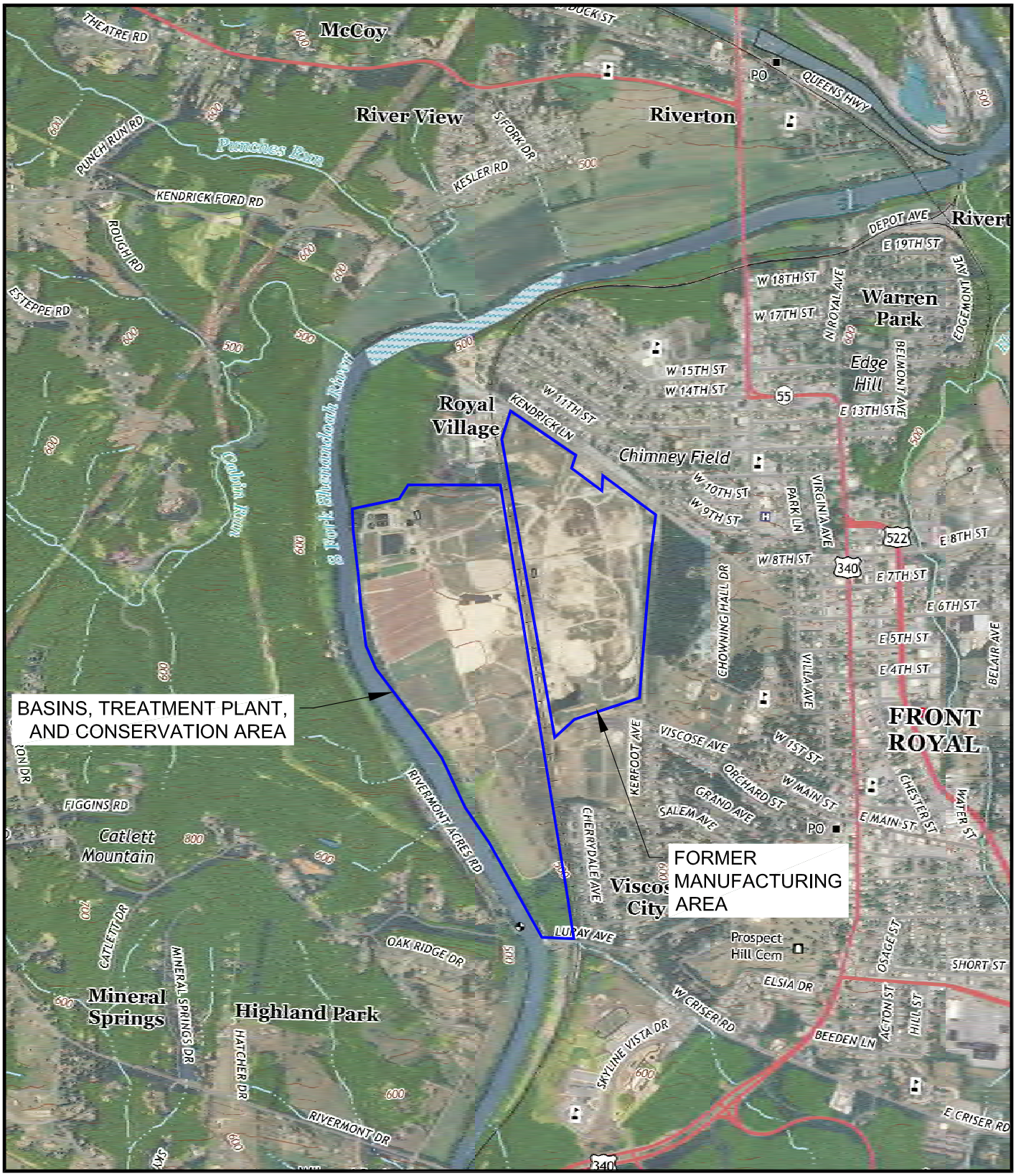
# FIGURES

PARSONS




SOURCE: U.S.G.S. TOPOGRAPHIC QUADRANGLE
FRONT ROYAL, VIRGINIA
7.5 MINUTE SERIES, 2013

2,000 0 2,000 4,000 Feet

FIGURE 1

SITE LOCATION MAP

AVTEX FIBERS SUPERFUND SITE
FRONT ROYAL, VIRGINIA

PARSONS
404 KENDRICK LANE, FRONT ROYAL, VA 22630

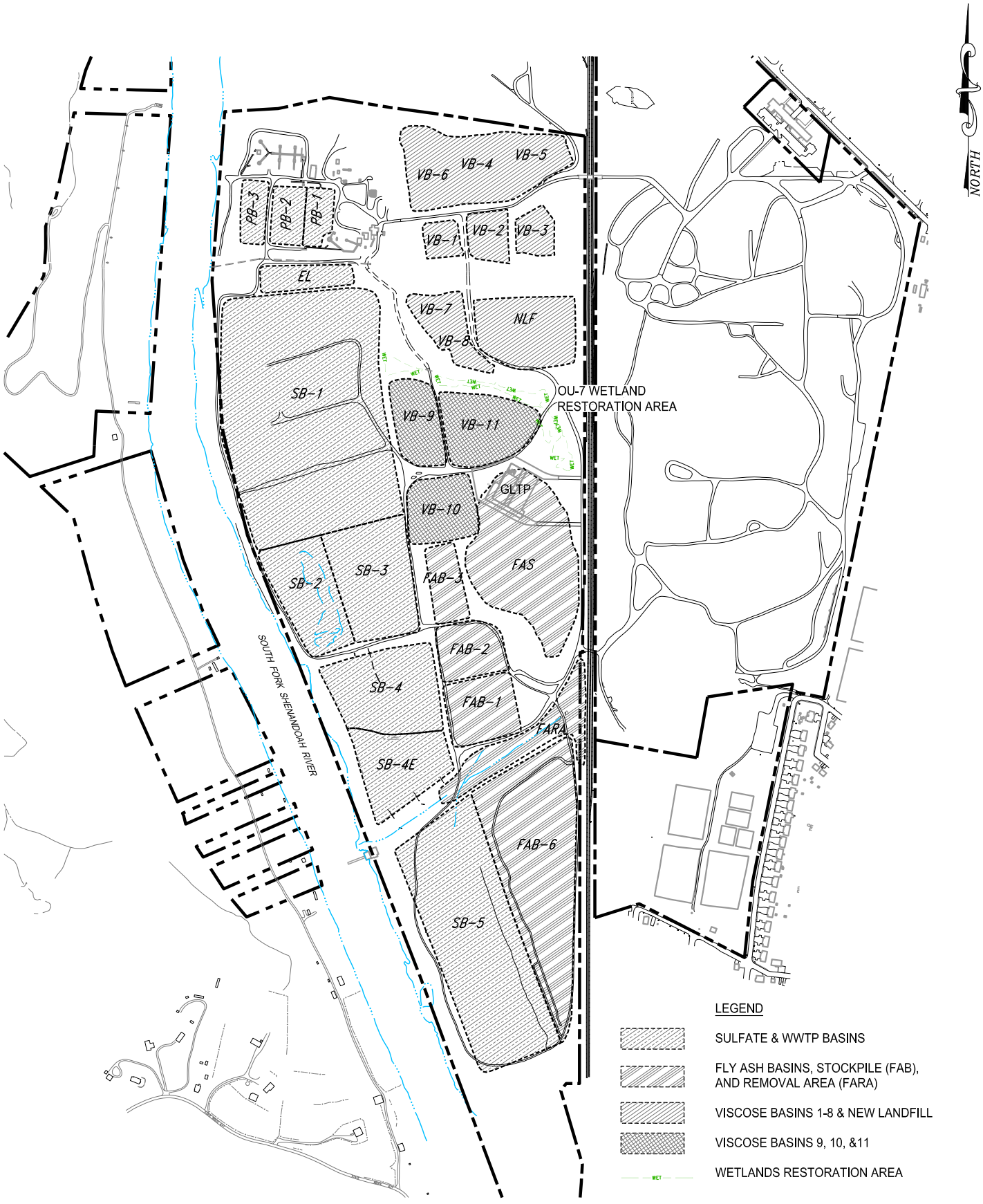



FIGURE 2

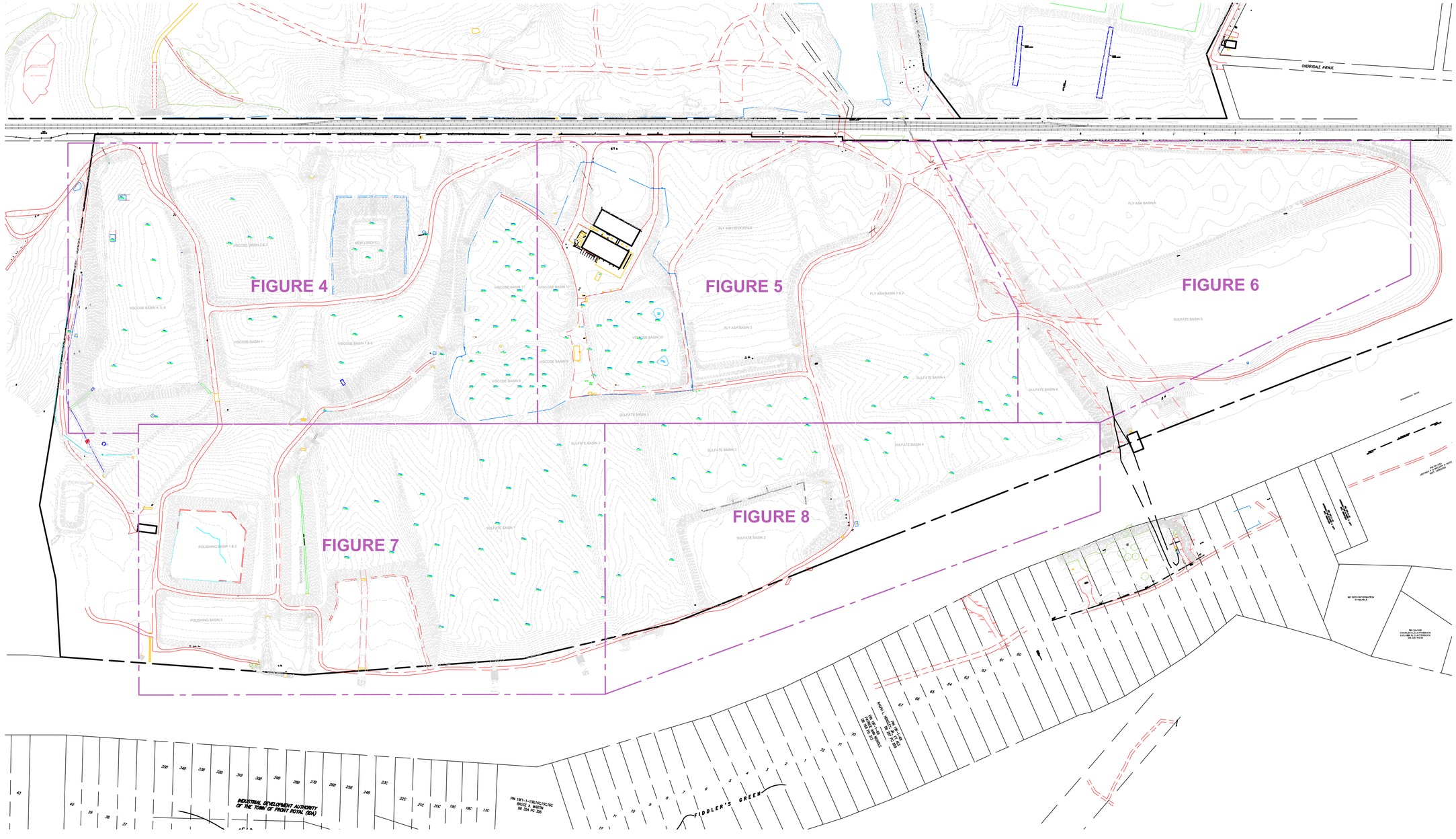
SITE WASTE DISPOSAL IMPOUNDMENTS

AVTEX FIBERS SUPERFUND SITE

FRONT ROYAL, VIRGINIA

PARSONS

404 KENDRICK LANE, FRONT ROYAL, VA 22630




NOTES:

1. THE TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AN ACTUAL FIELD SURVEY COMPLETED ON MARCH 18, 2016.
2. THE BASE MAP WAS PROVIDED BY MARSH & LEGGE LAND SURVEYORS, WINCHESTER, VA

VA. NAD 83
NORTH ZONE STATE GRID

200 0 200 400
SCALE IN FEET

PARSONS
404 KENDRICK LANE,
FRONT ROYAL, VA 22630

Job No. 449965
Designed MGR
Drawn MGR
Checked
Reviewed
Approved
Reg. No.
Date 1/23/17

| REV | DATE | DESCRIPTION | BY |
|---|---|---|---|
| | | | |

FMC CORPORATION
1735 MARKET STREET
PHILADELPHIA, PA 19103

FMC
FRONT ROYAL, VIRGINIA

# 2016 SITE-WIDE TOPOGRAPHIC SURVEY SITE WASTE DISPOSAL IMPOUNDMENTS AVTEX FIBERS SUPERFUND SITE

FIGURE NO. 3
REV. —

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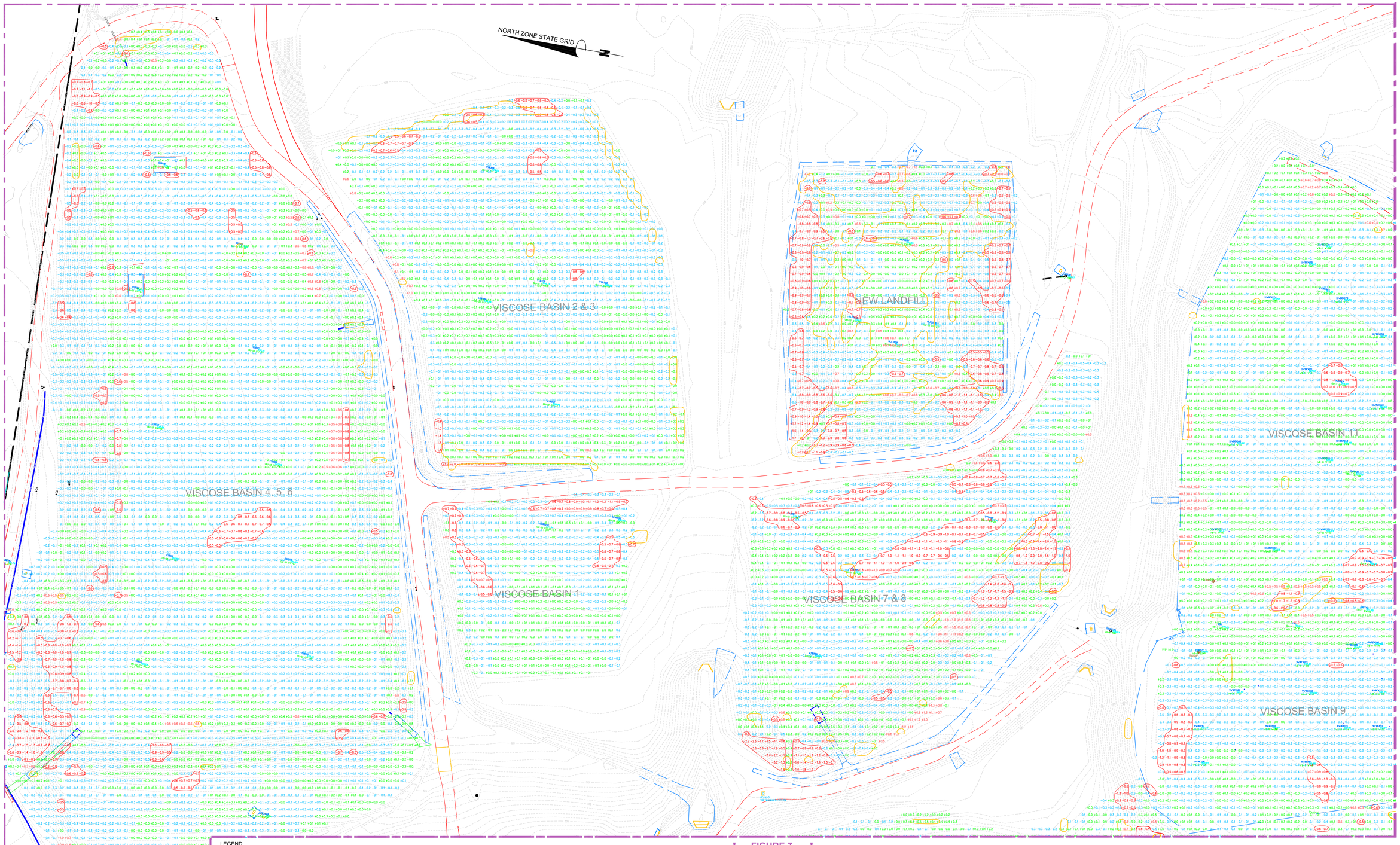


FIGURE 7

FIGURE 5

LEGEND

+02 STABLE OR INCREASE IN ELEVATION EQUAL TO VALUE SHOWN (INCREASE BETWEEN 0.0 AND 0.5 FEET)
+06 INCREASE IN ELEVATION EQUAL TO VALUE SHOWN (INCREASE > 0.5 FEET)
-02 DECREASE IN ELEVATION EQUAL TO VALUE SHOWN (DECREASE IS BETWEEN -0.0 AND -0.5 FEET)
-06 DECREASE IN ELEVATION EQUAL TO VALUE SHOWN (DECREASE > -0.5 FEET)
AREAS WITH DECREASE IN ELEVATION GREATER THAN 0.5 FEET (2015 TO 2016)
AREAS WITH DECREASE IN ELEVATION GREATER THAN 0.5 FEET (2014 TO 2015)

NOTES:

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2. CUT / FILL DATA IS CALCULATED BY COMPARING THE CURRENT SURVEY TO THE MOST RECENT PREVIOUS SURVEY (2015).
3. POSITIVE VALUES INDICATE AN INCREASE IN ELEVATION (2015 GREATER THAN BASELINE).
4. NEGATIVE VALUES INDICATE A DECREASE IN ELEVATION (2015 LESS THAN BASELINE).

60 0 60 120
SCALE IN FEET

PARSONS
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FRONT ROYAL, VA 22630

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# SETTLEMENT / FILL MAP
# SITE WASTE DISPOSAL IMPOUNDMENTS
# AVTEX FIBERS SUPERFUND SITE

FIGURE NO. 4
REV. —

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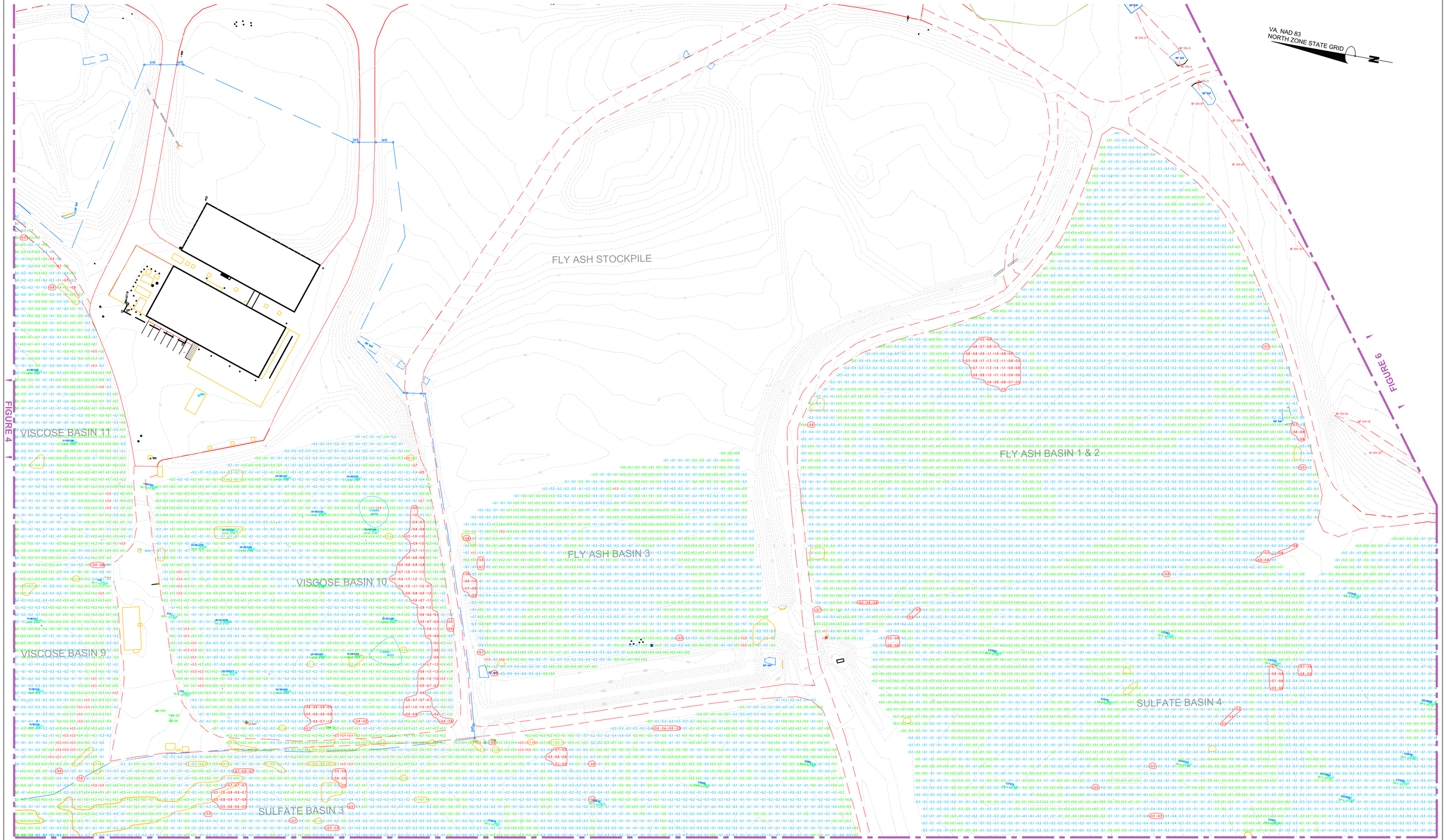


NOTES:

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4. NEGATIVE VALUES INDICATE A DECREASE IN ELEVATION (2015 LESS THAN BASELINE).

60 0 60 120
SCALE IN FEET

LEGEND

+02 STABLE OR INCREASE IN ELEVATION EQUAL TO VALUE SHOWN (INCREASE BETWEEN 0.0 AND 0.5 FEET)
+04 INCREASE IN ELEVATION EQUAL TO VALUE SHOWN (INCREASE > 0.5 FEET)
-02 DECREASE IN ELEVATION EQUAL TO VALUE SHOWN (DECREASE IS BETWEEN -0.0 AND -0.5 FEET)
-04 DECREASE IN ELEVATION EQUAL TO VALUE SHOWN (DECREASE > -0.5 FEET)

AREAS WITH DECREASE IN ELEVATION GREATER THAN 0.5 FEET (2015 TO 2016)

AREAS WITH DECREASE IN ELEVATION GREATER THAN 0.5 FEET (2014 TO 2015)

PARSONS
404 KENDRICK LANE,
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SETTLEMENT / FILL MAP
SITE WASTE DISPOSAL IMPOUNDMENTS
AVTEX FIBERS SUPERFUND SITE

FIGURE NO. 5
REV. –

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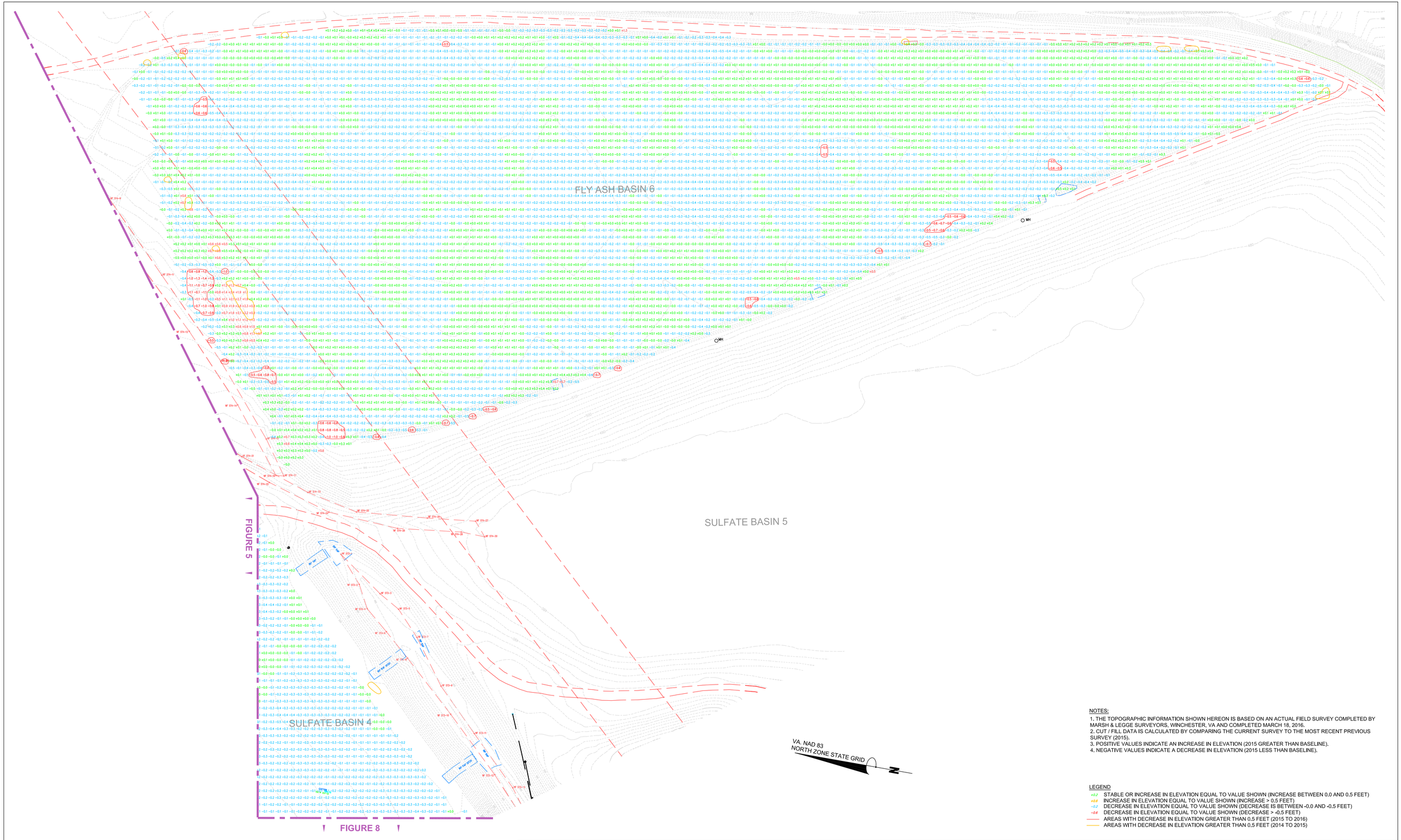


NOTES:

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4. NEGATIVE VALUES INDICATE A DECREASE IN ELEVATION (2015 LESS THAN BASELINE).

LEGEND

+0.1 STABLE OR INCREASE IN ELEVATION EQUAL TO VALUE SHOWN (INCREASE BETWEEN 0.0 AND 0.5 FEET)
+0.6 INCREASE IN ELEVATION EQUAL TO VALUE SHOWN (INCREASE > 0.5 FEET)
-0.2 DECREASE IN ELEVATION EQUAL TO VALUE SHOWN (DECREASE IS BETWEEN -0.0 AND -0.5 FEET)
-0.6 DECREASE IN ELEVATION EQUAL TO VALUE SHOWN (DECREASE > -0.5 FEET)
AREAS WITH DECREASE IN ELEVATION GREATER THAN 0.5 FEET (2015 TO 2016)
AREAS WITH DECREASE IN ELEVATION GREATER THAN 0.5 FEET (2014 TO 2015)

PARSONS
404 KENDRICK LANE,
FRONT ROYAL, VA 22630

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| Job No. | 449965 |
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# SETTLEMENT / FILL MAP
# SITE WASTE DISPOSAL IMPOUNDMENTS
# AVTEX FIBERS SUPERFUND SITE

FIGURE NO. 6

REV. —

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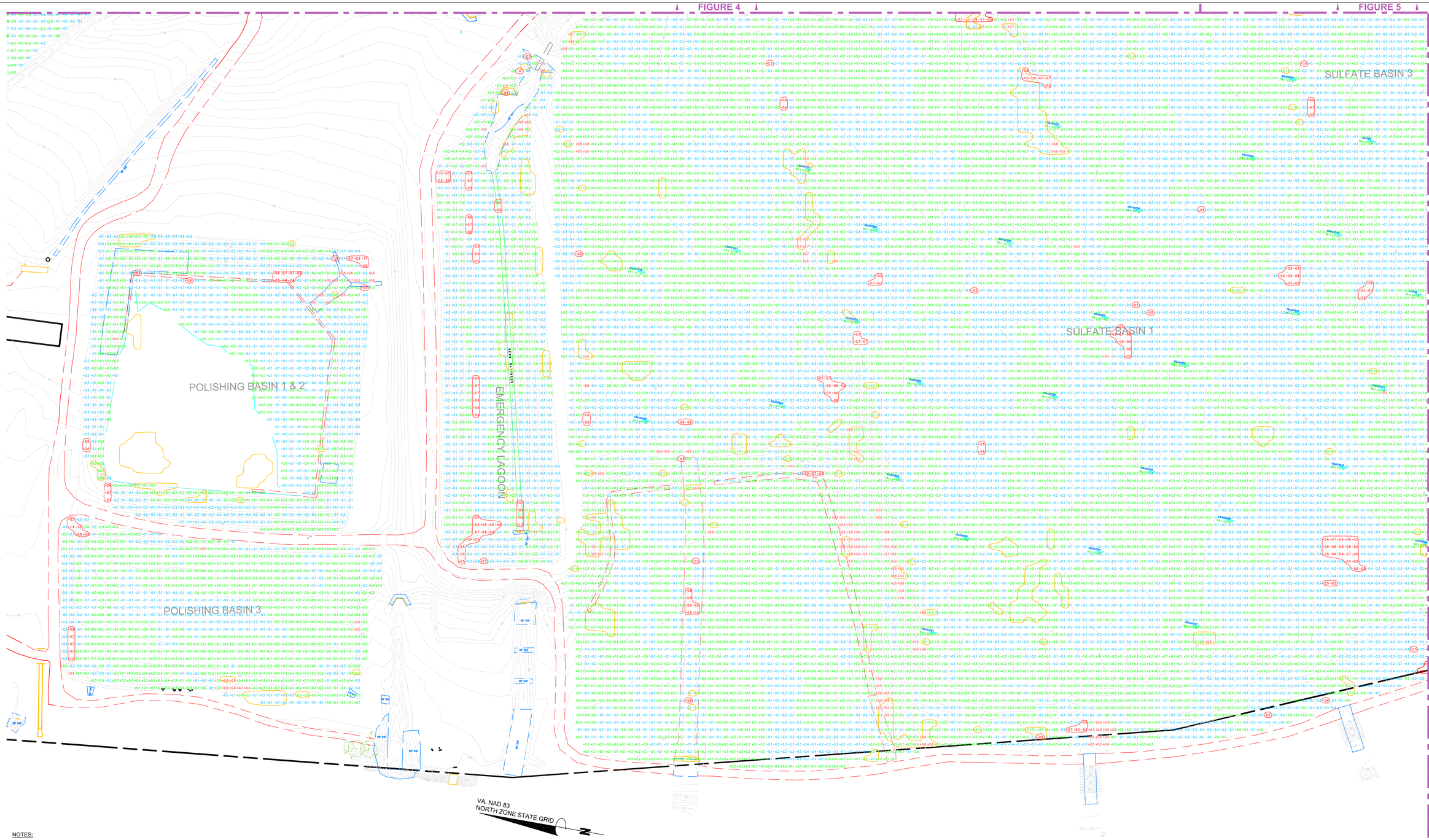
FIGURE 4

FIGURE 5

FIGURE 8

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3. POSITIVE VALUES INDICATE AN INCREASE IN ELEVATION (2015 GREATER THAN BASELINE).
4. NEGATIVE VALUES INDICATE A DECREASE IN ELEVATION (2015 LESS THAN BASELINE).

LEGEND

+0.2 STABLE OR INCREASE IN ELEVATION EQUAL TO VALUE SHOWN (INCREASE BETWEEN 0.0 AND 0.5 FEET)
+0.6 INCREASE IN ELEVATION EQUAL TO VALUE SHOWN (INCREASE > 0.5 FEET)
-0.2 DECREASE IN ELEVATION EQUAL TO VALUE SHOWN (DECREASE IS BETWEEN -0.0 AND -0.5 FEET)
-0.6 DECREASE IN ELEVATION EQUAL TO VALUE SHOWN (DECREASE > -0.5 FEET)
AREAS WITH DECREASE IN ELEVATION GREATER THAN 0.5 FEET (2015 TO 2016)
AREAS WITH DECREASE IN ELEVATION GREATER THAN 0.5 FEET (2014 TO 2015)


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# SETTLEMENT / FILL MAP
# SITE WASTE DISPOSAL IMPOUNDMENTS
# AVTEX FIBERS SUPERFUND SITE

FIGURE NO. 7
REV. —

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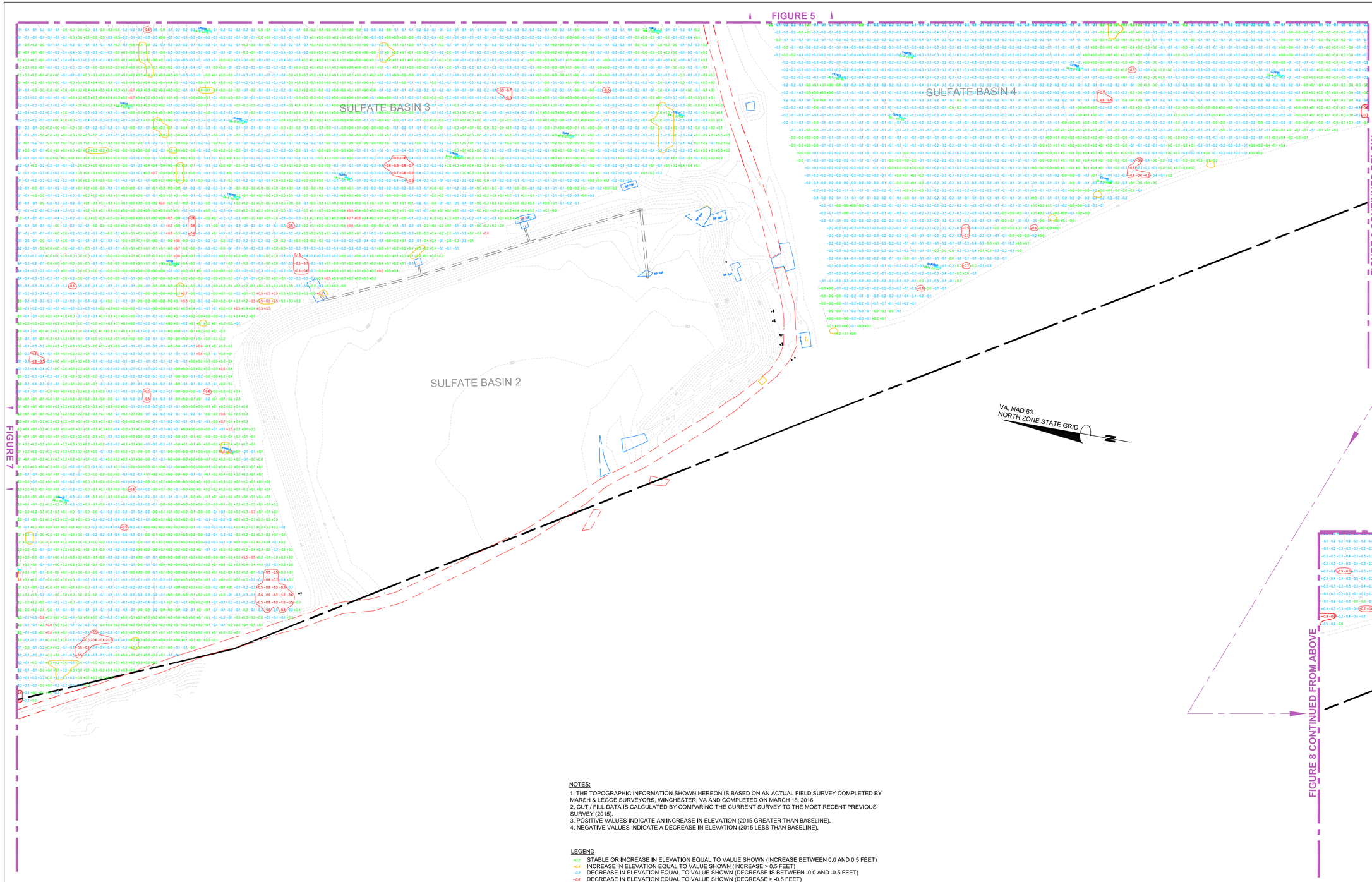


NOTES:

1. THE TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AN ACTUAL FIELD SURVEY COMPLETED BY MARSH & LEGGE SURVEYORS, WINCHESTER, VA AND COMPLETED ON MARCH 18, 2016
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LEGEND

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+0.6 INCREASE IN ELEVATION EQUAL TO VALUE SHOWN (INCREASE > 0.5 FEET)
-0.2 DECREASE IN ELEVATION EQUAL TO VALUE SHOWN (DECREASE IS BETWEEN -0.0 AND -0.5 FEET)
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AREAS WITH DECREASE IN ELEVATION GREATER THAN 0.5 FEET (2015 TO 2016)
AREAS WITH DECREASE IN ELEVATION GREATER THAN 0.5 FEET (2014 TO 2015)

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# SETTLEMENT / FILL MAP
# SITE WASTE DISPOSAL IMPOUNDMENTS
# AVTEX FIBERS SUPERFUND SITE

FIGURE NO. 8
REV. —

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# TABLES

PARSONS

TABLE 1

Summary of 2016 Gas Vent Readings – Hydrogen Sulfide
Avtex Fibers Superfund Site
Front Royal, Virginia

| Vent ID | Vent Height Extended | Baseline | Source | Hydrogen Sulfide Results (parts per million) 2016 Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
|---|---|---|---|---|---|---|---|
| OU10GV01 | YES | 0 | Max | 1 | 0 | 0 | 0 |
| OU10GV02 | YES | 0 | Max | 1 | 0 | 2 | 0 |
| OU10GV03 | YES | 1.7 | 95% UCL | 1 | 1 | 9 | 0 |
| OU10GV04 - After Filter | NA | 0 | Max | 1 | 0 | 130 | 0 |
| OU10GV04 - Before Filter | NA | 624.5 | 95% UCL | 1 | 272 | 1000 | 1000 |
| OU10GV05 - After Filter | NA | 1 | Max | 0 | 0 | 0 | 0 |
| OU10GV05- Before Filter | NA | NA | | 1 | 224 | 1000 | 346 |
| OU10GV06 | YES | 1.5 | 95% UCL | 1 | 0 | 20 | 0 |
| OU10GV07 | YES | 0 | Max | 1 | 0 | 0 | 0 |
| OU10GV08 | YES | 1 | Max | 1 | 1 | 0 | 0 |
| OU10GV09 | YES | 1 | Max | 1 | 1 | 0 | 0 |
| OU10GV10 | YES | 1 | Max | 0 | 0 | 1 | 0 |
| OU10GV11 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV12 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV13 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV14 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV15 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV16 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV17 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV18 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV19 | YES | 0 | Max | 0 | 0 | 6 | 0 |
| OU10GV20 | YES | 0 | Max | 0 | 0 | 4 | 0 |
| OU10GV21 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV22 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV23 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV24 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV25 | YES | 0 | Max | 0 | 0 | 1 | 0 |
| OU7-GV01 | NA | 1 | Max | 0 | 0 | 0 | 0 |
| OU7-GV02 | NA | 0 | Max | 0 | 0 | 0 | 0 |
| OU7-GV03 | NA | 1 | Max | 0 | 0 | 1 | 2 |
| OU7-GV04 | NA | 1 | Max | 0 | 0 | 3 | 0 |
| OU7-GV05 | NA | 1 | Max | 0 | 1 | 6 | 0 |
| OU7-GV06 | NA | 0 | Max | 0 | 0 | 0 | 0 |
| OU7-GV07 | NA | 0 | Max | 0 | 0 | 0 | 0 |
| OU7-GV08 | NA | 0 | Max | 0 | 0 | 0 | 0 |
| OU7-GV09 | NA | 0 | Max | 0 | 0 | 0 | 0 |
| OU7-GV10 | NA | 0 | Max | 0 | 0 | 0 | 0 |

Baselines were calculated values using 2014 and 2015 data.
Results in red font exceed the upper limit of the instrument and are reported at the upper limit.
Shaded values exceed screening criteria.

TABLE 1

Summary of 2016 Gas Vent Readings – Hydrogen Sulfide
Avtex Fibers Superfund Site
Front Royal, Virginia

| Vent ID | Vent Height Extended | Baseline | Source | Hydrogen Sulfide Results (parts per million) 2016 Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
|---|---|---|---|---|---|---|---|
| OU7-GV11 | NA | 4.1 | 95% UCL | 0 | 3 | 2 | 1 |
| SB1-GV01 | YES | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV02 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV03 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV04 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV05 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV06 | YES | 0 | Max | 1 | 0 | 1 | 0 |
| SB1-GV07 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV08 | YES | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV09 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV10 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV11 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV12 | YES | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV13 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV14 | NO | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV15 | NO | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV16 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV17 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV18 | YES | 0 | Max | 1 | 0 | 1 | 0 |
| SB1-GV19 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV20 | YES | 0 | Max | 1 | 0 | 1 | 0 |
| SB1-GV21 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV22 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV23 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV24 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV25 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV26 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV27 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV28 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV29 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV30 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV31 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV32 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV33 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB1-GV34 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB3-GV01 | YES | 1 | Max | 1 | 0 | 0 | 0 |
| SB3-GV02 | YES | 0 | Max | 1 | 0 | 0 | 0 |

Baselines were calculated values using 2014 and 2015 data.
Results in red font exceed the upper limit of the instrument and are reported at the upper limit.
Shaded values exceed screening criteria.

TABLE 1

Summary of 2016 Gas Vent Readings – Hydrogen Sulfide
Avtex Fibers Superfund Site
Front Royal, Virginia

| Vent ID | Vent Height Extended | Baseline | Source | Hydrogen Sulfide Results (parts per million) 2016 Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
|---|---|---|---|---|---|---|---|
| SB3-GV03 | YES | 1 | Max | 1 | 0 | 0 | 0 |
| SB3-GV04 | YES | 0 | Max | 1 | 0 | 1 | 0 |
| SB3-GV05 | NO | 0 | Max | 1 | 1 | 1 | 0 |
| SB3-GV06 | YES | 1 | Max | 1 | 1 | 1 | 0 |
| SB3-GV07 | NO | 1 | Max | 1 | 0 | 0 | 0 |
| SB3-GV08 | NO | 1 | Max | 1 | 0 | 0 | 0 |
| SB3-GV09 | YES | 0 | Max | 1 | 0 | 0 | 0 |
| SB3-GV10 | YES | 0 | Max | 1 | 0 | 0 | 0 |
| SB3-GV11 | YES | 0 | Max | 1 | 1 | 1 | 0 |
| SB3-GV12 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB4-GV01 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB4-GV02 | YES | 0 | Max | 1 | 0 | 1 | 0 |
| SB4-GV03 | YES | 1 | Max | 1 | 0 | 0 | 0 |
| SB4-GV04 | YES | 1 | Max | 1 | 0 | 1 | 0 |
| SB4-GV05 | YES | 1 | Max | 0 | 0 | 0 | 0 |
| SB4-GV06 | YES | 1 | Max | 0 | 0 | 0 | 0 |
| SB4-GV07 | NO | 1 | Max | 0 | 0 | 0 | 0 |
| SB4-GV08 | YES | 1 | Max | 1 | 0 | 0 | 0 |
| SB4-GV09 | NO | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV10 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV11 | NO | 0 | Max | 0 | 0 | 0 | 1 |
| SB4-GV12 | NO | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV13 | YES | 1 | Max | 0 | 0 | 1 | 0 |
| SB4-GV14 | NO | 1 | Max | 0 | 1 | 1 | 0 |
| SB4-GV15 | NO | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV16 | YES | 1 | Max | 0 | 0 | 1 | 0 |
| SB4-GV17 | YES | 1 | Max | 0 | 0 | 0 | 0 |
| SB4-GV18 | NO | 0 | Max | 1 | 0 | 1 | 0 |
| SB4-GV19 | YES | 1 | Max | 0 | 0 | 1 | 0 |
| SB4-GV20 | NO | 0 | Max | 1 | 0 | 0 | 0 |
| SB4-GV21 | YES | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV22 | NO | 0 | Max | 0 | 0 | 0 | 1 |

Baselines were calculated values using 2014 and 2015 data.
Results in red font exceed the upper limit of the instrument and are reported at the upper limit.
Shaded values exceed screening criteria.

TABLE 2

Summary of 2016 Gas Vent Readings – Methane
Avtex Fibers Superfund Site
Front Royal, Virginia

| Vent ID | Vent Height Extended | Baseline | Source | Methane Results (percent) 2016 Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
|---|---|---|---|---|---|---|---|
| OU10GV01 | YES | 33.5 | 95% UCL | 0.3 | 24.9 | 44.8 | 43.1 |
| OU10GV02 | YES | 26.4 | 95% UCL | 0.2 | 23.2 | 43 | 26.5 |
| OU10GV03 | YES | 40.1 | 95% UCL | 1.3 | 15.7 | 46.8 | 41.6 |
| OU10GV04 - After Filter | NA | 33.4 | 95% UCL | 17.7 | 22.8 | 18.7 | 8.5 |
| OU10GV04 - Before Filter | NA | 44.0 | 95% UCL | 12.9 | 40.7 | 48.2 | 42.5 |
| OU10GV05 - After Filter | NA | 2.4 | 95% UCL | 0 | 2.3 | 1.4 | 0.5 |
| OU10GV05- Before Filter | NA | 37.5 | 95% UCL | 16.3 | 32.9 | 46.7 | 39.3 |
| OU10GV06 | YES | 41.7 | 95% UCL | 0.2 | 32.6 | 49.5 | 44.7 |
| OU10GV07 | YES | 56.9 | 95% UCL | 0 | 31.1 | 47.4 | 42.6 |
| OU10GV08 | YES | 34.6 | 95% UCL | 0 | 33.3 | 47.1 | 43.3 |
| OU10GV09 | YES | 33.3 | 95% UCL | 0 | 21.4 | 47.1 | 42.3 |
| OU10GV10 | YES | 27.0 | 95% UCL | 0 | 15.8 | 42.2 | 34.6 |
| OU10GV11 | YES | 3.6 | 95% UCL | 0 | 3.2 | 24.5 | 1.1 |
| OU10GV12 | YES | 3.9 | 95% UCL | 2.4 | 4.3 | 15.5 | 1 |
| OU10GV13 | YES | 16.5 | 95% UCL | 10.9 | 15.4 | 45 | 19.8 |
| OU10GV14 | YES | 15.2 | 95% UCL | 0 | 4.2 | 25 | 1.2 |
| OU10GV15 | YES | 7.7 | 95% UCL | 0.2 | 9.3 | 54.7 | 5.8 |
| OU10GV16 | YES | 5.9 | 95% UCL | 4.1 | 3.2 | 13.2 | 1.4 |
| OU10GV17 | YES | 12.2 | 95% UCL | 8.8 | 6.4 | 26.7 | 0.8 |
| OU10GV18 | YES | 2.2 | 95% UCL | 2.4 | 1.3 | 5.4 | 3.2 |
| OU10GV19 | YES | 6.9 | 95% UCL | 1.1 | 0.4 | 15.7 | 0.6 |
| OU10GV20 | YES | 10.9 | 95% UCL | 15.8 | 10.1 | 37.4 | 11.7 |
| OU10GV21 | YES | 10.5 | 95% UCL | 6.6 | 11 | 44.2 | 8.4 |
| OU10GV22 | YES | 5.4 | 95% UCL | 3.5 | 4.3 | 5.6 | 5.5 |
| OU10GV23 | YES | 2.9 | 95% UCL | 11.4 | 9.7 | 22.9 | 13.9 |
| OU10GV24 | YES | 8.9 | 95% UCL | 15.2 | 6.6 | 22.2 | 14.7 |
| OU10GV25 | YES | 22.1 | 95% UCL | 14.4 | 14.6 | 28.6 | 12.9 |
| OU7-GV01 | NA | 13.8 | 95% UCL | 0.4 | 2.4 | 2.7 | 0.3 |
| OU7-GV02 | NA | 20.6 | 95% UCL | 18.9 | 22 | 15.2 | 25.7 |
| OU7-GV03 | NA | 37.3 | 95% UCL | 37 | 31.6 | 38 | 42.7 |
| OU7-GV04 | NA | 25.0 | 95% UCL | 29 | 31.7 | 37.4 | 34.1 |
| OU7-GV05 | NA | 39.6 | 95% UCL | 26.3 | 27.5 | 35.2 | 28.2 |
| OU7-GV06 | NA | 21.3 | 95% UCL | 27.3 | 21.1 | 25.8 | 17.3 |
| OU7-GV07 | NA | 29.2 | 95% UCL | 31.6 | 17.1 | 12 | 16 |
| OU7-GV08 | NA | 11.7 | 95% UCL | 0 | 1.1 | 0.8 | 0.4 |
| OU7-GV09 | NA | 6.0 | 95% UCL | 1.4 | 1.9 | 1.4 | 0 |
| OU7-GV10 | NA | 21.0 | Max | 16.3 | 11.5 | 5 | 0 |

Baselines were calculated values using 2014 and 2015 data.
Shaded values exceed screening criteria.

TABLE 2

Summary of 2016 Gas Vent Readings – Methane
Avtex Fibers Superfund Site
Front Royal, Virginia

| Vent ID | Vent Height Extended | Baseline | Source | Methane Results (percent) 2016 Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
|---|---|---|---|---|---|---|---|
| OU7-GV11 | NA | 28.5 | 95% UCL | 25.2 | 37.1 | 28.5 | 42.1 |
| SB1-GV01 | YES | 0.4 | 95% UCL | 0 | 0 | 0 | 0 |
| SB1-GV02 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV03 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV04 | NO | 0.2 | 95% UCL | 0 | 0 | 0.1 | 0 |
| SB1-GV05 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV06 | YES | 9.1 | 95% UCL | 0 | 8 | 5.1 | 0 |
| SB1-GV07 | NO | 0.5 | 95% UCL | 0 | 0 | 0 | 0 |
| SB1-GV08 | YES | 0.8 | 95% UCL | 0 | 0 | 0 | 0 |
| SB1-GV09 | NO | 0.1 | 95% UCL | 0 | 0 | 0 | 0 |
| SB1-GV10 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV11 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV12 | YES | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV13 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV14 | NO | 0.2 | 95% UCL | 0 | 0 | 0 | 0 |
| SB1-GV15 | NO | 2.1 | 95% UCL | 0 | 0 | 0 | 0 |
| SB1-GV16 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV17 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV18 | YES | 3.5 | 95% UCL | 0 | 0 | 0 | 0 |
| SB1-GV19 | NO | 0.1 | Max | 0.1 | 0 | 0 | 0 |
| SB1-GV20 | YES | 2.6 | 95% UCL | 0.4 | 0 | 0 | 0 |
| SB1-GV21 | NO | 0.1 | Max | 0.7 | 0 | 0 | 0 |
| SB1-GV22 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV23 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV24 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV25 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV26 | NO | 0.1 | 95% UCL | 0 | 0 | 0 | 0 |
| SB1-GV27 | NO | 3.2 | 95% UCL | 0 | 0 | 0.2 | 0 |
| SB1-GV28 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV29 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV30 | NO | 0.0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV31 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV32 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV33 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB1-GV34 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB3-GV01 | YES | 2.5 | 95% UCL | 0 | 0 | 0.1 | 0.8 |
| SB3-GV02 | YES | 10.7 | 95% UCL | 0.2 | 1.3 | 2.4 | 1 |

Baselines were calculated values using 2014 and 2015 data.
Shaded values exceed screening criteria.

TABLE 2

Summary of 2016 Gas Vent Readings – Methane
Avtex Fibers Superfund Site
Front Royal, Virginia

| Vent ID | Vent Height Extended | Baseline | Source | Methane Results (percent) 2016 Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
|---|---|---|---|---|---|---|---|
| SB3-GV03 | YES | 13.3 | 95% UCL | 0 | 2.5 | 0 | 0.4 |
| SB3-GV04 | YES | 14.2 | 95% UCL | 0 | 4.6 | 0.1 | 0 |
| SB3-GV05 | NO | 0.5 | 95% UCL | 0 | 0.8 | 0 | 0 |
| SB3-GV06 | YES | 8.3 | 95% UCL | 0.2 | 2.7 | 1.8 | 0 |
| SB3-GV07 | NO | 4.6 | 95% UCL | 0 | 0 | 0.1 | 0.2 |
| SB3-GV08 | NO | 0.2 | 95% UCL | 0 | 0 | 0 | 0 |
| SB3-GV09 | YES | 0.5 | 95% UCL | 0 | 0 | 0 | 0 |
| SB3-GV10 | YES | 3.5 | 95% UCL | 0 | 0 | 1.4 | 3.6 |
| SB3-GV11 | YES | 12.8 | 95% UCL | 2.4 | 10.7 | 2.3 | 1.4 |
| SB3-GV12 | NO | 1.1 | 95% UCL | 0 | 0 | 0 | 0 |
| SB4-GV01 | NO | 4.7 | 95% UCL | 0 | 0 | 0 | 0 |
| SB4-GV02 | YES | 0.2 | 95% UCL | 0 | 0 | 0 | 0 |
| SB4-GV03 | YES | 0.5 | 95% UCL | 0 | 1.1 | 0.3 | 0 |
| SB4-GV04 | YES | 12.2 | 95% UCL | 0 | 12.2 | 9.6 | 0.3 |
| SB4-GV05 | YES | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB4-GV06 | YES | 2.7 | 95% UCL | 0 | 0.1 | 0.2 | 0 |
| SB4-GV07 | NO | 4.3 | 95% UCL | 0 | 0 | 0.1 | 0 |
| SB4-GV08 | YES | 0.5 | 95% UCL | 0 | 0 | 0 | 0 |
| SB4-GV09 | NO | 1.0 | 95% UCL | 0 | 0 | 0 | 0 |
| SB4-GV10 | YES | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB4-GV11 | NO | 0.1 | Max | 0 | 0.5 | 0.1 | 0 |
| SB4-GV12 | NO | 2.0 | 95% UCL | 0 | 0 | 0 | 0 |
| SB4-GV13 | YES | 0.8 | 95% UCL | 0 | 0 | 0 | 0 |
| SB4-GV14 | NO | 0.2 | 95% UCL | 0 | 0 | 0 | 0 |
| SB4-GV15 | NO | 5.7 | 95% UCL | 0 | 0.5 | 0 | 0 |
| SB4-GV16 | YES | 1.7 | 95% UCL | 0 | 0 | 0 | 0 |
| SB4-GV17 | YES | 3.2 | 95% UCL | 0 | 0 | 0 | 0 |
| SB4-GV18 | NO | 3.4 | 95% UCL | 0 | 0 | 0.5 | 0 |
| SB4-GV19 | YES | 2.8 | 95% UCL | 0 | 0 | 0.4 | 0 |
| SB4-GV20 | NO | 0.2 | Max | 0 | 0 | 0 | 0 |
| SB4-GV21 | YES | 0.1 | Max | 0 | 0 | 0 | 0 |
| SB4-GV22 | NO | 0.1 | Max | 0 | 0 | 0 | 0 |

Baselines were calculated values using 2014 and 2015 data.
Shaded values exceed screening criteria.

TABLE 3

Summary of 2016 Gas Vent Readings – Lower Explosive Limit (LEL)
Avtex Fibers Superfund Site
Front Royal, Virginia

| Vent ID | Vent Height Extended | Screening Criteria | LEL Results (percent) 2016 Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
|---|---|---|---|---|---|---|
| OU10GV01 | YES | 25% | 6 | 100 | 100 | 100 |
| OU10GV02 | YES | 25% | 4 | 100 | 100 | 100 |
| OU10GV03 | YES | 25% | 26 | 100 | 100 | 100 |
| OU10GV04 - After Filter | NA | 25% | 100 | 100 | 100 | 100 |
| OU10GV04 - Before Filter | NA | 25% | 100 | 100 | 100 | 100 |
| OU10GV05 - After Filter | NA | 25% | 0 | 46 | 28 | 10 |
| OU10GV05- Before Filter | NA | 25% | 100 | 100 | 100 | 100 |
| OU10GV06 | YES | 25% | 4 | 100 | 100 | 100 |
| OU10GV07 | YES | 25% | 0 | 100 | 100 | 100 |
| OU10GV08 | YES | 25% | 0 | 100 | 100 | 100 |
| OU10GV09 | YES | 25% | 0 | 100 | 100 | 100 |
| OU10GV10 | YES | 25% | 0 | 100 | 100 | 100 |
| OU10GV11 | YES | 25% | 0 | 64 | 100 | 22 |
| OU10GV12 | YES | 25% | 48 | 86 | 100 | 20 |
| OU10GV13 | YES | 25% | 100 | 100 | 100 | 100 |
| OU10GV14 | YES | 25% | 0 | 84 | 100 | 24 |
| OU10GV15 | YES | 25% | 4 | 100 | 100 | 100 |
| OU10GV16 | YES | 25% | 82 | 64 | 100 | 28 |
| OU10GV17 | YES | 25% | 100 | 100 | 100 | 16 |
| OU10GV18 | YES | 25% | 48 | 26 | 100 | 64 |
| OU10GV19 | YES | 25% | 22 | 8 | 100 | 12 |
| OU10GV20 | YES | 25% | 100 | 100 | 100 | 100 |
| OU10GV21 | YES | 25% | 100 | 100 | 100 | 100 |
| OU10GV22 | YES | 25% | 70 | 86 | 100 | 100 |
| OU10GV23 | YES | 25% | 100 | 100 | 100 | 100 |
| OU10GV24 | YES | 25% | 100 | 100 | 100 | 100 |
| OU10GV25 | YES | 25% | 100 | 100 | 100 | 100 |
| OU7-GV01 | NA | 25% | 8 | 48 | 54 | 6 |
| OU7-GV02 | NA | 25% | 100 | 100 | 100 | 100 |
| OU7-GV03 | NA | 25% | 100 | 100 | 100 | 100 |
| OU7-GV04 | NA | 25% | 100 | 100 | 100 | 100 |
| OU7-GV05 | NA | 25% | 100 | 100 | 100 | 100 |
| OU7-GV06 | NA | 25% | 100 | 100 | 100 | 100 |
| OU7-GV07 | NA | 25% | 100 | 100 | 100 | 100 |
| OU7-GV08 | NA | 25% | 0 | 22 | 16 | 8 |
| OU7-GV09 | NA | 25% | 28 | 38 | 28 | 0 |
| OU7-GV10 | NA | 25% | 100 | 100 | 100 | 0 |
| OU7-GV11 | NA | 25% | 100 | 100 | 100 | 100 |

Results in red font exceed the upper limit of the instrument and are reported at the upper limit.
Shaded values exceed screening criteria.

TABLE 3

Summary of 2016 Gas Vent Readings – Lower Explosive Limit (LEL)
Avtex Fibers Superfund Site
Front Royal, Virginia

| Vent ID | Vent Height Extended | Screening Criteria | LEL Results (percent) 2016 | | | |
|---|---|---|---|---|---|---|
| | | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| SB1-GV01 | YES | 25% | 0 | 0 | 0 | 0 |
| SB1-GV02 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV03 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV04 | NO | 25% | 0 | 0 | 2 | 0 |
| SB1-GV05 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV06 | YES | 25% | 0 | 100 | 100 | 0 |
| SB1-GV07 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV08 | YES | 25% | 0 | 0 | 0 | 0 |
| SB1-GV09 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV10 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV11 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV12 | YES | 25% | 0 | 0 | 0 | 0 |
| SB1-GV13 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV14 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV15 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV16 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV17 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV18 | YES | 25% | 0 | 0 | 0 | 0 |
| SB1-GV19 | NO | 25% | 2 | 0 | 0 | 0 |
| SB1-GV20 | YES | 25% | 8 | 0 | 0 | 0 |
| SB1-GV21 | NO | 25% | 14 | 0 | 0 | 0 |
| SB1-GV22 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV23 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV24 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV25 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV26 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV27 | NO | 25% | 0 | 0 | 4 | 0 |
| SB1-GV28 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV29 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV30 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV31 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV32 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV33 | NO | 25% | 0 | 0 | 0 | 0 |
| SB1-GV34 | NO | 25% | 0 | 0 | 0 | 0 |
| SB3-GV01 | YES | 25% | 0 | 0 | 2 | 16 |
| SB3-GV02 | YES | 25% | 4 | 26 | 48 | 20 |
| SB3-GV03 | YES | 25% | 0 | 50 | 0 | 8 |
| SB3-GV04 | YES | 25% | 0 | 92 | 2 | 0 |

Results in red font exceed the upper limit of the instrument and are reported at the upper limit.
Shaded values exceed screening criteria.

TABLE 3

Summary of 2016 Gas Vent Readings – Lower Explosive Limit (LEL)
Avtex Fibers Superfund Site
Front Royal, Virginia

| Vent ID | Vent Height Extended | Screening Criteria | LEL Results (percent) 2016 | | | |
|---|---|---|---|---|---|---|
| | | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| SB3-GV05 | NO | 25% | 0 | 16 | 0 | 0 |
| SB3-GV06 | YES | 25% | 4 | 54 | 36 | 0 |
| SB3-GV07 | NO | 25% | 0 | 0 | 2 | 4 |
| SB3-GV08 | NO | 25% | 0 | 0 | 0 | 0 |
| SB3-GV09 | YES | 25% | 0 | 0 | 0 | 0 |
| SB3-GV10 | YES | 25% | 0 | 0 | 28 | 72 |
| SB3-GV11 | YES | 25% | 48 | 100 | 46 | 28 |
| SB3-GV12 | NO | 25% | 0 | 0 | 0 | 0 |
| SB4-GV01 | NO | 25% | 0 | 0 | 0 | 0 |
| SB4-GV02 | YES | 25% | 0 | 0 | 0 | 0 |
| SB4-GV03 | YES | 25% | 0 | 22 | 6 | 0 |
| SB4-GV04 | YES | 25% | 0 | 100 | 100 | 6 |
| SB4-GV05 | YES | 25% | 0 | 0 | 0 | 0 |
| SB4-GV06 | YES | 25% | 0 | 2 | 4 | 0 |
| SB4-GV07 | NO | 25% | 0 | 0 | 2 | 0 |
| SB4-GV08 | YES | 25% | 0 | 0 | 0 | 0 |
| SB4-GV09 | NO | 25% | 0 | 0 | 0 | 0 |
| SB4-GV10 | YES | 25% | 0 | 0 | 0 | 0 |
| SB4-GV11 | NO | 25% | 0 | 10 | 2 | 0 |
| SB4-GV12 | NO | 25% | 0 | 0 | 0 | 0 |
| SB4-GV13 | YES | 25% | 0 | 0 | 0 | 0 |
| SB4-GV14 | NO | 25% | 0 | 0 | 0 | 0 |
| SB4-GV15 | NO | 25% | 0 | 10 | 0 | 0 |
| SB4-GV16 | YES | 25% | 0 | 0 | 0 | 0 |
| SB4-GV17 | YES | 25% | 0 | 0 | 0 | 0 |
| SB4-GV18 | NO | 25% | 0 | 0 | 10 | 0 |
| SB4-GV19 | YES | 25% | 0 | 0 | 8 | 0 |
| SB4-GV20 | NO | 25% | 0 | 0 | 0 | 0 |
| SB4-GV21 | YES | 25% | 0 | 0 | 0 | 0 |
| SB4-GV22 | NO | 25% | 0 | 0 | 0 | 0 |

Results in red font exceed the upper limit of the instrument and are reported at the upper limit.
Shaded values exceed screening criteria.

TABLE 4

Summary of 2016 Gas Vent Readings – Organic Vapors
Avtex Fibers Superfund Site
Front Royal, Virginia

| Vent ID | Baseline | Source | VOC Results (parts per million) 2016 Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
|---|---|---|---|---|---|---|
| OU10GV01 | 0.1 | Max | 0 | 0.3 | 0 | 0 |
| OU10GV02 | 0 | Max | 0 | 0.2 | 0 | 0 |
| OU10GV03 | 0.1 | Max | 0 | 0.2 | 0 | 0 |
| OU10GV04 - After Filter | 0 | Max | 0.3 | 0 | 0.3 | 0 |
| OU10GV04 - Before Filter | 0 | Max | 0.3 | 2.3 | 11.9 | 11.9 |
| OU10GV05 - After Filter | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV05- Before Filter | 9.1 | Max | 0 | 2.2 | 10.4 | 1 |
| OU10GV06 | 0 | Max | 0 | 0.4 | 0 | 0 |
| OU10GV07 | 0 | Max | 0 | 0.5 | 0 | 0 |
| OU10GV08 | 0 | Max | 0 | 0.2 | 0 | 0 |
| OU10GV09 | 0 | Max | 0 | 0.2 | 0 | 0 |
| OU10GV10 | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV11 | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV12 | 0 | Max | 0 | 0.1 | 0 | 0 |
| OU10GV13 | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV14 | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV15 | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV16 | 0 | Max | 0 | 0.1 | 0 | 0 |
| OU10GV17 | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV18 | 0.2 | Max | 0 | 0 | 0 | 0 |
| OU10GV19 | 0.1 | Max | 0 | 0 | 0.3 | 0 |
| OU10GV20 | 0 | Max | 0 | 0.2 | 0 | 0 |
| OU10GV21 | 0.1 | Max | 0 | 0 | 0 | 0 |
| OU10GV22 | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV23 | 0 | Max | 0.1 | 0 | 0 | 0 |
| OU10GV24 | 0 | Max | 0 | 0 | 0 | 0 |
| OU10GV25 | 0.1 | Max | 0 | 0 | 0 | 0 |
| OU7-GV01 | 0 | Max | 0 | 0 | 0 | 0 |
| OU7-GV02 | 0 | Max | 0 | 0.2 | 0 | 0 |
| OU7-GV03 | 0.1 | Max | 0.1 | 0.4 | 0 | 0 |
| OU7-GV04 | 0 | Max | 0.1 | 0.2 | 0 | 0 |
| OU7-GV05 | 0 | Max | 0.1 | 0.2 | 0 | 0 |
| OU7-GV06 | 0 | Max | 0 | 0.1 | 0 | 0 |
| OU7-GV07 | 0.3 | Max | 0.1 | 0.2 | 0 | 0 |
| OU7-GV08 | 0.2 | Max | 0 | 0.1 | 0 | 0 |
| OU7-GV09 | 0.1 | Max | 0 | 0.2 | 0 | 0 |

Baselines were calculated values using 2014 and 2015 data.
Shaded values exceed screening criteria.

TABLE 4

Summary of 2016 Gas Vent Readings – Organic Vapors
Avtex Fibers Superfund Site
Front Royal, Virginia

| Vent ID | Baseline | Source | VOC Results (parts per million) 2016 Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
|---|---|---|---|---|---|---|
| OU7-GV10 | 0 | Max | 0 | 0.2 | 0 | 0 |
| OU7-GV11 | 0 | Max | 0.2 | 0.2 | 0 | 0 |
| SB1-GV01 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV02 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV03 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV04 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV05 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV06 | 0.2 | Max | 0 | 0.1 | 0 | 0 |
| SB1-GV07 | 0 | Max | 0.1 | 0 | 0 | 0 |
| SB1-GV08 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV09 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV10 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV11 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV12 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV13 | 0 | Max | 0 | 0.1 | 0 | 0 |
| SB1-GV14 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV15 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV16 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV17 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV18 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV19 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV20 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV21 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV22 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV23 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV24 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV25 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV26 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV27 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV28 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV29 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV30 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV31 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV32 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV33 | 0 | Max | 0 | 0 | 0 | 0 |
| SB1-GV34 | 0 | Max | 0 | 0 | 0 | 0 |

Baselines were calculated values using 2014 and 2015 data.
Shaded values exceed screening criteria.

TABLE 4

Summary of 2016 Gas Vent Readings – Organic Vapors
Avtex Fibers Superfund Site
Front Royal, Virginia

| Vent ID | Baseline | Source | VOC Results (parts per million) 2016 Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
|---|---|---|---|---|---|---|
| SB3-GV01 | 0 | Max | 0 | 0 | 0 | 0 |
| SB3-GV02 | 0 | Max | 0 | 0 | 0 | 0 |
| SB3-GV03 | 0 | Max | 0 | 0 | 0 | 0 |
| SB3-GV04 | 0.1 | Max | 0 | 0.1 | 0 | 0 |
| SB3-GV05 | 0 | Max | 0 | 0 | 0 | 0 |
| SB3-GV06 | 0 | Max | 0 | 0 | 0 | 0 |
| SB3-GV07 | 0 | Max | 0 | 0 | 0 | 0 |
| SB3-GV08 | 0.1 | Max | 0.1 | 0 | 0 | 0 |
| SB3-GV09 | 0 | Max | 0.1 | 0 | 0 | 0 |
| SB3-GV10 | 0 | Max | 0 | 0 | 0 | 0 |
| SB3-GV11 | 0.1 | Max | 0 | 0.5 | 0 | 0 |
| SB3-GV12 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV01 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV02 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV03 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV04 | 0 | Max | 0 | 0.1 | 0 | 0 |
| SB4-GV05 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV06 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV07 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV08 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV09 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV10 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV11 | 0 | Max | 0 | 0.1 | 0 | 0 |
| SB4-GV12 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV13 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV14 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV15 | 0 | Max | 0 | 0.1 | 0 | 0 |
| SB4-GV16 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV17 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV18 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV19 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV20 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV21 | 0 | Max | 0 | 0 | 0 | 0 |
| SB4-GV22 | 0 | Max | 0 | 0 | 0 | 0 |

Baselines were calculated values using 2014 and 2015 data.
Shaded values exceed screening criteria.

TABLE 5

Summary of 2015 Gas Vent Readings – GV-4 and GV-5
Avtex Fibers Superfund Site
Front Royal, Virginia

| | | | GV-4 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Breathing Zone | | | | | | Before Filter | | | | | | After Filter | | | | | |
| Date | Time | Air Temp ($^oF$) | $H_2S$ (ppm) | $O_2$ (%) | VOC (ppm) | $CH_4$ (%) | LEL (%) | Odor | $H_2S$ (ppm) | $O_2$ (%) | VOC (ppm) | $CH_4$ (%) | LEL (%) | Odor | $H_2S$ (ppm) | $O_2$ (%) | VOC (ppm) | $CH_4$ (%) | LEL (%) | Odor |
| 1/30/2016 | | | Data not collected due to weather | | | | | | | | | | | | | | | | | |
| 2/25/2016 | 12:45 | 42 | 0 | 21.2 | 0 | 0 | 0 | None | 1 | 20.9 | 0 | 0.1 | 0 | None | 0 | 20.7 | 0 | 0 | 0 | None |
| 3/31/2016 | 1:15 | 71 | 0 | 20.9 | 0 | 0 | 0 | None | 0 | 20.7 | 0 | 0 | 0 | None | 0 | 20.7 | 0.1 | 0 | 3 | None |
| 4/26/2016 | 1:30 | 77 | 1 | 20.4 | 0 | 0 | 0 | None | 29 | 3.3 | 0 | 37.9 | 41 | None | 1 | 19.1 | 0 | 8 | 0 | None |
| 5/4/2016 | 2:30 | | 0 | 20.4 | 0 | 0 | 0 | None | 12 | 11.1 | 0 | 19.5 | 0 | None | 1 | 12.7 | 0 | 18.9 | 63 | None |
| 5/6/2016 | | | Data not collected due to weather | | | | | | | | | | | | | | | | | |
| 5/10/2016 | 2:00 | 60 | 0 | 20.7 | 0 | 0 | 0 | None | 1 | 7.2 | 0 | 26 | 0 | None | 0 | 20.5 | 0 | 10.6 | 19 | None |
| 5/12/2016 | 2:00 | 70 | 0 | 20.5 | 0 | 0 | 0 | None | 4 | 2.2 | 0 | 41.4 | >99 | None | 1 | 11.2 | 0 | 20.3 | 91 | None |
| 5/17/2016 | 3:15 | 52 | 0 | 20.9 | 0 | 0 | 0 | None | 2 | 1.3 | 0 | 41.7 | >99 | None | 1 | 15 | 0 | 32.9 | >99 | None |
| 5/19/2016 | 2:40 | 64 | 0 | 20.5 | 0 | 0 | 0 | None | 23 | 4 | 0 | 3.4 | >99 | None | 0 | 11.4 | 0 | 19.2 | >99 | None |
| 5/23/2016 | 2:30 | 79 | 0 | 20.9 | 0 | 0 | 0 | None | 94 | 2.1 | 0 | 38.2 | >99 | None | 0 | 19 | 0 | 8.2 | 0 | None |
| 5/27/2016 | 10:25 | 81 | 1 | 20.7 | 0 | 0 | 0 | Weak | 134 | 2.8 | 0 | 34.9 | >99 | None | 2 | 12.4 | 0 | 16.1 | >99 | None |
| 5/31/2016 | 2:50 | 80 | 1 | 20.9 | 0 | 0 | 0 | None | 233 | 2.3 | 0 | 37.8 | >99 | None | 1 | 11.7 | 0 | 20.6 | >99 | None |
| 6/2/2016 | 3:00 | 80 | 1 | 20.4 | 0 | 0.1 | 0 | None | 171 | 7.1 | 0.4 | 37.9 | >99 | None | 1 | 12.6 | 0 | 19.5 | 57 | None |
| 6/7/2016 | 2:10 | 81 | 0 | 20.9 | 0 | 0 | 0 | None | 355 | 5.5 | 1 | 31 | >99 | None | 1 | 12.2 | 0 | 17.4 | >99 | None |
| 6/9/2016 | 1:50 | 77 | 0 | 20.9 | 0 | 0 | 0 | None | 10 | 9.4 | 0.3 | 30.7 | >99 | None | 1 | 15.2 | 0 | 10.8 | >99 | None |
| 6/16/2016 | 1:26 | 88 | 2 | 20.7 | 0 | 0 | 0 | None | 343 | 2.1 | 0.3 | 38 | >99 | None | 2 | 9.4 | 0 | 24.4 | 68 | None |
| 6/23/2016 | 2:25 | 80 | 0 | 20.9 | 0 | 0 | 0 | None | 268 | 2.3 | 0.5 | 35 | >99 | None | 0 | 17 | 0 | 10 | >99 | None |
| 6/28/2016 | 2:20 | 90 | 0 | 20.9 | 0 | 0 | 0 | None | 490 | 0.4 | 0.2 | 40.8 | >99 | None | 1 | 15.1 | 0 | 13.5 | >99 | None |
| 6/30/2016 | 2:30 | 81 | 1 | 20.3 | 0 | 0.1 | 0 | None | 543 | 0.1 | 0.2 | 24.1 | >99 | None | 1 | 10.8 | 0 | 24.6 | >99 | None |
| 7/5/2016 | 2:40 | 86 | 0 | 20.9 | 0 | 0 | 0 | None | 560 | 0 | 0 | 40 | 76 | None | 2 | 10 | 0 | 22.5 | >99 | None |
| 7/7/2016 | 2:50 | 90 | 0 | 20.9 | 0 | 0 | 0 | None | 640 | 1.3 | 0.3 | 40.2 | >99 | None | 0 | 12.5 | 0 | 16 | >99 | None |
| 7/13/2016 | 7:14 | 70 | 1 | 20.4 | 0 | 0 | 0 | None | 574 | 3 | 5.7 | 39.8 | >99 | None | 1 | 8.5 | 0 | 25.7 | >99 | None |
| 7/15/2016 | 9:45 | 81 | 0 | 20.2 | 0 | 0 | 0 | None | 572 | 3.1 | 2.3 | 34.1 | >99 | None | 0 | 17.9 | 0 | 5.8 | >99 | None |
| 7/20/2016 | 1:30 | 86 | 2 | 20.9 | 0 | 0 | 0 | None | 847 | 0.7 | 5.8 | 39.6 | >99 | None | 4 | 13.1 | 0 | 15 | >99 | None |
| 7/22/2016 | 1:40 | 92 | 0 | 20.3 | 1.1 | 0.2 | 0 | None | 887 | 0.2 | 7.7 | 40.3 | >99 | None | 11 | 12.7 | 0.7 | 17.1 | >99 | None |
| 7/26/2016 | 1:25 | 90 | 1 | 20.6 | 0 | 0 | 0 | None | 924 | 2 | 8.6 | 37.9 | >99 | None | 56 | 12 | 2.4 | 16.4 | >99 | None |
| 7/29/2016 | 10:30 | 74 | 3 | 20.7 | 0 | 0.1 | 0 | None | 947 | 2 | 2.5 | 39.4 | 51 | None | 70 | 10.9 | 0 | 17.2 | 5 | None |
| 8/2/2016 | 2:20 | 82 | 0 | 20.9 | 0 | 0 | 0 | weak | >1000 | 0.2 | 8 | 39.7 | 65 | None | 320 | 20.5 | 2.1 | 23 | 54 | None |
| 8/4/2016 | 1:35 | 82 | 3 | 20.9 | 0 | 0.1 | 0 | None | >1000 | 0.3 | 8 | 39.8 | 27 | Mild | 613 | 7.4 | 7.8 | 24.7 | 27 | None |
| 8/9/2016 | 2:45 | 75 | 0 | 20.9 | 0 | 0 | 0 | None | >1000 | 0.2 | 7 | 39.7 | 52 | None | 524 | 5.5 | 1.5 | 30 | 20 | Weak |
| 8/10/2016 | | | GV 4 Media Change Out | | | | | | | | | | | | | | | | | |
| 8/11/2016 | 2:02 | 90 | 0 | 20.9 | 0 | 0 | 0 | None | >1000 | 0.2 | 4 | 39.3 | >99 | None | 8 | 0.8 | 0 | 38.1 | 91 | None |
| 8/16/2016 | 1:00 | 90 | 0 | 20.9 | 0 | 0 | 0 | None | >1000 | 0.5 | 6.4 | 39.2 | >99 | None | 3 | 10.8 | 0 | 18.5 | 61 | None |
| 8/18/2016 | 1:40 | 91 | 6 | 20.9 | 0 | 0 | 0 | None | >1000 | 0.2 | 53.7 | 39.3 | >99 | None | 6 | 18.1 | 0 | 20.4 | >99 | None |
| 8/23/2016 | 2:05 | 81 | 5 | 20.9 | 0 | 0 | 0 | None | >1000 | 1.2 | 8 | 39.7 | >99 | None | 4 | 11.4 | 0 | 2 | >99 | None |
| 8/25/2016 | 2:18 | 75 | 5 | 21.5 | 0 | 0 | 0 | None | >1000 | 0.5 | 1.6 | 39.3 | >99 | Weak | 389 | 4.4 | 1.6 | 24.8 | >99 | Weak |
| 8/30/2016 | 2:46 | 84 | 5 | 20.5 | 0 | 0 | 0 | Mild | >1000 | 9.4 | 1.6 | 38.9 | >99 | None | 770 | 13 | 2.3 | 22.2 | >99 | Strong |
| 9/2/2016 | 1:40 | 75 | 6 | 20.7 | 0 | 0 | 0 | None | >1000 | 1.7 | 52.3 | 39 | >99 | None | 6 | 9.6 | 0 | 22.2 | >99 | None |
| 9/6/2016 | 2:45 | 91 | 0 | 20.9 | 0 | 0 | 0 | None | 475 | 0.5 | 0.2 | 40.8 | >99 | None | 1 | 15.9 | 0 | 13.1 | >99 | None |
| 9/9/2016 | 1:15 | 92 | 0 | 20.9 | 0 | 0 | 0 | None | 487 | 0.3 | 0.5 | 52 | >99 | None | 1 | 7.1 | 0 | 13.5 | >99 | None |
| 9/13/2016 | 1:45 | 84 | 4 | 20.6 | 0 | 0 | 0 | None | >1000 | 14.3 | 57 | 39.3 | >99 | None | 4 | 19.6 | 0 | 21.4 | 57 | None |
| 9/16/2016 | 2:38 | 73 | 0 | 20.7 | 0 | 0 | 0 | None | >1000 | 13.5 | 58.2 | 39.5 | >99 | None | 356 | 18.6 | 32.3 | 19.6 | >99 | none |

> - Exceeds Instrument Range

TABLE 5

Summary of 2015 Gas Vent Readings – GV-4 and GV-5
Avtex Fibers Superfund Site
Front Royal, Virginia

| | | | GV-4 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Breathing Zone | | | | | | Before Filter | | | | | | After Filter | | | | | |
| *Date* | *Time* | *Air Temp ($^{o}$F)* | $H_2S$ (ppm) | $O_2$ (%) | VOC (ppm) | $CH_4$ (%) | LEL (%) | Odor | $H_2S$ (ppm) | $O_2$ (%) | VOC (ppm) | $CH_4$ (%) | LEL (%) | Odor | $H_2S$ (ppm) | $O_2$ (%) | VOC (ppm) | $CH_4$ (%) | LEL (%) | Odor |
| 9/20/2016 | 1:50 | 79 | 0 | 20.7 | 0 | 0 | 0 | None | >1000 | 14.8 | 48 | 38.1 | >99 | None | 653 | 19.6 | 45.6 | 16.3 | >99 | None |
| 9/22/2016 | 12:45 | 79 | 5 | 19.3 | 0 | 0 | 0 | Mild | >1000 | 0 | 1.5 | 39.4 | >99 | Weak | >1000 | 1 | 4.1 | 36.8 | >99 | None |
| 10/5/2016 | 2:30 | 65 | 0 | 20.9 | 0 | 0 | 0 | None | >1000 | 0 | 46.2 | 40.4 | >99 | None | >1000 | 1.1 | 35.4 | 37.4 | 13 | None |
| 10/7/2016 | 1:45 | 67 | 0 | 20.9 | 0 | 0 | 0 | None | >1000 | 0 | 32.8 | 40.2 | >99 | none | >1000 | 0.3 | 59.3 | 38.3 | >99 | none |
| 10/11/2016 | 2:50 | 64 | 8 | 20.9 | 0 | 0.1 | 0 | Weak | >1000 | 1.7 | 20.2 | 40.3 | >99 | None | 335 | 8.4 | 0.6 | 25.8 | 0 | None |
| 10/13/2016 | 2:00 | 68 | 0 | 20.7 | 0 | 0 | 0 | Weak | >1000 | 0.7 | 53.7 | 40.1 | >99 | None | 406 | 15 | 4.4 | 16.9 | 9 | None |
| 11/17/2016 | 14:00 | | 0 | 20.8 | 0 | 0 | 0 | None | 370 | 7.4 | 0 | 41.2 | >99 | None | 0 | 19.1 | 0 | 25.1 | >99 | None |
| 12/8/2016 | 11:15 | 42 | 0 | 20.6 | 0 | 0 | 0 | None | >1000 | 0 | 11.9 | 42.5 | >99 | None | 0 | 16.7 | 0 | 8.5 | >99 | None |

> - Exceeds Instrument Range

TABLE 5

Summary of 2015 Gas Vent Readings – GV-4 and GV-5
Avtex Fibers Superfund Site
Front Royal, Virginia

| | | | GV-5 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Breathing Zone | | | | | | Before Filter | | | | | | After Filter | | | | | |
| *Date* | *Time* | *Air Temp ($^oF$)* | $H_2S$ (ppm) | $O_2$ (%) | VOC (ppm) | $CH_4$ (%) | LEL (%) | Odor | $H_2S$ (ppm) | $O_2$ (%) | VOC (ppm) | $CH_4$ (%) | LEL (%) | Odor | $H_2S$ (ppm) | $O_2$ (%) | VOC (ppm) | $CH_4$ (%) | LEL (%) | Odor |
| 1/30/2016 | | | Data not collected due to weather | | | | | | | | | | | | | | | | | |
| 2/25/2016 | 12:45 | 42 | 0 | 20.9 | 0 | 0 | 0 | None | 0 | 20.9 | 0.1 | 0.1 | 0 | None | 0 | 20.9 | 0 | 0 | 0 | None |
| 3/31/2016 | 1:15 | 71 | 0 | 20.7 | 0 | 0 | 0 | None | 1 | 20.5 | 0 | 0 | 0 | None | 1 | 20.6 | 0.2 | 0 | 0 | None |
| 4/26/2016 | 1:30 | 77 | 2 | 20.7 | 0 | 0 | 0 | None | 96 | 19.8 | 4.2 | 1.5 | >99 | None | 1 | 20.5 | 0 | 0.1 | 0 | None |
| 5/4/2016 | 2:30 | | 0 | 20.6 | 0 | 0 | 0 | None | 20 | 6.7 | 0 | 29.3 | 16 | None | 0 | 20.3 | 0 | 0.7 | 0 | None |
| 5/6/2016 | | | Data not collected due to weather | | | | | | | | | | | | | | | | | |
| 5/10/2016 | 2:00 | 60 | 0 | 20.7 | 0 | 0 | 0 | None | 0 | 10.6 | 0 | 24 | 39 | None | 0 | 20.3 | 0 | 0.4 | 4 | None |
| 5/12/2016 | 2:00 | 70 | 0 | 20.9 | 0 | 0 | 0 | None | 2 | 10.3 | 0 | 21.7 | 93 | None | 0 | 20.2 | 0 | 1 | 3 | None |
| 5/17/2016 | 3:15 | 52 | 0 | 20.9 | 0 | 0 | 0 | None | 11 | 4.5 | 0 | 33.7 | >99 | None | 1 | 19.8 | 0 | 2.1 | >99 | None |
| 5/19/2016 | 2:40 | 64 | 0 | 20.7 | 0 | 0 | 0 | None | 19 | 6.9 | 0 | 28.6 | >99 | None | 0 | 20.3 | 0 | 0.7 | 10 | None |
| 5/23/2016 | 2:30 | 79 | 0 | 20.9 | 0 | 0 | 0 | None | 20 | 9.1 | 0 | 24.7 | 11 | None | 0 | 20.5 | 0 | 0.3 | 9 | None |
| 5/27/2016 | 10:25 | 81 | 0 | 20.4 | 0 | 0 | 0 | None | 54 | 3.3 | 0 | 35.7 | >99 | None | 0 | 19.8 | 0 | 1.2 | 0 | None |
| 5/31/2016 | 2:50 | 80 | 0 | 20.9 | 0 | 0 | 0 | None | 105 | 4 | 0.2 | 35.5 | 85 | None | 0 | 20.2 | 0 | 0.7 | 0 | None |
| 6/2/2016 | 3:00 | 80 | 0 | 20.6 | 0 | 0 | 0 | None | 97 | 7.5 | 0 | 24.8 | 66 | None | 0 | 20.3 | 0 | 0.1 | 13 | None |
| 6/7/2016 | 2:10 | 81 | 0 | 20.9 | 0 | 0 | 0 | None | 200 | 5 | 1 | 31.5 | >99 | None | 0 | 20.9 | 0 | 0.8 | 20 | None |
| 6/9/2016 | 1:50 | 77 | 0 | 20.9 | 0 | 0 | 0 | None | 185 | 5.2 | 2.3 | 29.3 | >99 | None | 0 | 20.9 | 0 | 0.4 | 11 | None |
| 6/16/2016 | 1:26 | 88 | 0 | 20.9 | 0 | 0 | 0 | None | 321 | 3.9 | 0.8 | 34 | >99 | None | 0 | 20.9 | 0 | 1.6 | 15 | None |
| 6/23/2016 | 2:25 | 80 | 0 | 20.9 | 0 | 0 | 0 | None | 534 | 2.4 | 2.6 | 30 | >99 | None | 0 | 19.9 | 0 | 0.8 | 13 | None |
| 6/28/2016 | 2:20 | 90 | 0 | 20.9 | 0 | 0 | 0 | None | 485 | 4.9 | 2.3 | 31.5 | >99 | None | 0 | 8.8 | 0 | 1.1 | 20 | None |
| 6/30/2016 | 2:30 | 81 | 0 | 20.5 | 0 | 0 | 0 | None | 590 | 3.9 | 3.2 | 32.5 | >99 | None | 0 | 19.7 | 0 | 1.5 | 30 | None |
| 7/5/2016 | 2:40 | 86 | 0 | 20.9 | 0 | 0 | 0 | None | 820 | 11 | 2 | 33.9 | >99 | None | 0 | 20.9 | 0 | 1.4 | 5 | None |
| 7/7/2016 | 2:50 | 90 | 0 | 20.9 | 0 | 0 | 0 | None | 804 | 2.8 | 1.7 | 33.1 | >99 | None | 0 | 19.6 | 0 | 1.5 | 28 | None |
| 7/13/2016 | 7:14 | 70 | 0 | 20.6 | 0 | 0 | 0 | None | 794 | 4.1 | 0 | 32.8 | 69 | None | 0 | 19.5 | 2.3 | 2.7 | >99 | None |
| 7/15/2016 | 9:45 | 81 | 0 | 20.5 | 0 | 0 | 0 | None | 755 | 3 | 2.7 | 33.4 | >99 | None | 0 | 20.2 | 0 | 0.5 | 15 | None |
| 7/20/2016 | 1:30 | 86 | 0 | 20.9 | 0 | 0 | 0 | None | 944 | 4.4 | 1.4 | 32.1 | >99 | None | 0 | 20.2 | 0.2 | 1 | 45 | None |
| 7/22/2016 | 1:40 | 92 | 0 | 20.7 | 0 | 0 | 0 | None | 901 | 6.1 | 5.3 | 30.4 | >99 | None | 0 | 19.8 | 1.4 | 1.6 | 57 | None |
| 7/26/2016 | 1:25 | 90 | 0 | 20.9 | 0 | 0 | 0 | None | 895 | 5.3 | 6.4 | 28.5 | >99 | None | 0 | 19.8 | 3.3 | 1.5 | 42 | None |
| 7/29/2016 | 10:30 | 74 | 0 | 20.5 | 0 | 0.1 | 0 | None | >1000 | 2.9 | 0 | 32.9 | 29 | None | 0 | 19.4 | 0 | 2.4 | 0 | None |
| 8/2/2016 | 2:20 | 82 | 0 | 20.9 | 0 | 0 | 0 | None | 830 | 2.2 | 4.2 | 33.9 | 58 | None | 0 | 19.3 | 0 | 1.9 | 0 | None |
| 8/4/2016 | 1:35 | 82 | 0 | 20.6 | 0 | 0.1 | 0 | None | 720 | 3.4 | 0 | 31.6 | 0 | None | 0 | 19.8 | 0 | 41.3 | 0 | None |
| 8/9/2016 | 2:45 | 75 | 0 | 20.9 | 0 | 0 | 0 | None | >1000 | 0.2 | 2.8 | 38 | 24 | None | 0 | 19.7 | 0 | 1.3 | 0 | None |
| 8/10/2016 | | | | | | | | | | | | | | | | | | | | |
| 8/11/2016 | 2:02 | 90 | 0 | 20.9 | 0 | 0 | 0 | None | 996 | 0.3 | 1.6 | 38 | 26 | None | 0 | 19.4 | 0 | 1.8 | 0 | None |
| 8/16/2016 | 1:00 | 90 | 0 | 20.9 | 0 | 0 | 0 | None | 976 | 1.4 | 2.2 | 36 | 53 | None | 0 | 19.6 | 0 | 1.3 | 4 | None |
| 8/18/2016 | 1:40 | 91 | 1 | 20.9 | 0 | 0 | 0 | None | >1000 | 20.9 | 0.8 | 37.2 | 10 | None | 1 | 20.9 | 0 | 1.6 | 0 | None |
| 8/23/2016 | 2:05 | 81 | 0 | 21.9 | 0 | 0 | 0 | None | >1000 | 1 | 7.4 | 37.7 | >99 | None | 0 | 20.3 | 0 | 1.2 | 4 | None |
| 8/25/2016 | 2:18 | 75 | 0 | 21.7 | 0 | 0 | 0 | None | >1000 | 0.5 | 1.6 | 37.8 | >99 | None | 1 | 19.4 | 0.2 | 1.6 | 25 | None |
| 8/30/2016 | 2:46 | 84 | 0 | 20.9 | 0 | 0 | 0 | None | >1000 | 13.5 | 7.1 | 37.5 | >99 | None | 0 | 19.8 | 0.1 | 2 | 39 | None |
| 9/2/2016 | 1:40 | 75 | 0 | 20.9 | 0 | 0 | 0 | None | >1000 | 1.3 | 13.8 | 36.9 | 35 | None | 0 | 19.9 | 0 | 1.5 | 0 | None |
| 9/6/2016 | 2:45 | 91 | 0 | 20.9 | 0 | 0 | 0 | None | 489 | 4.8 | 2.3 | 31 | >99 | None | 0 | 8.2 | 0 | 1.1 | 18 | None |
| 9/9/2016 | 1:15 | 92 | 0 | 20.9 | 0 | 0 | 0 | None | 554 | 4.1 | 1.9 | 30 | >99 | None | 0 | 7.1 | 0 | 1.5 | 12 | None |
| 9/13/2016 | 1:45 | 84 | 0 | 20.6 | 0 | 0 | 0 | None | >1000 | 19.9 | 7.2 | 38.2 | 58 | None | 0 | 20.4 | 0 | 2.4 | 6 | None |
| 9/16/2016 | 2:38 | 73 | 0 | 20.6 | 0 | 0 | 0 | None | >1000 | 15.2 | 36 | 38.3 | >99 | None | 0 | 20.6 | 0 | 1.2 | 7 | None |

> - Exceeds Instrument Range

TABLE 5

Summary of 2015 Gas Vent Readings – GV-4 and GV-5
Avtex Fibers Superfund Site
Front Royal, Virginia

| | | | GV-5 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Breathing Zone | | | | | | Before Filter | | | | | | After Filter | | | | | |
| *Date* | *Time* | *Air Temp ($^{o}$F)* | $H_2S$ (ppm) | $O_2$ (%) | VOC (ppm) | $CH_4$ (%) | LEL (%) | Odor | $H_2S$ (ppm) | $O_2$ (%) | VOC (ppm) | $CH_4$ (%) | LEL (%) | Odor | $H_2S$ (ppm) | $O_2$ (%) | VOC (ppm) | $CH_4$ (%) | LEL (%) | Odor |
| 9/20/2016 | 1:50 | 79 | 0 | 20.9 | 0 | 0 | 0 | None | >1000 | 20 | 4.3 | 37.3 | 63 | None | 0 | 20.9 | 0 | 1.4 | 0 | None |
| 9/22/2016 | 12:45 | 79 | 0 | 20.7 | 0 | 0 | 0 | None | >1000 | 0.3 | 2.1 | 38.9 | >99 | None | 0 | 19.3 | 0 | 20.8 | 14 | None |
| 10/5/2016 | 2:30 | 65 | 0 | 20.9 | 0 | 0 | 0 | None | >1000 | 0.1 | 4.7 | 39.4 | 48 | None | 0 | 20.9 | 0 | 1.6 | 0 | None |
| 10/7/2016 | 1:45 | 67 | 0 | 20.9 | 0 | 0 | 0 | none | 1000 | 14.3 | 20 | 40.3 | >99 | none | 0 | 20.9 | 0 | 2.5 | 0 | none |
| 10/11/2016 | 2:50 | 64 | 0 | 20.9 | 0.1 | 0.1 | 0 | None | 909 | 0.1 | 1.4 | 40.3 | 8 | None | 0 | 20.9 | 0.2 | 2.5 | 0 | None |
| 10/13/2016 | 2:00 | 68 | 0 | 20.9 | 0 | 0 | 0 | None | >1000 | 0.4 | 15.6 | 40.5 | >99 | None | 0 | 20.4 | 0 | 3.5 | 12 | None |
| 11/17/2016 | 14:00 | | 0 | 20.9 | 0 | 0 | 0 | None | 318 | 7.6 | 0 | 31.2 | >99 | None | 0 | 9.4 | 0 | 0 | 0 | None |
| 12/8/2016 | 11:15 | 42 | 0 | 20.6 | 0 | 0 | 0 | Weak | 346 | 0.7 | 1 | 39.3 | >99 | None | 0 | 20.3 | 0 | 0.5 | 10 | None |

> - Exceeds Instrument Range

TABLE 6

Summary of 2016 Flow Readings
Avtex Fibers Superfund Site
Front Royal, Virginia

| Source | Parameter | Units | January | February | March | April | May | June | July | August | September | October | November | December | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TW-01 | Operating | Days | 31 | 6 | 9 | 30 | 31 | 30 | 31 | 31 | 30 | 31 | 30 | 31 | 321 |
| | Avg. Daily Flow | MGD | 0.042 | 0.000 | 0.014 | 0.061 | 0.061 | 0.060 | 0.063 | 0.062 | 0.063 | 0.063 | 0.063 | 0.063 | 0.051 |
| | Monthly Flow | MG | 1.304 | 0.010 | 0.432 | 1.839 | 1.904 | 1.801 | 1.946 | 1.937 | 1.885 | 1.964 | 1.889 | 1.964 | 18.875 |
| TW-02 | Operating | Days | 21 | 27 | 29 | 26 | 31 | 30 | 31 | 31 | 30 | 30 | 30 | 31 | 347 |
| | Avg. Daily Flow | MGD | 0.016 | 0.033 | 0.031 | 0.019 | 0.032 | 0.031 | 0.030 | 0.030 | 0.028 | 0.027 | 0.027 | 0.026 | 0.028 |
| | Monthly Flow | MG | 0.509 | 0.955 | 0.956 | 0.563 | 0.977 | 0.921 | 0.943 | 0.918 | 0.845 | 0.849 | 0.824 | 0.808 | 10.068 |
| TW-03 | Operating | Days | 2 | 22 | 21 | 0 | 21 | 24 | 24 | 31 | 29 | 28 | 30 | 16 | 248 |
| | Avg. Daily Flow | MGD | 0.001 | 0.016 | 0.014 | 0.000 | 0.020 | 0.027 | 0.014 | 0.031 | 0.027 | 0.023 | 0.026 | 0.010 | 0.017 |
| | Monthly Flow | MG | 0.023 | 0.470 | 0.439 | 0.000 | 0.613 | 0.817 | 0.428 | 0.949 | 0.816 | 0.728 | 0.771 | 0.300 | 6.354 |
| VB-09 | Operating | Days | 0 | 0 | 0 | 3 | 14 | 21 | 30 | 27 | 25 | 31 | 30 | 31 | 212 |
| | Avg. Daily Flow | MGD | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.002 | 0.002 | 0.002 | 0.001 | 0.003 | 0.002 | 0.003 | 0.001 |
| | Monthly Flow | MG | 0.000 | 0.000 | 0.000 | 0.008 | 0.038 | 0.063 | 0.072 | 0.057 | 0.042 | 0.086 | 0.074 | 0.100 | 0.540 |
| VB-10 | Operating | Days | 0 | 5 | 26 | 7 | 9 | 23 | 31 | 26 | 17 | 28 | 0 | 6 | 178 |
| | Avg. Daily Flow | MGD | 0.000 | 0.000 | 0.004 | 0.000 | 0.001 | 0.001 | 0.003 | 0.001 | 0.002 | 0.002 | 0.000 | 0.000 | 0.001 |
| | Monthly Flow | MG | 0.000 | 0.004 | 0.124 | 0.012 | 0.017 | 0.036 | 0.099 | 0.045 | 0.051 | 0.074 | 0.000 | 0.005 | 0.467 |
| VB-11 | Operating | Days | 0 | 0 | 14 | 10 | 0 | 0 | 0 | 27 | 13 | 0 | 18 | 12 | 94 |
| | Avg. Daily Flow | MGD | 0.000 | 0.000 | 0.005 | 0.005 | 0.000 | 0.000 | 0.000 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.002 |
| | Monthly Flow | MG | 0.000 | 0.000 | 0.141 | 0.146 | 0.000 | 0.000 | 0.000 | 0.141 | 0.125 | 0.000 | 0.015 | 0.008 | 0.576 |
| Lift Stations | Operating | Days | 22 | 26 | 29 | 21 | 29 | 29 | 29 | 30 | 29 | 31 | 30 | 31 | 336 |
| | Avg. Daily Flow | MGD | 0.007 | 0.014 | 0.006 | 0.007 | 0.012 | 0.003 | 0.003 | 0.003 | 0.002 | 0.005 | 0.001 | 0.003 | 0.006 |
| | Monthly Flow | MG | 0.225 | 0.404 | 0.178 | 0.206 | 0.377 | 0.103 | 0.104 | 0.084 | 0.072 | 0.163 | 0.022 | 0.100 | 2.038 |
| Influent Total | Avg. Daily Flow | MGD | 0.066 | 0.063 | 0.074 | 0.092 | 0.127 | 0.124 | 0.115 | 0.134 | 0.127 | 0.123 | 0.119 | 0.105 | 0.106 |
| | Monthly Flow | MG | 2.061 | 1.843 | 2.27 | 2.774 | 3.926 | 3.741 | 3.592 | 4.131 | 3.836 | 3.864 | 3.595 | 3.285 | 38.918 |
| GLTP Effluent | Operating | Days | 31 | 29 | 31 | 30 | 31 | 30 | 31 | 31 | 30 | 31 | 30 | 31 | 366 |
| | Avg. Daily Flow | MGD | 0.044 | 0.049 | 0.050 | 0.065 | 0.103 | 0.101 | 0.100 | 0.117 | 0.108 | 0.108 | 0.105 | 0.096 | 0.0872 |
| | Max. Daily Flow | MGD | 0.079 | 0.077 | 0.075 | 0.094 | 0.130 | 0.128 | 0.134 | 0.140 | 0.118 | 0.117 | 0.127 | 0.145 | 0.145 |
| | Monthly Flow | MG | 1.364 | 1.421 | 1.55 | 1.95 | 3.193 | 3.03 | 3.1 | 3.627 | 3.24 | 3.348 | 3.15 | 2.976 | 31.949 |

MGD = Million Gallons per Day
MG = Million Gallons

TABLE 7

Summary of Influent Sampling
Avtex Fibers Superfund Site
Front Royal, Virginia

| Constituent | Units | TW-01 | | | TW-02 | | | |
|---|---|---|---|---|---|---|---|---|
| | | 7/24/2015 | 12/9/2015 | 8/9/2016 | 7/23/2015 | DUP | 12/9/2015 | 8/9/2016 |
| Carbon Disulfide | ug/L | 1,200 | 360 | 190 | 3,100 | NR | 3,600 | 847 |
| Antimony | mg/L | 0.0129 | 0.0055 | 0.00282 U^B | 0.0174 | 0.0165 | 0.0125 | 0.00478 ^ B |
| Arsenic | mg/L | 0.0847 | 0.0482 | 0.0157 | 0.0886 | 0.0942 | 0.0102 | 0.0296 |
| Iron | mg/L | < 0.115 | 0.427 | 0.386 | < 0.115 | < 0.115 | 0.309 | 0.0513 |
| Kjeldahyl Nitrogen | mg/L | 2.9 J | 0.83 J | NR | 3.3 J | 3.4 J | 2.0 | NR |
| Total Nitrite/Nitrate Nitrogen | mg/L | <0.40 | <0.40 | NR | <0.40 | <0.40 | <0.40 | NR |
| Total Nitrogen (NO2/NO3/TKN) | mg/L | 2.9 J | 0.83 J | 2.68 | 3.3 J | 3.4 J | 2.0 | 1.03 |
| Total Phosphorous as P | mg/L | 1.3 | 0.98 | 0.576 | 1.65 | 1.6 | 1.8 | 0.824 |
| Chemical Oxygen Demand (COD) | mg/L | 368 | 287 | 120 | 375 | 386 | 483.0 | 212 |
| Soluble COD | mg/L | 247 | 300 | 125 | 408 | 391 | 522 | 137 |
| Total Alkalinity | mg/L as CaCO3 | 858 | 898 | 478 | 1,460 | 1,470 | 2,100 | 877 |
| Carbonate Alkalinity | mg/L as CaCO3 | NR | NR | 11.5 | NR | NR | NR | 37.9 |
| Bicarbonate Alkalinity | mg/L as CaCO3 | NR | NR | 466 | NR | NR | NR | 839 |
| Hydrxide Alkalinity | mg/L as CaCO3 | NR | NR | < 5.00 | NR | NR | NR | < 5.00 |
| Total Disolved Solids (TDS) | mg/L | 1,880 | 1,500 | 957 | 3,620 | 3,350 | 3,540 | 1,780 |
| Disolved Sulfide | mg/L | 190 | 127 | 29.6 | 221 | 212 | 221 | 39 |
| Sulfide as H2S | mg/L | 3.8 | < 5.4 | NR | 11 | 11 | 2.2 | NR |
| Un-ionized H2S | mg/L | NR | NR | 4.97 | NR | NR | NR | 6.60 |
| Biological Oxygen Demand (BOD) | mg/L | 242 | 135 | 82.6 | 227 | 227 | 204 | 114 |
| Soluble BOD | mg/L | 194 | 101 | 76.0 | 144 | 143 | 139 | 108 |
| Density | -- | 0.998 | 0.998 | 0.999 | 0.995 | 0.997 | 0.997 | 0.999 |
| Specific Conductance | umhos/cm | 3,260 | 2,230 | 1,580 | 7,470 | 7,490 | 5,850 | 2,580 |
| pH | Std. Units | 8.9 | 9.2 | 8.47 | 8.3 | 8.3 | 9.0 | |
| Temerature of pH | Deg. C | NR | 19.7 | NR | NR | NR | 19.7 | NR |

NR = Not Reported
NS = Not Sampled
J = Estimated Value
^ = Instrument related QC is outside acceptable limits
B = Constituent Detected in Blank Sample
F1 = MS and/or MSD recovery outside acceptable limits
H = Holding time exceeded

TABLE 7

Summary of Influent Sampling
Avtex Fibers Superfund Site
Front Royal, Virginia

| Constituent | Units | TW-03 | | | | VB-09 | | |
|---|---|---|---|---|---|---|---|---|
| | | 7/23/2015 | 12/9/2015 | DUP | 8/9/2016 | 7/24/2015 | 12/9/2015 | 8/8/2016 |
| Carbon Disulfide | ug/L | 9 | 2 J | NR | 1.26 | 33,000 | 5,400 | 5320 J |
| Antimony | mg/L | < 0.0017 | < 0.00033 | < 0.00033 | 0.000911 UJ^B | 0.0152 | 0.0038 | 0.0106 J ^ B |
| Arsenic | mg/L | < 0.0027 | < 0.00054 | < 0.00054 | < 0.000500 | 0.0198 | 0.0116 | 0.00880 J |
| Iron | mg/L | 0.307 J | 0.0524 J | 0.0488 J | 0.273 | 0.612 J | 3.9 | 0.832 |
| Kjeldahyl Nitrogen | mg/L | < 2.5 | < 0.50 | 0.52 J | NR | 20.1 | < 25.0 | NR |
| Total Nitrite/Nitrate Nitrogen | mg/L | <0.40 | 0.046 J | <0.40 | NR | < 0.80 | <0.40 | NR |
| Total Nitrogen (NO2/NO3/TKN) | mg/L | < 2.5 | < 0.50 | 0.52 J | 0.499 | 20.1 | < 25.0 | 10.3 |
| Total Phosphorous as P | mg/L | < 0.050 | < 0.050 | < 0.050 | < 0.0500 | 5.8 | 0.44 J | 0.299 |
| Chemical Oxygen Demand (COD) | mg/L | 18.5 J | 28.7 J | 31.0 J | 27.6 | 8,070 | 3,820 | 2850 J |
| Soluble COD | mg/L | 20.8 J | | 28.7 J | 28.4 | 8,090 | 3,450 | 3570 J |
| Total Alkalinity | mg/L as CaCO3 | 176 | 267 | 269 | 257 | 9,250 | 5,230 | < 5.00 |
| Carbonate Alkalinity | mg/L as CaCO3 | NR | NR | NR | < 5.00 | NR | NR | < 5.00 |
| Bicarbonate Alkalinity | mg/L as CaCO3 | NR | NR | NR | 257 | NR | NR | < 5.00 |
| Hydrxide Alkalinity | mg/L as CaCO3 | NR | NR | NR | < 5.00 | NR | NR | < 5.00 |
| Total Disolved Solids (TDS) | mg/L | 384 | 740 | 739 | 736 | 15,700 | 6,880 | 7,220 |
| Disolved Sulfide | mg/L | 6.8 | 8.2 | 8.6 | 3.79 | 1,560 | 447 | < 0.50 |
| Sulfide as H2S | mg/L | 0.54 | 0.98 | 0.86 | NR | 234 | 22 | NR |
| Un-ionized H2S | mg/L | NR | NR | NR | < 0.100 | NR | NR | < 0.100 |
| Biological Oxygen Demand (BOD) | mg/L | 9.3 | 10.6 | 9.9 | 10.2 | 5,000 | 1,890 | 1,970 JH |
| Soluble BOD | mg/L | 7.4 | 6.9 | 7.5 | 6.74 | 4,240 | 1,710 | 1,930 JH |
| Density | -- | 0.994 | 0.995 | 0.994 | 0.998 | 1.00 | 0.999 | 1.04 |
| Specific Conductance | umhos/cm | 726 | 1,130 | 1,130 | 1,130 | 20,700 | 11,300 | 8,180 |
| pH | Std. Units | 8.1 | 7.9 | 8.0 | 6.98 | 7.7 | 8.3 | 7.61 |
| Temerature of pH | Deg. C | NR | 21.2 | 21.1 | NR | NR | 19.2 | NR |

NR = Not Reported
NS = Not Sampled
J = Estimated Value
^ = Instrument related QC is outside acceptable limits
B = Constituent Detected in Blank Sample
F1 = MS and/or MSD recovery outside acceptable limits
H = Holding time exceeded

TABLE 7

Summary of Influent Sampling
Avtex Fibers Superfund Site
Front Royal, Virginia

| Constituent | Units | VB-10 | | | VB-11 | | |
|---|---|---|---|---|---|---|---|
| | | 7/24/2015 | 12/9/2015 | 8/9/2016 | 7/24/2015 | 12/9/2015 | 8/9/2016 |
| Carbon Disulfide | ug/L | 210,000 | 5,200 | 185 | 110 | NS | 45.8 |
| Antimony | mg/L | 0.043 | 0.0032 | 0.0131 J ^ B | < 0.00066 | NS | 0.00706 J ^ B |
| Arsenic | mg/L | 0.0896 | 0.063 | 0.0769 | 0.0286 | NS | 0.0314 |
| Iron | mg/L | 0.454 J | 0.194 J | 0.644 | 0.879 J | NS | 4.46 |
| Kjeldahyl Nitrogen | mg/L | 10.3 | < 25.0 | NR | 4.1 J | NS | NR |
| Total Nitrite/Nitrate Nitrogen | mg/L | 1.9 | < 0.40 | NR | < 0.80 | NS | NR |
| Total Nitrogen (NO2/NO3/TKN) | mg/L | 12.2 | < 25.0 | 5.5 | 4.1 J | NS | 1.19 |
| Total Phosphorous as P | mg/L | 0.2 | 1.0 | 1.53 | 1.0 | NS | 0.4 |
| Chemical Oxygen Demand (COD) | mg/L | 1,960 | 2,840 | 897 | 205 | NS | 1,240 |
| Soluble COD | mg/L | 1,360 | 2,810 | 508 | 25.4 J | NS | 137 |
| Total Alkalinity | mg/L as CaCO3 | 5,920 | 5,280 | < 5.00 | 1,840 | NS | 1,350 |
| Carbonate Alkalinity | mg/L as CaCO3 | NR | NR | < 5.00 | NR | NS | < 5.00 |
| Bicarbonate Alkalinity | mg/L as CaCO3 | NR | NR | < 5.00 | NR | NS | 1,350 |
| Hydrxide Alkalinity | mg/L as CaCO3 | NR | NR | < 5.00 | NR | NS | < 5.00 |
| Total Disolved Solids (TDS) | mg/L | 10,100 | 7,560 | 7,930 | 2,260 | NS | 1,720 |
| Disolved Sulfide | mg/L | 706 | 155 | 11.7 | 30.8 | NS | 5 |
| Sulfide as H2S | mg/L | < 0.054 | 10.9 | NR | 12.0 | NS | |
| Un-ionized H2S | mg/L | NR | NR | 4.09 | NR | NS | 0.784 J |
| Biological Oxygen Demand (BOD) | mg/L | 1,110 | 1,710 | 342 | 47.5 | NS | 49.1 |
| Soluble BOD | mg/L | 955 | 1,370 | 72.0 | < 5.7 | NS | 11.7 |
| Density | -- | 1.00 | 1.00 | 1.01 | 0.996 | NS | 1.03 |
| Specific Conductance | umhos/cm | 14,900 | 11,700 | 99,30 | 3,990 | NS | 2,600 |
| pH | Std. Units | 9.1 | 8.1 | 8.07 | 7.2 | NS | 7 |
| Temerature of pH | Deg. C | NR | 19.3 | NR | | NS | NR |

NR = Not Reported
NS = Not Sampled
J = Estimated Value
^ = Instrument related QC is outside acceptable limits
B = Constituent Detected in Blank Sample
F1 = MS and/or MSD recovery outside acceptable limits
H = Holding time exceeded

TABLE 7

Summary of Influent Sampling
Avtex Fibers Superfund Site
Front Royal, Virginia

| Constituent | Units | LS-01 | | | LS-02 | | |
|---|---|---|---|---|---|---|---|
| | | 7/28/2016 | 12/9/2015 | 8/9/2016 | 7/28/2015 | 12/9/2015 | 8/9/2016 |
| Carbon Disulfide | ug/L | < 1 | < 1 | 4.10 | 36 | 7 | 16.8 |
| Antimony | mg/L | 0.00096 J | 0.00043 J | 0.00843 J ^ B | 0.00088 J | 0.00072 J | 0.0102 J ^ B |
| Arsenic | mg/L | 0.0512 | 0.0177 | 0.117 | 0.0377 | 0.0673 | 0.199 |
| Iron | mg/L | 4.91 | 1.74 | 11.9 | 0.364 | 0.0909 J | 0.275 |
| Kjeldahyl Nitrogen | mg/L | 2.8 | 0.99 J | NR | 1.2 | 1.2 | NR |
| Total Nitrite/Nitrate Nitrogen | mg/L | 0.053 J | < 0.40 | NR | 0.13 | < 0.40 | NR |
| Total Nitrogen (NO2/NO3/TKN) | mg/L | 2.9 | 0.99 J | 3.05 | 1.3 | 1.2 | 2.19 |
| Total Phosphorous as P | mg/L | 1.5 | 0.32 | 1.09 | 1.0 | 2.2 | 4.12 |
| Chemical Oxygen Demand (COD) | mg/L | 143 | 58.1 | 206 | 73.7 | 135 | 238 |
| Soluble COD | mg/L | 152 | 62.7 | 196 | 87.5 | 149 | 235 |
| Total Alkalinity | mg/L as CaCO3 | 2,590 | 1,320 | < 5.00 | 1,280 | 2,340 | < 5.00 |
| Carbonate Alkalinity | mg/L as CaCO3 | NR | NR | < 5.00 | NR | NR | 434 |
| Bicarbonate Alkalinity | mg/L as CaCO3 | NR | NR | < 5.00 | NR | NR | < 5.00 |
| Hydrxide Alkalinity | mg/L as CaCO3 | NR | NR | < 5.00 | NR | NR | <5.00 |
| Total Disolved Solids (TDS) | mg/L | 4,640 | 2,110 | 6,830 | 2,010 | 3,480 | 7,710 |
| Disolved Sulfide | mg/L | < 0.054 | < 0.054 | 0.564 J | < 0.054 | < 0.054 | 3.06 |
| Sulfide as H2S | mg/L | <0.054 | < 0.054 | NR | < 0.054 | < 0.054 | NR |
| Un-ionized H2S | mg/L | NR | NR | 1.96 | NR | NR | 0.512 J |
| Biological Oxygen Demand (BOD) | mg/L | 9.2 | < 6.0 | 10.6 | < 5.6 | 6.1 | 5.18 |
| Soluble BOD | mg/L | < 8.1 | < 5.8 | 3.93 | < 4.7 | < 6.0 | 4.06 |
| Density | -- | 1.00 | 0.996 | 1.04 | 0.998 | 0.996 | 1.01 |
| Specific Conductance | umhos/cm | 7,400 | 3,870 | 8,560 | 3,950 | 6,670 | 10,100 |
| pH | Std. Units | 7.3 | 8 | 7.27 | 8.6 | 9.1 | 8.9 |
| Temerature of pH | Deg. C | NR | 19.8 | NR | NR | 19.7 | NR |

NR = Not Reported
NS = Not Sampled
J = Estimated Value
^ = Instrument related QC is outside acceptable limits
B = Constituent Detected in Blank Sample
F1 = MS and/or MSD recovery outside acceptable limits
H = Holding time exceeded

TABLE 7

Summary of Influent Sampling
Avtex Fibers Superfund Site
Front Royal, Virginia

| Constituent | Units | LS-03 | | | LS-04 | | | |
|---|---|---|---|---|---|---|---|---|
| | | 7/28/2015 | 12/9/2015 | 8/9/2016 | 7/28/2015 | 12/9/2015 | 8/9/2016 | DUP |
| Carbon Disulfide | ug/L | < 1 | < 1 | 0.284 J | 25 | 14 | 27.4 | 25.6 |
| Antimony | mg/L | < 0.00033 | < 0.00033 | 0.000976 UJ^B | < 0.00033 | < 0.00033 | 0.00120 UJ^B | 0.00103 UJ^B |
| Arsenic | mg/L | 0.0020 J | 0.0017 J | 0.00134 J | 0.0106 | 0.0071 | 0.00775 | 0.00779 |
| Iron | mg/L | 11.0 | 4.89 | 16.4 | 1.08 | 0.896 | 0.392 J F1 | 1.67 J |
| Kjeldahyl Nitrogen | mg/L | 5.6 | 2.7 | NR | 4.6 | 1.4 | NR | NR |
| Total Nitrite/Nitrate Nitrogen | mg/L | < 0.040 | < 0.040 | NR | < 0.040 | < 0.040 | NR | NR |
| Total Nitrogen (NO2/NO3/TKN) | mg/L | 5.6 | 2.7 | 4.62 | 4.6 | 1.4 | 4.74 | 5.16 |
| Total Phosphorous as P | mg/L | 1.5 | 0.54 | 1.48 | 0.62 | 0.67 | 0.991 F1 | 1.02 |
| Chemical Oxygen Demand (COD) | mg/L | 39.2 | 40.0 J | 45.9 | 193 | 64.9 | 199 | 195 |
| Soluble COD | mg/L | 48.4 J | 49.1 J | 40.8 | 205 | 71.7 | 37.2 | 196 |
| Total Alkalinity | mg/L as CaCO3 | 554 | 664 | 623 | 1,460 | 732 | 1,200 | 1,210 |
| Carbonate Alkalinity | mg/L as CaCO3 | NR | NR | < 5.00 | NR | NR | < 5.00 | < 5.00 |
| Bicarbonate Alkalinity | mg/L as CaCO3 | NR | NR | 623 | NR | NR | 1,200 | 1,210 |
| Hydrxide Alkalinity | mg/L as CaCO3 | NR | NR | < 5.00 | NR | NR | < 5.00 | < 5.00 |
| Total Disolved Solids (TDS) | mg/L | 1,920 | 1,350 | 1,220 | 3,830 | 1,680 | 2,830 | 2,730 |
| Disolved Sulfide | mg/L | 0.10 J | < 0.054 | < 0.500 | 7 | 3.3 | 17.8 | 24.4 |
| Sulfide as H2S | mg/L | 0.080 J | < 0.054 | NR | 3.1 | 0.83 | NR | NR |
| Un-ionized H2S | mg/L | NR | NR | < 0.100 | NR | NR | 2.98 | 3.11 |
| Biological Oxygen Demand (BOD) | mg/L | 10.4 | 8.5 | 11.8 | 14.3 | 6.0 | 39.2 J | 122 J |
| Soluble BOD | mg/L | < 3.8 | < 6.0 | 3.03 | < 9.9 | < 5.9 | 37.2 | 42.5 |
| Density | -- | 0.998 | 0.996 | 1.03 | 1.00 | 0.996 | 1.03 | 1.00 |
| Specific Conductance | umhos/cm | 2,980 | 2,220 | 1,870 | 6,560 | 2,900 | 3,750 | 3,810 |
| pH | Std. Units | 6.5 | 7.2 | 6.52 | 7.1 | 7.5 | 7.34 | 7.34 |
| Temerature of pH | Deg. C | NR | 19.8 | NR | NR | 19.6 | NR | NR |

NR = Not Reported
NS = Not Sampled
J = Estimated Value
^ = Instrument related QC is outside acceptable limits
B = Constituent Detected in Blank Sample
F1 = MS and/or MSD recovery outside acceptable limits
H = Holding time exceeded

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# APPENDIX A
## QUARTERLY PROGRESS REPORTS

PARSONS

**FMC Corporation**
2929 Walnut Street
Philadelphia, PA 19104
USA

215.299.6000
fmc.com

August 16, 2016

**SENT VIA: ELECTRONIC MAIL AND US MAIL**

Mr. Charlie Root
Remedial Project Manager
U.S. Environmental Protection Agency
Hazardous Site Cleanup Division, 3HS23
1650 Arch Street
Philadelphia, PA 19103

**RE: QUARTERLY PROGRESS REPORT FOR THE AVTEX FIBERS SUPERFUND SITE FOR THE PERIOD 1 JANUARY TO 31 MARCH 2016**

Dear Mr. Root,

FMC Corporation (FMC) has enclosed one clipped copy of the Quarterly Progress Report for remedial activities undertaken by FMC at the Avtex Fibers Superfund Site, Front Royal, Virginia (Site). This Quarterly progress report addresses the reporting requirements in 1999 Consent Decree between the United States of America and FMC Corporation to conduct removal and remedial actions. In accordance with Section XI, Paragraph 45 of the Consent Decree, FMC has prepared this progress report to describe actions taken pursuant to the Consent Decree during the previous quarter.

If you have any questions or comments, please call me at 215-299-6047.

Sincerely,

Brian McGinnis
*EHS, Remediation Manager*

Enclosure (1)
cc: M. Carpenter, FMC
M. Payne, B. Kiracofe, VADEQ
S. Curran, Gannett Fleming
H. Philip, Parsons

**QUARTERLY PROGRESS REPORT**
**for the Avtex Fibers Superfund Site, Front Royal, Virginia**
**for the Period January 1 to March 31, 2016**

## *1.0 INTRODUCTION*

FMC Corporation (FMC) has conducted removal and remedial activities at the Avtex Fibers Superfund Site, Front Royal, Virginia (Site). The removal action, remedial design, and remedial action activities were performed pursuant to the 1999 Consent Decree between the United States of America and FMC Corporation (effective 21 October 1999).

On August 29, 2014, USEPA issued a document titled, "Superfund Preliminary Close-out Report," which documented construction completion at the Site. The completion of construction at the Site marked its transition into the O&M phase. Full-scale operations and maintenance were achieved when the Groundwater and Leachate Treatment Plant (GLTP) began operating in continuous biological mode in September 2015. During the September 8, 2014 monthly call between EPA and FMC, EPA agreed that the former monthly progress reporting for the site could be reduced to quarterly during O&M phase as specified in paragraph 45 in Consent Decree. In accordance with Section XI, Paragraph 45 of the Consent Decree, FMC has prepared this progress report to describe actions taken pursuant to both the Areas of Concern (AOC) and Consent Decree during the months of January, February, and March 2016.

This report includes progress towards full completion of removal and remedial activities, and follows formatting consistent with previous reports. Daily operations and maintenance activities will be ongoing and will follow requirements in the Site-Wide O&M Plan (FMC, May 2015), which will include the Operations and Maintenance Manual Groundwater and Leachate Treatment Plant (Parsons, December 2014), and the Operations, Maintenance and Monitoring Manual Groundwater and Leachate Extraction System (to be submitted as final1stQ2016) with any major deviations reported in the sections below. The Site-Wide O&M Plan replaces prior response action specific O&M Plans, such as those presented in the various design documents.

In accordance with Section XI of the Consent Decree, this quarterly progress report contains the following:

- Description of actions taken during the previous quarter;
- Summary of data generated by FMC during the previous quarter;

- Actions scheduled for the next quarter;
- Description of problems and actions taken to mitigate the problems;
- Update on the schedule of actions and percentage completion of tasks;
- Modification to the Work Plans or other schedules; and
- Activities undertaken in support of the EPA Community Relations Plan.

Attachment 1 lists correspondence and deliverables transmitted from FMC or FMC contractors to EPA, and from EPA or EPA contractors to FMC for the previous quarter.

The remainder of the quarterly progress report is divided into six sections (these sections will be removed and updated when actions are completed for the section):

- *Section 2.0 – OU-7/ROD 5 RD/RA*. This section describes remedial design and remedial action activities being conducted under Paragraph 23 in the Consent Decree. The units covered under OU-7 include Viscose Basins (VB) 9-11, site-wide ground water and surface water.
- *Section 3.0 – OU-10/ROD 4 RD/RA*. This section describes remedial design and remedial action activities being conducted under Paragraph 24 in the Consent Decree. The units covered under OU-10 include VB 1-8, the New Landfill, Wastewater Treatment Plant (WWTP) Closure, and Plant Area Soils.
- *Section 4.0 - Non-Time-Critical Removal Actions (NTCRA) for the Buildings*. This section describes the activities being conducted under Paragraph 21.A in the Consent Decree. The scope of the NTCRA-Buildings project is to decontaminate the remaining structures and remove the sewers and manholes.
- *Section 5.0 - Basin Closure*. This section describes the activities being conducted as a NTCRA under Paragraph 22 of the Consent Decree. The scope of this action consists of the closure of the Sulfate Basins, WWTP Basins, Fly Ash Basins, and the Stockpile (Mountain).
- *Section 6.0 – Groundwater and Leachate Treatment Plant O&M*. This section describes the Operations and Maintenance (O&M) activities being conducted to address the discharge requirements for the GLTP.
- *Section 7.0 - Other Site Support Documents.* This section describes site-wide activities that cross over all of management units.
- *Section 8.0 – Community Relations Support*. This section describes activities undertaken in support of community relations in accordance with the Consent Decree requirement.

## *2.0 OU-7/ROD 5 (VB 9-11, GROUND WATER, SURFACE WATER) REMEDIAL DESIGN/REMEDIAL ACTION*

### *2.1 Actions Taken and Reports Prepared in Previous Period*

- Completed quarterly water level measurements as described in Section 2 of the GMP.
- Completed quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.
- Completed quarterly monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Completed quarterly post-closure OU-7 and site perimeter real time air monitoring as required by Section 2.2 of the Air Monitoring Plan Operable Unit 7, Avtex Fibers Superfund Site, Front Royal, Virginia, October 2011. Hydrogen sulfide was detected at the instrument detection limit of 1 part per billion (ppb) at two locations (OU-7 Perimeter South and the Site Perimeter East). No other constituents were detected. The results are presented in in Attachment 2.
- Collected the stormwater samples in accordance with Appendix O of the OU-7 Remedial Design during qualifying storm event. A report describing the results is being prepared.
- Submitted the annual O&M Report for 2015 on March 30th, 2016
- Submitted the annual groundwater monitoring report for 2014
- As proposed in the 28 May 2014 report titled *Results of the Sampling and Analysis of Stormwater Derived from Closed OU-10 Viscose Basins 1-3, 7-8 and New Landfill*, collected stormwater samples from three locations during a qualifying storm event for analysis of total suspended solids (TSS), and reported the results to EPA.

### *2.2 Data Generated in Previous Period*

Laboratory results have been received for the stormwater sampling and the data are currently being validated. Laboratory results have been received for the annual groundwater sampling and the data are currently being evaluated. The annual groundwater results will be presented in the site-wide annual monitoring report.

As required by the Air Monitoring Plan, post construction quarterly air monitoring for hydrogen sulfide and organic vapor was completed. A map showing the sample locations is provided in Attachment 2.

The following instruments were utilized to collect the real-time readings:

- Hydrogen Sulfide: Jerome 613X.
- Organic Vapor: MiniRAE 3000

Hydrogen sulfide was detected at the instrument detection limit of 1 part per billion (ppb) at two locations (OU-7 Perimeter South and the Site Perimeter East). No other constituents were detected. The results are presented in Attachment 2.

### *2.3 Actions to be Completed Next Period*

- Complete quarterly water level measurements as described in Section 2 of the GMP.
- Complete quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.
- Complete quarterly monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Complete quarterly post-closure OU-7 and site perimeter real time air monitoring and collect annual air samples as required by Section 2.2 of the Air Monitoring Plan Operable Unit 7, Avtex Fibers Superfund Site, Front Royal, Virginia, October 2011.
- Submit to EPA the ICIAP pursuant to Section 11.2.10 of the ROD.

### *2.4 Problems Encountered and Remedies*

No problems were encountered during the previous period.

### *2.5 Schedule Update*

All remedial design and remedial action work associated with OU-7 is complete based on EPA's approvals of the remedial action reports for the GLTP component and Viscose Basins 9-11 cap system and groundwater and leachate extraction component of OU-7.

## *3.0 OU-10/ROD 4 (VB 1-8, NEW LANDFILL, PLANT AREA SOILS AND WWTP CLOSURE) REMEDIAL DESIGN/REMEDIAL ACTION*

### *3.1 Actions Taken and Reports Prepared in Previous Period*

- Completed routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Completed quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

### *3.2 Data Generated in Previous Period*

Laboratory results have been received for the annual groundwater sampling and the data are currently being validated. The results will be presented in the annual monitoring report.

### *3.3 Actions to be Completed Next Period*

- Address any EPA or VADEQ comments to the 30 December 2014 report titled *Screening Level Ecological Assessment for Plant Area Soil*s.
- Complete routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Complete quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

### 3.4 Problems Encountered and Remedies

No problems were encountered during the previous period.

### *3.5 Schedule Update*

All remedial design and remedial action work associated with OU-10 is complete based on EPA's approvals of the remedial action reports for plant area soils, WWTP and VB 1-8 and New Landfill.

## *4.0 NON-TIME-CRITICAL REMOVAL ACTIONS (NTCRA) BUILDINGS*

### *4.1 Actions Taken and Reports Prepared in Previous Period*

- Completed quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

- Completed mowing of the New Landfill and Viscose Basins 1-8 on March 1st through March 8th.

### *4.2 Data Generated in Previous Period*

No new analytical data were generated during the previous month.

### *4.3 Actions to be Completed Next Period*

- No actions will be completed during the next period because EPA issued a Certificate of Completion.

### *4.4 Problems Encountered and Remedies*

No problems were encountered during the previous month.

### *4.5 Schedule Update*

All removal action work associated with NTCRA-Buildings is complete.

## *5.0 NON-TIME-CRITICAL REMOVAL ACTIONS (NTCRA) - BASIN CLOSURE*

### *5.1 Actions Taken and Reports Prepared in Previous Period*

- Completed quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

- Completed routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan

### *5.2 Data Generated in Previous Period*

Laboratory results have been received for the annual groundwater sampling and the data are currently being evaluated. The results will be presented in the annual monitoring report.

### *5.3 Actions to be Completed Next Period*

- Complete quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

- Complete routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan

## *5.4 Problems Encountered and Remedies*

No problems were encountered during the previous month.

## *5.5 Schedule Update*

All removal action work associated with NTCRA-Basins is complete.

# *6.0 GROUNDWATER AND LEACHATE TREATMENT PLANT O&M*

## *6.1 Actions Taken and Reports Prepared in Previous Period*

- The GLTP operated and discharged to the South Fork Shenandoah River (River) for 91 days in from January 1 to March 31, 2016.

Discharge Monitoring

Discharge monitoring was completed as required by the July 24, 2014 VADEQ final Fact Sheet and Applicable or Relevant and Appropriate Requirements (ARARs) for the discharge of effluent from the GLTP. Discharge monitoring included: flow, pH, TSS, $BOD_5$, and carbon disulfide. The daily and monthly flow and chemical data are listed in the Discharge Monitoring Reports (DMRs) submitted during the first quarter of 2016 provided in Attachment 3 and summarized below. We remain in the trouble shooting of operations and stabilization period.

Table 1.0 Summary of 1Q16 Effluent Sampling

| | **Permitted Limits** | **January 2016 (month avg/ daily max)** | **February 2016 (month avg/ daily max)** | **March 2016 (month avg/ daily max)** |
|---|---|---|---|---|
| **Flow(gpd)** | 0.396 MGD | 0.044/0.079 | 0.049/0.077 | 0.050/0.075 |
| **pH (range)** | 6.5 – 9.0 | 7.03-7.84 | 7.16-7.85 | 6.28-8.99 |
| **TSS (mg/L)** | 40 / 130 | 11.9/16.3 | 9.83/13.0 | 7.5/11 |
| **$BOD_5$ (mg/L)** | 24 / 64 | 4.0/5.0 | 3.0/5.0 | 3.6/5.0 |
| **CS2 (ug/L)** | No limit established. 0.1mg/l action level | <QL | <QL | <QL |

*Where parameters non-detect, the value '0' was used for calculating average and maximum concentrations.

- *Flow*. Flow during discharge was monitored continuously. Additionally, flow rates for the lift stations, test wells and viscose basins for the months of January, February and March are provided in Table 3.2 (Attachment 3).
- *pH*. pH was monitored continuously during the days that discharge occurred. The pH monitoring results for each month are included in Attachment 3 with the monthly DMRs. The effluent pH was within the range of 6.5 to 9.0 specified in the ARARs.
- *TSS*. TSS was monitored weekly. The permitted monthly daily average limit for TSS of 40 mg/l and the permitted monthly maximum daily limit of 130 mg/l for TSS were not exceeded during this reporting period.
- *$BOD_5$*. $BOD_5$ was monitored weekly. The permitted monthly daily average limit for $BOD_5$ of 24 mg/l and the permitted monthly maximum daily limit of 64 mg/l for $BOD_5$ were not exceeded during this reporting period.
- *Carbon Disulfide*. Carbon Disulfide is monitored monthly and no limit is established in the ARARs. The results for the monthly sample collected in the first quarter of 2016 was less than the 0.1 mg/l monthly action level specified in the ARARs, as all results were non-detect with a reporting limit of 2.0 ug/l.

Rainfall Data

Table 3.1 (Attachment 3) shows that a total of 4.4 inches of precipitation fell on the Site during the first quarter 2016 (Jan., Feb., Mar.). The total precipitation for 2016 to-date is 4.4 inches, representing to-date 11% of the average Site total yearly precipitation (39.6 inches).

## *6.2 Data Generated in Previous Period*

Discharge monitoring, rainfall data and flow totals for the lift stations, test wells and viscose basin are contained in Attachment 3. DMRs were submitted by the tenth of each month.

## *6.3 Actions to be Taken Next Period*

- Continue GLTP startup and operate the GLTP biological system in continuous mode.
- Conduct the Whole Effluent Toxicity sampling per the ARARs (to meet at least one of the Applicability Criteria for a Facility to Perform

Aquatic Toxicity Tests stipulated in Guidance Memorandum 00-2012 (Section IV.1.C))

### *6.4 Problems Encountered and Remedies*

The pH effluent probe was replaced in March due to failure and inconsistencies.

### *6.5 Schedule Update*

The GLTP will continue to operate in full continuous mode.

## *7.0 OTHER SITE SUPPORT DOCUMENTS*

### *7.1 Actions Taken and Reports Prepared in Previous Period*

- Quarterly inspections (e.g. seep areas, river berms, gas vents, etc.) and inspection reports completed.
- Carbon and media changeout completed at the GLTP. This was the first time completing these efforts since startup in full continuous mode.

### *7.2 Actions to be Taken Next Period*

- Quarterly inspections (e.g. seep areas, river berms, gas vents, etc.) and inspection reports to be completed.

## *8.0 COMMUNITY RELATIONS SUPPORT*

- No activity during the previous period.

## *ATTACHMENTS*

1 Summary of Monthly Correspondence

2 OU-7 and Site Perimeter Air Monitoring Results

3 GLTP Discharge Monitoring and Information

Discharge Monitoring Reports, 1 January to 31 March 2016

Table 3.1 – Site Rainfall Data

Table 3.2 - Monthly Flow Totals Avtex Site Lift Stations, Test Wells and Viscose Basin

4 Preliminary Site-Wide Quarterly Inspection (with repairs photo log)

*Attachment 1*
*Summary of Quarterly Correspondence*

*ATTACHMENT 1 – LIST OF CORRESPONDENCE AND DELIVERABLES FOR THE PERIOD JANUARY 1, 2016 TO MARCH 31, 2016, AVTEX FIBERS SUPERFUND SITE, FRONT ROYAL, VIRGINIA*

*FMC to EPA*

February 19, 2016. 204 Annual Site-Wide Groundwater, Surface Water, and Sediment Monitoring Report for OU-7, OU-10, and NTCRA Basins submitted to EPA

March 30, 2016. 4Q15 Quarterly Progress Report submitted to EPA.

March 30, 2016. 2015 Annual Site-Wide Operations and Maintenance (O&M) Report submitted to EPA

*FMC to VADEQ*

January 13, 2016. Discharge Monitoring Report - December 2015 submitted to VADEQ and EPA

February 10, 2016. Discharge Monitoring Report - January 2016 submitted to VADEQ and EPA

March 14, 2016. Discharge Monitoring Report – February 2016 submitted to VADEQ and EPA

*Attachment 2*

*OU-7 and Site Perimeter Air Monitoring Results*

# FIGURE 1
# AIR MONITORING LOCATIONS DURING OU-7 WORK
## AVTEX FIBERS SUPERFUND SITE
## FRONT ROYAL, VIRGINIA

LEGEND

- PROPERTY BOUNDARY
- SITE PERIMETER LOCATION
- OU-7 PERIMETER LOCATION

NOTE: DOWNWIND LOCATION TO BE DETERMINED BASED ON FIELD CONDITIONS.

500 250 0 500

SCALE IN FEET

G:\CAD\Drawings\FMC_Avtex Front Royal\0122736\A207.dwg

MLB/4-6-11

ERM, INC.

*Table 4 - Example Air Monitoring Form*

Date: 3/8/16

Technician: M. Robinson + H. Lipomi

| Gas Monitoring Devices: | Used (Y/N) | Calibrated (Y/N) | Date Calibrated | Initials |
|---|---|---|---|---|
| Jerome 631X (low-level $H_2S$) | Y | Y | 1/6/16 | Factory |
| MiniRAE PLUS with 10.6 eV lamp | Y | Y | 3/8/16 | MGR |
| CS2 Drager with qualitative ppm tube | N | | | |
| MiniRAE PLUS with LEL | N | | | |

3000

All

Air Samples Collected?
- ☐ yes
- ☒ no

Weather Conditions:

Precipitation (current): ☐ rain ☐ snow ☐ sleet ☐ mix ☐ other None
☐ light ☐ moderate ☐ heavy

Temperature (current): 77 F

Wind Direction (blowing from): ☐ N ☐ NE ☐ E ☐ SE ☐ variable WSW
☐ S ☐ SW ☐ W ☐ NW

Approximate Wind Speed: 6 mph

Cloud Cover: ☐ clear ☒ lt. clouds ☐ overcast ☐ foggy

Barometric Pressure: 30.13 inches

| Monitoring Location | Time | $H_2S$ (ppm) | Organic (ppm) | CS2 (ppm) | Methane (%LEL) | Comments |
|---|---|---|---|---|---|---|
| OU-7 Perimeter | | | | NA | NA | |
| N | 1524 | 0.000 | 0.0 | | | |
| NE | 1521 | 0.000 | 0.0 | | | |
| SE | 1533 | 0.000 | 0.0 | | | |
| S | 1329 | 0.001 | 0.0 | | | |
| SW | 1327 | 0.000 | 0.0 | | | |
| NW | 1525 | 0.000 | 0.0 | | | |
| Site Perimeter W | 1545 | 0.000 | 0.0 | | | |
| N | 1538 | 0.000 | 0.0 | | | |
| NE | 1602 | 0.000 | 0.0 | | | |
| E | 1558 | 0.001 | 0.0 | | | |
| SE | 1554 | 0.000 | 0.0 | | | |
| S | 1557 | 0.000 | 0.0 | | | |
| SW | 1548 | 0.000 | 0.0 | | | |
| NW | 1542 | 0.000 | 0.0 | | | |
| Downwind (note location_____) | NA | NA | NA | | | |

Summarize activities occurring on-site that might relate to air emissions:

*Attachment 3*

*GLTP Discharge Monitoring and Information*

**FMC Corporation**
1735 Market Street
Philadelphia, PA 19103
USA

215.299.6000
fmc.com

*Transmitted via Email*

February 10, 2016

Department of Environmental Quality - CO
Office of Remediation Program
P.O. Box 1105
Richmond, VA 23218

Re: Submission of Discharge Monitoring Report – January 2016
Avtex Fibers Superfund Site
Front Royal, Virginia

Dear Ms Payne:

In accordance with the Applicable or Relevant and Appropriate Requirements (ARARs) and Fact Sheet provided July 22, 2014, FMC Corporation (FMC) is submitting the Discharge Monitoring Report (DMR) for the month of January 2016. The permit is for the discharge from the Groundwater and Leachate Treatment Plant (GLTP) located at 404 Kendrick Lane, Front Royal, VA. Analysis of effluent concentrations yielded results within the allowable limits for all parameters.

Please do not hesitate to call if there are any questions.

Sincerely,

FMC Corporation

Brian M. McGinnis, P.E.
Manager, Environmental Remediation

cc: via Email
Brandon Kiracofe, DEQ
Kate Lose, USEPA
Heather Philip, Parsons

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
**DISCHARGE MONITORING REPORT** (DMR)

PERMITTEE NAME/ADDRESS: (Include Facility Name/Location if different)

OMB No. 2040-004

**NAME:** Avtex Fibers
**ADDRESS:** 404 Kendrick Lane
Front Royal, VA 22630
**FACILITY:** AVTEX FIBERS
**LOCATION:** FRONT ROYAL, VA
**ATTN:**

NA — **PERMIT NUMBER**
004 — **DISCHARGE NUMBER**

**DMR MAILING ZIP CODE:** 23218

DESCRIPTION:
GLTP EFFLUENT (OUTFALL 004)
External Outfall

**MONITORING PERIOD**

| | YEAR | MO | DAY | | YEAR | MO | DAY |
|---|---|---|---|---|---|---|---|
| **FROM** | 16 | 01 | 01 | TO | 16 | 01 | 31 |

**No Discharge**

| PARAMETER | | QUANTITY OR LOADING | | | QUALITY OR CONCENTRATION | | | | NO. EX | FREQUENCY OF ANALYSIS | SAMPLE TYPE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | VALUE | VALUE | UNITS | VALUE | VALUE | VALUE | UNITS | | | |
| **FLOW** | SAMPLE MEASUREMENT | 0.044 | 0.079 | MGD | ***** | ***** | ***** | | 0 | CONTINUOUS | TIRE |
| 00056 1 0 EFFLUENT GROSS | PERMIT REQUIREMENT | REPORT MONTHLY AV | REPORT DAILY MAX | | ****** | ****** | ****** | | | CONTINUOUS | TIRE |
| **PH** | SAMPLE MEASUREMENT | ***** | ***** | | 7.0 | ***** | 7.8 | SU | 0 | CONTINUOUS | GRAB |
| 00400 1 0 EFFLUENT GROSS | PERMIT REQUIREMENT | ****** | ****** | | 6.5 MINIMUM | ****** | 9.0 MAXIMUM | | | CONTINUOUS | GRAB |
| **BOD, 5-DAY** | SAMPLE MEASUREMENT | 0.63 | 1.11 | kg/d | ***** | 4.0 | 5.0 | mg/L | 0 | 1/7 | 8 HC |
| 00318 1 0 EFFLUENT GROSS | PERMIT REQUIREMENT | 36 MONTHLY AV | 96 DAILY MAX | | ****** | 24 MONTHLY AV | 64 DAILY MX | | | 1/7 | 8 HC |
| **SOLIDS, TOTAL SUSPENDED** | SAMPLE MEASUREMENT | 1.91 | 3.77 | kg/d | ***** | 11.93 | 16.30 | mg/L | 0 | 1/7 | 8 HC |
| 03603 1 0 EFFLUENT GROSS | PERMIT REQUIREMENT | 60 MONTHLY AV | 190 DAILY MAX | | ****** | 40 MONTHLY AV | 130 DAILY MX | | | 1/7 | 8 HC |
| **CARBON DISULFIDE** | SAMPLE MEASUREMENT | <QL | <QL | kg/d | ***** | <QL | <QL | mg/L | 0 | 1/30 | 8 HC |
| 77041 1 0 EFFLUENT GROSS | PERMIT REQUIREMENT | NL MONTHLY AV | NL DAILY MAX | | ****** | NL MONTHLY AV | NL DAILY MX | | | 1/30 | 8 HC |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
Robert T. Forbes
Director EHS Remediation/Governance
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA 215 — NUMBER 299-6260

DATE: YEAR — MO — DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
Attachment: pH compliance monitoring summary (monthly)
Carbon disulfide: No limit established; monitored monthly; 0.1 mg/L action level

Avtex Fibers
Front Royal, VA
Outfall 004
January 2016 DMR

pH Calculations:

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 1/1/2016 12:00 AM | 7.26 | 1/2/2016 12:00 AM | 7.39 | 1/3/2016 12:00 AM | 7.40 |
| 1/1/2016 12:15 AM | | 1/2/2016 12:15 AM | 7.39 | 1/3/2016 12:15 AM | 7.37 |
| 1/1/2016 12:30 AM | | 1/2/2016 12:30 AM | 7.38 | 1/3/2016 12:30 AM | 7.37 |
| 1/1/2016 12:45 AM | 7.39 | 1/2/2016 12:45 AM | 7.38 | 1/3/2016 12:45 AM | 7.36 |
| 1/1/2016 1:00 AM | 7.39 | 1/2/2016 1:00 AM | 7.38 | 1/3/2016 1:00 AM | 7.36 |
| 1/1/2016 1:15 AM | 7.39 | 1/2/2016 1:15 AM | 7.37 | 1/3/2016 1:15 AM | 7.35 |
| 1/1/2016 1:30 AM | 7.39 | 1/2/2016 1:30 AM | 7.39 | 1/3/2016 1:30 AM | 7.36 |
| 1/1/2016 1:45 AM | 7.38 | 1/2/2016 1:45 AM | 7.37 | 1/3/2016 1:45 AM | 7.40 |
| 1/1/2016 2:00 AM | 7.38 | 1/2/2016 2:00 AM | 7.36 | 1/3/2016 2:00 AM | 7.42 |
| 1/1/2016 2:15 AM | 7.37 | 1/2/2016 2:15 AM | 7.35 | 1/3/2016 2:15 AM | 7.43 |
| 1/1/2016 2:30 AM | 7.37 | 1/2/2016 2:30 AM | 7.36 | 1/3/2016 2:30 AM | 7.43 |
| 1/1/2016 2:45 AM | 7.36 | 1/2/2016 2:45 AM | 7.35 | 1/3/2016 2:45 AM | 7.42 |
| 1/1/2016 3:00 AM | 7.36 | 1/2/2016 3:00 AM | 7.28 | 1/3/2016 3:00 AM | 7.42 |
| 1/1/2016 3:15 AM | 7.33 | 1/2/2016 3:15 AM | 7.36 | 1/3/2016 3:15 AM | 7.41 |
| 1/1/2016 3:30 AM | 7.32 | 1/2/2016 3:30 AM | 7.40 | 1/3/2016 3:30 AM | 7.40 |
| 1/1/2016 3:45 AM | 7.32 | 1/2/2016 3:45 AM | 7.42 | 1/3/2016 3:45 AM | 7.39 |
| 1/1/2016 4:00 AM | 7.31 | 1/2/2016 4:00 AM | 7.42 | 1/3/2016 4:00 AM | 7.39 |
| 1/1/2016 4:15 AM | 7.31 | 1/2/2016 4:15 AM | 7.42 | 1/3/2016 4:15 AM | 7.38 |
| 1/1/2016 4:30 AM | 7.27 | 1/2/2016 4:30 AM | 7.40 | 1/3/2016 4:30 AM | 7.40 |
| 1/1/2016 4:45 AM | 7.33 | 1/2/2016 4:45 AM | 7.40 | 1/3/2016 4:45 AM | 7.37 |
| 1/1/2016 5:00 AM | 7.37 | 1/2/2016 5:00 AM | 7.39 | 1/3/2016 5:00 AM | 7.37 |
| 1/1/2016 5:15 AM | 7.38 | 1/2/2016 5:15 AM | 7.39 | 1/3/2016 5:15 AM | 7.36 |
| 1/1/2016 5:30 AM | 7.38 | 1/2/2016 5:30 AM | 7.38 | 1/3/2016 5:30 AM | 7.35 |
| 1/1/2016 5:45 AM | 7.38 | 1/2/2016 5:45 AM | 7.37 | 1/3/2016 5:45 AM | 7.35 |
| 1/1/2016 6:00 AM | 7.38 | 1/2/2016 6:00 AM | 7.40 | 1/3/2016 6:00 AM | 7.36 |
| 1/1/2016 6:15 AM | 7.38 | 1/2/2016 6:15 AM | 7.36 | 1/3/2016 6:15 AM | 7.40 |
| 1/1/2016 6:30 AM | 7.36 | 1/2/2016 6:30 AM | 7.36 | 1/3/2016 6:30 AM | 7.42 |
| 1/1/2016 6:45 AM | 7.36 | 1/2/2016 6:45 AM | 7.35 | 1/3/2016 6:45 AM | 7.42 |
| 1/1/2016 7:00 AM | 7.36 | 1/2/2016 7:00 AM | 7.35 | 1/3/2016 7:00 AM | 7.41 |
| 1/1/2016 7:15 AM | 7.35 | 1/2/2016 7:15 AM | 7.34 | 1/3/2016 7:15 AM | 7.41 |
| 1/1/2016 7:30 AM | 7.37 | 1/2/2016 7:30 AM | 7.30 | 1/3/2016 7:30 AM | 7.41 |
| 1/1/2016 7:45 AM | 7.34 | 1/2/2016 7:45 AM | 7.37 | 1/3/2016 7:45 AM | 7.40 |
| 1/1/2016 8:00 AM | 7.33 | 1/2/2016 8:00 AM | 7.40 | 1/3/2016 8:00 AM | 7.39 |
| 1/1/2016 8:15 AM | 7.32 | 1/2/2016 8:15 AM | 7.41 | 1/3/2016 8:15 AM | 7.38 |
| 1/1/2016 8:30 AM | 7.31 | 1/2/2016 8:30 AM | 7.40 | 1/3/2016 8:30 AM | 7.36 |
| 1/1/2016 8:45 AM | 7.30 | 1/2/2016 8:45 AM | 7.38 | 1/3/2016 8:45 AM | 7.35 |
| 1/1/2016 9:00 AM | 7.35 | 1/2/2016 9:00 AM | 7.37 | 1/3/2016 9:00 AM | 7.35 |
| 1/1/2016 9:15 AM | 7.37 | 1/2/2016 9:15 AM | 7.35 | 1/3/2016 9:15 AM | 7.32 |
| 1/1/2016 9:30 AM | 7.37 | 1/2/2016 9:30 AM | 7.33 | 1/3/2016 9:30 AM | 7.31 |
| 1/1/2016 9:45 AM | 7.37 | 1/2/2016 9:45 AM | 7.32 | 1/3/2016 9:45 AM | 7.30 |
| 1/1/2016 10:00 AM | 7.38 | 1/2/2016 10:00 AM | 7.31 | 1/3/2016 10:00 AM | 7.28 |
| 1/1/2016 10:15 AM | 7.36 | 1/2/2016 10:15 AM | 7.32 | 1/3/2016 10:15 AM | 7.29 |
| 1/1/2016 10:30 AM | 7.36 | 1/2/2016 10:30 AM | 7.37 | 1/3/2016 10:30 AM | 7.30 |
| 1/1/2016 10:45 AM | 7.35 | 1/2/2016 10:45 AM | 7.33 | 1/3/2016 10:45 AM | 7.35 |
| 1/1/2016 11:00 AM | 7.34 | 1/2/2016 11:00 AM | 7.33 | 1/3/2016 11:00 AM | 7.38 |

| | | | | | |
|---|---|---|---|---|---|
| 1/1/2016 11:15 AM | 7.33 | 1/2/2016 11:15 AM | 7.31 | 1/3/2016 11:15 AM | 7.37 |
| 1/1/2016 11:30 AM | 7.33 | 1/2/2016 11:30 AM | 7.29 | 1/3/2016 11:30 AM | 7.36 |
| 1/1/2016 11:45 AM | 7.32 | 1/2/2016 11:45 AM | 7.27 | 1/3/2016 11:45 AM | 7.34 |
| 1/1/2016 12:00 PM | 7.36 | 1/2/2016 12:00 PM | 7.31 | 1/3/2016 12:00 PM | 7.33 |
| 1/1/2016 12:15 PM | 7.33 | 1/2/2016 12:15 PM | 7.33 | 1/3/2016 12:15 PM | 7.33 |
| 1/1/2016 12:30 PM | 7.31 | 1/2/2016 12:30 PM | 7.34 | 1/3/2016 12:30 PM | 7.32 |
| 1/1/2016 12:45 PM | 7.32 | 1/2/2016 12:45 PM | 7.34 | 1/3/2016 12:45 PM | 7.32 |
| 1/1/2016 1:00 PM | 7.31 | 1/2/2016 1:00 PM | 7.34 | 1/3/2016 1:00 PM | 7.32 |
| 1/1/2016 1:15 PM | 7.30 | 1/2/2016 1:15 PM | 7.32 | 1/3/2016 1:15 PM | 7.29 |
| 1/1/2016 1:30 PM | 7.26 | 1/2/2016 1:30 PM | 7.32 | 1/3/2016 1:30 PM | 7.31 |
| 1/1/2016 1:45 PM | 7.32 | 1/2/2016 1:45 PM | 7.30 | 1/3/2016 1:45 PM | 7.27 |
| 1/1/2016 2:00 PM | 7.35 | 1/2/2016 2:00 PM | 7.29 | 1/3/2016 2:00 PM | 7.27 |
| 1/1/2016 2:15 PM | 7.37 | 1/2/2016 2:15 PM | 7.30 | 1/3/2016 2:15 PM | 7.27 |
| 1/1/2016 2:30 PM | 7.37 | 1/2/2016 2:30 PM | 7.31 | 1/3/2016 2:30 PM | 7.22 |
| 1/1/2016 2:45 PM | 7.36 | 1/2/2016 2:45 PM | 7.31 | 1/3/2016 2:45 PM | 7.28 |
| 1/1/2016 3:00 PM | 7.36 | 1/2/2016 3:00 PM | 7.35 | 1/3/2016 3:00 PM | 7.33 |
| 1/1/2016 3:15 PM | 7.35 | 1/2/2016 3:15 PM | 7.32 | 1/3/2016 3:15 PM | 7.34 |
| 1/1/2016 3:30 PM | 7.35 | 1/2/2016 3:30 PM | 7.32 | 1/3/2016 3:30 PM | 7.35 |
| 1/1/2016 3:45 PM | 7.35 | 1/2/2016 3:45 PM | 7.31 | 1/3/2016 3:45 PM | 7.35 |
| 1/1/2016 4:00 PM | 7.35 | 1/2/2016 4:00 PM | 7.31 | 1/3/2016 4:00 PM | 7.35 |
| 1/1/2016 4:15 PM | 7.35 | 1/2/2016 4:15 PM | 7.31 | 1/3/2016 4:15 PM | 7.35 |
| 1/1/2016 4:30 PM | 7.37 | 1/2/2016 4:30 PM | 7.31 | 1/3/2016 4:30 PM | 7.34 |
| 1/1/2016 4:45 PM | 7.33 | 1/2/2016 4:45 PM | 7.35 | 1/3/2016 4:45 PM | 7.34 |
| 1/1/2016 5:00 PM | 7.32 | 1/2/2016 5:00 PM | 7.38 | 1/3/2016 5:00 PM | 7.34 |
| 1/1/2016 5:15 PM | 7.32 | 1/2/2016 5:15 PM | 7.39 | 1/3/2016 5:15 PM | 7.35 |
| 1/1/2016 5:30 PM | 7.32 | 1/2/2016 5:30 PM | 7.39 | 1/3/2016 5:30 PM | 7.35 |
| 1/1/2016 5:45 PM | 7.32 | 1/2/2016 5:45 PM | 7.38 | 1/3/2016 5:45 PM | 7.34 |
| 1/1/2016 6:00 PM | 7.32 | 1/2/2016 6:00 PM | 7.38 | 1/3/2016 6:00 PM | 7.36 |
| 1/1/2016 6:15 PM | 7.34 | 1/2/2016 6:15 PM | 7.38 | 1/3/2016 6:15 PM | 7.34 |
| 1/1/2016 6:30 PM | 7.38 | 1/2/2016 6:30 PM | 7.37 | 1/3/2016 6:30 PM | 7.34 |
| 1/1/2016 6:45 PM | 7.40 | 1/2/2016 6:45 PM | 7.38 | 1/3/2016 6:45 PM | 7.34 |
| 1/1/2016 7:00 PM | 7.40 | 1/2/2016 7:00 PM | 7.37 | 1/3/2016 7:00 PM | 7.34 |
| 1/1/2016 7:15 PM | 7.40 | 1/2/2016 7:15 PM | 7.37 | 1/3/2016 7:15 PM | 7.34 |
| 1/1/2016 7:30 PM | 7.39 | 1/2/2016 7:30 PM | 7.37 | 1/3/2016 7:30 PM | 7.31 |
| 1/1/2016 7:45 PM | 7.38 | 1/2/2016 7:45 PM | 7.36 | 1/3/2016 7:45 PM | 7.37 |
| 1/1/2016 8:00 PM | 7.37 | 1/2/2016 8:00 PM | 7.35 | 1/3/2016 8:00 PM | 7.40 |
| 1/1/2016 8:15 PM | 7.37 | 1/2/2016 8:15 PM | 7.35 | 1/3/2016 8:15 PM | 7.42 |
| 1/1/2016 8:30 PM | 7.36 | 1/2/2016 8:30 PM | 7.36 | 1/3/2016 8:30 PM | 7.42 |
| 1/1/2016 8:45 PM | 7.36 | 1/2/2016 8:45 PM | 7.35 | 1/3/2016 8:45 PM | 7.41 |
| 1/1/2016 9:00 PM | 7.38 | 1/2/2016 9:00 PM | 7.35 | 1/3/2016 9:00 PM | 7.41 |
| 1/1/2016 9:15 PM | 7.35 | 1/2/2016 9:15 PM | 7.35 | 1/3/2016 9:15 PM | 7.40 |
| 1/1/2016 9:30 PM | 7.34 | 1/2/2016 9:30 PM | 7.40 | 1/3/2016 9:30 PM | 7.40 |
| 1/1/2016 9:45 PM | 7.33 | 1/2/2016 9:45 PM | 7.42 | 1/3/2016 9:45 PM | 7.39 |
| 1/1/2016 10:00 PM | 7.33 | 1/2/2016 10:00 PM | 7.42 | 1/3/2016 10:00 PM | 7.39 |
| 1/1/2016 10:15 PM | 7.29 | 1/2/2016 10:15 PM | 7.42 | 1/3/2016 10:15 PM | 7.39 |
| 1/1/2016 10:30 PM | 7.35 | 1/2/2016 10:30 PM | 7.42 | 1/3/2016 10:30 PM | 7.40 |
| 1/1/2016 10:45 PM | 7.38 | 1/2/2016 10:45 PM | 7.41 | 1/3/2016 10:45 PM | 7.37 |
| 1/1/2016 11:00 PM | 7.40 | 1/2/2016 11:00 PM | 7.41 | 1/3/2016 11:00 PM | 7.36 |
| 1/1/2016 11:15 PM | 7.40 | 1/2/2016 11:15 PM | 7.40 | 1/3/2016 11:15 PM | 7.36 |
| 1/1/2016 11:30 PM | 7.40 | 1/2/2016 11:30 PM | 7.39 | 1/3/2016 11:30 PM | 7.36 |
| 1/1/2016 11:45 PM | 7.40 | 1/2/2016 11:45 PM | 7.39 | 1/3/2016 11:45 PM | 7.36 |
| AVG | 7.35 | AVG | 7.36 | AVG | 7.36 |

Note: No data recorded at 12:15 AM and 12:30 AM due to power outage, not included in calculations

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 1/4/2016 12:00 AM | 7.35 | 1/5/2016 12:00 AM | 7.45 | 1/6/2016 12:00 AM | 7.46 |
| 1/4/2016 12:15 AM | 7.36 | 1/5/2016 12:15 AM | 7.45 | 1/6/2016 12:15 AM | 7.44 |
| 1/4/2016 12:30 AM | 7.40 | 1/5/2016 12:30 AM | 7.44 | 1/6/2016 12:30 AM | 7.43 |
| 1/4/2016 12:45 AM | 7.42 | 1/5/2016 12:45 AM | 7.44 | 1/6/2016 12:45 AM | 7.43 |
| 1/4/2016 1:00 AM | 7.42 | 1/5/2016 1:00 AM | 7.44 | 1/6/2016 1:00 AM | 7.42 |
| 1/4/2016 1:15 AM | 7.42 | 1/5/2016 1:15 AM | 7.44 | 1/6/2016 1:15 AM | 7.42 |
| 1/4/2016 1:30 AM | 7.42 | 1/5/2016 1:30 AM | 7.43 | 1/6/2016 1:30 AM | 7.42 |
| 1/4/2016 1:45 AM | 7.41 | 1/5/2016 1:45 AM | 7.41 | 1/6/2016 1:45 AM | 7.43 |
| 1/4/2016 2:00 AM | 7.41 | 1/5/2016 2:00 AM | 7.40 | 1/6/2016 2:00 AM | 7.47 |
| 1/4/2016 2:15 AM | 7.40 | 1/5/2016 2:15 AM | 7.40 | 1/6/2016 2:15 AM | 7.49 |
| 1/4/2016 2:30 AM | 7.39 | 1/5/2016 2:30 AM | 7.39 | 1/6/2016 2:30 AM | 7.50 |
| 1/4/2016 2:45 AM | 7.39 | 1/5/2016 2:45 AM | 7.38 | 1/6/2016 2:45 AM | 7.50 |
| 1/4/2016 3:00 AM | 7.40 | 1/5/2016 3:00 AM | 7.38 | 1/6/2016 3:00 AM | 7.49 |
| 1/4/2016 3:15 AM | 7.38 | 1/5/2016 3:15 AM | 7.40 | 1/6/2016 3:15 AM | 7.49 |
| 1/4/2016 3:30 AM | 7.37 | 1/5/2016 3:30 AM | 7.45 | 1/6/2016 3:30 AM | 7.48 |
| 1/4/2016 3:45 AM | 7.37 | 1/5/2016 3:45 AM | 7.47 | 1/6/2016 3:45 AM | 7.48 |
| 1/4/2016 4:00 AM | 7.36 | 1/5/2016 4:00 AM | 7.47 | 1/6/2016 4:00 AM | 7.48 |
| 1/4/2016 4:15 AM | 7.36 | 1/5/2016 4:15 AM | 7.47 | 1/6/2016 4:15 AM | 7.48 |
| 1/4/2016 4:30 AM | 7.36 | 1/5/2016 4:30 AM | 7.47 | 1/6/2016 4:30 AM | 7.47 |
| 1/4/2016 4:45 AM | 7.40 | 1/5/2016 4:45 AM | 7.46 | 1/6/2016 4:45 AM | 7.45 |
| 1/4/2016 5:00 AM | 7.42 | 1/5/2016 5:00 AM | 7.46 | 1/6/2016 5:00 AM | 7.45 |
| 1/4/2016 5:15 AM | 7.42 | 1/5/2016 5:15 AM | 7.45 | 1/6/2016 5:15 AM | 7.44 |
| 1/4/2016 5:30 AM | 7.42 | 1/5/2016 5:30 AM | 7.45 | 1/6/2016 5:30 AM | 7.44 |
| 1/4/2016 5:45 AM | 7.41 | 1/5/2016 5:45 AM | 7.45 | 1/6/2016 5:45 AM | 7.43 |
| 1/4/2016 6:00 AM | 7.41 | 1/5/2016 6:00 AM | 7.45 | 1/6/2016 6:00 AM | 7.43 |
| 1/4/2016 6:15 AM | 7.40 | 1/5/2016 6:15 AM | 7.42 | 1/6/2016 6:15 AM | 7.45 |
| 1/4/2016 6:30 AM | 7.40 | 1/5/2016 6:30 AM | 7.41 | 1/6/2016 6:30 AM | 7.49 |
| 1/4/2016 6:45 AM | 7.40 | 1/5/2016 6:45 AM | 7.41 | 1/6/2016 6:45 AM | 7.51 |
| 1/4/2016 7:00 AM | 7.39 | 1/5/2016 7:00 AM | 7.41 | 1/6/2016 7:00 AM | 7.51 |
| 1/4/2016 7:15 AM | 7.39 | 1/5/2016 7:15 AM | 7.40 | 1/6/2016 7:15 AM | 7.51 |
| 1/4/2016 7:30 AM | 7.41 | 1/5/2016 7:30 AM | 7.40 | 1/6/2016 7:30 AM | 7.51 |
| 1/4/2016 7:45 AM | 7.38 | 1/5/2016 7:45 AM | 7.44 | 1/6/2016 7:45 AM | 7.50 |
| 1/4/2016 8:00 AM | 7.37 | 1/5/2016 8:00 AM | 7.47 | 1/6/2016 8:00 AM | 7.49 |
| 1/4/2016 8:15 AM | 7.37 | 1/5/2016 8:15 AM | 7.47 | 1/6/2016 8:15 AM | 7.49 |
| 1/4/2016 8:30 AM | 7.37 | 1/5/2016 8:30 AM | 7.46 | 1/6/2016 8:30 AM | 7.48 |
| 1/4/2016 8:45 AM | 7.36 | 1/5/2016 8:45 AM | 7.45 | 1/6/2016 8:45 AM | 7.47 |
| 1/4/2016 9:00 AM | 7.37 | 1/5/2016 9:00 AM | 7.44 | 1/6/2016 9:00 AM | 7.47 |
| 1/4/2016 9:30 AM | 7.41 | 1/5/2016 9:15 AM | 7.43 | 1/6/2016 9:15 AM | 7.43 |
| 1/4/2016 9:45 AM | 7.42 | 1/5/2016 9:30 AM | 7.42 | 1/6/2016 9:30 AM | 7.42 |
| 1/4/2016 10:00 AM | 7.41 | 1/5/2016 9:45 AM | 7.41 | 1/6/2016 9:45 AM | 7.41 |
| 1/4/2016 10:15 AM | 7.40 | 1/5/2016 10:00 AM | 7.41 | 1/6/2016 10:00 AM | 7.40 |
| 1/4/2016 10:30 AM | 7.40 | 1/5/2016 10:15 AM | 7.41 | 1/6/2016 10:15 AM | 7.41 |
| 1/4/2016 10:45 AM | 7.39 | 1/5/2016 10:30 AM | 7.43 | 1/6/2016 10:30 AM | 7.41 |
| 1/4/2016 11:00 AM | 7.40 | 1/5/2016 10:45 AM | 7.41 | 1/6/2016 10:45 AM | 7.42 |
| 1/4/2016 11:15 AM | 7.39 | 1/5/2016 11:00 AM | 7.40 | 1/6/2016 11:00 AM | 7.42 |
| 1/4/2016 11:30 AM | 7.39 | 1/5/2016 11:15 AM | 7.39 | 1/6/2016 11:15 AM | 7.42 |
| 1/4/2016 11:45 AM | 7.38 | 1/5/2016 11:30 AM | 7.38 | 1/6/2016 11:30 AM | 7.41 |
| 1/4/2016 12:00 PM | 7.38 | 1/5/2016 11:45 AM | 7.35 | 1/6/2016 11:45 AM | 7.41 |
| 1/4/2016 12:15 PM | 7.38 | 1/5/2016 12:00 PM | 7.40 | 1/6/2016 12:00 PM | 7.45 |
| 1/4/2016 12:30 PM | 7.37 | 1/5/2016 12:15 PM | 7.42 | 1/6/2016 12:15 PM | 7.46 |
| 1/4/2016 12:45 PM | 7.37 | 1/5/2016 12:30 PM | 7.42 | 1/6/2016 12:30 PM | 7.46 |
| 1/4/2016 1:00 PM | 7.37 | 1/5/2016 12:45 PM | 7.42 | 1/6/2016 12:45 PM | 7.46 |
| 1/4/2016 1:15 PM | 7.36 | 1/5/2016 1:00 PM | 7.41 | 1/6/2016 1:00 PM | 7.45 |
| 1/4/2016 1:30 PM | 7.36 | 1/5/2016 1:15 PM | 7.41 | 1/6/2016 1:15 PM | 7.44 |
| 1/4/2016 1:45 PM | 7.35 | 1/5/2016 1:30 PM | 7.39 | 1/6/2016 1:30 PM | 7.42 |

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|---|---|---|---|---|---|
| 1/4/2016 2:00 PM | 7.35 | 1/5/2016 1:45 PM | 7.39 | 1/6/2016 1:45 PM | 7.39 |
| 1/4/2016 2:15 PM | 7.35 | 1/5/2016 2:00 PM | 7.38 | 1/6/2016 2:00 PM | 7.39 |
| 1/4/2016 2:30 PM | 7.35 | 1/5/2016 2:15 PM | 7.39 | 1/6/2016 2:15 PM | 7.40 |
| 1/4/2016 2:45 PM | 7.35 | 1/5/2016 2:30 PM | 7.39 | 1/6/2016 2:30 PM | 7.36 |
| 1/4/2016 3:00 PM | 7.35 | 1/5/2016 2:45 PM | 7.39 | 1/6/2016 2:45 PM | 7.43 |
| 1/4/2016 3:15 PM | 7.35 | 1/5/2016 3:00 PM | 7.42 | 1/6/2016 3:00 PM | 7.46 |
| 1/4/2016 3:30 PM | 7.36 | 1/5/2016 3:15 PM | 7.39 | 1/6/2016 3:15 PM | 7.48 |
| 1/4/2016 3:45 PM | 7.35 | 1/5/2016 3:30 PM | 7.40 | 1/6/2016 3:30 PM | 7.48 |
| 1/4/2016 4:00 PM | 7.36 | 1/5/2016 3:45 PM | 7.40 | 1/6/2016 3:45 PM | 7.48 |
| 1/4/2016 4:15 PM | 7.36 | 1/5/2016 4:00 PM | 7.39 | 1/6/2016 4:00 PM | 7.47 |
| 1/4/2016 4:30 PM | 7.36 | 1/5/2016 4:15 PM | 7.39 | 1/6/2016 4:15 PM | 7.47 |
| 1/4/2016 4:45 PM | 7.35 | 1/5/2016 4:30 PM | 7.35 | 1/6/2016 4:30 PM | 7.47 |
| 1/4/2016 5:00 PM | 7.36 | 1/5/2016 4:45 PM | 7.41 | 1/6/2016 4:45 PM | 7.47 |
| 1/4/2016 5:15 PM | 7.36 | 1/5/2016 5:00 PM | 7.44 | 1/6/2016 5:00 PM | 7.47 |
| 1/4/2016 5:30 PM | 7.36 | 1/5/2016 5:15 PM | 7.46 | 1/6/2016 5:15 PM | 7.47 |
| 1/4/2016 5:45 PM | 7.36 | 1/5/2016 5:30 PM | 7.46 | 1/6/2016 5:30 PM | 7.47 |
| 1/4/2016 6:00 PM | 7.36 | 1/5/2016 5:45 PM | 7.46 | 1/6/2016 5:45 PM | 7.47 |
| 1/4/2016 6:15 PM | 7.36 | 1/5/2016 6:00 PM | 7.46 | 1/6/2016 6:00 PM | 7.47 |
| 1/4/2016 6:30 PM | 7.36 | 1/5/2016 6:15 PM | 7.45 | 1/6/2016 6:15 PM | 7.47 |
| 1/4/2016 6:45 PM | 7.36 | 1/5/2016 6:30 PM | 7.45 | 1/6/2016 6:30 PM | 7.47 |
| 1/4/2016 7:00 PM | 7.36 | 1/5/2016 6:45 PM | 7.44 | 1/6/2016 6:45 PM | 7.46 |
| 1/4/2016 7:15 PM | 7.36 | 1/5/2016 7:00 PM | 7.44 | 1/6/2016 7:00 PM | 7.47 |
| 1/4/2016 7:30 PM | 7.36 | 1/5/2016 7:15 PM | 7.43 | 1/6/2016 7:15 PM | 7.46 |
| 1/4/2016 7:45 PM | 7.36 | 1/5/2016 7:30 PM | 7.44 | 1/6/2016 7:30 PM | 7.46 |
| 1/4/2016 8:00 PM | 7.36 | 1/5/2016 7:45 PM | 7.43 | 1/6/2016 7:45 PM | 7.46 |
| 1/4/2016 8:15 PM | 7.37 | 1/5/2016 8:00 PM | 7.42 | 1/6/2016 8:00 PM | 7.46 |
| 1/4/2016 8:30 PM | 7.44 | 1/5/2016 8:15 PM | 7.42 | 1/6/2016 8:15 PM | 7.45 |
| 1/4/2016 8:45 PM | 7.42 | 1/5/2016 8:30 PM | 7.41 | 1/6/2016 8:30 PM | 7.45 |
| 1/4/2016 9:00 PM | 7.40 | 1/5/2016 8:45 PM | 7.37 | 1/6/2016 8:45 PM | 7.45 |
| 1/4/2016 9:15 PM | 7.39 | 1/5/2016 9:00 PM | 7.43 | 1/6/2016 9:00 PM | 7.45 |
| 1/4/2016 9:30 PM | 7.38 | 1/5/2016 9:15 PM | 7.46 | 1/6/2016 9:15 PM | 7.45 |
| 1/4/2016 9:45 PM | 7.38 | 1/5/2016 9:30 PM | 7.48 | 1/6/2016 9:30 PM | 7.44 |
| 1/4/2016 10:00 PM | 7.37 | 1/5/2016 9:45 PM | 7.48 | 1/6/2016 9:45 PM | 7.44 |
| 1/4/2016 10:15 PM | 7.37 | 1/5/2016 10:00 PM | 7.48 | 1/6/2016 10:00 PM | 7.44 |
| 1/4/2016 10:30 PM | 7.37 | 1/5/2016 10:15 PM | 7.47 | 1/6/2016 10:15 PM | 7.44 |
| 1/4/2016 10:45 PM | 7.43 | 1/5/2016 10:30 PM | 7.46 | 1/6/2016 10:30 PM | 7.44 |
| 1/4/2016 11:00 PM | 7.45 | 1/5/2016 10:45 PM | 7.47 | 1/6/2016 10:45 PM | 7.43 |
| 1/4/2016 11:15 PM | 7.46 | 1/5/2016 11:00 PM | 7.46 | 1/6/2016 11:00 PM | 7.43 |
| 1/4/2016 11:30 PM | 7.46 | 1/5/2016 11:15 PM | 7.46 | 1/6/2016 11:15 PM | 7.43 |
| 1/4/2016 11:45 PM | 7.45 | 1/5/2016 11:30 PM | 7.46 | 1/6/2016 11:30 PM | 7.43 |
| 12/4/2015 11:45 PM | 7.42 | 1/5/2016 11:45 PM | 7.45 | 1/6/2016 11:45 PM | 7.43 |
| AVG | 7.38 | AVG | 7.43 | AVG | 7.45 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 1/7/2016 12:00 AM | 7.43 | 1/8/2016 12:00 AM | 7.61 | 1/9/2016 12:00 AM | 7.56 |
| 1/7/2016 12:15 AM | 7.43 | 1/8/2016 12:15 AM | 7.60 | 1/9/2016 12:15 AM | 7.55 |
| 1/7/2016 12:30 AM | 7.43 | 1/8/2016 12:30 AM | 7.58 | 1/9/2016 12:30 AM | 7.55 |
| 1/7/2016 12:45 AM | 7.42 | 1/8/2016 12:45 AM | 7.60 | 1/9/2016 12:45 AM | 7.54 |
| 1/7/2016 1:00 AM | 7.42 | 1/8/2016 1:00 AM | 7.63 | 1/9/2016 1:00 AM | 7.50 |
| 1/7/2016 1:15 AM | 7.42 | 1/8/2016 1:15 AM | 7.64 | 1/9/2016 1:15 AM | 7.56 |
| 1/7/2016 1:30 AM | 7.42 | 1/8/2016 1:30 AM | 7.67 | 1/9/2016 1:30 AM | 7.59 |
| 1/7/2016 1:45 AM | 7.42 | 1/8/2016 1:45 AM | 7.66 | 1/9/2016 1:45 AM | 7.60 |
| 1/7/2016 2:00 AM | 7.42 | 1/8/2016 2:00 AM | 7.66 | 1/9/2016 2:00 AM | 7.60 |
| 1/7/2016 2:15 AM | 7.42 | 1/8/2016 2:15 AM | 7.66 | 1/9/2016 2:15 AM | 7.60 |
| 1/7/2016 2:30 AM | 7.42 | 1/8/2016 2:30 AM | 7.69 | 1/9/2016 2:30 AM | 7.59 |
| 1/7/2016 2:45 AM | 7.42 | 1/8/2016 2:45 AM | 7.70 | 1/9/2016 2:45 AM | 7.58 |
| 1/7/2016 3:00 AM | 7.41 | 1/8/2016 3:00 AM | 7.71 | 1/9/2016 3:00 AM | 7.58 |
| 1/7/2016 3:15 AM | 7.41 | 1/8/2016 3:15 AM | 7.72 | 1/9/2016 3:15 AM | 7.57 |
| 1/7/2016 3:30 AM | 7.41 | 1/8/2016 3:30 AM | 7.72 | 1/9/2016 3:30 AM | 7.56 |
| 1/7/2016 3:45 AM | 7.41 | 1/8/2016 3:45 AM | 7.74 | 1/9/2016 3:45 AM | 7.55 |
| 1/7/2016 4:00 AM | 7.41 | 1/8/2016 4:00 AM | 7.75 | 1/9/2016 4:00 AM | 7.55 |
| 1/7/2016 4:15 AM | 7.41 | 1/8/2016 4:15 AM | 7.71 | 1/9/2016 4:15 AM | 7.54 |
| 1/7/2016 4:30 AM | 7.41 | 1/8/2016 4:30 AM | 7.73 | 1/9/2016 4:30 AM | 7.56 |
| 1/7/2016 4:45 AM | 7.41 | 1/8/2016 4:45 AM | 7.74 | 1/9/2016 4:45 AM | 7.53 |
| 1/7/2016 5:00 AM | 7.41 | 1/8/2016 5:00 AM | 7.75 | 1/9/2016 5:00 AM | 7.53 |
| 1/7/2016 5:15 AM | 7.41 | 1/8/2016 5:15 AM | 7.76 | 1/9/2016 5:15 AM | 7.53 |
| 1/7/2016 5:30 AM | 7.41 | 1/8/2016 5:30 AM | 7.77 | 1/9/2016 5:30 AM | 7.48 |
| 1/7/2016 5:45 AM | 7.41 | 1/8/2016 5:45 AM | 7.78 | 1/9/2016 5:45 AM | 7.53 |
| 1/7/2016 6:00 AM | 7.41 | 1/8/2016 6:00 AM | 7.79 | 1/9/2016 6:00 AM | 7.56 |
| 1/7/2016 6:15 AM | 7.41 | 1/8/2016 6:15 AM | 7.78 | 1/9/2016 6:15 AM | 7.57 |
| 1/7/2016 6:30 AM | 7.41 | 1/8/2016 6:30 AM | 7.79 | 1/9/2016 6:30 AM | 7.57 |
| 1/7/2016 6:45 AM | 7.41 | 1/8/2016 6:45 AM | 7.80 | 1/9/2016 6:45 AM | 7.57 |
| 1/7/2016 7:00 AM | 7.41 | 1/8/2016 7:00 AM | 7.80 | 1/9/2016 7:00 AM | 7.57 |
| 1/7/2016 7:15 AM | 7.41 | 1/8/2016 7:15 AM | 7.84 | 1/9/2016 7:15 AM | 7.56 |
| 1/7/2016 7:30 AM | 7.39 | 1/8/2016 7:30 AM | 7.82 | 1/9/2016 7:30 AM | 7.56 |
| 1/7/2016 7:45 AM | 7.37 | 1/8/2016 7:45 AM | 7.80 | 1/9/2016 7:45 AM | 7.55 |
| 1/7/2016 8:00 AM | 7.37 | 1/8/2016 8:00 AM | 7.79 | 1/9/2016 8:00 AM | 7.55 |
| 1/7/2016 8:15 AM | 7.38 | 1/8/2016 8:15 AM | 7.78 | 1/9/2016 8:15 AM | 7.54 |
| 1/7/2016 8:30 AM | 7.39 | 1/8/2016 8:30 AM | 7.78 | 1/9/2016 8:30 AM | 7.54 |
| 1/7/2016 8:45 AM | 7.36 | 1/8/2016 8:45 AM | 7.78 | 1/9/2016 8:45 AM | 7.53 |
| 1/7/2016 9:00 AM | 7.36 | 1/8/2016 9:00 AM | 7.77 | 1/9/2016 9:00 AM | 7.54 |
| 1/7/2016 9:15 AM | 7.39 | 1/8/2016 9:15 AM | 7.76 | 1/9/2016 9:15 AM | 7.52 |
| 1/7/2016 9:30 AM | 7.49 | 1/8/2016 9:30 AM | 7.75 | 1/9/2016 9:30 AM | 7.51 |
| 1/7/2016 9:45 AM | 7.44 | 1/8/2016 9:45 AM | 7.75 | 1/9/2016 9:45 AM | 7.51 |
| 1/7/2016 10:00 AM | 7.41 | 1/8/2016 10:00 AM | 7.75 | 1/9/2016 10:00 AM | 7.51 |
| 1/7/2016 10:15 AM | 7.40 | 1/8/2016 10:15 AM | 7.74 | 1/9/2016 10:15 AM | 7.50 |
| 1/7/2016 10:30 AM | 7.40 | 1/8/2016 10:30 AM | 7.73 | 1/9/2016 10:30 AM | 7.49 |
| 1/7/2016 10:45 AM | 7.40 | 1/8/2016 10:45 AM | 7.73 | 1/9/2016 10:45 AM | 7.48 |
| 1/7/2016 11:00 AM | 7.40 | 1/8/2016 11:00 AM | 7.72 | 1/9/2016 11:00 AM | 7.52 |
| 1/7/2016 11:15 AM | 7.35 | 1/8/2016 11:15 AM | 7.72 | 1/9/2016 11:15 AM | 7.55 |
| 1/7/2016 11:30 AM | 7.41 | 1/8/2016 11:30 AM | 7.71 | 1/9/2016 11:30 AM | 7.55 |
| 1/7/2016 11:45 AM | 7.44 | 1/8/2016 11:45 AM | 7.70 | 1/9/2016 11:45 AM | 7.55 |
| 1/7/2016 12:00 PM | 7.44 | 1/8/2016 12:00 PM | 7.70 | 1/9/2016 12:00 PM | 7.54 |
| 1/7/2016 12:15 PM | 7.37 | 1/8/2016 12:15 PM | 7.69 | 1/9/2016 12:15 PM | 7.53 |
| 1/7/2016 12:30 PM | 7.36 | 1/8/2016 12:30 PM | 7.69 | 1/9/2016 12:30 PM | 7.52 |
| 1/7/2016 12:45 PM | 7.34 | 1/8/2016 12:45 PM | 7.48 | 1/9/2016 12:45 PM | 7.51 |
| 1/7/2016 1:00 PM | 7.33 | 1/8/2016 1:00 PM | 7.46 | 1/9/2016 1:00 PM | 7.51 |
| 1/7/2016 1:15 PM | 7.33 | 1/8/2016 1:15 PM | 7.45 | 1/9/2016 1:15 PM | 7.51 |
| 1/7/2016 1:30 PM | 7.38 | 1/8/2016 1:30 PM | 7.44 | 1/9/2016 1:30 PM | 7.51 |

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|---|---|---|---|---|---|
| 1/7/2016 1:45 PM | 7.40 | 1/8/2016 1:45 PM | 7.43 | 1/9/2016 1:45 PM | 7.48 |
| 1/7/2016 2:00 PM | 7.41 | 1/8/2016 2:00 PM | 7.43 | 1/9/2016 2:00 PM | 7.47 |
| 1/7/2016 2:15 PM | 7.42 | 1/8/2016 2:15 PM | 7.43 | 1/9/2016 2:15 PM | 7.47 |
| 1/7/2016 2:30 PM | 7.43 | 1/8/2016 2:30 PM | 7.43 | 1/9/2016 2:30 PM | 7.47 |
| 1/7/2016 2:45 PM | 7.44 | 1/8/2016 2:45 PM | 7.42 | 1/9/2016 2:45 PM | 7.47 |
| 1/7/2016 3:00 PM | 7.44 | 1/8/2016 3:00 PM | 7.43 | 1/9/2016 3:00 PM | 7.47 |
| 1/7/2016 3:15 PM | 7.44 | 1/8/2016 3:15 PM | 7.44 | 1/9/2016 3:15 PM | 7.42 |
| 1/7/2016 3:30 PM | 7.43 | 1/8/2016 3:30 PM | | 1/9/2016 3:30 PM | 7.48 |
| 1/7/2016 3:45 PM | 7.44 | 1/8/2016 3:45 PM | 7.49 | 1/9/2016 3:45 PM | 7.52 |
| 1/7/2016 4:00 PM | 7.44 | 1/8/2016 4:00 PM | 7.51 | 1/9/2016 4:00 PM | 7.54 |
| 1/7/2016 4:15 PM | 7.43 | 1/8/2016 4:15 PM | 7.52 | 1/9/2016 4:15 PM | 7.54 |
| 1/7/2016 4:30 PM | 7.45 | 1/8/2016 4:30 PM | 7.52 | 1/9/2016 4:30 PM | 7.54 |
| 1/7/2016 4:45 PM | 7.41 | 1/8/2016 4:45 PM | 7.52 | 1/9/2016 4:45 PM | 7.54 |
| 1/7/2016 5:00 PM | 7.41 | 1/8/2016 5:00 PM | 7.47 | 1/9/2016 5:00 PM | 7.53 |
| 1/7/2016 5:15 PM | 7.40 | 1/8/2016 5:15 PM | 7.47 | 1/9/2016 5:15 PM | 7.53 |
| 1/7/2016 5:30 PM | 7.39 | 1/8/2016 5:30 PM | 7.47 | 1/9/2016 5:30 PM | 7.52 |
| 1/7/2016 5:45 PM | 7.40 | 1/8/2016 5:45 PM | 7.48 | 1/9/2016 5:45 PM | 7.52 |
| 1/7/2016 6:00 PM | 7.45 | 1/8/2016 6:00 PM | 7.47 | 1/9/2016 6:00 PM | 7.51 |
| 1/7/2016 6:15 PM | 7.47 | 1/8/2016 6:15 PM | 7.48 | 1/9/2016 6:15 PM | 7.49 |
| 1/7/2016 6:30 PM | 7.47 | 1/8/2016 6:30 PM | 7.47 | 1/9/2016 6:30 PM | 7.49 |
| 1/7/2016 6:45 PM | 7.48 | 1/8/2016 6:45 PM | 7.47 | 1/9/2016 6:45 PM | 7.48 |
| 1/7/2016 7:00 PM | 7.48 | 1/8/2016 7:00 PM | 7.48 | 1/9/2016 7:00 PM | 7.48 |
| 1/7/2016 7:15 PM | 7.47 | 1/8/2016 7:15 PM | 7.47 | 1/9/2016 7:15 PM | 7.48 |
| 1/7/2016 7:30 PM | 7.47 | 1/8/2016 7:30 PM | 7.52 | 1/9/2016 7:30 PM | 7.48 |
| 1/7/2016 7:45 PM | 7.47 | 1/8/2016 7:45 PM | 7.55 | 1/9/2016 7:45 PM | 7.43 |
| 1/7/2016 8:00 PM | 7.48 | 1/8/2016 8:00 PM | 7.53 | 1/9/2016 8:00 PM | 7.50 |
| 1/7/2016 8:15 PM | 7.47 | 1/8/2016 8:15 PM | 7.52 | 1/9/2016 8:15 PM | 7.54 |
| 1/7/2016 8:30 PM | 7.48 | 1/8/2016 8:30 PM | 7.52 | 1/9/2016 8:30 PM | 7.55 |
| 1/7/2016 8:45 PM | 7.49 | 1/8/2016 8:45 PM | 7.51 | 1/9/2016 8:45 PM | 7.55 |
| 1/7/2016 9:00 PM | 7.50 | 1/8/2016 9:00 PM | 7.51 | 1/9/2016 9:00 PM | 7.55 |
| 1/7/2016 9:15 PM | 7.50 | 1/8/2016 9:15 PM | 7.52 | 1/9/2016 9:15 PM | 7.54 |
| 1/7/2016 9:30 PM | 7.49 | 1/8/2016 9:30 PM | 7.52 | 1/9/2016 9:30 PM | 7.54 |
| 1/7/2016 9:45 PM | 7.48 | 1/8/2016 9:45 PM | 7.51 | 1/9/2016 9:45 PM | 7.53 |
| 1/7/2016 10:00 PM | 7.49 | 1/8/2016 10:00 PM | 7.52 | 1/9/2016 10:00 PM | 7.53 |
| 1/7/2016 10:15 PM | 7.50 | 1/8/2016 10:15 PM | 7.53 | 1/9/2016 10:15 PM | 7.53 |
| 1/7/2016 10:30 PM | 7.51 | 1/8/2016 10:30 PM | 7.52 | 1/9/2016 10:30 PM | 7.52 |
| 1/7/2016 10:45 PM | 7.52 | 1/8/2016 10:45 PM | 7.52 | 1/9/2016 10:45 PM | 7.49 |
| 1/7/2016 11:00 PM | 7.53 | 1/8/2016 11:00 PM | 7.55 | 1/9/2016 11:00 PM | 7.49 |
| 1/7/2016 11:15 PM | 7.55 | 1/8/2016 11:15 PM | 7.59 | 1/9/2016 11:15 PM | 7.48 |
| 1/7/2016 11:30 PM | 7.54 | 1/8/2016 11:30 PM | 7.60 | 1/9/2016 11:30 PM | 7.48 |
| 1/7/2016 11:45 PM | 7.55 | 1/8/2016 11:45 PM | 7.63 | 1/9/2016 11:45 PM | 7.48 |
| AVG | 7.43 | AVG | 7.62 | AVG | 7.53 |

Note: No data recorded at 3:30 PM due to power outage, not included in calculations.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 1/10/2016 12:00 AM | 7.48 | 1/11/2016 12:00 AM | 7.54 | 1/12/2016 12:00 AM | 7.50 |
| 1/10/2016 12:15 AM | 7.48 | 1/11/2016 12:15 AM | 7.53 | 1/12/2016 12:15 AM | 7.47 |
| 1/10/2016 12:30 AM | 7.48 | 1/11/2016 12:30 AM | 7.53 | 1/12/2016 12:30 AM | 7.47 |
| 1/10/2016 12:45 AM | 7.52 | 1/11/2016 12:45 AM | 7.53 | 1/12/2016 12:45 AM | 7.46 |
| 1/10/2016 1:00 AM | 7.54 | 1/11/2016 1:00 AM | 7.53 | 1/12/2016 1:00 AM | 7.44 |
| 1/10/2016 1:15 AM | 7.55 | 1/11/2016 1:15 AM | 7.52 | 1/12/2016 1:15 AM | 7.48 |
| 1/10/2016 1:30 AM | 7.55 | 1/11/2016 1:30 AM | 7.52 | 1/12/2016 1:30 AM | 7.51 |
| 1/10/2016 1:45 AM | 7.54 | 1/11/2016 1:45 AM | 7.50 | 1/12/2016 1:45 AM | 7.52 |
| 1/10/2016 2:00 AM | 7.53 | 1/11/2016 2:00 AM | 7.49 | 1/12/2016 2:00 AM | 7.52 |
| 1/10/2016 2:15 AM | 7.54 | 1/11/2016 2:15 AM | 7.48 | 1/12/2016 2:15 AM | 7.52 |
| 1/10/2016 2:30 AM | 7.53 | 1/11/2016 2:30 AM | 7.45 | 1/12/2016 2:30 AM | 7.51 |
| 1/10/2016 2:45 AM | 7.53 | 1/11/2016 2:45 AM | 7.49 | 1/12/2016 2:45 AM | 7.51 |
| 1/10/2016 3:00 AM | 7.51 | 1/11/2016 3:00 AM | 7.53 | 1/12/2016 3:00 AM | 7.51 |
| 1/10/2016 3:15 AM | 7.49 | 1/11/2016 3:15 AM | 7.54 | 1/12/2016 3:15 AM | 7.50 |
| 1/10/2016 3:30 AM | 7.48 | 1/11/2016 3:30 AM | 7.55 | 1/12/2016 3:30 AM | 7.50 |
| 1/10/2016 3:45 AM | 7.48 | 1/11/2016 3:45 AM | 7.54 | 1/12/2016 3:45 AM | 7.49 |
| 1/10/2016 4:00 AM | 7.47 | 1/11/2016 4:00 AM | 7.54 | 1/12/2016 4:00 AM | 7.49 |
| 1/10/2016 4:15 AM | 7.47 | 1/11/2016 4:15 AM | 7.54 | 1/12/2016 4:15 AM | 7.49 |
| 1/10/2016 4:30 AM | 7.48 | 1/11/2016 4:30 AM | 7.53 | 1/12/2016 4:30 AM | 7.48 |
| 1/10/2016 4:45 AM | 7.47 | 1/11/2016 4:45 AM | 7.53 | 1/12/2016 4:45 AM | 7.47 |
| 1/10/2016 5:00 AM | 7.46 | 1/11/2016 5:00 AM | 7.53 | 1/12/2016 5:00 AM | 7.46 |
| 1/10/2016 5:15 AM | 7.51 | 1/11/2016 5:15 AM | 7.52 | 1/12/2016 5:15 AM | 7.46 |
| 1/10/2016 5:30 AM | 7.54 | 1/11/2016 5:30 AM | 7.52 | 1/12/2016 5:30 AM | 7.45 |
| 1/10/2016 5:45 AM | 7.55 | 1/11/2016 5:45 AM | 7.52 | 1/12/2016 5:45 AM | 7.43 |
| 1/10/2016 6:00 AM | 7.55 | 1/11/2016 6:00 AM | 7.51 | 1/12/2016 6:00 AM | 7.48 |
| 1/10/2016 6:15 AM | 7.55 | 1/11/2016 6:15 AM | 7.49 | 1/12/2016 6:15 AM | 7.50 |
| 1/10/2016 6:30 AM | 7.55 | 1/11/2016 6:30 AM | 7.48 | 1/12/2016 6:30 AM | 7.51 |
| 1/10/2016 6:45 AM | 7.53 | 1/11/2016 6:45 AM | 7.48 | 1/12/2016 6:45 AM | 7.51 |
| 1/10/2016 7:00 AM | 7.53 | 1/11/2016 7:00 AM | 7.43 | 1/12/2016 7:00 AM | 7.51 |
| 1/10/2016 7:15 AM | 7.53 | 1/11/2016 7:15 AM | 7.49 | 1/12/2016 7:15 AM | 7.50 |
| 1/10/2016 7:30 AM | 7.51 | 1/11/2016 7:30 AM | 7.52 | 1/12/2016 7:30 AM | 7.50 |
| 1/10/2016 7:45 AM | 7.48 | 1/11/2016 7:45 AM | 7.54 | 1/12/2016 7:45 AM | 7.50 |
| 1/10/2016 8:00 AM | 7.48 | 1/11/2016 8:00 AM | 7.54 | 1/12/2016 8:00 AM | 7.49 |
| 1/10/2016 8:15 AM | 7.47 | 1/11/2016 8:15 AM | 7.53 | 1/12/2016 8:15 AM | 7.49 |
| 1/10/2016 8:30 AM | 7.47 | 1/11/2016 8:30 AM | 7.52 | 1/12/2016 8:30 AM | 7.49 |
| 1/10/2016 8:45 AM | 7.47 | 1/11/2016 8:45 AM | 7.51 | 1/12/2016 8:45 AM | 7.46 |
| 1/10/2016 9:00 AM | 7.46 | 1/11/2016 9:00 AM | 7.49 | 1/12/2016 9:00 AM | 7.47 |
| 1/10/2016 9:15 AM | 7.46 | 1/11/2016 9:15 AM | 7.48 | 1/12/2016 9:15 AM | 7.45 |
| 1/10/2016 9:30 AM | 7.48 | 1/11/2016 9:30 AM | 7.48 | 1/12/2016 9:30 AM | 7.44 |
| 1/10/2016 9:45 AM | 7.51 | 1/11/2016 9:45 AM | 7.46 | 1/12/2016 9:45 AM | 7.43 |
| 1/10/2016 10:00 AM | 7.52 | 1/11/2016 10:00 AM | 7.45 | 1/12/2016 10:00 AM | 7.38 |
| 1/10/2016 10:15 AM | 7.53 | 1/11/2016 10:15 AM | 7.46 | 1/12/2016 10:15 AM | 7.42 |
| 1/10/2016 10:30 AM | 7.53 | 1/11/2016 10:30 AM | 7.46 | 1/12/2016 10:30 AM | 7.45 |
| 1/10/2016 10:45 AM | 7.52 | 1/11/2016 10:45 AM | 7.47 | 1/12/2016 10:45 AM | 7.47 |
| 1/10/2016 11:00 AM | 7.51 | 1/11/2016 11:00 AM | 7.46 | 1/12/2016 11:00 AM | 7.47 |
| 1/10/2016 11:15 AM | 7.50 | 1/11/2016 11:15 AM | 7.45 | 1/12/2016 11:15 AM | 7.47 |
| 1/10/2016 11:30 AM | 7.49 | 1/11/2016 11:30 AM | 7.43 | 1/12/2016 11:30 AM | 7.46 |
| 1/10/2016 11:45 AM | 7.47 | 1/11/2016 11:45 AM | 7.42 | 1/12/2016 11:45 AM | 7.46 |
| 1/10/2016 12:00 PM | 7.42 | 1/11/2016 12:00 PM | 7.46 | 1/12/2016 12:00 PM | 7.45 |
| 1/10/2016 12:15 PM | 7.38 | 1/11/2016 12:15 PM | 7.47 | 1/12/2016 12:15 PM | 7.45 |
| 1/10/2016 12:30 PM | 7.38 | 1/11/2016 12:30 PM | 7.48 | 1/12/2016 12:30 PM | 7.44 |
| 1/10/2016 12:45 PM | 7.37 | 1/11/2016 12:45 PM | 7.48 | 1/12/2016 12:45 PM | 7.44 |
| 1/10/2016 1:00 PM | 7.35 | 1/11/2016 1:00 PM | 7.48 | 1/12/2016 1:00 PM | 7.44 |
| 1/10/2016 1:15 PM | 7.36 | 1/11/2016 1:15 PM | 7.47 | 1/12/2016 1:15 PM | 7.43 |
| 1/10/2016 1:30 PM | 7.36 | 1/11/2016 1:30 PM | 7.46 | 1/12/2016 1:30 PM | 7.42 |

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|---|---|---|---|---|---|
| 1/10/2016 1:45 PM | 7.34 | 1/11/2016 1:45 PM | 7.45 | 1/12/2016 1:45 PM | 7.41 |
| 1/10/2016 2:00 PM | 7.40 | 1/11/2016 2:00 PM | 7.45 | 1/12/2016 2:00 PM | 7.41 |
| 1/10/2016 2:15 PM | 7.44 | 1/11/2016 2:15 PM | 7.45 | 1/12/2016 2:15 PM | 7.40 |
| 1/10/2016 2:30 PM | 7.45 | 1/11/2016 2:30 PM | 7.45 | 1/12/2016 2:30 PM | 7.39 |
| 1/10/2016 2:45 PM | 7.46 | 1/11/2016 2:45 PM | 7.45 | 1/12/2016 2:45 PM | 7.43 |
| 1/10/2016 3:00 PM | 7.46 | 1/11/2016 3:00 PM | 7.45 | 1/12/2016 3:00 PM | 7.44 |
| 1/10/2016 3:15 PM | 7.46 | 1/11/2016 3:15 PM | 7.45 | 1/12/2016 3:15 PM | 7.46 |
| 1/10/2016 3:30 PM | 7.46 | 1/11/2016 3:30 PM | 7.45 | 1/12/2016 3:30 PM | 7.46 |
| 1/10/2016 3:45 PM | 7.46 | 1/11/2016 3:45 PM | 7.45 | 1/12/2016 3:45 PM | 7.46 |
| 1/10/2016 4:00 PM | 7.47 | 1/11/2016 4:00 PM | 7.44 | 1/12/2016 4:00 PM | 7.46 |
| 1/10/2016 4:15 PM | 7.47 | 1/11/2016 4:15 PM | 7.44 | 1/12/2016 4:15 PM | 7.45 |
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| 1/10/2016 6:30 PM | 7.48 | 1/11/2016 6:30 PM | 7.43 | 1/12/2016 6:30 PM | 7.45 |
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| 1/10/2016 9:45 PM | 7.51 | 1/11/2016 9:45 PM | 7.51 | 1/12/2016 9:45 PM | 7.43 |
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| 1/10/2016 11:00 PM | 7.52 | 1/11/2016 11:00 PM | 7.50 | 1/12/2016 11:00 PM | 7.44 |
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| 1/10/2016 11:30 PM | 7.54 | 1/11/2016 11:30 PM | 7.49 | 1/12/2016 11:30 PM | 7.44 |
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| AVG | 7.48 | AVG | 7.48 | AVG | 7.46 |

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| 1/13/2016 1:00 AM | 7.50 | 1/14/2016 1:00 AM | 7.47 | 1/15/2016 1:00 AM | 7.39 |
| 1/13/2016 1:15 AM | 7.49 | 1/14/2016 1:15 AM | 7.47 | 1/15/2016 1:15 AM | 7.44 |
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| 1/13/2016 11:30 PM | 7.49 | 1/14/2016 11:30 PM | 7.44 | 1/15/2016 11:30 PM | 7.39 |
| 1/13/2016 11:45 PM | 7.49 | 1/14/2016 11:45 PM | 7.46 | 1/15/2016 11:45 PM | 7.43 |
| AVG | 7.47 | AVG | 7.46 | AVG | 7.42 |

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| 1/16/2016 1:00 AM | 7.45 | 1/17/2016 1:00 AM | 7.43 | 1/18/2016 1:00 AM | 7.33 |
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| 1/16/2016 12:30 PM | 7.33 | 1/17/2016 12:30 PM | 7.42 | 1/18/2016 12:30 PM | 7.42 |
| 1/16/2016 12:45 PM | 7.33 | 1/17/2016 12:45 PM | 7.42 | 1/18/2016 12:45 PM | 7.41 |
| 1/16/2016 1:00 PM | 7.31 | 1/17/2016 1:00 PM | 7.42 | 1/18/2016 1:00 PM | 7.41 |
| 1/16/2016 1:15 PM | 7.35 | 1/17/2016 1:15 PM | 7.41 | 1/18/2016 1:15 PM | 7.41 |
| 1/16/2016 1:30 PM | 7.38 | 1/17/2016 1:30 PM | 7.41 | 1/18/2016 1:30 PM | 7.42 |

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| 1/16/2016 1:45 PM | 7.39 | 1/17/2016 1:45 PM | 7.40 | 1/18/2016 1:45 PM | 7.38 |
| 1/16/2016 2:00 PM | 7.39 | 1/17/2016 2:00 PM | 7.39 | 1/18/2016 2:00 PM | 7.37 |
| 1/16/2016 2:15 PM | 7.39 | 1/17/2016 2:15 PM | 7.39 | 1/18/2016 2:15 PM | 7.37 |
| 1/16/2016 2:30 PM | 7.39 | 1/17/2016 2:30 PM | 7.38 | 1/18/2016 2:30 PM | 7.37 |
| 1/16/2016 2:45 PM | 7.39 | 1/17/2016 2:45 PM | 7.38 | 1/18/2016 2:45 PM | 7.41 |
| 1/16/2016 3:00 PM | 7.39 | 1/17/2016 3:00 PM | 7.41 | 1/18/2016 3:00 PM | 7.43 |
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| 1/16/2016 3:30 PM | 7.38 | 1/17/2016 3:30 PM | 7.38 | 1/18/2016 3:30 PM | 7.44 |
| 1/16/2016 3:45 PM | 7.38 | 1/17/2016 3:45 PM | 7.37 | 1/18/2016 3:45 PM | 7.44 |
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| 1/16/2016 4:15 PM | 7.38 | 1/17/2016 4:15 PM | 7.37 | 1/18/2016 4:15 PM | 7.44 |
| 1/16/2016 4:30 PM | 7.39 | 1/17/2016 4:30 PM | 7.40 | 1/18/2016 4:30 PM | 7.44 |
| 1/16/2016 4:45 PM | 7.37 | 1/17/2016 4:45 PM | 7.41 | 1/18/2016 4:45 PM | 7.44 |
| 1/16/2016 5:00 PM | 7.36 | 1/17/2016 5:00 PM | 7.42 | 1/18/2016 5:00 PM | 7.44 |
| 1/16/2016 5:15 PM | 7.36 | 1/17/2016 5:15 PM | 7.42 | 1/18/2016 5:15 PM | 7.44 |
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| 1/16/2016 6:00 PM | 7.40 | 1/17/2016 6:00 PM | 7.41 | 1/18/2016 6:00 PM | 7.44 |
| 1/16/2016 6:15 PM | 7.42 | 1/17/2016 6:15 PM | 7.41 | 1/18/2016 6:15 PM | 7.44 |
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| 1/16/2016 11:45 PM | 7.43 | 1/17/2016 11:45 PM | 7.39 | 1/18/2016 11:45 PM | 7.44 |
| AVG | 7.40 | AVG | 7.40 | AVG | 7.43 |

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| 1/19/2016 12:30 AM | 7.44 | 1/20/2016 12:30 AM | 7.42 | 1/21/2016 12:30 AM | 7.38 |
| 1/19/2016 12:45 AM | 7.44 | 1/20/2016 12:45 AM | 7.41 | 1/21/2016 12:45 AM | 7.38 |
| 1/19/2016 1:00 AM | 7.44 | 1/20/2016 1:00 AM | 7.41 | 1/21/2016 1:00 AM | 7.38 |
| 1/19/2016 1:15 AM | 7.44 | 1/20/2016 1:15 AM | 7.41 | 1/21/2016 1:15 AM | 7.35 |
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| 1/25/2016 1:30 AM | 7.30 | 1/26/2016 1:30 AM | 7.45 | 1/27/2016 1:30 AM | 7.42 |
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| 1/25/2016 8:15 AM | 7.34 | 1/26/2016 8:15 AM | 7.33 | 1/27/2016 8:15 AM | 7.36 |
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| 1/25/2016 9:45 AM | 7.30 | 1/26/2016 9:45 AM | 7.37 | 1/27/2016 9:45 AM | 7.42 |
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| 1/25/2016 10:15 AM | 7.29 | 1/26/2016 10:15 AM | 7.40 | 1/27/2016 10:15 AM | 7.42 |
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| 1/25/2016 12:45 PM | 7.32 | 1/26/2016 12:45 PM | 7.30 | 1/27/2016 12:45 PM | 7.43 |
| 1/25/2016 1:00 PM | 7.35 | 1/26/2016 1:00 PM | 7.30 | 1/27/2016 1:00 PM | 7.43 |
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| AVG | 7.37 | AVG | 7.39 | AVG | 7.41 |

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| 1/28/2016 4:15 AM | 7.39 | 1/29/2016 4:15 AM | 7.31 | 1/30/2016 4:15 AM | 7.44 |
| 1/28/2016 4:30 AM | 7.38 | 1/29/2016 4:30 AM | 7.31 | 1/30/2016 4:30 AM | 7.44 |
| 1/28/2016 4:45 AM | 7.38 | 1/29/2016 4:45 AM | 7.30 | 1/30/2016 4:45 AM | 7.43 |
| 1/28/2016 5:00 AM | 7.38 | 1/29/2016 5:00 AM | 7.30 | 1/30/2016 5:00 AM | 7.45 |
| 1/28/2016 5:15 AM | 7.38 | 1/29/2016 5:15 AM | 7.30 | 1/30/2016 5:15 AM | 7.44 |
| 1/28/2016 5:30 AM | 7.38 | 1/29/2016 5:30 AM | 7.29 | 1/30/2016 5:30 AM | 7.44 |
| 1/28/2016 5:45 AM | 7.38 | 1/29/2016 5:45 AM | 7.29 | 1/30/2016 5:45 AM | 7.41 |
| 1/28/2016 6:00 AM | 7.37 | 1/29/2016 6:00 AM | 7.28 | 1/30/2016 6:00 AM | 7.44 |
| 1/28/2016 6:15 AM | 7.37 | 1/29/2016 6:15 AM | 7.28 | 1/30/2016 6:15 AM | 7.46 |
| 1/28/2016 6:30 AM | 7.37 | 1/29/2016 6:30 AM | 7.28 | 1/30/2016 6:30 AM | 7.47 |
| 1/28/2016 6:45 AM | 7.37 | 1/29/2016 6:45 AM | 7.28 | 1/30/2016 6:45 AM | 7.47 |
| 1/28/2016 7:00 AM | 7.37 | 1/29/2016 7:00 AM | 7.27 | 1/30/2016 7:00 AM | 7.46 |
| 1/28/2016 7:15 AM | 7.37 | 1/29/2016 7:15 AM | 7.27 | 1/30/2016 7:15 AM | 7.46 |
| 1/28/2016 7:30 AM | 7.37 | 1/29/2016 7:30 AM | 7.27 | 1/30/2016 7:30 AM | 7.45 |
| 1/28/2016 7:45 AM | 7.37 | 1/29/2016 7:45 AM | 7.27 | 1/30/2016 7:45 AM | 7.45 |
| 1/28/2016 8:00 AM | 7.37 | 1/29/2016 8:00 AM | 7.26 | 1/30/2016 8:00 AM | 7.44 |
| 1/28/2016 8:15 AM | 7.51 | 1/29/2016 8:15 AM | 7.26 | 1/30/2016 8:15 AM | 7.43 |
| 1/28/2016 8:30 AM | 7.46 | 1/29/2016 8:30 AM | 7.26 | 1/30/2016 8:30 AM | 7.42 |
| 1/28/2016 8:45 AM | 7.44 | 1/29/2016 8:45 AM | 7.26 | 1/30/2016 8:45 AM | 7.42 |
| 1/28/2016 9:00 AM | 7.44 | 1/29/2016 9:00 AM | 7.26 | 1/30/2016 9:00 AM | 7.42 |
| 1/28/2016 9:15 AM | 7.43 | 1/29/2016 9:15 AM | 7.25 | 1/30/2016 9:15 AM | 7.41 |
| 1/28/2016 9:30 AM | 7.41 | 1/29/2016 9:30 AM | 7.25 | 1/30/2016 9:30 AM | 7.40 |
| 1/28/2016 9:45 AM | 7.40 | 1/29/2016 9:45 AM | 7.24 | 1/30/2016 9:45 AM | 7.39 |
| 1/28/2016 10:00 AM | 7.39 | 1/29/2016 10:00 AM | 7.24 | 1/30/2016 10:00 AM | 7.37 |
| 1/28/2016 10:15 AM | 7.32 | 1/29/2016 10:15 AM | 7.24 | 1/30/2016 10:15 AM | 7.36 |
| 1/28/2016 10:30 AM | 7.37 | 1/29/2016 10:30 AM | 7.24 | 1/30/2016 10:30 AM | 7.35 |
| 1/28/2016 10:45 AM | 7.42 | 1/29/2016 10:45 AM | 7.40 | 1/30/2016 10:45 AM | 7.34 |
| 1/28/2016 11:00 AM | 7.44 | 1/29/2016 11:00 AM | 7.41 | 1/30/2016 11:00 AM | 7.34 |
| 1/28/2016 11:15 AM | 7.44 | 1/29/2016 11:15 AM | 7.40 | 1/30/2016 11:15 AM | 7.34 |
| 1/28/2016 11:30 AM | 7.40 | 1/29/2016 11:30 AM | 7.40 | 1/30/2016 11:30 AM | 7.33 |
| 1/28/2016 11:45 AM | 7.37 | 1/29/2016 11:45 AM | 7.39 | 1/30/2016 11:45 AM | 7.33 |
| 1/28/2016 12:00 PM | 7.35 | 1/29/2016 12:00 PM | 7.38 | 1/30/2016 12:00 PM | 7.34 |
| 1/28/2016 12:15 PM | 7.34 | 1/29/2016 12:15 PM | 7.37 | 1/30/2016 12:15 PM | 7.33 |
| 1/28/2016 12:30 PM | 7.33 | 1/29/2016 12:30 PM | 7.38 | 1/30/2016 12:30 PM | 7.33 |
| 1/28/2016 12:45 PM | 7.37 | 1/29/2016 12:45 PM | 7.37 | 1/30/2016 12:45 PM | 7.33 |
| 1/28/2016 1:00 PM | 7.40 | 1/29/2016 1:00 PM | 7.37 | 1/30/2016 1:00 PM | 7.33 |
| 1/28/2016 1:15 PM | 7.41 | 1/29/2016 1:15 PM | 7.34 | 1/30/2016 1:15 PM | 7.33 |
| 1/28/2016 1:30 PM | 7.42 | 1/29/2016 1:30 PM | 7.40 | 1/30/2016 1:30 PM | 7.32 |

| | | | | | |
|---|---|---|---|---|---|
| 1/28/2016 1:45 PM | 7.41 | 1/29/2016 1:45 PM | 7.42 | 1/30/2016 1:45 PM | 7.30 |
| 1/28/2016 2:00 PM | 7.40 | 1/29/2016 2:00 PM | 7.43 | 1/30/2016 2:00 PM | 7.30 |
| 1/28/2016 2:15 PM | 7.40 | 1/29/2016 2:15 PM | 7.43 | 1/30/2016 2:15 PM | 7.29 |
| 1/28/2016 2:30 PM | 7.39 | 1/29/2016 2:30 PM | 7.43 | 1/30/2016 2:30 PM | 7.34 |
| 1/28/2016 2:45 PM | 7.40 | 1/29/2016 2:45 PM | 7.42 | 1/30/2016 2:45 PM | 7.33 |
| 1/28/2016 3:00 PM | 7.40 | 1/29/2016 3:00 PM | 7.44 | 1/30/2016 3:00 PM | 7.34 |
| 1/28/2016 3:15 PM | 7.39 | 1/29/2016 3:15 PM | 7.42 | 1/30/2016 3:15 PM | 7.34 |
| 1/28/2016 3:30 PM | 7.40 | 1/29/2016 3:30 PM | 7.42 | 1/30/2016 3:30 PM | 7.34 |
| 1/28/2016 3:45 PM | 7.39 | 1/29/2016 3:45 PM | 7.41 | 1/30/2016 3:45 PM | 7.34 |
| 1/28/2016 4:00 PM | 7.39 | 1/29/2016 4:00 PM | 7.41 | 1/30/2016 4:00 PM | 7.34 |
| 1/28/2016 4:15 PM | 7.40 | 1/29/2016 4:15 PM | 7.37 | 1/30/2016 4:15 PM | 7.34 |
| 1/28/2016 4:30 PM | 7.33 | 1/29/2016 4:30 PM | 7.41 | 1/30/2016 4:30 PM | 7.31 |
| 1/28/2016 4:45 PM | 7.39 | 1/29/2016 4:45 PM | 7.43 | 1/30/2016 4:45 PM | 7.36 |
| 1/28/2016 5:00 PM | 7.43 | 1/29/2016 5:00 PM | 7.44 | 1/30/2016 5:00 PM | 7.38 |
| 1/28/2016 5:15 PM | 7.45 | 1/29/2016 5:15 PM | 7.44 | 1/30/2016 5:15 PM | 7.40 |
| 1/28/2016 5:30 PM | 7.45 | 1/29/2016 5:30 PM | 7.44 | 1/30/2016 5:30 PM | 7.40 |
| 1/28/2016 5:45 PM | 7.46 | 1/29/2016 5:45 PM | 7.43 | 1/30/2016 5:45 PM | 7.41 |
| 1/28/2016 6:00 PM | 7.46 | 1/29/2016 6:00 PM | 7.43 | 1/30/2016 6:00 PM | 7.41 |
| 1/28/2016 6:15 PM | 7.46 | 1/29/2016 6:15 PM | 7.43 | 1/30/2016 6:15 PM | 7.38 |
| 1/28/2016 6:30 PM | 7.46 | 1/29/2016 6:30 PM | 7.42 | 1/30/2016 6:30 PM | 7.38 |
| 1/28/2016 6:45 PM | 7.46 | 1/29/2016 6:45 PM | 7.42 | 1/30/2016 6:45 PM | 7.37 |
| 1/28/2016 7:00 PM | 7.45 | 1/29/2016 7:00 PM | 7.42 | 1/30/2016 7:00 PM | 7.35 |
| 1/28/2016 7:15 PM | 7.45 | 1/29/2016 7:15 PM | 7.41 | 1/30/2016 7:15 PM | 7.39 |
| 1/28/2016 7:30 PM | 7.44 | 1/29/2016 7:30 PM | 7.44 | 1/30/2016 7:30 PM | 7.41 |
| 1/28/2016 7:45 PM | 7.44 | 1/29/2016 7:45 PM | 7.43 | 1/30/2016 7:45 PM | 7.42 |
| 1/28/2016 8:00 PM | 7.44 | 1/29/2016 8:00 PM | 7.43 | 1/30/2016 8:00 PM | 7.42 |
| 1/28/2016 8:15 PM | 7.43 | 1/29/2016 8:15 PM | 7.43 | 1/30/2016 8:15 PM | 7.42 |
| 1/28/2016 8:30 PM | 7.43 | 1/29/2016 8:30 PM | 7.43 | 1/30/2016 8:30 PM | 7.42 |
| 1/28/2016 8:45 PM | 7.43 | 1/29/2016 8:45 PM | 7.39 | 1/30/2016 8:45 PM | 7.41 |
| 1/28/2016 9:00 PM | 7.42 | 1/29/2016 9:00 PM | 7.43 | 1/30/2016 9:00 PM | 7.41 |
| 1/28/2016 9:15 PM | 7.42 | 1/29/2016 9:15 PM | 7.45 | 1/30/2016 9:15 PM | 7.40 |
| 1/28/2016 9:30 PM | 7.42 | 1/29/2016 9:30 PM | 7.46 | 1/30/2016 9:30 PM | 7.40 |
| 1/28/2016 9:45 PM | 7.42 | 1/29/2016 9:45 PM | 7.45 | 1/30/2016 9:45 PM | 7.39 |
| 1/28/2016 10:00 PM | 7.41 | 1/29/2016 10:00 PM | 7.45 | 1/30/2016 10:00 PM | 7.38 |
| 1/28/2016 10:15 PM | 7.40 | 1/29/2016 10:15 PM | 7.45 | 1/30/2016 10:15 PM | 7.37 |
| 1/28/2016 10:30 PM | 7.40 | 1/29/2016 10:30 PM | 7.44 | 1/30/2016 10:30 PM | 7.36 |
| 1/28/2016 10:45 PM | 7.40 | 1/29/2016 10:45 PM | 7.44 | 1/30/2016 10:45 PM | 7.36 |
| 1/28/2016 11:00 PM | 7.39 | 1/29/2016 11:00 PM | 7.44 | 1/30/2016 11:00 PM | 7.35 |
| 1/28/2016 11:15 PM | 7.38 | 1/29/2016 11:15 PM | 7.43 | 1/30/2016 11:15 PM | 7.35 |
| 1/28/2016 11:30 PM | 7.38 | 1/29/2016 11:30 PM | 7.43 | 1/30/2016 11:30 PM | 7.35 |
| 1/28/2016 11:45 PM | 7.38 | 1/29/2016 11:45 PM | 7.42 | 1/30/2016 11:45 PM | 7.35 |
| AVG | 7.40 | AVG | 7.37 | AVG | 7.39 |

| Date And Time | pH |
|---|---|
| 1/31/2016 12:00 AM | 7.34 |
| 1/31/2016 12:15 AM | 7.34 |
| 1/31/2016 12:30 AM | 7.34 |
| 1/31/2016 12:45 AM | 7.34 |
| 1/31/2016 1:00 AM | 7.34 |
| 1/31/2016 1:15 AM | 7.34 |
| 1/31/2016 1:30 AM | 7.33 |
| 1/31/2016 1:45 AM | 7.33 |
| 1/31/2016 2:00 AM | 7.33 |
| 1/31/2016 2:15 AM | 7.33 |
| 1/31/2016 2:30 AM | 7.33 |

| | |
|---|---|
| **MIN** | **7.03** |
| **MAX** | **7.84** |

| | |
|---|---|
| 1/31/2016 2:45 AM | 7.33 |
| 1/31/2016 3:00 AM | 7.33 |
| 1/31/2016 3:15 AM | 7.33 |
| 1/31/2016 3:30 AM | 7.33 |
| 1/31/2016 3:45 AM | 7.33 |
| 1/31/2016 4:00 AM | 7.33 |
| 1/31/2016 4:15 AM | 7.33 |
| 1/31/2016 4:30 AM | 7.32 |
| 1/31/2016 4:45 AM | 7.32 |
| 1/31/2016 5:00 AM | 7.31 |
| 1/31/2016 5:15 AM | 7.31 |
| 1/31/2016 5:30 AM | 7.31 |
| 1/31/2016 5:45 AM | 7.31 |
| 1/31/2016 6:00 AM | 7.31 |
| 1/31/2016 6:15 AM | 7.31 |
| 1/31/2016 6:30 AM | 7.31 |
| 1/31/2016 6:45 AM | 7.31 |
| 1/31/2016 7:00 AM | 7.30 |
| 1/31/2016 7:15 AM | 7.30 |
| 1/31/2016 7:30 AM | 7.31 |
| 1/31/2016 7:45 AM | 7.30 |
| 1/31/2016 8:00 AM | 7.30 |
| 1/31/2016 8:15 AM | 7.30 |
| 1/31/2016 8:30 AM | 7.30 |
| 1/31/2016 8:45 AM | 7.28 |
| 1/31/2016 9:00 AM | 7.28 |
| 1/31/2016 9:15 AM | 7.26 |
| 1/31/2016 9:30 AM | 7.24 |
| 1/31/2016 9:45 AM | 7.22 |
| 1/31/2016 10:00 AM | 7.19 |
| 1/31/2016 10:15 AM | 7.17 |
| 1/31/2016 10:30 AM | 7.17 |
| 1/31/2016 10:45 AM | 7.18 |
| 1/31/2016 11:00 AM | 7.20 |
| 1/31/2016 11:15 AM | 7.19 |
| 1/31/2016 11:30 AM | 7.17 |
| 1/31/2016 11:45 AM | 7.14 |
| 1/31/2016 12:00 PM | 7.11 |
| 1/31/2016 12:15 PM | 7.07 |
| 1/31/2016 12:30 PM | 7.05 |
| 1/31/2016 12:45 PM | 7.03 |
| 1/31/2016 1:00 PM | 7.03 |
| 1/31/2016 1:15 PM | 7.03 |
| 1/31/2016 1:30 PM | 7.03 |
| 1/31/2016 1:45 PM | 7.04 |
| 1/31/2016 2:00 PM | 7.05 |
| 1/31/2016 2:15 PM | 7.07 |
| 1/31/2016 2:30 PM | 7.09 |
| 1/31/2016 2:45 PM | 7.10 |
| 1/31/2016 3:00 PM | 7.11 |
| 1/31/2016 3:15 PM | 7.11 |
| 1/31/2016 3:30 PM | 7.12 |
| 1/31/2016 3:45 PM | 7.13 |
| 1/31/2016 4:00 PM | 7.14 |
| 1/31/2016 4:15 PM | 7.14 |
| 1/31/2016 4:30 PM | 7.15 |

| | |
|---|---|
| 1/31/2016 4:45 PM | 7.15 |
| 1/31/2016 5:00 PM | 7.16 |
| 1/31/2016 5:15 PM | 7.16 |
| 1/31/2016 5:30 PM | 7.17 |
| 1/31/2016 5:45 PM | 7.17 |
| 1/31/2016 6:00 PM | 7.19 |
| 1/31/2016 6:15 PM | 7.19 |
| 1/31/2016 6:30 PM | 7.19 |
| 1/31/2016 6:45 PM | 7.34 |
| 1/31/2016 7:00 PM | 7.33 |
| 1/31/2016 7:15 PM | 7.32 |
| 1/31/2016 7:30 PM | 7.32 |
| 1/31/2016 7:45 PM | 7.31 |
| 1/31/2016 8:00 PM | 7.31 |
| 1/31/2016 8:15 PM | 7.31 |
| 1/31/2016 8:30 PM | 7.31 |
| 1/31/2016 8:45 PM | 7.31 |
| 1/31/2016 9:00 PM | 7.24 |
| 1/31/2016 9:15 PM | 7.31 |
| 1/31/2016 9:30 PM | 7.35 |
| 1/31/2016 9:45 PM | 7.37 |
| 1/31/2016 10:00 PM | 7.38 |
| 1/31/2016 10:15 PM | 7.38 |
| 1/31/2016 10:30 PM | 7.36 |
| 1/31/2016 10:45 PM | 7.37 |
| 1/31/2016 11:00 PM | 7.36 |
| 1/31/2016 11:15 PM | 7.35 |
| 1/31/2016 11:30 PM | 7.35 |
| 1/31/2016 11:45 PM | 7.35 |
| AVG | 7.25 |

Avtex Fibers
Front Royal, VA
Outfall 004
January 2016 DMR

| Sample Date | Sample ID | BOD, mg/L | BOD, kg/d | TSS, mg/L | TSS, kg/d |
|---|---|---|---|---|---|
| 1/8/2016 | AF1-8FE | 4.0 | 1.1 | 13.6 | 3.8 |
| 1/14/2016 | AF1-14FE | 5.0 | 0.4 | 16.3 | 1.3 |
| 1/19/2016 | AF1-19FE | 5.0 | 0.7 | 12.0 | 1.8 |
| 1/27/2016 | AF1-27FE | 2.0 | 0.3 | 5.8 | 0.8 |
| | Daily Maximum: | 5.0 | 1.1 | 16.3 | 3.8 |
| | Monthly Avg: | 4.0 | 0.6 | 11.9 | 1.9 |

Monthly Average – Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as calculated. If all data are below the QL used for the analysis, then the average shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported monthly average concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the monthly average of the calculated daily quantities.

Daily Maximum – Compliance with the daily maximum limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each day during the reporting month. The maximum value of these daily averages thus determined shall be reported on the DMR as the Daily Maximum. If all data are below the QL used for the analysis, then the maximum value of the daily averages shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported daily maximum concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported daily average concentrations (including the defined zeros) and corresponding daily flows to determine daily average quantities and report the maximum of the daily average quantities during the reporting month.

**Loading Derivation**
If 1 ppm (= 1 mg/L) and 1 MGD (= 1 MG/day)
--> (1 mg/L)(1 MG/day)(3.785 L/Gal)(10^6 Gal/MG)(1 lb/453,600 mg) = 8.34 lbs/day
**--> lbs/day = ppm * 8.34 * MGD**
**--> kg/d = ppm * 8.34 * MGD * 0.4536*lb/d**

**Concentration Derivation**
If 1 lb/d and 1 MGD (= 1 MG/day)
[(1 lbs/day)(453,600 mg/lb)] / [(1 MG/d)(10^6 Gal/MG)(3.785 L/Gal)]
**--> ppm = lb/d * (1/8.34) * (1/MGD)**

| | BOD |
|---|---|
| 1/8/2016 | 1.108593076 |
| 1/14/2016 | 0.400701966 |
| 1/19/2016 | 0.74961522 |
| 1/27/2016 | 0.264083448 |
| AVG | 0.630748427 |

| | TSS |
|---|---|
| 1/8/2016 | 3.769216459 |
| 1/14/2016 | 1.306288409 |
| 1/19/2016 | 1.799076528 |
| 1/27/2016 | 0.765841999 |
| AVG | 1.910105849 |

| | CS2* |
|---|---|
| 1/19/2016 | <QL |

*Note: CS2 EPA Test Method: 8260 MSV Low Level Analytical Method (EPA 8260)
Report Limit 2 ug/L
MDL 1.2 ug/L

**FMC Corporation**
1735 Market Street
Philadelphia, PA 19103
USA

215.299.6000
fmc.com

*Transmitted via Email*

March 14, 2016

Department of Environmental Quality - CO
Office of Remediation Program
P.O. Box 1105
Richmond, VA 23218

Re: Submission of Discharge Monitoring Report – February 2016
Avtex Fibers Superfund Site
Front Royal, Virginia

Dear Ms Payne:

In accordance with the Applicable or Relevant and Appropriate Requirements (ARARs) and Fact Sheet provided July 22, 2014, FMC Corporation (FMC) is submitting the Discharge Monitoring Report (DMR) for the month of February 2016. The permit is for the discharge from the Groundwater and Leachate Treatment Plant (GLTP) located at 404 Kendrick Lane, Front Royal, VA. Analysis of effluent concentrations yielded results within the allowable limits for all parameters.

Please do not hesitate to call if there are any questions.

Sincerely,

FMC Corporation

Brian M. McGinnis, P.E.
Manager, Environmental Remediation

cc: via Email
Brandon Kiracofe, DEQ
Charlie Root, USEPA
Heather Philip, Parsons

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
**DISCHARGE MONITORING REPORT** (DMR)

PERMITTEE NAME/ADDRESS: (Include Facility Name/Location if different) — OMB No. 2040-004

| | | | |
|---|---|---|---|
| **NAME:** | Avtex Fibers | **PERMIT NUMBER:** NA | **DISCHARGE NUMBER:** 004 |
| **ADDRESS:** | 404 Kendrick Lane<br>Front Royal, VA 22630 | **DMR MAILING ZIP CODE:** | 23218 |
| **FACILITY:** | AVTEX FIBERS | DESCRIPTION: | GLTP EFFLUENT (OUTFALL 004)<br>External Outfall |
| **LOCATION:** | FRONT ROYAL, VA | | **No Discharge** |
| **ATTN:** | | | |

| **MONITORING PERIOD** | YEAR | MO | DAY |
|---|---|---|---|
| FROM | 16 | 02 | 01 |
| TO | 16 | 01 | 29 |

| PARAMETER | | QUANTITY OR LOADING VALUE | QUANTITY OR LOADING VALUE | UNITS | QUALITY OR CONCENTRATION VALUE | QUALITY OR CONCENTRATION VALUE | QUALITY OR CONCENTRATION VALUE | UNITS | NO. EX | FREQUENCY OF ANALYSIS | SAMPLE TYPE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | SAMPLE MEASUREMENT | 0.049 | 0.077 | MGD | ***** | ***** | ***** | | 0 | CONTINUOUS | TIRE |
| 00056 1 0 EFFLUENT GROSS | PERMIT REQUIREMENT | REPORT MONTHLY AV | REPORT DAILY MAX | | ****** | ****** | ****** | | | CONTINUOUS | TIRE |
| PH | SAMPLE MEASUREMENT | ***** | ***** | | 7.2 | ***** | 7.9 | SU | 0 | CONTINUOUS | GRAB |
| 00400 1 0 EFFLUENT GROSS | PERMIT REQUIREMENT | ****** | ****** | | 6.5 MINIMUM | ****** | 9.0 MAXIMUM | | | CONTINUOUS | GRAB |
| BOD, 5-DAY | SAMPLE MEASUREMENT | 0.49 | 0.74 | kg/d | ***** | 3.0 | 5.0 | mg/L | 0 | 1/7 | 8 HC |
| 00318 1 0 EFFLUENT GROSS | PERMIT REQUIREMENT | 36 MONTHLY AV | 96 DAILY MAX | | ****** | 24 MONTHLY AV | 64 DAILY MX | | | 1/7 | 8 HC |
| SOLIDS, TOTAL SUSPENDED | SAMPLE MEASUREMENT | 1.69 | 1.98 | kg/d | ***** | 9.83 | 13.00 | mg/L | 0 | 1/7 | 8 HC |
| 03603 1 0 EFFLUENT GROSS | PERMIT REQUIREMENT | 60 MONTHLY AV | 190 DAILY MAX | | ****** | 40 MONTHLY AV | 130 DAILY MX | | | 1/7 | 8 HC |
| CARBON DISULFIDE | SAMPLE MEASUREMENT | <QL | <QL | kg/d | ***** | <QL | <QL | mg/L | 0 | 1/30 | 8 HC |
| 77041 1 0 EFFLUENT GROSS | PERMIT REQUIREMENT | NL MONTHLY AV | NL DAILY MAX | | ****** | NL MONTHLY AV | NL DAILY MX | | | 1/30 | 8 HC |

| NAME/TITLE PRINCIPAL EXECUTIVE OFFICER | CERTIFICATION | SIGNATURE | TELEPHONE | DATE |
|---|---|---|---|---|
| Robert T. Forbes<br>Director EHS Remediation/Governance<br>TYPED OR PRINTED | I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. | Robert T Forbes<br>SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | 215 (AREA) 299-6260 (NUMBER) | 2016 (YEAR) 03 (MO) 12 (DAY) |

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

Attachment: pH compliance monitoring summary (monthly)

Carbon disulfide: No limit established; monitored monthly; 0.1 mg/L action level

EPA Form 3320-1 (Rev 01/06) Previous editions may be used.

Avtex Fibers
Front Royal, VA
Outfall 004
February 2016 DMR

pH Calculations:

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 2/1/2016 12:00 AM | 7.35 | 2/2/2016 12:00 AM | 7.37 | 2/3/2016 12:00 AM | 7.38 |
| 2/1/2016 12:15 AM | | 2/2/2016 12:15 AM | 7.37 | 2/3/2016 12:15 AM | 7.38 |
| 2/1/2016 12:30 AM | 7.35 | 2/2/2016 12:30 AM | 7.36 | 2/3/2016 12:30 AM | 7.38 |
| 2/1/2016 12:45 AM | 7.35 | 2/2/2016 12:45 AM | 7.36 | 2/3/2016 12:45 AM | 7.33 |
| 2/1/2016 1:00 AM | 7.34 | 2/2/2016 1:00 AM | 7.35 | 2/3/2016 1:00 AM | 7.38 |
| 2/1/2016 1:15 AM | 7.34 | 2/2/2016 1:15 AM | 7.35 | 2/3/2016 1:15 AM | 7.41 |
| 2/1/2016 1:30 AM | 7.33 | 2/2/2016 1:30 AM | 7.35 | 2/3/2016 1:30 AM | 7.43 |
| 2/1/2016 1:45 AM | 7.33 | 2/2/2016 1:45 AM | 7.34 | 2/3/2016 1:45 AM | 7.44 |
| 2/1/2016 2:00 AM | 7.33 | 2/2/2016 2:00 AM | 7.34 | 2/3/2016 2:00 AM | 7.43 |
| 2/1/2016 2:15 AM | 7.33 | 2/2/2016 2:15 AM | 7.34 | 2/3/2016 2:15 AM | 7.43 |
| 2/1/2016 2:30 AM | 7.33 | 2/2/2016 2:30 AM | 7.33 | 2/3/2016 2:30 AM | 7.43 |
| 2/1/2016 2:45 AM | 7.33 | 2/2/2016 2:45 AM | 7.33 | 2/3/2016 2:45 AM | 7.43 |
| 2/1/2016 3:00 AM | 7.33 | 2/2/2016 3:00 AM | 7.33 | 2/3/2016 3:00 AM | 7.42 |
| 2/1/2016 3:15 AM | 7.32 | 2/2/2016 3:15 AM | 7.32 | 2/3/2016 3:15 AM | 7.40 |
| 2/1/2016 3:30 AM | 7.32 | 2/2/2016 3:30 AM | 7.32 | 2/3/2016 3:30 AM | 7.40 |
| 2/1/2016 3:45 AM | 7.32 | 2/2/2016 3:45 AM | 7.32 | 2/3/2016 3:45 AM | 7.40 |
| 2/1/2016 4:00 AM | 7.32 | 2/2/2016 4:00 AM | 7.32 | 2/3/2016 4:00 AM | 7.39 |
| 2/1/2016 4:15 AM | 7.31 | 2/2/2016 4:15 AM | 7.31 | 2/3/2016 4:15 AM | 7.37 |
| 2/1/2016 4:30 AM | 7.31 | 2/2/2016 4:30 AM | 7.31 | 2/3/2016 4:30 AM | 7.41 |
| 2/1/2016 4:45 AM | 7.31 | 2/2/2016 4:45 AM | 7.31 | 2/3/2016 4:45 AM | 7.43 |
| 2/1/2016 5:00 AM | 7.31 | 2/2/2016 5:00 AM | 7.30 | 2/3/2016 5:00 AM | 7.43 |
| 2/1/2016 5:15 AM | 7.31 | 2/2/2016 5:15 AM | 7.30 | 2/3/2016 5:15 AM | 7.44 |
| 2/1/2016 5:30 AM | 7.31 | 2/2/2016 5:30 AM | 7.30 | 2/3/2016 5:30 AM | 7.44 |
| 2/1/2016 5:45 AM | 7.31 | 2/2/2016 5:45 AM | 7.30 | 2/3/2016 5:45 AM | 7.43 |
| 2/1/2016 6:00 AM | 7.30 | 2/2/2016 6:00 AM | 7.30 | 2/3/2016 6:00 AM | 7.43 |
| 2/1/2016 6:15 AM | 7.30 | 2/2/2016 6:15 AM | 7.29 | 2/3/2016 6:15 AM | 7.43 |
| 2/1/2016 6:30 AM | 7.30 | 2/2/2016 6:30 AM | 7.29 | 2/3/2016 6:30 AM | 7.42 |
| 2/1/2016 6:45 AM | 7.30 | 2/2/2016 6:45 AM | 7.29 | 2/3/2016 6:45 AM | 7.42 |
| 2/1/2016 7:00 AM | 7.31 | 2/2/2016 7:00 AM | 7.28 | 2/3/2016 7:00 AM | 7.42 |
| 2/1/2016 7:15 AM | 7.31 | 2/2/2016 7:15 AM | 7.28 | 2/3/2016 7:15 AM | 7.41 |
| 2/1/2016 7:30 AM | 7.31 | 2/2/2016 7:30 AM | 7.28 | 2/3/2016 7:30 AM | 7.39 |
| 2/1/2016 7:45 AM | 7.31 | 2/2/2016 7:45 AM | 7.27 | 2/3/2016 7:45 AM | 7.40 |
| 2/1/2016 8:00 AM | 7.30 | 2/2/2016 8:00 AM | 7.39 | 2/3/2016 8:00 AM | 7.39 |
| 2/1/2016 8:15 AM | 7.27 | 2/2/2016 8:15 AM | 7.39 | 2/3/2016 8:15 AM | 7.38 |
| 2/1/2016 8:30 AM | 7.28 | 2/2/2016 8:30 AM | 7.38 | 2/3/2016 8:30 AM | 7.37 |
| 2/1/2016 8:45 AM | 7.28 | 2/2/2016 8:45 AM | 7.37 | 2/3/2016 8:45 AM | 7.40 |
| 2/1/2016 9:00 AM | 7.28 | 2/2/2016 9:00 AM | 7.36 | 2/3/2016 9:00 AM | 7.42 |
| 2/1/2016 9:15 AM | 7.28 | 2/2/2016 9:15 AM | 7.35 | 2/3/2016 9:15 AM | 7.42 |
| 2/1/2016 9:30 AM | 7.28 | 2/2/2016 9:30 AM | 7.33 | 2/3/2016 9:30 AM | 7.43 |
| 2/1/2016 9:45 AM | 7.28 | 2/2/2016 9:45 AM | 7.33 | 2/3/2016 9:45 AM | 7.42 |
| 2/1/2016 10:00 AM | 7.28 | 2/2/2016 10:00 AM | 7.32 | 2/3/2016 10:00 AM | 7.42 |
| 2/1/2016 10:15 AM | 7.28 | 2/2/2016 10:15 AM | 7.31 | 2/3/2016 10:15 AM | 7.42 |
| 2/1/2016 10:30 AM | 7.27 | 2/2/2016 10:30 AM | 7.32 | 2/3/2016 10:30 AM | 7.42 |
| 2/1/2016 10:45 AM | 7.26 | 2/2/2016 10:45 AM | 7.33 | 2/3/2016 10:45 AM | 7.41 |
| 2/1/2016 11:00 AM | 7.25 | 2/2/2016 11:00 AM | 7.33 | 2/3/2016 11:00 AM | 7.41 |

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|---|---|---|---|---|---|
| 2/1/2016 11:15 AM | 7.25 | 2/2/2016 11:15 AM | 7.34 | 2/3/2016 11:15 AM | 7.41 |
| 2/1/2016 11:30 AM | 7.25 | 2/2/2016 11:30 AM | 7.29 | 2/3/2016 11:30 AM | 7.41 |
| 2/1/2016 11:45 AM | 7.33 | 2/2/2016 11:45 AM | 7.35 | 2/3/2016 11:45 AM | 7.45 |
| 2/1/2016 12:00 PM | 7.32 | 2/2/2016 12:00 PM | 7.38 | 2/3/2016 12:00 PM | 7.38 |
| 2/1/2016 12:15 PM | 7.31 | 2/2/2016 12:15 PM | 7.42 | 2/3/2016 12:15 PM | 7.37 |
| 2/1/2016 12:30 PM | 7.31 | 2/2/2016 12:30 PM | 7.38 | 2/3/2016 12:30 PM | 7.31 |
| 2/1/2016 12:45 PM | 7.31 | 2/2/2016 12:45 PM | 7.37 | 2/3/2016 12:45 PM | 7.35 |
| 2/1/2016 1:00 PM | 7.31 | 2/2/2016 1:00 PM | 7.37 | 2/3/2016 1:00 PM | 7.38 |
| 2/1/2016 1:15 PM | 7.32 | 2/2/2016 1:15 PM | 7.33 | 2/3/2016 1:15 PM | 7.39 |
| 2/1/2016 1:30 PM | 7.34 | 2/2/2016 1:30 PM | 7.37 | 2/3/2016 1:30 PM | 7.39 |
| 2/1/2016 1:45 PM | 7.33 | 2/2/2016 1:45 PM | 7.39 | 2/3/2016 1:45 PM | 7.39 |
| 2/1/2016 2:00 PM | 7.33 | 2/2/2016 2:00 PM | 7.40 | 2/3/2016 2:00 PM | 7.38 |
| 2/1/2016 2:15 PM | 7.33 | 2/2/2016 2:15 PM | 7.40 | 2/3/2016 2:15 PM | 7.37 |
| 2/1/2016 2:30 PM | 7.26 | 2/2/2016 2:30 PM | 7.40 | 2/3/2016 2:30 PM | 7.37 |
| 2/1/2016 2:45 PM | 7.33 | 2/2/2016 2:45 PM | 7.40 | 2/3/2016 2:45 PM | 7.38 |
| 2/1/2016 3:00 PM | 7.36 | 2/2/2016 3:00 PM | 7.39 | 2/3/2016 3:00 PM | 7.37 |
| 2/1/2016 3:15 PM | 7.38 | 2/2/2016 3:15 PM | 7.39 | 2/3/2016 3:15 PM | 7.37 |
| 2/1/2016 3:30 PM | 7.37 | 2/2/2016 3:30 PM | 7.39 | 2/3/2016 3:30 PM | 7.36 |
| 2/1/2016 3:45 PM | 7.36 | 2/2/2016 3:45 PM | 7.39 | 2/3/2016 3:45 PM | 7.35 |
| 2/1/2016 4:00 PM | 7.36 | 2/2/2016 4:00 PM | 7.38 | 2/3/2016 4:00 PM | 7.35 |
| 2/1/2016 4:15 PM | 7.37 | 2/2/2016 4:15 PM | 7.38 | 2/3/2016 4:15 PM | 7.35 |
| 2/1/2016 4:30 PM | 7.37 | 2/2/2016 4:30 PM | 7.38 | 2/3/2016 4:30 PM | 7.35 |
| 2/1/2016 4:45 PM | 7.38 | 2/2/2016 4:45 PM | 7.38 | 2/3/2016 4:45 PM | 7.35 |
| 2/1/2016 5:00 PM | 7.37 | 2/2/2016 5:00 PM | 7.38 | 2/3/2016 5:00 PM | 7.35 |
| 2/1/2016 5:15 PM | 7.38 | 2/2/2016 5:15 PM | 7.37 | 2/3/2016 5:15 PM | 7.34 |
| 2/1/2016 5:30 PM | 7.33 | 2/2/2016 5:30 PM | 7.38 | 2/3/2016 5:30 PM | 7.34 |
| 2/1/2016 5:45 PM | 7.38 | 2/2/2016 5:45 PM | 7.38 | 2/3/2016 5:45 PM | 7.34 |
| 2/1/2016 6:00 PM | 7.41 | 2/2/2016 6:00 PM | 7.37 | 2/3/2016 6:00 PM | 7.34 |
| 2/1/2016 6:15 PM | 7.42 | 2/2/2016 6:15 PM | 7.38 | 2/3/2016 6:15 PM | 7.34 |
| 2/1/2016 6:30 PM | 7.43 | 2/2/2016 6:30 PM | 7.37 | 2/3/2016 6:30 PM | 7.33 |
| 2/1/2016 6:45 PM | 7.43 | 2/2/2016 6:45 PM | 7.37 | 2/3/2016 6:45 PM | 7.33 |
| 2/1/2016 7:00 PM | 7.42 | 2/2/2016 7:00 PM | 7.37 | 2/3/2016 7:00 PM | 7.33 |
| 2/1/2016 7:15 PM | 7.42 | 2/2/2016 7:15 PM | 7.37 | 2/3/2016 7:15 PM | 7.33 |
| 2/1/2016 7:30 PM | 7.41 | 2/2/2016 7:30 PM | 7.37 | 2/3/2016 7:30 PM | 7.33 |
| 2/1/2016 7:45 PM | 7.41 | 2/2/2016 7:45 PM | 7.37 | 2/3/2016 7:45 PM | 7.33 |
| 2/1/2016 8:00 PM | 7.41 | 2/2/2016 8:00 PM | 7.37 | 2/3/2016 8:00 PM | 7.33 |
| 2/1/2016 8:15 PM | 7.41 | 2/2/2016 8:15 PM | 7.36 | 2/3/2016 8:15 PM | 7.33 |
| 2/1/2016 8:30 PM | 7.41 | 2/2/2016 8:30 PM | 7.36 | 2/3/2016 8:30 PM | 7.33 |
| 2/1/2016 8:45 PM | 7.39 | 2/2/2016 8:45 PM | 7.36 | 2/3/2016 8:45 PM | 7.34 |
| 2/1/2016 9:00 PM | 7.40 | 2/2/2016 9:00 PM | 7.35 | 2/3/2016 9:00 PM | 7.36 |
| 2/1/2016 9:15 PM | 7.40 | 2/2/2016 9:15 PM | 7.35 | 2/3/2016 9:15 PM | 7.35 |
| 2/1/2016 9:30 PM | 7.40 | 2/2/2016 9:30 PM | 7.35 | 2/3/2016 9:30 PM | 7.35 |
| 2/1/2016 9:45 PM | 7.40 | 2/2/2016 9:45 PM | 7.35 | 2/3/2016 9:45 PM | 7.34 |
| 2/1/2016 10:00 PM | 7.40 | 2/2/2016 10:00 PM | 7.35 | 2/3/2016 10:00 PM | 7.29 |
| 2/1/2016 10:15 PM | 7.39 | 2/2/2016 10:15 PM | 7.35 | 2/3/2016 10:15 PM | 7.34 |
| 2/1/2016 10:30 PM | 7.39 | 2/2/2016 10:30 PM | 7.35 | 2/3/2016 10:30 PM | 7.37 |
| 2/1/2016 10:45 PM | 7.39 | 2/2/2016 10:45 PM | 7.40 | 2/3/2016 10:45 PM | 7.39 |
| 2/1/2016 11:00 PM | 7.38 | 2/2/2016 11:00 PM | 7.39 | 2/3/2016 11:00 PM | 7.39 |
| 2/1/2016 11:15 PM | 7.38 | 2/2/2016 11:15 PM | 7.39 | 2/3/2016 11:15 PM | 7.40 |
| 2/1/2016 11:30 PM | 7.38 | 2/2/2016 11:30 PM | 7.39 | 2/3/2016 11:30 PM | 7.39 |
| 2/1/2016 11:45 PM | 7.38 | 2/2/2016 11:45 PM | 7.38 | 2/3/2016 11:45 PM | 7.39 |
| AVG | 7.34 | AVG | 7.35 | AVG | 7.38 |

Note: No data recorded at 12:15 AM due to power outage, not included in calculations.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 2/4/2016 12:00 AM | 7.39 | 2/5/2016 12:00 AM | 7.37 | 2/6/2016 12:00 AM | 7.27 |
| 2/4/2016 12:15 AM | 7.38 | 2/5/2016 12:15 AM | 7.35 | 2/6/2016 12:15 AM | 7.27 |
| 2/4/2016 12:30 AM | 7.38 | 2/5/2016 12:30 AM | 7.35 | 2/6/2016 12:30 AM | 7.27 |
| 2/4/2016 12:45 AM | 7.38 | 2/5/2016 12:45 AM | 7.34 | 2/6/2016 12:45 AM | 7.27 |
| 2/4/2016 1:00 AM | 7.38 | 2/5/2016 1:00 AM | 7.34 | 2/6/2016 1:00 AM | 7.26 |
| 2/4/2016 1:15 AM | 7.38 | 2/5/2016 1:15 AM | 7.34 | 2/6/2016 1:15 AM | 7.26 |
| 2/4/2016 1:30 AM | 7.41 | 2/5/2016 1:30 AM | 7.31 | 2/6/2016 1:30 AM | 7.26 |
| 2/4/2016 1:45 AM | 7.36 | 2/5/2016 1:45 AM | 7.36 | 2/6/2016 1:45 AM | 7.26 |
| 2/4/2016 2:00 AM | 7.36 | 2/5/2016 2:00 AM | 7.38 | 2/6/2016 2:00 AM | 7.26 |
| 2/4/2016 2:15 AM | 7.35 | 2/5/2016 2:15 AM | 7.38 | 2/6/2016 2:15 AM | 7.25 |
| 2/4/2016 2:30 AM | 7.35 | 2/5/2016 2:30 AM | 7.38 | 2/6/2016 2:30 AM | 7.25 |
| 2/4/2016 2:45 AM | 7.38 | 2/5/2016 2:45 AM | 7.38 | 2/6/2016 2:45 AM | 7.25 |
| 2/4/2016 3:00 AM | 7.39 | 2/5/2016 3:00 AM | 7.38 | 2/6/2016 3:00 AM | 7.25 |
| 2/4/2016 3:15 AM | 7.39 | 2/5/2016 3:15 AM | 7.37 | 2/6/2016 3:15 AM | 7.24 |
| 2/4/2016 3:30 AM | 7.39 | 2/5/2016 3:30 AM | 7.37 | 2/6/2016 3:30 AM | 7.24 |
| 2/4/2016 3:45 AM | 7.39 | 2/5/2016 3:45 AM | 7.36 | 2/6/2016 3:45 AM | 7.24 |
| 2/4/2016 4:00 AM | 7.39 | 2/5/2016 4:00 AM | 7.36 | 2/6/2016 4:00 AM | 7.24 |
| 2/4/2016 4:15 AM | 7.38 | 2/5/2016 4:15 AM | 7.36 | 2/6/2016 4:15 AM | 7.24 |
| 2/4/2016 4:30 AM | 7.37 | 2/5/2016 4:30 AM | 7.35 | 2/6/2016 4:30 AM | 7.24 |
| 2/4/2016 4:45 AM | 7.37 | 2/5/2016 4:45 AM | 7.35 | 2/6/2016 4:45 AM | 7.23 |
| 2/4/2016 5:00 AM | 7.36 | 2/5/2016 5:00 AM | 7.35 | 2/6/2016 5:00 AM | 7.23 |
| 2/4/2016 5:15 AM | 7.36 | 2/5/2016 5:15 AM | 7.35 | 2/6/2016 5:15 AM | 7.23 |
| 2/4/2016 5:30 AM | 7.35 | 2/5/2016 5:30 AM | 7.35 | 2/6/2016 5:30 AM | 7.23 |
| 2/4/2016 5:45 AM | 7.35 | 2/5/2016 5:45 AM | 7.35 | 2/6/2016 5:45 AM | 7.23 |
| 2/4/2016 6:00 AM | 7.35 | 2/5/2016 6:00 AM | 7.32 | 2/6/2016 6:00 AM | 7.23 |
| 2/4/2016 6:15 AM | 7.34 | 2/5/2016 6:15 AM | 7.37 | 2/6/2016 6:15 AM | 7.23 |
| 2/4/2016 6:30 AM | 7.35 | 2/5/2016 6:30 AM | 7.39 | 2/6/2016 6:30 AM | 7.22 |
| 2/4/2016 6:45 AM | 7.34 | 2/5/2016 6:45 AM | 7.39 | 2/6/2016 6:45 AM | 7.22 |
| 2/4/2016 7:00 AM | 7.34 | 2/5/2016 7:00 AM | 7.39 | 2/6/2016 7:00 AM | 7.22 |
| 2/4/2016 7:15 AM | 7.35 | 2/5/2016 7:15 AM | 7.38 | 2/6/2016 7:15 AM | 7.22 |
| 2/4/2016 7:30 AM | 7.35 | 2/5/2016 7:30 AM | 7.38 | 2/6/2016 7:30 AM | 7.22 |
| 2/4/2016 7:45 AM | 7.35 | 2/5/2016 7:45 AM | 7.38 | 2/6/2016 7:45 AM | 7.22 |
| 2/4/2016 8:00 AM | 7.34 | 2/5/2016 8:00 AM | 7.37 | 2/6/2016 8:00 AM | 7.22 |
| 2/4/2016 8:15 AM | 7.33 | 2/5/2016 8:15 AM | 7.37 | 2/6/2016 8:15 AM | 7.22 |
| 2/4/2016 8:30 AM | 7.33 | 2/5/2016 8:30 AM | 7.37 | 2/6/2016 8:30 AM | 7.21 |
| 2/4/2016 8:45 AM | 7.33 | 2/5/2016 8:45 AM | 7.40 | 2/6/2016 8:45 AM | 7.20 |
| 2/4/2016 9:00 AM | 7.33 | 2/5/2016 9:00 AM | 7.36 | 2/6/2016 9:00 AM | 7.20 |
| 2/4/2016 9:15 AM | 7.32 | 2/5/2016 9:15 AM | 7.37 | 2/6/2016 9:15 AM | 7.20 |
| 2/4/2016 9:30 AM | 7.33 | 2/5/2016 9:30 AM | 7.36 | 2/6/2016 9:30 AM | 7.19 |
| 2/4/2016 9:45 AM | 7.33 | 2/5/2016 9:45 AM | 7.35 | 2/6/2016 9:45 AM | 7.18 |
| 2/4/2016 10:00 AM | 7.33 | 2/5/2016 10:00 AM | 7.35 | 2/6/2016 10:00 AM | 7.18 |
| 2/4/2016 10:15 AM | 7.32 | 2/5/2016 10:15 AM | 7.32 | 2/6/2016 10:15 AM | 7.18 |
| 2/4/2016 10:30 AM | 7.33 | 2/5/2016 10:30 AM | 7.36 | 2/6/2016 10:30 AM | 7.18 |
| 2/4/2016 10:45 AM | 7.32 | 2/5/2016 10:45 AM | 7.38 | 2/6/2016 10:45 AM | 7.18 |
| 2/4/2016 11:00 AM | 7.32 | 2/5/2016 11:00 AM | 7.39 | 2/6/2016 11:00 AM | 7.18 |
| 2/4/2016 11:15 AM | 7.31 | 2/5/2016 11:15 AM | 7.39 | 2/6/2016 11:15 AM | 7.18 |
| 2/4/2016 11:30 AM | 7.29 | 2/5/2016 11:30 AM | 7.38 | 2/6/2016 11:30 AM | 7.18 |
| 2/4/2016 11:45 AM | 7.32 | 2/5/2016 11:45 AM | 7.38 | 2/6/2016 11:45 AM | 7.18 |
| 2/4/2016 12:00 PM | 7.34 | 2/5/2016 12:00 PM | 7.37 | 2/6/2016 12:00 PM | 7.18 |
| 2/4/2016 12:15 PM | 7.35 | 2/5/2016 12:15 PM | 7.36 | 2/6/2016 12:15 PM | 7.19 |
| 2/4/2016 12:30 PM | 7.35 | 2/5/2016 12:30 PM | 7.36 | 2/6/2016 12:30 PM | 7.19 |
| 2/4/2016 12:45 PM | 7.35 | 2/5/2016 12:45 PM | 7.35 | 2/6/2016 12:45 PM | 7.20 |
| 2/4/2016 1:00 PM | 7.35 | 2/5/2016 1:00 PM | 7.35 | 2/6/2016 1:00 PM | 7.20 |
| 2/4/2016 1:15 PM | 7.35 | 2/5/2016 1:15 PM | 7.34 | 2/6/2016 1:15 PM | 7.20 |
| 2/4/2016 1:30 PM | 7.35 | 2/5/2016 1:30 PM | 7.38 | 2/6/2016 1:30 PM | 7.20 |

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| 2/4/2016 1:45 PM | 7.34 | 2/5/2016 1:45 PM | 7.34 | 2/6/2016 1:45 PM | 7.35 |
| 2/4/2016 2:00 PM | 7.34 | 2/5/2016 2:00 PM | 7.33 | 2/6/2016 2:00 PM | 7.33 |
| 2/4/2016 2:15 PM | 7.33 | 2/5/2016 2:15 PM | 7.33 | 2/6/2016 2:15 PM | 7.31 |
| 2/4/2016 2:30 PM | 7.33 | 2/5/2016 2:30 PM | 7.26 | 2/6/2016 2:30 PM | 7.31 |
| 2/4/2016 2:45 PM | 7.32 | 2/5/2016 2:45 PM | 7.31 | 2/6/2016 2:45 PM | 7.31 |
| 2/4/2016 3:00 PM | 7.32 | 2/5/2016 3:00 PM | 7.35 | 2/6/2016 3:00 PM | 7.31 |
| 2/4/2016 3:15 PM | 7.31 | 2/5/2016 3:15 PM | 7.37 | 2/6/2016 3:15 PM | 7.31 |
| 2/4/2016 3:30 PM | 7.31 | 2/5/2016 3:30 PM | 7.37 | 2/6/2016 3:30 PM | 7.32 |
| 2/4/2016 3:45 PM | 7.31 | 2/5/2016 3:45 PM | 7.37 | 2/6/2016 3:45 PM | 7.32 |
| 2/4/2016 4:00 PM | 7.26 | 2/5/2016 4:00 PM | 7.37 | 2/6/2016 4:00 PM | 7.32 |
| 2/4/2016 4:15 PM | 7.31 | 2/5/2016 4:15 PM | 7.37 | 2/6/2016 4:15 PM | 7.33 |
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| 2/4/2016 5:00 PM | 7.36 | 2/5/2016 5:00 PM | 7.35 | 2/6/2016 5:00 PM | 7.33 |
| 2/4/2016 5:15 PM | 7.36 | 2/5/2016 5:15 PM | 7.35 | 2/6/2016 5:15 PM | 7.35 |
| 2/4/2016 5:30 PM | 7.37 | 2/5/2016 5:30 PM | 7.35 | 2/6/2016 5:30 PM | 7.35 |
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| 2/4/2016 6:15 PM | 7.37 | 2/5/2016 6:15 PM | 7.34 | 2/6/2016 6:15 PM | 7.37 |
| 2/4/2016 6:30 PM | 7.37 | 2/5/2016 6:30 PM | 7.34 | 2/6/2016 6:30 PM | 7.40 |
| 2/4/2016 6:45 PM | 7.37 | 2/5/2016 6:45 PM | 7.34 | 2/6/2016 6:45 PM | 7.41 |
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| 2/4/2016 7:30 PM | 7.37 | 2/5/2016 7:30 PM | 7.32 | 2/6/2016 7:30 PM | 7.40 |
| 2/4/2016 7:45 PM | 7.35 | 2/5/2016 7:45 PM | 7.32 | 2/6/2016 7:45 PM | 7.33 |
| 2/4/2016 8:00 PM | 7.35 | 2/5/2016 8:00 PM | 7.32 | 2/6/2016 8:00 PM | 7.38 |
| 2/4/2016 8:15 PM | 7.35 | 2/5/2016 8:15 PM | 7.32 | 2/6/2016 8:15 PM | 7.40 |
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| 2/4/2016 9:15 PM | 7.38 | 2/5/2016 9:15 PM | 7.30 | 2/6/2016 9:15 PM | 7.41 |
| 2/4/2016 9:30 PM | 7.39 | 2/5/2016 9:30 PM | 7.30 | 2/6/2016 9:30 PM | 7.41 |
| 2/4/2016 9:45 PM | 7.39 | 2/5/2016 9:45 PM | 7.30 | 2/6/2016 9:45 PM | 7.40 |
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| 2/4/2016 10:30 PM | 7.38 | 2/5/2016 10:30 PM | 7.29 | 2/6/2016 10:30 PM | 7.39 |
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| 2/4/2016 11:15 PM | 7.36 | 2/5/2016 11:15 PM | 7.28 | 2/6/2016 11:15 PM | 7.38 |
| 2/4/2016 11:30 PM | 7.36 | 2/5/2016 11:30 PM | 7.28 | 2/6/2016 11:30 PM | 7.38 |
| 2/4/2016 11:45 PM | 7.35 | 2/5/2016 11:45 PM | 7.28 | 2/6/2016 11:45 PM | 7.37 |
| AVG | 7.35 | AVG | 7.35 | AVG | 7.28 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 2/7/2016 12:45 AM | 7.36 | 2/8/2016 12:45 AM | 7.44 | 2/9/2016 12:45 AM | 7.44 |
| 2/7/2016 1:00 AM | 7.35 | 2/8/2016 1:00 AM | 7.44 | 2/9/2016 1:00 AM | 7.44 |
| 2/7/2016 1:15 AM | 7.35 | 2/8/2016 1:15 AM | 7.44 | 2/9/2016 1:15 AM | 7.43 |
| 2/7/2016 1:30 AM | 7.34 | 2/8/2016 1:30 AM | 7.44 | 2/9/2016 1:30 AM | 7.43 |
| 2/7/2016 1:45 AM | 7.34 | 2/8/2016 1:45 AM | 7.44 | 2/9/2016 1:45 AM | 7.42 |
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| 2/7/2016 2:45 AM | 7.33 | 2/8/2016 2:45 AM | 7.43 | 2/9/2016 2:45 AM | 7.41 |
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| 2/7/2016 3:15 AM | 7.33 | 2/8/2016 3:15 AM | 7.47 | 2/9/2016 3:15 AM | 7.41 |
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| 2/7/2016 3:45 AM | 7.32 | 2/8/2016 3:45 AM | 7.46 | 2/9/2016 3:45 AM | 7.41 |
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| 2/7/2016 6:45 AM | 7.29 | 2/8/2016 6:45 AM | 7.41 | 2/9/2016 6:45 AM | 7.41 |
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| 2/7/2016 1:30 PM | 7.27 | 2/8/2016 1:30 PM | 7.35 | 2/9/2016 1:30 PM | 7.37 |

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| 2/7/2016 11:45 PM | 7.38 | 2/8/2016 11:45 PM | 7.36 | 2/9/2016 11:45 PM | 7.43 |
| AVG | 7.33 | AVG | 7.39 | AVG | 7.40 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 2/10/2016 12:45 AM | 7.42 | 2/11/2016 12:45 AM | 7.41 | 2/12/2016 12:45 AM | 7.47 |
| 2/10/2016 1:00 AM | 7.41 | 2/11/2016 1:00 AM | 7.36 | 2/12/2016 1:00 AM | 7.47 |
| 2/10/2016 1:15 AM | 7.41 | 2/11/2016 1:15 AM | 7.40 | 2/12/2016 1:15 AM | 7.47 |
| 2/10/2016 1:30 AM | 7.43 | 2/11/2016 1:30 AM | 7.43 | 2/12/2016 1:30 AM | 7.46 |
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| 2/10/2016 2:00 AM | 7.41 | 2/11/2016 2:00 AM | 7.45 | 2/12/2016 2:00 AM | 7.46 |
| 2/10/2016 2:15 AM | 7.41 | 2/11/2016 2:15 AM | 7.45 | 2/12/2016 2:15 AM | 7.45 |
| 2/10/2016 2:30 AM | 7.40 | 2/11/2016 2:30 AM | 7.44 | 2/12/2016 2:30 AM | 7.45 |
| 2/10/2016 2:45 AM | 7.33 | 2/11/2016 2:45 AM | 7.44 | 2/12/2016 2:45 AM | 7.45 |
| 2/10/2016 3:00 AM | 7.38 | 2/11/2016 3:00 AM | 7.44 | 2/12/2016 3:00 AM | 7.47 |
| 2/10/2016 3:15 AM | 7.43 | 2/11/2016 3:15 AM | 7.44 | 2/12/2016 3:15 AM | 7.45 |
| 2/10/2016 3:30 AM | 7.43 | 2/11/2016 3:30 AM | 7.44 | 2/12/2016 3:30 AM | 7.45 |
| 2/10/2016 3:45 AM | 7.44 | 2/11/2016 3:45 AM | 7.44 | 2/12/2016 3:45 AM | 7.44 |
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| 2/10/2016 4:15 AM | 7.44 | 2/11/2016 4:15 AM | 7.44 | 2/12/2016 4:15 AM | 7.38 |
| 2/10/2016 4:30 AM | 7.44 | 2/11/2016 4:30 AM | 7.45 | 2/12/2016 4:30 AM | 7.43 |
| 2/10/2016 4:45 AM | 7.43 | 2/11/2016 4:45 AM | 7.44 | 2/12/2016 4:45 AM | 7.46 |
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| 2/10/2016 6:15 AM | 7.42 | 2/11/2016 6:15 AM | 7.48 | 2/12/2016 6:15 AM | 7.46 |
| 2/10/2016 6:30 AM | 7.41 | 2/11/2016 6:30 AM | 7.48 | 2/12/2016 6:30 AM | 7.46 |
| 2/10/2016 6:45 AM | 7.41 | 2/11/2016 6:45 AM | 7.49 | 2/12/2016 6:45 AM | 7.45 |
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| 2/10/2016 3:45 PM | 7.39 | 2/11/2016 3:45 PM | 7.44 | 2/12/2016 3:45 PM | 7.42 |
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| 2/10/2016 6:30 PM | 7.43 | 2/11/2016 6:30 PM | 7.42 | 2/12/2016 6:30 PM | 7.38 |
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| 2/10/2016 9:45 PM | 7.45 | 2/11/2016 9:45 PM | 7.44 | 2/12/2016 9:45 PM | 7.36 |
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| 2/16/2016 1:00 PM | 7.27 | 2/17/2016 1:00 PM | 7.28 | 2/18/2016 1:00 PM | 7.24 |
| 2/16/2016 1:15 PM | 7.25 | 2/17/2016 1:15 PM | 7.27 | 2/18/2016 1:15 PM | 7.30 |
| 2/16/2016 1:30 PM | 7.24 | 2/17/2016 1:30 PM | 7.27 | 2/18/2016 1:30 PM | 7.35 |

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| 2/16/2016 1:45 PM | 7.23 | 2/17/2016 1:45 PM | 7.28 | 2/18/2016 1:45 PM | 7.37 |
| 2/16/2016 2:00 PM | 7.23 | 2/17/2016 2:00 PM | 7.28 | 2/18/2016 2:00 PM | 7.39 |
| 2/16/2016 2:15 PM | 7.24 | 2/17/2016 2:15 PM | 7.27 | 2/18/2016 2:15 PM | 7.35 |
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| 2/16/2016 2:45 PM | 7.24 | 2/17/2016 2:45 PM | 7.28 | 2/18/2016 2:45 PM | 7.36 |
| 2/16/2016 3:00 PM | 7.24 | 2/17/2016 3:00 PM | 7.28 | 2/18/2016 3:00 PM | 7.37 |
| 2/16/2016 3:15 PM | 7.25 | 2/17/2016 3:15 PM | 7.30 | 2/18/2016 3:15 PM | 7.34 |
| 2/16/2016 3:30 PM | 7.30 | 2/17/2016 3:30 PM | 7.30 | 2/18/2016 3:30 PM | 7.38 |
| 2/16/2016 3:45 PM | 7.32 | 2/17/2016 3:45 PM | 7.30 | 2/18/2016 3:45 PM | 7.39 |
| 2/16/2016 4:00 PM | 7.33 | 2/17/2016 4:00 PM | 7.31 | 2/18/2016 4:00 PM | 7.40 |
| 2/16/2016 4:15 PM | 7.33 | 2/17/2016 4:15 PM | 7.30 | 2/18/2016 4:15 PM | 7.40 |
| 2/16/2016 4:30 PM | 7.34 | 2/17/2016 4:30 PM | 7.30 | 2/18/2016 4:30 PM | 7.40 |
| 2/16/2016 4:45 PM | 7.34 | 2/17/2016 4:45 PM | 7.31 | 2/18/2016 4:45 PM | 7.40 |
| 2/16/2016 5:00 PM | 7.29 | 2/17/2016 5:00 PM | 7.23 | 2/18/2016 5:00 PM | 7.40 |
| 2/16/2016 5:15 PM | 7.28 | 2/17/2016 5:15 PM | 7.29 | 2/18/2016 5:15 PM | 7.46 |
| 2/16/2016 5:30 PM | 7.28 | 2/17/2016 5:30 PM | 7.33 | 2/18/2016 5:30 PM | 7.41 |
| 2/16/2016 5:45 PM | 7.28 | 2/17/2016 5:45 PM | 7.36 | 2/18/2016 5:45 PM | 7.41 |
| 2/16/2016 6:00 PM | 7.28 | 2/17/2016 6:00 PM | 7.37 | 2/18/2016 6:00 PM | 7.42 |
| 2/16/2016 6:15 PM | 7.28 | 2/17/2016 6:15 PM | 7.37 | 2/18/2016 6:15 PM | 7.41 |
| 2/16/2016 6:30 PM | 7.28 | 2/17/2016 6:30 PM | 7.37 | 2/18/2016 6:30 PM | 7.34 |
| 2/16/2016 6:45 PM | 7.24 | 2/17/2016 6:45 PM | 7.37 | 2/18/2016 6:45 PM | 7.39 |
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| 2/16/2016 9:15 PM | 7.32 | 2/17/2016 9:15 PM | 7.38 | 2/18/2016 9:15 PM | 7.44 |
| 2/16/2016 9:30 PM | 7.30 | 2/17/2016 9:30 PM | 7.38 | 2/18/2016 9:30 PM | 7.44 |
| 2/16/2016 9:45 PM | 7.30 | 2/17/2016 9:45 PM | 7.36 | 2/18/2016 9:45 PM | 7.44 |
| 2/16/2016 10:00 PM | 7.30 | 2/17/2016 10:00 PM | 7.36 | 2/18/2016 10:00 PM | 7.44 |
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| 2/16/2016 10:30 PM | 7.29 | 2/17/2016 10:30 PM | 7.36 | 2/18/2016 10:30 PM | 7.44 |
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| 2/16/2016 11:30 PM | 7.35 | 2/17/2016 11:30 PM | 7.31 | 2/18/2016 11:30 PM | 7.48 |
| 2/16/2016 11:45 PM | 7.35 | 2/17/2016 11:45 PM | 7.36 | 2/18/2016 11:45 PM | 7.48 |
| AVG | 7.32 | AVG | 7.31 | AVG | 7.41 |

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| 2/19/2016 12:15 AM | 7.47 | 2/20/2016 12:15 AM | 7.48 | 2/21/2016 12:15 AM | 7.39 |
| 2/19/2016 12:30 AM | 7.47 | 2/20/2016 12:30 AM | 7.47 | 2/21/2016 12:30 AM | 7.44 |
| 2/19/2016 12:45 AM | 7.47 | 2/20/2016 12:45 AM | 7.47 | 2/21/2016 12:45 AM | 7.47 |
| 2/19/2016 1:00 AM | 7.47 | 2/20/2016 1:00 AM | 7.47 | 2/21/2016 1:00 AM | 7.48 |
| 2/19/2016 1:15 AM | 7.46 | 2/20/2016 1:15 AM | 7.42 | 2/21/2016 1:15 AM | 7.48 |
| 2/19/2016 1:30 AM | 7.46 | 2/20/2016 1:30 AM | 7.47 | 2/21/2016 1:30 AM | 7.48 |
| 2/19/2016 1:45 AM | 7.46 | 2/20/2016 1:45 AM | 7.49 | 2/21/2016 1:45 AM | 7.48 |
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| 2/19/2016 3:15 AM | 7.44 | 2/20/2016 3:15 AM | 7.51 | 2/21/2016 3:15 AM | 7.47 |
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| 2/19/2016 5:30 AM | 7.43 | 2/20/2016 5:30 AM | 7.49 | 2/21/2016 5:30 AM | 7.50 |
| 2/19/2016 5:45 AM | 7.42 | 2/20/2016 5:45 AM | 7.49 | 2/21/2016 5:45 AM | 7.49 |
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| 2/19/2016 6:30 AM | 7.42 | 2/20/2016 6:30 AM | 7.47 | 2/21/2016 6:30 AM | 7.49 |
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| 2/22/2016 12:30 PM | 7.42 | 2/23/2016 12:30 PM | 7.45 | 2/24/2016 12:30 PM | 7.48 |
| 2/22/2016 12:45 PM | 7.41 | 2/23/2016 12:45 PM | 7.45 | 2/24/2016 12:45 PM | 7.47 |
| 2/22/2016 1:00 PM | 7.40 | 2/23/2016 1:00 PM | 7.45 | 2/24/2016 1:00 PM | 7.47 |
| 2/22/2016 1:15 PM | 7.40 | 2/23/2016 1:15 PM | 7.44 | 2/24/2016 1:15 PM | 7.47 |
| 2/22/2016 1:30 PM | 7.41 | 2/23/2016 1:30 PM | 7.44 | 2/24/2016 1:30 PM | 7.46 |

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| 2/22/2016 3:15 PM | 7.39 | 2/23/2016 3:15 PM | 7.46 | 2/24/2016 3:15 PM | 7.44 |
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| 2/22/2016 3:45 PM | 7.46 | 2/23/2016 3:45 PM | 7.49 | 2/24/2016 3:45 PM | 7.43 |
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| 2/22/2016 5:00 PM | 7.45 | 2/23/2016 5:00 PM | 7.50 | 2/24/2016 5:00 PM | 7.43 |
| 2/22/2016 5:15 PM | 7.46 | 2/23/2016 5:15 PM | 7.50 | 2/24/2016 5:15 PM | 7.43 |
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| 2/22/2016 7:45 PM | 7.47 | 2/23/2016 7:45 PM | 7.48 | 2/24/2016 7:45 PM | 7.46 |
| 2/22/2016 8:00 PM | 7.47 | 2/23/2016 8:00 PM | 7.51 | 2/24/2016 8:00 PM | 7.46 |
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| 2/22/2016 9:15 PM | 7.47 | 2/23/2016 9:15 PM | 7.52 | 2/24/2016 9:15 PM | 7.49 |
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| 2/22/2016 10:45 PM | 7.52 | 2/23/2016 10:45 PM | 7.51 | 2/24/2016 10:45 PM | 7.51 |
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| AVG | 7.47 | AVG | 7.49 | AVG | 7.48 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 2/25/2016 12:30 AM | 7.50 | 2/26/2016 12:30 AM | 7.56 | 2/27/2016 12:30 AM | 7.46 |
| 2/25/2016 12:45 AM | 7.50 | 2/26/2016 12:45 AM | 7.55 | 2/27/2016 12:45 AM | 7.57 |
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| 2/25/2016 1:15 AM | 7.52 | 2/26/2016 1:15 AM | 7.55 | 2/27/2016 1:15 AM | 7.56 |
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| 2/28/2016 7:00 AM | 7.66 | 2/29/2016 7:00 AM | 7.64 |
| 2/28/2016 7:15 AM | 7.65 | 2/29/2016 7:15 AM | 7.63 |
| 2/28/2016 7:30 AM | 7.64 | 2/29/2016 7:30 AM | 7.63 |
| 2/28/2016 7:45 AM | 7.62 | 2/29/2016 7:45 AM | 7.63 |
| 2/28/2016 8:00 AM | 7.61 | 2/29/2016 8:00 AM | 7.62 |
| 2/28/2016 8:15 AM | 7.59 | 2/29/2016 8:15 AM | 7.62 |
| 2/28/2016 8:30 AM | 7.57 | 2/29/2016 8:30 AM | 7.61 |
| 2/28/2016 8:45 AM | 7.55 | 2/29/2016 8:45 AM | 7.59 |
| 2/28/2016 9:00 AM | 7.54 | 2/29/2016 9:00 AM | 7.60 |
| 2/28/2016 9:15 AM | 7.52 | 2/29/2016 9:15 AM | 7.59 |
| 2/28/2016 9:30 AM | 7.51 | 2/29/2016 9:30 AM | 7.59 |
| 2/28/2016 9:45 AM | 7.50 | 2/29/2016 9:45 AM | 7.59 |
| 2/28/2016 10:00 AM | 7.49 | 2/29/2016 10:00 AM | 7.59 |
| 2/28/2016 10:15 AM | 7.50 | 2/29/2016 10:15 AM | 7.58 |
| 2/28/2016 10:30 AM | 7.51 | 2/29/2016 10:30 AM | 7.58 |
| 2/28/2016 10:45 AM | 7.45 | 2/29/2016 10:45 AM | 7.58 |
| 2/28/2016 11:00 AM | 7.43 | 2/29/2016 11:00 AM | 7.61 |
| 2/28/2016 11:15 AM | 7.41 | 2/29/2016 11:15 AM | 7.58 |
| 2/28/2016 11:30 AM | 7.39 | 2/29/2016 11:30 AM | 7.58 |
| 2/28/2016 11:45 AM | 7.37 | 2/29/2016 11:45 AM | 7.58 |
| 2/28/2016 12:00 PM | 7.35 | 2/29/2016 12:00 PM | 7.57 |
| 2/28/2016 12:15 PM | 7.41 | 2/29/2016 12:15 PM | 7.56 |
| 2/28/2016 12:30 PM | 7.45 | 2/29/2016 12:30 PM | 7.56 |
| 2/28/2016 12:45 PM | 7.46 | 2/29/2016 12:45 PM | 7.56 |
| 2/28/2016 1:00 PM | 7.46 | 2/29/2016 1:00 PM | 7.56 |
| 2/28/2016 1:15 PM | 7.48 | 2/29/2016 1:15 PM | 7.57 |
| 2/28/2016 1:30 PM | 7.48 | 2/29/2016 1:30 PM | 7.56 |

| | | | |
|---|---|---|---|
| 2/28/2016 1:45 PM | 7.47 | 2/29/2016 1:45 PM | 7.54 |
| 2/28/2016 2:00 PM | 7.47 | 2/29/2016 2:00 PM | 7.61 |
| 2/28/2016 2:15 PM | 7.48 | 2/29/2016 2:15 PM | 7.66 |
| 2/28/2016 2:30 PM | 7.49 | 2/29/2016 2:30 PM | 7.66 |
| 2/28/2016 2:45 PM | 7.50 | 2/29/2016 2:45 PM | 7.85 |
| 2/28/2016 3:00 PM | 7.50 | 2/29/2016 3:00 PM | 7.67 |
| 2/28/2016 3:15 PM | 7.50 | 2/29/2016 3:15 PM | 7.64 |
| 2/28/2016 3:30 PM | 7.50 | 2/29/2016 3:30 PM | 7.64 |
| 2/28/2016 3:45 PM | 7.50 | 2/29/2016 3:45 PM | 7.64 |
| 2/28/2016 4:00 PM | 7.50 | 2/29/2016 4:00 PM | 7.64 |
| 2/28/2016 4:15 PM | 7.50 | 2/29/2016 4:15 PM | 7.64 |
| 2/28/2016 4:30 PM | 7.50 | 2/29/2016 4:30 PM | 7.64 |
| 2/28/2016 4:45 PM | 7.50 | 2/29/2016 4:45 PM | 7.64 |
| 2/28/2016 5:00 PM | 7.50 | 2/29/2016 5:00 PM | 7.64 |
| 2/28/2016 5:15 PM | 7.50 | 2/29/2016 5:15 PM | 7.66 |
| 2/28/2016 5:30 PM | 7.49 | 2/29/2016 5:30 PM | 7.65 |
| 2/28/2016 5:45 PM | 7.48 | 2/29/2016 5:45 PM | 7.67 |
| 2/28/2016 6:00 PM | 7.48 | 2/29/2016 6:00 PM | 7.66 |
| 2/28/2016 6:15 PM | 7.49 | 2/29/2016 6:15 PM | 7.67 |
| 2/28/2016 6:30 PM | 7.49 | 2/29/2016 6:30 PM | 7.72 |
| 2/28/2016 6:45 PM | 7.48 | 2/29/2016 6:45 PM | 7.75 |
| 2/28/2016 7:00 PM | 7.47 | 2/29/2016 7:00 PM | 7.75 |
| 2/28/2016 7:15 PM | 7.47 | 2/29/2016 7:15 PM | 7.75 |
| 2/28/2016 7:30 PM | 7.60 | 2/29/2016 7:30 PM | 7.75 |
| 2/28/2016 7:45 PM | 7.60 | 2/29/2016 7:45 PM | 7.74 |
| 2/28/2016 8:00 PM | 7.60 | 2/29/2016 8:00 PM | 7.73 |
| 2/28/2016 8:15 PM | 7.60 | 2/29/2016 8:15 PM | 7.72 |
| 2/28/2016 8:30 PM | 7.59 | 2/29/2016 8:30 PM | 7.71 |
| 2/28/2016 8:45 PM | 7.59 | 2/29/2016 8:45 PM | 7.71 |
| 2/28/2016 9:00 PM | 7.59 | 2/29/2016 9:00 PM | 7.71 |
| 2/28/2016 9:15 PM | 7.59 | 2/29/2016 9:15 PM | 7.70 |
| 2/28/2016 9:30 PM | 7.58 | 2/29/2016 9:30 PM | 7.71 |
| 2/28/2016 9:45 PM | 7.59 | 2/29/2016 9:45 PM | 7.71 |
| 2/28/2016 10:00 PM | 7.57 | 2/29/2016 10:00 PM | 7.70 |
| 2/28/2016 10:15 PM | 7.63 | 2/29/2016 10:15 PM | 7.70 |
| 2/28/2016 10:30 PM | 7.66 | 2/29/2016 10:30 PM | 7.72 |
| 2/28/2016 10:45 PM | 7.67 | 2/29/2016 10:45 PM | 7.71 |
| 2/28/2016 11:00 PM | 7.67 | 2/29/2016 11:00 PM | 7.70 |
| 2/28/2016 11:15 PM | 7.66 | 2/29/2016 11:15 PM | 7.69 |
| 2/28/2016 11:30 PM | 7.65 | 2/29/2016 11:30 PM | 7.69 |
| 2/28/2016 11:45 PM | 7.65 | 2/29/2016 11:45 PM | 7.69 |
| AVG | 7.56 | AVG | 7.64 |

| | |
|---|---|
| **MIN** | **7.16** |
| **MAX** | **7.85** |

Avtex Fibers
Front Royal, VA
Outfall 004
February 2016 DMR

| Sample Date | Sample ID | BOD, mg/L | BOD, kg/d | TSS, mg/L | TSS, kg/d |
|---|---|---|---|---|---|
| 2/3/2016 | AF2-3FE | 5.0 | 0.74 | 11.1 | 1.65 |
| 2/10/2016 | AF2-10FE | 0.0 | 0.00 | 5.6 | 1.17 |
| 2/17/2016 | AF2-17FE | 3.0 | 0.62 | 9.6 | 1.98 |
| 2/24/2016 | AF2-24FE | 4.0 | 0.60 | 13.0 | 1.96 |
| | Daily Maximum: | 5.0 | 0.74 | 13.0 | 1.98 |
| | Monthly Avg: | 3.0 | 0.49 | 9.83 | 1.69 |

Monthly Average – Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as calculated. If all data are below the QL used for the analysis, then the average shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported monthly average concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the monthly average of the calculated daily quantities.

Daily Maximum – Compliance with the daily maximum limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each day during the reporting month. The maximum value of these daily averages thus determined shall be reported on the DMR as the Daily Maximum. If all data are below the QL used for the analysis, then the maximum value of the daily averages shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported daily maximum concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported daily average concentrations (including the defined zeros) and corresponding daily flows to determine daily average quantities and report the maximum of the daily average quantities during the reporting month.

**Loading Derivation**
If 1 ppm (= 1 mg/L) and 1 MGD (= 1 MG/day)
--> (1 mg/L)(1 MG/day)(3.785 L/Gal)(10^6 Gal/MG)(1 lb/453,600 mg) = 8.34 lbs/day
**--> lbs/day = ppm * 8.34 * MGD**
**--> kg/d = ppm * 8.34 * MGD * 0.4536*lb/d**

**Concentration Derivation**
If 1 lb/d and 1 MGD (= 1 MG/day)
[(1 lbs/day)(453,600 mg/lb)] / [(1 MG/d)(10^6 Gal/MG)(3.785 L/Gal)]
**--> ppm = lb/d * (1/8.34) * (1/MGD)**

| | BOD |
|---|---|
| 2/3/2016 | 0.743171592 |
| 2/10/2016 | 0 |
| 2/17/2016 | 0.618467546 |
| 2/24/2016 | 0.60296928 |
| AVG | 0.491152104 |

| | TSS |
|---|---|
| 2/3/2016 | 1.649840934 |
| 2/10/2106 | 1.167214497 |
| 2/17/2016 | 1.981157705 |
| 2/24/2016 | 1.959650158 |
| AVG | 1.689465824 |

| | CS2* |
|---|---|
| 2/17/2016 | <QL |

*Note: CS2 EPA Test Method: 8260 MSV Low Level Analytical Method (EPA 8260)
Report Limit 2 ug/L
MDL 1.2 ug/L

**FMC Corporation**
1735 Market Street
Philadelphia, PA 19103
USA

215.299.6000
fmc.com

*Transmitted via Email*

April 12, 2016

Department of Environmental Quality - CO
Office of Remediation Program
P.O. Box 1105
Richmond, VA 23218

Re: Submission of Discharge Monitoring Report – March 2016
Avtex Fibers Superfund Site
Front Royal, Virginia

Dear Ms Payne:

In accordance with the Applicable or Relevant and Appropriate Requirements (ARARs) and Fact Sheet provided July 22, 2014, FMC Corporation (FMC) is submitting the Discharge Monitoring Report (DMR) for the month of March 2016. The permit is for the discharge from the Groundwater and Leachate Treatment Plant (GLTP) located at 404 Kendrick Lane, Front Royal, VA. Analysis of effluent concentrations yielded results within the allowable limits for all parameters.

Please do not hesitate to call if there are any questions.

Sincerely,

FMC Corporation

Brian M. McGinnis, P.E.
Manager, Environmental Remediation

cc: via Email
Brandon Kiracofe, DEQ
Charlie Root, USEPA
Heather Philip, Parsons

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
**DISCHARGE MONITORING REPORT** (DMR)

PERMITTEE NAME/ADDRESS: (Include Facility Name/Location if different)

OMB No. 2040-004

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NAME:** | Avtex Fibers | | | | | NA | | | | 004 | | | | **DMR MAILING ZIP CODE:** | | | | | | | 23218 | | | |
| **ADDRESS:** | 404 Kendrick Lane | | | | | **PERMIT NUMBER** | | | | **DISCHARGE NUMBER** | | | | | | | | | | | | | | |
| | Front Royal, VA 22630 | | | | | | | | | | | | | DESCRIPTION: | | | | | | | | | | |
| | | | | | | **MONITORING PERIOD** | | | | | | | | GLTP EFFLUENT (OUTFALL 004) | | | | | | | | | | |
| **FACILITY:** | AVTEX FIBERS | | | | | **YEAR** | **MO** | **DAY** | | **YEAR** | **MO** | **DAY** | | External Outfall | | | | | | | | | | |
| **LOCATION:** | FRONT ROYAL, VA | | | | **FROM** | 16 | 03 | 01 | TO | 16 | 03 | 31 | | | | | | | | | **No Discharge** | | | |
| **ATTN:** | | | | | | | | | | | | | | | | | | | | | | | | |

| **PARAMETER** | | QUANTITY OR LOADING | | | QUALITY OR CONCENTRATION | | | | **NO. EX** | FREQUENCY OF ANALYSIS | **SAMPLE TYPE** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | VALUE | VALUE | UNITS | VALUE | VALUE | VALUE | UNITS | | | |
| **FLOW** | SAMPLE MEASUREMENT | 0.050 | 0.075 | MGD | ***** | ***** | ***** | | 0 | CONTINUOUS | TIRE |
| **00056 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | REPORT MONTHLY AV | REPORT DAILY MAX | | ****** | ****** | ****** | | | CONTINUOUS | TIRE |
| **PH** | SAMPLE MEASUREMENT | ***** | ***** | | 6.3 | ***** | 9.0 | SU | 0 | CONTINUOUS | GRAB |
| **00400 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | ****** | ****** | | 6.5 MINIMUM | ****** | 9.0 MAXIMUM | | | CONTINUOUS | GRAB |
| **BOD, 5-DAY** | SAMPLE MEASUREMENT | 0.70 | 0.90 | kg/d | ***** | 3.6 | 5.0 | mg/L | 0 | 1/7 | 8 HC |
| **00318 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | 36 MONTHLY AV | 96 DAILY MAX | | ****** | 24 MONTHLY AV | 64 DAILY MX | | | 1/7 | 8 HC |
| **SOLIDS, TOTAL SUSPENDED** | SAMPLE MEASUREMENT | 1.39 | 1.84 | kg/d | ***** | 7.47 | 11.00 | mg/L | 0 | 1/7 | 8 HC |
| **03603 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | 60 MONTHLY AV | 190 DAILY MAX | | ****** | 40 MONTHLY AV | 130 DAILY MX | | | 1/7 | 8 HC |
| **CARBON DISULFIDE** | SAMPLE MEASUREMENT | <QL | <QL | kg/d | ***** | <QL | <QL | mg/L | 0 | 1/30 | 8 HC |
| **77041 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | NL MONTHLY AV | NL DAILY MAX | | ****** | NL MONTHLY AV | NL DAILY MX | | | 1/30 | 8 HC |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| NAME/TITLE PRINCIPAL EXECUTIVE OFFICER | | TELEPHONE | | DATE | | |
|---|---|---|---|---|---|---|
| Robert T. Forbes | I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. | | | 16 | 04 | 12 |
| Director EHS Remediation/Governance | | | | | | |
| | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | 215 (AREA) | 299-6260 (NUMBER) | YEAR | MO | DAY |
| TYPED OR PRINTED | | | | | | |

COMMENT AND EXPLANATION OF ANY VIOLATIONS (*Reference all attachments here*)

Attachment: pH compliance monitoring summary (monthly)

Carbon disulfide: No limit established; monitored monthly; 0.1 mg/L action level

Avtex Fibers
Front Royal, VA
Outfall 004
March 2016 DMR

pH Calculations:

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 3/1/2016 12:00 AM | 7.69 | 3/2/2016 12:00 AM | 7.68 | 3/3/2016 12:00 AM | 7.75 |
| 3/1/2016 12:15 AM | 7.67 | 3/2/2016 12:15 AM | 7.67 | 3/3/2016 12:15 AM | 7.74 |
| 3/1/2016 12:30 AM | 7.72 | 3/2/2016 12:30 AM | 7.67 | 3/3/2016 12:30 AM | 7.74 |
| 3/1/2016 12:45 AM | 7.75 | 3/2/2016 12:45 AM | 7.67 | 3/3/2016 12:45 AM | 7.74 |
| 3/1/2016 1:00 AM | 7.77 | 3/2/2016 1:00 AM | 7.70 | 3/3/2016 1:00 AM | 7.73 |
| 3/1/2016 1:15 AM | 7.77 | 3/2/2016 1:15 AM | 7.69 | 3/3/2016 1:15 AM | 7.73 |
| 3/1/2016 1:30 AM | 7.77 | 3/2/2016 1:30 AM | 7.70 | 3/3/2016 1:30 AM | 7.72 |
| 3/1/2016 1:45 AM | 7.77 | 3/2/2016 1:45 AM | 7.69 | 3/3/2016 1:45 AM | 7.72 |
| 3/1/2016 2:00 AM | 7.77 | 3/2/2016 2:00 AM | 7.68 | 3/3/2016 2:00 AM | 7.72 |
| 3/1/2016 2:15 AM | 7.76 | 3/2/2016 2:15 AM | 7.64 | 3/3/2016 2:15 AM | 7.71 |
| 3/1/2016 2:30 AM | 7.76 | 3/2/2016 2:30 AM | 7.69 | 3/3/2016 2:30 AM | 7.71 |
| 3/1/2016 2:45 AM | 7.76 | 3/2/2016 2:45 AM | 7.72 | 3/3/2016 2:45 AM | 7.71 |
| 3/1/2016 3:00 AM | 7.75 | 3/2/2016 3:00 AM | 7.74 | 3/3/2016 3:00 AM | 7.70 |
| 3/1/2016 3:15 AM | 7.75 | 3/2/2016 3:15 AM | 7.75 | 3/3/2016 3:15 AM | 7.70 |
| 3/1/2016 3:30 AM | 7.75 | 3/2/2016 3:30 AM | 7.75 | 3/3/2016 3:30 AM | 7.70 |
| 3/1/2016 3:45 AM | 7.74 | 3/2/2016 3:45 AM | 7.75 | 3/3/2016 3:45 AM | 7.70 |
| 3/1/2016 4:00 AM | 7.73 | 3/2/2016 4:00 AM | 7.75 | 3/3/2016 4:00 AM | 7.69 |
| 3/1/2016 4:15 AM | 7.73 | 3/2/2016 4:15 AM | 7.75 | 3/3/2016 4:15 AM | 7.69 |
| 3/1/2016 4:30 AM | 7.73 | 3/2/2016 4:30 AM | 7.75 | 3/3/2016 4:30 AM | 7.71 |
| 3/1/2016 4:45 AM | 7.72 | 3/2/2016 4:45 AM | 7.75 | 3/3/2016 4:45 AM | 7.70 |
| 3/1/2016 5:00 AM | 7.72 | 3/2/2016 5:00 AM | 7.74 | 3/3/2016 5:00 AM | 7.70 |
| 3/1/2016 5:15 AM | 7.72 | 3/2/2016 5:15 AM | 7.74 | 3/3/2016 5:15 AM | 7.69 |
| 3/1/2016 5:30 AM | 7.71 | 3/2/2016 5:30 AM | 7.74 | 3/3/2016 5:30 AM | 7.69 |
| 3/1/2016 5:45 AM | 7.71 | 3/2/2016 5:45 AM | 7.74 | 3/3/2016 5:45 AM | 7.66 |
| 3/1/2016 6:00 AM | 7.70 | 3/2/2016 6:00 AM | 7.74 | 3/3/2016 6:00 AM | 7.70 |
| 3/1/2016 6:15 AM | 7.70 | 3/2/2016 6:15 AM | 7.74 | 3/3/2016 6:15 AM | 7.73 |
| 3/1/2016 6:30 AM | 7.69 | 3/2/2016 6:30 AM | 7.74 | 3/3/2016 6:30 AM | 7.75 |
| 3/1/2016 6:45 AM | 7.69 | 3/2/2016 6:45 AM | 7.74 | 3/3/2016 6:45 AM | 7.75 |
| 3/1/2016 7:00 AM | 7.69 | 3/2/2016 7:00 AM | 7.74 | 3/3/2016 7:00 AM | 7.75 |
| 3/1/2016 7:15 AM | 7.68 | 3/2/2016 7:15 AM | 7.73 | 3/3/2016 7:15 AM | 7.74 |
| 3/1/2016 7:30 AM | 7.68 | 3/2/2016 7:30 AM | 7.73 | 3/3/2016 7:30 AM | 7.73 |
| 3/1/2016 7:45 AM | 7.72 | 3/2/2016 7:45 AM | 7.73 | 3/3/2016 7:45 AM | 7.72 |
| 3/1/2016 8:00 AM | 7.71 | 3/2/2016 8:00 AM | 7.72 | 3/3/2016 8:00 AM | 7.72 |
| 3/1/2016 8:15 AM | 7.70 | 3/2/2016 8:15 AM | 7.72 | 3/3/2016 8:15 AM | 7.71 |
| 3/1/2016 8:30 AM | 7.68 | 3/2/2016 8:30 AM | 7.72 | 3/3/2016 8:30 AM | 7.71 |
| 3/1/2016 8:45 AM | 7.67 | 3/2/2016 8:45 AM | 7.72 | 3/3/2016 8:45 AM | 7.70 |
| 3/1/2016 9:00 AM | 7.66 | 3/2/2016 9:00 AM | 7.71 | 3/3/2016 9:00 AM | 7.70 |
| 3/1/2016 9:15 AM | 7.65 | 3/2/2016 9:15 AM | 7.71 | 3/3/2016 9:15 AM | 7.68 |
| 3/1/2016 9:30 AM | 7.62 | 3/2/2016 9:30 AM | 7.70 | 3/3/2016 9:30 AM | 7.67 |
| 3/1/2016 9:45 AM | 7.62 | 3/2/2016 9:45 AM | 7.70 | 3/3/2016 9:45 AM | 7.66 |
| 3/1/2016 10:00 AM | 7.59 | 3/2/2016 10:00 AM | 7.70 | 3/3/2016 10:00 AM | 7.66 |
| 3/1/2016 10:15 AM | 7.58 | 3/2/2016 10:15 AM | 7.69 | 3/3/2016 10:15 AM | 7.66 |
| 3/1/2016 10:30 AM | 7.60 | 3/2/2016 10:30 AM | 7.69 | 3/3/2016 10:30 AM | 7.65 |
| 3/1/2016 10:45 AM | 7.62 | 3/2/2016 10:45 AM | 7.69 | 3/3/2016 10:45 AM | 7.65 |
| 3/1/2016 11:00 AM | 7.64 | 3/2/2016 11:00 AM | 7.69 | 3/3/2016 11:00 AM | 7.64 |

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|---|---|---|---|---|---|
| 3/1/2016 11:15 AM | 7.66 | 3/2/2016 11:15 AM | 7.69 | 3/3/2016 11:15 AM | 7.63 |
| 3/1/2016 11:30 AM | 7.66 | 3/2/2016 11:30 AM | 7.69 | 3/3/2016 11:30 AM | 7.60 |
| 3/1/2016 11:45 AM | 7.69 | 3/2/2016 11:45 AM | 7.68 | 3/3/2016 11:45 AM | 7.66 |
| 3/1/2016 12:00 PM | 7.69 | 3/2/2016 12:00 PM | 7.68 | 3/3/2016 12:00 PM | 7.69 |
| 3/1/2016 12:15 PM | 7.65 | 3/2/2016 12:15 PM | 7.68 | 3/3/2016 12:15 PM | 7.71 |
| 3/1/2016 12:30 PM | 7.61 | 3/2/2016 12:30 PM | 7.68 | 3/3/2016 12:30 PM | 7.72 |
| 3/1/2016 12:45 PM | 7.61 | 3/2/2016 12:45 PM | 7.67 | 3/3/2016 12:45 PM | 7.72 |
| 3/1/2016 1:00 PM | 7.59 | 3/2/2016 1:00 PM | 7.67 | 3/3/2016 1:00 PM | 7.71 |
| 3/1/2016 1:15 PM | 7.58 | 3/2/2016 1:15 PM | 7.67 | 3/3/2016 1:15 PM | 7.71 |
| 3/1/2016 1:30 PM | 7.58 | 3/2/2016 1:30 PM | 7.67 | 3/3/2016 1:30 PM | 7.71 |
| 3/1/2016 1:45 PM | 7.59 | 3/2/2016 1:45 PM | 7.66 | 3/3/2016 1:45 PM | 7.70 |
| 3/1/2016 2:00 PM | 7.60 | 3/2/2016 2:00 PM | 7.66 | 3/3/2016 2:00 PM | 7.70 |
| 3/1/2016 2:15 PM | 7.62 | 3/2/2016 2:15 PM | 7.66 | 3/3/2016 2:15 PM | 7.70 |
| 3/1/2016 2:30 PM | 7.62 | 3/2/2016 2:30 PM | 7.66 | 3/3/2016 2:30 PM | 7.69 |
| 3/1/2016 2:45 PM | 7.62 | 3/2/2016 2:45 PM | 7.66 | 3/3/2016 2:45 PM | 7.69 |
| 3/1/2016 3:00 PM | 7.62 | 3/2/2016 3:00 PM | 7.65 | 3/3/2016 3:00 PM | 7.69 |
| 3/1/2016 3:15 PM | 7.63 | 3/2/2016 3:15 PM | 7.65 | 3/3/2016 3:15 PM | 7.69 |
| 3/1/2016 3:30 PM | 7.69 | 3/2/2016 3:30 PM | 7.65 | 3/3/2016 3:30 PM | 7.69 |
| 3/1/2016 3:45 PM | 7.72 | 3/2/2016 3:45 PM | 7.65 | 3/3/2016 3:45 PM | 7.69 |
| 3/1/2016 4:00 PM | 7.73 | 3/2/2016 4:00 PM | 7.65 | 3/3/2016 4:00 PM | 7.69 |
| 3/1/2016 4:15 PM | 7.68 | 3/2/2016 4:15 PM | 7.65 | 3/3/2016 4:15 PM | 7.70 |
| 3/1/2016 4:30 PM | 7.66 | 3/2/2016 4:30 PM | 7.65 | 3/3/2016 4:30 PM | 7.68 |
| 3/1/2016 4:45 PM | 7.66 | 3/2/2016 4:45 PM | 7.65 | 3/3/2016 4:45 PM | 7.67 |
| 3/1/2016 5:00 PM | 7.66 | 3/2/2016 5:00 PM | 7.65 | 3/3/2016 5:00 PM | 7.63 |
| 3/1/2016 5:15 PM | 7.66 | 3/2/2016 5:15 PM | 7.64 | 3/3/2016 5:15 PM | 7.68 |
| 3/1/2016 5:30 PM | 7.66 | 3/2/2016 5:30 PM | 7.64 | 3/3/2016 5:30 PM | 7.71 |
| 3/1/2016 5:45 PM | 7.66 | 3/2/2016 5:45 PM | 7.64 | 3/3/2016 5:45 PM | 7.73 |
| 3/1/2016 6:00 PM | 7.66 | 3/2/2016 6:00 PM | 7.71 | 3/3/2016 6:00 PM | 7.73 |
| 3/1/2016 6:15 PM | 7.67 | 3/2/2016 6:15 PM | 7.71 | 3/3/2016 6:15 PM | 7.73 |
| 3/1/2016 6:30 PM | 7.68 | 3/2/2016 6:30 PM | 7.70 | 3/3/2016 6:30 PM | 7.73 |
| 3/1/2016 6:45 PM | 7.68 | 3/2/2016 6:45 PM | 7.70 | 3/3/2016 6:45 PM | 7.72 |
| 3/1/2016 7:00 PM | 7.68 | 3/2/2016 7:00 PM | 7.70 | 3/3/2016 7:00 PM | 7.72 |
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| 3/1/2016 7:30 PM | 7.75 | 3/2/2016 7:30 PM | 7.69 | 3/3/2016 7:30 PM | 7.71 |
| 3/1/2016 7:45 PM | 7.76 | 3/2/2016 7:45 PM | 7.69 | 3/3/2016 7:45 PM | 7.71 |
| 3/1/2016 8:00 PM | 7.77 | 3/2/2016 8:00 PM | 7.64 | 3/3/2016 8:00 PM | 7.70 |
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| 3/1/2016 8:30 PM | 7.76 | 3/2/2016 8:30 PM | 7.74 | 3/3/2016 8:30 PM | 7.69 |
| 3/1/2016 8:45 PM | 7.75 | 3/2/2016 8:45 PM | 7.78 | 3/3/2016 8:45 PM | 7.69 |
| 3/1/2016 9:00 PM | 7.75 | 3/2/2016 9:00 PM | 7.71 | 3/3/2016 9:00 PM | 7.69 |
| 3/1/2016 9:15 PM | 7.74 | 3/2/2016 9:15 PM | 7.71 | 3/3/2016 9:15 PM | 7.68 |
| 3/1/2016 9:30 PM | 7.73 | 3/2/2016 9:30 PM | 7.71 | 3/3/2016 9:30 PM | 7.68 |
| 3/1/2016 9:45 PM | 7.72 | 3/2/2016 9:45 PM | 7.70 | 3/3/2016 9:45 PM | 7.67 |
| 3/1/2016 10:00 PM | 7.72 | 3/2/2016 10:00 PM | 7.70 | 3/3/2016 10:00 PM | 7.67 |
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| 3/1/2016 10:30 PM | 7.71 | 3/2/2016 10:30 PM | 7.74 | 3/3/2016 10:30 PM | 7.69 |
| 3/1/2016 10:45 PM | 7.70 | 3/2/2016 10:45 PM | 7.76 | 3/3/2016 10:45 PM | 7.68 |
| 3/1/2016 11:00 PM | 7.69 | 3/2/2016 11:00 PM | 7.76 | 3/3/2016 11:00 PM | 7.68 |
| 3/1/2016 11:15 PM | 7.69 | 3/2/2016 11:15 PM | 7.76 | 3/3/2016 11:15 PM | 7.67 |
| 3/1/2016 11:30 PM | 7.69 | 3/2/2016 11:30 PM | 7.76 | 3/3/2016 11:30 PM | 7.67 |
| 3/1/2016 11:45 PM | 7.69 | 3/2/2016 11:45 PM | 7.76 | 3/3/2016 11:45 PM | 7.67 |
| AVG | 7.69 | AVG | 7.70 | AVG | 7.70 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 3/4/2016 12:45 AM | 7.73 | 3/5/2016 12:45 AM | 7.56 | 3/6/2016 12:45 AM | 7.72 |
| 3/4/2016 1:00 AM | 7.73 | 3/5/2016 1:00 AM | 7.66 | 3/6/2016 1:00 AM | 7.72 |
| 3/4/2016 1:15 AM | 7.73 | 3/5/2016 1:15 AM | 7.66 | 3/6/2016 1:15 AM | 7.71 |
| 3/4/2016 1:30 AM | 7.73 | 3/5/2016 1:30 AM | 7.66 | 3/6/2016 1:30 AM | 7.70 |
| 3/4/2016 1:45 AM | 7.72 | 3/5/2016 1:45 AM | 7.66 | 3/6/2016 1:45 AM | 7.70 |
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| 3/4/2016 2:45 AM | 7.70 | 3/5/2016 2:45 AM | 7.65 | 3/6/2016 2:45 AM | 7.68 |
| 3/4/2016 3:00 AM | 7.69 | 3/5/2016 3:00 AM | 7.65 | 3/6/2016 3:00 AM | 7.67 |
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| 3/4/2016 4:15 AM | 7.67 | 3/5/2016 4:15 AM | 7.72 | 3/6/2016 4:15 AM | 7.65 |
| 3/4/2016 4:30 AM | 7.67 | 3/5/2016 4:30 AM | 7.72 | 3/6/2016 4:30 AM | 7.68 |
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| 3/4/2016 5:15 AM | 7.66 | 3/5/2016 5:15 AM | 7.70 | 3/6/2016 5:15 AM | 7.66 |
| 3/4/2016 5:30 AM | 7.65 | 3/5/2016 5:30 AM | 7.69 | 3/6/2016 5:30 AM | 7.66 |
| 3/4/2016 5:45 AM | 7.65 | 3/5/2016 5:45 AM | 7.69 | 3/6/2016 5:45 AM | 7.66 |
| 3/4/2016 6:00 AM | 7.65 | 3/5/2016 6:00 AM | 7.68 | 3/6/2016 6:00 AM | 7.62 |
| 3/4/2016 6:15 AM | 7.64 | 3/5/2016 6:15 AM | 7.68 | 3/6/2016 6:15 AM | 7.67 |
| 3/4/2016 6:30 AM | 7.64 | 3/5/2016 6:30 AM | 7.67 | 3/6/2016 6:30 AM | 7.70 |
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| 3/4/2016 1:30 PM | 7.63 | 3/5/2016 1:30 PM | 7.66 | 3/6/2016 1:30 PM | 7.59 |
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| 3/4/2016 2:00 PM | 7.63 | 3/5/2016 2:00 PM | 7.66 | 3/6/2016 2:00 PM | 7.62 |

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| 3/4/2016 3:30 PM | 7.71 | 3/5/2016 3:30 PM | 7.65 | 3/6/2016 3:30 PM | 7.65 |
| 3/4/2016 3:45 PM | 7.72 | 3/5/2016 3:45 PM | 7.65 | 3/6/2016 3:45 PM | 7.67 |
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| 3/4/2016 6:30 PM | 7.66 | 3/5/2016 6:30 PM | 7.65 | 3/6/2016 6:30 PM | 7.66 |
| 3/4/2016 6:45 PM | 7.65 | 3/5/2016 6:45 PM | 7.64 | 3/6/2016 6:45 PM | 7.65 |
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| 3/4/2016 8:30 PM | 7.62 | 3/5/2016 8:30 PM | 7.65 | 3/6/2016 8:30 PM | 7.65 |
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| 3/4/2016 9:15 PM | 7.60 | 3/5/2016 9:15 PM | 7.67 | 3/6/2016 9:15 PM | 7.64 |
| 3/4/2016 9:30 PM | 7.60 | 3/5/2016 9:30 PM | 7.71 | 3/6/2016 9:30 PM | 7.64 |
| 3/4/2016 9:45 PM | 7.59 | 3/5/2016 9:45 PM | 7.72 | 3/6/2016 9:45 PM | 7.63 |
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| 3/4/2016 10:15 PM | 7.59 | 3/5/2016 10:15 PM | 7.68 | 3/6/2016 10:15 PM | 7.63 |
| 3/4/2016 10:30 PM | 7.58 | 3/5/2016 10:30 PM | 7.67 | 3/6/2016 10:30 PM | 7.65 |
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| 3/4/2016 11:15 PM | 7.57 | 3/5/2016 11:15 PM | 7.66 | 3/6/2016 11:15 PM | 7.63 |
| 3/4/2016 11:30 PM | 7.57 | 3/5/2016 11:30 PM | 7.71 | 3/6/2016 11:30 PM | 7.63 |
| 3/4/2016 11:45 PM | 7.57 | 3/5/2016 11:45 PM | 7.73 | 3/6/2016 11:45 PM | 7.62 |
| AVG | 7.66 | AVG | 7.65 | AVG | 7.66 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 3/7/2016 3:30 AM | 7.65 | 3/8/2016 3:30 AM | 7.67 | 3/9/2016 3:30 AM | 7.69 |
| 3/7/2016 3:45 AM | 7.65 | 3/8/2016 3:45 AM | 7.67 | 3/9/2016 3:45 AM | 7.69 |
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| 3/7/2016 12:45 PM | 7.55 | 3/8/2016 12:45 PM | 7.53 | 3/9/2016 12:45 PM | 7.38 |
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| 3/7/2016 1:30 PM | 7.54 | 3/8/2016 1:30 PM | 7.46 | 3/9/2016 1:30 PM | 7.41 |
| 3/7/2016 1:45 PM | 7.54 | 3/8/2016 1:45 PM | 7.42 | 3/9/2016 1:45 PM | 7.41 |
| 3/7/2016 2:00 PM | 7.55 | 3/8/2016 2:00 PM | 7.43 | 3/9/2016 2:00 PM | 7.42 |

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| 3/7/2016 2:45 PM | 7.61 | 3/8/2016 2:45 PM | 7.50 | 3/9/2016 2:45 PM | 7.51 |
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| 3/7/2016 3:15 PM | 7.62 | 3/8/2016 3:15 PM | 7.51 | 3/9/2016 3:15 PM | 7.55 |
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| 3/7/2016 6:15 PM | 7.62 | 3/8/2016 6:15 PM | 7.59 | 3/9/2016 6:15 PM | 7.63 |
| 3/7/2016 6:30 PM | 7.63 | 3/8/2016 6:30 PM | 7.60 | 3/9/2016 6:30 PM | 7.62 |
| 3/7/2016 6:45 PM | 7.68 | 3/8/2016 6:45 PM | 7.61 | 3/9/2016 6:45 PM | 7.61 |
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| 3/7/2016 9:45 PM | 7.73 | 3/8/2016 9:45 PM | 7.69 | 3/9/2016 9:45 PM | 7.59 |
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| 3/7/2016 11:00 PM | 7.71 | 3/8/2016 11:00 PM | 7.73 | 3/9/2016 11:00 PM | 7.65 |
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| 3/7/2016 11:30 PM | 7.70 | 3/8/2016 11:30 PM | 7.72 | 3/9/2016 11:30 PM | 7.64 |
| 3/7/2016 11:45 PM | 7.70 | 3/8/2016 11:45 PM | 7.71 | 3/9/2016 11:45 PM | 7.63 |
| AVG | 7.62 | AVG | 7.62 | AVG | 7.60 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 3/10/2016 12:45 AM | 7.69 | 3/11/2016 12:45 AM | 7.57 | 3/12/2016 12:45 AM | 7.66 |
| 3/10/2016 1:00 AM | 7.70 | 3/11/2016 1:00 AM | 7.57 | 3/12/2016 1:00 AM | 7.66 |
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| 3/10/2016 3:30 AM | 7.66 | 3/11/2016 3:30 AM | 7.60 | 3/12/2016 3:30 AM | 7.63 |
| 3/10/2016 3:45 AM | 7.65 | 3/11/2016 3:45 AM | 7.63 | 3/12/2016 3:45 AM | 7.68 |
| 3/10/2016 4:00 AM | 7.65 | 3/11/2016 4:00 AM | 7.64 | 3/12/2016 4:00 AM | 7.62 |
| 3/10/2016 4:15 AM | 7.64 | 3/11/2016 4:15 AM | 7.65 | 3/12/2016 4:15 AM | 7.61 |
| 3/10/2016 4:30 AM | 7.63 | 3/11/2016 4:30 AM | 7.65 | 3/12/2016 4:30 AM | 7.60 |
| 3/10/2016 4:45 AM | 7.63 | 3/11/2016 4:45 AM | 7.64 | 3/12/2016 4:45 AM | 7.60 |
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| 3/10/2016 5:30 AM | 7.62 | 3/11/2016 5:30 AM | 7.63 | 3/12/2016 5:30 AM | 7.59 |
| 3/10/2016 5:45 AM | 7.61 | 3/11/2016 5:45 AM | 7.63 | 3/12/2016 5:45 AM | 7.59 |
| 3/10/2016 6:00 AM | 7.61 | 3/11/2016 6:00 AM | 7.63 | 3/12/2016 6:00 AM | 7.57 |
| 3/10/2016 6:15 AM | 7.60 | 3/11/2016 6:15 AM | 7.63 | 3/12/2016 6:15 AM | 7.62 |
| 3/10/2016 6:30 AM | 7.60 | 3/11/2016 6:30 AM | 7.62 | 3/12/2016 6:30 AM | 7.65 |
| 3/10/2016 6:45 AM | 7.60 | 3/11/2016 6:45 AM | 7.62 | 3/12/2016 6:45 AM | 7.66 |
| 3/10/2016 7:00 AM | 7.59 | 3/11/2016 7:00 AM | 7.61 | 3/12/2016 7:00 AM | 7.66 |
| 3/10/2016 7:15 AM | 7.59 | 3/11/2016 7:15 AM | 7.62 | 3/12/2016 7:15 AM | 7.66 |
| 3/10/2016 7:30 AM | 7.64 | 3/11/2016 7:30 AM | 7.61 | 3/12/2016 7:30 AM | 7.65 |
| 3/10/2016 7:45 AM | 7.63 | 3/11/2016 7:45 AM | 7.61 | 3/12/2016 7:45 AM | 7.65 |
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| 3/10/2016 8:45 AM | 7.60 | 3/11/2016 8:45 AM | 7.59 | 3/12/2016 8:45 AM | 7.62 |
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| 3/10/2016 9:30 AM | 7.64 | 3/11/2016 9:30 AM | 7.60 | 3/12/2016 9:30 AM | 7.58 |
| 3/10/2016 9:45 AM | 7.64 | 3/11/2016 9:45 AM | 7.59 | 3/12/2016 9:45 AM | 7.58 |
| 3/10/2016 10:00 AM | 7.62 | 3/11/2016 10:00 AM | 7.58 | 3/12/2016 10:00 AM | 7.58 |
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| 3/10/2016 11:00 AM | 7.61 | 3/11/2016 11:00 AM | 7.57 | 3/12/2016 11:00 AM | 7.62 |
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| 3/10/2016 11:30 AM | 7.61 | 3/11/2016 11:30 AM | 7.54 | 3/12/2016 11:30 AM | 7.63 |
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| 3/10/2016 12:30 PM | 7.53 | 3/11/2016 12:30 PM | 7.61 | 3/12/2016 12:30 PM | 7.62 |
| 3/10/2016 12:45 PM | 7.52 | 3/11/2016 12:45 PM | 7.61 | 3/12/2016 12:45 PM | 7.62 |
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| 3/10/2016 1:30 PM | 7.49 | 3/11/2016 1:30 PM | 7.60 | 3/12/2016 1:30 PM | 7.60 |
| 3/10/2016 1:45 PM | 7.50 | 3/11/2016 1:45 PM | 7.60 | 3/12/2016 1:45 PM | 7.61 |
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| 3/10/2016 3:15 PM | 7.60 | 3/11/2016 3:15 PM | 7.55 | 3/12/2016 3:15 PM | 7.59 |
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| 3/10/2016 4:45 PM | 7.58 | 3/11/2016 4:45 PM | 7.58 | 3/12/2016 4:45 PM | 7.59 |
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| 3/13/2016 8:30 AM | 7.48 | 3/14/2016 8:30 AM | 7.57 | 3/15/2016 8:30 AM | 7.62 |
| 3/13/2016 8:45 AM | 7.48 | 3/14/2016 8:45 AM | 7.57 | 3/15/2016 8:45 AM | 7.62 |
| 3/13/2016 9:00 AM | 7.48 | 3/14/2016 9:00 AM | 7.56 | 3/15/2016 9:00 AM | 7.61 |
| 3/13/2016 9:15 AM | 7.48 | 3/14/2016 9:15 AM | 7.56 | 3/15/2016 9:15 AM | 7.61 |
| 3/13/2016 9:30 AM | 7.47 | 3/14/2016 9:30 AM | 7.56 | 3/15/2016 9:30 AM | 7.60 |
| 3/13/2016 9:45 AM | 7.47 | 3/14/2016 9:45 AM | 7.56 | 3/15/2016 9:45 AM | 7.60 |
| 3/13/2016 10:00 AM | 7.47 | 3/14/2016 10:00 AM | 7.56 | 3/15/2016 10:00 AM | 7.60 |
| 3/13/2016 10:15 AM | 7.48 | 3/14/2016 10:15 AM | 7.56 | 3/15/2016 10:15 AM | 7.58 |
| 3/13/2016 10:30 AM | 7.47 | 3/14/2016 10:30 AM | 7.54 | 3/15/2016 10:30 AM | 7.56 |
| 3/13/2016 10:45 AM | 7.47 | 3/14/2016 10:45 AM | 7.59 | 3/15/2016 10:45 AM | 7.56 |
| 3/13/2016 11:00 AM | 7.47 | 3/14/2016 11:00 AM | 7.62 | 3/15/2016 11:00 AM | 7.55 |
| 3/13/2016 11:15 AM | 7.47 | 3/14/2016 11:15 AM | 7.63 | 3/15/2016 11:15 AM | 7.56 |
| 3/13/2016 11:30 AM | 7.47 | 3/14/2016 11:30 AM | 7.63 | 3/15/2016 11:30 AM | 7.59 |
| 3/13/2016 11:45 AM | 7.47 | 3/14/2016 11:45 AM | 7.62 | 3/15/2016 11:45 AM | 7.61 |
| 3/13/2016 12:00 PM | 7.47 | 3/14/2016 12:00 PM | 7.61 | 3/15/2016 12:00 PM | 7.61 |
| 3/13/2016 12:15 PM | 7.47 | 3/14/2016 12:15 PM | 7.61 | 3/15/2016 12:15 PM | 7.61 |
| 3/13/2016 12:30 PM | 7.47 | 3/14/2016 12:30 PM | 7.60 | 3/15/2016 12:30 PM | 7.60 |
| 3/13/2016 12:45 PM | 7.47 | 3/14/2016 12:45 PM | 7.60 | 3/15/2016 12:45 PM | 7.60 |
| 3/13/2016 1:00 PM | 7.47 | 3/14/2016 1:00 PM | 7.59 | 3/15/2016 1:00 PM | 7.59 |
| 3/13/2016 1:15 PM | 7.47 | 3/14/2016 1:15 PM | 7.59 | 3/15/2016 1:15 PM | 7.59 |
| 3/13/2016 1:30 PM | 7.47 | 3/14/2016 1:30 PM | 7.59 | 3/15/2016 1:30 PM | 7.59 |
| 3/13/2016 1:45 PM | 7.47 | 3/14/2016 1:45 PM | 7.66 | 3/15/2016 1:45 PM | 7.58 |
| 3/13/2016 2:00 PM | 7.47 | 3/14/2016 2:00 PM | 7.59 | 3/15/2016 2:00 PM | 7.58 |

| | | | | | |
|---|---|---|---|---|---|
| 3/13/2016 2:15 PM | 7.47 | 3/14/2016 2:15 PM | 7.58 | 3/15/2016 2:15 PM | 7.57 |
| 3/13/2016 2:30 PM | 7.47 | 3/14/2016 2:30 PM | 7.58 | 3/15/2016 2:30 PM | 7.56 |
| 3/13/2016 2:45 PM | 7.47 | 3/14/2016 2:45 PM | 7.58 | 3/15/2016 2:45 PM | 7.55 |
| 3/13/2016 3:00 PM | 7.47 | 3/14/2016 3:00 PM | 7.61 | 3/15/2016 3:00 PM | 7.55 |
| 3/13/2016 3:15 PM | 7.62 | 3/14/2016 3:15 PM | 7.63 | 3/15/2016 3:15 PM | 7.54 |
| 3/13/2016 3:30 PM | 7.60 | 3/14/2016 3:30 PM | 7.63 | 3/15/2016 3:30 PM | 7.53 |
| 3/13/2016 3:45 PM | 7.58 | 3/14/2016 3:45 PM | 7.63 | 3/15/2016 3:45 PM | 7.53 |
| 3/13/2016 4:00 PM | 7.56 | 3/14/2016 4:00 PM | 7.60 | 3/15/2016 4:00 PM | 7.53 |
| 3/13/2016 4:15 PM | 7.55 | 3/14/2016 4:15 PM | 7.59 | 3/15/2016 4:15 PM | 7.53 |
| 3/13/2016 4:30 PM | 7.55 | 3/14/2016 4:30 PM | 7.59 | 3/15/2016 4:30 PM | 7.52 |
| 3/13/2016 4:45 PM | 7.54 | 3/14/2016 4:45 PM | 7.58 | 3/15/2016 4:45 PM | 7.52 |
| 3/13/2016 5:00 PM | 7.54 | 3/14/2016 5:00 PM | 7.58 | 3/15/2016 5:00 PM | 7.52 |
| 3/13/2016 5:15 PM | 7.54 | 3/14/2016 5:15 PM | 7.58 | 3/15/2016 5:15 PM | 7.51 |
| 3/13/2016 5:30 PM | 7.54 | 3/14/2016 5:30 PM | 7.54 | 3/15/2016 5:30 PM | 7.50 |
| 3/13/2016 5:45 PM | 7.55 | 3/14/2016 5:45 PM | 7.60 | 3/15/2016 5:45 PM | 7.51 |
| 3/13/2016 6:00 PM | 7.55 | 3/14/2016 6:00 PM | 7.63 | 3/15/2016 6:00 PM | 7.51 |
| 3/13/2016 6:15 PM | 7.55 | 3/14/2016 6:15 PM | 7.64 | 3/15/2016 6:15 PM | 7.51 |
| 3/13/2016 6:30 PM | 7.55 | 3/14/2016 6:30 PM | 7.64 | 3/15/2016 6:30 PM | 7.51 |
| 3/13/2016 6:45 PM | 7.55 | 3/14/2016 6:45 PM | 7.64 | 3/15/2016 6:45 PM | 7.49 |
| 3/13/2016 7:00 PM | 7.56 | 3/14/2016 7:00 PM | 7.63 | 3/15/2016 7:00 PM | 7.49 |
| 3/13/2016 7:15 PM | 7.56 | 3/14/2016 7:15 PM | 7.63 | 3/15/2016 7:15 PM | 7.49 |
| 3/13/2016 7:30 PM | 7.56 | 3/14/2016 7:30 PM | 7.62 | 3/15/2016 7:30 PM | 7.48 |
| 3/13/2016 7:45 PM | 7.57 | 3/14/2016 7:45 PM | 7.61 | 3/15/2016 7:45 PM | 7.57 |
| 3/13/2016 8:00 PM | 7.57 | 3/14/2016 8:00 PM | 7.61 | 3/15/2016 8:00 PM | 7.56 |
| 3/13/2016 8:15 PM | 7.57 | 3/14/2016 8:15 PM | 7.61 | 3/15/2016 8:15 PM | 7.55 |
| 3/13/2016 8:30 PM | 7.57 | 3/14/2016 8:30 PM | 7.59 | 3/15/2016 8:30 PM | 7.54 |
| 3/13/2016 8:45 PM | 7.57 | 3/14/2016 8:45 PM | 7.58 | 3/15/2016 8:45 PM | 7.51 |
| 3/13/2016 9:00 PM | 7.57 | 3/14/2016 9:00 PM | 7.58 | 3/15/2016 9:00 PM | 7.56 |
| 3/13/2016 9:15 PM | 7.57 | 3/14/2016 9:15 PM | 7.57 | 3/15/2016 9:15 PM | 7.58 |
| 3/13/2016 9:30 PM | 7.57 | 3/14/2016 9:30 PM | 7.57 | 3/15/2016 9:30 PM | 7.59 |
| 3/13/2016 9:45 PM | 7.57 | 3/14/2016 9:45 PM | 7.54 | 3/15/2016 9:45 PM | 7.60 |
| 3/13/2016 10:00 PM | 7.58 | 3/14/2016 10:00 PM | 7.59 | 3/15/2016 10:00 PM | 7.59 |
| 3/13/2016 10:15 PM | 7.58 | 3/14/2016 10:15 PM | 7.62 | 3/15/2016 10:15 PM | 7.59 |
| 3/13/2016 10:30 PM | 7.58 | 3/14/2016 10:30 PM | 7.63 | 3/15/2016 10:30 PM | 7.58 |
| 3/13/2016 10:45 PM | 7.61 | 3/14/2016 10:45 PM | 7.64 | 3/15/2016 10:45 PM | 7.58 |
| 3/13/2016 11:00 PM | 7.64 | 3/14/2016 11:00 PM | 7.63 | 3/15/2016 11:00 PM | 7.58 |
| 3/13/2016 11:15 PM | 7.65 | 3/14/2016 11:15 PM | 7.62 | 3/15/2016 11:15 PM | 7.58 |
| 3/13/2016 11:30 PM | 7.66 | 3/14/2016 11:30 PM | 7.62 | 3/15/2016 11:30 PM | 7.58 |
| 3/13/2016 11:45 PM | 7.68 | 3/14/2016 11:45 PM | 7.62 | 3/15/2016 11:45 PM | 7.56 |
| AVG | 7.52 | AVG | 7.60 | AVG | 7.57 |

Note: No data recorded from 2:00AM through 2:45AM due to loss of communication between the pH probe to the SCADA, not included in calculations.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 3/16/2016 12:00 AM | 7.56 | 3/17/2016 12:00 AM | 7.52 | 3/18/2016 12:00 AM | 8.62 |
| 3/16/2016 12:15 AM | 7.55 | 3/17/2016 12:15 AM | 7.55 | 3/18/2016 12:15 AM | 8.62 |
| 3/16/2016 12:30 AM | 7.55 | 3/17/2016 12:30 AM | 7.57 | 3/18/2016 12:30 AM | 8.62 |
| 3/16/2016 12:45 AM | 7.55 | 3/17/2016 12:45 AM | 7.57 | 3/18/2016 12:45 AM | 8.61 |
| 3/16/2016 1:00 AM | 7.55 | 3/17/2016 1:00 AM | 7.58 | 3/18/2016 1:00 AM | 8.68 |
| 3/16/2016 1:15 AM | 7.55 | 3/17/2016 1:15 AM | 7.58 | 3/18/2016 1:15 AM | 8.68 |
| 3/16/2016 1:30 AM | 7.59 | 3/17/2016 1:30 AM | 7.58 | 3/18/2016 1:30 AM | 8.66 |
| 3/16/2016 1:45 AM | 7.61 | 3/17/2016 1:45 AM | 7.57 | 3/18/2016 1:45 AM | 8.66 |
| 3/16/2016 2:00 AM | 7.62 | 3/17/2016 2:00 AM | 7.57 | 3/18/2016 2:00 AM | 8.65 |
| 3/16/2016 2:15 AM | 7.62 | 3/17/2016 2:15 AM | 7.57 | 3/18/2016 2:15 AM | 8.65 |
| 3/16/2016 2:30 AM | 7.62 | 3/17/2016 2:30 AM | 7.58 | 3/18/2016 2:30 AM | 8.61 |
| 3/16/2016 2:45 AM | 7.62 | 3/17/2016 2:45 AM | 7.57 | 3/18/2016 2:45 AM | 8.67 |
| 3/16/2016 3:00 AM | 7.61 | 3/17/2016 3:00 AM | 7.56 | 3/18/2016 3:00 AM | 8.70 |
| 3/16/2016 3:15 AM | 7.60 | 3/17/2016 3:15 AM | 7.55 | 3/18/2016 3:15 AM | 8.71 |
| 3/16/2016 3:30 AM | 7.60 | 3/17/2016 3:30 AM | 7.55 | 3/18/2016 3:30 AM | 8.72 |
| 3/16/2016 3:45 AM | 7.60 | 3/17/2016 3:45 AM | 7.55 | 3/18/2016 3:45 AM | 8.72 |
| 3/16/2016 4:00 AM | 7.58 | 3/17/2016 4:00 AM | 7.55 | 3/18/2016 4:00 AM | 8.71 |
| 3/16/2016 4:15 AM | 7.57 | 3/17/2016 4:15 AM | 7.53 | 3/18/2016 4:15 AM | 8.71 |
| 3/16/2016 4:30 AM | 7.56 | 3/17/2016 4:30 AM | 7.58 | 3/18/2016 4:30 AM | 8.69 |
| 3/16/2016 4:45 AM | 7.56 | 3/17/2016 4:45 AM | 7.61 | 3/18/2016 4:45 AM | 8.69 |
| 3/16/2016 5:00 AM | 7.55 | 3/17/2016 5:00 AM | 7.62 | 3/18/2016 5:00 AM | 8.69 |
| 3/16/2016 5:15 AM | 7.49 | 3/17/2016 5:15 AM | 7.62 | 3/18/2016 5:15 AM | 8.68 |
| 3/16/2016 5:30 AM | 7.57 | 3/17/2016 5:30 AM | 7.62 | 3/18/2016 5:30 AM | 8.76 |
| 3/16/2016 5:45 AM | 7.60 | 3/17/2016 5:45 AM | 7.61 | 3/18/2016 5:45 AM | 8.74 |
| 3/16/2016 6:00 AM | 7.62 | 3/17/2016 6:00 AM | 7.61 | 3/18/2016 6:00 AM | 8.73 |
| 3/16/2016 6:15 AM | 7.62 | 3/17/2016 6:15 AM | 7.61 | 3/18/2016 6:15 AM | 8.69 |
| 3/16/2016 6:30 AM | 7.62 | 3/17/2016 6:30 AM | 7.61 | 3/18/2016 6:30 AM | 8.73 |
| 3/16/2016 6:45 AM | 7.62 | 3/17/2016 6:45 AM | 7.65 | 3/18/2016 6:45 AM | 8.76 |
| 3/16/2016 7:00 AM | 7.61 | 3/17/2016 7:00 AM | 7.58 | 3/18/2016 7:00 AM | 8.77 |
| 3/16/2016 7:15 AM | 7.61 | 3/17/2016 7:15 AM | 7.57 | 3/18/2016 7:15 AM | 8.77 |
| 3/16/2016 7:30 AM | 7.61 | 3/17/2016 7:30 AM | 7.57 | 3/18/2016 7:30 AM | 8.76 |
| 3/16/2016 7:45 AM | 7.61 | 3/17/2016 7:45 AM | 7.57 | 3/18/2016 7:45 AM | 8.75 |
| 3/16/2016 8:00 AM | 7.60 | 3/17/2016 8:00 AM | 7.56 | 3/18/2016 8:00 AM | 8.74 |
| 3/16/2016 8:15 AM | 7.60 | 3/17/2016 8:15 AM | 7.56 | 3/18/2016 8:15 AM | 8.73 |
| 3/16/2016 8:30 AM | 7.64 | 3/17/2016 8:30 AM | 7.56 | 3/18/2016 8:30 AM | 8.72 |
| 3/16/2016 8:45 AM | 7.57 | 3/17/2016 8:45 AM | 7.55 | 3/18/2016 8:45 AM | 8.71 |
| 3/16/2016 9:00 AM | 7.55 | 3/17/2016 9:00 AM | 7.56 | 3/18/2016 9:00 AM | 8.69 |
| 3/16/2016 9:15 AM | 7.53 | 3/17/2016 9:15 AM | 7.55 | 3/18/2016 9:15 AM | 8.68 |
| 3/16/2016 9:30 AM | 7.51 | 3/17/2016 9:30 AM | 7.50 | 3/18/2016 9:30 AM | 8.66 |
| 3/16/2016 9:45 AM | 7.49 | 3/17/2016 9:45 AM | 7.56 | 3/18/2016 9:45 AM | 8.66 |
| 3/16/2016 10:00 AM | 7.45 | 3/17/2016 10:00 AM | 7.59 | 3/18/2016 10:00 AM | 8.65 |
| 3/16/2016 10:15 AM | 7.48 | 3/17/2016 10:15 AM | 7.60 | 3/18/2016 10:15 AM | 8.65 |
| 3/16/2016 10:30 AM | 7.49 | 3/17/2016 10:30 AM | 7.59 | 3/18/2016 10:30 AM | 8.65 |
| 3/16/2016 10:45 AM | 7.49 | 3/17/2016 10:45 AM | 7.58 | 3/18/2016 10:45 AM | 8.65 |
| 3/16/2016 11:00 AM | 7.48 | 3/17/2016 11:00 AM | 7.60 | 3/18/2016 11:00 AM | 8.66 |
| 3/16/2016 11:15 AM | 7.47 | 3/17/2016 11:15 AM | 7.59 | 3/18/2016 11:15 AM | 8.64 |
| 3/16/2016 11:30 AM | 7.46 | 3/17/2016 11:30 AM | 7.59 | 3/18/2016 11:30 AM | 8.63 |
| 3/16/2016 11:45 AM | 7.45 | 3/17/2016 11:45 AM | 7.58 | 3/18/2016 11:45 AM | 8.65 |
| 3/16/2016 12:00 PM | 7.45 | 3/17/2016 12:00 PM | 7.58 | 3/18/2016 12:00 PM | 8.66 |
| 3/16/2016 12:15 PM | 7.47 | 3/17/2016 12:15 PM | 7.58 | 3/18/2016 12:15 PM | 8.66 |
| 3/16/2016 12:30 PM | 7.48 | 3/17/2016 12:30 PM | 7.57 | 3/18/2016 12:30 PM | 8.65 |
| 3/16/2016 12:45 PM | 7.50 | 3/17/2016 12:45 PM | 7.56 | 3/18/2016 12:45 PM | 8.64 |
| 3/16/2016 1:00 PM | 7.49 | 3/17/2016 1:00 PM | 7.56 | 3/18/2016 1:00 PM | 8.63 |
| 3/16/2016 1:15 PM | 7.44 | 3/17/2016 1:15 PM | 7.56 | 3/18/2016 1:15 PM | 8.63 |
| 3/16/2016 1:30 PM | 7.48 | 3/17/2016 1:30 PM | 7.55 | 3/18/2016 1:30 PM | 8.62 |
| 3/16/2016 1:45 PM | 7.49 | 3/17/2016 1:45 PM | 7.55 | 3/18/2016 1:45 PM | 8.59 |
| 3/16/2016 2:00 PM | 7.50 | 3/17/2016 2:00 PM | 7.53 | 3/18/2016 2:00 PM | 8.59 |

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|---|---|---|---|---|---|
| 3/16/2016 2:15 PM | 7.49 | 3/17/2016 2:15 PM | 7.53 | 3/18/2016 2:15 PM | 8.60 |
| 3/16/2016 2:30 PM | 7.52 | 3/17/2016 2:30 PM | 7.53 | 3/18/2016 2:30 PM | 8.61 |
| 3/16/2016 2:45 PM | 7.53 | 3/17/2016 2:45 PM | 7.53 | 3/18/2016 2:45 PM | 8.61 |
| 3/16/2016 3:00 PM | 7.53 | 3/17/2016 3:00 PM | 7.53 | 3/18/2016 3:00 PM | 8.61 |
| 3/16/2016 3:15 PM | 7.54 | 3/17/2016 3:15 PM | 7.52 | 3/18/2016 3:15 PM | 8.59 |
| 3/16/2016 3:30 PM | 7.54 | 3/17/2016 3:30 PM | 7.51 | 3/18/2016 3:30 PM | 8.58 |
| 3/16/2016 3:45 PM | 7.53 | 3/17/2016 3:45 PM | 7.51 | 3/18/2016 3:45 PM | 8.58 |
| 3/16/2016 4:00 PM | 7.52 | 3/17/2016 4:00 PM | 7.50 | 3/18/2016 4:00 PM | 8.59 |
| 3/16/2016 4:15 PM | 7.52 | 3/17/2016 4:15 PM | 7.50 | 3/18/2016 4:15 PM | 8.57 |
| 3/16/2016 4:30 PM | 7.51 | 3/17/2016 4:30 PM | 7.48 | 3/18/2016 4:30 PM | 8.57 |
| 3/16/2016 4:45 PM | 7.50 | 3/17/2016 4:45 PM | 7.48 | 3/18/2016 4:45 PM | 8.56 |
| 3/16/2016 5:00 PM | 7.51 | 3/17/2016 5:00 PM | 7.48 | 3/18/2016 5:00 PM | 8.56 |
| 3/16/2016 5:15 PM | 7.50 | 3/17/2016 5:15 PM | 7.48 | 3/18/2016 5:15 PM | 8.55 |
| 3/16/2016 5:30 PM | 7.49 | 3/17/2016 5:30 PM | 7.48 | 3/18/2016 5:30 PM | 8.55 |
| 3/16/2016 5:45 PM | 7.51 | 3/17/2016 5:45 PM | 7.47 | 3/18/2016 5:45 PM | 8.56 |
| 3/16/2016 6:00 PM | 7.50 | 3/17/2016 6:00 PM | 7.48 | 3/18/2016 6:00 PM | 8.55 |
| 3/16/2016 6:15 PM | 7.49 | 3/17/2016 6:15 PM | 7.47 | 3/18/2016 6:15 PM | 8.55 |
| 3/16/2016 6:30 PM | 7.49 | 3/17/2016 6:30 PM | 7.47 | 3/18/2016 6:30 PM | 8.54 |
| 3/16/2016 6:45 PM | 7.49 | 3/17/2016 6:45 PM | 7.47 | 3/18/2016 6:45 PM | 8.54 |
| 3/16/2016 7:00 PM | 7.49 | 3/17/2016 7:00 PM | 7.47 | 3/18/2016 7:00 PM | 8.54 |
| 3/16/2016 7:15 PM | 7.48 | 3/17/2016 7:15 PM | 7.47 | 3/18/2016 7:15 PM | 8.54 |
| 3/16/2016 7:30 PM | 7.48 | 3/17/2016 7:30 PM | 7.47 | 3/18/2016 7:30 PM | 8.54 |
| 3/16/2016 7:45 PM | 7.49 | 3/17/2016 7:45 PM | 7.47 | 3/18/2016 7:45 PM | 8.54 |
| 3/16/2016 8:00 PM | 7.49 | 3/17/2016 8:00 PM | 7.47 | 3/18/2016 8:00 PM | 8.54 |
| 3/16/2016 8:15 PM | 7.49 | 3/17/2016 8:15 PM | 7.47 | 3/18/2016 8:15 PM | 8.53 |
| 3/16/2016 8:30 PM | 7.49 | 3/17/2016 8:30 PM | 8.75 | 3/18/2016 8:30 PM | 8.53 |
| 3/16/2016 8:45 PM | 7.48 | 3/17/2016 8:45 PM | 8.69 | 3/18/2016 8:45 PM | 8.53 |
| 3/16/2016 9:00 PM | 7.47 | 3/17/2016 9:00 PM | 8.59 | 3/18/2016 9:00 PM | 8.53 |
| 3/16/2016 9:15 PM | 7.46 | 3/17/2016 9:15 PM | 8.62 | 3/18/2016 9:15 PM | 8.53 |
| 3/16/2016 9:30 PM | 7.48 | 3/17/2016 9:30 PM | 8.64 | 3/18/2016 9:30 PM | 8.53 |
| 3/16/2016 9:45 PM | 7.48 | 3/17/2016 9:45 PM | 8.64 | 3/18/2016 9:45 PM | 8.53 |
| 3/16/2016 10:00 PM | 7.47 | 3/17/2016 10:00 PM | 8.65 | 3/18/2016 10:00 PM | 8.53 |
| 3/16/2016 10:15 PM | 7.45 | 3/17/2016 10:15 PM | 8.66 | 3/18/2016 10:15 PM | 8.53 |
| 3/16/2016 10:30 PM | 7.46 | 3/17/2016 10:30 PM | 8.65 | 3/18/2016 10:30 PM | 8.53 |
| 3/16/2016 10:45 PM | 7.56 | 3/17/2016 10:45 PM | 8.65 | 3/18/2016 10:45 PM | 8.53 |
| 3/16/2016 11:00 PM | 7.57 | 3/17/2016 11:00 PM | 8.64 | 3/18/2016 11:00 PM | 8.93 |
| 3/16/2016 11:15 PM | 7.56 | 3/17/2016 11:15 PM | 8.64 | 3/18/2016 11:15 PM | 8.95 |
| 3/16/2016 11:30 PM | 7.55 | 3/17/2016 11:30 PM | 8.64 | 3/18/2016 11:30 PM | 8.93 |
| 3/16/2016 11:45 PM | 7.48 | 3/17/2016 11:45 PM | 8.63 | 3/18/2016 11:45 PM | 8.92 |
| AVG | 7.53 | AVG | 7.71 | AVG | 8.64 |

Note: New carbon placed into service approx. 8:00 PM. typical pH spike seen after new carbon placed into service after regeneration.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 3/19/2016 12:00 AM | 8.93 | 3/20/2016 12:00 AM | 8.73 | 3/21/2016 12:00 AM | 8.84 |
| 3/19/2016 12:15 AM | 8.91 | 3/20/2016 12:15 AM | 8.73 | 3/21/2016 12:15 AM | 9.11 |
| 3/19/2016 12:30 AM | 8.90 | 3/20/2016 12:30 AM | 8.72 | 3/21/2016 12:30 AM | 8.90 |
| 3/19/2016 12:45 AM | 8.90 | 3/20/2016 12:45 AM | 8.72 | 3/21/2016 12:45 AM | 8.87 |
| 3/19/2016 1:00 AM | 8.89 | 3/20/2016 1:00 AM | 8.72 | 3/21/2016 1:00 AM | 8.90 |
| 3/19/2016 1:15 AM | 8.89 | 3/20/2016 1:15 AM | 8.71 | 3/21/2016 1:15 AM | 8.90 |
| 3/19/2016 1:30 AM | 8.94 | 3/20/2016 1:30 AM | 8.71 | 3/21/2016 1:30 AM | 8.92 |
| 3/19/2016 1:45 AM | 8.97 | 3/20/2016 1:45 AM | 8.70 | 3/21/2016 1:45 AM | 8.91 |
| 3/19/2016 2:00 AM | 8.98 | 3/20/2016 2:00 AM | 8.70 | 3/21/2016 2:00 AM | 8.92 |
| 3/19/2016 2:15 AM | 8.98 | 3/20/2016 2:15 AM | 8.70 | 3/21/2016 2:15 AM | 8.94 |
| 3/19/2016 2:30 AM | 8.98 | 3/20/2016 2:30 AM | 8.76 | 3/21/2016 2:30 AM | 8.97 |
| 3/19/2016 2:45 AM | 8.97 | 3/20/2016 2:45 AM | 8.76 | 3/21/2016 2:45 AM | 8.96 |
| 3/19/2016 3:00 AM | 8.97 | 3/20/2016 3:00 AM | 8.76 | 3/21/2016 3:00 AM | 8.93 |
| 3/19/2016 3:15 AM | 8.97 | 3/20/2016 3:15 AM | 8.79 | 3/21/2016 3:15 AM | 8.95 |
| 3/19/2016 3:30 AM | 8.96 | 3/20/2016 3:30 AM | 8.77 | 3/21/2016 3:30 AM | 8.98 |
| 3/19/2016 3:45 AM | 8.96 | 3/20/2016 3:45 AM | 8.77 | 3/21/2016 3:45 AM | 9.00 |
| 3/19/2016 4:00 AM | 8.99 | 3/20/2016 4:00 AM | 8.77 | 3/21/2016 4:00 AM | 8.95 |
| 3/19/2016 4:15 AM | 8.99 | 3/20/2016 4:15 AM | 8.78 | 3/21/2016 4:15 AM | 8.92 |
| 3/19/2016 4:30 AM | 8.98 | 3/20/2016 4:30 AM | 8.78 | 3/21/2016 4:30 AM | 8.89 |
| 3/19/2016 4:45 AM | 8.95 | 3/20/2016 4:45 AM | 8.78 | 3/21/2016 4:45 AM | 8.87 |
| 3/19/2016 5:00 AM | 8.95 | 3/20/2016 5:00 AM | 8.78 | 3/21/2016 5:00 AM | 8.86 |
| 3/19/2016 5:15 AM | 8.95 | 3/20/2016 5:15 AM | 8.78 | 3/21/2016 5:15 AM | 8.84 |
| 3/19/2016 5:30 AM | 8.94 | 3/20/2016 5:30 AM | 8.78 | 3/21/2016 5:30 AM | 8.89 |
| 3/19/2016 5:45 AM | 8.97 | 3/20/2016 5:45 AM | 8.77 | 3/21/2016 5:45 AM | 8.86 |
| 3/19/2016 6:00 AM | 9.00 | 3/20/2016 6:00 AM | 8.77 | 3/21/2016 6:00 AM | 8.91 |
| 3/19/2016 6:15 AM | 9.01 | 3/20/2016 6:15 AM | 8.77 | 3/21/2016 6:15 AM | 8.88 |
| 3/19/2016 6:30 AM | 9.02 | 3/20/2016 6:30 AM | 8.77 | 3/21/2016 6:30 AM | 8.89 |
| 3/19/2016 6:45 AM | 9.01 | 3/20/2016 6:45 AM | 8.77 | 3/21/2016 6:45 AM | 8.85 |
| 3/19/2016 7:00 AM | 9.01 | 3/20/2016 7:00 AM | 8.84 | 3/21/2016 7:00 AM | 8.87 |
| 3/19/2016 7:15 AM | 9.01 | 3/20/2016 7:15 AM | 8.84 | 3/21/2016 7:15 AM | 8.86 |
| 3/19/2016 7:30 AM | 9.01 | 3/20/2016 7:30 AM | 8.83 | 3/21/2016 7:30 AM | 8.81 |
| 3/19/2016 7:45 AM | 9.01 | 3/20/2016 7:45 AM | 8.86 | 3/21/2016 7:45 AM | 8.81 |
| 3/19/2016 8:00 AM | 9.00 | 3/20/2016 8:00 AM | 8.86 | 3/21/2016 8:00 AM | 8.83 |
| 3/19/2016 8:15 AM | 9.00 | 3/20/2016 8:15 AM | 8.89 | 3/21/2016 8:15 AM | 8.77 |
| 3/19/2016 8:30 AM | 9.00 | 3/20/2016 8:30 AM | 8.89 | 3/21/2016 8:30 AM | 8.78 |
| 3/19/2016 8:45 AM | 8.98 | 3/20/2016 8:45 AM | 8.86 | 3/21/2016 8:45 AM | 8.78 |
| 3/19/2016 9:00 AM | 8.97 | 3/20/2016 9:00 AM | 8.83 | 3/21/2016 9:00 AM | 8.73 |
| 3/19/2016 9:15 AM | 8.96 | 3/20/2016 9:15 AM | 8.83 | 3/21/2016 9:15 AM | 8.65 |
| 3/19/2016 9:30 AM | 8.96 | 3/20/2016 9:30 AM | 8.84 | 3/21/2016 9:30 AM | 8.70 |
| 3/19/2016 9:45 AM | 8.92 | 3/20/2016 9:45 AM | 8.85 | 3/21/2016 9:45 AM | 8.74 |
| 3/19/2016 10:00 AM | 8.95 | 3/20/2016 10:00 AM | 8.87 | 3/21/2016 10:00 AM | 8.70 |
| 3/19/2016 10:15 AM | 8.95 | 3/20/2016 10:15 AM | 8.89 | 3/21/2016 10:15 AM | 8.77 |
| 3/19/2016 10:30 AM | 8.95 | 3/20/2016 10:30 AM | 8.85 | 3/21/2016 10:30 AM | 9.15 |
| 3/19/2016 10:45 AM | 8.95 | 3/20/2016 10:45 AM | 8.83 | 3/21/2016 10:45 AM | 9.43 |
| 3/19/2016 11:00 AM | 8.95 | 3/20/2016 11:00 AM | 8.80 | 3/21/2016 11:00 AM | 9.43 |
| 3/19/2016 11:15 AM | 8.95 | 3/20/2016 11:15 AM | 8.81 | 3/21/2016 11:15 AM | 9.22 |
| 3/19/2016 11:30 AM | 8.95 | 3/20/2016 11:30 AM | 8.87 | 3/21/2016 11:30 AM | 9.08 |
| 3/19/2016 11:45 AM | 8.95 | 3/20/2016 11:45 AM | 8.84 | 3/21/2016 11:45 AM | 8.90 |
| 3/19/2016 12:00 PM | 8.95 | 3/20/2016 12:00 PM | 8.85 | 3/21/2016 12:00 PM | 8.90 |
| 3/19/2016 12:15 PM | (3.50) | 3/20/2016 12:15 PM | 8.83 | 3/21/2016 12:15 PM | 8.82 |
| 3/19/2016 12:30 PM | (0.00) | 3/20/2016 12:30 PM | 8.80 | 3/21/2016 12:30 PM | 8.78 |
| 3/19/2016 12:45 PM | (0.00) | 3/20/2016 12:45 PM | 8.83 | 3/21/2016 12:45 PM | 8.81 |
| 3/19/2016 1:00 PM | 8.58 | 3/20/2016 1:00 PM | 8.82 | 3/21/2016 1:00 PM | 8.88 |
| 3/19/2016 1:15 PM | | 3/20/2016 1:15 PM | 8.82 | 3/21/2016 1:15 PM | 9.02 |
| 3/19/2016 1:30 PM | | 3/20/2016 1:30 PM | 8.80 | 3/21/2016 1:30 PM | 9.20 |
| 3/19/2016 1:45 PM | | 3/20/2016 1:45 PM | 8.80 | 3/21/2016 1:45 PM | 9.34 |

| | | | | | |
|---|---|---|---|---|---|
| 3/19/2016 2:00 PM | | 3/20/2016 2:00 PM | 8.79 | 3/21/2016 2:00 PM | 9.44 |
| 3/19/2016 2:15 PM | | 3/20/2016 2:15 PM | 8.81 | 3/21/2016 2:15 PM | 8.47 |
| 3/19/2016 2:30 PM | | 3/20/2016 2:30 PM | 8.81 | 3/21/2016 2:30 PM | 8.47 |
| 3/19/2016 2:45 PM | | 3/20/2016 2:45 PM | 8.83 | 3/21/2016 2:45 PM | 8.31 |
| 3/19/2016 3:00 PM | 8.55 | 3/20/2016 3:00 PM | 8.81 | 3/21/2016 3:00 PM | 8.25 |
| 3/19/2016 3:15 PM | | 3/20/2016 3:15 PM | 8.83 | 3/21/2016 3:15 PM | 8.26 |
| 3/19/2016 3:30 PM | | 3/20/2016 3:30 PM | 8.81 | 3/21/2016 3:30 PM | 8.29 |
| 3/19/2016 3:45 PM | | 3/20/2016 3:45 PM | 8.81 | 3/21/2016 3:45 PM | 8.27 |
| 3/19/2016 4:00 PM | 8.58 | 3/20/2016 4:00 PM | 8.88 | 3/21/2016 4:00 PM | 8.35 |
| 3/19/2016 4:15 PM | | 3/20/2016 4:15 PM | 8.88 | 3/21/2016 4:15 PM | 8.32 |
| 3/19/2016 4:30 PM | 7.13 | 3/20/2016 4:30 PM | 8.89 | 3/21/2016 4:30 PM | 8.39 |
| 3/19/2016 4:45 PM | 7.17 | 3/20/2016 4:45 PM | 8.85 | 3/21/2016 4:45 PM | 8.32 |
| 3/19/2016 5:00 PM | 6.68 | 3/20/2016 5:00 PM | 8.89 | 3/21/2016 5:00 PM | 8.27 |
| 3/19/2016 5:15 PM | 8.84 | 3/20/2016 5:15 PM | 8.93 | 3/21/2016 5:15 PM | 8.25 |
| 3/19/2016 5:30 PM | 8.88 | 3/20/2016 5:30 PM | 9.40 | 3/21/2016 5:30 PM | 8.20 |
| 3/19/2016 5:45 PM | 8.89 | 3/20/2016 5:45 PM | 9.12 | 3/21/2016 5:45 PM | 8.14 |
| 3/19/2016 6:00 PM | 8.85 | 3/20/2016 6:00 PM | 8.93 | 3/21/2016 6:00 PM | 8.11 |
| 3/19/2016 6:15 PM | 8.71 | 3/20/2016 6:15 PM | 8.89 | 3/21/2016 6:15 PM | 8.22 |
| 3/19/2016 6:30 PM | 8.71 | 3/20/2016 6:30 PM | 8.91 | 3/21/2016 6:30 PM | 8.25 |
| 3/19/2016 6:45 PM | 8.67 | 3/20/2016 6:45 PM | 8.91 | 3/21/2016 6:45 PM | 8.25 |
| 3/19/2016 7:00 PM | 8.65 | 3/20/2016 7:00 PM | 8.87 | 3/21/2016 7:00 PM | 8.30 |
| 3/19/2016 7:15 PM | 8.66 | 3/20/2016 7:15 PM | 8.86 | 3/21/2016 7:15 PM | 8.31 |
| 3/19/2016 7:30 PM | 8.67 | 3/20/2016 7:30 PM | 8.85 | 3/21/2016 7:30 PM | 8.30 |
| 3/19/2016 7:45 PM | 8.66 | 3/20/2016 7:45 PM | 8.85 | 3/21/2016 7:45 PM | 8.34 |
| 3/19/2016 8:00 PM | 8.67 | 3/20/2016 8:00 PM | 8.82 | 3/21/2016 8:00 PM | 8.32 |
| 3/19/2016 8:15 PM | 8.68 | 3/20/2016 8:15 PM | 8.82 | 3/21/2016 8:15 PM | 8.37 |
| 3/19/2016 8:30 PM | 8.67 | 3/20/2016 8:30 PM | 8.85 | 3/21/2016 8:30 PM | 8.40 |
| 3/19/2016 8:45 PM | 8.66 | 3/20/2016 8:45 PM | 8.88 | 3/21/2016 8:45 PM | 8.52 |
| 3/19/2016 9:00 PM | 8.66 | 3/20/2016 9:00 PM | 8.84 | 3/21/2016 9:00 PM | 8.62 |
| 3/19/2016 9:15 PM | 8.66 | 3/20/2016 9:15 PM | 8.82 | 3/21/2016 9:15 PM | 8.55 |
| 3/19/2016 9:30 PM | 8.65 | 3/20/2016 9:30 PM | 8.83 | 3/21/2016 9:30 PM | 8.39 |
| 3/19/2016 9:45 PM | 8.65 | 3/20/2016 9:45 PM | 8.84 | 3/21/2016 9:45 PM | 8.37 |
| 3/19/2016 10:00 PM | 8.70 | 3/20/2016 10:00 PM | 8.84 | 3/21/2016 10:00 PM | 8.38 |
| 3/19/2016 10:15 PM | 8.71 | 3/20/2016 10:15 PM | 8.88 | 3/21/2016 10:15 PM | 8.38 |
| 3/19/2016 10:30 PM | 8.72 | 3/20/2016 10:30 PM | 8.89 | 3/21/2016 10:30 PM | 8.36 |
| 3/19/2016 10:45 PM | 8.72 | 3/20/2016 10:45 PM | 8.95 | 3/21/2016 10:45 PM | 8.37 |
| 3/19/2016 11:00 PM | 8.71 | 3/20/2016 11:00 PM | 8.89 | 3/21/2016 11:00 PM | 8.37 |
| 3/19/2016 11:15 PM | 8.72 | 3/20/2016 11:15 PM | 8.88 | 3/21/2016 11:15 PM | 8.39 |
| 3/19/2016 11:30 PM | 8.72 | 3/20/2016 11:30 PM | 8.84 | 3/21/2016 11:30 PM | 8.43 |
| 3/19/2016 11:45 PM | 8.72 | 3/20/2016 11:45 PM | 8.84 | 3/21/2016 11:45 PM | 8.45 |
| AVG | 8.76 | AVG | 8.82 | AVG | 8.62 |

Note: pH inconsistencies were due to a failure of the effluent pH probe, highlighted values are not included in calculations.

1. 6:00AM- 8:30AM; pH continues to rise after GAC regeneration until an unspecified amount of water passes through the GAC units, when pH reaches 9.00, all discharge pumps to the river are disabled.

2. 12:15 PM - 5:00 PM, pH probe removed for replacement with new probe sensor unit.

Note: pH values were taken manually during pH probe failure.

Note: pH inconsistencies were due to a failure of the effluent pH probe, highlighted values not included in calculations. All discharge pumps to the river disabled until pH returned to acceptable discharge range.

Note: pH inconsistencies were due to a failure of the effluent pH probe, highlighted values not included in calculations. All discharge pumps to the river disabled until pH returned to acceptable discharge range.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 3/22/2016 12:00 AM | 8.51 | 3/23/2016 12:00 AM | 8.17 | 3/24/2016 12:00 AM | 9.03 |
| 3/22/2016 12:15 AM | 8.55 | 3/23/2016 12:15 AM | 8.17 | 3/24/2016 12:15 AM | 9.07 |
| 3/22/2016 12:30 AM | 8.61 | 3/23/2016 12:30 AM | 8.14 | 3/24/2016 12:30 AM | 9.09 |
| 3/22/2016 12:45 AM | 8.67 | 3/23/2016 12:45 AM | 8.12 | 3/24/2016 12:45 AM | 9.12 |
| 3/22/2016 1:00 AM | 8.57 | 3/23/2016 1:00 AM | 8.11 | 3/24/2016 1:00 AM | 9.13 |
| 3/22/2016 1:15 AM | 8.57 | 3/23/2016 1:15 AM | 8.13 | 3/24/2016 1:15 AM | 9.15 |
| 3/22/2016 1:30 AM | 8.53 | 3/23/2016 1:30 AM | 8.09 | 3/24/2016 1:30 AM | 9.14 |
| 3/22/2016 1:45 AM | 8.52 | 3/23/2016 1:45 AM | 8.08 | 3/24/2016 1:45 AM | 9.09 |
| 3/22/2016 2:00 AM | 8.51 | 3/23/2016 2:00 AM | 8.10 | 3/24/2016 2:00 AM | 9.03 |
| 3/22/2016 2:15 AM | 8.52 | 3/23/2016 2:15 AM | 8.11 | 3/24/2016 2:15 AM | 9.03 |
| 3/22/2016 2:30 AM | 8.49 | 3/23/2016 2:30 AM | 8.18 | 3/24/2016 2:30 AM | 9.04 |
| 3/22/2016 2:45 AM | 8.49 | 3/23/2016 2:45 AM | 8.21 | 3/24/2016 2:45 AM | 9.08 |
| 3/22/2016 3:00 AM | 8.47 | 3/23/2016 3:00 AM | 8.24 | 3/24/2016 3:00 AM | 9.07 |
| 3/22/2016 3:15 AM | 8.46 | 3/23/2016 3:15 AM | 8.19 | 3/24/2016 3:15 AM | 9.08 |
| 3/22/2016 3:30 AM | 8.47 | 3/23/2016 3:30 AM | 8.24 | 3/24/2016 3:30 AM | 8.21 |
| 3/22/2016 3:45 AM | 8.48 | 3/23/2016 3:45 AM | 8.28 | 3/24/2016 3:45 AM | |
| 3/22/2016 4:00 AM | 8.52 | 3/23/2016 4:00 AM | 8.23 | 3/24/2016 4:00 AM | |
| 3/22/2016 4:15 AM | 8.49 | 3/23/2016 4:15 AM | 8.21 | 3/24/2016 4:15 AM | |
| 3/22/2016 4:30 AM | 8.52 | 3/23/2016 4:30 AM | 8.14 | 3/24/2016 4:30 AM | 8.31 |
| 3/22/2016 4:45 AM | 8.52 | 3/23/2016 4:45 AM | 8.12 | 3/24/2016 4:45 AM | |
| 3/22/2016 5:00 AM | 8.56 | 3/23/2016 5:00 AM | 8.11 | 3/24/2016 5:00 AM | |
| 3/22/2016 5:15 AM | 8.55 | 3/23/2016 5:15 AM | 8.14 | 3/24/2016 5:15 AM | |
| 3/22/2016 5:30 AM | 8.60 | 3/23/2016 5:30 AM | 8.11 | 3/24/2016 5:30 AM | 8.35 |
| 3/22/2016 5:45 AM | 8.54 | 3/23/2016 5:45 AM | 8.08 | 3/24/2016 5:45 AM | |
| 3/22/2016 6:00 AM | 8.54 | 3/23/2016 6:00 AM | 8.09 | 3/24/2016 6:00 AM | |
| 3/22/2016 6:15 AM | 8.53 | 3/23/2016 6:15 AM | 8.10 | 3/24/2016 6:15 AM | |
| 3/22/2016 6:30 AM | 8.54 | 3/23/2016 6:30 AM | 8.09 | 3/24/2016 6:30 AM | 8.41 |
| 3/22/2016 6:45 AM | 8.54 | 3/23/2016 6:45 AM | 8.13 | 3/24/2016 6:45 AM | |
| 3/22/2016 7:00 AM | 8.54 | 3/23/2016 7:00 AM | 8.17 | 3/24/2016 7:00 AM | |
| 3/22/2016 7:15 AM | 8.54 | 3/23/2016 7:15 AM | 8.11 | 3/24/2016 7:15 AM | |
| 3/22/2016 7:30 AM | 8.55 | 3/23/2016 7:30 AM | 8.07 | 3/24/2016 7:30 AM | |
| 3/22/2016 7:45 AM | 8.55 | 3/23/2016 7:45 AM | 8.07 | 3/24/2016 7:45 AM | 8.39 |
| 3/22/2016 8:00 AM | 8.56 | 3/23/2016 8:00 AM | 8.07 | 3/24/2016 8:00 AM | 9.37 |
| 3/22/2016 8:15 AM | 8.56 | 3/23/2016 8:15 AM | 8.06 | 3/24/2016 8:15 AM | 9.28 |
| 3/22/2016 8:30 AM | 8.63 | 3/23/2016 8:30 AM | 8.06 | 3/24/2016 8:30 AM | 9.12 |
| 3/22/2016 8:45 AM | 8.61 | 3/23/2016 8:45 AM | 8.07 | 3/24/2016 8:45 AM | 8.88 |
| 3/22/2016 9:00 AM | 8.60 | 3/23/2016 9:00 AM | 8.07 | 3/24/2016 9:00 AM | 8.60 |
| 3/22/2016 9:15 AM | 8.50 | 3/23/2016 9:15 AM | 7.98 | 3/24/2016 9:15 AM | 8.35 |
| 3/22/2016 9:30 AM | 8.42 | 3/23/2016 9:30 AM | 7.94 | 3/24/2016 9:30 AM | 8.18 |
| 3/22/2016 9:45 AM | 8.37 | 3/23/2016 9:45 AM | 7.86 | 3/24/2016 9:45 AM | 8.10 |
| 3/22/2016 10:00 AM | 8.36 | 3/23/2016 10:00 AM | 7.72 | 3/24/2016 10:00 AM | 7.79 |
| 3/22/2016 10:15 AM | 8.31 | 3/23/2016 10:15 AM | 7.69 | 3/24/2016 10:15 AM | 7.50 |
| 3/22/2016 10:30 AM | 8.33 | 3/23/2016 10:30 AM | 7.50 | 3/24/2016 10:30 AM | 7.42 |
| 3/22/2016 10:45 AM | 8.32 | 3/23/2016 10:45 AM | 7.25 | 3/24/2016 10:45 AM | 7.27 |
| 3/22/2016 11:00 AM | 8.30 | 3/23/2016 11:00 AM | 7.08 | 3/24/2016 11:00 AM | 7.15 |
| 3/22/2016 11:15 AM | 8.36 | 3/23/2016 11:15 AM | 6.88 | 3/24/2016 11:15 AM | 7.27 |
| 3/22/2016 11:30 AM | 8.34 | 3/23/2016 11:30 AM | 6.86 | 3/24/2016 11:30 AM | 7.29 |
| 3/22/2016 11:45 AM | 8.28 | 3/23/2016 11:45 AM | 6.76 | 3/24/2016 11:45 AM | 7.37 |
| 3/22/2016 12:00 PM | 8.25 | 3/23/2016 12:00 PM | 6.74 | 3/24/2016 12:00 PM | 7.38 |
| 3/22/2016 12:15 PM | 8.17 | 3/23/2016 12:15 PM | 6.67 | 3/24/2016 12:15 PM | 7.50 |
| 3/22/2016 12:30 PM | 8.14 | 3/23/2016 12:30 PM | 6.60 | 3/24/2016 12:30 PM | 7.58 |
| 3/22/2016 12:45 PM | 7.90 | 3/23/2016 12:45 PM | 6.28 | 3/24/2016 12:45 PM | 7.61 |
| 3/22/2016 1:00 PM | 7.96 | 3/23/2016 1:00 PM | 6.34 | 3/24/2016 1:00 PM | 7.61 |
| 3/22/2016 1:15 PM | 8.07 | 3/23/2016 1:15 PM | 7.92 | 3/24/2016 1:15 PM | 7.55 |
| 3/22/2016 1:30 PM | 8.04 | 3/23/2016 1:30 PM | 7.88 | 3/24/2016 1:30 PM | 7.55 |
| 3/22/2016 1:45 PM | 8.00 | 3/23/2016 1:45 PM | 7.84 | 3/24/2016 1:45 PM | 7.57 |
| 3/22/2016 2:00 PM | 7.89 | 3/23/2016 2:00 PM | 7.73 | 3/24/2016 2:00 PM | 7.60 |

| | | | | | |
|---|---|---|---|---|---|
| 3/22/2016 2:15 PM | 7.75 | 3/23/2016 2:15 PM | 7.79 | 3/24/2016 2:15 PM | 7.60 |
| 3/22/2016 2:30 PM | 7.72 | 3/23/2016 2:30 PM | 7.85 | 3/24/2016 2:30 PM | 7.60 |
| 3/22/2016 2:45 PM | 7.73 | 3/23/2016 2:45 PM | 7.99 | 3/24/2016 2:45 PM | 7.66 |
| 3/22/2016 3:00 PM | 7.76 | 3/23/2016 3:00 PM | 7.91 | 3/24/2016 3:00 PM | 7.69 |
| 3/22/2016 3:15 PM | 8.10 | 3/23/2016 3:15 PM | 8.28 | 3/24/2016 3:15 PM | 7.92 |
| 3/22/2016 3:30 PM | 8.22 | 3/23/2016 3:30 PM | 8.68 | 3/24/2016 3:30 PM | 8.09 |
| 3/22/2016 3:45 PM | 8.43 | 3/23/2016 3:45 PM | 8.72 | 3/24/2016 3:45 PM | 8.12 |
| 3/22/2016 4:00 PM | 8.65 | 3/23/2016 4:00 PM | 8.53 | 3/24/2016 4:00 PM | 8.14 |
| 3/22/2016 4:15 PM | 8.74 | 3/23/2016 4:15 PM | 8.26 | 3/24/2016 4:15 PM | 8.19 |
| 3/22/2016 4:30 PM | 8.46 | 3/23/2016 4:30 PM | 8.14 | 3/24/2016 4:30 PM | 8.24 |
| 3/22/2016 4:45 PM | 8.37 | 3/23/2016 4:45 PM | 8.04 | 3/24/2016 4:45 PM | 8.27 |
| 3/22/2016 5:00 PM | 8.36 | 3/23/2016 5:00 PM | 7.92 | 3/24/2016 5:00 PM | 8.28 |
| 3/22/2016 5:15 PM | 8.27 | 3/23/2016 5:15 PM | 7.82 | 3/24/2016 5:15 PM | 8.28 |
| 3/22/2016 5:30 PM | 8.12 | 3/23/2016 5:30 PM | 7.69 | 3/24/2016 5:30 PM | 8.22 |
| 3/22/2016 5:45 PM | 7.95 | 3/23/2016 5:45 PM | 7.79 | 3/24/2016 5:45 PM | 8.26 |
| 3/22/2016 6:00 PM | 7.92 | 3/23/2016 6:00 PM | 7.80 | 3/24/2016 6:00 PM | 8.26 |
| 3/22/2016 6:15 PM | 7.90 | 3/23/2016 6:15 PM | 7.85 | 3/24/2016 6:15 PM | 8.29 |
| 3/22/2016 6:30 PM | 7.96 | 3/23/2016 6:30 PM | 7.96 | 3/24/2016 6:30 PM | 8.30 |
| 3/22/2016 6:45 PM | 7.98 | 3/23/2016 6:45 PM | 8.06 | 3/24/2016 6:45 PM | 8.37 |
| 3/22/2016 7:00 PM | 8.00 | 3/23/2016 7:00 PM | 8.15 | 3/24/2016 7:00 PM | 8.45 |
| 3/22/2016 7:15 PM | 8.02 | 3/23/2016 7:15 PM | 8.31 | 3/24/2016 7:15 PM | 8.49 |
| 3/22/2016 7:30 PM | 8.03 | 3/23/2016 7:30 PM | 8.45 | 3/24/2016 7:30 PM | 8.54 |
| 3/22/2016 7:45 PM | 8.05 | 3/23/2016 7:45 PM | 8.58 | 3/24/2016 7:45 PM | 8.59 |
| 3/22/2016 8:00 PM | 8.06 | 3/23/2016 8:00 PM | 8.55 | 3/24/2016 8:00 PM | 8.56 |
| 3/22/2016 8:15 PM | 8.08 | 3/23/2016 8:15 PM | 8.57 | 3/24/2016 8:15 PM | 8.60 |
| 3/22/2016 8:30 PM | 8.09 | 3/23/2016 8:30 PM | 8.65 | 3/24/2016 8:30 PM | 8.61 |
| 3/22/2016 8:45 PM | 8.08 | 3/23/2016 8:45 PM | 8.78 | 3/24/2016 8:45 PM | 8.61 |
| 3/22/2016 9:00 PM | 8.09 | 3/23/2016 9:00 PM | 8.83 | 3/24/2016 9:00 PM | 8.61 |
| 3/22/2016 9:15 PM | 8.11 | 3/23/2016 9:15 PM | 8.86 | 3/24/2016 9:15 PM | 8.68 |
| 3/22/2016 9:30 PM | 8.12 | 3/23/2016 9:30 PM | 8.85 | 3/24/2016 9:30 PM | 8.67 |
| 3/22/2016 9:45 PM | 8.15 | 3/23/2016 9:45 PM | 8.86 | 3/24/2016 9:45 PM | 8.68 |
| 3/22/2016 10:00 PM | 8.14 | 3/23/2016 10:00 PM | 8.66 | 3/24/2016 10:00 PM | 8.65 |
| 3/22/2016 10:15 PM | 8.27 | 3/23/2016 10:15 PM | 8.68 | 3/24/2016 10:15 PM | 8.66 |
| 3/22/2016 10:30 PM | 8.24 | 3/23/2016 10:30 PM | 8.82 | 3/24/2016 10:30 PM | 8.63 |
| 3/22/2016 10:45 PM | 8.26 | 3/23/2016 10:45 PM | 8.89 | 3/24/2016 10:45 PM | 8.63 |
| 3/22/2016 11:00 PM | 8.26 | 3/23/2016 11:00 PM | 8.94 | 3/24/2016 11:00 PM | 8.62 |
| 3/22/2016 11:15 PM | 8.24 | 3/23/2016 11:15 PM | 8.99 | 3/24/2016 11:15 PM | 8.61 |
| 3/22/2016 11:30 PM | 8.23 | 3/23/2016 11:30 PM | 9.04 | 3/24/2016 11:30 PM | 8.61 |
| 3/22/2016 11:45 PM | 8.20 | 3/23/2016 11:45 PM | 9.05 | 3/24/2016 11:45 PM | 8.62 |
| AVG | 8.31 | AVG | 8.04 | AVG | 8.13 |

Note: pH inconsistencies were due to a failure of the effluent pH probe, not included in calculations. All discharge pumps to the river disabled until pH returned to acceptable discharge range.

Note: pH inconsistencies were due to a failure of the effluent pH probe, not included in calculations. All discharge pumps to the river disabled until pH returned to acceptable discharge range.

Note: pH values were taken manually during pH probe failure.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 3/25/2016 12:00 AM | 8.64 | 3/26/2016 12:00 AM | 8.54 | 3/27/2016 12:00 AM | 8.42 |
| 3/25/2016 12:15 AM | 8.64 | 3/26/2016 12:15 AM | 8.56 | 3/27/2016 12:15 AM | 8.41 |
| 3/25/2016 12:30 AM | 8.65 | 3/26/2016 12:30 AM | 8.59 | 3/27/2016 12:30 AM | 8.39 |
| 3/25/2016 12:45 AM | 8.65 | 3/26/2016 12:45 AM | 8.61 | 3/27/2016 12:45 AM | 8.39 |
| 3/25/2016 1:00 AM | 8.67 | 3/26/2016 1:00 AM | 8.61 | 3/27/2016 1:00 AM | 8.39 |
| 3/25/2016 1:15 AM | 8.67 | 3/26/2016 1:15 AM | 8.61 | 3/27/2016 1:15 AM | 8.39 |
| 3/25/2016 1:30 AM | 8.68 | 3/26/2016 1:30 AM | 8.60 | 3/27/2016 1:30 AM | 8.40 |
| 3/25/2016 1:45 AM | 8.69 | 3/26/2016 1:45 AM | 8.60 | 3/27/2016 1:45 AM | 8.40 |
| 3/25/2016 2:00 AM | 8.69 | 3/26/2016 2:00 AM | 8.73 | 3/27/2016 2:00 AM | 8.41 |
| 3/25/2016 2:15 AM | 8.70 | 3/26/2016 2:15 AM | 8.74 | 3/27/2016 2:15 AM | 8.41 |
| 3/25/2016 2:30 AM | 8.70 | 3/26/2016 2:30 AM | 8.74 | 3/27/2016 2:30 AM | 8.42 |
| 3/25/2016 2:45 AM | 8.70 | 3/26/2016 2:45 AM | 8.75 | 3/27/2016 2:45 AM | 8.43 |
| 3/25/2016 3:00 AM | 8.72 | 3/26/2016 3:00 AM | 8.75 | 3/27/2016 3:00 AM | 8.44 |
| 3/25/2016 3:15 AM | 8.72 | 3/26/2016 3:15 AM | 8.73 | 3/27/2016 3:15 AM | 8.46 |
| 3/25/2016 3:30 AM | 8.73 | 3/26/2016 3:30 AM | 8.72 | 3/27/2016 3:30 AM | 8.47 |
| 3/25/2016 3:45 AM | 8.73 | 3/26/2016 3:45 AM | 8.73 | 3/27/2016 3:45 AM | 8.48 |
| 3/25/2016 4:00 AM | 8.72 | 3/26/2016 4:00 AM | 8.73 | 3/27/2016 4:00 AM | 8.48 |
| 3/25/2016 4:15 AM | 8.72 | 3/26/2016 4:15 AM | 8.73 | 3/27/2016 4:15 AM | 8.48 |
| 3/25/2016 4:30 AM | 8.73 | 3/26/2016 4:30 AM | 8.74 | 3/27/2016 4:30 AM | 8.49 |
| 3/25/2016 4:45 AM | 8.74 | 3/26/2016 4:45 AM | 8.67 | 3/27/2016 4:45 AM | 8.50 |
| 3/25/2016 5:00 AM | 8.75 | 3/26/2016 5:00 AM | 8.75 | 3/27/2016 5:00 AM | 8.50 |
| 3/25/2016 5:15 AM | 8.75 | 3/26/2016 5:15 AM | 8.75 | 3/27/2016 5:15 AM | 8.84 |
| 3/25/2016 5:30 AM | 8.82 | 3/26/2016 5:30 AM | 8.78 | 3/27/2016 5:30 AM | 8.83 |
| 3/25/2016 5:45 AM | 8.82 | 3/26/2016 5:45 AM | 8.79 | 3/27/2016 5:45 AM | 8.82 |
| 3/25/2016 6:00 AM | 8.85 | 3/26/2016 6:00 AM | 8.77 | 3/27/2016 6:00 AM | 8.82 |
| 3/25/2016 6:15 AM | 8.87 | 3/26/2016 6:15 AM | 8.83 | 3/27/2016 6:15 AM | 8.81 |
| 3/25/2016 6:30 AM | 8.94 | 3/26/2016 6:30 AM | 8.82 | 3/27/2016 6:30 AM | 8.79 |
| 3/25/2016 6:45 AM | 8.90 | 3/26/2016 6:45 AM | 8.82 | 3/27/2016 6:45 AM | 8.78 |
| 3/25/2016 7:00 AM | 8.86 | 3/26/2016 7:00 AM | 8.82 | 3/27/2016 7:00 AM | 8.78 |
| 3/25/2016 7:15 AM | 8.84 | 3/26/2016 7:15 AM | 8.86 | 3/27/2016 7:15 AM | 8.73 |
| 3/25/2016 7:30 AM | 8.86 | 3/26/2016 7:30 AM | 8.87 | 3/27/2016 7:30 AM | 8.73 |
| 3/25/2016 7:45 AM | 8.86 | 3/26/2016 7:45 AM | 8.83 | 3/27/2016 7:45 AM | 8.72 |
| 3/25/2016 8:00 AM | 8.84 | 3/26/2016 8:00 AM | 8.73 | 3/27/2016 8:00 AM | 8.70 |
| 3/25/2016 8:15 AM | 8.84 | 3/26/2016 8:15 AM | 8.62 | 3/27/2016 8:15 AM | 8.67 |
| 3/25/2016 8:30 AM | 8.83 | 3/26/2016 8:30 AM | 8.54 | 3/27/2016 8:30 AM | 8.64 |
| 3/25/2016 8:45 AM | 8.80 | 3/26/2016 8:45 AM | 8.50 | 3/27/2016 8:45 AM | 8.61 |
| 3/25/2016 9:00 AM | 8.77 | 3/26/2016 9:00 AM | 8.48 | 3/27/2016 9:00 AM | 8.56 |
| 3/25/2016 9:15 AM | 8.73 | 3/26/2016 9:15 AM | 8.45 | 3/27/2016 9:15 AM | 8.53 |
| 3/25/2016 9:30 AM | 8.75 | 3/26/2016 9:30 AM | 8.31 | 3/27/2016 9:30 AM | 8.48 |
| 3/25/2016 9:45 AM | 8.93 | 3/26/2016 9:45 AM | 8.28 | 3/27/2016 9:45 AM | 8.42 |
| 3/25/2016 10:00 AM | 8.96 | 3/26/2016 10:00 AM | 8.20 | 3/27/2016 10:00 AM | 8.49 |
| 3/25/2016 10:15 AM | 8.97 | 3/26/2016 10:15 AM | 8.11 | 3/27/2016 10:15 AM | 8.39 |
| 3/25/2016 10:30 AM | 8.86 | 3/26/2016 10:30 AM | 8.00 | 3/27/2016 10:30 AM | 8.26 |
| 3/25/2016 10:45 AM | 8.79 | 3/26/2016 10:45 AM | 7.92 | 3/27/2016 10:45 AM | 8.11 |
| 3/25/2016 11:00 AM | 8.73 | 3/26/2016 11:00 AM | 7.78 | 3/27/2016 11:00 AM | 8.07 |
| 3/25/2016 11:15 AM | 8.70 | 3/26/2016 11:15 AM | 7.76 | 3/27/2016 11:15 AM | 8.05 |
| 3/25/2016 11:30 AM | 8.54 | 3/26/2016 11:30 AM | 7.74 | 3/27/2016 11:30 AM | 8.01 |
| 3/25/2016 11:45 AM | 8.27 | 3/26/2016 11:45 AM | 7.68 | 3/27/2016 11:45 AM | 8.00 |
| 3/25/2016 12:00 PM | 8.08 | 3/26/2016 12:00 PM | 7.59 | 3/27/2016 12:00 PM | 7.91 |
| 3/25/2016 12:15 PM | 8.10 | 3/26/2016 12:15 PM | 7.57 | 3/27/2016 12:15 PM | 7.81 |
| 3/25/2016 12:30 PM | 8.30 | 3/26/2016 12:30 PM | 7.55 | 3/27/2016 12:30 PM | 7.85 |
| 3/25/2016 12:45 PM | 8.14 | 3/26/2016 12:45 PM | 7.47 | 3/27/2016 12:45 PM | 7.91 |
| 3/25/2016 1:00 PM | 8.26 | 3/26/2016 1:00 PM | 7.43 | 3/27/2016 1:00 PM | 7.95 |
| 3/25/2016 1:15 PM | 8.50 | 3/26/2016 1:15 PM | 7.40 | 3/27/2016 1:15 PM | 7.94 |
| 3/25/2016 1:30 PM | 8.46 | 3/26/2016 1:30 PM | 7.39 | 3/27/2016 1:30 PM | 7.88 |
| 3/25/2016 1:45 PM | 8.44 | 3/26/2016 1:45 PM | 7.51 | 3/27/2016 1:45 PM | 7.99 |
| 3/25/2016 2:00 PM | 8.26 | 3/26/2016 2:00 PM | 7.49 | 3/27/2016 2:00 PM | 7.94 |

| | | | | | |
|---|---|---|---|---|---|
| 3/25/2016 2:15 PM | 8.31 | 3/26/2016 2:15 PM | 7.48 | 3/27/2016 2:15 PM | 7.93 |
| 3/25/2016 2:30 PM | 8.37 | 3/26/2016 2:30 PM | 7.55 | 3/27/2016 2:30 PM | 8.00 |
| 3/25/2016 2:45 PM | 8.38 | 3/26/2016 2:45 PM | 7.57 | 3/27/2016 2:45 PM | 8.07 |
| 3/25/2016 3:00 PM | 8.33 | 3/26/2016 3:00 PM | 7.55 | 3/27/2016 3:00 PM | 8.13 |
| 3/25/2016 3:15 PM | 8.38 | 3/26/2016 3:15 PM | 7.72 | 3/27/2016 3:15 PM | 8.17 |
| 3/25/2016 3:30 PM | 8.46 | 3/26/2016 3:30 PM | 7.81 | 3/27/2016 3:30 PM | 8.21 |
| 3/25/2016 3:45 PM | 8.64 | 3/26/2016 3:45 PM | 7.82 | 3/27/2016 3:45 PM | 8.20 |
| 3/25/2016 4:00 PM | 8.56 | 3/26/2016 4:00 PM | 7.84 | 3/27/2016 4:00 PM | 8.22 |
| 3/25/2016 4:15 PM | 8.59 | 3/26/2016 4:15 PM | 7.86 | 3/27/2016 4:15 PM | 8.23 |
| 3/25/2016 4:30 PM | 8.50 | 3/26/2016 4:30 PM | 7.89 | 3/27/2016 4:30 PM | 8.24 |
| 3/25/2016 4:45 PM | 8.51 | 3/26/2016 4:45 PM | 7.88 | 3/27/2016 4:45 PM | 8.24 |
| 3/25/2016 5:00 PM | 8.55 | 3/26/2016 5:00 PM | 7.86 | 3/27/2016 5:00 PM | 8.24 |
| 3/25/2016 5:15 PM | 8.59 | 3/26/2016 5:15 PM | 7.85 | 3/27/2016 5:15 PM | 8.22 |
| 3/25/2016 5:30 PM | 8.69 | 3/26/2016 5:30 PM | 7.88 | 3/27/2016 5:30 PM | 8.22 |
| 3/25/2016 5:45 PM | 8.65 | 3/26/2016 5:45 PM | 7.94 | 3/27/2016 5:45 PM | 8.21 |
| 3/25/2016 6:00 PM | 8.61 | 3/26/2016 6:00 PM | 7.93 | 3/27/2016 6:00 PM | 8.23 |
| 3/25/2016 6:15 PM | 8.64 | 3/26/2016 6:15 PM | 7.97 | 3/27/2016 6:15 PM | 8.25 |
| 3/25/2016 6:30 PM | 8.65 | 3/26/2016 6:30 PM | 8.02 | 3/27/2016 6:30 PM | 8.24 |
| 3/25/2016 6:45 PM | 8.65 | 3/26/2016 6:45 PM | 8.04 | 3/27/2016 6:45 PM | 8.28 |
| 3/25/2016 7:00 PM | 8.70 | 3/26/2016 7:00 PM | 8.07 | 3/27/2016 7:00 PM | 8.31 |
| 3/25/2016 7:15 PM | 8.78 | 3/26/2016 7:15 PM | 8.11 | 3/27/2016 7:15 PM | 8.31 |
| 3/25/2016 7:30 PM | 8.85 | 3/26/2016 7:30 PM | 8.13 | 3/27/2016 7:30 PM | 8.31 |
| 3/25/2016 7:45 PM | 8.91 | 3/26/2016 7:45 PM | 8.15 | 3/27/2016 7:45 PM | 8.30 |
| 3/25/2016 8:00 PM | 8.97 | 3/26/2016 8:00 PM | 8.16 | 3/27/2016 8:00 PM | 8.31 |
| 3/25/2016 8:15 PM | 9.02 | 3/26/2016 8:15 PM | 8.19 | 3/27/2016 8:15 PM | 8.32 |
| 3/25/2016 8:30 PM | 9.08 | 3/26/2016 8:30 PM | 8.20 | 3/27/2016 8:30 PM | 8.32 |
| 3/25/2016 8:45 PM | 9.12 | 3/26/2016 8:45 PM | 8.24 | 3/27/2016 8:45 PM | 8.32 |
| 3/25/2016 9:00 PM | 9.19 | 3/26/2016 9:00 PM | 8.23 | 3/27/2016 9:00 PM | 8.32 |
| 3/25/2016 9:15 PM | 9.26 | 3/26/2016 9:15 PM | 8.24 | 3/27/2016 9:15 PM | 8.32 |
| 3/25/2016 9:30 PM | 9.33 | 3/26/2016 9:30 PM | 8.27 | 3/27/2016 9:30 PM | 8.31 |
| 3/25/2016 9:45 PM | 14.96 | 3/26/2016 9:45 PM | 8.31 | 3/27/2016 9:45 PM | 8.32 |
| 3/25/2016 10:00 PM | 8.52 | 3/26/2016 10:00 PM | 8.34 | 3/27/2016 10:00 PM | 8.32 |
| 3/25/2016 10:15 PM | 8.49 | 3/26/2016 10:15 PM | 8.36 | 3/27/2016 10:15 PM | 8.32 |
| 3/25/2016 10:30 PM | 8.52 | 3/26/2016 10:30 PM | 8.38 | 3/27/2016 10:30 PM | 8.31 |
| 3/25/2016 10:45 PM | 8.53 | 3/26/2016 10:45 PM | 8.40 | 3/27/2016 10:45 PM | 8.31 |
| 3/25/2016 11:00 PM | 8.52 | 3/26/2016 11:00 PM | 8.40 | 3/27/2016 11:00 PM | 8.29 |
| 3/25/2016 11:15 PM | 8.52 | 3/26/2016 11:15 PM | 8.41 | 3/27/2016 11:15 PM | 8.29 |
| 3/25/2016 11:30 PM | 8.54 | 3/26/2016 11:30 PM | 8.41 | 3/27/2016 11:30 PM | 8.28 |
| 3/25/2016 11:45 PM | 8.56 | 3/26/2016 11:45 PM | 8.41 | 3/27/2016 11:45 PM | 8.28 |
| AVG | 8.64 | AVG | 8.25 | AVG | 8.34 |

Note: pH inconsistencies were due to a failure of the effluent pH probe, not included in calculations. All discharge pumps to the river disabled until pH returned to acceptable discharge range.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 3/28/2016 12:00 AM | 8.28 | 3/29/2016 12:00 AM | 8.12 | 3/30/2016 12:00 AM | 8.64 |
| 3/28/2016 12:15 AM | 8.29 | 3/29/2016 12:15 AM | 8.12 | 3/30/2016 12:15 AM | 8.66 |
| 3/28/2016 12:30 AM | 8.29 | 3/29/2016 12:30 AM | 8.13 | 3/30/2016 12:30 AM | 8.65 |
| 3/28/2016 12:45 AM | 8.28 | 3/29/2016 12:45 AM | 8.14 | 3/30/2016 12:45 AM | 8.66 |
| 3/28/2016 1:00 AM | 8.27 | 3/29/2016 1:00 AM | 8.14 | 3/30/2016 1:00 AM | 8.66 |
| 3/28/2016 1:15 AM | 8.27 | 3/29/2016 1:15 AM | 8.18 | 3/30/2016 1:15 AM | 8.68 |
| 3/28/2016 1:30 AM | 8.26 | 3/29/2016 1:30 AM | 8.19 | 3/30/2016 1:30 AM | 8.67 |
| 3/28/2016 1:45 AM | 8.25 | 3/29/2016 1:45 AM | 8.20 | 3/30/2016 1:45 AM | 8.67 |
| 3/28/2016 2:00 AM | 8.25 | 3/29/2016 2:00 AM | 8.19 | 3/30/2016 2:00 AM | 8.68 |
| 3/28/2016 2:15 AM | 8.26 | 3/29/2016 2:15 AM | 8.23 | 3/30/2016 2:15 AM | 8.69 |
| 3/28/2016 2:30 AM | 8.27 | 3/29/2016 2:30 AM | 8.23 | 3/30/2016 2:30 AM | 8.69 |
| 3/28/2016 2:45 AM | 8.26 | 3/29/2016 2:45 AM | 8.23 | 3/30/2016 2:45 AM | 8.69 |
| 3/28/2016 3:00 AM | 8.27 | 3/29/2016 3:00 AM | 8.22 | 3/30/2016 3:00 AM | 8.71 |
| 3/28/2016 3:15 AM | 8.25 | 3/29/2016 3:15 AM | 8.22 | 3/30/2016 3:15 AM | 8.70 |
| 3/28/2016 3:30 AM | 8.24 | 3/29/2016 3:30 AM | 8.22 | 3/30/2016 3:30 AM | 8.70 |
| 3/28/2016 3:45 AM | 8.23 | 3/29/2016 3:45 AM | 8.22 | 3/30/2016 3:45 AM | 8.70 |
| 3/28/2016 4:00 AM | 8.23 | 3/29/2016 4:00 AM | 8.22 | 3/30/2016 4:00 AM | 8.71 |
| 3/28/2016 4:15 AM | 8.22 | 3/29/2016 4:15 AM | 8.22 | 3/30/2016 4:15 AM | 8.70 |
| 3/28/2016 4:30 AM | 8.23 | 3/29/2016 4:30 AM | 8.20 | 3/30/2016 4:30 AM | 8.70 |
| 3/28/2016 4:45 AM | 8.23 | 3/29/2016 4:45 AM | 8.20 | 3/30/2016 4:45 AM | 8.70 |
| 3/28/2016 5:00 AM | 8.23 | 3/29/2016 5:00 AM | 8.20 | 3/30/2016 5:00 AM | 8.66 |
| 3/28/2016 5:15 AM | 8.21 | 3/29/2016 5:15 AM | 8.17 | 3/30/2016 5:15 AM | 8.68 |
| 3/28/2016 5:30 AM | 8.20 | 3/29/2016 5:30 AM | 8.16 | 3/30/2016 5:30 AM | 8.66 |
| 3/28/2016 5:45 AM | 8.19 | 3/29/2016 5:45 AM | 8.14 | 3/30/2016 5:45 AM | 8.65 |
| 3/28/2016 6:00 AM | 8.18 | 3/29/2016 6:00 AM | 8.14 | 3/30/2016 6:00 AM | 8.67 |
| 3/28/2016 6:15 AM | 8.17 | 3/29/2016 6:15 AM | 8.13 | 3/30/2016 6:15 AM | 8.59 |
| 3/28/2016 6:30 AM | 8.17 | 3/29/2016 6:30 AM | 8.13 | 3/30/2016 6:30 AM | 8.60 |
| 3/28/2016 6:45 AM | 8.17 | 3/29/2016 6:45 AM | 8.13 | 3/30/2016 6:45 AM | 8.60 |
| 3/28/2016 7:00 AM | 8.15 | 3/29/2016 7:00 AM | 8.13 | 3/30/2016 7:00 AM | 8.57 |
| 3/28/2016 7:15 AM | 8.14 | 3/29/2016 7:15 AM | 8.12 | 3/30/2016 7:15 AM | 8.55 |
| 3/28/2016 7:30 AM | 8.13 | 3/29/2016 7:30 AM | 8.08 | 3/30/2016 7:30 AM | 8.51 |
| 3/28/2016 7:45 AM | 8.11 | 3/29/2016 7:45 AM | 8.07 | 3/30/2016 7:45 AM | 8.45 |
| 3/28/2016 8:00 AM | 8.08 | 3/29/2016 8:00 AM | 8.07 | 3/30/2016 8:00 AM | 8.41 |
| 3/28/2016 8:15 AM | 7.98 | 3/29/2016 8:15 AM | 8.02 | 3/30/2016 8:15 AM | 8.33 |
| 3/28/2016 8:30 AM | 7.92 | 3/29/2016 8:30 AM | 7.92 | 3/30/2016 8:30 AM | 8.26 |
| 3/28/2016 8:45 AM | 7.78 | 3/29/2016 8:45 AM | 7.75 | 3/30/2016 8:45 AM | 8.17 |
| 3/28/2016 9:00 AM | 7.69 | 3/29/2016 9:00 AM | 7.81 | 3/30/2016 9:00 AM | 8.10 |
| 3/28/2016 9:15 AM | 7.69 | 3/29/2016 9:15 AM | 7.88 | 3/30/2016 9:15 AM | 8.00 |
| 3/28/2016 9:30 AM | 7.69 | 3/29/2016 9:30 AM | 7.85 | 3/30/2016 9:30 AM | 7.90 |
| 3/28/2016 9:45 AM | 7.58 | 3/29/2016 9:45 AM | 7.59 | 3/30/2016 9:45 AM | 7.77 |
| 3/28/2016 10:00 AM | 7.37 | 3/29/2016 10:00 AM | 7.59 | 3/30/2016 10:00 AM | 7.70 |
| 3/28/2016 10:15 AM | 7.08 | 3/29/2016 10:15 AM | 7.62 | 3/30/2016 10:15 AM | 7.61 |
| 3/28/2016 10:30 AM | 6.81 | 3/29/2016 10:30 AM | 7.63 | 3/30/2016 10:30 AM | 7.48 |
| 3/28/2016 10:45 AM | 6.86 | 3/29/2016 10:45 AM | 7.58 | 3/30/2016 10:45 AM | 7.40 |
| 3/28/2016 11:00 AM | 6.81 | 3/29/2016 11:00 AM | 7.49 | 3/30/2016 11:00 AM | 7.38 |
| 3/28/2016 11:15 AM | 6.73 | 3/29/2016 11:15 AM | 7.53 | 3/30/2016 11:15 AM | 7.33 |
| 3/28/2016 11:30 AM | 6.82 | 3/29/2016 11:30 AM | 7.46 | 3/30/2016 11:30 AM | 7.77 |
| 3/28/2016 11:45 AM | 6.99 | 3/29/2016 11:45 AM | 7.39 | 3/30/2016 11:45 AM | 7.69 |
| 3/28/2016 12:00 PM | 7.15 | 3/29/2016 12:00 PM | 7.36 | 3/30/2016 12:00 PM | 7.57 |
| 3/28/2016 12:15 PM | 6.88 | 3/29/2016 12:15 PM | 7.28 | 3/30/2016 12:15 PM | 7.48 |
| 3/28/2016 12:30 PM | 6.78 | 3/29/2016 12:30 PM | 7.32 | 3/30/2016 12:30 PM | 7.39 |
| 3/28/2016 12:45 PM | 7.77 | 3/29/2016 12:45 PM | 7.28 | 3/30/2016 12:45 PM | 7.35 |
| 3/28/2016 1:00 PM | 7.69 | 3/29/2016 1:00 PM | 7.20 | 3/30/2016 1:00 PM | 7.30 |
| 3/28/2016 1:15 PM | 7.60 | 3/29/2016 1:15 PM | 7.20 | 3/30/2016 1:15 PM | 7.29 |
| 3/28/2016 1:30 PM | 7.54 | 3/29/2016 1:30 PM | 7.21 | 3/30/2016 1:30 PM | 7.28 |
| 3/28/2016 1:45 PM | 7.51 | 3/29/2016 1:45 PM | 7.17 | 3/30/2016 1:45 PM | 7.34 |
| 3/28/2016 2:00 PM | 7.44 | 3/29/2016 2:00 PM | 7.15 | 3/30/2016 2:00 PM | 7.28 |

| | | | | | |
|---|---|---|---|---|---|
| 3/28/2016 2:15 PM | 7.48 | 3/29/2016 2:15 PM | 8.06 | 3/30/2016 2:15 PM | 7.24 |
| 3/28/2016 2:30 PM | 7.47 | 3/29/2016 2:30 PM | 8.09 | 3/30/2016 2:30 PM | 7.23 |
| 3/28/2016 2:45 PM | 7.45 | 3/29/2016 2:45 PM | 8.03 | 3/30/2016 2:45 PM | 7.21 |
| 3/28/2016 3:00 PM | 7.55 | 3/29/2016 3:00 PM | 7.98 | 3/30/2016 3:00 PM | 7.28 |
| 3/28/2016 3:15 PM | 7.78 | 3/29/2016 3:15 PM | 8.10 | 3/30/2016 3:15 PM | 7.48 |
| 3/28/2016 3:30 PM | 8.00 | 3/29/2016 3:30 PM | 8.17 | 3/30/2016 3:30 PM | 7.60 |
| 3/28/2016 3:45 PM | 8.01 | 3/29/2016 3:45 PM | 8.14 | 3/30/2016 3:45 PM | 7.57 |
| 3/28/2016 4:00 PM | 8.01 | 3/29/2016 4:00 PM | 8.20 | 3/30/2016 4:00 PM | 7.60 |
| 3/28/2016 4:15 PM | 8.00 | 3/29/2016 4:15 PM | 8.19 | 3/30/2016 4:15 PM | 7.64 |
| 3/28/2016 4:30 PM | 7.97 | 3/29/2016 4:30 PM | 8.19 | 3/30/2016 4:30 PM | 7.67 |
| 3/28/2016 4:45 PM | 7.95 | 3/29/2016 4:45 PM | 8.18 | 3/30/2016 4:45 PM | 7.69 |
| 3/28/2016 5:00 PM | 7.95 | 3/29/2016 5:00 PM | 8.16 | 3/30/2016 5:00 PM | 7.71 |
| 3/28/2016 5:15 PM | 7.94 | 3/29/2016 5:15 PM | 8.16 | 3/30/2016 5:15 PM | 7.75 |
| 3/28/2016 5:30 PM | 7.96 | 3/29/2016 5:30 PM | 8.15 | 3/30/2016 5:30 PM | 7.78 |
| 3/28/2016 5:45 PM | 7.99 | 3/29/2016 5:45 PM | 8.16 | 3/30/2016 5:45 PM | 7.78 |
| 3/28/2016 6:00 PM | 7.98 | 3/29/2016 6:00 PM | 8.14 | 3/30/2016 6:00 PM | 7.80 |
| 3/28/2016 6:15 PM | 8.00 | 3/29/2016 6:15 PM | 8.16 | 3/30/2016 6:15 PM | 7.82 |
| 3/28/2016 6:30 PM | 7.99 | 3/29/2016 6:30 PM | 8.12 | 3/30/2016 6:30 PM | 7.82 |
| 3/28/2016 6:45 PM | 8.04 | 3/29/2016 6:45 PM | 8.13 | 3/30/2016 6:45 PM | 7.84 |
| 3/28/2016 7:00 PM | 8.12 | 3/29/2016 7:00 PM | 8.19 | 3/30/2016 7:00 PM | 7.83 |
| 3/28/2016 7:15 PM | 8.17 | 3/29/2016 7:15 PM | 8.25 | 3/30/2016 7:15 PM | 7.88 |
| 3/28/2016 7:30 PM | 8.17 | 3/29/2016 7:30 PM | 8.27 | 3/30/2016 7:30 PM | 7.94 |
| 3/28/2016 7:45 PM | 8.19 | 3/29/2016 7:45 PM | 8.27 | 3/30/2016 7:45 PM | 7.95 |
| 3/28/2016 8:00 PM | 8.20 | 3/29/2016 8:00 PM | 8.29 | 3/30/2016 8:00 PM | 7.96 |
| 3/28/2016 8:15 PM | 8.22 | 3/29/2016 8:15 PM | 8.32 | 3/30/2016 8:15 PM | 7.95 |
| 3/28/2016 8:30 PM | 8.19 | 3/29/2016 8:30 PM | 8.35 | 3/30/2016 8:30 PM | 7.95 |
| 3/28/2016 8:45 PM | 8.19 | 3/29/2016 8:45 PM | 8.35 | 3/30/2016 8:45 PM | 7.95 |
| 3/28/2016 9:00 PM | 8.17 | 3/29/2016 9:00 PM | 8.38 | 3/30/2016 9:00 PM | 7.93 |
| 3/28/2016 9:15 PM | 8.15 | 3/29/2016 9:15 PM | 8.41 | 3/30/2016 9:15 PM | 7.91 |
| 3/28/2016 9:30 PM | 8.13 | 3/29/2016 9:30 PM | 8.42 | 3/30/2016 9:30 PM | 7.90 |
| 3/28/2016 9:45 PM | 8.12 | 3/29/2016 9:45 PM | 8.43 | 3/30/2016 9:45 PM | 7.90 |
| 3/28/2016 10:00 PM | 8.12 | 3/29/2016 10:00 PM | 8.45 | 3/30/2016 10:00 PM | 7.89 |
| 3/28/2016 10:15 PM | 8.13 | 3/29/2016 10:15 PM | 8.44 | 3/30/2016 10:15 PM | 7.89 |
| 3/28/2016 10:30 PM | 8.11 | 3/29/2016 10:30 PM | 8.43 | 3/30/2016 10:30 PM | 7.88 |
| 3/28/2016 10:45 PM | 8.12 | 3/29/2016 10:45 PM | 8.64 | 3/30/2016 10:45 PM | 7.88 |
| 3/28/2016 11:00 PM | 8.13 | 3/29/2016 11:00 PM | 8.64 | 3/30/2016 11:00 PM | 7.88 |
| 3/28/2016 11:15 PM | 8.13 | 3/29/2016 11:15 PM | 8.64 | 3/30/2016 11:15 PM | 7.87 |
| 3/28/2016 11:30 PM | 8.13 | 3/29/2016 11:30 PM | 8.64 | 3/30/2016 11:30 PM | 7.87 |
| 3/28/2016 11:45 PM | 8.13 | 3/29/2016 11:45 PM | 8.64 | 3/30/2016 11:45 PM | 8.20 |
| AVG | 7.92 | AVG | 8.05 | AVG | 8.04 |

| Date And Time | pH |
|---|---|
| 3/31/2016 12:00 AM | 8.15 |
| 3/31/2016 12:15 AM | 8.13 |
| 3/31/2016 12:30 AM | 8.13 |
| 3/31/2016 12:45 AM | 8.13 |
| 3/31/2016 1:00 AM | 8.14 |
| 3/31/2016 1:15 AM | 8.15 |
| 3/31/2016 1:30 AM | 8.15 |
| 3/31/2016 1:45 AM | 8.13 |
| 3/31/2016 2:00 AM | 8.10 |
| 3/31/2016 2:15 AM | 8.03 |
| 3/31/2016 2:30 AM | 8.05 |
| 3/31/2016 2:45 AM | 8.08 |
| 3/31/2016 3:00 AM | 8.08 |
| 3/31/2016 3:15 AM | 8.09 |
| 3/31/2016 3:30 AM | 8.07 |

| | |
|---|---|
| **MIN** | **6.28** |
| **MAX** | **8.99** |

| | |
|---|---|
| 3/31/2016 3:45 AM | 8.08 |
| 3/31/2016 4:00 AM | 8.07 |
| 3/31/2016 4:15 AM | 8.06 |
| 3/31/2016 4:30 AM | 8.07 |
| 3/31/2016 4:45 AM | 8.05 |
| 3/31/2016 5:00 AM | 8.05 |
| 3/31/2016 5:15 AM | 8.04 |
| 3/31/2016 5:30 AM | 8.03 |
| 3/31/2016 5:45 AM | 8.02 |
| 3/31/2016 6:00 AM | 8.01 |
| 3/31/2016 6:15 AM | 8.00 |
| 3/31/2016 6:30 AM | 7.99 |
| 3/31/2016 6:45 AM | 7.99 |
| 3/31/2016 7:00 AM | 7.98 |
| 3/31/2016 7:15 AM | 7.95 |
| 3/31/2016 7:30 AM | 7.95 |
| 3/31/2016 7:45 AM | 7.89 |
| 3/31/2016 8:00 AM | 7.81 |
| 3/31/2016 8:15 AM | 7.71 |
| 3/31/2016 8:30 AM | 7.57 |
| 3/31/2016 8:45 AM | 7.43 |
| 3/31/2016 9:00 AM | 7.95 |
| 3/31/2016 9:15 AM | 7.85 |
| 3/31/2016 9:30 AM | 7.73 |
| 3/31/2016 9:45 AM | 7.66 |
| 3/31/2016 10:00 AM | 7.62 |
| 3/31/2016 10:15 AM | 7.53 |
| 3/31/2016 10:30 AM | 7.42 |
| 3/31/2016 10:45 AM | 7.38 |
| 3/31/2016 11:00 AM | 7.30 |
| 3/31/2016 11:15 AM | 7.22 |
| 3/31/2016 11:30 AM | 7.18 |
| 3/31/2016 11:45 AM | 7.16 |
| 3/31/2016 12:00 PM | 7.16 |
| 3/31/2016 12:15 PM | 7.11 |
| 3/31/2016 12:30 PM | 7.12 |
| 3/31/2016 12:45 PM | 7.15 |
| 3/31/2016 1:00 PM | 7.08 |
| 3/31/2016 1:15 PM | 7.11 |
| 3/31/2016 1:30 PM | 7.17 |
| 3/31/2016 1:45 PM | 7.17 |
| 3/31/2016 2:00 PM | 7.23 |
| 3/31/2016 2:15 PM | 7.31 |
| 3/31/2016 2:30 PM | 7.22 |
| 3/31/2016 2:45 PM | 7.10 |
| 3/31/2016 3:00 PM | 6.98 |
| 3/31/2016 3:15 PM | 7.00 |
| 3/31/2016 3:30 PM | 7.04 |
| 3/31/2016 3:45 PM | 7.10 |
| 3/31/2016 4:00 PM | 7.17 |
| 3/31/2016 4:15 PM | 7.18 |
| 3/31/2016 4:30 PM | 7.21 |
| 3/31/2016 4:45 PM | 7.21 |
| 3/31/2016 5:00 PM | 7.24 |
| 3/31/2016 5:15 PM | 7.28 |
| 3/31/2016 5:30 PM | 7.27 |
| 3/31/2016 5:45 PM | 7.50 |
| 3/31/2016 6:00 PM | 7.40 |

| | |
|---|---|
| 3/31/2016 6:15 PM | 7.34 |
| 3/31/2016 6:30 PM | 7.30 |
| 3/31/2016 6:45 PM | 7.29 |
| 3/31/2016 7:00 PM | 7.30 |
| 3/31/2016 7:15 PM | 7.32 |
| 3/31/2016 7:30 PM | 7.33 |
| 3/31/2016 7:45 PM | 7.34 |
| 3/31/2016 8:00 PM | 7.35 |
| 3/31/2016 8:15 PM | 7.34 |
| 3/31/2016 8:30 PM | 7.34 |
| 3/31/2016 8:45 PM | 7.34 |
| 3/31/2016 9:00 PM | 7.38 |
| 3/31/2016 9:15 PM | 7.40 |
| 3/31/2016 9:30 PM | 7.45 |
| 3/31/2016 9:45 PM | 7.46 |
| 3/31/2016 10:00 PM | 7.45 |
| 3/31/2016 10:15 PM | 7.41 |
| 3/31/2016 10:30 PM | 7.39 |
| 3/31/2016 10:45 PM | 7.40 |
| 3/31/2016 11:00 PM | 7.42 |
| 3/31/2016 11:15 PM | 7.42 |
| 3/31/2016 11:30 PM | 7.43 |
| 3/31/2016 11:45 PM | 7.43 |
| AVG | 7.58 |

Avtex Fibers
Front Royal, VA
Outfall 004
March 2016 DMR

| Sample Date | Sample ID | BOD, mg/L | BOD, kg/d | TSS, mg/L | TSS, kg/d |
|---|---|---|---|---|---|
| 3/2/2016 | AF3-2FE | 4.0 | 0.65 | 11.0 | 1.78 |
| 3/9/2016 | AF3-9FE | 5.0 | 0.90 | 9.43 | 1.69 |
| 3/16/2016 | AF3-16FE | 4.0 | 0.75 | 9.8 | 1.84 |
| 3/23/2016 | AF3-23FE | 3.0 | 0.66 | 5.6 | 1.23 |
| 3/31/2016 | AF3-31FE | 2.0 | 0.55 | 1.50 | 0.41 |
| | Daily Maximum: | 5.0 | 0.90 | 11.0 | 1.84 |
| | Monthly Avg: | 3.6 | 0.70 | 7.5 | 1.39 |

Monthly Average – Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as calculated. If all data are below the QL used for the analysis, then the average shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported monthly average concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the monthly average of the calculated daily quantities.

Daily Maximum – Compliance with the daily maximum limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each day during the reporting month. The maximum value of these daily averages thus determined shall be reported on the DMR as the Daily Maximum. If all data are below the QL used for the analysis, then the maximum value of the daily averages shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported daily maximum concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported daily average concentrations (including the defined zeros) and corresponding daily flows to determine daily average quantities and report the maximum of the daily average quantities during the reporting month.

**Loading Derivation**
If 1 ppm (= 1 mg/L) and 1 MGD (= 1 MG/day)
--> (1 mg/L)(1 MG/day)(3.785 L/Gal)(10^6 Gal/MG)(1 lb/453,600 mg) = 8.34 lbs/day
**--> lbs/day = ppm * 8.34 * MGD**
**--> kg/d = ppm * 8.34 * MGD * 0.4536*lb/d**

**Concentration Derivation**
If 1 lb/d and 1 MGD (= 1 MG/day)
[(1 lbs/day)(453,600 mg/lb)] / [(1 MG/d)(10^6 Gal/MG)(3.785 L/Gal)]
**--> ppm = lb/d * (1/8.34) * (1/MGD)**

| | BOD |
|---|---|
| 3/2/2016 | 0.647145483 |
| 3/9/2016 | 0.898358404 |
| 3/16/2016 | 0.749685117 |
| 3/23/2016 | 0.657934564 |
| 3/31/2016 | 0.547088695 |
| AVG | 0.700042453 |

| | TSS |
|---|---|
| 3/2/2016 | 1.779650079 |
| 3/9/2016 | 1.694303949 |
| 3/16/2016 | 1.836728537 |
| 3/23/2016 | 1.22814452 |
| 3/31/2016 | 0.410316521 |
| AVG | 1.389828721 |

| | CS2* |
|---|---|
| 3/16/2016 | <QL |

*Note: CS2 EPA Test Method: 8260 MSV Low Level Analytical Method (EPA 8260)
Report Limit 2 ug/L
MDL 1.2 ug/L

**Table 3.1**

**Site Rainfall Data Avtex Fibers Superfund Site 1 January - March 31, 2016**

| Month | Average Rainfall for Winchester, VA (in)* | Average Site Rainfall 1990-2013 (in) | 2006 Actual Rainfall (in) | 2007 Actual Rainfall (in) | 2008 Actual Rainfall (in) | 2009 Actual Rainfall (in) | 2010 Actual Rainfall (in) | 2011 Actual Rainfall (in) | 2012 Actual Rainfall (in) | 2013 Actual Rainfall (in) | 2014 Actual Rainfall (in) | 2015 Actual Rainfall (in) | 2016 Actual Rainfall (in) | Percent of Average Site Rainfall (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January | 2.4 | 2.7 | 2.0 | 1.2 | 1.0 | 1.4 | 3.35 | 0.9 | 2.0 | 3.8 | 1.1 | 1.4 | 1.2 | 46% |
| February | 2.5 | 2.3 | 1.7 | 1.9 | 2.3 | 0.0 | 4.35 | 1.4 | 2.3 | 0.9 | 3.2 | 0.7 | 2.2 | 95% |
| March | 3.1 | 3.6 | 0.1 | 3.7 | 2.9 | 1.5 | 5.7 | 4.6 | 1.9 | 3.9 | 2.3 | 1.7 | 1.0 | 27% |
| April | 3.1 | 3.2 | 2.8 | 3.4 | 6.2 | 3.2 | 1.59 | 6.5 | 2.5 | 1.3 | 1.5 | 2.9 | | 0% |
| May | 3.7 | 3.8 | 1.0 | 1.9 | 5.2 | 5.8 | 3.25 | 5.6 | 3.6 | 2.4 | 7.2 | 1.6 | | 0% |
| June | 3.9 | 4.4 | 9.7 | 3.5 | 4.3 | 4.6 | 0.6 | 4.0 | 3.6 | 5.2 | 1.5 | 3.9 | | 0% |
| July | 3.9 | 3.4 | 2.2 | 1.7 | 3.8 | 3.0 | 1.8 | 3.1 | 4.3 | 1.9 | 4.6 | 1.8 | | 0% |
| August | 3.5 | 3.1 | 1.3 | 2.8 | 3.5 | 2.1 | 3.3 | 3.4 | 5.2 | 2.6 | 3.7 | 1.0 | | 0% |
| September | 3.1 | 4.7 | 6.1 | 2.0 | 4.3 | 1.3 | 5.7 | 5.5 | 4.9 | 2.5 | 1.6 | 3.6 | | 0% |
| October | 3.2 | 3.0 | 4.3 | 4.1 | 1.2 | 2.7 | 0.65 | 3.9 | 4.3 | 5.1 | 5.17 | 1.65 | | 0% |
| November | 3.1 | 2.9 | 5.2 | 1.6 | 2.5 | 3.7 | 1.8 | 3.0 | 1.1 | 1.6 | 1.83 | 1.36 | | 0% |
| December | 2.5 | 2.6 | 0.7 | 2.8 | 1.4 | 5.0 | 2.0 | 3.6 | 1.55 | 1.5 | 3.02 | 2.46 | | 0% |
| **Totals to Date** | **37.9** | **39.6** | **36.9** | **30.4** | **38.5** | **34.2** | **34.1** | **45.2** | **37.0** | **32.8** | **36.7** | **24.1** | **4.4** | **11%** |

* Source: National Climate Data Center TD 9641 Clim 81

**Table 3.2 Monthly Flow Totals**

**Avtex Site Lift Stations, Test Wells and Viscose Basin**

## January 2016

| Lift Stations Flow Report | | Test Wells Flow Report | | | | Viscose Basin Flow Report | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | Total LS Flow (MGD) | Date | TW1 Flow (MGD) | TW2 Flow (MGD) | TW3 Flow (MGD) | Date | VB9 Flow (MGD) | VB10 Flow (MGD) | VB 11 Flow (MGD) |
| 1/1/2016 | 0.000 | 1/1/2016 | 0.064 | 0.042 | 0.000 | 1/1/2016 | 0.000 | 0.000 | 0.000 |
| 1/2/2016 | 0.000 | 1/2/2016 | 0.064 | 0.041 | 0.000 | 1/2/2016 | 0.000 | 0.000 | 0.000 |
| 1/3/2016 | 0.000 | 1/3/2016 | 0.031 | 0.019 | 0.000 | 1/3/2016 | 0.000 | 0.000 | 0.000 |
| 1/4/2016 | 0.008 | 1/4/2016 | 0.046 | 0.031 | 0.011 | 1/4/2016 | 0.000 | 0.000 | 0.000 |
| 1/5/2016 | 0.009 | 1/5/2016 | 0.059 | 0.038 | 0.011 | 1/5/2016 | 0.000 | 0.000 | 0.000 |
| 1/6/2016 | 0.000 | 1/6/2016 | 0.064 | 0.041 | 0.000 | 1/6/2016 | 0.000 | 0.000 | 0.000 |
| 1/7/2016 | 0.000 | 1/7/2016 | 0.064 | 0.040 | 0.000 | 1/7/2016 | 0.000 | 0.000 | 0.000 |
| 1/8/2016 | 0.008 | 1/8/2016 | 0.046 | 0.017 | 0.000 | 1/8/2016 | 0.000 | 0.000 | 0.000 |
| 1/9/2016 | 0.001 | 1/9/2016 | 0.059 | 0.017 | 0.000 | 1/9/2016 | 0.000 | 0.000 | 0.000 |
| 1/10/2016 | 0.009 | 1/10/2016 | 0.064 | 0.018 | 0.000 | 1/10/2016 | 0.000 | 0.000 | 0.000 |
| 1/11/2016 | 0.012 | 1/11/2016 | 0.064 | 0.021 | 0.000 | 1/11/2016 | 0.000 | 0.000 | 0.000 |
| 1/12/2016 | 0.007 | 1/12/2016 | 0.018 | 0.007 | 0.000 | 1/12/2016 | 0.000 | 0.000 | 0.000 |
| 1/13/2016 | 0.008 | 1/13/2016 | 0.046 | 0.000 | 0.000 | 1/13/2016 | 0.000 | 0.000 | 0.000 |
| 1/14/2016 | 0.032 | 1/14/2016 | 0.051 | 0.000 | 0.000 | 1/14/2016 | 0.000 | 0.000 | 0.000 |
| 1/15/2016 | 0.011 | 1/15/2016 | 0.023 | 0.000 | 0.000 | 1/15/2016 | 0.000 | 0.000 | 0.000 |
| 1/16/2016 | 0.015 | 1/16/2016 | 0.001 | 0.000 | 0.000 | 1/16/2016 | 0.000 | 0.000 | 0.000 |
| 1/17/2016 | 0.003 | 1/17/2016 | 0.041 | 0.000 | 0.000 | 1/17/2016 | 0.000 | 0.000 | 0.000 |
| 1/18/2016 | 0.003 | 1/18/2016 | 0.059 | 0.019 | 0.000 | 1/18/2016 | 0.000 | 0.000 | 0.000 |
| 1/19/2016 | 0.011 | 1/19/2016 | 0.064 | 0.023 | 0.000 | 1/19/2016 | 0.000 | 0.000 | 0.000 |
| 1/20/2016 | 0.010 | 1/20/2016 | 0.032 | 0.008 | 0.000 | 1/20/2016 | 0.000 | 0.000 | 0.000 |
| 1/21/2016 | 0.002 | 1/21/2016 | 0.034 | 0.000 | 0.000 | 1/21/2016 | 0.000 | 0.000 | 0.000 |
| 1/22/2016 | 0.000 | 1/22/2016 | 0.046 | 0.000 | 0.000 | 1/22/2016 | 0.000 | 0.000 | 0.000 |
| 1/23/2016 | 0.000 | 1/23/2016 | 0.051 | 0.000 | 0.000 | 1/23/2016 | 0.000 | 0.000 | 0.000 |
| 1/24/2016 | 0.000 | 1/24/2016 | 0.022 | 0.000 | 0.000 | 1/24/2016 | 0.000 | 0.000 | 0.000 |
| 1/25/2016 | 0.013 | 1/25/2016 | 0.025 | 0.013 | 0.000 | 1/25/2016 | 0.000 | 0.000 | 0.000 |
| 1/26/2016 | 0.007 | 1/26/2016 | 0.044 | 0.013 | 0.000 | 1/26/2016 | 0.000 | 0.000 | 0.000 |
| 1/27/2016 | 0.000 | 1/27/2016 | 0.059 | 0.000 | 0.000 | 1/27/2016 | 0.000 | 0.000 | 0.000 |
| 1/28/2016 | 0.022 | 1/28/2016 | 0.062 | 0.017 | 0.000 | 1/28/2016 | 0.000 | 0.000 | 0.000 |
| 1/29/2016 | 0.015 | 1/29/2016 | 0.001 | 0.021 | 0.000 | 1/29/2016 | 0.000 | 0.000 | 0.000 |
| 1/30/2016 | 0.005 | 1/30/2016 | 0.001 | 0.023 | 0.000 | 1/30/2016 | 0.000 | 0.000 | 0.000 |
| 1/31/2016 | 0.015 | 1/31/2016 | 0.001 | 0.039 | 0.000 | 1/31/2016 | 0.000 | 0.000 | 0.000 |

**Table 3.2 Monthly Flow Totals**

**Avtex Site Lift Stations, Test Wells and Viscose Basin**

## February 2016

| Lift Stations Flow Report | |
|---|---|
| Date | Total LS Flow (MGD) |
| 2/1/2016 | 0.036 |
| 2/2/2016 | 0.031 |
| 2/3/2016 | 0.039 |
| 2/4/2016 | 0.032 |
| 2/5/2016 | 0.006 |
| 2/6/2016 | 0.012 |
| 2/7/2016 | 0.013 |
| 2/8/2016 | 0.002 |
| 2/9/2016 | 0.014 |
| 2/10/2016 | 0.009 |
| 2/11/2016 | 0.003 |
| 2/12/2016 | 0.000 |
| 2/13/2016 | 0.000 |
| 2/14/2016 | 0.000 |
| 2/15/2016 | 0.010 |
| 2/16/2016 | 0.030 |
| 2/17/2016 | 0.032 |
| 2/18/2016 | 0.008 |
| 2/19/2016 | 0.013 |
| 2/20/2016 | 0.008 |
| 2/21/2016 | 0.005 |
| 2/22/2016 | 0.009 |
| 2/23/2016 | 0.017 |
| 2/24/2016 | 0.021 |
| 2/25/2016 | 0.024 |
| 2/26/2016 | 0.002 |
| 2/27/2016 | 0.009 |
| 2/28/2016 | 0.005 |
| 2/29/2016 | 0.013 |

| Test Wells Flow Report | | | |
|---|---|---|---|
| Date | TW1 Flow (MGD) | TW2 Flow (MGD) | TW3 Flow (MGD) |
| 2/1/2016 | 0.003 | 0.042 | 0.000 |
| 2/2/2016 | 0.003 | 0.016 | 0.000 |
| 2/3/2016 | 0.001 | 0.000 | 0.000 |
| 2/4/2016 | 0.001 | 0.000 | 0.000 |
| 2/5/2016 | 0.001 | 0.032 | 0.016 |
| 2/6/2016 | 0.001 | 0.039 | 0.020 |
| 2/7/2016 | 0.000 | 0.042 | 0.018 |
| 2/8/2016 | 0.000 | 0.028 | 0.000 |
| 2/9/2016 | 0.000 | 0.017 | 0.000 |
| 2/10/2016 | 0.000 | 0.039 | 0.000 |
| 2/11/2016 | 0.000 | 0.042 | 0.031 |
| 2/12/2016 | 0.000 | 0.042 | 0.039 |
| 2/13/2016 | 0.000 | 0.041 | 0.043 |
| 2/14/2016 | 0.000 | 0.033 | 0.016 |
| 2/15/2016 | 0.000 | 0.027 | 0.027 |
| 2/16/2016 | 0.000 | 0.038 | 0.030 |
| 2/17/2016 | 0.000 | 0.042 | 0.022 |
| 2/18/2016 | 0.000 | 0.016 | 0.007 |
| 2/19/2016 | 0.000 | 0.038 | 0.024 |
| 2/20/2016 | 0.000 | 0.042 | 0.024 |
| 2/21/2016 | 0.000 | 0.041 | 0.030 |
| 2/22/2016 | 0.000 | 0.041 | 0.034 |
| 2/23/2016 | 0.000 | 0.016 | 0.008 |
| 2/24/2016 | 0.000 | 0.038 | 0.000 |
| 2/25/2016 | 0.000 | 0.041 | 0.000 |
| 2/26/2016 | 0.000 | 0.041 | 0.021 |
| 2/27/2016 | 0.000 | 0.041 | 0.025 |
| 2/28/2016 | 0.000 | 0.039 | 0.017 |
| 2/29/2016 | 0.000 | 0.040 | 0.018 |

| Viscose Basin Flow Report | | | |
|---|---|---|---|
| Date | VB9 Flow (MGD) | VB10 Flow (MGD) | VB 11 Flow (MGD) |
| 2/1/2016 | 0.000 | 0.000 | 0.000 |
| 2/2/2016 | 0.000 | 0.000 | 0.000 |
| 2/3/2016 | 0.000 | 0.000 | 0.000 |
| 2/4/2016 | 0.000 | 0.000 | 0.000 |
| 2/5/2016 | 0.000 | 0.000 | 0.000 |
| 2/6/2016 | 0.000 | 0.000 | 0.000 |
| 2/7/2016 | 0.000 | 0.000 | 0.000 |
| 2/8/2016 | 0.000 | 0.000 | 0.000 |
| 2/9/2016 | 0.000 | 0.000 | 0.000 |
| 2/10/2016 | 0.000 | 0.000 | 0.000 |
| 2/11/2016 | 0.000 | 0.000 | 0.000 |
| 2/12/2016 | 0.000 | 0.000 | 0.000 |
| 2/13/2016 | 0.000 | 0.000 | 0.000 |
| 2/14/2016 | 0.000 | 0.000 | 0.000 |
| 2/15/2016 | 0.000 | 0.000 | 0.000 |
| 2/16/2016 | 0.000 | 0.000 | 0.000 |
| 2/17/2016 | 0.000 | 0.001 | 0.000 |
| 2/18/2016 | 0.000 | 0.001 | 0.000 |
| 2/19/2016 | 0.000 | 0.000 | 0.000 |
| 2/20/2016 | 0.000 | 0.000 | 0.000 |
| 2/21/2016 | 0.000 | 0.001 | 0.000 |
| 2/22/2016 | 0.000 | 0.001 | 0.000 |
| 2/23/2016 | 0.000 | 0.000 | 0.000 |
| 2/24/2016 | 0.000 | 0.000 | 0.000 |
| 2/25/2016 | 0.000 | 0.000 | 0.000 |
| 2/26/2016 | 0.000 | 0.000 | 0.000 |
| 2/27/2016 | 0.000 | 0.000 | 0.000 |
| 2/28/2016 | 0.000 | 0.000 | 0.000 |
| 2/29/2016 | 0.000 | 0.001 | 0.000 |

**Table 3.2 Monthly Flow Totals**

**Avtex Site Lift Stations, Test Wells and Viscose Basin**

## March 2016

| Lift Stations Flow Report | | Test Wells Flow Report | | | | Viscose Basin Flow Report | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | Total LS Flow (MGD) | Date | TW1 Flow (MGD) | TW2 Flow (MGD) | TW3 Flow (MGD) | Date | VB9 Flow (MGD) | VB10 Flow (MGD) | VB 11 Flow (MGD) |
| 3/1/2016 | 0.004 | 3/1/2016 | 0.000 | 0.040 | 0.021 | 3/1/2016 | 0.000 | 0.001 | 0.000 |
| 3/2/2016 | 0.000 | 3/2/2016 | 0.000 | 0.040 | 0.025 | 3/2/2016 | 0.000 | 0.001 | 0.000 |
| 3/3/2016 | 0.005 | 3/3/2016 | 0.000 | 0.022 | 0.017 | 3/3/2016 | 0.000 | 0.000 | 0.000 |
| 3/4/2016 | 0.013 | 3/4/2016 | 0.000 | 0.036 | 0.020 | 3/4/2016 | 0.000 | 0.000 | 0.000 |
| 3/5/2016 | 0.007 | 3/5/2016 | 0.000 | 0.040 | 0.008 | 3/5/2016 | 0.000 | 0.000 | 0.000 |
| 3/6/2016 | 0.002 | 3/6/2016 | 0.000 | 0.039 | 0.015 | 3/6/2016 | 0.000 | 0.001 | 0.000 |
| 3/7/2016 | 0.010 | 3/7/2016 | 0.000 | 0.039 | 0.022 | 3/7/2016 | 0.000 | 0.001 | 0.000 |
| 3/8/2016 | 0.002 | 3/8/2016 | 0.000 | 0.039 | 0.022 | 3/8/2016 | 0.000 | 0.001 | 0.000 |
| 3/9/2016 | 0.002 | 3/9/2016 | 0.000 | 0.039 | 0.019 | 3/9/2016 | 0.000 | 0.001 | 0.001 |
| 3/10/2016 | 0.011 | 3/10/2016 | 0.000 | 0.038 | 0.019 | 3/10/2016 | 0.000 | 0.003 | 0.001 |
| 3/11/2016 | 0.002 | 3/11/2016 | 0.000 | 0.038 | 0.022 | 3/11/2016 | 0.000 | 0.012 | 0.026 |
| 3/12/2016 | 0.002 | 3/12/2016 | 0.000 | 0.038 | 0.010 | 3/12/2016 | 0.000 | 0.009 | 0.005 |
| 3/13/2016 | 0.005 | 3/13/2016 | 0.000 | 0.038 | 0.021 | 3/13/2016 | 0.000 | 0.010 | 0.000 |
| 3/14/2016 | 0.020 | 3/14/2016 | 0.000 | 0.036 | 0.025 | 3/14/2016 | 0.000 | 0.020 | 0.000 |
| 3/15/2016 | 0.002 | 3/15/2016 | 0.000 | 0.037 | 0.019 | 3/15/2016 | 0.000 | 0.028 | 0.000 |
| 3/16/2016 | 0.002 | 3/16/2016 | 0.000 | 0.037 | 0.023 | 3/16/2016 | 0.000 | 0.010 | 0.001 |
| 3/17/2016 | 0.011 | 3/17/2016 | 0.000 | 0.037 | 0.015 | 3/17/2016 | 0.000 | 0.002 | 0.000 |
| 3/18/2016 | 0.002 | 3/18/2016 | 0.000 | 0.034 | 0.000 | 3/18/2016 | 0.000 | 0.001 | 0.001 |
| 3/19/2016 | 0.000 | 3/19/2016 | 0.000 | 0.037 | 0.000 | 3/19/2016 | 0.000 | 0.001 | 0.004 |
| 3/20/2016 | 0.025 | 3/20/2016 | 0.000 | 0.037 | 0.011 | 3/20/2016 | 0.000 | 0.000 | 0.000 |
| 3/21/2016 | 0.001 | 3/21/2016 | 0.000 | 0.037 | 0.039 | 3/21/2016 | 0.000 | 0.000 | 0.000 |
| 3/22/2016 | 0.003 | 3/22/2016 | 0.000 | 0.037 | 0.043 | 3/22/2016 | 0.000 | 0.001 | 0.000 |
| 3/23/2016 | 0.009 | 3/23/2016 | 0.036 | 0.037 | 0.023 | 3/23/2016 | 0.000 | 0.001 | 0.000 |
| 3/24/2016 | 0.003 | 3/24/2016 | 0.042 | 0.036 | 0.000 | 3/24/2016 | 0.000 | 0.002 | 0.001 |
| 3/25/2016 | 0.003 | 3/25/2016 | 0.059 | 0.002 | 0.000 | 3/25/2016 | 0.000 | 0.007 | 0.017 |
| 3/26/2016 | 0.008 | 3/26/2016 | 0.065 | 0.000 | 0.000 | 3/26/2016 | 0.000 | 0.007 | 0.030 |
| 3/27/2016 | 0.002 | 3/27/2016 | 0.040 | 0.000 | 0.000 | 3/27/2016 | 0.000 | 0.002 | 0.021 |
| 3/28/2016 | 0.009 | 3/28/2016 | 0.046 | 0.000 | 0.000 | 3/28/2016 | 0.000 | 0.001 | 0.007 |
| 3/29/2016 | 0.002 | 3/29/2016 | 0.046 | 0.020 | 0.000 | 3/29/2016 | 0.000 | 0.002 | 0.025 |
| 3/30/2016 | 0.008 | 3/30/2016 | 0.0517131 | 0.023 | 0.000 | 3/30/2016 | 0.000 | 0.001 | 0.003 |
| 3/31/2016 | 0.004 | 3/31/2016 | 0.0466936 | 0.026 | 0.000 | 3/31/2016 | 0.000 | 0.001 | 0.000 |

*Attachment 4*

*Preliminary Site-Wide Quarterly Inspection*

# Quarterly Inspection Report

Inpected by: M. Robinson / H. Lipomi
Report No.: 2016-03
Date: 03-08-2016
Areas Inspected: See Map

**1. Remediation/Restoration Areas**

| Questions | Response | | Comments and Recommendations |
|---|---|---|---|
| Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on an attached map. | ☑ Yes | ☐ No | Some slite to moderate areas of standing water (similar to past inspections). See map for locations |
| Is erosion evident? If Yes, describe the type of erosion (rills, gullies), record approximate dimensions (length, width, depth) and indicate location(s) on an attached map. | ☑ Yes | ☐ No | Minor erosion noted in a few small areas (see map for locations and details) |
| Are potential leachate seeps evident or migration of contamination? If Yes, describe the nature (size, color, flow rate), record location on an attached map, and photograph.<br><br>[Note: Check former seep areas in unnamed tributary north of VB 4-6, check pond area north of VB 9, and check other likely areas (e.g., embankments of VBs, SBs)] | ☑ Yes | ☐ No | See map for locations. Standing water noted in several areas. Potential seeps identified in the following locations:<br>-South of LS2<br>-SE of VB-2&3<br>-NW of VB-7&8 (flowing ~0.25 L/min) |
| Do landfill/basin embankments show signs of erosion, failure (e.g., cracking, sloughing) or migration of contamination (e.g., seeps, exposed waste)? If Yes, describe the nature (type, size), record location on an attached map, and photograph<br><br>[Note: Check river-side of embankments along river, if safe to do so.] | ☐ Yes | ☑ No | |
| Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on an attached map. | ☑ Yes | ☐ No | Isolated/minor bare areas noted. See map for locations |

# Quarterly Inspection Report

Inpected by: M. Robinson / H. Lipomi
Report No.: 2016-03
Date: 03-08-2016
Areas Inspected: See Map

| Questions | Response | | Comments and Recommendations |
|---|---|---|---|
| Is there woody vegetation greater than 2 inches in diameter or 5 feet in height on the cover system(s)? If Yes, describe where and actions to be taken (refer to Section 4.2 of the O&M Plan). | ☑ Yes | ☐ No | A few small trees noted. See map for locations |
| Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on an attached map. | ☐ Yes | ☑ No | |
| Are obstruction(s) (brush, debris, timber, leaves, sediment) interfering with the proper functioning of ditches, gutters or flumes? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on an attached map. | ☐ Yes | ☑ No | |
| Is sediment deposited in diversion berms, ditches gutters, flumes or culverts deeper than ¼ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on an attached map. | ☐ Yes | ☑ No | |

# Quarterly Inspection Report

Inpected by: M. Robinson / H. Lipomi
Date: 03-08-2016
Report No.: 2016-03
Areas Inspected: See Map

**2. Surface Water Drainage and Erosion Control System**

| Questions | Response | | Comments and Recommendations |
|---|---|---|---|
| Is erosion evident? If Yes, describe the drainage structure inspected (ditch, gutter, flume, culvert, outfall, rip-rap), the type of erosion (rills, gullies, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on an attached map. | ☑ Yes | ☐ No | Minor erosion noted in a few isolated areas. See map for locations. |
| Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on an attached map. | ☑ Yes | ☐ No | |
| Is erosion evident at drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on an attached map. | ☐ Yes | ☑ No | |

## Inspection Checklist (check items that were inspected; document concerns noted; refer to attached Drawings for specific areas)

### Viscos Basins 1-3

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert Inlets & outles | ☑ Rip-rap channels | ☑ Access road near unit | ☐ |

### Viscos Basins 4-6

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert Inlets & outles<br>- N, E, & W of VB 4-6;<br>- Pond W of VB 4-6 | ☑ Rip-rap channels | ☑ Down chutes | ☑ Gas Vent Filter & Fence |
| ☑ Former seep area<br>- N of VB 4-6 | ☑ LS #1 & #2 and Fencing | ☑ Access road near unit | ☐ |

### Viscos Basins 7-8

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert Inlets & outles (between VB-1 and VB-7) | ☑ Rip-rap channels | ☑ Down chutes | ☑ Leachate Collection Manhole (MW VB7) |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

### Viscos Basins 9-11

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Drop inlests on VB-11 | ☑ Culver inlets & outlets (S&W VB-11; N VB-11 & VB-9; and SW VB-10) | ☑ Rip-rap channels | ☑ Down chutes |
| ☑ Access road near unit | ☑ Seep area in pond north of VB-9 | ☑ VB 9-11 fence and gates | ☑ LS #4 and Fencing |

### New Landfill

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & outlets (NE & SE of NLF) | ☑ Rip-rap channels | ☑ Down chutes | ☑ LS #3 and Fencing |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

### SB-1

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & outlets (NE SB-1; SB-2; SE SB-3; NE SB-4; & S SB-4) | ☑ Rip-rap channels & outlets by River | ☑ Down chutes (SB-1 & SB-4) | ☐ |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

## Inspection Checklist (check items that were inspected; document concerns noted; refer to attached Drawings for specific areas)

**SB-2**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Culvert inlets & Outlets (S & W Sides) |
| ☑ Berms along River (site & river side) | ☑ Rip-rap channels & outlets by River | ☑ Access road near unit | ☐ |

**SB-3**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & Outlets (SE)) | ☑ Rip-rap channels & outlets by River | ☑ Drop inlets (W side) | ☑ Access Road near unit |
| ☐ | ☐ | ☐ | ☐ |

**SB-4**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & outlets (NE & S sides) | ☑ Down chutes (S Side) | ☑ Drop inlet (N side) | ☑ Berms along River (site & river side) |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

**SB-5**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Berms along River and E side | ☑ Access Road near unit | ☐ | ☐ |
| ☐ | ☐ | ☐ | ☐ |

**FAB 1-3**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Culvert inlets & outlets (E & S FAB1-2; SW FAB3) |
| ☑ Access Road near unit | ☐ | ☐ | ☐ |

**FAS & FARA**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Culvert inlets & outlets (E & N FAS; E FARA) |
| ☑ Access Road near unit | ☐ | ☐ | ☐ |

**EL, PB 1-2, PB-3**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Rip-rap Channels |
| ☑ Culvert inlets & outlets (E & W EL; NW PB-1-2; S PB-3) | ☑ Access Road near unit | ☐ | ☐ |

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 1 ***Unit:*** *OU-10* **Basin/Landfill**: VB-4, 5, & 6

**Date :** 03/08/2016

**Photo Description:** Drainage ditch near former seep north of LS-2.

**Photo Number:** 2 ***Unit:*** OU-10 **Basin/Landfill:** VB-4, 5, & 6

**Date :** 03/08/2016

**Photo Description:** Standing water adjacent to LS-2 (east).

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 3 ***Unit:*** *OU-10* **Basin/Landfill**: VB-4, 5, & 6

**Date :** 03/08/2016

**Photo Description:** Standing water adjacent to LS-2 (west).

**Photo Number:** 4 ***Unit:*** OU-10 **Basin/Landfill:** VB-4, 5, & 6

**Date :** 03/08/2016

**Photo Description:** Small tree nearing 5' tall at bottom of chute in northwest corner.

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 5 ***Unit:*** *OU-10* **Basin/Landfill**: Sedimentation Basin 1

**Date :** 03/08/2016

**Photo Description:** Minor erosion at edge of road located in the northeast corner of VB-1.

**Photo Number:** 6 ***Unit:*** OU-10 **Basin/Landfill:** Sedimentation Basin 1

**Date :** 03/08/2016

**Photo Description:** Small trees at basin edge.

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 7 ***Unit:*** *OU-10* **Basin/Landfill**: VB-1

**Date :** 03/08/2016

**Photo Description:** Minor erosion at edge of road located in the northeast corner of VB-1.

**Photo Number:** 8 ***Unit:*** OU-10 **Basin/Landfill:** VB-11

**Date :** 12/7/2015

**Photo Description:** Small tree at headwall leading to the EL.

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 9 ***Unit:*** *OU-10* **Basin/Landfill**: VB-1 / VB-7&8

**Date :** 03/087/2016

**Photo Description:** Small tree at headwall for drainage channel between VB-1 and VB-7&8.

**Photo Number:** 10 ***Unit:*** OU-10 **Basin/Landfill:** VB-2&3

**Date :** 03/08/2016

**Photo Description:** Large area of standing water southeast of VB2&3.

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 11 ***Unit:*** *OU-7* **Basin/Landfill**: VB-7&8

**Date :** 03/08/2016

**Photo Description:** Seep at northwest corner of VB-7&8.

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 12 ***Unit:*** *OU-10* **Basin/Landfill**: VB-2&3

**Date :** 03/08/2016

**Photo Description:** Bare soil (~10' x30`) with rills southeast of VB-2&3.

**Photo Number:** 13 ***Unit:*** OU-10 **Basin/Landfill:** NLF

**Date :** 03/08/2016

**Photo Description:** Bare soil (~10'x20') in the southeast corner of the basin located southeast of the NLF; continues to fill in with vegetation.

**Photo Number:** 14 ***Unit:*** *OU-10* **Basin/Landfill**: NLF

**Date :** 03/08/2016

**Photo Description:** Small tree located in drainage channel southeast of the NLF.

**Photo Number:** 15 ***Unit:*** OU-7 **Basin/Landfill:** VB-11

**Date :** 03/08/2016

**Photo Description:** Small trees located along sedimentation basin east of VB-11 (near gate).

**Photo Number:** 16 ***Unit:*** *OU-7* **Basin/Landfill**: VB-10

**Date :** 03/08/2016

**Photo Description:** Minor erosion across roadway south of treatment plant (appears to have stabilized).

**Photo Number:** 17 ***Unit:*** OU-7 **Basin/Landfill:** VB-10

**Date :** 03/08/2016

**Photo Description:** Standing water south of treatment plant (north of FAB-3).

**Photo Number:** 18 ***Unit:*** *OU-7* **Basin/Landfill**: VB-10

**Date :** 03/08/2016

**Photo Description:** Bare patches and exposed matting at down chute in southeast corner of VB-10.

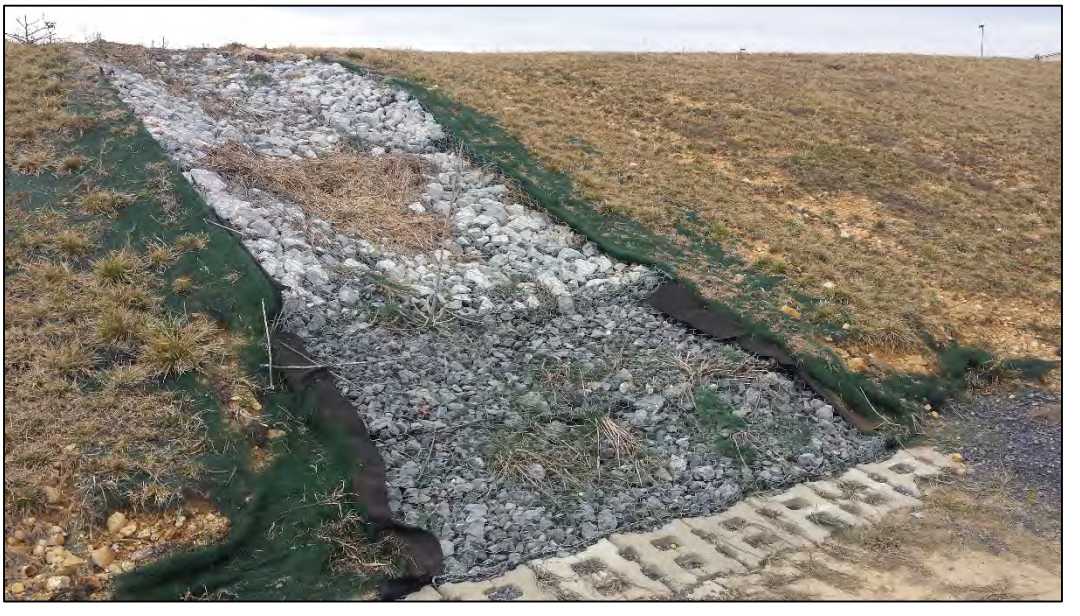


**Photo Number:** 19 ***Unit:*** OU-7 **Basin/Landfill:** VB-10

**Date :** 03/08/2016

**Photo Description:** Bare patches and exposed matting at down chute in southwest corner of VB-10.

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 20 ***Unit:*** *OU-7* **Basin/Landfill:** VB-10

**Date :** 03/08/2016

**Photo Description:** Bare soil (~20'x30') at the southwest corner of VB-10.

**Photo Number:** 21 ***Unit:*** *OU-7* **Basin/Landfill**: FAB-3

**Date :** 03/08/2016

**Photo Description:** Small tree approaching 5 feet tall at headwall south of VB-10.

**Photo Number:** 22 ***Unit:*** *NTRCA Basins* **Basin/Landfill:** SB-1

**Date :** 03/08/2016

**Photo Description:** Standing water along east side of access road west of SB-1. Appears to be related to wheel tracks from mowing/maintenance activities.

**Photo Number:** 23 ***Unit:*** *NTCRA Basins* **Basin/Landfill**: SB-1

**Date :** 03/08/2016

**Photo Description:** Standing water along east side of access road west of SB-1. Appears to be related to wheel tracks from mowing/maintenance activities.

**Photo Number:** 24 ***Unit:*** *Fly Ash Basins* **Basin/Landfill:** FAB-6

**Date :** 03/08/2016

**Photo Description:** Small tree/bush at headwall northeast of FAB-6.

**Photo Number:** 25 ***Unit:*** *Fly Ash Basins* **Basin/Landfill**: FAB-6

**Date :** 03/08/2016

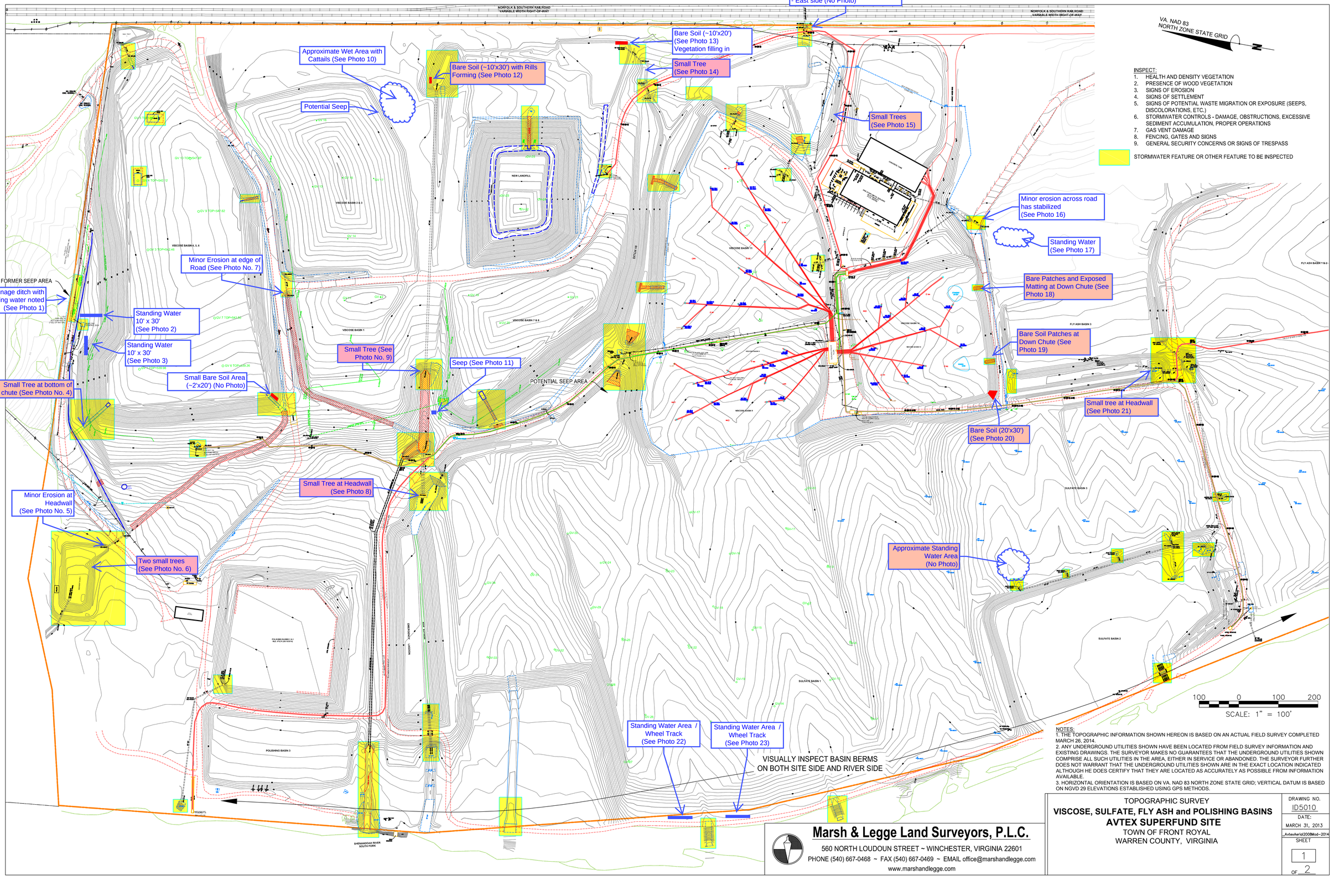
**Photo Description:** Small trees at inlet south of FAB-6.

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 26 ***Unit:*** *Fly Ash Basins* **Basin/Landfill:** FAB-6

**Date :** 03/08/2016

**Photo Description:** Small trees in channel near inlet west of FAB-6.




NOTES:
1. THE TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AN ACTUAL FIELD SURVEY COMPLETED MARCH 26, 2014.
2. ANY UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.
3. HORIZONTAL ORIENTATION IS BASED ON VA. NAD 83 NORTH ZONE STATE GRID; VERTICAL DATUM IS BASED ON NGVD 29 ELEVATIONS ESTABLISHED USING GPS METHODS.


**Marsh & Legge Land Surveyors, P.L.C.**
560 NORTH LOUDOUN STREET ~ WINCHESTER, VIRGINIA 22601
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www.marshandlegge.com


TOPOGRAPHIC SURVEY
**VISCOSE, SULFATE, FLY ASH and POLISHING BASINS**
**AVTEX SUPERFUND SITE**
TOWN OF FRONT ROYAL
WARREN COUNTY, VIRGINIA

DRAWING NO. ID5010
DATE: MARCH 31, 2013
_AvtexAerial2008Mod--2014
SHEET 1 OF 2

VA. NAD 83
NORTH ZONE STATE GRID

NORFOLK & SOUTHERN RAILROAD
VARIABLE WIDTH RIGHT-OF-WAY

Small Trees / Bush at Headwall
(See Photo 24)

2 Small trees in ditch around inlet
(See Photo 26)

3 Trees in ditch around inlet
(See Photo 25)

See Sheet 1 of 2

FLY ASH BASIN 6

FLY ASH BASIN 1 & 2

FLY ASH BASIN 3

SULFATE BASIN 5

SULFATE BASIN 4

SULFATE BASIN 3

SULFATE BASIN 2

SHENANDOAH RIVER

VISUALLY INSPECT BASIN BERMS
ON BOTH SITE SIDE AND RIVER SIDE

INSPECT:
1. HEALTH AND DENSITY VEGETATION
2. PRESENCE OF WOOD VEGETATION
3. SIGNS OF EROSION
4. SIGNS OF SETTLEMENT
5. SIGNS OF POTENTIAL WASTE MIGRATION OR EXPOSURE (SEEPS, DISCOLORATIONS, ETC.)
6. STORMWATER CONTROLS - DAMAGE, OBSTRUCTIONS, EXCESSIVE SEDIMENT ACCUMULATION, PROPER OPERATIONS
7. GAS VENT DAMAGE
8. FENCING, GATES AND SIGNS
9. GENERAL SECURITY CONCERNS OR SIGNS OF TRESPASS

STORMWATER FEATURE OR OTHER FEATURE TO BE INSPECTED

100 0 100 200
SCALE: 1" = 100'

**Marsh & Legge Land Surveyors, P.L.C.**
560 NORTH LOUDOUN STREET ~ WINCHESTER, VIRGINIA 22601
PHONE (540) 667-0468 ~ FAX (540) 667-0469 ~ EMAIL office@marshandlegge.com
www.marshandlegge.com

TOPOGRAPHIC SURVEY
**VISCOSE, SULFATE, FLY ASH and POLISHING BASINS**
**AVTEX SUPERFUND SITE**
TOWN OF FRONT ROYAL
WARREN COUNTY, VIRGINIA

DRAWING NO. ID5010
DATE: MARCH 13, 2014
..\Avtexaerial2008Mod~2014
SHEET 2 OF 2

**FMC Corporation**
1735 Market Street
Philadelphia, PA 19103
USA

215.299.6000
fmc.com

July 10, 2016

**SENT VIA: ELECTRONIC MAIL AND US MAIL**

Mr. Charlie Root
Remedial Project Manager
U.S. Environmental Protection Agency
Hazardous Site Cleanup Division, 3HS23
1650 Arch Street
Philadelphia, PA 19103

**RE: QUARTERLY PROGRESS REPORT FOR THE AVTEX FIBERS SUPERFUND SITE FOR THE PERIOD 1 APRIL TO 30 JUNE 2016**

Dear Mr. Root,

FMC Corporation (FMC) has enclosed one clipped copy of the Quarterly Progress Report for remedial activities undertaken by FMC at the Avtex Fibers Superfund Site, Front Royal, Virginia (Site). This Quarterly progress report addresses the reporting requirements in 1999 Consent Decree between the United States of America and FMC Corporation to conduct removal and remedial actions. In accordance with Section XI, Paragraph 45 of the Consent Decree, FMC has prepared this progress report to describe actions taken pursuant to the Consent Decree during the previous quarter.

If you have any questions or comments, please call me at 215-299-6047.

Sincerely,

Brian McGinnis
*EHS, Remediation Manager*

Enclosure (1)
cc: M. Carpenter, FMC
M. Payne, B. Kiracofe, VADEQ
S. Curran, Gannett Fleming
H. Philip, Parsons

**QUARTERLY PROGRESS REPORT**
**for the Avtex Fibers Superfund Site, Front Royal, Virginia**
**for the Period April 1 to June 30, 2016**

## *1.0 INTRODUCTION*

FMC Corporation (FMC) has conducted removal and remedial activities at the Avtex Fibers Superfund Site, Front Royal, Virginia (Site). The removal action, remedial design, and remedial action activities were performed pursuant to the 1999 Consent Decree between the United States of America and FMC Corporation (effective 21 October 1999).

On August 29, 2014, USEPA issued a document titled, "Superfund Preliminary Close-out Report," which documented construction completion at the Site. The completion of construction at the Site marked its transition into the O&M phase. Full-scale operations and maintenance were achieved when the Groundwater and Leachate Treatment Plant (GLTP) began operating in continuous biological mode in September 2015. During the September 8, 2014 monthly call between EPA and FMC, EPA agreed that the former monthly progress reporting for the site could be reduced to quarterly during O&M phase as specified in paragraph 45 in Consent Decree. In accordance with Section XI, Paragraph 45 of the Consent Decree, FMC has prepared this progress report to describe actions taken pursuant to both the Areas of Concern (AOC) and Consent Decree during the months of April, May, and June 2016.

This report includes progress towards full completion of removal and remedial activities, and follows formatting consistent with previous reports. Daily operations and maintenance activities will be ongoing and will follow requirements in the Site-Wide O&M Plan (FMC, May 2015), which will include the Operations and Maintenance Manual Groundwater and Leachate Treatment Plant (Parsons, December 2014), and the Operations, Maintenance and Monitoring Manual Groundwater and Leachate Extraction System (to be submitted as final Parsons, May 2015) with any major deviations reported in the sections below. The Site-Wide O&M Plan replaces prior response action specific O&M Plans, such as those presented in the various design documents.

In accordance with Section XI of the Consent Decree, this quarterly progress report contains the following:

- Description of actions taken during the previous quarter;
- Summary of data generated by FMC during the previous quarter;

- Actions scheduled for the next quarter;
- Description of problems and actions taken to mitigate the problems;
- Update on the schedule of actions and percentage completion of tasks;
- Modification to the Work Plans or other schedules; and
- Activities undertaken in support of the EPA Community Relations Plan.

Attachment 1 lists correspondence and deliverables transmitted from FMC or FMC contractors to EPA, and from EPA or EPA contractors to FMC for the previous quarter.

The remainder of the quarterly progress report is divided into six sections (these sections will be removed and updated when actions are completed for the section):

- *Section 2.0 – OU-7/ROD 5 RD/RA*. This section describes remedial design and remedial action activities being conducted under Paragraph 23 in the Consent Decree. The units covered under OU-7 include Viscose Basins (VB) 9-11, site-wide ground water and surface water.
- *Section 3.0 – OU-10/ROD 4 RD/RA*. This section describes remedial design and remedial action activities being conducted under Paragraph 24 in the Consent Decree. The units covered under OU-10 include VB 1-8, the New Landfill, Wastewater Treatment Plant (WWTP) Closure, and Plant Area Soils.
- *Section 4.0 - Non-Time-Critical Removal Actions (NTCRA) for the Buildings*. This section describes the activities being conducted under Paragraph 21.A in the Consent Decree. The scope of the NTCRA-Buildings project is to decontaminate the remaining structures and remove the sewers and manholes.
- *Section 5.0 - Basin Closure*. This section describes the activities being conducted as a NTCRA under Paragraph 22 of the Consent Decree. The scope of this action consists of the closure of the Sulfate Basins, WWTP Basins, Fly Ash Basins, and the Stockpile (Mountain).
- *Section 6.0 – Groundwater and Leachate Treatment Plant O&M*. This section describes the Operations and Maintenance (O&M) activities being conducted to address the discharge requirements for the GLTP.
- *Section 7.0 - Other Site Support Documents.* This section describes site-wide activities that cross over all of management units.
- *Section 8.0 – Community Relations Support*. This section describes activities undertaken in support of community relations in accordance with the Consent Decree requirement.

## *2.0 OU-7/ROD 5 (VB 9-11, GROUND WATER, SURFACE WATER) REMEDIAL DESIGN/REMEDIAL ACTION*

### *2.1 Actions Taken and Reports Prepared in Previous Period*

- Completed quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.
- Completed quarterly monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.

### *2.2 Data Generated in Previous Period*

No laboratory data were generated during the reporting period.

As required by the Air Monitoring Plan, post construction quarterly air monitoring for hydrogen sulfide and organic vapor is required. The air monitoring could not be completed in June and was performed in early July. The results will be reported in the next quarterly report.

### *2.3 Actions to be Completed Next Period*

- Complete quarterly water level measurements as described in Section 2 of the GMP.
- Complete quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.
- Complete quarterly monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Complete quarterly post-closure OU-7 and site perimeter real time air monitoring and collect annual air samples as required by Section 2.2 of the Air Monitoring Plan Operable Unit 7, Avtex Fibers Superfund Site, Front Royal, Virginia, October 2011.
- Submit to EPA the ICIAP pursuant to Section 11.2.10 of the ROD.

### *2.4 Problems Encountered and Remedies*

No problems were encountered during the previous period.

### *2.5 Schedule Update*

All remedial design and remedial action work associated with OU-7 is complete based on EPA's approvals of the remedial action reports for the GLTP

component and Viscose Basins 9-11 cap system and groundwater and leachate extraction component of OU-7.

## *3.0 OU-10/ROD 4 (VB 1-8, NEW LANDFILL, PLANT AREA SOILS AND WWTP CLOSURE) REMEDIAL DESIGN/REMEDIAL ACTION*

### *3.1 Actions Taken and Reports Prepared in Previous Period*

- Completed routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Completed quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

### *3.2 Data Generated in Previous Period*

No laboratory analytical data were generated during the reporting period.

### *3.3 Actions to be Completed Next Period*

- Complete routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Complete quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

### *3.4 Problems Encountered and Remedies*

No problems were encountered during the previous period.

### *3.5 Schedule Update*

All remedial design and remedial action work associated with OU-10 is complete based on EPA's approvals of the remedial action reports for plant area soils, WWTP and VB 1-8 and New Landfill.

## *4.0 NON-TIME-CRITICAL REMOVAL ACTIONS (NTCRA) BUILDINGS*

### *4.1 Actions Taken and Reports Prepared in Previous Period*

- No actions were completed during the previous period because EPA issued a Certificate of Completion.

### *4.2 Data Generated in Previous Period*

No new analytical data were generated during the reporting period.

### *4.3 Actions to be Completed Next Period*

- No actions will be completed during the next period because EPA issued a Certificate of Completion.

### *4.4 Problems Encountered and Remedies*

No problems were encountered during the previous month.

### *4.5 Schedule Update*

All removal action work associated with NTCRA-Buildings is complete.

## *5.0 NON-TIME-CRITICAL REMOVAL ACTIONS (NTCRA) - BASIN CLOSURE*

### *5.1 Actions Taken and Reports Prepared in Previous Period*

- Completed quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

- Completed routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan

### *5.2 Data Generated in Previous Period*

Laboratory results have been received for the annual groundwater sampling and the data are currently being evaluated. The results will be presented in the annual monitoring report.

### *5.3 Actions to be Completed Next Period*

- Complete quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

- Complete routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan

### *5.4 Problems Encountered and Remedies*

No problems were encountered during the previous month.

## *5.5 Schedule Update*

All removal action work associated with NTCRA-Basins is complete.

# *6.0 GROUNDWATER AND LEACHATE TREATMENT PLANT O&M*

## *6.1 Actions Taken and Reports Prepared in Previous Period*

- The GLTP operated and discharged to the South Fork Shenandoah River (River) for 91 days in from April 1 to June 30, 2016.

Discharge Monitoring

Discharge monitoring was completed as required by the July 24, 2014 VADEQ final Fact Sheet and Applicable or Relevant and Appropriate Requirements (ARARs) for the discharge of effluent from the GLTP. Discharge monitoring included: flow, pH, TSS, $BOD_5$, and carbon disulfide. The daily and monthly flow and chemical data are listed in the Discharge Monitoring Reports (DMRs) submitted during the second quarter of 2016 provided in Attachment 3 and summarized below. We remain in the trouble shooting of operations and stabilization period.

Table 1.0 Summary of 2Q16 Effluent Sampling

| | **Permitted Limits** | **April 2016 (month avg/ daily max)** | **May 2016 (month avg/ daily max)** | **June 2016 (month avg/ daily max)** |
|---|---|---|---|---|
| **Flow(gpd)** | 0.396 MGD | 0.065/0.094 | 0.103/0.130 | 0.101/0.128 |
| **pH (range)** | 6.5 – 9.0 | 7.00-8.95 | 7.05-7.96 | 6.90-7.51 |
| **TSS (mg/L)** | 40 / 130 | 1.1/1.6 | 2.1/2.3 | 7.5/11 |
| **$BOD_5$ (mg/L)** | 24 / 64 | 0.0/0.0 | 3.3/5.0 | 3.6/5.0 |
| **CS2 (ug/L)** | No limit established. 0.1mg/l action level | <QL | <QL | <QL |

*Where parameters non-detect, the value '0' was used for calculating average and maximum concentrations.

- *Flow*. Flow during discharge was monitored continuously. Additionally, flow rates for the lift stations, test wells and viscose basins for the months of April, May and June are provided in Table 3.2 (Attachment 3).

- *pH*. pH was monitored continuously during the days that discharge occurred. The pH monitoring results for each month are included in Attachment 3 with the monthly DMRs. The effluent pH was within the range of 6.5 to 9.0 specified in the ARARs.
- *TSS.* TSS was monitored weekly. The permitted monthly daily average limit for TSS of 40 mg/l and the permitted monthly maximum daily limit of 130 mg/l for TSS were not exceeded during this reporting period.
- *$BOD_{5.}$* $BOD_5$ was monitored weekly. The permitted monthly daily average limit for $BOD_5$ of 24 mg/l and the permitted monthly maximum daily limit of 64 mg/l for $BOD_5$ were not exceeded during this reporting period.
- *Carbon Disulfide.* Carbon Disulfide is monitored monthly and no limit is established in the ARARs. The results for the monthly sample collected in the first quarter of 2016 was less than the 0.1 mg/l monthly action level specified in the ARARs, as all results were non-detect with a reporting limit of 2.0 ug/l.

Rainfall Data

Table 3.1 (Attachment 3) shows that a total of 9.0 inches of precipitation fell on the Site during the second quarter 2016 (Apr., May, Jun.). The total precipitation for 2016 to-date is 13.4 inches, representing to-date 34% of the average Site total yearly precipitation (39.6 inches).

### *6.2 Data Generated in Previous Period*

Discharge monitoring, rainfall data and flow totals for the lift stations, test wells and viscose basin are contained in Attachment 3. DMRs were submitted by the tenth of each month.

### *6.3 Actions to be Taken Next Period*

- Continue GLTP startup and operate the GLTP biological system in continuous mode.
- Conduct the Whole Effluent Toxicity sampling per the ARARs (to meet at least one of the Applicability Criteria for a Facility to Perform Aquatic Toxicity Tests stipulated in Guidance Memorandum 00-2012 (Section IV.1.C))

### *6.4 Problems Encountered and Remedies*

The pH effluent probe was replaced in March due to failure and inconsistencies.

### *6.5 Schedule Update*

The GLTP will continue to operate in full continuous mode.

## *7.0 OTHER SITE SUPPORT DOCUMENTS*

### *7.1 Actions Taken and Reports Prepared in Previous Period*

- Quarterly inspections (e.g. seep areas, river berms, gas vents, etc.) and inspection reports completed.

### *7.2 Actions to be Taken Next Period*

- Quarterly inspections (e.g. seep areas, river berms, gas vents, etc.) and inspection reports to be completed.

## *8.0 COMMUNITY RELATIONS SUPPORT*

- No activity during the previous period.

## *ATTACHMENTS*

1 Summary of Monthly Correspondence

2 GLTP Discharge Monitoring and Information

Discharge Monitoring Reports, 1 April to 30 June 2016

Table 2.1 – Site Rainfall Data

Table 2.2 - Monthly Flow Totals Avtex Site Lift Stations, Test Wells and Viscose Basin

3 Preliminary Site-Wide Quarterly Inspection (with repairs photo log)

*Attachment 1*
*Summary of Quarterly Correspondence*

*ATTACHMENT 1 – LIST OF CORRESPONDENCE AND DELIVERABLES FOR THE PERIOD APRIL 1, 2016 TO JUNE 30, 2016, AVTEX FIBERS SUPERFUND SITE, FRONT ROYAL, VIRGINIA*

*FMC to EPA*

June 30, 2016. Laboratory change notification submitted to EPA.

*FMC to VADEQ*

April 10, 2016. Discharge Monitoring Report - March 2015 submitted to VADEQ and EPA

May 10, 2016. Discharge Monitoring Report - April 2016 submitted to VADEQ and EPA

June 10, 2016. Discharge Monitoring Report – May 2016 submitted to VADEQ and EPA

*Attachment 2*

*GLTP Discharge Monitoring and Information*

**FMC Corporation**
1735 Market Street
Philadelphia, PA 19103
USA

215.299.6000
fmc.com

*Transmitted via Email*

May 10, 2016

Department of Environmental Quality - CO
Office of Remediation Program
P.O. Box 1105
Richmond, VA 23218

Re: Submission of Discharge Monitoring Report – April 2016
Avtex Fibers Superfund Site
Front Royal, Virginia

Dear Ms Payne:

In accordance with the Applicable or Relevant and Appropriate Requirements (ARARs) and Fact Sheet provided July 22, 2014, FMC Corporation (FMC) is submitting the Discharge Monitoring Report (DMR) for the month of April 2016. The permit is for the discharge from the Groundwater and Leachate Treatment Plant (GLTP) located at 404 Kendrick Lane, Front Royal, VA. Analysis of effluent concentrations yielded results within the allowable limits for all parameters.

Please do not hesitate to call if there are any questions.

Sincerely,

FMC Corporation

Brian M. McGinnis, P.E.
Manager, Environmental Remediation

cc: via Email
Brandon Kiracofe, DEQ
Charlie Root, USEPA
Heather Philip, Parsons

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

**DISCHARGE MONITORING REPORT** (DMR)

PERMITTEE NAME/ADDRESS: (Include Facility Name/Location if different) — OMB No. 2040-004

**NAME:** Avtex Fibers
**ADDRESS:** 404 Kendrick Lane
Front Royal, VA 22630
**FACILITY:** AVTEX FIBERS
**LOCATION:** FRONT ROYAL, VA
**ATTN:**

| **PERMIT NUMBER** | **DISCHARGE NUMBER** | **DMR MAILING ZIP CODE:** |
|---|---|---|
| NA | 004 | 23218 |

DESCRIPTION:
GLTP EFFLUENT (OUTFALL 004)
External Outfall

**MONITORING PERIOD**

| | **YEAR** | **MO** | **DAY** | | **YEAR** | **MO** | **DAY** |
|---|---|---|---|---|---|---|---|
| **FROM** | 16 | 04 | 01 | TO | 16 | 04 | 30 |

**No Discharge**

| **PARAMETER** | | QUANTITY OR LOADING VALUE | QUANTITY OR LOADING VALUE | UNITS | QUALITY OR CONCENTRATION VALUE | QUALITY OR CONCENTRATION VALUE | QUALITY OR CONCENTRATION VALUE | UNITS | **NO. EX** | FREQUENCY OF ANALYSIS | **SAMPLE TYPE** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FLOW** | SAMPLE MEASUREMENT | 0.065 | 0.094 | MGD | ***** | ***** | ***** | | 0 | CONTINUOUS | TIRE |
| **00056 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | REPORT MONTHLY AV | REPORT DAILY MAX | | ****** | ****** | ****** | | | CONTINUOUS | TIRE |
| **PH** | SAMPLE MEASUREMENT | ***** | ***** | | 7.0 | ***** | 9.0 | SU | 0 | CONTINUOUS | GRAB |
| **00400 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | ****** | ****** | | 6.5 MINIMUM | ****** | 9.0 MAXIMUM | | | CONTINUOUS | GRAB |
| **BOD, 5-DAY** | SAMPLE MEASUREMENT | <QL | <QL | kg/d | ***** | <QL | <QL | mg/L | 0 | 1/7 | 8 HC |
| **00318 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | 36 MONTHLY AV | 96 DAILY MAX | | ****** | 24 MONTHLY AV | 64 DAILY MX | | | 1/7 | 8 HC |
| **SOLIDS, TOTAL SUSPENDED** | SAMPLE MEASUREMENT | 0.26 | 0.51 | kg/d | ***** | 1.13 | 1.60 | mg/L | 0 | 1/7 | 8 HC |
| **03603 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | 60 MONTHLY AV | 190 DAILY MAX | | ****** | 40 MONTHLY AV | 130 DAILY MX | | | 1/7 | 8 HC |
| **CARBON DISULFIDE** | SAMPLE MEASUREMENT | <QL | <QL | kg/d | ***** | <QL | <QL | mg/L | 0 | 1/30 | 8 HC |
| **77041 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | NL MONTHLY AV | NL DAILY MAX | | ****** | NL MONTHLY AV | NL DAILY MX | | | 1/30 | 8 HC |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
Robert T. Forbes
Director EHS Remediation/Governance
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

| TELEPHONE | | DATE | | |
|---|---|---|---|---|
| 215 | 299-6260 | | | |
| AREA | NUMBER | YEAR | MO | DAY |

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*
Attachment: pH compliance monitoring summary (monthly)
Carbon disulfide: No limit established; monitored monthly; 0.1 mg/L action level

EPA Form 3320-1 (Rev 01/06) Previous editions may be used.

Avtex Fibers
Front Royal, VA
Outfall 004
April 2016 DMR

pH Calculations:

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 4/1/2016 12:00 AM | 7.43 | 4/2/2016 12:00 AM | 8.80 | 4/3/2016 12:00 AM | 7.74 |
| 4/1/2016 12:15 AM | 7.45 | 4/2/2016 12:15 AM | 8.80 | 4/3/2016 12:15 AM | 7.74 |
| 4/1/2016 12:15 AM | 7.45 | 4/2/2016 12:30 AM | 8.79 | 4/3/2016 12:30 AM | 7.73 |
| 4/1/2016 12:30 AM | 7.50 | 4/2/2016 12:45 AM | 8.78 | 4/3/2016 12:45 AM | 7.73 |
| 4/1/2016 12:45 AM | 7.54 | 4/2/2016 1:00 AM | 8.78 | 4/3/2016 1:00 AM | 7.73 |
| 4/1/2016 1:00 AM | 7.53 | 4/2/2016 1:15 AM | 8.79 | 4/3/2016 1:15 AM | 7.73 |
| 4/1/2016 1:15 AM | 7.53 | 4/2/2016 1:30 AM | 8.79 | 4/3/2016 1:30 AM | 7.73 |
| 4/1/2016 1:30 AM | 7.52 | 4/2/2016 1:45 AM | 8.78 | 4/3/2016 1:45 AM | 7.73 |
| 4/1/2016 1:45 AM | 7.50 | 4/2/2016 2:00 AM | 8.76 | 4/3/2016 2:00 AM | 7.73 |
| 4/1/2016 2:00 AM | 7.51 | 4/2/2016 2:15 AM | 8.77 | 4/3/2016 2:15 AM | 7.73 |
| 4/1/2016 2:15 AM | 7.50 | 4/2/2016 2:30 AM | 8.77 | 4/3/2016 2:30 AM | 7.73 |
| 4/1/2016 2:30 AM | 7.48 | 4/2/2016 2:45 AM | 8.78 | 4/3/2016 2:45 AM | 7.73 |
| 4/1/2016 2:45 AM | 7.48 | 4/2/2016 3:00 AM | 8.83 | 4/3/2016 3:00 AM | 7.72 |
| 4/1/2016 3:00 AM | 7.76 | 4/2/2016 3:15 AM | 8.86 | 4/3/2016 3:15 AM | 7.72 |
| 4/1/2016 3:15 AM | 7.70 | 4/2/2016 3:30 AM | 8.87 | 4/3/2016 3:30 AM | 7.73 |
| 4/1/2016 3:30 AM | 7.66 | 4/2/2016 3:45 AM | 8.87 | 4/3/2016 3:45 AM | 7.73 |
| 4/1/2016 3:45 AM | 7.64 | 4/2/2016 4:00 AM | 8.88 | 4/3/2016 4:00 AM | 7.73 |
| 4/1/2016 4:00 AM | 7.67 | 4/2/2016 4:15 AM | 8.89 | 4/3/2016 4:15 AM | 7.73 |
| 4/1/2016 4:15 AM | 7.60 | 4/2/2016 4:30 AM | 8.90 | 4/3/2016 4:30 AM | 7.73 |
| 4/1/2016 4:30 AM | 7.60 | 4/2/2016 4:45 AM | 8.91 | 4/3/2016 4:45 AM | 7.73 |
| 4/1/2016 4:45 AM | 7.57 | 4/2/2016 5:00 AM | 8.91 | 4/3/2016 5:00 AM | 7.72 |
| 4/1/2016 5:00 AM | 7.60 | 4/2/2016 5:15 AM | 8.94 | 4/3/2016 5:15 AM | 7.72 |
| 4/1/2016 5:15 AM | 7.61 | 4/2/2016 5:30 AM | 8.95 | 4/3/2016 5:30 AM | 7.72 |
| 4/1/2016 5:30 AM | 7.60 | 4/2/2016 5:45 AM | 9.01 | 4/3/2016 5:45 AM | 7.72 |
| 4/1/2016 5:45 AM | 7.58 | 4/2/2016 6:00 AM | 9.02 | 4/3/2016 6:00 AM | 7.72 |
| 4/1/2016 6:00 AM | 7.57 | 4/2/2016 6:15 AM | 7.73 | 4/3/2016 6:15 AM | 7.72 |
| 4/1/2016 6:15 AM | 7.56 | 4/2/2016 6:30 AM | 7.75 | 4/3/2016 6:30 AM | 7.72 |
| 4/1/2016 6:30 AM | 7.56 | 4/2/2016 6:45 AM | 7.73 | 4/3/2016 6:45 AM | 7.71 |
| 4/1/2016 6:45 AM | 7.55 | 4/2/2016 7:00 AM | 7.80 | 4/3/2016 7:00 AM | 7.71 |
| 4/1/2016 7:00 AM | 7.54 | 4/2/2016 7:15 AM | 7.77 | 4/3/2016 7:15 AM | 7.70 |
| 4/1/2016 7:15 AM | 7.53 | 4/2/2016 7:30 AM | 7.77 | 4/3/2016 7:30 AM | 7.70 |
| 4/1/2016 7:30 AM | 7.53 | 4/2/2016 7:45 AM | 7.77 | 4/3/2016 7:45 AM | 7.70 |
| 4/1/2016 7:45 AM | 7.59 | 4/2/2016 8:00 AM | 7.75 | 4/3/2016 8:00 AM | 7.70 |
| 4/1/2016 8:00 AM | 7.64 | 4/2/2016 8:15 AM | 7.74 | 4/3/2016 8:15 AM | 7.69 |
| 4/1/2016 8:15 AM | 7.60 | 4/2/2016 8:30 AM | 7.75 | 4/3/2016 8:30 AM | 7.69 |
| 4/1/2016 8:30 AM | 7.58 | 4/2/2016 8:45 AM | 7.73 | 4/3/2016 8:45 AM | 7.68 |
| 4/1/2016 8:45 AM | 7.56 | 4/2/2016 9:00 AM | 7.73 | 4/3/2016 9:00 AM | 7.68 |
| 4/1/2016 9:00 AM | 7.56 | 4/2/2016 9:15 AM | 7.72 | 4/3/2016 9:15 AM | 7.68 |
| 4/1/2016 9:15 AM | 7.55 | 4/2/2016 9:30 AM | 7.70 | 4/3/2016 9:30 AM | 7.68 |
| 4/1/2016 9:30 AM | 7.53 | 4/2/2016 9:45 AM | 7.69 | 4/3/2016 9:45 AM | 7.67 |
| 4/1/2016 9:45 AM | 7.46 | 4/2/2016 10:00 AM | 7.62 | 4/3/2016 10:00 AM | 7.66 |
| 4/1/2016 10:00 AM | 7.37 | 4/2/2016 10:15 AM | 7.59 | 4/3/2016 10:15 AM | 7.65 |
| 4/1/2016 10:15 AM | 7.28 | 4/2/2016 10:30 AM | 7.57 | 4/3/2016 10:30 AM | 7.75 |
| 4/1/2016 10:30 AM | 7.21 | 4/2/2016 10:45 AM | 7.54 | 4/3/2016 10:45 AM | 7.73 |
| 4/1/2016 10:45 AM | 7.24 | 4/2/2016 11:00 AM | 7.40 | 4/3/2016 11:00 AM | 7.73 |

| | | | | | |
|---|---|---|---|---|---|
| 4/1/2016 11:00 AM | 7.19 | 4/2/2016 11:15 AM | 7.38 | 4/3/2016 11:15 AM | 7.73 |
| 4/1/2016 11:15 AM | 7.15 | 4/2/2016 11:30 AM | 7.44 | 4/3/2016 11:30 AM | 7.73 |
| 4/1/2016 11:30 AM | 7.12 | 4/2/2016 11:45 AM | 7.42 | 4/3/2016 11:45 AM | 7.72 |
| 4/1/2016 11:45 AM | 7.04 | 4/2/2016 12:00 PM | 7.41 | 4/3/2016 12:00 PM | 7.71 |
| 4/1/2016 12:00 PM | 7.01 | 4/2/2016 12:15 PM | 7.35 | 4/3/2016 12:15 PM | 7.71 |
| 4/1/2016 12:15 PM | 7.02 | 4/2/2016 12:30 PM | 7.38 | 4/3/2016 12:30 PM | 7.70 |
| 4/1/2016 12:30 PM | 7.02 | 4/2/2016 12:45 PM | 7.42 | 4/3/2016 12:45 PM | 7.68 |
| 4/1/2016 12:45 PM | 7.00 | 4/2/2016 1:00 PM | 7.31 | 4/3/2016 1:00 PM | 7.68 |
| 4/1/2016 1:00 PM | 7.01 | 4/2/2016 1:15 PM | 7.32 | 4/3/2016 1:15 PM | 7.68 |
| 4/1/2016 1:15 PM | 7.03 | 4/2/2016 1:30 PM | 7.37 | 4/3/2016 1:30 PM | 7.68 |
| 4/1/2016 1:30 PM | 7.01 | 4/2/2016 1:45 PM | 7.32 | 4/3/2016 1:45 PM | 7.66 |
| 4/1/2016 1:45 PM | 7.02 | 4/2/2016 2:00 PM | 7.33 | 4/3/2016 2:00 PM | 7.65 |
| 4/1/2016 2:00 PM | 7.03 | 4/2/2016 2:15 PM | 7.36 | 4/3/2016 2:15 PM | 7.62 |
| 4/1/2016 2:15 PM | 7.54 | 4/2/2016 2:30 PM | 7.34 | 4/3/2016 2:30 PM | 7.61 |
| 4/1/2016 2:30 PM | 7.02 | 4/2/2016 2:45 PM | 7.34 | 4/3/2016 2:45 PM | 7.60 |
| 4/1/2016 2:45 PM | 6.06 | 4/2/2016 3:00 PM | 7.34 | 4/3/2016 3:00 PM | 7.61 |
| 4/1/2016 3:00 PM | 5.53 | 4/2/2016 3:15 PM | 7.43 | 4/3/2016 3:15 PM | 7.59 |
| 4/1/2016 3:15 PM | 7.04 | 4/2/2016 3:30 PM | 7.45 | 4/3/2016 3:30 PM | 7.65 |
| 4/1/2016 3:30 PM | 7.21 | 4/2/2016 3:45 PM | 7.47 | 4/3/2016 3:45 PM | 7.65 |
| 4/1/2016 3:45 PM | 7.43 | 4/2/2016 4:00 PM | 7.48 | 4/3/2016 4:00 PM | 7.65 |
| 4/1/2016 4:00 PM | 7.54 | 4/2/2016 4:15 PM | 7.50 | 4/3/2016 4:15 PM | 7.64 |
| 4/1/2016 4:15 PM | 7.65 | 4/2/2016 4:30 PM | 7.52 | 4/3/2016 4:30 PM | 7.63 |
| 4/1/2016 4:30 PM | 7.74 | 4/2/2016 4:45 PM | 7.53 | 4/3/2016 4:45 PM | 7.61 |
| 4/1/2016 4:45 PM | 7.82 | 4/2/2016 5:00 PM | 7.52 | 4/3/2016 5:00 PM | 7.60 |
| 4/1/2016 5:00 PM | 7.92 | 4/2/2016 5:15 PM | 7.54 | 4/3/2016 5:15 PM | 7.59 |
| 4/1/2016 5:15 PM | 7.94 | 4/2/2016 5:30 PM | 7.54 | 4/3/2016 5:30 PM | 7.56 |
| 4/1/2016 5:30 PM | 7.97 | 4/2/2016 5:45 PM | 7.56 | 4/3/2016 5:45 PM | 7.54 |
| 4/1/2016 5:45 PM | 8.01 | 4/2/2016 6:00 PM | 7.58 | 4/3/2016 6:00 PM | 7.56 |
| 4/1/2016 6:00 PM | 8.12 | 4/2/2016 6:15 PM | 7.59 | 4/3/2016 6:15 PM | 7.52 |
| 4/1/2016 6:15 PM | 8.13 | 4/2/2016 6:30 PM | 7.60 | 4/3/2016 6:30 PM | 7.52 |
| 4/1/2016 6:45 PM | 8.20 | 4/2/2016 6:45 PM | 7.60 | 4/3/2016 6:45 PM | 7.47 |
| 4/1/2016 7:00 PM | 8.25 | 4/2/2016 7:00 PM | 7.61 | 4/3/2016 7:00 PM | 7.49 |
| 4/1/2016 7:15 PM | 8.32 | 4/2/2016 7:15 PM | 7.63 | 4/3/2016 7:15 PM | 7.63 |
| 4/1/2016 7:30 PM | 8.38 | 4/2/2016 7:30 PM | 7.63 | 4/3/2016 7:30 PM | 7.64 |
| 4/1/2016 7:45 PM | 8.42 | 4/2/2016 7:45 PM | 7.63 | 4/3/2016 7:45 PM | 7.66 |
| 4/1/2016 8:00 PM | 8.48 | 4/2/2016 8:00 PM | 7.64 | 4/3/2016 8:00 PM | 7.68 |
| 4/1/2016 8:15 PM | 8.53 | 4/2/2016 8:15 PM | 7.64 | 4/3/2016 8:15 PM | 7.69 |
| 4/1/2016 8:30 PM | 8.58 | 4/2/2016 8:30 PM | 7.65 | 4/3/2016 8:30 PM | 7.70 |
| 4/1/2016 8:45 PM | 8.63 | 4/2/2016 8:45 PM | 7.64 | 4/3/2016 8:45 PM | 7.71 |
| 4/1/2016 9:00 PM | 8.66 | 4/2/2016 9:00 PM | 7.64 | 4/3/2016 9:00 PM | 7.71 |
| 4/1/2016 9:15 PM | 8.69 | 4/2/2016 9:15 PM | 7.67 | 4/3/2016 9:15 PM | 7.71 |
| 4/1/2016 9:30 PM | 8.72 | 4/2/2016 9:30 PM | 7.68 | 4/3/2016 9:30 PM | 7.72 |
| 4/1/2016 9:45 PM | 8.74 | 4/2/2016 9:45 PM | 7.69 | 4/3/2016 9:45 PM | 7.72 |
| 4/1/2016 10:00 PM | 8.77 | 4/2/2016 10:00 PM | 7.74 | 4/3/2016 10:00 PM | 7.72 |
| 4/1/2016 10:15 PM | 8.74 | 4/2/2016 10:15 PM | 7.76 | 4/3/2016 10:15 PM | 7.71 |
| 4/1/2016 10:30 PM | 8.75 | 4/2/2016 10:30 PM | 7.75 | 4/3/2016 10:30 PM | 7.72 |
| 4/1/2016 10:45 PM | 8.79 | 4/2/2016 10:45 PM | 7.75 | 4/3/2016 10:45 PM | 7.72 |
| 4/1/2016 11:00 PM | 8.77 | 4/2/2016 11:00 PM | 7.74 | 4/3/2016 11:00 PM | 7.72 |
| 4/1/2016 11:15 PM | 8.78 | 4/2/2016 11:15 PM | 7.74 | 4/3/2016 11:15 PM | 7.71 |
| 4/1/2016 11:30 PM | 8.77 | 4/2/2016 11:30 PM | 7.74 | 4/3/2016 11:30 PM | 7.70 |
| 4/1/2016 11:45 PM | 8.80 | 4/2/2016 11:45 PM | 7.74 | 4/3/2016 11:45 PM | 7.70 |
| AVG | 7.73 | AVG | 7.89 | AVG | 7.68 |

Note: pH probe recalibrated, no discharge to the river at this time, reported values not included in calculations.

Note: pH probe recalibrated, no discharge to the river at this time, reported values not included in calculations.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 4/4/2016 12:00 AM | 7.69 | 4/5/2016 12:00 AM | 7.75 | 4/6/2016 12:00 AM | 7.84 |
| 4/4/2016 12:15 AM | 7.68 | 4/5/2016 12:15 AM | 7.75 | 4/6/2016 12:15 AM | 7.85 |
| 4/4/2016 12:30 AM | 7.67 | 4/5/2016 12:30 AM | 7.75 | 4/6/2016 12:30 AM | 7.85 |
| 4/4/2016 12:45 AM | 7.66 | 4/5/2016 12:45 AM | 7.75 | 4/6/2016 12:45 AM | 7.84 |
| 4/4/2016 1:00 AM | 7.65 | 4/5/2016 1:00 AM | 7.75 | 4/6/2016 1:00 AM | 7.84 |
| 4/4/2016 1:15 AM | 7.64 | 4/5/2016 1:15 AM | 7.75 | 4/6/2016 1:15 AM | 7.84 |
| 4/4/2016 1:30 AM | 7.62 | 4/5/2016 1:30 AM | 7.74 | 4/6/2016 1:30 AM | 7.83 |
| 4/4/2016 1:45 AM | 7.61 | 4/5/2016 1:45 AM | 7.74 | 4/6/2016 1:45 AM | 7.83 |
| 4/4/2016 2:00 AM | 7.60 | 4/5/2016 2:00 AM | 7.74 | 4/6/2016 2:00 AM | 7.82 |
| 4/4/2016 2:15 AM | 7.59 | 4/5/2016 2:15 AM | 7.74 | 4/6/2016 2:15 AM | 7.82 |
| 4/4/2016 2:30 AM | 7.59 | 4/5/2016 2:30 AM | 7.74 | 4/6/2016 2:30 AM | 7.82 |
| 4/4/2016 2:45 AM | 7.59 | 4/5/2016 2:45 AM | 7.74 | 4/6/2016 2:45 AM | 7.82 |
| 4/4/2016 3:00 AM | 7.59 | 4/5/2016 3:00 AM | 7.74 | 4/6/2016 3:00 AM | 7.82 |
| 4/4/2016 3:15 AM | 7.58 | 4/5/2016 3:15 AM | 7.74 | 4/6/2016 3:15 AM | 7.81 |
| 4/4/2016 3:30 AM | 7.58 | 4/5/2016 3:30 AM | 7.74 | 4/6/2016 3:30 AM | 7.81 |
| 4/4/2016 3:45 AM | 7.58 | 4/5/2016 3:45 AM | 7.74 | 4/6/2016 3:45 AM | 7.80 |
| 4/4/2016 4:00 AM | 7.57 | 4/5/2016 4:00 AM | 7.74 | 4/6/2016 4:00 AM | 7.80 |
| 4/4/2016 4:15 AM | 7.65 | 4/5/2016 4:15 AM | 7.73 | 4/6/2016 4:15 AM | 7.80 |
| 4/4/2016 4:30 AM | 7.63 | 4/5/2016 4:30 AM | 7.73 | 4/6/2016 4:30 AM | 7.80 |
| 4/4/2016 4:45 AM | 7.65 | 4/5/2016 4:45 AM | 7.73 | 4/6/2016 4:45 AM | 7.80 |
| 4/4/2016 5:00 AM | 7.66 | 4/5/2016 5:00 AM | 7.73 | 4/6/2016 5:00 AM | 7.80 |
| 4/4/2016 5:15 AM | 7.66 | 4/5/2016 5:15 AM | 7.73 | 4/6/2016 5:15 AM | 7.88 |
| 4/4/2016 5:30 AM | 7.66 | 4/5/2016 5:30 AM | 7.73 | 4/6/2016 5:30 AM | 7.88 |
| 4/4/2016 5:45 AM | 7.66 | 4/5/2016 5:45 AM | 7.73 | 4/6/2016 5:45 AM | 7.88 |
| 4/4/2016 6:00 AM | 7.66 | 4/5/2016 6:00 AM | 7.73 | 4/6/2016 6:00 AM | 7.89 |
| 4/4/2016 6:15 AM | 7.65 | 4/5/2016 6:15 AM | 7.73 | 4/6/2016 6:15 AM | 7.89 |
| 4/4/2016 6:30 AM | 7.64 | 4/5/2016 6:30 AM | 7.72 | 4/6/2016 6:30 AM | 7.89 |
| 4/4/2016 6:45 AM | 7.65 | 4/5/2016 6:45 AM | 7.72 | 4/6/2016 6:45 AM | 7.89 |
| 4/4/2016 7:00 AM | 7.65 | 4/5/2016 7:00 AM | 7.72 | 4/6/2016 7:00 AM | 7.89 |
| 4/4/2016 7:15 AM | 7.64 | 4/5/2016 7:15 AM | 7.79 | 4/6/2016 7:15 AM | 7.88 |
| 4/4/2016 7:30 AM | 7.61 | 4/5/2016 7:30 AM | 7.78 | 4/6/2016 7:30 AM | 7.87 |
| 4/4/2016 7:45 AM | 7.58 | 4/5/2016 7:45 AM | 7.79 | 4/6/2016 7:45 AM | 7.86 |
| 4/4/2016 8:00 AM | 7.56 | 4/5/2016 8:00 AM | 7.79 | 4/6/2016 8:00 AM | 7.84 |
| 4/4/2016 8:15 AM | 7.53 | 4/5/2016 8:15 AM | 7.80 | 4/6/2016 8:15 AM | 7.82 |
| 4/4/2016 8:30 AM | 7.54 | 4/5/2016 8:30 AM | 7.79 | 4/6/2016 8:30 AM | 7.80 |
| 4/4/2016 8:45 AM | 7.54 | 4/5/2016 8:45 AM | 7.79 | 4/6/2016 8:45 AM | 7.78 |
| 4/4/2016 9:00 AM | 7.52 | 4/5/2016 9:00 AM | 7.77 | 4/6/2016 9:00 AM | 7.77 |
| 4/4/2016 9:15 AM | 7.51 | 4/5/2016 9:15 AM | 7.77 | 4/6/2016 9:15 AM | 7.75 |
| 4/4/2016 9:30 AM | 7.49 | 4/5/2016 9:30 AM | 7.76 | 4/6/2016 9:30 AM | 7.73 |
| 4/4/2016 9:45 AM | 7.49 | 4/5/2016 9:45 AM | 7.76 | 4/6/2016 9:45 AM | 7.73 |
| 4/4/2016 10:00 AM | 7.48 | 4/5/2016 10:00 AM | 7.75 | 4/6/2016 10:00 AM | 7.73 |
| 4/4/2016 10:15 AM | 7.44 | 4/5/2016 10:15 AM | 7.75 | 4/6/2016 10:15 AM | 7.71 |
| 4/4/2016 10:30 AM | 7.42 | 4/5/2016 10:30 AM | 7.74 | 4/6/2016 10:30 AM | 7.68 |
| 4/4/2016 10:45 AM | 7.41 | 4/5/2016 10:45 AM | 7.73 | 4/6/2016 10:45 AM | 7.68 |
| 4/4/2016 11:00 AM | 7.39 | 4/5/2016 11:00 AM | 7.72 | 4/6/2016 11:00 AM | 7.69 |
| 4/4/2016 11:15 AM | 7.38 | 4/5/2016 11:15 AM | 7.71 | 4/6/2016 11:15 AM | 7.69 |
| 4/4/2016 11:30 AM | 7.34 | 4/5/2016 11:30 AM | 7.71 | 4/6/2016 11:30 AM | 7.67 |
| 4/4/2016 11:45 AM | 7.29 | 4/5/2016 11:45 AM | 7.71 | 4/6/2016 11:45 AM | 7.74 |
| 4/4/2016 12:00 PM | 7.28 | 4/5/2016 12:00 PM | 7.70 | 4/6/2016 12:00 PM | 7.75 |
| 4/4/2016 12:15 PM | 7.28 | 4/5/2016 12:15 PM | 7.70 | 4/6/2016 12:15 PM | 7.74 |
| 4/4/2016 12:30 PM | 7.23 | 4/5/2016 12:30 PM | 7.69 | 4/6/2016 12:30 PM | 7.73 |
| 4/4/2016 12:45 PM | 7.19 | 4/5/2016 12:45 PM | 7.69 | 4/6/2016 12:45 PM | 7.75 |
| 4/4/2016 1:00 PM | 7.16 | 4/5/2016 1:00 PM | 7.68 | 4/6/2016 1:00 PM | 7.75 |
| 4/4/2016 1:15 PM | 7.14 | 4/5/2016 1:15 PM | 7.67 | 4/6/2016 1:15 PM | 7.73 |
| 4/4/2016 1:30 PM | 7.18 | 4/5/2016 1:30 PM | 7.67 | 4/6/2016 1:30 PM | 7.72 |
| 4/4/2016 1:45 PM | 7.21 | 4/5/2016 1:45 PM | 7.66 | 4/6/2016 1:45 PM | 7.73 |
| 4/4/2016 2:00 PM | 7.24 | 4/5/2016 2:00 PM | 7.65 | 4/6/2016 2:00 PM | 7.74 |

| | | | | | |
|---|---|---|---|---|---|
| 4/4/2016 2:15 PM | 7.28 | 4/5/2016 2:15 PM | 7.66 | 4/6/2016 2:15 PM | 7.73 |
| 4/4/2016 2:30 PM | 7.32 | 4/5/2016 2:30 PM | 7.64 | 4/6/2016 2:30 PM | 7.73 |
| 4/4/2016 2:45 PM | 7.37 | 4/5/2016 2:45 PM | 7.63 | 4/6/2016 2:45 PM | 7.73 |
| 4/4/2016 3:00 PM | 7.39 | 4/5/2016 3:00 PM | 7.65 | 4/6/2016 3:00 PM | 7.75 |
| 4/4/2016 3:15 PM | 7.39 | 4/5/2016 3:15 PM | 7.66 | 4/6/2016 3:15 PM | 7.77 |
| 4/4/2016 3:30 PM | 7.36 | 4/5/2016 3:30 PM | 7.66 | 4/6/2016 3:30 PM | 7.79 |
| 4/4/2016 3:45 PM | 7.38 | 4/5/2016 3:45 PM | 7.75 | 4/6/2016 3:45 PM | 7.79 |
| 4/4/2016 4:00 PM | 7.42 | 4/5/2016 4:00 PM | 7.74 | 4/6/2016 4:00 PM | 7.80 |
| 4/4/2016 4:15 PM | 7.43 | 4/5/2016 4:15 PM | 7.75 | 4/6/2016 4:15 PM | 7.80 |
| 4/4/2016 4:30 PM | 7.51 | 4/5/2016 4:30 PM | 7.75 | 4/6/2016 4:30 PM | 7.80 |
| 4/4/2016 4:45 PM | 7.54 | 4/5/2016 4:45 PM | 7.76 | 4/6/2016 4:45 PM | 7.79 |
| 4/4/2016 5:00 PM | 7.58 | 4/5/2016 5:00 PM | 7.76 | 4/6/2016 5:00 PM | 7.80 |
| 4/4/2016 5:15 PM | 7.58 | 4/5/2016 5:15 PM | 7.76 | 4/6/2016 5:15 PM | 7.80 |
| 4/4/2016 5:30 PM | 7.57 | 4/5/2016 5:30 PM | 7.76 | 4/6/2016 5:30 PM | 7.80 |
| 4/4/2016 5:45 PM | 7.56 | 4/5/2016 5:45 PM | 7.77 | 4/6/2016 5:45 PM | 7.80 |
| 4/4/2016 6:00 PM | 7.56 | 4/5/2016 6:00 PM | 7.78 | 4/6/2016 6:00 PM | 7.79 |
| 4/4/2016 6:15 PM | 7.56 | 4/5/2016 6:15 PM | 7.76 | 4/6/2016 6:15 PM | 7.79 |
| 4/4/2016 6:30 PM | 7.56 | 4/5/2016 6:30 PM | 7.77 | 4/6/2016 6:30 PM | 7.79 |
| 4/4/2016 6:45 PM | 7.55 | 4/5/2016 6:45 PM | 7.76 | 4/6/2016 6:45 PM | 7.78 |
| 4/4/2016 7:00 PM | 7.57 | 4/5/2016 7:00 PM | 7.77 | 4/6/2016 7:00 PM | 7.78 |
| 4/4/2016 7:15 PM | 7.58 | 4/5/2016 7:15 PM | 7.78 | 4/6/2016 7:15 PM | 7.77 |
| 4/4/2016 7:30 PM | 7.59 | 4/5/2016 7:30 PM | 7.81 | 4/6/2016 7:30 PM | 7.77 |
| 4/4/2016 7:45 PM | 7.59 | 4/5/2016 7:45 PM | 7.82 | 4/6/2016 7:45 PM | 7.76 |
| 4/4/2016 8:00 PM | 7.60 | 4/5/2016 8:00 PM | 7.83 | 4/6/2016 8:00 PM | 7.77 |
| 4/4/2016 8:15 PM | 7.62 | 4/5/2016 8:15 PM | 7.84 | 4/6/2016 8:15 PM | 7.77 |
| 4/4/2016 8:30 PM | 7.63 | 4/5/2016 8:30 PM | 7.83 | 4/6/2016 8:30 PM | 7.77 |
| 4/4/2016 8:45 PM | 7.63 | 4/5/2016 8:45 PM | 7.84 | 4/6/2016 8:45 PM | 7.75 |
| 4/4/2016 9:00 PM | 7.62 | 4/5/2016 9:00 PM | 7.86 | 4/6/2016 9:00 PM | 7.76 |
| 4/4/2016 9:15 PM | 7.63 | 4/5/2016 9:15 PM | 7.86 | 4/6/2016 9:15 PM | 7.75 |
| 4/4/2016 9:30 PM | 7.64 | 4/5/2016 9:30 PM | 7.87 | 4/6/2016 9:30 PM | 7.76 |
| 4/4/2016 9:45 PM | 7.65 | 4/5/2016 9:45 PM | 7.88 | 4/6/2016 9:45 PM | 7.75 |
| 4/4/2016 10:00 PM | 7.65 | 4/5/2016 10:00 PM | 7.87 | 4/6/2016 10:00 PM | 7.74 |
| 4/4/2016 10:15 PM | 7.71 | 4/5/2016 10:15 PM | 7.87 | 4/6/2016 10:15 PM | 7.74 |
| 4/4/2016 10:30 PM | 7.71 | 4/5/2016 10:30 PM | 7.87 | 4/6/2016 10:30 PM | 7.74 |
| 4/4/2016 10:45 PM | 7.73 | 4/5/2016 10:45 PM | 7.86 | 4/6/2016 10:45 PM | 7.75 |
| 4/4/2016 11:00 PM | 7.73 | 4/5/2016 11:00 PM | 7.86 | 4/6/2016 11:00 PM | 7.75 |
| 4/4/2016 11:15 PM | 7.74 | 4/5/2016 11:15 PM | 7.86 | 4/6/2016 11:15 PM | 7.86 |
| 4/4/2016 11:30 PM | 7.74 | 4/5/2016 11:30 PM | 7.86 | 4/6/2016 11:30 PM | 7.86 |
| 4/4/2016 11:45 PM | 7.75 | 4/5/2016 11:45 PM | 7.86 | 4/6/2016 11:45 PM | 7.86 |
| AVG | 7.54 | AVG | 7.76 | AVG | 7.79 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 4/7/2016 12:00 AM | 7.86 | 4/8/2016 12:00 AM | 7.91 | 4/9/2016 12:00 AM | 7.92 |
| 4/7/2016 12:15 AM | 7.87 | 4/8/2016 12:15 AM | 7.92 | 4/9/2016 12:15 AM | 8.00 |
| 4/7/2016 12:30 AM | 7.87 | 4/8/2016 12:30 AM | 7.94 | 4/9/2016 12:30 AM | 7.98 |
| 4/7/2016 12:45 AM | 7.86 | 4/8/2016 12:45 AM | 7.94 | 4/9/2016 12:45 AM | 7.98 |
| 4/7/2016 1:00 AM | 7.86 | 4/8/2016 1:00 AM | 7.95 | 4/9/2016 1:00 AM | 7.98 |
| 4/7/2016 1:15 AM | 7.86 | 4/8/2016 1:15 AM | 7.94 | 4/9/2016 1:15 AM | 7.99 |
| 4/7/2016 1:30 AM | 7.86 | 4/8/2016 1:30 AM | 7.95 | 4/9/2016 1:30 AM | 7.99 |
| 4/7/2016 1:45 AM | 7.86 | 4/8/2016 1:45 AM | 7.95 | 4/9/2016 1:45 AM | 7.99 |
| 4/7/2016 2:00 AM | 7.84 | 4/8/2016 2:00 AM | 7.95 | 4/9/2016 2:00 AM | 7.98 |
| 4/7/2016 2:15 AM | 7.85 | 4/8/2016 2:15 AM | 7.96 | 4/9/2016 2:15 AM | 7.98 |
| 4/7/2016 2:30 AM | 7.85 | 4/8/2016 2:30 AM | 7.95 | 4/9/2016 2:30 AM | 7.97 |
| 4/7/2016 2:45 AM | 7.85 | 4/8/2016 2:45 AM | 7.95 | 4/9/2016 2:45 AM | 7.96 |
| 4/7/2016 3:00 AM | 7.85 | 4/8/2016 3:00 AM | 7.96 | 4/9/2016 3:00 AM | 7.96 |
| 4/7/2016 3:15 AM | 7.84 | 4/8/2016 3:15 AM | 7.96 | 4/9/2016 3:15 AM | 7.96 |
| 4/7/2016 3:30 AM | 7.84 | 4/8/2016 3:30 AM | 7.96 | 4/9/2016 3:30 AM | 7.95 |
| 4/7/2016 3:45 AM | 7.83 | 4/8/2016 3:45 AM | 7.96 | 4/9/2016 3:45 AM | 7.95 |
| 4/7/2016 4:00 AM | 7.82 | 4/8/2016 4:00 AM | 7.96 | 4/9/2016 4:00 AM | 7.94 |
| 4/7/2016 4:15 AM | 7.81 | 4/8/2016 4:15 AM | 7.95 | 4/9/2016 4:15 AM | 7.94 |
| 4/7/2016 4:30 AM | 7.81 | 4/8/2016 4:30 AM | 7.95 | 4/9/2016 4:30 AM | 7.92 |
| 4/7/2016 4:45 AM | 7.80 | 4/8/2016 4:45 AM | 7.94 | 4/9/2016 4:45 AM | 7.92 |
| 4/7/2016 5:00 AM | 7.80 | 4/8/2016 5:00 AM | 7.93 | 4/9/2016 5:00 AM | 7.91 |
| 4/7/2016 5:15 AM | 7.79 | 4/8/2016 5:15 AM | 7.93 | 4/9/2016 5:15 AM | 7.91 |
| 4/7/2016 5:30 AM | 7.79 | 4/8/2016 5:30 AM | 7.93 | 4/9/2016 5:30 AM | 7.89 |
| 4/7/2016 5:45 AM | 7.81 | 4/8/2016 5:45 AM | 7.93 | 4/9/2016 5:45 AM | 7.89 |
| 4/7/2016 6:00 AM | 7.80 | 4/8/2016 6:00 AM | 7.92 | 4/9/2016 6:00 AM | 7.89 |
| 4/7/2016 6:15 AM | 7.80 | 4/8/2016 6:15 AM | 7.91 | 4/9/2016 6:15 AM | 7.89 |
| 4/7/2016 6:30 AM | 7.82 | 4/8/2016 6:30 AM | 7.91 | 4/9/2016 6:30 AM | 7.87 |
| 4/7/2016 6:45 AM | 7.82 | 4/8/2016 6:45 AM | 7.91 | 4/9/2016 6:45 AM | 7.87 |
| 4/7/2016 7:00 AM | 7.82 | 4/8/2016 7:00 AM | 7.90 | 4/9/2016 7:00 AM | 7.87 |
| 4/7/2016 7:15 AM | 7.82 | 4/8/2016 7:15 AM | 7.97 | 4/9/2016 7:15 AM | 7.86 |
| 4/7/2016 7:30 AM | 7.82 | 4/8/2016 7:30 AM | 7.96 | 4/9/2016 7:30 AM | 7.85 |
| 4/7/2016 7:45 AM | 7.81 | 4/8/2016 7:45 AM | 7.96 | 4/9/2016 7:45 AM | 7.84 |
| 4/7/2016 8:00 AM | 7.81 | 4/8/2016 8:00 AM | 7.96 | 4/9/2016 8:00 AM | 7.84 |
| 4/7/2016 8:15 AM | 7.88 | 4/8/2016 8:15 AM | 7.96 | 4/9/2016 8:15 AM | 7.84 |
| 4/7/2016 8:30 AM | 7.87 | 4/8/2016 8:30 AM | 7.96 | 4/9/2016 8:30 AM | 7.84 |
| 4/7/2016 8:45 AM | 7.87 | 4/8/2016 8:45 AM | 7.96 | 4/9/2016 8:45 AM | 7.83 |
| 4/7/2016 9:00 AM | 7.87 | 4/8/2016 9:00 AM | 7.96 | 4/9/2016 9:00 AM | 7.83 |
| 4/7/2016 9:15 AM | 7.88 | 4/8/2016 9:15 AM | 7.97 | 4/9/2016 9:15 AM | 7.83 |
| 4/7/2016 9:30 AM | 7.88 | 4/8/2016 9:30 AM | 7.97 | 4/9/2016 9:30 AM | 7.82 |
| 4/7/2016 9:45 AM | 7.88 | 4/8/2016 9:45 AM | 7.96 | 4/9/2016 9:45 AM | 7.83 |
| 4/7/2016 10:00 AM | 7.87 | 4/8/2016 10:00 AM | 7.96 | 4/9/2016 10:00 AM | 7.82 |
| 4/7/2016 10:15 AM | 7.87 | 4/8/2016 10:15 AM | 7.95 | 4/9/2016 10:15 AM | 7.81 |
| 4/7/2016 10:30 AM | 7.86 | 4/8/2016 10:30 AM | 7.95 | 4/9/2016 10:30 AM | 7.80 |
| 4/7/2016 10:45 AM | 7.82 | 4/8/2016 10:45 AM | 7.94 | 4/9/2016 10:45 AM | 7.79 |
| 4/7/2016 11:00 AM | 7.79 | 4/8/2016 11:00 AM | 7.92 | 4/9/2016 11:00 AM | 7.78 |
| 4/7/2016 11:15 AM | 7.78 | 4/8/2016 11:15 AM | 7.92 | 4/9/2016 11:15 AM | 7.78 |
| 4/7/2016 11:30 AM | 7.79 | 4/8/2016 11:30 AM | 7.92 | 4/9/2016 11:30 AM | 7.79 |
| 4/7/2016 11:45 AM | 7.78 | 4/8/2016 11:45 AM | 7.92 | 4/9/2016 11:45 AM | 7.78 |
| 4/7/2016 12:00 PM | 7.75 | 4/8/2016 12:00 PM | 7.92 | 4/9/2016 12:00 PM | 7.78 |
| 4/7/2016 12:15 PM | 7.75 | 4/8/2016 12:15 PM | 7.93 | 4/9/2016 12:15 PM | 7.78 |
| 4/7/2016 12:30 PM | 7.77 | 4/8/2016 12:30 PM | 7.92 | 4/9/2016 12:30 PM | 7.77 |
| 4/7/2016 12:45 PM | 7.76 | 4/8/2016 12:45 PM | 7.91 | 4/9/2016 12:45 PM | 7.77 |
| 4/7/2016 1:00 PM | 7.75 | 4/8/2016 1:00 PM | 7.90 | 4/9/2016 1:00 PM | 7.78 |
| 4/7/2016 1:15 PM | 7.74 | 4/8/2016 1:15 PM | 7.90 | 4/9/2016 1:15 PM | 7.78 |
| 4/7/2016 1:30 PM | 7.72 | 4/8/2016 1:30 PM | 7.90 | 4/9/2016 1:30 PM | 7.79 |
| 4/7/2016 1:45 PM | 7.70 | 4/8/2016 1:45 PM | 7.89 | 4/9/2016 1:45 PM | 7.79 |
| 4/7/2016 2:00 PM | 7.71 | 4/8/2016 2:00 PM | 7.90 | 4/9/2016 2:00 PM | 7.79 |

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| 4/7/2016 2:15 PM | 7.71 | 4/8/2016 2:15 PM | 7.89 | 4/9/2016 2:15 PM | 7.79 |
| 4/7/2016 2:30 PM | 7.69 | 4/8/2016 2:30 PM | 7.88 | 4/9/2016 2:30 PM | 7.79 |
| 4/7/2016 2:45 PM | 7.67 | 4/8/2016 2:45 PM | 7.88 | 4/9/2016 2:45 PM | 7.78 |
| 4/7/2016 3:00 PM | 7.72 | 4/8/2016 3:00 PM | 7.89 | 4/9/2016 3:00 PM | 7.78 |
| 4/7/2016 3:15 PM | 7.76 | 4/8/2016 3:15 PM | 7.91 | 4/9/2016 3:15 PM | 7.78 |
| 4/7/2016 3:30 PM | 7.76 | 4/8/2016 3:30 PM | 7.93 | 4/9/2016 3:30 PM | 7.78 |
| 4/7/2016 3:45 PM | 7.75 | 4/8/2016 3:45 PM | 7.95 | 4/9/2016 3:45 PM | 7.78 |
| 4/7/2016 4:00 PM | 7.82 | 4/8/2016 4:00 PM | 7.96 | 4/9/2016 4:00 PM | 7.78 |
| 4/7/2016 4:15 PM | 7.82 | 4/8/2016 4:15 PM | 7.96 | 4/9/2016 4:15 PM | 7.78 |
| 4/7/2016 4:30 PM | 7.81 | 4/8/2016 4:30 PM | 7.96 | 4/9/2016 4:30 PM | 7.93 |
| 4/7/2016 4:45 PM | 7.80 | 4/8/2016 4:45 PM | 7.96 | 4/9/2016 4:45 PM | 7.93 |
| 4/7/2016 5:00 PM | 7.80 | 4/8/2016 5:00 PM | 7.96 | 4/9/2016 5:00 PM | 7.94 |
| 4/7/2016 5:15 PM | 7.80 | 4/8/2016 5:15 PM | 7.96 | 4/9/2016 5:15 PM | 7.95 |
| 4/7/2016 5:30 PM | 7.80 | 4/8/2016 5:30 PM | 7.95 | 4/9/2016 5:30 PM | 7.95 |
| 4/7/2016 5:45 PM | 7.81 | 4/8/2016 5:45 PM | 7.94 | 4/9/2016 5:45 PM | 7.96 |
| 4/7/2016 6:00 PM | 7.81 | 4/8/2016 6:00 PM | 7.95 | 4/9/2016 6:00 PM | 7.97 |
| 4/7/2016 6:15 PM | 7.82 | 4/8/2016 6:15 PM | 7.92 | 4/9/2016 6:15 PM | 7.98 |
| 4/7/2016 6:30 PM | 7.82 | 4/8/2016 6:30 PM | 7.92 | 4/9/2016 6:30 PM | 7.97 |
| 4/7/2016 6:45 PM | 7.83 | 4/8/2016 6:45 PM | 7.91 | 4/9/2016 6:45 PM | 7.99 |
| 4/7/2016 7:00 PM | 7.83 | 4/8/2016 7:00 PM | 7.94 | 4/9/2016 7:00 PM | 7.98 |
| 4/7/2016 7:15 PM | 7.83 | 4/8/2016 7:15 PM | 7.95 | 4/9/2016 7:15 PM | 7.98 |
| 4/7/2016 7:30 PM | 7.85 | 4/8/2016 7:30 PM | 7.95 | 4/9/2016 7:30 PM | 7.97 |
| 4/7/2016 7:45 PM | 7.86 | 4/8/2016 7:45 PM | 7.96 | 4/9/2016 7:45 PM | 7.97 |
| 4/7/2016 8:00 PM | 7.85 | 4/8/2016 8:00 PM | 7.95 | 4/9/2016 8:00 PM | 7.97 |
| 4/7/2016 8:15 PM | 7.86 | 4/8/2016 8:15 PM | 7.95 | 4/9/2016 8:15 PM | 7.96 |
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| 4/7/2016 9:00 PM | 7.86 | 4/8/2016 9:00 PM | 7.94 | 4/9/2016 9:00 PM | 7.94 |
| 4/7/2016 9:15 PM | 7.87 | 4/8/2016 9:15 PM | 7.94 | 4/9/2016 9:15 PM | 7.94 |
| 4/7/2016 9:30 PM | 7.87 | 4/8/2016 9:30 PM | 7.93 | 4/9/2016 9:30 PM | 8.00 |
| 4/7/2016 9:45 PM | 7.87 | 4/8/2016 9:45 PM | 7.94 | 4/9/2016 9:45 PM | 7.99 |
| 4/7/2016 10:00 PM | 7.87 | 4/8/2016 10:00 PM | 7.93 | 4/9/2016 10:00 PM | 7.99 |
| 4/7/2016 10:15 PM | 7.87 | 4/8/2016 10:15 PM | 7.94 | 4/9/2016 10:15 PM | 8.00 |
| 4/7/2016 10:30 PM | 7.87 | 4/8/2016 10:30 PM | 7.94 | 4/9/2016 10:30 PM | 8.00 |
| 4/7/2016 10:45 PM | 7.90 | 4/8/2016 10:45 PM | 7.94 | 4/9/2016 10:45 PM | 8.02 |
| 4/7/2016 11:00 PM | 7.90 | 4/8/2016 11:00 PM | 7.93 | 4/9/2016 11:00 PM | 8.02 |
| 4/7/2016 11:15 PM | 7.90 | 4/8/2016 11:15 PM | 7.92 | 4/9/2016 11:15 PM | 8.01 |
| 4/7/2016 11:30 PM | 7.91 | 4/8/2016 11:30 PM | 7.93 | 4/9/2016 11:30 PM | 8.02 |
| 4/7/2016 11:45 PM | 7.91 | 4/8/2016 11:45 PM | 7.92 | 4/9/2016 11:45 PM | 8.02 |
| AVG | 7.82 | AVG | 7.94 | AVG | 7.90 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 4/10/2016 12:00 AM | 8.03 | 4/11/2016 12:00 AM | 7.88 | 4/12/2016 12:00 AM | 7.89 |
| 4/10/2016 12:15 AM | 8.05 | 4/11/2016 12:15 AM | 7.87 | 4/12/2016 12:15 AM | 7.89 |
| 4/10/2016 12:30 AM | 8.05 | 4/11/2016 12:30 AM | 7.87 | 4/12/2016 12:30 AM | 7.88 |
| 4/10/2016 12:45 AM | 8.05 | 4/11/2016 12:45 AM | 7.87 | 4/12/2016 12:45 AM | 7.88 |
| 4/10/2016 1:00 AM | 8.04 | 4/11/2016 1:00 AM | 7.92 | 4/12/2016 1:00 AM | 7.88 |
| 4/10/2016 1:15 AM | 8.04 | 4/11/2016 1:15 AM | 7.91 | 4/12/2016 1:15 AM | 7.89 |
| 4/10/2016 1:30 AM | 8.03 | 4/11/2016 1:30 AM | 7.91 | 4/12/2016 1:30 AM | 7.89 |
| 4/10/2016 1:45 AM | 8.01 | 4/11/2016 1:45 AM | 7.91 | 4/12/2016 1:45 AM | 7.88 |
| 4/10/2016 2:00 AM | 8.02 | 4/11/2016 2:00 AM | 7.88 | 4/12/2016 2:00 AM | 7.88 |
| 4/10/2016 2:15 AM | 8.02 | 4/11/2016 2:15 AM | 7.89 | 4/12/2016 2:15 AM | 7.88 |
| 4/10/2016 2:30 AM | 8.01 | 4/11/2016 2:30 AM | 7.89 | 4/12/2016 2:30 AM | 7.87 |
| 4/10/2016 2:45 AM | 8.01 | 4/11/2016 2:45 AM | 7.91 | 4/12/2016 2:45 AM | 7.87 |
| 4/10/2016 3:00 AM | 8.00 | 4/11/2016 3:00 AM | 7.91 | 4/12/2016 3:00 AM | 7.90 |
| 4/10/2016 3:15 AM | 8.00 | 4/11/2016 3:15 AM | 7.91 | 4/12/2016 3:15 AM | 7.89 |
| 4/10/2016 3:30 AM | 7.99 | 4/11/2016 3:30 AM | 7.91 | 4/12/2016 3:30 AM | 7.89 |
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| 4/10/2016 4:15 AM | 7.98 | 4/11/2016 4:15 AM | 7.91 | 4/12/2016 4:15 AM | 7.88 |
| 4/10/2016 4:30 AM | 7.97 | 4/11/2016 4:30 AM | 7.90 | 4/12/2016 4:30 AM | 7.88 |
| 4/10/2016 4:45 AM | 7.97 | 4/11/2016 4:45 AM | 7.91 | 4/12/2016 4:45 AM | 7.88 |
| 4/10/2016 5:00 AM | 7.96 | 4/11/2016 5:00 AM | 7.91 | 4/12/2016 5:00 AM | 7.88 |
| 4/10/2016 5:15 AM | 7.95 | 4/11/2016 5:15 AM | 7.90 | 4/12/2016 5:15 AM | 7.89 |
| 4/10/2016 5:30 AM | 7.95 | 4/11/2016 5:30 AM | 7.91 | 4/12/2016 5:30 AM | 7.90 |
| 4/10/2016 5:45 AM | 7.95 | 4/11/2016 5:45 AM | 7.91 | 4/12/2016 5:45 AM | 7.90 |
| 4/10/2016 6:00 AM | 7.95 | 4/11/2016 6:00 AM | 7.90 | 4/12/2016 6:00 AM | 7.90 |
| 4/10/2016 6:15 AM | 7.94 | 4/11/2016 6:15 AM | 7.90 | 4/12/2016 6:15 AM | 7.90 |
| 4/10/2016 6:30 AM | 7.94 | 4/11/2016 6:30 AM | 7.90 | 4/12/2016 6:30 AM | 7.88 |
| 4/10/2016 6:45 AM | 7.93 | 4/11/2016 6:45 AM | 7.89 | 4/12/2016 6:45 AM | 7.88 |
| 4/10/2016 7:00 AM | 8.02 | 4/11/2016 7:00 AM | 7.89 | 4/12/2016 7:00 AM | 7.87 |
| 4/10/2016 7:15 AM | 8.01 | 4/11/2016 7:15 AM | 7.89 | 4/12/2016 7:15 AM | 7.88 |
| 4/10/2016 7:30 AM | 8.00 | 4/11/2016 7:30 AM | 7.88 | 4/12/2016 7:30 AM | 7.87 |
| 4/10/2016 7:45 AM | 8.00 | 4/11/2016 7:45 AM | 7.87 | 4/12/2016 7:45 AM | 7.88 |
| 4/10/2016 8:00 AM | 7.99 | 4/11/2016 8:00 AM | 7.87 | 4/12/2016 8:00 AM | 7.88 |
| 4/10/2016 8:15 AM | 7.98 | 4/11/2016 8:15 AM | 7.85 | 4/12/2016 8:15 AM | 7.87 |
| 4/10/2016 8:30 AM | 7.97 | 4/11/2016 8:30 AM | 7.82 | 4/12/2016 8:30 AM | 7.87 |
| 4/10/2016 8:45 AM | 7.96 | 4/11/2016 8:45 AM | 7.79 | 4/12/2016 8:45 AM | 7.87 |
| 4/10/2016 9:00 AM | 7.95 | 4/11/2016 9:00 AM | 7.79 | 4/12/2016 9:00 AM | 7.87 |
| 4/10/2016 9:15 AM | 7.94 | 4/11/2016 9:15 AM | 7.79 | 4/12/2016 9:15 AM | 7.87 |
| 4/10/2016 9:30 AM | 7.93 | 4/11/2016 9:30 AM | 7.76 | 4/12/2016 9:30 AM | 7.87 |
| 4/10/2016 9:45 AM | 7.90 | 4/11/2016 9:45 AM | 7.73 | 4/12/2016 9:45 AM | 7.87 |
| 4/10/2016 10:00 AM | 7.90 | 4/11/2016 10:00 AM | 7.79 | 4/12/2016 10:00 AM | 7.86 |
| 4/10/2016 10:15 AM | 7.91 | 4/11/2016 10:15 AM | 7.72 | 4/12/2016 10:15 AM | 7.86 |
| 4/10/2016 10:30 AM | 7.90 | 4/11/2016 10:30 AM | 7.65 | 4/12/2016 10:30 AM | 7.92 |
| 4/10/2016 10:45 AM | 7.88 | 4/11/2016 10:45 AM | 7.65 | 4/12/2016 10:45 AM | 7.91 |
| 4/10/2016 11:00 AM | 7.88 | 4/11/2016 11:00 AM | 7.71 | 4/12/2016 11:00 AM | 7.90 |
| 4/10/2016 11:15 AM | 7.87 | 4/11/2016 11:15 AM | 7.74 | 4/12/2016 11:15 AM | 7.90 |
| 4/10/2016 11:30 AM | 7.85 | 4/11/2016 11:30 AM | 7.74 | 4/12/2016 11:30 AM | 7.90 |
| 4/10/2016 11:45 AM | 7.83 | 4/11/2016 11:45 AM | 7.69 | 4/12/2016 11:45 AM | 7.89 |
| 4/10/2016 12:00 PM | 7.83 | 4/11/2016 12:00 PM | 7.69 | 4/12/2016 12:00 PM | 7.90 |
| 4/10/2016 12:15 PM | 7.83 | 4/11/2016 12:15 PM | 7.72 | 4/12/2016 12:15 PM | 7.90 |
| 4/10/2016 12:30 PM | 7.86 | 4/11/2016 12:30 PM | 7.68 | 4/12/2016 12:30 PM | 7.90 |
| 4/10/2016 12:45 PM | 7.87 | 4/11/2016 12:45 PM | 7.65 | 4/12/2016 12:45 PM | 7.89 |
| 4/10/2016 1:00 PM | 7.85 | 4/11/2016 1:00 PM | 7.57 | 4/12/2016 1:00 PM | 7.89 |
| 4/10/2016 1:15 PM | 7.85 | 4/11/2016 1:15 PM | 7.60 | 4/12/2016 1:15 PM | 7.87 |
| 4/10/2016 1:30 PM | 7.83 | 4/11/2016 1:30 PM | 7.61 | 4/12/2016 1:30 PM | 7.86 |
| 4/10/2016 1:45 PM | 7.81 | 4/11/2016 1:45 PM | 7.55 | 4/12/2016 1:45 PM | 7.85 |
| 4/10/2016 2:00 PM | 7.82 | 4/11/2016 2:00 PM | 7.56 | 4/12/2016 2:00 PM | 7.88 |

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| 4/10/2016 2:15 PM | 7.81 | 4/11/2016 2:15 PM | 7.58 | 4/12/2016 2:15 PM | 7.88 |
| 4/10/2016 2:30 PM | 7.81 | 4/11/2016 2:30 PM | 7.56 | 4/12/2016 2:30 PM | 7.89 |
| 4/10/2016 2:45 PM | 7.81 | 4/11/2016 2:45 PM | 7.60 | 4/12/2016 2:45 PM | 7.88 |
| 4/10/2016 3:00 PM | 7.81 | 4/11/2016 3:00 PM | 7.67 | 4/12/2016 3:00 PM | 7.89 |
| 4/10/2016 3:15 PM | 7.82 | 4/11/2016 3:15 PM | 7.70 | 4/12/2016 3:15 PM | 7.92 |
| 4/10/2016 3:30 PM | 7.83 | 4/11/2016 3:30 PM | 7.73 | 4/12/2016 3:30 PM | 7.93 |
| 4/10/2016 3:45 PM | 7.83 | 4/11/2016 3:45 PM | 7.73 | 4/12/2016 3:45 PM | 7.93 |
| 4/10/2016 4:00 PM | 7.93 | 4/11/2016 4:00 PM | 7.74 | 4/12/2016 4:00 PM | 7.93 |
| 4/10/2016 4:15 PM | 7.93 | 4/11/2016 4:15 PM | 7.74 | 4/12/2016 4:15 PM | 7.93 |
| 4/10/2016 4:30 PM | 7.92 | 4/11/2016 4:30 PM | 7.75 | 4/12/2016 4:30 PM | 7.93 |
| 4/10/2016 4:45 PM | 7.92 | 4/11/2016 4:45 PM | 7.75 | 4/12/2016 4:45 PM | 7.94 |
| 4/10/2016 5:00 PM | 7.92 | 4/11/2016 5:00 PM | 7.75 | 4/12/2016 5:00 PM | 7.94 |
| 4/10/2016 5:15 PM | 7.92 | 4/11/2016 5:15 PM | 7.76 | 4/12/2016 5:15 PM | 7.93 |
| 4/10/2016 5:30 PM | 7.91 | 4/11/2016 5:30 PM | 7.84 | 4/12/2016 5:30 PM | 7.93 |
| 4/10/2016 5:45 PM | 7.91 | 4/11/2016 5:45 PM | 7.82 | 4/12/2016 5:45 PM | 7.93 |
| 4/10/2016 6:00 PM | 7.91 | 4/11/2016 6:00 PM | 7.82 | 4/12/2016 6:00 PM | 7.92 |
| 4/10/2016 6:15 PM | 7.91 | 4/11/2016 6:15 PM | 7.81 | 4/12/2016 6:15 PM | 7.91 |
| 4/10/2016 6:30 PM | 7.91 | 4/11/2016 6:30 PM | 7.83 | 4/12/2016 6:30 PM | 7.93 |
| 4/10/2016 6:45 PM | 7.91 | 4/11/2016 6:45 PM | 7.83 | 4/12/2016 6:45 PM | 7.92 |
| 4/10/2016 7:00 PM | 7.91 | 4/11/2016 7:00 PM | 7.83 | 4/12/2016 7:00 PM | 7.94 |
| 4/10/2016 7:15 PM | 7.91 | 4/11/2016 7:15 PM | 7.83 | 4/12/2016 7:15 PM | 7.95 |
| 4/10/2016 7:30 PM | 7.91 | 4/11/2016 7:30 PM | 7.84 | 4/12/2016 7:30 PM | 7.96 |
| 4/10/2016 7:45 PM | 7.90 | 4/11/2016 7:45 PM | 7.85 | 4/12/2016 7:45 PM | 7.96 |
| 4/10/2016 8:00 PM | 7.90 | 4/11/2016 8:00 PM | 7.86 | 4/12/2016 8:00 PM | 7.97 |
| 4/10/2016 8:15 PM | 7.90 | 4/11/2016 8:15 PM | 7.87 | 4/12/2016 8:15 PM | 7.98 |
| 4/10/2016 8:30 PM | 7.89 | 4/11/2016 8:30 PM | 7.87 | 4/12/2016 8:30 PM | 7.97 |
| 4/10/2016 8:45 PM | 7.89 | 4/11/2016 8:45 PM | 7.87 | 4/12/2016 8:45 PM | 7.99 |
| 4/10/2016 9:00 PM | 7.89 | 4/11/2016 9:00 PM | 7.88 | 4/12/2016 9:00 PM | 7.98 |
| 4/10/2016 9:15 PM | 7.89 | 4/11/2016 9:15 PM | 7.87 | 4/12/2016 9:15 PM | 7.98 |
| 4/10/2016 9:30 PM | 7.89 | 4/11/2016 9:30 PM | 7.89 | 4/12/2016 9:30 PM | 7.98 |
| 4/10/2016 9:45 PM | 7.89 | 4/11/2016 9:45 PM | 7.88 | 4/12/2016 9:45 PM | 7.99 |
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| 4/10/2016 10:30 PM | 7.89 | 4/11/2016 10:30 PM | 7.87 | 4/12/2016 10:30 PM | 7.97 |
| 4/10/2016 10:45 PM | 7.90 | 4/11/2016 10:45 PM | 7.86 | 4/12/2016 10:45 PM | 7.97 |
| 4/10/2016 11:00 PM | 7.90 | 4/11/2016 11:00 PM | 7.85 | 4/12/2016 11:00 PM | 7.99 |
| 4/10/2016 11:15 PM | 7.89 | 4/11/2016 11:15 PM | 7.85 | 4/12/2016 11:15 PM | 7.99 |
| 4/10/2016 11:30 PM | 7.89 | 4/11/2016 11:30 PM | 7.91 | 4/12/2016 11:30 PM | 7.99 |
| 4/10/2016 11:45 PM | 7.88 | 4/11/2016 11:45 PM | 7.90 | 4/12/2016 11:45 PM | 7.98 |
| AVG | 7.92 | AVG | 7.81 | AVG | 7.91 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 4/13/2016 12:45 AM | 7.95 | 4/14/2016 12:45 AM | 7.81 | 4/15/2016 12:45 AM | 7.72 |
| 4/13/2016 1:00 AM | 7.94 | 4/14/2016 1:00 AM | 7.81 | 4/15/2016 1:00 AM | 7.73 |
| 4/13/2016 1:15 AM | 7.95 | 4/14/2016 1:15 AM | 7.80 | 4/15/2016 1:15 AM | 7.73 |
| 4/13/2016 1:30 AM | 7.94 | 4/14/2016 1:30 AM | 7.80 | 4/15/2016 1:30 AM | 7.73 |
| 4/13/2016 1:45 AM | 7.94 | 4/14/2016 1:45 AM | 7.87 | 4/15/2016 1:45 AM | 7.73 |
| 4/13/2016 2:00 AM | 7.94 | 4/14/2016 2:00 AM | 7.86 | 4/15/2016 2:00 AM | 7.72 |
| 4/13/2016 2:15 AM | 7.92 | 4/14/2016 2:15 AM | 7.85 | 4/15/2016 2:15 AM | 7.72 |
| 4/13/2016 2:30 AM | 7.92 | 4/14/2016 2:30 AM | 7.85 | 4/15/2016 2:30 AM | 7.71 |
| 4/13/2016 2:45 AM | 7.92 | 4/14/2016 2:45 AM | 7.86 | 4/15/2016 2:45 AM | 7.71 |
| 4/13/2016 3:00 AM | 7.92 | 4/14/2016 3:00 AM | 7.86 | 4/15/2016 3:00 AM | 7.70 |
| 4/13/2016 3:15 AM | 7.91 | 4/14/2016 3:15 AM | 7.85 | 4/15/2016 3:15 AM | 7.70 |
| 4/13/2016 3:30 AM | 7.98 | 4/14/2016 3:30 AM | 7.85 | 4/15/2016 3:30 AM | 7.70 |
| 4/13/2016 3:45 AM | 7.98 | 4/14/2016 3:45 AM | 7.84 | 4/15/2016 3:45 AM | 7.70 |
| 4/13/2016 4:00 AM | 7.97 | 4/14/2016 4:00 AM | 7.84 | 4/15/2016 4:00 AM | 7.69 |
| 4/13/2016 4:15 AM | 7.96 | 4/14/2016 4:15 AM | 7.84 | 4/15/2016 4:15 AM | 7.69 |
| 4/13/2016 4:30 AM | 7.95 | 4/14/2016 4:30 AM | 7.84 | 4/15/2016 4:30 AM | 7.69 |
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| 4/13/2016 5:00 AM | 7.95 | 4/14/2016 5:00 AM | 7.83 | 4/15/2016 5:00 AM | 7.74 |
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| 4/13/2016 5:30 AM | 7.94 | 4/14/2016 5:30 AM | 7.82 | 4/15/2016 5:30 AM | 7.71 |
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| 4/13/2016 6:00 AM | 7.94 | 4/14/2016 6:00 AM | 7.82 | 4/15/2016 6:00 AM | 7.71 |
| 4/13/2016 6:15 AM | 7.94 | 4/14/2016 6:15 AM | 7.82 | 4/15/2016 6:15 AM | 7.70 |
| 4/13/2016 6:30 AM | 7.93 | 4/14/2016 6:30 AM | 7.81 | 4/15/2016 6:30 AM | 7.72 |
| 4/13/2016 6:45 AM | 7.92 | 4/14/2016 6:45 AM | 7.81 | 4/15/2016 6:45 AM | 7.71 |
| 4/13/2016 7:00 AM | 7.92 | 4/14/2016 7:00 AM | 7.80 | 4/15/2016 7:00 AM | 7.72 |
| 4/13/2016 7:15 AM | 7.91 | 4/14/2016 7:15 AM | 7.80 | 4/15/2016 7:15 AM | 7.72 |
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| 4/13/2016 8:15 AM | 7.86 | 4/14/2016 8:15 AM | 7.77 | 4/15/2016 8:15 AM | 7.69 |
| 4/13/2016 8:30 AM | 7.85 | 4/14/2016 8:30 AM | 7.75 | 4/15/2016 8:30 AM | 7.68 |
| 4/13/2016 8:45 AM | 7.84 | 4/14/2016 8:45 AM | 7.74 | 4/15/2016 8:45 AM | 7.67 |
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| 4/13/2016 9:15 AM | 7.85 | 4/14/2016 9:15 AM | 7.73 | 4/15/2016 9:15 AM | 7.64 |
| 4/13/2016 9:30 AM | 7.84 | 4/14/2016 9:30 AM | 7.72 | 4/15/2016 9:30 AM | 7.63 |
| 4/13/2016 9:45 AM | 7.84 | 4/14/2016 9:45 AM | 7.71 | 4/15/2016 9:45 AM | 7.61 |
| 4/13/2016 10:00 AM | 7.85 | 4/14/2016 10:00 AM | 7.70 | 4/15/2016 10:00 AM | 7.59 |
| 4/13/2016 10:15 AM | 7.85 | 4/14/2016 10:15 AM | 7.69 | 4/15/2016 10:15 AM | 7.59 |
| 4/13/2016 10:30 AM | 7.85 | 4/14/2016 10:30 AM | 7.68 | 4/15/2016 10:30 AM | 7.58 |
| 4/13/2016 10:45 AM | 7.85 | 4/14/2016 10:45 AM | 7.67 | 4/15/2016 10:45 AM | 7.56 |
| 4/13/2016 11:00 AM | 7.83 | 4/14/2016 11:00 AM | 7.67 | 4/15/2016 11:00 AM | 7.55 |
| 4/13/2016 11:15 AM | 7.83 | 4/14/2016 11:15 AM | 7.68 | 4/15/2016 11:15 AM | 7.58 |
| 4/13/2016 11:30 AM | 7.82 | 4/14/2016 11:30 AM | 7.68 | 4/15/2016 11:30 AM | 7.58 |
| 4/13/2016 11:45 AM | 7.83 | 4/14/2016 11:45 AM | 7.66 | 4/15/2016 11:45 AM | 7.60 |
| 4/13/2016 12:00 PM | 7.82 | 4/14/2016 12:00 PM | 7.66 | 4/15/2016 12:00 PM | 7.61 |
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| 4/13/2016 2:00 PM | 7.81 | 4/14/2016 2:00 PM | 7.61 | 4/15/2016 2:00 PM | 7.61 |

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| 4/13/2016 2:15 PM | 7.79 | 4/14/2016 2:15 PM | 7.61 | 4/15/2016 2:15 PM | 7.60 |
| 4/13/2016 2:30 PM | 7.79 | 4/14/2016 2:30 PM | 7.59 | 4/15/2016 2:30 PM | 7.60 |
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| 4/13/2016 3:15 PM | 7.81 | 4/14/2016 3:15 PM | 7.65 | 4/15/2016 3:15 PM | 7.66 |
| 4/13/2016 3:30 PM | 7.81 | 4/14/2016 3:30 PM | 7.66 | 4/15/2016 3:30 PM | 7.68 |
| 4/13/2016 3:45 PM | 7.81 | 4/14/2016 3:45 PM | 7.66 | 4/15/2016 3:45 PM | 7.68 |
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| 4/13/2016 4:45 PM | 7.82 | 4/14/2016 4:45 PM | 7.66 | 4/15/2016 4:45 PM | 7.72 |
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| 4/13/2016 8:00 PM | 7.85 | 4/14/2016 8:00 PM | 7.65 | 4/15/2016 8:00 PM | 7.78 |
| 4/13/2016 8:15 PM | 7.85 | 4/14/2016 8:15 PM | 7.64 | 4/15/2016 8:15 PM | 7.77 |
| 4/13/2016 8:30 PM | 7.85 | 4/14/2016 8:30 PM | 7.74 | 4/15/2016 8:30 PM | 7.82 |
| 4/13/2016 8:45 PM | 7.84 | 4/14/2016 8:45 PM | 7.74 | 4/15/2016 8:45 PM | 7.82 |
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| 4/13/2016 11:30 PM | 7.83 | 4/14/2016 11:30 PM | 7.73 | 4/15/2016 11:30 PM | 7.82 |
| 4/13/2016 11:45 PM | 7.83 | 4/14/2016 11:45 PM | 7.73 | 4/15/2016 11:45 PM | 7.82 |
| AVG | 7.87 | AVG | 7.73 | AVG | 7.70 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 4/16/2016 12:45 AM | 7.82 | 4/17/2016 12:45 AM | 7.81 | 4/18/2016 12:45 AM | 7.73 |
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| 4/16/2016 4:30 AM | 7.83 | 4/17/2016 4:30 AM | 7.78 | 4/18/2016 4:30 AM | 7.75 |
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| 4/16/2016 9:15 AM | 7.76 | 4/17/2016 9:15 AM | 7.68 | 4/18/2016 9:15 AM | 7.65 |
| 4/16/2016 9:30 AM | 7.75 | 4/17/2016 9:30 AM | 7.66 | 4/18/2016 9:30 AM | 7.62 |
| 4/16/2016 9:45 AM | 7.73 | 4/17/2016 9:45 AM | 7.65 | 4/18/2016 9:45 AM | 7.60 |
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| 4/16/2016 10:30 AM | 7.68 | 4/17/2016 10:30 AM | 7.61 | 4/18/2016 10:30 AM | 7.52 |
| 4/16/2016 10:45 AM | 7.69 | 4/17/2016 10:45 AM | 7.61 | 4/18/2016 10:45 AM | 7.47 |
| 4/16/2016 11:00 AM | 7.71 | 4/17/2016 11:00 AM | 7.60 | 4/18/2016 11:00 AM | 7.46 |
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| 4/16/2016 11:30 AM | 7.73 | 4/17/2016 11:30 AM | 7.56 | 4/18/2016 11:30 AM | 7.47 |
| 4/16/2016 11:45 AM | 7.71 | 4/17/2016 11:45 AM | 7.55 | 4/18/2016 11:45 AM | 7.45 |
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| 4/16/2016 12:15 PM | 7.71 | 4/17/2016 12:15 PM | 7.57 | 4/18/2016 12:15 PM | 7.43 |
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| 4/16/2016 1:00 PM | 7.69 | 4/17/2016 1:00 PM | 7.56 | 4/18/2016 1:00 PM | 7.44 |
| 4/16/2016 1:15 PM | 7.67 | 4/17/2016 1:15 PM | 7.57 | 4/18/2016 1:15 PM | 7.42 |
| 4/16/2016 1:30 PM | 7.67 | 4/17/2016 1:30 PM | 7.57 | 4/18/2016 1:30 PM | 7.44 |
| 4/16/2016 1:45 PM | 7.65 | 4/17/2016 1:45 PM | 7.57 | 4/18/2016 1:45 PM | 7.40 |
| 4/16/2016 2:00 PM | 7.65 | 4/17/2016 2:00 PM | 7.57 | 4/18/2016 2:00 PM | 7.43 |

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| 4/16/2016 8:15 PM | 7.79 | 4/17/2016 8:15 PM | 7.62 | 4/18/2016 8:15 PM | 7.68 |
| 4/16/2016 8:30 PM | 7.80 | 4/17/2016 8:30 PM | 7.61 | 4/18/2016 8:30 PM | 7.68 |
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| 4/16/2016 11:30 PM | 7.81 | 4/17/2016 11:30 PM | 7.71 | 4/18/2016 11:30 PM | 7.70 |
| 4/16/2016 11:45 PM | 7.80 | 4/17/2016 11:45 PM | 7.72 | 4/18/2016 11:45 PM | 7.70 |
| AVG | 7.78 | AVG | 7.68 | AVG | 7.64 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 4/19/2016 3:15 AM | 7.69 | 4/20/2016 3:15 AM | 7.64 | 4/21/2016 3:15 AM | 7.59 |
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| 4/22/2016 11:30 PM | 7.51 | 4/23/2016 11:30 PM | 7.53 | 4/24/2016 11:30 PM | 7.63 |
| 4/22/2016 11:45 PM | 7.51 | 4/23/2016 11:45 PM | 7.53 | 4/24/2016 11:45 PM | 7.63 |
| AVG | 7.51 | AVG | 7.50 | AVG | 7.57 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 4/25/2016 12:45 AM | 7.64 | 4/26/2016 12:45 AM | 7.62 | 4/27/2016 12:45 AM | 7.65 |
| 4/25/2016 1:00 AM | 7.64 | 4/26/2016 1:00 AM | 7.62 | 4/27/2016 1:00 AM | 7.65 |
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| 4/25/2016 10:15 AM | 7.58 | 4/26/2016 10:15 AM | 7.63 | 4/27/2016 10:15 AM | 7.68 |
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| 4/25/2016 10:45 AM | 7.56 | 4/26/2016 10:45 AM | 7.64 | 4/27/2016 10:45 AM | 7.67 |
| 4/25/2016 11:00 AM | 7.55 | 4/26/2016 11:00 AM | 7.63 | 4/27/2016 11:00 AM | 7.68 |
| 4/25/2016 11:15 AM | 7.54 | 4/26/2016 11:15 AM | 7.64 | 4/27/2016 11:15 AM | 7.67 |
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| 4/25/2016 1:15 PM | 7.55 | 4/26/2016 1:15 PM | 7.62 | 4/27/2016 1:15 PM | 7.67 |
| 4/25/2016 1:30 PM | 7.54 | 4/26/2016 1:30 PM | 7.61 | 4/27/2016 1:30 PM | 7.70 |
| 4/25/2016 1:45 PM | 7.52 | 4/26/2016 1:45 PM | 7.60 | 4/27/2016 1:45 PM | 7.70 |
| 4/25/2016 2:00 PM | 7.53 | 4/26/2016 2:00 PM | 7.58 | 4/27/2016 2:00 PM | 7.71 |

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| 4/25/2016 6:15 PM | 7.59 | 4/26/2016 6:15 PM | 7.63 | 4/27/2016 6:15 PM | 7.74 |
| 4/25/2016 6:30 PM | 7.59 | 4/26/2016 6:30 PM | 7.63 | 4/27/2016 6:30 PM | 7.74 |
| 4/25/2016 6:45 PM | 7.59 | 4/26/2016 6:45 PM | 7.63 | 4/27/2016 6:45 PM | 7.75 |
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| 4/25/2016 8:15 PM | 7.61 | 4/26/2016 8:15 PM | 7.66 | 4/27/2016 8:15 PM | 7.75 |
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| 4/25/2016 9:15 PM | 7.62 | 4/26/2016 9:15 PM | 7.66 | 4/27/2016 9:15 PM | 7.75 |
| 4/25/2016 9:30 PM | 7.62 | 4/26/2016 9:30 PM | 7.66 | 4/27/2016 9:30 PM | 7.75 |
| 4/25/2016 9:45 PM | 7.62 | 4/26/2016 9:45 PM | 7.66 | 4/27/2016 9:45 PM | 7.74 |
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| 4/25/2016 10:45 PM | 7.62 | 4/26/2016 10:45 PM | 7.66 | 4/27/2016 10:45 PM | 7.77 |
| 4/25/2016 11:00 PM | 7.62 | 4/26/2016 11:00 PM | 7.66 | 4/27/2016 11:00 PM | 7.77 |
| 4/25/2016 11:15 PM | 7.62 | 4/26/2016 11:15 PM | 7.66 | 4/27/2016 11:15 PM | 7.77 |
| 4/25/2016 11:30 PM | 7.62 | 4/26/2016 11:30 PM | 7.66 | 4/27/2016 11:30 PM | 7.77 |
| 4/25/2016 11:45 PM | 7.63 | 4/26/2016 11:45 PM | 7.67 | 4/27/2016 11:45 PM | 7.77 |
| AVG | 7.60 | AVG | 7.62 | AVG | 7.69 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 4/28/2016 12:30 AM | 7.77 | 4/29/2016 12:30 AM | 7.74 | 4/30/2016 12:30 AM | 7.80 |
| 4/28/2016 12:45 AM | 7.77 | 4/29/2016 12:45 AM | 7.74 | 4/30/2016 12:45 AM | 7.79 |
| 4/28/2016 1:00 AM | 7.77 | 4/29/2016 1:00 AM | 7.74 | 4/30/2016 1:00 AM | 7.80 |
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| 4/28/2016 1:30 AM | 7.77 | 4/29/2016 1:30 AM | 7.75 | 4/30/2016 1:30 AM | 7.79 |
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| 4/28/2016 3:30 AM | 7.77 | 4/29/2016 3:30 AM | 7.74 | 4/30/2016 3:30 AM | 7.80 |
| 4/28/2016 3:45 AM | 7.76 | 4/29/2016 3:45 AM | 7.75 | 4/30/2016 3:45 AM | 7.80 |
| 4/28/2016 4:00 AM | 7.77 | 4/29/2016 4:00 AM | 7.76 | 4/30/2016 4:00 AM | 7.80 |
| 4/28/2016 4:15 AM | 7.77 | 4/29/2016 4:15 AM | 7.76 | 4/30/2016 4:15 AM | 7.79 |
| 4/28/2016 4:30 AM | 7.76 | 4/29/2016 4:30 AM | 7.76 | 4/30/2016 4:30 AM | 7.81 |
| 4/28/2016 4:45 AM | 7.76 | 4/29/2016 4:45 AM | 7.76 | 4/30/2016 4:45 AM | 7.80 |
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| 4/28/2016 7:30 AM | 7.75 | 4/29/2016 7:30 AM | 7.76 | 4/30/2016 7:30 AM | 7.81 |
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| 4/28/2016 11:30 AM | 7.73 | 4/29/2016 11:30 AM | 7.75 | 4/30/2016 11:30 AM | 7.81 |
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| 4/28/2016 7:00 PM | 7.71 | 4/29/2016 7:00 PM | 7.79 | 4/30/2016 7:00 PM | 7.77 |
| 4/28/2016 7:15 PM | 7.72 | 4/29/2016 7:15 PM | 7.78 | 4/30/2016 7:15 PM | 7.77 |
| 4/28/2016 7:30 PM | 7.72 | 4/29/2016 7:30 PM | 7.78 | 4/30/2016 7:30 PM | 7.78 |
| 4/28/2016 7:45 PM | 7.72 | 4/29/2016 7:45 PM | 7.78 | 4/30/2016 7:45 PM | 7.77 |
| 4/28/2016 8:00 PM | 7.72 | 4/29/2016 8:00 PM | 7.78 | 4/30/2016 8:00 PM | 7.77 |
| 4/28/2016 8:15 PM | 7.73 | 4/29/2016 8:15 PM | 7.78 | 4/30/2016 8:15 PM | 7.77 |
| 4/28/2016 8:30 PM | 7.72 | 4/29/2016 8:30 PM | 7.78 | 4/30/2016 8:30 PM | 7.77 |
| 4/28/2016 8:45 PM | 7.72 | 4/29/2016 8:45 PM | 7.80 | 4/30/2016 8:45 PM | 7.77 |
| 4/28/2016 9:00 PM | 7.73 | 4/29/2016 9:00 PM | 7.79 | 4/30/2016 9:00 PM | 7.77 |
| 4/28/2016 9:15 PM | 7.73 | 4/29/2016 9:15 PM | 7.78 | 4/30/2016 9:15 PM | 7.76 |
| 4/28/2016 9:30 PM | 7.73 | 4/29/2016 9:30 PM | 7.79 | 4/30/2016 9:30 PM | 7.79 |
| 4/28/2016 9:45 PM | 7.73 | 4/29/2016 9:45 PM | 7.80 | 4/30/2016 9:45 PM | 7.78 |
| 4/28/2016 10:00 PM | 7.73 | 4/29/2016 10:00 PM | 7.80 | 4/30/2016 10:00 PM | 7.78 |
| 4/28/2016 10:15 PM | 7.73 | 4/29/2016 10:15 PM | 7.80 | 4/30/2016 10:15 PM | 7.78 |
| 4/28/2016 10:30 PM | 7.73 | 4/29/2016 10:30 PM | 7.79 | 4/30/2016 10:30 PM | 7.78 |
| 4/28/2016 10:45 PM | 7.74 | 4/29/2016 10:45 PM | 7.79 | 4/30/2016 10:45 PM | 7.78 |
| 4/28/2016 11:00 PM | 7.74 | 4/29/2016 11:00 PM | 7.79 | 4/30/2016 11:00 PM | 7.78 |
| 4/28/2016 11:15 PM | 7.74 | 4/29/2016 11:15 PM | 7.79 | 4/30/2016 11:15 PM | 7.78 |
| 4/28/2016 11:30 PM | 7.74 | 4/29/2016 11:30 PM | 7.79 | 4/30/2016 11:30 PM | 7.78 |
| 4/28/2016 11:45 PM | 7.74 | 4/29/2016 11:45 PM | 7.79 | 4/30/2016 11:45 PM | 7.78 |
| AVG | 7.73 | AVG | 7.76 | AVG | 7.79 |

| | |
|---|---|
| **MIN** | **7.00** |
| **MAX** | **8.95** |

Avtex Fibers
Front Royal, VA
Outfall 004
April 2016 DMR

| Sample Date | Sample ID | BOD, mg/L | BOD, kg/d | TSS, mg/L | TSS, kg/d |
|---|---|---|---|---|---|
| 4/6/2016 | AF4-6FE | 0.0 | 0.00 | 1.6 | 0.27 |
| 4/13/2016 | AF4-13FE | 0.0 | 0.00 | 1.30 | 0.24 |
| 4/20/2016 | AF4-20FE | 0.0 | 0.00 | 1.6 | 0.51 |
| 4/27/2016 | AF4-27FE | 0.0 | 0.00 | 0.0 | 0.00 |
| | Daily Maximum: | 0.0 | 0.00 | 1.6 | 0.51 |
| | Monthly Avg: | 0.0 | 0.00 | 1.1 | 0.26 |

Monthly Average – Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as calculated. If all data are below the QL used for the analysis, then the average shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported monthly average concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the monthly average of the calculated daily quantities.

Daily Maximum – Compliance with the daily maximum limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each day during the reporting month. The maximum value of these daily averages thus determined shall be reported on the DMR as the Daily Maximum. If all data are below the QL used for the analysis, then the maximum value of the daily averages shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported daily maximum concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported daily average concentrations (including the defined zeros) and corresponding daily flows to determine daily average quantities and report the maximum of the daily average quantities during the reporting month.

**Loading Derivation**
If 1 ppm (= 1 mg/L) and 1 MGD (= 1 MG/day)
--> (1 mg/L)(1 MG/day)(3.785 L/Gal)(10^6 Gal/MG)(1 lb/453,600 mg) = 8.34 lbs/day
**--> lbs/day = ppm * 8.34 * MGD**
**--> kg/d = ppm * 8.34 * MGD * 0.4536*lb/d**

**Concentration Derivation**
If 1 lb/d and 1 MGD (= 1 MG/day)
[(1 lbs/day)(453,600 mg/lb)] / [(1 MG/d)(10^6 Gal/MG)(3.785 L/Gal)]
**--> ppm = lb/d * (1/8.34) * (1/MGD)**

| | BOD |
|---|---|
| 4/6/2016 | 0 |
| 4/13/2016 | 0 |
| 4/20/2016 | 0 |
| 4/27/2016 | 0 |
| AVG | 0 |

| | TSS |
|---|---|
| 4/6/2016 | 0.270314916 |
| 4/13/2016 | 0.23880329 |
| 4/20/2016 | 0.512809379 |
| 4/27/2016 | 0 |
| AVG | 0.255481896 |

| | CS2* |
|---|---|
| 4/20/2016 | <QL |

*Note: CS2 EPA Test Method: 8260 MSV Low Level Analytical Method (EPA 8260)
Report Limit 2 ug/L
MDL 1.2 ug/L

**FMC Corporation**
2929 Walnut Street
Philadelphia, PA 19104
USA

215.299.6000
fmc.com

*Transmitted via Email*

June 9, 2016

Department of Environmental Quality - CO
Office of Remediation Program
P.O. Box 1105
Richmond, VA 23218

Re: Submission of Discharge Monitoring Report – May 2016
Avtex Fibers Superfund Site
Front Royal, Virginia

Dear Ms Payne:

In accordance with the Applicable or Relevant and Appropriate Requirements (ARARs) and Fact Sheet provided July 22, 2014, FMC Corporation (FMC) is submitting the Discharge Monitoring Report (DMR) for the month of May 2016. The permit is for the discharge from the Groundwater and Leachate Treatment Plant (GLTP) located at 404 Kendrick Lane, Front Royal, VA. Analysis of effluent concentrations yielded results within the allowable limits for all parameters.

Please do not hesitate to call if there are any questions.

Sincerely,

FMC Corporation

Brian M. McGinnis, P.E.
Manager, Environmental Remediation

cc: via Email
Brandon Kiracofe, DEQ
Charlie Root, USEPA
Heather Philip, Parsons

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

**DISCHARGE MONITORING REPORT** (DMR)

OMB No. 2040-004

PERMITTEE NAME/ADDRESS: (Include Facility Name/Location if different)

| | |
|---|---|
| **NAME:** | Avtex Fibers |
| **ADDRESS:** | 404 Kendrick Lane |
| | Front Royal, VA 22630 |
| **FACILITY:** | AVTEX FIBERS |
| **LOCATION:** | FRONT ROYAL, VA |
| **ATTN:** | |

NA — **PERMIT NUMBER**

004 — **DISCHARGE NUMBER**

**DMR MAILING ZIP CODE:** 23218

DESCRIPTION:

GLTP EFFLUENT (OUTFALL 004)

External Outfall

**No Discharge**

**MONITORING PERIOD**

| | YEAR | MO | DAY | | YEAR | MO | DAY |
|---|---|---|---|---|---|---|---|
| **FROM** | 16 | 05 | 01 | TO | 16 | 05 | 31 |

| **PARAMETER** | | QUANTITY OR LOADING | | | QUALITY OR CONCENTRATION | | | | **NO. EX** | FREQUENCY OF ANALYSIS | **SAMPLE TYPE** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | VALUE | VALUE | UNITS | VALUE | VALUE | VALUE | UNITS | | | |
| **FLOW** | **SAMPLE MEASUREMENT** | 0.103 | 0.130 | MGD | ***** | ***** | ***** | | 0 | CONTINUOUS | TIRE |
| **00056 1 0 EFFLUENT GROSS** | **PERMIT REQUIREMENT** | REPORT MONTHLY AV | REPORT DAILY MAX | | ****** | ****** | ****** | | | CONTINUOUS | TIRE |
| **PH** | **SAMPLE MEASUREMENT** | ***** | ***** | | 7.1 | ***** | 8.0 | | 0 | CONTINUOUS | GRAB |
| **00400 1 0 EFFLUENT GROSS** | **PERMIT REQUIREMENT** | ****** | ****** | | 6.5 MINIMUM | ****** | 9.0 MAXIMUM | SU | | CONTINUOUS | GRAB |
| **BOD, 5-DAY** | **SAMPLE MEASUREMENT** | 1.3 | 2.1 | | ***** | 3.3 | 5.0 | | 0 | 1/7 | 8 HC |
| **00318 1 0 EFFLUENT GROSS** | **PERMIT REQUIREMENT** | 36 MONTHLY AV | 96 DAILY MAX | kg/d | ****** | 24 MONTHLY AV | 64 DAILY MX | mg/L | | 1/7 | 8 HC |
| **SOLIDS, TOTAL SUSPENDED** | **SAMPLE MEASUREMENT** | 0.9 | 1.0 | | ***** | 2.1 | 2.3 | | 0 | 1/7 | 8 HC |
| **03603 1 0 EFFLUENT GROSS** | **PERMIT REQUIREMENT** | 60 MONTHLY AV | 190 DAILY MAX | kg/d | ****** | 40 MONTHLY AV | 130 DAILY MX | mg/L | | 1/7 | 8 HC |
| **CARBON DISULFIDE** | **SAMPLE MEASUREMENT** | <QL | <QL | | ***** | <QL | <QL | | 0 | 1/30 | 8 HC |
| **77041 1 0 EFFLUENT GROSS** | **PERMIT REQUIREMENT** | NL MONTHLY AV | NL DAILY MAX | kg/d | ****** | NL MONTHLY AV | NL DAILY MX | mg/L | | 1/30 | 8 HC |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

Robert T. Forbes

Director EHS Remediation/Governance

TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

Robert T. Forbes

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA 215 NUMBER 299-6260

DATE: YEAR 09 MO 06 DAY 16

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

Attachment: pH compliance monitoring summary (monthly)

Carbon disulfide: No limit established; monitored monthly; 0.1 mg/L action level

EPA Form 3320-1 (Rev 01/06) Previous editions may be used.

Avtex Fibers
Front Royal, VA
Outfall 004
May 2016 DMR

pH Calculations:

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 5/1/2016 12:00 AM | 7.78 | 5/2/2016 12:00 AM | 7.80 | 5/3/2016 12:00 AM | 7.84 |
| 5/1/2016 12:15 AM | | 5/2/2016 12:15 AM | 7.80 | 5/3/2016 12:15 AM | 7.83 |
| 5/1/2016 12:30 AM | 7.79 | 5/2/2016 12:30 AM | 7.79 | 5/3/2016 12:30 AM | 7.84 |
| 5/1/2016 12:45 AM | 7.79 | 5/2/2016 12:45 AM | 7.79 | 5/3/2016 12:45 AM | 7.84 |
| 5/1/2016 1:00 AM | 7.79 | 5/2/2016 1:00 AM | 7.79 | 5/3/2016 1:00 AM | 7.84 |
| 5/1/2016 1:15 AM | 7.79 | 5/2/2016 1:15 AM | 7.79 | 5/3/2016 1:15 AM | 7.85 |
| 5/1/2016 1:30 AM | 7.80 | 5/2/2016 1:30 AM | 7.80 | 5/3/2016 1:30 AM | 7.84 |
| 5/1/2016 1:45 AM | 7.80 | 5/2/2016 1:45 AM | 7.79 | 5/3/2016 1:45 AM | 7.85 |
| 5/1/2016 2:00 AM | 7.81 | 5/2/2016 2:00 AM | 7.80 | 5/3/2016 2:00 AM | 7.85 |
| 5/1/2016 2:15 AM | 7.81 | 5/2/2016 2:15 AM | 7.80 | 5/3/2016 2:15 AM | 7.86 |
| 5/1/2016 2:30 AM | 7.82 | 5/2/2016 2:30 AM | 7.80 | 5/3/2016 2:30 AM | 7.86 |
| 5/1/2016 2:45 AM | 7.82 | 5/2/2016 2:45 AM | 7.81 | 5/3/2016 2:45 AM | 7.86 |
| 5/1/2016 3:00 AM | 7.82 | 5/2/2016 3:00 AM | 7.81 | 5/3/2016 3:00 AM | 7.86 |
| 5/1/2016 3:15 AM | 7.82 | 5/2/2016 3:15 AM | 7.81 | 5/3/2016 3:15 AM | 7.86 |
| 5/1/2016 3:30 AM | 7.82 | 5/2/2016 3:30 AM | 7.82 | 5/3/2016 3:30 AM | 7.87 |
| 5/1/2016 3:45 AM | 7.82 | 5/2/2016 3:45 AM | 7.83 | 5/3/2016 3:45 AM | 7.86 |
| 5/1/2016 4:00 AM | 7.82 | 5/2/2016 4:00 AM | 7.82 | 5/3/2016 4:00 AM | 7.85 |
| 5/1/2016 4:15 AM | 7.82 | 5/2/2016 4:15 AM | 7.82 | 5/3/2016 4:15 AM | 7.84 |
| 5/1/2016 4:30 AM | 7.82 | 5/2/2016 4:30 AM | 7.83 | 5/3/2016 4:30 AM | 7.83 |
| 5/1/2016 4:45 AM | 7.82 | 5/2/2016 4:45 AM | 7.82 | 5/3/2016 4:45 AM | 7.82 |
| 5/1/2016 5:00 AM | 7.82 | 5/2/2016 5:00 AM | 7.82 | 5/3/2016 5:00 AM | 7.80 |
| 5/1/2016 5:15 AM | 7.83 | 5/2/2016 5:15 AM | 7.82 | 5/3/2016 5:15 AM | |
| 5/1/2016 5:30 AM | 7.83 | 5/2/2016 5:30 AM | 7.82 | 5/3/2016 5:30 AM | 7.85 |
| 5/1/2016 5:45 AM | 7.84 | 5/2/2016 5:45 AM | 7.81 | 5/3/2016 5:45 AM | 7.85 |
| 5/1/2016 6:00 AM | 7.83 | 5/2/2016 6:00 AM | 7.82 | 5/3/2016 6:00 AM | 7.85 |
| 5/1/2016 6:15 AM | 7.83 | 5/2/2016 6:15 AM | 7.83 | 5/3/2016 6:15 AM | 7.85 |
| 5/1/2016 6:30 AM | 7.83 | 5/2/2016 6:30 AM | 7.83 | 5/3/2016 6:30 AM | 7.85 |
| 5/1/2016 6:45 AM | 7.83 | 5/2/2016 6:45 AM | 7.83 | 5/3/2016 6:45 AM | 7.85 |
| 5/1/2016 7:00 AM | 7.83 | 5/2/2016 7:00 AM | 7.84 | 5/3/2016 7:00 AM | 7.85 |
| 5/1/2016 7:15 AM | 7.84 | 5/2/2016 7:15 AM | 7.85 | 5/3/2016 7:15 AM | 7.80 |
| 5/1/2016 7:30 AM | 7.83 | 5/2/2016 7:30 AM | 7.87 | 5/3/2016 7:30 AM | 7.80 |
| 5/1/2016 7:45 AM | 7.83 | 5/2/2016 7:45 AM | 7.88 | 5/3/2016 7:45 AM | 7.80 |
| 5/1/2016 8:00 AM | 7.82 | 5/2/2016 8:00 AM | 7.87 | 5/3/2016 8:00 AM | 7.80 |
| 5/1/2016 8:15 AM | 7.82 | 5/2/2016 8:15 AM | 7.87 | 5/3/2016 8:15 AM | 7.80 |
| 5/1/2016 8:30 AM | 7.82 | 5/2/2016 8:30 AM | 7.87 | 5/3/2016 8:30 AM | 7.80 |
| 5/1/2016 8:45 AM | 7.82 | 5/2/2016 8:45 AM | 7.86 | 5/3/2016 8:45 AM | 7.80 |
| 5/1/2016 9:00 AM | 7.82 | 5/2/2016 9:00 AM | 7.86 | 5/3/2016 9:00 AM | 7.80 |
| 5/1/2016 9:15 AM | 7.82 | 5/2/2016 9:15 AM | 7.85 | 5/3/2016 9:15 AM | 7.79 |
| 5/1/2016 9:30 AM | 7.82 | 5/2/2016 9:30 AM | 7.85 | 5/3/2016 9:30 AM | 7.79 |
| 5/1/2016 9:45 AM | 7.82 | 5/2/2016 9:45 AM | 7.85 | 5/3/2016 9:45 AM | 7.80 |
| 5/1/2016 10:00 AM | 7.82 | 5/2/2016 10:00 AM | 7.85 | 5/3/2016 10:00 AM | 7.80 |
| 5/1/2016 10:15 AM | 7.83 | 5/2/2016 10:15 AM | 7.77 | 5/3/2016 10:15 AM | 7.79 |
| 5/1/2016 10:30 AM | 7.83 | 5/2/2016 10:30 AM | 7.77 | 5/3/2016 10:30 AM | 7.79 |
| 5/1/2016 10:45 AM | 7.83 | 5/2/2016 10:45 AM | 7.75 | 5/3/2016 10:45 AM | 7.79 |
| 5/1/2016 11:00 AM | 7.83 | 5/2/2016 11:00 AM | 7.74 | 5/3/2016 11:00 AM | 7.78 |

| | | | | | |
|---|---|---|---|---|---|
| 5/1/2016 11:15 AM | 7.82 | 5/2/2016 11:15 AM | 7.75 | 5/3/2016 11:15 AM | 7.79 |
| 5/1/2016 11:30 AM | 7.81 | 5/2/2016 11:30 AM | 7.74 | 5/3/2016 11:30 AM | 7.77 |
| 5/1/2016 11:45 AM | 7.81 | 5/2/2016 11:45 AM | 7.73 | 5/3/2016 11:45 AM | 7.76 |
| 5/1/2016 12:00 PM | 7.81 | 5/2/2016 12:00 PM | 7.86 | 5/3/2016 12:00 PM | 7.74 |
| 5/1/2016 12:15 PM | 7.81 | 5/2/2016 12:15 PM | 7.85 | 5/3/2016 12:15 PM | 7.75 |
| 5/1/2016 12:30 PM | 7.81 | 5/2/2016 12:30 PM | 7.84 | 5/3/2016 12:30 PM | 7.73 |
| 5/1/2016 12:45 PM | 7.81 | 5/2/2016 12:45 PM | 7.84 | 5/3/2016 12:45 PM | 7.72 |
| 5/1/2016 1:00 PM | 7.80 | 5/2/2016 1:00 PM | 7.84 | 5/3/2016 1:00 PM | 7.71 |
| 5/1/2016 1:15 PM | 7.80 | 5/2/2016 1:15 PM | 7.84 | 5/3/2016 1:15 PM | 7.72 |
| 5/1/2016 1:30 PM | 7.79 | 5/2/2016 1:30 PM | 7.84 | 5/3/2016 1:30 PM | 7.74 |
| 5/1/2016 1:45 PM | 7.79 | 5/2/2016 1:45 PM | 7.84 | 5/3/2016 1:45 PM | 7.74 |
| 5/1/2016 2:00 PM | 7.78 | 5/2/2016 2:00 PM | 7.84 | 5/3/2016 2:00 PM | 7.72 |
| 5/1/2016 2:15 PM | 7.78 | 5/2/2016 2:15 PM | 7.84 | 5/3/2016 2:15 PM | 7.71 |
| 5/1/2016 2:30 PM | 7.79 | 5/2/2016 2:30 PM | 7.84 | 5/3/2016 2:30 PM | 7.74 |
| 5/1/2016 2:45 PM | 7.79 | 5/2/2016 2:45 PM | 7.84 | 5/3/2016 2:45 PM | 7.78 |
| 5/1/2016 3:00 PM | 7.81 | 5/2/2016 3:00 PM | 7.83 | 5/3/2016 3:00 PM | 7.79 |
| 5/1/2016 3:15 PM | 7.81 | 5/2/2016 3:15 PM | 7.83 | 5/3/2016 3:15 PM | 7.80 |
| 5/1/2016 3:30 PM | 7.81 | 5/2/2016 3:30 PM | 7.83 | 5/3/2016 3:30 PM | 7.82 |
| 5/1/2016 3:45 PM | 7.80 | 5/2/2016 3:45 PM | 7.83 | 5/3/2016 3:45 PM | 7.82 |
| 5/1/2016 4:00 PM | 7.79 | 5/2/2016 4:00 PM | 7.83 | 5/3/2016 4:00 PM | 7.82 |
| 5/1/2016 4:15 PM | 7.80 | 5/2/2016 4:15 PM | 7.83 | 5/3/2016 4:15 PM | 7.81 |
| 5/1/2016 4:30 PM | 7.80 | 5/2/2016 4:30 PM | 7.83 | 5/3/2016 4:30 PM | 7.81 |
| 5/1/2016 4:45 PM | 7.80 | 5/2/2016 4:45 PM | 7.82 | 5/3/2016 4:45 PM | 7.81 |
| 5/1/2016 5:00 PM | 7.79 | 5/2/2016 5:00 PM | 7.82 | 5/3/2016 5:00 PM | 7.81 |
| 5/1/2016 5:15 PM | 7.79 | 5/2/2016 5:15 PM | 7.82 | 5/3/2016 5:15 PM | 7.82 |
| 5/1/2016 5:30 PM | 7.79 | 5/2/2016 5:30 PM | 7.82 | 5/3/2016 5:30 PM | 7.82 |
| 5/1/2016 5:45 PM | 7.78 | 5/2/2016 5:45 PM | 7.82 | 5/3/2016 5:45 PM | 7.83 |
| 5/1/2016 6:00 PM | 7.78 | 5/2/2016 6:00 PM | 7.81 | 5/3/2016 6:00 PM | 7.83 |
| 5/1/2016 6:15 PM | 7.79 | 5/2/2016 6:15 PM | 7.81 | 5/3/2016 6:15 PM | 7.84 |
| 5/1/2016 6:30 PM | 7.78 | 5/2/2016 6:30 PM | 7.81 | 5/3/2016 6:30 PM | 7.84 |
| 5/1/2016 6:45 PM | 7.78 | 5/2/2016 6:45 PM | 7.81 | 5/3/2016 6:45 PM | 7.84 |
| 5/1/2016 7:00 PM | 7.78 | 5/2/2016 7:00 PM | 7.81 | 5/3/2016 7:00 PM | 7.84 |
| 5/1/2016 7:15 PM | 7.78 | 5/2/2016 7:15 PM | 7.72 | 5/3/2016 7:15 PM | 7.84 |
| 5/1/2016 7:30 PM | 7.78 | 5/2/2016 7:30 PM | 7.72 | 5/3/2016 7:30 PM | 7.85 |
| 5/1/2016 7:45 PM | 7.78 | 5/2/2016 7:45 PM | 7.71 | 5/3/2016 7:45 PM | 7.86 |
| 5/1/2016 8:00 PM | 7.77 | 5/2/2016 8:00 PM | 7.70 | 5/3/2016 8:00 PM | 7.86 |
| 5/1/2016 8:15 PM | 7.77 | 5/2/2016 8:15 PM | 7.68 | 5/3/2016 8:15 PM | 7.86 |
| 5/1/2016 8:30 PM | 7.77 | 5/2/2016 8:30 PM | 7.71 | 5/3/2016 8:30 PM | 7.86 |
| 5/1/2016 8:45 PM | 7.77 | 5/2/2016 8:45 PM | 7.70 | 5/3/2016 8:45 PM | 7.86 |
| 5/1/2016 9:00 PM | 7.77 | 5/2/2016 9:00 PM | 7.72 | 5/3/2016 9:00 PM | 7.86 |
| 5/1/2016 9:15 PM | 7.77 | 5/2/2016 9:15 PM | 7.75 | 5/3/2016 9:15 PM | 7.86 |
| 5/1/2016 9:30 PM | 7.76 | 5/2/2016 9:30 PM | 7.75 | 5/3/2016 9:30 PM | 7.86 |
| 5/1/2016 9:45 PM | 7.76 | 5/2/2016 9:45 PM | 7.70 | 5/3/2016 9:45 PM | 7.86 |
| 5/1/2016 10:00 PM | 7.76 | 5/2/2016 10:00 PM | 7.69 | 5/3/2016 10:00 PM | 7.86 |
| 5/1/2016 10:15 PM | 7.76 | 5/2/2016 10:15 PM | 7.70 | 5/3/2016 10:15 PM | 7.86 |
| 5/1/2016 10:30 PM | 7.76 | 5/2/2016 10:30 PM | 7.79 | 5/3/2016 10:30 PM | 7.87 |
| 5/1/2016 10:45 PM | 7.75 | 5/2/2016 10:45 PM | 7.82 | 5/3/2016 10:45 PM | 7.86 |
| 5/1/2016 11:00 PM | 7.76 | 5/2/2016 11:00 PM | 7.82 | 5/3/2016 11:00 PM | 7.86 |
| 5/1/2016 11:15 PM | 7.76 | 5/2/2016 11:15 PM | 7.84 | 5/3/2016 11:15 PM | 7.85 |
| 5/1/2016 11:30 PM | 7.76 | 5/2/2016 11:30 PM | 7.83 | 5/3/2016 11:30 PM | 7.85 |
| 5/1/2016 11:45 PM | 7.76 | 5/2/2016 11:45 PM | 7.84 | 5/3/2016 11:45 PM | 7.85 |
| AVG | 7.80 | AVG | 7.81 | AVG | 7.82 |

Note: No pH data for 12:15AM due to communications loss, not included in calculations.

Note: The time on the 2 HMI stations was out of sync which resulted in recorded pH time stamp being off by 12hrs from 7:00PM 5/2/16 through 7:00AM 5/3/16. Date/time stamps have been corrected for this DMR.

Note: No pH data for 5:15AM due to communications loss, not included in calculations.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 5/4/2016 12:00 AM | 7.85 | 5/5/2016 12:00 AM | 7.86 | 5/6/2016 12:00 AM | 7.83 |
| 5/4/2016 12:15 AM | 7.85 | 5/5/2016 12:15 AM | 7.86 | 5/6/2016 12:15 AM | 7.83 |
| 5/4/2016 12:30 AM | 7.85 | 5/5/2016 12:30 AM | 7.85 | 5/6/2016 12:30 AM | 7.83 |
| 5/4/2016 12:45 AM | 7.86 | 5/5/2016 12:45 AM | 7.85 | 5/6/2016 12:45 AM | 7.82 |
| 5/4/2016 1:00 AM | 7.86 | 5/5/2016 1:00 AM | 7.85 | 5/6/2016 1:00 AM | 7.82 |
| 5/4/2016 1:15 AM | 7.86 | 5/5/2016 1:15 AM | 7.85 | 5/6/2016 1:15 AM | 7.82 |
| 5/4/2016 1:30 AM | 7.85 | 5/5/2016 1:30 AM | 7.85 | 5/6/2016 1:30 AM | 7.82 |
| 5/4/2016 1:45 AM | 7.85 | 5/5/2016 1:45 AM | 7.84 | 5/6/2016 1:45 AM | 7.82 |
| 5/4/2016 2:00 AM | 7.85 | 5/5/2016 2:00 AM | 7.84 | 5/6/2016 2:00 AM | 7.82 |
| 5/4/2016 2:15 AM | 7.85 | 5/5/2016 2:15 AM | 7.84 | 5/6/2016 2:15 AM | 7.83 |
| 5/4/2016 2:30 AM | 7.85 | 5/5/2016 2:30 AM | 7.84 | 5/6/2016 2:30 AM | 7.83 |
| 5/4/2016 2:45 AM | 7.84 | 5/5/2016 2:45 AM | 7.84 | 5/6/2016 2:45 AM | 7.84 |
| 5/4/2016 3:00 AM | 7.83 | 5/5/2016 3:00 AM | 7.84 | 5/6/2016 3:00 AM | 7.83 |
| 5/4/2016 3:15 AM | 7.83 | 5/5/2016 3:15 AM | 7.84 | 5/6/2016 3:15 AM | 7.83 |
| 5/4/2016 3:30 AM | 7.83 | 5/5/2016 3:30 AM | 0.00 | 5/6/2016 3:30 AM | 7.83 |
| 5/4/2016 3:45 AM | 7.83 | 5/5/2016 3:45 AM | 0.00 | 5/6/2016 3:45 AM | 7.83 |
| 5/4/2016 4:00 AM | 7.83 | 5/5/2016 4:00 AM | 0.00 | 5/6/2016 4:00 AM | 7.83 |
| 5/4/2016 4:15 AM | 7.83 | 5/5/2016 4:15 AM | 0.00 | 5/6/2016 4:15 AM | 7.83 |
| 5/4/2016 4:30 AM | 7.82 | 5/5/2016 4:30 AM | 0.00 | 5/6/2016 4:30 AM | 7.84 |
| 5/4/2016 4:45 AM | 7.82 | 5/5/2016 4:45 AM | 0.00 | 5/6/2016 4:45 AM | 7.83 |
| 5/4/2016 5:00 AM | 7.82 | 5/5/2016 5:00 AM | 0.00 | 5/6/2016 5:00 AM | 7.83 |
| 5/4/2016 5:15 AM | 7.83 | 5/5/2016 5:15 AM | 0.00 | 5/6/2016 5:15 AM | 7.82 |
| 5/4/2016 5:30 AM | 7.83 | 5/5/2016 5:30 AM | 0.00 | 5/6/2016 5:30 AM | 7.82 |
| 5/4/2016 5:45 AM | 7.83 | 5/5/2016 5:45 AM | 0.00 | 5/6/2016 5:45 AM | 7.82 |
| 5/4/2016 6:00 AM | 7.82 | 5/5/2016 6:00 AM | 0.00 | 5/6/2016 6:00 AM | 7.82 |
| 5/4/2016 6:15 AM | 7.81 | 5/5/2016 6:15 AM | 0.00 | 5/6/2016 6:15 AM | 7.82 |
| 5/4/2016 6:30 AM | 7.81 | 5/5/2016 6:30 AM | 0.00 | 5/6/2016 6:30 AM | 7.82 |
| 5/4/2016 6:45 AM | 7.82 | 5/5/2016 6:45 AM | 0.00 | 5/6/2016 6:45 AM | 7.82 |
| 5/4/2016 7:00 AM | 7.82 | 5/5/2016 7:00 AM | 7.79 | 5/6/2016 7:00 AM | 7.83 |
| 5/4/2016 7:15 AM | 7.81 | 5/5/2016 7:15 AM | 7.82 | 5/6/2016 7:15 AM | 7.83 |
| 5/4/2016 7:30 AM | 7.82 | 5/5/2016 7:30 AM | 7.83 | 5/6/2016 7:30 AM | 7.84 |
| 5/4/2016 7:45 AM | 7.82 | 5/5/2016 7:45 AM | 7.86 | 5/6/2016 7:45 AM | 7.84 |
| 5/4/2016 8:00 AM | 7.82 | 5/5/2016 8:00 AM | 7.84 | 5/6/2016 8:00 AM | 7.84 |
| 5/4/2016 8:15 AM | 7.81 | 5/5/2016 8:15 AM | 7.85 | 5/6/2016 8:15 AM | 7.84 |
| 5/4/2016 8:30 AM | 7.81 | 5/5/2016 8:30 AM | 7.85 | 5/6/2016 8:30 AM | 7.83 |
| 5/4/2016 8:45 AM | 7.80 | 5/5/2016 8:45 AM | 7.85 | 5/6/2016 8:45 AM | 7.83 |
| 5/4/2016 9:00 AM | 7.80 | 5/5/2016 9:00 AM | 7.83 | 5/6/2016 9:00 AM | 7.83 |
| 5/4/2016 9:15 AM | 7.79 | 5/5/2016 9:15 AM | 7.82 | 5/6/2016 9:15 AM | 7.83 |
| 5/4/2016 9:30 AM | 7.77 | 5/5/2016 9:30 AM | 7.82 | 5/6/2016 9:30 AM | 7.83 |
| 5/4/2016 9:45 AM | 7.77 | 5/5/2016 9:45 AM | 7.81 | 5/6/2016 9:45 AM | 7.82 |
| 5/4/2016 10:00 AM | 7.76 | 5/5/2016 10:00 AM | 7.81 | 5/6/2016 10:00 AM | 7.81 |
| 5/4/2016 10:15 AM | 7.77 | 5/5/2016 10:15 AM | 7.80 | 5/6/2016 10:15 AM | 7.82 |
| 5/4/2016 10:30 AM | 7.76 | 5/5/2016 10:30 AM | 7.80 | 5/6/2016 10:30 AM | 7.82 |
| 5/4/2016 10:45 AM | 7.78 | 5/5/2016 10:45 AM | 7.80 | 5/6/2016 10:45 AM | 7.82 |
| 5/4/2016 11:00 AM | 7.82 | 5/5/2016 11:00 AM | 7.80 | 5/6/2016 11:00 AM | 7.83 |
| 5/4/2016 11:15 AM | 7.81 | 5/5/2016 11:15 AM | 7.80 | 5/6/2016 11:15 AM | 7.83 |
| 5/4/2016 11:30 AM | 7.80 | 5/5/2016 11:30 AM | 7.80 | 5/6/2016 11:30 AM | 7.82 |
| 5/4/2016 11:45 AM | 7.80 | 5/5/2016 11:45 AM | 7.80 | 5/6/2016 11:45 AM | 7.82 |
| 5/4/2016 12:00 PM | 7.77 | 5/5/2016 12:00 PM | 7.80 | 5/6/2016 12:00 PM | 7.82 |
| 5/4/2016 12:15 PM | 7.78 | 5/5/2016 12:15 PM | 7.80 | 5/6/2016 12:15 PM | 7.82 |
| 5/4/2016 12:30 PM | 7.78 | 5/5/2016 12:30 PM | 7.80 | 5/6/2016 12:30 PM | 7.81 |
| 5/4/2016 12:45 PM | 7.78 | 5/5/2016 12:45 PM | 7.80 | 5/6/2016 12:45 PM | 7.81 |
| 5/4/2016 1:00 PM | 7.78 | 5/5/2016 1:00 PM | 7.80 | 5/6/2016 1:00 PM | 7.81 |
| 5/4/2016 1:15 PM | 7.79 | 5/5/2016 1:15 PM | 7.80 | 5/6/2016 1:15 PM | 7.81 |
| 5/4/2016 1:30 PM | 7.79 | 5/5/2016 1:30 PM | 7.80 | 5/6/2016 1:30 PM | 7.83 |
| 5/4/2016 1:45 PM | 7.79 | 5/5/2016 1:45 PM | 7.80 | 5/6/2016 1:45 PM | 7.82 |
| 5/4/2016 2:00 PM | 7.79 | 5/5/2016 2:00 PM | 7.80 | 5/6/2016 2:00 PM | 7.81 |

| | | | | | |
|---|---|---|---|---|---|
| 5/4/2016 2:15 PM | 7.80 | 5/5/2016 2:15 PM | 7.82 | 5/6/2016 2:15 PM | 7.81 |
| 5/4/2016 2:30 PM | 7.79 | 5/5/2016 2:30 PM | 7.83 | 5/6/2016 2:30 PM | 7.81 |
| 5/4/2016 2:45 PM | 7.80 | 5/5/2016 2:45 PM | 7.82 | 5/6/2016 2:45 PM | 7.81 |
| 5/4/2016 3:00 PM | 7.81 | 5/5/2016 3:00 PM | 7.82 | 5/6/2016 3:00 PM | 7.79 |
| 5/4/2016 3:15 PM | 7.81 | 5/5/2016 3:15 PM | 7.82 | 5/6/2016 3:15 PM | 7.81 |
| 5/4/2016 3:30 PM | 7.81 | 5/5/2016 3:30 PM | 7.81 | 5/6/2016 3:30 PM | 7.81 |
| 5/4/2016 3:45 PM | 7.82 | 5/5/2016 3:45 PM | 7.82 | 5/6/2016 3:45 PM | 7.81 |
| 5/4/2016 4:00 PM | 7.81 | 5/5/2016 4:00 PM | 7.83 | 5/6/2016 4:00 PM | 7.81 |
| 5/4/2016 4:15 PM | 7.82 | 5/5/2016 4:15 PM | 7.83 | 5/6/2016 4:15 PM | 7.82 |
| 5/4/2016 4:30 PM | 7.82 | 5/5/2016 4:30 PM | 7.82 | 5/6/2016 4:30 PM | 7.80 |
| 5/4/2016 4:45 PM | 7.82 | 5/5/2016 4:45 PM | 7.82 | 5/6/2016 4:45 PM | 7.80 |
| 5/4/2016 5:00 PM | 7.82 | 5/5/2016 5:00 PM | 7.82 | 5/6/2016 5:00 PM | 7.80 |
| 5/4/2016 5:15 PM | 7.83 | 5/5/2016 5:15 PM | 7.81 | 5/6/2016 5:15 PM | 7.80 |
| 5/4/2016 5:30 PM | 7.84 | 5/5/2016 5:30 PM | 7.81 | 5/6/2016 5:30 PM | 7.80 |
| 5/4/2016 5:45 PM | 7.83 | 5/5/2016 5:45 PM | 7.81 | 5/6/2016 5:45 PM | 7.80 |
| 5/4/2016 6:00 PM | 7.83 | 5/5/2016 6:00 PM | 7.80 | 5/6/2016 6:00 PM | 7.80 |
| 5/4/2016 6:15 PM | 7.84 | 5/5/2016 6:15 PM | 7.78 | 5/6/2016 6:15 PM | 7.80 |
| 5/4/2016 6:30 PM | 7.84 | 5/5/2016 6:30 PM | 7.79 | 5/6/2016 6:30 PM | 7.80 |
| 5/4/2016 6:45 PM | 7.84 | 5/5/2016 6:45 PM | 7.79 | 5/6/2016 6:45 PM | 7.80 |
| 5/4/2016 7:00 PM | 7.84 | 5/5/2016 7:00 PM | 7.80 | 5/6/2016 7:00 PM | 7.79 |
| 5/4/2016 7:15 PM | 7.85 | 5/5/2016 7:15 PM | 7.80 | 5/6/2016 7:15 PM | 7.80 |
| 5/4/2016 7:30 PM | 7.84 | 5/5/2016 7:30 PM | 7.80 | 5/6/2016 7:30 PM | 7.79 |
| 5/4/2016 7:45 PM | 7.86 | 5/5/2016 7:45 PM | 7.84 | 5/6/2016 7:45 PM | 7.79 |
| 5/4/2016 8:00 PM | 7.86 | 5/5/2016 8:00 PM | 7.83 | 5/6/2016 8:00 PM | 7.78 |
| 5/4/2016 8:15 PM | 7.86 | 5/5/2016 8:15 PM | 7.82 | 5/6/2016 8:15 PM | 7.79 |
| 5/4/2016 8:30 PM | 7.86 | 5/5/2016 8:30 PM | 7.82 | 5/6/2016 8:30 PM | 7.79 |
| 5/4/2016 8:45 PM | 7.85 | 5/5/2016 8:45 PM | 7.82 | 5/6/2016 8:45 PM | 7.80 |
| 5/4/2016 9:00 PM | 7.86 | 5/5/2016 9:00 PM | 7.82 | 5/6/2016 9:00 PM | 7.80 |
| 5/4/2016 9:15 PM | 7.86 | 5/5/2016 9:15 PM | 7.82 | 5/6/2016 9:15 PM | 7.80 |
| 5/4/2016 9:30 PM | 7.85 | 5/5/2016 9:30 PM | 7.82 | 5/6/2016 9:30 PM | 7.80 |
| 5/4/2016 9:45 PM | 7.85 | 5/5/2016 9:45 PM | 7.82 | 5/6/2016 9:45 PM | 7.80 |
| 5/4/2016 10:00 PM | 7.85 | 5/5/2016 10:00 PM | 7.82 | 5/6/2016 10:00 PM | 7.80 |
| 5/4/2016 10:15 PM | 7.85 | 5/5/2016 10:15 PM | 7.83 | 5/6/2016 10:15 PM | 7.80 |
| 5/4/2016 10:30 PM | 7.85 | 5/5/2016 10:30 PM | 7.83 | 5/6/2016 10:30 PM | 7.80 |
| 5/4/2016 10:45 PM | 7.84 | 5/5/2016 10:45 PM | 7.83 | 5/6/2016 10:45 PM | 7.80 |
| 5/4/2016 11:00 PM | 7.84 | 5/5/2016 11:00 PM | 7.83 | 5/6/2016 11:00 PM | 7.79 |
| 5/4/2016 11:15 PM | 7.84 | 5/5/2016 11:15 PM | 7.83 | 5/6/2016 11:15 PM | 7.79 |
| 5/4/2016 11:30 PM | 7.85 | 5/5/2016 11:30 PM | 7.83 | 5/6/2016 11:30 PM | 7.79 |
| 5/4/2016 11:45 PM | 7.86 | 5/5/2016 11:45 PM | 7.83 | 5/6/2016 11:45 PM | 7.78 |
| AVG | 7.82 | AVG | 7.82 | AVG | 7.81 |

Note: No pH data for 12:00AM through 7:00 AM due to communications loss, not included in calculations.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 5/7/2016 12:00 AM | 7.78 | 5/8/2016 12:00 AM | 7.82 | 5/9/2016 12:00 AM | 7.87 |
| 5/7/2016 12:15 AM | 7.78 | 5/8/2016 12:15 AM | 7.83 | 5/9/2016 12:15 AM | 7.87 |
| 5/7/2016 12:30 AM | 7.78 | 5/8/2016 12:30 AM | 7.82 | 5/9/2016 12:30 AM | 7.86 |
| 5/7/2016 12:45 AM | 7.80 | 5/8/2016 12:45 AM | 7.82 | 5/9/2016 12:45 AM | 7.86 |
| 5/7/2016 1:00 AM | 7.80 | 5/8/2016 1:00 AM | 7.82 | 5/9/2016 1:00 AM | 7.85 |
| 5/7/2016 1:15 AM | 7.80 | 5/8/2016 1:15 AM | 7.82 | 5/9/2016 1:15 AM | 7.85 |
| 5/7/2016 1:30 AM | 7.79 | 5/8/2016 1:30 AM | 7.84 | 5/9/2016 1:30 AM | 7.85 |
| 5/7/2016 1:45 AM | 7.80 | 5/8/2016 1:45 AM | 7.84 | 5/9/2016 1:45 AM | 7.85 |
| 5/7/2016 2:00 AM | 7.79 | 5/8/2016 2:00 AM | 7.84 | 5/9/2016 2:00 AM | 7.85 |
| 5/7/2016 2:15 AM | 7.79 | 5/8/2016 2:15 AM | 7.83 | 5/9/2016 2:15 AM | 7.85 |
| 5/7/2016 2:30 AM | 7.79 | 5/8/2016 2:30 AM | 7.83 | 5/9/2016 2:30 AM | 7.85 |
| 5/7/2016 2:45 AM | 7.79 | 5/8/2016 2:45 AM | 7.83 | 5/9/2016 2:45 AM | 7.86 |
| 5/7/2016 3:00 AM | 7.80 | 5/8/2016 3:00 AM | 7.84 | 5/9/2016 3:00 AM | 7.86 |
| 5/7/2016 3:15 AM | 7.79 | 5/8/2016 3:15 AM | 7.83 | 5/9/2016 3:15 AM | 7.87 |
| 5/7/2016 3:30 AM | 7.79 | 5/8/2016 3:30 AM | 7.83 | 5/9/2016 3:30 AM | 7.87 |
| 5/7/2016 3:45 AM | 7.78 | 5/8/2016 3:45 AM | 7.84 | 5/9/2016 3:45 AM | 7.87 |
| 5/7/2016 4:00 AM | 7.78 | 5/8/2016 4:00 AM | 7.84 | 5/9/2016 4:00 AM | 7.87 |
| 5/7/2016 4:15 AM | 7.78 | 5/8/2016 4:15 AM | 7.84 | 5/9/2016 4:15 AM | 7.87 |
| 5/7/2016 4:30 AM | 7.78 | 5/8/2016 4:30 AM | 7.84 | 5/9/2016 4:30 AM | 7.87 |
| 5/7/2016 4:45 AM | 7.78 | 5/8/2016 4:45 AM | 7.83 | 5/9/2016 4:45 AM | 7.87 |
| 5/7/2016 5:00 AM | 7.78 | 5/8/2016 5:00 AM | 7.83 | 5/9/2016 5:00 AM | 7.86 |
| 5/7/2016 5:15 AM | 7.78 | 5/8/2016 5:15 AM | 7.83 | 5/9/2016 5:15 AM | 7.86 |
| 5/7/2016 5:30 AM | 7.78 | 5/8/2016 5:30 AM | 7.83 | 5/9/2016 5:30 AM | 7.85 |
| 5/7/2016 5:45 AM | 7.78 | 5/8/2016 5:45 AM | 7.83 | 5/9/2016 5:45 AM | 7.85 |
| 5/7/2016 6:00 AM | 7.79 | 5/8/2016 6:00 AM | 7.85 | 5/9/2016 6:00 AM | 7.85 |
| 5/7/2016 6:15 AM | 7.79 | 5/8/2016 6:15 AM | 7.85 | 5/9/2016 6:15 AM | 7.85 |
| 5/7/2016 6:30 AM | 7.79 | 5/8/2016 6:30 AM | 7.85 | 5/9/2016 6:30 AM | 7.85 |
| 5/7/2016 6:45 AM | 7.79 | 5/8/2016 6:45 AM | 7.84 | 5/9/2016 6:45 AM | 7.85 |
| 5/7/2016 7:00 AM | 7.79 | 5/8/2016 7:00 AM | 7.84 | 5/9/2016 7:00 AM | 7.84 |
| 5/7/2016 7:15 AM | 7.79 | 5/8/2016 7:15 AM | 7.84 | 5/9/2016 7:15 AM | 7.85 |
| 5/7/2016 7:30 AM | 7.80 | 5/8/2016 7:30 AM | 7.83 | 5/9/2016 7:30 AM | 7.86 |
| 5/7/2016 7:45 AM | 7.80 | 5/8/2016 7:45 AM | 7.84 | 5/9/2016 7:45 AM | 7.86 |
| 5/7/2016 8:00 AM | 7.80 | 5/8/2016 8:00 AM | 7.83 | 5/9/2016 8:00 AM | 7.86 |
| 5/7/2016 8:15 AM | 7.80 | 5/8/2016 8:15 AM | 7.83 | 5/9/2016 8:15 AM | 7.85 |
| 5/7/2016 8:30 AM | 7.80 | 5/8/2016 8:30 AM | 7.82 | 5/9/2016 8:30 AM | 7.85 |
| 5/7/2016 8:45 AM | 7.79 | 5/8/2016 8:45 AM | 7.81 | 5/9/2016 8:45 AM | 7.85 |
| 5/7/2016 9:00 AM | 7.78 | 5/8/2016 9:00 AM | 7.80 | 5/9/2016 9:00 AM | 7.86 |
| 5/7/2016 9:15 AM | 7.78 | 5/8/2016 9:15 AM | 7.81 | 5/9/2016 9:15 AM | 7.85 |
| 5/7/2016 9:30 AM | 7.79 | 5/8/2016 9:30 AM | 7.81 | 5/9/2016 9:30 AM | 7.84 |
| 5/7/2016 9:45 AM | 7.78 | 5/8/2016 9:45 AM | 7.80 | 5/9/2016 9:45 AM | 7.84 |
| 5/7/2016 10:00 AM | 7.78 | 5/8/2016 10:00 AM | 7.80 | 5/9/2016 10:00 AM | 7.84 |
| 5/7/2016 10:15 AM | 7.78 | 5/8/2016 10:15 AM | 7.80 | 5/9/2016 10:15 AM | 7.84 |
| 5/7/2016 10:30 AM | 7.78 | 5/8/2016 10:30 AM | 7.83 | 5/9/2016 10:30 AM | 7.83 |
| 5/7/2016 10:45 AM | 7.79 | 5/8/2016 10:45 AM | 7.80 | 5/9/2016 10:45 AM | 7.84 |
| 5/7/2016 11:00 AM | 7.78 | 5/8/2016 11:00 AM | 7.79 | 5/9/2016 11:00 AM | 7.84 |
| 5/7/2016 11:15 AM | 7.78 | 5/8/2016 11:15 AM | 7.79 | 5/9/2016 11:15 AM | 7.84 |
| 5/7/2016 11:30 AM | 7.76 | 5/8/2016 11:30 AM | 7.79 | 5/9/2016 11:30 AM | 7.84 |
| 5/7/2016 11:45 AM | 7.78 | 5/8/2016 11:45 AM | 7.79 | 5/9/2016 11:45 AM | 7.84 |
| 5/7/2016 12:00 PM | 7.80 | 5/8/2016 12:00 PM | 7.79 | 5/9/2016 12:00 PM | 7.84 |
| 5/7/2016 12:15 PM | 7.79 | 5/8/2016 12:15 PM | 7.78 | 5/9/2016 12:15 PM | 7.84 |
| 5/7/2016 12:30 PM | 7.78 | 5/8/2016 12:30 PM | 7.80 | 5/9/2016 12:30 PM | 7.84 |
| 5/7/2016 12:45 PM | 7.78 | 5/8/2016 12:45 PM | 7.80 | 5/9/2016 12:45 PM | 7.86 |
| 5/7/2016 1:00 PM | 7.77 | 5/8/2016 1:00 PM | 7.80 | 5/9/2016 1:00 PM | 7.85 |
| 5/7/2016 1:15 PM | 7.77 | 5/8/2016 1:15 PM | 7.80 | 5/9/2016 1:15 PM | 7.84 |
| 5/7/2016 1:30 PM | 7.76 | 5/8/2016 1:30 PM | 7.80 | 5/9/2016 1:30 PM | 7.84 |
| 5/7/2016 1:45 PM | 7.75 | 5/8/2016 1:45 PM | 7.80 | 5/9/2016 1:45 PM | 7.82 |
| 5/7/2016 2:00 PM | 7.75 | 5/8/2016 2:00 PM | 7.78 | 5/9/2016 2:00 PM | 7.82 |

| | | | | | |
|---|---|---|---|---|---|
| 5/7/2016 2:15 PM | 7.74 | 5/8/2016 2:15 PM | 7.80 | 5/9/2016 2:15 PM | 7.82 |
| 5/7/2016 2:30 PM | 7.73 | 5/8/2016 2:30 PM | 7.80 | 5/9/2016 2:30 PM | 7.81 |
| 5/7/2016 2:45 PM | 7.73 | 5/8/2016 2:45 PM | 7.80 | 5/9/2016 2:45 PM | 7.81 |
| 5/7/2016 3:00 PM | 7.76 | 5/8/2016 3:00 PM | 7.84 | 5/9/2016 3:00 PM | 7.79 |
| 5/7/2016 3:15 PM | 7.77 | 5/8/2016 3:15 PM | 7.83 | 5/9/2016 3:15 PM | 7.80 |
| 5/7/2016 3:30 PM | 7.78 | 5/8/2016 3:30 PM | 7.83 | 5/9/2016 3:30 PM | 7.81 |
| 5/7/2016 3:45 PM | 7.78 | 5/8/2016 3:45 PM | 7.82 | 5/9/2016 3:45 PM | 7.81 |
| 5/7/2016 4:00 PM | 7.80 | 5/8/2016 4:00 PM | 7.82 | 5/9/2016 4:00 PM | 7.81 |
| 5/7/2016 4:15 PM | 7.80 | 5/8/2016 4:15 PM | 7.81 | 5/9/2016 4:15 PM | 7.81 |
| 5/7/2016 4:30 PM | 7.79 | 5/8/2016 4:30 PM | 7.82 | 5/9/2016 4:30 PM | 7.81 |
| 5/7/2016 4:45 PM | 7.79 | 5/8/2016 4:45 PM | 7.82 | 5/9/2016 4:45 PM | 7.81 |
| 5/7/2016 5:00 PM | 7.79 | 5/8/2016 5:00 PM | 7.82 | 5/9/2016 5:00 PM | 7.81 |
| 5/7/2016 5:15 PM | 7.79 | 5/8/2016 5:15 PM | 7.82 | 5/9/2016 5:15 PM | 7.81 |
| 5/7/2016 5:30 PM | 7.79 | 5/8/2016 5:30 PM | 7.82 | 5/9/2016 5:30 PM | 7.81 |
| 5/7/2016 5:45 PM | 7.79 | 5/8/2016 5:45 PM | 7.82 | 5/9/2016 5:45 PM | 7.81 |
| 5/7/2016 6:00 PM | 7.79 | 5/8/2016 6:00 PM | 7.82 | 5/9/2016 6:00 PM | 7.81 |
| 5/7/2016 6:15 PM | 7.80 | 5/8/2016 6:15 PM | 7.82 | 5/9/2016 6:15 PM | 7.80 |
| 5/7/2016 6:30 PM | 7.80 | 5/8/2016 6:30 PM | 7.82 | 5/9/2016 6:30 PM | 7.80 |
| 5/7/2016 6:45 PM | 7.80 | 5/8/2016 6:45 PM | 7.83 | 5/9/2016 6:45 PM | 7.80 |
| 5/7/2016 7:00 PM | 7.80 | 5/8/2016 7:00 PM | 7.83 | 5/9/2016 7:00 PM | 7.80 |
| 5/7/2016 7:15 PM | 7.79 | 5/8/2016 7:15 PM | 7.83 | 5/9/2016 7:15 PM | 7.83 |
| 5/7/2016 7:30 PM | 7.80 | 5/8/2016 7:30 PM | 7.85 | 5/9/2016 7:30 PM | 7.82 |
| 5/7/2016 7:45 PM | 7.80 | 5/8/2016 7:45 PM | 7.85 | 5/9/2016 7:45 PM | 7.81 |
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| 5/7/2016 9:00 PM | 7.79 | 5/8/2016 9:00 PM | 7.85 | 5/9/2016 9:00 PM | 7.81 |
| 5/7/2016 9:15 PM | 7.79 | 5/8/2016 9:15 PM | 7.85 | 5/9/2016 9:15 PM | 7.81 |
| 5/7/2016 9:30 PM | 7.79 | 5/8/2016 9:30 PM | 7.85 | 5/9/2016 9:30 PM | 7.81 |
| 5/7/2016 9:45 PM | 7.78 | 5/8/2016 9:45 PM | 7.85 | 5/9/2016 9:45 PM | 7.80 |
| 5/7/2016 10:00 PM | 7.78 | 5/8/2016 10:00 PM | 7.85 | 5/9/2016 10:00 PM | 7.83 |
| 5/7/2016 10:15 PM | 7.78 | 5/8/2016 10:15 PM | 7.84 | 5/9/2016 10:15 PM | 7.81 |
| 5/7/2016 10:30 PM | 7.84 | 5/8/2016 10:30 PM | 7.86 | 5/9/2016 10:30 PM | 7.81 |
| 5/7/2016 10:45 PM | 7.83 | 5/8/2016 10:45 PM | 7.86 | 5/9/2016 10:45 PM | 7.80 |
| 5/7/2016 11:00 PM | 7.83 | 5/8/2016 11:00 PM | 7.86 | 5/9/2016 11:00 PM | 7.80 |
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| 5/7/2016 11:30 PM | 7.81 | 5/8/2016 11:30 PM | 7.86 | 5/9/2016 11:30 PM | 7.79 |
| 5/7/2016 11:45 PM | 7.82 | 5/8/2016 11:45 PM | 7.85 | 5/9/2016 11:45 PM | 7.80 |
| AVG | 7.79 | AVG | 7.83 | AVG | 7.83 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 5/10/2016 12:15 AM | 7.80 | 5/11/2016 12:15 AM | 7.83 | 5/12/2016 12:15 AM | 7.89 |
| 5/10/2016 12:30 AM | 7.80 | 5/11/2016 12:30 AM | 7.83 | 5/12/2016 12:30 AM | 7.90 |
| 5/10/2016 12:45 AM | 7.80 | 5/11/2016 12:45 AM | 7.83 | 5/12/2016 12:45 AM | 7.89 |
| 5/10/2016 1:00 AM | 7.79 | 5/11/2016 1:00 AM | 7.83 | 5/12/2016 1:00 AM | 7.88 |
| 5/10/2016 1:15 AM | 7.81 | 5/11/2016 1:15 AM | 7.82 | 5/12/2016 1:15 AM | 7.89 |
| 5/10/2016 1:30 AM | 7.81 | 5/11/2016 1:30 AM | 7.82 | 5/12/2016 1:30 AM | 7.90 |
| 5/10/2016 1:45 AM | 7.81 | 5/11/2016 1:45 AM | 7.82 | 5/12/2016 1:45 AM | 7.90 |
| 5/10/2016 2:00 AM | 7.81 | 5/11/2016 2:00 AM | 7.82 | 5/12/2016 2:00 AM | 7.90 |
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| 5/10/2016 2:30 AM | 7.82 | 5/11/2016 2:30 AM | 7.83 | 5/12/2016 2:30 AM | 7.90 |
| 5/10/2016 2:45 AM | 7.82 | 5/11/2016 2:45 AM | 7.82 | 5/12/2016 2:45 AM | 7.91 |
| 5/10/2016 3:00 AM | 7.81 | 5/11/2016 3:00 AM | 7.82 | 5/12/2016 3:00 AM | 7.92 |
| 5/10/2016 3:15 AM | 7.81 | 5/11/2016 3:15 AM | 7.82 | 5/12/2016 3:15 AM | 7.92 |
| 5/10/2016 3:30 AM | 7.81 | 5/11/2016 3:30 AM | 7.82 | 5/12/2016 3:30 AM | 7.92 |
| 5/10/2016 3:45 AM | 7.81 | 5/11/2016 3:45 AM | 7.81 | 5/12/2016 3:45 AM | 7.91 |
| 5/10/2016 4:00 AM | 7.81 | 5/11/2016 4:00 AM | 7.83 | 5/12/2016 4:00 AM | 7.93 |
| 5/10/2016 4:15 AM | 7.81 | 5/11/2016 4:15 AM | 7.83 | 5/12/2016 4:15 AM | 7.92 |
| 5/10/2016 4:30 AM | 7.81 | 5/11/2016 4:30 AM | 7.83 | 5/12/2016 4:30 AM | 7.92 |
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| 5/10/2016 6:15 AM | 7.82 | 5/11/2016 6:15 AM | 7.82 | 5/12/2016 6:15 AM | 7.92 |
| 5/10/2016 6:30 AM | 7.81 | 5/11/2016 6:30 AM | 7.82 | 5/12/2016 6:30 AM | 7.92 |
| 5/10/2016 6:45 AM | 7.81 | 5/11/2016 6:45 AM | 7.82 | 5/12/2016 6:45 AM | 7.92 |
| 5/10/2016 7:00 AM | 7.84 | 5/11/2016 7:00 AM | 7.81 | 5/12/2016 7:00 AM | 7.93 |
| 5/10/2016 7:15 AM | 7.83 | 5/11/2016 7:15 AM | 7.83 | 5/12/2016 7:15 AM | 7.93 |
| 5/10/2016 7:30 AM | 7.82 | 5/11/2016 7:30 AM | 7.83 | 5/12/2016 7:30 AM | 7.93 |
| 5/10/2016 7:45 AM | 7.82 | 5/11/2016 7:45 AM | 7.83 | 5/12/2016 7:45 AM | 7.93 |
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| 5/10/2016 8:15 AM | 7.82 | 5/11/2016 8:15 AM | 7.82 | 5/12/2016 8:15 AM | 7.92 |
| 5/10/2016 8:30 AM | 7.81 | 5/11/2016 8:30 AM | 7.82 | 5/12/2016 8:30 AM | 7.92 |
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| 5/10/2016 9:00 AM | 7.82 | 5/11/2016 9:00 AM | 7.82 | 5/12/2016 9:00 AM | 7.93 |
| 5/10/2016 9:15 AM | 7.82 | 5/11/2016 9:15 AM | 7.82 | 5/12/2016 9:15 AM | 7.93 |
| 5/10/2016 9:30 AM | 7.82 | 5/11/2016 9:30 AM | 7.82 | 5/12/2016 9:30 AM | 7.92 |
| 5/10/2016 9:45 AM | 7.82 | 5/11/2016 9:45 AM | 7.82 | 5/12/2016 9:45 AM | 7.92 |
| 5/10/2016 10:00 AM | 7.81 | 5/11/2016 10:00 AM | 7.82 | 5/12/2016 10:00 AM | 7.92 |
| 5/10/2016 10:15 AM | 7.82 | 5/11/2016 10:15 AM | 7.81 | 5/12/2016 10:15 AM | 7.92 |
| 5/10/2016 10:30 AM | 7.82 | 5/11/2016 10:30 AM | 7.81 | 5/12/2016 10:30 AM | 7.92 |
| 5/10/2016 10:45 AM | 7.82 | 5/11/2016 10:45 AM | 7.81 | 5/12/2016 10:45 AM | 7.92 |
| 5/10/2016 11:00 AM | 7.82 | 5/11/2016 11:00 AM | 7.81 | 5/12/2016 11:00 AM | 7.92 |
| 5/10/2016 11:15 AM | 7.82 | 5/11/2016 11:15 AM | 7.81 | 5/12/2016 11:15 AM | 7.92 |
| 5/10/2016 11:30 AM | 7.82 | 5/11/2016 11:30 AM | 7.81 | 5/12/2016 11:30 AM | 7.90 |
| 5/10/2016 11:45 AM | 7.83 | 5/11/2016 11:45 AM | 7.85 | 5/12/2016 11:45 AM | 7.89 |
| 5/10/2016 12:00 PM | 7.83 | 5/11/2016 12:00 PM | 7.83 | 5/12/2016 12:00 PM | 7.90 |
| 5/10/2016 12:15 PM | 7.82 | 5/11/2016 12:15 PM | 7.82 | 5/12/2016 12:15 PM | 7.88 |
| 5/10/2016 12:30 PM | 7.82 | 5/11/2016 12:30 PM | 7.82 | 5/12/2016 12:30 PM | 7.88 |
| 5/10/2016 12:45 PM | 7.81 | 5/11/2016 12:45 PM | 7.81 | 5/12/2016 12:45 PM | 7.89 |
| 5/10/2016 1:00 PM | 7.81 | 5/11/2016 1:00 PM | 7.82 | 5/12/2016 1:00 PM | 7.92 |
| 5/10/2016 1:15 PM | 7.82 | 5/11/2016 1:15 PM | 7.83 | 5/12/2016 1:15 PM | 7.88 |
| 5/10/2016 1:30 PM | 7.82 | 5/11/2016 1:30 PM | 7.83 | 5/12/2016 1:30 PM | 7.87 |
| 5/10/2016 1:45 PM | 7.81 | 5/11/2016 1:45 PM | 7.83 | 5/12/2016 1:45 PM | 7.92 |
| 5/10/2016 2:00 PM | 7.82 | 5/11/2016 2:00 PM | 7.83 | 5/12/2016 2:00 PM | 7.91 |

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| 5/10/2016 3:15 PM | 7.81 | 5/11/2016 3:15 PM | 7.82 | 5/12/2016 3:15 PM | 7.94 |
| 5/10/2016 3:30 PM | 7.81 | 5/11/2016 3:30 PM | 7.82 | 5/12/2016 3:30 PM | 7.93 |
| 5/10/2016 3:45 PM | 7.81 | 5/11/2016 3:45 PM | 7.82 | 5/12/2016 3:45 PM | 7.93 |
| 5/10/2016 4:00 PM | 7.81 | 5/11/2016 4:00 PM | 7.82 | 5/12/2016 4:00 PM | 7.93 |
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| 5/10/2016 4:30 PM | 7.82 | 5/11/2016 4:30 PM | 7.84 | 5/12/2016 4:30 PM | 7.94 |
| 5/10/2016 4:45 PM | 7.82 | 5/11/2016 4:45 PM | 7.84 | 5/12/2016 4:45 PM | 7.93 |
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| 5/10/2016 5:15 PM | 7.81 | 5/11/2016 5:15 PM | 7.83 | 5/12/2016 5:15 PM | 7.93 |
| 5/10/2016 5:30 PM | 7.81 | 5/11/2016 5:30 PM | 7.83 | 5/12/2016 5:30 PM | 7.95 |
| 5/10/2016 5:45 PM | 7.81 | 5/11/2016 5:45 PM | 7.84 | 5/12/2016 5:45 PM | 7.95 |
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| 5/10/2016 6:30 PM | 7.82 | 5/11/2016 6:30 PM | 7.85 | 5/12/2016 6:30 PM | 7.92 |
| 5/10/2016 6:45 PM | 7.81 | 5/11/2016 6:45 PM | 7.85 | 5/12/2016 6:45 PM | 7.91 |
| 5/10/2016 7:00 PM | 7.82 | 5/11/2016 7:00 PM | 7.86 | 5/12/2016 7:00 PM | 7.91 |
| 5/10/2016 7:15 PM | 7.82 | 5/11/2016 7:15 PM | 7.86 | 5/12/2016 7:15 PM | 7.92 |
| 5/10/2016 7:30 PM | 7.83 | 5/11/2016 7:30 PM | 7.86 | 5/12/2016 7:30 PM | 7.93 |
| 5/10/2016 7:45 PM | 7.82 | 5/11/2016 7:45 PM | 7.86 | 5/12/2016 7:45 PM | 7.93 |
| 5/10/2016 8:00 PM | 7.82 | 5/11/2016 8:00 PM | 7.86 | 5/12/2016 8:00 PM | 7.93 |
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| 5/10/2016 8:30 PM | 7.84 | 5/11/2016 8:30 PM | 7.86 | 5/12/2016 8:30 PM | 7.92 |
| 5/10/2016 8:45 PM | 7.83 | 5/11/2016 8:45 PM | 7.88 | 5/12/2016 8:45 PM | 7.92 |
| 5/10/2016 9:00 PM | 7.83 | 5/11/2016 9:00 PM | 7.87 | 5/12/2016 9:00 PM | 7.93 |
| 5/10/2016 9:15 PM | 7.82 | 5/11/2016 9:15 PM | 7.88 | 5/12/2016 9:15 PM | 7.93 |
| 5/10/2016 9:30 PM | 7.82 | 5/11/2016 9:30 PM | 7.88 | 5/12/2016 9:30 PM | 7.93 |
| 5/10/2016 9:45 PM | 7.82 | 5/11/2016 9:45 PM | 7.87 | 5/12/2016 9:45 PM | 7.93 |
| 5/10/2016 10:00 PM | 7.81 | 5/11/2016 10:00 PM | 7.88 | 5/12/2016 10:00 PM | 7.93 |
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| 5/10/2016 10:45 PM | 7.82 | 5/11/2016 10:45 PM | 7.88 | 5/12/2016 10:45 PM | 7.91 |
| 5/10/2016 11:00 PM | 7.82 | 5/11/2016 11:00 PM | 7.88 | 5/12/2016 11:00 PM | 7.91 |
| 5/10/2016 11:15 PM | 7.81 | 5/11/2016 11:15 PM | 7.87 | 5/12/2016 11:15 PM | 7.91 |
| 5/10/2016 11:30 PM | 7.82 | 5/11/2016 11:30 PM | 7.90 | 5/12/2016 11:30 PM | 7.90 |
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| AVG | 7.82 | AVG | 7.84 | AVG | 7.92 |

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| 5/13/2016 12:30 AM | 7.90 | 5/14/2016 12:30 AM | 7.95 | 5/15/2016 12:30 AM | 7.87 |
| 5/13/2016 12:45 AM | 7.90 | 5/14/2016 12:45 AM | 7.95 | 5/15/2016 12:45 AM | 7.87 |
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| 5/13/2016 10:15 AM | 7.86 | 5/14/2016 10:15 AM | 7.82 | 5/15/2016 10:15 AM | 7.83 |
| 5/13/2016 10:30 AM | 7.86 | 5/14/2016 10:30 AM | 7.83 | 5/15/2016 10:30 AM | 7.83 |
| 5/13/2016 10:45 AM | 7.85 | 5/14/2016 10:45 AM | 7.86 | 5/15/2016 10:45 AM | 7.82 |
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| 5/13/2016 11:45 AM | 7.86 | 5/14/2016 11:45 AM | 7.84 | 5/15/2016 11:45 AM | 7.84 |
| 5/13/2016 12:00 PM | 7.86 | 5/14/2016 12:00 PM | 7.82 | 5/15/2016 12:00 PM | 7.84 |
| 5/13/2016 12:15 PM | 7.85 | 5/14/2016 12:15 PM | 7.82 | 5/15/2016 12:15 PM | 7.84 |
| 5/13/2016 12:30 PM | 7.86 | 5/14/2016 12:30 PM | 7.77 | 5/15/2016 12:30 PM | 7.83 |
| 5/13/2016 12:45 PM | 7.86 | 5/14/2016 12:45 PM | 7.77 | 5/15/2016 12:45 PM | 7.83 |
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| 5/13/2016 3:15 PM | 7.90 | 5/14/2016 3:15 PM | 7.88 | 5/15/2016 3:15 PM | 7.81 |
| 5/13/2016 3:30 PM | 7.90 | 5/14/2016 3:30 PM | 7.88 | 5/15/2016 3:30 PM | 7.81 |
| 5/13/2016 3:45 PM | 7.90 | 5/14/2016 3:45 PM | 7.87 | 5/15/2016 3:45 PM | 7.80 |
| 5/13/2016 4:00 PM | 7.92 | 5/14/2016 4:00 PM | 7.87 | 5/15/2016 4:00 PM | 7.83 |
| 5/13/2016 4:15 PM | 7.91 | 5/14/2016 4:15 PM | 7.87 | 5/15/2016 4:15 PM | 7.83 |
| 5/13/2016 4:30 PM | 7.90 | 5/14/2016 4:30 PM | 7.87 | 5/15/2016 4:30 PM | 7.83 |
| 5/13/2016 4:45 PM | 7.92 | 5/14/2016 4:45 PM | 7.88 | 5/15/2016 4:45 PM | 7.83 |
| 5/13/2016 5:00 PM | 7.92 | 5/14/2016 5:00 PM | 7.87 | 5/15/2016 5:00 PM | 7.82 |
| 5/13/2016 5:15 PM | 7.91 | 5/14/2016 5:15 PM | 7.86 | 5/15/2016 5:15 PM | 7.82 |
| 5/13/2016 5:30 PM | 7.92 | 5/14/2016 5:30 PM | 7.87 | 5/15/2016 5:30 PM | 7.83 |
| 5/13/2016 5:45 PM | 7.93 | 5/14/2016 5:45 PM | 7.86 | 5/15/2016 5:45 PM | 7.82 |
| 5/13/2016 6:00 PM | 7.87 | 5/14/2016 6:00 PM | 7.84 | 5/15/2016 6:00 PM | 7.82 |
| 5/13/2016 6:15 PM | 7.91 | 5/14/2016 6:15 PM | 7.86 | 5/15/2016 6:15 PM | 7.81 |
| 5/13/2016 6:30 PM | 7.93 | 5/14/2016 6:30 PM | 7.86 | 5/15/2016 6:30 PM | 7.81 |
| 5/13/2016 6:45 PM | 7.92 | 5/14/2016 6:45 PM | 7.85 | 5/15/2016 6:45 PM | 7.81 |
| 5/13/2016 7:00 PM | 7.91 | 5/14/2016 7:00 PM | 7.84 | 5/15/2016 7:00 PM | 7.80 |
| 5/13/2016 7:15 PM | 7.92 | 5/14/2016 7:15 PM | 7.85 | 5/15/2016 7:15 PM | 7.82 |
| 5/13/2016 7:30 PM | 7.94 | 5/14/2016 7:30 PM | 7.86 | 5/15/2016 7:30 PM | 7.81 |
| 5/13/2016 7:45 PM | 7.94 | 5/14/2016 7:45 PM | 7.86 | 5/15/2016 7:45 PM | 7.81 |
| 5/13/2016 8:00 PM | 7.94 | 5/14/2016 8:00 PM | 7.86 | 5/15/2016 8:00 PM | 7.81 |
| 5/13/2016 8:15 PM | 7.93 | 5/14/2016 8:15 PM | 7.88 | 5/15/2016 8:15 PM | 7.80 |
| 5/13/2016 8:30 PM | 7.96 | 5/14/2016 8:30 PM | 7.87 | 5/15/2016 8:30 PM | 7.83 |
| 5/13/2016 8:45 PM | 7.96 | 5/14/2016 8:45 PM | 7.86 | 5/15/2016 8:45 PM | 7.83 |
| 5/13/2016 9:00 PM | 7.95 | 5/14/2016 9:00 PM | 7.87 | 5/15/2016 9:00 PM | 7.83 |
| 5/13/2016 9:15 PM | 7.95 | 5/14/2016 9:15 PM | 7.87 | 5/15/2016 9:15 PM | 7.83 |
| 5/13/2016 9:30 PM | 7.95 | 5/14/2016 9:30 PM | 7.87 | 5/15/2016 9:30 PM | 7.83 |
| 5/13/2016 9:45 PM | 7.95 | 5/14/2016 9:45 PM | 7.87 | 5/15/2016 9:45 PM | 7.83 |
| 5/13/2016 10:00 PM | 7.94 | 5/14/2016 10:00 PM | 7.87 | 5/15/2016 10:00 PM | 7.83 |
| 5/13/2016 10:15 PM | 7.95 | 5/14/2016 10:15 PM | 7.89 | 5/15/2016 10:15 PM | 7.82 |
| 5/13/2016 10:30 PM | 7.95 | 5/14/2016 10:30 PM | 7.89 | 5/15/2016 10:30 PM | 7.82 |
| 5/13/2016 10:45 PM | 7.94 | 5/14/2016 10:45 PM | 7.89 | 5/15/2016 10:45 PM | 7.82 |
| 5/13/2016 11:00 PM | 7.94 | 5/14/2016 11:00 PM | 7.89 | 5/15/2016 11:00 PM | 7.82 |
| 5/13/2016 11:15 PM | 7.94 | 5/14/2016 11:15 PM | 7.88 | 5/15/2016 11:15 PM | 7.82 |
| 5/13/2016 11:30 PM | 7.93 | 5/14/2016 11:30 PM | 7.88 | 5/15/2016 11:30 PM | 7.83 |
| 5/13/2016 11:45 PM | 7.95 | 5/14/2016 11:45 PM | 7.87 | 5/15/2016 11:45 PM | 7.82 |
| AVG | 7.89 | AVG | 7.89 | AVG | 7.84 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 5/16/2016 12:00 AM | 7.82 | 5/17/2016 12:00 AM | 7.87 | 5/18/2016 12:00 AM | 7.79 |
| 5/16/2016 12:15 AM | 7.82 | 5/17/2016 12:15 AM | 7.87 | 5/18/2016 12:15 AM | 7.79 |
| 5/16/2016 12:30 AM | 7.82 | 5/17/2016 12:30 AM | 7.87 | 5/18/2016 12:30 AM | 7.79 |
| 5/16/2016 12:45 AM | 7.81 | 5/17/2016 12:45 AM | 7.87 | 5/18/2016 12:45 AM | 7.79 |
| 5/16/2016 1:00 AM | 7.84 | 5/17/2016 1:00 AM | 7.88 | 5/18/2016 1:00 AM | 7.78 |
| 5/16/2016 1:15 AM | 7.84 | 5/17/2016 1:15 AM | 7.87 | 5/18/2016 1:15 AM | 7.81 |
| 5/16/2016 1:30 AM | 7.85 | 5/17/2016 1:30 AM | 7.86 | 5/18/2016 1:30 AM | 7.81 |
| 5/16/2016 1:45 AM | 7.84 | 5/17/2016 1:45 AM | 7.86 | 5/18/2016 1:45 AM | 7.80 |
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| 5/16/2016 2:30 AM | 7.83 | 5/17/2016 2:30 AM | 7.84 | 5/18/2016 2:30 AM | 7.82 |
| 5/16/2016 2:45 AM | 7.82 | 5/17/2016 2:45 AM | 7.86 | 5/18/2016 2:45 AM | 7.82 |
| 5/16/2016 3:00 AM | 7.82 | 5/17/2016 3:00 AM | 7.86 | 5/18/2016 3:00 AM | 7.81 |
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| 5/16/2016 3:30 AM | 7.82 | 5/17/2016 3:30 AM | 7.85 | 5/18/2016 3:30 AM | 7.81 |
| 5/16/2016 3:45 AM | 7.82 | 5/17/2016 3:45 AM | 7.85 | 5/18/2016 3:45 AM | 7.80 |
| 5/16/2016 4:00 AM | 7.81 | 5/17/2016 4:00 AM | 7.83 | 5/18/2016 4:00 AM | 7.83 |
| 5/16/2016 4:15 AM | 7.84 | 5/17/2016 4:15 AM | 7.86 | 5/18/2016 4:15 AM | 7.81 |
| 5/16/2016 4:30 AM | 7.83 | 5/17/2016 4:30 AM | 7.86 | 5/18/2016 4:30 AM | 7.81 |
| 5/16/2016 4:45 AM | 7.83 | 5/17/2016 4:45 AM | 7.86 | 5/18/2016 4:45 AM | 7.80 |
| 5/16/2016 5:00 AM | 7.83 | 5/17/2016 5:00 AM | 7.86 | 5/18/2016 5:00 AM | 7.81 |
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| 5/16/2016 5:30 AM | 7.85 | 5/17/2016 5:30 AM | 7.85 | 5/18/2016 5:30 AM | 7.79 |
| 5/16/2016 5:45 AM | 7.85 | 5/17/2016 5:45 AM | 7.84 | 5/18/2016 5:45 AM | 7.82 |
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| 5/16/2016 6:15 AM | 7.85 | 5/17/2016 6:15 AM | 7.84 | 5/18/2016 6:15 AM | 7.81 |
| 5/16/2016 6:30 AM | 7.84 | 5/17/2016 6:30 AM | 7.84 | 5/18/2016 6:30 AM | 7.81 |
| 5/16/2016 6:45 AM | 7.84 | 5/17/2016 6:45 AM | 7.83 | 5/18/2016 6:45 AM | 7.81 |
| 5/16/2016 7:00 AM | 7.81 | 5/17/2016 7:00 AM | 7.83 | 5/18/2016 7:00 AM | 7.80 |
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| 5/16/2016 7:30 AM | 7.84 | 5/17/2016 7:30 AM | 7.83 | 5/18/2016 7:30 AM | 7.83 |
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| 5/16/2016 10:15 AM | 7.82 | 5/17/2016 10:15 AM | 7.82 | 5/18/2016 10:15 AM | 7.84 |
| 5/16/2016 10:30 AM | 7.82 | 5/17/2016 10:30 AM | 7.82 | 5/18/2016 10:30 AM | 7.83 |
| 5/16/2016 10:45 AM | 7.81 | 5/17/2016 10:45 AM | 7.82 | 5/18/2016 10:45 AM | 7.83 |
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| 5/16/2016 12:15 PM | 7.80 | 5/17/2016 12:15 PM | 7.81 | 5/18/2016 12:15 PM | 7.82 |
| 5/16/2016 12:30 PM | 7.80 | 5/17/2016 12:30 PM | 7.81 | 5/18/2016 12:30 PM | 7.81 |
| 5/16/2016 12:45 PM | 7.79 | 5/17/2016 12:45 PM | 7.81 | 5/18/2016 12:45 PM | 7.84 |
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| 5/16/2016 1:15 PM | 7.81 | 5/17/2016 1:15 PM | 7.82 | 5/18/2016 1:15 PM | 7.81 |
| 5/16/2016 1:30 PM | 7.81 | 5/17/2016 1:30 PM | 7.82 | 5/18/2016 1:30 PM | 7.81 |
| 5/16/2016 1:45 PM | 7.79 | 5/17/2016 1:45 PM | 7.82 | 5/18/2016 1:45 PM | 7.81 |
| 5/16/2016 2:00 PM | 7.80 | 5/17/2016 2:00 PM | 7.81 | 5/18/2016 2:00 PM | 7.80 |

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| 5/16/2016 2:15 PM | 7.79 | 5/17/2016 2:15 PM | 7.81 | 5/18/2016 2:15 PM | 7.79 |
| 5/16/2016 2:30 PM | 7.79 | 5/17/2016 2:30 PM | 7.81 | 5/18/2016 2:30 PM | 7.83 |
| 5/16/2016 2:45 PM | 7.78 | 5/17/2016 2:45 PM | 7.80 | 5/18/2016 2:45 PM | 7.81 |
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| 5/16/2016 3:15 PM | 7.84 | 5/17/2016 3:15 PM | 7.82 | 5/18/2016 3:15 PM | 7.80 |
| 5/16/2016 3:30 PM | 7.85 | 5/17/2016 3:30 PM | 7.82 | 5/18/2016 3:30 PM | 7.80 |
| 5/16/2016 3:45 PM | 7.86 | 5/17/2016 3:45 PM | 7.81 | 5/18/2016 3:45 PM | 7.79 |
| 5/16/2016 4:00 PM | 7.86 | 5/17/2016 4:00 PM | 7.80 | 5/18/2016 4:00 PM | 7.82 |
| 5/16/2016 4:15 PM | 7.85 | 5/17/2016 4:15 PM | 7.80 | 5/18/2016 4:15 PM | 7.83 |
| 5/16/2016 4:30 PM | 7.85 | 5/17/2016 4:30 PM | 7.79 | 5/18/2016 4:30 PM | 7.82 |
| 5/16/2016 4:45 PM | 7.85 | 5/17/2016 4:45 PM | 7.79 | 5/18/2016 4:45 PM | 7.82 |
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| 5/16/2016 5:15 PM | 7.85 | 5/17/2016 5:15 PM | 7.79 | 5/18/2016 5:15 PM | 7.82 |
| 5/16/2016 5:30 PM | 7.84 | 5/17/2016 5:30 PM | 7.79 | 5/18/2016 5:30 PM | 7.84 |
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| 5/16/2016 6:15 PM | 7.84 | 5/17/2016 6:15 PM | 7.78 | 5/18/2016 6:15 PM | 7.81 |
| 5/16/2016 6:30 PM | 7.85 | 5/17/2016 6:30 PM | 7.78 | 5/18/2016 6:30 PM | 7.81 |
| 5/16/2016 6:45 PM | 7.84 | 5/17/2016 6:45 PM | 7.78 | 5/18/2016 6:45 PM | 7.81 |
| 5/16/2016 7:00 PM | 7.84 | 5/17/2016 7:00 PM | 7.78 | 5/18/2016 7:00 PM | 7.79 |
| 5/16/2016 7:15 PM | 7.85 | 5/17/2016 7:15 PM | 7.77 | 5/18/2016 7:15 PM | 7.82 |
| 5/16/2016 7:30 PM | 7.86 | 5/17/2016 7:30 PM | 7.77 | 5/18/2016 7:30 PM | 7.81 |
| 5/16/2016 7:45 PM | 7.86 | 5/17/2016 7:45 PM | 7.77 | 5/18/2016 7:45 PM | 7.80 |
| 5/16/2016 8:00 PM | 7.86 | 5/17/2016 8:00 PM | 7.79 | 5/18/2016 8:00 PM | 7.80 |
| 5/16/2016 8:15 PM | 7.86 | 5/17/2016 8:15 PM | 7.78 | 5/18/2016 8:15 PM | 7.81 |
| 5/16/2016 8:30 PM | 7.88 | 5/17/2016 8:30 PM | 7.78 | 5/18/2016 8:30 PM | 7.82 |
| 5/16/2016 8:45 PM | 7.87 | 5/17/2016 8:45 PM | 7.78 | 5/18/2016 8:45 PM | 7.82 |
| 5/16/2016 9:00 PM | 7.87 | 5/17/2016 9:00 PM | 7.78 | 5/18/2016 9:00 PM | 7.82 |
| 5/16/2016 9:15 PM | 7.87 | 5/17/2016 9:15 PM | 7.78 | 5/18/2016 9:15 PM | 7.81 |
| 5/16/2016 9:30 PM | 7.87 | 5/17/2016 9:30 PM | 7.79 | 5/18/2016 9:30 PM | 7.81 |
| 5/16/2016 9:45 PM | 7.87 | 5/17/2016 9:45 PM | 7.80 | 5/18/2016 9:45 PM | 7.80 |
| 5/16/2016 10:00 PM | 7.86 | 5/17/2016 10:00 PM | 7.79 | 5/18/2016 10:00 PM | 7.82 |
| 5/16/2016 10:15 PM | 7.88 | 5/17/2016 10:15 PM | 7.78 | 5/18/2016 10:15 PM | 7.80 |
| 5/16/2016 10:30 PM | 7.87 | 5/17/2016 10:30 PM | 7.80 | 5/18/2016 10:30 PM | 7.80 |
| 5/16/2016 10:45 PM | 7.85 | 5/17/2016 10:45 PM | 7.80 | 5/18/2016 10:45 PM | 7.79 |
| 5/16/2016 11:00 PM | 7.88 | 5/17/2016 11:00 PM | 7.80 | 5/18/2016 11:00 PM | 7.79 |
| 5/16/2016 11:15 PM | 7.88 | 5/17/2016 11:15 PM | 7.80 | 5/18/2016 11:15 PM | 7.79 |
| 5/16/2016 11:30 PM | 7.88 | 5/17/2016 11:30 PM | 7.81 | 5/18/2016 11:30 PM | 7.78 |
| 5/16/2016 11:45 PM | 7.88 | 5/17/2016 11:45 PM | 7.79 | 5/18/2016 11:45 PM | 7.81 |
| AVG | 7.83 | AVG | 7.82 | AVG | 7.81 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 5/19/2016 12:00 AM | 7.80 | 5/20/2016 12:00 AM | 7.77 | 5/21/2016 12:00 AM | 7.80 |
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| 5/19/2016 12:30 AM | 7.78 | 5/20/2016 12:30 AM | 7.76 | 5/21/2016 12:30 AM | 7.79 |
| 5/19/2016 12:45 AM | 7.78 | 5/20/2016 12:45 AM | 7.75 | 5/21/2016 12:45 AM | 7.79 |
| 5/19/2016 1:00 AM | 7.80 | 5/20/2016 1:00 AM | 7.77 | 5/21/2016 1:00 AM | 7.78 |
| 5/19/2016 1:15 AM | 7.81 | 5/20/2016 1:15 AM | 7.75 | 5/21/2016 1:15 AM | 7.81 |
| 5/19/2016 1:30 AM | 7.80 | 5/20/2016 1:30 AM | 7.75 | 5/21/2016 1:30 AM | 7.80 |
| 5/19/2016 1:45 AM | 7.80 | 5/20/2016 1:45 AM | 7.75 | 5/21/2016 1:45 AM | 7.80 |
| 5/19/2016 2:00 AM | 7.80 | 5/20/2016 2:00 AM | 7.75 | 5/21/2016 2:00 AM | 7.80 |
| 5/19/2016 2:15 AM | 7.79 | 5/20/2016 2:15 AM | 7.75 | 5/21/2016 2:15 AM | 7.79 |
| 5/19/2016 2:30 AM | 7.81 | 5/20/2016 2:30 AM | 7.75 | 5/21/2016 2:30 AM | 7.78 |
| 5/19/2016 2:45 AM | 7.78 | 5/20/2016 2:45 AM | 7.77 | 5/21/2016 2:45 AM | 7.81 |
| 5/19/2016 3:00 AM | 7.78 | 5/20/2016 3:00 AM | 7.78 | 5/21/2016 3:00 AM | 7.81 |
| 5/19/2016 3:15 AM | 7.78 | 5/20/2016 3:15 AM | 7.76 | 5/21/2016 3:15 AM | 7.81 |
| 5/19/2016 3:30 AM | 7.78 | 5/20/2016 3:30 AM | 7.76 | 5/21/2016 3:30 AM | 7.81 |
| 5/19/2016 3:45 AM | 7.77 | 5/20/2016 3:45 AM | 7.77 | 5/21/2016 3:45 AM | 7.80 |
| 5/19/2016 4:00 AM | 7.76 | 5/20/2016 4:00 AM | 7.75 | 5/21/2016 4:00 AM | 7.82 |
| 5/19/2016 4:15 AM | 7.79 | 5/20/2016 4:15 AM | 7.79 | 5/21/2016 4:15 AM | 7.80 |
| 5/19/2016 4:30 AM | 7.78 | 5/20/2016 4:30 AM | 7.79 | 5/21/2016 4:30 AM | 7.80 |
| 5/19/2016 4:45 AM | 7.77 | 5/20/2016 4:45 AM | 7.79 | 5/21/2016 4:45 AM | 7.79 |
| 5/19/2016 5:00 AM | 7.77 | 5/20/2016 5:00 AM | 7.78 | 5/21/2016 5:00 AM | 7.79 |
| 5/19/2016 5:15 AM | 7.77 | 5/20/2016 5:15 AM | 7.78 | 5/21/2016 5:15 AM | 7.79 |
| 5/19/2016 5:30 AM | 7.76 | 5/20/2016 5:30 AM | 7.79 | 5/21/2016 5:30 AM | 7.81 |
| 5/19/2016 5:45 AM | 7.76 | 5/20/2016 5:45 AM | 7.77 | 5/21/2016 5:45 AM | 7.80 |
| 5/19/2016 6:00 AM | 7.78 | 5/20/2016 6:00 AM | 7.78 | 5/21/2016 6:00 AM | 7.79 |
| 5/19/2016 6:15 AM | 7.79 | 5/20/2016 6:15 AM | 7.77 | 5/21/2016 6:15 AM | 7.77 |
| 5/19/2016 6:30 AM | 7.79 | 5/20/2016 6:30 AM | 7.77 | 5/21/2016 6:30 AM | 7.80 |
| 5/19/2016 6:45 AM | 7.78 | 5/20/2016 6:45 AM | 7.77 | 5/21/2016 6:45 AM | 7.80 |
| 5/19/2016 7:00 AM | 7.77 | 5/20/2016 7:00 AM | 7.78 | 5/21/2016 7:00 AM | 7.80 |
| 5/19/2016 7:15 AM | 7.76 | 5/20/2016 7:15 AM | 7.79 | 5/21/2016 7:15 AM | 7.80 |
| 5/19/2016 7:30 AM | 7.76 | 5/20/2016 7:30 AM | 7.80 | 5/21/2016 7:30 AM | 7.79 |
| 5/19/2016 7:45 AM | 7.76 | 5/20/2016 7:45 AM | 7.78 | 5/21/2016 7:45 AM | 7.79 |
| 5/19/2016 8:00 AM | 7.76 | 5/20/2016 8:00 AM | 7.76 | 5/21/2016 8:00 AM | 7.79 |
| 5/19/2016 8:15 AM | 7.75 | 5/20/2016 8:15 AM | 7.76 | 5/21/2016 8:15 AM | 7.78 |
| 5/19/2016 8:30 AM | 7.78 | 5/20/2016 8:30 AM | 7.76 | 5/21/2016 8:30 AM | 7.78 |
| 5/19/2016 8:45 AM | 7.77 | 5/20/2016 8:45 AM | 7.75 | 5/21/2016 8:45 AM | 7.78 |
| 5/19/2016 9:00 AM | 7.75 | 5/20/2016 9:00 AM | 7.75 | 5/21/2016 9:00 AM | 7.78 |
| 5/19/2016 9:15 AM | 7.74 | 5/20/2016 9:15 AM | 7.74 | 5/21/2016 9:15 AM | 7.78 |
| 5/19/2016 9:30 AM | 7.75 | 5/20/2016 9:30 AM | 7.73 | 5/21/2016 9:30 AM | 7.77 |
| 5/19/2016 9:45 AM | 7.75 | 5/20/2016 9:45 AM | 7.73 | 5/21/2016 9:45 AM | 7.77 |
| 5/19/2016 10:00 AM | 7.75 | 5/20/2016 10:00 AM | 7.72 | 5/21/2016 10:00 AM | 7.77 |
| 5/19/2016 10:15 AM | 7.75 | 5/20/2016 10:15 AM | 7.73 | 5/21/2016 10:15 AM | 7.77 |
| 5/19/2016 10:30 AM | 7.74 | 5/20/2016 10:30 AM | 7.71 | 5/21/2016 10:30 AM | 7.76 |
| 5/19/2016 10:45 AM | 7.71 | 5/20/2016 10:45 AM | 7.71 | 5/21/2016 10:45 AM | 7.76 |
| 5/19/2016 11:00 AM | 7.70 | 5/20/2016 11:00 AM | 7.70 | 5/21/2016 11:00 AM | 7.76 |
| 5/19/2016 11:15 AM | 7.72 | 5/20/2016 11:15 AM | 7.67 | 5/21/2016 11:15 AM | 7.76 |
| 5/19/2016 11:30 AM | 7.73 | 5/20/2016 11:30 AM | 7.68 | 5/21/2016 11:30 AM | 7.75 |
| 5/19/2016 11:45 AM | 7.72 | 5/20/2016 11:45 AM | 7.76 | 5/21/2016 11:45 AM | 7.75 |
| 5/19/2016 12:00 PM | 7.72 | 5/20/2016 12:00 PM | 7.70 | 5/21/2016 12:00 PM | 7.75 |
| 5/19/2016 12:15 PM | 7.71 | 5/20/2016 12:15 PM | 7.68 | 5/21/2016 12:15 PM | 7.75 |
| 5/19/2016 12:30 PM | 7.69 | 5/20/2016 12:30 PM | 7.71 | 5/21/2016 12:30 PM | 7.75 |
| 5/19/2016 12:45 PM | 7.68 | 5/20/2016 12:45 PM | 7.73 | 5/21/2016 12:45 PM | 7.75 |
| 5/19/2016 1:00 PM | 7.69 | 5/20/2016 1:00 PM | 7.76 | 5/21/2016 1:00 PM | 7.75 |
| 5/19/2016 1:15 PM | 7.68 | 5/20/2016 1:15 PM | 7.76 | 5/21/2016 1:15 PM | 7.77 |
| 5/19/2016 1:30 PM | 7.66 | 5/20/2016 1:30 PM | 7.76 | 5/21/2016 1:30 PM | 7.75 |
| 5/19/2016 1:45 PM | 7.67 | 5/20/2016 1:45 PM | 7.76 | 5/21/2016 1:45 PM | 7.75 |

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|---|---|---|---|---|---|
| 5/19/2016 2:00 PM | 7.71 | 5/20/2016 2:00 PM | 7.75 | 5/21/2016 2:00 PM | 7.75 |
| 5/19/2016 2:15 PM | 7.68 | 5/20/2016 2:15 PM | 7.76 | 5/21/2016 2:15 PM | 7.75 |
| 5/19/2016 2:30 PM | 7.69 | 5/20/2016 2:30 PM | 7.81 | 5/21/2016 2:30 PM | 7.75 |
| 5/19/2016 2:45 PM | 7.70 | 5/20/2016 2:45 PM | 7.80 | 5/21/2016 2:45 PM | 7.75 |
| 5/19/2016 3:00 PM | 7.70 | 5/20/2016 3:00 PM | 7.78 | 5/21/2016 3:00 PM | 7.76 |
| 5/19/2016 3:15 PM | 7.70 | 5/20/2016 3:15 PM | 7.78 | 5/21/2016 3:15 PM | 7.76 |
| 5/19/2016 3:30 PM | 7.70 | 5/20/2016 3:30 PM | 7.77 | 5/21/2016 3:30 PM | 7.79 |
| 5/19/2016 3:45 PM | 7.71 | 5/20/2016 3:45 PM | 7.77 | 5/21/2016 3:45 PM | 7.80 |
| 5/19/2016 4:00 PM | 7.70 | 5/20/2016 4:00 PM | 7.75 | 5/21/2016 4:00 PM | 7.78 |
| 5/19/2016 4:15 PM | 7.70 | 5/20/2016 4:15 PM | 7.78 | 5/21/2016 4:15 PM | 7.78 |
| 5/19/2016 4:30 PM | 7.70 | 5/20/2016 4:30 PM | 7.79 | 5/21/2016 4:30 PM | 7.79 |
| 5/19/2016 4:45 PM | 7.69 | 5/20/2016 4:45 PM | 7.78 | 5/21/2016 4:45 PM | 7.78 |
| 5/19/2016 5:00 PM | 7.78 | 5/20/2016 5:00 PM | 7.78 | 5/21/2016 5:00 PM | 7.81 |
| 5/19/2016 5:15 PM | 7.75 | 5/20/2016 5:15 PM | 7.78 | 5/21/2016 5:15 PM | 7.81 |
| 5/19/2016 5:30 PM | 7.73 | 5/20/2016 5:30 PM | 7.78 | 5/21/2016 5:30 PM | 7.82 |
| 5/19/2016 5:45 PM | 7.73 | 5/20/2016 5:45 PM | 7.79 | 5/21/2016 5:45 PM | 7.80 |
| 5/19/2016 6:00 PM | 7.70 | 5/20/2016 6:00 PM | 7.80 | 5/21/2016 6:00 PM | 7.81 |
| 5/19/2016 6:15 PM | 7.69 | 5/20/2016 6:15 PM | 7.80 | 5/21/2016 6:15 PM | 7.80 |
| 5/19/2016 6:30 PM | 7.74 | 5/20/2016 6:30 PM | 7.80 | 5/21/2016 6:30 PM | 7.80 |
| 5/19/2016 6:45 PM | 7.73 | 5/20/2016 6:45 PM | 7.80 | 5/21/2016 6:45 PM | 7.80 |
| 5/19/2016 7:00 PM | 7.74 | 5/20/2016 7:00 PM | 7.82 | 5/21/2016 7:00 PM | 7.80 |
| 5/19/2016 7:15 PM | 7.73 | 5/20/2016 7:15 PM | 7.81 | 5/21/2016 7:15 PM | 7.84 |
| 5/19/2016 7:30 PM | 7.73 | 5/20/2016 7:30 PM | 7.81 | 5/21/2016 7:30 PM | 7.83 |
| 5/19/2016 7:45 PM | 7.73 | 5/20/2016 7:45 PM | 7.80 | 5/21/2016 7:45 PM | 7.82 |
| 5/19/2016 8:00 PM | 7.73 | 5/20/2016 8:00 PM | 7.80 | 5/21/2016 8:00 PM | 7.83 |
| 5/19/2016 8:15 PM | 7.72 | 5/20/2016 8:15 PM | 7.80 | 5/21/2016 8:15 PM | 7.83 |
| 5/19/2016 8:30 PM | 7.76 | 5/20/2016 8:30 PM | 7.78 | 5/21/2016 8:30 PM | 7.84 |
| 5/19/2016 8:45 PM | 7.76 | 5/20/2016 8:45 PM | 7.80 | 5/21/2016 8:45 PM | 7.85 |
| 5/19/2016 9:00 PM | 7.76 | 5/20/2016 9:00 PM | 7.81 | 5/21/2016 9:00 PM | 7.84 |
| 5/19/2016 9:15 PM | 7.75 | 5/20/2016 9:15 PM | 7.80 | 5/21/2016 9:15 PM | 7.84 |
| 5/19/2016 9:30 PM | 7.75 | 5/20/2016 9:30 PM | 7.80 | 5/21/2016 9:30 PM | 7.83 |
| 5/19/2016 9:45 PM | 7.75 | 5/20/2016 9:45 PM | 7.80 | 5/21/2016 9:45 PM | 7.83 |
| 5/19/2016 10:00 PM | 7.75 | 5/20/2016 10:00 PM | 7.80 | 5/21/2016 10:00 PM | 7.85 |
| 5/19/2016 10:15 PM | 7.75 | 5/20/2016 10:15 PM | 7.81 | 5/21/2016 10:15 PM | 7.83 |
| 5/19/2016 10:30 PM | 7.77 | 5/20/2016 10:30 PM | 7.81 | 5/21/2016 10:30 PM | 7.83 |
| 5/19/2016 10:45 PM | 7.75 | 5/20/2016 10:45 PM | 7.80 | 5/21/2016 10:45 PM | 7.83 |
| 5/19/2016 11:00 PM | 7.75 | 5/20/2016 11:00 PM | 7.80 | 5/21/2016 11:00 PM | 7.83 |
| 5/19/2016 11:15 PM | 7.75 | 5/20/2016 11:15 PM | 7.80 | 5/21/2016 11:15 PM | 7.83 |
| 5/19/2016 11:30 PM | 7.76 | 5/20/2016 11:30 PM | 7.82 | 5/21/2016 11:30 PM | 7.82 |
| 5/19/2016 11:45 PM | 7.77 | 5/20/2016 11:45 PM | 7.81 | 5/21/2016 11:45 PM | 7.85 |
| AVG | 7.75 | AVG | 7.77 | AVG | 7.79 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 5/22/2016 12:00 AM | 7.84 | 5/23/2016 12:00 AM | 7.76 | 5/24/2016 12:00 AM | 7.86 |
| 5/22/2016 12:15 AM | 7.84 | 5/23/2016 12:15 AM | 7.76 | 5/24/2016 12:15 AM | 7.88 |
| 5/22/2016 12:30 AM | 7.83 | 5/23/2016 12:30 AM | 7.75 | 5/24/2016 12:30 AM | 7.86 |
| 5/22/2016 12:45 AM | 7.83 | 5/23/2016 12:45 AM | 7.75 | 5/24/2016 12:45 AM | 7.85 |
| 5/22/2016 1:00 AM | 7.85 | 5/23/2016 1:00 AM | 7.75 | 5/24/2016 1:00 AM | 7.85 |
| 5/22/2016 1:15 AM | 7.86 | 5/23/2016 1:15 AM | 7.75 | 5/24/2016 1:15 AM | 7.84 |
| 5/22/2016 1:30 AM | 7.86 | 5/23/2016 1:30 AM | 7.75 | 5/24/2016 1:30 AM | 7.84 |
| 5/22/2016 1:45 AM | 7.85 | 5/23/2016 1:45 AM | 7.75 | 5/24/2016 1:45 AM | 7.87 |
| 5/22/2016 2:00 AM | 7.85 | 5/23/2016 2:00 AM | 7.75 | 5/24/2016 2:00 AM | 7.87 |
| 5/22/2016 2:15 AM | 7.84 | 5/23/2016 2:15 AM | 7.75 | 5/24/2016 2:15 AM | 7.85 |
| 5/22/2016 2:30 AM | 7.86 | 5/23/2016 2:30 AM | 7.75 | 5/24/2016 2:30 AM | 7.84 |
| 5/22/2016 2:45 AM | 7.84 | 5/23/2016 2:45 AM | 7.74 | 5/24/2016 2:45 AM | 7.86 |
| 5/22/2016 3:00 AM | 7.84 | 5/23/2016 3:00 AM | 7.74 | 5/24/2016 3:00 AM | 7.87 |
| 5/22/2016 3:15 AM | 7.83 | 5/23/2016 3:15 AM | 7.74 | 5/24/2016 3:15 AM | 7.86 |
| 5/22/2016 3:30 AM | 7.83 | 5/23/2016 3:30 AM | 7.74 | 5/24/2016 3:30 AM | 7.86 |
| 5/22/2016 3:45 AM | 7.83 | 5/23/2016 3:45 AM | 7.75 | 5/24/2016 3:45 AM | 7.85 |
| 5/22/2016 4:00 AM | 7.81 | 5/23/2016 4:00 AM | 7.74 | 5/24/2016 4:00 AM | 7.84 |
| 5/22/2016 4:15 AM | 7.85 | 5/23/2016 4:15 AM | 7.74 | 5/24/2016 4:15 AM | 7.84 |
| 5/22/2016 4:30 AM | 7.84 | 5/23/2016 4:30 AM | 7.74 | 5/24/2016 4:30 AM | 7.84 |
| 5/22/2016 4:45 AM | 7.83 | 5/23/2016 4:45 AM | 7.74 | 5/24/2016 4:45 AM | 7.83 |
| 5/22/2016 5:00 AM | 7.83 | 5/23/2016 5:00 AM | 7.74 | 5/24/2016 5:00 AM | 7.83 |
| 5/22/2016 5:15 AM | 7.83 | 5/23/2016 5:15 AM | 7.74 | 5/24/2016 5:15 AM | 7.82 |
| 5/22/2016 5:30 AM | 7.85 | 5/23/2016 5:30 AM | 7.74 | 5/24/2016 5:30 AM | 7.82 |
| 5/22/2016 5:45 AM | 7.86 | 5/23/2016 5:45 AM | 7.74 | 5/24/2016 5:45 AM | 7.82 |
| 5/22/2016 6:00 AM | 7.85 | 5/23/2016 6:00 AM | 7.74 | 5/24/2016 6:00 AM | 7.81 |
| 5/22/2016 6:15 AM | 7.85 | 5/23/2016 6:15 AM | 7.74 | 5/24/2016 6:15 AM | 7.81 |
| 5/22/2016 6:30 AM | 7.85 | 5/23/2016 6:30 AM | 7.74 | 5/24/2016 6:30 AM | 7.80 |
| 5/22/2016 6:45 AM | 7.84 | 5/23/2016 6:45 AM | 7.74 | 5/24/2016 6:45 AM | 7.80 |
| 5/22/2016 7:00 AM | 7.86 | 5/23/2016 7:00 AM | 7.74 | 5/24/2016 7:00 AM | 7.81 |
| 5/22/2016 7:15 AM | 7.83 | 5/23/2016 7:15 AM | 7.74 | 5/24/2016 7:15 AM | 7.80 |
| 5/22/2016 7:30 AM | 7.83 | 5/23/2016 7:30 AM | 7.74 | 5/24/2016 7:30 AM | 7.79 |
| 5/22/2016 7:45 AM | 7.83 | 5/23/2016 7:45 AM | 7.73 | 5/24/2016 7:45 AM | 7.78 |
| 5/22/2016 8:00 AM | 7.82 | 5/23/2016 8:00 AM | 7.74 | 5/24/2016 8:00 AM | 7.78 |
| 5/22/2016 8:15 AM | 7.82 | 5/23/2016 8:15 AM | 7.73 | 5/24/2016 8:15 AM | 7.78 |
| 5/22/2016 8:30 AM | 7.80 | 5/23/2016 8:30 AM | 7.72 | 5/24/2016 8:30 AM | 7.79 |
| 5/22/2016 8:45 AM | 7.84 | 5/23/2016 8:45 AM | 7.73 | 5/24/2016 8:45 AM | 7.78 |
| 5/22/2016 9:00 AM | 7.83 | 5/23/2016 9:00 AM | 7.73 | 5/24/2016 9:00 AM | 7.74 |
| 5/22/2016 9:15 AM | 7.82 | 5/23/2016 9:15 AM | 7.72 | 5/24/2016 9:15 AM | 7.74 |
| 5/22/2016 9:30 AM | 7.82 | 5/23/2016 9:30 AM | 7.72 | 5/24/2016 9:30 AM | 7.72 |
| 5/22/2016 9:45 AM | 7.82 | 5/23/2016 9:45 AM | 7.73 | 5/24/2016 9:45 AM | 7.68 |
| 5/22/2016 10:00 AM | 7.82 | 5/23/2016 10:00 AM | 7.71 | 5/24/2016 10:00 AM | 7.69 |
| 5/22/2016 10:15 AM | 7.85 | 5/23/2016 10:15 AM | 7.72 | 5/24/2016 10:15 AM | 7.64 |
| 5/22/2016 10:30 AM | 7.85 | 5/23/2016 10:30 AM | 7.68 | 5/24/2016 10:30 AM | 7.64 |
| 5/22/2016 10:45 AM | 7.84 | 5/23/2016 10:45 AM | 7.65 | 5/24/2016 10:45 AM | 7.64 |
| 5/22/2016 11:00 AM | 7.84 | 5/23/2016 11:00 AM | 7.67 | 5/24/2016 11:00 AM | 7.64 |
| 5/22/2016 11:15 AM | 7.83 | 5/23/2016 11:15 AM | 7.62 | 5/24/2016 11:15 AM | 7.65 |
| 5/22/2016 11:30 AM | 7.85 | 5/23/2016 11:30 AM | 7.65 | 5/24/2016 11:30 AM | 7.64 |
| 5/22/2016 11:45 AM | 7.82 | 5/23/2016 11:45 AM | 7.64 | 5/24/2016 11:45 AM | 7.67 |
| 5/22/2016 12:00 PM | 7.82 | 5/23/2016 12:00 PM | 7.68 | 5/24/2016 12:00 PM | 7.68 |
| 5/22/2016 12:15 PM | 7.81 | 5/23/2016 12:15 PM | 7.70 | 5/24/2016 12:15 PM | 7.69 |
| 5/22/2016 12:30 PM | 7.81 | 5/23/2016 12:30 PM | 7.72 | 5/24/2016 12:30 PM | 7.67 |
| 5/22/2016 12:45 PM | 7.81 | 5/23/2016 12:45 PM | 7.73 | 5/24/2016 12:45 PM | 7.66 |
| 5/22/2016 1:00 PM | 7.80 | 5/23/2016 1:00 PM | 7.73 | 5/24/2016 1:00 PM | 7.67 |
| 5/22/2016 1:15 PM | 7.83 | 5/23/2016 1:15 PM | 7.73 | 5/24/2016 1:15 PM | 7.65 |
| 5/22/2016 1:30 PM | 7.82 | 5/23/2016 1:30 PM | 7.74 | 5/24/2016 1:30 PM | 7.64 |
| 5/22/2016 1:45 PM | 7.81 | 5/23/2016 1:45 PM | 7.75 | 5/24/2016 1:45 PM | 7.65 |
| 5/22/2016 2:00 PM | 7.81 | 5/23/2016 2:00 PM | 7.75 | 5/24/2016 2:00 PM | 7.65 |

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| 5/22/2016 2:15 PM | 7.81 | 5/23/2016 2:15 PM | 7.76 | 5/24/2016 2:15 PM | 7.67 |
| 5/22/2016 2:30 PM | 7.83 | 5/23/2016 2:30 PM | 7.75 | 5/24/2016 2:30 PM | 7.66 |
| 5/22/2016 2:45 PM | 7.83 | 5/23/2016 2:45 PM | 7.72 | 5/24/2016 2:45 PM | 7.68 |
| 5/22/2016 3:00 PM | 7.83 | 5/23/2016 3:00 PM | 7.76 | 5/24/2016 3:00 PM | 7.72 |
| 5/22/2016 3:15 PM | 7.83 | 5/23/2016 3:15 PM | 7.77 | 5/24/2016 3:15 PM | 7.75 |
| 5/22/2016 3:30 PM | 7.82 | 5/23/2016 3:30 PM | 7.78 | 5/24/2016 3:30 PM | 7.75 |
| 5/22/2016 3:45 PM | 7.82 | 5/23/2016 3:45 PM | 7.78 | 5/24/2016 3:45 PM | 7.76 |
| 5/22/2016 4:00 PM | 7.81 | 5/23/2016 4:00 PM | 7.77 | 5/24/2016 4:00 PM | 7.75 |
| 5/22/2016 4:15 PM | 7.81 | 5/23/2016 4:15 PM | 7.78 | 5/24/2016 4:15 PM | 7.76 |
| 5/22/2016 4:30 PM | 7.80 | 5/23/2016 4:30 PM | 7.79 | 5/24/2016 4:30 PM | 7.76 |
| 5/22/2016 4:45 PM | 7.79 | 5/23/2016 4:45 PM | 7.78 | 5/24/2016 4:45 PM | 7.81 |
| 5/22/2016 5:00 PM | 7.82 | 5/23/2016 5:00 PM | 7.79 | 5/24/2016 5:00 PM | 7.81 |
| 5/22/2016 5:15 PM | 7.82 | 5/23/2016 5:15 PM | 7.80 | 5/24/2016 5:15 PM | 7.81 |
| 5/22/2016 5:30 PM | 7.82 | 5/23/2016 5:30 PM | 7.80 | 5/24/2016 5:30 PM | 7.83 |
| 5/22/2016 5:45 PM | 7.82 | 5/23/2016 5:45 PM | 7.80 | 5/24/2016 5:45 PM | 7.81 |
| 5/22/2016 6:00 PM | 7.81 | 5/23/2016 6:00 PM | 7.79 | 5/24/2016 6:00 PM | 7.79 |
| 5/22/2016 6:15 PM | 7.81 | 5/23/2016 6:15 PM | 7.80 | 5/24/2016 6:15 PM | 7.78 |
| 5/22/2016 6:30 PM | 7.81 | 5/23/2016 6:30 PM | 7.81 | 5/24/2016 6:30 PM | 7.78 |
| 5/22/2016 6:45 PM | 7.80 | 5/23/2016 6:45 PM | 7.82 | 5/24/2016 6:45 PM | 7.78 |
| 5/22/2016 7:00 PM | 7.80 | 5/23/2016 7:00 PM | 7.82 | 5/24/2016 7:00 PM | 7.78 |
| 5/22/2016 7:15 PM | 7.80 | 5/23/2016 7:15 PM | 7.86 | 5/24/2016 7:15 PM | 7.82 |
| 5/22/2016 7:30 PM | 7.80 | 5/23/2016 7:30 PM | 7.89 | 5/24/2016 7:30 PM | 7.78 |
| 5/22/2016 7:45 PM | 7.79 | 5/23/2016 7:45 PM | 7.85 | 5/24/2016 7:45 PM | 7.79 |
| 5/22/2016 8:00 PM | 7.79 | 5/23/2016 8:00 PM | 7.85 | 5/24/2016 8:00 PM | 7.80 |
| 5/22/2016 8:15 PM | 7.79 | 5/23/2016 8:15 PM | 7.85 | 5/24/2016 8:15 PM | 7.80 |
| 5/22/2016 8:30 PM | 7.79 | 5/23/2016 8:30 PM | 7.84 | 5/24/2016 8:30 PM | 7.81 |
| 5/22/2016 8:45 PM | 7.78 | 5/23/2016 8:45 PM | 7.85 | 5/24/2016 8:45 PM | 7.81 |
| 5/22/2016 9:00 PM | 7.78 | 5/23/2016 9:00 PM | 7.87 | 5/24/2016 9:00 PM | 7.83 |
| 5/22/2016 9:15 PM | 7.78 | 5/23/2016 9:15 PM | 7.86 | 5/24/2016 9:15 PM | 7.83 |
| 5/22/2016 9:30 PM | 7.77 | 5/23/2016 9:30 PM | 7.85 | 5/24/2016 9:30 PM | 7.82 |
| 5/22/2016 9:45 PM | 7.77 | 5/23/2016 9:45 PM | 7.85 | 5/24/2016 9:45 PM | 7.81 |
| 5/22/2016 10:00 PM | 7.77 | 5/23/2016 10:00 PM | 7.85 | 5/24/2016 10:00 PM | 7.82 |
| 5/22/2016 10:15 PM | 7.77 | 5/23/2016 10:15 PM | 7.84 | 5/24/2016 10:15 PM | 7.81 |
| 5/22/2016 10:30 PM | 7.77 | 5/23/2016 10:30 PM | 7.88 | 5/24/2016 10:30 PM | 7.81 |
| 5/22/2016 10:45 PM | 7.77 | 5/23/2016 10:45 PM | 7.87 | 5/24/2016 10:45 PM | 7.80 |
| 5/22/2016 11:00 PM | 7.77 | 5/23/2016 11:00 PM | 7.85 | 5/24/2016 11:00 PM | 7.79 |
| 5/22/2016 11:15 PM | 7.77 | 5/23/2016 11:15 PM | 7.85 | 5/24/2016 11:15 PM | 7.79 |
| 5/22/2016 11:30 PM | 7.76 | 5/23/2016 11:30 PM | 7.85 | 5/24/2016 11:30 PM | 7.78 |
| 5/22/2016 11:45 PM | 7.76 | 5/23/2016 11:45 PM | 7.84 | 5/24/2016 11:45 PM | 7.81 |
| AVG | 7.82 | AVG | 7.76 | AVG | 7.78 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 5/25/2016 12:15 AM | 7.79 | 5/26/2016 12:15 AM | 7.76 | 5/27/2016 12:15 AM | 7.73 |
| 5/25/2016 12:30 AM | 7.79 | 5/26/2016 12:30 AM | 7.76 | 5/27/2016 12:30 AM | 7.73 |
| 5/25/2016 12:45 AM | 7.79 | 5/26/2016 12:45 AM | 7.75 | 5/27/2016 12:45 AM | 7.73 |
| 5/25/2016 1:00 AM | 7.79 | 5/26/2016 1:00 AM | 7.76 | 5/27/2016 1:00 AM | 7.72 |
| 5/25/2016 1:15 AM | 7.80 | 5/26/2016 1:15 AM | 7.74 | 5/27/2016 1:15 AM | 7.73 |
| 5/25/2016 1:30 AM | 7.82 | 5/26/2016 1:30 AM | 7.74 | 5/27/2016 1:30 AM | 7.73 |
| 5/25/2016 1:45 AM | 7.81 | 5/26/2016 1:45 AM | 7.74 | 5/27/2016 1:45 AM | 7.72 |
| 5/25/2016 2:00 AM | 7.81 | 5/26/2016 2:00 AM | 7.74 | 5/27/2016 2:00 AM | 7.72 |
| 5/25/2016 2:15 AM | 7.81 | 5/26/2016 2:15 AM | 7.73 | 5/27/2016 2:15 AM | 7.72 |
| 5/25/2016 2:30 AM | 7.80 | 5/26/2016 2:30 AM | 7.72 | 5/27/2016 2:30 AM | 7.72 |
| 5/25/2016 2:45 AM | 7.78 | 5/26/2016 2:45 AM | 7.75 | 5/27/2016 2:45 AM | 7.72 |
| 5/25/2016 3:00 AM | 7.78 | 5/26/2016 3:00 AM | 7.74 | 5/27/2016 3:00 AM | 7.73 |
| 5/25/2016 3:15 AM | 7.76 | 5/26/2016 3:15 AM | 7.74 | 5/27/2016 3:15 AM | 7.74 |
| 5/25/2016 3:30 AM | 7.80 | 5/26/2016 3:30 AM | 7.73 | 5/27/2016 3:30 AM | 7.73 |
| 5/25/2016 3:45 AM | 7.79 | 5/26/2016 3:45 AM | 7.73 | 5/27/2016 3:45 AM | 7.73 |
| 5/25/2016 4:00 AM | 7.78 | 5/26/2016 4:00 AM | 7.73 | 5/27/2016 4:00 AM | 7.73 |
| 5/25/2016 4:15 AM | 7.76 | 5/26/2016 4:15 AM | 7.73 | 5/27/2016 4:15 AM | 7.73 |
| 5/25/2016 4:30 AM | 7.79 | 5/26/2016 4:30 AM | 7.74 | 5/27/2016 4:30 AM | 7.72 |
| 5/25/2016 4:45 AM | 7.80 | 5/26/2016 4:45 AM | 7.76 | 5/27/2016 4:45 AM | 7.72 |
| 5/25/2016 5:00 AM | 7.79 | 5/26/2016 5:00 AM | 7.76 | 5/27/2016 5:00 AM | 7.72 |
| 5/25/2016 5:15 AM | 7.79 | 5/26/2016 5:15 AM | 7.75 | 5/27/2016 5:15 AM | 7.72 |
| 5/25/2016 5:30 AM | 7.78 | 5/26/2016 5:30 AM | 7.75 | 5/27/2016 5:30 AM | 7.70 |
| 5/25/2016 5:45 AM | 7.78 | 5/26/2016 5:45 AM | 7.74 | 5/27/2016 5:45 AM | 7.73 |
| 5/25/2016 6:00 AM | 7.77 | 5/26/2016 6:00 AM | 7.73 | 5/27/2016 6:00 AM | 7.72 |
| 5/25/2016 6:15 AM | 7.77 | 5/26/2016 6:15 AM | 7.73 | 5/27/2016 6:15 AM | 7.72 |
| 5/25/2016 6:30 AM | 7.76 | 5/26/2016 6:30 AM | 7.73 | 5/27/2016 6:30 AM | 7.71 |
| 5/25/2016 6:45 AM | 7.76 | 5/26/2016 6:45 AM | 7.73 | 5/27/2016 6:45 AM | 7.71 |
| 5/25/2016 7:00 AM | 7.76 | 5/26/2016 7:00 AM | 7.73 | 5/27/2016 7:00 AM | 7.72 |
| 5/25/2016 7:15 AM | 7.75 | 5/26/2016 7:15 AM | 7.75 | 5/27/2016 7:15 AM | 7.73 |
| 5/25/2016 7:30 AM | 7.74 | 5/26/2016 7:30 AM | 7.73 | 5/27/2016 7:30 AM | 7.71 |
| 5/25/2016 7:45 AM | 7.73 | 5/26/2016 7:45 AM | 7.72 | 5/27/2016 7:45 AM | 7.69 |
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| 5/31/2016 10:45 AM | 7.58 |
| 5/31/2016 11:00 AM | 7.58 |
| 5/31/2016 11:15 AM | 7.59 |
| 5/31/2016 11:30 AM | 7.61 |
| 5/31/2016 11:45 AM | 7.58 |
| 5/31/2016 12:00 PM | 7.58 |
| 5/31/2016 12:15 PM | 7.57 |
| 5/31/2016 12:30 PM | 7.57 |
| 5/31/2016 12:45 PM | 7.55 |
| 5/31/2016 1:00 PM | 7.56 |
| 5/31/2016 1:15 PM | 7.58 |
| 5/31/2016 1:30 PM | 7.57 |
| 5/31/2016 1:45 PM | 7.57 |
| 5/31/2016 2:00 PM | 7.58 |

| | |
|---|---|
| MIN | 7.05 |
| MAX | 7.96 |

| | |
|---|---|
| 5/31/2016 2:15 PM | 7.58 |
| 5/31/2016 2:30 PM | 7.57 |
| 5/31/2016 2:45 PM | 7.58 |
| 5/31/2016 3:00 PM | 7.15 |
| 5/31/2016 3:15 PM | 7.16 |
| 5/31/2016 3:30 PM | 7.16 |
| 5/31/2016 3:45 PM | 7.16 |
| 5/31/2016 4:00 PM | 7.16 |
| 5/31/2016 4:15 PM | 7.14 |
| 5/31/2016 4:30 PM | 7.12 |
| 5/31/2016 4:45 PM | 7.11 |
| 5/31/2016 5:00 PM | 7.11 |
| 5/31/2016 5:15 PM | 7.10 |
| 5/31/2016 5:30 PM | 7.10 |
| 5/31/2016 5:45 PM | 7.09 |
| 5/31/2016 6:00 PM | 7.08 |
| 5/31/2016 6:15 PM | 7.10 |
| 5/31/2016 6:30 PM | 7.11 |
| 5/31/2016 6:45 PM | 7.09 |
| 5/31/2016 7:00 PM | 7.08 |
| 5/31/2016 7:15 PM | 7.12 |
| 5/31/2016 7:30 PM | 7.14 |
| 5/31/2016 7:45 PM | 7.14 |
| 5/31/2016 8:00 PM | 7.14 |
| 5/31/2016 8:15 PM | 7.13 |
| 5/31/2016 8:30 PM | 7.13 |
| 5/31/2016 8:45 PM | 7.12 |
| 5/31/2016 9:00 PM | 7.12 |
| 5/31/2016 9:15 PM | 7.11 |
| 5/31/2016 9:30 PM | 7.11 |
| 5/31/2016 9:45 PM | 7.10 |
| 5/31/2016 10:00 PM | 7.10 |
| 5/31/2016 10:15 PM | 7.10 |
| 5/31/2016 10:30 PM | 7.09 |
| 5/31/2016 10:45 PM | 7.08 |
| 5/31/2016 11:00 PM | 7.09 |
| 5/31/2016 11:15 PM | 7.07 |
| 5/31/2016 11:30 PM | 7.06 |
| AVG | 7.43 |

Avtex Fibers
Front Royal, VA
Outfall 004
May 2016 DMR

| Sample Date | Sample ID | BOD, mg/L | BOD, kg/d | TSS, mg/L | TSS, kg/d |
|---|---|---|---|---|---|
| 5/4/2016 | AF5-4FE | 3.0 | 1.16 | 2.2 | 0.85 |
| 5/11/2016 | AF5-11FE | 3.0 | 1.27 | 2.10 | 0.89 |
| 5/18/2016 | AF5-18FE | 2.0 | 0.79 | 1.8 | 0.71 |
| 5/25/2016 | AF5-25FE | 5.0 | 2.11 | 2.3 | 0.97 |
| | Daily Maximum: | 5.0 | 2.1 | 2.3 | 1.0 |
| | Monthly Avg: | 3.3 | 1.3 | 2.1 | 0.9 |

Monthly Average – Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as calculated. If all data are below the QL used for the analysis, then the average shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported monthly average concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the monthly average of the calculated daily quantities.

Daily Maximum – Compliance with the daily maximum limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each day during the reporting month. The maximum value of these daily averages thus determined shall be reported on the DMR as the Daily Maximum. If all data are below the QL used for the analysis, then the maximum value of the daily averages shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported daily maximum concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported daily average concentrations (including the defined zeros) and corresponding daily flows to determine daily average quantities and report the maximum of the daily average quantities during the reporting month.

**Loading Derivation**
If 1 ppm (= 1 mg/L) and 1 MGD (= 1 MG/day)
--> (1 mg/L)(1 MG/day)(3.785 L/Gal)(10^6 Gal/MG)(1 lb/453,600 mg) = 8.34 lbs/day
**--> lbs/day = ppm * 8.34 * MGD**
**--> kg/d = ppm * 8.34 * MGD * 0.4536*lb/d**

**Concentration Derivation**
If 1 lb/d and 1 MGD (= 1 MG/day)
[(1 lbs/day)(453,600 mg/lb)] / [(1 MG/d)(10^6 Gal/MG)(3.785 L/Gal)]
**--> ppm = lb/d * (1/8.34) * (1/MGD)**

| | BOD |
|---|---|
| 5/4/2016 | 1.155159353 |
| 5/11/2016 | 1.268568856 |
| 5/18/2016 | 0.791104501 |
| 5/25/2016 | 2.111566368 |
| AVG | 1.33159977 |

| | TSS |
|---|---|
| 5/4/2016 | 0.847116859 |
| 5/11/2016 | 0.887998199 |
| 5/18/2016 | 0.711994051 |
| 5/25/2016 | 0.971320529 |
| AVG | 0.85460741 |

| | CS2* |
|---|---|
| 5/25/2016 | <QL |

*Note: CS2 EPA Test Method: 8260 MSV Low Level Analytical Method (EPA 8260)
Report Limit 2 ug/L
MDL 1.2 ug/L

**FMC Corporation**
2929 Walnut Street
Philadelphia, PA 19104
USA

215.299.6000
fmc.com

*Transmitted via Email*

July 8, 2016

Department of Environmental Quality - CO
Office of Remediation Program
P.O. Box 1105
Richmond, VA 23218

Re: Submission of Discharge Monitoring Report – June 2016
Avtex Fibers Superfund Site
Front Royal, Virginia

Dear Ms Payne:

In accordance with the Applicable or Relevant and Appropriate Requirements (ARARs) and Fact Sheet provided July 22, 2014, FMC Corporation (FMC) is submitting the Discharge Monitoring Report (DMR) for the month of June 2016. The permit is for the discharge from the Groundwater and Leachate Treatment Plant (GLTP) located at 404 Kendrick Lane, Front Royal, VA. Analysis of effluent concentrations yielded results within the allowable limits for all parameters.

Please do not hesitate to call if there are any questions.

Sincerely,

FMC Corporation

Brian M. McGinnis, P.E.
Manager, Environmental Remediation

cc: via Email
Brandon Kiracofe, DEQ
Charlie Root, USEPA
Heather Philip, Parsons

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
**DISCHARGE MONITORING REPORT** (DMR)

OMB No. 2040-004

PERMITTEE NAME/ADDRESS: (Include Facility Name/Location if different)

| | | | |
|---|---|---|---|
| **NAME:** | Avtex Fibers | **PERMIT NUMBER** | NA |
| **ADDRESS:** | 404 Kendrick Lane | **DISCHARGE NUMBER** | 004 |
| | Front Royal, VA 22630 | **DMR MAILING ZIP CODE:** | 23218 |
| **FACILITY:** | AVTEX FIBERS | DESCRIPTION: | GLTP EFFLUENT (OUTFALL 004) External Outfall |
| **LOCATION:** | FRONT ROYAL, VA | **No Discharge** | |
| **ATTN:** | | | |

**MONITORING PERIOD**

| | YEAR | MO | DAY | | YEAR | MO | DAY |
|---|---|---|---|---|---|---|---|
| **FROM** | 16 | 06 | 01 | TO | 16 | 06 | 30 |

| **PARAMETER** | | QUANTITY OR LOADING VALUE | QUANTITY OR LOADING VALUE | UNITS | QUALITY OR CONCENTRATION VALUE | QUALITY OR CONCENTRATION VALUE | QUALITY OR CONCENTRATION VALUE | UNITS | NO. EX | FREQUENCY OF ANALYSIS | SAMPLE TYPE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FLOW** | SAMPLE MEASUREMENT | 0.101 | 0.128 | MGD | ***** | ***** | ***** | | 0 | CONTINUOUS | TIRE |
| **00056 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | REPORT MONTHLY AV | REPORT DAILY MAX | | ****** | ****** | ****** | | | CONTINUOUS | TIRE |
| **PH** | SAMPLE MEASUREMENT | ***** | ***** | | 6.9 | ***** | 7.5 | SU | 0 | CONTINUOUS | GRAB |
| **00400 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | ****** | ****** | | 6.5 MINIMUM | ****** | 9.0 MAXIMUM | | | CONTINUOUS | GRAB |
| **BOD, 5-DAY** | SAMPLE MEASUREMENT | 1.2 | 1.5 | kg/d | ***** | 3.2 | 4.0 | mg/L | 0 | 1/7 | 8 HC |
| **00318 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | 36 MONTHLY AV | 96 DAILY MAX | | ****** | 24 MONTHLY AV | 64 DAILY MX | | | 1/7 | 8 HC |
| **SOLIDS, TOTAL SUSPENDED** | SAMPLE MEASUREMENT | 0.9 | 1.8 | kg/d | ***** | 2.2 | 4.9 | mg/L | 0 | 1/7 | 8 HC |
| **03603 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | 60 MONTHLY AV | 190 DAILY MAX | | ****** | 40 MONTHLY AV | 130 DAILY MX | | | 1/7 | 8 HC |
| **CARBON DISULFIDE** | SAMPLE MEASUREMENT | <QL | <QL | kg/d | ***** | <QL | <QL | mg/L | 0 | 1/30 | 8 HC |
| **77041 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | NL MONTHLY AV | NL DAILY MAX | | ****** | NL MONTHLY AV | NL DAILY MX | | | 1/30 | 8 HC |

| NAME/TITLE PRINCIPAL EXECUTIVE OFFICER | | | TELEPHONE | | DATE |
|---|---|---|---|---|---|
| Christina Kaba<br>Director EHS Remediation/Governance | I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. | | 215 | 299-6047 | |
| TYPED OR PRINTED | | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | AREA | NUMBER | YEAR MO DAY |

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

Attachment: pH compliance monitoring summary (monthly)

Carbon disulfide: No limit established; monitored monthly; 0.1 mg/L action level

EPA Form 3320-1 (Rev 01/06) Previous editions may be used.

Avtex Fibers
Front Royal, VA
Outfall 004
June 2016 DMR

pH Calculations:

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 6/1/2016 12:00 AM | 7.05 | 6/2/2016 12:00 AM | 7.08 | 6/3/2016 12:00 AM | 7.07 |
| 6/1/2016 12:15 AM | | 6/2/2016 12:15 AM | 7.08 | 6/3/2016 12:15 AM | 7.07 |
| 6/1/2016 12:30 AM | 7.06 | 6/2/2016 12:30 AM | 7.07 | 6/3/2016 12:30 AM | 7.07 |
| 6/1/2016 12:45 AM | 7.13 | 6/2/2016 12:45 AM | 7.06 | 6/3/2016 12:45 AM | 7.07 |
| 6/1/2016 1:00 AM | 7.11 | 6/2/2016 1:00 AM | 7.06 | 6/3/2016 1:00 AM | 7.07 |
| 6/1/2016 1:15 AM | 7.10 | 6/2/2016 1:15 AM | 7.05 | 6/3/2016 1:15 AM | 7.07 |
| 6/1/2016 1:30 AM | 7.09 | 6/2/2016 1:30 AM | 7.04 | 6/3/2016 1:30 AM | 7.07 |
| 6/1/2016 1:45 AM | 7.09 | 6/2/2016 1:45 AM | 7.04 | 6/3/2016 1:45 AM | 7.07 |
| 6/1/2016 2:00 AM | 7.08 | 6/2/2016 2:00 AM | 7.03 | 6/3/2016 2:00 AM | 7.09 |
| 6/1/2016 2:15 AM | 7.07 | 6/2/2016 2:15 AM | 7.03 | 6/3/2016 2:15 AM | 7.13 |
| 6/1/2016 2:30 AM | 7.10 | 6/2/2016 2:30 AM | 7.03 | 6/3/2016 2:30 AM | 7.09 |
| 6/1/2016 2:45 AM | 7.10 | 6/2/2016 2:45 AM | 7.03 | 6/3/2016 2:45 AM | 7.08 |
| 6/1/2016 3:00 AM | 7.07 | 6/2/2016 3:00 AM | 7.03 | 6/3/2016 3:00 AM | 7.08 |
| 6/1/2016 3:15 AM | 7.06 | 6/2/2016 3:15 AM | 7.02 | 6/3/2016 3:15 AM | 7.08 |
| 6/1/2016 3:30 AM | 7.07 | 6/2/2016 3:30 AM | 7.02 | 6/3/2016 3:30 AM | 7.08 |
| 6/1/2016 3:45 AM | 7.10 | 6/2/2016 3:45 AM | 7.02 | 6/3/2016 3:45 AM | 7.08 |
| 6/1/2016 4:00 AM | 7.09 | 6/2/2016 4:00 AM | 7.08 | 6/3/2016 4:00 AM | 7.08 |
| 6/1/2016 4:15 AM | 7.09 | 6/2/2016 4:15 AM | 7.07 | 6/3/2016 4:15 AM | 7.08 |
| 6/1/2016 4:30 AM | 7.08 | 6/2/2016 4:30 AM | 7.05 | 6/3/2016 4:30 AM | 7.08 |
| 6/1/2016 4:45 AM | 7.08 | 6/2/2016 4:45 AM | 7.04 | 6/3/2016 4:45 AM | 7.09 |
| 6/1/2016 5:00 AM | 7.07 | 6/2/2016 5:00 AM | 7.04 | 6/3/2016 5:00 AM | 7.14 |
| 6/1/2016 5:15 AM | 7.07 | 6/2/2016 5:15 AM | 7.03 | 6/3/2016 5:15 AM | 7.10 |
| 6/1/2016 5:30 AM | 7.07 | 6/2/2016 5:30 AM | 7.03 | 6/3/2016 5:30 AM | 7.09 |
| 6/1/2016 5:45 AM | 7.06 | 6/2/2016 5:45 AM | 7.03 | 6/3/2016 5:45 AM | 7.08 |
| 6/1/2016 6:00 AM | 7.06 | 6/2/2016 6:00 AM | 7.03 | 6/3/2016 6:00 AM | 7.08 |
| 6/1/2016 6:15 AM | 7.06 | 6/2/2016 6:15 AM | 7.03 | 6/3/2016 6:15 AM | 7.08 |
| 6/1/2016 6:30 AM | 7.05 | 6/2/2016 6:30 AM | 7.03 | 6/3/2016 6:30 AM | 7.08 |
| 6/1/2016 6:45 AM | 7.04 | 6/2/2016 6:45 AM | 7.03 | 6/3/2016 6:45 AM | 7.08 |
| 6/1/2016 7:00 AM | 7.04 | 6/2/2016 7:00 AM | 7.03 | 6/3/2016 7:00 AM | 7.08 |
| 6/1/2016 7:15 AM | 7.04 | 6/2/2016 7:15 AM | 7.02 | 6/3/2016 7:15 AM | 7.08 |
| 6/1/2016 7:30 AM | 7.03 | 6/2/2016 7:30 AM | 7.07 | 6/3/2016 7:30 AM | 7.08 |
| 6/1/2016 7:45 AM | 7.03 | 6/2/2016 7:45 AM | 7.07 | 6/3/2016 7:45 AM | 7.08 |
| 6/1/2016 8:00 AM | 7.05 | 6/2/2016 8:00 AM | 7.06 | 6/3/2016 8:00 AM | 7.07 |
| 6/1/2016 8:15 AM | 7.04 | 6/2/2016 8:15 AM | 7.05 | 6/3/2016 8:15 AM | 7.07 |
| 6/1/2016 8:30 AM | 7.03 | 6/2/2016 8:30 AM | 7.04 | 6/3/2016 8:30 AM | 7.06 |
| 6/1/2016 8:45 AM | 7.02 | 6/2/2016 8:45 AM | 7.04 | 6/3/2016 8:45 AM | 7.06 |
| 6/1/2016 9:00 AM | 7.01 | 6/2/2016 9:00 AM | 7.04 | 6/3/2016 9:00 AM | 7.04 |
| 6/1/2016 9:15 AM | 7.00 | 6/2/2016 9:15 AM | 7.04 | 6/3/2016 9:15 AM | 7.02 |
| 6/1/2016 9:30 AM | 6.99 | 6/2/2016 9:30 AM | 7.04 | 6/3/2016 9:30 AM | 7.00 |
| 6/1/2016 9:45 AM | 6.98 | 6/2/2016 9:45 AM | 7.03 | 6/3/2016 9:45 AM | 7.00 |
| 6/1/2016 10:00 AM | 6.97 | 6/2/2016 10:00 AM | 7.02 | 6/3/2016 10:00 AM | 7.01 |
| 6/1/2016 10:15 AM | 6.99 | 6/2/2016 10:15 AM | 7.00 | 6/3/2016 10:15 AM | 6.98 |
| 6/1/2016 10:30 AM | 6.95 | 6/2/2016 10:30 AM | 6.99 | 6/3/2016 10:30 AM | 7.00 |
| 6/1/2016 10:45 AM | 6.91 | 6/2/2016 10:45 AM | 6.98 | 6/3/2016 10:45 AM | 7.01 |
| 6/1/2016 11:00 AM | 6.90 | 6/2/2016 11:00 AM | 6.98 | 6/3/2016 11:00 AM | 7.02 |

| | | | | | |
|---|---|---|---|---|---|
| 6/1/2016 11:15 AM | 6.90 | 6/2/2016 11:15 AM | 6.98 | 6/3/2016 11:15 AM | 7.04 |
| 6/1/2016 11:30 AM | 6.91 | 6/2/2016 11:30 AM | 6.98 | 6/3/2016 11:30 AM | 7.05 |
| 6/1/2016 11:45 AM | 6.91 | 6/2/2016 11:45 AM | 6.98 | 6/3/2016 11:45 AM | 7.07 |
| 6/1/2016 12:00 PM | 6.91 | 6/2/2016 12:00 PM | 6.99 | 6/3/2016 12:00 PM | 7.07 |
| 6/1/2016 12:15 PM | 6.94 | 6/2/2016 12:15 PM | 6.98 | 6/3/2016 12:15 PM | 7.07 |
| 6/1/2016 12:30 PM | 6.94 | 6/2/2016 12:30 PM | 6.97 | 6/3/2016 12:30 PM | 7.08 |
| 6/1/2016 12:45 PM | 6.96 | 6/2/2016 12:45 PM | 6.96 | 6/3/2016 12:45 PM | 7.10 |
| 6/1/2016 1:00 PM | 6.94 | 6/2/2016 1:00 PM | 6.97 | 6/3/2016 1:00 PM | 7.08 |
| 6/1/2016 1:15 PM | 6.96 | 6/2/2016 1:15 PM | 7.04 | 6/3/2016 1:15 PM | 7.06 |
| 6/1/2016 1:30 PM | 6.95 | 6/2/2016 1:30 PM | 7.01 | 6/3/2016 1:30 PM | 7.01 |
| 6/1/2016 1:45 PM | 6.97 | 6/2/2016 1:45 PM | 6.98 | 6/3/2016 1:45 PM | 6.99 |
| 6/1/2016 2:00 PM | 6.98 | 6/2/2016 2:00 PM | 6.98 | 6/3/2016 2:00 PM | 7.00 |
| 6/1/2016 2:15 PM | 6.98 | 6/2/2016 2:15 PM | 6.98 | 6/3/2016 2:15 PM | 7.00 |
| 6/1/2016 2:30 PM | 7.01 | 6/2/2016 2:30 PM | 6.99 | 6/3/2016 2:30 PM | 7.01 |
| 6/1/2016 2:45 PM | 7.01 | 6/2/2016 2:45 PM | 7.00 | 6/3/2016 2:45 PM | 7.02 |
| 6/1/2016 3:00 PM | 7.04 | 6/2/2016 3:00 PM | 7.00 | 6/3/2016 3:00 PM | 7.06 |
| 6/1/2016 3:15 PM | 7.07 | 6/2/2016 3:15 PM | 7.01 | 6/3/2016 3:15 PM | 7.07 |
| 6/1/2016 3:30 PM | 7.09 | 6/2/2016 3:30 PM | 7.02 | 6/3/2016 3:30 PM | 7.07 |
| 6/1/2016 3:45 PM | 7.09 | 6/2/2016 3:45 PM | 7.02 | 6/3/2016 3:45 PM | 7.06 |
| 6/1/2016 4:00 PM | 7.08 | 6/2/2016 4:00 PM | 7.03 | 6/3/2016 4:00 PM | 7.06 |
| 6/1/2016 4:15 PM | 7.08 | 6/2/2016 4:15 PM | 7.03 | 6/3/2016 4:15 PM | 7.06 |
| 6/1/2016 4:30 PM | 7.08 | 6/2/2016 4:30 PM | 7.03 | 6/3/2016 4:30 PM | 7.06 |
| 6/1/2016 4:45 PM | 7.08 | 6/2/2016 4:45 PM | 7.03 | 6/3/2016 4:45 PM | 7.06 |
| 6/1/2016 5:00 PM | 7.08 | 6/2/2016 5:00 PM | 7.04 | 6/3/2016 5:00 PM | 7.06 |
| 6/1/2016 5:15 PM | 7.08 | 6/2/2016 5:15 PM | 7.04 | 6/3/2016 5:15 PM | 7.05 |
| 6/1/2016 5:30 PM | 7.08 | 6/2/2016 5:30 PM | 7.04 | 6/3/2016 5:30 PM | 7.05 |
| 6/1/2016 5:45 PM | 7.08 | 6/2/2016 5:45 PM | 7.04 | 6/3/2016 5:45 PM | 7.05 |
| 6/1/2016 6:00 PM | 7.08 | 6/2/2016 6:00 PM | 7.05 | 6/3/2016 6:00 PM | 7.04 |
| 6/1/2016 6:15 PM | 7.10 | 6/2/2016 6:15 PM | 7.05 | 6/3/2016 6:15 PM | 7.03 |
| 6/1/2016 6:30 PM | 7.11 | 6/2/2016 6:30 PM | 7.06 | 6/3/2016 6:30 PM | 7.04 |
| 6/1/2016 6:45 PM | 7.12 | 6/2/2016 6:45 PM | 7.06 | 6/3/2016 6:45 PM | 7.04 |
| 6/1/2016 7:00 PM | 7.12 | 6/2/2016 7:00 PM | 7.07 | 6/3/2016 7:00 PM | 7.03 |
| 6/1/2016 7:15 PM | 7.09 | 6/2/2016 7:15 PM | 7.07 | 6/3/2016 7:15 PM | 7.01 |
| 6/1/2016 7:30 PM | 7.07 | 6/2/2016 7:30 PM | 7.12 | 6/3/2016 7:30 PM | 7.01 |
| 6/1/2016 7:45 PM | 7.06 | 6/2/2016 7:45 PM | 7.13 | 6/3/2016 7:45 PM | 7.02 |
| 6/1/2016 8:00 PM | 7.07 | 6/2/2016 8:00 PM | 7.11 | 6/3/2016 8:00 PM | 7.01 |
| 6/1/2016 8:15 PM | 7.07 | 6/2/2016 8:15 PM | 7.11 | 6/3/2016 8:15 PM | 7.01 |
| 6/1/2016 8:30 PM | 7.06 | 6/2/2016 8:30 PM | 7.10 | 6/3/2016 8:30 PM | 7.01 |
| 6/1/2016 8:45 PM | 7.06 | 6/2/2016 8:45 PM | 7.08 | 6/3/2016 8:45 PM | 7.01 |
| 6/1/2016 9:00 PM | 7.07 | 6/2/2016 9:00 PM | 7.10 | 6/3/2016 9:00 PM | 6.99 |
| 6/1/2016 9:15 PM | 7.07 | 6/2/2016 9:15 PM | 7.09 | 6/3/2016 9:15 PM | 7.00 |
| 6/1/2016 9:30 PM | 7.07 | 6/2/2016 9:30 PM | 7.08 | 6/3/2016 9:30 PM | 7.05 |
| 6/1/2016 9:45 PM | 7.07 | 6/2/2016 9:45 PM | 7.08 | 6/3/2016 9:45 PM | 7.07 |
| 6/1/2016 10:00 PM | 7.10 | 6/2/2016 10:00 PM | 7.07 | 6/3/2016 10:00 PM | 7.04 |
| 6/1/2016 10:15 PM | 7.11 | 6/2/2016 10:15 PM | 7.07 | 6/3/2016 10:15 PM | 7.03 |
| 6/1/2016 10:30 PM | 7.10 | 6/2/2016 10:30 PM | 7.07 | 6/3/2016 10:30 PM | 7.02 |
| 6/1/2016 10:45 PM | 7.09 | 6/2/2016 10:45 PM | 7.07 | 6/3/2016 10:45 PM | 7.02 |
| 6/1/2016 11:00 PM | 7.09 | 6/2/2016 11:00 PM | 7.07 | 6/3/2016 11:00 PM | 7.02 |
| 6/1/2016 11:15 PM | 7.08 | 6/2/2016 11:15 PM | 7.07 | 6/3/2016 11:15 PM | 7.01 |
| 6/1/2016 11:30 PM | 7.08 | 6/2/2016 11:30 PM | 7.10 | 6/3/2016 11:30 PM | 7.01 |
| 6/1/2016 11:45 PM | 7.08 | 6/2/2016 11:45 PM | 7.09 | 6/3/2016 11:45 PM | 7.02 |
| AVG | 7.05 | AVG | 7.04 | AVG | 7.05 |

Note: Communications loss at 12:15AM, no discharge at that time. Not included in average.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 6/4/2016 12:00 AM | 7.04 | 6/5/2016 12:00 AM | 7.10 | 6/6/2016 12:00 AM | 7.14 |
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| 6/4/2016 12:30 AM | 7.02 | 6/5/2016 12:30 AM | 7.09 | 6/6/2016 12:30 AM | 7.14 |
| 6/4/2016 12:45 AM | 7.02 | 6/5/2016 12:45 AM | 7.10 | 6/6/2016 12:45 AM | 7.14 |
| 6/4/2016 1:00 AM | 7.03 | 6/5/2016 1:00 AM | 7.09 | 6/6/2016 1:00 AM | 7.14 |
| 6/4/2016 1:15 AM | 7.06 | 6/5/2016 1:15 AM | 7.08 | 6/6/2016 1:15 AM | 7.15 |
| 6/4/2016 1:30 AM | 7.06 | 6/5/2016 1:30 AM | 7.08 | 6/6/2016 1:30 AM | 7.15 |
| 6/4/2016 1:45 AM | 7.05 | 6/5/2016 1:45 AM | 7.08 | 6/6/2016 1:45 AM | 7.19 |
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| 6/4/2016 2:30 AM | 7.03 | 6/5/2016 2:30 AM | 7.07 | 6/6/2016 2:30 AM | 7.18 |
| 6/4/2016 2:45 AM | 7.02 | 6/5/2016 2:45 AM | 7.07 | 6/6/2016 2:45 AM | 7.17 |
| 6/4/2016 3:00 AM | 7.02 | 6/5/2016 3:00 AM | 7.07 | 6/6/2016 3:00 AM | 7.17 |
| 6/4/2016 3:15 AM | 7.02 | 6/5/2016 3:15 AM | 7.12 | 6/6/2016 3:15 AM | 7.16 |
| 6/4/2016 3:30 AM | 7.02 | 6/5/2016 3:30 AM | 7.09 | 6/6/2016 3:30 AM | 7.16 |
| 6/4/2016 3:45 AM | 7.02 | 6/5/2016 3:45 AM | 7.08 | 6/6/2016 3:45 AM | 7.17 |
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| 6/4/2016 4:15 AM | 7.03 | 6/5/2016 4:15 AM | 7.12 | 6/6/2016 4:15 AM | 7.15 |
| 6/4/2016 4:30 AM | 7.06 | 6/5/2016 4:30 AM | 7.12 | 6/6/2016 4:30 AM | 7.15 |
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| 6/4/2016 5:00 AM | 7.08 | 6/5/2016 5:00 AM | 7.11 | 6/6/2016 5:00 AM | 7.15 |
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| 6/4/2016 10:15 AM | 7.00 | 6/5/2016 10:15 AM | 7.08 | 6/6/2016 10:15 AM | 7.13 |
| 6/4/2016 10:30 AM | 6.99 | 6/5/2016 10:30 AM | 7.10 | 6/6/2016 10:30 AM | 7.15 |
| 6/4/2016 10:45 AM | 6.98 | 6/5/2016 10:45 AM | 7.11 | 6/6/2016 10:45 AM | 7.18 |
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| 6/4/2016 11:45 AM | 6.99 | 6/5/2016 11:45 AM | 7.10 | 6/6/2016 11:45 AM | 7.16 |
| 6/4/2016 12:00 PM | 6.99 | 6/5/2016 12:00 PM | 7.09 | 6/6/2016 12:00 PM | 7.16 |
| 6/4/2016 12:15 PM | 6.99 | 6/5/2016 12:15 PM | 7.09 | 6/6/2016 12:15 PM | 7.15 |
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| 6/4/2016 8:00 PM | 7.10 | 6/5/2016 8:00 PM | 7.11 | 6/6/2016 8:00 PM | 7.22 |
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| 6/4/2016 10:45 PM | 7.11 | 6/5/2016 10:45 PM | 7.15 | 6/6/2016 10:45 PM | 7.19 |
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| AVG | 7.05 | AVG | 7.10 | AVG | 7.17 |

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| 6/7/2016 1:45 AM | 7.22 | 6/8/2016 1:45 AM | 7.21 | 6/9/2016 1:45 AM | 7.31 |
| 6/7/2016 2:00 AM | 7.25 | 6/8/2016 2:00 AM | 7.21 | 6/9/2016 2:00 AM | 7.31 |
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| 6/7/2016 8:45 PM | 7.25 | 6/8/2016 8:45 PM | 7.23 | 6/9/2016 8:45 PM | 7.34 |
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| 6/7/2016 9:15 PM | 7.24 | 6/8/2016 9:15 PM | 7.25 | 6/9/2016 9:15 PM | 7.33 |
| 6/7/2016 9:30 PM | 7.23 | 6/8/2016 9:30 PM | 7.28 | 6/9/2016 9:30 PM | 7.32 |
| 6/7/2016 9:45 PM | 7.23 | 6/8/2016 9:45 PM | 7.24 | 6/9/2016 9:45 PM | 7.34 |
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| 6/7/2016 11:45 PM | 7.25 | 6/8/2016 11:45 PM | 7.25 | 6/9/2016 11:45 PM | 7.31 |
| AVG | 7.23 | AVG | 7.22 | AVG | 7.30 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 6/10/2016 12:45 AM | 7.33 | 6/11/2016 12:45 AM | 7.32 | 6/12/2016 12:45 AM | 7.38 |
| 6/10/2016 1:00 AM | 7.35 | 6/11/2016 1:00 AM | 7.31 | 6/12/2016 1:00 AM | 7.38 |
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| AVG | 7.30 | AVG | 7.35 | AVG | 7.38 |

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| 6/13/2016 4:45 PM | 7.38 | 6/14/2016 4:45 PM | 7.47 | 6/15/2016 4:45 PM | 7.38 |
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| 6/13/2016 11:30 PM | 7.40 | 6/14/2016 11:30 PM | 7.44 | 6/15/2016 11:30 PM | 7.32 |
| 6/13/2016 11:45 PM | 7.39 | 6/14/2016 11:45 PM | 7.44 | 6/15/2016 11:45 PM | 7.31 |
| AVG | 7.38 | AVG | 7.44 | AVG | 7.39 |

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| 6/19/2016 12:45 PM | 7.42 | 6/20/2016 12:45 PM | 7.39 | 6/21/2016 12:45 PM | 7.37 |
| 6/19/2016 1:00 PM | 7.42 | 6/20/2016 1:00 PM | 7.38 | 6/21/2016 1:00 PM | 7.39 |
| 6/19/2016 1:15 PM | 7.41 | 6/20/2016 1:15 PM | 7.38 | 6/21/2016 1:15 PM | 7.37 |
| 6/19/2016 1:30 PM | 7.46 | 6/20/2016 1:30 PM | 7.39 | 6/21/2016 1:30 PM | 7.35 |
| 6/19/2016 1:45 PM | 7.44 | 6/20/2016 1:45 PM | 7.39 | 6/21/2016 1:45 PM | 7.35 |

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| 6/19/2016 2:00 PM | 7.43 | 6/20/2016 2:00 PM | 7.39 | 6/21/2016 2:00 PM | 7.34 |
| 6/19/2016 2:15 PM | 7.46 | 6/20/2016 2:15 PM | 7.41 | 6/21/2016 2:15 PM | 7.34 |
| 6/19/2016 2:30 PM | 7.46 | 6/20/2016 2:30 PM | 7.39 | 6/21/2016 2:30 PM | 7.35 |
| 6/19/2016 2:45 PM | 7.47 | 6/20/2016 2:45 PM | 7.38 | 6/21/2016 2:45 PM | 7.35 |
| 6/19/2016 3:00 PM | 7.47 | 6/20/2016 3:00 PM | 7.36 | 6/21/2016 3:00 PM | 7.35 |
| 6/19/2016 3:15 PM | 7.47 | 6/20/2016 3:15 PM | 7.38 | 6/21/2016 3:15 PM | 7.37 |
| 6/19/2016 3:30 PM | 7.46 | 6/20/2016 3:30 PM | 7.38 | 6/21/2016 3:30 PM | 7.38 |
| 6/19/2016 3:45 PM | 7.49 | 6/20/2016 3:45 PM | 7.37 | 6/21/2016 3:45 PM | 7.37 |
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| 6/19/2016 4:15 PM | 7.47 | 6/20/2016 4:15 PM | 7.38 | 6/21/2016 4:15 PM | 7.37 |
| 6/19/2016 4:30 PM | 7.46 | 6/20/2016 4:30 PM | 7.37 | 6/21/2016 4:30 PM | 7.36 |
| 6/19/2016 4:45 PM | 7.45 | 6/20/2016 4:45 PM | 7.37 | 6/21/2016 4:45 PM | 7.36 |
| 6/19/2016 5:00 PM | 7.44 | 6/20/2016 5:00 PM | 7.35 | 6/21/2016 5:00 PM | 7.35 |
| 6/19/2016 5:15 PM | 7.44 | 6/20/2016 5:15 PM | 7.38 | 6/21/2016 5:15 PM | 7.38 |
| 6/19/2016 5:30 PM | 7.44 | 6/20/2016 5:30 PM | 7.39 | 6/21/2016 5:30 PM | 7.38 |
| 6/19/2016 5:45 PM | 7.43 | 6/20/2016 5:45 PM | 7.40 | 6/21/2016 5:45 PM | 7.37 |
| 6/19/2016 6:00 PM | 7.48 | 6/20/2016 6:00 PM | 7.38 | 6/21/2016 6:00 PM | 7.36 |
| 6/19/2016 6:15 PM | 7.43 | 6/20/2016 6:15 PM | 7.38 | 6/21/2016 6:15 PM | 7.36 |
| 6/19/2016 6:30 PM | 7.43 | 6/20/2016 6:30 PM | 7.38 | 6/21/2016 6:30 PM | 7.35 |
| 6/19/2016 6:45 PM | 7.42 | 6/20/2016 6:45 PM | 7.41 | 6/21/2016 6:45 PM | 7.35 |
| 6/19/2016 7:00 PM | 7.41 | 6/20/2016 7:00 PM | 7.41 | 6/21/2016 7:00 PM | 7.35 |
| 6/19/2016 7:15 PM | 7.41 | 6/20/2016 7:15 PM | 7.38 | 6/21/2016 7:15 PM | 7.33 |
| 6/19/2016 7:30 PM | 7.41 | 6/20/2016 7:30 PM | 7.38 | 6/21/2016 7:30 PM | 7.37 |
| 6/19/2016 7:45 PM | 7.41 | 6/20/2016 7:45 PM | 7.37 | 6/21/2016 7:45 PM | 7.35 |
| 6/19/2016 8:00 PM | 7.43 | 6/20/2016 8:00 PM | 7.37 | 6/21/2016 8:00 PM | 7.33 |
| 6/19/2016 8:15 PM | 7.44 | 6/20/2016 8:15 PM | 7.37 | 6/21/2016 8:15 PM | 7.37 |
| 6/19/2016 8:30 PM | 7.43 | 6/20/2016 8:30 PM | 7.37 | 6/21/2016 8:30 PM | 7.37 |
| 6/19/2016 8:45 PM | 7.42 | 6/20/2016 8:45 PM | 7.36 | 6/21/2016 8:45 PM | 7.36 |
| 6/19/2016 9:00 PM | 7.41 | 6/20/2016 9:00 PM | 7.37 | 6/21/2016 9:00 PM | 7.36 |
| 6/19/2016 9:15 PM | 7.42 | 6/20/2016 9:15 PM | 7.37 | 6/21/2016 9:15 PM | 7.35 |
| 6/19/2016 9:30 PM | 7.42 | 6/20/2016 9:30 PM | 7.36 | 6/21/2016 9:30 PM | 7.35 |
| 6/19/2016 9:45 PM | 7.44 | 6/20/2016 9:45 PM | 7.36 | 6/21/2016 9:45 PM | 7.36 |
| 6/19/2016 10:00 PM | 7.43 | 6/20/2016 10:00 PM | 7.35 | 6/21/2016 10:00 PM | 7.35 |
| 6/19/2016 10:15 PM | 7.43 | 6/20/2016 10:15 PM | 7.35 | 6/21/2016 10:15 PM | 7.35 |
| 6/19/2016 10:30 PM | 7.43 | 6/20/2016 10:30 PM | 7.35 | 6/21/2016 10:30 PM | 7.34 |
| 6/19/2016 10:45 PM | 7.42 | 6/20/2016 10:45 PM | 7.35 | 6/21/2016 10:45 PM | 7.36 |
| 6/19/2016 11:00 PM | 7.42 | 6/20/2016 11:00 PM | 7.35 | 6/21/2016 11:00 PM | 7.36 |
| 6/19/2016 11:15 PM | 7.44 | 6/20/2016 11:15 PM | 7.37 | 6/21/2016 11:15 PM | 7.36 |
| 6/19/2016 11:30 PM | 7.45 | 6/20/2016 11:30 PM | 7.37 | 6/21/2016 11:30 PM | 7.35 |
| 6/19/2016 11:45 PM | 7.44 | 6/20/2016 11:45 PM | 7.36 | 6/21/2016 11:45 PM | 7.35 |
| AVG | 7.44 | AVG | 7.39 | AVG | 7.34 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 6/22/2016 12:00 AM | 7.35 | 6/23/2016 12:00 AM | 7.29 | 6/24/2016 12:00 AM | 7.19 |
| 6/22/2016 12:15 AM | 7.35 | 6/23/2016 12:15 AM | 7.28 | 6/24/2016 12:15 AM | 7.19 |
| 6/22/2016 12:30 AM | 7.34 | 6/23/2016 12:30 AM | 7.28 | 6/24/2016 12:30 AM | 7.18 |
| 6/22/2016 12:45 AM | 7.33 | 6/23/2016 12:45 AM | 7.27 | 6/24/2016 12:45 AM | 7.24 |
| 6/22/2016 1:00 AM | 7.33 | 6/23/2016 1:00 AM | 7.27 | 6/24/2016 1:00 AM | 7.23 |
| 6/22/2016 1:15 AM | 7.33 | 6/23/2016 1:15 AM | 7.26 | 6/24/2016 1:15 AM | 7.22 |
| 6/22/2016 1:30 AM | 7.32 | 6/23/2016 1:30 AM | 7.26 | 6/24/2016 1:30 AM | 7.22 |
| 6/22/2016 1:45 AM | 7.32 | 6/23/2016 1:45 AM | 7.25 | 6/24/2016 1:45 AM | 7.22 |
| 6/22/2016 2:00 AM | 7.32 | 6/23/2016 2:00 AM | 7.25 | 6/24/2016 2:00 AM | 7.19 |
| 6/22/2016 2:15 AM | 7.36 | 6/23/2016 2:15 AM | 7.25 | 6/24/2016 2:15 AM | 7.24 |
| 6/22/2016 2:30 AM | 7.34 | 6/23/2016 2:30 AM | 7.24 | 6/24/2016 2:30 AM | 7.24 |
| 6/22/2016 2:45 AM | 7.33 | 6/23/2016 2:45 AM | 7.24 | 6/24/2016 2:45 AM | 7.24 |
| 6/22/2016 3:00 AM | 7.33 | 6/23/2016 3:00 AM | 7.24 | 6/24/2016 3:00 AM | 7.23 |
| 6/22/2016 3:15 AM | 7.33 | 6/23/2016 3:15 AM | 7.24 | 6/24/2016 3:15 AM | 7.23 |
| 6/22/2016 3:30 AM | 7.32 | 6/23/2016 3:30 AM | 7.24 | 6/24/2016 3:30 AM | 7.22 |
| 6/22/2016 3:45 AM | 7.32 | 6/23/2016 3:45 AM | 7.24 | 6/24/2016 3:45 AM | 7.22 |
| 6/22/2016 4:00 AM | 7.31 | 6/23/2016 4:00 AM | 7.24 | 6/24/2016 4:00 AM | 7.21 |
| 6/22/2016 4:15 AM | 7.30 | 6/23/2016 4:15 AM | 7.23 | 6/24/2016 4:15 AM | 7.21 |
| 6/22/2016 4:30 AM | 7.34 | 6/23/2016 4:30 AM | 7.23 | 6/24/2016 4:30 AM | 7.20 |
| 6/22/2016 4:45 AM | 7.35 | 6/23/2016 4:45 AM | 7.22 | 6/24/2016 4:45 AM | 7.20 |
| 6/22/2016 5:00 AM | 7.34 | 6/23/2016 5:00 AM | 7.22 | 6/24/2016 5:00 AM | 7.19 |
| 6/22/2016 5:15 AM | 7.34 | 6/23/2016 5:15 AM | 7.28 | 6/24/2016 5:15 AM | 7.19 |
| 6/22/2016 5:30 AM | 7.33 | 6/23/2016 5:30 AM | 7.27 | 6/24/2016 5:30 AM | 7.19 |
| 6/22/2016 5:45 AM | 7.33 | 6/23/2016 5:45 AM | 7.27 | 6/24/2016 5:45 AM | 7.19 |
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| 6/22/2016 6:30 AM | 7.32 | 6/23/2016 6:30 AM | 7.27 | 6/24/2016 6:30 AM | 7.18 |
| 6/22/2016 6:45 AM | 7.33 | 6/23/2016 6:45 AM | 7.26 | 6/24/2016 6:45 AM | 7.17 |
| 6/22/2016 7:00 AM | 7.32 | 6/23/2016 7:00 AM | 7.26 | 6/24/2016 7:00 AM | 7.17 |
| 6/22/2016 7:15 AM | 7.31 | 6/23/2016 7:15 AM | 7.25 | 6/24/2016 7:15 AM | 7.17 |
| 6/22/2016 7:30 AM | 7.31 | 6/23/2016 7:30 AM | 7.25 | 6/24/2016 7:30 AM | 7.17 |
| 6/22/2016 7:45 AM | 7.30 | 6/23/2016 7:45 AM | 7.24 | 6/24/2016 7:45 AM | 7.17 |
| 6/22/2016 8:00 AM | 7.29 | 6/23/2016 8:00 AM | 7.24 | 6/24/2016 8:00 AM | 7.17 |
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| 6/22/2016 8:30 AM | 7.28 | 6/23/2016 8:30 AM | 7.24 | 6/24/2016 8:30 AM | 7.23 |
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| 6/22/2016 9:30 AM | 7.34 | 6/23/2016 9:30 AM | 7.23 | 6/24/2016 9:30 AM | 7.20 |
| 6/22/2016 9:45 AM | 7.33 | 6/23/2016 9:45 AM | 7.22 | 6/24/2016 9:45 AM | 7.20 |
| 6/22/2016 10:00 AM | 7.33 | 6/23/2016 10:00 AM | 7.21 | 6/24/2016 10:00 AM | 7.20 |
| 6/22/2016 10:15 AM | 7.32 | 6/23/2016 10:15 AM | 7.22 | 6/24/2016 10:15 AM | 7.22 |
| 6/22/2016 10:30 AM | 7.32 | 6/23/2016 10:30 AM | 7.22 | 6/24/2016 10:30 AM | 7.27 |
| 6/22/2016 10:45 AM | 7.32 | 6/23/2016 10:45 AM | 7.22 | 6/24/2016 10:45 AM | 7.22 |
| 6/22/2016 11:00 AM | 7.34 | 6/23/2016 11:00 AM | 7.22 | 6/24/2016 11:00 AM | 7.20 |
| 6/22/2016 11:15 AM | 7.34 | 6/23/2016 11:15 AM | 7.24 | 6/24/2016 11:15 AM | 7.23 |
| 6/22/2016 11:30 AM | 7.31 | 6/23/2016 11:30 AM | 7.26 | 6/24/2016 11:30 AM | 7.25 |
| 6/22/2016 11:45 AM | 7.30 | 6/23/2016 11:45 AM | 7.25 | 6/24/2016 11:45 AM | 7.25 |
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| 6/22/2016 12:15 PM | 7.29 | 6/23/2016 12:15 PM | 7.24 | 6/24/2016 12:15 PM | 7.25 |
| 6/22/2016 12:30 PM | 7.29 | 6/23/2016 12:30 PM | 7.25 | 6/24/2016 12:30 PM | 7.25 |
| 6/22/2016 12:45 PM | 7.28 | 6/23/2016 12:45 PM | 7.24 | 6/24/2016 12:45 PM | 7.24 |
| 6/22/2016 1:00 PM | 7.27 | 6/23/2016 1:00 PM | 7.23 | 6/24/2016 1:00 PM | 7.24 |
| 6/22/2016 1:15 PM | 7.33 | 6/23/2016 1:15 PM | 7.21 | 6/24/2016 1:15 PM | 7.23 |
| 6/22/2016 1:30 PM | 7.30 | 6/23/2016 1:30 PM | 7.20 | 6/24/2016 1:30 PM | 7.23 |
| 6/22/2016 1:45 PM | 7.29 | 6/23/2016 1:45 PM | 7.20 | 6/24/2016 1:45 PM | 7.23 |
| 6/22/2016 2:00 PM | 7.30 | 6/23/2016 2:00 PM | 7.20 | 6/24/2016 2:00 PM | 7.23 |

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| 6/22/2016 2:15 PM | 7.33 | 6/23/2016 2:15 PM | 7.19 | 6/24/2016 2:15 PM | 7.22 |
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| 6/22/2016 2:45 PM | 7.32 | 6/23/2016 2:45 PM | 7.27 | 6/24/2016 2:45 PM | 7.24 |
| 6/22/2016 3:00 PM | 7.32 | 6/23/2016 3:00 PM | 7.27 | 6/24/2016 3:00 PM | 7.22 |
| 6/22/2016 3:15 PM | 7.31 | 6/23/2016 3:15 PM | 7.24 | 6/24/2016 3:15 PM | 7.21 |
| 6/22/2016 3:30 PM | 7.31 | 6/23/2016 3:30 PM | 7.23 | 6/24/2016 3:30 PM | 7.20 |
| 6/22/2016 3:45 PM | 7.31 | 6/23/2016 3:45 PM | 7.22 | 6/24/2016 3:45 PM | 7.20 |
| 6/22/2016 4:00 PM | 7.30 | 6/23/2016 4:00 PM | 7.22 | 6/24/2016 4:00 PM | 7.19 |
| 6/22/2016 4:15 PM | 7.29 | 6/23/2016 4:15 PM | 7.22 | 6/24/2016 4:15 PM | 7.19 |
| 6/22/2016 4:30 PM | 7.30 | 6/23/2016 4:30 PM | 7.21 | 6/24/2016 4:30 PM | 7.19 |
| 6/22/2016 4:45 PM | 7.29 | 6/23/2016 4:45 PM | 7.21 | 6/24/2016 4:45 PM | 7.19 |
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| 6/22/2016 7:45 PM | 7.26 | 6/23/2016 7:45 PM | 7.22 | 6/24/2016 7:45 PM | 7.24 |
| 6/22/2016 8:00 PM | 7.26 | 6/23/2016 8:00 PM | 7.23 | 6/24/2016 8:00 PM | 7.26 |
| 6/22/2016 8:15 PM | 7.32 | 6/23/2016 8:15 PM | 7.20 | 6/24/2016 8:15 PM | 7.26 |
| 6/22/2016 8:30 PM | 7.33 | 6/23/2016 8:30 PM | 7.19 | 6/24/2016 8:30 PM | 7.26 |
| 6/22/2016 8:45 PM | 7.30 | 6/23/2016 8:45 PM | 7.19 | 6/24/2016 8:45 PM | 7.25 |
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| AVG | 7.31 | AVG | 7.23 | AVG | 7.22 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 6/25/2016 1:30 AM | 7.19 | 6/26/2016 1:30 AM | 7.24 | 6/27/2016 1:30 AM | 7.23 |
| 6/25/2016 1:45 AM | 7.19 | 6/26/2016 1:45 AM | 7.24 | 6/27/2016 1:45 AM | 7.22 |
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| 6/25/2016 3:00 AM | 7.24 | 6/26/2016 3:00 AM | 7.22 | 6/27/2016 3:00 AM | 7.23 |
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| 6/25/2016 5:00 AM | 7.23 | 6/26/2016 5:00 AM | 7.19 | 6/27/2016 5:00 AM | 7.19 |
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| 6/25/2016 6:30 AM | 7.26 | 6/26/2016 6:30 AM | 7.22 | 6/27/2016 6:30 AM | 7.17 |
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| 6/25/2016 7:15 AM | 7.25 | 6/26/2016 7:15 AM | 7.19 | 6/27/2016 7:15 AM | 7.16 |
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| 6/25/2016 7:45 AM | 7.23 | 6/26/2016 7:45 AM | 7.23 | 6/27/2016 7:45 AM | 7.17 |
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| 6/25/2016 8:30 AM | 7.22 | 6/26/2016 8:30 AM | 7.19 | 6/27/2016 8:30 AM | 7.21 |
| 6/25/2016 8:45 AM | 7.22 | 6/26/2016 8:45 AM | 7.22 | 6/27/2016 8:45 AM | 7.20 |
| 6/25/2016 9:00 AM | 7.22 | 6/26/2016 9:00 AM | 7.24 | 6/27/2016 9:00 AM | 7.19 |
| 6/25/2016 9:15 AM | 7.21 | 6/26/2016 9:15 AM | 7.24 | 6/27/2016 9:15 AM | 7.18 |
| 6/25/2016 9:30 AM | 7.21 | 6/26/2016 9:30 AM | 7.24 | 6/27/2016 9:30 AM | 7.17 |
| 6/25/2016 9:45 AM | 7.21 | 6/26/2016 9:45 AM | 7.23 | 6/27/2016 9:45 AM | 7.16 |
| 6/25/2016 10:00 AM | 7.20 | 6/26/2016 10:00 AM | 7.23 | 6/27/2016 10:00 AM | 7.15 |
| 6/25/2016 10:15 AM | 7.20 | 6/26/2016 10:15 AM | 7.22 | 6/27/2016 10:15 AM | 7.16 |
| 6/25/2016 10:30 AM | 7.22 | 6/26/2016 10:30 AM | 7.22 | 6/27/2016 10:30 AM | 7.19 |
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| 6/25/2016 11:30 AM | 7.26 | 6/26/2016 11:30 AM | 7.20 | 6/27/2016 11:30 AM | 7.14 |
| 6/25/2016 11:45 AM | 7.25 | 6/26/2016 11:45 AM | 7.19 | 6/27/2016 11:45 AM | 7.20 |
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| 6/25/2016 12:15 PM | 7.23 | 6/26/2016 12:15 PM | 7.20 | 6/27/2016 12:15 PM | 7.21 |
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| 6/25/2016 12:45 PM | 7.23 | 6/26/2016 12:45 PM | 7.22 | 6/27/2016 12:45 PM | 7.20 |
| 6/25/2016 1:00 PM | 7.22 | 6/26/2016 1:00 PM | 7.23 | 6/27/2016 1:00 PM | 7.20 |
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| 6/25/2016 1:30 PM | 7.28 | 6/26/2016 1:30 PM | 7.22 | 6/27/2016 1:30 PM | 7.18 |
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| 6/25/2016 9:45 PM | 7.25 | 6/26/2016 9:45 PM | 7.18 | 6/27/2016 9:45 PM | 7.14 |
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| 6/25/2016 10:45 PM | 7.27 | 6/26/2016 10:45 PM | 7.15 | 6/27/2016 10:45 PM | 7.13 |
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| 6/25/2016 11:15 PM | 7.24 | 6/26/2016 11:15 PM | 7.25 | 6/27/2016 11:15 PM | 7.12 |
| 6/25/2016 11:30 PM | 7.24 | 6/26/2016 11:30 PM | 7.26 | 6/27/2016 11:30 PM | 7.11 |
| 6/25/2016 11:45 PM | 7.22 | 6/26/2016 11:45 PM | 7.23 | 6/27/2016 11:45 PM | 7.11 |
| AVG | 7.23 | AVG | 7.22 | AVG | 7.18 |

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| 6/28/2016 12:45 AM | 7.19 | 6/29/2016 12:45 AM | 7.11 | 6/30/2016 12:45 AM | 7.16 |
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| 6/28/2016 1:15 AM | 7.17 | 6/29/2016 1:15 AM | 7.11 | 6/30/2016 1:15 AM | 7.16 |
| 6/28/2016 1:30 AM | 7.16 | 6/29/2016 1:30 AM | 7.11 | 6/30/2016 1:30 AM | 7.16 |
| 6/28/2016 1:45 AM | 7.15 | 6/29/2016 1:45 AM | 7.10 | 6/30/2016 1:45 AM | 7.16 |
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| 6/28/2016 11:45 PM | 7.12 | 6/29/2016 11:45 PM | 7.16 | 6/30/2016 11:45 PM | 7.16 |
| AVG | 7.14 | AVG | 7.14 | AVG | 7.16 |

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|---|---|
| **MIN** | **6.90** |
| **MAX** | **7.51** |

Avtex Fibers
Front Royal, VA
Outfall 004
June 2016 DMR

| Sample Date | Sample ID | BOD, mg/L | BOD, kg/d | TSS, mg/L | TSS, kg/d |
|---|---|---|---|---|---|
| 6/1/2016 | AF6-1FE | 3.0 | 1.17 | 2.5 | 0.98 |
| 6/8/2016 | AF6-8FE | 4.0 | 1.45 | 4.87 | 1.76 |
| 6/15/2016 | AF6-15FE | 3.0 | 1.45 | 2.4 | 1.16 |
| 6/22/2016 | AF6-22FE | 3.0 | 1.17 | 1.0 | 0.39 |
| 6/29/2016 | AF6-29fE | 3.0 | 0.91 | 0.00 | 0.00 |
| | Daily Maximum: | 4.0 | 1.5 | 4.9 | 1.8 |
| | Monthly Avg: | 3.2 | 1.2 | 2.2 | 0.9 |

Monthly Average – Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as calculated. If all data are below the QL used for the analysis, then the average shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported monthly average concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the monthly average of the calculated daily quantities.

Daily Maximum – Compliance with the daily maximum limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each day during the reporting month. The maximum value of these daily averages thus determined shall be reported on the DMR as the Daily Maximum. If all data are below the QL used for the analysis, then the maximum value of the daily averages shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported daily maximum concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported daily average concentrations (including the defined zeros) and corresponding daily flows to determine daily average quantities and report the maximum of the daily average quantities during the reporting month.

**Loading Derivation**
If 1 ppm (= 1 mg/L) and 1 MGD (= 1 MG/day)
--> (1 mg/L)(1 MG/day)(3.785 L/Gal)(10^6 Gal/MG)(1 lb/453,600 mg) = 8.34 lbs/day
**--> lbs/day = ppm * 8.34 * MGD**
**--> kg/d = ppm * 8.34 * MGD * 0.4536*lb/d**

**Concentration Derivation**
If 1 lb/d and 1 MGD (= 1 MG/day)
[(1 lbs/day)(453,600 mg/lb)] / [(1 MG/d)(10^6 Gal/MG)(3.785 L/Gal)]
**--> ppm = lb/d * (1/8.34) * (1/MGD)**

| | BOD |
|---|---|
| 6/1/2016 | 1.172598355 |
| 6/8/2016 | 1.447820267 |
| 6/15/2016 | 1.453743684 |
| 6/22/2016 | 1.172383077 |
| 6/29/2016 | 0.906925091 |
| AVG | 1.230694095 |

| | TSS |
|---|---|
| 6/1/2016 | 0.977165296 |
| 6/8/2016 | 1.762721175 |
| 6/15/2016 | 1.162994947 |
| 6/22/2016 | 0.390794359 |
| 6/29/2016 | 0 |
| AVG | 0.858735155 |

| | CS2* |
|---|---|
| 5/25/2016 | <QL |

*Note: CS2 EPA Test Method: 8260 MSV Low Level Analytical Method (EPA 8260)
Report Limit 2 ug/L
MDL 1.2 ug/L

**Table 2.1**

**Site Rainfall Data Avtex Fibers Superfund Site 1 April - June 30, 2016**

| Month | Average Rainfall for Winchester, VA (in)* | Average Site Rainfall 1990-2013 (in) | 2006 Actual Rainfall (in) | 2007 Actual Rainfall (in) | 2008 Actual Rainfall (in) | 2009 Actual Rainfall (in) | 2010 Actual Rainfall (in) | 2011 Actual Rainfall (in) | 2012 Actual Rainfall (in) | 2013 Actual Rainfall (in) | 2014 Actual Rainfall (in) | 2015 Actual Rainfall (in) | 2016 Actual Rainfall (in) | Percent of Average Site Rainfall (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January | 2.4 | 2.7 | 2.0 | 1.2 | 1.0 | 1.4 | 3.35 | 0.9 | 2.0 | 3.8 | 1.1 | 1.4 | 1.2 | 46% |
| February | 2.5 | 2.3 | 1.7 | 1.9 | 2.3 | 0.0 | 4.35 | 1.4 | 2.3 | 0.9 | 3.2 | 0.7 | 2.2 | 95% |
| March | 3.1 | 3.6 | 0.1 | 3.7 | 2.9 | 1.5 | 5.7 | 4.6 | 1.9 | 3.9 | 2.3 | 1.7 | 1.0 | 27% |
| April | 3.1 | 3.2 | 2.8 | 3.4 | 6.2 | 3.2 | 1.59 | 6.5 | 2.5 | 1.3 | 1.5 | 2.9 | 1.3 | 42% |
| May | 3.7 | 3.8 | 1.0 | 1.9 | 5.2 | 5.8 | 3.25 | 5.6 | 3.6 | 2.4 | 7.2 | 1.6 | 3.9 | 102% |
| June | 3.9 | 4.4 | 9.7 | 3.5 | 4.3 | 4.6 | 0.6 | 4.0 | 3.6 | 5.2 | 1.5 | 3.9 | 3.8 | 85% |
| July | 3.9 | 3.4 | 2.2 | 1.7 | 3.8 | 3.0 | 1.8 | 3.1 | 4.3 | 1.9 | 4.6 | 1.8 | | 0% |
| August | 3.5 | 3.1 | 1.3 | 2.8 | 3.5 | 2.1 | 3.3 | 3.4 | 5.2 | 2.6 | 3.7 | 1.0 | | 0% |
| September | 3.1 | 4.7 | 6.1 | 2.0 | 4.3 | 1.3 | 5.7 | 5.5 | 4.9 | 2.5 | 1.6 | 3.6 | | 0% |
| October | 3.2 | 3.0 | 4.3 | 4.1 | 1.2 | 2.7 | 0.65 | 3.9 | 4.3 | 5.1 | 5.17 | 1.65 | | 0% |
| November | 3.1 | 2.9 | 5.2 | 1.6 | 2.5 | 3.7 | 1.8 | 3.0 | 1.1 | 1.6 | 1.83 | 1.36 | | 0% |
| December | 2.5 | 2.6 | 0.7 | 2.8 | 1.4 | 5.0 | 2.0 | 3.6 | 1.55 | 1.5 | 3.02 | 2.46 | | 0% |
| **Totals to Date** | **37.9** | **39.6** | **36.9** | **30.4** | **38.5** | **34.2** | **34.1** | **45.2** | **37.0** | **32.8** | **36.7** | **24.1** | **13.4** | **34%** |

* Source: National Climate Data Center TD 9641 Clim 81

**Table 2.2 Monthly Flow Totals**

**Avtex Site Lift Stations, Test Wells and Viscose Basin**

## April 2016

| Lift Stations Flow Report | |
|---|---|
| Date | Total LS Flow (MGD) |
| 4/1/2016 | 0.004 |
| 4/2/2016 | 0.007 |
| 4/3/2016 | 0.002 |
| 4/4/2016 | 0.007 |
| 4/5/2016 | 0.002 |
| 4/6/2016 | 0.000 |
| 4/7/2016 | 0.011 |
| 4/8/2016 | 0.004 |
| 4/9/2016 | 0.000 |
| 4/10/2016 | 0.007 |
| 4/11/2016 | 0.003 |
| 4/12/2016 | 0.000 |
| 4/13/2016 | 0.010 |
| 4/14/2016 | 0.002 |
| 4/15/2016 | 0.000 |
| 4/16/2016 | 0.049 |
| 4/17/2016 | 0.047 |
| 4/18/2016 | 0.011 |
| 4/19/2016 | 0.000 |
| 4/20/2016 | 0.000 |
| 4/21/2016 | 0.000 |
| 4/22/2016 | 0.013 |
| 4/23/2016 | 0.001 |
| 4/24/2016 | 0.010 |
| 4/25/2016 | 0.005 |
| 4/26/2016 | 0.002 |
| 4/27/2016 | 0.000 |
| 4/28/2016 | 0.002 |
| 4/29/2016 | 0.000 |
| 4/30/2016 | 0.006 |

| Test Wells Flow Report | | | |
|---|---|---|---|
| Date | TW1 Flow (MGD) | TW2 Flow (MGD) | TW3 Flow (MGD) |
| 4/1/2016 | 0.052 | 0.029 | 0.000 |
| 4/2/2016 | 0.059 | 0.009 | 0.000 |
| 4/3/2016 | 0.064 | 0.000 | 0.000 |
| 4/4/2016 | 0.064 | 0.000 | 0.000 |
| 4/5/2016 | 0.046 | 0.020 | 0.000 |
| 4/6/2016 | 0.052 | 0.020 | 0.000 |
| 4/7/2016 | 0.046 | 0.013 | 0.000 |
| 4/8/2016 | 0.059 | 0.027 | 0.000 |
| 4/9/2016 | 0.065 | 0.030 | 0.000 |
| 4/10/2016 | 0.059 | 0.010 | 0.000 |
| 4/11/2016 | 0.064 | 0.006 | 0.000 |
| 4/12/2016 | 0.059 | 0.009 | 0.000 |
| 4/13/2016 | 0.064 | 0.008 | 0.000 |
| 4/14/2016 | 0.059 | 0.000 | 0.000 |
| 4/15/2016 | 0.064 | 0.000 | 0.000 |
| 4/16/2016 | 0.064 | 0.000 | 0.000 |
| 4/17/2016 | 0.064 | 0.001 | 0.000 |
| 4/18/2016 | 0.064 | 0.001 | 0.000 |
| 4/19/2016 | 0.064 | 0.023 | 0.000 |
| 4/20/2016 | 0.064 | 0.034 | 0.000 |
| 4/21/2016 | 0.064 | 0.037 | 0.000 |
| 4/22/2016 | 0.064 | 0.036 | 0.000 |
| 4/23/2016 | 0.064 | 0.008 | 0.000 |
| 4/24/2016 | 0.064 | 0.033 | 0.000 |
| 4/25/2016 | 0.064 | 0.036 | 0.000 |
| 4/26/2016 | 0.064 | 0.035 | 0.000 |
| 4/27/2016 | 0.064 | 0.035 | 0.000 |
| 4/28/2016 | 0.064 | 0.034 | 0.000 |
| 4/29/2016 | 0.064 | 0.034 | 0.000 |
| 4/30/2016 | 0.064 | 0.034 | 0.000 |

| Viscose Basin Flow Report | | | |
|---|---|---|---|
| Date | VB9 Flow (MGD) | VB10 Flow (MGD) | VB 11 Flow (MGD) |
| 4/1/2016 | 0.000 | 0.001 | 0.002 |
| 4/2/2016 | 0.000 | 0.002 | 0.024 |
| 4/3/2016 | 0.000 | 0.001 | 0.000 |
| 4/4/2016 | 0.000 | 0.000 | 0.000 |
| 4/5/2016 | 0.000 | 0.000 | 0.001 |
| 4/6/2016 | 0.000 | 0.000 | 0.000 |
| 4/7/2016 | 0.003 | 0.002 | 0.000 |
| 4/8/2016 | 0.000 | 0.000 | 0.000 |
| 4/9/2016 | 0.000 | 0.000 | 0.000 |
| 4/10/2016 | 0.000 | 0.000 | 0.000 |
| 4/11/2016 | 0.000 | 0.000 | 0.000 |
| 4/12/2016 | 0.000 | 0.000 | 0.000 |
| 4/13/2016 | 0.000 | 0.000 | 0.000 |
| 4/14/2016 | 0.000 | 0.000 | 0.003 |
| 4/15/2016 | 0.000 | 0.000 | 0.001 |
| 4/16/2016 | 0.000 | 0.000 | 0.001 |
| 4/17/2016 | 0.000 | 0.000 | 0.005 |
| 4/18/2016 | 0.000 | 0.000 | 0.034 |
| 4/19/2016 | 0.000 | 0.000 | 0.048 |
| 4/20/2016 | 0.003 | 0.004 | 0.027 |
| 4/21/2016 | 0.000 | 0.001 | 0.000 |
| 4/22/2016 | 0.003 | 0.002 | 0.000 |
| 4/23/2016 | 0.000 | 0.000 | 0.000 |
| 4/24/2016 | 0.000 | 0.000 | 0.000 |
| 4/25/2016 | 0.000 | 0.000 | 0.000 |
| 4/26/2016 | 0.000 | 0.000 | 0.000 |
| 4/27/2016 | 0.000 | 0.000 | 0.000 |
| 4/28/2016 | 0.000 | 0.000 | 0.000 |
| 4/29/2016 | 0.000 | 0.000 | 0.000 |
| 4/30/2016 | 0.000 | 0.000 | 0.000 |

**Table 2.2 Monthly Flow Totals**

**Avtex Site Lift Stations, Test Wells and Viscose Basin**

## May 2016

| Lift Stations Flow Report | |
|---|---|
| Date | Total LS Flow (MGD) |
| 5/1/2016 | 0.007 |
| 5/2/2016 | 0.016 |
| 5/3/2016 | 0.014 |
| 5/4/2016 | 0.017 |
| 5/5/2016 | 0.018 |
| 5/6/2016 | 0.021 |
| 5/7/2016 | 0.027 |
| 5/8/2016 | 0.027 |
| 5/9/2016 | 0.005 |
| 5/10/2016 | 0.011 |
| 5/11/2016 | 0.011 |
| 5/12/2016 | 0.004 |
| 5/13/2016 | 0.009 |
| 5/14/2016 | 0.009 |
| 5/15/2016 | 0.000 |
| 5/16/2016 | 0.000 |
| 5/17/2016 | 0.009 |
| 5/18/2016 | 0.009 |
| 5/19/2016 | 0.013 |
| 5/20/2016 | 0.013 |
| 5/21/2016 | 0.016 |
| 5/22/2016 | 0.016 |
| 5/23/2016 | 0.028 |
| 5/24/2016 | 0.028 |
| 5/25/2016 | 0.008 |
| 5/26/2016 | 0.008 |
| 5/27/2016 | 0.004 |
| 5/28/2016 | 0.009 |
| 5/29/2016 | 0.009 |
| 5/30/2016 | 0.004 |
| 5/31/2016 | 0.008 |

| Test Wells Flow Report | | | |
|---|---|---|---|
| Date | TW1 Flow (MGD) | TW2 Flow (MGD) | TW3 Flow (MGD) |
| 5/1/2016 | 0.064 | 0.033 | 0.000 |
| 5/2/2016 | 0.064 | 0.033 | 0.000 |
| 5/3/2016 | 0.041 | 0.022 | 0.000 |
| 5/4/2016 | 0.058 | 0.031 | 0.000 |
| 5/5/2016 | 0.064 | 0.034 | 0.000 |
| 5/6/2016 | 0.058 | 0.024 | 0.000 |
| 5/7/2016 | 0.064 | 0.010 | 0.000 |
| 5/8/2016 | 0.064 | 0.032 | 0.000 |
| 5/9/2016 | 0.064 | 0.035 | 0.030 |
| 5/10/2016 | 0.064 | 0.034 | 0.034 |
| 5/11/2016 | 0.064 | 0.034 | 0.023 |
| 5/12/2016 | 0.064 | 0.034 | 0.030 |
| 5/13/2016 | 0.063 | 0.034 | 0.034 |
| 5/14/2016 | 0.063 | 0.034 | 0.038 |
| 5/15/2016 | 0.064 | 0.033 | 0.001 |
| 5/16/2016 | 0.064 | 0.033 | 0.000 |
| 5/17/2016 | 0.064 | 0.033 | 0.000 |
| 5/18/2016 | 0.064 | 0.033 | 0.000 |
| 5/19/2016 | 0.064 | 0.033 | 0.030 |
| 5/20/2016 | 0.063 | 0.033 | 0.039 |
| 5/21/2016 | 0.063 | 0.033 | 0.043 |
| 5/22/2016 | 0.063 | 0.033 | 0.043 |
| 5/23/2016 | 0.042 | 0.022 | 0.028 |
| 5/24/2016 | 0.058 | 0.031 | 0.022 |
| 5/25/2016 | 0.063 | 0.034 | 0.022 |
| 5/26/2016 | 0.064 | 0.034 | 0.000 |
| 5/27/2016 | 0.064 | 0.034 | 0.030 |
| 5/28/2016 | 0.063 | 0.034 | 0.039 |
| 5/29/2016 | 0.063 | 0.034 | 0.043 |
| 5/30/2016 | 0.058 | 0.032 | 0.039 |
| 5/31/2016 | 0.063 | 0.036 | 0.043 |

| Viscose Basin Flow Report | | | |
|---|---|---|---|
| Date | VB9 Flow (MGD) | VB10 Flow (MGD) | VB 11 Flow (MGD) |
| 5/1/2016 | 0.000 | 0.000 | 0.000 |
| 5/2/2016 | 0.000 | 0.000 | 0.000 |
| 5/3/2016 | 0.000 | 0.000 | 0.000 |
| 5/4/2016 | 0.000 | 0.000 | 0.000 |
| 5/5/2016 | 0.001 | 0.000 | 0.000 |
| 5/6/2016 | 0.001 | 0.000 | 0.000 |
| 5/7/2016 | 0.000 | 0.000 | 0.000 |
| 5/8/2016 | 0.000 | 0.000 | 0.000 |
| 5/9/2016 | 0.000 | 0.000 | 0.000 |
| 5/10/2016 | 0.000 | 0.000 | 0.000 |
| 5/11/2016 | 0.003 | 0.001 | 0.000 |
| 5/12/2016 | 0.003 | 0.001 | 0.000 |
| 5/13/2016 | 0.000 | 0.000 | 0.000 |
| 5/14/2016 | 0.000 | 0.000 | 0.000 |
| 5/15/2016 | 0.000 | 0.000 | 0.000 |
| 5/16/2016 | 0.000 | 0.000 | 0.000 |
| 5/17/2016 | 0.001 | 0.000 | 0.000 |
| 5/18/2016 | 0.001 | 0.000 | 0.000 |
| 5/19/2016 | 0.001 | 0.000 | 0.000 |
| 5/20/2016 | 0.000 | 0.000 | 0.000 |
| 5/21/2016 | 0.000 | 0.000 | 0.000 |
| 5/22/2016 | 0.000 | 0.000 | 0.000 |
| 5/23/2016 | 0.006 | 0.003 | 0.000 |
| 5/24/2016 | 0.006 | 0.003 | 0.000 |
| 5/25/2016 | 0.004 | 0.002 | 0.000 |
| 5/26/2016 | 0.003 | 0.002 | 0.000 |
| 5/27/2016 | 0.003 | 0.002 | 0.000 |
| 5/28/2016 | 0.003 | 0.002 | 0.000 |
| 5/29/2016 | 0.000 | 0.000 | 0.000 |
| 5/30/2016 | 0.000 | 0.000 | 0.000 |
| 5/31/2016 | 0.004 | 0.002 | 0.000 |

**Table 2.2 Monthly Flow Totals**

**Avtex Site Lift Stations, Test Wells and Viscose Basin**

## June 2016

| Lift Stations Flow Report | |
|---|---|
| Date | Total LS Flow (MGD) |
| 6/1/2016 | 0.008 |
| 6/2/2016 | 0.002 |
| 6/3/2016 | 0.003 |
| 6/4/2016 | 0.006 |
| 6/5/2016 | 0.006 |
| 6/6/2016 | 0.001 |
| 6/7/2016 | 0.006 |
| 6/8/2016 | 0.006 |
| 6/9/2016 | 0.003 |
| 6/10/2016 | 0.001 |
| 6/11/2016 | 0.001 |
| 6/12/2016 | 0.007 |
| 6/13/2016 | 0.007 |
| 6/14/2016 | 0.001 |
| 6/15/2016 | 0.001 |
| 6/16/2016 | 0.004 |
| 6/17/2016 | 0.005 |
| 6/18/2016 | 0.005 |
| 6/19/2016 | 0.001 |
| 6/20/2016 | 0.001 |
| 6/21/2016 | 0.001 |
| 6/22/2016 | 0.007 |
| 6/23/2016 | 0.007 |
| 6/24/2016 | 0.001 |
| 6/25/2016 | 0.001 |
| 6/26/2016 | 0.001 |
| 6/27/2016 | 0.001 |
| 6/28/2016 | 0.000 |
| 6/29/2016 | 0.006 |
| 6/30/2016 | 0.006 |

| Test Wells Flow Report | | | |
|---|---|---|---|
| Date | TW1 Flow (MGD) | TW2 Flow (MGD) | TW3 Flow (MGD) |
| 6/1/2016 | 0.063 | 0.035 | 0.043 |
| 6/2/2016 | 0.058 | 0.032 | 0.029 |
| 6/3/2016 | 0.063 | 0.035 | 0.033 |
| 6/4/2016 | 0.063 | 0.035 | 0.023 |
| 6/5/2016 | 0.064 | 0.034 | 0.000 |
| 6/6/2016 | 0.064 | 0.034 | 0.000 |
| 6/7/2016 | 0.064 | 0.034 | 0.030 |
| 6/8/2016 | 0.063 | 0.034 | 0.034 |
| 6/9/2016 | 0.063 | 0.034 | 0.024 |
| 6/10/2016 | 0.064 | 0.033 | 0.030 |
| 6/11/2016 | 0.063 | 0.033 | 0.039 |
| 6/12/2016 | 0.063 | 0.033 | 0.043 |
| 6/13/2016 | 0.063 | 0.033 | 0.034 |
| 6/14/2016 | 0.064 | 0.025 | 0.031 |
| 6/15/2016 | 0.063 | 0.031 | 0.039 |
| 6/16/2016 | 0.063 | 0.034 | 0.043 |
| 6/17/2016 | 0.063 | 0.026 | 0.010 |
| 6/18/2016 | 0.063 | 0.031 | 0.000 |
| 6/19/2016 | 0.064 | 0.033 | 0.000 |
| 6/20/2016 | 0.064 | 0.033 | 0.030 |
| 6/21/2016 | 0.063 | 0.033 | 0.039 |
| 6/22/2016 | 0.063 | 0.033 | 0.043 |
| 6/23/2016 | 0.063 | 0.032 | 0.043 |
| 6/24/2016 | 0.063 | 0.032 | 0.034 |
| 6/25/2016 | 0.057 | 0.030 | 0.039 |
| 6/26/2016 | 0.063 | 0.033 | 0.043 |
| 6/27/2016 | 0.063 | 0.033 | 0.043 |
| 6/28/2016 | 0.028 | 0.014 | 0.019 |
| 6/29/2016 | 0.020 | 0.012 | 0.000 |
| 6/30/2016 | 0.057 | 0.019 | 0.000 |

| Viscose Basin Flow Report | | | |
|---|---|---|---|
| Date | VB9 Flow (MGD) | VB10 Flow (MGD) | VB 11 Flow (MGD) |
| 6/1/2016 | 0.004 | 0.002 | 0.000 |
| 6/2/2016 | 0.003 | 0.002 | 0.000 |
| 6/3/2016 | 0.003 | 0.002 | 0.000 |
| 6/4/2016 | 0.003 | 0.001 | 0.000 |
| 6/5/2016 | 0.000 | 0.000 | 0.000 |
| 6/6/2016 | 0.007 | 0.003 | 0.000 |
| 6/7/2016 | 0.007 | 0.003 | 0.000 |
| 6/8/2016 | 0.006 | 0.003 | 0.000 |
| 6/9/2016 | 0.003 | 0.001 | 0.000 |
| 6/10/2016 | 0.002 | 0.001 | 0.000 |
| 6/11/2016 | 0.002 | 0.001 | 0.000 |
| 6/12/2016 | 0.000 | 0.000 | 0.000 |
| 6/13/2016 | 0.002 | 0.001 | 0.000 |
| 6/14/2016 | 0.002 | 0.001 | 0.000 |
| 6/15/2016 | 0.002 | 0.001 | 0.000 |
| 6/16/2016 | 0.002 | 0.001 | 0.000 |
| 6/17/2016 | 0.000 | 0.000 | 0.000 |
| 6/18/2016 | 0.000 | 0.000 | 0.000 |
| 6/19/2016 | 0.000 | 0.000 | 0.000 |
| 6/20/2016 | 0.000 | 0.000 | 0.000 |
| 6/21/2016 | 0.002 | 0.002 | 0.000 |
| 6/22/2016 | 0.002 | 0.002 | 0.000 |
| 6/23/2016 | 0.003 | 0.002 | 0.000 |
| 6/24/2016 | 0.003 | 0.002 | 0.000 |
| 6/25/2016 | 0.003 | 0.001 | 0.000 |
| 6/26/2016 | 0.000 | 0.000 | 0.000 |
| 6/27/2016 | 0.000 | 0.000 | 0.000 |
| 6/28/2016 | 0.000 | 0.000 | 0.000 |
| 6/29/2016 | 0.001 | 0.001 | 0.000 |
| 6/30/2016 | 0.002 | 0.002 | 0.000 |

*Attachment 3*

*Preliminary Site-Wide Quarterly Inspection*

# Quarterly Inspection Report

Inpected by: M. Robinson / H. Lipomi
Report No.: 2016-06
Date: 06-15-2016
Areas Inspected: See Map

**1. Remediation/Restoration Areas**

| Questions | Response | | Comments and Recommendations |
|---|---|---|---|
| Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on an attached map. | ☐ Yes | ☑ No | |
| Is erosion evident? If Yes, describe the type of erosion (rills, gullies), record approximate dimensions (length, width, depth) and indicate location(s) on an attached map. | ☑ Yes | ☐ No | Minor erosion noted in a few small areas (see map for locations and details) |
| Are potential leachate seeps evident or migration of contamination? If Yes, describe the nature (size, color, flow rate), record location on an attached map, and photograph.<br><br>[Note: Check former seep areas in unnamed tributary north of VB 4-6, check pond area north of VB 9, and check other likely areas (e.g., embankments of VBs, SBs)] | ☑ Yes | ☐ No | See map for locations. Past areas of standing water all dry during this inspection. Potential seeps previously in the following locations were all dry:<br>-South of LS2<br>-SE of VB-2&3<br>-NW of VB-7&8 (flowing ~0.25 L/min) |
| Do landfill/basin embankments show signs of erosion, failure (e.g., cracking, sloughing) or migration of contamination (e.g., seeps, exposed waste)? If Yes, describe the nature (type, size), record location on an attached map, and photograph<br><br>[Note: Check river-side of embankments along river, if safe to do so.] | ☐ Yes | ☑ No | |
| Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on an attached map. | ☑ Yes | ☐ No | Isolated/minor bare areas noted. See map for locations |

# Quarterly Inspection Report

Inpected by: M. Robinson / H. Lipomi
Report No.: 2016-06
Date: 06-15-2016
Areas Inspected: See Map

| Questions | Response | | Comments and Recommendations |
|---|---|---|---|
| Is there woody vegetation greater than 2 inches in diameter or 5 feet in height on the cover system(s)? If Yes, describe where and actions to be taken (refer to Section 4.2 of the O&M Plan). | ☑ Yes | ☐ No | A few small trees noted. See map for locations |
| Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on an attached map. | ☐ Yes | ☑ No | |
| Are obstruction(s) (brush, debris, timber, leaves, sediment) interfering with the proper functioning of ditches, gutters or flumes? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on an attached map. | ☐ Yes | ☑ No | |
| Is sediment deposited in diversion berms, ditches gutters, flumes or culverts deeper than ¼ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on an attached map. | ☐ Yes | ☑ No | |

# Quarterly Inspection Report

Inpected by: M. Robinson / H. Lipomi
Date: 06-15-2016
Report No.: 2016-06
Areas Inspected: See Map

**2. Surface Water Drainage and Erosion Control System**

| Questions | Response | | Comments and Recommendations |
|---|---|---|---|
| Is erosion evident? If Yes, describe the drainage structure inspected (ditch, gutter, flume, culvert, outfall, rip-rap), the type of erosion (rills, gullies, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on an attached map. | ☑ Yes | ☐ No | Minor erosion noted in a few isolated areas. See map for locations. |
| Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on an attached map. | ☑ Yes | ☐ No | |
| Is erosion evident at drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on an attached map. | ☐ Yes | ☑ No | |

Inspection Checklist (check items that were inspected; document concerns noted; refer to attached Drawings for specific areas)

**Viscos Basins 1-3**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert Inlets & outles | ☑ Rip-rap channels | ☑ Access road near unit | ☐ |

**Viscos Basins 4-6**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert Inlets & outles<br>- N, E, & W of VB 4-6;<br>- Pond W of VB 4-6 | ☑ Rip-rap channels | ☑ Down chutes | ☑ Gas Vent Filter & Fence |
| ☑ Former seep area<br>- N of VB 4-6 | ☑ LS #1 & #2 and Fencing | ☑ Access road near unit | ☐ |

**Viscos Basins 7-8**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert Inlets & outles (between VB-1 and VB-7) | ☑ Rip-rap channels | ☑ Down chutes | ☑ Leachate Collection Manhole (MW VB7) |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

**Viscos Basins 9-11**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Drop inlests on VB-11 | ☑ Culver inlets & outlets (S&W VB-11; N VB-11 & VB-9; and SW VB-10) | ☑ Rip-rap channels | ☑ Down chutes |
| ☑ Access road near unit | ☑ Seep area in pond north of VB-9 | ☑ VB 9-11 fence and gates | ☑ LS #4 and Fencing |

**New Landfill**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & outlets (NE & SE of NLF) | ☑ Rip-rap channels | ☑ Down chutes | ☑ LS #3 and Fencing |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

**SB-1**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & outlets (NE SB-1; SB-2; SE SB-3; NE SB-4; & S SB-4) | ☑ Rip-rap channels & outlets by River | ☑ Down chutes (SB-1 & SB-4) | ☐ |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

## Inspection Checklist (check items that were inspected; document concerns noted; refer to attached Drawings for specific areas)

**SB-2**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Culvert inlets & Outlets (S & W Sides) |
| ☑ Berms along River (site & river side) | ☑ Rip-rap channels & outlets by River | ☑ Access road near unit | ☐ |

**SB-3**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & Outlets (SE)) | ☑ Rip-rap channels & outlets by River | ☑ Drop inlets (W side) | ☑ Access Road near unit |
| ☐ | ☐ | ☐ | ☐ |

**SB-4**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & outlets (NE & S sides) | ☑ Down chutes (S Side) | ☑ Drop inlet (N side) | ☑ Berms along River (site & river side) |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

**SB-5**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Berms along River and E side | ☑ Access Road near unit | ☐ | ☐ |
| ☐ | ☐ | ☐ | ☐ |

**FAB 1-3**

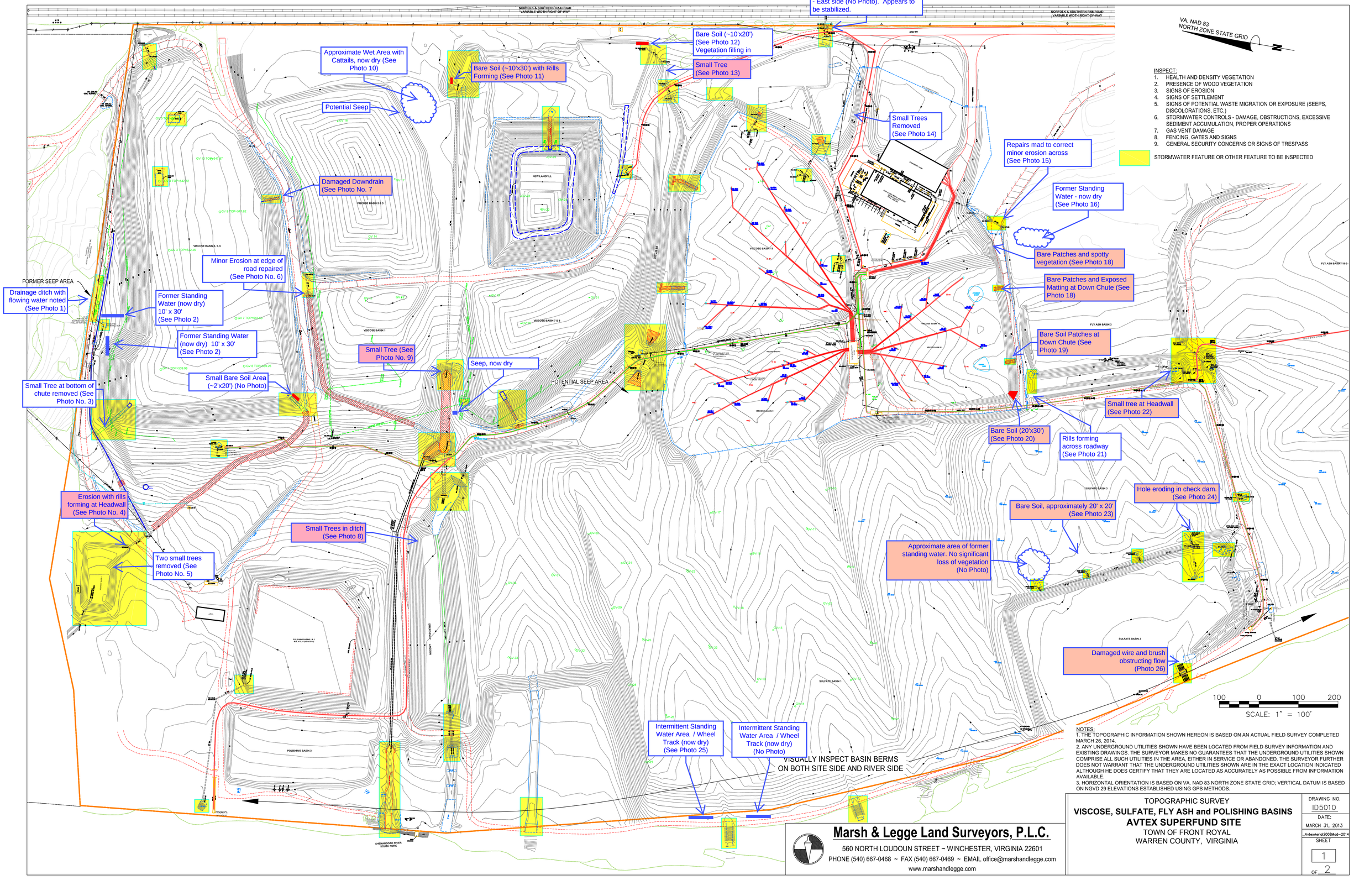
| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Culvert inlets & outlets (E & S FAB1-2; SW FAB3) |
| ☑ Access Road near unit | ☐ | ☐ | ☐ |

**FAS & FARA**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Culvert inlets & outlets (E & N FAS; E FARA) |
| ☑ Access Road near unit | ☐ | ☐ | ☐ |

**EL, PB 1-2, PB-3**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Rip-rap Channels |
| ☑ Culvert inlets & outlets (E & W EL; NW PB-1-2; S PB-3) | ☑ Access Road near unit | ☐ | ☐ |

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TOPOGRAPHIC SURVEY
**VISCOSE, SULFATE, FLY ASH and POLISHING BASINS**
**AVTEX SUPERFUND SITE**
TOWN OF FRONT ROYAL
WARREN COUNTY, VIRGINIA

DRAWING NO. ID5010
DATE: MARCH 31, 2013
_AvtexAerial2008Mod--2014
SHEET 1 OF 2

VA. NAD 83
NORTH ZONE STATE GRID

NORFOLK & SOUTHERN RAILROAD
VARIABLE WIDTH RIGHT-OF-WAY

Small trees / bush at headwall removed (See Photo 25)

Small brush in ditch around inlet (See Photo 28)

Small trees in ditch around inlet removed (See Photo 27)

Trees in ditch around inlet removed (See Photo 26)

See Sheet 1 of 2

VISUALLY INSPECT BASIN BERMS
ON BOTH SITE SIDE AND RIVER SIDE

FLY ASH BASIN 6

FLY ASH BASIN 1 & 2

FLY ASH BASIN 3

SULFATE BASIN 5

SULFATE BASIN 4

SULFATE BASIN 3

SULFATE BASIN 2

SHENANDOAH RIVER

SHENANDOAH RIVER

INSPECT:
1. HEALTH AND DENSITY VEGETATION
2. PRESENCE OF WOOD VEGETATION
3. SIGNS OF EROSION
4. SIGNS OF SETTLEMENT
5. SIGNS OF POTENTIAL WASTE MIGRATION OR EXPOSURE (SEEPS, DISCOLORATIONS, ETC.)
6. STORMWATER CONTROLS - DAMAGE, OBSTRUCTIONS, EXCESSIVE SEDIMENT ACCUMULATION, PROPER OPERATIONS
7. GAS VENT DAMAGE
8. FENCING, GATES AND SIGNS
9. GENERAL SECURITY CONCERNS OR SIGNS OF TRESPASS

STORMWATER FEATURE OR OTHER FEATURE TO BE INSPECTED

100 0 100 200
SCALE: 1" = 100'

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WARREN COUNTY, VIRGINIA

DRAWING NO. ID5010
DATE: MARCH 13, 2014
..\Avtexterial2008Mod~2014
SHEET 2 OF 2

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 1 ***Unit:*** *OU-10* **Basin/Landfill**: VB-4, 5, & 6

**Date :** 06/15/2016

**Photo Description:** Drainage ditch near former seep north of LS-2.

**Photo Number:** 2 ***Unit:*** OU-10 **Basin/Landfill:** VB-4, 5, & 6

**Date :** 63/15/2016

**Photo Description:** Former area of standing water adjacent to LS-2 (now dry).

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 3 ***Unit:*** *OU-10* **Basin/Landfill**: VB-4, 5, & 6

**Date :** 06/15/2016

**Photo Description: :** Small tree at bottom of chute in northwest corner has been removed.

**Photo Number:** 4 ***Unit:*** OU-10 **Basin/Landfill:** Sediment Basin 1

**Date :** 06/15/2016

**Photo Description:** Erosion with rills forming at edge of road located in the northeast corner of VB-1.

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 5 ***Unit:*** *OU-10* **Basin/Landfill**: Sedimentation Basin 1

**Date :** 06/15/2016

**Photo Description:** Small trees at basin edge have been removed.

**Photo Number:** 6 ***Unit:*** OU-10 **Basin/Landfill:** VB-1

**Date :** 06/15/2016

**Photo Description:** Minor erosion at edge of road located in the northeast corner of VB-1 has been repaired.

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 7 ***Unit:*** *OU-10* **Basin/Landfill**: VB-4, 5, & 6

**Date :** 06/15/2016

**Photo Description:** Minor damage to right side of the chute (rocks displaced) on the south side of VB-4, 5, and 6.

**Photo Number:** 8 ***Unit:*** OU-10 **Basin/Landfill:** VB-11

**Date :** 06/15/2016

**Photo Description:** Small trees in the EL.

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 9 ***Unit:*** *OU-10* **Basin/Landfill**: VB-1 / VB-7&8

**Date :** 06/15/2016

**Photo Description:** Small tree at headwall for drainage channel between VB-1 and VB-7&8.

**Photo Number:** 10 ***Unit:*** OU-10 **Basin/Landfill:** VB-2&3

**Date :** 06/15/2016

**Photo Description:** Large area of cattails southeast of VB2&3. Currently dry.

**Photo Number:** 11 ***Unit:*** *OU-10* **Basin/Landfill**: VB-2&3

**Date :** 06/15/2016

**Photo Description:** Bare soil (~10' x30`) with rills southeast of VB-2&3.

**Photo Number:** 12 ***Unit:*** OU-10 **Basin/Landfill:** NLF

**Date :** 06/15/2016

**Photo Description:** Bare soil (~10'x20') in the southeast corner of the basin located southeast of the NLF; continues to fill in with vegetation.

**Photo Number:** 13 ***Unit:*** *OU-10* **Basin/Landfill**: NLF

**Date :** 06/15/2016

**Photo Description:** Small tree located in drainage channel southeast of the NLF.

**Photo Number:** 14 ***Unit:*** OU-7 **Basin/Landfill:** VB-11

**Date :** 06/15/2016

**Photo Description:** Small trees formerly located along sedimentation basin east of VB-11 (near gate) have been removed.

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 15 ***Unit:*** *OU-7* **Basin/Landfill**: VB-10

**Date :** 06/15/2016

**Photo Description:** Repairs made to minor erosion across roadway south of treatment plant.

**Photo Number:** 16 ***Unit:*** OU-7 **Basin/Landfill:** VB-10

**Date :** 06/15/2016

**Photo Description: Former s**tanding water south of treatment plant (north of FAB-3).

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 17 ***Unit:*** *OU-7* **Basin/Landfill**: VB-10

**Date :** 06/15/2016

**Photo Description:** Bare patches and spotty vegetation in southeast corner of VB-10.

**Photo Number:** 18 ***Unit:*** OU-7 **Basin/Landfill:** VB-10

**Date :** 06/15/2016

**Photo Description:** Bare patches and exposed matting at down chute in southeast corner of VB-10.

**Photo Number:** 19 ***Unit:*** *OU-7* **Basin/Landfill:** VB-10

**Date :** 06/15/2016

**Photo Description:** Bare patches and exposed matting at down chute in southwest corner of VB-10.

**Photo Number:** 20 ***Unit:*** *OU-7* **Basin/Landfill**: VB-10

**Date :** 06/15/2016

**Photo Description:** Bare soil (~20'x30') at the southwest corner of VB-10.

**Photo Number:** 21 ***Unit:*** *OU-7* **Basin/Landfill:** VB-10

**Date :** 06/15/2016

**Photo Description:**

**Photo Number:** 22 ***Unit:*** *NTCRA Basins* **Basin/Landfill**:

**Date :** 06/15/2016

**Photo Description:** Small tree approaching 5 feet tall at headwall south of VB-10.

**Photo Number:** 23 ***Unit:*** *NTRCA Basins* **Basin/Landfill:** SB-3

**Date :** 06/15/2016

**Photo Description:** Bare soil area (~20'x20') on SB-4.

**Photo Number:** 24 ***Unit:*** *NTCRA Basins* **Basin/Landfill**: SB-3

**Date :** 06/15/2016

**Photo Description:** Hole eroding in check dam on SB-4

**Photo Number:** 25 ***Unit:*** *NTRCA Basins* **Basin/Landfill:** SB-1

**Date :** 06/15/2016

**Photo Description:** Standing water along east side of access road west of SB-1. Appears to be related to wheel tracks from mowing/maintenance activities.

**Photo Number:** 26 ***Unit:*** *NTCRA Basins* **Basin/Landfill**: SB-2

**Date :** 06/15/2016

**Photo Description:** Brush obstructing culvert, wire damaged.

**Photo Number:** 25 ***Unit:*** *Fly Ash Basins* **Basin/Landfill:** FAB-6

**Date :** 06/15/2016

**Photo Description:** Small trees in channel near inlet west of FAB-6 have been cut down.

**Photo Number:** 26 ***Unit:*** *Fly Ash Basins* **Basin/Landfill:** FAB-6

**Date :** 06/15/2016

**Photo Description:** Small trees in channel near inlet west of FAB-6 have been cut down.

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 27 ***Unit:*** *Fly Ash Basins* **Basin/Landfill:** FAB-6

**Date :** 06/15/2016

**Photo Description:** Small trees in channel near inlet west of FAB-6 have been cut down.

**Photo Number:** 28 ***Unit:*** *Fly Ash Basins* **Basin/Landfill:** FAB-6

**Date :** 06/15/2016

**Photo Description:** Small brush in channel near inlet west of FAB-6.

2016

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**AVTEX SUPERFUND SITE**
TOWN OF FRONT ROYAL
WARREN COUNTY, VIRGINIA

DRAWING NO. ID5010
DATE: MARCH 31, 2013
_AvtexAerial2008Mod~2014
SHEET 1 OF 2

2016

INSPECT:

1. HEALTH AND DENSITY VEGETATION
2. PRESENCE OF WOOD VEGETATION
3. SIGNS OF EROSION
4. SIGNS OF SETTLEMENT
5. SIGNS OF POTENTIAL WASTE MIGRATION OR EXPOSURE (SEEPS, DISCOLORATIONS, ETC.)
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2
OF 2

**FMC Corporation**
2929 Walnut Street
Philadelphia, PA 19104
USA

215.299.6000
fmc.com

December 21, 2016

**SENT VIA: ELECTRONIC MAIL AND US MAIL**

Mr. Charlie Root
Remedial Project Manager
U.S. Environmental Protection Agency
Hazardous Site Cleanup Division, 3HS23
1650 Arch Street
Philadelphia, PA 19103

**RE: QUARTERLY PROGRESS REPORT FOR THE AVTEX FIBERS SUPERFUND SITE FOR THE PERIOD 1 JULY TO 30 SEPTEMBER 2016**

Dear Mr. Root,

FMC Corporation (FMC) has enclosed one clipped copy of the Quarterly Progress Report for remedial activities undertaken by FMC at the Avtex Fibers Superfund Site, Front Royal, Virginia (Site). This Quarterly progress report addresses the reporting requirements in 1999 Consent Decree between the United States of America and FMC Corporation to conduct removal and remedial actions. In accordance with Section XI, Paragraph 45 of the Consent Decree, FMC has prepared this progress report to describe actions taken pursuant to the Consent Decree during the previous quarter.

If you have any questions or comments, please call me at 215-299-6047.

Sincerely,

Brian McGinnis
*EHS, Remediation Manager*

Enclosure (1)
cc: M. Carpenter, FMC
M. Payne, B. Kiracofe, VADEQ
S. Curran, Gannett Fleming
H. Philip, Parsons

**QUARTERLY PROGRESS REPORT**
**for the Avtex Fibers Superfund Site, Front Royal, Virginia**
**for the Period July 1 to September 30, 2016**

## *1.0 INTRODUCTION*

FMC Corporation (FMC) has conducted removal and remedial activities at the Avtex Fibers Superfund Site, Front Royal, Virginia (Site). The removal action, remedial design, and remedial action activities were performed pursuant to the 1999 Consent Decree between the United States of America and FMC Corporation (effective 21 October 1999).

On August 29, 2014, USEPA issued a document titled, "Superfund Preliminary Close-out Report," which documented construction completion at the Site. The completion of construction at the Site marked its transition into the O&M phase. Full-scale operations and maintenance were achieved when the Groundwater and Leachate Treatment Plant (GLTP) began operating in continuous biological mode in September 2015. During the September 8, 2014 monthly call between EPA and FMC, EPA agreed that the former monthly progress reporting for the site could be reduced to quarterly during O&M phase as specified in paragraph 45 in Consent Decree. In accordance with Section XI, Paragraph 45 of the Consent Decree, FMC has prepared this progress report to describe actions taken pursuant to both the Areas of Concern (AOC) and Consent Decree during the months of July, August, and September 2016.

This report includes progress towards full completion of removal and remedial activities, and follows formatting consistent with previous reports. Daily operations and maintenance activities will be ongoing and will follow requirements in the Site-Wide O&M Plan (FMC, May 2015), which will include the Operations and Maintenance Manual Groundwater and Leachate Treatment Plant (Parsons, December 2014), and the Operations, Maintenance and Monitoring Manual Groundwater and Leachate Extraction System (Parsons, May 2015) with any major deviations reported in the sections below. The Site-Wide O&M Plan replaces prior response action specific O&M Plans, such as those presented in the various design documents.

In accordance with Section XI of the Consent Decree, this quarterly progress report contains the following:

- Description of actions taken during the previous quarter;
- Summary of data generated by FMC during the previous quarter;

- Actions scheduled for the next quarter;
- Description of problems and actions taken to mitigate the problems;
- Update on the schedule of actions and percentage completion of tasks;
- Modification to the Work Plans or other schedules; and
- Activities undertaken in support of the EPA Community Relations Plan.

Attachment 1 lists correspondence and deliverables transmitted from FMC or FMC contractors to EPA, and from EPA or EPA contractors to FMC for the previous quarter.

The remainder of the quarterly progress report is divided into six sections (these sections will be removed and updated when actions are completed for the section):

- *Section 2.0 – OU-7/ROD 5 RD/RA*. This section describes remedial design and remedial action activities being conducted under Paragraph 23 in the Consent Decree. The units covered under OU-7 include Viscose Basins (VB) 9-11, site-wide ground water and surface water.
- *Section 3.0 – OU-10/ROD 4 RD/RA*. This section describes remedial design and remedial action activities being conducted under Paragraph 24 in the Consent Decree. The units covered under OU-10 include VB 1-8, the New Landfill, Wastewater Treatment Plant (WWTP) Closure, and Plant Area Soils.
- *Section 4.0 - Non-Time-Critical Removal Actions (NTCRA) for the Buildings*. This section describes the activities being conducted under Paragraph 21.A in the Consent Decree. The scope of the NTCRA-Buildings project is to decontaminate the remaining structures and remove the sewers and manholes.
- *Section 5.0 - Basin Closure*. This section describes the activities being conducted as a NTCRA under Paragraph 22 of the Consent Decree. The scope of this action consists of the closure of the Sulfate Basins, WWTP Basins, Fly Ash Basins, and the Stockpile (Mountain).
- *Section 6.0 – Groundwater and Leachate Treatment Plant O&M*. This section describes the Operations and Maintenance (O&M) activities being conducted to address the discharge requirements for the GLTP.
- *Section 7.0 - Other Site Support Documents.* This section describes site-wide activities that cross over all of management units.
- *Section 8.0 – Community Relations Support*. This section describes activities undertaken in support of community relations in accordance with the Consent Decree requirement.

## *2.0 OU-7/ROD 5 (VB 9-11, GROUND WATER, SURFACE WATER) REMEDIAL DESIGN/REMEDIAL ACTION*

### *2.1 Actions Taken and Reports Prepared in Previous Period*

- Completed quarterly water level measurements as described in Section 2 of the GMP.
- Completed quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.
- Completed quarterly monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Completed quarterly post-closure OU-7 and site perimeter real time air monitoring as required by Section 2.2 of the Air Monitoring Plan Operable Unit 7, Avtex Fibers Superfund Site, Front Royal, Virginia, October 2011. Hydrogen sulfide was detected at the instrument detection limit of 1 part per billion (ppb) at two locations (OU-7 Perimeter South and the Site Perimeter East). No other constituents were detected. The results are presented in in Attachment 2.

### *2.2 Data Generated in Previous Period*

Laboratory results have been received for the stormwater sampling and the data are currently being validated. Laboratory results have been received for the annual groundwater sampling and the data are currently being evaluated. The annual groundwater results will be presented in the site-wide annual monitoring report.

As required by the Air Monitoring Plan, post construction quarterly air monitoring for hydrogen sulfide and organic vapor was completedA map showing the sample locations is provided in Attachment 2.

The following instruments were utilized to collect the real-time readings:

- Hydrogen Sulfide: Jerome 613X.
- Organic Vapor: MiniRAE 3000

Hydrogen sulfide was detected at the instrument detection limit of 1 part per billion (ppb) at two locations (OU-7 Perimeter South and the Site Perimeter

East). No other constituents were detected. The results are presented in Attachment 2.

### *2.3 Actions to be Completed Next Period*

- Complete quarterly water level measurements as described in Section 2 of the GMP.
- Complete quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.
- Complete quarterly monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Complete quarterly post-closure OU-7 and site perimeter real time air monitoring and collect annual air samples as required by Section 2.2 of the Air Monitoring Plan Operable Unit 7, Avtex Fibers Superfund Site, Front Royal, Virginia, October 2011.
- Submit to EPA the ICIAP pursuant to Section 11.2.10 of the ROD.

### *2.4 Problems Encountered and Remedies*

No problems were encountered during the previous period.

### *2.5 Schedule Update*

All remedial design and remedial action work associated with OU-7 is complete based on EPA's approvals of the remedial action reports for the GLTP component and Viscose Basins 9-11 cap system and groundwater and leachate extraction component of OU-7.

## *3.0 OU-10/ROD 4 (VB 1-8, NEW LANDFILL, PLANT AREA SOILS AND WWTP CLOSURE) REMEDIAL DESIGN/REMEDIAL ACTION*

### *3.1 Actions Taken and Reports Prepared in Previous Period*

- Completed routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Completed quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

### *3.2 Data Generated in Previous Period*

Laboratory results have been received for the annual groundwater sampling and the data are currently being validated. The results will be presented in the annual monitoring report.

### *3.3 Actions to be Completed Next Period*

- Address any EPA or VADEQ comments to the 30 December 2014 report titled *Screening Level Ecological Assessment for Plant Area Soil*s.
- Complete routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Complete quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

### 3.4 Problems Encountered and Remedies

No problems were encountered during the previous period.

### *3.5 Schedule Update*

All remedial design and remedial action work associated with OU-10 is complete based on EPA's approvals of the remedial action reports for plant area soils, WWTP and VB 1-8 and New Landfill.

## *4.0 NON-TIME-CRITICAL REMOVAL ACTIONS (NTCRA) BUILDINGS*

### *4.1 Actions Taken and Reports Prepared in Previous Period*

- No actions were completed during the previous period because EPA issued a Certificate of Completion.

### *4.2 Data Generated in Previous Period*

No new analytical data were generated during the previous month.

### *4.3 Actions to be Completed Next Period*

- No actions will be completed during the next period because EPA issued a Certificate of Completion.

### *4.4 Problems Encountered and Remedies*

No problems were encountered during the previous month.

### *4.5 Schedule Update*

All removal action work associated with NTCRA-Buildings is complete.

## *5.0 NON-TIME-CRITICAL REMOVAL ACTIONS (NTCRA) - BASIN CLOSURE*

### *5.1 Actions Taken and Reports Prepared in Previous Period*

- Completed quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

- Completed routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan

### *5.2 Data Generated in Previous Period*

Laboratory results have been received for the annual groundwater sampling and the data are currently being evaluated. The results will be presented in the annual monitoring report.

### *5.3 Actions to be Completed Next Period*

- Complete quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

- Complete routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan

### *5.4 Problems Encountered and Remedies*

No problems were encountered during the previous month.

### *5.5 Schedule Update*

All removal action work associated with NTCRA-Basins is complete.

## *6.0 GROUNDWATER AND LEACHATE TREATMENT PLANT O&M*

### *6.1 Actions Taken and Reports Prepared in Previous Period*

- The GLTP operated and discharged to the South Fork Shenandoah River (River) for 91 days in from July 1 to September 30, 2016.

Discharge Monitoring

Discharge monitoring was completed as required by the July 24, 2014 VADEQ final Fact Sheet and Applicable or Relevant and Appropriate Requirements (ARARs) for the discharge of effluent from the GLTP. Discharge monitoring included: flow, pH, TSS, $BOD_5$, and carbon disulfide. The daily and monthly flow and chemical data are listed in the Discharge Monitoring Reports (DMRs) submitted during the third quarter of 2016 provided in Attachment 3 and summarized below. We remain in the trouble shooting of operations and stabilization period.

Table 1.0 Summary of 3Q16 Effluent Sampling

| | **Permitted Limits** | **July 2016 (month avg/ daily max)** | **August 2016 (month avg/ daily max)** | **September 2016 (month avg/ daily max)** |
|---|---|---|---|---|
| **Flow(gpd)** | 0.396 MGD | 0.100/0.134 | 0.117/0.140 | 0.108/0.118 |
| **pH (range)** | 6.5 – 9.0 | 7.21-7.77 | 6.92-7.79 | 7.09-7.36 |
| **TSS (mg/L)** | 40 / 130 | 1.2/4.8 | 0.8/1.6 | 1.4/2.4 |
| **$BOD_5$ (mg/L)** | 24 / 64 | 1.0/4.0 | 0.4/2.0 | 0.5/2.0 |
| **CS2 (ug/L)** | No limit established. 0.1mg/l action level | <QL | <QL | <QL |

*Where parameters non-detect, the value '0' was used for calculating average and maximum concentrations.

- *Flow*. Flow during discharge was monitored continuously. Additionally, flow rates for the lift stations, test wells and viscose basins for the months of April, May and June are provided in Table 3.2 (Attachment 3).
- *pH*. pH was monitored continuously during the days that discharge occurred. The pH monitoring results for each month are included in Attachment 3 with the monthly DMRs. The effluent pH was within the range of 6.5 to 9.0 specified in the ARARs.

- *TSS.* TSS was monitored weekly. The permitted monthly daily average limit for TSS of 40 mg/l and the permitted monthly maximum daily limit of 130 mg/l for TSS were not exceeded during this reporting period.
- *$BOD_{5.}$* $BOD_5$ was monitored weekly. The permitted monthly daily average limit for $BOD_5$ of 24 mg/l and the permitted monthly maximum daily limit of 64 mg/l for $BOD_5$ were not exceeded during this reporting period.
- *Carbon Disulfide.* Carbon Disulfide is monitored monthly and no limit is established in the ARARs. The results for the monthly sample collected in the first quarter of 2016 was less than the 0.1 mg/l monthly action level specified in the ARARs, as all results were non-detect with a reporting limit of 2.0 ug/l.

Rainfall Data

Table 3.1 (Attachment 3) shows that a total of 13.8 inches of precipitation fell on the Site during the third quarter 2016 (Jul., Aug., Sep.). The total precipitation for 2016 to-date is 27.2 inches, representing to-date 69% of the average Site total yearly precipitation (39.6 inches).

### *6.2 Data Generated in Previous Period*

Discharge monitoring, rainfall data and flow totals for the lift stations, test wells and viscose basin are contained in Attachment 3. DMRs were submitted by the tenth of each month.

### *6.3 Actions to be Taken Next Period*

- Continue GLTP startup and operate the GLTP biological system in continuous mode.
- Conduct the Whole Effluent Toxicity sampling per the ARARs (to meet at least one of the Applicability Criteria for a Facility to Perform Aquatic Toxicity Tests stipulated in Guidance Memorandum 00-2012 (Section IV.1.C))

### *6.4 Problems Encountered and Remedies*

The pH effluent probe was replaced in March due to failure and inconsistencies.

### *6.5 Schedule Update*

The GLTP will continue to operate in full continuous mode.

## *7.0 OTHER SITE SUPPORT DOCUMENTS*

### *7.1 Actions Taken and Reports Prepared in Previous Period*

- Quarterly inspections (e.g. seep areas, river berms, gas vents, etc.) and inspection reports completed.

### *7.2 Actions to be Taken Next Period*

- Quarterly inspections (e.g. seep areas, river berms, gas vents, etc.) and inspection reports to be completed.

## *8.0 COMMUNITY RELATIONS SUPPORT*

- No activity during the previous period.

## *ATTACHMENTS*

1 Summary of Monthly Correspondence

2 OU-7 and Site Perimeter Air Monitoring Results

3 GLTP Discharge Monitoring and Information

Discharge Monitoring Reports, 1 April to 30 June 2016

Table 3.1 – Site Rainfall Data

Table 3.2 - Monthly Flow Totals Avtex Site Lift Stations, Test Wells and Viscose Basin

4 Preliminary Site-Wide Quarterly Inspection (with repairs photo log)

*ATTACHMENT 1 – LIST OF CORRESPONDENCE AND DELIVERABLES FOR THE PERIOD JULY 1, 2016 TO SEPTEMBER 30, 2016, AVTEX FIBERS SUPERFUND SITE, FRONT ROYAL, VIRGINIA*

*FMC to EPA*

July 10, 2016. 2Q16 Quarterly Progress Report Submitted to EPA.

August 16, 2016. 1Q16 Quarterly Progress Report submitted to EPA.

*FMC to VADEQ*

July 8, 2016. Discharge Monitoring Report - June 2016 submitted to VADEQ and EPA

August 10, 2016. Discharge Monitoring Report – July 2016 submitted to VADEQ and EPA

September 9, 2016. Discharge Monitoring Report – August 2016 Revised submitted to VADEQ and EPA

*Attachment 2*

*OU-7 and Site Perimeter Air Monitoring Results*

TABLE

Air Monitoring Results
2016 Annual Post Construction Air Sampling
Avtex Fibers Superfund Site
Front Royal, Virginia

| | | EPA RSL (HQ=1) | | 2016AN-DOWNWIND | | | 2016AN-PERIM-SW | | | 2016AN-PERIM-DUP (DUPLICATE OF PERIM-SW) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Industrial** | **Residential** | **Result** | **Result** | Data | **Result** | **Result** | Data | **Result** | **Result** | Data |
| **CAS#** | **Compound** | **µg/m³** | **µg/m³** | **µg/m³** | **ppbV** | Qualifier | **µg/m³** | **ppbV** | Qualifier | **µg/m³** | **ppbV** | Qualifier |
| 7783-06-4 | Hydrogen Sulfide | 8.8 | 2.1 | ND | ND | | ND | ND | | ND | ND | |
| 463-58-1 | Carbonyl Sulfide | 4400 | 100 | ND | ND | | **13** | **5.1** | **J** | ND | ND | |
| 74-93-1 | Methyl Mercaptan | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 75-08-1 | Ethyl Mercaptan | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 75-18-3 | Dimethyl Sulfide | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 75-15-0 | Carbon Disulfide | 3100 | 730 | **11** | **3.5** | | **20** | **6.5** | | ND | ND | |
| 75-33-2 | Isopropyl Mercaptan | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 75-66-1 | tert-Butyl Mercaptan | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 107-03-9 | n-Propyl Mercaptan | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 624-89-5 | Ethyl Methyl Sulfide | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 110-02-1 | Thiophene | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 513-44-0 | Isobutyl Mercaptan | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 352-93-2 | Diethyl Sulfide | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 109-79-5 | n-Butyl Mercaptan | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 624-92-0 | Dimethyl Disulfide | -- | -- | ND | ND | | **47** | **12** | **J** | ND | ND | **J** |
| 616-44-4 | 3-Methylthiophene | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 110-01-0 | Tetrahydrothiophene | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 638-02-8 | 2,5-Dimethylthiophene | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 872-55-9 | 2-Ethylthiophene | -- | -- | ND | ND | | ND | ND | | ND | ND | |
| 110-81-6 | Diethyl Disulfide | -- | -- | ND | ND | | ND | ND | | ND | ND | |

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
EPA RSL = US Environmental Protection Agency Regional Screening Level
HQ = Hazard quotient
Highlighted values exceed RSL

TABLE

Air Monitoring Results
2016 Annual Post Construction Air Sampling
Avtex Fibers Superfund Site
Front Royal, Virginia

| | | 2016AN-PERIM-NE | | | 2016AN-PERIM-E | | | 2016AN-PERIM-N | | | 2016AN-PERIM-NW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Result** | **Result** | Data | **Result** | **Result** | Data | **Result** | **Result** | Data | **Result** | **Result** | Data |
| **CAS#** | **Compound** | **µg/m³** | **ppbV** | Qualifier | **µg/m³** | **ppbV** | Qualifier | **µg/m³** | **ppbV** | Qualifier | **µg/m³** | **ppbV** | Qualifier |
| 7783-06-4 | Hydrogen Sulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 463-58-1 | Carbonyl Sulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 74-93-1 | Methyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 75-08-1 | Ethyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 75-18-3 | Dimethyl Sulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 75-15-0 | Carbon Disulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 75-33-2 | Isopropyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 75-66-1 | tert-Butyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 107-03-9 | n-Propyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 110-02-1 | Thiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 513-44-0 | Isobutyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 352-93-2 | Diethyl Sulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 109-79-5 | n-Butyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 624-92-0 | Dimethyl Disulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 616-44-4 | 3-Methylthiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 110-01-0 | Tetrahydrothiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 872-55-9 | 2-Ethylthiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 110-81-6 | Diethyl Disulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
EPA RSL = US Environmental Protection Agency Regional Screening Level
HQ = Hazard quotient
Highlighted values exceed RSL

TABLE

Air Monitoring Results
2016 Annual Post Construction Air Sampling
Avtex Fibers Superfund Site
Front Royal, Virginia

| | | 2016AN-PERIM-W | | | 2016AN-PERIM-S | | | 2016AN-PERIM-SE | | | 2016AN-OU7-SE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Result** | **Result** | Data | **Result** | **Result** | Data | **Result** | **Result** | Data | **Result** | **Result** | Data |
| **CAS#** | **Compound** | **µg/m³** | **ppbV** | Qualifier | **µg/m³** | **ppbV** | Qualifier | **µg/m³** | **ppbV** | Qualifier | **µg/m³** | **ppbV** | Qualifier |
| 7783-06-4 | Hydrogen Sulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 463-58-1 | Carbonyl Sulfide | ND | ND | | ND | ND | | ND | ND | | **7.1** | **2.9** | **J** |
| 74-93-1 | Methyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 75-08-1 | Ethyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 75-18-3 | Dimethyl Sulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 75-15-0 | Carbon Disulfide | ND | ND | | **6.2** | **2.0** | **J** | **4.6** | **1.5** | **J** | **11** | **3.6** | |
| 75-33-2 | Isopropyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 75-66-1 | tert-Butyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 107-03-9 | n-Propyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 110-02-1 | Thiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 513-44-0 | Isobutyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 352-93-2 | Diethyl Sulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 109-79-5 | n-Butyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 624-92-0 | Dimethyl Disulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 616-44-4 | 3-Methylthiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 110-01-0 | Tetrahydrothiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 872-55-9 | 2-Ethylthiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 110-81-6 | Diethyl Disulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
EPA RSL = US Environmental Protection Agency Regional Screening Level
HQ = Hazard quotient
Highlighted values exceed RSL

TABLE

Air Monitoring Results
2016 Annual Post Construction Air Sampling
Avtex Fibers Superfund Site
Front Royal, Virginia

| | | 2016AN-OU7-S | | | 2016AN-OU7-DUP (DUPLICATE OF OU7-S) | | | 2016AN-OU7-NE | | | 2016AN-OU7-NW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Result** | **Result** | Data | **Result** | **Result** | Data | **Result** | **Result** | Data | **Result** | **Result** | Data |
| **CAS#** | **Compound** | **µg/m³** | **ppbV** | Qualifier | **µg/m³** | **ppbV** | Qualifier | **µg/m³** | **ppbV** | Qualifier | **µg/m³** | **ppbV** | Qualifier |
| 7783-06-4 | Hydrogen Sulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 463-58-1 | Carbonyl Sulfide | **200** | **82** | **J** | ND | ND | **J** | ND | ND | | ND | ND | |
| 74-93-1 | Methyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 75-08-1 | Ethyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 75-18-3 | Dimethyl Sulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 75-15-0 | Carbon Disulfide | **210** | **67** | **J** | **5.5** | **1.8** | **J** | ND | ND | | ND | ND | |
| 75-33-2 | Isopropyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 75-66-1 | tert-Butyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 107-03-9 | n-Propyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 110-02-1 | Thiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 513-44-0 | Isobutyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 352-93-2 | Diethyl Sulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 109-79-5 | n-Butyl Mercaptan | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 624-92-0 | Dimethyl Disulfide | **35** | **9.0** | **J** | ND | ND | **J** | ND | ND | | ND | ND | |
| 616-44-4 | 3-Methylthiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 110-01-0 | Tetrahydrothiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 872-55-9 | 2-Ethylthiophene | ND | ND | | ND | ND | | ND | ND | | ND | ND | |
| 110-81-6 | Diethyl Disulfide | ND | ND | | ND | ND | | ND | ND | | ND | ND | |

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
EPA RSL = US Environmental Protection Agency Regional Screening Level
HQ = Hazard quotient
Highlighted values exceed RSL

TABLE

Air Monitoring Results
2016 Annual Post Construction Air Sampling
Avtex Fibers Superfund Site
Front Royal, Virginia

| | | 2016AN-OU7-SW | | | 2016AN-OU7-N | | |
|---|---|---|---|---|---|---|---|
| | | **Result** | **Result** | Data | **Result** | **Result** | Data |
| **CAS#** | **Compound** | **µg/m³** | **ppbV** | Qualifier | **µg/m³** | **ppbV** | Qualifier |
| 7783-06-4 | Hydrogen Sulfide | ND | ND | | ND | ND | |
| 463-58-1 | Carbonyl Sulfide | ND | ND | | ND | ND | |
| 74-93-1 | Methyl Mercaptan | ND | ND | | ND | ND | |
| 75-08-1 | Ethyl Mercaptan | ND | ND | | ND | ND | |
| 75-18-3 | Dimethyl Sulfide | ND | ND | | ND | ND | |
| 75-15-0 | Carbon Disulfide | ND | ND | | **8.0** | **2.6** | **J** |
| 75-33-2 | Isopropyl Mercaptan | ND | ND | | ND | ND | |
| 75-66-1 | tert-Butyl Mercaptan | ND | ND | | ND | ND | |
| 107-03-9 | n-Propyl Mercaptan | ND | ND | | ND | ND | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | ND | | ND | ND | |
| 110-02-1 | Thiophene | ND | ND | | ND | ND | |
| 513-44-0 | Isobutyl Mercaptan | ND | ND | | ND | ND | |
| 352-93-2 | Diethyl Sulfide | ND | ND | | ND | ND | |
| 109-79-5 | n-Butyl Mercaptan | ND | ND | | ND | ND | |
| 624-92-0 | Dimethyl Disulfide | ND | ND | | ND | ND | |
| 616-44-4 | 3-Methylthiophene | ND | ND | | ND | ND | |
| 110-01-0 | Tetrahydrothiophene | ND | ND | | ND | ND | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | ND | | ND | ND | |
| 872-55-9 | 2-Ethylthiophene | ND | ND | | ND | ND | |
| 110-81-6 | Diethyl Disulfide | ND | ND | | ND | ND | |

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
EPA RSL = US Environmental Protection Agency Regional Screening Level
HQ = Hazard quotient
Highlighted values exceed RSL

*Table 4 - Example Air Monitoring Form*

Date: 8/10/16
Technician: M. HANSEN / K. STUART

| Gas Monitoring Devices: | Used (Y/N) | Calibrated (Y/N) | Date Calibrated | Initials |
|---|---|---|---|---|
| Jerome 631X (low-level $H_2S$) | Y | Y | | MH |
| MiniRAE ~~PLUS~~ LITE with 10.6 eV lamp | Y | Y | 8/10/16 | MH |
| CS2 Drager with qualitative ppm tube | | | | |
| MiniRAE PLUS with LEL | | | | |

Air Samples Collected?
☒ yes
☐ no

**Weather Conditions:**

Precipitation (current): ☐ rain ☐ snow ☐ sleet ☐ mix ☐ other
☐ light ☐ moderate ☐ heavy ☒ NONE
Temperature (current): 90 F
Wind Direction (blowing from): ☐ N ☐ NE ☐ E ☐ SE ☐ variable
☐ S ☒ SW ☐ W ☐ NW ~~☐ variable~~ partly cloudy
Approximate Wind Speed: 8 mph
Cloud Cover: ☐ clear ☒ lt. clouds ☐ overcast ☐ foggy
Barometric Pressure: 30.14 inches

| Monitoring Location | Time | $H_2S$ (ppm) | Organic (ppm) | CS2 (ppm) | Methane (%LEL) | Comments |
|---|---|---|---|---|---|---|
| OU-7 Perimeter | | | | | | |
| N | 1715 | 0 | 0 | | | |
| NE 1700 | ~~1520~~ MH | 0 | 0 | | | |
| SE | 1645 | 0 | 0 | | | |
| S | 1650 | 0 | 0 | | | |
| SW | 1725 | 0 | 0 | | | |
| NW | 1715 | 0 | 0 | | | |
| Site Perimeter | | | | | | |
| N | 1605 | 0 | 0 | | | |
| NE | 1520 | 0 | 0 | | | |
| E | 1540 | 0 | 0 | | | |
| SE | 1555 | 0 | 0 | | | |
| S | 1635 | 0 | 0 | | | |
| SW | 1626 | 0 | 0 | | | |
| NW | 1611 | 0 | 0 | | | |
| Downwind (note location ENTRANCE to Plant ~~Fence~~ LONE TREE) | 1735 | 0 | 0 | | | |

Summarize activities occurring on-site that might relate to air emissions:

# FIGURE 1
# AIR MONITORING LOCATIONS DURING OU-7 WORK
## AVTEX FIBERS SUPERFUND SITE
## FRONT ROYAL, VIRGINIA

G:\CAD\Drawings\FMC_Avtex Front Royal\0122736\A207.dwg

MLB/4-6-11

ERM, INC.

# Memorandum

November 16, 2016

| | | | |
|---|---|---|---|
| To: | Michael Robinson | Ref. No.: | 11119510-001 |
| From: | Deb Andrasko/mkd/2-NF | Tel: | 716 297 6150 |

**Subject:** **Analytical Results and Full Validation**
**Annual Air Monitoring**
**FMC Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

## 1. Introduction

This document details a validation of analytical results for air samples collected in support of the Annual Air Monitoring at the Avtex Fibers Superfund site during August 2016. Samples were submitted to ALS Laboratory, located in Simi Valley, California. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Full Contract Laboratory Program (CLP) equivalent raw data deliverables were provided by the laboratory. Evaluation of the data was based on information obtained from the finished data sheets, raw data, chain of custody forms, calibration data, blank data, duplicate data, recovery data from laboratory control samples (LCS) samples, and field quality assurance/quality control (QA/QC) samples. The assessment of analytical and in-house data included checks for: data consistency (by observing comparability of duplicate analyses), adherence to accuracy and precision criteria, and transmittal errors.

The QA/QC criteria by which these data have been assessed are outlined in the analytical method referenced in Table 3 and applicable guidance from the document entitled "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008, subsequently referred to as the "Guidelines" in this Memorandum.

## 2. Sample Holding Time and Preservation

The sample holding time criteria for the analysis is summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were analyzed within the required holding times.

All samples were properly delivered and stored by the laboratory.

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REGISTERED COMPANY FOR ISO 9001 ENGINEERING DESIGN

## 3. Initial Calibration – Gas Chromatograph (GC)

### 3.1 GC

In order to quantify organic compounds of interest by GC, calibration of the gas chromatograph over a specific concentration range must be performed. Initially, a calibration curve consisting of a minimum of five concentration levels is analyzed for the method recommended sulfur compounds. Linearity of the calibration curve is acceptable if all RSD values are less than or equal to 25.0 percent.

A retention time standard is analyzed during the initial calibration to identify the target compounds and establish retention time windows. These retention times are then used to identify all compounds of interest in subsequent analyses.

All initial calibration standards were analyzed at the required frequencies. All retention time windows and linearity criteria were satisfied as specified in the method.

## 4. Continuing Calibration – Gas Chromatograph

### 4.1 GC

To ensure that the calibration of the instrument for organic analyses by GC is valid throughout the sample analysis period, continuing calibration standards are analyzed and evaluated on a regular basis. To evaluate the continued linearity of the calibration, percent difference (%D) values are calculated and should not exceed 30%.

All continuing calibration standards were analyzed at the required frequency. All %D values and compound retention times met the above criteria indicating acceptable instrument calibration throughout the analysis period.

## 5. Laboratory Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

## 6. Laboratory Control Sample (LCS) Analyses

LCS are prepared and analyzed as samples to assess the analytical efficiencies of the method employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS contained the method recommended compounds. All LCS recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

## 7. Field QA/QC Samples

The field QA/QC consisted of 2 field duplicate sample sets.

### 7.1 Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, 2 field duplicate sample sets were collected and submitted "blind" to the laboratory, as specified in Table 1. The relative percent difference (RPDs) associated with these duplicate samples must be less than 25 percent for air samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criteria is one times the RL value for air samples.

Some of the field duplicate results did not show acceptable agreement. The associated results were qualified as estimated based on the indicated variability (see Table 4).

## 8. Analyte Reporting

The laboratory reported detected results down to the laboratory's RL for each analyte. Positive analyte detections less than the RL but greater than the method detection limit (MDL) were reported as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the RL in Table 2.

## 9. Target Compound Identification

To minimize erroneous compound identification during organic analyses, qualitative criteria including compound retention time were evaluated according to the identification criteria established by the method. The samples identified in Table 1 were reviewed. The compounds reported adhered to the specified identification criteria.

## 10. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable with the specific qualifications noted herein.

**Table 1**

**Sample Collection and Analysis Summary**
**Annual Air Monitoring**
**FMC Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| | | | | | Analysis | |
|---|---|---|---|---|---|---|
| **Sample Identification** | **Location** | **Matrix** | **Collection Date (mm/dd/yyyy)** | **Collection Time (hr:min)** | **Sulfur compounds (air)** | **Comments** |
| 2016AN-DOWNWIND | PERIM-DOWNWIND | Air | 08/11/2016 | 13:52 | X | |
| 2016AN-PERIM-SW | PERIM-SW | Air | 08/11/2016 | 14:35 | X | |
| 2016AN-PERIM-NE | PERIM-NE | Air | 08/11/2016 | 13:40 | X | |
| 2016AN-OU7-SE | OU7-SE | Air | 08/11/2016 | 15:21 | X | |
| 2016AN-PERIM-E | PERIM-E | Air | 08/11/2016 | 14:00 | X | |
| 2016AN-OU7-S | OU7-S | Air | 08/11/2016 | 14:57 | X | |
| 2016AN-PERIM-N | PERIM-N | Air | 08/11/2016 | 14:12 | X | |
| 2016AN-PERIM-NW | PERIM-NW | Air | 08/11/2016 | 14:18 | X | |
| 2016AN-OU7-NE | OUT-NE | Air | 08/11/2016 | 15:36 | X | |
| 2016AN-PERIM-W | PERIM-W | Air | 08/11/2016 | 14:26 | X | |
| 2016AN-PERIM-S | PERIM-S | Air | 08/11/2016 | 14:45 | X | |
| 2016AN-PERIM-DUP | PERIM-SW | Air | 08/11/2016 | 12:00 | X | FD (2016AN-PERIM-SW) |
| 2016AN-OU7-NW | OU7-NW | Air | 08/11/2016 | 15:45 | X | |
| 2016AN-OU7-DUP | OU7-S | Air | 08/11/2016 | 12:01 | X | FD (2016AN-OU7-S) |
| 2016AN-OU7-SW | OU7-SW | Air | 08/11/2016 | 15:52 | X | |
| 2016AN-PERIM-SE | PERIM-SE | Air | 08/11/2016 | 14:07 | X | |
| 2016AN-OU7-N | OU7-NW | Air | 08/11/2016 | 15:40 | X | |

Notes:

FD - Field Duplicate sample of sample in parenthesis

**Table 2**

**Analytical Results Summary**
**Annual Air Monitoring**
**FMC Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| Location ID: | | OU7-NE | OU7-NW | OU7-NW | OU7-S | OU7-S | OU7-SE | OU7-SW |
|---|---|---|---|---|---|---|---|---|
| Sample Name: | | 2016AN-OU7-NE | 2016AN-OU7-N | 2016AN-OU7-NW | 2016AN-OU7-S | 2016AN-OU7-DUP Duplicate | 2016AN-OU7-SE | 2016AN-OU7-SW |
| **Parameters** | **Unit** | | | | | | | |
| **Sulfur Compounds** | | | | | | | | |
| 1-Butanethiol (n-Butyl mercaptan) | µg/m$^3$ | 26 U | 26 U | 27 U | 25 U | 26 U | 26 U | 26 U |
| 1-Isobutanethiol | µg/m$^3$ | 26 U | 26 U | 27 U | 25 U | 26 U | 26 U | 26 U |
| 1-Propanethiol (Propyl mercaptan) | µg/m$^3$ | 22 U | 22 U | 23 U | 21 U | 22 U | 22 U | 22 U |
| 2,5-Dimethylthiophene | µg/m$^3$ | 33 U | 32 U | 34 U | 32 U | 32 U | 32 U | 32 U |
| 2-Ethylthiophene | µg/m$^3$ | 33 U | 32 U | 34 U | 32 U | 32 U | 32 U | 32 U |
| 2-Methyl-2-propanethiol (tert-Butyl mercaptan) | µg/m$^3$ | 26 U | 26 U | 27 U | 25 U | 26 U | 26 U | 26 U |
| 2-Propanethiol (Isopropyl mercaptan) | µg/m$^3$ | 22 U | 22 U | 23 U | 21 U | 22 U | 22 U | 22 U |
| 3-Methylthiophene | µg/m$^3$ | 29 U | 28 U | 29 U | 28 U | 28 U | 28 U | 28 U |
| Carbon disulfide | µg/m$^3$ | 11 U | 8.0 J | 11 U | 210 J | 5.5 J | 11 | 11 U |
| Carbonyl sulfide | µg/m$^3$ | 18 U | 17 U | 18 U | 200 J | 17 UJ | 7.1 J | 17 U |
| Diethyl disulfide | µg/m$^3$ | 18 U | 18 U | 18 U | 17 U | 18 U | 18 U | 18 U |
| Diethyl sulfide | µg/m$^3$ | 26 U | 26 U | 27 U | 25 U | 26 U | 26 U | 26 U |
| Ethyl mercaptan | µg/m$^3$ | 18 U | 18 U | 19 U | 18 U | 18 U | 18 U | 18 U |
| Hydrogen sulfide | µg/m$^3$ | 10 U | 9.8 U | 10 U | 9.6 U | 9.8 U | 9.8 U | 9.8 U |
| Methyl disulfide | µg/m$^3$ | 14 U | 14 U | 14 U | 35 J | 14 UJ | 14 U | 14 U |
| Methyl ethyl sulfide | µg/m$^3$ | 22 U | 22 U | 23 U | 21 U | 22 U | 22 U | 22 U |
| Methyl mercaptan | µg/m$^3$ | 14 U | 14 U | 14 U | 14 U | 14 U | 14 U | 14 U |
| Methyl sulfide | µg/m$^3$ | 18 U | 18 U | 19 U | 18 U | 18 U | 18 U | 18 U |
| Tetrahydro-Thiophene (Thiophane) | µg/m$^3$ | 26 U | 25 U | 26 U | 25 U | 25 U | 25 U | 25 U |
| Thiophene | µg/m$^3$ | 25 U | 24 U | 25 U | 24 U | 24 U | 24 U | 24 U |

**Table 2**

**Analytical Results Summary**
**Annual Air Monitoring**
**FMC Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| Location ID: | | PERIM-DOWNWIND | PERIM-E | PERIM-N | PERIM-NE | PERIM-NW | PERIM-S |
|---|---|---|---|---|---|---|---|
| **Sample Name:** | | **2016AN-DOWNWIND** | **2016AN-PERIM-E** | **2016AN-PERIM-N** | **2016AN-PERIM-NE** | **2016AN-PERIM-NW** | **2016AN-PERIM-S** |
| **Parameters** | **Unit** | | | | | | |
| **Sulfur Compounds** | | | | | | | |
| 1-Butanethiol (n-Butyl mercaptan) | µg/m$^3$ | 25 U | 26 U | 26 U | 26 U | 26 U | 26 U |
| 1-Isobutanethiol | µg/m$^3$ | 25 U | 26 U | 26 U | 26 U | 26 U | 26 U |
| 1-Propanethiol (Propyl mercaptan) | µg/m$^3$ | 21 U | 22 U | 22 U | 22 U | 22 U | 22 U |
| 2,5-Dimethylthiophene | µg/m$^3$ | 31 U | 33 U | 32 U | 32 U | 33 U | 32 U |
| 2-Ethylthiophene | µg/m$^3$ | 31 U | 33 U | 32 U | 32 U | 33 U | 32 U |
| 2-Methyl-2-propanethiol (tert-Butyl mercaptan) | µg/m$^3$ | 25 U | 26 U | 26 U | 26 U | 26 U | 26 U |
| 2-Propanethiol (Isopropyl mercaptan) | µg/m$^3$ | 21 U | 22 U | 22 U | 22 U | 22 U | 22 U |
| 3-Methylthiophene | µg/m$^3$ | 27 U | 29 U | 28 U | 28 U | 29 U | 28 U |
| Carbon disulfide | µg/m$^3$ | 11 | 11 U | 11 U | 11 U | 11 U | 6.2 J |
| Carbonyl sulfide | µg/m$^3$ | 17 U | 18 U | 17 U | 17 U | 18 U | 17 U |
| Diethyl disulfide | µg/m$^3$ | 17 U | 18 U | 18 U | 18 U | 18 U | 17 U |
| Diethyl sulfide | µg/m$^3$ | 25 U | 26 U | 26 U | 26 U | 26 U | 26 U |
| Ethyl mercaptan | µg/m$^3$ | 17 U | 18 U | 18 U | 18 U | 18 U | 18 U |
| Hydrogen sulfide | µg/m$^3$ | 9.5 U | 10 U | 9.8 U | 9.8 U | 10 U | 9.7 U |
| Methyl disulfide | µg/m$^3$ | 13 U | 14 U | 14 U | 14 U | 14 U | 13 U |
| Methyl ethyl sulfide | µg/m$^3$ | 21 U | 22 U | 22 U | 22 U | 22 U | 22 U |
| Methyl mercaptan | µg/m$^3$ | 13 U | 14 U | 14 U | 14 U | 14 U | 14 U |
| Methyl sulfide | µg/m$^3$ | 17 U | 18 U | 18 U | 18 U | 18 U | 18 U |
| Tetrahydro-Thiophene (Thiophane) | µg/m$^3$ | 25 U | 26 U | 25 U | 25 U | 26 U | 25 U |
| Thiophene | µg/m$^3$ | 24 U | 25 U | 24 U | 24 U | 25 U | 24 U |

**Table 2**

**Analytical Results Summary**
**Annual Air Monitoring**
**FMC Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| Location ID: | | PERIM-SE | PERIM-SW | PERIM-SW | PERIM-W |
|---|---|---|---|---|---|
| Sample Name: | | 2016AN-PERIM-SE | 2016AN-PERIM-SW | 2016AN-PERIM-DUP Duplicate | 2016AN-PERIM-W |
| **Parameters** | **Unit** | | | | |
| **Sulfur Compounds** | | | | | |
| 1-Butanethiol (n-Butyl mercaptan) | µg/m$^3$ | 27 U | 26 U | 27 U | 25 U |
| 1-Isobutanethiol | µg/m$^3$ | 27 U | 26 U | 27 U | 25 U |
| 1-Propanethiol (Propyl mercaptan) | µg/m$^3$ | 23 U | 22 U | 23 U | 21 U |
| 2,5-Dimethylthiophene | µg/m$^3$ | 33 U | 32 U | 34 U | 31 U |
| 2-Ethylthiophene | µg/m$^3$ | 33 U | 32 U | 34 U | 31 U |
| 2-Methyl-2-propanethiol (tert-Butyl mercaptan) | µg/m$^3$ | 27 U | 26 U | 27 U | 25 U |
| 2-Propanethiol (Isopropyl mercaptan) | µg/m$^3$ | 23 U | 22 U | 23 U | 21 U |
| 3-Methylthiophene | µg/m$^3$ | 29 U | 28 U | 30 U | 27 U |
| Carbon disulfide | µg/m$^3$ | 4.6 J | 20 | 12 U | 11 U |
| Carbonyl sulfide | µg/m$^3$ | 18 U | 13 J | 18 U | 17 U |
| Diethyl disulfide | µg/m$^3$ | 18 U | 18 U | 18 U | 17 U |
| Diethyl sulfide | µg/m$^3$ | 27 U | 26 U | 27 U | 25 U |
| Ethyl mercaptan | µg/m$^3$ | 19 U | 18 U | 19 U | 17 U |
| Hydrogen sulfide | µg/m$^3$ | 10 U | 9.8 U | 10 U | 9.5 U |
| Methyl disulfide | µg/m$^3$ | 14 U | 47 J | 14 UJ | 13 U |
| Methyl ethyl sulfide | µg/m$^3$ | 23 U | 22 U | 23 U | 21 U |
| Methyl mercaptan | µg/m$^3$ | 14 U | 14 U | 15 U | 13 U |
| Methyl sulfide | µg/m$^3$ | 19 U | 18 U | 19 U | 17 U |
| Tetrahydro-Thiophene (Thiophane) | µg/m$^3$ | 26 U | 25 U | 27 U | 25 U |
| Thiophene | µg/m$^3$ | 25 U | 24 U | 25 U | 24 U |

Notes:

J - Estimated concentration
U - Not detected at the associated reporting limit
UJ - Not detected, estimated reporting limit

**Table 3**

**Analytical Methods**
**Annual Air Monitoring**
**FMC Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| Parameter | Method | Matrix | Collection to Analysis (Days) |
|---|---|---|---|
| Sulfur Compounds in Air | ASTM D 5504-12 (1) | Air | 30 |

Notes:

ASTM - American Society for Testing and Materials

(1) - "ASTM Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence".

**Table 4**

**Qualified Sample Data Due to Variability in Field Duplicate Results**
**Annual Air Monitoring**
**FMC Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| Parameter | Analyte | RPD | Sample ID | Qualified Result | Field Duplicate Sample ID | Qualified Result | Units |
|---|---|---|---|---|---|---|---|
| Sulfur Compounds in air | Carbon disulfide | 190 | 2016AN-OU7-S | 210 J | 2016AN-OU7-DUP | 5.5 J | $ug/m^3$ |
| | Carbonyl sulfide | 169 | 2016AN-OU7-S | 200 J | 2016AN-OU7-DUP | 17 UJ | $ug/m^3$ |
| | Methyl disulfide | 86 | 2016AN-OU7-S | 35 J | 2016AN-OU7-DUP | 14 UJ | $ug/m^3$ |
| | Methyl disulfide | 108 | 2016AN-PERIM-SW | 47 J | 2016AN-PERIM-DUP | 14 UJ | $ug/m^3$ |

Notes:

RPD - Relative Percent Difference
J - Estimated concentration
UJ - Not detected; associated reporting limit is estimated

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# LABORATORY REPORT

August 30, 2016

Michael Robinson, P.E.
Parsons Engineering Science
4701 Hedgemore Drive
Charlotte, NC 28270

**RE: FMC-Avtex Fibers, Front Royal, VA / 449965**

Dear Michael:

Enclosed are the results of the samples submitted to our laboratory on August 17, 2016. For your reference, these analyses have been assigned our service request number P1604037.

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

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

Respectfully submitted,

**ALS | Environmental**

*By Sue Anderson at 3:25 pm, Aug 30, 2016*

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
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**T:** +1 805 526 7161
**F:** +1 805 526 7270
www.alsglobal.com

Client: Parsons Engineering Science
Project: FMC-Avtex Fibers, Front Royal, VA / 449965

Service Request No: P1604037

---

## CASE NARRATIVE

The samples were received intact under chain of custody on August 17, 2016 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The samples were analyzed for twenty sulfur compounds per ASTM D 5504-12 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is included on the laboratory's NELAP scope of accreditation, however it is not part of the DoD-ELAP or AIHA-LAP, LLC accreditation.

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

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

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**www.alsglobal.com**

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

| Agency | Web Site | Number |
|---|---|---|
| AIHA-LAP, LLC | http://www.aihaaccreditedlabs.org | 101661 |
| Arizona DHS | http://www.azdhs.gov/lab/license/env.htm | AZ0694 |
| PJLA (DoD ELAP) | http://www.pjlabs.com/search-accredited-labs | 65818 (Testing) |
| Florida DOH (NELAP) | http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm | E871020 |
| Maine DHHS | http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm | 2014025 |
| Minnesota DOH (NELAP) | http://www.health.state.mn.us/accreditation | 977273 |
| New Jersey DEP (NELAP) | http://www.nj.gov/dep/oqa/ | CA009 |
| New York DOH (NELAP) | http://www.wadsworth.org/labcert/elap/elap.html | 11221 |
| Oregon PHD (NELAP) | http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | 4068-003 |
| Pennsylvania DEP | http://www.depweb.state.pa.us/labs | 68-03307 (Registration) |
| Texas CEQ (NELAP) | http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html | T104704413-16-7 |
| Utah DOH (NELAP) | http://www.health.utah.gov/lab/labimp/certification/index.html | CA016272016-6 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C946 |

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

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

**ALS ENVIRONMENTAL**

DETAIL SUMMARY REPORT

Client: Parsons Engineering Science Service Request: P1604037

Date Received: 8/17/2016
Time Received: 09:10

| Client Sample ID | Lab Code | Matrix | Date Collected | Time Collected | Container ID | Pi1 (psig) | Pf1 (psig) | ASTM D 5504-12 - Sulfur Can |
|---|---|---|---|---|---|---|---|---|
| 2016AN-DOWNWIND | P1604037-001 | Air | 8/11/2016 | 13:52 | 1SS00050 | -0.36 | 4.88 | X |
| 2016AN-PERIM-SW | P1604037-002 | Air | 8/11/2016 | 14:35 | 1SS00148 | -0.54 | 5.27 | X |
| 2016AN-PERIM-NE | P1604037-003 | Air | 8/11/2016 | 13:40 | 1SS00021 | -0.54 | 5.33 | X |
| 2016AN-OU7-SE | P1604037-004 | Air | 8/11/2016 | 15:21 | 1SS00083 | -0.50 | 5.29 | X |
| 2016AN-PERIM-E | P1604037-005 | Air | 8/11/2016 | 14:00 | 1SS00181 | -0.67 | 5.37 | X |
| 2016AN-OU7-S | P1604037-006 | Air | 8/11/2016 | 14:57 | 1SS00096 | -0.43 | 5.00 | X |
| 2016AN-PERIM-N | P1604037-008 | Air | 8/11/2016 | 14:12 | 1SS00109 | -0.48 | 5.33 | X |
| 2016AN-PERIM-NW | P1604037-009 | Air | 8/11/2016 | 14:18 | 1SS00205 | -0.26 | 5.92 | X |
| 2016AN-OU7-NE | P1604037-010 | Air | 8/11/2016 | 15:36 | 1SS00030 | -0.54 | 5.49 | X |
| 2016AN-PERIM-W | P1604037-011 | Air | 8/11/2016 | 14:26 | 1SC01121 | -0.26 | 5.11 | X |
| 2016AN-PERIM-S | P1604037-014 | Air | 8/11/2016 | 14:45 | 1SS00020 | -0.45 | 5.15 | X |
| 2016AN-PERIM-DUP | P1604037-016 | Air | 8/11/2016 | 12:00 | 1SS00103 | -0.65 | 6.03 | X |
| 2016AN-OU7-NW | P1604037-017 | Air | 8/11/2016 | 15:45 | 1SS00134 | -0.60 | 6.02 | X |
| 2016AN-OU7-DUP | P1604037-019 | Air | 8/11/2016 | 12:01 | 1SS00123 | -0.58 | 5.21 | X |
| 2016AN-OU7-SW | P1604037-020 | Air | 8/11/2016 | 15:52 | 1SS00155 | -0.55 | 5.27 | X |
| 2016AN-PERIM-SE | P1604037-021 | Air | 8/11/2016 | 14:07 | 1SS00043 | -0.72 | 5.70 | X |
| 2016AN-OU7-N | P1604037-022 | Air | 8/11/2016 | 15:40 | 1SS00088 | -0.65 | 5.12 | X |

# Air - Chain of Custody Record & Analytical Service Request



ALS
2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No. P1604037

ALS Contact:

Company Name & Address (Reporting Information): Parsons FMC, 4701 Hedgemore Drive, Charlotte, NC 28209

Project Name: FMC-Autex Fibers, Front Royal, VA

Project Number: 449965

Project Manager: Michael Robinson

P.O. # / Billing Information:

Phone: 704-558-4255

Fax:

Email Address for Result Reporting: Michael.Robinson@parsons.com

Sampler (Print & Sign): Ken Stuart [signature]

Analysis Method: Reduced Sulfur Compounds ASTM D 5504: 20 Sulfurs

| Client Sample ID | Laboratory ID Number | Date Collected | Time Collected | Canister ID (Bar code # - AC, SC, etc.) | Flow Controller ID (Bar code # - FC #) | Canister Start Pressure "Hg | Canister End Pressure "Hg/psig | Sample Volume | Reduced Sulfur Compounds ASTM D 5504: 20 Sulfurs | | Comments e.g. Actual Preservative or specific instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ~~1SS00203~~ | ~~SFC00025~~ | ~~0.12~~ | | No Negative Pressure | | | [signature] 8/10/16 |
| 2016AN-DOWNWIND | 1 | 8/11/16 | ~~1630~~ 1352 | 1SS00050 | SFC00131 | -29.46 | | 1L | X | | Start Date - 8/10/16 Start Time - 1745 |
| 2016AN-PERIM-SW | 2 | 8/11/16 | ~~1630~~ 1435 | 1SS00148 | SFC00025 | -26.92 | | 1L | X | | Start Date 8/10/16 Start Time - 1630 |
| 2016AN-Perim-NE | 3 | 8/11/16 | 1340 | 1SS00021 | SFC00196 | -28.02 | | 1L | X | | Start Date - 8/10/16 Start Time - 1528 |
| 2016AN-OU7-SE | 4 | 8/11/16 | 1521 | 1SS00083 | SFC00184 | -21.65 | | 1L | X | | Start Date - 8/10/16 Start Time - 1650 |
| 2016AN-PERIM-E | 5 | 8/11/16 | 1400 | 1SS00181 | SFC00126 | -24.05 | | 1L | X | | Start Date - 8/10/16 Start Time - 1540 |
| 2016AN-OU7-S | 6 | 8/11/16 | 1457 | 1SS00096 | SFC00124 | -29.42 | | 1L | X | | Start Date - 8/10/16 Start Time - 1656 |
| 2016AN-PERIM-E (backup) | 7 | 8/11/16 | 1357 | 1SS00152 | SFC00155 | -28.63 | | 1L | X | | Start Date - 8/10/16 Start Time 1540 |
| 2016AN-PERIM-N | 8 | 8/11/16 | 1412 | 1SS00109 | SFC00088 | -21.60 | | 1L | X | | Start Date - 8/10/16 Start Time - 1606 |
| 2016AN-PERIM-NW | 9 | 8/11/16 | 1418 | 1SS00205 | SFC03009 | -28.80 | | 1L | X | | Start Date - 8/10/16 Start Time - 1613 |
| 2016AN-OU7-NE | 10 | 8/11/16 | 1536 | 1SS00030 | SFC00070 | -29.62 | | 1L | X | | Start Date - 8/10/16 Start Time - 1710 |
| 2016AN-PERIM-W | 11 | 8/11/16 | 1426 | 1SS01121 | SFC00083 | -19.56 | | 1L | X | | Start Date - 8/10/16 Start Time - 1621 |
| 2016AN-OU7-SW (backup) | 12 | 8/11/16 | 1550 | 1SS00166 | SFC00099 | -29.64 | | 1L | X | | Start Date - 8/10/16 Start Time - 1730 |
| 2016AN-DOWNWIND (backup) | 13 | 8/11/16 | 1344 | 1SS00202 | SFC00157 | -10.41 | | 1L | X | | Start Date - 8/10/16 Start Time - 1745 |

Report Tier Levels - please select
Tier I - Results (Default in not specified) ____
Tier II (Results + QC Summaries ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Date Validation Package) 10% Surcharge ____

EDD required YES / No
Type: ____ Units: ____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

| Relinquished by: (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |
|---|---|---|---|---|---|
| [signature] | 8/11/16 | 1630 | | | |
| Relinquished by: (Signature) FEDEX | Date: | Time: | Received by: (Signature) [signature] | Date: 8/11/16 | Time: 0910 |

Cooler / Blank Temperature ____ °C

# Air - Chain of Custody Record & Analytical Service Request



2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No. P160 4037

Company Name & Address (Reporting Information)
Parsons FMC
4701 Hedgemore Drive
Charlotte, NC 28209

Project Name: FMC - Avtex Fibers, Front Royal, VA

Project Number: 449965

Project Manager: Michael Robinson

P.O. # / Billing Information

Phone: 704-558-4255

Fax:

Email Address for Result Reporting: Michael.Robinson@Parsons.com

Sampler (Print & Sign): Ken Shuart

ALS Contact:

Analysis Method

| Client Sample ID | Laboratory ID Number | Date Collected | Time Collected | Canister ID (Bar code # - AC, SC, etc.) | Flow Controller ID (Bar code # - FC #) | Canister Start Pressure "Hg | Canister End Pressure "Hg/psig | Sample Volume | Reduced Sulfur c. compounds ASTM 5504: 20 sulfur | | Comments e.g. Actual Preservative or specific instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2016AN-PERIM-5 | (14) | 8/11/16 | 1445 | 1SS00020 | SFC00089 | -28.15 | | 1L | X | | Start Date-8/10/16 Start Time-1640 |
| 2016AN-PERIM-5 (Backup) | (15) | 8/11/16 | 1447 | 1SC01038 | SFC00134 | -29.08 | | 1L | X | | Start Date-8/10/16 Start Time-1640 |
| 2016AN-PERIM-DUP | (16) | 8/11/16 | 1200 | 1SS00103 | SFC00056 | -29.08 | | 1L | X | | Start Date-8/10/16 Start Time-1200 |
| 2016AN-007-NW | (17) | 8/11/16 | 1545 | 1SS00134 | SFC00027 | -29.65 | | 1L | X | | Start Date-8/10/16 Start Time-1720 |
| 2016AN-007-NW (Backup) | (18) | 8/11/16 | 1546 | 1SS00204 | SFC00121 | -29.57 | | 1L | X | | Start Date-8/10/16 Start Time-1720 |
| 2016AN-007-DUP | (19) | 8/11/16 | 1201 | 1SS00123 | SFC00119 | -27.75 | | 1L | X | | Start Date-8/10/16 Start Time-1201 |
| 2016AN-007-SW | (20) | 8/11/16 | 1552 | 1SS00155 | SFC00054 | -29.62 | | 1L | X | | Start Date-8/10/16 Start Time-1730 |
| 2016AN-Perim-SE | (21) | 8/11/16 | 1407 | 1SS00043 | SFC00128 | -23.76 | | 1L | X | | Start Date-8/10/16 Start Time-1558 |
| 2016AN-007-N | (22) | 8/11/16 | 1540 | 1SS00088 | SFC00159 | -29.61 | | 1L | X | | Start Date-8/10/16 Start Time-1715 |
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Report Tier Levels - please select

Tier I - Results (Default in not specified) _____
Tier II (Results + QC Summaries _____
Tier III (Results + QC & Calibration Summaries) _____
Tier IV (Date Validation Package) 10% Surcharge _____

EDD required YES / No
Type: _____ Units: _____

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

| Relinquished by: (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |
|---|---|---|---|---|---|
| Ken Shuart | 8/11/16 | 1630 | | | |
| Relinquished by: (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |
| FEDEX | | | | 8/12/16 | 0910 |

Cooler / Blank Temperature _____ °C

# ALS Environmental
## Sample Acceptance Check Form

Client: GHD Services Inc. Work order: P1604037

Project: FMC-Avtex Fibers, Front Royal, VA / 449965

Sample(s) received on: 8/17/16 Date opened: 8/17/16 by: ADAVID

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

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

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P1604037-001.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-002.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-003.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-004.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-005.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-006.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-007.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-008.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-009.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-010.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-011.01 | 1.0 L Source Can | | | | | |
| P1604037-012.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-013.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-014.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-015.01 | 1.0 L Source Can | | | | | |

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

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

# ALS Environmental
## Sample Acceptance Check Form

Client: GHD Services Inc. Work order: P1604037

Project: FMC-Avtex Fibers, Front Royal, VA / 449965

Sample(s) received on: 8/17/16 Date opened: 8/17/16 by: ADAVID

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P1604037-016.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-017.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-018.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-019.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-020.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-021.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-022.01 | 1.0 L Source Silonite Canister | | | | | |
| P1604037-023.01 | 1.0 L Source Silonite Canister | | | | | |
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Explain any discrepancies: (include lab sample ID numbers):

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

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-DOWNWIND** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-001

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 7890A/GC22/SCD | Time Collected: | 13:52 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/17/16 |
| Test Notes: | | Time Analyzed: | 15:28 |
| Container ID: | 1SS00050 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.36 Final Pressure (psig): 4.88

Canister Dilution Factor: 1.37

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 9.5 | 3.6 | ND | 6.9 | 2.6 | |
| 463-58-1 | Carbonyl Sulfide | ND | 17 | 5.7 | ND | 6.9 | 2.3 | |
| 74-93-1 | Methyl Mercaptan | ND | 13 | 3.2 | ND | 6.9 | 1.6 | |
| 75-08-1 | Ethyl Mercaptan | ND | 17 | 4.2 | ND | 6.9 | 1.6 | |
| 75-18-3 | Dimethyl Sulfide | ND | 17 | 4.2 | ND | 6.9 | 1.6 | |
| 75-15-0 | Carbon Disulfide | **11** | 11 | 2.6 | **3.5** | 3.4 | 0.82 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 21 | 5.1 | ND | 6.9 | 1.6 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 25 | 6.1 | ND | 6.9 | 1.6 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 21 | 5.1 | ND | 6.9 | 1.6 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 21 | 5.1 | ND | 6.9 | 1.6 | |
| 110-02-1 | Thiophene | ND | 24 | 5.7 | ND | 6.9 | 1.6 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 25 | 6.1 | ND | 6.9 | 1.6 | |
| 352-93-2 | Diethyl Sulfide | ND | 25 | 6.1 | ND | 6.9 | 1.6 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 25 | 6.1 | ND | 6.9 | 1.6 | |
| 624-92-0 | Dimethyl Disulfide | ND | 13 | 3.2 | ND | 3.4 | 0.82 | |
| 616-44-4 | 3-Methylthiophene | ND | 27 | 6.6 | ND | 6.9 | 1.6 | |
| 110-01-0 | Tetrahydrothiophene | ND | 25 | 5.9 | ND | 6.9 | 1.6 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 31 | 7.5 | ND | 6.9 | 1.6 | |
| 872-55-9 | 2-Ethylthiophene | ND | 31 | 7.5 | ND | 6.9 | 1.6 | |
| 110-81-6 | Diethyl Disulfide | ND | 17 | 4.1 | ND | 3.4 | 0.82 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-PERIM-SW** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-002

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 7890A/GC22/SCD | Time Collected: | 14:35 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/17/16 |
| Test Notes: | | Time Analyzed: | 15:44 |
| Container ID: | 1SS00148 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.54 Final Pressure (psig): 5.27

Canister Dilution Factor: 1.41

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 9.8 | 3.7 | ND | 7.1 | 2.7 | |
| 463-58-1 | Carbonyl Sulfide | **13** | 17 | 5.9 | **5.1** | 7.1 | 2.4 | **J** |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.3 | ND | 7.1 | 1.7 | |
| 75-08-1 | Ethyl Mercaptan | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-18-3 | Dimethyl Sulfide | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-15-0 | Carbon Disulfide | **20** | 11 | 2.6 | **6.5** | 3.5 | 0.85 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 110-02-1 | Thiophene | ND | 24 | 5.8 | ND | 7.1 | 1.7 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 352-93-2 | Diethyl Sulfide | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 624-92-0 | Dimethyl Disulfide | **47** | 14 | 3.3 | **12** | 3.5 | 0.85 | |
| 616-44-4 | 3-Methylthiophene | ND | 28 | 6.8 | ND | 7.1 | 1.7 | |
| 110-01-0 | Tetrahydrothiophene | ND | 25 | 6.1 | ND | 7.1 | 1.7 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 872-55-9 | 2-Ethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 110-81-6 | Diethyl Disulfide | ND | 18 | 4.2 | ND | 3.5 | 0.85 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-PERIM-NE** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-003

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 6890A/GC13/SCD | Time Collected: | 13:40 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/17/16 |
| Test Notes: | | Time Analyzed: | 15:45 |
| Container ID: | 1SS00021 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.54 Final Pressure (psig): 5.33

Canister Dilution Factor: 1.41

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 9.8 | 3.7 | ND | 7.1 | 2.7 | |
| 463-58-1 | Carbonyl Sulfide | ND | 17 | 5.9 | ND | 7.1 | 2.4 | |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.3 | ND | 7.1 | 1.7 | |
| 75-08-1 | Ethyl Mercaptan | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-18-3 | Dimethyl Sulfide | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-15-0 | Carbon Disulfide | ND | 11 | 2.6 | ND | 3.5 | 0.85 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 110-02-1 | Thiophene | ND | 24 | 5.8 | ND | 7.1 | 1.7 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 352-93-2 | Diethyl Sulfide | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 624-92-0 | Dimethyl Disulfide | ND | 14 | 3.3 | ND | 3.5 | 0.85 | |
| 616-44-4 | 3-Methylthiophene | ND | 28 | 6.8 | ND | 7.1 | 1.7 | |
| 110-01-0 | Tetrahydrothiophene | ND | 25 | 6.1 | ND | 7.1 | 1.7 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 872-55-9 | 2-Ethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 110-81-6 | Diethyl Disulfide | ND | 18 | 4.2 | ND | 3.5 | 0.85 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-OU7-SE** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-004

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 6890A/GC13/SCD | Time Collected: | 15:21 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/17/16 |
| Test Notes: | | Time Analyzed: | 15:29 |
| Container ID: | 1SS00083 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.50 Final Pressure (psig): 5.29

Canister Dilution Factor: 1.41

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 9.8 | 3.7 | ND | 7.1 | 2.7 | |
| 463-58-1 | Carbonyl Sulfide | **7.1** | 17 | 5.9 | **2.9** | 7.1 | 2.4 | **J** |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.3 | ND | 7.1 | 1.7 | |
| 75-08-1 | Ethyl Mercaptan | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-18-3 | Dimethyl Sulfide | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-15-0 | Carbon Disulfide | **11** | 11 | 2.6 | **3.6** | 3.5 | 0.85 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 110-02-1 | Thiophene | ND | 24 | 5.8 | ND | 7.1 | 1.7 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 352-93-2 | Diethyl Sulfide | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 624-92-0 | Dimethyl Disulfide | ND | 14 | 3.3 | ND | 3.5 | 0.85 | |
| 616-44-4 | 3-Methylthiophene | ND | 28 | 6.8 | ND | 7.1 | 1.7 | |
| 110-01-0 | Tetrahydrothiophene | ND | 25 | 6.1 | ND | 7.1 | 1.7 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 872-55-9 | 2-Ethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 110-81-6 | Diethyl Disulfide | ND | 18 | 4.2 | ND | 3.5 | 0.85 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-PERIM-E** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-005

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 7890A/GC22/SCD | Time Collected: | 14:00 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/17/16 |
| Test Notes: | | Time Analyzed: | 15:57 |
| Container ID: | 1SS00181 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.67 Final Pressure (psig): 5.37

Canister Dilution Factor: 1.43

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 10 | 3.8 | ND | 7.2 | 2.7 | |
| 463-58-1 | Carbonyl Sulfide | ND | 18 | 6.0 | ND | 7.2 | 2.4 | |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.4 | ND | 7.2 | 1.7 | |
| 75-08-1 | Ethyl Mercaptan | ND | 18 | 4.4 | ND | 7.2 | 1.7 | |
| 75-18-3 | Dimethyl Sulfide | ND | 18 | 4.4 | ND | 7.2 | 1.7 | |
| 75-15-0 | Carbon Disulfide | ND | 11 | 2.7 | ND | 3.6 | 0.86 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 22 | 5.3 | ND | 7.2 | 1.7 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 26 | 6.3 | ND | 7.2 | 1.7 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 22 | 5.3 | ND | 7.2 | 1.7 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 22 | 5.3 | ND | 7.2 | 1.7 | |
| 110-02-1 | Thiophene | ND | 25 | 5.9 | ND | 7.2 | 1.7 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 26 | 6.3 | ND | 7.2 | 1.7 | |
| 352-93-2 | Diethyl Sulfide | ND | 26 | 6.3 | ND | 7.2 | 1.7 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 26 | 6.3 | ND | 7.2 | 1.7 | |
| 624-92-0 | Dimethyl Disulfide | ND | 14 | 3.3 | ND | 3.6 | 0.86 | |
| 616-44-4 | 3-Methylthiophene | ND | 29 | 6.9 | ND | 7.2 | 1.7 | |
| 110-01-0 | Tetrahydrothiophene | ND | 26 | 6.2 | ND | 7.2 | 1.7 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 33 | 7.9 | ND | 7.2 | 1.7 | |
| 872-55-9 | 2-Ethylthiophene | ND | 33 | 7.9 | ND | 7.2 | 1.7 | |
| 110-81-6 | Diethyl Disulfide | ND | 18 | 4.3 | ND | 3.6 | 0.86 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-OU7-S** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-006

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 7890A/GC22/SCD | Time Collected: | 14:57 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/17/16 |
| Test Notes: | | Time Analyzed: | 16:15 |
| Container ID: | 1SS00096 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.43 Final Pressure (psig): 5.00

Canister Dilution Factor: 1.38

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 9.6 | 3.7 | ND | 6.9 | 2.6 | |
| 463-58-1 | Carbonyl Sulfide | **200** | 17 | 5.8 | **82** | 6.9 | 2.3 | |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.3 | ND | 6.9 | 1.7 | |
| 75-08-1 | Ethyl Mercaptan | ND | 18 | 4.2 | ND | 6.9 | 1.7 | |
| 75-18-3 | Dimethyl Sulfide | ND | 18 | 4.2 | ND | 6.9 | 1.7 | |
| 75-15-0 | Carbon Disulfide | **210** | 11 | 2.6 | **67** | 3.5 | 0.83 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 21 | 5.2 | ND | 6.9 | 1.7 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 25 | 6.1 | ND | 6.9 | 1.7 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 21 | 5.2 | ND | 6.9 | 1.7 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 21 | 5.2 | ND | 6.9 | 1.7 | |
| 110-02-1 | Thiophene | ND | 24 | 5.7 | ND | 6.9 | 1.7 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 25 | 6.1 | ND | 6.9 | 1.7 | |
| 352-93-2 | Diethyl Sulfide | ND | 25 | 6.1 | ND | 6.9 | 1.7 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 25 | 6.1 | ND | 6.9 | 1.7 | |
| 624-92-0 | Dimethyl Disulfide | **35** | 13 | 3.2 | **9.0** | 3.5 | 0.83 | |
| 616-44-4 | 3-Methylthiophene | ND | 28 | 6.6 | ND | 6.9 | 1.7 | |
| 110-01-0 | Tetrahydrothiophene | ND | 25 | 6.0 | ND | 6.9 | 1.7 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 32 | 7.6 | ND | 6.9 | 1.7 | |
| 872-55-9 | 2-Ethylthiophene | ND | 32 | 7.6 | ND | 6.9 | 1.7 | |
| 110-81-6 | Diethyl Disulfide | ND | 17 | 4.1 | ND | 3.5 | 0.83 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

## ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-PERIM-N** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-008

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 6890A/GC13/SCD | Time Collected: | 14:12 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/17/16 |
| Test Notes: | | Time Analyzed: | 16:15 |
| Container ID: | 1SS00109 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.48 Final Pressure (psig): 5.33

Canister Dilution Factor: 1.41

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 9.8 | 3.7 | ND | 7.1 | 2.7 | |
| 463-58-1 | Carbonyl Sulfide | ND | 17 | 5.9 | ND | 7.1 | 2.4 | |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.3 | ND | 7.1 | 1.7 | |
| 75-08-1 | Ethyl Mercaptan | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-18-3 | Dimethyl Sulfide | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-15-0 | Carbon Disulfide | ND | 11 | 2.6 | ND | 3.5 | 0.85 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 110-02-1 | Thiophene | ND | 24 | 5.8 | ND | 7.1 | 1.7 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 352-93-2 | Diethyl Sulfide | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 624-92-0 | Dimethyl Disulfide | ND | 14 | 3.3 | ND | 3.5 | 0.85 | |
| 616-44-4 | 3-Methylthiophene | ND | 28 | 6.8 | ND | 7.1 | 1.7 | |
| 110-01-0 | Tetrahydrothiophene | ND | 25 | 6.1 | ND | 7.1 | 1.7 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 872-55-9 | 2-Ethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 110-81-6 | Diethyl Disulfide | ND | 18 | 4.2 | ND | 3.5 | 0.85 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-PERIM-NW** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-009

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 6890A/GC13/SCD | Time Collected: | 14:18 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/17/16 |
| Test Notes: | | Time Analyzed: | 16:34 |
| Container ID: | 1SS00205 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.26 Final Pressure (psig): 5.92

Canister Dilution Factor: 1.43

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 10 | 3.8 | ND | 7.2 | 2.7 | |
| 463-58-1 | Carbonyl Sulfide | ND | 18 | 6.0 | ND | 7.2 | 2.4 | |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.4 | ND | 7.2 | 1.7 | |
| 75-08-1 | Ethyl Mercaptan | ND | 18 | 4.4 | ND | 7.2 | 1.7 | |
| 75-18-3 | Dimethyl Sulfide | ND | 18 | 4.4 | ND | 7.2 | 1.7 | |
| 75-15-0 | Carbon Disulfide | ND | 11 | 2.7 | ND | 3.6 | 0.86 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 22 | 5.3 | ND | 7.2 | 1.7 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 26 | 6.3 | ND | 7.2 | 1.7 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 22 | 5.3 | ND | 7.2 | 1.7 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 22 | 5.3 | ND | 7.2 | 1.7 | |
| 110-02-1 | Thiophene | ND | 25 | 5.9 | ND | 7.2 | 1.7 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 26 | 6.3 | ND | 7.2 | 1.7 | |
| 352-93-2 | Diethyl Sulfide | ND | 26 | 6.3 | ND | 7.2 | 1.7 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 26 | 6.3 | ND | 7.2 | 1.7 | |
| 624-92-0 | Dimethyl Disulfide | ND | 14 | 3.3 | ND | 3.6 | 0.86 | |
| 616-44-4 | 3-Methylthiophene | ND | 29 | 6.9 | ND | 7.2 | 1.7 | |
| 110-01-0 | Tetrahydrothiophene | ND | 26 | 6.2 | ND | 7.2 | 1.7 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 33 | 7.9 | ND | 7.2 | 1.7 | |
| 872-55-9 | 2-Ethylthiophene | ND | 33 | 7.9 | ND | 7.2 | 1.7 | |
| 110-81-6 | Diethyl Disulfide | ND | 18 | 4.3 | ND | 3.6 | 0.86 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-OU7-NE** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-010

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 6890A/GC13/SCD | Time Collected: | 15:36 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/17/16 |
| Test Notes: | | Time Analyzed: | 16:47 |
| Container ID: | 1SS00030 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.54 Final Pressure (psig): 5.49

Canister Dilution Factor: 1.43

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 10 | 3.8 | ND | 7.2 | 2.7 | |
| 463-58-1 | Carbonyl Sulfide | ND | 18 | 6.0 | ND | 7.2 | 2.4 | |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.4 | ND | 7.2 | 1.7 | |
| 75-08-1 | Ethyl Mercaptan | ND | 18 | 4.4 | ND | 7.2 | 1.7 | |
| 75-18-3 | Dimethyl Sulfide | ND | 18 | 4.4 | ND | 7.2 | 1.7 | |
| 75-15-0 | Carbon Disulfide | ND | 11 | 2.7 | ND | 3.6 | 0.86 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 22 | 5.3 | ND | 7.2 | 1.7 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 26 | 6.3 | ND | 7.2 | 1.7 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 22 | 5.3 | ND | 7.2 | 1.7 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 22 | 5.3 | ND | 7.2 | 1.7 | |
| 110-02-1 | Thiophene | ND | 25 | 5.9 | ND | 7.2 | 1.7 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 26 | 6.3 | ND | 7.2 | 1.7 | |
| 352-93-2 | Diethyl Sulfide | ND | 26 | 6.3 | ND | 7.2 | 1.7 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 26 | 6.3 | ND | 7.2 | 1.7 | |
| 624-92-0 | Dimethyl Disulfide | ND | 14 | 3.3 | ND | 3.6 | 0.86 | |
| 616-44-4 | 3-Methylthiophene | ND | 29 | 6.9 | ND | 7.2 | 1.7 | |
| 110-01-0 | Tetrahydrothiophene | ND | 26 | 6.2 | ND | 7.2 | 1.7 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 33 | 7.9 | ND | 7.2 | 1.7 | |
| 872-55-9 | 2-Ethylthiophene | ND | 33 | 7.9 | ND | 7.2 | 1.7 | |
| 110-81-6 | Diethyl Disulfide | ND | 18 | 4.3 | ND | 3.6 | 0.86 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-PERIM-W** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-011

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 7890A/GC22/SCD | Time Collected: | 14:26 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Summa Canister | Date Analyzed: | 8/17/16 |
| Test Notes: | | Time Analyzed: | 16:32 |
| Container ID: | 1SC01121 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.26 Final Pressure (psig): 5.11

Canister Dilution Factor: 1.37

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 9.5 | 3.6 | ND | 6.9 | 2.6 | |
| 463-58-1 | Carbonyl Sulfide | ND | 17 | 5.7 | ND | 6.9 | 2.3 | |
| 74-93-1 | Methyl Mercaptan | ND | 13 | 3.2 | ND | 6.9 | 1.6 | |
| 75-08-1 | Ethyl Mercaptan | ND | 17 | 4.2 | ND | 6.9 | 1.6 | |
| 75-18-3 | Dimethyl Sulfide | ND | 17 | 4.2 | ND | 6.9 | 1.6 | |
| 75-15-0 | Carbon Disulfide | ND | 11 | 2.6 | ND | 3.4 | 0.82 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 21 | 5.1 | ND | 6.9 | 1.6 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 25 | 6.1 | ND | 6.9 | 1.6 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 21 | 5.1 | ND | 6.9 | 1.6 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 21 | 5.1 | ND | 6.9 | 1.6 | |
| 110-02-1 | Thiophene | ND | 24 | 5.7 | ND | 6.9 | 1.6 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 25 | 6.1 | ND | 6.9 | 1.6 | |
| 352-93-2 | Diethyl Sulfide | ND | 25 | 6.1 | ND | 6.9 | 1.6 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 25 | 6.1 | ND | 6.9 | 1.6 | |
| 624-92-0 | Dimethyl Disulfide | ND | 13 | 3.2 | ND | 3.4 | 0.82 | |
| 616-44-4 | 3-Methylthiophene | ND | 27 | 6.6 | ND | 6.9 | 1.6 | |
| 110-01-0 | Tetrahydrothiophene | ND | 25 | 5.9 | ND | 6.9 | 1.6 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 31 | 7.5 | ND | 6.9 | 1.6 | |
| 872-55-9 | 2-Ethylthiophene | ND | 31 | 7.5 | ND | 6.9 | 1.6 | |
| 110-81-6 | Diethyl Disulfide | ND | 17 | 4.1 | ND | 3.4 | 0.82 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-PERIM-S** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-014

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 6890A/GC13/SCD | Time Collected: | 14:45 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/18/16 |
| Test Notes: | | Time Analyzed: | 09:09 |
| Container ID: | 1SS00020 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.45 Final Pressure (psig): 5.15

Canister Dilution Factor: 1.39

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 9.7 | 3.7 | ND | 7.0 | 2.6 | |
| 463-58-1 | Carbonyl Sulfide | ND | 17 | 5.8 | ND | 7.0 | 2.4 | |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.3 | ND | 7.0 | 1.7 | |
| 75-08-1 | Ethyl Mercaptan | ND | 18 | 4.2 | ND | 7.0 | 1.7 | |
| 75-18-3 | Dimethyl Sulfide | ND | 18 | 4.2 | ND | 7.0 | 1.7 | |
| 75-15-0 | Carbon Disulfide | **6.2** | 11 | 2.6 | **2.0** | 3.5 | 0.83 | **J** |
| 75-33-2 | Isopropyl Mercaptan | ND | 22 | 5.2 | ND | 7.0 | 1.7 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.0 | 1.7 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 22 | 5.2 | ND | 7.0 | 1.7 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 22 | 5.2 | ND | 7.0 | 1.7 | |
| 110-02-1 | Thiophene | ND | 24 | 5.7 | ND | 7.0 | 1.7 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 26 | 6.2 | ND | 7.0 | 1.7 | |
| 352-93-2 | Diethyl Sulfide | ND | 26 | 6.2 | ND | 7.0 | 1.7 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.0 | 1.7 | |
| 624-92-0 | Dimethyl Disulfide | ND | 13 | 3.2 | ND | 3.5 | 0.83 | |
| 616-44-4 | 3-Methylthiophene | ND | 28 | 6.7 | ND | 7.0 | 1.7 | |
| 110-01-0 | Tetrahydrothiophene | ND | 25 | 6.0 | ND | 7.0 | 1.7 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 32 | 7.7 | ND | 7.0 | 1.7 | |
| 872-55-9 | 2-Ethylthiophene | ND | 32 | 7.7 | ND | 7.0 | 1.7 | |
| 110-81-6 | Diethyl Disulfide | ND | 17 | 4.2 | ND | 3.5 | 0.83 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-PERIM-DUP** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-016

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 6890A/GC13/SCD | Time Collected: | 12:00 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/18/16 |
| Test Notes: | | Time Analyzed: | 11:40 |
| Container ID: | 1SS00103 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.65 Final Pressure (psig): 6.03

Canister Dilution Factor: 1.48

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 10 | 3.9 | ND | 7.4 | 2.8 | |
| 463-58-1 | Carbonyl Sulfide | ND | 18 | 6.2 | ND | 7.4 | 2.5 | |
| 74-93-1 | Methyl Mercaptan | ND | 15 | 3.5 | ND | 7.4 | 1.8 | |
| 75-08-1 | Ethyl Mercaptan | ND | 19 | 4.5 | ND | 7.4 | 1.8 | |
| 75-18-3 | Dimethyl Sulfide | ND | 19 | 4.5 | ND | 7.4 | 1.8 | |
| 75-15-0 | Carbon Disulfide | ND | 12 | 2.8 | ND | 3.7 | 0.89 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 23 | 5.5 | ND | 7.4 | 1.8 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 27 | 6.5 | ND | 7.4 | 1.8 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 23 | 5.5 | ND | 7.4 | 1.8 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 23 | 5.5 | ND | 7.4 | 1.8 | |
| 110-02-1 | Thiophene | ND | 25 | 6.1 | ND | 7.4 | 1.8 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 27 | 6.5 | ND | 7.4 | 1.8 | |
| 352-93-2 | Diethyl Sulfide | ND | 27 | 6.5 | ND | 7.4 | 1.8 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 27 | 6.5 | ND | 7.4 | 1.8 | |
| 624-92-0 | Dimethyl Disulfide | ND | 14 | 3.4 | ND | 3.7 | 0.89 | |
| 616-44-4 | 3-Methylthiophene | ND | 30 | 7.1 | ND | 7.4 | 1.8 | |
| 110-01-0 | Tetrahydrothiophene | ND | 27 | 6.4 | ND | 7.4 | 1.8 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 34 | 8.1 | ND | 7.4 | 1.8 | |
| 872-55-9 | 2-Ethylthiophene | ND | 34 | 8.1 | ND | 7.4 | 1.8 | |
| 110-81-6 | Diethyl Disulfide | ND | 18 | 4.4 | ND | 3.7 | 0.89 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-OU7-NW** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-017

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 6890A/GC13/SCD | Time Collected: | 15:45 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/18/16 |
| Test Notes: | | Time Analyzed: | 12:55 |
| Container ID: | 1SS00134 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.60 Final Pressure (psig): 6.02

Canister Dilution Factor: 1.47

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 10 | 3.9 | ND | 7.4 | 2.8 | |
| 463-58-1 | Carbonyl Sulfide | ND | 18 | 6.1 | ND | 7.4 | 2.5 | |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.5 | ND | 7.4 | 1.8 | |
| 75-08-1 | Ethyl Mercaptan | ND | 19 | 4.5 | ND | 7.4 | 1.8 | |
| 75-18-3 | Dimethyl Sulfide | ND | 19 | 4.5 | ND | 7.4 | 1.8 | |
| 75-15-0 | Carbon Disulfide | ND | 11 | 2.7 | ND | 3.7 | 0.88 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 23 | 5.5 | ND | 7.4 | 1.8 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 27 | 6.5 | ND | 7.4 | 1.8 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 23 | 5.5 | ND | 7.4 | 1.8 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 23 | 5.5 | ND | 7.4 | 1.8 | |
| 110-02-1 | Thiophene | ND | 25 | 6.1 | ND | 7.4 | 1.8 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 27 | 6.5 | ND | 7.4 | 1.8 | |
| 352-93-2 | Diethyl Sulfide | ND | 27 | 6.5 | ND | 7.4 | 1.8 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 27 | 6.5 | ND | 7.4 | 1.8 | |
| 624-92-0 | Dimethyl Disulfide | ND | 14 | 3.4 | ND | 3.7 | 0.88 | |
| 616-44-4 | 3-Methylthiophene | ND | 29 | 7.1 | ND | 7.4 | 1.8 | |
| 110-01-0 | Tetrahydrothiophene | ND | 26 | 6.4 | ND | 7.4 | 1.8 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 34 | 8.1 | ND | 7.4 | 1.8 | |
| 872-55-9 | 2-Ethylthiophene | ND | 34 | 8.1 | ND | 7.4 | 1.8 | |
| 110-81-6 | Diethyl Disulfide | ND | 18 | 4.4 | ND | 3.7 | 0.88 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-OU7-DUP** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-019

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 6890A/GC13/SCD | Time Collected: | 12:01 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/18/16 |
| Test Notes: | | Time Analyzed: | 11:53 |
| Container ID: | 1SS00123 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.58 Final Pressure (psig): 5.21

Canister Dilution Factor: 1.41

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 9.8 | 3.7 | ND | 7.1 | 2.7 | |
| 463-58-1 | Carbonyl Sulfide | ND | 17 | 5.9 | ND | 7.1 | 2.4 | |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.3 | ND | 7.1 | 1.7 | |
| 75-08-1 | Ethyl Mercaptan | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-18-3 | Dimethyl Sulfide | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-15-0 | Carbon Disulfide | **5.5** | 11 | 2.6 | **1.8** | 3.5 | 0.85 | **J** |
| 75-33-2 | Isopropyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 110-02-1 | Thiophene | ND | 24 | 5.8 | ND | 7.1 | 1.7 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 352-93-2 | Diethyl Sulfide | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 624-92-0 | Dimethyl Disulfide | ND | 14 | 3.3 | ND | 3.5 | 0.85 | |
| 616-44-4 | 3-Methylthiophene | ND | 28 | 6.8 | ND | 7.1 | 1.7 | |
| 110-01-0 | Tetrahydrothiophene | ND | 25 | 6.1 | ND | 7.1 | 1.7 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 872-55-9 | 2-Ethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 110-81-6 | Diethyl Disulfide | ND | 18 | 4.2 | ND | 3.5 | 0.85 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-OU7-SW** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-020

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 6890A/GC13/SCD | Time Collected: | 15:52 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/18/16 |
| Test Notes: | | Time Analyzed: | 13:43 |
| Container ID: | 1SS00155 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.55 Final Pressure (psig): 5.27

Canister Dilution Factor: 1.41

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 9.8 | 3.7 | ND | 7.1 | 2.7 | |
| 463-58-1 | Carbonyl Sulfide | ND | 17 | 5.9 | ND | 7.1 | 2.4 | |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.3 | ND | 7.1 | 1.7 | |
| 75-08-1 | Ethyl Mercaptan | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-18-3 | Dimethyl Sulfide | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-15-0 | Carbon Disulfide | ND | 11 | 2.6 | ND | 3.5 | 0.85 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 110-02-1 | Thiophene | ND | 24 | 5.8 | ND | 7.1 | 1.7 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 352-93-2 | Diethyl Sulfide | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 624-92-0 | Dimethyl Disulfide | ND | 14 | 3.3 | ND | 3.5 | 0.85 | |
| 616-44-4 | 3-Methylthiophene | ND | 28 | 6.8 | ND | 7.1 | 1.7 | |
| 110-01-0 | Tetrahydrothiophene | ND | 25 | 6.1 | ND | 7.1 | 1.7 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 872-55-9 | 2-Ethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 110-81-6 | Diethyl Disulfide | ND | 18 | 4.2 | ND | 3.5 | 0.85 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-PERIM-SE** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-021

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 6890A/GC13/SCD | Time Collected: | 14:07 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/18/16 |
| Test Notes: | | Time Analyzed: | 13:30 |
| Container ID: | 1SS00043 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.72 Final Pressure (psig): 5.70

Canister Dilution Factor: 1.46

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 10 | 3.9 | ND | 7.3 | 2.8 | |
| 463-58-1 | Carbonyl Sulfide | ND | 18 | 6.1 | ND | 7.3 | 2.5 | |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.4 | ND | 7.3 | 1.8 | |
| 75-08-1 | Ethyl Mercaptan | ND | 19 | 4.5 | ND | 7.3 | 1.8 | |
| 75-18-3 | Dimethyl Sulfide | ND | 19 | 4.5 | ND | 7.3 | 1.8 | |
| 75-15-0 | Carbon Disulfide | **4.6** | 11 | 2.7 | **1.5** | 3.7 | 0.88 | **J** |
| 75-33-2 | Isopropyl Mercaptan | ND | 23 | 5.5 | ND | 7.3 | 1.8 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 27 | 6.5 | ND | 7.3 | 1.8 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 23 | 5.5 | ND | 7.3 | 1.8 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 23 | 5.5 | ND | 7.3 | 1.8 | |
| 110-02-1 | Thiophene | ND | 25 | 6.0 | ND | 7.3 | 1.8 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 27 | 6.5 | ND | 7.3 | 1.8 | |
| 352-93-2 | Diethyl Sulfide | ND | 27 | 6.5 | ND | 7.3 | 1.8 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 27 | 6.5 | ND | 7.3 | 1.8 | |
| 624-92-0 | Dimethyl Disulfide | ND | 14 | 3.4 | ND | 3.7 | 0.88 | |
| 616-44-4 | 3-Methylthiophene | ND | 29 | 7.0 | ND | 7.3 | 1.8 | |
| 110-01-0 | Tetrahydrothiophene | ND | 26 | 6.3 | ND | 7.3 | 1.8 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 33 | 8.0 | ND | 7.3 | 1.8 | |
| 872-55-9 | 2-Ethylthiophene | ND | 33 | 8.0 | ND | 7.3 | 1.8 | |
| 110-81-6 | Diethyl Disulfide | ND | 18 | 4.4 | ND | 3.7 | 0.88 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **2016AN-OU7-N** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P1604037-022

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 8/11/16 |
| Instrument ID: | Agilent 6890A/GC13/SCD | Time Collected: | 15:40 |
| Analyst: | Mike Conejo | Date Received: | 8/17/16 |
| Sample Type: | 1.0 L Silonite Summa Canister | Date Analyzed: | 8/18/16 |
| Test Notes: | | Time Analyzed: | 13:56 |
| Container ID: | 1SS00088 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): -0.65 Final Pressure (psig): 5.12

Canister Dilution Factor: 1.41

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 9.8 | 3.7 | ND | 7.1 | 2.7 | |
| 463-58-1 | Carbonyl Sulfide | ND | 17 | 5.9 | ND | 7.1 | 2.4 | |
| 74-93-1 | Methyl Mercaptan | ND | 14 | 3.3 | ND | 7.1 | 1.7 | |
| 75-08-1 | Ethyl Mercaptan | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-18-3 | Dimethyl Sulfide | ND | 18 | 4.3 | ND | 7.1 | 1.7 | |
| 75-15-0 | Carbon Disulfide | **8.0** | 11 | 2.6 | **2.6** | 3.5 | 0.85 | **J** |
| 75-33-2 | Isopropyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 22 | 5.3 | ND | 7.1 | 1.7 | |
| 110-02-1 | Thiophene | ND | 24 | 5.8 | ND | 7.1 | 1.7 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 352-93-2 | Diethyl Sulfide | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 26 | 6.2 | ND | 7.1 | 1.7 | |
| 624-92-0 | Dimethyl Disulfide | ND | 14 | 3.3 | ND | 3.5 | 0.85 | |
| 616-44-4 | 3-Methylthiophene | ND | 28 | 6.8 | ND | 7.1 | 1.7 | |
| 110-01-0 | Tetrahydrothiophene | ND | 25 | 6.1 | ND | 7.1 | 1.7 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 872-55-9 | 2-Ethylthiophene | ND | 32 | 7.8 | ND | 7.1 | 1.7 | |
| 110-81-6 | Diethyl Disulfide | ND | 18 | 4.2 | ND | 3.5 | 0.85 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

## ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **Method Blank** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P160817-MB

Test Code: ASTM D 5504-12 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Time Collected: NA
Analyst: Mike Conejo Date Received: NA
Sample Type: 1.0 L Silonite Summa Canister Date Analyzed: 8/17/16
Test Notes: Time Analyzed: 09:09
Volume(s) Analyzed: 1.0 ml(s)

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 7.0 | 2.6 | ND | 5.0 | 1.9 | |
| 463-58-1 | Carbonyl Sulfide | ND | 12 | 4.2 | ND | 5.0 | 1.7 | |
| 74-93-1 | Methyl Mercaptan | ND | 9.8 | 2.4 | ND | 5.0 | 1.2 | |
| 75-08-1 | Ethyl Mercaptan | ND | 13 | 3.0 | ND | 5.0 | 1.2 | |
| 75-18-3 | Dimethyl Sulfide | ND | 13 | 3.0 | ND | 5.0 | 1.2 | |
| 75-15-0 | Carbon Disulfide | ND | 7.8 | 1.9 | ND | 2.5 | 0.60 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 16 | 3.7 | ND | 5.0 | 1.2 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 18 | 4.4 | ND | 5.0 | 1.2 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 16 | 3.7 | ND | 5.0 | 1.2 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 16 | 3.7 | ND | 5.0 | 1.2 | |
| 110-02-1 | Thiophene | ND | 17 | 4.1 | ND | 5.0 | 1.2 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 18 | 4.4 | ND | 5.0 | 1.2 | |
| 352-93-2 | Diethyl Sulfide | ND | 18 | 4.4 | ND | 5.0 | 1.2 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 18 | 4.4 | ND | 5.0 | 1.2 | |
| 624-92-0 | Dimethyl Disulfide | ND | 9.6 | 2.3 | ND | 2.5 | 0.60 | |
| 616-44-4 | 3-Methylthiophene | ND | 20 | 4.8 | ND | 5.0 | 1.2 | |
| 110-01-0 | Tetrahydrothiophene | ND | 18 | 4.3 | ND | 5.0 | 1.2 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 23 | 5.5 | ND | 5.0 | 1.2 | |
| 872-55-9 | 2-Ethylthiophene | ND | 23 | 5.5 | ND | 5.0 | 1.2 | |
| 110-81-6 | Diethyl Disulfide | ND | 12 | 3.0 | ND | 2.5 | 0.60 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

## ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **Method Blank** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P160817-MB

Test Code: ASTM D 5504-12 Date Collected: NA
Instrument ID: Agilent 7890A/GC22/SCD Time Collected: NA
Analyst: Mike Conejo Date Received: NA
Sample Type: 1.0 L Silonite Summa Canister Date Analyzed: 8/17/16
Test Notes: Time Analyzed: 08:12
Volume(s) Analyzed: 1.0 ml(s)

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 7.0 | 2.6 | ND | 5.0 | 1.9 | |
| 463-58-1 | Carbonyl Sulfide | ND | 12 | 4.2 | ND | 5.0 | 1.7 | |
| 74-93-1 | Methyl Mercaptan | ND | 9.8 | 2.4 | ND | 5.0 | 1.2 | |
| 75-08-1 | Ethyl Mercaptan | ND | 13 | 3.0 | ND | 5.0 | 1.2 | |
| 75-18-3 | Dimethyl Sulfide | ND | 13 | 3.0 | ND | 5.0 | 1.2 | |
| 75-15-0 | Carbon Disulfide | ND | 7.8 | 1.9 | ND | 2.5 | 0.60 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 16 | 3.7 | ND | 5.0 | 1.2 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 18 | 4.4 | ND | 5.0 | 1.2 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 16 | 3.7 | ND | 5.0 | 1.2 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 16 | 3.7 | ND | 5.0 | 1.2 | |
| 110-02-1 | Thiophene | ND | 17 | 4.1 | ND | 5.0 | 1.2 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 18 | 4.4 | ND | 5.0 | 1.2 | |
| 352-93-2 | Diethyl Sulfide | ND | 18 | 4.4 | ND | 5.0 | 1.2 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 18 | 4.4 | ND | 5.0 | 1.2 | |
| 624-92-0 | Dimethyl Disulfide | ND | 9.6 | 2.3 | ND | 2.5 | 0.60 | |
| 616-44-4 | 3-Methylthiophene | ND | 20 | 4.8 | ND | 5.0 | 1.2 | |
| 110-01-0 | Tetrahydrothiophene | ND | 18 | 4.3 | ND | 5.0 | 1.2 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 23 | 5.5 | ND | 5.0 | 1.2 | |
| 872-55-9 | 2-Ethylthiophene | ND | 23 | 5.5 | ND | 5.0 | 1.2 | |
| 110-81-6 | Diethyl Disulfide | ND | 12 | 3.0 | ND | 2.5 | 0.60 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965**

ALS Project ID: P1604037
ALS Sample ID: P160818-MB

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 8/18/16
Time Analyzed: 08:50
Volume(s) Analyzed: 1.0 ml(s)

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 7.0 | 2.6 | ND | 5.0 | 1.9 | |
| 463-58-1 | Carbonyl Sulfide | ND | 12 | 4.2 | ND | 5.0 | 1.7 | |
| 74-93-1 | Methyl Mercaptan | ND | 9.8 | 2.4 | ND | 5.0 | 1.2 | |
| 75-08-1 | Ethyl Mercaptan | ND | 13 | 3.0 | ND | 5.0 | 1.2 | |
| 75-18-3 | Dimethyl Sulfide | ND | 13 | 3.0 | ND | 5.0 | 1.2 | |
| 75-15-0 | Carbon Disulfide | ND | 7.8 | 1.9 | ND | 2.5 | 0.60 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 16 | 3.7 | ND | 5.0 | 1.2 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 18 | 4.4 | ND | 5.0 | 1.2 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 16 | 3.7 | ND | 5.0 | 1.2 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 16 | 3.7 | ND | 5.0 | 1.2 | |
| 110-02-1 | Thiophene | ND | 17 | 4.1 | ND | 5.0 | 1.2 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 18 | 4.4 | ND | 5.0 | 1.2 | |
| 352-93-2 | Diethyl Sulfide | ND | 18 | 4.4 | ND | 5.0 | 1.2 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 18 | 4.4 | ND | 5.0 | 1.2 | |
| 624-92-0 | Dimethyl Disulfide | ND | 9.6 | 2.3 | ND | 2.5 | 0.60 | |
| 616-44-4 | 3-Methylthiophene | ND | 20 | 4.8 | ND | 5.0 | 1.2 | |
| 110-01-0 | Tetrahydrothiophene | ND | 18 | 4.3 | ND | 5.0 | 1.2 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 23 | 5.5 | ND | 5.0 | 1.2 | |
| 872-55-9 | 2-Ethylthiophene | ND | 23 | 5.5 | ND | 5.0 | 1.2 | |
| 110-81-6 | Diethyl Disulfide | ND | 12 | 3.0 | ND | 2.5 | 0.60 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **Lab Control Sample** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P160817-LCS

Test Code: ASTM D 5504-12 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 8/17/16
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: NA ml(s)
Test Notes:

| CAS # | Compound | Spike Amount ppbV | Result ppbV | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | 1,000 | **1,110** | **111** | 75-148 | |
| 463-58-1 | Carbonyl Sulfide | 1,000 | **1,090** | **109** | 70-137 | |
| 74-93-1 | Methyl Mercaptan | 1,000 | **1,080** | **108** | 72-139 | |

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **Lab Control Sample** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P160817-LCS

Test Code: ASTM D 5504-12 Date Collected: NA
Instrument ID: Agilent 7890A/GC22/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 8/17/16
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: NA ml(s)
Test Notes:

| CAS # | Compound | Spike Amount ppbV | Result ppbV | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | 1,000 | **874** | **87** | 75-148 | |
| 463-58-1 | Carbonyl Sulfide | 1,000 | **911** | **91** | 70-137 | |
| 74-93-1 | Methyl Mercaptan | 1,000 | **894** | **89** | 72-139 | |

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY



**Client:** **Parsons Engineering Science**
**Client Sample ID:** **Lab Control Sample** ALS Project ID: P1604037
**Client Project ID:** **FMC-Avtex Fibers, Front Royal, VA / 449965** ALS Sample ID: P160818-LCS

Test Code: ASTM D 5504-12 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 8/18/16
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: NA ml(s)
Test Notes:

| CAS # | Compound | Spike Amount ppbV | Result ppbV | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | 1,000 | **1,020** | **102** | 75-148 | |
| 463-58-1 | Carbonyl Sulfide | 1,000 | **1,070** | **107** | 70-137 | |
| 74-93-1 | Methyl Mercaptan | 1,000 | **1,020** | **102** | 72-139 | |

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171618.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:28 pm
Operator : MC
Sample : 4037-001 1ml
Misc :
ALS Vial : 18 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:08:34 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 2) | W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 6) | T | Carbon_Disulfide | 3.425 | 214737 | 2.578 | ppb | m |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

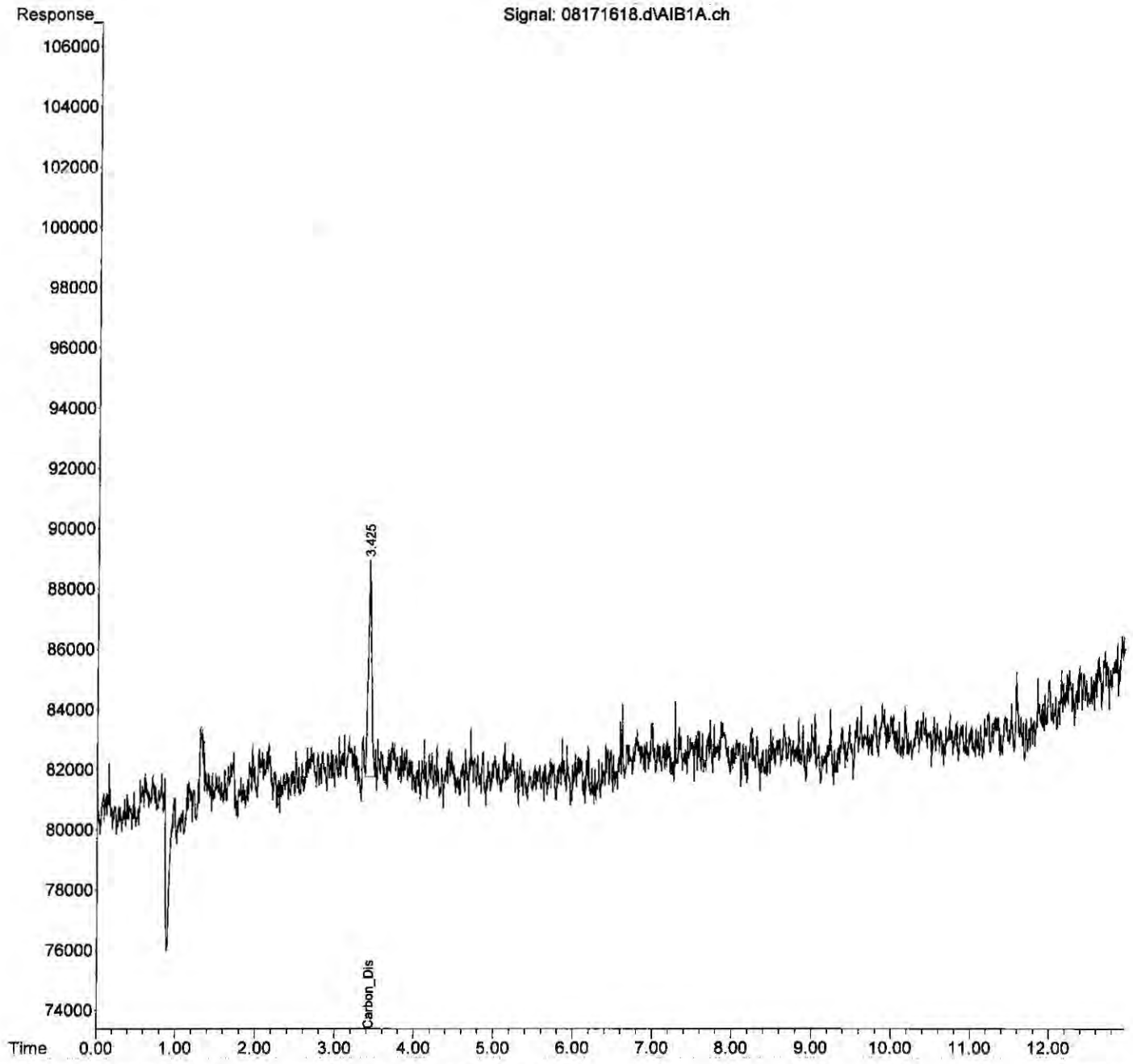
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171618.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:28 pm
Operator : MC
Sample : 4037-001 1ml
Misc :
ALS Vial : 18 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:08:34 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

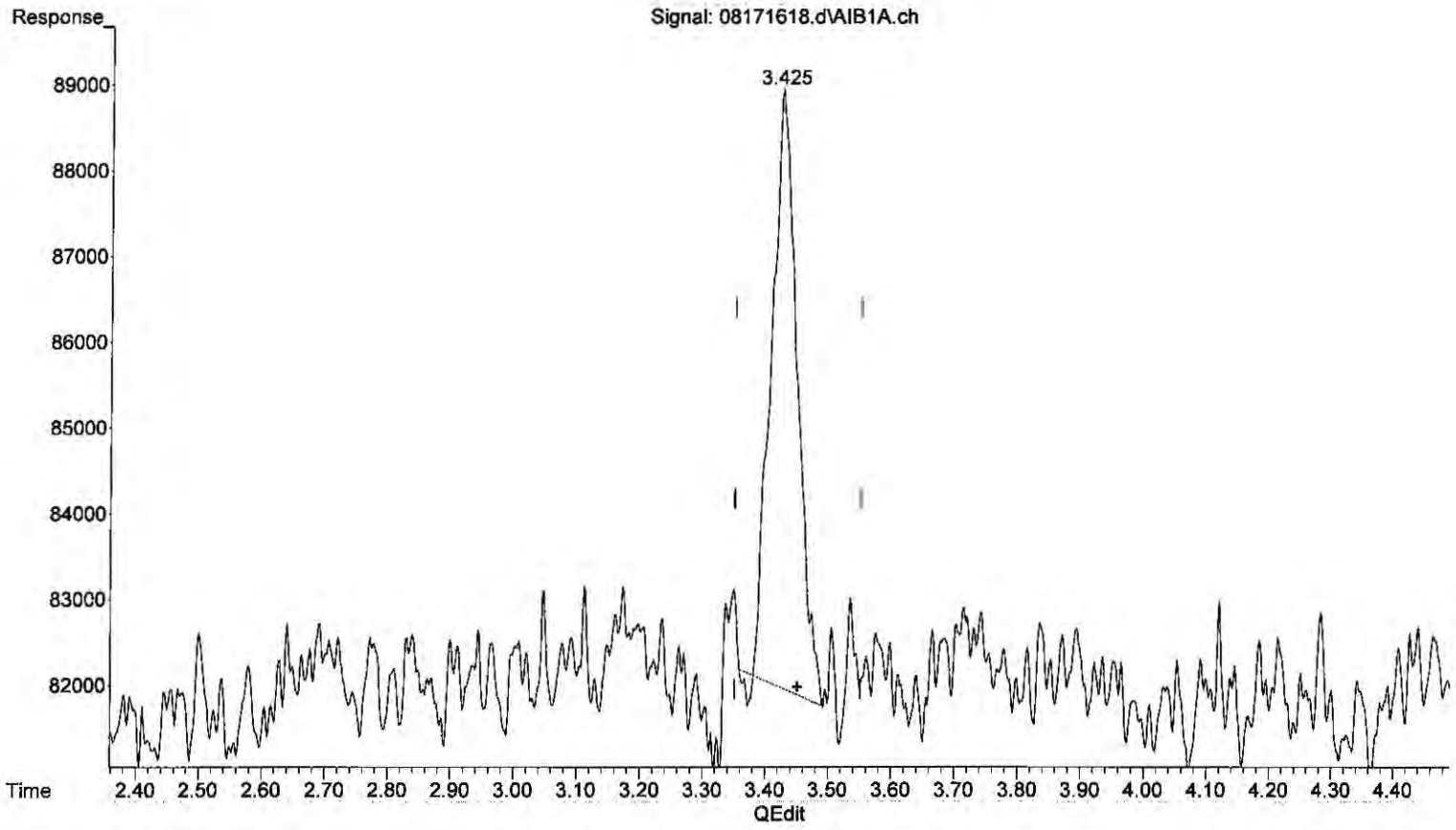


Quantitation Report (Qedit)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171618.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:28 pm
Operator : MC
Sample : 4037-001 1ml
Misc :
ALS Vial : 18 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 15:47:02 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

3.426min 2.410 ppb

response 200753

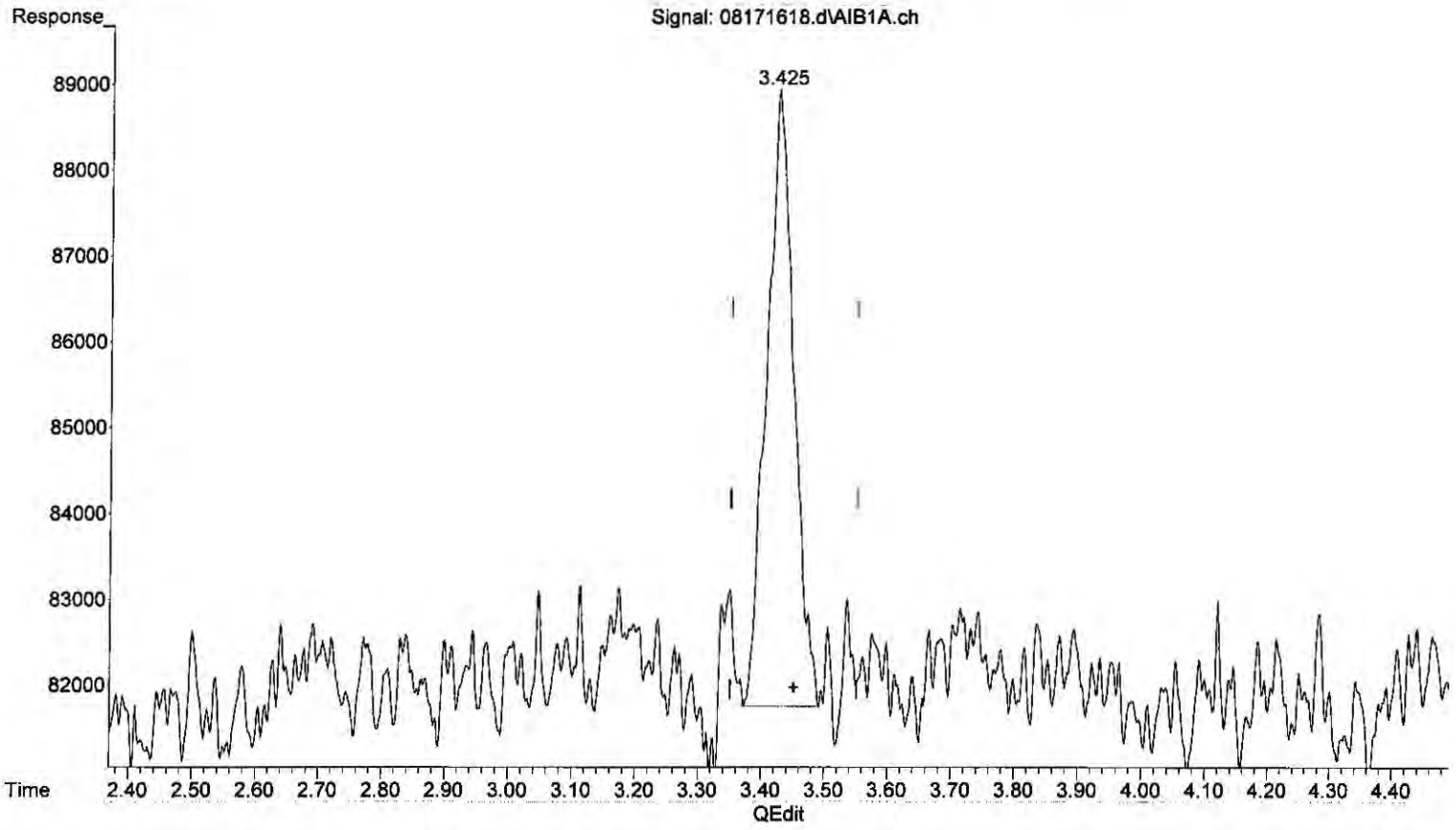
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171618.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:28 pm
Operator : MC
Sample : 4037-001 1ml
Misc :
ALS Vial : 18 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 15:47:02 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

3.425min 2.578 ppb m

response 214737

8/19/16

8/19/16

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171619.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:44 pm
Operator : MC
Sample : 4037-002 1ml
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:15:10 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

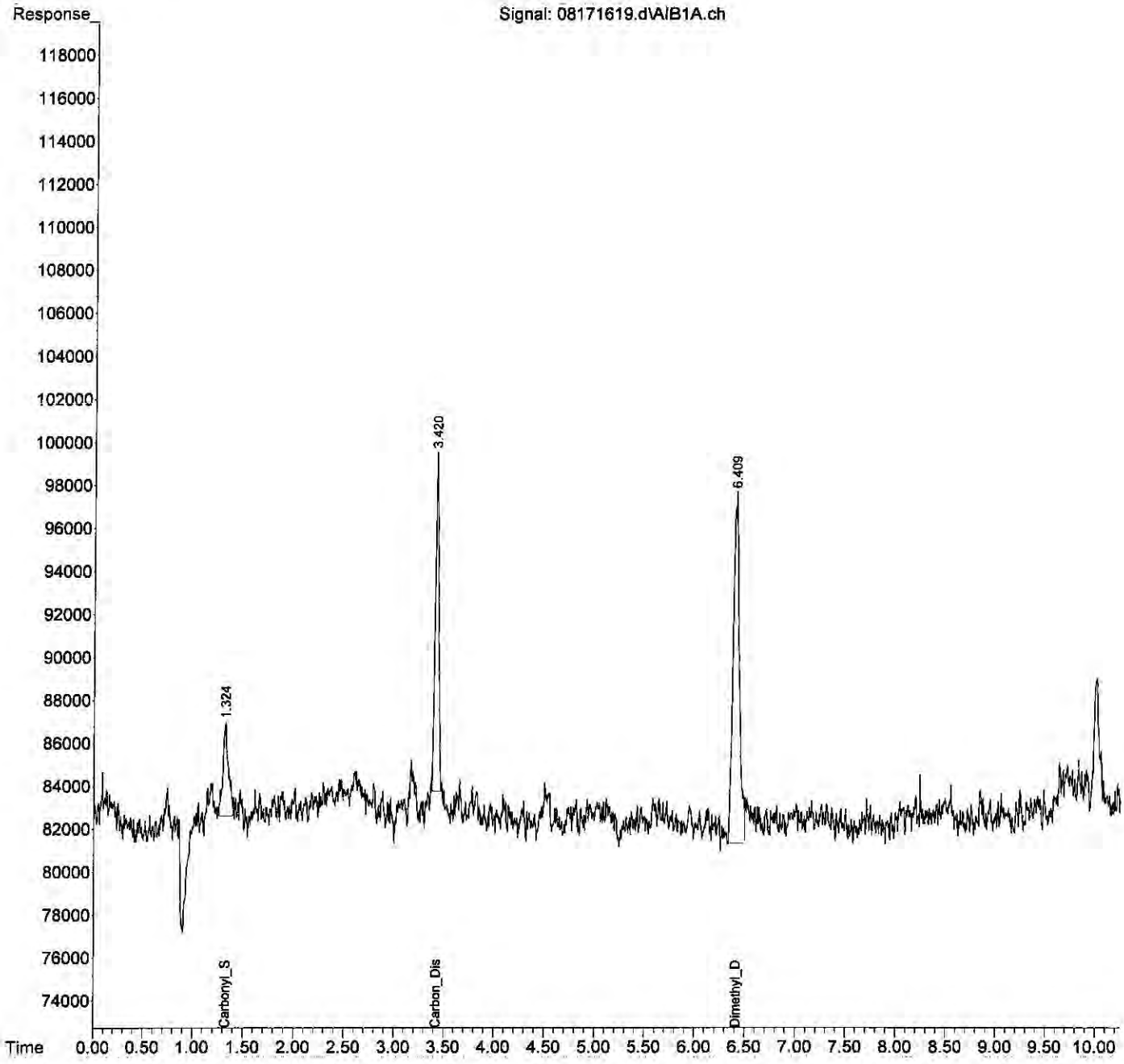
| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 2) | W | Carbonyl_Sulfide | 1.324f | 162005 | 3.648 | ppb | m |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 6) | T | Carbon_Disulfide | 3.420 | 381150 | 4.576 | ppb | m |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | T | Dimethyl_Disulfide | 6.409 | 719111 | 8.633 | ppb | m |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

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

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171619.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:44 pm
Operator : MC
Sample : 4037-002 1ml
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:15:10 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

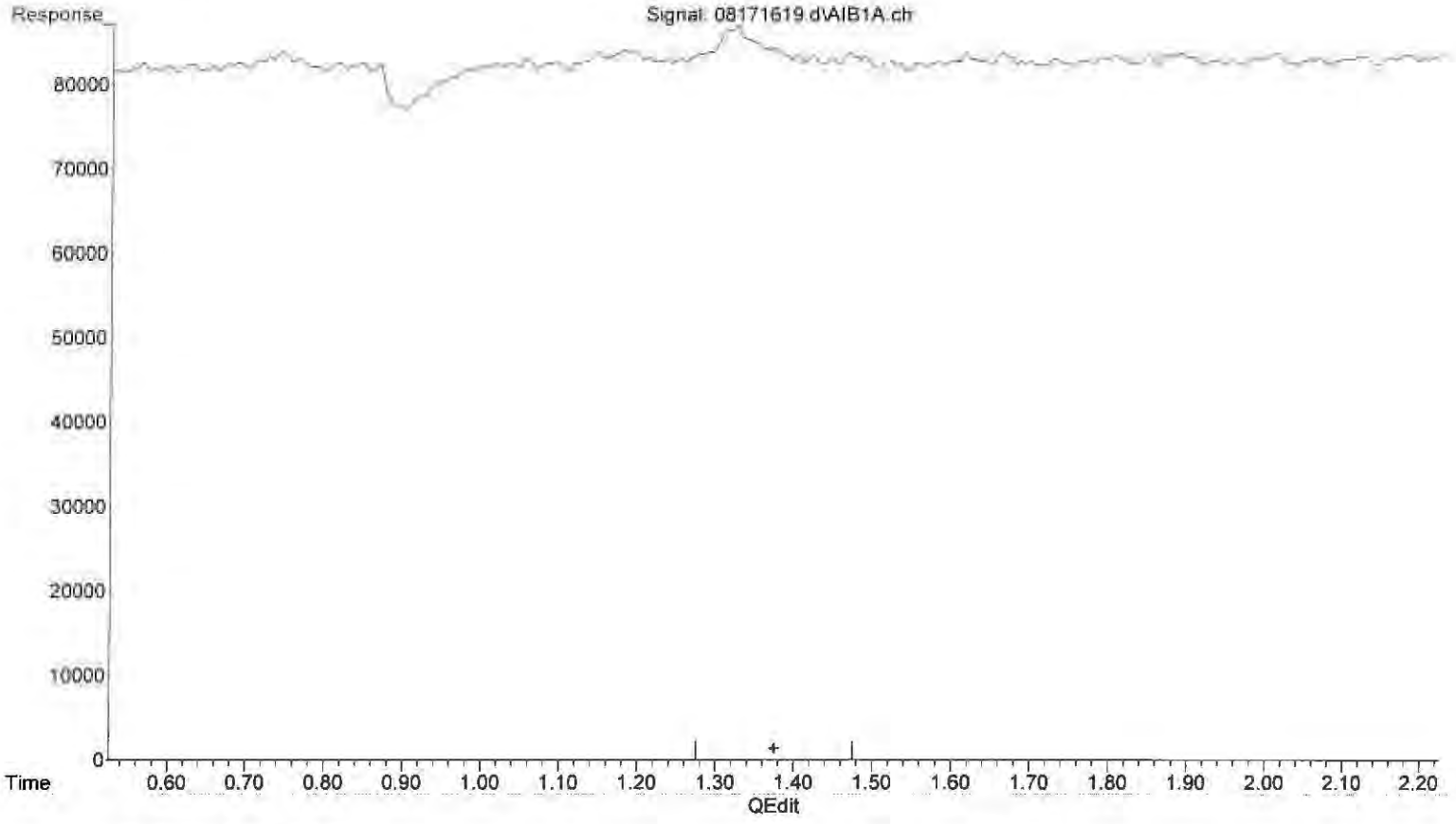


Quantitation Report (Qedit)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171619.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:44 pm
Operator : MC
Sample : 4037-002 1ml
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 15:55:04 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :




(2) Carbonyl_Sulfide (W)

1.375min 0.000 ppb

response 0

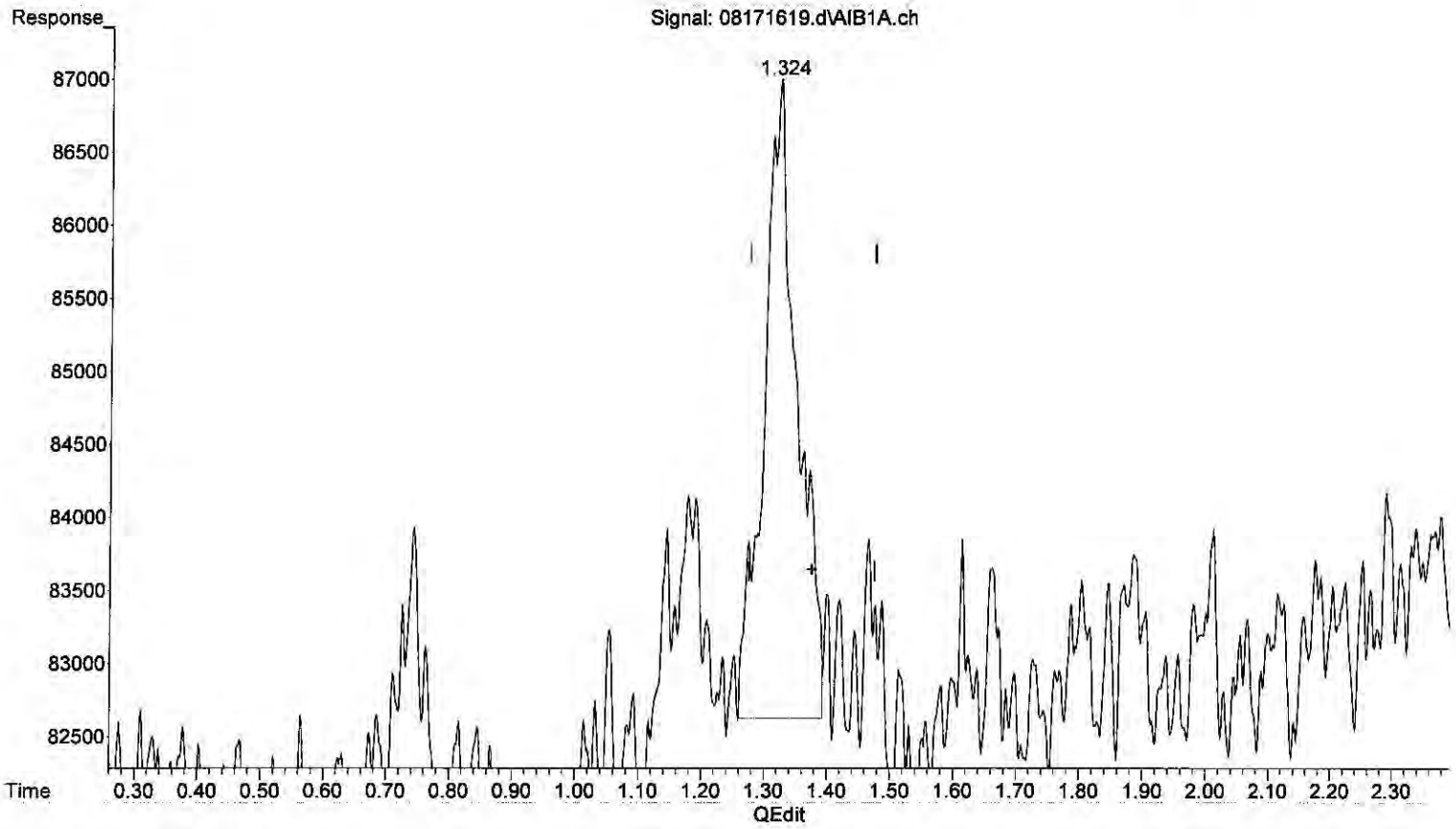
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171619.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:44 pm
Operator : MC
Sample : 4037-002 1ml
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 15:55:04 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :




(2) Carbonyl_Sulfide (W)

1.324min 3.648 ppb m

response 162005

8/19/16

MP

8/19/16

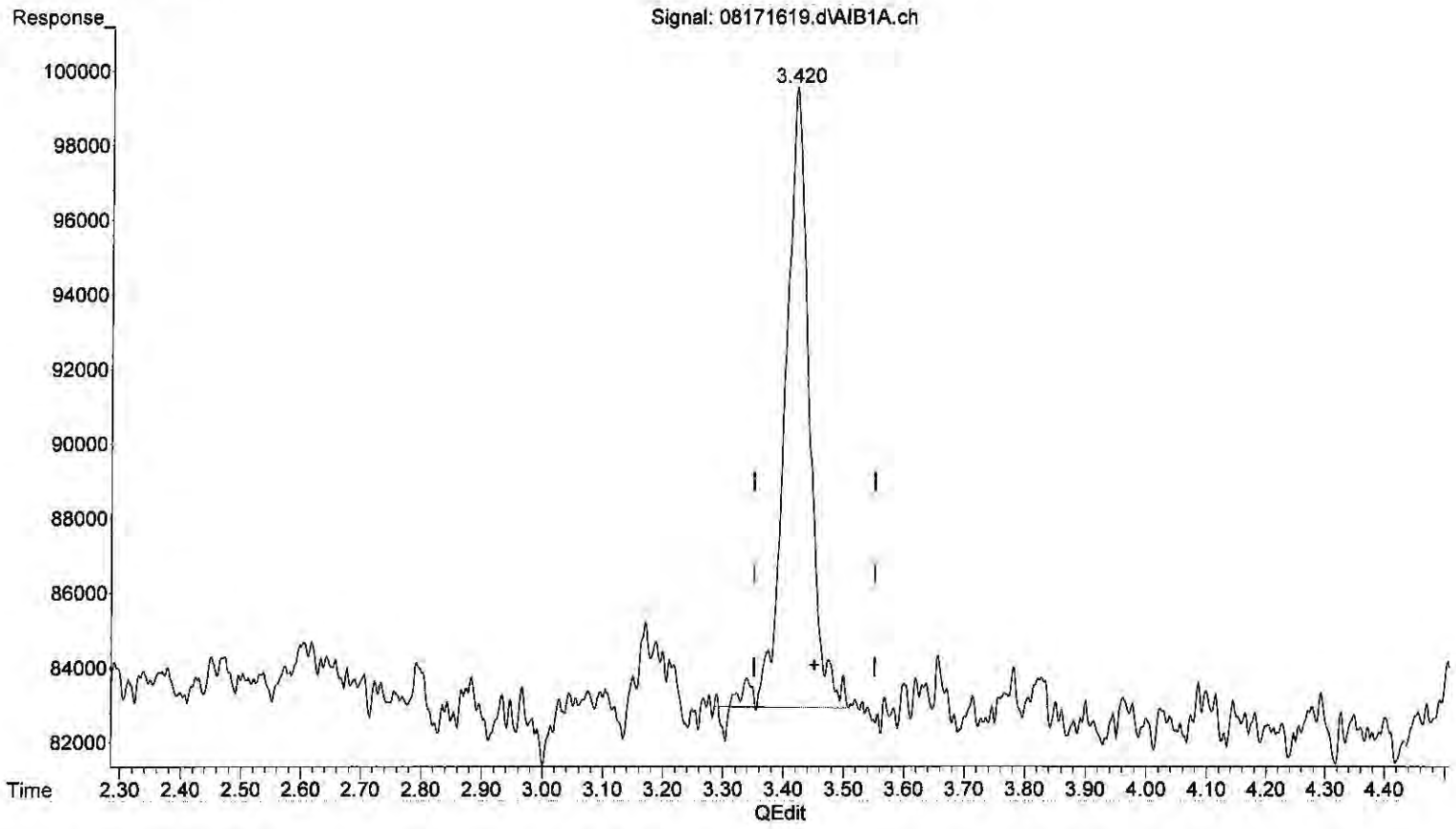
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171619.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:44 pm
Operator : MC
Sample : 4037-002 1ml
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 15:55:04 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

3.421min 5.534 ppb

response 460942

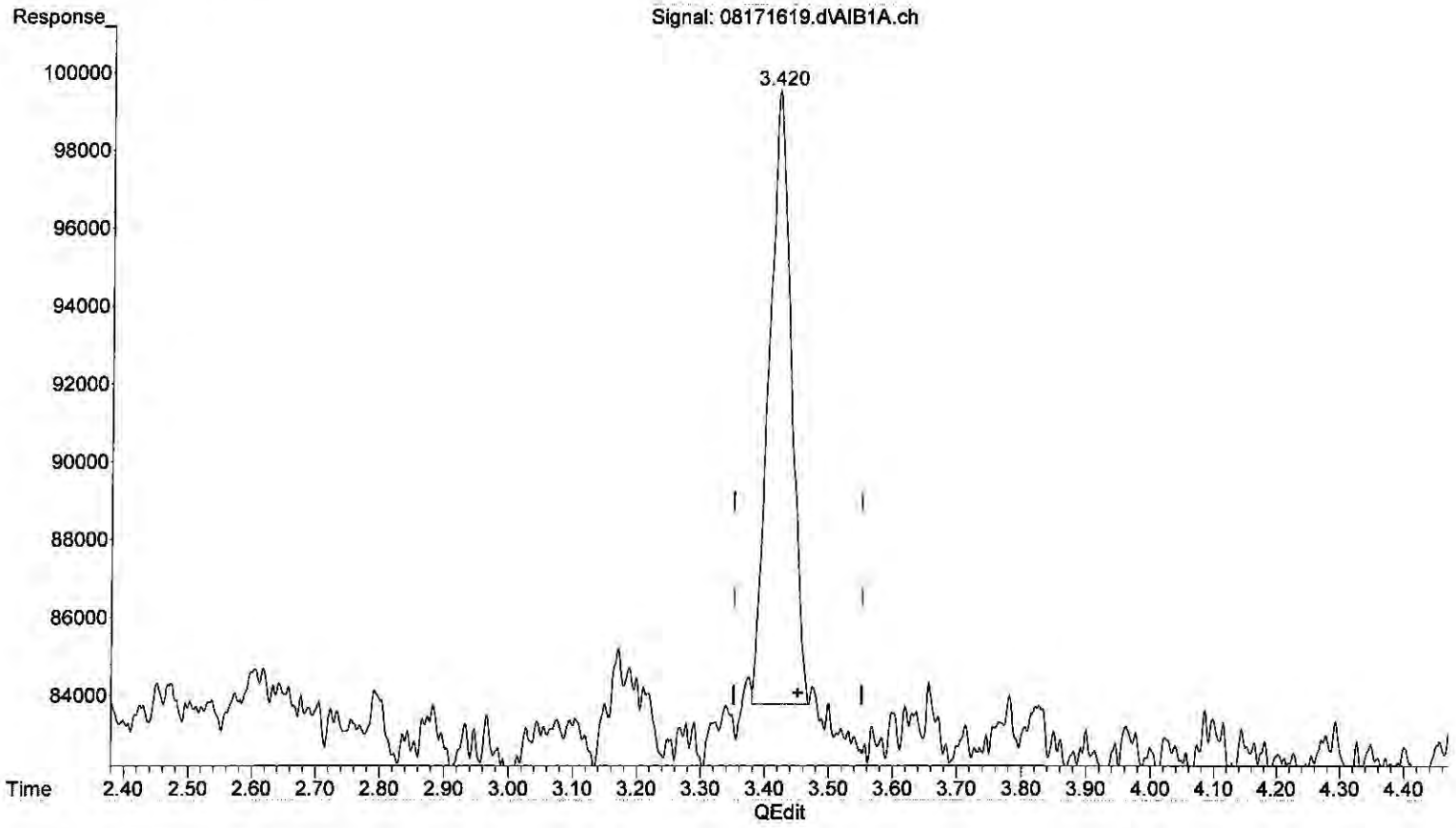
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171619.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:44 pm
Operator : MC
Sample : 4037-002 1ml
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 15:55:04 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

3.420min 4.576 ppb m

response 381150

8/19/16

8/19/16

(+) = Expected Retention Time

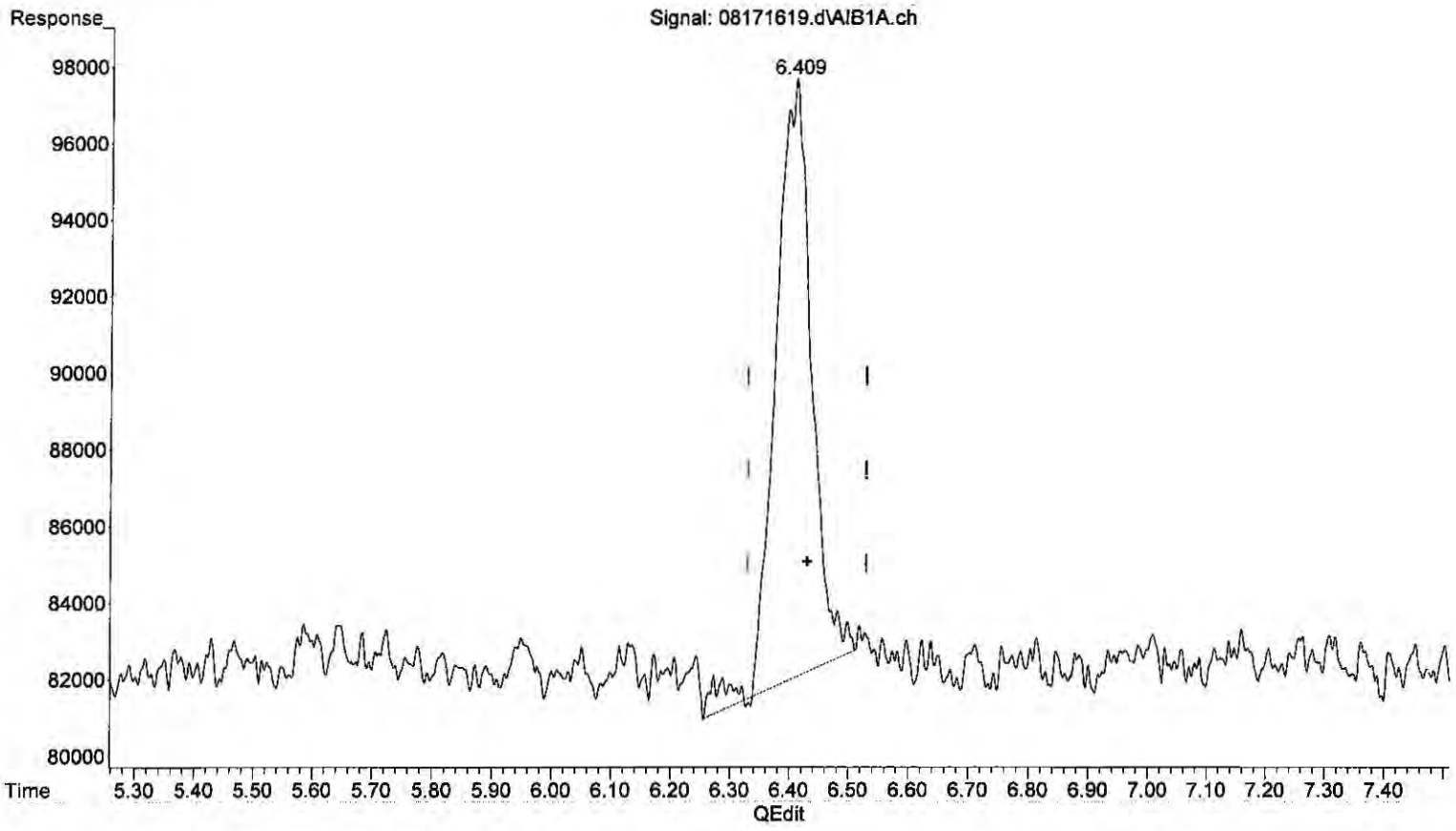
GC22_Quan 02262016.M Fri Aug 19 14:14:52 2016 Page: 1

Quantitation Report (Qedit)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171619.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:44 pm
Operator : MC
Sample : 4037-002 1ml
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:14:47 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :




(15) Dimethyl_Disulfide (T)

6.410min 8.018 ppb

response 667883

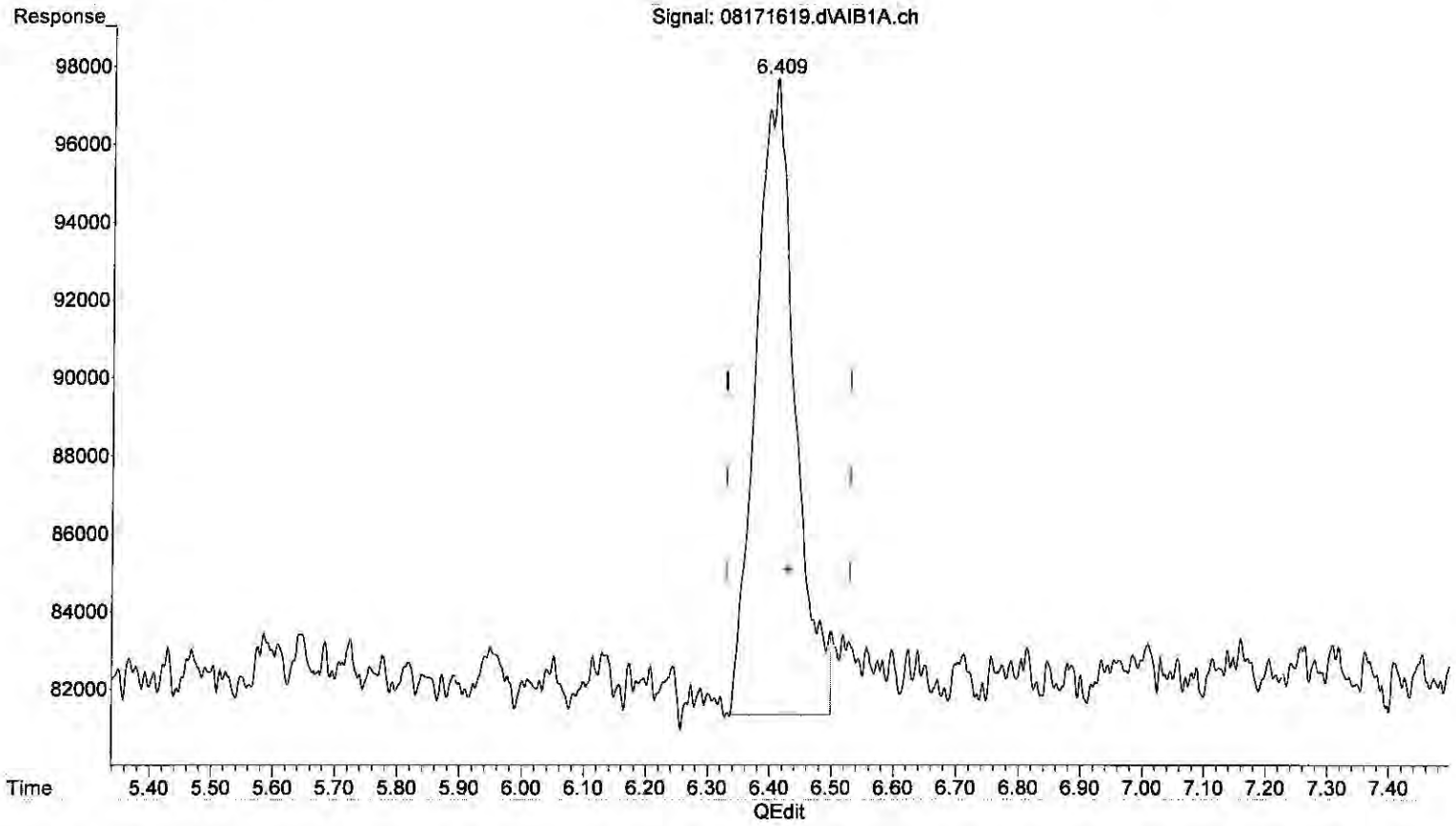
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171619.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:44 pm
Operator : MC
Sample : 4037-002 1ml
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:14:47 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :




(15) Dimethyl_Disulfide (T)

6.409min 8.633 ppb m

response 719111

8/19/16

8/19/16

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171620.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 3:45 pm
Operator : MC
Sample : 4037-003 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:58:34 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb |
| 2) | W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

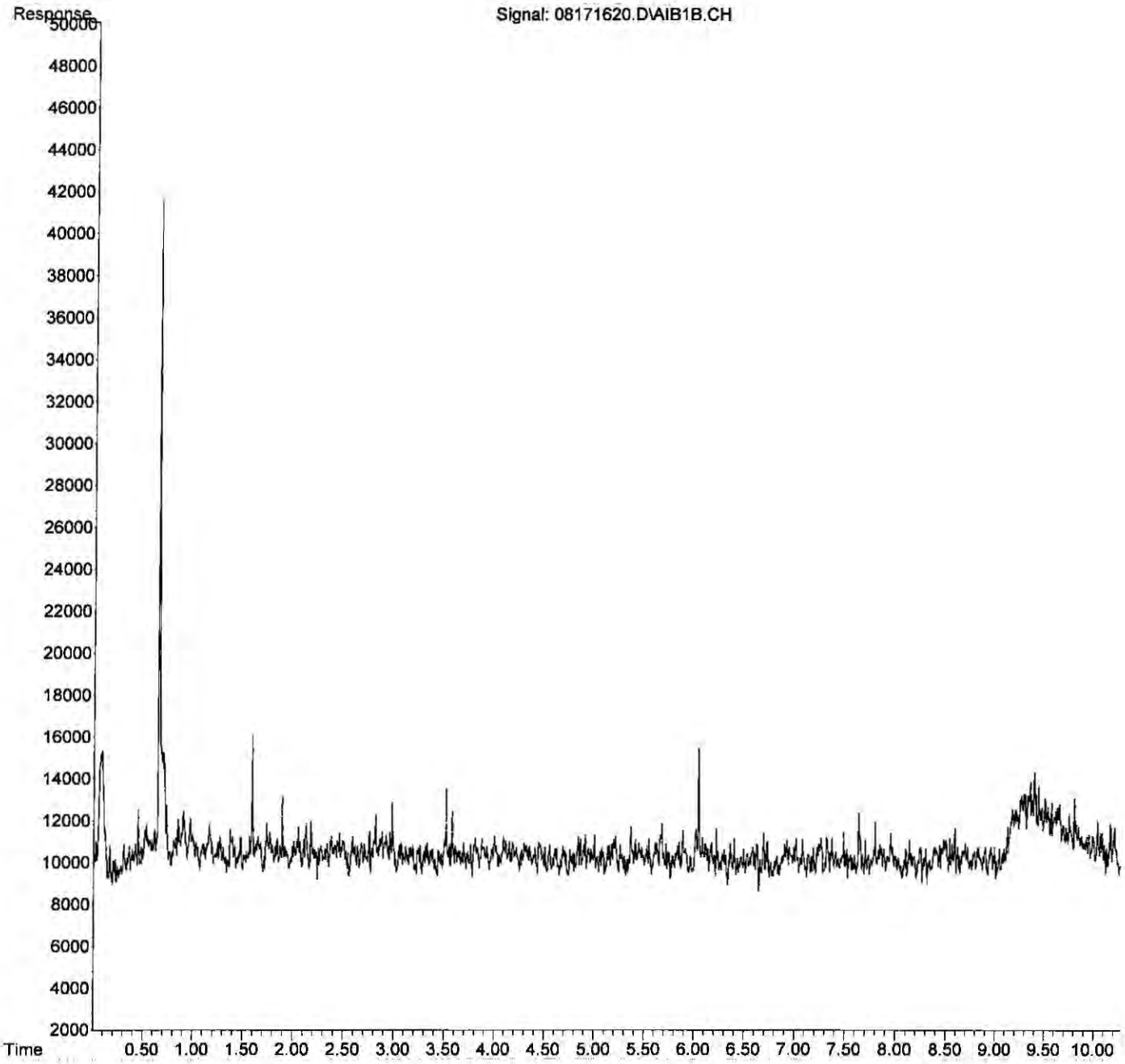
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171620.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 3:45 pm
Operator : MC
Sample : 4037-003 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:58:34 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171619.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 3:29 pm
Operator : MC
Sample : 4037-004 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:57:55 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.863 | 91279 | 1.461 | ppb | m |
| 2) | W | Carbonyl_Sulfide | 0.980 | 144475 | 2.063 | ppb | m |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 6) | T | Carbon_Disulfide | 2.894 | 344338 | 2.567 | ppb | m |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

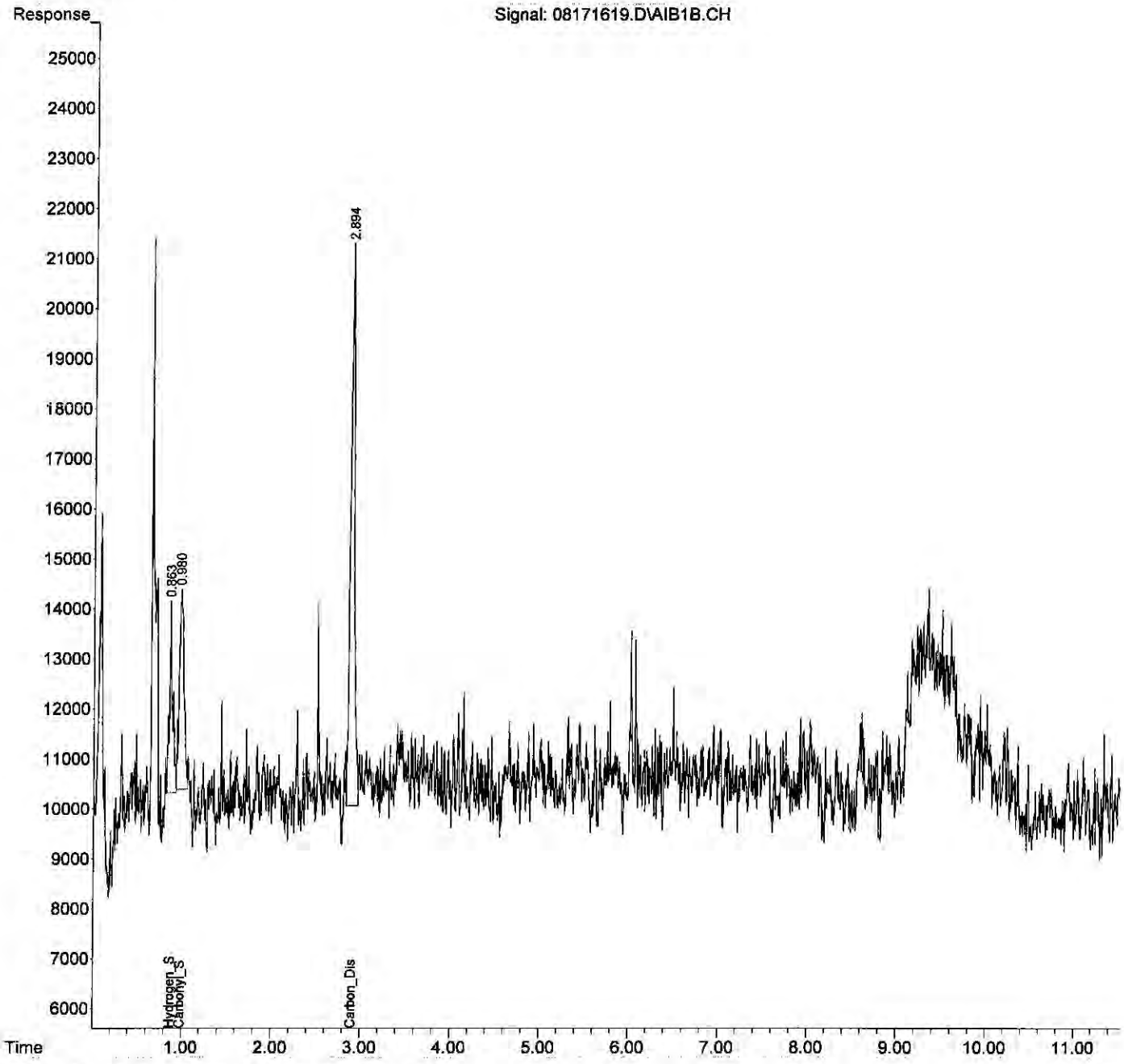
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171619.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 3:29 pm
Operator : MC
Sample : 4037-004 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:57:55 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

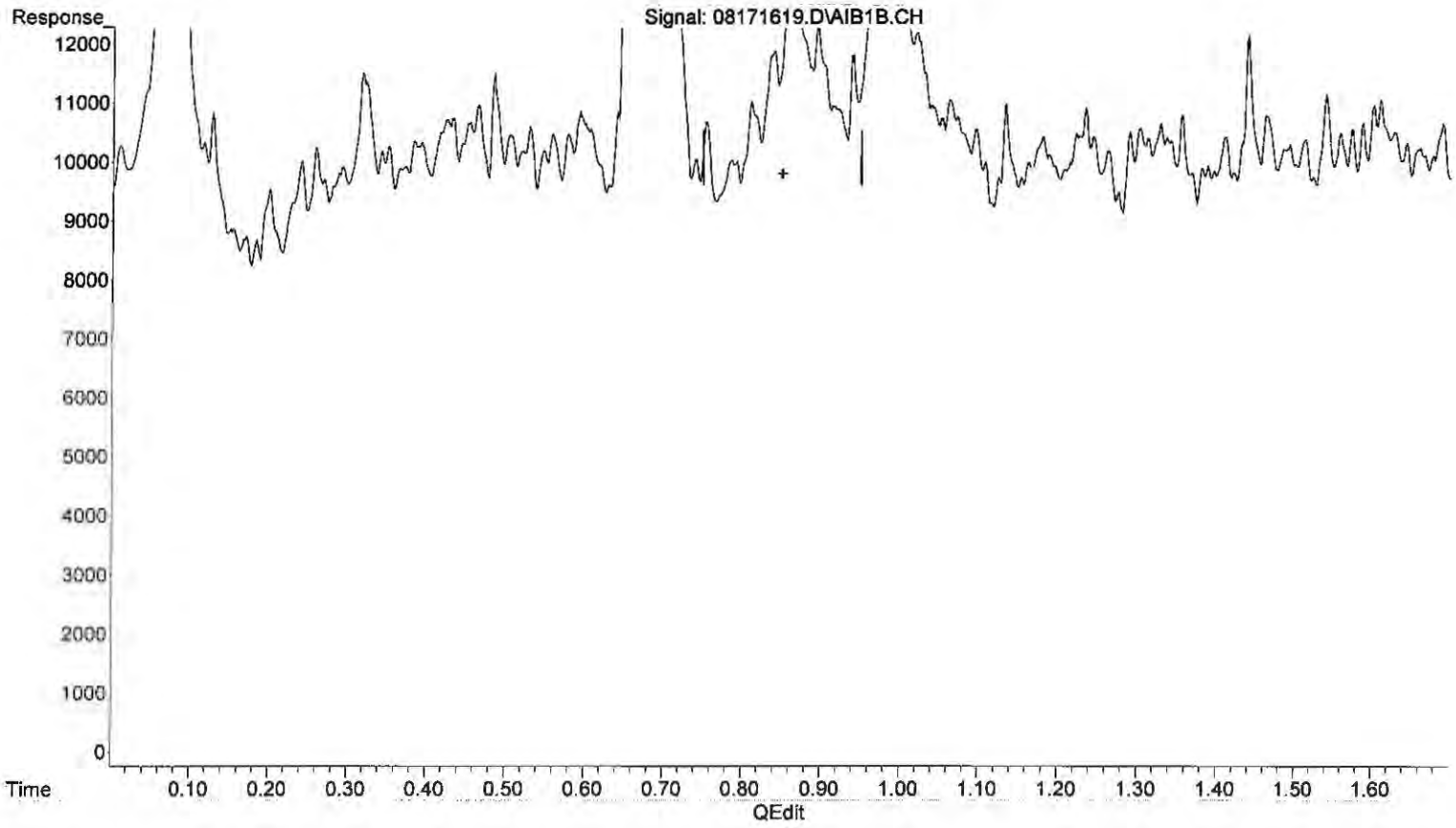


Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171619.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 3:29 pm
Operator : MC
Sample : 4037-004 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:57:15 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(1) Hydrogen_Sulfide (Z)

0.850min 0.000 ppb

response 0

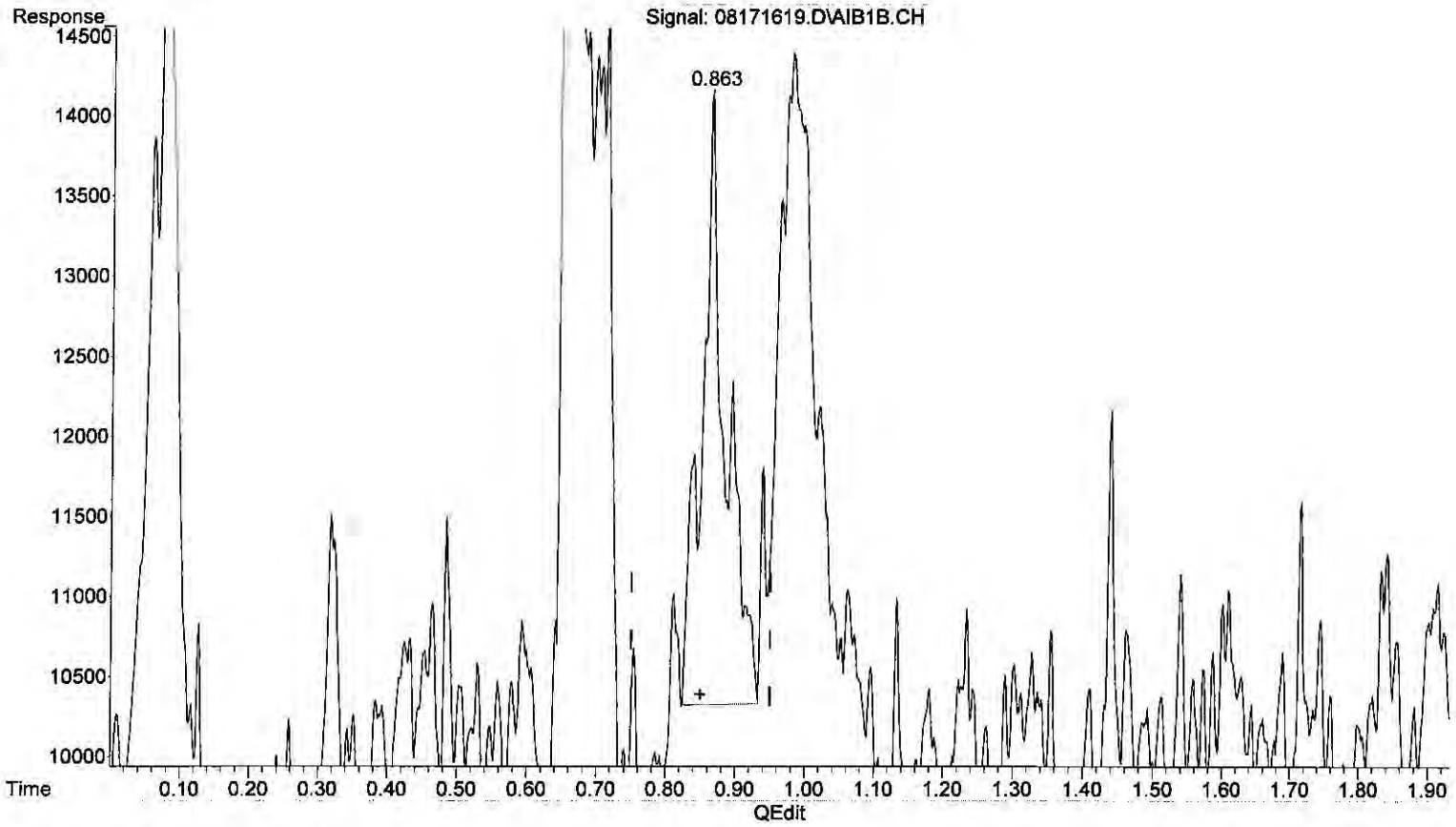
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171619.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 3:29 pm
Operator : MC
Sample : 4037-004 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:57:15 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(1) Hydrogen_Sulfide (Z)

0.863min 1.461 ppb m

response 91279

8/19/16

8/19/16

(+) = Expected Retention Time

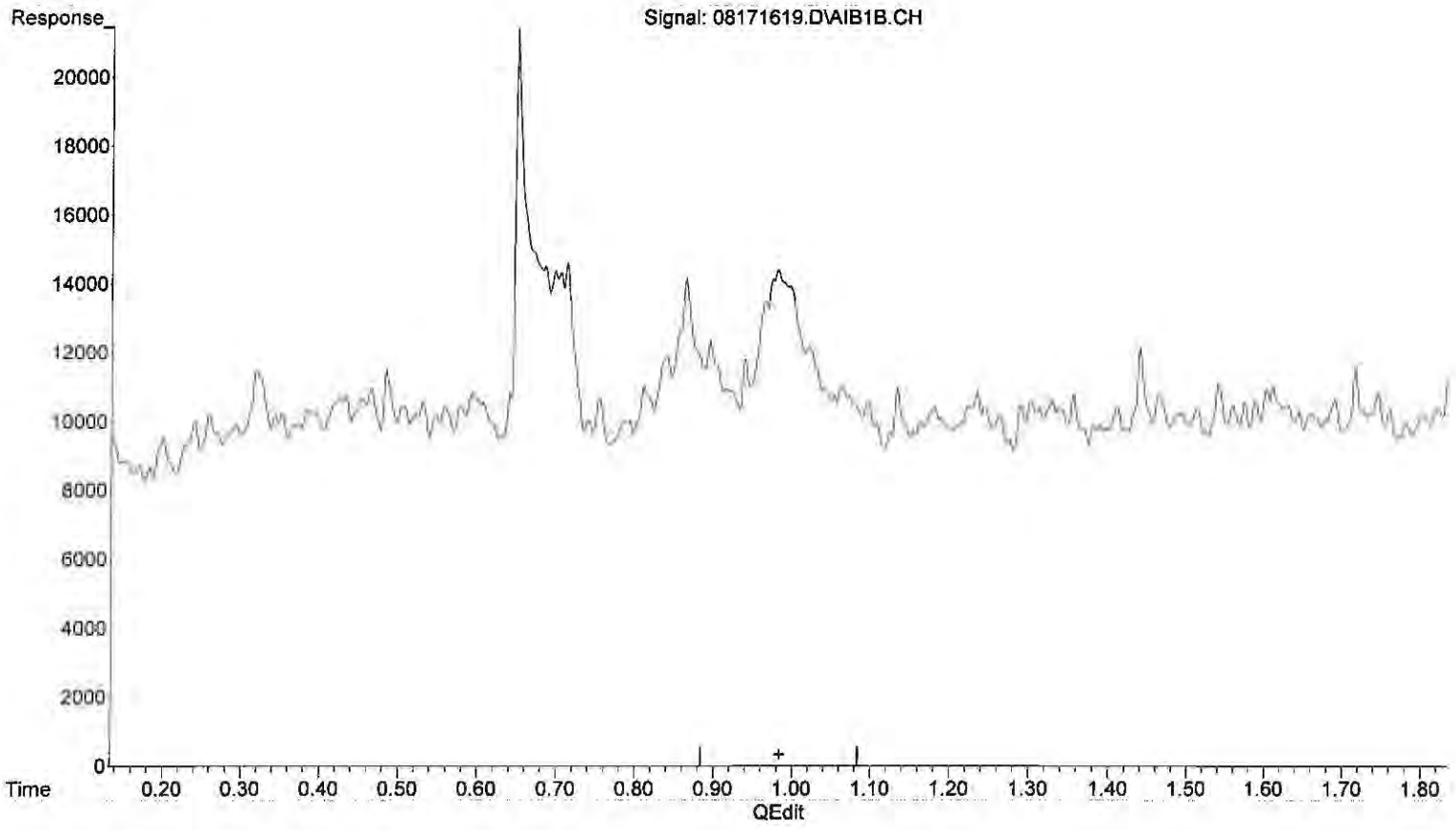
GC13_030216.M Fri Aug 19 13:57:35 2016 Page: 1

Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171619.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 3:29 pm
Operator : MC
Sample : 4037-004 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:57:15 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(2) Carbonyl_Sulfide (W)

0.984min 0.000 ppb

response 0

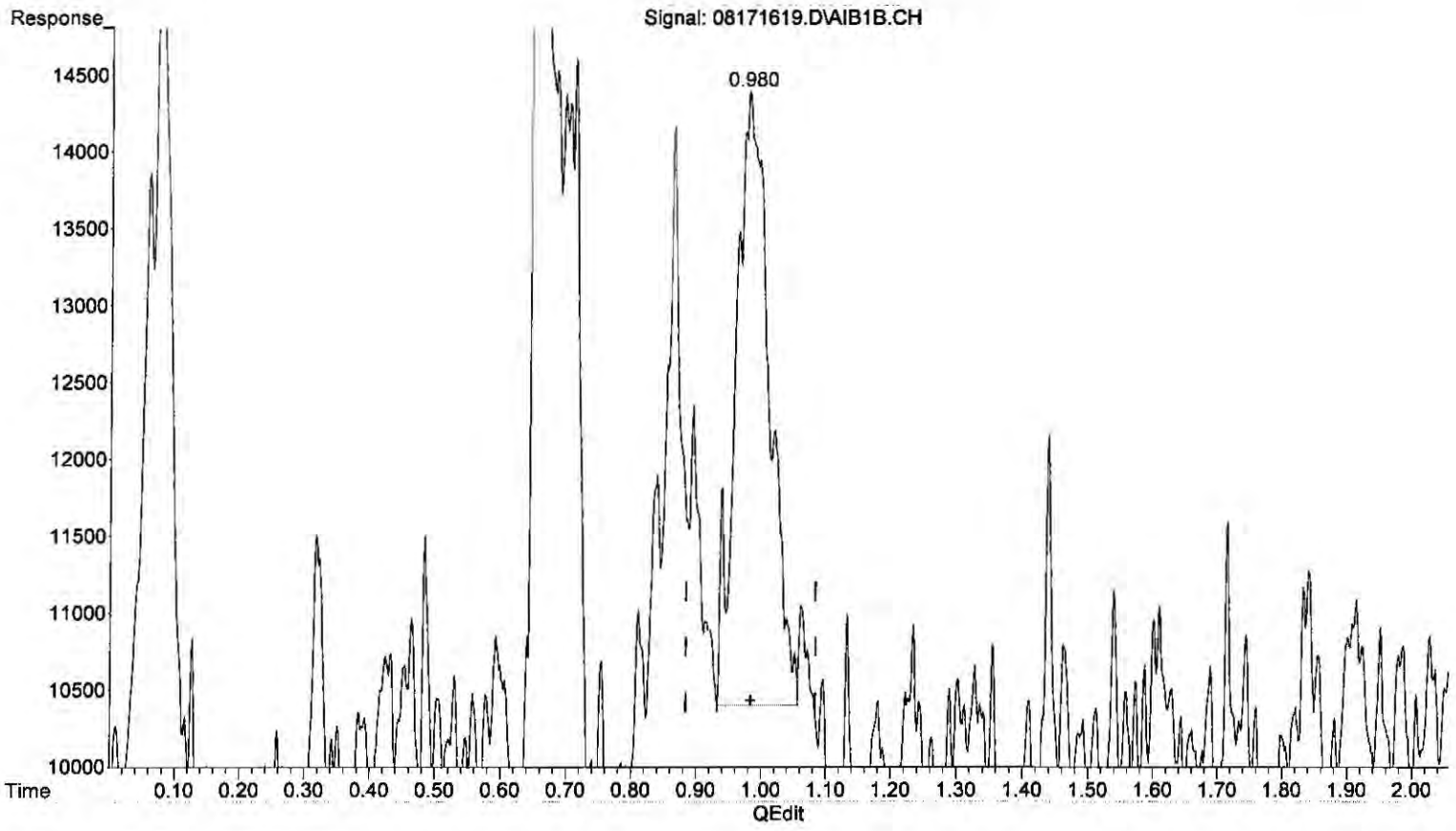
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171619.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 3:29 pm
Operator : MC
Sample : 4037-004 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:57:15 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(2) Carbonyl_Sulfide (W)

0.980min 2.063 ppb m

response 144475

MC 8/19/16

MP

AM 8/19/16

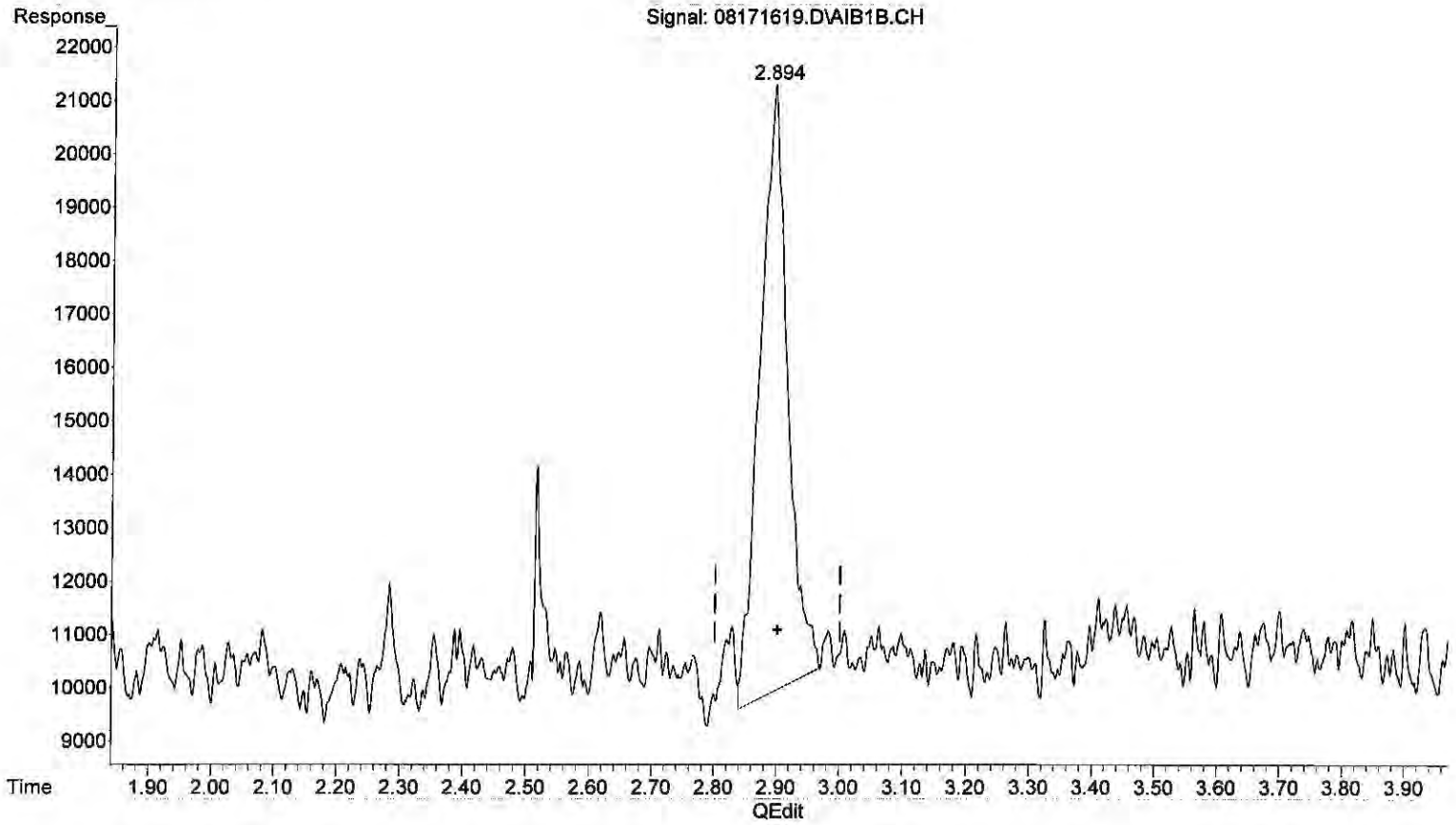
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171619.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 3:29 pm
Operator : MC
Sample : 4037-004 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:57:15 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

2.894min 2.614 ppb

response 350671

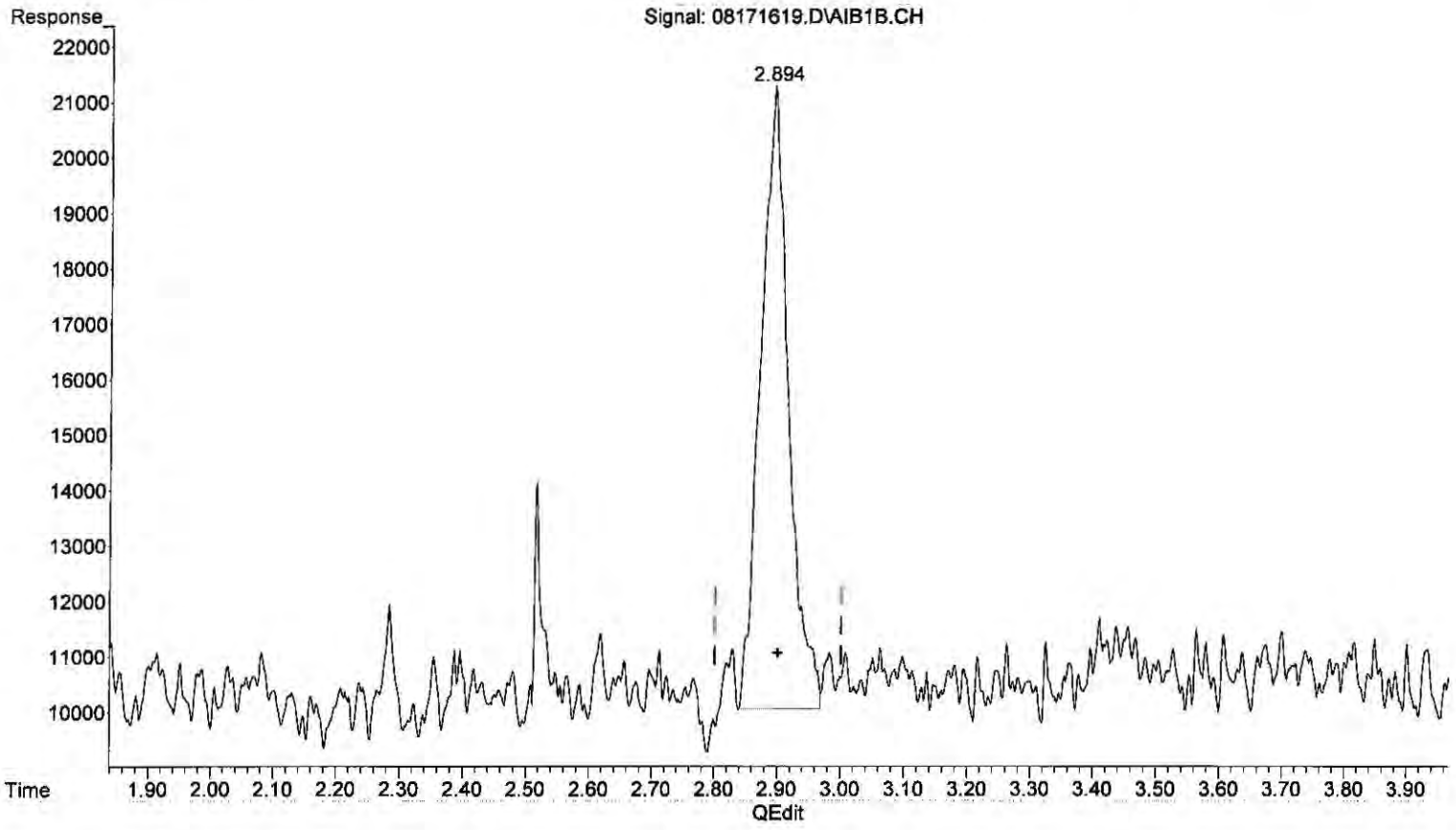
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171619.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 3:29 pm
Operator : MC
Sample : 4037-004 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:57:15 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

2.894min 2.567 ppb m

response 344338

MC 8/19/16

BL

8/19/16

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171620.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:57 pm
Operator : MC
Sample : 4037-005 1ml
Misc :
ALS Vial : 20 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:18:31 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb |
| 2) | W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

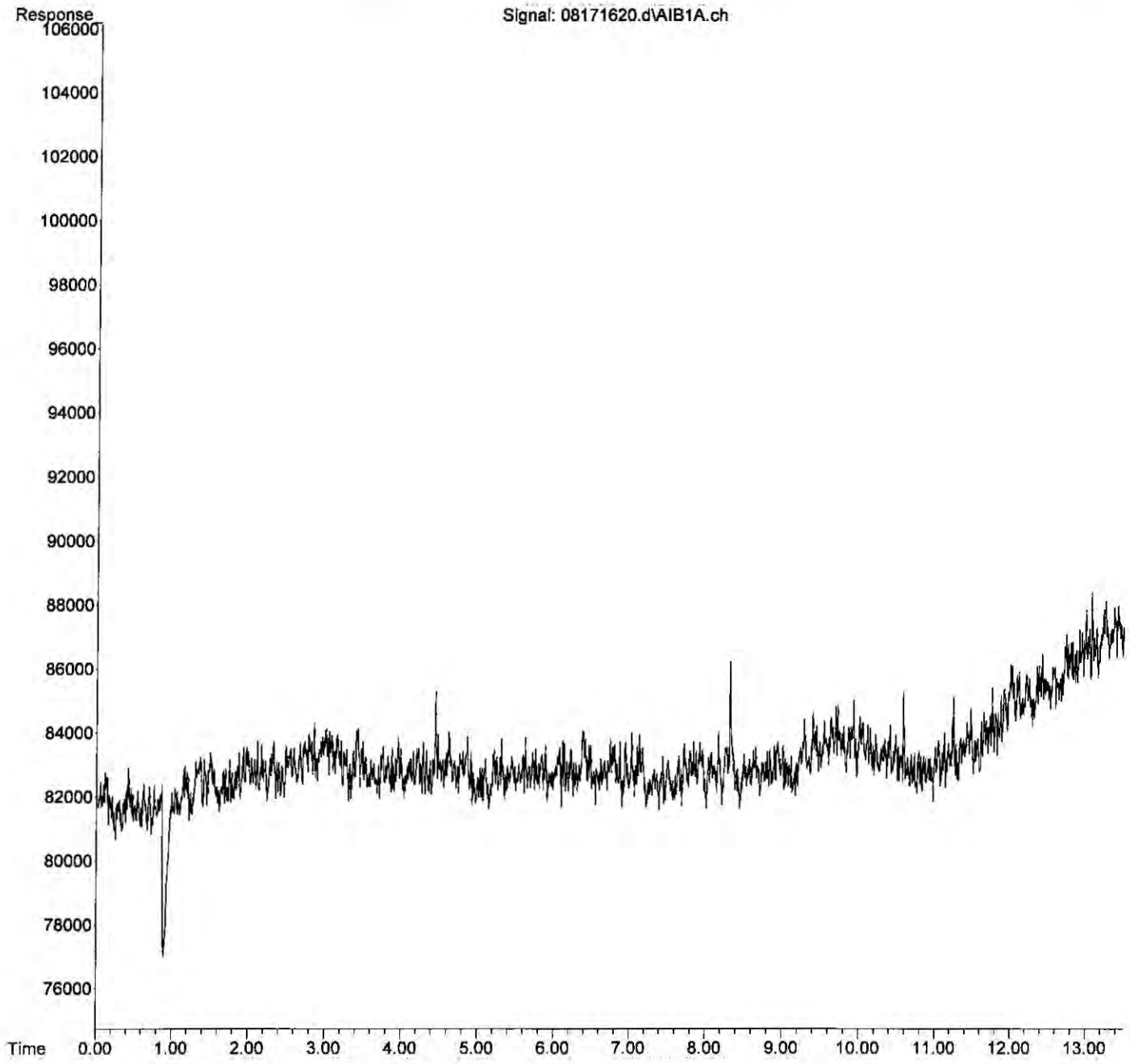
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171620.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 3:57 pm
Operator : MC
Sample : 4037-005 1ml
Misc :
ALS Vial : 20 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:18:31 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171621.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 4:15 pm
Operator : MC
Sample : 4037-006 1ml
Misc :
ALS Vial : 21 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:18:55 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 2) | W | Carbonyl_Sulfide | 1.317f | 2622781 | 59.054 | ppb | m |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 6) | T | Carbon_Disulfide | 3.415 | 4017792 | 48.234 | ppb | |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | T | Dimethyl_Disulfide | 6.391 | 543257 | 6.522 | ppb | |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

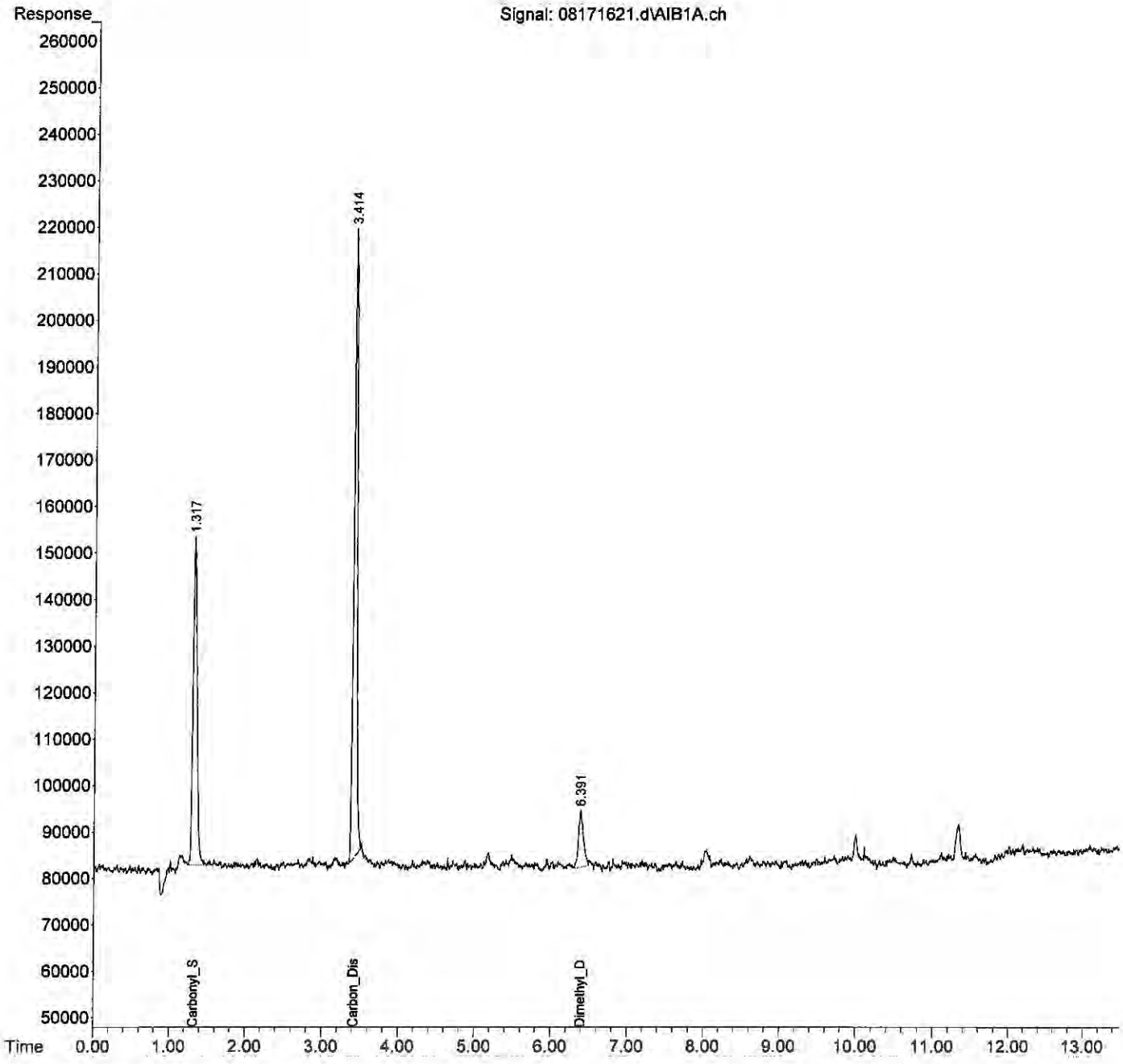
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171621.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 4:15 pm
Operator : MC
Sample : 4037-006 1ml
Misc :
ALS Vial : 21 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:18:55 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

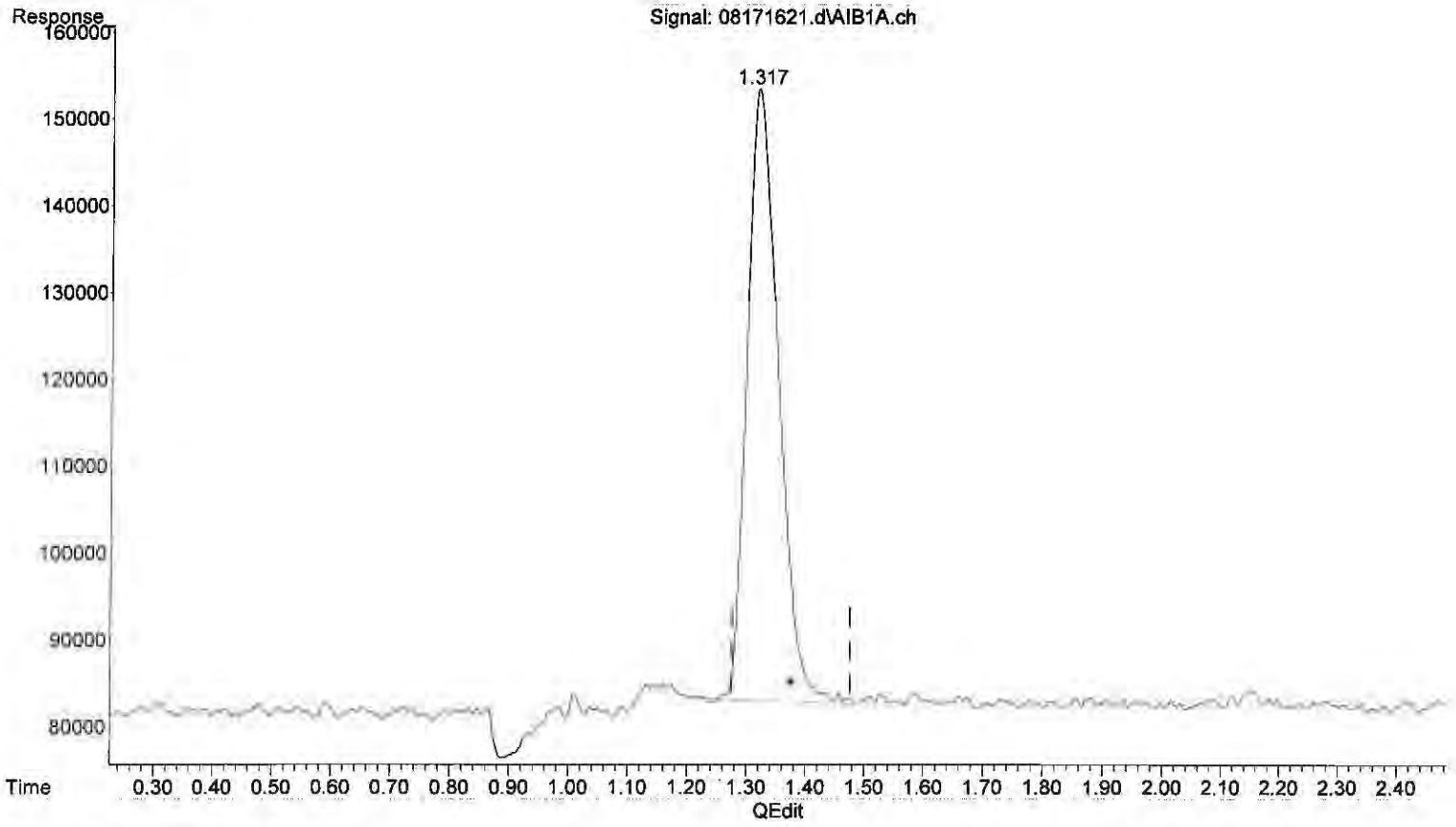


Quantitation Report (Qedit)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171621.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 4:15 pm
Operator : MC
Sample : 4037-006 1ml
Misc :
ALS Vial : 21 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 16:28:51 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :




(2) Carbonyl_Sulfide (W)

1.318min 58.826 ppb

response 2612662

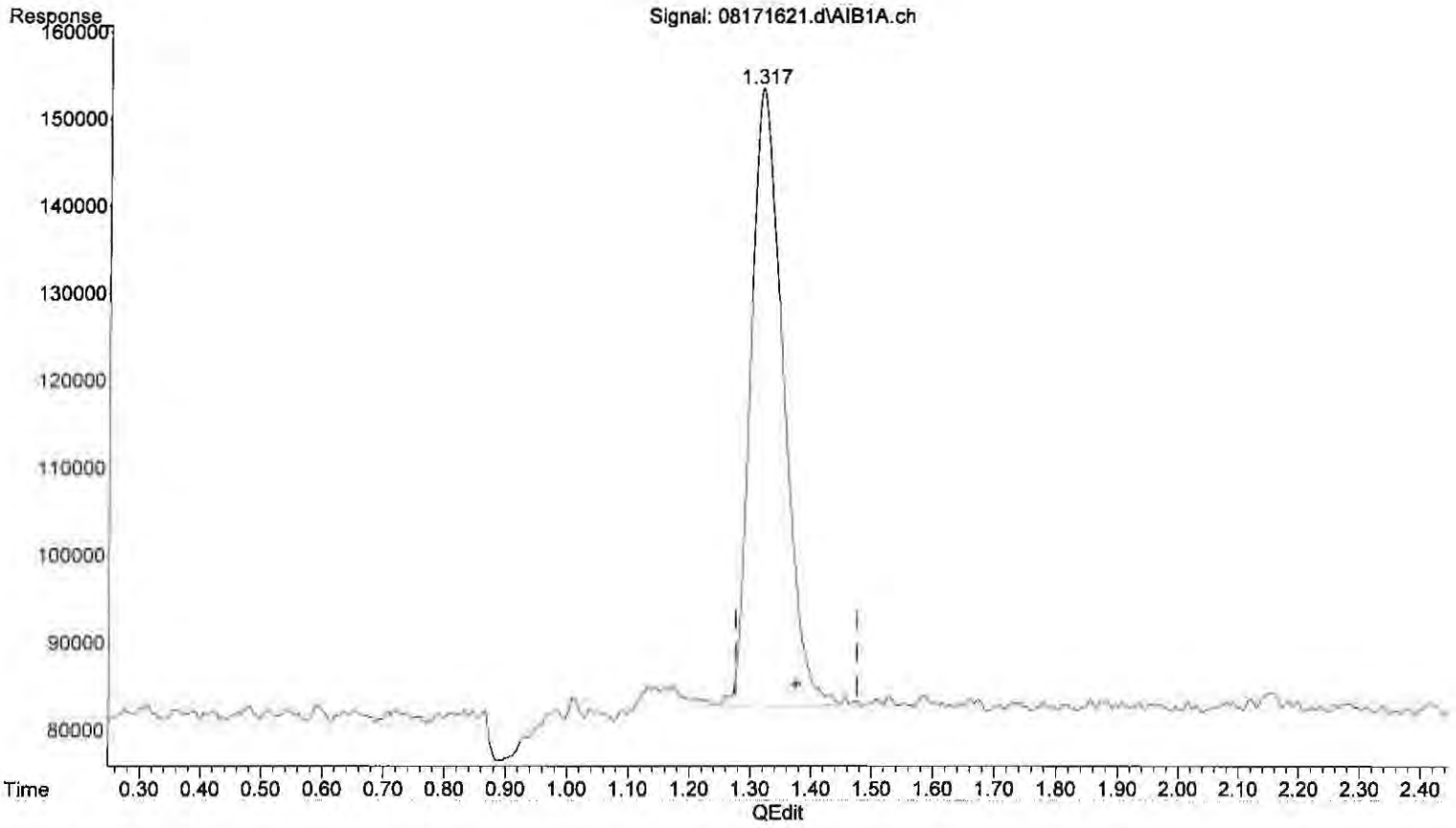
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171621.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 4:15 pm
Operator : MC
Sample : 4037-006 1ml
Misc :
ALS Vial : 21 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 16:28:51 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :




(2) Carbonyl_Sulfide (W)

1.317min 59.054 ppb m

response 2622781

MC 8/19/16

BL

8/19/16

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171622.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 4:15 pm
Operator : MC
Sample : 4037-008 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:59:37 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb |
| 2) | W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

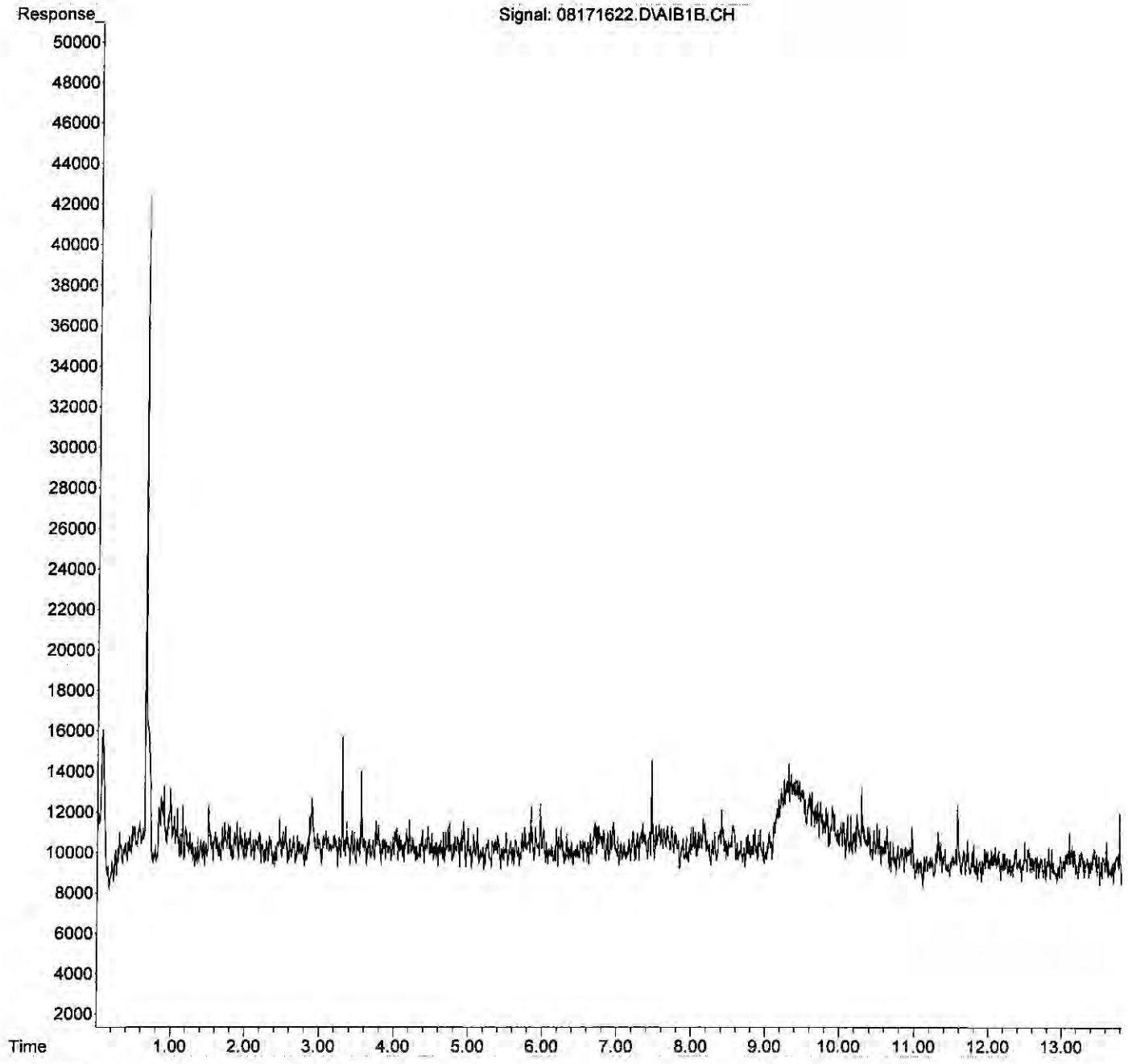
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171622.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 4:15 pm
Operator : MC
Sample : 4037-008 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:59:37 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171623.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 4:34 pm
Operator : MC
Sample : 4037-009 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:59:52 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

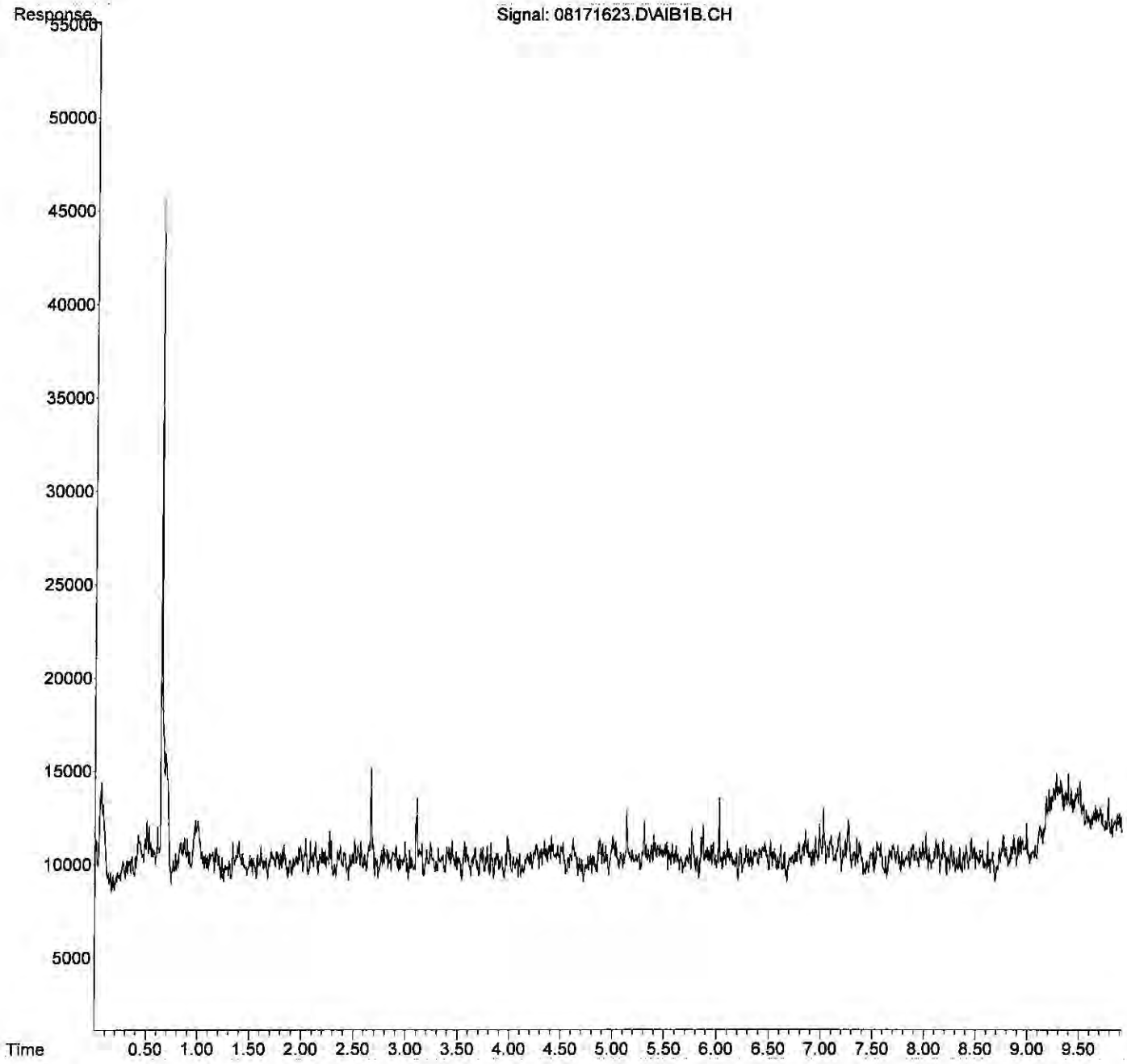
| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb |
| 2) | W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

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

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171623.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 4:34 pm
Operator : MC
Sample : 4037-009 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:59:52 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171624.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 4:47 pm
Operator : MC
Sample : 4037-010 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:00:08 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb |
| 2) | W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

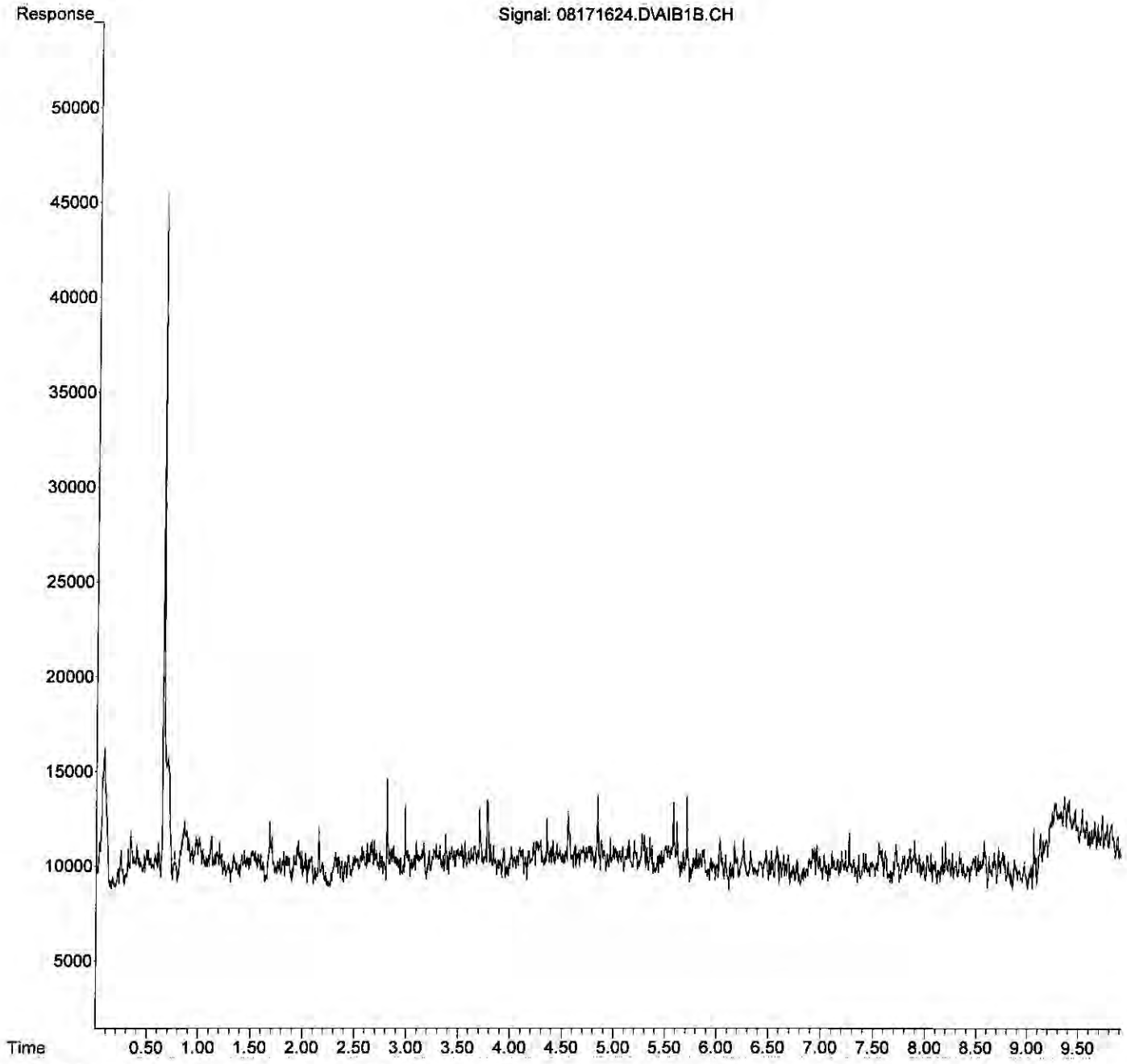
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171624.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 4:47 pm
Operator : MC
Sample : 4037-010 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:00:08 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171622.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 4:32 pm
Operator : MC
Sample : 4037-011 1ml
Misc :
ALS Vial : 22 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:19:23 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb |
| 2) | W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

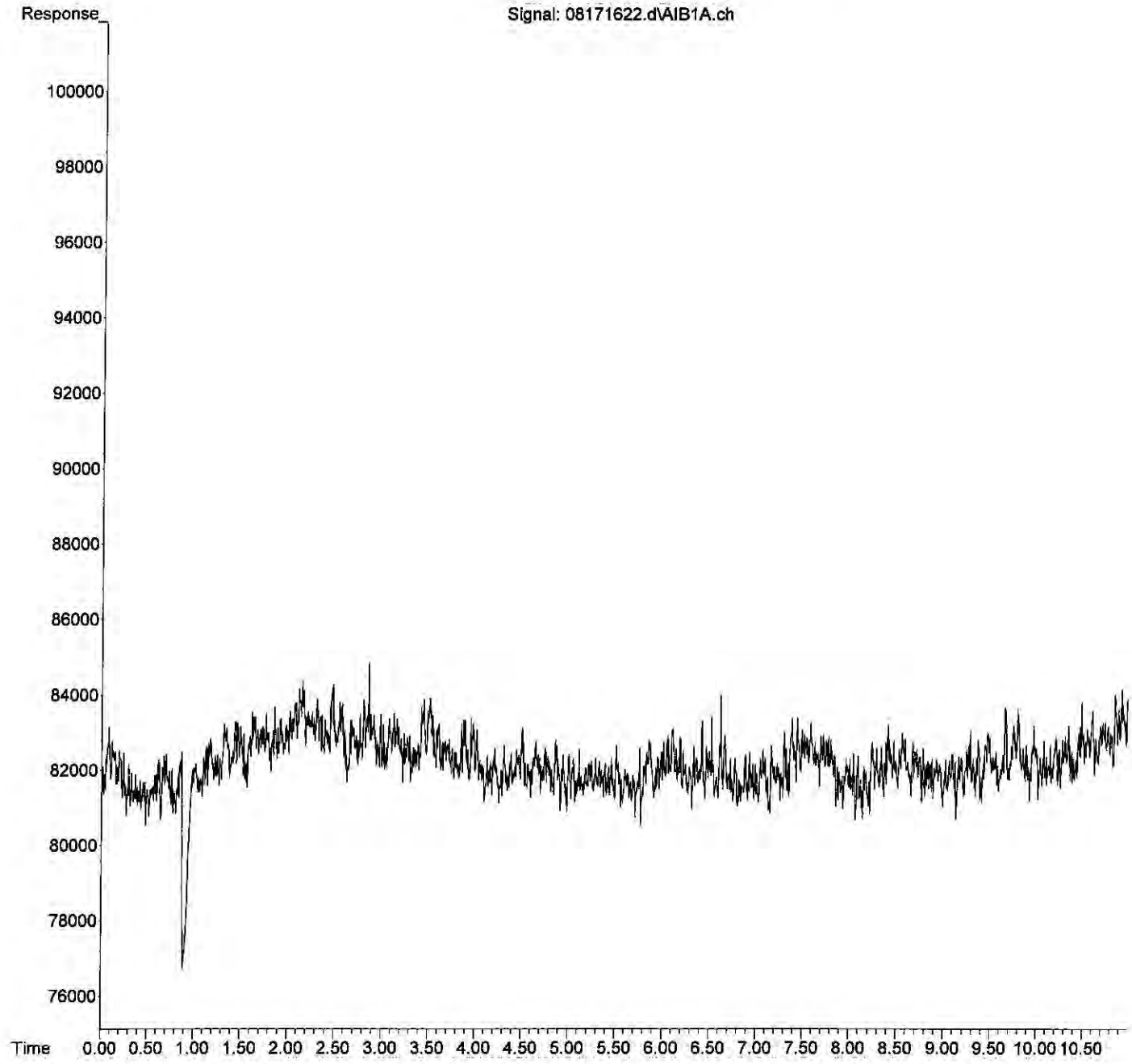
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171622.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 4:32 pm
Operator : MC
Sample : 4037-011 1ml
Misc :
ALS Vial : 22 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 14:19:23 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181606.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 9:09 am
Operator : MC
Sample : 4037-014 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:46:02 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 2) | W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 6) | T | Carbon_Disulfide | 2.883 | 192978 | 1.439 | ppb | m |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

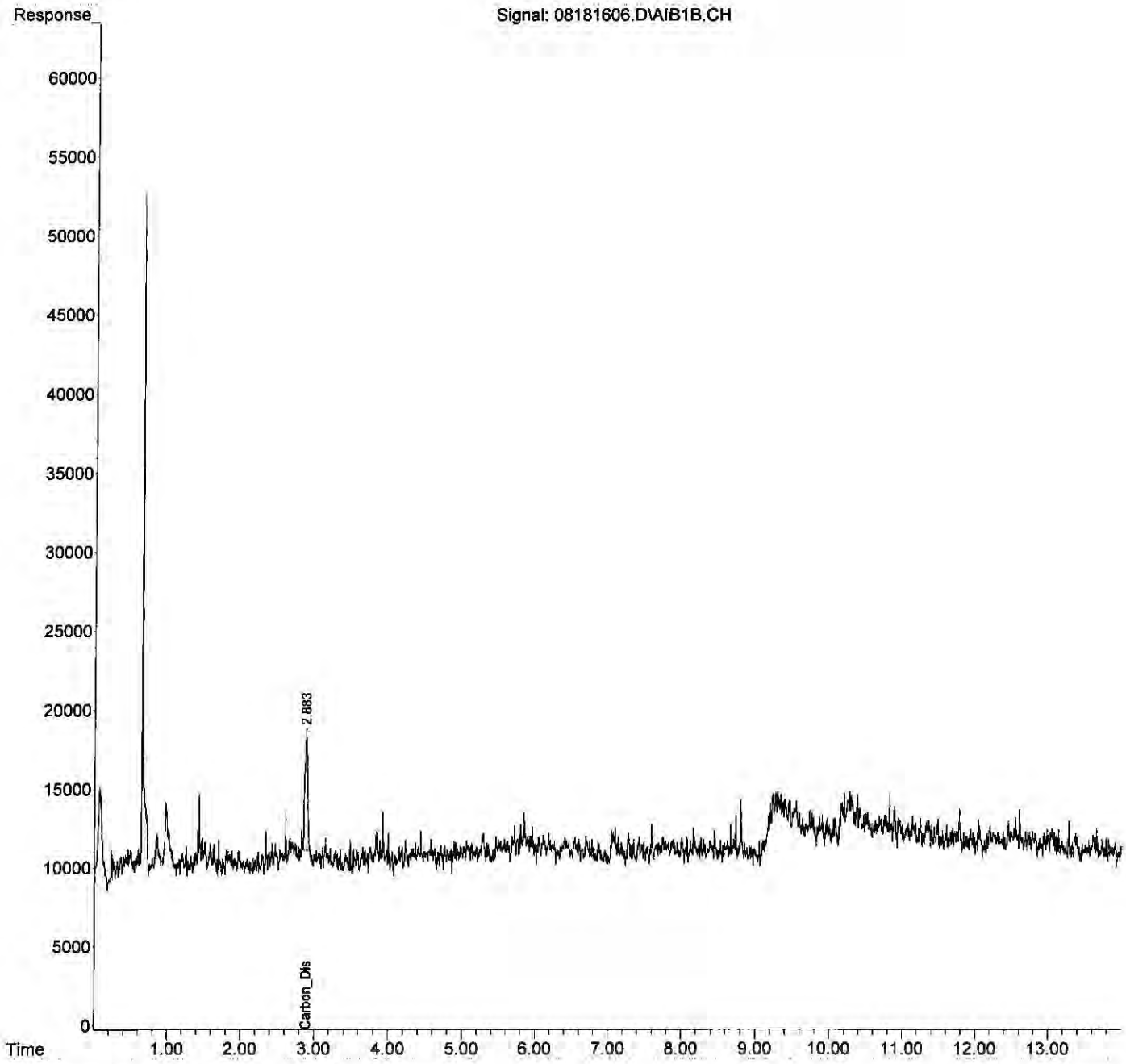
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181606.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 9:09 am
Operator : MC
Sample : 4037-014 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:46:02 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

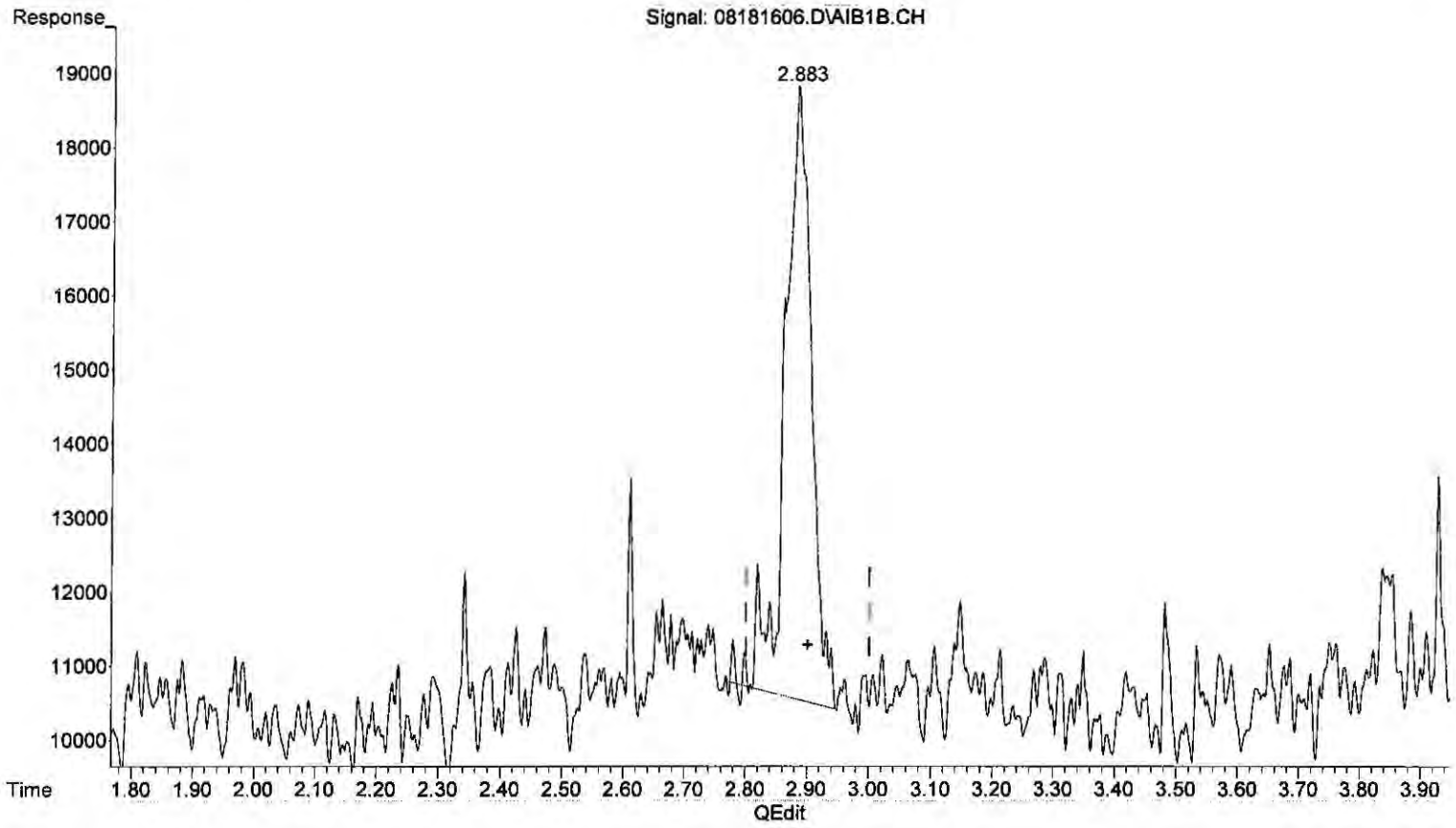


Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181606.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 9:09 am
Operator : MC
Sample : 4037-014 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:45:48 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

2.884min 1.856 ppb

response 248956

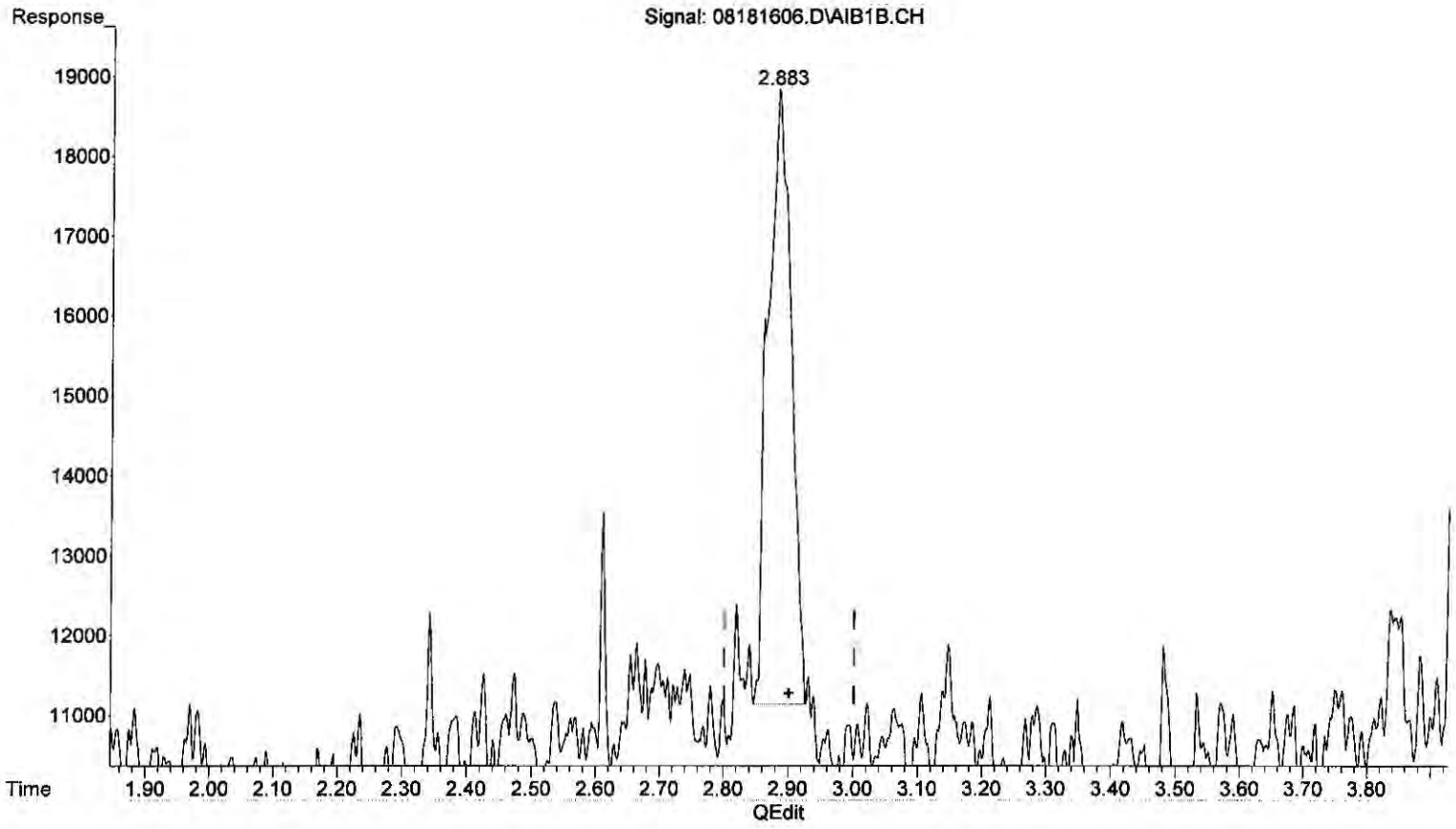
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181606.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 9:09 am
Operator : MC
Sample : 4037-014 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:45:48 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

2.883min 1.439 ppb m

response 192978

8/19/16

8/19/16

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181616.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 11:40 am
Operator : MC
Sample : 4037-016 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:55:43 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb |
| 2) W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 3) T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

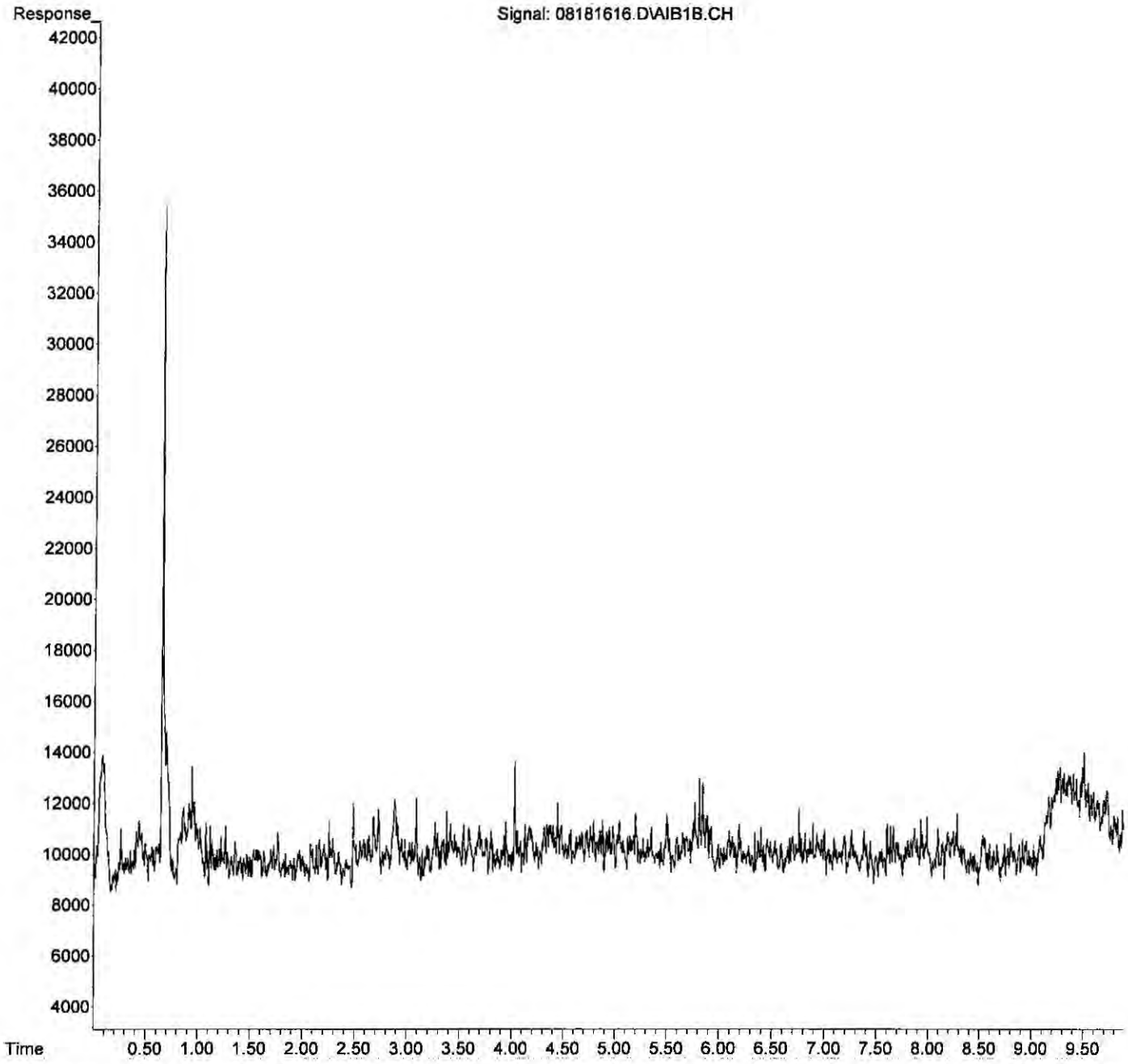
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181616.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 11:40 am
Operator : MC
Sample : 4037-016 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:55:43 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181621.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 12:55 pm
Operator : MC
Sample : 4037-017 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:57:22 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb |
| 2) W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 3) T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

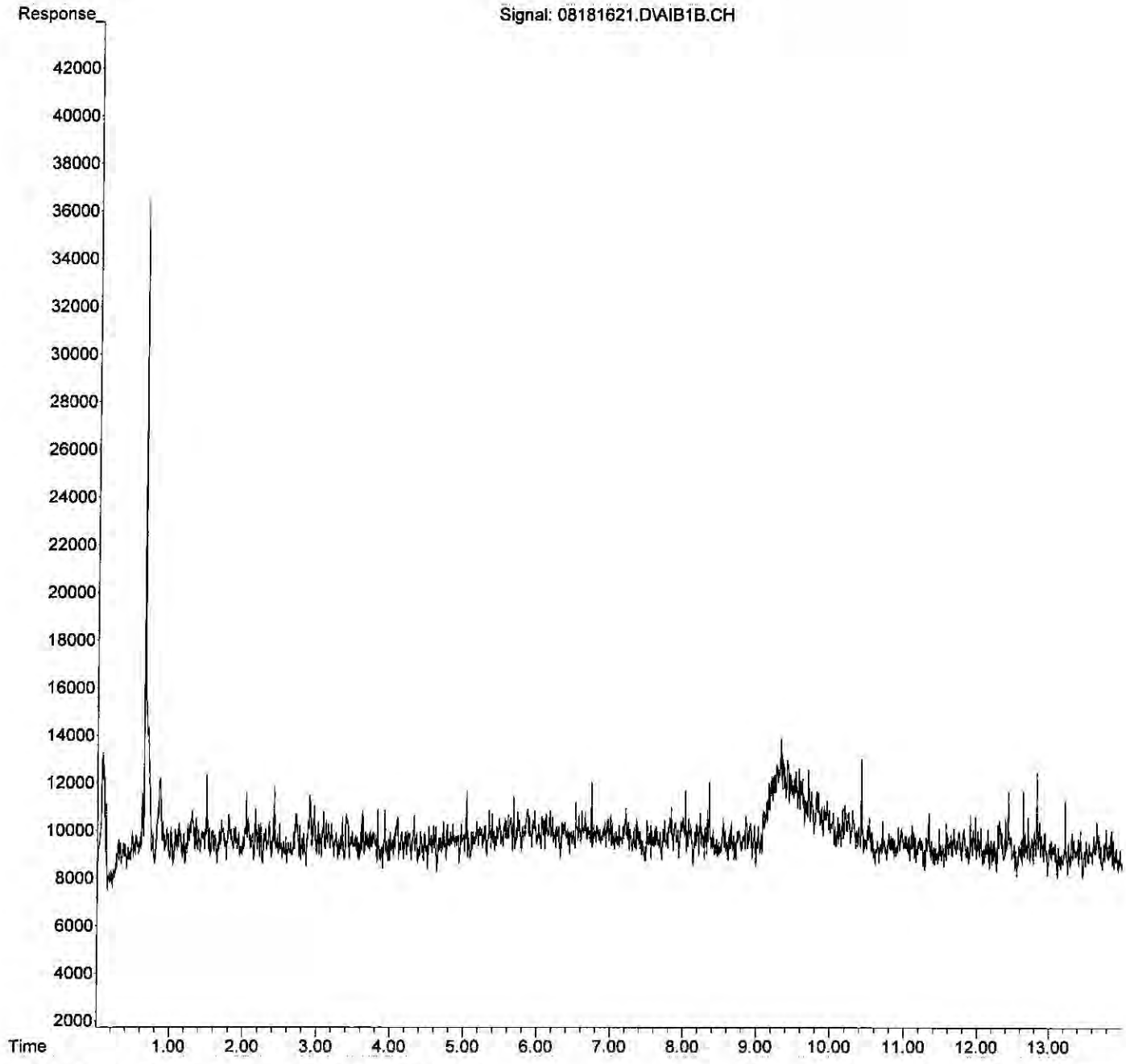
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181621.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 12:55 pm
Operator : MC
Sample : 4037-017 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:57:22 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181617.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 11:53 am
Operator : MC
Sample : 4037-019 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:56:17 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 2) | W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 6) | T | Carbon_Disulfide | 2.885 | 169157 | 1.261 | ppb | m |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

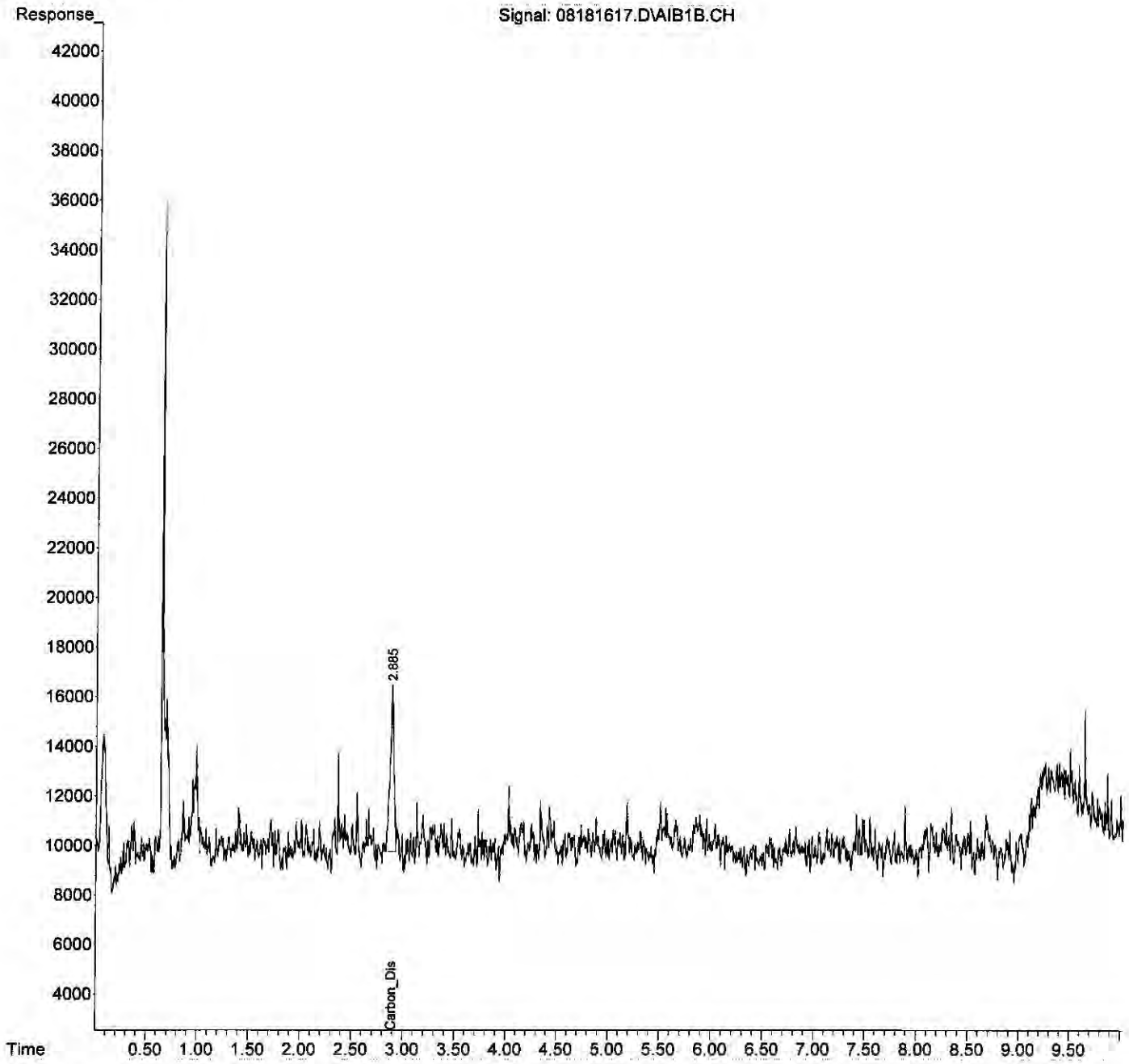
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181617.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 11:53 am
Operator : MC
Sample : 4037-019 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:56:17 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

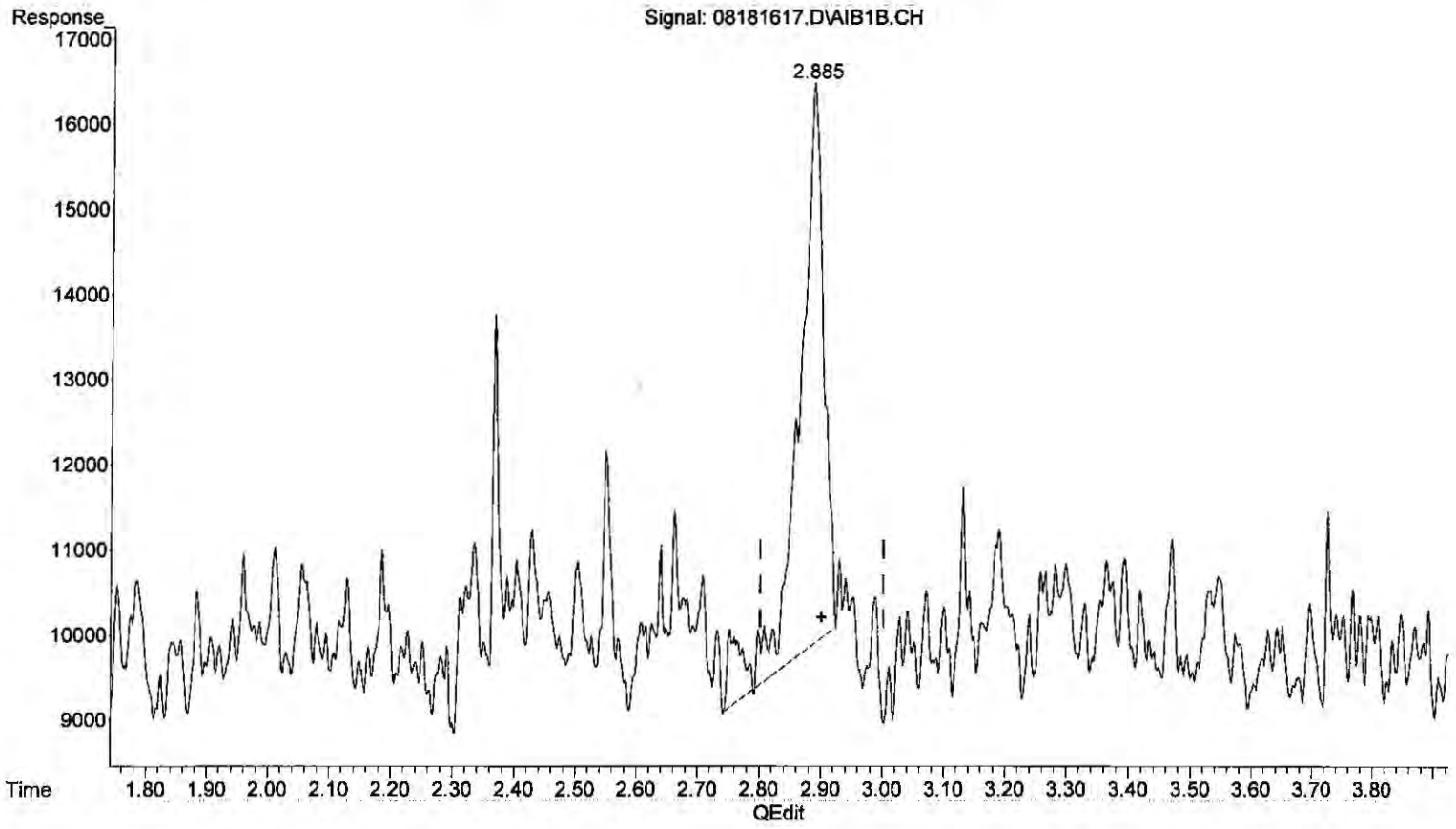


Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181617.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 11:53 am
Operator : MC
Sample : 4037-019 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:56:00 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

2.887min 1.411 ppb

response 189238

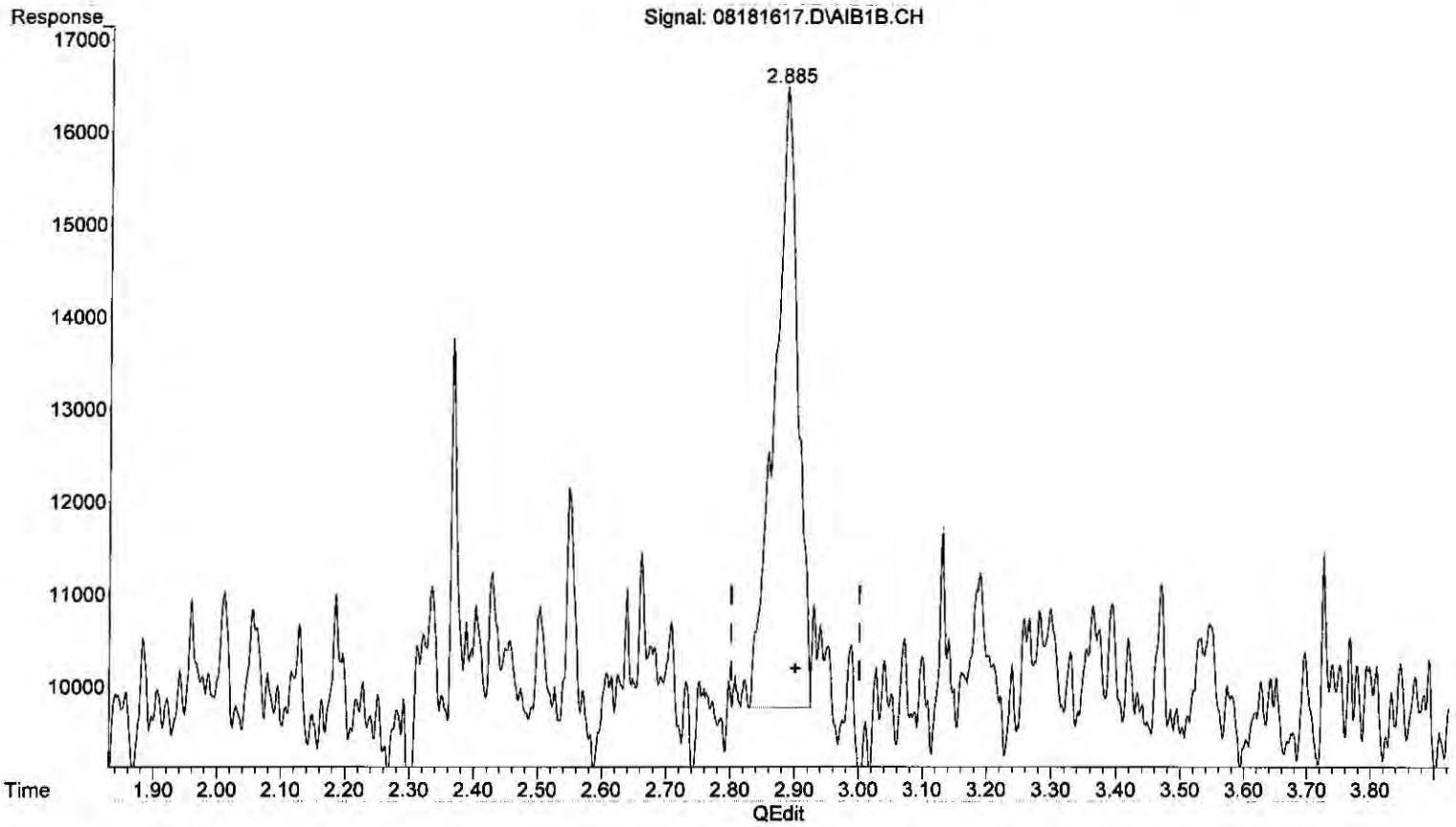
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181617.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 11:53 am
Operator : MC
Sample : 4037-019 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:56:00 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

2.885min 1.261 ppb m

response 169157

8/19/16

8/19/16

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181623.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 1:43 pm
Operator : MC
Sample : 4037-020 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:37:53 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb |
| 2) | W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

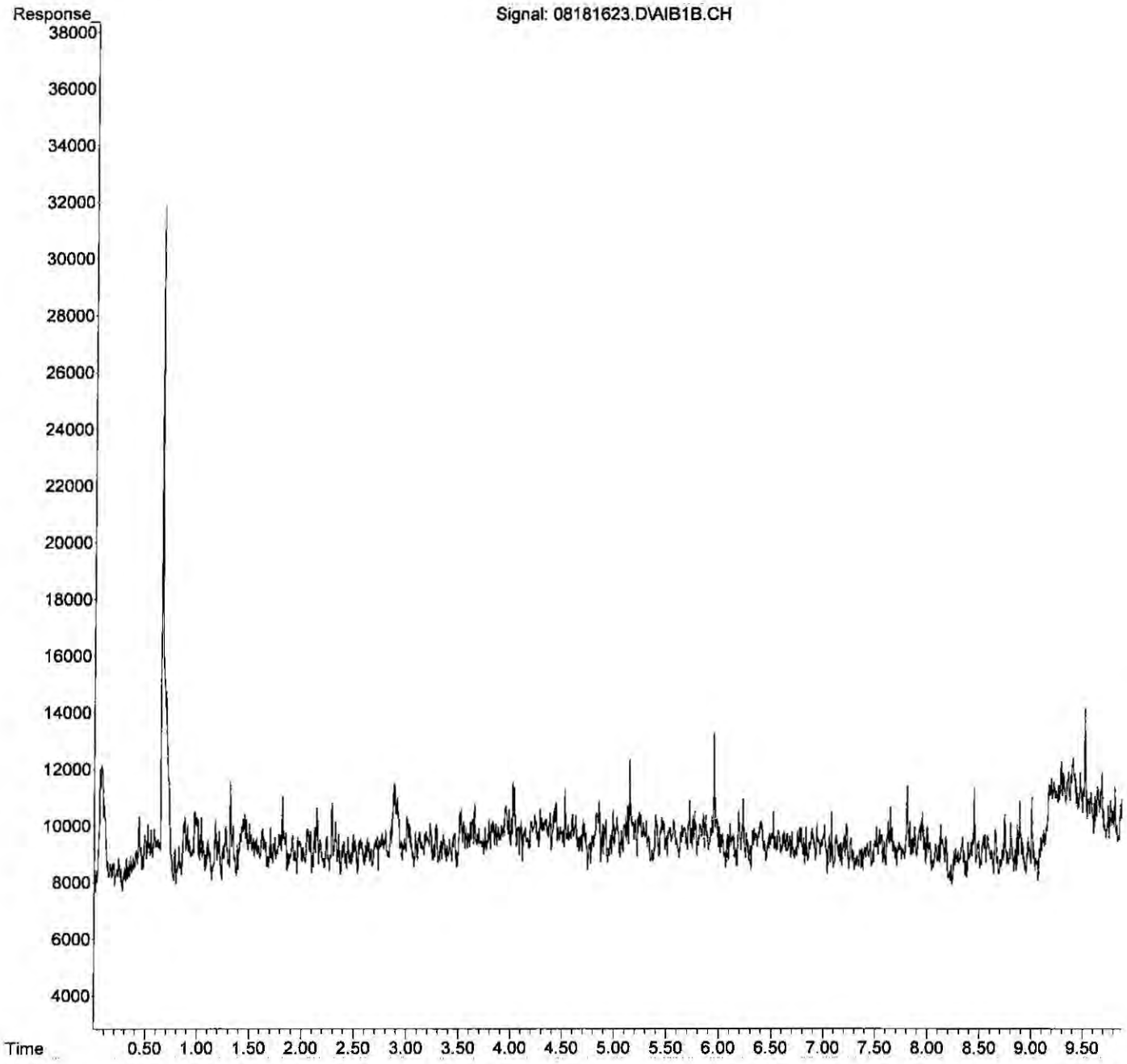
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181623.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 1:43 pm
Operator : MC
Sample : 4037-020 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:37:53 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181622.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 1:30 pm
Operator : MC
Sample : 4037-021 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:37:27 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 2) | W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 6) | T | Carbon_Disulfide | 2.894 | 135990 | 1.014 | ppb | m |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

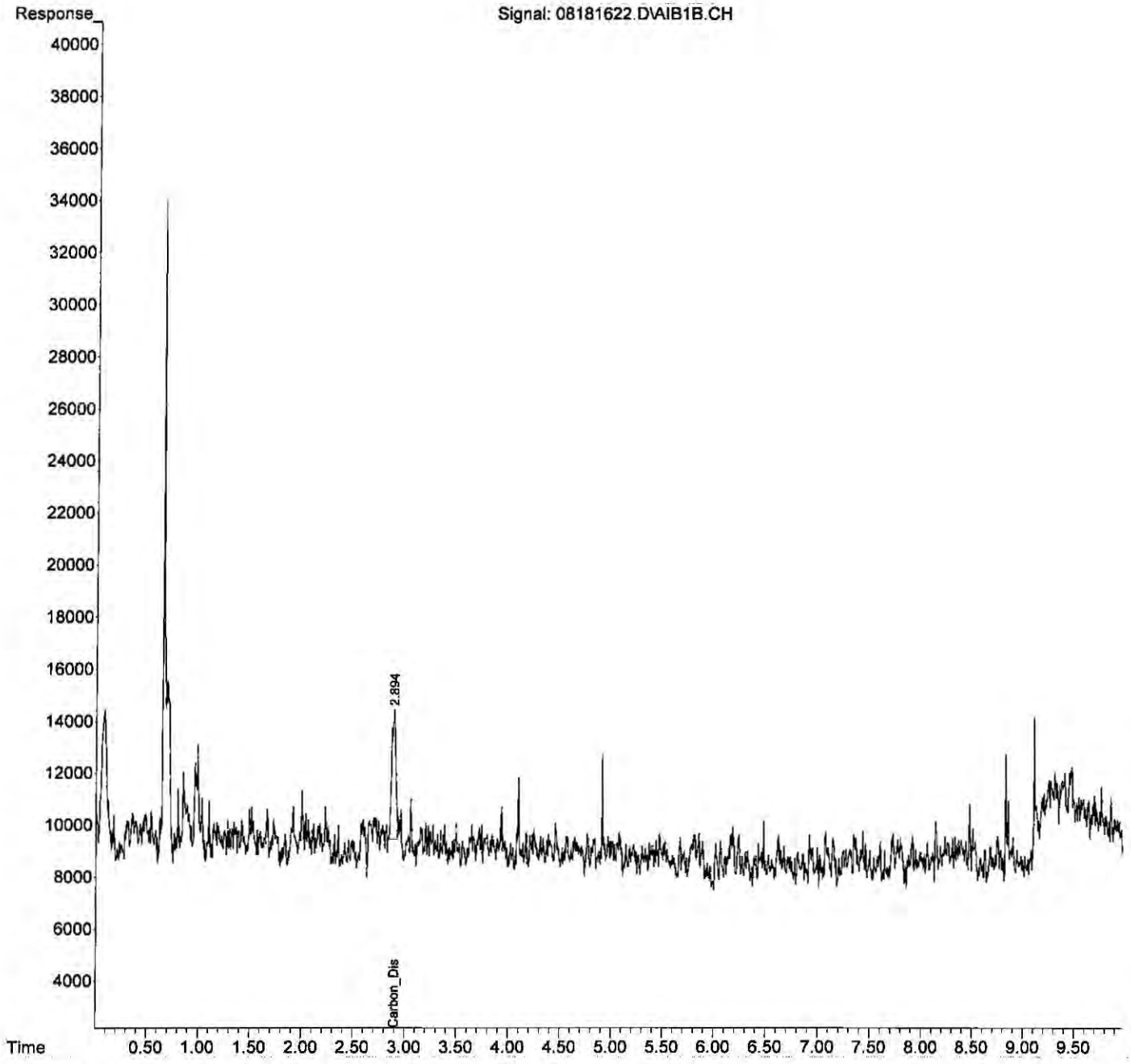
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181622.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 1:30 pm
Operator : MC
Sample : 4037-021 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:37:27 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

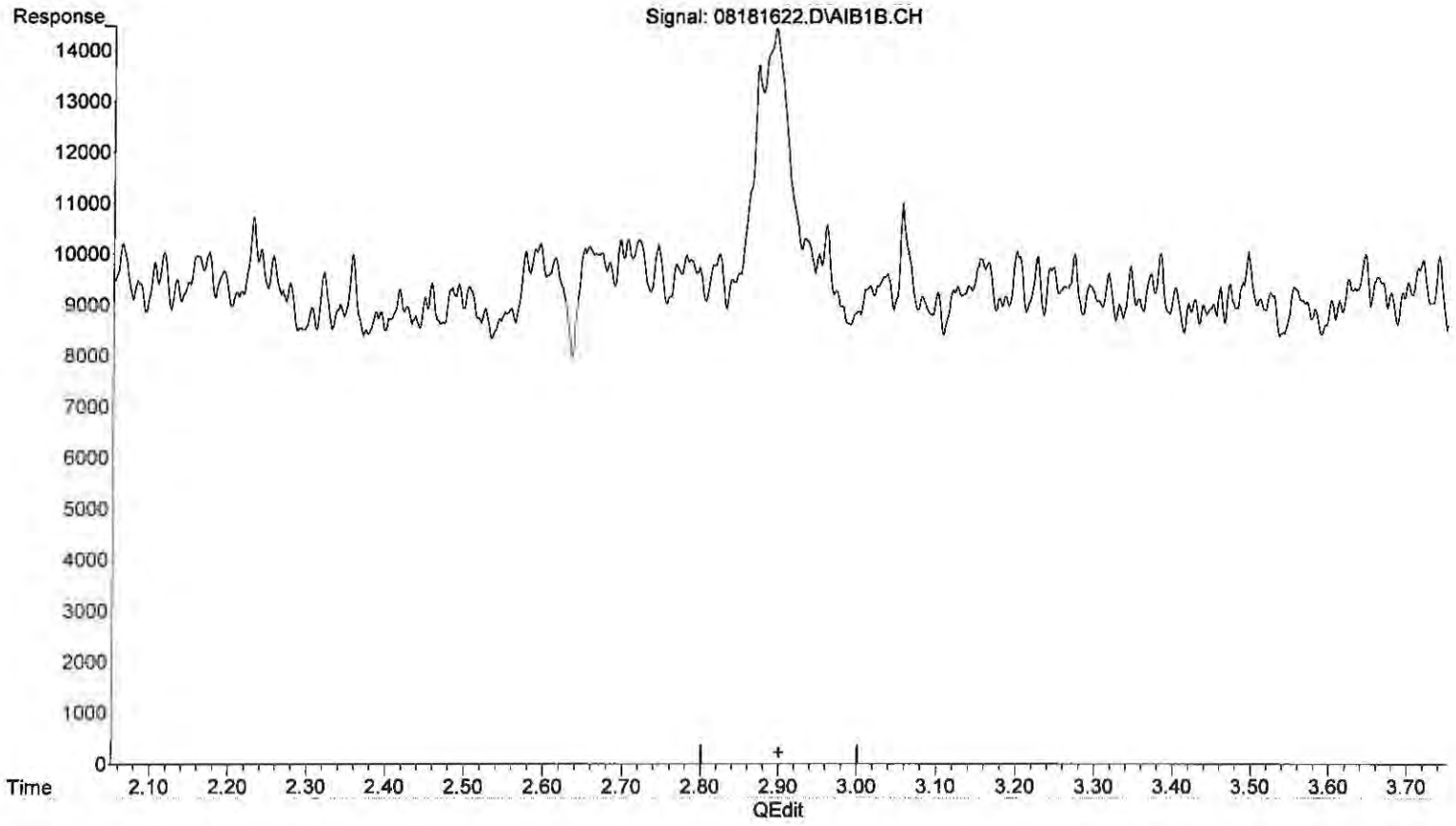


Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181622.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 1:30 pm
Operator : MC
Sample : 4037-021 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:59:42 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

2.901min 0.000 ppb

response 0

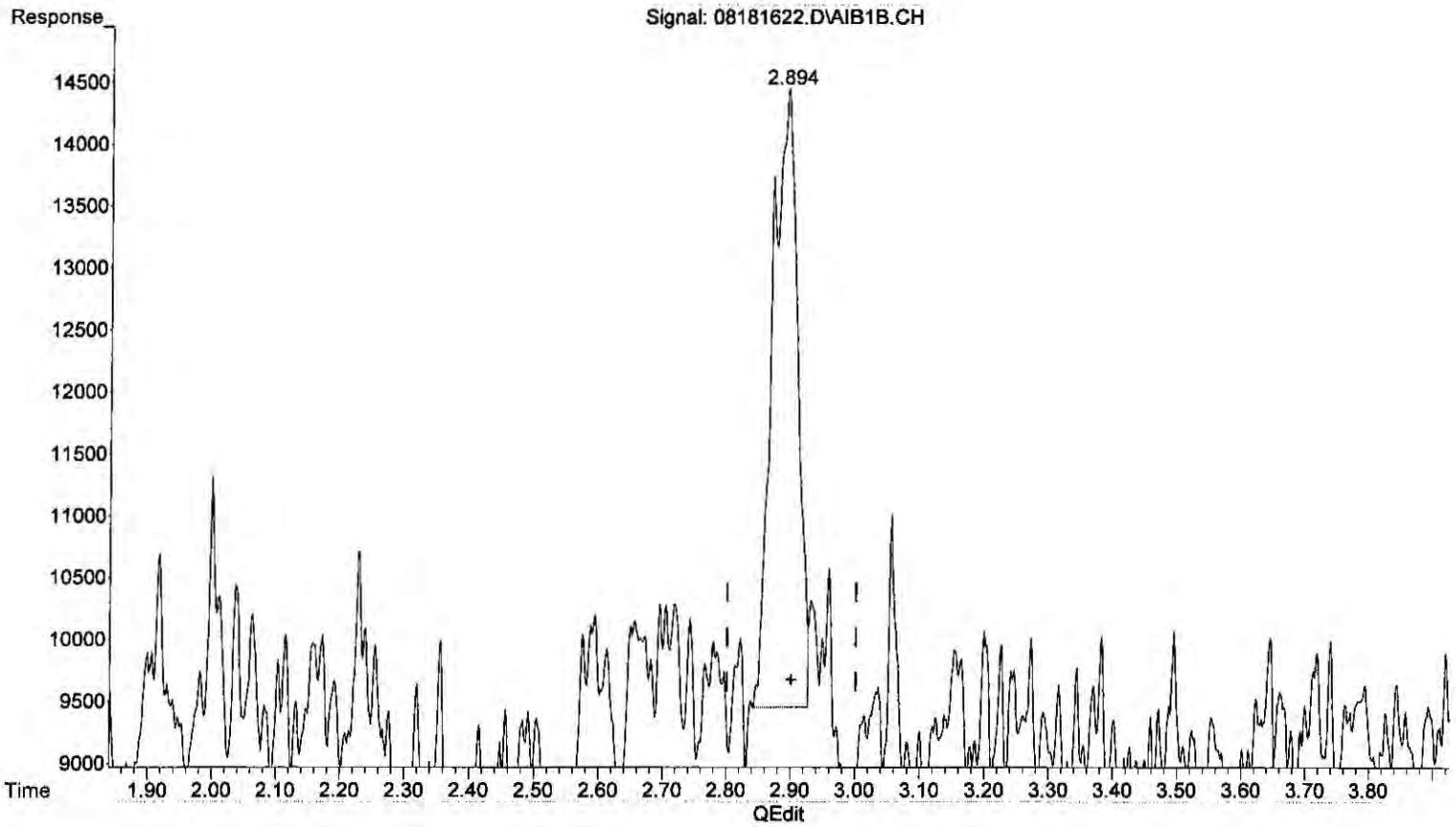
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181622.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 1:30 pm
Operator : MC
Sample : 4037-021 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 11:59:42 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

2.894min 1.014 ppb m

response 135990

MC 8/19/16

MO 8/19/16

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181624.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 1:56 pm
Operator : MC
Sample : 4037-022 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:38:57 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 2) | W | Carbonyl_Sulfide | 0.972 | 104927 | 1.498 | ppb | m |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 6) | T | Carbon_Disulfide | 2.891 | 245640 | 1.831 | ppb | m |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

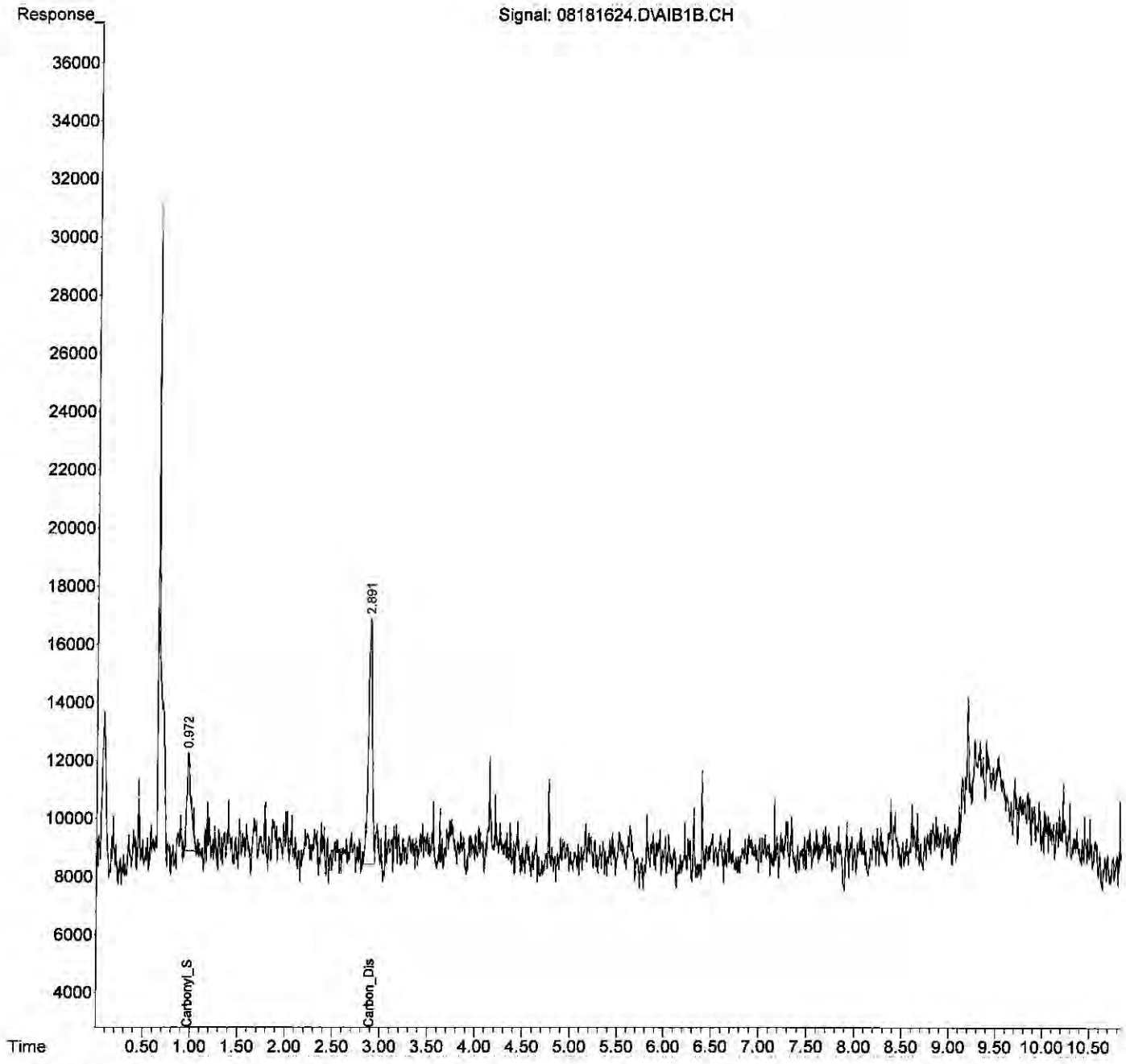
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181624.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 1:56 pm
Operator : MC
Sample : 4037-022 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:38:57 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

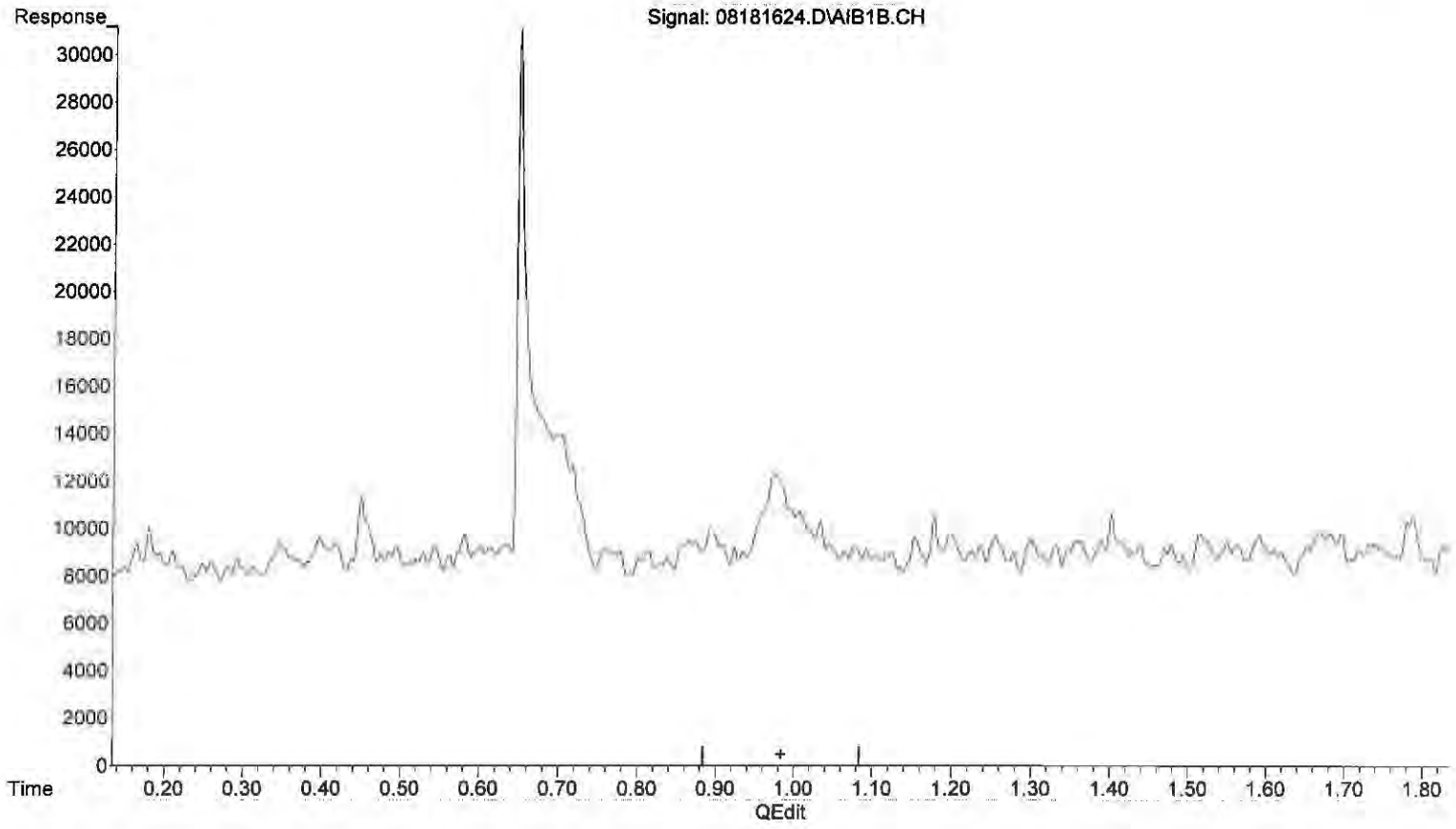


Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181624.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 1:56 pm
Operator : MC
Sample : 4037-022 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:38:14 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(2) Carbonyl_Sulfide (W)

0.984min 0.000 ppb

response 0

(+) = Expected Retention Time

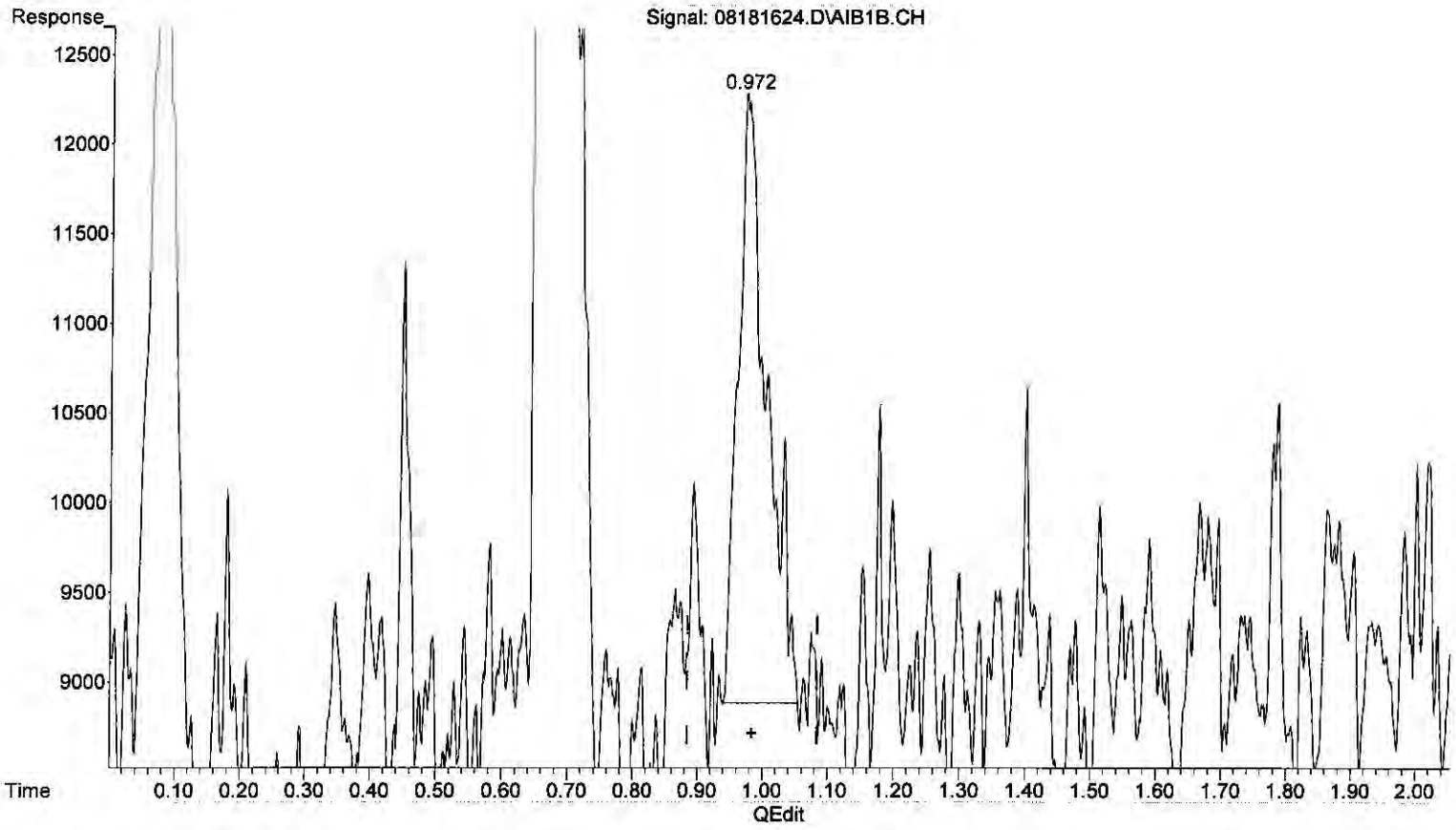
GC13_030216.M Fri Aug 19 13:38:21 2016 Page: 1

Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181624.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 1:56 pm
Operator : MC
Sample : 4037-022 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:38:14 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(2) Carbonyl_Sulfide (W)

0.972min 1.498 ppb m

response 104927

8/19/16

8/19/16

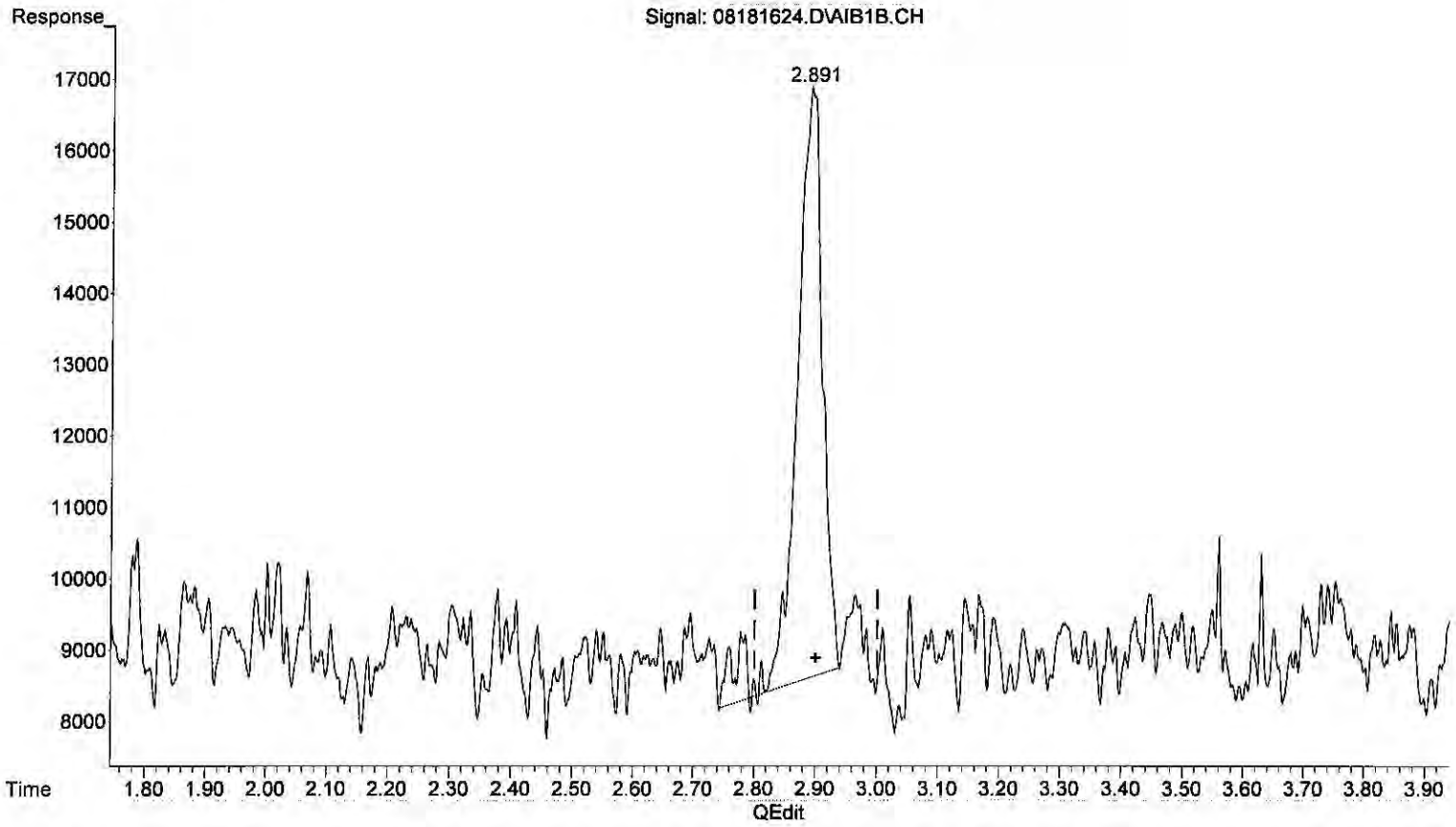
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181624.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 1:56 pm
Operator : MC
Sample : 4037-022 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:38:14 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

2.894min 1.868 ppb

response 250537

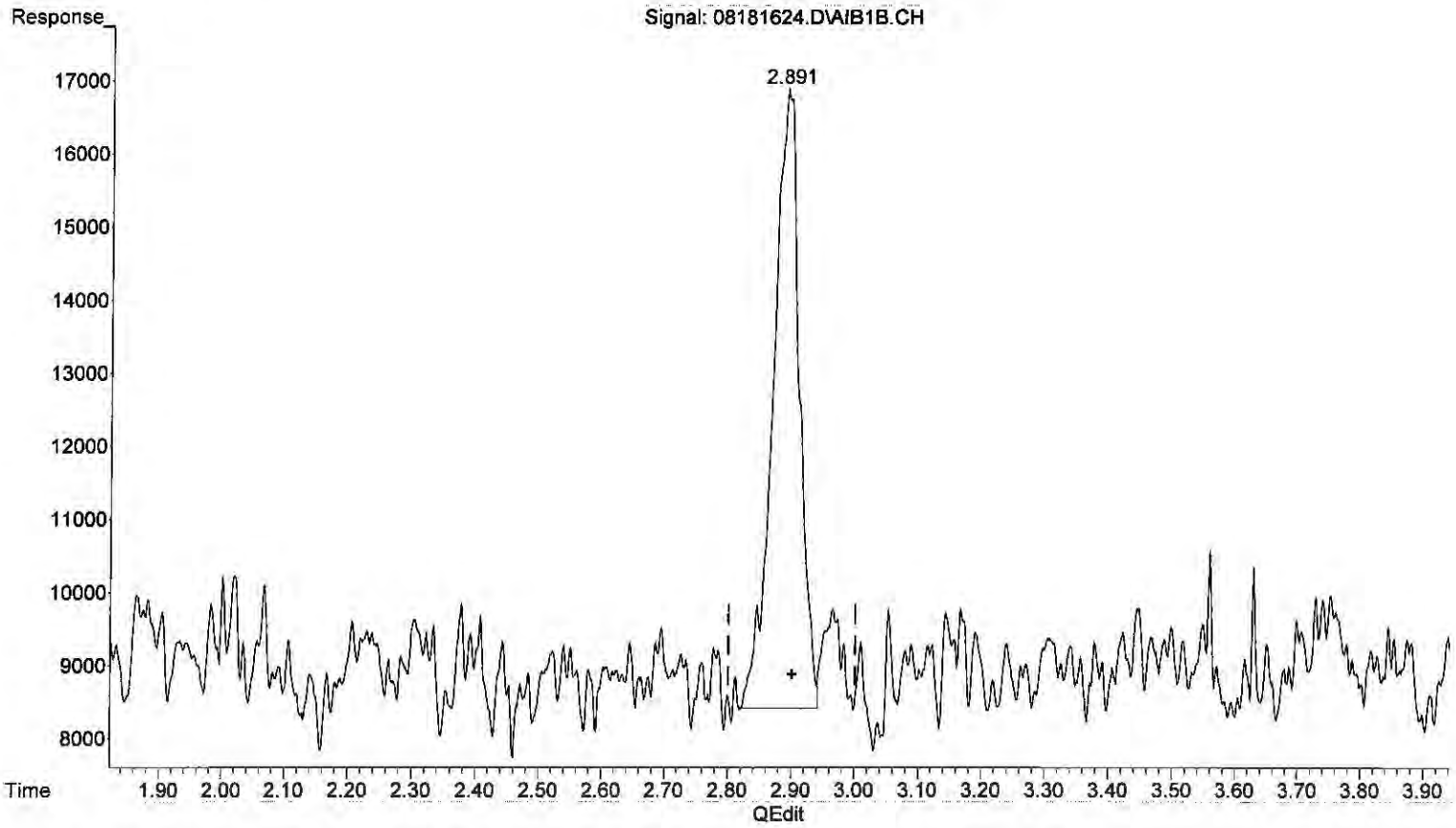
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181624.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 1:56 pm
Operator : MC
Sample : 4037-022 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 13:38:14 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




(6) Carbon_Disulfide (T)

2.891min 1.831 ppb m

response 245640

MC 8/19/16

BL 8/19/16

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171606.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 9:09 am
Operator : MC
Sample : mb 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 09:27:03 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb |
| 2) W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 3) T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

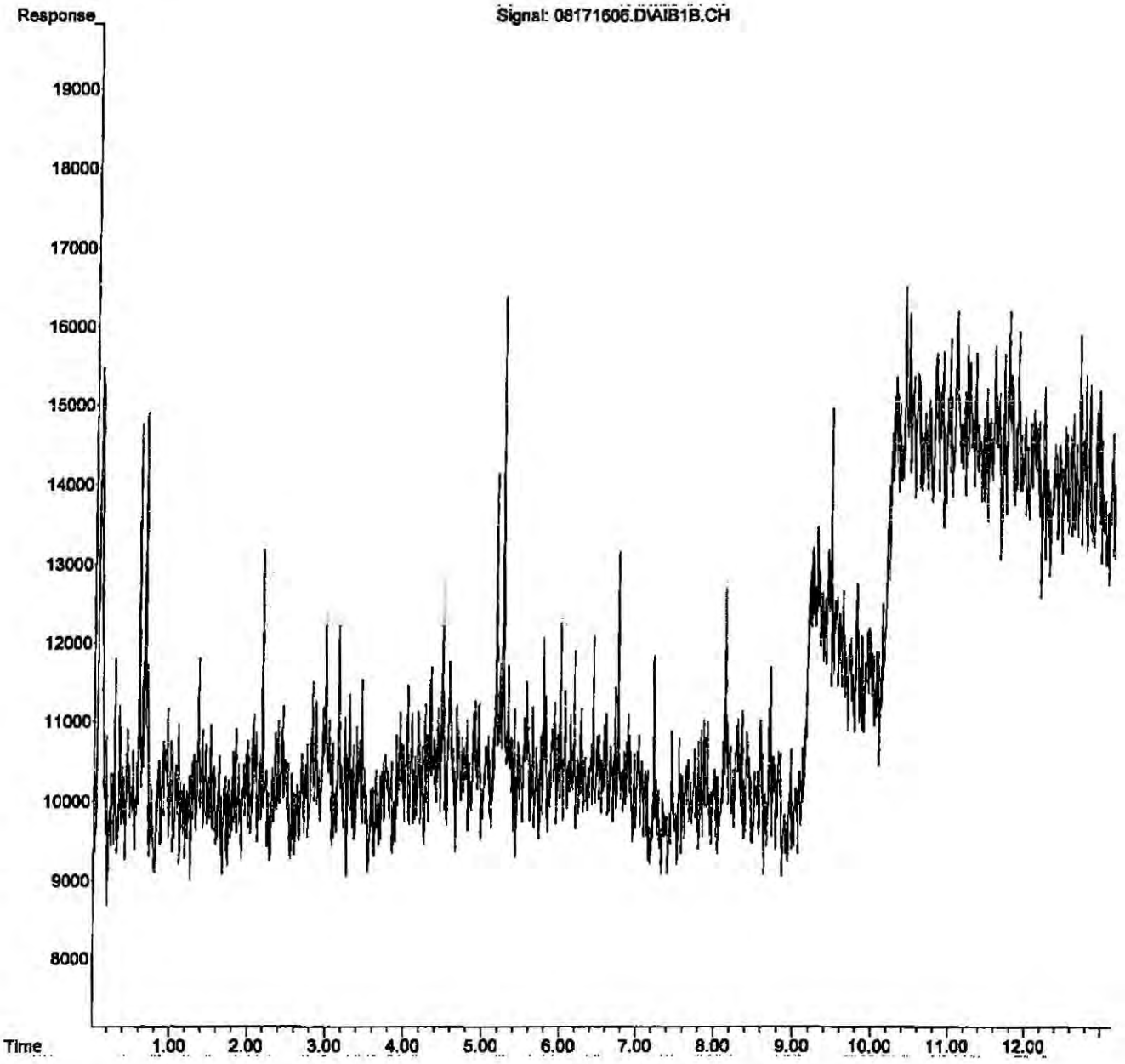
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171606.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 9:09 am
Operator : MC
Sample : mb 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 09:27:03 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171606.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 8:12 am
Operator : MC
Sample : mb 1ml
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 11:54:07 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb |
| 2) W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 3) T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

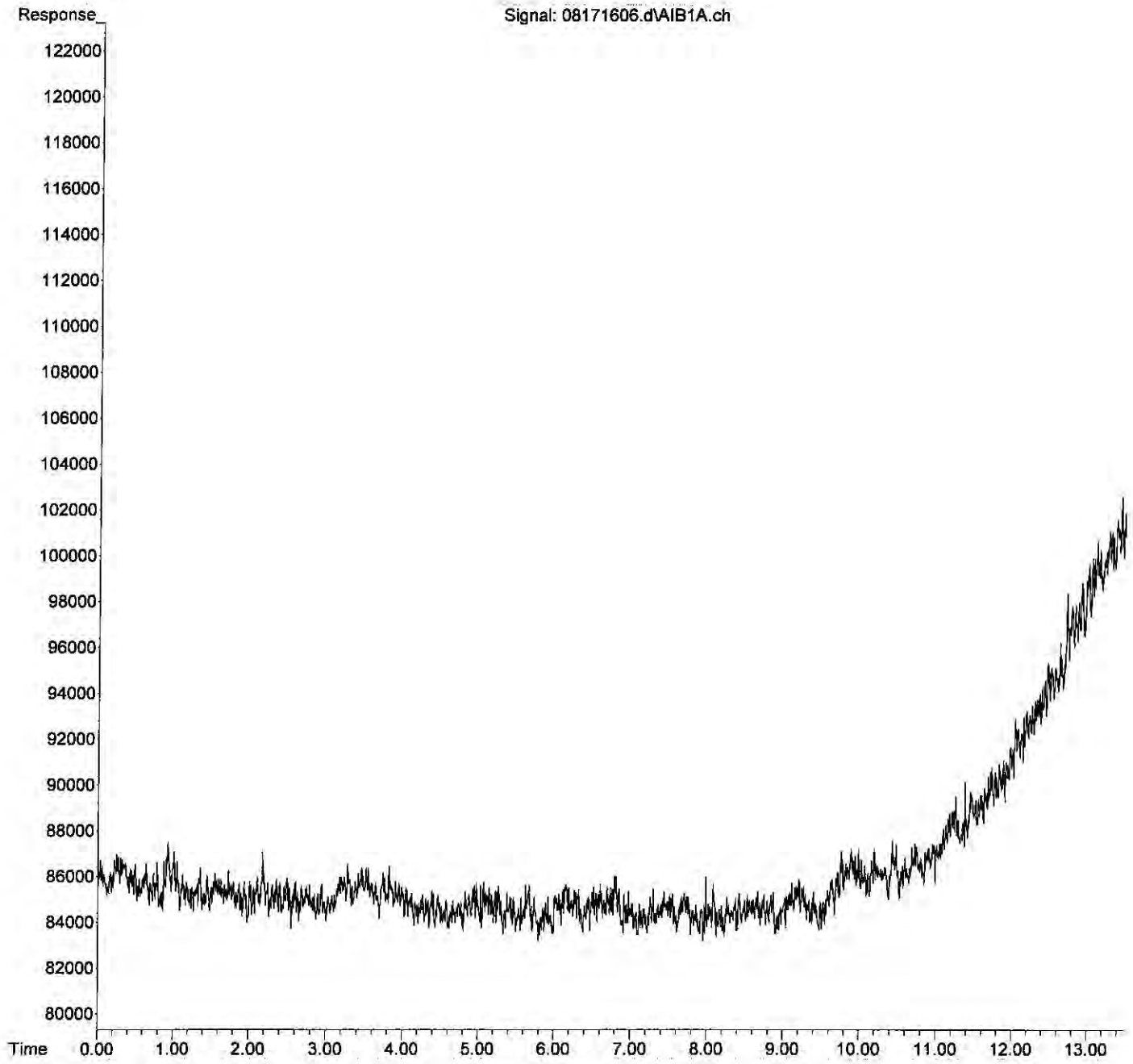
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171606.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 8:12 am
Operator : MC
Sample : mb 1ml
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 11:54:07 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181605.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 8:50 am
Operator : MC
Sample : mb 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 09:04:19 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.000 | 0 | N.D. | ppb |
| 2) | W | Carbonyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 3) | T | Methyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

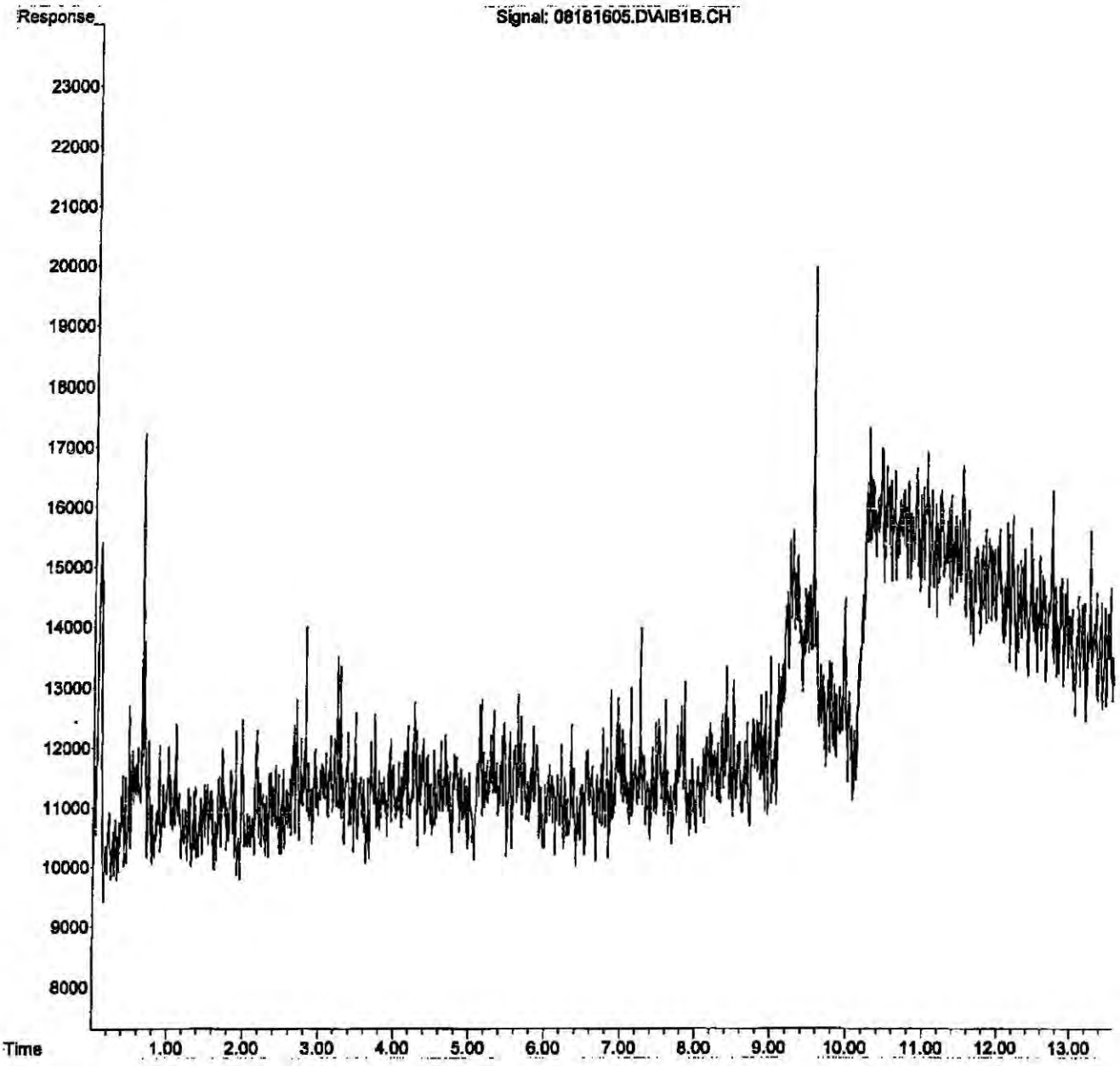
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181605.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 8:50 am
Operator : MC
Sample : mb 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 19 09:04:19 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171603.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 8:29 am
Operator : MC
Sample : lcs s30-08031602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 09:26:22 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.847 | 69144419 | 1106.894 | ppb |
| 2) | W | Carbonyl_Sulfide | 0.980 | 76462202 | 1091.658 | ppb |
| 3) | T | Methyl_Mercaptan | 1.687 | 72298456 | 1077.973 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

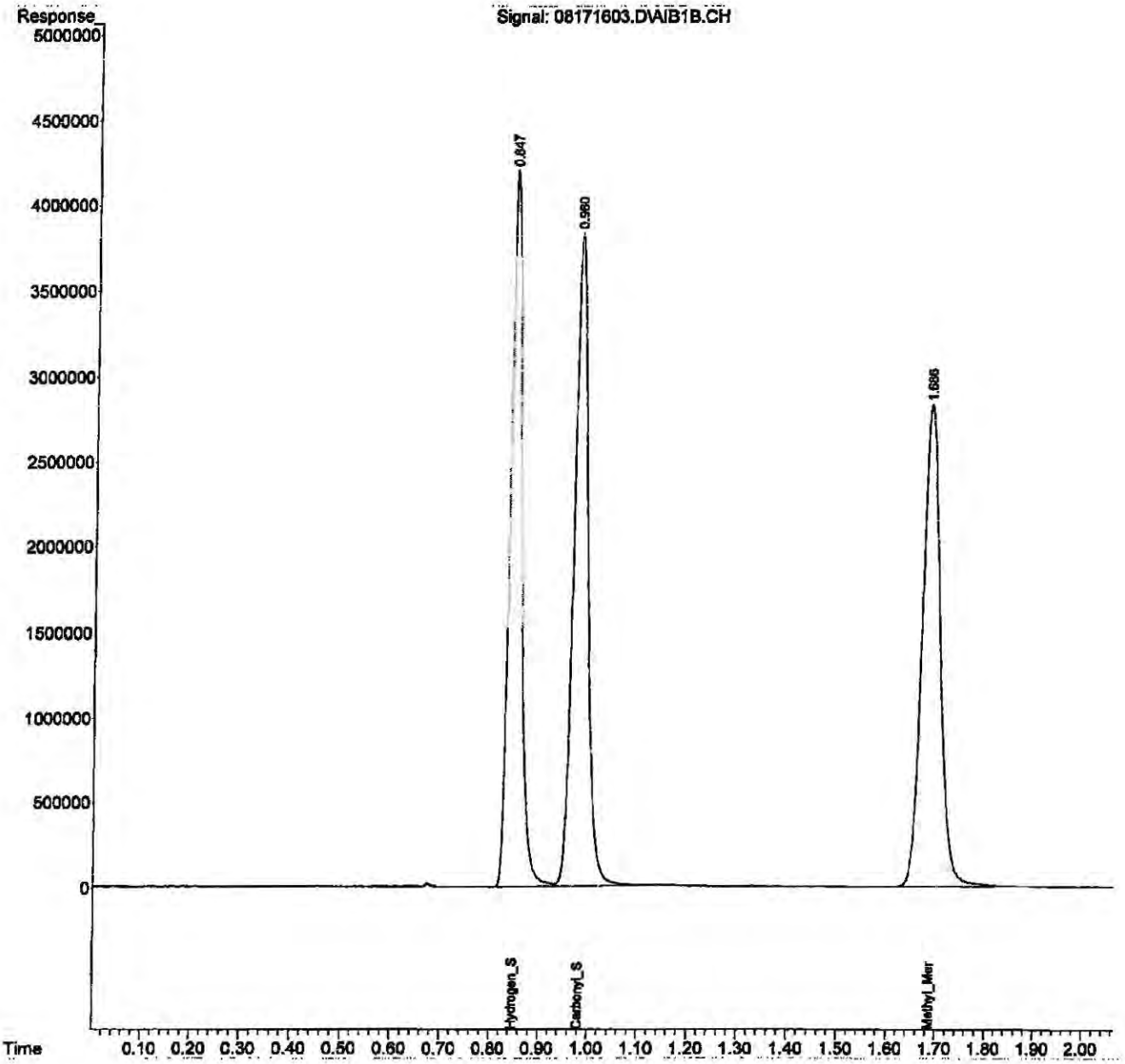
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171603.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 8:29 am
Operator : MC
Sample : lcs s30-08031602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 09:26:22 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171603.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 7:48 am
Operator : MC
Sample : lcs s30-08031602
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 11:52:29 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 1.192 | 36058652 | 874.354 | ppb |
| 2) W | Carbonyl_Sulfide | 1.370 | 40470907 | 911.235 | ppb |
| 3) T | Methyl_Mercaptan | 2.188 | 37236228 | 894.050 | ppb |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

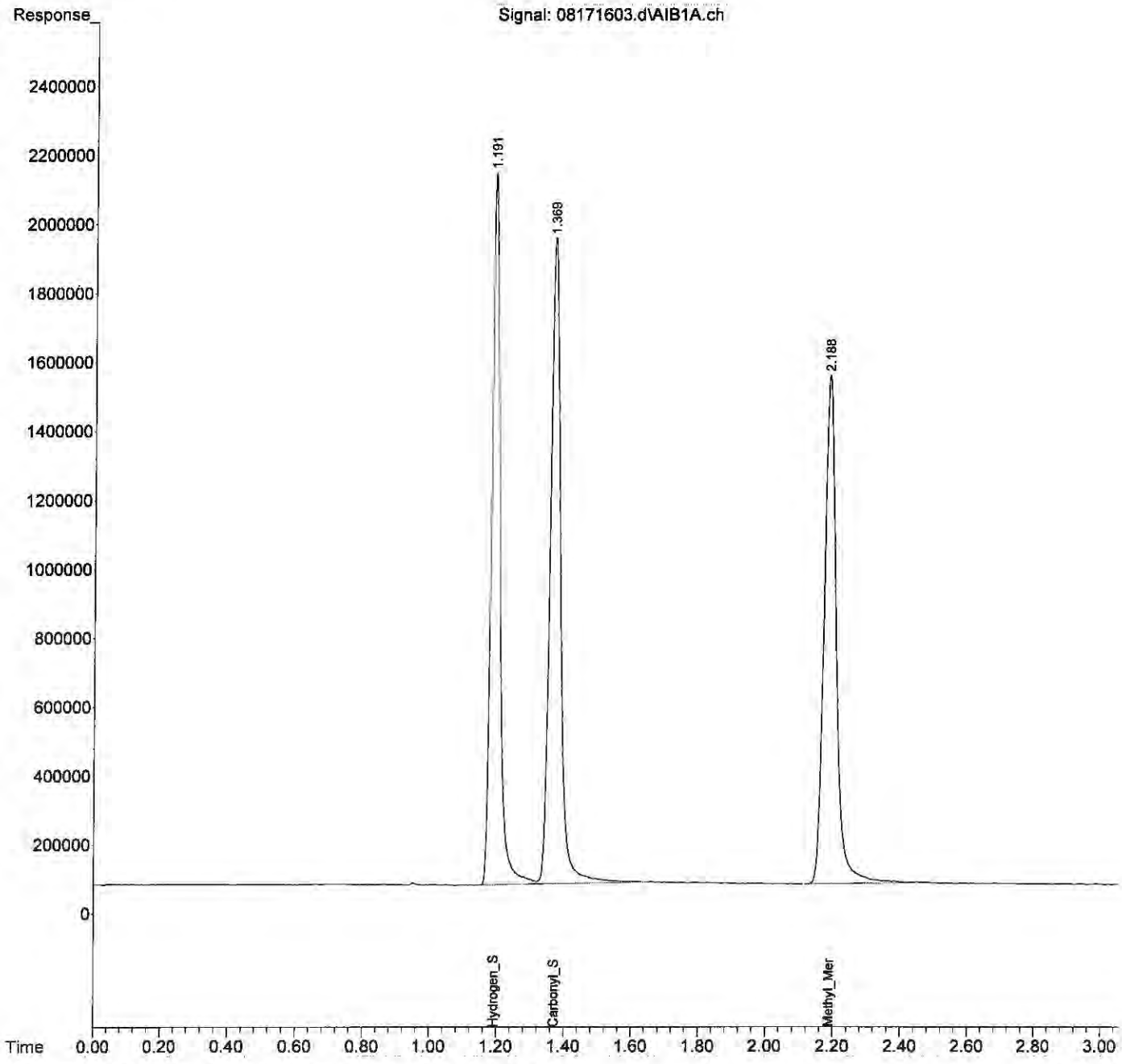
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171603.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 7:48 am
Operator : MC
Sample : lcs s30-08031602
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 11:52:29 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181602.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 8:23 am
Operator : MC
Sample : lcs s30-08031602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 15:22:01 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 0.848 | 63798384 | 1021.312 | ppb |
| 2) W | Carbonyl_Sulfide | 0.981 | 75228241 | 1074.040 | ppb |
| 3) T | Methyl_Mercaptan | 1.689 | 68581065 | 1022.547 | ppb |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

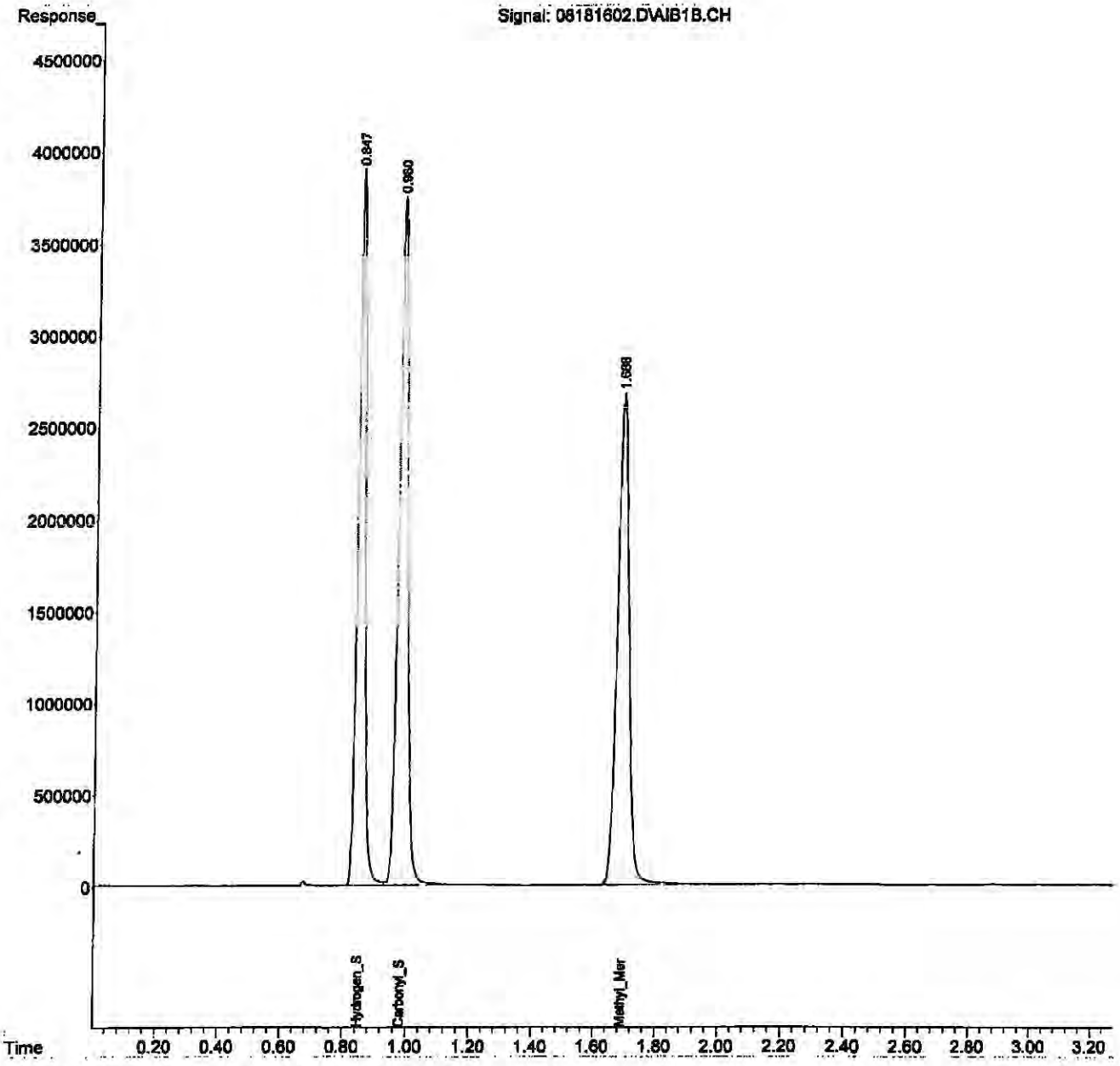
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181602.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 8:23 am
Operator : MC
Sample : lcs s30-08031602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 15:22:01 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



# Response Factor Report GC #22

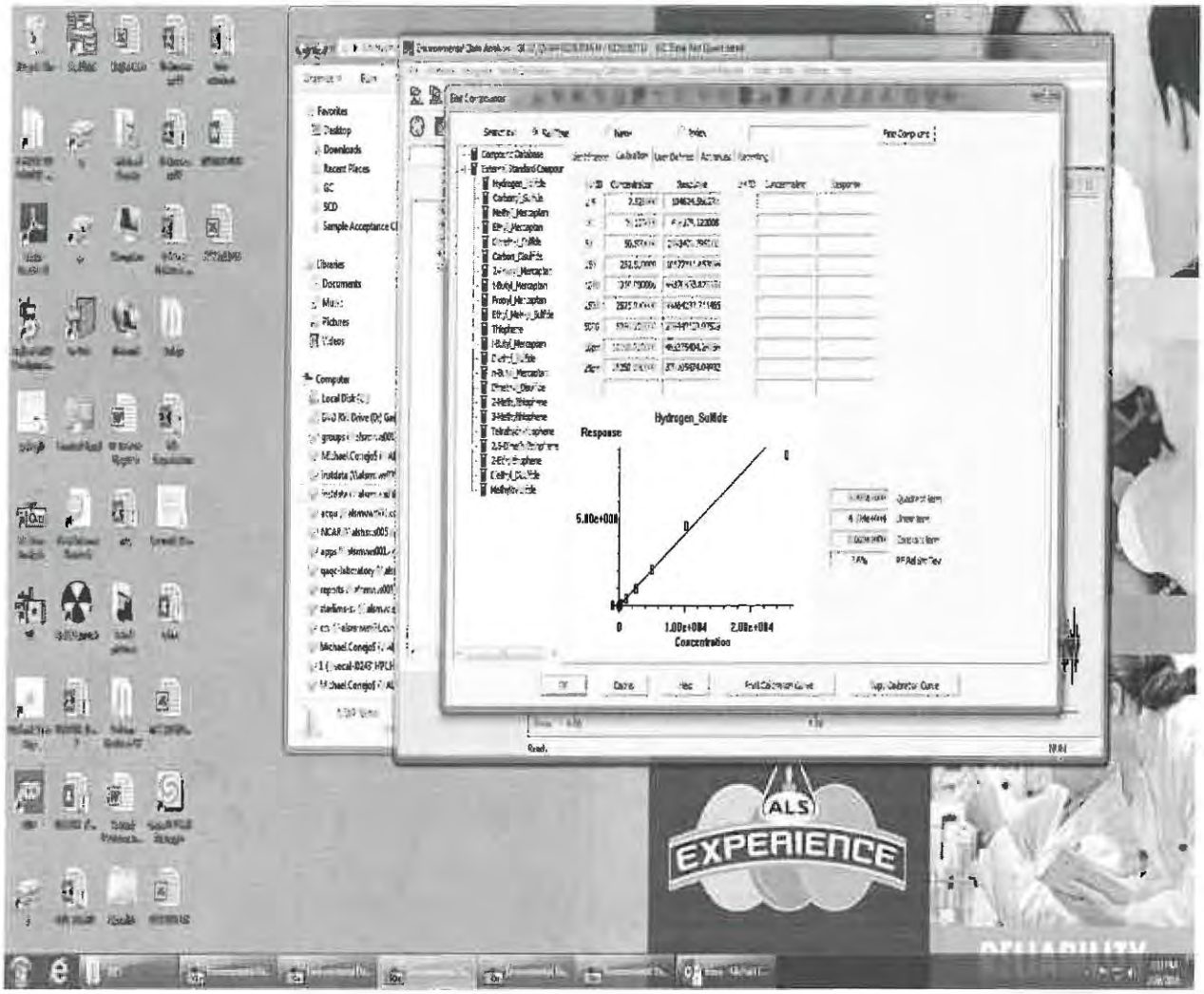
Method Path : J:\GC22\METHODS\
Method File : GC22_Quan 02262016.M
Title : 20 Sulfurs Initial Calibration
Last Update : Fri Feb 26 14:51:03 2016
Response Via : Initial Calibration

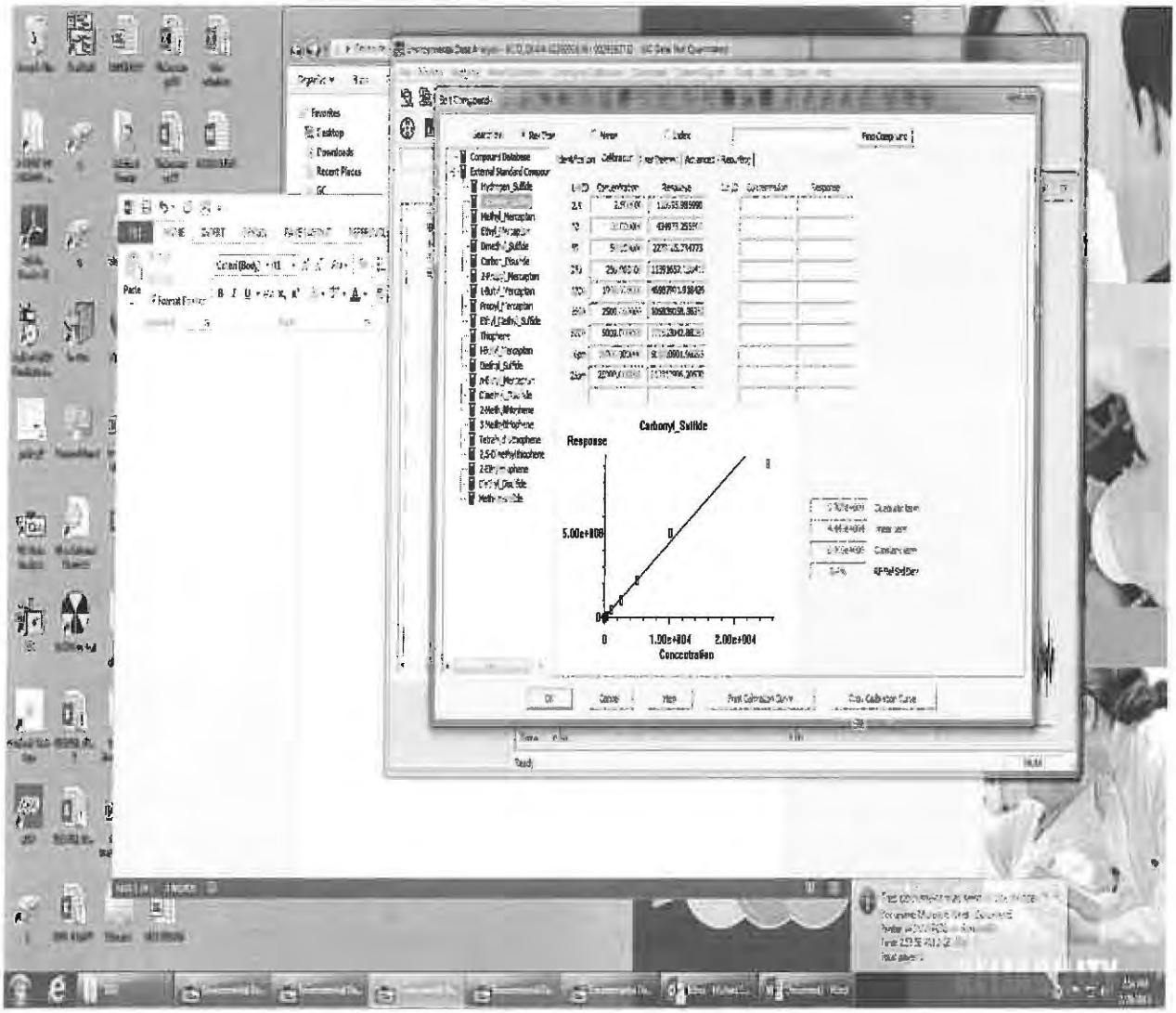
Calibration Files
2.5 =02261603.d 10 =02261604.d 50 =02261605.d
250 =02261606.d 1000 =02261607.d 2500 =02261608.d

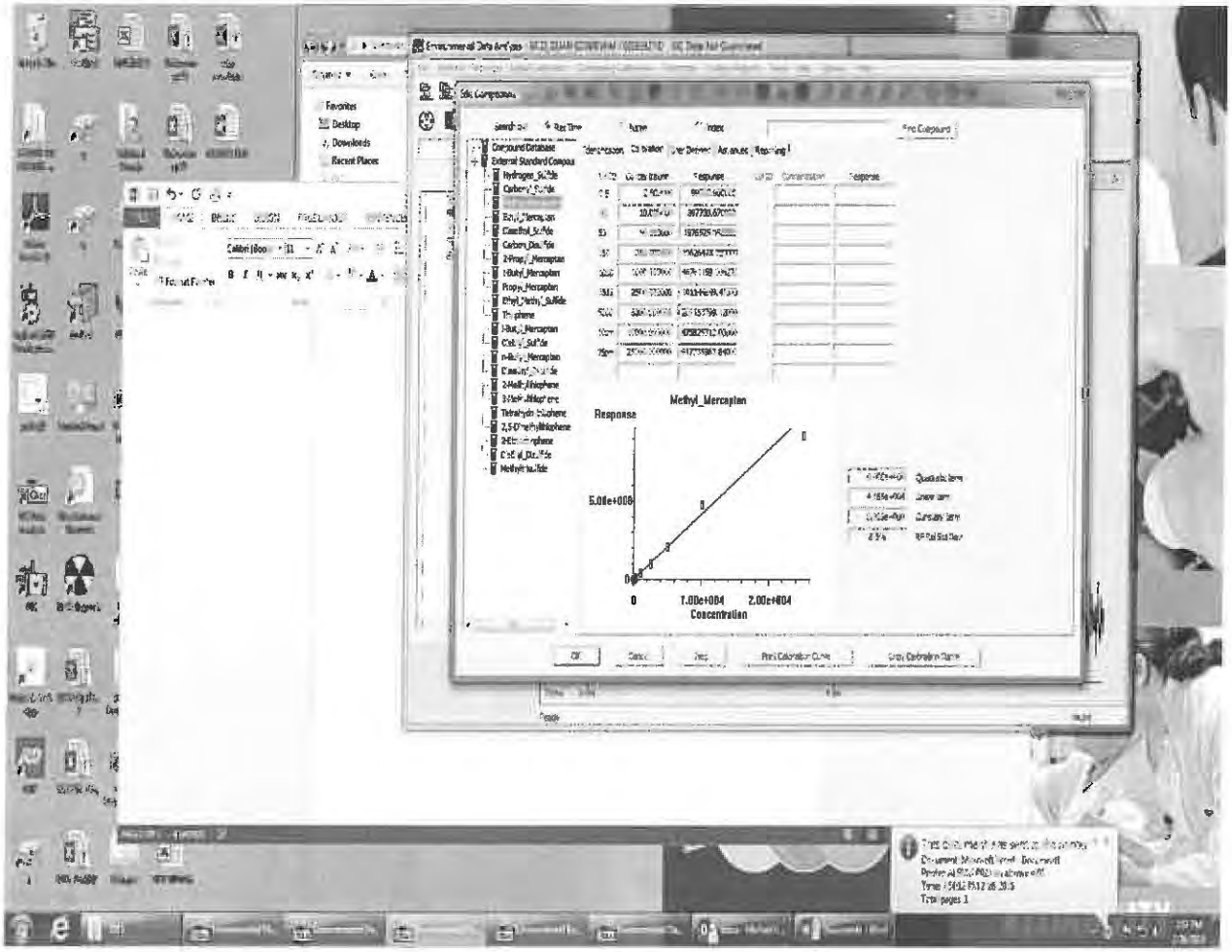
| | | Compound | 2.5 | 10 | 50 | 250 | 1000 | 2500 | Avg | | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) | Z | Hydrogen_Sulfide | 4.144 | 4.129 | 4.145 | 4.189 | 4.393 | 3.955 | 4.124 | E4 | 7.57 |
| 2) | W | Carbonyl_Sulfide | 4.440 | 4.350 | 4.556 | 4.557 | 4.699 | 4.234 | 4.441 | E4 | 8.41 |
| 3) | T | Methyl_Mercaptan | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 4) | T | Ethyl_Mercaptan | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 5) | T | Dimethyl_Sulfide | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 6) | T | Carbon_Disulfide | 7.938 | 7.955 | 7.906 | 8.501 | 9.352 | 8.092 | 8.330 | E4 | 8.48 |
| 7) | T | 2-Propyl_Merc... | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 8) | T | t-Butyl_Merca... | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 9) | T | Propyl_Mercaptan | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 10) | T | Ethyl_Methyl_... | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 11) | T | Thiophene | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 12) | T | i-Butyl_Merca... | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 13) | T | Diethyl_Sulfide | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 14) | T | n-Butyl_Merca... | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 15) | T | Dimethyl_Disu... | 7.938 | 7.955 | 7.906 | 8.501 | 9.352 | 8.092 | 8.330 | E4 | 8.48 |
| 16) | T | 2-Methylthiop... | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 17) | T | 3-Methylthiop... | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 18) | T | Tetrahydrothi... | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 19) | T | 2,5-Dimethylt... | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 20) | T | 2-Ethylthiophene | 3.969 | 3.977 | 3.953 | 4.251 | 4.676 | 4.046 | 4.165 | E4 | 8.48 |
| 21) | T | Diethyl_Disul... | 7.938 | 7.955 | 7.906 | 8.501 | 9.352 | 8.092 | 8.330 | E4 | 8.48 |
| 22) | T | Methyltrisulfide | 7.938 | 7.955 | 7.906 | 8.501 | 9.352 | 8.092 | 8.330 | E4 | 8.48 |

(#) = Out of Range ### Number of calibration levels exceeded format ###

GC22_Quan 02262016.M Fri Feb 26 14:52:33 2016


Hydrogen_Sulfide
Response
5.00e+008
0
1.00e+004
2.00e+004
Concentration
ALS
EXPERIENCE


Carbonyl_Sulfide
Response
5.00e+008
0
1.00e+004
2.00e+004
Concentration


Methyl_Mercaptan
Response
5.00e+008
0
1.00e+004
2.00e+004
Concentration

# Calibration Status Report GC #22

Method Path : J:\GC22\METHODS\
Method File : GC22_Quan 02262016.M
Title : 20 Sulfurs Initial Calibration
Last Update : Fri Feb 26 14:51:03 2016
Response Via : Initial Calibration

| # | ID | Conc | ISTD Conc | Path\File |
|---|---|---|---|---|
| 1 | 2.5 | 1 | 0 | J:\GC22\DATA\SCD\2016_02\26\02261603.d |
| 2 | 10 | 5 | 0 | J:\GC22\DATA\SCD\2016_02\26\02261604.d |
| 3 | 50 | 25 | 0 | J:\GC22\DATA\SCD\2016_02\26\02261605.d |
| 4 | 250 | 125 | 0 | J:\GC22\DATA\SCD\2016_02\26\02261606.d |
| 5 | 1000 | 500 | 0 | J:\GC22\DATA\SCD\2016_02\26\02261607.d |
| 6 | 2500 | 1250 | 0 | J:\GC22\DATA\SCD\2016_02\26\02261608.d |
| 7 | 5000 | 2500 | 0 | J:\GC22\DATA\SCD\2016_02\26\02261609.d |
| 8 | 10pm | 5000 | 0 | J:\GC22\DATA\SCD\2016_02\26\02261610.d |
| 9 | 25pm | 12500 | 0 | J:\GC22\DATA\SCD\2016_02\26\02261611.d |

| # | ID | Update Time | Quant Time | Acquisition Time |
|---|---|---|---|---|
| 1 | 2.5 | Feb 26 09:50 2016 | Feb 26 09:45 2016 | 26 Feb 2016 9:19 |
| 2 | 10 | Feb 26 09:50 2016 | Feb 26 09:44 2016 | 26 Feb 2016 9:26 |
| 3 | 50 | Feb 26 14:21 2016 | Feb 26 14:21 2016 | 26 Feb 2016 9:30 am |
| 4 | 250 | Feb 26 14:22 2016 | Feb 26 14:21 2016 | 26 Feb 2016 9:36 am |
| 5 | 1000 | Feb 26 14:22 2016 | Feb 26 14:22 2016 | 26 Feb 2016 9:41 am |
| 6 | 2500 | Feb 26 14:23 2016 | Feb 26 14:22 2016 | 26 Feb 2016 9:47 am |
| 7 | 5000 | Feb 26 14:23 2016 | Feb 26 14:23 2016 | 26 Feb 2016 9:52 am |
| 8 | 10pm | Feb 26 14:24 2016 | Feb 26 14:24 2016 | 26 Feb 2016 9:57 am |
| 9 | 25pm | Feb 26 14:25 2016 | Feb 26 14:25 2016 | 26 Feb 2016 10:30 am |

GC22_Quan 02262016.M Fri Feb 26 14:52:58 2016

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261603.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:19 am
Operator : MC
Sample : Std 2.5ppb S11-02231601 25ul
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 09:54:50 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 09:52:24 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 1.184 | 136282 | 3.482 | ppb |
| 2) | W | Carbonyl_Sulfide | 1.363 | 94256 | 2.273 | ppb |
| 3) | T | Methyl_Mercaptan | 2.193 | 129631 | 3.351 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

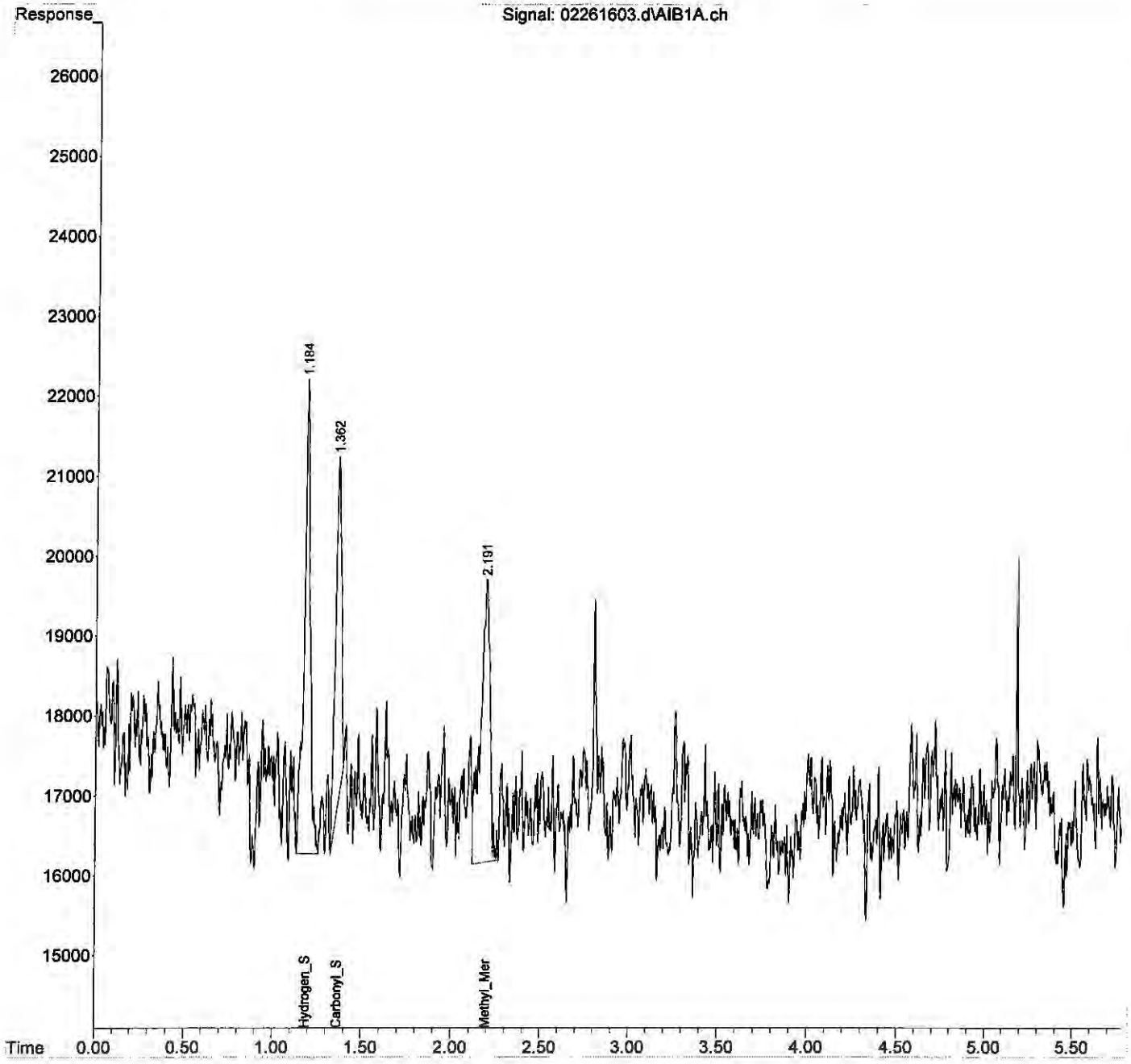
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261603.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:19 am
Operator : MC
Sample : Std 2.5ppb S11-02231601 25ul
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 09:54:50 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 09:52:24 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261604.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:26 am
Operator : MC
Sample : Std 10ppb S11-02231601 100ul
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 09:55:07 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 09:52:24 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 1.157 | 461077 | 11.781 | ppb |
| 2) | W | Carbonyl_Sulfide | 1.335 | 511769 | 12.340 | ppb |
| 3) | T | Methyl_Mercaptan | 2.160 | 428644 | 11.081 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

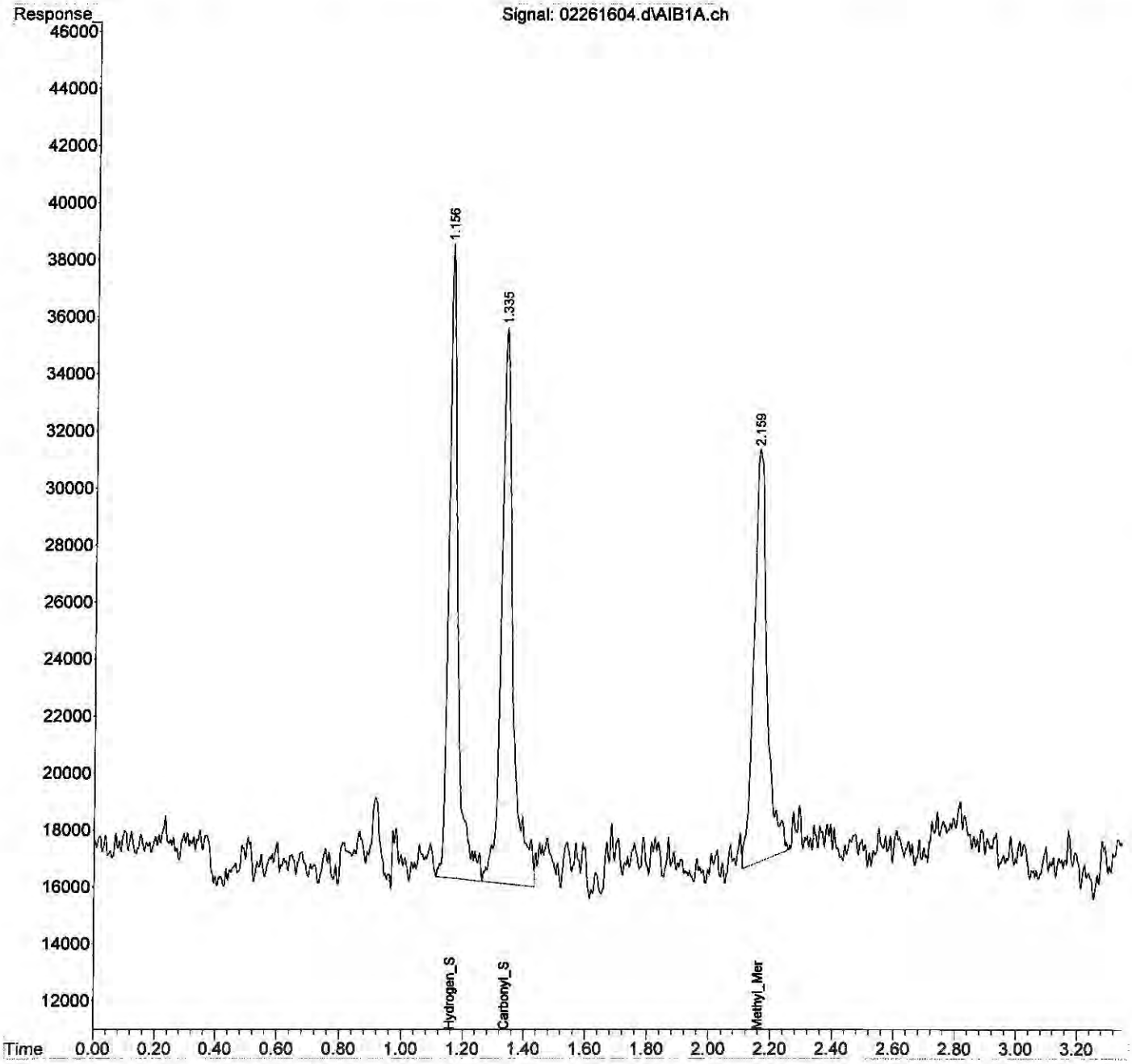
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261604.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:26 am
Operator : MC
Sample : Std 10ppb S11-02231601 100ul
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 09:55:07 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 09:52:24 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261605.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:30 am
Operator : MC
Sample : Std 50ppb S11-02231601 500ul
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:21:02 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 09:52:24 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 1.087f | 2093471 | 53.492 | ppb | m |
| 2) | W | Carbonyl_Sulfide | 1.261f | 2278106 | 54.932 | ppb | |
| 3) | T | Methyl_Mercaptan | 2.082f | 1976525 | 51.096 | ppb | |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

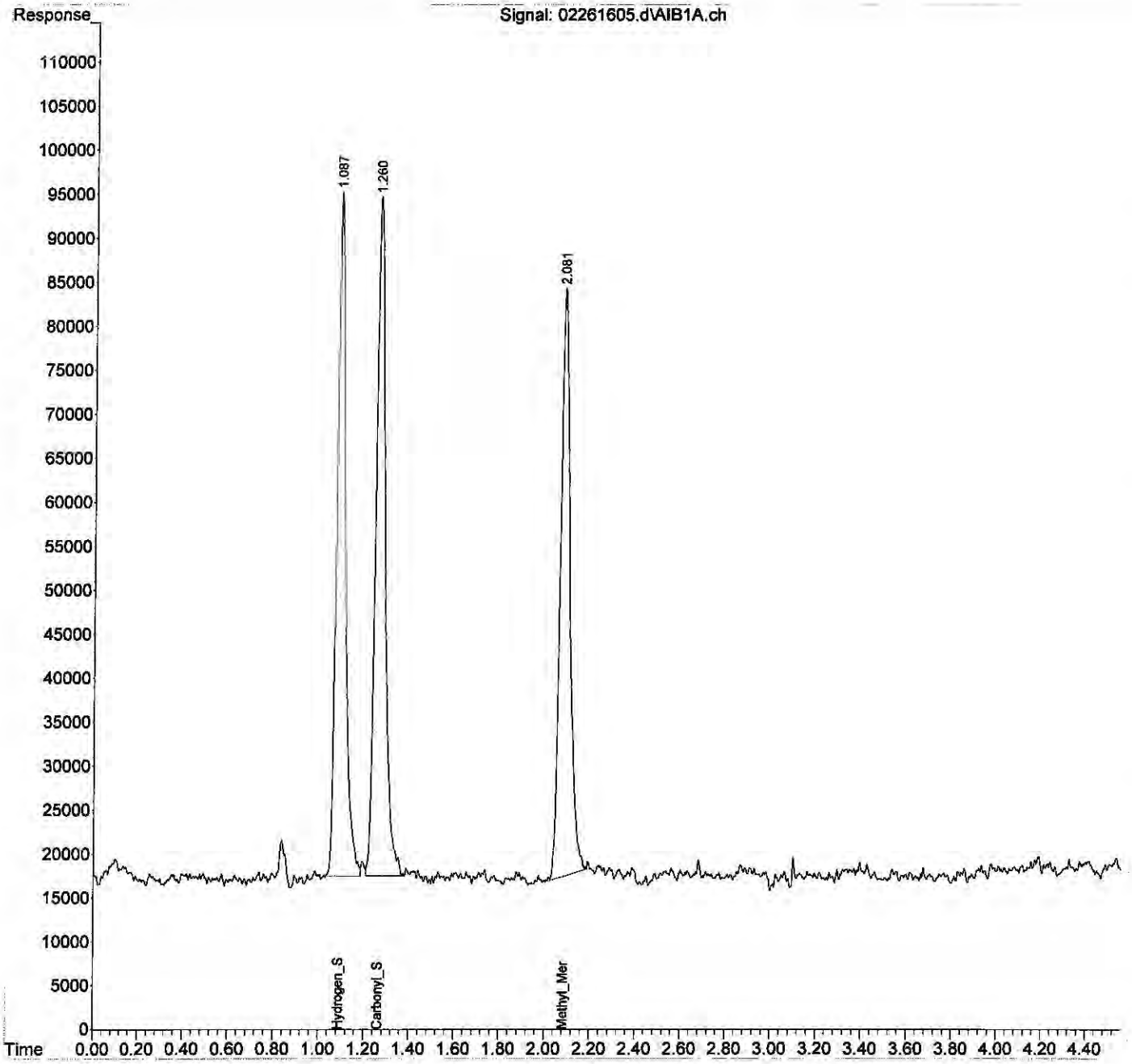
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261605.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:30 am
Operator : MC
Sample : Std 50ppb S11-02231601 500ul
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:21:02 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 09:52:24 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

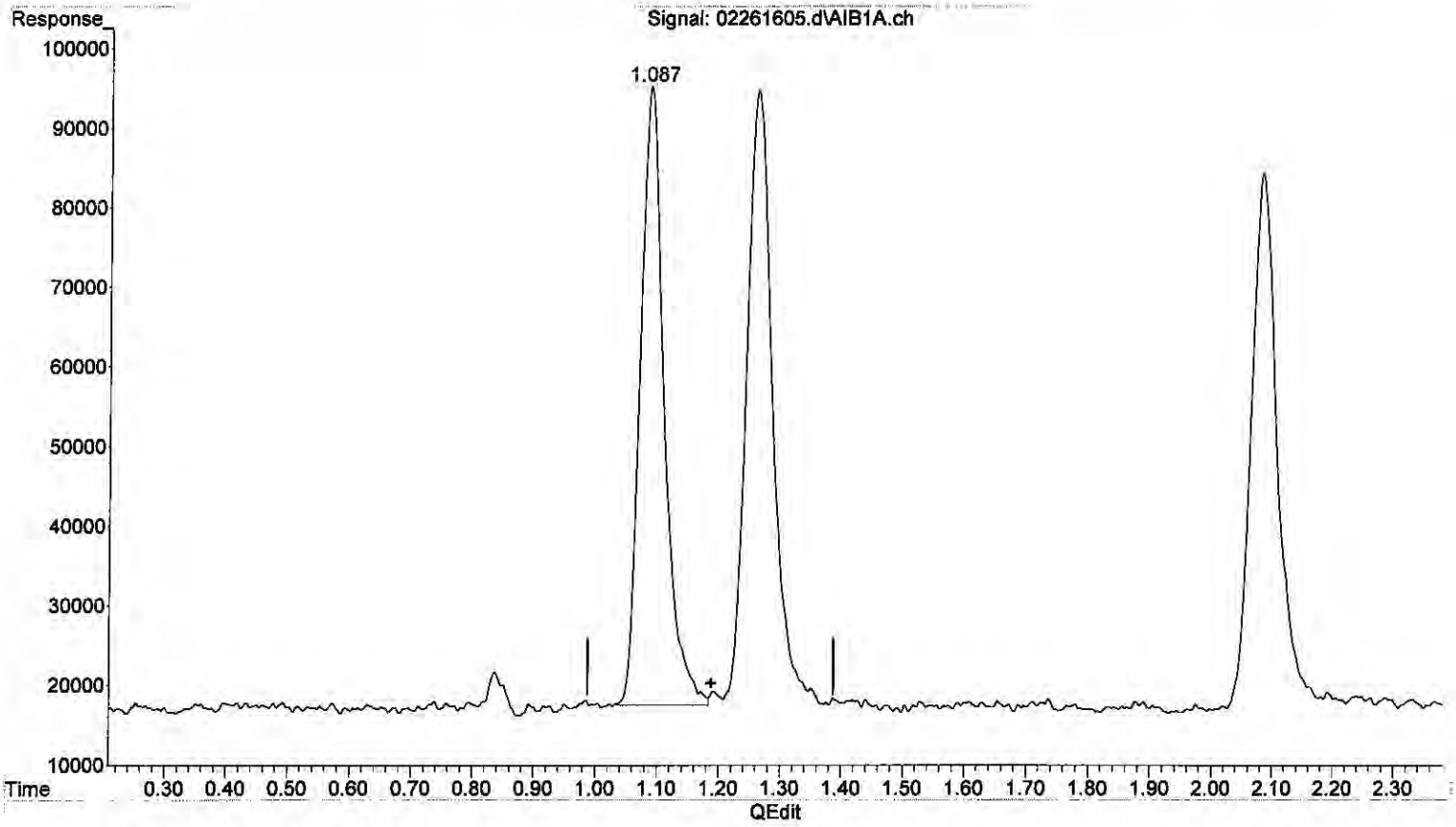


Quantitation Report (Qedit)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261605.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:30 am
Operator : MC
Sample : Std 50ppb S11-02231601 500ul
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 09:55:18 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 09:52:24 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :




(1) Hydrogen_Sulfide (Z)

1.087min 53.492 ppb m

response 2093471

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261606.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:36 am
Operator : MC
Sample : Std 250ppb S11-02171604 25ul
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:21:56 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

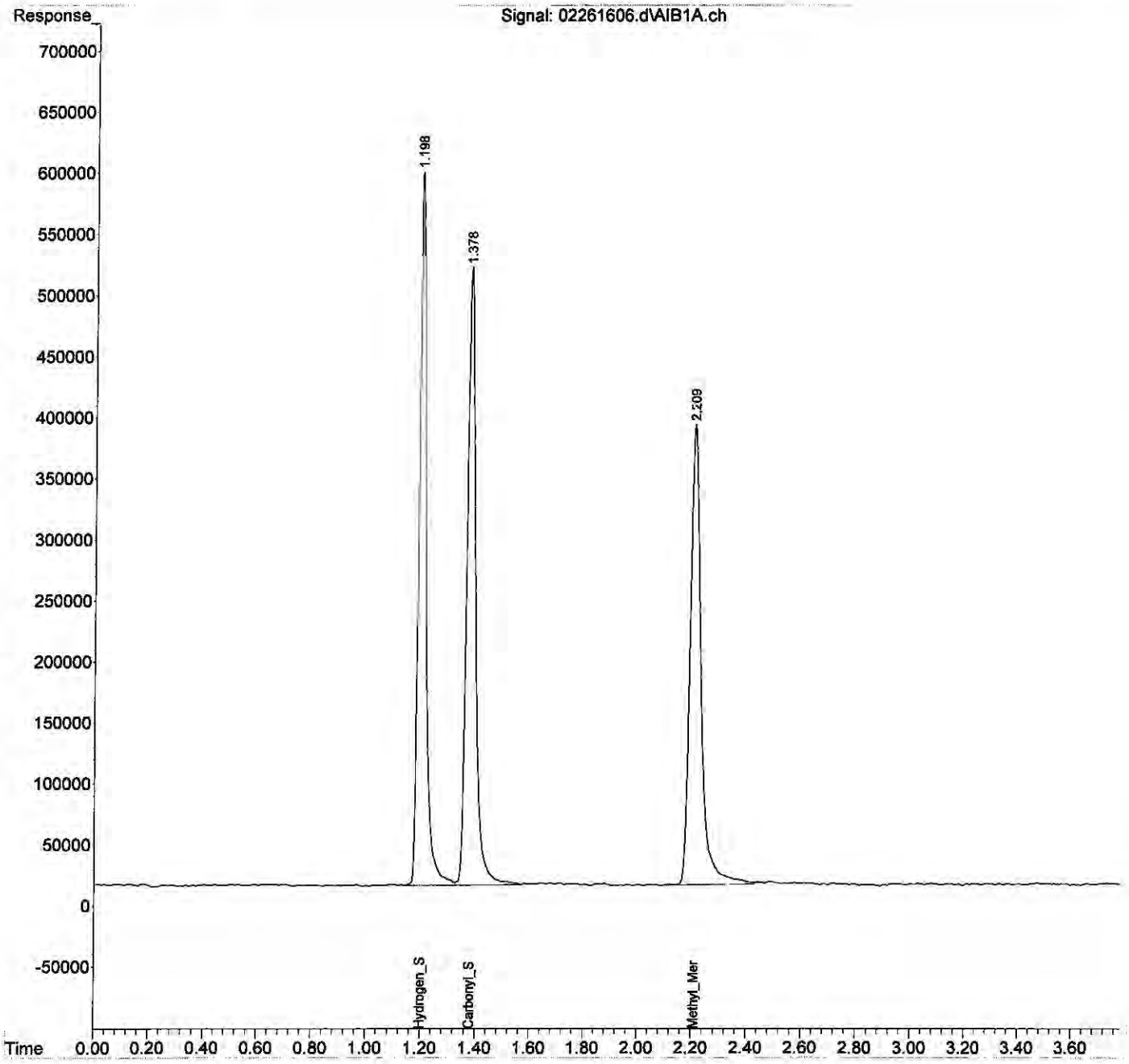
| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 1.199 | 10577312 | 256.480 | ppb |
| 2) | W | Carbonyl_Sulfide | 1.379 | 11391657 | 256.492 | ppb |
| 3) | T | Methyl_Mercaptan | 2.209 | 10626473 | 255.423 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

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

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261606.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:36 am
Operator : MC
Sample : Std 250ppb S11-02171604 25ul
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:21:56 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261607.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:41 am
Operator : MC
Sample : Std 1000ppb S11-02171604 100ul
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:22:24 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

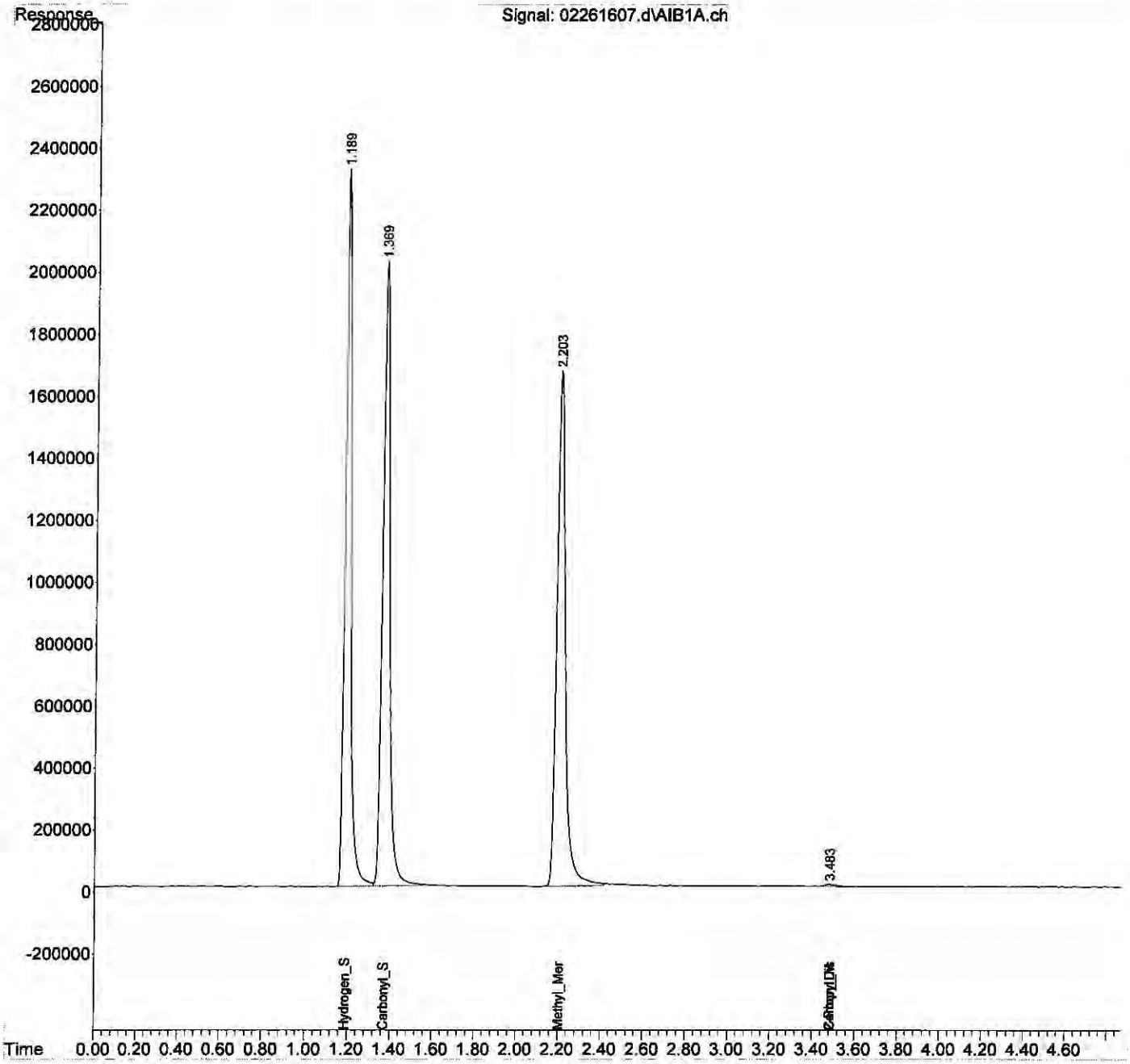
| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 1.190 | 44370804 | 1075.908 | ppb |
| 2) | W | Carbonyl_Sulfide | 1.370 | 46987902 | 1057.970 | ppb |
| 3) | T | Methyl_Mercaptan | 2.203 | 46761159 | 1123.972 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 3.483 | 246643 | 2.964 | ppb |
| 7) | T | 2-Propyl_Mercaptan | 3.483f | 246643 | 5.928 | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

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

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261607.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:41 am
Operator : MC
Sample : Std 1000ppb S11-02171604 100ul
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:22:24 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261608.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:47 am
Operator : MC
Sample : Std 2500ppb S11-02171604 250ul
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:22:55 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 1.180 | 99864238 | 2421.520 | ppb |
| 2) W | Carbonyl_Sulfide | 1.362 | 105839058 | 2383.051 | ppb |
| 3) T | Methyl_Mercaptan | 2.199 | 101144849 | 2428.509 | ppb |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) T | Carbon_Disulfide | 3.479 | 360388 | 4.939 | ppb |
| 7) T | 2-Propyl_Mercaptan | 3.479f | 360388 | 9.879 | ppb |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

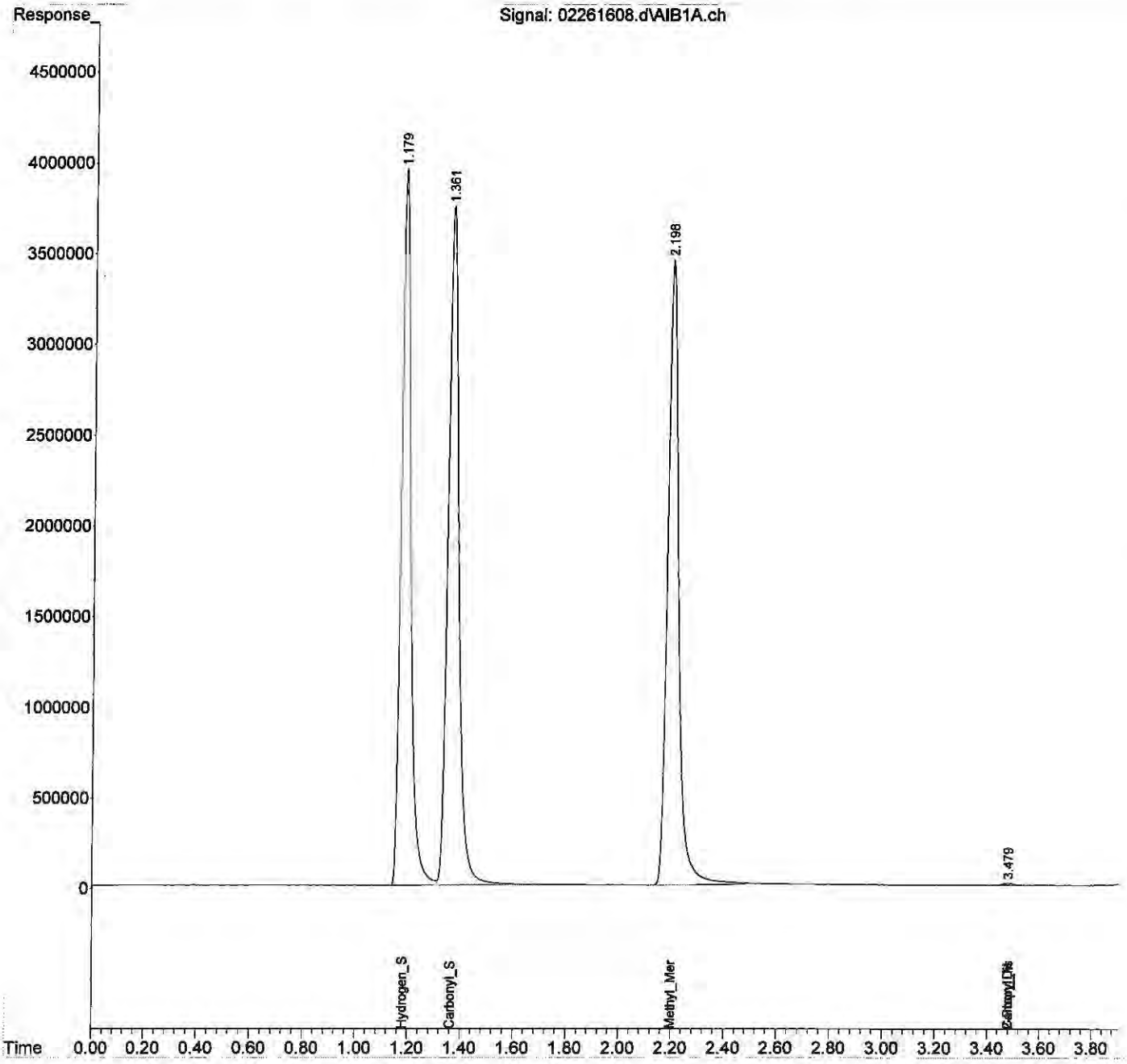
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261608.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:47 am
Operator : MC
Sample : Std 2500ppb S11-02171604 250ul
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:22:55 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261609.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:52 am
Operator : MC
Sample : Std 5000ppb S11-02171604 500ul
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:23:21 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 1.166 | 208449120 | 5054.498 | ppb |
| 2) | W | Carbonyl_Sulfide | 1.349 | 222533043 | 5010.508 | ppb |
| 3) | T | Methyl_Mercaptan | 2.190 | 209153799 | 5021.826 | ppb |
| 4) | T | Ethyl_Mercaptan | 3.219f | 99174 | 2.384 | ppb |
| 5) | T | Dimethyl_Sulfide | 3.219 | 99174 | 2.384 | ppb |
| 6) | T | Carbon_Disulfide | 3.468 | 436746 | 6.824 | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

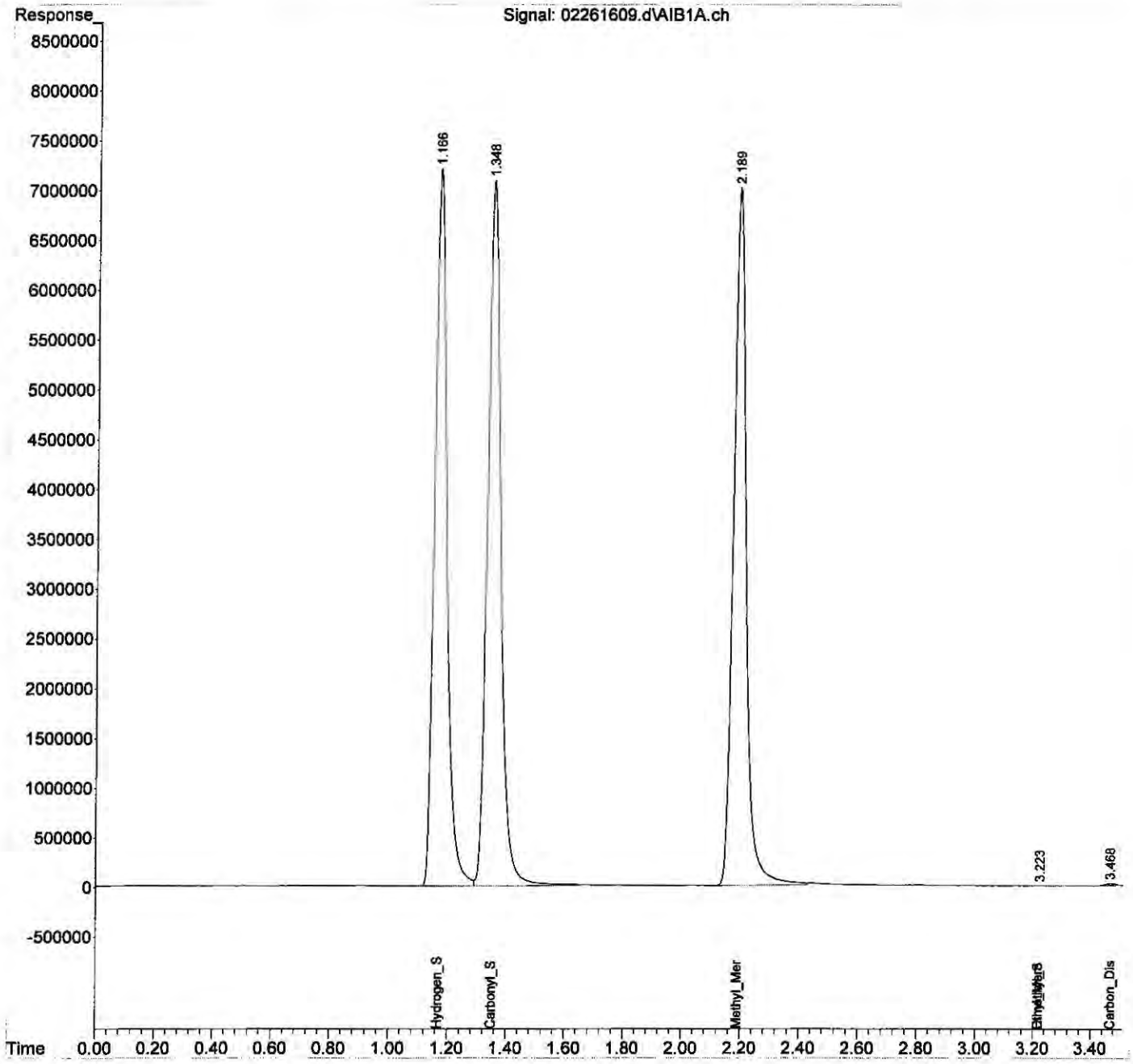
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261609.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:52 am
Operator : MC
Sample : Std 5000ppb S11-02171604 500ul
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:23:21 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261610.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:57 am
Operator : MC
Sample : Std 10000ppb S11-02171604 1ml
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:24:32 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 1.122 | 463335404 | 11235.011 | ppb |
| 2) | W | Carbonyl_Sulfide | 1.309 | 503320902 | 11332.670 | ppb |
| 3) | T | Methyl_Mercaptan | 2.165 | 475826713 | 11424.698 | ppb |
| 4) | T | Ethyl_Mercaptan | 3.199f | 199742 | 5.405 | ppb |
| 5) | T | Dimethyl_Sulfide | 3.218 | 278600 | 7.538 | ppb |
| 6) | T | Carbon_Disulfide | 3.451 | 2291591 | 41.874 | ppb |
| 7) | T | 2-Propyl_Mercaptan | 3.606 | 1488208 | 46.505 | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 5.396f | 2755043 | 66.221 | ppb |
| 12) | T | i-Butyl_Mercaptan | 5.396 | 2755043 | 66.221 | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | T | Dimethyl_Disulfide | 6.442 | 5536873 | 66.543 | ppb |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 9.731f | 449397 | 5.401 | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

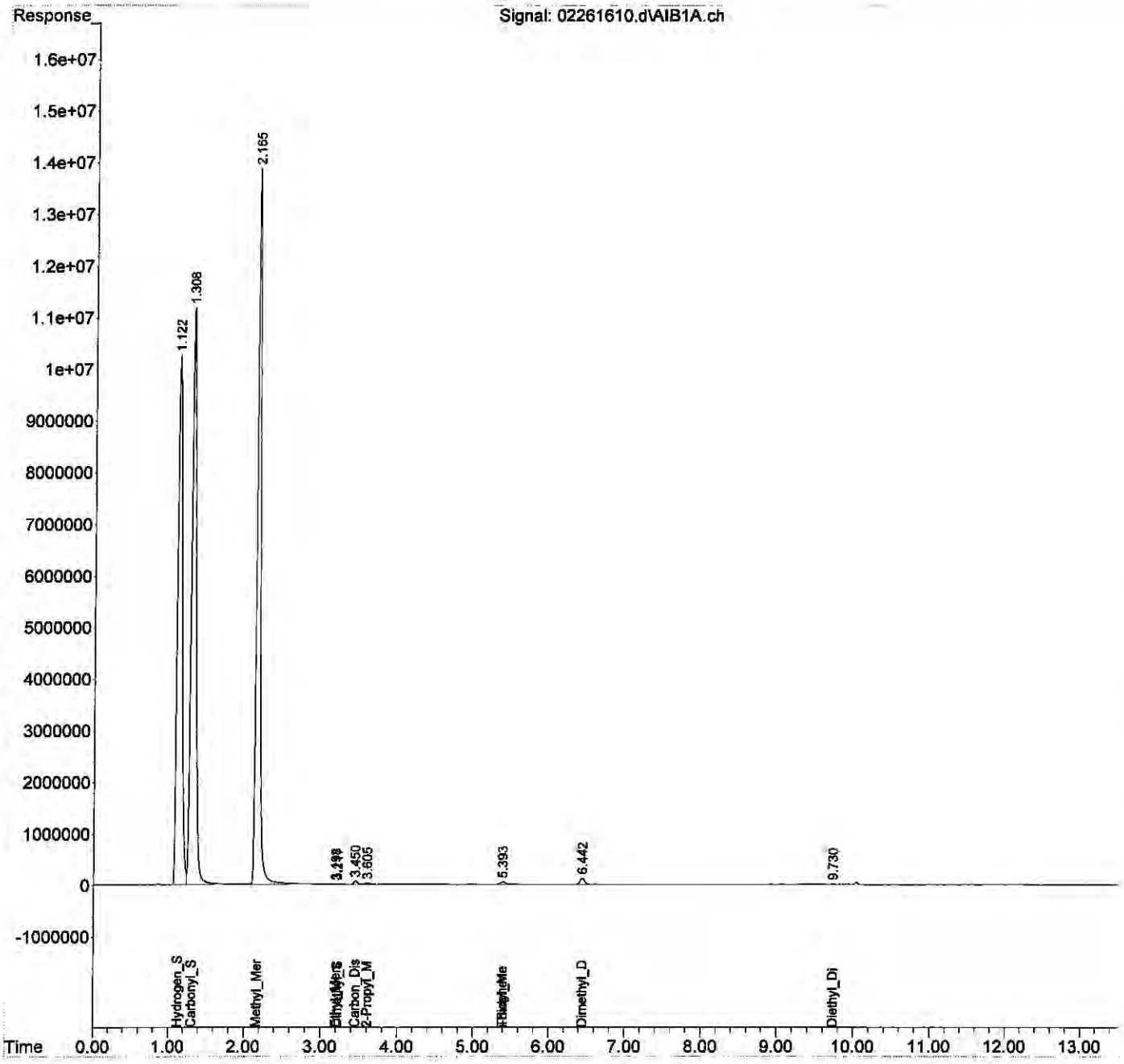
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261610.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 9:57 am
Operator : MC
Sample : Std 10000ppb S11-02171604 1ml
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:24:32 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261611.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 10:30 am
Operator : MC
Sample : Std 25ppm S30-11031401 25ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:25:01 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

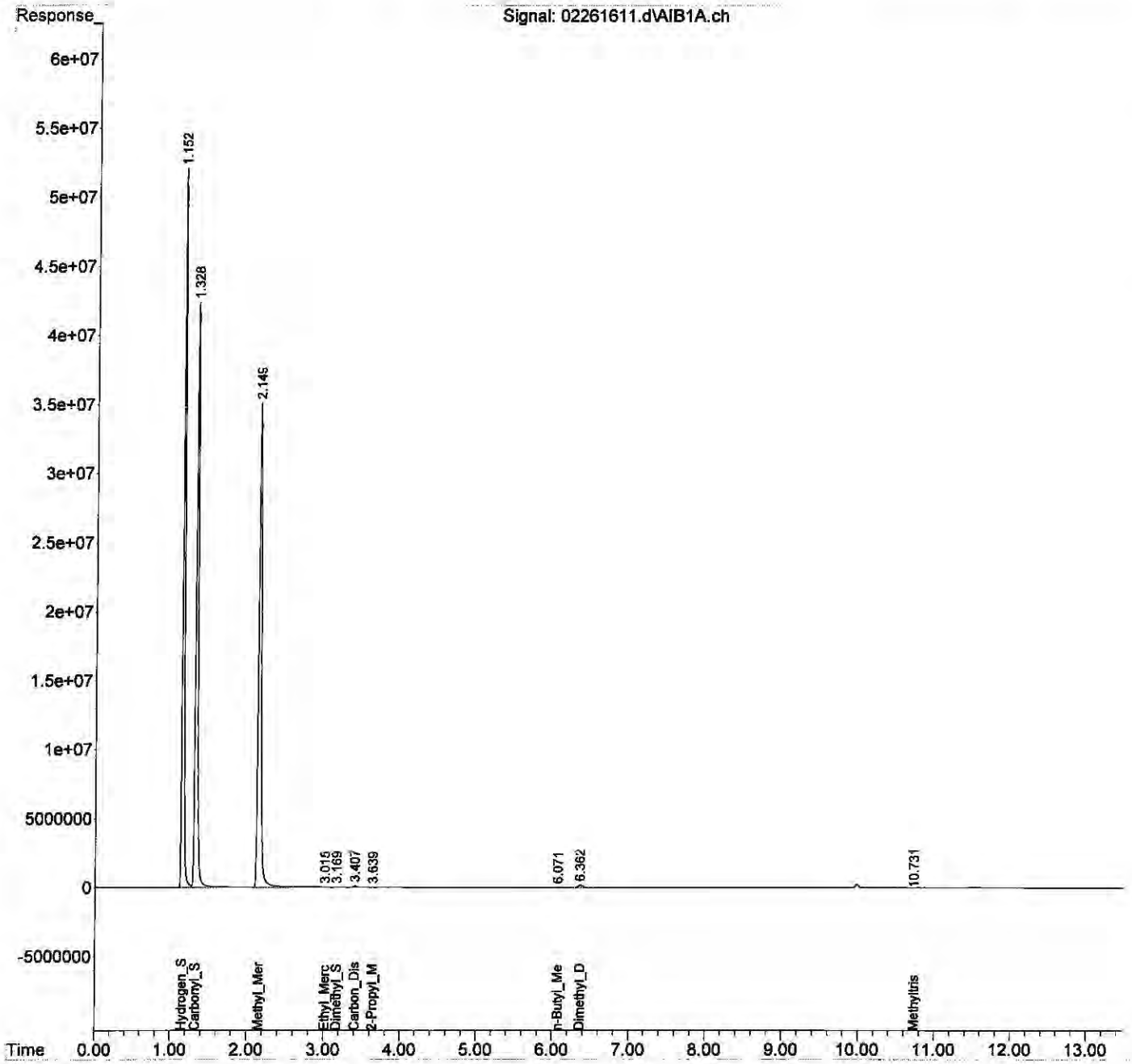
| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 1.153 | 870205474 | 21100.843 | ppb |
| 2) | W | Carbonyl_Sulfide | 1.329 | 913317906 | 20564.078 | ppb |
| 3) | T | Methyl_Mercaptan | 2.150 | 917735964 | 22035.030 | ppb |
| 4) | T | Ethyl_Mercaptan | 3.016 | 161344 | 5.094 | ppb |
| 5) | T | Dimethyl_Sulfide | 3.169 | 618937 | 19.541 | ppb |
| 6) | T | Carbon_Disulfide | 3.408 | 3204956 | 72.505 | ppb |
| 7) | T | 2-Propyl_Mercaptan | 3.641 | 50483 | 1.889 | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | T | n-Butyl_Mercaptan | 6.071f | 55232 | 1.328 | ppb |
| 15) | T | Dimethyl_Disulfide | 6.363f | 8137293 | 111.843 | ppb |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 10.731f | 78362 | 0.942 | ppb |

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

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261611.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 10:30 am
Operator : MC
Sample : Std 25ppm S30-11031401 25ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:25:01 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261613.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 11:49 am
Operator : MC
Sample : RT
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:25:45 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

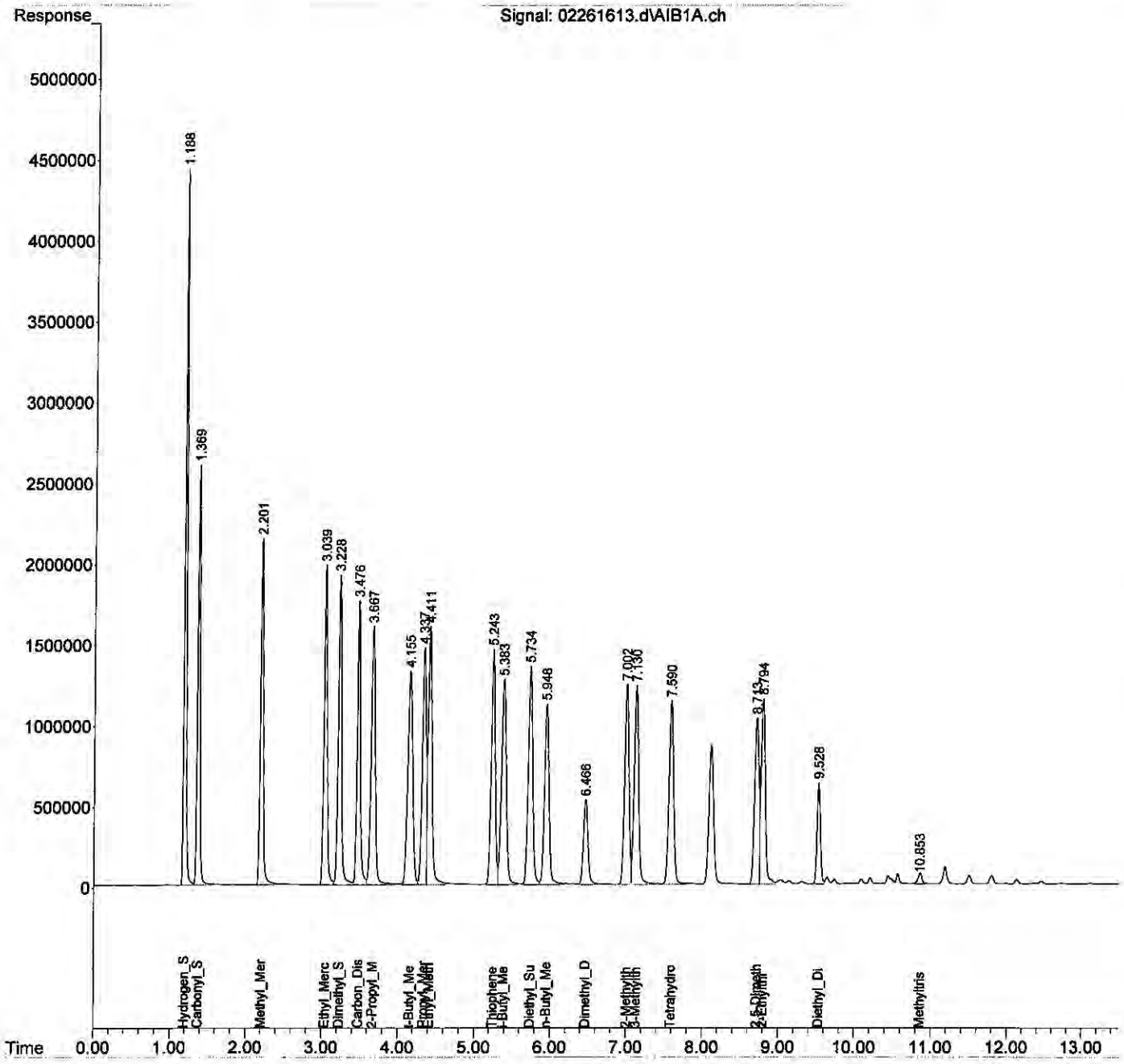
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 1.189 | 79068953 | 1917.273 | ppb |
| 2) W | Carbonyl_Sulfide | 1.369 | 56957406 | 1282.441 | ppb |
| 3) T | Methyl_Mercaptan | 2.202 | 54799240 | 1315.741 | ppb |
| 4) T | Ethyl_Mercaptan | 3.040 | 57774849 | 2093.674 | ppb |
| 5) T | Dimethyl_Sulfide | 3.229 | 58481891 | 2119.072 | ppb |
| 6) T | Carbon_Disulfide | 3.477 | 50853673 | 1409.695 | ppb |
| 7) T | 2-Propyl_Mercaptan | 3.667 | 59798570 | 2639.841 | ppb |
| 8) T | t-Butyl_Mercaptan | 4.156 | 60019224 | 1442.649 | ppb |
| 9) T | Propyl_Mercaptan | 4.337 | 49336372 | 1185.871 | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 4.412 | 59619697 | 1433.046 | ppb |
| 11) T | Thiophene | 5.244 | 53055751 | 1459.696 | ppb |
| 12) T | i-Butyl_Mercaptan | 5.384 | 55692574 | 1532.242 | ppb |
| 13) T | Diethyl_Sulfide | 5.735 | 54746302 | 1315.907 | ppb |
| 14) T | n-Butyl_Mercaptan | 5.948 | 46560947 | 1240.802 | ppb |
| 15) T | Dimethyl_Disulfide | 6.467 | 21968889 | 339.704 | ppb |
| 16) T | 2-Methylthiophene | 7.002 | 49369490 | 1186.667 | ppb |
| 17) T | 3-Methylthiophene | 7.131 | 50727910 | 1219.319 | ppb |
| 18) T | Tetrahydrothiophene | 7.591 | 47868334 | 1150.585 | ppb |
| 19) T | 2,5-Dimethylthiophene | 8.713 | 40126115 | 964.489 | ppb |
| 20) T | 2-Ethylthiophene | 8.794 | 45141979 | 1085.053 | ppb |
| 21) T | Diethyl_Disulfide | 9.529 | 19301265 | 265.700 | ppb |
| 22) T | Methyltrisulfide | 10.855 | 2583472 | 34.423 | ppb |

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

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261613.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 11:49 am
Operator : MC
Sample : RT
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:25:45 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261612.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 11:40 am
Operator : MC
Sample : ICV S30-02241602 1000ppb
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:25:27 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) Z | Hydrogen_Sulfide | 1.192 | 43714802 | 1060.002 | ppb | 1000 |
| 2) W | Carbonyl_Sulfide | 1.373 | 46664677 | 1050.692 | ppb | 1000 |
| 3) T | Methyl_Mercaptan | 2.206 | 44736653 | 1074.136 | ppb | 1000 |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 6) T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 7) T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) T | Thiophene | 5.182 | 652926 | 17.964 | ppb | |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) T | n-Butyl_Mercaptan | 6.162f | 67357 | 1.795 | ppb | |
| 15) T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb | |
| 17) T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb | |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb | |
| 20) T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb | |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

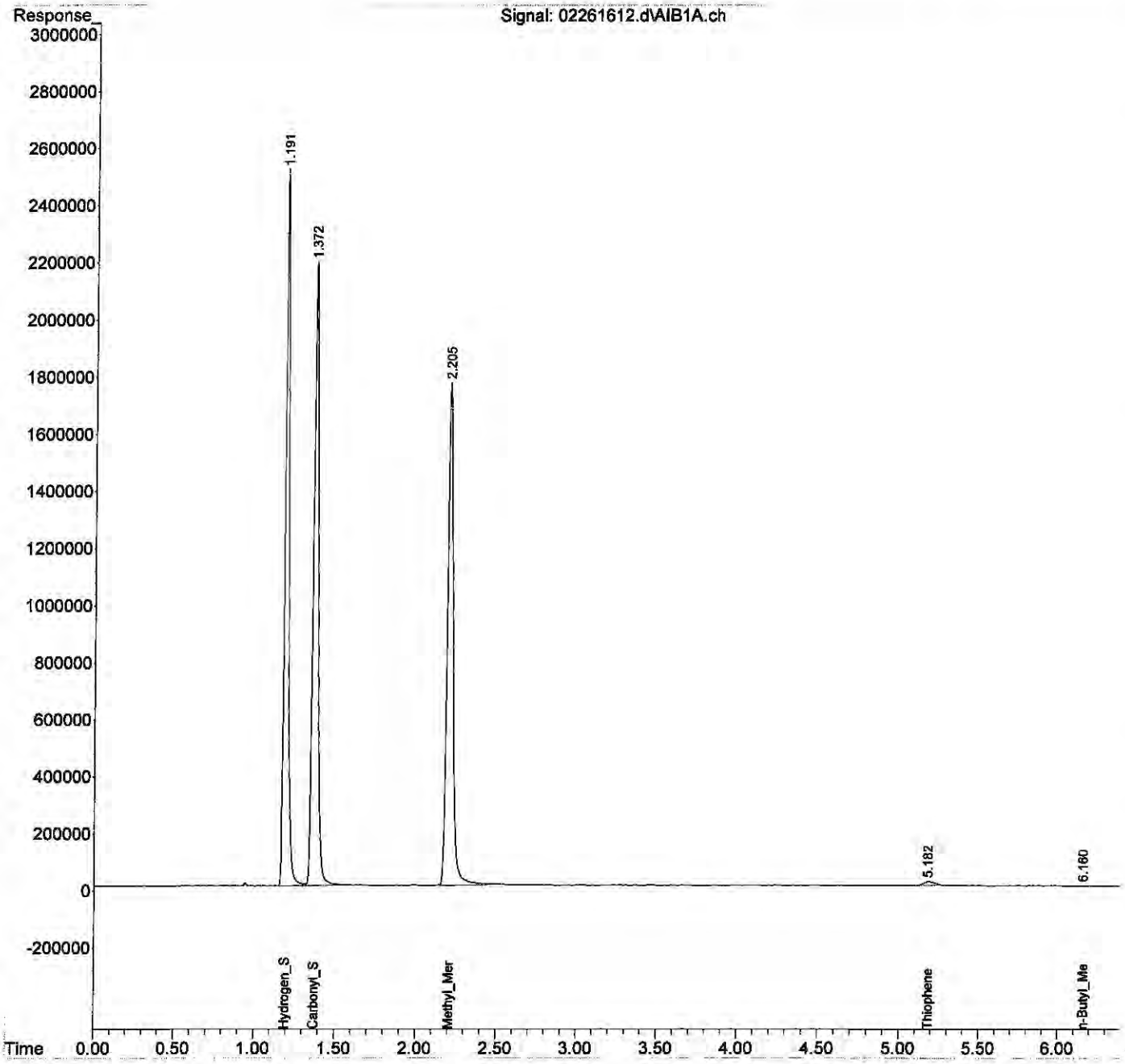
% recovery
actual
106%
105%
107%

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

Data Path : J:\GC22\DATA\SCD\2016_02\26\
Data File : 02261612.d
Signal(s) : AIB1A.ch
Acq On : 26 Feb 2016 11:40 am
Operator : MC
Sample : ICV S30-02241602 1000ppb
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Feb 26 14:25:27 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : 20 Sulfurs Initial Calibration
QLast Update : Fri Feb 26 14:17:02 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



# Response Factor Report HP G1530A

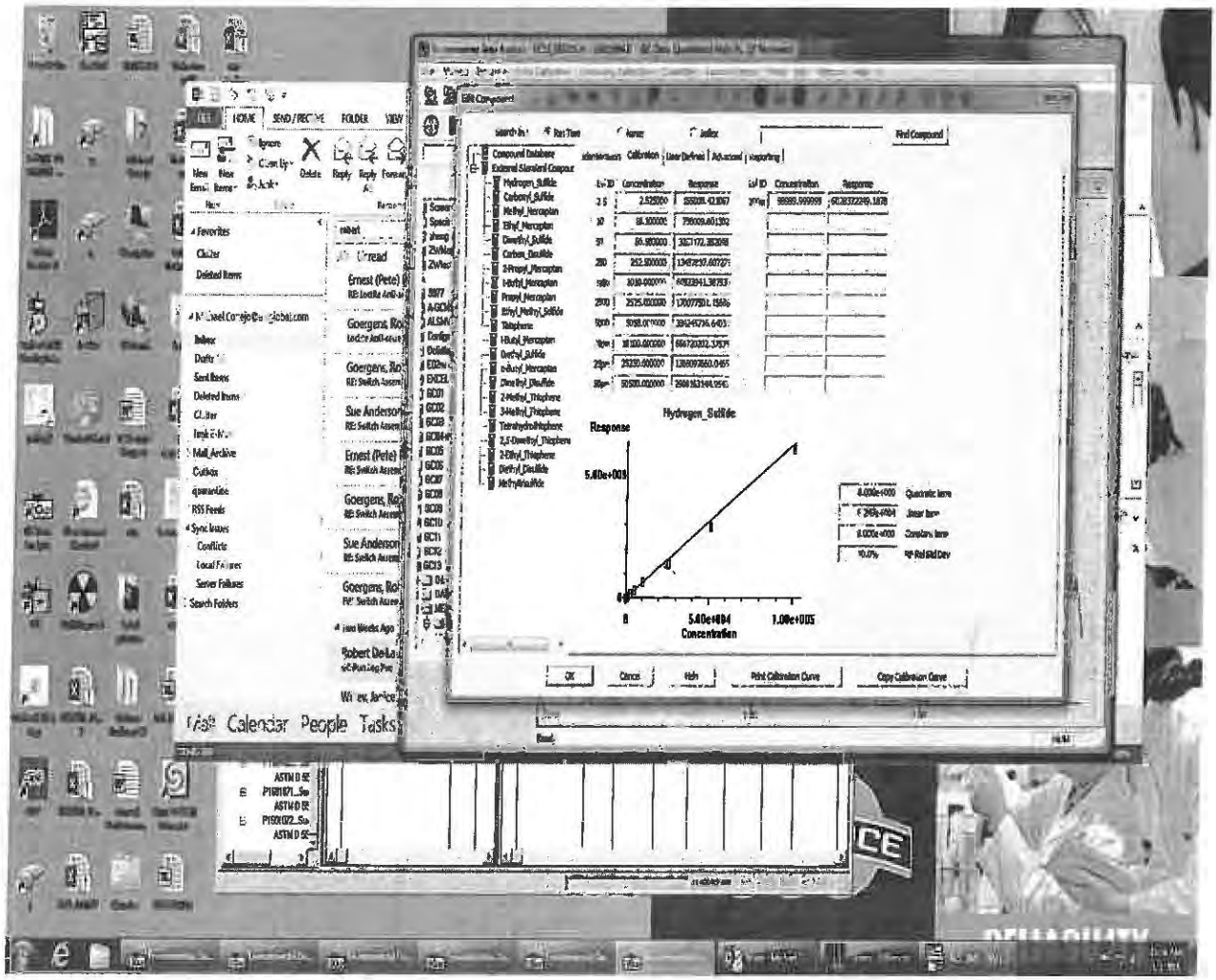
Method Path : J:\GC13\METHODS\
Method File : GC13_030216.M
Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
Last Update : Tue May 03 15:14:01 2016
Response Via : Initial Calibration

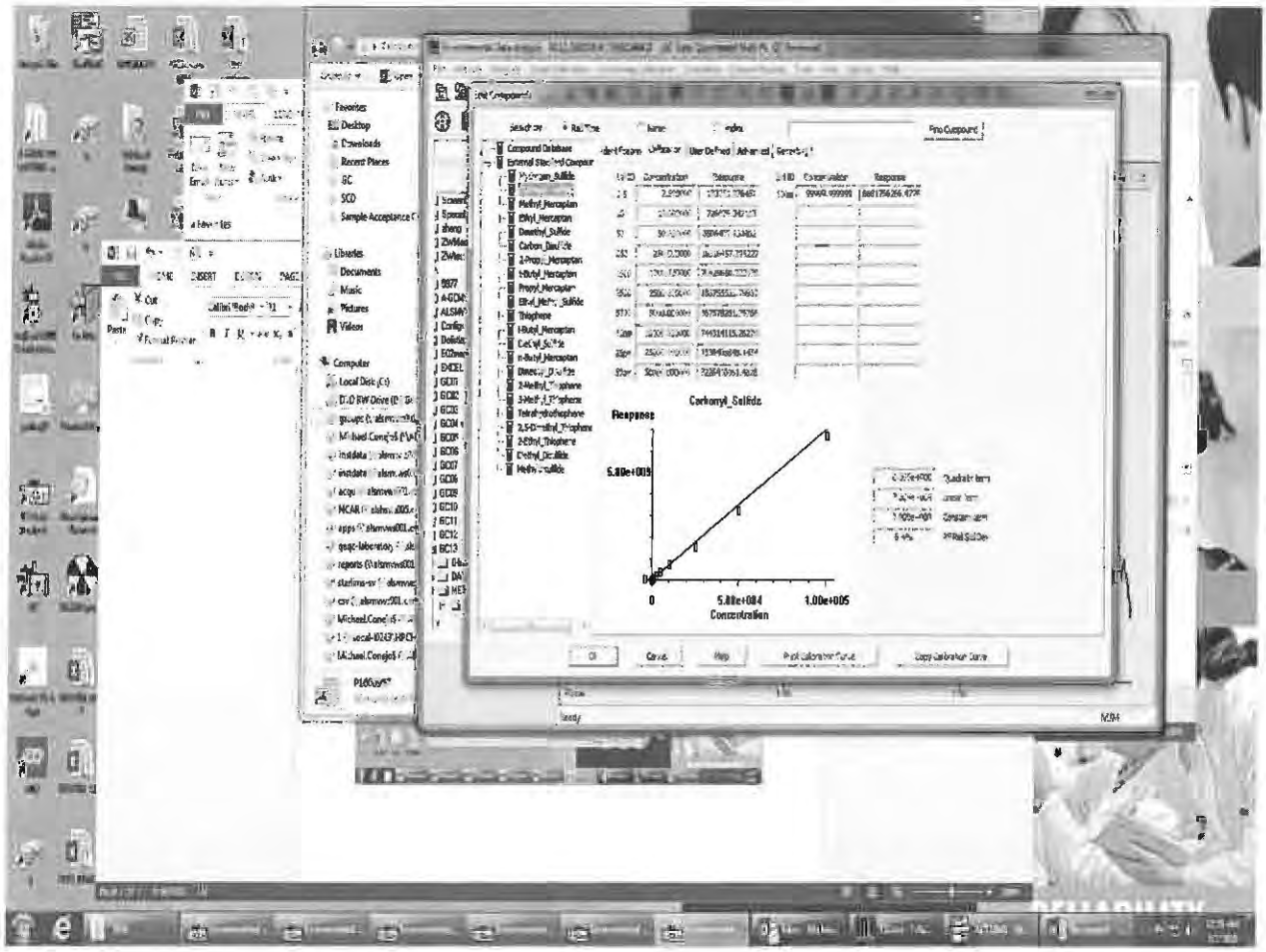
Calibration Files
2.5 =03021604.D 10 =03021605.D 50 =03021606.D
250 =03021607.D 1000 =03021608.D 2500 =03021609.D

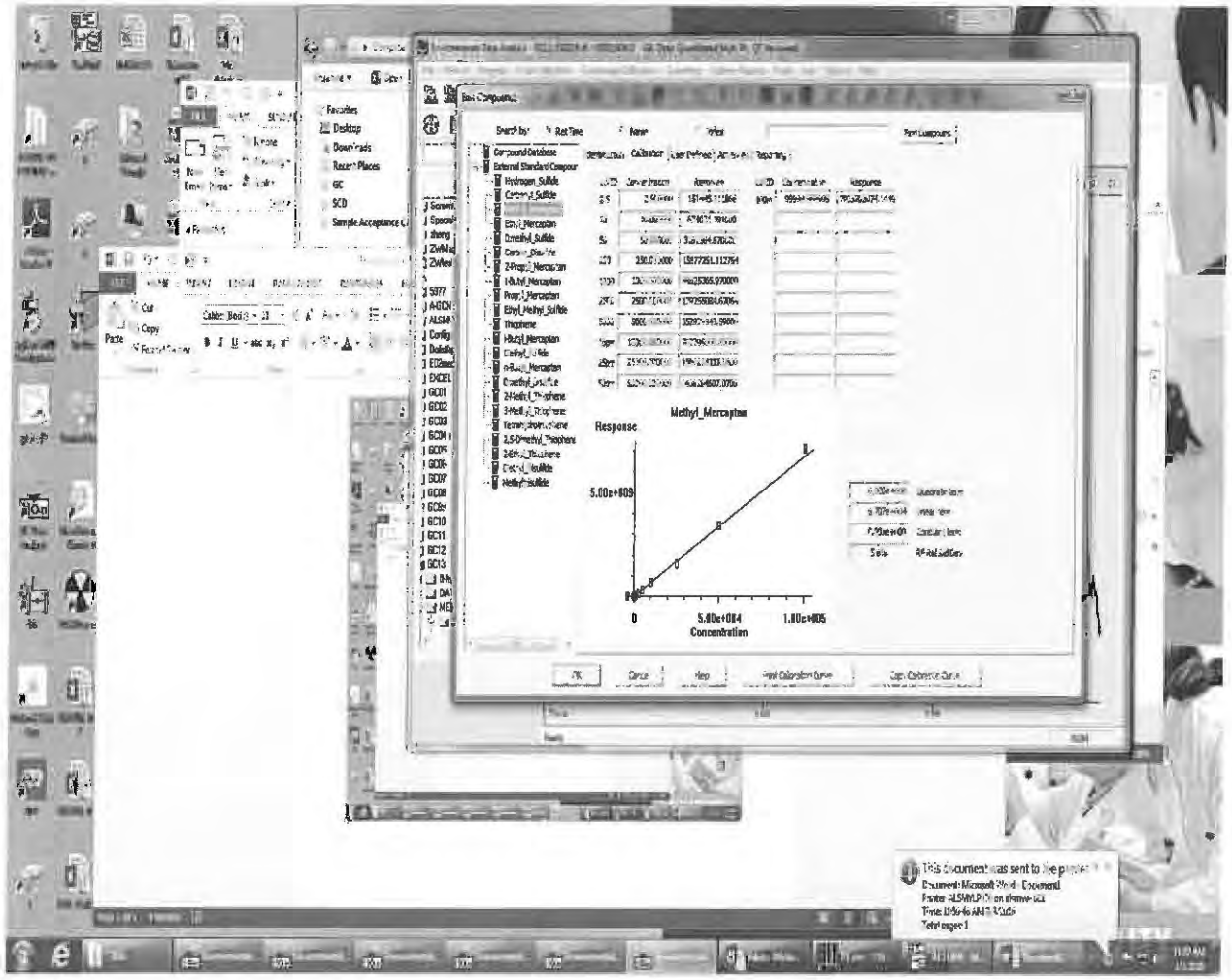
| | | Compound | 2.5 | 10 | 50 | 250 | 1000 | 2500 | Avg | | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) | Z | Hydrogen_Sulfide | 6.139 | 7.485 | 6.511 | 5.330 | 6.032 | 6.736 | 6.247 | E4 | 9.97 |
| 2) | W | Carbonyl_Sulfide | 7.330 | 7.261 | 7.013 | 6.727 | 7.083 | 7.550 | 7.004 | E4 | 6.38 |
| 3) | T | Methyl_Mercaptan | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 4) | T | Ethyl_Mercaptan | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 5) | T | Dimethyl_Sulfide | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 6) | T | Carbon_Disulfide | 1.212 | 1.350 | 1.273 | 1.270 | 1.373 | 1.434 | 1.341 | E5 | 5.78 |
| 7) | T | 2-Propyl_Merc... | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 8) | T | t-Butyl_Merca... | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 9) | T | Propyl_Mercaptan | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 10) | T | Ethyl_Methyl_... | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 11) | T | Thiophene | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 12) | T | i-Butyl_Merca... | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 13) | T | Diethyl_Sulfide | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 14) | t | n-Butyl_Merca... | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 15) | t | Dimethyl_Disu... | 1.212 | 1.350 | 1.273 | 1.270 | 1.373 | 1.434 | 1.341 | E5 | 5.78 |
| 16) | T | 2-Methyl_Thio... | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 17) | t | 3-Methyl_Thio... | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 18) | T | Tetrahydrothi... | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 19) | t | 2,5-Dimethyl_... | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 20) | T | 2-Ethyl_Thiop... | 6.058 | 6.748 | 6.363 | 6.351 | 6.863 | 7.170 | 6.707 | E4 | 5.78 |
| 21) | T | Diethyl_Disul... | 1.212 | 1.350 | 1.273 | 1.270 | 1.373 | 1.434 | 1.341 | E5 | 5.78 |
| 22) | T | Methyltrisulfide | 1.212 | 1.350 | 1.273 | 1.270 | 1.373 | 1.434 | 1.341 | E5 | 5.78 |

(#) = Out of Range ### Number of calibration levels exceeded format ###

GC13_030216.M Tue May 03 15:29:12 2016


Hydrogen_Sulfide
Response
Concentration
OK
Close
Help
Print Calibration Curve
Copy Calibration Curve
Mail Calendar People Tasks


Carbonyl_Sulfide
Response
5.00e+005
0
5.00e+004
1.00e+005
Concentration


Methyl_Mercaptan
Response
5.00e+009
0
5.00e+004
1.00e+005
Concentration

# Calibration Status Report HP G1530A

Method Path : J:\GC13\METHODS\
Method File : GC13_030216.M
Title : 20 Sulfurs
Last Update : Wed Mar 02 12:32:01 2016
Response Via : Initial Calibration

| # | ID | Conc | ISTD Conc | Path\File |
|---|---|---|---|---|
| 1 | 2.5 | 3 | 0 | J:\GC13\DATA\SCD\2016_03\02\03021604.D |
| 2 | 10 | 10 | 0 | J:\GC13\DATA\SCD\2016_03\02\03021605.D |
| 3 | 50 | 50 | 0 | J:\GC13\DATA\SCD\2016_03\02\03021606.D |
| 4 | 250 | 250 | 0 | J:\GC13\DATA\SCD\2016_03\02\03021607.D |
| 5 | 1000 | 1000 | 0 | J:\GC13\DATA\SCD\2016_03\02\03021608.D |
| 6 | 2500 | 2500 | 0 | J:\GC13\DATA\SCD\2016_03\02\03021609.D |
| 7 | 5000 | 5000 | 0 | J:\GC13\DATA\SCD\2016_03\02\03021610.D |
| 8 | 10pm | 10000 | 0 | J:\GC13\DATA\SCD\2016_03\02\03021611.D |
| 9 | 25pm | 25000 | 0 | J:\GC13\DATA\SCD\2016_03\02\03021612.D |
| 10 | 50pm | 50000 | 0 | J:\GC13\DATA\SCD\2016_03\02\03021613.D |
| 11 | 100m | 100000 | 0 | J:\GC13\DATA\SCD\2016_03\02\03021614.D |

| # | ID | Update Time | Quant Time | Acquisition Time |
|---|---|---|---|---|
| 1 | 2.5 | Mar 02 11:50 2016 | Mar 02 11:47 2016 | 02 Mar 2016 11:27 |
| 2 | 10 | Mar 02 11:51 2016 | Mar 02 11:48 2016 | 02 Mar 2016 11:36 |
| 3 | 50 | Mar 02 11:52 2016 | Mar 02 11:52 2016 | 02 Mar 2016 11:41 |
| 4 | 250 | Mar 02 11:54 2016 | Mar 02 11:52 2016 | 02 Mar 2016 11:45 |
| 5 | 1000 | Mar 02 11:55 2016 | Mar 02 11:54 2016 | 02 Mar 2016 11:49 |
| 6 | 2500 | Mar 02 11:58 2016 | Mar 02 11:57 2016 | 02 Mar 2016 11:53 |
| 7 | 5000 | Mar 02 12:01 2016 | Mar 02 12:01 2016 | 02 Mar 2016 11:57 |
| 8 | 10pm | Mar 02 12:05 2016 | Mar 02 12:05 2016 | 02 Mar 2016 12:00 |
| 9 | 25pm | Mar 02 12:09 2016 | Mar 02 12:09 2016 | 02 Mar 2016 12:04 |
| 10 | 50pm | Mar 02 12:14 2016 | Mar 02 12:14 2016 | 02 Mar 2016 12:08 |
| 11 | 100m | Mar 02 12:20 2016 | Mar 02 12:20 2016 | 02 Mar 2016 12:13 |

GC13_030216.M Thu Mar 03 11:45:28 2016

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021604.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:27 am
Operator : MC
Sample : 2.5ppb S11-0302160225ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:47:52 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Feb 17 15:56:38 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.850 | 155008 | 1.495 | ppb | m |
| 2) | W | Carbonyl_Sulfide | 0.984 | 183251 | 1.573 | ppb | m |
| 3) | T | Methyl_Mercaptan | 1.710 | 151445 | 1.414 | ppb | |
| 4) | T | Ethyl_Mercaptan | 2.590f | 29959 | 0.280 | ppb | |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

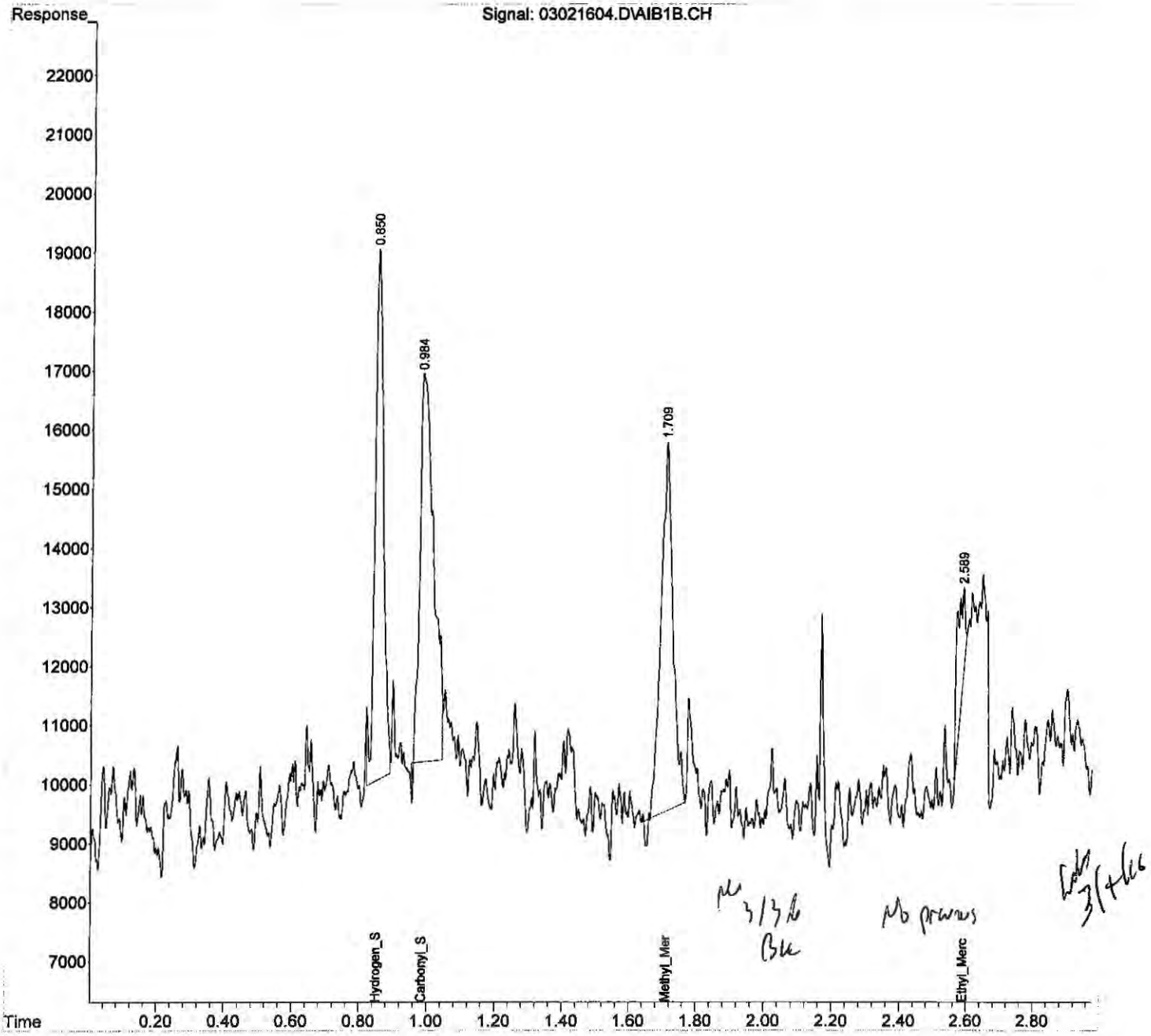
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021604.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:27 am
Operator : MC
Sample : 2.5ppb S11-0302160225ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:47:52 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Feb 17 15:56:38 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021605.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:36 am
Operator : MC
Sample : 10ppb S11-03021602 100ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:48:48 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Feb 17 15:56:38 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.851 | 756010 | 7.289 | ppb | m |
| 2) | W | Carbonyl_Sulfide | 0.986 | 726076 | 6.234 | ppb | m |
| 3) | T | Methyl_Mercaptan | 1.706 | 674831 | 6.301 | ppb | m |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 2.788f | 43131 | 0.403 | ppb | |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

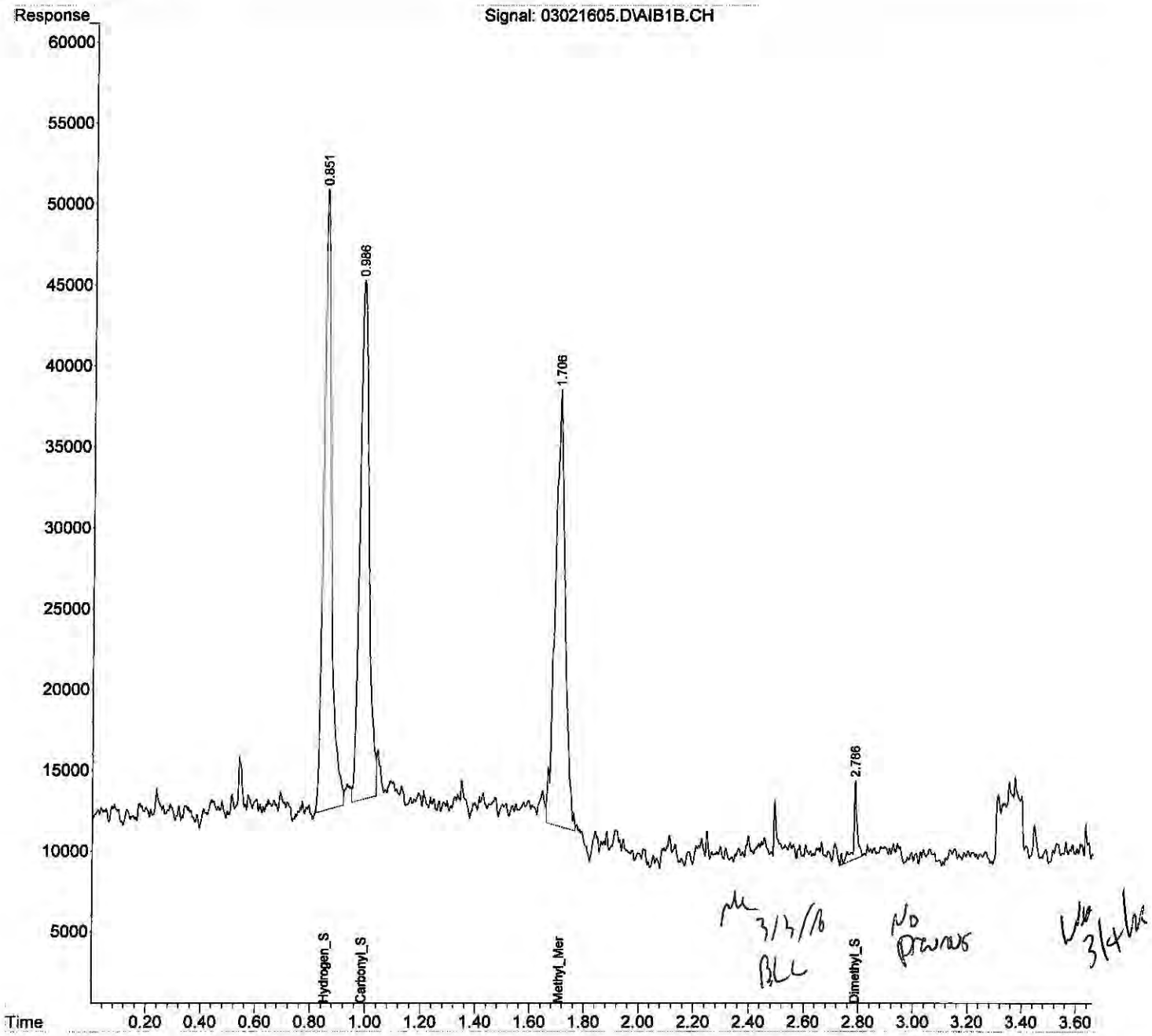
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021605.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:36 am
Operator : MC
Sample : 10ppb S11-03021602 100ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:48:48 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Feb 17 15:56:38 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




GC13_030216.M Thu Mar 03 11:37:24 2016 Page: 2

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021606.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:41 am
Operator : MC
Sample : 50ppb S11-03021602 500ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:52:08 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 11:51:20 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.848 | 3288172 | 47.792 | ppb | |
| 2) | W | Carbonyl_Sulfide | 0.982 | 3506410 | 48.063 | ppb | |
| 3) | T | Methyl_Mercaptan | 1.701 | 3181365 | 49.685 | ppb | m |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 2.692 | 186087 | 43.145 | ppb | |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

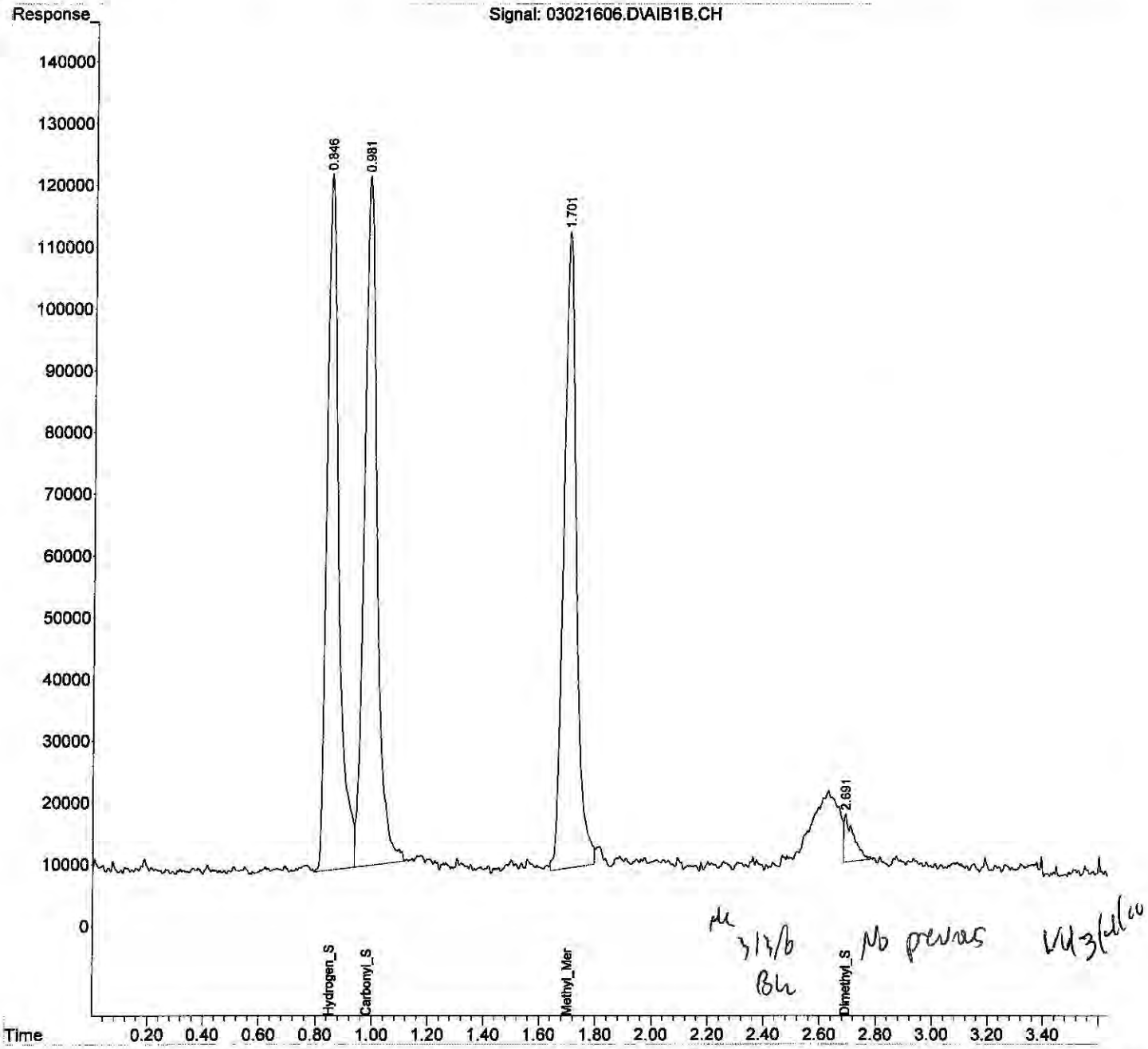
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021606.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:41 am
Operator : MC
Sample : 50ppb S11-03021602 500ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:52:08 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 11:51:20 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :




GC13_030216.M Thu Mar 03 11:37:38 2016 Page: 2

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021607.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:45 am
Operator : MC
Sample : 250ppbS11- 03021601 25ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:52:33 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 11:52:22 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.851 | 13457888 | 198.525 | ppb |
| 2) | W | Carbonyl_Sulfide | 0.986 | 16816957 | 233.530 | ppb |
| 3) | T | Methyl_Mercaptan | 1.704 | 15877251 | 248.485 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

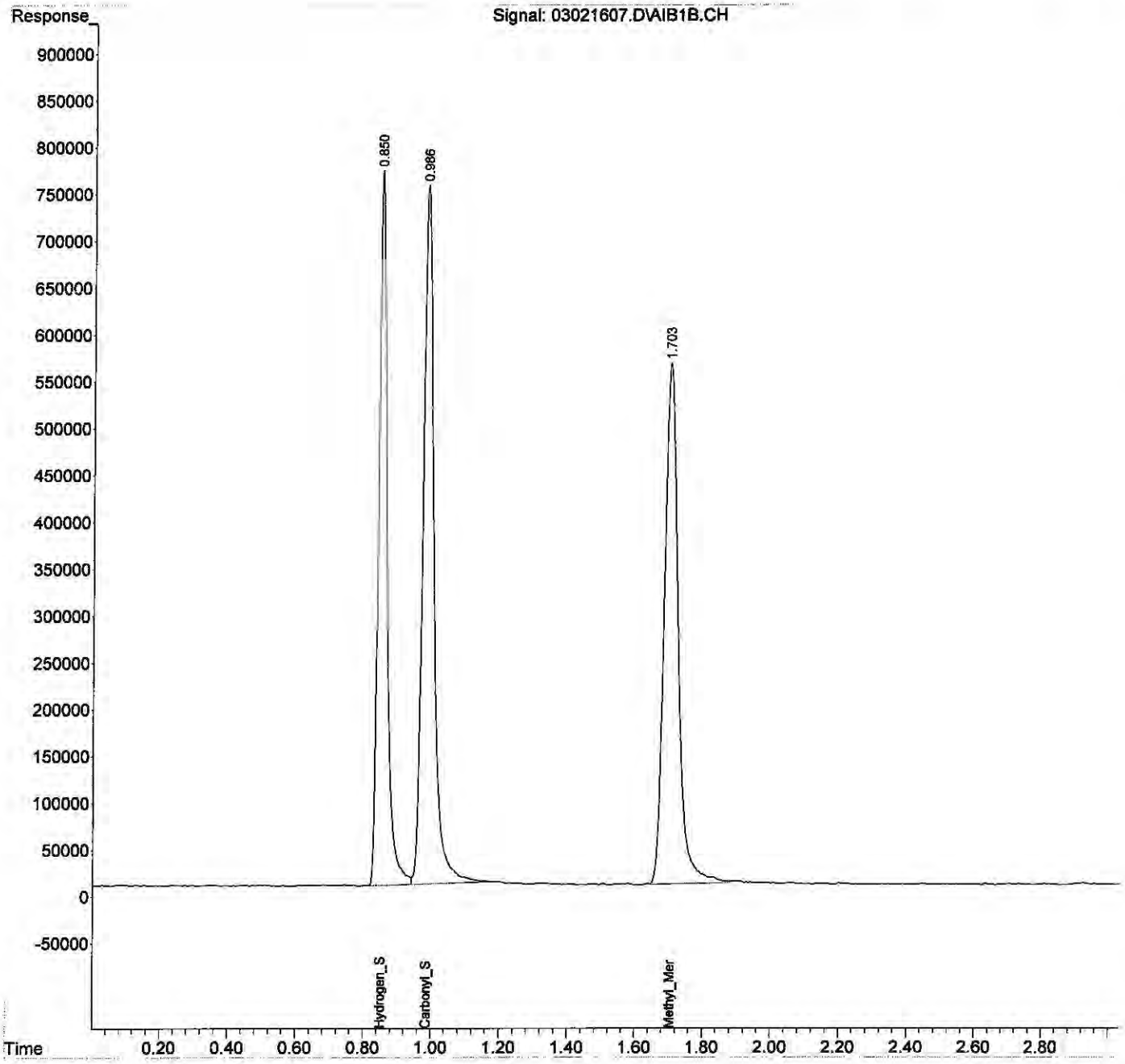
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021607.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:45 am
Operator : MC
Sample : 250ppbS11- 03021601 25ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:52:33 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 11:52:22 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021608.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:49 am
Operator : MC
Sample : 1000ppb S11-03021601 100ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:51:20 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 0.848 | 60923941 | 966.480 | ppb |
| 2) W | Carbonyl_Sulfide | 0.983 | 70829650 | 1011.241 | ppb |
| 3) T | Methyl_Mercaptan | 1.701 | 68625366 | 1023.207 | ppb |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

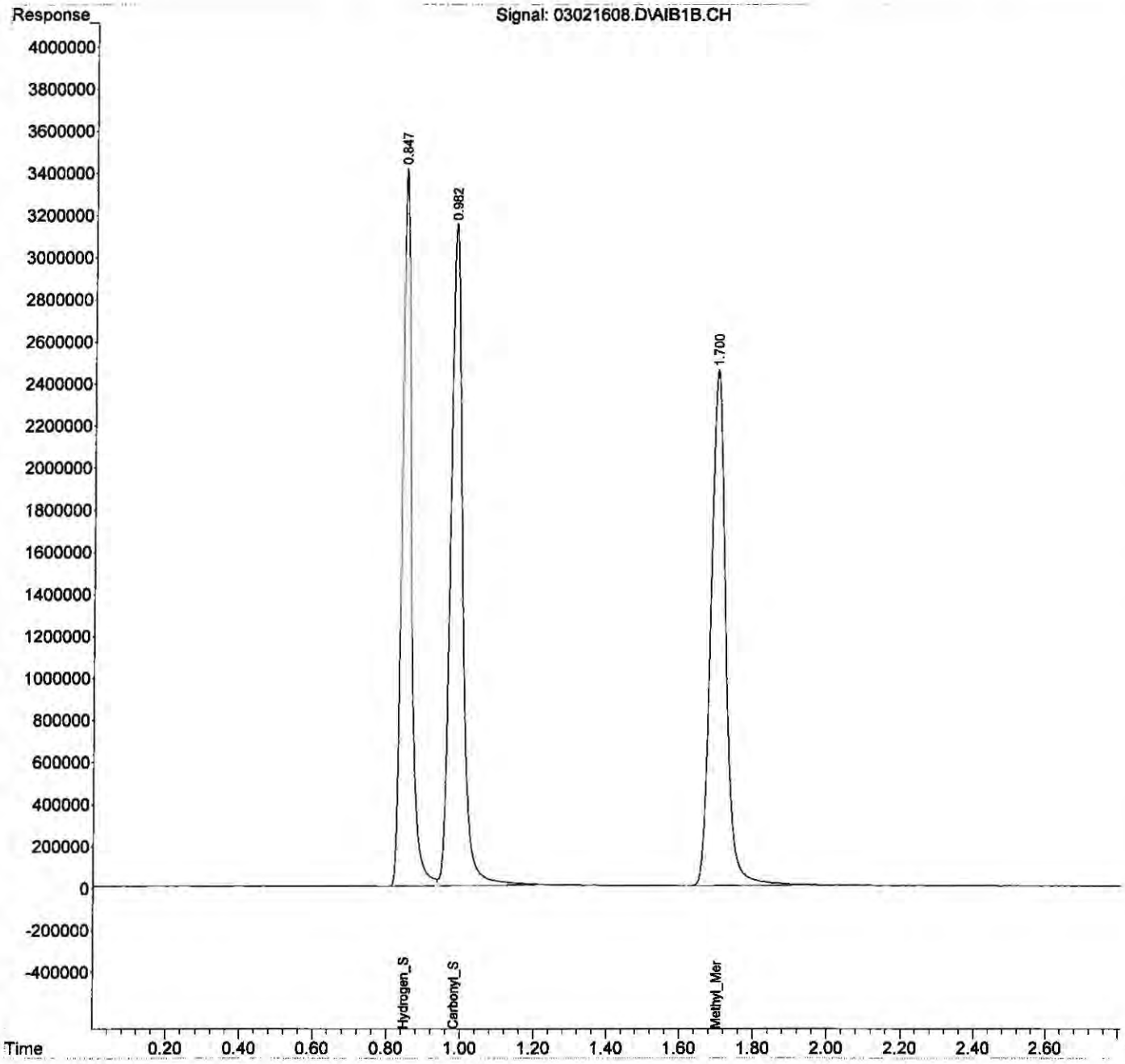
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021608.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:49 am
Operator : MC
Sample : 1000ppb S11-03021601 100ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:51:20 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021609.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:53 am
Operator : MC
Sample : 2500ppb S11-03021601 250ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:52:48 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.845 | 170077501 | 2698.061 | ppb |
| 2) | W | Carbonyl_Sulfide | 0.981 | 188755506 | 2694.879 | ppb |
| 3) | T | Methyl_Mercaptan | 1.700 | 179255085 | 2672.701 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 2.908 | 542676 | 8.091 | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

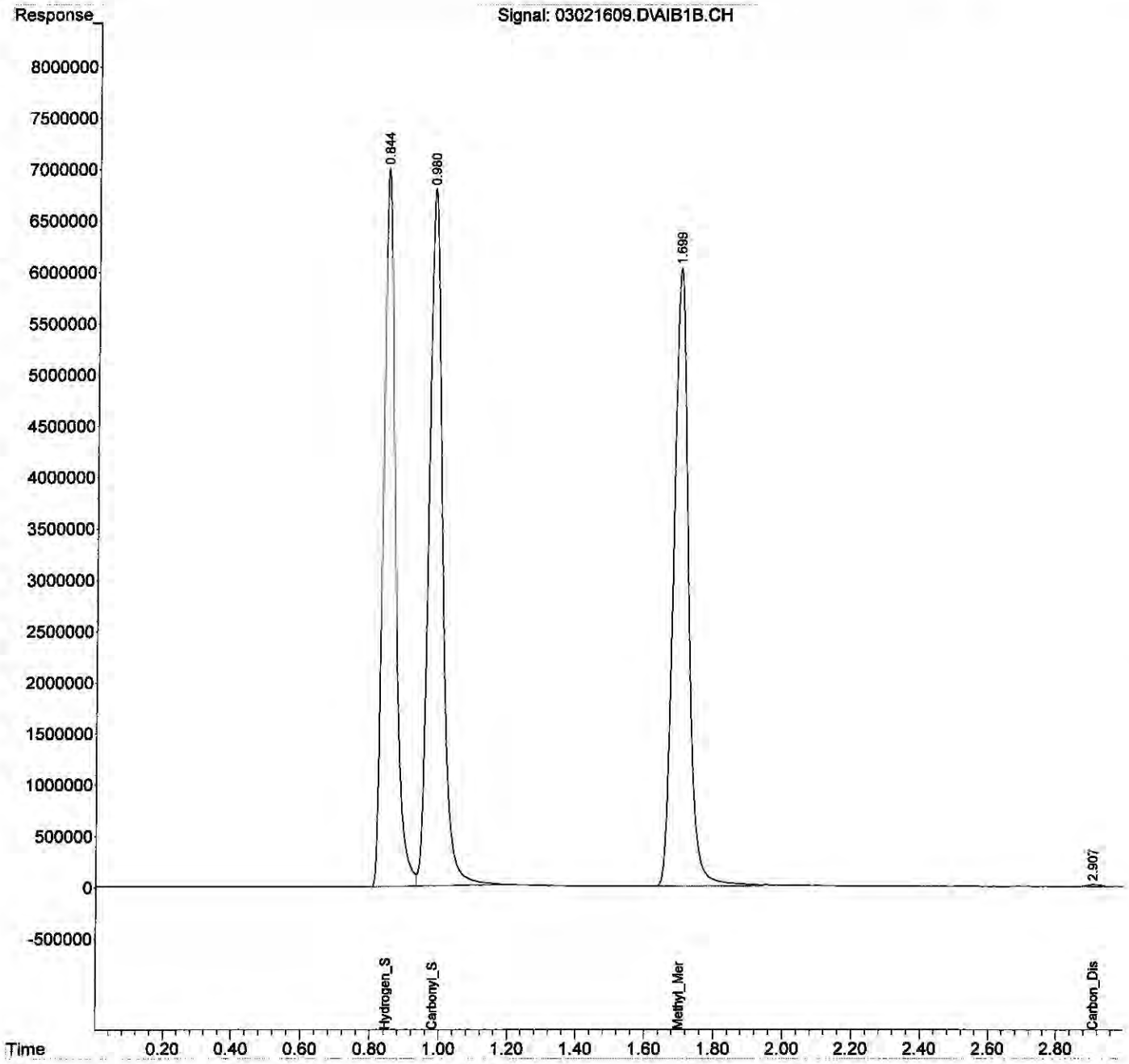
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021609.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:53 am
Operator : MC
Sample : 2500ppb S11-03021601 250ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:52:48 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021610.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:57 am
Operator : MC
Sample : 5000ppb S11-03021601 500ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:01:12 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 11:58:08 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.833 | 334245717 | 5193.454 | ppb |
| 2) | W | Carbonyl_Sulfide | 0.970 | 367578252 | 5133.345 | ppb |
| 3) | T | Methyl_Mercaptan | 1.692 | 352979844 | 5354.603 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 2.692 | 216055 | 53.780 | ppb |
| 6) | T | Carbon_Disulfide | 2.907 | 1134685 | 5227.264 | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

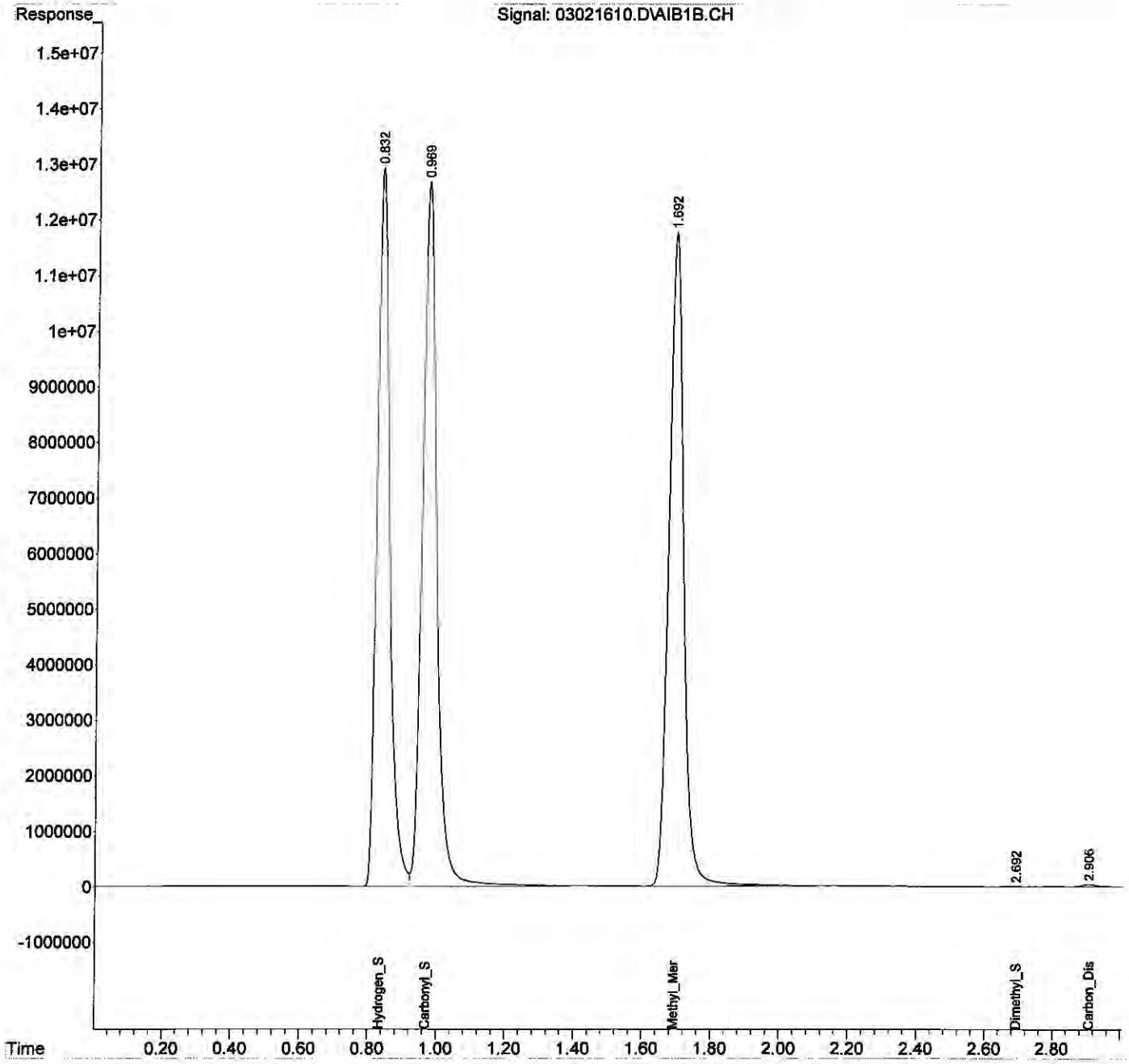
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021610.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:57 am
Operator : MC
Sample : 5000ppb S11-03021601 500ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:01:12 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 11:58:08 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021611.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:00 pm
Operator : MC
Sample : 10ppm S11-03021601 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:05:10 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:01:28 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.848 | 666720202 | 10302.442 | ppb |
| 2) | W | Carbonyl_Sulfide | 0.984 | 744314115 | 10355.127 | ppb |
| 3) | T | Methyl_Mercaptan | 1.704 | 702296001 | 10546.774 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 2.693 | 226440 | 84.095 | ppb |
| 6) | T | Carbon_Disulfide | 2.913 | 2223163 | 10014.082 | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

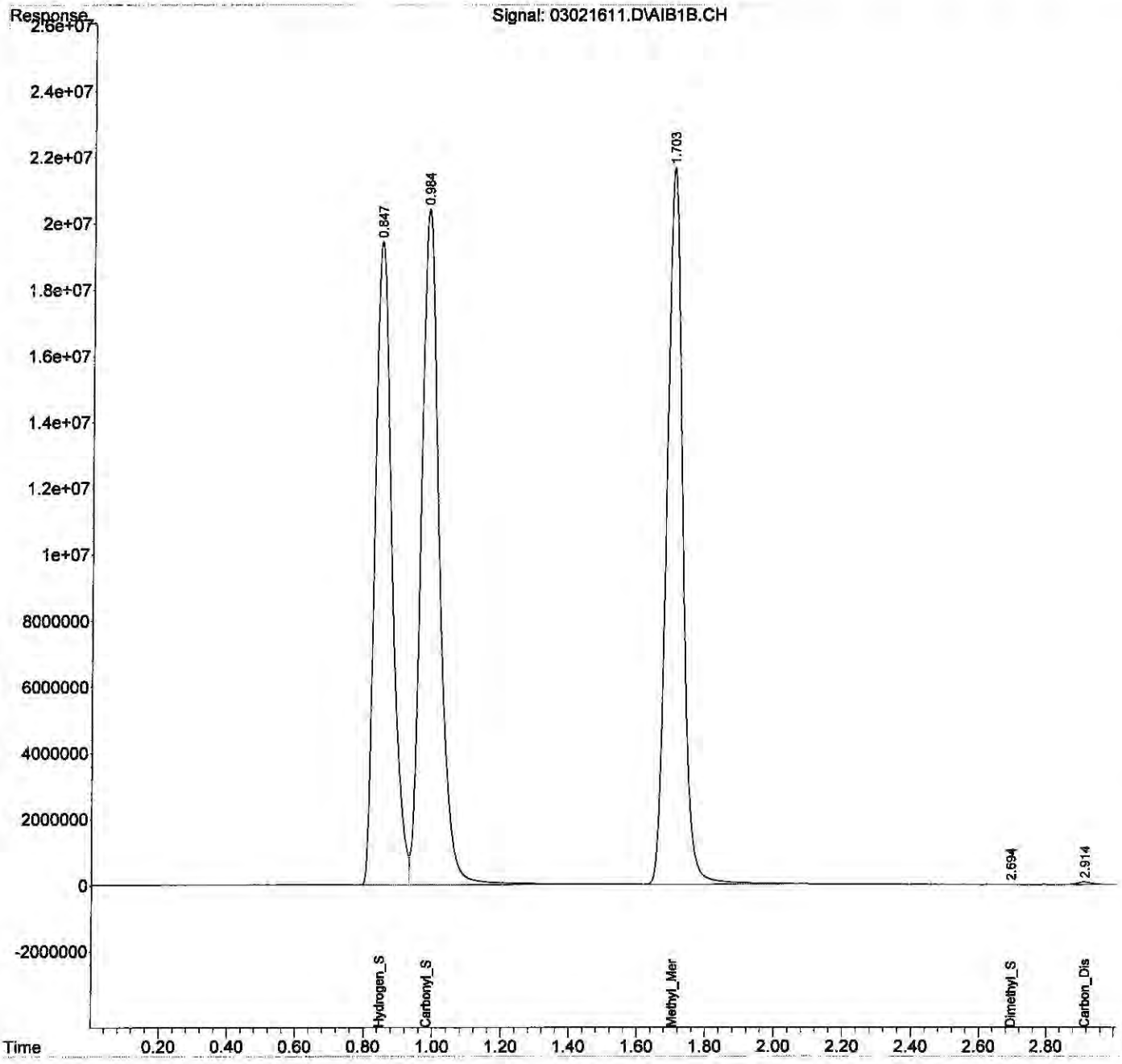
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021611.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:00 pm
Operator : MC
Sample : 10ppm S11-03021601 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:05:10 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:01:28 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_03\02\
Data File : 03021612.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:04 pm
Operator : MC
Sample : 25ppm S30-11031401 25ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:09:09 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:07:47 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.850 | 1386097660 | 21337.898 | ppb |
| 2) | W | Carbonyl_Sulfide | 0.985 | 1538408848 | 21308.229 | ppb |
| 3) | T | Methyl_Mercaptan | 1.700 | 1560233333 | 23271.845 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 2.694 | 419001 | 6.917 | ppb |
| 6) | T | Carbon_Disulfide | 2.909 | 5845671 | 96.498 | ppb |
| 7) | T | 2-Propyl_Mercaptan | 3.051f | 797865 | 13.171 | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

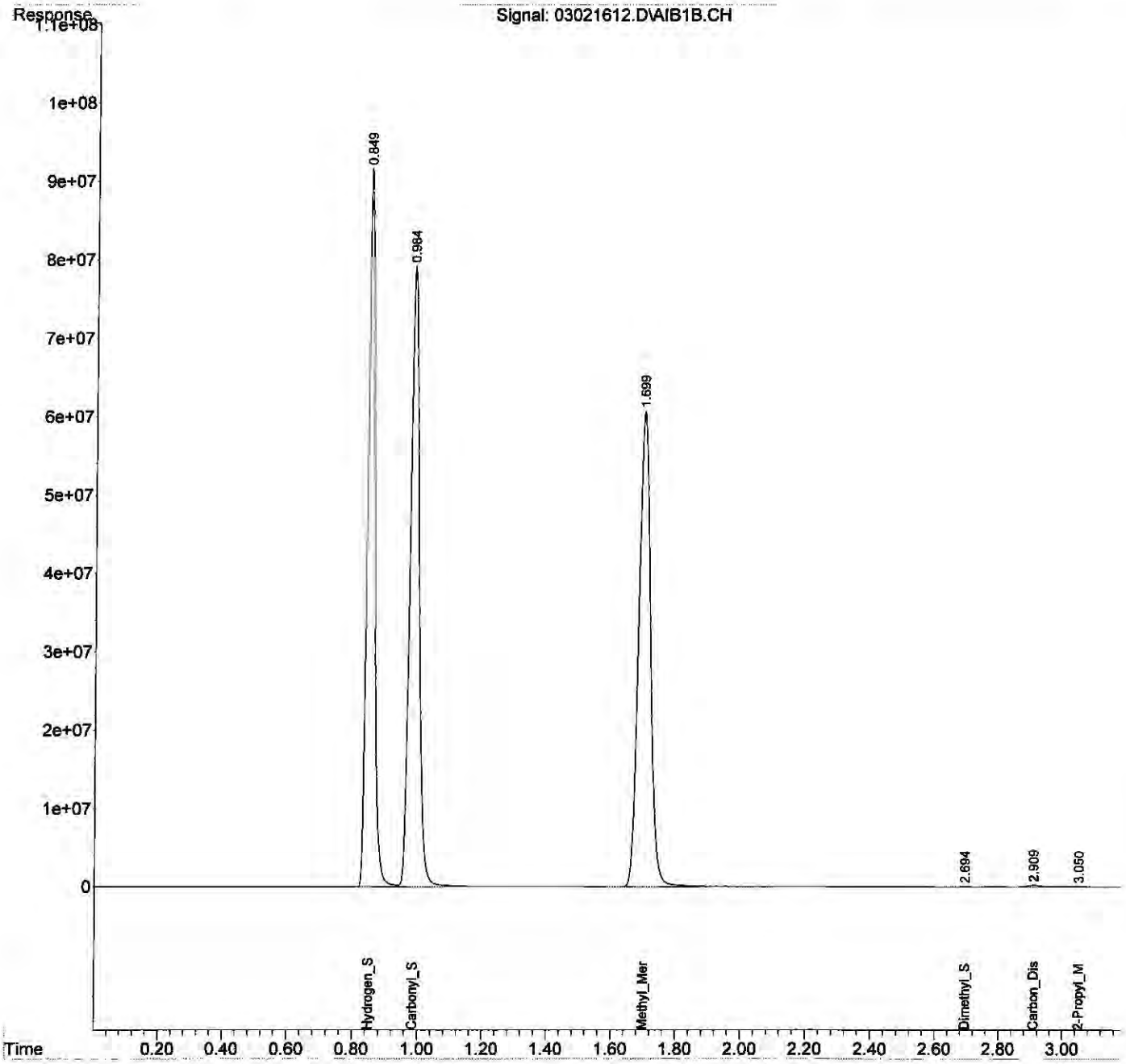
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_03\02\
Data File : 03021612.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:04 pm
Operator : MC
Sample : 25ppm S30-11031401 25ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:09:09 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:07:47 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_03\02\
Data File : 03021613.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:08 pm
Operator : MC
Sample : 50ppm S30-11031401 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:14:19 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:12:30 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.849 | 2900163145 | 45384.439 | ppb | |
| 2) | W | Carbonyl_Sulfide | 0.984 | 3226410061 | 45433.908 | ppb | |
| 3) | T | Methyl_Mercaptan | 1.700 | 3408294607 | 51230.307 | ppb | |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | d |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb | d |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

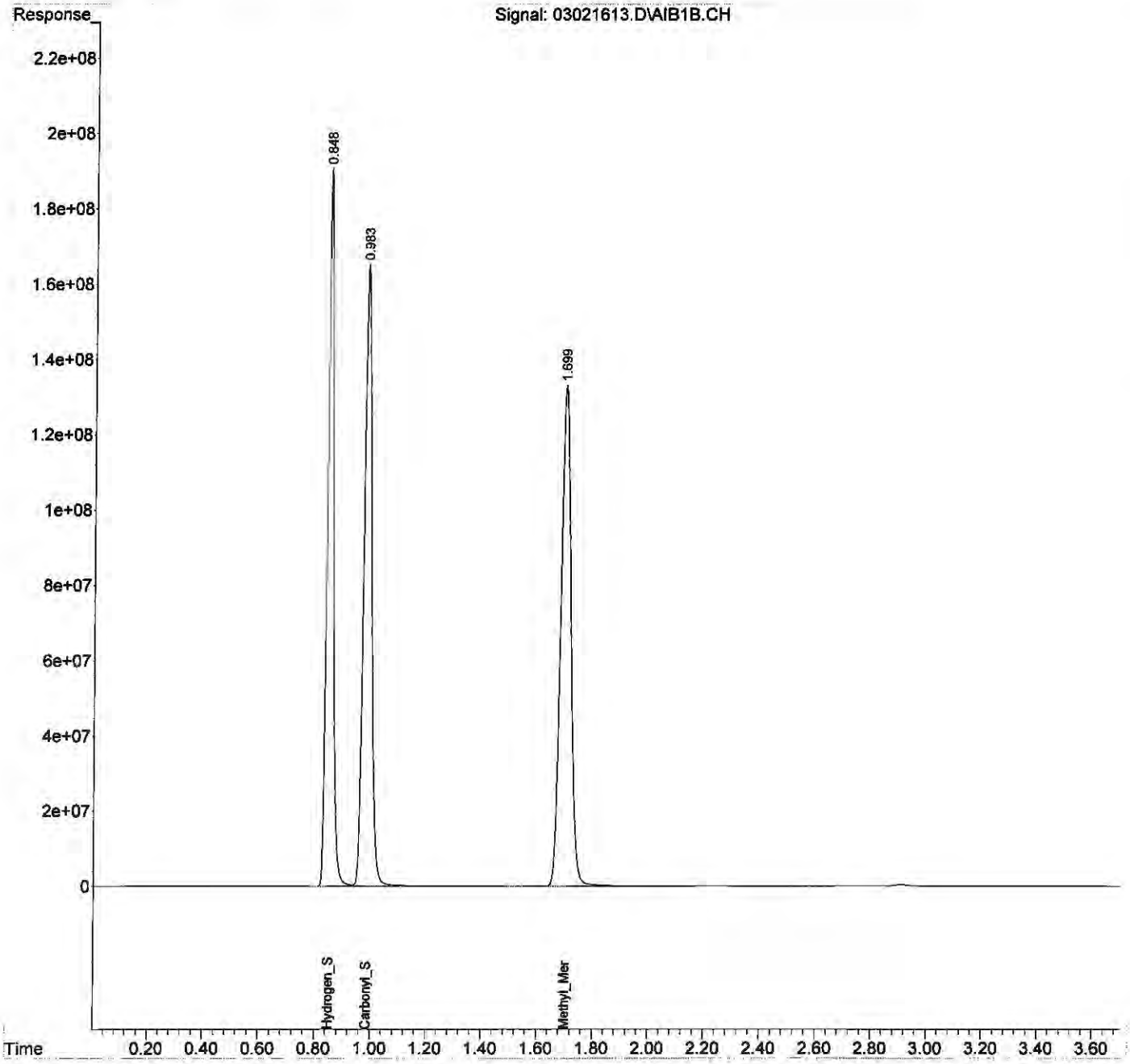
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_03\02\
Data File : 03021613.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:08 pm
Operator : MC
Sample : 50ppm S30-11031401 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:14:19 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:12:30 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_03\02\
Data File : 03021614.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:13 pm
Operator : MC
Sample : 100ppm S30-11031401 100ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:20:21 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:17:56 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.846 | 6028372249 | 95216.507 | ppb | |
| 2) | W | Carbonyl_Sulfide | 0.981 | 6681756266 | 94958.849 | ppb | |
| 3) | T | Methyl_Mercaptan | 1.698 | 7083203074 | 106206.771 | ppb | |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | d |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | d |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb | d |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | d |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | d |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | d |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | d |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

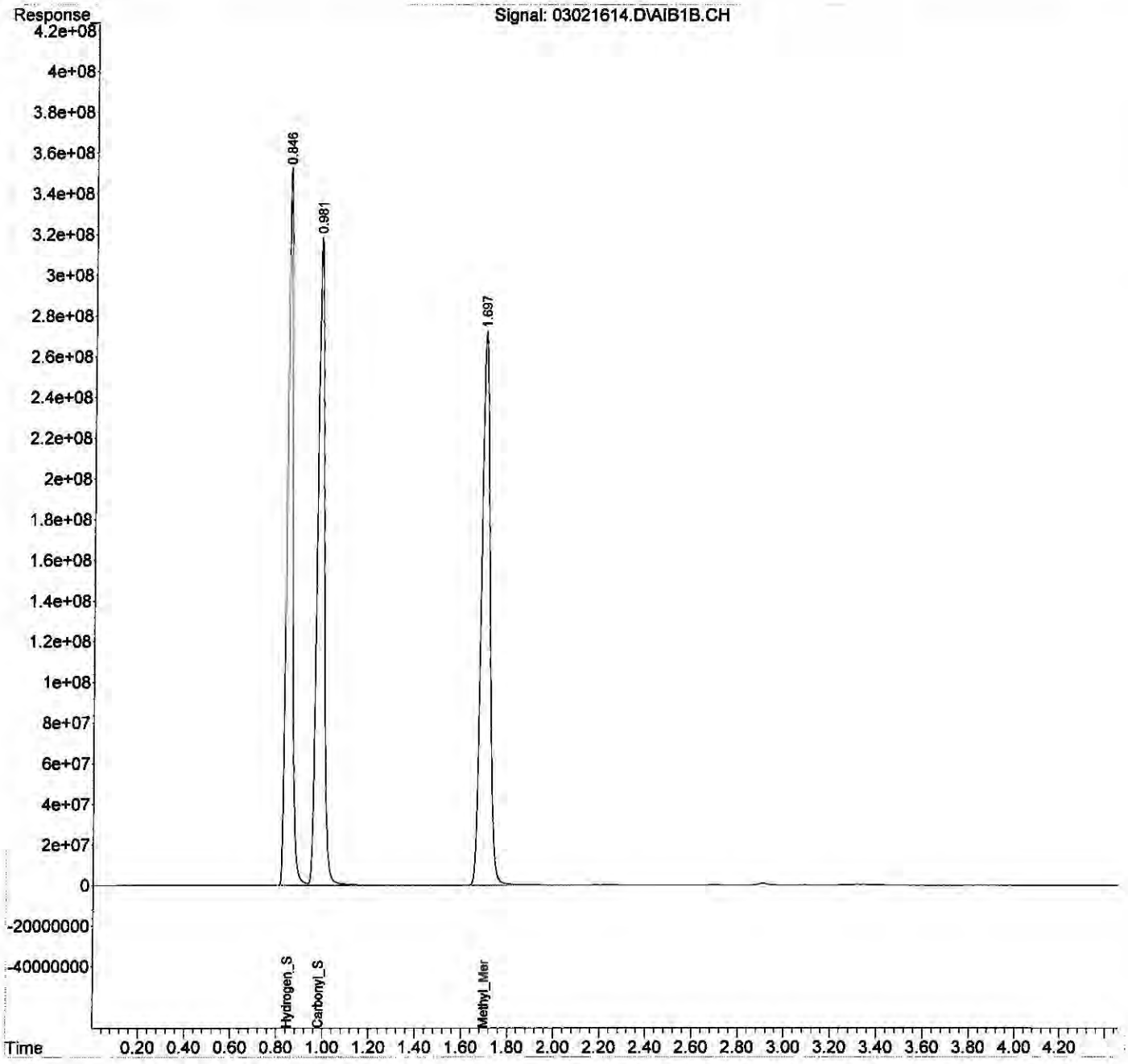
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_03\02\
Data File : 03021614.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:13 pm
Operator : MC
Sample : 100ppm S30-11031401 100ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:20:21 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:17:56 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021615.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:19 pm
Operator : MC
Sample : RT
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:36:15 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.848 | 126924093 | 2013.488 | ppb |
| 2) | W | Carbonyl_Sulfide | 0.984 | 87210398 | 1245.111 | ppb |
| 3) | T | Methyl_Mercaptan | 1.699 | 102751642 | 1532.031 | ppb |
| 4) | T | Ethyl_Mercaptan | 2.515 | 108203445 | 1613.318 | ppb |
| 5) | T | Dimethyl_Sulfide | 2.694 | 109139117 | 1627.269 | ppb |
| 6) | T | Carbon_Disulfide | 2.907 | 98408921 | 1467.281 | ppb |
| 7) | T | 2-Propyl_Mercaptan | 3.118 | 106586789 | 1589.214 | ppb |
| 8) | T | t-Butyl_Mercaptan | 3.603 | 184963068 | 2757.807 | ppb |
| 9) | T | Propyl_Mercaptan | 3.773 | 105570874 | 1574.066 | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 3.850 | 115614352 | 1723.815 | ppb |
| 11) | T | Thiophene | 4.672 | 103435859 | 1542.233 | ppb |
| 12) | T | i-Butyl_Mercaptan | 4.819 | 105396675 | 1571.469 | ppb |
| 13) | T | Diethyl_Sulfide | 5.181 | 104879434 | 1563.757 | ppb |
| 14) | t | n-Butyl_Mercaptan | 5.388 | 90781991 | 1353.563 | ppb |
| 15) | t | Dimethyl_Disulfide | 5.893 | 43091567 | 642.497 | ppb |
| 16) | T | 2-Methyl_Thiophene | 6.437 | 99140705 | 1478.192 | ppb |
| 17) | t | 3-Methyl_Thiophene | 6.565 | 104393401 | 1556.510 | ppb |
| 18) | T | Tetrahydrothiophene | 7.008 | 102172387 | 1523.395 | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 8.152 | 86643711 | 1291.861 | ppb |
| 20) | T | 2-Ethyl_Thiophene | 8.242 | 101961782 | 1520.255 | ppb |
| 21) | T | Diethyl_Disulfide | 9.133 | 55832635 | 832.467 | ppb |
| 22) | T | Methyltrisulfide | 9.816 | 3148495 | 46.944 | ppb |

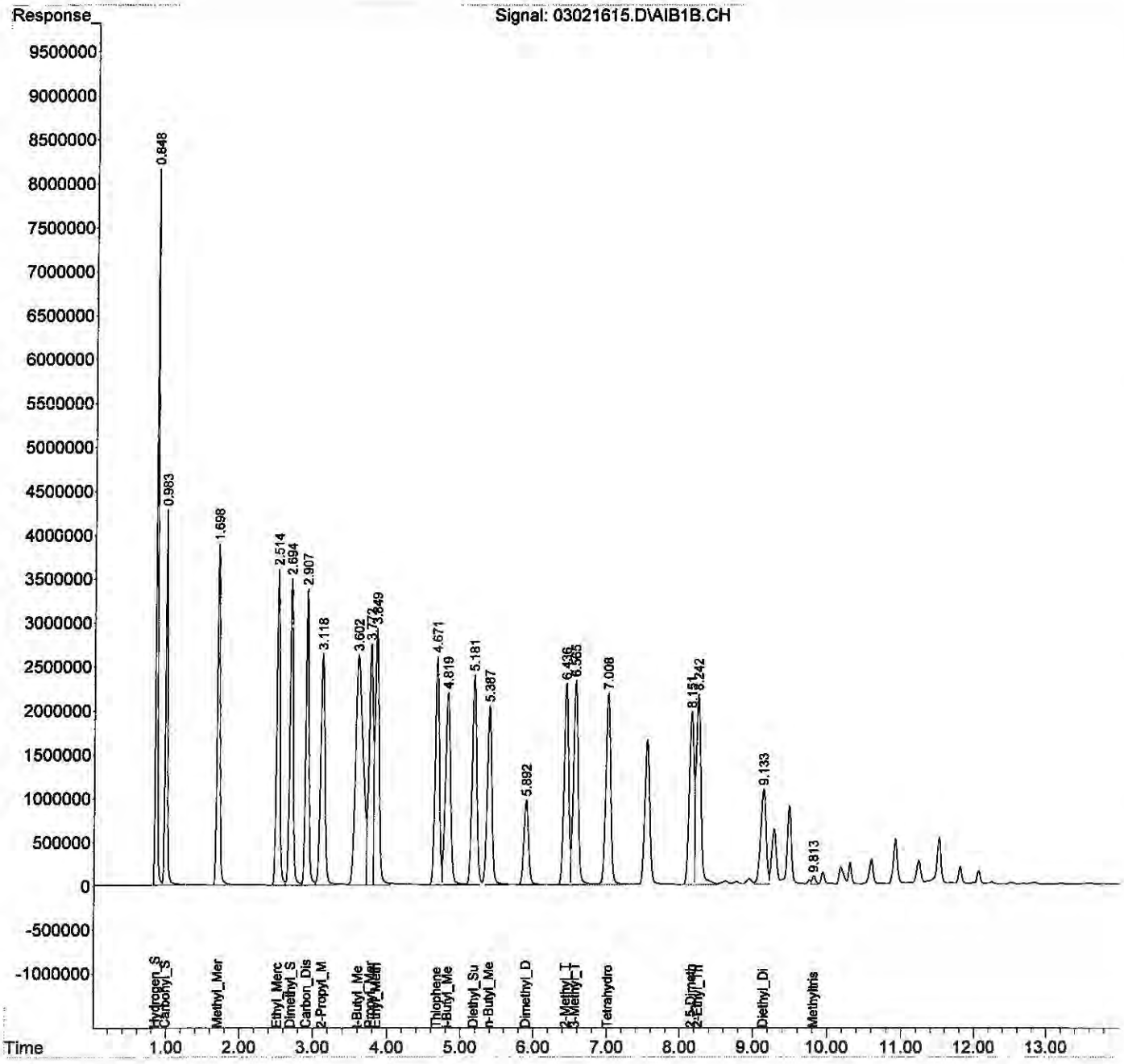
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021615.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:19 pm
Operator : MC
Sample : RT
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:36:15 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021616.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:38 pm
Operator : MC
Sample : ICV S30-02241602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:43:52 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | %R |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.849 | 69423216 | 1101.310 | ppb | 110.14% |
| 2) | W | Carbonyl_Sulfide | 0.985 | 75695693 | 1080.714 | ppb | 108.08% |
| 3) | T | Methyl_Mercaptan | 1.706 | 73290985 | 1092.772 | ppb | 109.27% |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

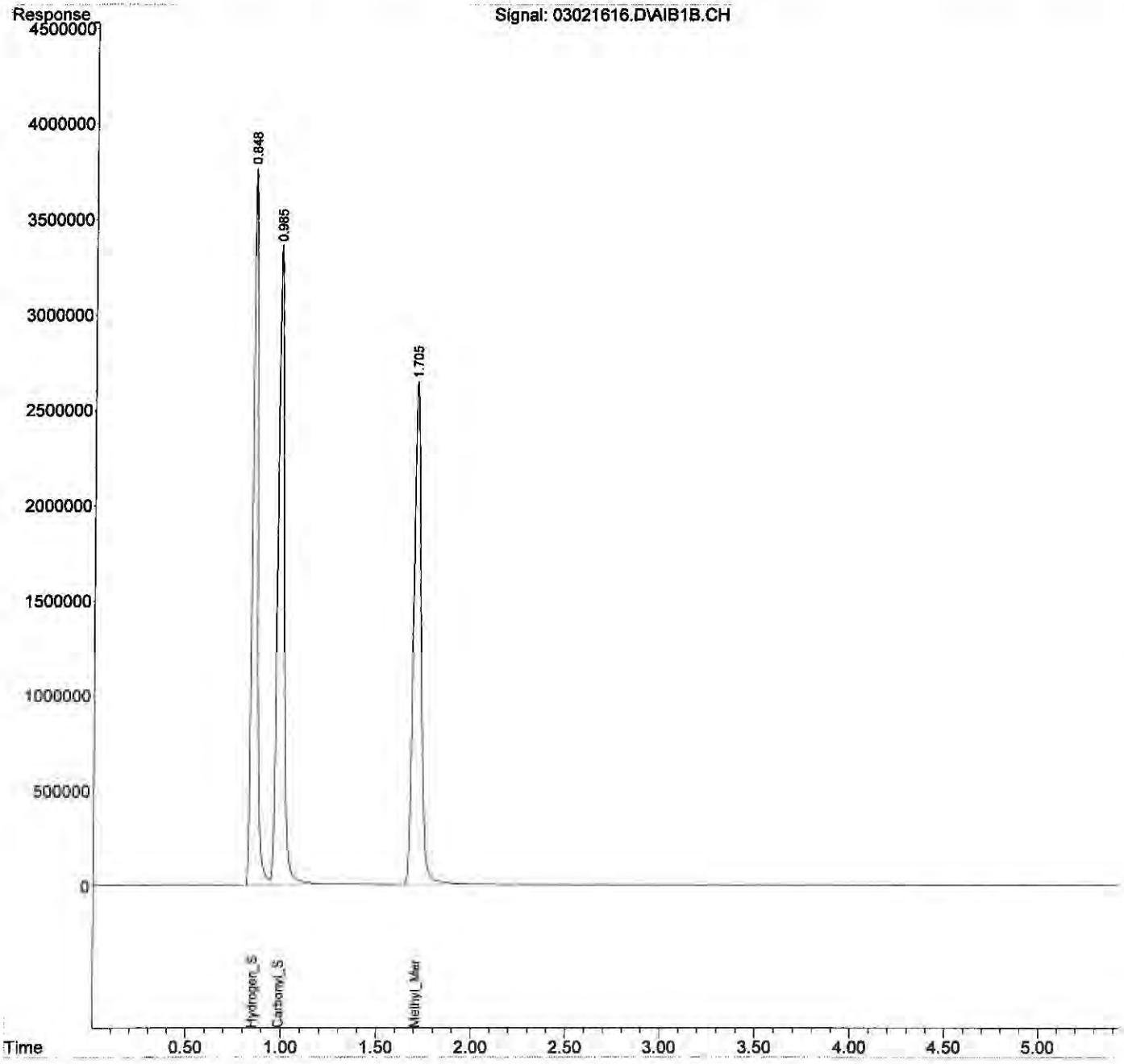
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021616.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:38 pm
Operator : MC
Sample : ICV S30-02241602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:43:52 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



# ALS Environmental

## REPORT SUMMARY

**Method :** ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
**Client :** GHD Services
**Analyst :** MC

Service Request : P1604037
Instrument : GC13
Date Acquired : 8/17/16

| Compounds | MDL | RL | MB QC | | Dry Wall QC | | Lab Dup | | | Continuing Calibration Standards Summary (ppbv) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MB | | | | | | %RSD | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff |
| **Sample Information :** | ppb | ppb | mb 1ml | | | | 0 | 0 | | std s30-08031601 | | std s30-08031601 | | std s30-08031601 | | std s30-08031601 | | | | | | | |
| Inj. Vol. (ml) | 1.0 | 1.0 | 1.00 | | 1.0 | 1.0 | 1.0 | 1.0 | | 0.10 | | 0.10 | | 0.10 | | 0.10 | | 0.10 | | 0.10 | | 0.10 | |
| Dilution | 1.0 | 1.0 | 1.00 | | 1.0 | 1.0 | 1.0 | 1.0 | | | | | | | | | | | | | | | |
| PI: | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | | | | | | | | | | | | | | |
| PI: | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | | | | | | | | | | | | | | |
| PIPf DF: | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | | | | | | | | | | | | | | |
| Hydrogen_Sulfide | 1.900 | 5.000 | ND | P | | | | | | 843.78 | 16.5% | 611.283 | 19.7% | 832.708 | 17.6% | 1324.455 | 31.1% | | | | | | |
| Carbonyl_Sulfide | 1.700 | 5.000 | ND | P | | | | | | 802.99 | 19.7% | 799.323 | 20.1% | 851.917 | 14.8% | 1371.059 | 37.1% | | | | | | |
| Methyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | 776.03 | 22.4% | 784.825 | 21.5% | 847.344 | 15.3% | 1324.484 | 32.4% | | | | | | |
| Ethyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Dimethyl_Sulfide | 1.200 | 5.000 | ND | P | | | | | | 8:26 AM | | 9:46 AM | | 12:49 PM | | 5:00 PM | | | | | | | |
| Carbon_Disulfide | 0.600 | 2.500 | ND | P | | | | | | 08171602.D | | 08171608.D | | 08171618.D | | 08171625.D | | | | | | | |
| 2-Propyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| t-Butyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Propyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Ethyl_Methyl_Sulfide | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Thiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| i-Butyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Diethyl_Sulfide | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| n-Butyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Dimethyl_Disulfide | 0.600 | 2.500 | ND | P | | | | | | | | | | | | | | | | | | | |
| 2-Methylthiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| 3-Methylthiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Tetrahydrothiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| 2,5-Dimethylthiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| 2-Ethylthiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Diethyl_Disulfide | 0.600 | 2.500 | ND | P | | | | | | | | | | | | | | | | | | | |
| Methyltrisulfide | 0.600 | 2.500 | ND | P | | | | | | | | | | | | | | | | | | | |
| Acqisition Time | | | 9:09 AM | | | | | | | | | | | | | | | | | | | | |
| DataFile | | | 08171606.D | | | | | | | | | | | | | | | | | | | | |

### LCS / LCS Dup Summary (ppbv)

| | ppbv | %R | | ppbv | % R | %RPD | Actual |
|---|---|---|---|---|---|---|---|
| Hydrogen_Sulfide | 1106.89 | 110.7% | | | | | 1000.00 |
| Carbonyl_Sulfide | 1091.66 | 109.2% | | | | | 1000.00 |
| Methyl_Mercaptan | 1077.97 | 107.8% | | | | | 1000.00 |
| Acqisition Time | 8:29 AM | | | | | | |
| DataFile | 08171603.D | | | | | | |

8/19/16

8/19/16

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171602.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 8:26 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 08:28:57 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 0.847 | 52708495 | 843.780 | ppb |
| 2) W | Carbonyl_Sulfide | 0.980 | 56243214 | 802.989 | ppb |
| 3) T | Methyl_Mercaptan | 1.688 | 52047129 | 776.025 | ppb |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

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

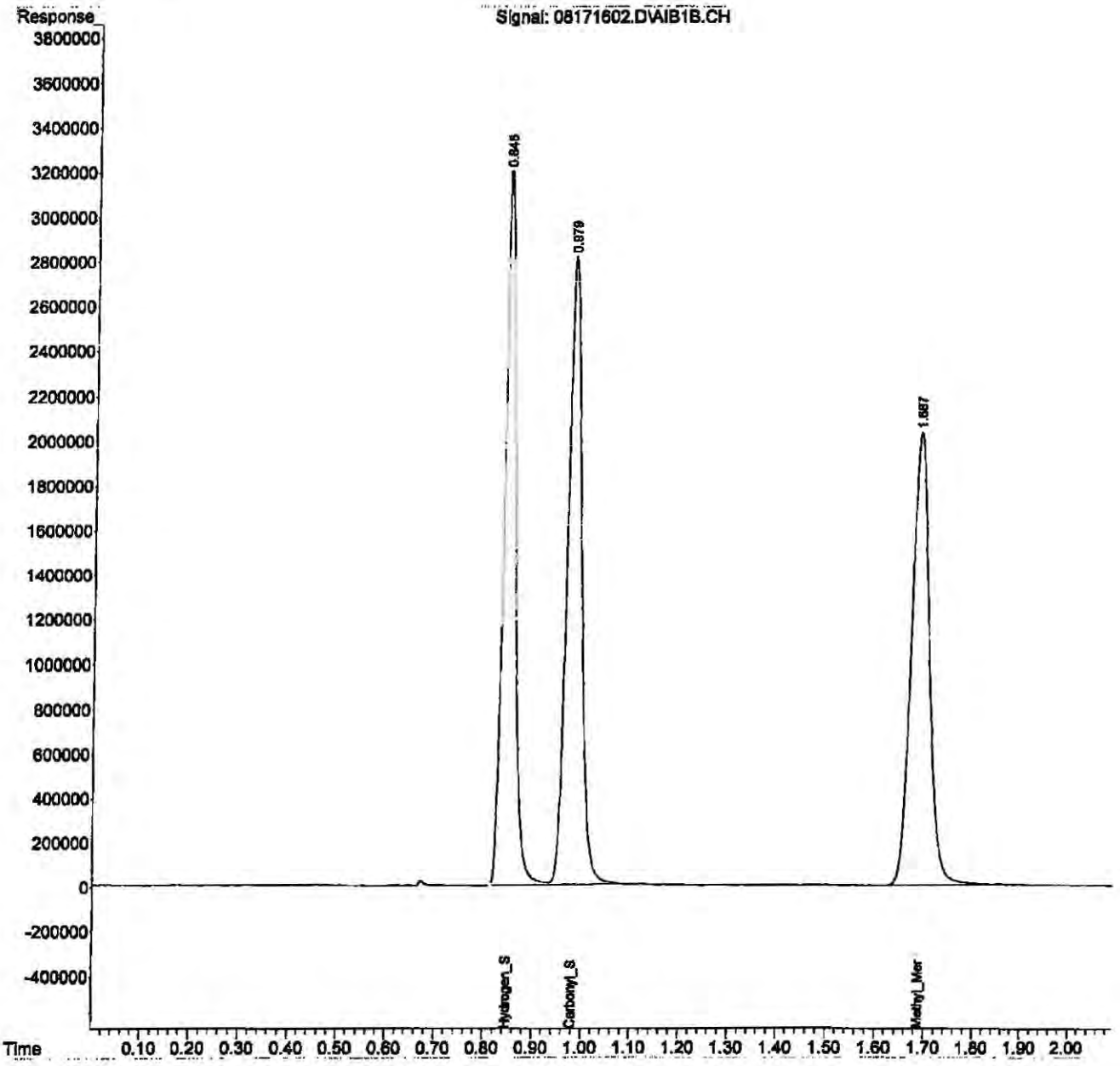
8/18/16

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171602.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 8:26 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 08:28:57 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171608.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 9:46 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 09:54:15 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 0.847 | 50678462 | 811.283 | ppb |
| 2) W | Carbonyl_Sulfide | 0.980 | 55986406 | 799.323 | ppb |
| 3) T | Methyl_Mercaptan | 1.689 | 52637352 | 784.825 | ppb |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) T | Carbon_Disulfide | 2.882 | 216684 | 1.615 | ppb |
| 7) T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) t | Dimethyl_Disulfide | 5.877 | 381780 | 2.846 | ppb |
| 16) T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

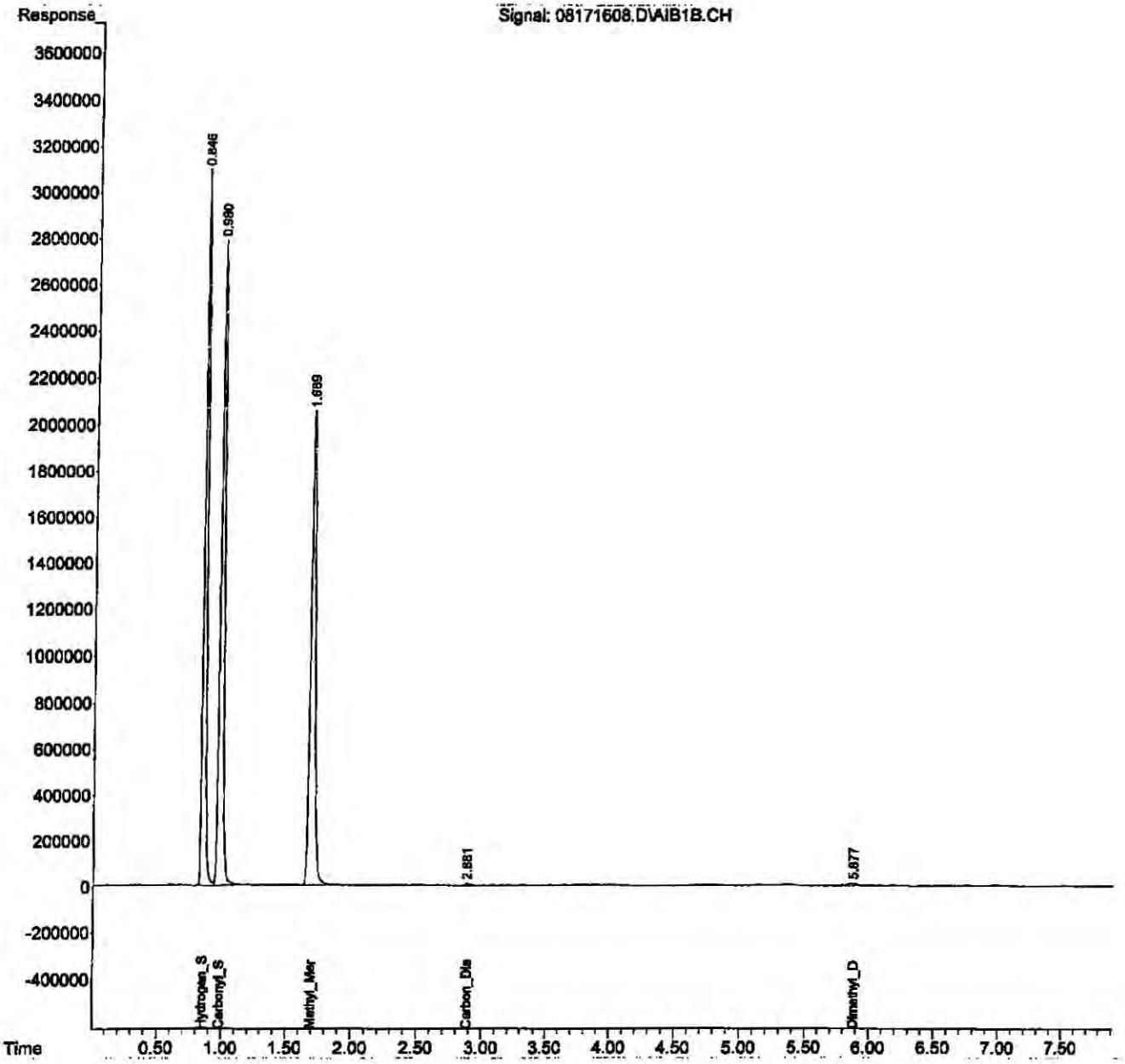
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171608.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 9:46 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 09:54:15 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171618.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 12:49 pm
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 12:51:26 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 0.842 | 52016800 | 832.708 | ppb |
| 2) W | Carbonyl_Sulfide | 0.975 | 59670242 | 851.917 | ppb |
| 3) T | Methyl_Mercaptan | 1.686 | 56830421 | 847.344 | ppb |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

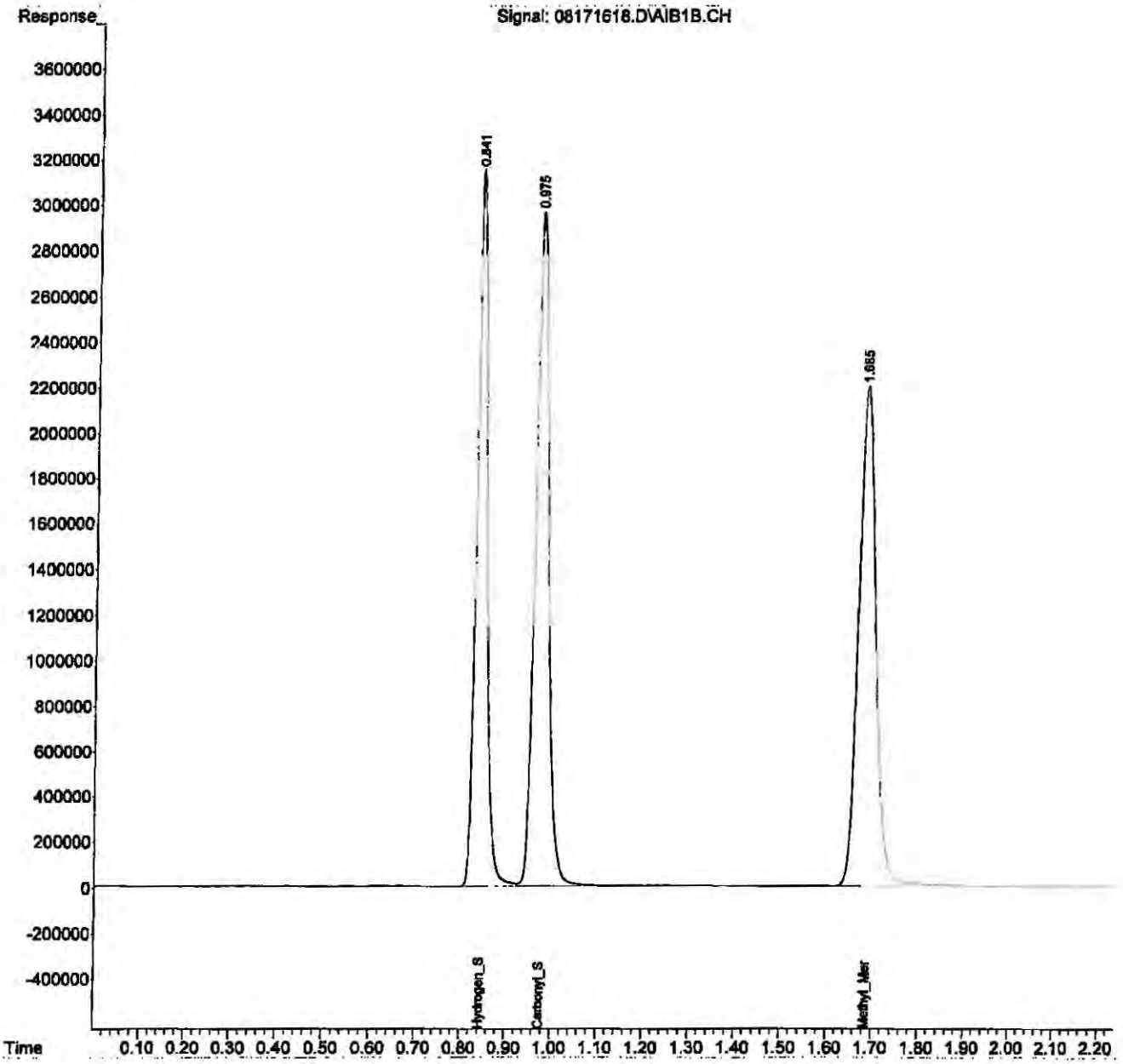
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171618.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 12:49 pm
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 12:51:26 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171626.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 5:05 pm
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 09:27:51 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.847 | 67824985 | 1085.772 | ppb |
| 2) | W | Carbonyl_Sulfide | 0.980 | 77644756 | 1108.541 | ppb |
| 3) | T | Methyl_Mercaptan | 1.687 | 71942152 | 1072.661 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

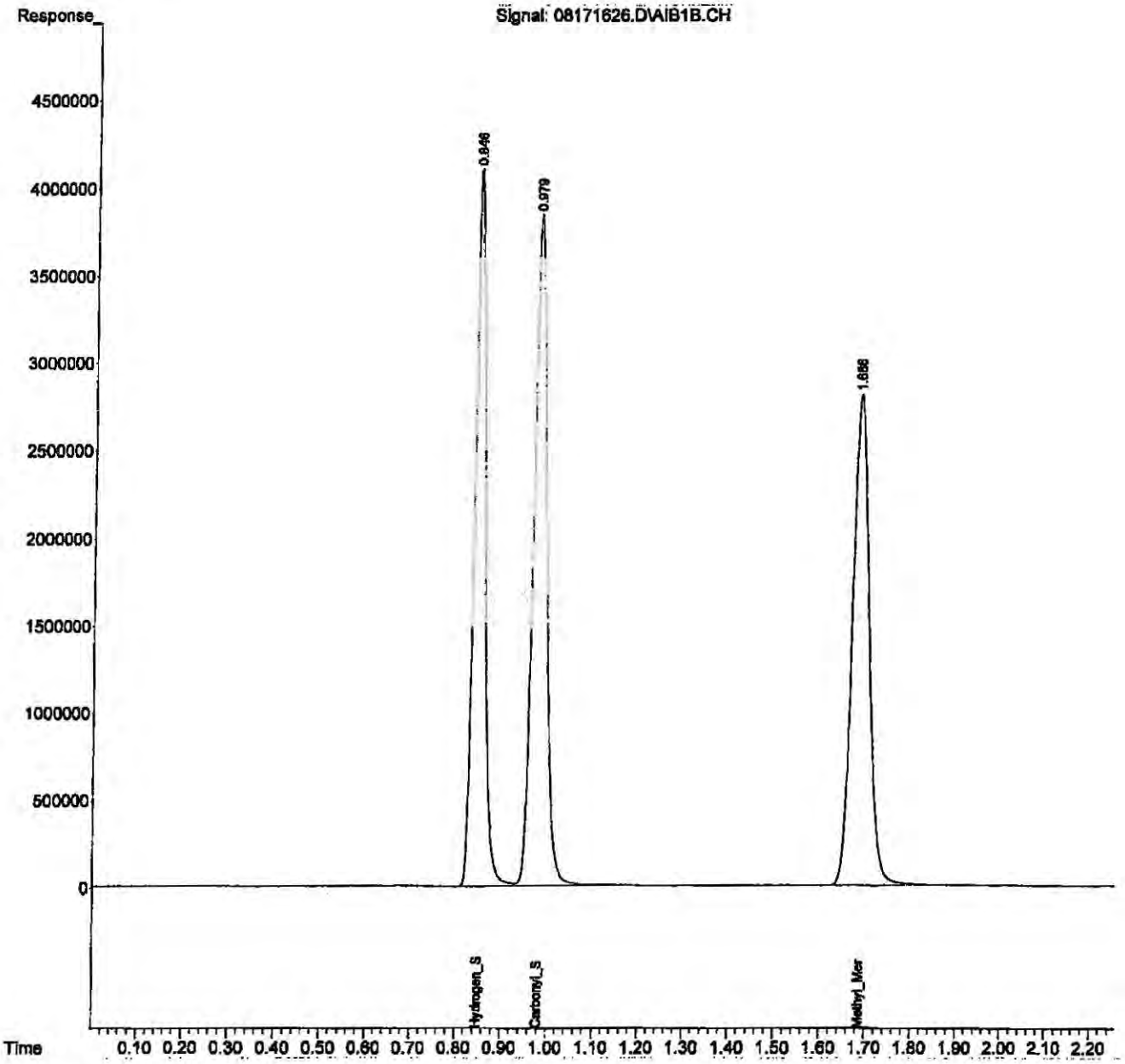
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\17\
Data File : 08171626.D
Signal(s) : AIB1B.CH
Acq On : 17 Aug 2016 5:05 pm
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 09:27:51 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



# ALS Environmental

## REPORT SUMMARY

**Method :** ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
**Client :** GHD Services
**Analyst :** MC

Service Request : P1604037
Instrument : GC #22
Date Acquired : 8/17/16

| Compounds | MDL | RL | MB QC | | Dry Wall QC | | Lab Dup | | | Continuing Calibration Standards Summary (ppbv) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MB | | | | | dup | %RSD | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff |
| **Sample Information :** | ppb | ppb | mb 1ml | | | | 0 | 0 | | std s30-08031601 | | std s30-08031601 | | std s30-08031601 | | std s30-08031601 | | | | | | | |
| Inj. Vol. (ml) | 1.0 | 1.0 | 1.00 | | 1.0 | 1.0 | 1.0 | 1.0 | | 0.10 | | 0.10 | | 0.10 | | 0.10 | | 0.10 | | 0.10 | | 0.10 | |
| Dilution | 1.0 | 1.0 | 1.00 | | 1.0 | 1.0 | 1.0 | 1.0 | | | | | | | | | | | | | | | |
| PI: | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | | | | | | | | | | | | | | |
| PI: | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | | | | | | | | | | | | | | |
| PiPf DF: | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | | | | | | | | | | | | | | |
| Hydrogen_Sulfide | 1.900 | 5.000 | ND | P | | | | | | 789.44 | 21.8% | 987.999 | 2.2% | 1071.387 | 6.1% | 1184.421 | 17.3% | | | | | | |
| Carbonyl_Sulfide | 1.700 | 5.000 | ND | P | | | | | | 800.56 | 19.9% | 1026.473 | 2.6% | 1140.110 | 14.0% | 1243.268 | 24.3% | | | | | | |
| Methyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | 801.74 | 19.8% | 1002.486 | 0.2% | 1100.507 | 10.1% | 1220.784 | 22.1% | | | | | | |
| Ethyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Dimethyl_Sulfide | 1.200 | 5.000 | ND | P | | | | | | 7:44 AM | | 9:06 AM | | 11:36 AM | | 5:09 PM | | | | | | | |
| Carbon_Disulfide | 0.600 | 2.500 | ND | P | | | | | | 08171602.d | | 08171609.d | | 08171617.d | | 08171625.d | | | | | | | |
| 2-Propyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| t-Butyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Propyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Ethyl_Methyl_Sulfide | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Thiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| i-Butyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Diethyl_Sulfide | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| n-Butyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Dimethyl_Disulfide | 0.600 | 2.500 | ND | P | | | | | | | | | | | | | | | | | | | |
| 2-Methylthiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| 3-Methylthiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Tetrahydrothiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| 2,5-Dimethylthiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| 2-Ethylthiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | | | |
| Diethyl_Disulfide | 0.600 | 2.500 | ND | P | | | | | | | | | | | | | | | | | | | |
| Methyltrisulfide | 0.600 | 2.500 | ND | P | | | | | | | | | | | | | | | | | | | |
| Acqisition Time | | | 8:12 AM | | | | | | | | | | | | | | | | | | | | |
| DataFile | | | 08171606.d | | | | | | | | | | | | | | | | | | | | |

### LCS / LCS Dup Summary (ppbv)

| | ppbv | %R | | ppbv | %R | %RPD | Actual |
|---|---|---|---|---|---|---|---|
| Hydrogen_Sulfide | 874.35 | 87.4% | | | | | 1000.00 |
| Carbonyl_Sulfide | 911.24 | 91.1% | | | | | 1000.00 |
| Methyl_Mercaptan | 894.05 | 89.4% | | | | | 1000.00 |
| Acqisition Time | 7:48 AM | | | | | | |
| DataFile | 08171603.d | | | | | | |

8/19/16

8/19/16

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171602.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 7:44 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 07:48:04 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 1.194 | 32556863 | 789.443 | ppb |
| 2) | W | Carbonyl_Sulfide | 1.372 | 35555256 | 800.555 | ppb |
| 3) | T | Methyl_Mercaptan | 2.190 | 33391601 | 801.739 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

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

8/19/16

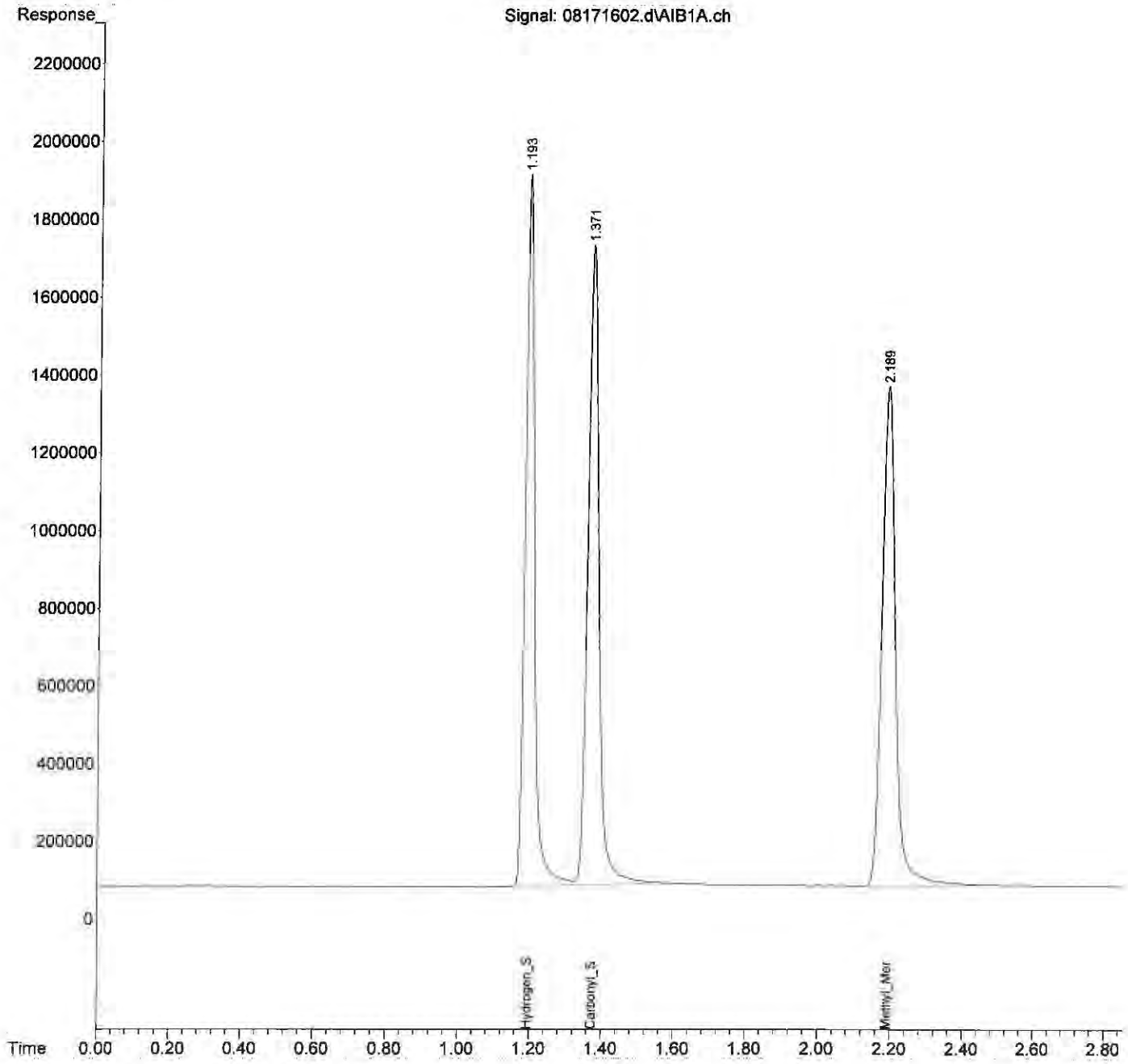
8/19/16

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171602.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 7:44 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 07:48:04 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171607.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 8:30 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 08:47:31 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 1.183 | 36522293 | 885.597 | ppb |
| 2) | W | Carbonyl_Sulfide | 1.360 | 41321753 | 930.392 | ppb |
| 3) | T | Methyl_Mercaptan | 2.176 | 37916816 | 910.391 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | T | Dimethyl_Disulfide | 6.418 | 423009 | 5.078 | ppb |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

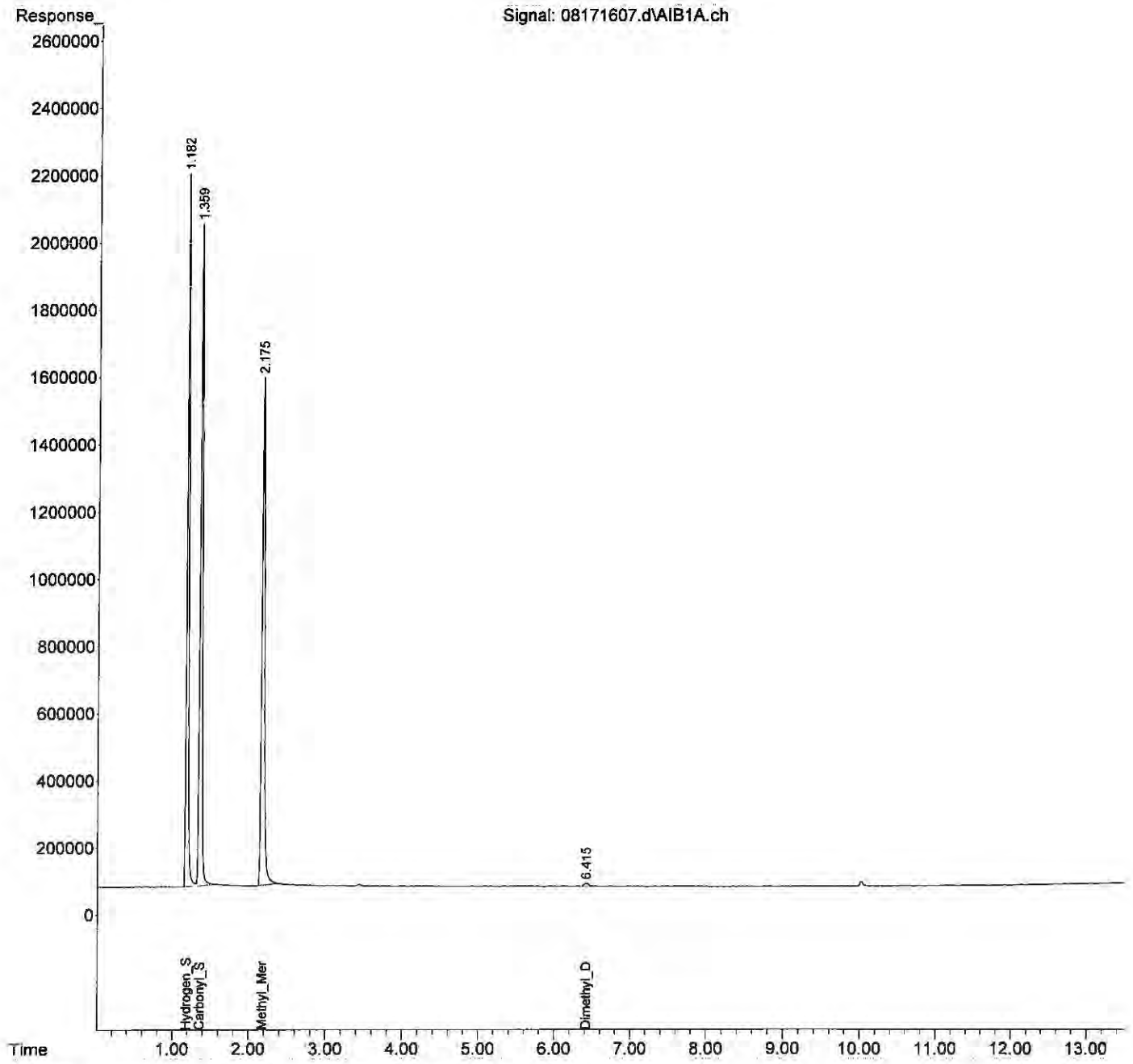
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171607.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 8:30 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 08:47:31 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171609.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 9:06 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 11:54:32 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

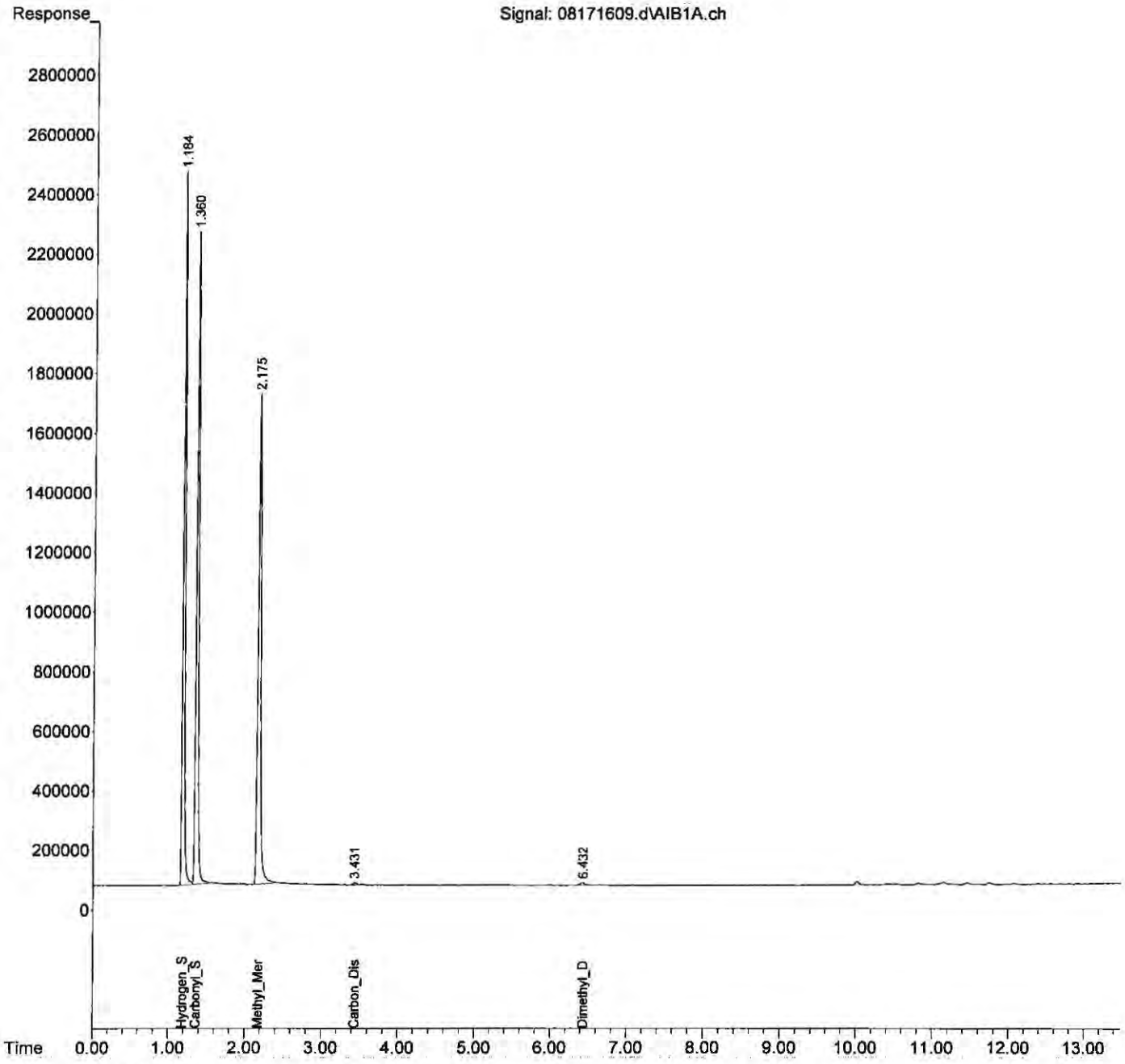
| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 1.185 | 40745393 | 987.999 | ppb |
| 2) | W | Carbonyl_Sulfide | 1.361 | 45589041 | 1026.473 | ppb |
| 3) | T | Methyl_Mercaptan | 2.176 | 41752501 | 1002.486 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 3.432 | 272191 | 3.268 | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | T | Dimethyl_Disulfide | 6.433 | 370104 | 4.443 | ppb |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

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

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171609.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 9:06 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 11:54:32 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171617.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 11:36 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 17 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 11:41:13 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 1.177 | 44184322 | 1071.387 | ppb |
| 2) | W | Carbonyl_Sulfide | 1.352 | 50636017 | 1140.110 | ppb |
| 3) | T | Methyl_Mercaptan | 2.166 | 45834951 | 1100.507 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 3.422 | 225666 | 2.709 | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

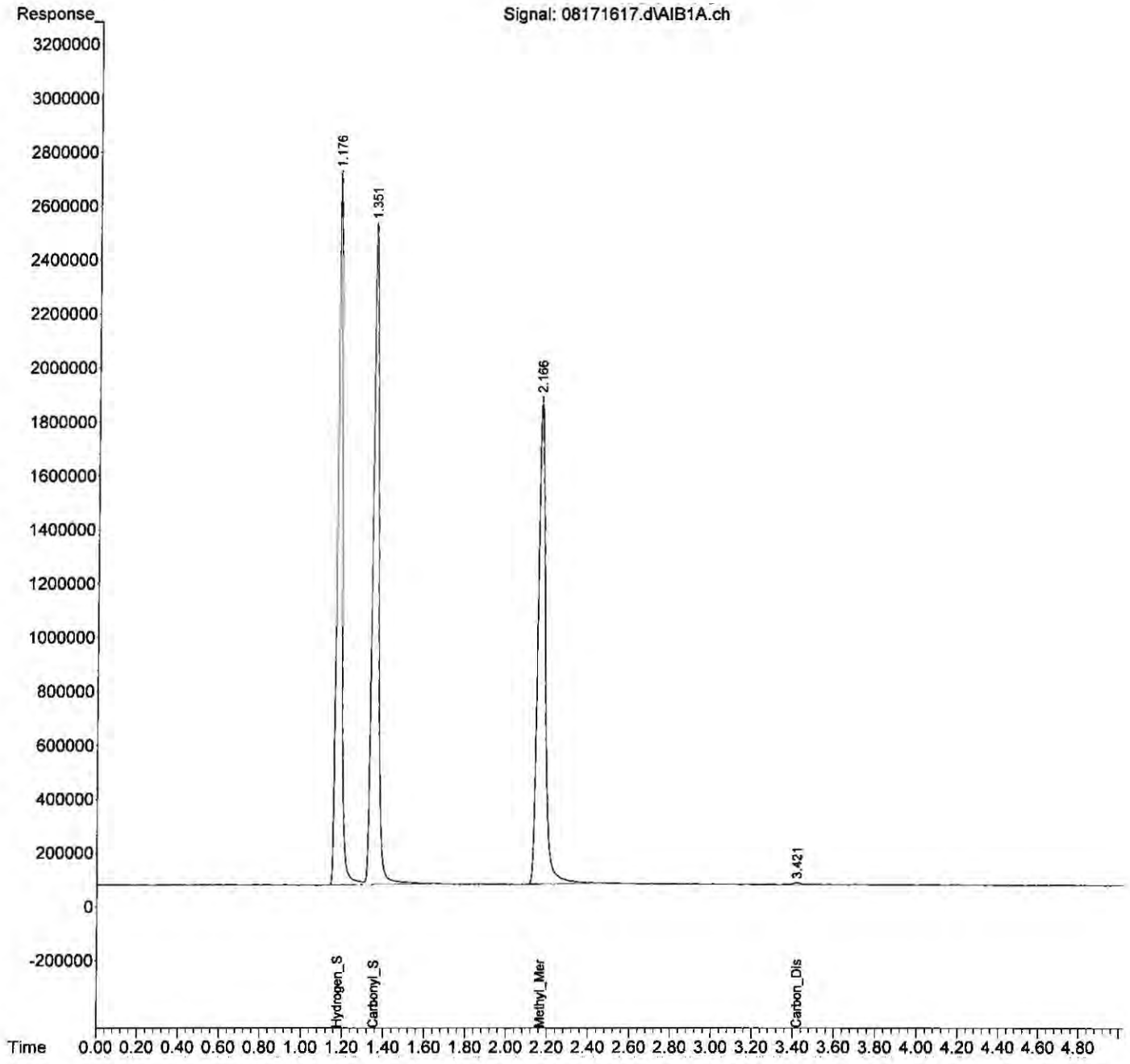
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171617.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 11:36 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 17 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 11:41:13 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171625.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 5:09 pm
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 25 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 17:11:50 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| Target Compounds | | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 1.114f | 48845888 | 1184.421 | ppb | |
| 2) | W | Carbonyl_Sulfide | 1.284f | 55217589 | 1243.268 | ppb | |
| 3) | T | Methyl_Mercaptan | 2.083f | 50844374 | 1220.784 | ppb | m |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb | |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb | |
| 14) | T | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb | |
| 15) | T | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 16) | T | 2-Methylthiophene | 0.000 | 0 | N.D. | ppb | |
| 17) | T | 3-Methylthiophene | 0.000 | 0 | N.D. | ppb | |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb | |
| 19) | T | 2,5-Dimethylthiophene | 0.000 | 0 | N.D. | ppb | |
| 20) | T | 2-Ethylthiophene | 0.000 | 0 | N.D. | ppb | |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb | |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb | |

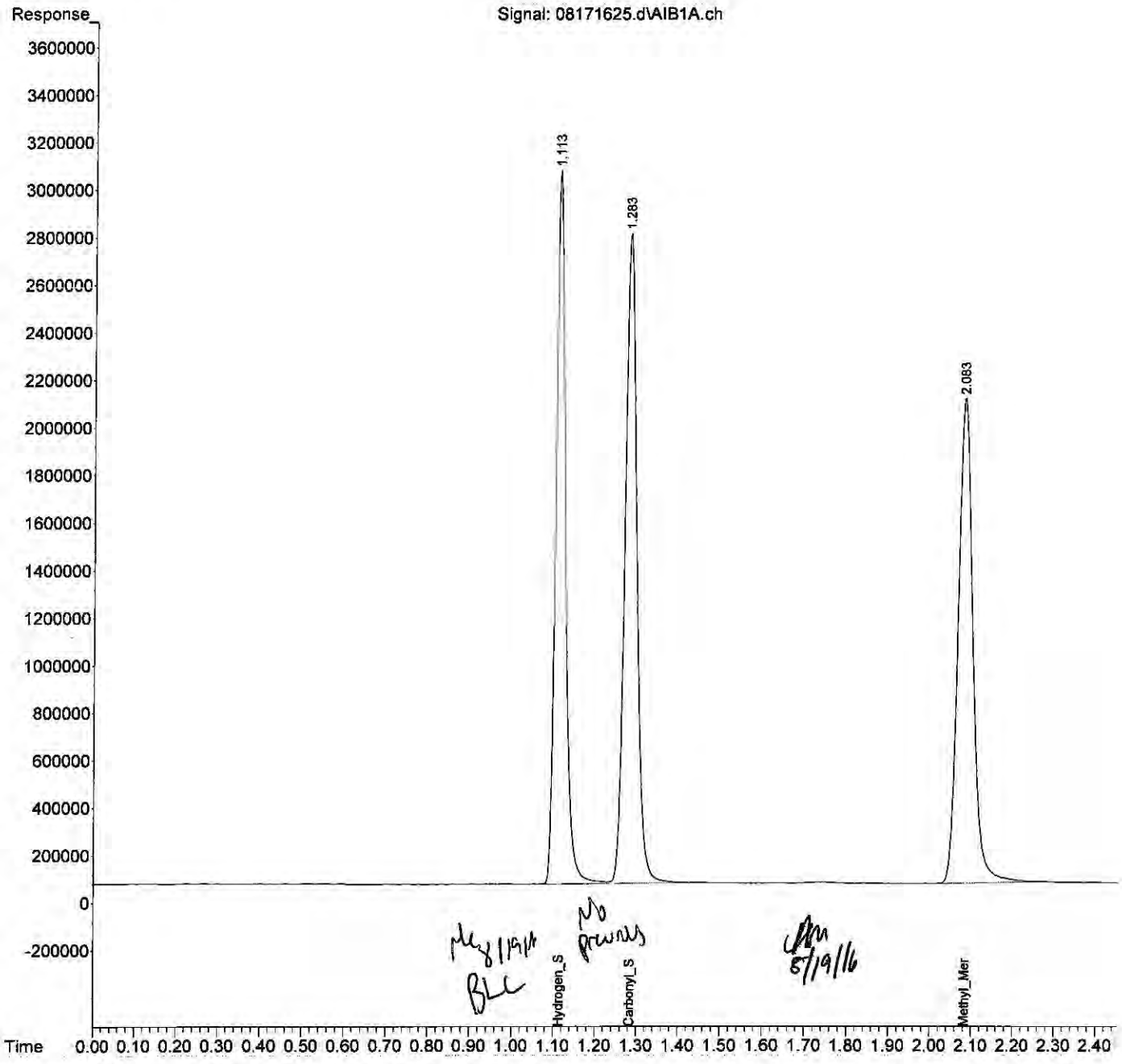
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC22\DATA\SCD\2016_08\17\
Data File : 08171625.d
Signal(s) : AIB1A.ch
Acq On : 17 Aug 2016 5:09 pm
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 25 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 17 17:11:50 2016
Quant Method : J:\GC22\METHODS\GC22_Quan 02262016.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Feb 26 14:51:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



# ALS Environmental

## REPORT SUMMARY

**Method :** ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
**Client :** GHD Services
**Analyst :** MC

Service Request : P1604037
Instrument : GC13
Date Acquired : 8/18/16

| Compounds | MDL | RL | MB QC | | Dry Wall QC | | Lab Dup | | | Continuing Calibration Standards Summary (ppbv) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MB | | | | | dup | %RSD | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff | ppbv | % Diff |
| **Sample Information :** | ppb | ppb | mb 1ml | | | | 0 | 0 | | std s30-08031601 | | std s30-08031601 | | std s30-08031601 | | | | | | | |
| Inj. Vol. (ml) | 1.0 | 1.0 | 1.00 | | 1.0 | 1.0 | 1.0 | 1.0 | | 0.10 | | 0.10 | | 0.10 | | 0.10 | | 0.10 | | 0.10 | |
| Dilution | 1.0 | 1.0 | 1.00 | | 1.0 | 1.0 | 1.0 | 1.0 | | | | | | | | | | | | | |
| PI: | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | | | | | | | | | | | | |
| PI: | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | | | | | | | | | | | | |
| PiPf DF: | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | | | | | | | | | | | | |
| Hydrogen_Sulfide | 1.900 | 5.000 | ND | P | | | | | | 1245.68 | 23.3% | 886.139 | 12.3% | 816.370 | 19.2% | | | | | | |
| Carbonyl_Sulfide | 1.700 | 5.000 | ND | P | | | | | | 1278.96 | 27.9% | 909.401 | 9.1% | 822.087 | 17.8% | | | | | | |
| Methyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | 1246.13 | 24.6% | 879.897 | 12.0% | 804.490 | 19.6% | | | | | | |
| Ethyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| Dimethyl_Sulfide | 1.200 | 5.000 | ND | P | | | | | | 8:19 AM | | 11:26 AM | | 3:22 PM | | | | | | | |
| Carbon_Disulfide | 0.600 | 2.500 | ND | P | | | | | | 08181601.D | | 08181615.D | | 08181630.D | | | | | | | |
| 2-Propyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| t-Butyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| Propyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| Ethyl_Methyl_Sulfide | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| Thiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| i-Butyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| Diethyl_Sulfide | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| n-Butyl_Mercaptan | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| Dimethyl_Disulfide | 0.600 | 2.500 | ND | P | | | | | | | | | | | | | | | | | |
| 2-Methylthiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| 3-Methylthiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| Tetrahydrothiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| 2,5-Dimethylthiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| 2-Ethylthiophene | 1.200 | 5.000 | ND | P | | | | | | | | | | | | | | | | | |
| Diethyl_Disulfide | 0.600 | 2.500 | ND | P | | | | | | | | | | | | | | | | | |
| Methyltrisulfide | 0.600 | 2.500 | ND | P | | | | | | | | | | | | | | | | | |
| Acqisition Time | | | 8:50 AM | | | | | | | | | | | | | | | | | | |
| DataFile | | | 08181605.D | | | | | | | | | | | | | | | | | | |

### LCS / LCS Dup Summary (ppbv)

| | ppbv | %R | | ppbv | %R | %RPD | Actual |
|---|---|---|---|---|---|---|---|
| Hydrogen_Sulfide | 1021.31 | 102.1% | | | | | 1000.00 |
| Carbonyl_Sulfide | 1074.04 | 107.4% | | | | | 1000.00 |
| Methyl_Mercaptan | 1022.55 | 102.3% | | | | | 1000.00 |
| Acqisition Time | 8:23 AM | | | | | | |
| DataFile | 08181602.D | | | | | | |

8/19/16 8/19/16

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181601.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 8:19 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 08:22:33 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 0.846 | 77813949 | 1245.679 | ppb |
| 2) W | Carbonyl_Sulfide | 0.980 | 89581136 | 1278.958 | ppb |
| 3) T | Methyl_Mercaptan | 1.688 | 83576467 | 1246.129 | ppb |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) T | Carbon_Disulfide | 2.889 | 300418 | 2.240 | ppb |
| 7) T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

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

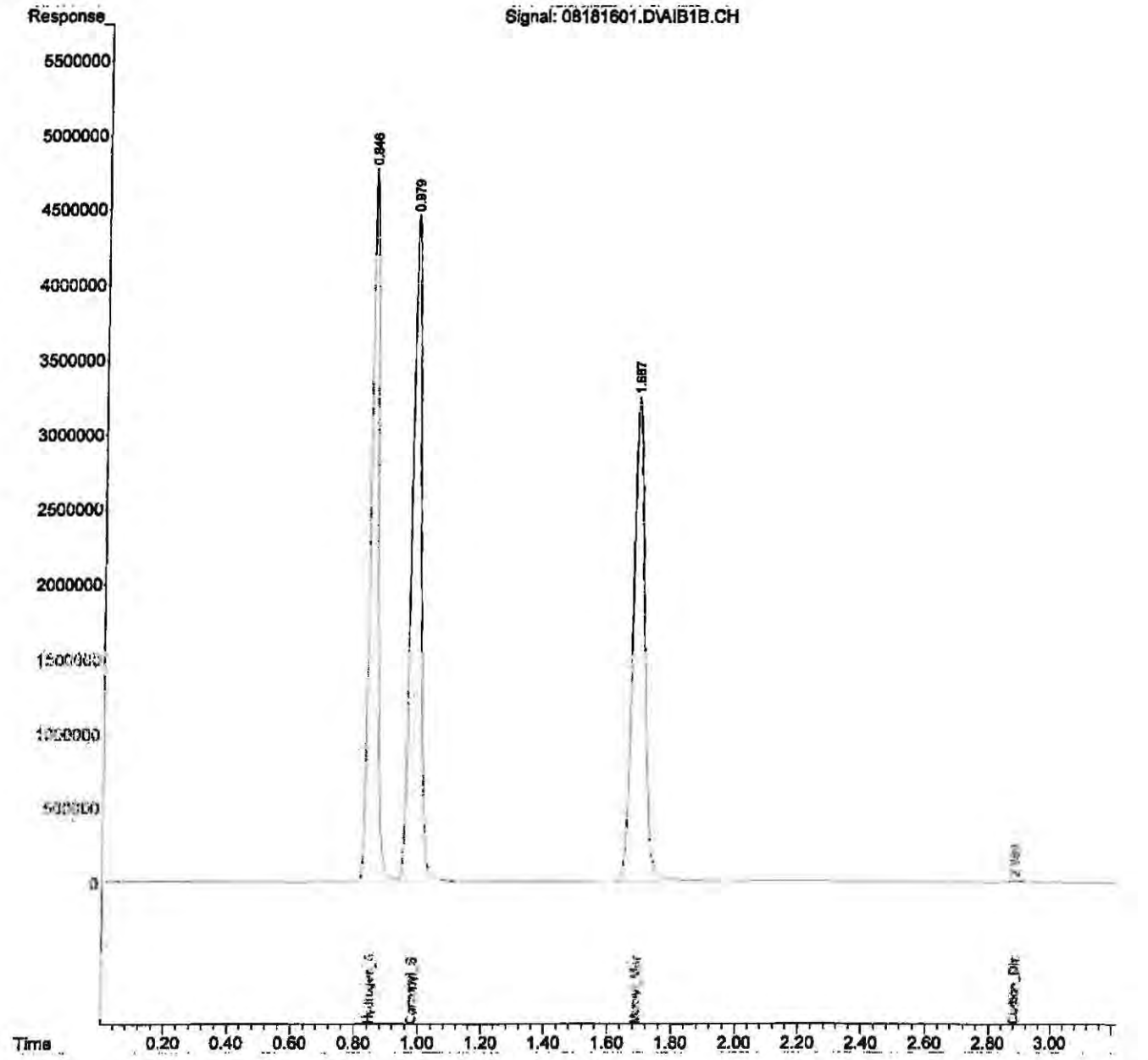
MC 8/19/16

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181601.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 8:19 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 08:22:33 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181615.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 11:26 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 11:29:02 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) Z | Hydrogen_Sulfide | 0.846 | 55354507 | 886.139 | ppb |
| 2) W | Carbonyl_Sulfide | 0.979 | 63696540 | 909.401 | ppb |
| 3) T | Methyl_Mercaptan | 1.686 | 59013739 | 879.897 | ppb |
| 4) T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

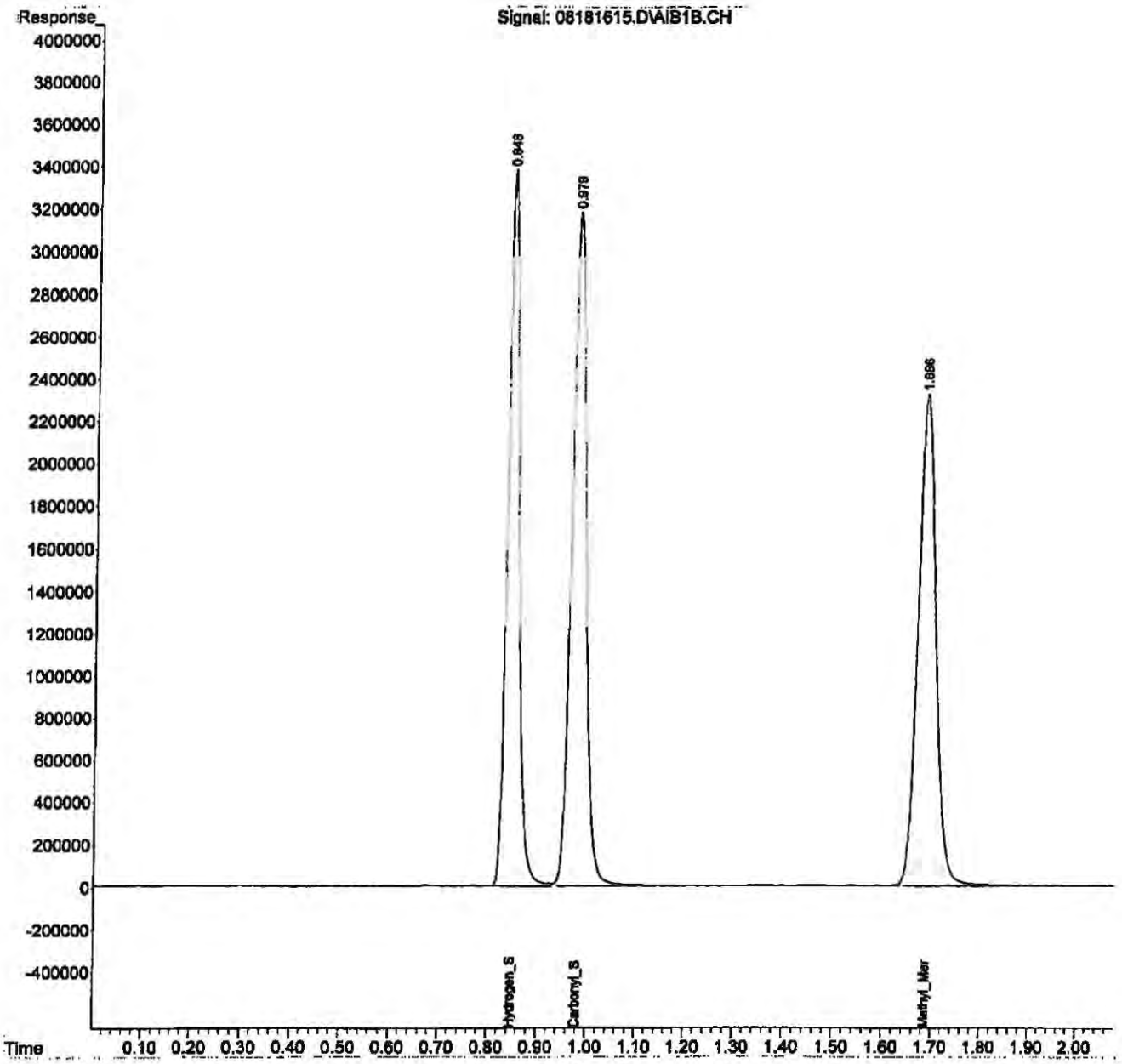
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181615.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 11:26 am
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 11:29:02 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181630.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 3:22 pm
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 15:25:08 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

| | | Compound | R.T | Response | Conc | Units |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Z | Hydrogen_Sulfide | 0.847 | 50996255 | 816.370 | ppb |
| 2) | W | Carbonyl_Sulfide | 0.981 | 57580839 | 822.087 | ppb |
| 3) | T | Methyl_Mercaptan | 1.690 | 53956267 | 804.490 | ppb |
| 4) | T | Ethyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 5) | T | Dimethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 6) | T | Carbon_Disulfide | 0.000 | 0 | N.D. | ppb |
| 7) | T | 2-Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 8) | T | t-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 9) | T | Propyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 10) | T | Ethyl_Methyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 11) | T | Thiophene | 0.000 | 0 | N.D. | ppb |
| 12) | T | i-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 13) | T | Diethyl_Sulfide | 0.000 | 0 | N.D. | ppb |
| 14) | t | n-Butyl_Mercaptan | 0.000 | 0 | N.D. | ppb |
| 15) | t | Dimethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 16) | T | 2-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 17) | t | 3-Methyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 18) | T | Tetrahydrothiophene | 0.000 | 0 | N.D. | ppb |
| 19) | t | 2,5-Dimethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 20) | T | 2-Ethyl_Thiophene | 0.000 | 0 | N.D. | ppb |
| 21) | T | Diethyl_Disulfide | 0.000 | 0 | N.D. | ppb |
| 22) | T | Methyltrisulfide | 0.000 | 0 | N.D. | ppb |

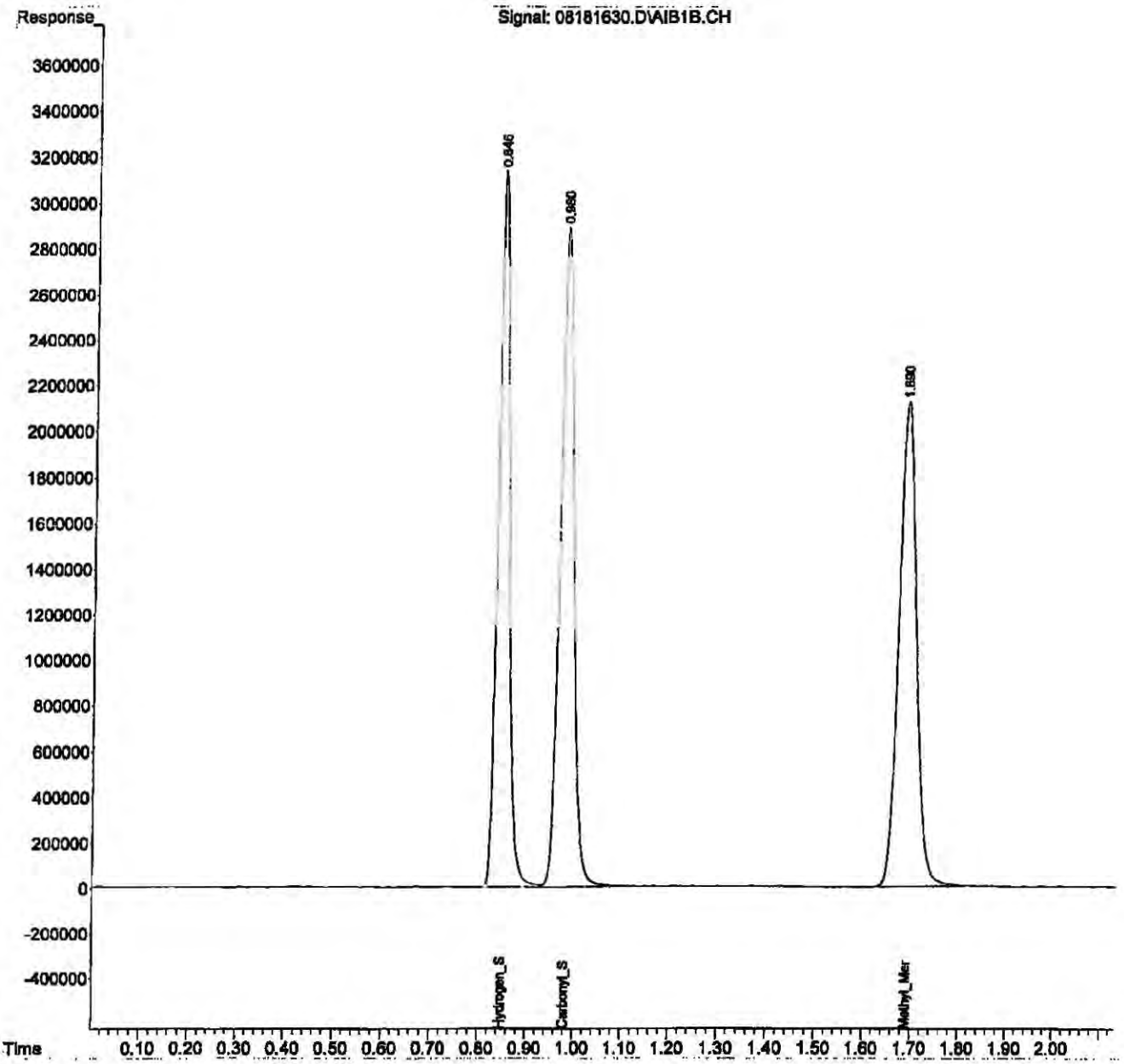
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_08\18\
Data File : 08181630.D
Signal(s) : AIB1B.CH
Acq On : 18 Aug 2016 3:22 pm
Operator : MC
Sample : std s30-08031601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 18 15:25:08 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



# Injection Log

Directory: I:\GC22\DATA\SCD\2016_02\26\

| | Sample ID | Date/Time | Acquisition Method | File Name | Misc Info | Operator | Vial |
|---|---|---|---|---|---|---|---|
| 1 | ~1000ppb S11-02141603 100ul | 2/26/16 8:54 | GC22ACQ.M | 02261601.D | | MC | 1 |
| 2 | ~1000ppb S11-02141603 100ul | 2/26/16 9:02 | GC22ACQ.M | 02261602.D | | MC | 2 |
| 3 | Std 2.5ppb S11-02231601 25ul | 2/26/16 9:19 | GC22ACQ.M | 02261603.D | | MC | 3 |
| 4 | Std 10ppb S11-02231601 100ul | 2/26/16 9:26 | GC22ACQ.M | 02261604.D | | MC | 3 |
| 5 | Std 50ppb S11-02231601 500ul | 2/26/16 9:30 | GC22ACQ.M | 02261605.D | | MC | 4 |
| 6 | Std 250ppb S11-02171604 25ul | 2/26/16 9:36 | GC22ACQ.M | 02261606.D | | MC | 5 |
| 7 | Std 1000ppb S11-02171604 100ul | 2/26/16 9:41 | GC22ACQ.M | 02261607.D | | MC | 6 |
| 8 | Std 2500ppb S11-02171604 250ul | 2/26/16 9:47 | GC22ACQ.M | 02261608.D | | MC | 7 |
| 9 | Std 5000ppb S11-02171604 500ul | 2/26/16 9:52 | GC22ACQ.M | 02261609.D | | MC | 8 |
| 10 | Std 10000ppb S11-02171604 1ml | 2/26/16 9:57 | GC22ACQ.M | 02261610.D | | MC | 9 |
| 11 | Std 25ppm S30-11031401 25ul | 2/26/16 10:30 | GC22ACQ.M | 02261611.D | | MC | 1 |
| 12 | ICV S30-02241602 1000ppb | 2/26/16 11:40 | GC22ACQ.M | 02261612.D | | MC | 2 |
| 13 | RT | 2/26/16 11:49 | GC22ACQ.M | 02261613.D | | MC | 3 |
| 14 | RT | 2/26/16 12:05 | GC22ACQ.M | 02261614.D | | MC | 4 |
| 15 | 2.5ppb S11-02231601 MDL-1 | 2/26/16 13:04 | GC22ACQ.M | 02261615.D | | MC | 1 |
| 16 | 2.5ppb S11-02231601 MDL-2 | 2/26/16 13:08 | GC22ACQ.M | 02261616.D | | MC | 2 |
| 17 | 2.5ppb S11-02231601 MDL-3 | 2/26/16 13:11 | GC22ACQ.M | 02261617.D | | MC | 3 |
| 18 | 2.5ppb S11-02231601 MDL-4 | 2/26/16 13:15 | GC22ACQ.M | 02261618.D | | MC | 4 |
| 19 | 2.5ppb S11-02231601 MDL-5 | 2/26/16 13:25 | GC22ACQ.M | 02261619.D | | MC | 5 |
| 20 | 2.5ppb S11-02231601 MDL-6 | 2/26/16 13:30 | GC22ACQ.M | 02261620.D | | MC | 6 |
| 21 | 2.5ppb S11-02231601 MDL-7 | 2/26/16 13:34 | GC22ACQ.M | 02261621.D | | MC | 7 |
| 22 | 2.5ppb S11-02231601 MDL-8 | 2/26/16 13:37 | GC22ACQ.M | 02261622.D | | MC | 8 |
| 23 | LOD 2.0ppb S11-02231601 20ul | 2/26/16 13:41 | GC22ACQ.M | 02261623.D | | MC | 9 |
| 24 | LOD 1.5ppb S11-02231601 20ul | 2/26/16 13:45 | GC22ACQ.M | 02261624.D | | MC | 10 |
| 25 | CCV 1000ppb S30-02241601 | 2/26/16 13:50 | GC22ACQ.M | 02261625.D | | MC | 11 |
| 26 | 0979-009 1ml | 2/26/16 14:01 | GC22ACQ.M | 02261626.D | | MC | 12 |
| 27 | 0979-011 1ml | 2/26/16 14:15 | GC22ACQ.M | 02261627.D | | MC | 13 |
| 28 | 0981-001 1ml | 2/26/16 14:28 | GC22ACQ.M | 02261628.D | | MC | 14 |
| 29 | 0981-002 1ml | 2/26/16 14:41 | GC22ACQ.M | 02261629.D | | MC | 15 |
| 30 | 0981-003 1ml | 2/26/16 14:55 | GC22ACQ.M | 02261630.D | | MC | 16 |
| 31 | 0981-004 1ml | 2/26/16 15:07 | GC22ACQ.M | 02261631.D | | MC | 17 |
| 32 | 0981-006 1ml | 2/26/16 15:18 | GC22ACQ.M | 02261632.D | | MC | 18 |
| 33 | 0981-008 1ml | 2/26/16 15:28 | GC22ACQ.M | 02261633.D | | MC | 19 |
| 34 | 0981-010 1ml | 2/26/16 15:38 | GC22ACQ.M | 02261634.D | | MC | 20 |
| 35 | 0981-012 1ml | 2/26/16 15:48 | GC22ACQ.M | 02261635.D | | MC | 21 |
| 36 | QC 1SS00188 1ml | 2/26/16 15:58 | GC22ACQ.M | 02261636.D | | MC | 22 |
| 37 | std 1000ppb s30-02241601 | 2/26/16 16:11 | GC22ACQ.M | 02261637.D | | MC | 23 |
| 38 | 1003-001 1ml | 2/26/16 16:20 | GC22ACQ.M | 02261638.D | | MC | 24 |

# Injection Log

Directory: I:\GC13\DATA\SCD\2016_03\02\

| | Sample ID | Date/Time | Acquisition Method | File Name | Misc Info | Operator | Comments |
|---|---|---|---|---|---|---|---|
| | Rt | 3/2/16 10:29 | GC13_SCD.M | 03021601.D | | MC | |
| | Rt | 3/2/16 10:52 | GC13_SCD.M | 03021602.D | | MC | |
| | Blank | 3/2/16 11:22 | GC13_SCD.M | 03021603.D | | MC | |
| | 2.5ppb S11-0302160225ul | 3/2/16 11:27 | GC13_SCD.M | 03021604.D | | MC | |
| | 10ppb S11-03021602 100ul | 3/2/16 11:36 | GC13_SCD.M | 03021605.D | | MC | |
| | 50ppb S11-03021602 500ul | 3/2/16 11:41 | GC13_SCD.M | 03021606.D | | MC | |
| | 250ppbS11-03021601 25ul | 3/2/16 11:45 | GC13_SCD.M | 03021607.D | | MC | |
| | 1000ppb S11-03021601 100ul | 3/2/16 11:49 | GC13_SCD.M | 03021608.D | | MC | |
| | 2500ppb S11-03021601 250ul | 3/2/16 11:53 | GC13_SCD.M | 03021609.D | | MC | |
| | 5000ppb S11-03021601 500ul | 3/2/16 11:57 | GC13_SCD.M | 03021610.D | | MC | |
| | 10ppm S11-03021601 1ml | 3/2/16 12:00 | GC13_SCD.M | 03021611.D | | MC | |
| | 25ppm S30-11031401 25ul | 3/2/16 12:04 | GC13_SCD.M | 03021612.D | | MC | |
| | 50ppm S30-11031401 50ul | 3/2/16 12:08 | GC13_SCD.M | 03021613.D | | MC | |
| | 100ppm S30-11031401 100ul | 3/2/16 12:13 | GC13_SCD.M | 03021614.D | | MC | |
| | RT | 3/2/16 12:19 | GC13_SCD.M | 03021615.D | | MC | |
| | ICV S30-02241602 | 3/2/16 12:38 | GC13_SCD.M | 03021616.D | | MC | |
| | MB 1ml N2 | 3/2/16 12:49 | GC13_SCD.M | 03021617.D | | MC | |
| | 2.5ppb MDL-1 | 3/2/16 13:07 | GC13_SCD.M | 03021618.D | | MC | |
| | 2.5ppb MDL-2 | 3/2/16 13:10 | GC13_SCD.M | 03021619.D | | MC | |
| | 2.5ppb MDL-3 | 3/2/16 13:14 | GC13_SCD.M | 03021620.D | | MC | |
| | 2.5ppb MDL-4 | 3/2/16 13:17 | GC13_SCD.M | 03021621.D | | MC | |
| | 2.5ppb MDL-5 | 3/2/16 13:20 | GC13_SCD.M | 03021622.D | | MC | |
| | 2.5ppb MDL-6 | 3/2/16 13:24 | GC13_SCD.M | 03021623.D | | MC | |
| | baseline drop | 3/2/16 13:27 | GC13_SCD.M | 03021624.D | | MC | |
| | 2.5ppb MDL-7 | 3/2/16 13:30 | GC13_SCD.M | 03021625.D | | MC | |
| | 2.5ppb MDL-9 | 3/2/16 13:34 | GC13_SCD.M | 03021626.D | | MC | |
| | 2.0ppb LOD | 3/2/16 13:37 | GC13_SCD.M | 03021627.D | | MC | |
| | 1.5ppb LOD | 3/2/16 13:41 | GC13_SCD.M | 03021628.D | | MC | |
| | CCV S30-02241601 | 3/2/16 13:45 | GC13_SCD.M | 03021629.D | | MC | |
| | S11-02171603 | 3/2/16 13:49 | GC13_SCD.M | 03021630.D | | MC | |
| | S11-02171604 | 3/2/16 13:52 | GC13_SCD.M | 03021631.D | | MC | |
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# Injection Log

Directory: I:\GC13\DATA\SCD\2016_08\17\

| | Sample ID | Date/Time | Acquisition Method | File Name | Misc Info | Operator | Comments |
|---|---|---|---|---|---|---|---|
| 1 | std s30-08031601 | 8/17/16 8:13 | GC13_SCD.M | 08171601.D | | MC | Fail |
| 2 | std s30-08031601 | 8/17/16 8:26 | GC13_SCD.M | 08171602.D | | MC | Pass |
| | lcs s30-08031602 | 8/17/16 8:29 | GC13_SCD.M | 08171603.D | | MC | |
| | lcsd s30-08031602 | 8/17/16 8:32 | GC13_SCD.M | 08171604.D | | MC | |
| | rt | 8/17/16 8:51 | GC13_SCD.M | 08171605.D | | MC | |
| | mb 1ml | 8/17/16 9:09 | GC13_SCD.M | 08171606.D | | MC | |
| | 4023-001 0.2ml(x100) | 8/17/16 9:27 | GC13_SCD.M | 08171607.D | | MC | |
| #VALUE! | std s30-08031601 | 8/17/16 9:46 | GC13_SCD.M | 08171608.D | | MC | Pass |
| | 4025-001 1ml | 8/17/16 10:08 | GC13_SCD.M | 08171609.D | | MC | |
| | 4025-002 1ml | 8/17/16 10:21 | GC13_SCD.M | 08171610.D | | MC | |
| | 4025-003 1ml | 8/17/16 10:41 | GC13_SCD.M | 08171611.D | | MC | |
| | 4025-004 1ml | 8/17/16 10:59 | GC13_SCD.M | 08171612.D | | MC | |
| | 4025-005 1ml | 8/17/16 11:16 | GC13_SCD.M | 08171613.D | | MC | |
| | 4026-004 1ml | 8/17/16 11:36 | GC13_SCD.M | 08171614.D | | MC | |
| | 4026-003 1ml | 8/17/16 11:55 | GC13_SCD.M | 08171615.D | | MC | |
| | 4026-002 1ml | 8/17/16 12:14 | GC13_SCD.M | 08171616.D | | MC | |
| | 4026-001 1ml | 8/17/16 12:30 | GC13_SCD.M | 08171617.D | | MC | |
| #VALUE! | std s30-08031601 | 8/17/16 12:49 | GC13_SCD.M | 08171618.D | | MC | Pass |
| | 4037-004 1ml | 8/17/16 15:29 | GC13_SCD.M | 08171619.D | | MC | |
| | 4037-003 1ml | 8/17/16 15:45 | GC13_SCD.M | 08171620.D | | MC | |
| | 4037-007 1ml | 8/17/16 15:58 | GC13_SCD.M | 08171621.D | | MC | |
| | 4037-008 1ml | 8/17/16 16:15 | GC13_SCD.M | 08171622.D | | MC | |
| | 4037-009 1ml | 8/17/16 16:34 | GC13_SCD.M | 08171623.D | | MC | |
| | 4037-010 1ml | 8/17/16 16:47 | GC13_SCD.M | 08171624.D | | MC | |
| #VALUE! | std s30-08031601 | 8/17/16 17:00 | GC13_SCD.M | 08171625.D | | MC | Fail |
| #VALUE! | std s30-08031601 | 8/17/16 17:05 | GC13_SCD.M | 08171626.D | | MC | Pass |

# Injection Log

Directory: I:\GC22\DATA\SCD\2016_08\17\

| | Sample ID | Date/Time | Acquisition Method | File Name | Misc Info | Operator | Comments |
|---|---|---|---|---|---|---|---|
| | prime | 8/17/16 7:41 | GC22ACQ.M | 08171601.D | | MC | |
| #VALUE! | std s30-08031601 | 8/17/16 7:44 | GC22ACQ.M | 08171602.D | | MC | Pass |
| | lcs s30-08031602 | 8/17/16 7:48 | GC22ACQ.M | 08171603.D | | MC | |
| | lcsd s30-08031602 | 8/17/16 7:52 | GC22ACQ.M | 08171604.D | | MC | |
| | rt | 8/17/16 7:56 | GC22ACQ.M | 08171605.D | | MC | |
| | mb 1ml | 8/17/16 8:12 | GC22ACQ.M | 08171606.D | | MC | |
| #VALUE! | std s30-08031601 | 8/17/16 8:30 | GC22ACQ.M | 08171607.D | | MC | Pass |
| | 4023-001 0.2ml(x100) | 8/17/16 8:47 | GC22ACQ.M | 08171608.D | | MC | |
| | std s30-08031601 | 8/17/16 9:06 | GC22ACQ.M | 08171609.D | | MC | |
| | rt | 8/17/16 9:23 | GC22ACQ.M | 08171610.D | | MC | |
| | rt | 8/17/16 9:40 | GC22ACQ.M | 08171611.D | | MC | |
| | rt | 8/17/16 9:57 | GC22ACQ.M | 08171612.D | | MC | |
| | 4032-001 1ml | 8/17/16 11:04 | GC22ACQ.M | 08171613.D | | MC | |
| | 4032-002 1ml | 8/17/16 11:08 | GC22ACQ.M | 08171614.D | | MC | |
| | 4032-003 1ml | 8/17/16 11:12 | GC22ACQ.M | 08171615.D | | MC | |
| | 4032-004 1ml | 8/17/16 11:17 | GC22ACQ.M | 08171616.D | | MC | |
| #VALUE! | std s30-08031601 | 8/17/16 11:36 | GC22ACQ.M | 08171617.D | | MC | Pass |
| | 4037-001 1ml | 8/17/16 15:28 | GC22ACQ.M | 08171618.D | | MC | |
| | 4037-002 1ml | 8/17/16 15:44 | GC22ACQ.M | 08171619.D | | MC | |
| | 4037-005 1ml | 8/17/16 15:57 | GC22ACQ.M | 08171620.D | | MC | |
| | 4037-006 1ml | 8/17/16 16:15 | GC22ACQ.M | 08171621.D | | MC | |
| | 4037-011 1ml | 8/17/16 16:32 | GC22ACQ.M | 08171622.D | | MC | |
| | 4037-012 1ml | 8/17/16 16:46 | GC22ACQ.M | 08171623.D | | MC | |
| #VALUE! | std s30-08031601 | 8/17/16 17:00 | GC22ACQ.M | 08171624.D | | MC | Fail |
| #VALUE! | std s30-08031601 | 8/17/16 17:09 | GC22ACQ.M | 08171625.D | | MC | Pass |
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# Injection Log

Directory: I:\GC13\DATA\SCD\2016_08\18\

| | Sample ID | Date/Time | Acquisition Method | File Name | Misc Info | Operator | Comments |
|---|---|---|---|---|---|---|---|
| 1 | std s30-08031601 | 8/18/16 8:19 | GC13_SCD.M | 08181601.D | | MC | Pass |
| | lcs s30-08031602 | 8/18/16 8:23 | GC13_SCD.M | 08181602.D | | MC | |
| | lcsd s30-08031602 | 8/18/16 8:27 | GC13_SCD.M | 08181603.D | | MC | |
| | rt | 8/18/16 8:32 | GC13_SCD.M | 08181604.D | | MC | |
| | mb 1ml | 8/18/16 8:50 | GC13_SCD.M | 08181605.D | | MC | |
| | 4037-014 1ml | 8/18/16 9:09 | GC13_SCD.M | 08181606.D | | MC | |
| | 4037-013 1ml | 8/18/16 9:28 | GC13_SCD.M | 08181607.D | | MC | |
| | 4037-015 1ml | 8/18/16 9:44 | GC13_SCD.M | 08181608.D | | MC | |
| | 4047-003 1ml | 8/18/16 9:58 | GC13_SCD.M | 08181609.D | | MC | |
| | 4047-006 1ml | 8/18/16 10:12 | GC13_SCD.M | 08181610.D | | MC | |
| | 4047-002 1ml | 8/18/16 10:30 | GC13_SCD.M | 08181611.D | | MC | |
| | 4047-004 1ml | 8/18/16 10:47 | GC13_SCD.M | 08181612.D | | MC | |
| | 4047-007 1ml | 8/18/16 11:00 | GC13_SCD.M | 08181613.D | | MC | |
| | 4047-005 1ml | 8/18/16 11:13 | GC13_SCD.M | 08181614.D | | MC | |
| #VALUE! | std s30-08031601 | 8/18/16 11:26 | GC13_SCD.M | 08181615.D | | MC | Pass |
| | 4037-016 1ml | 8/18/16 11:40 | GC13_SCD.M | 08181616.D | | MC | |
| | 4037-019 1ml | 8/18/16 11:53 | GC13_SCD.M | 08181617.D | | MC | |
| | 4047-001 1ml | 8/18/16 12:06 | GC13_SCD.M | 08181618.D | | MC | |
| | 4048-001 0.1ml | 8/18/16 12:19 | GC13_SCD.M | 08181619.D | | MC | |
| | 4037-018 1ml | 8/18/16 12:37 | GC13_SCD.M | 08181620.D | | MC | |
| | 4037-017 1ml | 8/18/16 12:55 | GC13_SCD.M | 08181621.D | | MC | |
| | 4037-021 1ml | 8/18/16 13:30 | GC13_SCD.M | 08181622.D | | MC | |
| | 4037-020 1ml | 8/18/16 13:43 | GC13_SCD.M | 08181623.D | | MC | |
| | 4037-022 1ml | 8/18/16 13:56 | GC13_SCD.M | 08181624.D | | MC | |
| | 4036-001 0.1ml | 8/18/16 14:10 | GC13_SCD.M | 08181625.D | | MC | |
| | QC 1SS00169 1ml | 8/18/16 14:25 | GC13_SCD.M | 08181626.D | | MC | |
| | QC 1SS00113 1ml | 8/18/16 14:37 | GC13_SCD.M | 08181627.D | | MC | |
| | QC 1BV06793 1ml | 8/18/16 14:55 | GC13_SCD.M | 08181628.D | | MC | |
| | QC 1SS00111 1ml | 8/18/16 15:08 | GC13_SCD.M | 08181629.D | | MC | |
| #VALUE! | std s30-08031601 | 8/18/16 15:22 | GC13_SCD.M | 08181630.D | | MC | Pass |
| | lcs s30-08031602 | 8/18/16 15:25 | GC13_SCD.M | 08181631.D | | MC | |
| | lcs s30-08031602 | 8/18/16 15:28 | GC13_SCD.M | 08181632.D | | MC | |
| | rt | 8/18/16 15:31 | GC13_SCD.M | 08181633.D | | MC | |
| | mb 1ml | 8/18/16 15:50 | GC13_SCD.M | 08181634.D | | MC | |
| | 4055-001 1ml | 8/18/16 16:03 | GC13_SCD.M | 08181635.D | | MC | |
| | 4029-001 1ml | 8/18/16 16:24 | GC13_SCD.M | 08181636.D | | MC | |
| | 4029-002 1ml | 8/18/16 16:37 | GC13_SCD.M | 08181637.D | | MC | |
| | 4061-001 1ml | 8/18/16 16:53 | GC13_SCD.M | 08181638.D | | MC | |

## Injection Log

Directory: I:\GC13\DATA\SCD\2016_08\18\

| | Sample ID | Date/Time | Acquisition Method | File Name | Misc Info | Operator | Comments |
|---|---|---|---|---|---|---|---|
| | 4061-002 1ml | 8/18/16 17:06 | GC13_SCD.M | 08181639.D | | MC | |
| | 4061-003 1ml | 8/18/16 17:20 | GC13_SCD.M | 08181640.D | | MC | |
| #VALUE! | std s30-08031601 | 8/18/16 17:32 | GC13_SCD.M | 08181641.D | | MC | Pass |

*Attachment 3*

*GLTP Discharge Monitoring and Information*

**Table 3.1**

**Site Rainfall Data Avtex Fibers Superfund Site 1 April - June 30, 2016**

| Month | Average Rainfall for Winchester, VA (in)* | Average Site Rainfall 1990-2013 (in) | 2006 Actual Rainfall (in) | 2007 Actual Rainfall (in) | 2008 Actual Rainfall (in) | 2009 Actual Rainfall (in) | 2010 Actual Rainfall (in) | 2011 Actual Rainfall (in) | 2012 Actual Rainfall (in) | 2013 Actual Rainfall (in) | 2014 Actual Rainfall (in) | 2015 Actual Rainfall (in) | 2016 Actual Rainfall (in) | Percent of Average Site Rainfall (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January | 2.4 | 2.7 | 2.0 | 1.2 | 1.0 | 1.4 | 3.35 | 0.9 | 2.0 | 3.8 | 1.1 | 1.4 | 1.2 | 46% |
| February | 2.5 | 2.3 | 1.7 | 1.9 | 2.3 | 0.0 | 4.35 | 1.4 | 2.3 | 0.9 | 3.2 | 0.7 | 2.2 | 95% |
| March | 3.1 | 3.6 | 0.1 | 3.7 | 2.9 | 1.5 | 5.7 | 4.6 | 1.9 | 3.9 | 2.3 | 1.7 | 1.0 | 27% |
| April | 3.1 | 3.2 | 2.8 | 3.4 | 6.2 | 3.2 | 1.59 | 6.5 | 2.5 | 1.3 | 1.5 | 2.9 | 1.3 | 42% |
| May | 3.7 | 3.8 | 1.0 | 1.9 | 5.2 | 5.8 | 3.25 | 5.6 | 3.6 | 2.4 | 7.2 | 1.6 | 3.9 | 102% |
| June | 3.9 | 4.4 | 9.7 | 3.5 | 4.3 | 4.6 | 0.6 | 4.0 | 3.6 | 5.2 | 1.5 | 3.9 | 3.8 | 85% |
| July | 3.9 | 3.4 | 2.2 | 1.7 | 3.8 | 3.0 | 1.8 | 3.1 | 4.3 | 1.9 | 4.6 | 1.8 | 5.4 | 158% |
| August | 3.5 | 3.1 | 1.3 | 2.8 | 3.5 | 2.1 | 3.3 | 3.4 | 5.2 | 2.6 | 3.7 | 1.0 | 2.3 | 74% |
| September | 3.1 | 4.7 | 6.1 | 2.0 | 4.3 | 1.3 | 5.7 | 5.5 | 4.9 | 2.5 | 1.6 | 3.6 | 6.1 | 130% |
| October | 3.2 | 3.0 | 4.3 | 4.1 | 1.2 | 2.7 | 0.65 | 3.9 | 4.3 | 5.1 | 5.17 | 1.65 | | 0% |
| November | 3.1 | 2.9 | 5.2 | 1.6 | 2.5 | 3.7 | 1.8 | 3.0 | 1.1 | 1.6 | 1.83 | 1.36 | | 0% |
| December | 2.5 | 2.6 | 0.7 | 2.8 | 1.4 | 5.0 | 2.0 | 3.6 | 1.55 | 1.5 | 3.02 | 2.46 | | 0% |
| **Totals to Date** | **37.9** | **39.6** | **36.9** | **30.4** | **38.5** | **34.2** | **34.1** | **45.2** | **37.0** | **32.8** | **36.7** | **24.1** | **27.2** | **69%** |

* Source: National Climate Data Center TD 9641 Clim 81

**Table 3.2 Monthly Flow Totals**
**Avtex Site Lift Stations, Test Wells and Viscose Basin**

## July 2016

| Lift Stations Flow Report | | Test Wells Flow Report | | | | Viscose Basin Flow Report | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | Total LS Flow (MGD) | Date | TW1 Flow (MGD) | TW2 Flow (MGD) | TW3 Flow (MGD) | Date | VB9 Flow (MGD) | VB10 Flow (MGD) | VB 11 Flow (MGD) |
| 7/1/2016 | 0.005 | 7/1/2016 | 0.062 | 0.019 | 0.000 | 7/1/2016 | 0.002 | 0.002 | 0.000 |
| 7/2/2016 | 0.000 | 7/2/2016 | 0.064 | 0.011 | 0.000 | 7/2/2016 | 0.002 | 0.002 | 0.000 |
| 7/3/2016 | 0.001 | 7/3/2016 | 0.063 | 0.033 | 0.000 | 7/3/2016 | 0.000 | 0.000 | 0.000 |
| 7/4/2016 | 0.007 | 7/4/2016 | 0.064 | 0.036 | 0.000 | 7/4/2016 | 0.002 | 0.002 | 0.000 |
| 7/5/2016 | 0.007 | 7/5/2016 | 0.064 | 0.013 | 0.000 | 7/5/2016 | 0.003 | 0.004 | 0.000 |
| 7/6/2016 | 0.003 | 7/6/2016 | 0.058 | 0.025 | 0.000 | 7/6/2016 | 0.003 | 0.004 | 0.000 |
| 7/7/2016 | 0.005 | 7/7/2016 | 0.064 | 0.032 | 0.000 | 7/7/2016 | 0.003 | 0.004 | 0.000 |
| 7/8/2016 | 0.005 | 7/8/2016 | 0.064 | 0.036 | 0.002 | 7/8/2016 | 0.003 | 0.004 | 0.000 |
| 7/9/2016 | 0.002 | 7/9/2016 | 0.064 | 0.035 | 0.002 | 7/9/2016 | 0.002 | 0.002 | 0.000 |
| 7/10/2016 | 0.001 | 7/10/2016 | 0.064 | 0.034 | 0.008 | 7/10/2016 | 0.001 | 0.001 | 0.000 |
| 7/11/2016 | 0.001 | 7/11/2016 | 0.064 | 0.034 | 0.011 | 7/11/2016 | 0.003 | 0.004 | 0.000 |
| 7/12/2016 | 0.007 | 7/12/2016 | 0.063 | 0.034 | 0.014 | 7/12/2016 | 0.003 | 0.004 | 0.000 |
| 7/13/2016 | 0.007 | 7/13/2016 | 0.061 | 0.033 | 0.017 | 7/13/2016 | 0.002 | 0.004 | 0.000 |
| 7/14/2016 | 0.001 | 7/14/2016 | 0.063 | 0.033 | 0.019 | 7/14/2016 | 0.003 | 0.004 | 0.000 |
| 7/15/2016 | 0.001 | 7/15/2016 | 0.063 | 0.033 | 0.026 | 7/15/2016 | 0.003 | 0.004 | 0.000 |
| 7/16/2016 | 0.001 | 7/16/2016 | 0.063 | 0.033 | 0.029 | 7/16/2016 | 0.003 | 0.004 | 0.000 |
| 7/17/2016 | 0.001 | 7/17/2016 | 0.063 | 0.032 | 0.029 | 7/17/2016 | 0.003 | 0.004 | 0.000 |
| 7/18/2016 | 0.001 | 7/18/2016 | 0.063 | 0.032 | 0.020 | 7/18/2016 | 0.002 | 0.004 | 0.000 |
| 7/19/2016 | 0.007 | 7/19/2016 | 0.063 | 0.032 | 0.023 | 7/19/2016 | 0.002 | 0.004 | 0.000 |
| 7/20/2016 | 0.007 | 7/20/2016 | 0.063 | 0.032 | 0.012 | 7/20/2016 | 0.002 | 0.004 | 0.000 |
| 7/21/2016 | 0.001 | 7/21/2016 | 0.063 | 0.032 | 0.026 | 7/21/2016 | 0.002 | 0.004 | 0.000 |
| 7/22/2016 | 0.001 | 7/22/2016 | 0.063 | 0.031 | 0.029 | 7/22/2016 | 0.002 | 0.004 | 0.000 |
| 7/23/2016 | 0.001 | 7/23/2016 | 0.063 | 0.031 | 0.029 | 7/23/2016 | 0.002 | 0.004 | 0.000 |
| 7/24/2016 | 0.001 | 7/24/2016 | 0.063 | 0.031 | 0.029 | 7/24/2016 | 0.002 | 0.004 | 0.000 |
| 7/25/2016 | 0.001 | 7/25/2016 | 0.063 | 0.031 | 0.029 | 7/25/2016 | 0.002 | 0.004 | 0.000 |
| 7/26/2016 | 0.000 | 7/26/2016 | 0.058 | 0.029 | 0.019 | 7/26/2016 | 0.002 | 0.004 | 0.000 |
| 7/27/2016 | 0.001 | 7/27/2016 | 0.063 | 0.032 | 0.006 | 7/27/2016 | 0.002 | 0.004 | 0.000 |
| 7/28/2016 | 0.007 | 7/28/2016 | 0.061 | 0.031 | 0.006 | 7/28/2016 | 0.001 | 0.003 | 0.000 |
| 7/29/2016 | 0.007 | 7/29/2016 | 0.063 | 0.031 | 0.001 | 7/29/2016 | 0.002 | 0.003 | 0.000 |
| 7/30/2016 | 0.009 | 7/30/2016 | 0.063 | 0.031 | 0.015 | 7/30/2016 | 0.002 | 0.002 | 0.000 |
| 7/31/2016 | 0.011 | 7/31/2016 | 0.063 | 0.031 | 0.028 | 7/31/2016 | 0.002 | 0.003 | 0.000 |

**Table 3.2 Monthly Flow Totals**

**Avtex Site Lift Stations, Test Wells and Viscose Basin**

## August 2016

| Lift Stations Flow Report | | Test Wells Flow Report | | | | Viscose Basin Flow Report | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | Total LS Flow (MGD) | Date | TW1 Flow (MGD) | TW2 Flow (MGD) | TW3 Flow (MGD) | Date | VB9 Flow (MGD) | VB10 Flow (MGD) | VB 11 Flow (MGD) |
| 8/1/2016 | 0.011 | 8/1/2016 | 0.063 | 0.031 | 0.031 | 8/1/2016 | 0.001 | 0.003 | 0.000 |
| 8/2/2016 | 0.003 | 8/2/2016 | 0.063 | 0.031 | 0.031 | 8/2/2016 | 0.001 | 0.003 | 0.000 |
| 8/3/2016 | 0.008 | 8/3/2016 | 0.063 | 0.030 | 0.031 | 8/3/2016 | 0.001 | 0.001 | 0.000 |
| 8/4/2016 | 0.008 | 8/4/2016 | 0.063 | 0.030 | 0.031 | 8/4/2016 | 0.002 | 0.002 | 0.004 |
| 8/5/2016 | 0.001 | 8/5/2016 | 0.063 | 0.030 | 0.031 | 8/5/2016 | 0.003 | 0.004 | 0.005 |
| 8/6/2016 | 0.001 | 8/6/2016 | 0.063 | 0.030 | 0.030 | 8/6/2016 | 0.003 | 0.004 | 0.005 |
| 8/7/2016 | 0.001 | 8/7/2016 | 0.063 | 0.030 | 0.030 | 8/7/2016 | 0.003 | 0.002 | 0.004 |
| 8/8/2016 | 0.001 | 8/8/2016 | 0.063 | 0.030 | 0.030 | 8/8/2016 | 0.003 | 0.001 | 0.004 |
| 8/9/2016 | 0.001 | 8/9/2016 | 0.063 | 0.020 | 0.036 | 8/9/2016 | 0.002 | 0.001 | 0.003 |
| 8/10/2016 | 0.001 | 8/10/2016 | 0.059 | 0.028 | 0.042 | 8/10/2016 | 0.002 | 0.001 | 0.002 |
| 8/11/2016 | 0.000 | 8/11/2016 | 0.063 | 0.031 | 0.045 | 8/11/2016 | 0.002 | 0.001 | 0.002 |
| 8/12/2016 | 0.009 | 8/12/2016 | 0.063 | 0.031 | 0.023 | 8/12/2016 | 0.002 | 0.002 | 0.005 |
| 8/13/2016 | 0.009 | 8/13/2016 | 0.063 | 0.031 | 0.028 | 8/13/2016 | 0.002 | 0.003 | 0.006 |
| 8/14/2016 | 0.001 | 8/14/2016 | 0.063 | 0.030 | 0.031 | 8/14/2016 | 0.001 | 0.003 | 0.007 |
| 8/15/2016 | 0.001 | 8/15/2016 | 0.063 | 0.030 | 0.031 | 8/15/2016 | 0.000 | 0.003 | 0.007 |
| 8/16/2016 | 0.001 | 8/16/2016 | 0.057 | 0.028 | 0.020 | 8/16/2016 | 0.000 | 0.003 | 0.007 |
| 8/17/2016 | 0.002 | 8/17/2016 | 0.063 | 0.031 | 0.028 | 8/17/2016 | 0.002 | 0.002 | 0.006 |
| 8/18/2016 | 0.003 | 8/18/2016 | 0.061 | 0.023 | 0.030 | 8/18/2016 | 0.003 | 0.001 | 0.007 |
| 8/19/2016 | 0.003 | 8/19/2016 | 0.063 | 0.029 | 0.031 | 8/19/2016 | 0.003 | 0.000 | 0.007 |
| 8/20/2016 | 0.005 | 8/20/2016 | 0.063 | 0.031 | 0.031 | 8/20/2016 | 0.003 | 0.000 | 0.007 |
| 8/21/2016 | 0.005 | 8/21/2016 | 0.063 | 0.031 | 0.030 | 8/21/2016 | 0.003 | 0.000 | 0.007 |
| 8/22/2016 | 0.002 | 8/22/2016 | 0.063 | 0.031 | 0.030 | 8/22/2016 | 0.003 | 0.000 | 0.006 |
| 8/23/2016 | 0.001 | 8/23/2016 | 0.063 | 0.030 | 0.030 | 8/23/2016 | 0.001 | 0.000 | 0.003 |
| 8/24/2016 | 0.001 | 8/24/2016 | 0.063 | 0.030 | 0.030 | 8/24/2016 | 0.002 | 0.001 | 0.003 |
| 8/25/2016 | 0.001 | 8/25/2016 | 0.060 | 0.030 | 0.028 | 8/25/2016 | 0.004 | 0.001 | 0.000 |
| 8/26/2016 | 0.001 | 8/26/2016 | 0.063 | 0.030 | 0.030 | 8/26/2016 | 0.004 | 0.001 | 0.003 |
| 8/27/2016 | 0.001 | 8/27/2016 | 0.063 | 0.030 | 0.030 | 8/27/2016 | 0.001 | 0.001 | 0.007 |
| 8/28/2016 | 0.001 | 8/28/2016 | 0.063 | 0.030 | 0.030 | 8/28/2016 | 0.000 | 0.001 | 0.008 |
| 8/29/2016 | 0.001 | 8/29/2016 | 0.063 | 0.030 | 0.030 | 8/29/2016 | 0.000 | 0.001 | 0.008 |
| 8/30/2016 | 0.001 | 8/30/2016 | 0.063 | 0.030 | 0.030 | 8/30/2016 | 0.000 | 0.001 | 0.004 |
| 8/31/2016 | 0.005 | 8/31/2016 | 0.063 | 0.030 | 0.030 | 8/31/2016 | 0.000 | 0.001 | 0.007 |

**Table 3.2 Monthly Flow Totals**

**Avtex Site Lift Stations, Test Wells and Viscose Basin**

| September 2016 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Lift Stations Flow Report** | | **Test Wells Flow Report** | | | | **Viscose Basin Flow Report** | | | |
| **Date** | **Total LS Flow (MGD)** | **Date** | **TW1 Flow (MGD)** | **TW2 Flow (MGD)** | **TW3 Flow (MGD)** | **Date** | **VB9 Flow (MGD)** | **VB10 Flow (MGD)** | **VB 11 Flow (MGD)** |
| 9/1/2016 | 0.005 | 9/1/2016 | 0.063 | 0.030 | 0.030 | 9/1/2016 | 0.000 | 0.001 | 0.008 |
| 9/2/2016 | 0.001 | 9/2/2016 | 0.063 | 0.024 | 0.030 | 9/2/2016 | 0.000 | 0.001 | 0.008 |
| 9/3/2016 | 0.001 | 9/3/2016 | 0.063 | 0.028 | 0.030 | 9/3/2016 | 0.000 | 0.000 | 0.008 |
| 9/4/2016 | 0.001 | 9/4/2016 | 0.063 | 0.030 | 0.030 | 9/4/2016 | 0.000 | 0.000 | 0.008 |
| 9/5/2016 | 0.001 | 9/5/2016 | 0.063 | 0.030 | 0.029 | 9/5/2016 | 0.000 | 0.000 | 0.004 |
| 9/6/2016 | 0.001 | 9/6/2016 | 0.063 | 0.030 | 0.029 | 9/6/2016 | 0.001 | 0.000 | 0.005 |
| 9/7/2016 | 0.001 | 9/7/2016 | 0.063 | 0.029 | 0.029 | 9/7/2016 | 0.001 | 0.000 | 0.012 |
| 9/8/2016 | 0.001 | 9/8/2016 | 0.063 | 0.029 | 0.029 | 9/8/2016 | 0.001 | 0.001 | 0.013 |
| 9/9/2016 | 0.001 | 9/9/2016 | 0.063 | 0.029 | 0.029 | 9/9/2016 | 0.001 | 0.001 | 0.014 |
| 9/10/2016 | 0.001 | 9/10/2016 | 0.063 | 0.029 | 0.029 | 9/10/2016 | 0.001 | 0.001 | 0.014 |
| 9/11/2016 | 0.001 | 9/11/2016 | 0.062 | 0.029 | 0.029 | 9/11/2016 | 0.001 | 0.001 | 0.014 |
| 9/12/2016 | 0.001 | 9/12/2016 | 0.063 | 0.029 | 0.029 | 9/12/2016 | 0.001 | 0.000 | 0.014 |
| 9/13/2016 | 0.001 | 9/13/2016 | 0.063 | 0.029 | 0.029 | 9/13/2016 | 0.001 | 0.000 | 0.004 |
| 9/14/2016 | 0.001 | 9/14/2016 | 0.063 | 0.029 | 0.029 | 9/14/2016 | 0.001 | 0.000 | 0.000 |
| 9/15/2016 | 0.001 | 9/15/2016 | 0.063 | 0.029 | 0.029 | 9/15/2016 | 0.001 | 0.000 | 0.000 |
| 9/16/2016 | 0.001 | 9/16/2016 | 0.063 | 0.029 | 0.029 | 9/16/2016 | 0.001 | 0.000 | 0.000 |
| 9/17/2016 | 0.001 | 9/17/2016 | 0.063 | 0.029 | 0.029 | 9/17/2016 | 0.001 | 0.000 | 0.000 |
| 9/18/2016 | 0.001 | 9/18/2016 | 0.063 | 0.029 | 0.029 | 9/18/2016 | 0.001 | 0.000 | 0.000 |
| 9/19/2016 | 0.000 | 9/19/2016 | 0.063 | 0.029 | 0.029 | 9/19/2016 | 0.002 | 0.000 | 0.000 |
| 9/20/2016 | 0.001 | 9/20/2016 | 0.063 | 0.029 | 0.028 | 9/20/2016 | 0.003 | 0.000 | 0.000 |
| 9/21/2016 | 0.001 | 9/21/2016 | 0.063 | 0.028 | 0.028 | 9/21/2016 | 0.003 | 0.002 | 0.000 |
| 9/22/2016 | 0.001 | 9/22/2016 | 0.063 | 0.028 | 0.028 | 9/22/2016 | 0.003 | 0.006 | 0.000 |
| 9/23/2016 | 0.001 | 9/23/2016 | 0.063 | 0.028 | 0.028 | 9/23/2016 | 0.003 | 0.006 | 0.000 |
| 9/24/2016 | 0.001 | 9/24/2016 | 0.063 | 0.012 | 0.028 | 9/24/2016 | 0.003 | 0.005 | 0.000 |
| 9/25/2016 | 0.001 | 9/25/2016 | 0.063 | 0.027 | 0.028 | 9/25/2016 | 0.003 | 0.006 | 0.000 |
| 9/26/2016 | 0.000 | 9/26/2016 | 0.063 | 0.030 | 0.028 | 9/26/2016 | 0.003 | 0.006 | 0.000 |
| 9/27/2016 | 0.001 | 9/27/2016 | 0.063 | 0.029 | 0.028 | 9/27/2016 | 0.003 | 0.005 | 0.000 |
| 9/28/2016 | 0.001 | 9/28/2016 | 0.063 | 0.029 | 0.028 | 9/28/2016 | 0.003 | 0.004 | 0.000 |
| 9/29/2016 | 0.020 | 9/29/2016 | 0.062 | 0.027 | 0.011 | 9/29/2016 | 0.002 | 0.004 | 0.000 |
| 9/30/2016 | 0.028 | 9/30/2016 | 0.063 | 0.029 | 0.000 | 9/30/2016 | 0.002 | 0.003 | 0.000 |

*Attachment 4*

*Preliminary Site-Wide Quarterly Inspection*

# Quarterly Inspection Report

Inpected by: M. Robinson / H. Lipomi
Date: 09-06-2016
Report No.: 2016-09
Areas Inspected: See Map

**1. Remediation/Restoration Areas**

| Questions | Response | | Comments and Recommendations |
|---|---|---|---|
| Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on an attached map. | ☐ Yes | ☑ No | |
| Is erosion evident? If Yes, describe the type of erosion (rills, gullies), record approximate dimensions (length, width, depth) and indicate location(s) on an attached map. | ☑ Yes | ☐ No | Minor erosion noted in a few small areas (see map for locations and details) |
| Are potential leachate seeps evident or migration of contamination? If Yes, describe the nature (size, color, flow rate), record location on an attached map, and photograph.<br><br>[Note: Check former seep areas in unnamed tributary north of VB 4-6, check pond area north of VB 9, and check other likely areas (e.g., embankments of VBs, SBs)] | ☑ Yes | ☐ No | See map for locations. Past areas of standing water all dry during this inspection. Potential seeps previously in the following locations were all dry:<br>-South of LS2<br>-SE of VB-2&3<br>-NW of VB-7&8 (flowing ~0.25 L/min) |
| Do landfill/basin embankments show signs of erosion, failure (e.g., cracking, sloughing) or migration of contamination (e.g., seeps, exposed waste)? If Yes, describe the nature (type, size), record location on an attached map, and photograph<br><br>[Note: Check river-side of embankments along river, if safe to do so.] | ☐ Yes | ☑ No | |
| Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on an attached map. | ☑ Yes | ☐ No | Isolated/minor bare areas noted. See map for locations |

# Quarterly Inspection Report

Inpected by: M. Robinson / H. Lipomi
Report No.: 2016-09
Date: 09-06-2016
Areas Inspected: See Map

| Questions | Response | | Comments and Recommendations |
|---|---|---|---|
| Is there woody vegetation greater than 2 inches in diameter or 5 feet in height on the cover system(s)? If Yes, describe where and actions to be taken (refer to Section 4.2 of the O&M Plan). | ☑ Yes | ☐ No | A few small trees noted. See map for locations |
| Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on an attached map. | ☑ Yes | ☐ No | Large rills forming in roadway southwest of VB-10 (see map) |
| Are obstruction(s) (brush, debris, timber, leaves, sediment) interfering with the proper functioning of ditches, gutters or flumes? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on an attached map. | ☑ Yes | ☐ No | Minor obstructions at two locations:<br>1. Sediment building up at end of culvert southeast of VB-10 causing minor issues. Issue to be monitored.<br>2. Small brush causing minor obstruction of flow under roadway west of SB-2 |
| Is sediment deposited in diversion berms, ditches gutters, flumes or culverts deeper than ¼ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on an attached map. | ☐ Yes | ☑ No | |

# Quarterly Inspection Report

Inpected by: M. Robinson / H. Lipomi
Date: 09-06-2016
Report No.: 2016-09
Areas Inspected: See Map

| Questions | Response | | Comments and Recommendations |
|---|---|---|---|
| **2. Surface Water Drainage and Erosion Control System** | | | |
| Is erosion evident? If Yes, describe the drainage structure inspected (ditch, gutter, flume, culvert, outfall, rip-rap), the type of erosion (rills, gullies, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on an attached map. | ☑ Yes | ☐ No | Minor erosion noted in a few isolated areas. See map for locations. Also previously mentioned erosion southwest of VB-10. |
| Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on an attached map. | ☑ Yes | ☐ No | |
| Is erosion evident at drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on an attached map. | ☐ Yes | ☑ No | |

Inspection Checklist (check items that were inspected; document concerns noted; refer to attached Drawings for specific areas)

**Viscos Basins 1-3**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert Inlets & outles | ☑ Rip-rap channels | ☑ Access road near unit | ☐ |

**Viscos Basins 4-6**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert Inlets & outles<br>- N, E, & W of VB 4-6;<br>- Pond W of VB 4-6 | ☑ Rip-rap channels | ☑ Down chutes | ☑ Gas Vent Filter & Fence |
| ☑ Former seep area<br>- N of VB 4-6 | ☑ LS #1 & #2 and Fencing | ☑ Access road near unit | ☐ |

**Viscos Basins 7-8**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert Inlets & outles (between VB-1 and VB-7) | ☑ Rip-rap channels | ☑ Down chutes | ☑ Leachate Collection Manhole (MW VB7) |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

**Viscos Basins 9-11**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Drop inlests on VB-11 | ☑ Culver inlets & outlets (S&W VB-11; N VB-11 & VB-9; and SW VB-10) | ☑ Rip-rap channels | ☑ Down chutes |
| ☑ Access road near unit | ☑ Seep area in pond north of VB-9 | ☑ VB 9-11 fence and gates | ☑ LS #4 and Fencing |

**New Landfill**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & outlets (NE & SE of NLF) | ☑ Rip-rap channels | ☑ Down chutes | ☑ LS #3 and Fencing |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

**SB-1**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & outlets (NE SB-1; SB-2; SE SB-3; NE SB-4; & S SB-4) | ☑ Rip-rap channels & outlets by River | ☑ Down chutes (SB-1 & SB-4) | ☐ |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

## Inspection Checklist (check items that were inspected; document concerns noted; refer to attached Drawings for specific areas)

**SB-2**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Culvert inlets & Outlets (S & W Sides) |
| ☑ Berms along River (site & river side) | ☑ Rip-rap channels & outlets by River | ☑ Access road near unit | ☐ |

**SB-3**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & Outlets (SE)) | ☑ Rip-rap channels & outlets by River | ☑ Drop inlets (W side) | ☑ Access Road near unit |
| ☐ | ☐ | ☐ | ☐ |

**SB-4**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & outlets (NE & S sides) | ☑ Down chutes (S Side) | ☑ Drop inlet (N side) | ☑ Berms along River (site & river side) |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

**SB-5**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Berms along River and E side | ☑ Access Road near unit | ☐ | ☐ |
| ☐ | ☐ | ☐ | ☐ |

**FAB 1-3**

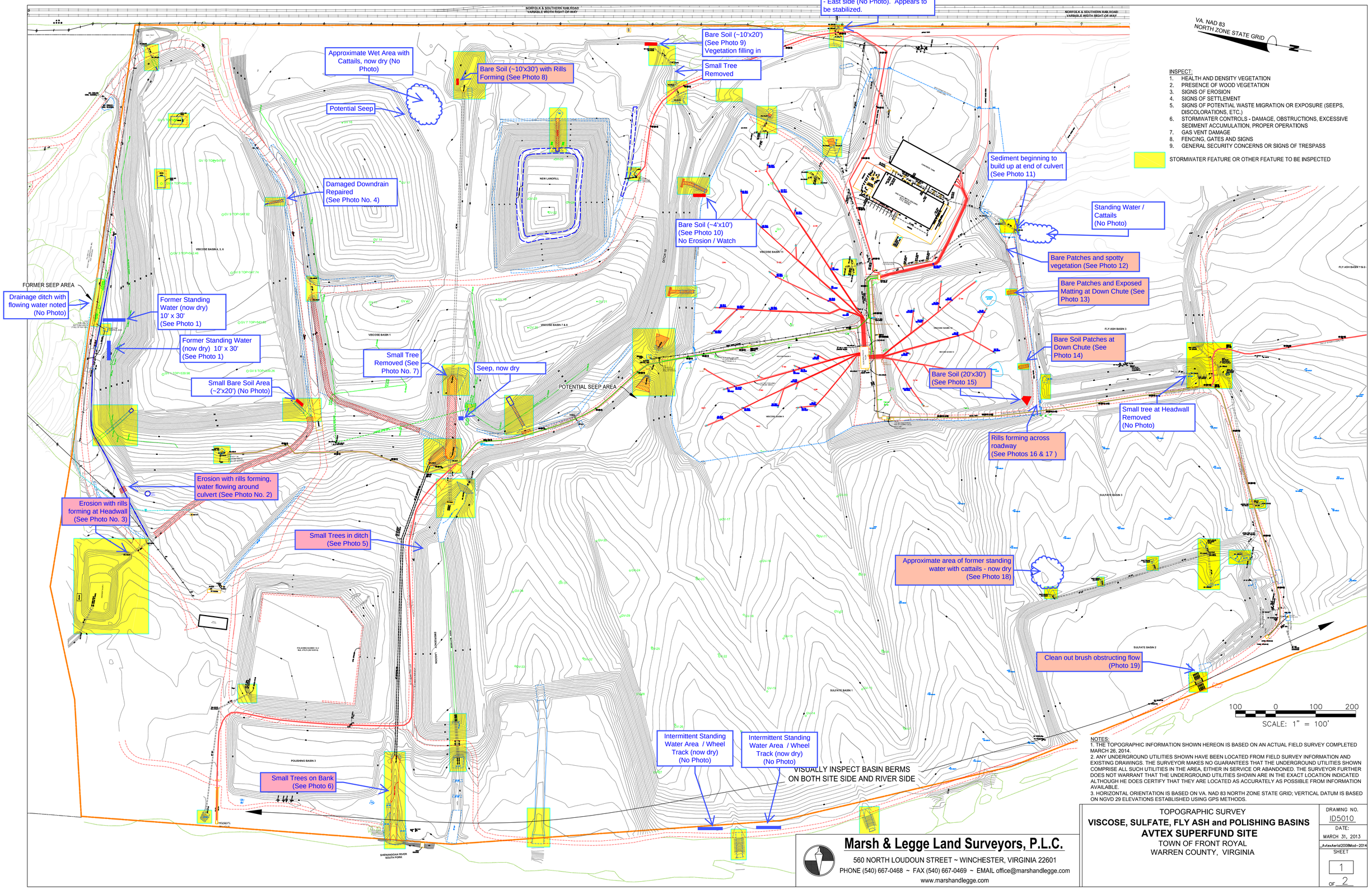
| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Culvert inlets & outlets (E & S FAB1-2; SW FAB3) |
| ☑ Access Road near unit | ☐ | ☐ | ☐ |

**FAS & FARA**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Culvert inlets & outlets (E & N FAS; E FARA) |
| ☑ Access Road near unit | ☐ | ☐ | ☐ |

**EL, PB 1-2, PB-3**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Rip-rap Channels |
| ☑ Culvert inlets & outlets (E & W EL; NW PB-1-2; S PB-3) | ☑ Access Road near unit | ☐ | ☐ |




NOTES:
1. THE TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AN ACTUAL FIELD SURVEY COMPLETED MARCH 26, 2014.
2. ANY UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.
3. HORIZONTAL ORIENTATION IS BASED ON VA. NAD 83 NORTH ZONE STATE GRID; VERTICAL DATUM IS BASED ON NGVD 29 ELEVATIONS ESTABLISHED USING GPS METHODS.


**Marsh & Legge Land Surveyors, P.L.C.**
560 NORTH LOUDOUN STREET ~ WINCHESTER, VIRGINIA 22601
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www.marshandlegge.com


TOPOGRAPHIC SURVEY
**VISCOSE, SULFATE, FLY ASH and POLISHING BASINS**
**AVTEX SUPERFUND SITE**
TOWN OF FRONT ROYAL
WARREN COUNTY, VIRGINIA

DRAWING NO. ID5010
DATE: MARCH 31, 2013
_Avtexlarid2008Mod-2014
SHEET 1 OF 2

**FMC Corporation**
2929 Walnut Street
Philadelphia, PA 19104
USA

215.299.6000
fmc.com

January 10, 2017

**SENT VIA: ELECTRONIC MAIL AND US MAIL**

Mr. Charlie Root
Remedial Project Manager
U.S. Environmental Protection Agency
Hazardous Site Cleanup Division, 3HS23
1650 Arch Street
Philadelphia, PA 19103

**RE: QUARTERLY PROGRESS REPORT FOR THE AVTEX FIBERS SUPERFUND SITE FOR THE PERIOD 1 OCTOBER TO 31 DECEMBER 2016**

Dear Mr. Root,

FMC Corporation (FMC) has enclosed one clipped copy of the Quarterly Progress Report for remedial activities undertaken by FMC at the Avtex Fibers Superfund Site, Front Royal, Virginia (Site). This Quarterly progress report addresses the reporting requirements in 1999 Consent Decree between the United States of America and FMC Corporation to conduct removal and remedial actions. In accordance with Section XI, Paragraph 45 of the Consent Decree, FMC has prepared this progress report to describe actions taken pursuant to the Consent Decree during the previous quarter.

If you have any questions or comments, please call me at 215-299-6047.

Sincerely,

Brian McGinnis
*EHS, Remediation Manager*

Enclosure (1)
cc: M. Carpenter, FMC
M. Payne, B. Kiracofe, VADEQ
S. Curran, Gannett Fleming
H. Philip, Parsons

**QUARTERLY PROGRESS REPORT**
**for the Avtex Fibers Superfund Site, Front Royal, Virginia**
**for the Period October 1 to December 31, 2016**

## *1.0 INTRODUCTION*

FMC Corporation (FMC) has conducted removal and remedial activities at the Avtex Fibers Superfund Site, Front Royal, Virginia (Site). The removal action, remedial design, and remedial action activities were performed pursuant to the 1999 Consent Decree between the United States of America and FMC Corporation (effective 21 October 1999).

On August 29, 2014, USEPA issued a document titled, "Superfund Preliminary Close-out Report," which documented construction completion at the Site. The completion of construction at the Site marked its transition into the O&M phase. Full-scale operations and maintenance were achieved when the Groundwater and Leachate Treatment Plant (GLTP) began operating in continuous biological mode in September 2015. During the September 8, 2014 monthly call between EPA and FMC, EPA agreed that the former monthly progress reporting for the site could be reduced to quarterly during O&M phase as specified in paragraph 45 in Consent Decree. In accordance with Section XI, Paragraph 45 of the Consent Decree, FMC has prepared this progress report to describe actions taken pursuant to both the Areas of Concern (AOC) and Consent Decree during the months of October, November, and December 2016.

This report includes progress towards full completion of removal and remedial activities, and follows formatting consistent with previous reports. Daily operations and maintenance activities will be ongoing and will follow requirements in the Site-Wide O&M Plan (FMC, May 2015), which will include the Operations and Maintenance Manual Groundwater and Leachate Treatment Plant (Parsons, December 2014), and the Operations, Maintenance and Monitoring Manual Groundwater and Leachate Extraction System (Parsons, May 2015) with any major deviations reported in the sections below. The Site-Wide O&M Plan replaces prior response action specific O&M Plans, such as those presented in the various design documents.

In accordance with Section XI of the Consent Decree, this quarterly progress report contains the following:

- Description of actions taken during the previous quarter;
- Summary of data generated by FMC during the previous quarter;

- Actions scheduled for the next quarter;
- Description of problems and actions taken to mitigate the problems;
- Update on the schedule of actions and percentage completion of tasks;
- Modification to the Work Plans or other schedules; and
- Activities undertaken in support of the EPA Community Relations Plan.

Attachment 1 lists correspondence and deliverables transmitted from FMC or FMC contractors to EPA, and from EPA or EPA contractors to FMC for the previous quarter.

The remainder of the quarterly progress report is divided into six sections (these sections will be removed and updated when actions are completed for the section):

- *Section 2.0 – OU-7/ROD 5 RD/RA*. This section describes remedial design and remedial action activities being conducted under Paragraph 23 in the Consent Decree. The units covered under OU-7 include Viscose Basins (VB) 9-11, site-wide ground water and surface water.
- *Section 3.0 – OU-10/ROD 4 RD/RA*. This section describes remedial design and remedial action activities being conducted under Paragraph 24 in the Consent Decree. The units covered under OU-10 include VB 1-8, the New Landfill, Wastewater Treatment Plant (WWTP) Closure, and Plant Area Soils.
- *Section 4.0 - Non-Time-Critical Removal Actions (NTCRA) for the Buildings*. This section describes the activities being conducted under Paragraph 21.A in the Consent Decree. The scope of the NTCRA-Buildings project is to decontaminate the remaining structures and remove the sewers and manholes.
- *Section 5.0 - Basin Closure*. This section describes the activities being conducted as a NTCRA under Paragraph 22 of the Consent Decree. The scope of this action consists of the closure of the Sulfate Basins, WWTP Basins, Fly Ash Basins, and the Stockpile (Mountain).
- *Section 6.0 – Groundwater and Leachate Treatment Plant O&M*. This section describes the Operations and Maintenance (O&M) activities being conducted to address the discharge requirements for the GLTP.
- *Section 7.0 - Other Site Support Documents.* This section describes site-wide activities that cross over all of management units.
- *Section 8.0 – Community Relations Support*. This section describes activities undertaken in support of community relations in accordance with the Consent Decree requirement.

## *2.0 OU-7/ROD 5 (VB 9-11, GROUND WATER, SURFACE WATER) REMEDIAL DESIGN/REMEDIAL ACTION*

### *2.1 Actions Taken and Reports Prepared in Previous Period*

- Completed quarterly water level measurements as described in Section 2 of the GMP.
- Completed quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.
- Completed quarterly monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Completed quarterly post-closure OU-7 and site perimeter real time air monitoring as required by Section 2.2 of the Air Monitoring Plan Operable Unit 7, Avtex Fibers Superfund Site, Front Royal, Virginia, October 2011. Neither of the other constituents were detected at any of the locations. The results are presented in in Attachment 2.

### *2.2 Data Generated in Previous Period*

The two low recharge wells (wells 215 and 306 were sampled in early December. Preliminary data has been received and the data will be validated once the final laboratory report has been received. The results will be incorporated with the rest of the annual groundwater sampling and will be presented in the site-wide annual monitoring report.

As required by the Air Monitoring Plan, post construction quarterly air monitoring for hydrogen sulfide and organic vapor was completed. The results and a map showing the sample locations is provided in Attachment 2. Neither constituent was detected at any of the locations.

The following instruments were utilized to collect the real-time readings:

- Hydrogen Sulfide: Jerome 613X.
- Organic Vapor: MiniRAE 3000

### *2.3 Actions to be Completed Next Period*

- Complete quarterly water level measurements as described in Section 2 of the GMP.
- Complete quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.
- Complete quarterly monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Complete quarterly post-closure OU-7 and site perimeter real time air monitoring and collect annual air samples as required by Section 2.2 of the Air Monitoring Plan Operable Unit 7, Avtex Fibers Superfund Site, Front Royal, Virginia, October 2011.
- Submit to EPA the ICIAP pursuant to Section 11.2.10 of the ROD.
- Submit to EPA the annual site-wide O&M Report.

### *2.4 Problems Encountered and Remedies*

No problems were encountered during the previous period.

### *2.5 Schedule Update*

All remedial design and remedial action work associated with OU-7 is complete based on EPA's approvals of the remedial action reports for the GLTP component and Viscose Basins 9-11 cap system and groundwater and leachate extraction component of OU-7.

## *3.0 OU-10/ROD 4 (VB 1-8, NEW LANDFILL, PLANT AREA SOILS AND WWTP CLOSURE) REMEDIAL DESIGN/REMEDIAL ACTION*

### *3.1 Actions Taken and Reports Prepared in Previous Period*

- Completed routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Completed quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

### *3.2 Data Generated in Previous Period*

None.

### *3.3 Actions to be Completed Next Period*

- Complete routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan.
- Complete quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

### 3.4 Problems Encountered and Remedies

No problems were encountered during the previous period.

### *3.5 Schedule Update*

All remedial design and remedial action work associated with OU-10 is complete based on EPA's approvals of the remedial action reports for plant area soils, WWTP and VB 1-8 and New Landfill.

## *4.0 NON-TIME-CRITICAL REMOVAL ACTIONS (NTCRA) BUILDINGS*

### *4.1 Actions Taken and Reports Prepared in Previous Period*

- No actions were completed during the previous period because EPA issued a Certificate of Completion.

### *4.2 Data Generated in Previous Period*

No new analytical data were generated during the previous month.

### *4.3 Actions to be Completed Next Period*

- No actions will be completed during the next period because EPA issued a Certificate of Completion.

### *4.4 Problems Encountered and Remedies*

No problems were encountered during the previous month.

### *4.5 Schedule Update*

All removal action work associated with NTCRA-Buildings is complete.

## *5.0 NON-TIME-CRITICAL REMOVAL ACTIONS (NTCRA) - BASIN CLOSURE*

### *5.1 Actions Taken and Reports Prepared in Previous Period*

- Completed quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

- Completed routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan

### *5.2 Data Generated in Previous Period*

None.

### *5.3 Actions to be Completed Next Period*

- Complete quarterly inspection as described in Section 5 of Part 1 of the Site-Wide O&M Plan.

- Complete routine monitoring of gas vents as described in Section 3.0 of Part 1 of the Site-Wide O&M Plan

### *5.4 Problems Encountered and Remedies*

No problems were encountered during the previous month.

### *5.5 Schedule Update*

All removal action work associated with NTCRA-Basins is complete.

## *6.0 GROUNDWATER AND LEACHATE TREATMENT PLANT O&M*

### *6.1 Actions Taken and Reports Prepared in Previous Period*

- The GLTP operated and discharged to the South Fork Shenandoah River (River) for 91 days in from October 1 to September December 31, 2016.

<u>Discharge Monitoring</u>

Discharge monitoring was completed as required by the July 24, 2014 VADEQ final Fact Sheet and Applicable or Relevant and Appropriate Requirements (ARARs) for the discharge of effluent from the GLTP. Discharge monitoring included: flow, pH, TSS, $BOD_5$, and carbon disulfide. The daily and monthly flow and chemical data are listed in the Discharge Monitoring Reports (DMRs)

submitted during the fourth quarter of 2016 provided in Attachment 3 and summarized below. We remain in the trouble shooting of operations and stabilization period.

Table 1.0 Summary of 4Q16 Effluent Sampling

| | **Permitted Limits** | **October 2016 (month avg/ daily max)** | **November 2016 (month avg/ daily max)** | **December 2016 (month avg/ daily max)** |
|---|---|---|---|---|
| **Flow(gpd)** | 0.396 MGD | 0.108/0.117 | 0.105/0.127 | 0.096/0.145 |
| **pH (range)** | 6.5 – 9.0 | 7.10-7.47 | 7.24-7.94 | 7.21-8.02 |
| **TSS (mg/L)** | 40 / 130 | 0.0/0.0 | 0.0/0.0 | 0.0/0.0 |
| **$BOD_5$ (mg/L)** | 24 / 64 | 0.0/0.0 | 0.0/0.0 | 0.0/0.0 |
| **CS2 (ug/L)** | No limit established. 0.1mg/l action level | <QL | <QL | <QL |

*Where parameters non-detect, the value '0' was used for calculating average and maximum concentrations.

- *Flow*. Flow during discharge was monitored continuously. Additionally, flow rates for the lift stations, test wells and viscose basins for the months of October, November, and December are provided in Table 3.2 (Attachment 3).
- *pH*. pH was monitored continuously during the days that discharge occurred. The pH monitoring results for each month are included in Attachment 3 with the monthly DMRs. The effluent pH was within the range of 6.5 to 9.0 specified in the ARARs.
- *TSS.* TSS was monitored weekly. The permitted monthly daily average limit for TSS of 40 mg/l and the permitted monthly maximum daily limit of 130 mg/l for TSS were not exceeded during this reporting period.
- *$BOD_{5.}$* $BOD_5$ was monitored weekly. The permitted monthly daily average limit for $BOD_5$ of 24 mg/l and the permitted monthly maximum daily limit of 64 mg/l for $BOD_5$ were not exceeded during this reporting period.
- *Carbon Disulfide.* Carbon Disulfide is monitored monthly and no limit is established in the ARARs. The results for the monthly sample collected in the first quarter of 2016 was less than the 0.1 mg/l monthly action level specified in the ARARs, as all results were non-detect with a reporting limit of 2.0 ug/l.

Rainfall Data

Table 3.1 (Attachment 3) shows that a total of 2.8 inches of precipitation fell on the Site during the fourth quarter 2016 (Oct., Nov., Dec.). The total precipitation for 2016 to-date is 30 inches, representing to-date 76% of the average Site total yearly precipitation (39.6 inches).

### *6.2 Data Generated in Previous Period*

Discharge monitoring, rainfall data and flow totals for the lift stations, test wells and viscose basin are contained in Attachment 3. DMRs were submitted by the tenth of each month.

### *6.3 Actions to be Taken Next Period*

- Continue GLTP startup and operate the GLTP biological system in continuous mode.
- Conduct the Whole Effluent Toxicity sampling per the ARARs (to meet at least one of the Applicability Criteria for a Facility to Perform Aquatic Toxicity Tests stipulated in Guidance Memorandum 00-2012 (Section IV.1.C))

### *6.4 Problems Encountered and Remedies*

The pH effluent probe was replaced in March due to failure and inconsistencies.

### *6.5 Schedule Update*

The GLTP will continue to operate in full continuous mode.

## *7.0 OTHER SITE SUPPORT DOCUMENTS*

### *7.1 Actions Taken and Reports Prepared in Previous Period*

- Quarterly inspections (e.g. seep areas, river berms, gas vents, etc.) and inspection reports completed.

### *7.2 Actions to be Taken Next Period*

- Quarterly inspections (e.g. seep areas, river berms, gas vents, etc.) and inspection reports to be completed.

## *8.0 COMMUNITY RELATIONS SUPPORT*

- No activity during the previous period.

## *ATTACHMENTS*

1 Summary of Monthly Correspondence

2 OU-7 and Site Perimeter Air Monitoring Results

3 GLTP Discharge Monitoring and Information

Discharge Monitoring Reports, 1 October to 31 December 2016

Table 3.1 – Site Rainfall Data

Table 3.2 - Monthly Flow Totals Avtex Site Lift Stations, Test Wells and Viscose Basin

4 Preliminary Site-Wide Quarterly Inspection (with repairs photo log)

*ATTACHMENT 1 – LIST OF CORRESPONDENCE AND DELIVERABLES FOR THE PERIOD OCTOBER 1, 2016 TO DECEMBER 31, 2016, AVTEX FIBERS SUPERFUND SITE, FRONT ROYAL, VIRGINIA*

*FMC to EPA*

December 21, 2016. 3Q16 Quarterly Progress Report submitted to EPA.

*FMC to VADEQ*

October 10, 2016. Discharge Monitoring Report - September 2016 submitted to VADEQ and EPA

November 10, 2016. Discharge Monitoring Report – October 2016 submitted to VADEQ and EPA

December 9, 2016. Discharge Monitoring Report – November 2016 submitted to VADEQ and EPA

*Attachment 2*

*OU-7 and Site Perimeter Air Monitoring Results*

# Air Monitoring Form

## Avtex Fibers Superfund Site
## Front Royal, Virginia

Date: 12/08/2016

Technician: Michael Robinson / Marc Harder

| Gas Monitoring Devices: | Used (Y/N) | Calibrated (Y/N) | Date Calibrated | Initials |
|---|---|---|---|---|
| Jerome 631X (low level $H_2S$) | Y | Y | 01/06/2016 | MGR |
| MiniRAE 3000 with 10.6 eV lamp (PID) | Y | Y | 12/07/2016 | MGR |
| $CS_2$ Drager with qualitative ppm tube | N | | | |
| Other: Click or tap here to enter text. | N | | | |

Air Samples Collected?
☐ Yes
☒ No

Weather Conditions:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Precipitation (current) | ☐ Rain | ☐ Snow | ☐ Sleet | ☐ Mix |
| | ☒ None | ☐ Light | ☐ Moderate | ☐ Heavy |
| Temperature (current) | 44 °F | | Forecast High | 44 °F | | |
| Wind Direction | ☐ N | ☐ NE | ☐ E | ☐ Variable |
| | ☐ S | ☐ SW | ☒ W | ☐ |
| Approx. Wind Speed (mph) | 13 Mph | | | |
| Cloud Cover | ☐ Clear | ☒ P. Cloudy | ☐ Overcast | ☐ Fog |
| Barometric Pressure | 30.06 Inches | | | |

| Monitoring Location | Time | $H_2S$ (ppm) | Organic (ppm) | $CS_2$ (ppm) | Methane (% LEL) | Comments |
|---|---|---|---|---|---|---|
| **OU-7 Perimeter** | | | | | | |
| N | 1336 | 0.000 | 0.0 | -- | -- | |
| NE | 1330 | 0.000 | 0.0 | -- | -- | |
| S | 1400 | 0.000 | 0.0 | -- | -- | |
| SW | 1352 | 0.000 | 0.0 | -- | -- | |
| NW | 1337 | 0.000 | 0.0 | -- | -- | |
| **Site Perimeter** | | | | | | |
| N | 1600 | 0.000 | 0.0 | -- | -- | |
| NE | 1413 | 0.000 | 0.0 | -- | -- | |
| E | 1408 | 0.000 | 0.0 | -- | -- | |
| SE | 1604 | 0.000 | 0.0 | -- | -- | |
| S | 1419 | 0.000 | 0.0 | -- | -- | |
| SW | 1500 | 0.000 | 0.0 | -- | -- | |
| NW | 1530 | 0.000 | 0.0 | -- | -- | |
| W | 1510 | 0.000 | 0.0 | -- | -- | |
| Downwind ( ) | NA | | | | | |

Summarize activities occurring onsite that might relate to air emissions:

Plant Operations

# FIGURE 1
# AIR MONITORING LOCATIONS DURING OU-7 WORK
## AVTEX FIBERS SUPERFUND SITE
## FRONT ROYAL, VIRGINIA

LEGEND

- PROPERTY BOUNDARY
- SITE PERIMETER LOCATION
- OU-7 PERIMETER LOCATION

NOTE: DOWNWIND LOCATION TO BE DETERMINED BASED ON FIELD CONDITIONS.

500 250 0 500

SCALE IN FEET

G:\CAD\Drawings\FMC_Avtex Front Royal\0122736\A207.dwg

MLB/4-6-11

ERM, INC.

*Attachment 3*

*GLTP Discharge Monitoring and Information*

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
**DISCHARGE MONITORING REPORT** (DMR)

PERMITTEE NAME/ADDRESS: (Include Facility Name/Location if different) — OMB No. 2040-004

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NAME:** | Avtex Fibers | | | | | NA | | | | 004 | | | | **DMR MAILING ZIP CODE:** | | | | | | | | 23218 | | |
| **ADDRESS:** | 404 Kendrick Lane | | | | | **PERMIT NUMBER** | | | | **DISCHARGE NUMBER** | | | | | | | | | | | | | | |
| | Front Royal, VA 22630 | | | | | | | | | | | | | DESCRIPTION: | | | | | | | | | | |
| | | | | | | **MONITORING PERIOD** | | | | | | | | GLTP EFFLUENT (OUTFALL 004) | | | | | | | | | | |
| **FACILITY:** | AVTEX FIBERS | | | | | **YEAR** | **MO** | **DAY** | | **YEAR** | **MO** | **DAY** | | External Outfall | | | | | | | | | | |
| **LOCATION:** | FRONT ROYAL, VA | | | | **FROM** | 16 | 10 | 01 | TO | 16 | 10 | 31 | | | | | | **No Discharge** | | | | | | |
| **ATTN:** | | | | | | | | | | | | | | | | | | | | | | | | |

| **PARAMETER** | | QUANTITY OR LOADING | | | QUALITY OR CONCENTRATION | | | | **NO. EX** | FREQUENCY OF ANALYSIS | **SAMPLE TYPE** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | VALUE | VALUE | UNITS | VALUE | VALUE | VALUE | UNITS | | | |
| **FLOW** | **SAMPLE MEASUREMENT** | 0.108 | 0.117 | MGD | ***** | ***** | ***** | | 0 | CONTINUOUS | TIRE |
| **00056 1 0 EFFLUENT GROSS** | **PERMIT REQUIREMENT** | REPORT MONTHLY AV | REPORT DAILY MAX | | ****** | ****** | ****** | | | CONTINUOUS | TIRE |
| **PH** | **SAMPLE MEASUREMENT** | ***** | ***** | | 7.1 | ***** | 7.5 | | 0 | CONTINUOUS | GRAB |
| **00400 1 0 EFFLUENT GROSS** | **PERMIT REQUIREMENT** | ****** | ****** | | 6.5 MINIMUM | ****** | 9.0 MAXIMUM | SU | | CONTINUOUS | GRAB |
| **BOD, 5-DAY** | **SAMPLE MEASUREMENT** | <QL | <QL | | ***** | <QL | <QL | | 0 | 1/7 | 8 HC |
| **00318 1 0 EFFLUENT GROSS** | **PERMIT REQUIREMENT** | 36 MONTHLY AV | 96 DAILY MAX | kg/d | ****** | 24 MONTHLY AV | 64 DAILY MX | mg/L | | 1/7 | 8 HC |
| **SOLIDS, TOTAL SUSPENDED** | **SAMPLE MEASUREMENT** | <QL | <QL | | ***** | <QL | <QL | | 0 | 1/7 | 8 HC |
| **03603 1 0 EFFLUENT GROSS** | **PERMIT REQUIREMENT** | 60 MONTHLY AV | 190 DAILY MAX | kg/d | ****** | 40 MONTHLY AV | 130 DAILY MX | mg/L | | 1/7 | 8 HC |
| **CARBON DISULFIDE** | **SAMPLE MEASUREMENT** | <QL | <QL | | ***** | <QL | <QL | | 0 | 1/30 | 8 HC |
| **77041 1 0 EFFLUENT GROSS** | **PERMIT REQUIREMENT** | NL MONTHLY AV | NL DAILY MAX | kg/d | ****** | NL MONTHLY AV | NL DAILY MX | mg/L | | 1/30 | 8 HC |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| NAME/TITLE PRINCIPAL EXECUTIVE OFFICER | | TELEPHONE | | DATE |
|---|---|---|---|---|
| Brian McGinnis | I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. | Brian M. McGinnis | | |
| Manager, Environmental Remediation | | | | |
| TYPED OR PRINTED | | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | AREA 215 / NUMBER 299-6047 | YEAR / MO / DAY |

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

Attachment: pH compliance monitoring summary (monthly)

Carbon disulfide: No limit established; monitored monthly; 0.1 mg/L action level

Avtex Fibers
Front Royal, VA
Outfall 004
October 2016 DMR

pH Calculations:

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 10/1/2016 12:00 AM | 7.24 | 10/2/2016 12:00 AM | 7.23 | 10/3/2016 12:00 AM | 7.17 |
| 10/1/2016 12:15 AM | | 10/2/2016 12:15 AM | 7.31 | 10/3/2016 12:15 AM | 7.32 |
| 10/1/2016 12:30 AM | 7.17 | 10/2/2016 12:30 AM | 7.20 | 10/3/2016 12:30 AM | 7.32 |
| 10/1/2016 12:45 AM | 7.17 | 10/2/2016 12:45 AM | 7.18 | 10/3/2016 12:45 AM | 7.31 |
| 10/1/2016 1:00 AM | 7.16 | 10/2/2016 1:00 AM | 7.17 | 10/3/2016 1:00 AM | 7.29 |
| 10/1/2016 1:15 AM | 7.16 | 10/2/2016 1:15 AM | 7.31 | 10/3/2016 1:15 AM | 7.28 |
| 10/1/2016 1:30 AM | 7.19 | 10/2/2016 1:30 AM | 7.31 | 10/3/2016 1:30 AM | 7.27 |
| 10/1/2016 1:45 AM | 7.30 | 10/2/2016 1:45 AM | 7.31 | 10/3/2016 1:45 AM | 7.20 |
| 10/1/2016 2:00 AM | 7.20 | 10/2/2016 2:00 AM | 7.29 | 10/3/2016 2:00 AM | 7.19 |
| 10/1/2016 2:15 AM | 7.18 | 10/2/2016 2:15 AM | 7.28 | 10/3/2016 2:15 AM | 7.19 |
| 10/1/2016 2:30 AM | 7.17 | 10/2/2016 2:30 AM | 7.27 | 10/3/2016 2:30 AM | 7.18 |
| 10/1/2016 2:45 AM | 7.23 | 10/2/2016 2:45 AM | 7.26 | 10/3/2016 2:45 AM | 7.18 |
| 10/1/2016 3:00 AM | 7.32 | 10/2/2016 3:00 AM | 7.24 | 10/3/2016 3:00 AM | 7.19 |
| 10/1/2016 3:15 AM | 7.31 | 10/2/2016 3:15 AM | 7.19 | 10/3/2016 3:15 AM | 7.31 |
| 10/1/2016 3:30 AM | 7.30 | 10/2/2016 3:30 AM | 7.18 | 10/3/2016 3:30 AM | 7.22 |
| 10/1/2016 3:45 AM | 7.28 | 10/2/2016 3:45 AM | 7.17 | 10/3/2016 3:45 AM | 7.19 |
| 10/1/2016 4:00 AM | 7.26 | 10/2/2016 4:00 AM | 7.17 | 10/3/2016 4:00 AM | 7.18 |
| 10/1/2016 4:15 AM | 7.25 | 10/2/2016 4:15 AM | 7.17 | 10/3/2016 4:15 AM | 7.32 |
| 10/1/2016 4:30 AM | 7.24 | 10/2/2016 4:30 AM | 7.16 | 10/3/2016 4:30 AM | 7.32 |
| 10/1/2016 4:45 AM | 7.18 | 10/2/2016 4:45 AM | 7.30 | 10/3/2016 4:45 AM | 7.31 |
| 10/1/2016 5:00 AM | 7.17 | 10/2/2016 5:00 AM | 7.21 | 10/3/2016 5:00 AM | 7.30 |
| 10/1/2016 5:15 AM | 7.17 | 10/2/2016 5:15 AM | 7.18 | 10/3/2016 5:15 AM | 7.28 |
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| 10/1/2016 6:00 AM | 7.19 | 10/2/2016 6:00 AM | 7.32 | 10/3/2016 6:00 AM | 7.24 |
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| 10/1/2016 6:30 AM | 7.20 | 10/2/2016 6:30 AM | 7.31 | 10/3/2016 6:30 AM | 7.19 |
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| 10/1/2016 7:45 AM | 7.31 | 10/2/2016 7:45 AM | 7.19 | 10/3/2016 7:45 AM | 7.30 |
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| 10/1/2016 8:30 AM | 7.26 | 10/2/2016 8:30 AM | 7.17 | 10/3/2016 8:30 AM | 7.26 |
| 10/1/2016 8:45 AM | 7.25 | 10/2/2016 8:45 AM | 7.15 | 10/3/2016 8:45 AM | 7.24 |
| 10/1/2016 9:00 AM | 7.22 | 10/2/2016 9:00 AM | 7.30 | 10/3/2016 9:00 AM | 7.23 |
| 10/1/2016 9:15 AM | 7.18 | 10/2/2016 9:15 AM | 7.21 | 10/3/2016 9:15 AM | 7.22 |
| 10/1/2016 9:30 AM | 7.18 | 10/2/2016 9:30 AM | 7.18 | 10/3/2016 9:30 AM | 7.21 |
| 10/1/2016 9:45 AM | 7.17 | 10/2/2016 9:45 AM | 7.17 | 10/3/2016 9:45 AM | 7.21 |
| 10/1/2016 10:00 AM | 7.17 | 10/2/2016 10:00 AM | 7.17 | 10/3/2016 10:00 AM | 7.21 |
| 10/1/2016 10:15 AM | 7.14 | 10/2/2016 10:15 AM | 7.23 | 10/3/2016 10:15 AM | 7.22 |
| 10/1/2016 10:30 AM | 7.30 | 10/2/2016 10:30 AM | 7.32 | 10/3/2016 10:30 AM | 7.25 |
| 10/1/2016 10:45 AM | 7.22 | 10/2/2016 10:45 AM | 7.32 | 10/3/2016 10:45 AM | 7.16 |
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| 10/1/2016 11:30 AM | 7.16 | 10/2/2016 11:30 AM | 7.32 | 10/3/2016 11:30 AM | 7.14 |
| 10/1/2016 11:45 AM | 7.31 | 10/2/2016 11:45 AM | 7.32 | 10/3/2016 11:45 AM | 7.15 |
| 10/1/2016 12:00 PM | 7.31 | 10/2/2016 12:00 PM | 7.31 | 10/3/2016 12:00 PM | 7.29 |
| 10/1/2016 12:15 PM | 7.30 | 10/2/2016 12:15 PM | 7.22 | 10/3/2016 12:15 PM | 7.32 |
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| 10/1/2016 7:15 PM | 7.17 | 10/2/2016 7:15 PM | 7.25 | 10/3/2016 7:15 PM | 7.23 |
| 10/1/2016 7:30 PM | 7.21 | 10/2/2016 7:30 PM | 7.31 | 10/3/2016 7:30 PM | 7.22 |
| 10/1/2016 7:45 PM | 7.30 | 10/2/2016 7:45 PM | 7.30 | 10/3/2016 7:45 PM | 7.19 |
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| 10/1/2016 9:15 PM | 7.31 | 10/2/2016 9:15 PM | 7.20 | 10/3/2016 9:15 PM | 7.21 |
| 10/1/2016 9:30 PM | 7.30 | 10/2/2016 9:30 PM | 7.19 | 10/3/2016 9:30 PM | 7.18 |
| 10/1/2016 9:45 PM | 7.29 | 10/2/2016 9:45 PM | 7.19 | 10/3/2016 9:45 PM | 7.17 |
| 10/1/2016 10:00 PM | 7.27 | 10/2/2016 10:00 PM | 7.19 | 10/3/2016 10:00 PM | 7.17 |
| 10/1/2016 10:15 PM | 7.26 | 10/2/2016 10:15 PM | 7.18 | 10/3/2016 10:15 PM | 7.26 |
| 10/1/2016 10:30 PM | 7.25 | 10/2/2016 10:30 PM | 7.21 | 10/3/2016 10:30 PM | 7.30 |
| 10/1/2016 10:45 PM | 7.19 | 10/2/2016 10:45 PM | 7.30 | 10/3/2016 10:45 PM | 7.29 |
| 10/1/2016 11:00 PM | 7.18 | 10/2/2016 11:00 PM | 7.21 | 10/3/2016 11:00 PM | 7.27 |
| 10/1/2016 11:15 PM | 7.18 | 10/2/2016 11:15 PM | 7.19 | 10/3/2016 11:15 PM | 7.26 |
| 10/1/2016 11:30 PM | 7.17 | 10/2/2016 11:30 PM | 7.19 | 10/3/2016 11:30 PM | 7.25 |
| 10/1/2016 11:45 PM | 7.17 | 10/2/2016 11:45 PM | 7.18 | 10/3/2016 11:45 PM | 7.24 |
| AVG | 7.23 | AVG | 7.24 | AVG | 7.24 |

Note communications loss at 12:15AM, no data recorded, not included in average.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 10/4/2016 12:00 AM | 7.23 | 10/5/2016 12:00 AM | 7.30 | 10/6/2016 12:00 AM | 7.32 |
| 10/4/2016 12:15 AM | 7.17 | 10/5/2016 12:15 AM | 7.24 | 10/6/2016 12:15 AM | 7.32 |
| 10/4/2016 12:30 AM | 7.17 | 10/5/2016 12:30 AM | 7.20 | 10/6/2016 12:30 AM | 7.31 |
| 10/4/2016 12:45 AM | 7.16 | 10/5/2016 12:45 AM | 7.19 | 10/6/2016 12:45 AM | 7.29 |
| 10/4/2016 1:00 AM | 7.16 | 10/5/2016 1:00 AM | 7.19 | 10/6/2016 1:00 AM | 7.28 |
| 10/4/2016 1:15 AM | 7.16 | 10/5/2016 1:15 AM | 7.27 | 10/6/2016 1:15 AM | 7.27 |
| 10/4/2016 1:30 AM | 7.20 | 10/5/2016 1:30 AM | 7.32 | 10/6/2016 1:30 AM | 7.24 |
| 10/4/2016 1:45 AM | 7.29 | 10/5/2016 1:45 AM | 7.31 | 10/6/2016 1:45 AM | 7.19 |
| 10/4/2016 2:00 AM | 7.19 | 10/5/2016 2:00 AM | 7.31 | 10/6/2016 2:00 AM | 7.19 |
| 10/4/2016 2:15 AM | 7.17 | 10/5/2016 2:15 AM | 7.29 | 10/6/2016 2:15 AM | 7.18 |
| 10/4/2016 2:30 AM | 7.17 | 10/5/2016 2:30 AM | 7.28 | 10/6/2016 2:30 AM | 7.18 |
| 10/4/2016 2:45 AM | 7.13 | 10/5/2016 2:45 AM | 7.27 | 10/6/2016 2:45 AM | 7.17 |
| 10/4/2016 3:00 AM | 7.30 | 10/5/2016 3:00 AM | 7.26 | 10/6/2016 3:00 AM | 7.30 |
| 10/4/2016 3:15 AM | 7.30 | 10/5/2016 3:15 AM | 7.20 | 10/6/2016 3:15 AM | 7.24 |
| 10/4/2016 3:30 AM | 7.29 | 10/5/2016 3:30 AM | 7.20 | 10/6/2016 3:30 AM | 7.19 |
| 10/4/2016 3:45 AM | 7.28 | 10/5/2016 3:45 AM | 7.19 | 10/6/2016 3:45 AM | 7.18 |
| 10/4/2016 4:00 AM | 7.26 | 10/5/2016 4:00 AM | 7.19 | 10/6/2016 4:00 AM | 7.18 |
| 10/4/2016 4:15 AM | 7.25 | 10/5/2016 4:15 AM | 7.18 | 10/6/2016 4:15 AM | 7.15 |
| 10/4/2016 4:30 AM | 7.23 | 10/5/2016 4:30 AM | 7.29 | 10/6/2016 4:30 AM | 7.32 |
| 10/4/2016 4:45 AM | 7.18 | 10/5/2016 4:45 AM | 7.26 | 10/6/2016 4:45 AM | 7.32 |
| 10/4/2016 5:00 AM | 7.17 | 10/5/2016 5:00 AM | 7.20 | 10/6/2016 5:00 AM | 7.31 |
| 10/4/2016 5:15 AM | 7.16 | 10/5/2016 5:15 AM | 7.19 | 10/6/2016 5:15 AM | 7.30 |
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| 10/4/2016 6:00 AM | 7.19 | 10/5/2016 6:00 AM | 7.32 | 10/6/2016 6:00 AM | 7.25 |
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| 10/4/2016 7:45 AM | 7.32 | 10/5/2016 7:45 AM | 7.20 | 10/6/2016 7:45 AM | 7.25 |
| 10/4/2016 8:00 AM | 7.30 | 10/5/2016 8:00 AM | 7.19 | 10/6/2016 8:00 AM | 7.19 |
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| 10/4/2016 8:45 AM | 7.25 | 10/5/2016 8:45 AM | 7.18 | 10/6/2016 8:45 AM | 7.31 |
| 10/4/2016 9:00 AM | 7.24 | 10/5/2016 9:00 AM | 7.30 | 10/6/2016 9:00 AM | 7.32 |
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| 10/4/2016 10:45 AM | 7.19 | 10/5/2016 10:45 AM | 7.32 | 10/6/2016 10:45 AM | 7.19 |
| 10/4/2016 11:00 AM | 7.14 | 10/5/2016 11:00 AM | 7.31 | 10/6/2016 11:00 AM | 7.18 |
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| 10/4/2016 11:45 AM | 7.32 | 10/5/2016 11:45 AM | 7.27 | 10/6/2016 11:45 AM | 7.15 |
| 10/4/2016 12:00 PM | 7.32 | 10/5/2016 12:00 PM | 7.26 | 10/6/2016 12:00 PM | 7.31 |
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| 10/4/2016 12:45 PM | 7.32 | 10/5/2016 12:45 PM | 7.18 | 10/6/2016 12:45 PM | 7.17 |
| 10/4/2016 1:00 PM | 7.32 | 10/5/2016 1:00 PM | 7.18 | 10/6/2016 1:00 PM | 7.27 |
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| 10/4/2016 1:30 PM | 7.30 | 10/5/2016 1:30 PM | 7.30 | 10/6/2016 1:30 PM | 7.32 |
| 10/4/2016 1:45 PM | 7.27 | 10/5/2016 1:45 PM | 7.22 | 10/6/2016 1:45 PM | 7.31 |
| 10/4/2016 2:00 PM | 7.26 | 10/5/2016 2:00 PM | 7.18 | 10/6/2016 2:00 PM | 7.31 |
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| 10/4/2016 3:15 PM | 7.24 | 10/5/2016 3:15 PM | 7.31 | 10/6/2016 3:15 PM | 7.24 |
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| 10/4/2016 4:45 PM | 7.29 | 10/5/2016 4:45 PM | 7.21 | 10/6/2016 4:45 PM | 7.26 |
| 10/4/2016 5:00 PM | 7.28 | 10/5/2016 5:00 PM | 7.20 | 10/6/2016 5:00 PM | 7.20 |
| 10/4/2016 5:15 PM | 7.27 | 10/5/2016 5:15 PM | 7.20 | 10/6/2016 5:15 PM | 7.19 |

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| 10/4/2016 5:45 PM | 7.29 | 10/5/2016 5:45 PM | 7.18 | 10/6/2016 5:45 PM | 7.28 |
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| 10/4/2016 8:45 PM | 7.19 | 10/5/2016 8:45 PM | 7.26 | 10/6/2016 8:45 PM | 7.18 |
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| AVG | 7.23 | AVG | 7.24 | AVG | 7.24 |

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| 10/7/2016 12:45 AM | 7.17 | 10/8/2016 12:45 AM | 7.16 | 10/9/2016 12:45 AM | 7.13 |
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| 10/7/2016 1:15 AM | 7.17 | 10/8/2016 1:15 AM | 7.29 | 10/9/2016 1:15 AM | 7.13 |
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| 10/7/2016 4:45 AM | 7.19 | 10/8/2016 4:45 AM | 7.21 | 10/9/2016 4:45 AM | 7.34 |
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| 10/7/2016 12:00 PM | 7.31 | 10/8/2016 12:00 PM | 7.19 | 10/9/2016 12:00 PM | 7.15 |
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| 10/7/2016 2:15 PM | 7.17 | 10/8/2016 2:15 PM | 7.15 | 10/9/2016 2:15 PM | 7.29 |
| 10/7/2016 2:30 PM | 7.16 | 10/8/2016 2:30 PM | 7.14 | 10/9/2016 2:30 PM | 7.28 |
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| AVG | 7.22 | AVG | 7.17 | AVG | 7.23 |

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| 10/25/2016 8:45 PM | 7.28 | 10/26/2016 8:45 PM | 7.40 | 10/27/2016 8:45 PM | 7.32 |
| 10/25/2016 9:00 PM | 7.43 | 10/26/2016 9:00 PM | 7.36 | 10/27/2016 9:00 PM | 7.32 |
| 10/25/2016 9:15 PM | 7.43 | 10/26/2016 9:15 PM | 7.32 | 10/27/2016 9:15 PM | 7.34 |
| 10/25/2016 9:30 PM | 7.42 | 10/26/2016 9:30 PM | 7.31 | 10/27/2016 9:30 PM | 7.45 |
| 10/25/2016 9:45 PM | 7.40 | 10/26/2016 9:45 PM | 7.30 | 10/27/2016 9:45 PM | 7.34 |
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| 10/25/2016 10:45 PM | 7.30 | 10/26/2016 10:45 PM | 7.34 | 10/27/2016 10:45 PM | 7.45 |
| 10/25/2016 11:00 PM | 7.30 | 10/26/2016 11:00 PM | 7.44 | 10/27/2016 11:00 PM | 7.45 |
| 10/25/2016 11:15 PM | 7.29 | 10/26/2016 11:15 PM | 7.33 | 10/27/2016 11:15 PM | 7.43 |
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| 10/25/2016 11:45 PM | 7.29 | 10/26/2016 11:45 PM | 7.32 | 10/27/2016 11:45 PM | 7.41 |
| AVG | 7.35 | AVG | 7.36 | AVG | 7.38 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 10/28/2016 11:45 PM | 7.30 | 10/29/2016 11:45 PM | 7.43 | 10/30/2016 11:45 PM | 7.40 |
| AVG | 7.37 | AVG | 7.37 | AVG | 7.37 |

| Date And Time | pH |
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| 10/31/2016 12:15 AM | 7.32 |
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| 10/31/2016 6:45 AM | 7.29 |

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| **MIN** | **7.10** |
| **MAX** | **7.47** |

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| 10/31/2016 7:00 AM | 7.30 |
| 10/31/2016 7:15 AM | 7.42 |
| 10/31/2016 7:30 AM | 7.42 |
| 10/31/2016 7:45 AM | 7.41 |
| 10/31/2016 8:00 AM | 7.39 |
| 10/31/2016 8:15 AM | 7.38 |
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| 10/31/2016 7:45 PM | 7.30 |
| 10/31/2016 8:00 PM | 7.41 |
| 10/31/2016 8:15 PM | 7.31 |
| 10/31/2016 8:30 PM | 7.29 |
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| 10/31/2016 10:30 PM | 7.33 |
| 10/31/2016 10:45 PM | 7.29 |
| 10/31/2016 11:00 PM | 7.29 |
| 10/31/2016 11:15 PM | 7.28 |
| 10/31/2016 11:30 PM | 7.28 |
| 10/31/2016 11:45 PM | 7.28 |
| AVG | 7.35 |

Avtex Fibers
Front Royal, VA
Outfall 004
October 2016 DMR

| Sample Date | Sample ID | BOD, mg/L | BOD, kg/d | TSS, mg/L | TSS, kg/d |
|---|---|---|---|---|---|
| 10/5/2016 | AF10-5FE | 0.0 | 0.0 | 0.0 | 0.0 |
| 10/13/2016 | AF10-13FE | 0.0 | 0.0 | 0.0 | 0.0 |
| 10/19/2016 | AF10-19FE | 0.0 | 0.0 | 0.0 | 0.0 |
| 10/27/2016 | AF10-27FE | 0.0 | 0.0 | 0.0 | 0.0 |
| | Daily Maximum: | 0.0 | 0.0 | 0.0 | 0.0 |
| | Monthly Avg: | 0.0 | 0.0 | 0.0 | 0.0 |

Monthly Average – Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as calculated. If all data are below the QL used for the analysis, then the average shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported monthly average concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the monthly average of the calculated daily quantities.

Daily Maximum – Compliance with the daily maximum limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each day during the reporting month. The maximum value of these daily averages thus determined shall be reported on the DMR as the Daily Maximum. If all data are below the QL used for the analysis, then the maximum value of the daily averages shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported daily maximum concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported daily average concentrations (including the defined zeros) and corresponding daily flows to determine daily average quantities and report the maximum of the daily average quantities during the reporting month.

**Loading Derivation**
If 1 ppm (= 1 mg/L) and 1 MGD (= 1 MG/day)
--> (1 mg/L)(1 MG/day)(3.785 L/Gal)(10^6 Gal/MG)(1 lb/453,600 mg) = 8.34 lbs/day
**--> lbs/day = ppm * 8.34 * MGD**
**--> kg/d = ppm * 8.34 * MGD * 0.4536*lb/d**

**Concentration Derivation**
If 1 lb/d and 1 MGD (= 1 MG/day)
[(1 lbs/day)(453,600 mg/lb)] / [(1 MG/d)(10^6 Gal/MG)(3.785 L/Gal)]
**--> ppm = lb/d * (1/8.34) * (1/MGD)**

| | BOD |
|---|---|
| 10/5/2016 | 0 |
| 10/13/2016 | 0 |
| 10/19/2016 | 0 |
| 10/27/2016 | 0 |
| AVG | 0 |

| | TSS |
|---|---|
| 10/5/2016 | 0 |
| 10/13/2016 | 0 |
| 10/19/2016 | 0 |
| 10/27/2016 | 0 |
| AVG | 0 |

| | CS2* |
|---|---|
| 10/27/2016 | <QL |

*Note: CS2 EPA Test Method: 8260 MSV Low Level Analytical Method (EPA 8260)
Report Limit 2 ug/L
MDL 1.2 ug/L

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
**DISCHARGE MONITORING REPORT** (DMR)

PERMITTEE NAME/ADDRESS: (Include Facility Name/Location if different) — OMB No. 2040-004

| | | | |
|---|---|---|---|
| **NAME:** | Avtex Fibers | **PERMIT NUMBER:** NA | **DMR MAILING ZIP CODE:** 23218 |
| **ADDRESS:** | 404 Kendrick Lane | **DISCHARGE NUMBER:** 004 | DESCRIPTION: |
| | Front Royal, VA 22630 | | GLTP EFFLUENT (OUTFALL 004) |
| **FACILITY:** | AVTEX FIBERS | | External Outfall |
| **LOCATION:** | FRONT ROYAL, VA | | **No Discharge** |
| **ATTN:** | | | |

**MONITORING PERIOD**

| | YEAR | MO | DAY | | YEAR | MO | DAY |
|---|---|---|---|---|---|---|---|
| **FROM** | 16 | 11 | 01 | TO | 16 | 11 | 30 |

| **PARAMETER** | | QUANTITY OR LOADING VALUE | QUANTITY OR LOADING VALUE | UNITS | QUALITY OR CONCENTRATION VALUE | QUALITY OR CONCENTRATION VALUE | QUALITY OR CONCENTRATION VALUE | UNITS | **NO. EX** | FREQUENCY OF ANALYSIS | **SAMPLE TYPE** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FLOW** | SAMPLE MEASUREMENT | 0.105 | 0.127 | MGD | ***** | ***** | ***** | | 0 | CONTINUOUS | TIRE |
| **00056 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | REPORT MONTHLY AV | REPORT DAILY MAX | | ****** | ****** | ****** | | | CONTINUOUS | TIRE |
| **PH** | SAMPLE MEASUREMENT | ***** | ***** | | 7.2 | ***** | 7.9 | SU | 0 | CONTINUOUS | GRAB |
| **00400 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | ****** | ****** | | 6.5 MINIMUM | ****** | 9.0 MAXIMUM | | | CONTINUOUS | GRAB |
| **BOD, 5-DAY** | SAMPLE MEASUREMENT | <QL | <QL | kg/d | ***** | <QL | <QL | mg/L | 0 | 1/7 | 8 HC |
| **00318 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | 36 MONTHLY AV | 96 DAILY MAX | | ****** | 24 MONTHLY AV | 64 DAILY MX | | | 1/7 | 8 HC |
| **SOLIDS, TOTAL SUSPENDED** | SAMPLE MEASUREMENT | <QL | <QL | kg/d | ***** | <QL | <QL | mg/L | 0 | 1/7 | 8 HC |
| **03603 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | 60 MONTHLY AV | 190 DAILY MAX | | ****** | 40 MONTHLY AV | 130 DAILY MX | | | 1/7 | 8 HC |
| **CARBON DISULFIDE** | SAMPLE MEASUREMENT | <QL | <QL | kg/d | ***** | <QL | <QL | mg/L | 0 | 1/30 | 8 HC |
| **77041 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | NL MONTHLY AV | NL DAILY MAX | | ****** | NL MONTHLY AV | NL DAILY MX | | | 1/30 | 8 HC |

| NAME/TITLE PRINCIPAL EXECUTIVE OFFICER | | | TELEPHONE | DATE |
|---|---|---|---|---|
| Brian McGinnis<br>Manager, Environmental Remediation | I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | 215 299-6047 | |
| TYPED OR PRINTED | | | AREA / NUMBER | YEAR / MO / DAY |

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

Attachment: pH compliance monitoring summary (monthly)

Carbon disulfide: No limit established; monitored monthly; 0.1 mg/L action level

EPA Form 3320-1 (Rev 01/06) Previous editions may be used.

Avtex Fibers
Front Royal, VA
Outfall 004
November 2016 DMR

pH Calculations:

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 11/1/2016 12:00 AM | 7.28 | 11/2/2016 12:00 AM | 7.43 | 11/3/2016 12:00 AM | 7.37 |
| 11/1/2016 12:15 AM | | 11/2/2016 12:15 AM | 7.45 | 11/3/2016 12:15 AM | 7.33 |
| 11/1/2016 12:30 AM | 7.44 | 11/2/2016 12:30 AM | 7.44 | 11/3/2016 12:30 AM | 7.32 |
| 11/1/2016 12:45 AM | 7.32 | 11/2/2016 12:45 AM | 7.43 | 11/3/2016 12:45 AM | 7.32 |
| 11/1/2016 1:00 AM | 7.29 | 11/2/2016 1:00 AM | 7.42 | 11/3/2016 1:00 AM | 7.31 |
| 11/1/2016 1:15 AM | 7.27 | 11/2/2016 1:15 AM | 7.41 | 11/3/2016 1:15 AM | 7.31 |
| 11/1/2016 1:30 AM | 7.44 | 11/2/2016 1:30 AM | 7.35 | 11/3/2016 1:30 AM | 7.31 |
| 11/1/2016 1:45 AM | 7.45 | 11/2/2016 1:45 AM | 7.31 | 11/3/2016 1:45 AM | 7.35 |
| 11/1/2016 2:00 AM | 7.44 | 11/2/2016 2:00 AM | 7.31 | 11/3/2016 2:00 AM | 7.44 |
| 11/1/2016 2:15 AM | 7.43 | 11/2/2016 2:15 AM | 7.30 | 11/3/2016 2:15 AM | 7.33 |
| 11/1/2016 2:30 AM | 7.42 | 11/2/2016 2:30 AM | 7.30 | 11/3/2016 2:30 AM | 7.40 |
| 11/1/2016 2:45 AM | 7.41 | 11/2/2016 2:45 AM | 7.29 | 11/3/2016 2:45 AM | 7.45 |
| 11/1/2016 3:00 AM | 7.36 | 11/2/2016 3:00 AM | 7.29 | 11/3/2016 3:00 AM | 7.44 |
| 11/1/2016 3:15 AM | 7.32 | 11/2/2016 3:15 AM | 7.35 | 11/3/2016 3:15 AM | 7.43 |
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| 11/1/2016 4:30 AM | 7.29 | 11/2/2016 4:30 AM | 7.45 | 11/3/2016 4:30 AM | 7.36 |
| 11/1/2016 4:45 AM | 7.37 | 11/2/2016 4:45 AM | 7.44 | 11/3/2016 4:45 AM | 7.32 |
| 11/1/2016 5:00 AM | 7.37 | 11/2/2016 5:00 AM | 7.43 | 11/3/2016 5:00 AM | 7.32 |
| 11/1/2016 5:15 AM | 7.31 | 11/2/2016 5:15 AM | 7.41 | 11/3/2016 5:15 AM | 7.31 |
| 11/1/2016 5:30 AM | 7.31 | 11/2/2016 5:30 AM | 7.40 | 11/3/2016 5:30 AM | 7.30 |
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| 11/1/2016 11:45 AM | 7.39 | 11/2/2016 11:45 AM | 7.27 | 11/3/2016 11:45 AM | 7.36 |
| 11/1/2016 12:00 PM | 7.37 | 11/2/2016 12:00 PM | 7.26 | 11/3/2016 12:00 PM | 7.35 |
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| 11/1/2016 12:45 PM | 7.29 | 11/2/2016 12:45 PM | 7.45 | 11/3/2016 12:45 PM | 7.34 |
| 11/1/2016 1:00 PM | 7.28 | 11/2/2016 1:00 PM | 7.46 | 11/3/2016 1:00 PM | 7.32 |
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| AVG | 7.35 | AVG | 7.38 | AVG | 7.36 |

Note: Communications loss at 12:15AM, no data recorded, not included in average.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 11/4/2016 12:00 AM | 7.28 | 11/5/2016 12:00 AM | 7.43 | 11/6/2016 12:00 AM | 7.32 |
| 11/4/2016 12:15 AM | 7.33 | 11/5/2016 12:15 AM | 7.42 | 11/6/2016 12:15 AM | 7.28 |
| 11/4/2016 12:30 AM | 7.42 | 11/5/2016 12:30 AM | 7.41 | 11/6/2016 12:30 AM | 7.27 |
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| 11/4/2016 4:30 AM | 7.36 | 11/5/2016 4:30 AM | 7.26 | 11/6/2016 4:30 AM | 7.29 |
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| 11/4/2016 2:15 PM | 7.43 | 11/5/2016 2:15 PM | 7.43 | 11/6/2016 2:15 PM | 7.37 |
| 11/4/2016 2:30 PM | 7.42 | 11/5/2016 2:30 PM | 7.42 | 11/6/2016 2:30 PM | 7.41 |
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| 11/4/2016 4:30 PM | 7.30 | 11/5/2016 4:30 PM | 7.30 | 11/6/2016 4:30 PM | 7.36 |
| 11/4/2016 4:45 PM | 7.28 | 11/5/2016 4:45 PM | 7.29 | 11/6/2016 4:45 PM | 7.35 |
| 11/4/2016 5:00 PM | 7.28 | 11/5/2016 5:00 PM | 7.39 | 11/6/2016 5:00 PM | 7.32 |
| 11/4/2016 5:15 PM | 7.27 | 11/5/2016 5:15 PM | 7.40 | 11/6/2016 5:15 PM | 7.30 |

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| 11/4/2016 6:15 PM | 7.36 | 11/5/2016 6:15 PM | 7.36 | 11/6/2016 6:15 PM | 7.28 |
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| 11/4/2016 9:45 PM | 7.26 | 11/5/2016 9:45 PM | 7.28 | 11/6/2016 9:45 PM | 7.27 |
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| AVG | 7.34 | AVG | 7.34 | AVG | 7.34 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 11/7/2016 5:30 AM | 7.39 | 11/8/2016 5:30 AM | 7.32 | 11/9/2016 5:30 AM | 7.49 |
| 11/7/2016 5:45 AM | 7.38 | 11/8/2016 5:45 AM | 7.32 | 11/9/2016 5:45 AM | 7.39 |
| 11/7/2016 6:00 AM | 7.38 | 11/8/2016 6:00 AM | 7.32 | 11/9/2016 6:00 AM | 7.37 |
| 11/7/2016 6:15 AM | 7.37 | 11/8/2016 6:15 AM | 7.31 | 11/9/2016 6:15 AM | 7.49 |
| 11/7/2016 6:30 AM | 7.33 | 11/8/2016 6:30 AM | 7.36 | 11/9/2016 6:30 AM | 7.51 |
| 11/7/2016 6:45 AM | 7.30 | 11/8/2016 6:45 AM | 7.46 | 11/9/2016 6:45 AM | 7.50 |
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| 11/7/2016 7:30 AM | 7.28 | 11/8/2016 7:30 AM | 7.32 | 11/9/2016 7:30 AM | 7.46 |
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| 11/7/2016 4:15 PM | 7.31 | 11/8/2016 4:15 PM | 7.36 | 11/9/2016 4:15 PM | 7.48 |
| 11/7/2016 4:30 PM | 7.30 | 11/8/2016 4:30 PM | 7.42 | 11/9/2016 4:30 PM | 7.47 |
| 11/7/2016 4:45 PM | 7.30 | 11/8/2016 4:45 PM | 7.47 | 11/9/2016 4:45 PM | 7.46 |
| 11/7/2016 5:00 PM | 7.30 | 11/8/2016 5:00 PM | 7.47 | 11/9/2016 5:00 PM | 7.42 |
| 11/7/2016 5:15 PM | 7.26 | 11/8/2016 5:15 PM | 7.45 | 11/9/2016 5:15 PM | 7.39 |

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| 11/7/2016 8:30 PM | 7.29 | 11/8/2016 8:30 PM | 7.47 | 11/9/2016 8:30 PM | 7.52 |
| 11/7/2016 8:45 PM | 7.29 | 11/8/2016 8:45 PM | 7.38 | 11/9/2016 8:45 PM | 7.50 |
| 11/7/2016 9:00 PM | 7.29 | 11/8/2016 9:00 PM | 7.35 | 11/9/2016 9:00 PM | 7.49 |
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| 11/7/2016 11:00 PM | 7.45 | 11/8/2016 11:00 PM | 7.41 | 11/9/2016 11:00 PM | 7.44 |
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| 11/7/2016 11:30 PM | 7.45 | 11/8/2016 11:30 PM | 7.36 | 11/9/2016 11:30 PM | 7.38 |
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| AVG | 7.35 | AVG | 7.40 | AVG | 7.43 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 11/10/2016 5:00 AM | 7.57 | 11/11/2016 5:00 AM | 7.53 | 11/12/2016 5:00 AM | 7.53 |
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| 11/10/2016 5:45 AM | 7.54 | 11/11/2016 5:45 AM | 7.47 | 11/12/2016 5:45 AM | 7.58 |
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| 11/10/2016 10:15 AM | 7.53 | 11/11/2016 10:15 AM | 7.47 | 11/12/2016 10:15 AM | 7.54 |
| 11/10/2016 10:30 AM | 7.51 | 11/11/2016 10:30 AM | 7.47 | 11/12/2016 10:30 AM | 7.59 |
| 11/10/2016 10:45 AM | 7.51 | 11/11/2016 10:45 AM | 7.47 | 11/12/2016 10:45 AM | 7.67 |
| 11/10/2016 11:00 AM | 7.51 | 11/11/2016 11:00 AM | 7.47 | 11/12/2016 11:00 AM | 7.67 |
| 11/10/2016 11:15 AM | 7.43 | 11/11/2016 11:15 AM | 7.51 | 11/12/2016 11:15 AM | 7.67 |
| 11/10/2016 11:30 AM | 7.42 | 11/11/2016 11:30 AM | 7.64 | 11/12/2016 11:30 AM | 7.68 |
| 11/10/2016 11:45 AM | 7.41 | 11/11/2016 11:45 AM | 7.51 | 11/12/2016 11:45 AM | 7.67 |
| 11/10/2016 12:00 PM | 7.41 | 11/11/2016 12:00 PM | 7.61 | 11/12/2016 12:00 PM | 7.67 |
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| 11/10/2016 12:30 PM | 7.41 | 11/11/2016 12:30 PM | 7.66 | 11/12/2016 12:30 PM | 7.64 |
| 11/10/2016 12:45 PM | 7.42 | 11/11/2016 12:45 PM | 7.65 | 11/12/2016 12:45 PM | 7.58 |
| 11/10/2016 1:00 PM | 7.59 | 11/11/2016 1:00 PM | 7.63 | 11/12/2016 1:00 PM | 7.57 |
| 11/10/2016 1:15 PM | 7.60 | 11/11/2016 1:15 PM | 7.62 | 11/12/2016 1:15 PM | 7.56 |
| 11/10/2016 1:30 PM | 7.59 | 11/11/2016 1:30 PM | 7.61 | 11/12/2016 1:30 PM | 7.55 |
| 11/10/2016 1:45 PM | 7.59 | 11/11/2016 1:45 PM | 7.59 | 11/12/2016 1:45 PM | 7.55 |
| 11/10/2016 2:00 PM | 7.54 | 11/11/2016 2:00 PM | 7.56 | 11/12/2016 2:00 PM | 7.55 |
| 11/10/2016 2:15 PM | 7.51 | 11/11/2016 2:15 PM | 7.55 | 11/12/2016 2:15 PM | 7.63 |
| 11/10/2016 2:30 PM | 7.49 | 11/11/2016 2:30 PM | 7.54 | 11/12/2016 2:30 PM | 7.62 |
| 11/10/2016 2:45 PM | 7.49 | 11/11/2016 2:45 PM | 7.52 | 11/12/2016 2:45 PM | 7.57 |
| 11/10/2016 3:00 PM | 7.48 | 11/11/2016 3:00 PM | 7.52 | 11/12/2016 3:00 PM | 7.60 |
| 11/10/2016 3:15 PM | 7.49 | 11/11/2016 3:15 PM | 7.51 | 11/12/2016 3:15 PM | 7.69 |
| 11/10/2016 3:30 PM | 7.46 | 11/11/2016 3:30 PM | 7.51 | 11/12/2016 3:30 PM | 7.69 |
| 11/10/2016 3:45 PM | 7.46 | 11/11/2016 3:45 PM | 7.50 | 11/12/2016 3:45 PM | 7.68 |
| 11/10/2016 4:00 PM | 7.45 | 11/11/2016 4:00 PM | 7.50 | 11/12/2016 4:00 PM | 7.67 |
| 11/10/2016 4:15 PM | 7.44 | 11/11/2016 4:15 PM | 7.50 | 11/12/2016 4:15 PM | 7.65 |
| 11/10/2016 4:30 PM | 7.44 | 11/11/2016 4:30 PM | 7.56 | 11/12/2016 4:30 PM | 7.64 |
| 11/10/2016 4:45 PM | 7.43 | 11/11/2016 4:45 PM | 7.63 | 11/12/2016 4:45 PM | 7.63 |
| 11/10/2016 5:00 PM | 7.48 | 11/11/2016 5:00 PM | 7.63 | 11/12/2016 5:00 PM | 7.60 |
| 11/10/2016 5:15 PM | 7.54 | 11/11/2016 5:15 PM | 7.63 | 11/12/2016 5:15 PM | 7.57 |

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| 11/10/2016 5:30 PM | 7.46 | 11/11/2016 5:30 PM | 7.62 | 11/12/2016 5:30 PM | 7.56 |
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| 11/10/2016 6:00 PM | 7.44 | 11/11/2016 6:00 PM | 7.60 | 11/12/2016 6:00 PM | 7.55 |
| 11/10/2016 6:15 PM | 7.44 | 11/11/2016 6:15 PM | 7.59 | 11/12/2016 6:15 PM | 7.55 |
| 11/10/2016 6:30 PM | 7.58 | 11/11/2016 6:30 PM | 7.55 | 11/12/2016 6:30 PM | 7.55 |
| 11/10/2016 6:45 PM | 7.58 | 11/11/2016 6:45 PM | 7.51 | 11/12/2016 6:45 PM | 7.52 |
| 11/10/2016 7:00 PM | 7.58 | 11/11/2016 7:00 PM | 7.50 | 11/12/2016 7:00 PM | 7.69 |
| 11/10/2016 7:15 PM | 7.56 | 11/11/2016 7:15 PM | 7.50 | 11/12/2016 7:15 PM | 7.60 |
| 11/10/2016 7:30 PM | 7.55 | 11/11/2016 7:30 PM | 7.50 | 11/12/2016 7:30 PM | 7.57 |
| 11/10/2016 7:45 PM | 7.54 | 11/11/2016 7:45 PM | 7.50 | 11/12/2016 7:45 PM | 7.56 |
| 11/10/2016 8:00 PM | 7.49 | 11/11/2016 8:00 PM | 7.50 | 11/12/2016 8:00 PM | 7.64 |
| 11/10/2016 8:15 PM | 7.46 | 11/11/2016 8:15 PM | 7.53 | 11/12/2016 8:15 PM | 7.73 |
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| 11/10/2016 8:45 PM | 7.44 | 11/11/2016 8:45 PM | 7.53 | 11/12/2016 8:45 PM | 7.71 |
| 11/10/2016 9:00 PM | 7.44 | 11/11/2016 9:00 PM | 7.51 | 11/12/2016 9:00 PM | 7.70 |
| 11/10/2016 9:15 PM | 7.44 | 11/11/2016 9:15 PM | 7.53 | 11/12/2016 9:15 PM | 7.69 |
| 11/10/2016 9:30 PM | 7.44 | 11/11/2016 9:30 PM | 7.66 | 11/12/2016 9:30 PM | 7.64 |
| 11/10/2016 9:45 PM | 7.50 | 11/11/2016 9:45 PM | 7.66 | 11/12/2016 9:45 PM | 7.60 |
| 11/10/2016 10:00 PM | 7.59 | 11/11/2016 10:00 PM | 7.65 | 11/12/2016 10:00 PM | 7.59 |
| 11/10/2016 10:15 PM | 7.47 | 11/11/2016 10:15 PM | 7.63 | 11/12/2016 10:15 PM | 7.58 |
| 11/10/2016 10:30 PM | 7.46 | 11/11/2016 10:30 PM | 7.62 | 11/12/2016 10:30 PM | 7.58 |
| 11/10/2016 10:45 PM | 7.52 | 11/11/2016 10:45 PM | 7.60 | 11/12/2016 10:45 PM | 7.58 |
| 11/10/2016 11:00 PM | 7.61 | 11/11/2016 11:00 PM | 7.56 | 11/12/2016 11:00 PM | 7.58 |
| 11/10/2016 11:15 PM | 7.60 | 11/11/2016 11:15 PM | 7.52 | 11/12/2016 11:15 PM | 7.70 |
| 11/10/2016 11:30 PM | 7.59 | 11/11/2016 11:30 PM | 7.52 | 11/12/2016 11:30 PM | 7.63 |
| 11/10/2016 11:45 PM | 7.57 | 11/11/2016 11:45 PM | 7.51 | 11/12/2016 11:45 PM | 7.59 |
| AVG | 7.49 | AVG | 7.55 | AVG | 7.61 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 11/13/2016 12:30 AM | 7.74 | 11/14/2016 12:30 AM | 7.69 | 11/15/2016 12:30 AM | 7.64 |
| 11/13/2016 12:45 AM | 7.73 | 11/14/2016 12:45 AM | 7.65 | 11/15/2016 12:45 AM | 7.78 |
| 11/13/2016 1:00 AM | 7.72 | 11/14/2016 1:00 AM | 7.64 | 11/15/2016 1:00 AM | 7.71 |
| 11/13/2016 1:15 AM | 7.70 | 11/14/2016 1:15 AM | 7.64 | 11/15/2016 1:15 AM | 7.67 |
| 11/13/2016 1:30 AM | 7.70 | 11/14/2016 1:30 AM | 7.64 | 11/15/2016 1:30 AM | 7.70 |
| 11/13/2016 1:45 AM | 7.69 | 11/14/2016 1:45 AM | 7.63 | 11/15/2016 1:45 AM | 7.81 |
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| 11/13/2016 2:15 AM | 7.61 | 11/14/2016 2:15 AM | 7.72 | 11/15/2016 2:15 AM | 7.79 |
| 11/13/2016 2:30 AM | 7.61 | 11/14/2016 2:30 AM | 7.71 | 11/15/2016 2:30 AM | 7.78 |
| 11/13/2016 2:45 AM | 7.60 | 11/14/2016 2:45 AM | 7.65 | 11/15/2016 2:45 AM | 7.76 |
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| 11/13/2016 3:45 AM | 7.65 | 11/14/2016 3:45 AM | 7.79 | 11/15/2016 3:45 AM | 7.66 |
| 11/13/2016 4:00 AM | 7.72 | 11/14/2016 4:00 AM | 7.77 | 11/15/2016 4:00 AM | 7.65 |
| 11/13/2016 4:15 AM | 7.61 | 11/14/2016 4:15 AM | 7.76 | 11/15/2016 4:15 AM | 7.65 |
| 11/13/2016 4:30 AM | 7.61 | 11/14/2016 4:30 AM | 7.75 | 11/15/2016 4:30 AM | 7.65 |
| 11/13/2016 4:45 AM | 7.74 | 11/14/2016 4:45 AM | 7.74 | 11/15/2016 4:45 AM | 7.64 |
| 11/13/2016 5:00 AM | 7.75 | 11/14/2016 5:00 AM | 7.71 | 11/15/2016 5:00 AM | 7.64 |
| 11/13/2016 5:15 AM | 7.74 | 11/14/2016 5:15 AM | 7.66 | 11/15/2016 5:15 AM | 7.75 |
| 11/13/2016 5:30 AM | 7.73 | 11/14/2016 5:30 AM | 7.65 | 11/15/2016 5:30 AM | 7.76 |
| 11/13/2016 5:45 AM | 7.71 | 11/14/2016 5:45 AM | 7.64 | 11/15/2016 5:45 AM | 7.68 |
| 11/13/2016 6:00 AM | 7.70 | 11/14/2016 6:00 AM | 7.64 | 11/15/2016 6:00 AM | 7.66 |
| 11/13/2016 6:15 AM | 7.69 | 11/14/2016 6:15 AM | 7.64 | 11/15/2016 6:15 AM | 7.73 |
| 11/13/2016 6:30 AM | 7.66 | 11/14/2016 6:30 AM | 7.64 | 11/15/2016 6:30 AM | 7.82 |
| 11/13/2016 6:45 AM | 7.61 | 11/14/2016 6:45 AM | 7.64 | 11/15/2016 6:45 AM | 7.81 |
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| 11/13/2016 7:30 AM | 7.60 | 11/14/2016 7:30 AM | 7.65 | 11/15/2016 7:30 AM | 7.77 |
| 11/13/2016 7:45 AM | 7.59 | 11/14/2016 7:45 AM | 7.72 | 11/15/2016 7:45 AM | 7.75 |
| 11/13/2016 8:00 AM | 7.59 | 11/14/2016 8:00 AM | 7.80 | 11/15/2016 8:00 AM | 7.72 |
| 11/13/2016 8:15 AM | 7.61 | 11/14/2016 8:15 AM | 7.80 | 11/15/2016 8:15 AM | 7.67 |
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| 11/13/2016 8:45 AM | 7.63 | 11/14/2016 8:45 AM | 7.78 | 11/15/2016 8:45 AM | 7.65 |
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| 11/13/2016 9:15 AM | 7.75 | 11/14/2016 9:15 AM | 7.75 | 11/15/2016 9:15 AM | 7.65 |
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| 11/13/2016 10:30 AM | 7.70 | 11/14/2016 10:30 AM | 7.65 | 11/15/2016 10:30 AM | 7.66 |
| 11/13/2016 10:45 AM | 7.69 | 11/14/2016 10:45 AM | 7.64 | 11/15/2016 10:45 AM | 7.74 |
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| 11/13/2016 11:45 AM | 7.59 | 11/14/2016 11:45 AM | 7.68 | 11/15/2016 11:45 AM | 7.80 |
| 11/13/2016 12:00 PM | 7.58 | 11/14/2016 12:00 PM | 7.79 | 11/15/2016 12:00 PM | 7.79 |
| 11/13/2016 12:15 PM | 7.57 | 11/14/2016 12:15 PM | 7.79 | 11/15/2016 12:15 PM | 7.83 |
| 11/13/2016 12:30 PM | 7.57 | 11/14/2016 12:30 PM | 7.78 | 11/15/2016 12:30 PM | 7.81 |
| 11/13/2016 12:45 PM | 7.57 | 11/14/2016 12:45 PM | 7.77 | 11/15/2016 12:45 PM | 7.72 |
| 11/13/2016 1:00 PM | 7.57 | 11/14/2016 1:00 PM | 7.76 | 11/15/2016 1:00 PM | 7.70 |
| 11/13/2016 1:15 PM | 7.75 | 11/14/2016 1:15 PM | 7.75 | 11/15/2016 1:15 PM | 7.69 |
| 11/13/2016 1:30 PM | 7.79 | 11/14/2016 1:30 PM | 7.74 | 11/15/2016 1:30 PM | 7.68 |
| 11/13/2016 1:45 PM | 7.80 | 11/14/2016 1:45 PM | 7.73 | 11/15/2016 1:45 PM | 7.68 |
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| 11/13/2016 2:15 PM | 7.72 | 11/14/2016 2:15 PM | 7.66 | 11/15/2016 2:15 PM | 7.77 |
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| 11/13/2016 2:45 PM | 7.68 | 11/14/2016 2:45 PM | 7.65 | 11/15/2016 2:45 PM | 7.69 |
| 11/13/2016 3:00 PM | 7.67 | 11/14/2016 3:00 PM | 7.64 | 11/15/2016 3:00 PM | 7.79 |
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| 11/13/2016 4:15 PM | 7.65 | 11/14/2016 4:15 PM | 7.68 | 11/15/2016 4:15 PM | 7.77 |
| 11/13/2016 4:30 PM | 7.64 | 11/14/2016 4:30 PM | 7.63 | 11/15/2016 4:30 PM | 7.76 |
| 11/13/2016 4:45 PM | 7.63 | 11/14/2016 4:45 PM | 7.79 | 11/15/2016 4:45 PM | 7.75 |
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| 11/13/2016 6:15 PM | 7.67 | 11/14/2016 6:15 PM | 7.74 | 11/15/2016 6:15 PM | 7.66 |
| 11/13/2016 6:30 PM | 7.76 | 11/14/2016 6:30 PM | 7.71 | 11/15/2016 6:30 PM | 7.66 |
| 11/13/2016 6:45 PM | 7.75 | 11/14/2016 6:45 PM | 7.66 | 11/15/2016 6:45 PM | 7.64 |
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| 11/13/2016 7:30 PM | 7.72 | 11/14/2016 7:30 PM | 7.65 | 11/15/2016 7:30 PM | 7.67 |
| 11/13/2016 7:45 PM | 7.71 | 11/14/2016 7:45 PM | 7.64 | 11/15/2016 7:45 PM | 7.77 |
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| 11/13/2016 8:45 PM | 7.71 | 11/14/2016 8:45 PM | 7.68 | 11/15/2016 8:45 PM | 7.80 |
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| 11/13/2016 9:15 PM | 7.70 | 11/14/2016 9:15 PM | 7.79 | 11/15/2016 9:15 PM | 7.79 |
| 11/13/2016 9:30 PM | 7.70 | 11/14/2016 9:30 PM | 7.81 | 11/15/2016 9:30 PM | 7.74 |
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| 11/13/2016 11:30 PM | 7.76 | 11/14/2016 11:30 PM | 7.65 | 11/15/2016 11:30 PM | 7.81 |
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| AVG | 7.68 | AVG | 7.70 | AVG | 7.73 |

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| 11/16/2016 3:45 AM | 7.76 | 11/17/2016 3:45 AM | 7.67 | 11/18/2016 3:45 AM | 7.77 |
| 11/16/2016 4:00 AM | 7.75 | 11/17/2016 4:00 AM | 7.76 | 11/18/2016 4:00 AM | 7.76 |
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| 11/25/2016 11:15 PM | 7.81 | 11/26/2016 11:15 PM | 7.59 | 11/27/2016 11:15 PM | 7.50 |
| 11/25/2016 11:30 PM | 7.80 | 11/26/2016 11:30 PM | 7.57 | 11/27/2016 11:30 PM | 7.50 |
| 11/25/2016 11:45 PM | 7.79 | 11/26/2016 11:45 PM | 7.55 | 11/27/2016 11:45 PM | 7.50 |
| AVG | 7.76 | AVG | 7.66 | AVG | 7.56 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 11/28/2016 12:00 AM | 7.50 | 11/29/2016 12:00 AM | 7.60 | 11/30/2016 12:00 AM | 7.45 |
| 11/28/2016 12:15 AM | 7.50 | 11/29/2016 12:15 AM | 7.59 | 11/30/2016 12:15 AM | 7.45 |
| 11/28/2016 12:30 AM | 7.49 | 11/29/2016 12:30 AM | 7.54 | 11/30/2016 12:30 AM | 7.45 |
| 11/28/2016 12:45 AM | 7.49 | 11/29/2016 12:45 AM | 7.46 | 11/30/2016 12:45 AM | 7.44 |
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| 11/28/2016 2:15 AM | 7.48 | 11/29/2016 2:15 AM | 7.45 | 11/30/2016 2:15 AM | 7.64 |
| 11/28/2016 2:30 AM | 7.48 | 11/29/2016 2:30 AM | 7.61 | 11/30/2016 2:30 AM | 7.63 |
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| 11/28/2016 3:30 AM | 7.47 | 11/29/2016 3:30 AM | 7.63 | 11/30/2016 3:30 AM | 7.56 |
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| 11/28/2016 5:00 AM | 7.47 | 11/29/2016 5:00 AM | 7.53 | 11/30/2016 5:00 AM | 7.45 |
| 11/28/2016 5:15 AM | 7.46 | 11/29/2016 5:15 AM | 7.47 | 11/30/2016 5:15 AM | 7.42 |
| 11/28/2016 5:30 AM | 7.46 | 11/29/2016 5:30 AM | 7.45 | 11/30/2016 5:30 AM | 7.61 |
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| 11/28/2016 8:00 AM | 7.44 | 11/29/2016 8:00 AM | 7.44 | 11/30/2016 8:00 AM | 7.54 |
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| 11/28/2016 12:15 PM | 7.42 | 11/29/2016 12:15 PM | 7.61 | 11/30/2016 12:15 PM | 7.59 |
| 11/28/2016 12:30 PM | 7.42 | 11/29/2016 12:30 PM | 7.62 | 11/30/2016 12:30 PM | 7.55 |
| 11/28/2016 12:45 PM | 7.41 | 11/29/2016 12:45 PM | 7.62 | 11/30/2016 12:45 PM | 7.48 |
| 11/28/2016 1:00 PM | 7.50 | 11/29/2016 1:00 PM | 7.64 | 11/30/2016 1:00 PM | 7.46 |
| 11/28/2016 1:15 PM | 7.57 | 11/29/2016 1:15 PM | 7.64 | 11/30/2016 1:15 PM | 7.46 |
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| 11/28/2016 1:45 PM | 7.56 | 11/29/2016 1:45 PM | 7.61 | 11/30/2016 1:45 PM | 7.45 |
| 11/28/2016 2:00 PM | 7.55 | 11/29/2016 2:00 PM | 7.55 | 11/30/2016 2:00 PM | 7.44 |

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| 11/28/2016 2:15 PM | 7.54 | 11/29/2016 2:15 PM | 7.50 | 11/30/2016 2:15 PM | 7.42 |
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| 11/28/2016 4:00 PM | 7.42 | 11/29/2016 4:00 PM | 7.51 | 11/30/2016 4:00 PM | 7.63 |
| 11/28/2016 4:15 PM | 7.41 | 11/29/2016 4:15 PM | 7.47 | 11/30/2016 4:15 PM | 7.62 |
| 11/28/2016 4:30 PM | 7.41 | 11/29/2016 4:30 PM | 7.46 | 11/30/2016 4:30 PM | 7.61 |
| 11/28/2016 4:45 PM | 7.40 | 11/29/2016 4:45 PM | 7.45 | 11/30/2016 4:45 PM | 7.59 |
| 11/28/2016 5:00 PM | 7.40 | 11/29/2016 5:00 PM | 7.58 | 11/30/2016 5:00 PM | 7.54 |
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| 11/28/2016 5:30 PM | 7.48 | 11/29/2016 5:30 PM | 7.63 | 11/30/2016 5:30 PM | 7.46 |
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| 11/28/2016 8:00 PM | 7.50 | 11/29/2016 8:00 PM | 7.45 | 11/30/2016 8:00 PM | 7.62 |
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| 11/28/2016 8:45 PM | 7.42 | 11/29/2016 8:45 PM | 7.48 | 11/30/2016 8:45 PM | 7.60 |
| 11/28/2016 9:00 PM | 7.42 | 11/29/2016 9:00 PM | 7.46 | 11/30/2016 9:00 PM | 7.59 |
| 11/28/2016 9:15 PM | 7.42 | 11/29/2016 9:15 PM | 7.45 | 11/30/2016 9:15 PM | 7.58 |
| 11/28/2016 9:30 PM | 7.41 | 11/29/2016 9:30 PM | 7.62 | 11/30/2016 9:30 PM | 7.52 |
| 11/28/2016 9:45 PM | 7.43 | 11/29/2016 9:45 PM | 7.64 | 11/30/2016 9:45 PM | 7.47 |
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| 11/28/2016 10:30 PM | 7.43 | 11/29/2016 10:30 PM | 7.60 | 11/30/2016 10:30 PM | 7.44 |
| 11/28/2016 10:45 PM | 7.43 | 11/29/2016 10:45 PM | 7.59 | 11/30/2016 10:45 PM | 7.44 |
| 11/28/2016 11:00 PM | 7.42 | 11/29/2016 11:00 PM | 7.54 | 11/30/2016 11:00 PM | 7.44 |
| 11/28/2016 11:15 PM | 7.59 | 11/29/2016 11:15 PM | 7.48 | 11/30/2016 11:15 PM | 7.45 |
| 11/28/2016 11:30 PM | 7.62 | 11/29/2016 11:30 PM | 7.47 | 11/30/2016 11:30 PM | 7.60 |
| 11/28/2016 11:45 PM | 7.61 | 11/29/2016 11:45 PM | 7.46 | 11/30/2016 11:45 PM | 7.48 |
| AVG | 7.48 | AVG | 7.53 | AVG | 7.52 |

| | |
|---|---|
| **MIN** | **7.24** |
| **MAX** | **7.94** |

Avtex Fibers
Front Royal, VA
Outfall 004
November 2016 DMR

| Sample Date | Sample ID | BOD, mg/L | BOD, kg/d | TSS, mg/L | TSS, kg/d |
|---|---|---|---|---|---|
| 11/3/2016 | AF11-3FE | 0.0 | 0.00 | 0.0 | 0.00 |
| 11/10/2016 | AF11-10FE | 0.0 | 0.00 | 0.00 | 0.00 |
| 11/17/2016 | AF11-17FE | 0.0 | 0.00 | 0.0 | 0.00 |
| 11/22/2016 | AF11-22FE | 0.0 | 0.00 | 0.0 | 0.00 |
| | Daily Maximum: | 0.0 | 0.0 | 0.0 | 0.0 |
| | Monthly Avg: | 0.0 | 0.0 | 0.0 | 0.0 |

Monthly Average – Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as calculated. If all data are below the QL used for the analysis, then the average shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported monthly average concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the monthly average of the calculated daily quantities.

Daily Maximum – Compliance with the daily maximum limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each day during the reporting month. The maximum value of these daily averages thus determined shall be reported on the DMR as the Daily Maximum. If all data are below the QL used for the analysis, then the maximum value of the daily averages shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported daily maximum concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported daily average concentrations (including the defined zeros) and corresponding daily flows to determine daily average quantities and report the maximum of the daily average quantities during the reporting month.

**Loading Derivation**
If 1 ppm (= 1 mg/L) and 1 MGD (= 1 MG/day)
--> (1 mg/L)(1 MG/day)(3.785 L/Gal)(10^6 Gal/MG)(1 lb/453,600 mg) = 8.34 lbs/day
**--> lbs/day = ppm * 8.34 * MGD**
**--> kg/d = ppm * 8.34 * MGD * 0.4536*lb/d**

**Concentration Derivation**
If 1 lb/d and 1 MGD (= 1 MG/day)
[(1 lbs/day)(453,600 mg/lb)] / [(1 MG/d)(10^6 Gal/MG)(3.785 L/Gal)]
**--> ppm = lb/d * (1/8.34) * (1/MGD)**

| | BOD |
|---|---|
| 11/3/2016 | 0 |
| 11/10/2016 | 0 |
| 11/17/2016 | 0 |
| 11/22/2016 | 0 |
| AVG | 0 |

| | TSS |
|---|---|
| 11/3/2016 | 0 |
| 11/10/2016 | 0 |
| 11/17/2016 | 0 |
| 11/22/2016 | 0 |
| AVG | 0 |

| | CS2* |
|---|---|
| 11/17/2016 | <QL |

*Note: CS2 EPA Test Method: 8260 MSV Low Level Analytical Method (EPA 8260)
Report Limit 2 ug/L
MDL 1.2 ug/L

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
**DISCHARGE MONITORING REPORT** (DMR)

PERMITTEE NAME/ADDRESS: (Include Facility Name/Location if different) — OMB No. 2040-004

| | | | |
|---|---|---|---|
| **NAME:** | Avtex Fibers | **PERMIT NUMBER** | NA |
| **ADDRESS:** | 404 Kendrick Lane | **DISCHARGE NUMBER** | 004 |
| | Front Royal, VA 22630 | **DMR MAILING ZIP CODE:** | 23218 |
| **FACILITY:** | AVTEX FIBERS | DESCRIPTION: | GLTP EFFLUENT (OUTFALL 004) External Outfall |
| **LOCATION:** | FRONT ROYAL, VA | **No Discharge** | |
| **ATTN:** | | | |

| **MONITORING PERIOD** | YEAR | MO | DAY | | YEAR | MO | DAY |
|---|---|---|---|---|---|---|---|
| FROM | 16 | 12 | 01 | TO | 16 | 12 | 31 |

| PARAMETER | | QUANTITY OR LOADING VALUE | QUANTITY OR LOADING VALUE | UNITS | QUALITY OR CONCENTRATION VALUE | QUALITY OR CONCENTRATION VALUE | QUALITY OR CONCENTRATION VALUE | UNITS | NO. EX | FREQUENCY OF ANALYSIS | SAMPLE TYPE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FLOW** | SAMPLE MEASUREMENT | 0.096 | 0.145 | MGD | ***** | ***** | ***** | | 0 | CONTINUOUS | TIRE |
| **00056 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | REPORT MONTHLY AV | REPORT DAILY MAX | | ****** | ****** | ****** | | | CONTINUOUS | TIRE |
| **PH** | SAMPLE MEASUREMENT | ***** | ***** | | 7.2 | ***** | 8.0 | SU | 0 | CONTINUOUS | GRAB |
| **00400 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | ****** | ****** | | 6.5 MINIMUM | ****** | 9.0 MAXIMUM | | | CONTINUOUS | GRAB |
| **BOD, 5-DAY** | SAMPLE MEASUREMENT | <QL | <QL | kg/d | ***** | <QL | <QL | mg/L | 0 | 1/7 | 8 HC |
| **00318 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | 36 MONTHLY AV | 96 DAILY MAX | | ****** | 24 MONTHLY AV | 64 DAILY MX | | | 1/7 | 8 HC |
| **SOLIDS, TOTAL SUSPENDED** | SAMPLE MEASUREMENT | <QL | <QL | kg/d | ***** | <QL | <QL | mg/L | 0 | 1/7 | 8 HC |
| **03603 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | 60 MONTHLY AV | 190 DAILY MAX | | ****** | 40 MONTHLY AV | 130 DAILY MX | | | 1/7 | 8 HC |
| **CARBON DISULFIDE** | SAMPLE MEASUREMENT | <QL | <QL | kg/d | ***** | <QL | <QL | mg/L | 0 | 1/30 | 8 HC |
| **77041 1 0 EFFLUENT GROSS** | PERMIT REQUIREMENT | NL MONTHLY AV | NL DAILY MAX | | ****** | NL MONTHLY AV | NL DAILY MX | | | 1/30 | 8 HC |

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

Brian McGinnis
Manager, Environmental Remediation

TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

[signature]

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

| TELEPHONE AREA | TELEPHONE NUMBER | DATE YEAR | DATE MO | DATE DAY |
|---|---|---|---|---|
| 215 | 299-6047 | 17 | 01 | 09 |

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

Attachment: pH compliance monitoring summary (monthly)

Carbon disulfide: No limit established; monitored monthly; 0.1 mg/L action level

EPA Form 3320-1 (Rev 01/06) Previous editions may be used.

Avtex Fibers
Front Royal, VA
Outfall 004
December 2016 DMR

pH Calculations:

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 12/1/2016 12:00 AM | 7.45 | 12/2/2016 12:00 AM | 7.54 | 12/3/2016 12:00 AM | 7.45 |
| 12/1/2016 12:15 AM | | 12/2/2016 12:15 AM | 7.53 | 12/3/2016 12:15 AM | 7.44 |
| 12/1/2016 12:30 AM | 7.62 | 12/2/2016 12:30 AM | 7.49 | 12/3/2016 12:30 AM | 7.45 |
| 12/1/2016 12:45 AM | 7.61 | 12/2/2016 12:45 AM | 7.43 | 12/3/2016 12:45 AM | 7.43 |
| 12/1/2016 1:00 AM | 7.60 | 12/2/2016 1:00 AM | 7.42 | 12/3/2016 1:00 AM | 7.63 |
| 12/1/2016 1:15 AM | 7.59 | 12/2/2016 1:15 AM | 7.42 | 12/3/2016 1:15 AM | 7.51 |
| 12/1/2016 1:30 AM | 7.58 | 12/2/2016 1:30 AM | 7.42 | 12/3/2016 1:30 AM | 7.47 |
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| 12/1/2016 2:00 AM | 7.53 | 12/2/2016 2:00 AM | 7.41 | 12/3/2016 2:00 AM | 7.65 |
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| 12/1/2016 2:30 AM | 7.45 | 12/2/2016 2:30 AM | 7.59 | 12/3/2016 2:30 AM | 7.62 |
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| 12/1/2016 3:00 AM | 7.44 | 12/2/2016 3:00 AM | 7.60 | 12/3/2016 3:00 AM | 7.59 |
| 12/1/2016 3:15 AM | 7.44 | 12/2/2016 3:15 AM | 7.58 | 12/3/2016 3:15 AM | 7.58 |
| 12/1/2016 3:30 AM | 7.44 | 12/2/2016 3:30 AM | 7.57 | 12/3/2016 3:30 AM | 7.53 |
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| 12/1/2016 5:30 AM | 7.60 | 12/2/2016 5:30 AM | 7.42 | 12/3/2016 5:30 AM | 7.65 |
| 12/1/2016 5:45 AM | 7.58 | 12/2/2016 5:45 AM | 7.41 | 12/3/2016 5:45 AM | 7.51 |
| 12/1/2016 6:00 AM | 7.57 | 12/2/2016 6:00 AM | 7.41 | 12/3/2016 6:00 AM | 7.51 |
| 12/1/2016 6:15 AM | 7.55 | 12/2/2016 6:15 AM | 7.41 | 12/3/2016 6:15 AM | 7.66 |
| 12/1/2016 6:30 AM | 7.50 | 12/2/2016 6:30 AM | 7.44 | 12/3/2016 6:30 AM | 7.68 |
| 12/1/2016 6:45 AM | 7.45 | 12/2/2016 6:45 AM | 7.61 | 12/3/2016 6:45 AM | 7.67 |
| 12/1/2016 7:00 AM | 7.44 | 12/2/2016 7:00 AM | 7.47 | 12/3/2016 7:00 AM | 7.65 |
| 12/1/2016 7:15 AM | 7.44 | 12/2/2016 7:15 AM | 7.44 | 12/3/2016 7:15 AM | 7.64 |
| 12/1/2016 7:30 AM | 7.43 | 12/2/2016 7:30 AM | 7.56 | 12/3/2016 7:30 AM | 7.63 |
| 12/1/2016 7:45 AM | 7.43 | 12/2/2016 7:45 AM | 7.62 | 12/3/2016 7:45 AM | 7.63 |
| 12/1/2016 8:00 AM | 7.42 | 12/2/2016 8:00 AM | 7.61 | 12/3/2016 8:00 AM | 7.58 |
| 12/1/2016 8:15 AM | 7.39 | 12/2/2016 8:15 AM | 7.60 | 12/3/2016 8:15 AM | 7.51 |
| 12/1/2016 8:30 AM | 7.59 | 12/2/2016 8:30 AM | 7.58 | 12/3/2016 8:30 AM | 7.50 |
| 12/1/2016 8:45 AM | 7.48 | 12/2/2016 8:45 AM | 7.57 | 12/3/2016 8:45 AM | 7.49 |
| 12/1/2016 9:00 AM | 7.44 | 12/2/2016 9:00 AM | 7.55 | 12/3/2016 9:00 AM | 7.48 |
| 12/1/2016 9:15 AM | 7.59 | 12/2/2016 9:15 AM | 7.54 | 12/3/2016 9:15 AM | 7.48 |
| 12/1/2016 9:30 AM | 7.61 | 12/2/2016 9:30 AM | 7.48 | 12/3/2016 9:30 AM | 7.47 |
| 12/1/2016 9:45 AM | 7.60 | 12/2/2016 9:45 AM | 7.44 | 12/3/2016 9:45 AM | 7.51 |
| 12/1/2016 10:00 AM | 7.59 | 12/2/2016 10:00 AM | 7.43 | 12/3/2016 10:00 AM | 7.64 |
| 12/1/2016 10:15 AM | 7.58 | 12/2/2016 10:15 AM | 7.43 | 12/3/2016 10:15 AM | 7.51 |
| 12/1/2016 10:30 AM | 7.57 | 12/2/2016 10:30 AM | 7.42 | 12/3/2016 10:30 AM | 7.49 |
| 12/1/2016 10:45 AM | 7.56 | 12/2/2016 10:45 AM | 7.42 | 12/3/2016 10:45 AM | 7.64 |
| 12/1/2016 11:00 AM | 7.53 | 12/2/2016 11:00 AM | 7.44 | 12/3/2016 11:00 AM | 7.67 |

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|---|---|---|---|---|---|
| 12/1/2016 11:15 AM | 7.45 | 12/2/2016 11:15 AM | 7.61 | 12/3/2016 11:15 AM | 7.66 |
| 12/1/2016 11:30 AM | 7.44 | 12/2/2016 11:30 AM | 7.48 | 12/3/2016 11:30 AM | 7.64 |
| 12/1/2016 11:45 AM | 7.43 | 12/2/2016 11:45 AM | 7.44 | 12/3/2016 11:45 AM | 7.63 |
| 12/1/2016 12:00 PM | 7.43 | 12/2/2016 12:00 PM | 7.59 | 12/3/2016 12:00 PM | 7.61 |
| 12/1/2016 12:15 PM | 7.43 | 12/2/2016 12:15 PM | 7.63 | 12/3/2016 12:15 PM | 7.60 |
| 12/1/2016 12:30 PM | 7.42 | 12/2/2016 12:30 PM | 7.62 | 12/3/2016 12:30 PM | 7.55 |
| 12/1/2016 12:45 PM | 7.42 | 12/2/2016 12:45 PM | 7.60 | 12/3/2016 12:45 PM | 7.50 |
| 12/1/2016 1:00 PM | 7.57 | 12/2/2016 1:00 PM | 7.58 | 12/3/2016 1:00 PM | 7.48 |
| 12/1/2016 1:15 PM | 7.60 | 12/2/2016 1:15 PM | 7.57 | 12/3/2016 1:15 PM | 7.48 |
| 12/1/2016 1:30 PM | 7.59 | 12/2/2016 1:30 PM | 7.56 | 12/3/2016 1:30 PM | 7.48 |
| 12/1/2016 1:45 PM | 7.59 | 12/2/2016 1:45 PM | 7.55 | 12/3/2016 1:45 PM | 7.48 |
| 12/1/2016 2:00 PM | 7.57 | 12/2/2016 2:00 PM | 7.54 | 12/3/2016 2:00 PM | 7.48 |
| 12/1/2016 2:15 PM | 7.56 | 12/2/2016 2:15 PM | 7.48 | 12/3/2016 2:15 PM | 7.51 |
| 12/1/2016 2:30 PM | 7.55 | 12/2/2016 2:30 PM | 7.45 | 12/3/2016 2:30 PM | 7.66 |
| 12/1/2016 2:45 PM | 7.54 | 12/2/2016 2:45 PM | 7.44 | 12/3/2016 2:45 PM | 7.53 |
| 12/1/2016 3:00 PM | 7.53 | 12/2/2016 3:00 PM | 7.44 | 12/3/2016 3:00 PM | 7.61 |
| 12/1/2016 3:15 PM | 7.52 | 12/2/2016 3:15 PM | 7.43 | 12/3/2016 3:15 PM | 7.68 |
| 12/1/2016 3:30 PM | 7.52 | 12/2/2016 3:30 PM | 7.43 | 12/3/2016 3:30 PM | 7.67 |
| 12/1/2016 3:45 PM | 7.51 | 12/2/2016 3:45 PM | 7.43 | 12/3/2016 3:45 PM | 7.65 |
| 12/1/2016 4:00 PM | 7.50 | 12/2/2016 4:00 PM | 7.38 | 12/3/2016 4:00 PM | 7.63 |
| 12/1/2016 4:15 PM | 7.50 | 12/2/2016 4:15 PM | 7.60 | 12/3/2016 4:15 PM | 7.62 |
| 12/1/2016 4:30 PM | 7.49 | 12/2/2016 4:30 PM | 7.57 | 12/3/2016 4:30 PM | 7.61 |
| 12/1/2016 4:45 PM | 7.48 | 12/2/2016 4:45 PM | 7.47 | 12/3/2016 4:45 PM | 7.59 |
| 12/1/2016 5:00 PM | 7.44 | 12/2/2016 5:00 PM | 7.59 | 12/3/2016 5:00 PM | 7.55 |
| 12/1/2016 5:15 PM | 7.42 | 12/2/2016 5:15 PM | 7.62 | 12/3/2016 5:15 PM | 7.50 |
| 12/1/2016 5:30 PM | 7.42 | 12/2/2016 5:30 PM | 7.61 | 12/3/2016 5:30 PM | 7.49 |
| 12/1/2016 5:45 PM | 7.42 | 12/2/2016 5:45 PM | 7.59 | 12/3/2016 5:45 PM | 7.49 |
| 12/1/2016 6:00 PM | 7.53 | 12/2/2016 6:00 PM | 7.57 | 12/3/2016 6:00 PM | 7.49 |
| 12/1/2016 6:15 PM | 7.59 | 12/2/2016 6:15 PM | 7.56 | 12/3/2016 6:15 PM | 7.49 |
| 12/1/2016 6:30 PM | 7.58 | 12/2/2016 6:30 PM | 7.50 | 12/3/2016 6:30 PM | 7.49 |
| 12/1/2016 6:45 PM | 7.57 | 12/2/2016 6:45 PM | 7.46 | 12/3/2016 6:45 PM | 7.49 |
| 12/1/2016 7:00 PM | 7.55 | 12/2/2016 7:00 PM | 7.45 | 12/3/2016 7:00 PM | 7.62 |
| 12/1/2016 7:15 PM | 7.54 | 12/2/2016 7:15 PM | 7.44 | 12/3/2016 7:15 PM | 7.64 |
| 12/1/2016 7:30 PM | 7.53 | 12/2/2016 7:30 PM | 7.44 | 12/3/2016 7:30 PM | 7.53 |
| 12/1/2016 7:45 PM | 7.52 | 12/2/2016 7:45 PM | 7.44 | 12/3/2016 7:45 PM | 7.65 |
| 12/1/2016 8:00 PM | 7.48 | 12/2/2016 8:00 PM | 7.44 | 12/3/2016 8:00 PM | 7.70 |
| 12/1/2016 8:15 PM | 7.43 | 12/2/2016 8:15 PM | 7.42 | 12/3/2016 8:15 PM | 7.70 |
| 12/1/2016 8:30 PM | 7.42 | 12/2/2016 8:30 PM | 7.62 | 12/3/2016 8:30 PM | 7.69 |
| 12/1/2016 8:45 PM | 7.41 | 12/2/2016 8:45 PM | 7.50 | 12/3/2016 8:45 PM | 7.67 |
| 12/1/2016 9:00 PM | 7.41 | 12/2/2016 9:00 PM | 7.51 | 12/3/2016 9:00 PM | 7.67 |
| 12/1/2016 9:15 PM | 7.41 | 12/2/2016 9:15 PM | 7.63 | 12/3/2016 9:15 PM | 7.66 |
| 12/1/2016 9:30 PM | 7.41 | 12/2/2016 9:30 PM | 7.63 | 12/3/2016 9:30 PM | 7.59 |
| 12/1/2016 9:45 PM | 7.41 | 12/2/2016 9:45 PM | 7.62 | 12/3/2016 9:45 PM | 7.54 |
| 12/1/2016 10:00 PM | 7.59 | 12/2/2016 10:00 PM | 7.60 | 12/3/2016 10:00 PM | 7.53 |
| 12/1/2016 10:15 PM | 7.47 | 12/2/2016 10:15 PM | 7.58 | 12/3/2016 10:15 PM | 7.53 |
| 12/1/2016 10:30 PM | 7.52 | 12/2/2016 10:30 PM | 7.57 | 12/3/2016 10:30 PM | 7.52 |
| 12/1/2016 10:45 PM | 7.61 | 12/2/2016 10:45 PM | 7.56 | 12/3/2016 10:45 PM | 7.52 |
| 12/1/2016 11:00 PM | 7.60 | 12/2/2016 11:00 PM | 7.52 | 12/3/2016 11:00 PM | 7.51 |
| 12/1/2016 11:15 PM | 7.59 | 12/2/2016 11:15 PM | 7.46 | 12/3/2016 11:15 PM | 7.67 |
| 12/1/2016 11:30 PM | 7.57 | 12/2/2016 11:30 PM | 7.45 | 12/3/2016 11:30 PM | 7.57 |
| 12/1/2016 11:45 PM | 7.56 | 12/2/2016 11:45 PM | 7.45 | 12/3/2016 11:45 PM | 7.53 |
| AVG | 7.51 | AVG | 7.51 | AVG | 7.56 |

Note: Communications loss at 12:15AM, no data recorded, not included in average.

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 12/4/2016 12:00 AM | 7.59 | 12/5/2016 12:00 AM | 7.71 | 12/6/2016 12:00 AM | 7.66 |
| 12/4/2016 12:15 AM | 7.70 | 12/5/2016 12:15 AM | 7.64 | 12/6/2016 12:15 AM | 7.65 |
| 12/4/2016 12:30 AM | 7.70 | 12/5/2016 12:30 AM | 7.60 | 12/6/2016 12:30 AM | 7.65 |
| 12/4/2016 12:45 AM | 7.70 | 12/5/2016 12:45 AM | 7.59 | 12/6/2016 12:45 AM | 7.65 |
| 12/4/2016 1:00 AM | 7.68 | 12/5/2016 1:00 AM | 7.58 | 12/6/2016 1:00 AM | 7.77 |
| 12/4/2016 1:15 AM | 7.67 | 12/5/2016 1:15 AM | 7.58 | 12/6/2016 1:15 AM | 7.75 |
| 12/4/2016 1:30 AM | 7.66 | 12/5/2016 1:30 AM | 7.58 | 12/6/2016 1:30 AM | 7.68 |
| 12/4/2016 1:45 AM | 7.65 | 12/5/2016 1:45 AM | 7.57 | 12/6/2016 1:45 AM | 7.80 |
| 12/4/2016 2:00 AM | 7.64 | 12/5/2016 2:00 AM | 7.57 | 12/6/2016 2:00 AM | 7.84 |
| 12/4/2016 2:15 AM | 7.56 | 12/5/2016 2:15 AM | 7.73 | 12/6/2016 2:15 AM | 7.84 |
| 12/4/2016 2:30 AM | 7.54 | 12/5/2016 2:30 AM | 7.62 | 12/6/2016 2:30 AM | 7.83 |
| 12/4/2016 2:45 AM | 7.54 | 12/5/2016 2:45 AM | 7.59 | 12/6/2016 2:45 AM | 7.82 |
| 12/4/2016 3:00 AM | 7.53 | 12/5/2016 3:00 AM | 7.72 | 12/6/2016 3:00 AM | 7.81 |
| 12/4/2016 3:15 AM | 7.53 | 12/5/2016 3:15 AM | 7.77 | 12/6/2016 3:15 AM | 7.80 |
| 12/4/2016 3:30 AM | 7.52 | 12/5/2016 3:30 AM | 7.76 | 12/6/2016 3:30 AM | 7.79 |
| 12/4/2016 3:45 AM | 7.65 | 12/5/2016 3:45 AM | 7.75 | 12/6/2016 3:45 AM | 7.79 |
| 12/4/2016 4:00 AM | 7.61 | 12/5/2016 4:00 AM | 7.75 | 12/6/2016 4:00 AM | 7.78 |
| 12/4/2016 4:15 AM | 7.55 | 12/5/2016 4:15 AM | 7.74 | 12/6/2016 4:15 AM | 7.77 |
| 12/4/2016 4:30 AM | 7.54 | 12/5/2016 4:30 AM | 7.73 | 12/6/2016 4:30 AM | 7.77 |
| 12/4/2016 4:45 AM | 7.66 | 12/5/2016 4:45 AM | 7.72 | 12/6/2016 4:45 AM | 7.76 |
| 12/4/2016 5:00 AM | 7.72 | 12/5/2016 5:00 AM | 7.70 | 12/6/2016 5:00 AM | 7.75 |
| 12/4/2016 5:15 AM | 7.71 | 12/5/2016 5:15 AM | 7.63 | 12/6/2016 5:15 AM | 7.70 |
| 12/4/2016 5:30 AM | 7.70 | 12/5/2016 5:30 AM | 7.61 | 12/6/2016 5:30 AM | 7.69 |
| 12/4/2016 5:45 AM | 7.69 | 12/5/2016 5:45 AM | 7.61 | 12/6/2016 5:45 AM | 7.69 |
| 12/4/2016 6:00 AM | 7.68 | 12/5/2016 6:00 AM | 7.60 | 12/6/2016 6:00 AM | 7.67 |
| 12/4/2016 6:15 AM | 7.67 | 12/5/2016 6:15 AM | 7.60 | 12/6/2016 6:15 AM | 7.80 |
| 12/4/2016 6:30 AM | 7.66 | 12/5/2016 6:30 AM | 7.60 | 12/6/2016 6:30 AM | 7.81 |
| 12/4/2016 6:45 AM | 7.57 | 12/5/2016 6:45 AM | 7.57 | 12/6/2016 6:45 AM | 7.80 |
| 12/4/2016 7:00 AM | 7.55 | 12/5/2016 7:00 AM | 7.75 | 12/6/2016 7:00 AM | 7.80 |
| 12/4/2016 7:15 AM | 7.54 | 12/5/2016 7:15 AM | 7.65 | 12/6/2016 7:15 AM | 7.79 |
| 12/4/2016 7:30 AM | 7.54 | 12/5/2016 7:30 AM | 7.63 | 12/6/2016 7:30 AM | 7.79 |
| 12/4/2016 7:45 AM | 7.53 | 12/5/2016 7:45 AM | 7.77 | 12/6/2016 7:45 AM | 7.78 |
| 12/4/2016 8:00 AM | 7.62 | 12/5/2016 8:00 AM | 7.78 | 12/6/2016 8:00 AM | 7.77 |
| 12/4/2016 8:15 AM | 7.71 | 12/5/2016 8:15 AM | 7.77 | 12/6/2016 8:15 AM | 7.70 |
| 12/4/2016 8:30 AM | 7.57 | 12/5/2016 8:30 AM | 7.76 | 12/6/2016 8:30 AM | 7.69 |
| 12/4/2016 8:45 AM | 7.55 | 12/5/2016 8:45 AM | 7.74 | 12/6/2016 8:45 AM | 7.68 |
| 12/4/2016 9:00 AM | 7.53 | 12/5/2016 9:00 AM | 7.72 | 12/6/2016 9:00 AM | 7.67 |
| 12/4/2016 9:15 AM | 7.70 | 12/5/2016 9:15 AM | 7.71 | 12/6/2016 9:15 AM | 7.67 |
| 12/4/2016 9:30 AM | 7.72 | 12/5/2016 9:30 AM | 7.68 | 12/6/2016 9:30 AM | 7.67 |
| 12/4/2016 9:45 AM | 7.71 | 12/5/2016 9:45 AM | 7.62 | 12/6/2016 9:45 AM | 7.67 |
| 12/4/2016 10:00 AM | 7.71 | 12/5/2016 10:00 AM | 7.61 | 12/6/2016 10:00 AM | 7.78 |
| 12/4/2016 10:15 AM | 7.70 | 12/5/2016 10:15 AM | 7.61 | 12/6/2016 10:15 AM | 7.75 |
| 12/4/2016 10:30 AM | 7.69 | 12/5/2016 10:30 AM | 7.60 | 12/6/2016 10:30 AM | 7.69 |
| 12/4/2016 10:45 AM | 7.69 | 12/5/2016 10:45 AM | 7.60 | 12/6/2016 10:45 AM | 7.80 |
| 12/4/2016 11:00 AM | 7.68 | 12/5/2016 11:00 AM | 7.59 | 12/6/2016 11:00 AM | 7.85 |
| 12/4/2016 11:15 AM | 7.68 | 12/5/2016 11:15 AM | 7.60 | 12/6/2016 11:15 AM | 7.84 |
| 12/4/2016 11:30 AM | 7.67 | 12/5/2016 11:30 AM | 7.78 | 12/6/2016 11:30 AM | 7.83 |
| 12/4/2016 11:45 AM | 7.67 | 12/5/2016 11:45 AM | 7.81 | 12/6/2016 11:45 AM | 7.82 |
| 12/4/2016 12:00 PM | 7.66 | 12/5/2016 12:00 PM | 7.80 | 12/6/2016 12:00 PM | 7.81 |
| 12/4/2016 12:15 PM | 7.65 | 12/5/2016 12:15 PM | 7.80 | 12/6/2016 12:15 PM | 7.80 |
| 12/4/2016 12:30 PM | 7.63 | 12/5/2016 12:30 PM | 7.79 | 12/6/2016 12:30 PM | 7.79 |
| 12/4/2016 12:45 PM | 7.61 | 12/5/2016 12:45 PM | 7.77 | 12/6/2016 12:45 PM | 7.71 |
| 12/4/2016 1:00 PM | 7.60 | 12/5/2016 1:00 PM | 7.73 | 12/6/2016 1:00 PM | 7.70 |
| 12/4/2016 1:15 PM | 7.59 | 12/5/2016 1:15 PM | 7.70 | 12/6/2016 1:15 PM | 7.69 |
| 12/4/2016 1:30 PM | 7.58 | 12/5/2016 1:30 PM | 7.67 | 12/6/2016 1:30 PM | 7.68 |
| 12/4/2016 1:45 PM | 7.57 | 12/5/2016 1:45 PM | 7.68 | 12/6/2016 1:45 PM | 7.68 |
| 12/4/2016 2:00 PM | 7.56 | 12/5/2016 2:00 PM | 7.66 | 12/6/2016 2:00 PM | 7.67 |
| 12/4/2016 2:15 PM | 7.56 | 12/5/2016 2:15 PM | 7.66 | 12/6/2016 2:15 PM | 7.67 |
| 12/4/2016 2:30 PM | 7.55 | 12/5/2016 2:30 PM | 7.65 | 12/6/2016 2:30 PM | 7.80 |
| 12/4/2016 2:45 PM | 7.54 | 12/5/2016 2:45 PM | 7.64 | 12/6/2016 2:45 PM | 7.85 |
| 12/4/2016 3:00 PM | 7.54 | 12/5/2016 3:00 PM | 7.63 | 12/6/2016 3:00 PM | 7.84 |
| 12/4/2016 3:15 PM | 7.54 | 12/5/2016 3:15 PM | 7.63 | 12/6/2016 3:15 PM | 7.75 |
| 12/4/2016 3:30 PM | 7.54 | 12/5/2016 3:30 PM | 7.62 | 12/6/2016 3:30 PM | 7.70 |
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| 12/4/2016 4:30 PM | 7.55 | 12/5/2016 4:30 PM | 7.64 | 12/6/2016 4:30 PM | 7.83 |
| 12/4/2016 4:45 PM | 7.55 | 12/5/2016 4:45 PM | 7.67 | 12/6/2016 4:45 PM | 7.82 |
| 12/4/2016 5:00 PM | 7.54 | 12/5/2016 5:00 PM | 7.79 | 12/6/2016 5:00 PM | 7.81 |
| 12/4/2016 5:15 PM | 7.54 | 12/5/2016 5:15 PM | 7.79 | 12/6/2016 5:15 PM | 7.80 |
| 12/4/2016 5:30 PM | 7.54 | 12/5/2016 5:30 PM | 7.78 | 12/6/2016 5:30 PM | 7.80 |

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| 12/4/2016 5:45 PM | 7.57 | 12/5/2016 5:45 PM | 7.76 | 12/6/2016 5:45 PM | 7.79 |
| 12/4/2016 6:00 PM | 7.71 | 12/5/2016 6:00 PM | 7.75 | 12/6/2016 6:00 PM | 7.79 |
| 12/4/2016 6:15 PM | 7.72 | 12/5/2016 6:15 PM | 7.74 | 12/6/2016 6:15 PM | 7.78 |
| 12/4/2016 6:30 PM | 7.70 | 12/5/2016 6:30 PM | 7.73 | 12/6/2016 6:30 PM | 7.78 |
| 12/4/2016 6:45 PM | 7.69 | 12/5/2016 6:45 PM | 7.65 | 12/6/2016 6:45 PM | 7.71 |
| 12/4/2016 7:00 PM | 7.69 | 12/5/2016 7:00 PM | 7.64 | 12/6/2016 7:00 PM | 7.70 |
| 12/4/2016 7:15 PM | 7.69 | 12/5/2016 7:15 PM | 7.63 | 12/6/2016 7:15 PM | 7.69 |
| 12/4/2016 7:30 PM | 7.69 | 12/5/2016 7:30 PM | 7.63 | 12/6/2016 7:30 PM | 7.68 |
| 12/4/2016 7:45 PM | 7.69 | 12/5/2016 7:45 PM | 7.63 | 12/6/2016 7:45 PM | 7.78 |
| 12/4/2016 8:00 PM | 7.63 | 12/5/2016 8:00 PM | 7.63 | 12/6/2016 8:00 PM | 7.84 |
| 12/4/2016 8:15 PM | 7.58 | 12/5/2016 8:15 PM | 7.63 | 12/6/2016 8:15 PM | 7.84 |
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| 12/4/2016 9:15 PM | 7.55 | 12/5/2016 9:15 PM | 7.63 | 12/6/2016 9:15 PM | 7.81 |
| 12/4/2016 9:30 PM | 7.55 | 12/5/2016 9:30 PM | 7.80 | 12/6/2016 9:30 PM | 7.81 |
| 12/4/2016 9:45 PM | 7.55 | 12/5/2016 9:45 PM | 7.82 | 12/6/2016 9:45 PM | 7.71 |
| 12/4/2016 10:00 PM | 7.68 | 12/5/2016 10:00 PM | 7.81 | 12/6/2016 10:00 PM | 7.70 |
| 12/4/2016 10:15 PM | 7.75 | 12/5/2016 10:15 PM | 7.81 | 12/6/2016 10:15 PM | 7.69 |
| 12/4/2016 10:30 PM | 7.75 | 12/5/2016 10:30 PM | 7.80 | 12/6/2016 10:30 PM | 7.69 |
| 12/4/2016 10:45 PM | 7.74 | 12/5/2016 10:45 PM | 7.80 | 12/6/2016 10:45 PM | 7.68 |
| 12/4/2016 11:00 PM | 7.73 | 12/5/2016 11:00 PM | 7.79 | 12/6/2016 11:00 PM | 7.68 |
| 12/4/2016 11:15 PM | 7.72 | 12/5/2016 11:15 PM | 7.68 | 12/6/2016 11:15 PM | 7.64 |
| 12/4/2016 11:30 PM | 7.71 | 12/5/2016 11:30 PM | 7.67 | 12/6/2016 11:30 PM | 7.82 |
| 12/4/2016 11:45 PM | 7.71 | 12/5/2016 11:45 PM | 7.66 | 12/6/2016 11:45 PM | 7.74 |
| AVG | 7.63 | AVG | 7.69 | AVG | 7.76 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 12/7/2016 12:00 AM | 7.68 | 12/8/2016 12:00 AM | 7.83 | 12/9/2016 12:00 AM | 7.74 |
| 12/7/2016 12:15 AM | 7.84 | 12/8/2016 12:15 AM | 7.82 | 12/9/2016 12:15 AM | 7.73 |
| 12/7/2016 12:30 AM | 7.86 | 12/8/2016 12:30 AM | 7.81 | 12/9/2016 12:30 AM | 7.73 |
| 12/7/2016 12:45 AM | 7.85 | 12/8/2016 12:45 AM | 7.72 | 12/9/2016 12:45 AM | 7.66 |
| 12/7/2016 1:00 AM | 7.84 | 12/8/2016 1:00 AM | 7.70 | 12/9/2016 1:00 AM | 7.65 |
| 12/7/2016 1:15 AM | 7.83 | 12/8/2016 1:15 AM | 7.69 | 12/9/2016 1:15 AM | 7.64 |
| 12/7/2016 1:30 AM | 7.82 | 12/8/2016 1:30 AM | 7.69 | 12/9/2016 1:30 AM | 7.64 |
| 12/7/2016 1:45 AM | 7.82 | 12/8/2016 1:45 AM | 7.68 | 12/9/2016 1:45 AM | 7.75 |
| 12/7/2016 2:00 AM | 7.81 | 12/8/2016 2:00 AM | 7.68 | 12/9/2016 2:00 AM | 7.80 |
| 12/7/2016 2:15 AM | 7.72 | 12/8/2016 2:15 AM | 7.68 | 12/9/2016 2:15 AM | 7.79 |
| 12/7/2016 2:30 AM | 7.71 | 12/8/2016 2:30 AM | 7.81 | 12/9/2016 2:30 AM | 7.78 |
| 12/7/2016 2:45 AM | 7.70 | 12/8/2016 2:45 AM | 7.85 | 12/9/2016 2:45 AM | 7.77 |
| 12/7/2016 3:00 AM | 7.69 | 12/8/2016 3:00 AM | 7.85 | 12/9/2016 3:00 AM | 7.76 |
| 12/7/2016 3:15 AM | 7.69 | 12/8/2016 3:15 AM | 7.84 | 12/9/2016 3:15 AM | 7.75 |
| 12/7/2016 3:30 AM | 7.68 | 12/8/2016 3:30 AM | 7.83 | 12/9/2016 3:30 AM | 7.71 |
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| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 12/10/2016 1:15 AM | 7.70 | 12/11/2016 1:15 AM | 7.52 | 12/12/2016 1:15 AM | 7.69 |
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| 12/10/2016 10:30 PM | 7.69 | 12/11/2016 10:30 PM | 7.66 | 12/12/2016 10:30 PM | 7.52 |
| 12/10/2016 10:45 PM | 7.70 | 12/11/2016 10:45 PM | 7.66 | 12/12/2016 10:45 PM | 7.52 |
| 12/10/2016 11:00 PM | 7.69 | 12/11/2016 11:00 PM | 7.61 | 12/12/2016 11:00 PM | 7.53 |
| 12/10/2016 11:15 PM | 7.68 | 12/11/2016 11:15 PM | 7.55 | 12/12/2016 11:15 PM | 7.65 |
| 12/10/2016 11:30 PM | 7.67 | 12/11/2016 11:30 PM | 7.54 | 12/12/2016 11:30 PM | 7.64 |
| 12/10/2016 11:45 PM | 7.66 | 12/11/2016 11:45 PM | 7.53 | 12/12/2016 11:45 PM | 7.56 |
| AVG | 7.63 | AVG | 7.60 | AVG | 7.61 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 12/13/2016 12:00 AM | 7.52 | 12/14/2016 12:00 AM | 7.72 | 12/15/2016 12:00 AM | 7.65 |
| 12/13/2016 12:15 AM | 7.70 | 12/14/2016 12:15 AM | 7.67 | 12/15/2016 12:15 AM | 7.64 |
| 12/13/2016 12:30 AM | 7.73 | 12/14/2016 12:30 AM | 7.62 | 12/15/2016 12:30 AM | 7.64 |
| 12/13/2016 12:45 AM | 7.73 | 12/14/2016 12:45 AM | 7.61 | 12/15/2016 12:45 AM | 7.64 |
| 12/13/2016 1:00 AM | 7.71 | 12/14/2016 1:00 AM | 7.60 | 12/15/2016 1:00 AM | 7.70 |
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| 12/13/2016 2:15 AM | 7.58 | 12/14/2016 2:15 AM | 7.53 | 12/15/2016 2:15 AM | 7.78 |
| 12/13/2016 2:30 AM | 7.57 | 12/14/2016 2:30 AM | 7.74 | 12/15/2016 2:30 AM | 7.77 |
| 12/13/2016 2:45 AM | 7.56 | 12/14/2016 2:45 AM | 7.65 | 12/15/2016 2:45 AM | 7.76 |
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| 12/13/2016 3:15 AM | 7.55 | 12/14/2016 3:15 AM | 7.76 | 12/15/2016 3:15 AM | 7.74 |
| 12/13/2016 3:30 AM | 7.60 | 12/14/2016 3:30 AM | 7.78 | 12/15/2016 3:30 AM | 7.74 |
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| 12/13/2016 4:00 AM | 7.59 | 12/14/2016 4:00 AM | 7.76 | 12/15/2016 4:00 AM | 7.73 |
| 12/13/2016 4:15 AM | 7.56 | 12/14/2016 4:15 AM | 7.75 | 12/15/2016 4:15 AM | 7.72 |
| 12/13/2016 4:30 AM | 7.56 | 12/14/2016 4:30 AM | 7.74 | 12/15/2016 4:30 AM | 7.72 |
| 12/13/2016 4:45 AM | 7.70 | 12/14/2016 4:45 AM | 7.73 | 12/15/2016 4:45 AM | 7.67 |
| 12/13/2016 5:00 AM | 7.74 | 12/14/2016 5:00 AM | 7.71 | 12/15/2016 5:00 AM | 7.66 |
| 12/13/2016 5:15 AM | 7.73 | 12/14/2016 5:15 AM | 7.63 | 12/15/2016 5:15 AM | 7.65 |
| 12/13/2016 5:30 AM | 7.72 | 12/14/2016 5:30 AM | 7.62 | 12/15/2016 5:30 AM | 7.65 |
| 12/13/2016 5:45 AM | 7.71 | 12/14/2016 5:45 AM | 7.62 | 12/15/2016 5:45 AM | 7.63 |
| 12/13/2016 6:00 AM | 7.70 | 12/14/2016 6:00 AM | 7.61 | 12/15/2016 6:00 AM | 7.77 |
| 12/13/2016 6:15 AM | 7.70 | 12/14/2016 6:15 AM | 7.61 | 12/15/2016 6:15 AM | 7.80 |
| 12/13/2016 6:30 AM | 7.69 | 12/14/2016 6:30 AM | 7.60 | 12/15/2016 6:30 AM | 7.79 |
| 12/13/2016 6:45 AM | 7.59 | 12/14/2016 6:45 AM | 7.60 | 12/15/2016 6:45 AM | 7.78 |
| 12/13/2016 7:00 AM | 7.58 | 12/14/2016 7:00 AM | 7.69 | 12/15/2016 7:00 AM | 7.77 |
| 12/13/2016 7:15 AM | 7.57 | 12/14/2016 7:15 AM | 7.78 | 12/15/2016 7:15 AM | 7.76 |
| 12/13/2016 7:30 AM | 7.56 | 12/14/2016 7:30 AM | 7.78 | 12/15/2016 7:30 AM | 7.75 |
| 12/13/2016 7:45 AM | 7.58 | 12/14/2016 7:45 AM | 7.78 | 12/15/2016 7:45 AM | 7.75 |
| 12/13/2016 8:00 AM | 7.71 | 12/14/2016 8:00 AM | 7.77 | 12/15/2016 8:00 AM | 7.71 |
| 12/13/2016 8:15 AM | 7.61 | 12/14/2016 8:15 AM | 7.76 | 12/15/2016 8:15 AM | 7.66 |
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| 12/13/2016 8:45 AM | 7.56 | 12/14/2016 8:45 AM | 7.74 | 12/15/2016 8:45 AM | 7.64 |
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| 12/13/2016 9:30 AM | 7.74 | 12/14/2016 9:30 AM | 7.63 | 12/15/2016 9:30 AM | 7.63 |
| 12/13/2016 9:45 AM | 7.73 | 12/14/2016 9:45 AM | 7.61 | 12/15/2016 9:45 AM | 7.69 |
| 12/13/2016 10:00 AM | 7.73 | 12/14/2016 10:00 AM | 7.61 | 12/15/2016 10:00 AM | 7.81 |
| 12/13/2016 10:15 AM | 7.72 | 12/14/2016 10:15 AM | 7.61 | 12/15/2016 10:15 AM | 7.68 |
| 12/13/2016 10:30 AM | 7.71 | 12/14/2016 10:30 AM | 7.61 | 12/15/2016 10:30 AM | 7.65 |
| 12/13/2016 10:45 AM | 7.71 | 12/14/2016 10:45 AM | 7.61 | 12/15/2016 10:45 AM | 7.81 |
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| 12/13/2016 12:15 PM | 7.68 | 12/14/2016 12:15 PM | 7.78 | 12/15/2016 12:15 PM | 7.77 |
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| 12/13/2016 12:45 PM | 7.70 | 12/14/2016 12:45 PM | 7.76 | 12/15/2016 12:45 PM | 7.67 |
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| 12/13/2016 1:45 PM | 7.65 | 12/14/2016 1:45 PM | 7.71 | 12/15/2016 1:45 PM | 7.82 |
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| 12/13/2016 2:15 PM | 7.63 | 12/14/2016 2:15 PM | 7.63 | 12/15/2016 2:15 PM | 7.78 |
| 12/13/2016 2:30 PM | 7.63 | 12/14/2016 2:30 PM | 7.62 | 12/15/2016 2:30 PM | 7.77 |
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| 12/13/2016 6:15 PM | 7.72 | 12/14/2016 7:15 PM | 7.63 | 12/15/2016 6:15 PM | 7.67 |
| 12/13/2016 6:30 PM | 7.72 | 12/14/2016 7:30 PM | 7.63 | 12/15/2016 6:30 PM | 7.66 |
| 12/13/2016 6:45 PM | 7.71 | 12/14/2016 7:45 PM | 7.63 | 12/15/2016 6:45 PM | 7.66 |
| 12/13/2016 7:00 PM | 7.69 | 12/14/2016 8:00 PM | 7.63 | 12/15/2016 7:00 PM | 7.65 |
| 12/13/2016 7:15 PM | 7.69 | 12/14/2016 8:15 PM | 7.62 | 12/15/2016 7:15 PM | 7.62 |
| 12/13/2016 7:30 PM | 7.69 | 12/14/2016 8:30 PM | 7.67 | 12/15/2016 7:30 PM | 7.82 |
| 12/13/2016 7:45 PM | 7.70 | 12/14/2016 8:45 PM | 7.79 | 12/15/2016 7:45 PM | 7.85 |
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| 12/13/2016 8:30 PM | 7.58 | 12/14/2016 9:30 PM | 7.75 | 12/15/2016 8:30 PM | 7.81 |
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| 12/13/2016 10:15 PM | 7.76 | 12/14/2016 11:15 PM | 7.67 | 12/15/2016 10:15 PM | 7.67 |
| 12/13/2016 10:30 PM | 7.77 | 12/14/2016 11:30 PM | 7.66 | 12/15/2016 10:30 PM | 7.67 |
| 12/13/2016 10:45 PM | 7.76 | 12/14/2016 11:45 PM | 7.65 | 12/15/2016 10:45 PM | 7.66 |
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| 12/13/2016 11:15 PM | 7.74 | 11/14/2016 11:15 PM | 7.66 | 12/15/2016 11:15 PM | 7.66 |
| 12/13/2016 11:30 PM | 7.73 | 11/14/2016 11:30 PM | 7.65 | 12/15/2016 11:30 PM | 7.70 |
| 12/13/2016 11:45 PM | 7.73 | 11/14/2016 11:45 PM | 7.65 | 12/15/2016 11:45 PM | 7.85 |
| AVG | 7.65 | AVG | 7.69 | AVG | 7.73 |

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| 12/16/2016 12:30 AM | 7.84 | 12/17/2016 12:30 AM | 7.82 | 12/18/2016 12:30 AM | 7.67 |
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| 12/16/2016 5:15 AM | 7.86 | 12/17/2016 5:15 AM | 7.73 | 12/18/2016 5:15 AM | 7.78 |
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| 12/16/2016 5:45 AM | 7.83 | 12/17/2016 5:45 AM | 7.72 | 12/18/2016 5:45 AM | 7.77 |
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| 12/16/2016 8:15 AM | 7.73 | 12/17/2016 8:15 AM | 7.67 | 12/18/2016 8:15 AM | 7.72 |
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| 12/16/2016 6:00 PM | 7.77 | 12/17/2016 6:00 PM | 7.81 | 12/18/2016 6:00 PM | 7.67 |
| 12/16/2016 6:15 PM | 7.77 | 12/17/2016 6:15 PM | 7.79 | 12/18/2016 6:15 PM | 7.67 |
| 12/16/2016 6:30 PM | 7.76 | 12/17/2016 6:30 PM | 7.78 | 12/18/2016 6:30 PM | 7.67 |
| 12/16/2016 6:45 PM | 7.76 | 12/17/2016 6:45 PM | 7.77 | 12/18/2016 6:45 PM | 7.67 |
| 12/16/2016 7:00 PM | 7.75 | 12/17/2016 7:00 PM | 7.77 | 12/18/2016 7:00 PM | 7.81 |
| 12/16/2016 7:15 PM | 7.75 | 12/17/2016 7:15 PM | 7.77 | 12/18/2016 7:15 PM | 7.73 |
| 12/16/2016 7:30 PM | 7.74 | 12/17/2016 7:30 PM | 7.78 | 12/18/2016 7:30 PM | 7.69 |
| 12/16/2016 7:45 PM | 7.74 | 12/17/2016 7:45 PM | 7.78 | 12/18/2016 7:45 PM | 7.68 |
| 12/16/2016 8:00 PM | 7.72 | 12/17/2016 8:00 PM | 7.79 | 12/18/2016 8:00 PM | 7.67 |
| 12/16/2016 8:15 PM | 7.71 | 12/17/2016 8:15 PM | 7.78 | 12/18/2016 8:15 PM | 7.67 |
| 12/16/2016 8:30 PM | 7.70 | 12/17/2016 8:30 PM | 7.79 | 12/18/2016 8:30 PM | 7.67 |
| 12/16/2016 8:45 PM | 7.69 | 12/17/2016 8:45 PM | 7.78 | 12/18/2016 8:45 PM | 7.84 |
| 12/16/2016 9:00 PM | 7.69 | 12/17/2016 9:00 PM | 7.78 | 12/18/2016 9:00 PM | 7.88 |
| 12/16/2016 9:15 PM | 7.69 | 12/17/2016 9:15 PM | 7.78 | 12/18/2016 9:15 PM | 7.88 |
| 12/16/2016 9:30 PM | 7.68 | 12/17/2016 9:30 PM | 7.78 | 12/18/2016 9:30 PM | 7.87 |
| 12/16/2016 9:45 PM | 7.67 | 12/17/2016 9:45 PM | 7.78 | 12/18/2016 9:45 PM | 7.85 |
| 12/16/2016 10:00 PM | 7.84 | 12/17/2016 10:00 PM | 7.78 | 12/18/2016 10:00 PM | 7.84 |
| 12/16/2016 10:15 PM | 7.74 | 12/17/2016 10:15 PM | 7.78 | 12/18/2016 10:15 PM | 7.83 |
| 12/16/2016 10:30 PM | 7.67 | 12/17/2016 10:30 PM | 7.78 | 12/18/2016 10:30 PM | 7.83 |
| 12/16/2016 10:45 PM | 7.85 | 12/17/2016 10:45 PM | 7.77 | 12/18/2016 10:45 PM | 7.82 |
| 12/16/2016 11:00 PM | 7.88 | 12/17/2016 11:00 PM | 7.75 | 12/18/2016 11:00 PM | 7.82 |
| 12/16/2016 11:15 PM | 7.87 | 12/17/2016 11:15 PM | 7.70 | 12/18/2016 11:15 PM | 7.81 |
| 12/16/2016 11:30 PM | 7.86 | 12/17/2016 11:30 PM | 7.70 | 12/18/2016 11:30 PM | 7.81 |
| 12/16/2016 11:45 PM | 7.85 | 12/17/2016 11:45 PM | 7.69 | 12/18/2016 11:45 PM | 7.81 |
| AVG | 7.78 | AVG | 7.75 | AVG | 7.76 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
|---|---|---|---|---|---|
| 12/19/2016 12:00 AM | 7.80 | 12/20/2016 12:00 AM | 7.96 | 12/21/2016 12:00 AM | 7.78 |
| 12/19/2016 12:15 AM | 7.80 | 12/20/2016 12:15 AM | 7.95 | 12/21/2016 12:15 AM | 7.93 |
| 12/19/2016 12:30 AM | 7.79 | 12/20/2016 12:30 AM | 7.94 | 12/21/2016 12:30 AM | 7.94 |
| 12/19/2016 12:45 AM | 7.79 | 12/20/2016 12:45 AM | 7.93 | 12/21/2016 12:45 AM | 7.93 |
| 12/19/2016 1:00 AM | 7.78 | 12/20/2016 1:00 AM | 7.92 | 12/21/2016 1:00 AM | 7.92 |
| 12/19/2016 1:15 AM | 7.78 | 12/20/2016 1:15 AM | 7.91 | 12/21/2016 1:15 AM | 7.91 |
| 12/19/2016 1:30 AM | 7.77 | 12/20/2016 1:30 AM | 7.91 | 12/21/2016 1:30 AM | 7.90 |
| 12/19/2016 1:45 AM | 7.77 | 12/20/2016 1:45 AM | 7.91 | 12/21/2016 1:45 AM | 7.89 |
| 12/19/2016 2:00 AM | 7.76 | 12/20/2016 2:00 AM | 7.90 | 12/21/2016 2:00 AM | 7.88 |
| 12/19/2016 2:15 AM | 7.71 | 12/20/2016 2:15 AM | 7.89 | 12/21/2016 2:15 AM | 7.88 |
| 12/19/2016 2:30 AM | 7.71 | 12/20/2016 2:30 AM | 7.88 | 12/21/2016 2:30 AM | 7.86 |
| 12/19/2016 2:45 AM | 7.70 | 12/20/2016 2:45 AM | 7.88 | 12/21/2016 2:45 AM | 7.80 |
| 12/19/2016 3:00 AM | 7.69 | 12/20/2016 3:00 AM | 7.88 | 12/21/2016 3:00 AM | 7.78 |
| 12/19/2016 3:15 AM | 7.69 | 12/20/2016 3:15 AM | 7.88 | 12/21/2016 3:15 AM | 7.78 |
| 12/19/2016 3:30 AM | 7.68 | 12/20/2016 3:30 AM | 7.87 | 12/21/2016 3:30 AM | 7.76 |
| 12/19/2016 3:45 AM | 7.68 | 12/20/2016 3:45 AM | 7.86 | 12/21/2016 3:45 AM | 7.76 |
| 12/19/2016 4:00 AM | 7.74 | 12/20/2016 4:00 AM | 7.86 | 12/21/2016 4:00 AM | 7.76 |
| 12/19/2016 4:15 AM | 7.80 | 12/20/2016 4:15 AM | 7.86 | 12/21/2016 4:15 AM | 7.75 |
| 12/19/2016 4:30 AM | 7.71 | 12/20/2016 4:30 AM | 7.85 | 12/21/2016 4:30 AM | 7.75 |
| 12/19/2016 4:45 AM | 7.69 | 12/20/2016 4:45 AM | 7.83 | 12/21/2016 4:45 AM | 7.91 |
| 12/19/2016 5:00 AM | 7.68 | 12/20/2016 5:00 AM | 7.87 | 12/21/2016 5:00 AM | 7.94 |
| 12/19/2016 5:15 AM | 7.64 | 12/20/2016 5:15 AM | 7.83 | 12/21/2016 5:15 AM | 7.93 |
| 12/19/2016 5:30 AM | 7.84 | 12/20/2016 5:30 AM | 7.82 | 12/21/2016 5:30 AM | 7.91 |
| 12/19/2016 5:45 AM | 7.87 | 12/20/2016 5:45 AM | 7.81 | 12/21/2016 5:45 AM | 7.90 |
| 12/19/2016 6:00 AM | 7.87 | 12/20/2016 6:00 AM | 7.78 | 12/21/2016 6:00 AM | 7.89 |
| 12/19/2016 6:15 AM | 7.86 | 12/20/2016 6:15 AM | 7.94 | 12/21/2016 6:15 AM | 7.89 |
| 12/19/2016 6:30 AM | 7.84 | 12/20/2016 6:30 AM | 7.96 | 12/21/2016 6:30 AM | 7.88 |
| 12/19/2016 6:45 AM | 7.83 | 12/20/2016 6:45 AM | 7.95 | 12/21/2016 6:45 AM | 7.87 |
| 12/19/2016 7:00 AM | 7.82 | 12/20/2016 7:00 AM | 7.94 | 12/21/2016 7:00 AM | 7.84 |
| 12/19/2016 7:15 AM | 7.81 | 12/20/2016 7:15 AM | 7.93 | 12/21/2016 7:15 AM | 7.78 |
| 12/19/2016 7:30 AM | 7.81 | 12/20/2016 7:30 AM | 7.92 | 12/21/2016 7:30 AM | 7.77 |
| 12/19/2016 7:45 AM | 7.81 | 12/20/2016 7:45 AM | 7.91 | 12/21/2016 7:45 AM | 7.76 |
| 12/19/2016 8:00 AM | 7.73 | 12/20/2016 8:00 AM | 7.90 | 12/21/2016 8:00 AM | 7.75 |
| 12/19/2016 8:15 AM | 7.72 | 12/20/2016 8:15 AM | 7.89 | 12/21/2016 8:15 AM | 7.75 |
| 12/19/2016 8:30 AM | 7.71 | 12/20/2016 8:30 AM | 7.89 | 12/21/2016 8:30 AM | 7.74 |
| 12/19/2016 8:45 AM | 7.71 | 12/20/2016 8:45 AM | 7.88 | 12/21/2016 8:45 AM | 7.68 |
| 12/19/2016 9:00 AM | 7.70 | 12/20/2016 9:00 AM | 7.81 | 12/21/2016 9:00 AM | 7.88 |
| 12/19/2016 9:15 AM | 7.70 | 12/20/2016 9:15 AM | 7.80 | 12/21/2016 9:15 AM | 7.81 |
| 12/19/2016 9:30 AM | 7.69 | 12/20/2016 9:30 AM | 7.79 | 12/21/2016 9:30 AM | 7.76 |
| 12/19/2016 9:45 AM | 7.78 | 12/20/2016 9:45 AM | 7.78 | 12/21/2016 9:45 AM | 7.83 |
| 12/19/2016 10:00 AM | 7.83 | 12/20/2016 10:00 AM | 7.78 | 12/21/2016 10:00 AM | 7.92 |
| 12/19/2016 10:15 AM | 7.73 | 12/20/2016 10:15 AM | 7.78 | 12/21/2016 10:15 AM | 7.92 |
| 12/19/2016 10:30 AM | 7.71 | 12/20/2016 10:30 AM | 7.81 | 12/21/2016 10:30 AM | 7.90 |
| 12/19/2016 10:45 AM | 7.71 | 12/20/2016 10:45 AM | 7.96 | 12/21/2016 10:45 AM | 7.90 |
| 12/19/2016 11:00 AM | 7.70 | 12/20/2016 11:00 AM | 7.83 | 12/21/2016 11:00 AM | 7.89 |
| 12/19/2016 11:15 AM | 7.70 | 12/20/2016 11:15 AM | 7.82 | 12/21/2016 11:15 AM | 7.87 |
| 12/19/2016 11:30 AM | 7.70 | 12/20/2016 11:30 AM | 7.97 | 12/21/2016 11:30 AM | 7.86 |
| 12/19/2016 11:45 AM | 7.70 | 12/20/2016 11:45 AM | 7.99 | 12/21/2016 11:45 AM | 7.84 |
| 12/19/2016 12:00 PM | 7.70 | 12/20/2016 12:00 PM | 7.98 | 12/21/2016 12:00 PM | 7.78 |
| 12/19/2016 12:15 PM | 7.70 | 12/20/2016 12:15 PM | 7.97 | 12/21/2016 12:15 PM | 7.76 |
| 12/19/2016 12:30 PM | 7.71 | 12/20/2016 12:30 PM | 7.96 | 12/21/2016 12:30 PM | 7.75 |
| 12/19/2016 12:45 PM | 7.71 | 12/20/2016 12:45 PM | 7.95 | 12/21/2016 12:45 PM | 7.74 |
| 12/19/2016 1:00 PM | 7.71 | 12/20/2016 1:00 PM | 7.94 | 12/21/2016 1:00 PM | 7.73 |
| 12/19/2016 1:15 PM | 7.72 | 12/20/2016 1:15 PM | 7.92 | 12/21/2016 1:15 PM | 7.84 |
| 12/19/2016 1:30 PM | 7.72 | 12/20/2016 1:30 PM | 7.85 | 12/21/2016 1:30 PM | 7.79 |
| 12/19/2016 1:45 PM | 7.73 | 12/20/2016 1:45 PM | 7.84 | 12/21/2016 1:45 PM | 7.74 |

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| 12/19/2016 2:00 PM | 7.73 | 12/20/2016 2:00 PM | 7.83 | 12/21/2016 2:00 PM | 7.69 |
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| 12/19/2016 2:30 PM | 7.74 | 12/20/2016 2:30 PM | 7.82 | 12/21/2016 2:30 PM | 7.89 |
| 12/19/2016 2:45 PM | 7.74 | 12/20/2016 2:45 PM | 7.91 | 12/21/2016 2:45 PM | 7.88 |
| 12/19/2016 3:00 PM | 7.75 | 12/20/2016 3:00 PM | 7.94 | 12/21/2016 3:00 PM | 7.87 |
| 12/19/2016 3:15 PM | 7.75 | 12/20/2016 3:15 PM | 7.94 | 12/21/2016 3:15 PM | 7.86 |
| 12/19/2016 3:30 PM | 7.76 | 12/20/2016 3:30 PM | 7.94 | 12/21/2016 3:30 PM | 7.85 |
| 12/19/2016 3:45 PM | 7.77 | 12/20/2016 3:45 PM | 7.93 | 12/21/2016 3:45 PM | 7.84 |
| 12/19/2016 4:00 PM | 7.77 | 12/20/2016 4:00 PM | 7.93 | 12/21/2016 4:00 PM | 7.82 |
| 12/19/2016 4:15 PM | 7.77 | 12/20/2016 4:15 PM | 7.92 | 12/21/2016 4:15 PM | 7.81 |
| 12/19/2016 4:30 PM | 7.78 | 12/20/2016 4:30 PM | 7.91 | 12/21/2016 4:30 PM | 7.74 |
| 12/19/2016 4:45 PM | 7.78 | 12/20/2016 4:45 PM | 7.91 | 12/21/2016 4:45 PM | 7.73 |
| 12/19/2016 5:00 PM | 7.79 | 12/20/2016 5:00 PM | 7.90 | 12/21/2016 5:00 PM | 7.72 |
| 12/19/2016 5:15 PM | 7.79 | 12/20/2016 5:15 PM | 7.89 | 12/21/2016 5:15 PM | 7.72 |
| 12/19/2016 5:30 PM | 7.79 | 12/20/2016 5:30 PM | 7.89 | 12/21/2016 5:30 PM | 7.65 |
| 12/19/2016 5:45 PM | 7.80 | 12/20/2016 5:45 PM | 7.87 | 12/21/2016 5:45 PM | 7.85 |
| 12/19/2016 6:00 PM | 7.80 | 12/20/2016 6:00 PM | 7.83 | 12/21/2016 6:00 PM | 7.78 |
| 12/19/2016 6:15 PM | 7.80 | 12/20/2016 6:15 PM | 7.81 | 12/21/2016 6:15 PM | 7.73 |
| 12/19/2016 6:30 PM | 7.79 | 12/20/2016 6:30 PM | 7.80 | 12/21/2016 6:30 PM | 7.71 |
| 12/19/2016 6:45 PM | 7.81 | 12/20/2016 6:45 PM | 7.80 | 12/21/2016 6:45 PM | 7.71 |
| 12/19/2016 7:00 PM | 7.99 | 12/20/2016 7:00 PM | 7.79 | 12/21/2016 7:00 PM | 7.83 |
| 12/19/2016 7:15 PM | 7.92 | 12/20/2016 7:15 PM | 7.79 | 12/21/2016 7:15 PM | 7.89 |
| 12/19/2016 7:30 PM | 7.84 | 12/20/2016 7:30 PM | 7.78 | 12/21/2016 7:30 PM | 7.89 |
| 12/19/2016 7:45 PM | 7.81 | 12/20/2016 7:45 PM | 7.82 | 12/21/2016 7:45 PM | 7.88 |
| 12/19/2016 8:00 PM | 7.81 | 12/20/2016 8:00 PM | 7.94 | 12/21/2016 8:00 PM | 7.87 |
| 12/19/2016 8:15 PM | 7.80 | 12/20/2016 8:15 PM | 7.95 | 12/21/2016 8:15 PM | 7.86 |
| 12/19/2016 8:30 PM | 7.80 | 12/20/2016 8:30 PM | 7.94 | 12/21/2016 8:30 PM | 7.85 |
| 12/19/2016 8:45 PM | 7.80 | 12/20/2016 8:45 PM | 7.93 | 12/21/2016 8:45 PM | 7.84 |
| 12/19/2016 9:00 PM | 7.80 | 12/20/2016 9:00 PM | 7.92 | 12/21/2016 9:00 PM | 7.75 |
| 12/19/2016 9:15 PM | 7.81 | 12/20/2016 9:15 PM | 7.91 | 12/21/2016 9:15 PM | 7.74 |
| 12/19/2016 9:30 PM | 7.81 | 12/20/2016 9:30 PM | 7.91 | 12/21/2016 9:30 PM | 7.72 |
| 12/19/2016 9:45 PM | 7.81 | 12/20/2016 9:45 PM | 7.90 | 12/21/2016 9:45 PM | 7.72 |
| 12/19/2016 10:00 PM | 7.81 | 12/20/2016 10:00 PM | 7.85 | 12/21/2016 10:00 PM | 7.77 |
| 12/19/2016 10:15 PM | 7.88 | 12/20/2016 10:15 PM | 7.81 | 12/21/2016 10:15 PM | 7.86 |
| 12/19/2016 10:30 PM | 8.01 | 12/20/2016 10:30 PM | 7.79 | 12/21/2016 10:30 PM | 7.74 |
| 12/19/2016 10:45 PM | 8.02 | 12/20/2016 10:45 PM | 7.78 | 12/21/2016 10:45 PM | 7.71 |
| 12/19/2016 11:00 PM | 8.00 | 12/20/2016 11:00 PM | 7.77 | 12/21/2016 11:00 PM | 7.70 |
| 12/19/2016 11:15 PM | 7.99 | 12/20/2016 11:15 PM | 7.77 | 12/21/2016 11:15 PM | 7.69 |
| 12/19/2016 11:30 PM | 7.98 | 12/20/2016 11:30 PM | 7.77 | 12/21/2016 11:30 PM | 7.82 |
| 12/19/2016 11:45 PM | 7.97 | 12/20/2016 11:45 PM | 7.77 | 12/21/2016 11:45 PM | 7.87 |
| AVG | 7.78 | AVG | 7.88 | AVG | 7.82 |

| Date And Time | pH | Date And Time | pH | Date And Time | pH |
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| 12/22/2016 12:00 AM | 7.87 | 12/23/2016 12:00 AM | 7.64 | 12/24/2016 12:00 AM | 7.51 |
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| 12/22/2016 12:30 AM | 7.85 | 12/23/2016 12:30 AM | 7.62 | 12/24/2016 12:30 AM | 7.70 |
| 12/22/2016 12:45 AM | 7.84 | 12/23/2016 12:45 AM | 7.61 | 12/24/2016 12:45 AM | 7.70 |
| 12/22/2016 1:00 AM | 7.83 | 12/23/2016 1:00 AM | 7.60 | 12/24/2016 1:00 AM | 7.69 |
| 12/22/2016 1:15 AM | 7.79 | 12/23/2016 1:15 AM | 7.60 | 12/24/2016 1:15 AM | 7.68 |
| 12/22/2016 1:30 AM | 7.73 | 12/23/2016 1:30 AM | 7.60 | 12/24/2016 1:30 AM | 7.66 |
| 12/22/2016 1:45 AM | 7.71 | 12/23/2016 1:45 AM | 7.65 | 12/24/2016 1:45 AM | 7.65 |
| 12/22/2016 2:00 AM | 7.70 | 12/23/2016 2:00 AM | 7.77 | 12/24/2016 2:00 AM | 7.64 |
| 12/22/2016 2:15 AM | 7.69 | 12/23/2016 2:15 AM | 7.77 | 12/24/2016 2:15 AM | 7.63 |
| 12/22/2016 2:30 AM | 7.82 | 12/23/2016 2:30 AM | 7.76 | 12/24/2016 2:30 AM | 7.62 |
| 12/22/2016 2:45 AM | 7.75 | 12/23/2016 2:45 AM | 7.75 | 12/24/2016 2:45 AM | 7.54 |
| 12/22/2016 3:00 AM | 7.70 | 12/23/2016 3:00 AM | 7.74 | 12/24/2016 3:00 AM | 7.52 |
| 12/22/2016 3:15 AM | 7.68 | 12/23/2016 3:15 AM | 7.74 | 12/24/2016 3:15 AM | 7.51 |
| 12/22/2016 3:30 AM | 7.68 | 12/23/2016 3:30 AM | 7.73 | 12/24/2016 3:30 AM | 7.51 |
| 12/22/2016 3:45 AM | 7.79 | 12/23/2016 3:45 AM | 7.72 | 12/24/2016 3:45 AM | 7.50 |
| 12/22/2016 4:00 AM | 7.85 | 12/23/2016 4:00 AM | 7.72 | 12/24/2016 4:00 AM | 7.50 |
| 12/22/2016 4:15 AM | 7.85 | 12/23/2016 4:15 AM | 7.70 | 12/24/2016 4:15 AM | 7.50 |
| 12/22/2016 4:30 AM | 7.84 | 12/23/2016 4:30 AM | 7.62 | 12/24/2016 4:30 AM | 7.50 |
| 12/22/2016 4:45 AM | 7.83 | 12/23/2016 4:45 AM | 7.62 | 12/24/2016 4:45 AM | 7.65 |
| 12/22/2016 5:00 AM | 7.82 | 12/23/2016 5:00 AM | 7.60 | 12/24/2016 5:00 AM | 7.71 |
| 12/22/2016 5:15 AM | 7.81 | 12/23/2016 5:15 AM | 7.60 | 12/24/2016 5:15 AM | 7.70 |
| 12/22/2016 5:30 AM | 7.80 | 12/23/2016 5:30 AM | 7.59 | 12/24/2016 5:30 AM | 7.70 |
| 12/22/2016 5:45 AM | 7.73 | 12/23/2016 5:45 AM | 7.59 | 12/24/2016 5:45 AM | 7.69 |
| 12/22/2016 6:00 AM | 7.71 | 12/23/2016 6:00 AM | 7.58 | 12/24/2016 6:00 AM | 7.68 |
| 12/22/2016 6:15 AM | 7.70 | 12/23/2016 6:15 AM | 7.58 | 12/24/2016 6:15 AM | 7.67 |
| 12/22/2016 6:30 AM | 7.69 | 12/23/2016 6:30 AM | 7.74 | 12/24/2016 6:30 AM | 7.66 |
| 12/22/2016 6:45 AM | 7.79 | 12/23/2016 6:45 AM | 7.76 | 12/24/2016 6:45 AM | 7.66 |
| 12/22/2016 7:00 AM | 7.80 | 12/23/2016 7:00 AM | 7.75 | 12/24/2016 7:00 AM | 7.61 |
| 12/22/2016 7:15 AM | 7.70 | 12/23/2016 7:15 AM | 7.75 | 12/24/2016 7:15 AM | 7.55 |
| 12/22/2016 7:30 AM | 7.68 | 12/23/2016 7:30 AM | 7.73 | 12/24/2016 7:30 AM | 7.54 |
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| 12/22/2016 8:00 AM | 7.70 | 12/23/2016 8:00 AM | 7.72 | 12/24/2016 8:00 AM | 7.52 |
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| 12/22/2016 8:45 AM | 7.81 | 12/23/2016 8:45 AM | 7.62 | 12/24/2016 8:45 AM | 7.50 |
| 12/22/2016 9:00 AM | 7.81 | 12/23/2016 9:00 AM | 7.60 | 12/24/2016 9:00 AM | 7.50 |
| 12/22/2016 9:15 AM | 7.80 | 12/23/2016 9:15 AM | 7.59 | 12/24/2016 9:15 AM | 7.62 |
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| 12/22/2016 9:45 AM | 7.78 | 12/23/2016 9:45 AM | 7.57 | 12/24/2016 9:45 AM | 7.67 |
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| 12/22/2016 10:30 AM | 7.67 | 12/23/2016 10:30 AM | 7.59 | 12/24/2016 10:30 AM | 7.63 |
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| 12/22/2016 12:00 PM | 7.63 | 12/23/2016 12:00 PM | 7.69 | 12/24/2016 12:00 PM | 7.51 |
| 12/22/2016 12:15 PM | 7.71 | 12/23/2016 12:15 PM | 7.69 | 12/24/2016 12:15 PM | 7.49 |
| 12/22/2016 12:30 PM | 7.82 | 12/23/2016 12:30 PM | 7.68 | 12/24/2016 12:30 PM | 7.49 |
| 12/22/2016 12:45 PM | 7.82 | 12/23/2016 12:45 PM | 7.67 | 12/24/2016 12:45 PM | 7.48 |
| 12/22/2016 1:00 PM | 7.79 | 12/23/2016 1:00 PM | 7.66 | 12/24/2016 1:00 PM | 7.48 |
| 12/22/2016 1:15 PM | 7.75 | 12/23/2016 1:15 PM | 7.59 | 12/24/2016 1:15 PM | 7.47 |
| 12/22/2016 1:30 PM | 7.73 | 12/23/2016 1:30 PM | 7.57 | 12/24/2016 1:30 PM | 7.47 |
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| 12/22/2016 2:00 PM | 7.71 | 12/23/2016 2:00 PM | 7.55 | 12/24/2016 2:00 PM | 7.66 |
| 12/22/2016 2:15 PM | 7.69 | 12/23/2016 2:15 PM | 7.55 | 12/24/2016 2:15 PM | 7.66 |
| 12/22/2016 2:30 PM | 7.69 | 12/23/2016 2:30 PM | 7.55 | 12/24/2016 2:30 PM | 7.65 |
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| 12/22/2016 3:15 PM | 7.69 | 12/23/2016 3:15 PM | 7.69 | 12/24/2016 3:15 PM | 7.61 |
| 12/22/2016 3:30 PM | 7.68 | 12/23/2016 3:30 PM | 7.72 | 12/24/2016 3:30 PM | 7.60 |
| 12/22/2016 3:45 PM | 7.68 | 12/23/2016 3:45 PM | 7.71 | 12/24/2016 3:45 PM | 7.59 |
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| 12/22/2016 4:15 PM | 7.67 | 12/23/2016 4:15 PM | 7.69 | 12/24/2016 4:15 PM | 7.51 |
| 12/22/2016 4:30 PM | 7.66 | 12/23/2016 4:30 PM | 7.68 | 12/24/2016 4:30 PM | 7.49 |
| 12/22/2016 4:45 PM | 7.66 | 12/23/2016 4:45 PM | 7.66 | 12/24/2016 4:45 PM | 7.48 |
| 12/22/2016 5:00 PM | 7.66 | 12/23/2016 5:00 PM | 7.65 | 12/24/2016 5:00 PM | 7.47 |
| 12/22/2016 5:15 PM | 7.65 | 12/23/2016 5:15 PM | 7.65 | 12/24/2016 5:15 PM | 7.47 |
| 12/22/2016 5:30 PM | 7.65 | 12/23/2016 5:30 PM | 7.64 | 12/24/2016 5:30 PM | 7.47 |

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| 12/22/2016 5:45 PM | 7.64 | 12/23/2016 5:45 PM | 7.57 | 12/24/2016 5:45 PM | 7.46 |
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| 12/22/2016 6:15 PM | 7.63 | 12/23/2016 6:15 PM | 7.54 | 12/24/2016 6:15 PM | 7.49 |
| 12/22/2016 6:30 PM | 7.63 | 12/23/2016 6:30 PM | 7.54 | 12/24/2016 6:30 PM | 7.64 |
| 12/22/2016 6:45 PM | 7.63 | 12/23/2016 6:45 PM | 7.53 | 12/24/2016 6:45 PM | 7.65 |
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| 12/22/2016 7:30 PM | 7.62 | 12/23/2016 7:30 PM | 7.52 | 12/24/2016 7:30 PM | 7.61 |
| 12/22/2016 7:45 PM | 7.62 | 12/23/2016 7:45 PM | 7.52 | 12/24/2016 7:45 PM | 7.60 |
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| 12/22/2016 8:15 PM | 7.60 | 12/23/2016 8:15 PM | 7.71 | 12/24/2016 8:15 PM | 7.58 |
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| AVG | 7.72 | AVG | 7.64 | AVG | 7.58 |

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| 12/28/2016 10:15 AM | 7.25 | 12/29/2016 10:15 AM | 7.40 | 12/30/2016 10:15 AM | 7.49 |
| 12/28/2016 10:30 AM | 7.24 | 12/29/2016 10:30 AM | 7.47 | 12/30/2016 10:30 AM | 7.48 |
| 12/28/2016 10:45 AM | 7.24 | 12/29/2016 10:45 AM | 7.34 | 12/30/2016 10:45 AM | 7.48 |
| 12/28/2016 11:00 AM | 7.24 | 12/29/2016 11:00 AM | 7.31 | 12/30/2016 11:00 AM | 7.47 |
| 12/28/2016 11:15 AM | 7.23 | 12/29/2016 11:15 AM | 7.28 | 12/30/2016 11:15 AM | 7.46 |
| 12/28/2016 11:30 AM | 7.22 | 12/29/2016 11:30 AM | 7.47 | 12/30/2016 11:30 AM | 7.47 |
| 12/28/2016 11:45 AM | 7.21 | 12/29/2016 11:45 AM | 7.49 | 12/30/2016 11:45 AM | 7.45 |
| 12/28/2016 12:00 PM | 7.21 | 12/29/2016 12:00 PM | 7.47 | 12/30/2016 12:00 PM | 7.35 |
| 12/28/2016 12:15 PM | 7.21 | 12/29/2016 12:15 PM | 7.46 | 12/30/2016 12:15 PM | 7.34 |
| 12/28/2016 12:30 PM | 7.21 | 12/29/2016 12:30 PM | 7.46 | 12/30/2016 12:30 PM | 7.33 |
| 12/28/2016 12:45 PM | 7.21 | 12/29/2016 12:45 PM | 7.46 | 12/30/2016 12:45 PM | 7.32 |
| 12/28/2016 1:00 PM | 7.21 | 12/29/2016 1:00 PM | 7.44 | 12/30/2016 1:00 PM | 7.32 |
| 12/28/2016 1:15 PM | 7.21 | 12/29/2016 1:15 PM | 7.41 | 12/30/2016 1:15 PM | 7.31 |
| 12/28/2016 1:30 PM | 7.35 | 12/29/2016 1:30 PM | 7.33 | 12/30/2016 1:30 PM | 7.31 |
| 12/28/2016 1:45 PM | 7.44 | 12/29/2016 1:45 PM | 7.31 | 12/30/2016 1:45 PM | 7.37 |
| 12/28/2016 2:00 PM | 7.44 | 12/29/2016 2:00 PM | 7.30 | 12/30/2016 2:00 PM | 7.49 |

| | | | | | |
|---|---|---|---|---|---|
| 12/28/2016 2:15 PM | 7.28 | 12/29/2016 2:15 PM | 7.38 | 12/30/2016 2:15 PM | 7.50 |
| 12/28/2016 2:30 PM | 7.26 | 12/29/2016 2:30 PM | 7.46 | 12/30/2016 2:30 PM | 7.49 |
| 12/28/2016 2:45 PM | 7.25 | 12/29/2016 2:45 PM | 7.46 | 12/30/2016 2:45 PM | 7.48 |
| 12/28/2016 3:00 PM | 7.25 | 12/29/2016 3:00 PM | 7.45 | 12/30/2016 3:00 PM | 7.47 |
| 12/28/2016 3:15 PM | 7.25 | 12/29/2016 3:15 PM | 7.43 | 12/30/2016 3:15 PM | 7.47 |
| 12/28/2016 3:30 PM | 7.25 | 12/29/2016 3:30 PM | 7.42 | 12/30/2016 3:30 PM | 7.46 |
| 12/28/2016 3:45 PM | 7.25 | 12/29/2016 3:45 PM | 7.41 | 12/30/2016 3:45 PM | 7.45 |
| 12/28/2016 4:00 PM | 7.25 | 12/29/2016 4:00 PM | 7.40 | 12/30/2016 4:00 PM | 7.45 |
| 12/28/2016 4:15 PM | 7.25 | 12/29/2016 4:15 PM | 7.39 | 12/30/2016 4:15 PM | 7.35 |
| 12/28/2016 4:30 PM | 7.25 | 12/29/2016 4:30 PM | 7.39 | 12/30/2016 4:30 PM | 7.33 |
| 12/28/2016 4:45 PM | 7.26 | 12/29/2016 4:45 PM | 7.38 | 12/30/2016 4:45 PM | 7.33 |
| 12/28/2016 5:00 PM | 7.26 | 12/29/2016 5:00 PM | 7.37 | 12/30/2016 5:00 PM | 7.32 |
| 12/28/2016 5:15 PM | 7.26 | 12/29/2016 5:15 PM | 7.37 | 12/30/2016 5:15 PM | 7.32 |
| 12/28/2016 5:30 PM | 7.26 | 12/29/2016 5:30 PM | 7.36 | 12/30/2016 5:30 PM | 7.32 |
| 12/28/2016 5:45 PM | 7.26 | 12/29/2016 5:45 PM | 7.36 | 12/30/2016 5:45 PM | 7.31 |
| 12/28/2016 6:00 PM | 7.26 | 12/29/2016 6:00 PM | 7.35 | 12/30/2016 6:00 PM | 7.34 |
| 12/28/2016 6:15 PM | 7.29 | 12/29/2016 6:15 PM | 7.35 | 12/30/2016 6:15 PM | 7.49 |
| 12/28/2016 6:30 PM | 7.48 | 12/29/2016 6:30 PM | 7.34 | 12/30/2016 6:30 PM | 7.50 |
| 12/28/2016 6:45 PM | 7.50 | 12/29/2016 6:45 PM | 7.32 | 12/30/2016 6:45 PM | 7.49 |
| 12/28/2016 7:00 PM | 7.49 | 12/29/2016 7:00 PM | 7.30 | 12/30/2016 7:00 PM | 7.48 |
| 12/28/2016 7:15 PM | 7.38 | 12/29/2016 7:15 PM | 7.30 | 12/30/2016 7:15 PM | 7.48 |
| 12/28/2016 7:30 PM | 7.36 | 12/29/2016 7:30 PM | 7.29 | 12/30/2016 7:30 PM | 7.47 |
| 12/28/2016 7:45 PM | 7.46 | 12/29/2016 7:45 PM | 7.29 | 12/30/2016 7:45 PM | 7.46 |
| 12/28/2016 8:00 PM | 7.48 | 12/29/2016 8:00 PM | 7.29 | 12/30/2016 8:00 PM | 7.46 |
| 12/28/2016 8:15 PM | 7.47 | 12/29/2016 8:15 PM | 7.42 | 12/30/2016 8:15 PM | 7.45 |
| 12/28/2016 8:30 PM | 7.46 | 12/29/2016 8:30 PM | 7.49 | 12/30/2016 8:30 PM | 7.45 |
| 12/28/2016 8:45 PM | 7.37 | 12/29/2016 8:45 PM | 7.48 | 12/30/2016 8:45 PM | 7.44 |
| 12/28/2016 9:00 PM | 7.33 | 12/29/2016 9:00 PM | 7.46 | 12/30/2016 9:00 PM | 7.44 |
| 12/28/2016 9:15 PM | 7.32 | 12/29/2016 9:15 PM | 7.44 | 12/30/2016 9:15 PM | 7.44 |
| 12/28/2016 9:30 PM | 7.31 | 12/29/2016 9:30 PM | 7.43 | 12/30/2016 9:30 PM | 7.43 |
| 12/28/2016 9:45 PM | 7.43 | 12/29/2016 9:45 PM | 7.42 | 12/30/2016 9:45 PM | 7.35 |
| 12/28/2016 10:00 PM | 7.49 | 12/29/2016 10:00 PM | 7.41 | 12/30/2016 10:00 PM | 7.34 |
| 12/28/2016 10:15 PM | 7.48 | 12/29/2016 10:15 PM | 7.39 | 12/30/2016 10:15 PM | 7.33 |
| 12/28/2016 10:30 PM | 7.47 | 12/29/2016 10:30 PM | 7.31 | 12/30/2016 10:30 PM | 7.33 |
| 12/28/2016 10:45 PM | 7.46 | 12/29/2016 10:45 PM | 7.30 | 12/30/2016 10:45 PM | 7.30 |
| 12/28/2016 11:00 PM | 7.45 | 12/29/2016 11:00 PM | 7.30 | 12/30/2016 11:00 PM | 7.46 |
| 12/28/2016 11:15 PM | 7.44 | 12/29/2016 11:15 PM | 7.30 | 12/30/2016 11:15 PM | 7.49 |
| 12/28/2016 11:30 PM | 7.44 | 12/29/2016 11:30 PM | 7.29 | 12/30/2016 11:30 PM | 7.49 |
| 12/28/2016 11:45 PM | 7.42 | 12/29/2016 11:45 PM | 7.29 | 12/30/2016 11:45 PM | 7.48 |
| AVG | 7.32 | AVG | 7.39 | AVG | 7.41 |

| Date And Time | pH |
|---|---|
| 12/31/2016 12:00 AM | 7.47 |
| 12/31/2016 12:15 AM | 7.46 |
| 12/31/2016 12:30 AM | 7.46 |
| 12/31/2016 12:45 AM | 7.45 |
| 12/31/2016 1:00 AM | 7.45 |
| 12/31/2016 1:15 AM | 7.44 |
| 12/31/2016 1:30 AM | 7.35 |
| 12/31/2016 1:45 AM | 7.34 |
| 12/31/2016 2:00 AM | 7.33 |
| 12/31/2016 2:15 AM | 7.32 |
| 12/31/2016 2:30 AM | 7.32 |
| 12/31/2016 2:45 AM | 7.31 |
| 12/31/2016 3:00 AM | 7.31 |
| 12/31/2016 3:15 AM | 7.40 |
| 12/31/2016 3:30 AM | 7.49 |
| 12/31/2016 3:45 AM | 7.50 |
| 12/31/2016 4:00 AM | 7.49 |
| 12/31/2016 4:15 AM | 7.48 |
| 12/31/2016 4:30 AM | 7.47 |
| 12/31/2016 4:45 AM | 7.46 |
| 12/31/2016 5:00 AM | 7.46 |
| 12/31/2016 5:15 AM | 7.45 |
| 12/31/2016 5:30 AM | 7.38 |
| 12/31/2016 5:45 AM | 7.34 |
| 12/31/2016 6:00 AM | 7.33 |
| 12/31/2016 6:15 AM | 7.32 |
| 12/31/2016 6:30 AM | 7.32 |
| 12/31/2016 6:45 AM | 7.31 |

| | |
|---|---|
| **MIN** | **7.21** |
| **MAX** | **8.02** |

| | |
|---|---|
| 12/31/2016 7:00 AM | 7.31 |
| 12/31/2016 7:15 AM | 7.30 |
| 12/31/2016 7:30 AM | 7.48 |
| 12/31/2016 7:45 AM | 7.36 |
| 12/31/2016 8:00 AM | 7.33 |
| 12/31/2016 8:15 AM | 7.42 |
| 12/31/2016 8:30 AM | 7.51 |
| 12/31/2016 8:45 AM | 7.51 |
| 12/31/2016 9:00 AM | 7.49 |
| 12/31/2016 9:15 AM | 7.48 |
| 12/31/2016 9:30 AM | 7.47 |
| 12/31/2016 9:45 AM | 7.47 |
| 12/31/2016 10:00 AM | 7.46 |
| 12/31/2016 10:15 AM | 7.46 |
| 12/31/2016 10:30 AM | 7.35 |
| 12/31/2016 10:45 AM | 7.34 |
| 12/31/2016 11:00 AM | 7.33 |
| 12/31/2016 11:15 AM | 7.32 |
| 12/31/2016 11:30 AM | 7.31 |
| 12/31/2016 11:45 AM | 7.31 |
| 12/31/2016 12:00 PM | 7.30 |
| 12/31/2016 12:15 PM | 7.47 |
| 12/31/2016 12:30 PM | 7.48 |
| 12/31/2016 12:45 PM | 7.48 |
| 12/31/2016 1:00 PM | 7.48 |
| 12/31/2016 1:15 PM | 7.46 |
| 12/31/2016 1:30 PM | 7.44 |
| 12/31/2016 1:45 PM | 7.42 |
| 12/31/2016 2:00 PM | 7.41 |
| 12/31/2016 2:15 PM | 7.40 |
| 12/31/2016 2:30 PM | 7.40 |
| 12/31/2016 2:45 PM | 7.39 |
| 12/31/2016 3:00 PM | 7.39 |
| 12/31/2016 3:15 PM | 7.38 |
| 12/31/2016 3:30 PM | 7.38 |
| 12/31/2016 3:45 PM | 7.37 |
| 12/31/2016 4:00 PM | 7.34 |
| 12/31/2016 4:15 PM | 7.31 |
| 12/31/2016 4:30 PM | 7.31 |
| 12/31/2016 4:45 PM | 7.30 |
| 12/31/2016 5:00 PM | 7.29 |
| 12/31/2016 5:15 PM | 7.44 |
| 12/31/2016 5:30 PM | 7.46 |
| 12/31/2016 5:45 PM | 7.45 |
| 12/31/2016 6:00 PM | 7.44 |
| 12/31/2016 6:15 PM | 7.43 |
| 12/31/2016 6:30 PM | 7.42 |
| 12/31/2016 6:45 PM | 7.41 |
| 12/31/2016 7:00 PM | 7.40 |
| 12/31/2016 7:15 PM | 7.36 |
| 12/31/2016 7:30 PM | 7.31 |
| 12/31/2016 7:45 PM | 7.30 |
| 12/31/2016 8:00 PM | 7.29 |
| 12/31/2016 8:15 PM | 7.28 |
| 12/31/2016 8:30 PM | 7.28 |
| 12/31/2016 8:45 PM | 7.28 |
| 12/31/2016 9:00 PM | 7.28 |
| 12/31/2016 9:15 PM | 7.43 |
| 12/31/2016 9:30 PM | 7.38 |
| 12/31/2016 9:45 PM | 7.29 |
| 12/31/2016 10:00 PM | 7.46 |
| 12/31/2016 10:15 PM | 7.48 |
| 12/31/2016 10:30 PM | 7.47 |
| 12/31/2016 10:45 PM | 7.45 |
| 12/31/2016 11:00 PM | 7.44 |
| 12/31/2016 11:15 PM | 7.43 |
| 12/31/2016 11:30 PM | 7.42 |
| 12/31/2016 11:45 PM | 7.36 |
| AVG | 7.39 |

Avtex Fibers
Front Royal, VA
Outfall 004
December 2016 DMR

| Sample Date | Sample ID | BOD, mg/L | BOD, kg/d | TSS, mg/L | TSS, kg/d |
|---|---|---|---|---|---|
| 12/1/2016 | AF12-01FE | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/8/2016 | AF12-08FE | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/15/2016 | AF12-15FE | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/20/2016 | AF12-20FE | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/29/2016 | AF12-29FE | 0.0 | 0.0 | 0.0 | 0.0 |
| | Daily Maximum: | 0.0 | 0.0 | 0.0 | 0.0 |
| | Monthly Avg: | 0.0 | 0.0 | 0.0 | 0.0 |

Monthly Average – Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as calculated. If all data are below the QL used for the analysis, then the average shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported monthly average concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the monthly average of the calculated daily quantities.

Daily Maximum – Compliance with the daily maximum limitations and/or reporting requirements for the parameters listed in Part I.C.1 shall be determined as follows: All concentration data below the QL used for the analysis shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each day during the reporting month. The maximum value of these daily averages thus determined shall be reported on the DMR as the Daily Maximum. If all data are below the QL used for the analysis, then the maximum value of the daily averages shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported daily maximum concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported daily average concentrations (including the defined zeros) and corresponding daily flows to determine daily average quantities and report the maximum of the daily average quantities during the reporting month.

**Loading Derivation**
If 1 ppm (= 1 mg/L) and 1 MGD (= 1 MG/day)
--> (1 mg/L)(1 MG/day)(3.785 L/Gal)(10^6 Gal/MG)(1 lb/453,600 mg) = 8.34 lbs/day
**--> lbs/day = ppm * 8.34 * MGD**
**--> kg/d = ppm * 8.34 * MGD * 0.4536*lb/d**

**Concentration Derivation**
If 1 lb/d and 1 MGD (= 1 MG/day)
[(1 lbs/day)(453,600 mg/lb)] / [(1 MG/d)(10^6 Gal/MG)(3.785 L/Gal)]
**--> ppm = lb/d * (1/8.34) * (1/MGD)**

| | BOD |
|---|---|
| 12/1/2016 | 0 |
| 12/8/2016 | 0 |
| 12/15/2016 | 0 |
| 12/20/2016 | 0 |
| 12/29/2016 | 0 |
| AVG | 0 |

| | TSS |
|---|---|
| 12/1/2016 | 0 |
| 12/8/2016 | 0 |
| 12/15/2016 | 0 |
| 12/20/2016 | 0 |
| 12/29/2016 | 0 |
| AVG | 0 |

| | CS2* |
|---|---|
| 12/15/2016 | <QL |

*Note: CS2 EPA Test Method: 8260 MSV Low Level Analytical Method (EPA 8260)
Report Limit 2 ug/L
MDL 1.2 ug/L

**Table 3.1**

**Site Rainfall Data Avtex Fibers Superfund Site 1 October - December 31, 2016**

| Month | Average Rainfall for Winchester, VA (in)* | Average Site Rainfall 1990-2013 (in) | 2006 Actual Rainfall (in) | 2007 Actual Rainfall (in) | 2008 Actual Rainfall (in) | 2009 Actual Rainfall (in) | 2010 Actual Rainfall (in) | 2011 Actual Rainfall (in) | 2012 Actual Rainfall (in) | 2013 Actual Rainfall (in) | 2014 Actual Rainfall (in) | 2015 Actual Rainfall (in) | 2016 Actual Rainfall (in) | Percent of Average Site Rainfall (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January | 2.4 | 2.7 | 2.0 | 1.2 | 1.0 | 1.4 | 3.35 | 0.9 | 2.0 | 3.8 | 1.1 | 1.4 | 1.2 | 46% |
| February | 2.5 | 2.3 | 1.7 | 1.9 | 2.3 | 0.0 | 4.35 | 1.4 | 2.3 | 0.9 | 3.2 | 0.7 | 2.2 | 95% |
| March | 3.1 | 3.6 | 0.1 | 3.7 | 2.9 | 1.5 | 5.7 | 4.6 | 1.9 | 3.9 | 2.3 | 1.7 | 1.0 | 27% |
| April | 3.1 | 3.2 | 2.8 | 3.4 | 6.2 | 3.2 | 1.59 | 6.5 | 2.5 | 1.3 | 1.5 | 2.9 | 1.3 | 42% |
| May | 3.7 | 3.8 | 1.0 | 1.9 | 5.2 | 5.8 | 3.25 | 5.6 | 3.6 | 2.4 | 7.2 | 1.6 | 3.9 | 102% |
| June | 3.9 | 4.4 | 9.7 | 3.5 | 4.3 | 4.6 | 0.6 | 4.0 | 3.6 | 5.2 | 1.5 | 3.9 | 3.8 | 85% |
| July | 3.9 | 3.4 | 2.2 | 1.7 | 3.8 | 3.0 | 1.8 | 3.1 | 4.3 | 1.9 | 4.6 | 1.8 | 5.4 | 158% |
| August | 3.5 | 3.1 | 1.3 | 2.8 | 3.5 | 2.1 | 3.3 | 3.4 | 5.2 | 2.6 | 3.7 | 1.0 | 2.3 | 74% |
| September | 3.1 | 4.7 | 6.1 | 2.0 | 4.3 | 1.3 | 5.7 | 5.5 | 4.9 | 2.5 | 1.6 | 3.6 | 6.1 | 130% |
| October | 3.2 | 3.0 | 4.3 | 4.1 | 1.2 | 2.7 | 0.65 | 3.9 | 4.3 | 5.1 | 5.17 | 1.65 | 0.6 | 19% |
| November | 3.1 | 2.9 | 5.2 | 1.6 | 2.5 | 3.7 | 1.8 | 3.0 | 1.1 | 1.6 | 1.83 | 1.36 | 0.8 | 28% |
| December | 2.5 | 2.6 | 0.7 | 2.8 | 1.4 | 5.0 | 2.0 | 3.6 | 1.55 | 1.5 | 3.02 | 2.46 | 1.5 | 56% |
| **Totals to Date** | **37.9** | **39.6** | **36.9** | **30.4** | **38.5** | **34.2** | **34.1** | **45.2** | **37.0** | **32.8** | **36.7** | **24.1** | **30.0** | **76%** |

* Source: National Climate Data Center TD 9641 Clim 81

**Table 3.2 Monthly Flow Totals**

**Avtex Site Lift Stations, Test Wells and Viscose Basin**

## October 2016

| Lift Stations Flow Report | | Test Wells Flow Report | | | | Viscose Basin Flow Report | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | Total LS Flow (MGD) | Date | TW1 Flow (MGD) | TW2 Flow (MGD) | TW3 Flow (MGD) | Date | VB9 Flow (MGD) | VB10 Flow (MGD) | VB 11 Flow (MGD) |
| 10/1/2016 | 0.028 | 10/1/2016 | 0.063 | 0.006 | 0.000 | 10/1/2016 | 0.002 | 0.003 | 0.000 |
| 10/2/2016 | 0.021 | 10/2/2016 | 0.064 | 0.000 | 0.000 | 10/2/2016 | 0.002 | 0.003 | 0.000 |
| 10/3/2016 | 0.005 | 10/3/2016 | 0.064 | 0.024 | 0.021 | 10/3/2016 | 0.002 | 0.003 | 0.000 |
| 10/4/2016 | 0.004 | 10/4/2016 | 0.064 | 0.029 | 0.027 | 10/4/2016 | 0.002 | 0.003 | 0.000 |
| 10/5/2016 | 0.003 | 10/5/2016 | 0.064 | 0.032 | 0.029 | 10/5/2016 | 0.002 | 0.003 | 0.000 |
| 10/6/2016 | 0.003 | 10/6/2016 | 0.064 | 0.031 | 0.029 | 10/6/2016 | 0.002 | 0.004 | 0.000 |
| 10/7/2016 | 0.003 | 10/7/2016 | 0.063 | 0.031 | 0.029 | 10/7/2016 | 0.002 | 0.004 | 0.000 |
| 10/8/2016 | 0.013 | 10/8/2016 | 0.063 | 0.030 | 0.029 | 10/8/2016 | 0.002 | 0.004 | 0.000 |
| 10/9/2016 | 0.015 | 10/9/2016 | 0.061 | 0.030 | 0.028 | 10/9/2016 | 0.002 | 0.004 | 0.000 |
| 10/10/2016 | 0.015 | 10/10/2016 | 0.063 | 0.030 | 0.029 | 10/10/2016 | 0.003 | 0.004 | 0.000 |
| 10/11/2016 | 0.003 | 10/11/2016 | 0.064 | 0.030 | 0.026 | 10/11/2016 | 0.003 | 0.003 | 0.000 |
| 10/12/2016 | 0.003 | 10/12/2016 | 0.063 | 0.030 | 0.029 | 10/12/2016 | 0.003 | 0.003 | 0.000 |
| 10/13/2016 | 0.002 | 10/13/2016 | 0.064 | 0.030 | 0.021 | 10/13/2016 | 0.003 | 0.003 | 0.000 |
| 10/14/2016 | 0.002 | 10/14/2016 | 0.063 | 0.030 | 0.026 | 10/14/2016 | 0.003 | 0.003 | 0.000 |
| 10/15/2016 | 0.008 | 10/15/2016 | 0.063 | 0.029 | 0.029 | 10/15/2016 | 0.003 | 0.003 | 0.000 |
| 10/16/2016 | 0.008 | 10/16/2016 | 0.063 | 0.029 | 0.029 | 10/16/2016 | 0.003 | 0.003 | 0.000 |
| 10/17/2016 | 0.001 | 10/17/2016 | 0.063 | 0.029 | 0.029 | 10/17/2016 | 0.003 | 0.003 | 0.000 |
| 10/18/2016 | 0.001 | 10/18/2016 | 0.063 | 0.029 | 0.029 | 10/18/2016 | 0.003 | 0.002 | 0.000 |
| 10/19/2016 | 0.001 | 10/19/2016 | 0.063 | 0.029 | 0.029 | 10/19/2016 | 0.003 | 0.002 | 0.000 |
| 10/20/2016 | 0.001 | 10/20/2016 | 0.063 | 0.029 | 0.011 | 10/20/2016 | 0.003 | 0.003 | 0.000 |
| 10/21/2016 | 0.001 | 10/21/2016 | 0.064 | 0.029 | 0.021 | 10/21/2016 | 0.003 | 0.003 | 0.000 |
| 10/22/2016 | 0.001 | 10/22/2016 | 0.063 | 0.029 | 0.026 | 10/22/2016 | 0.003 | 0.002 | 0.000 |
| 10/23/2016 | 0.001 | 10/23/2016 | 0.063 | 0.029 | 0.029 | 10/23/2016 | 0.003 | 0.001 | 0.000 |
| 10/24/2016 | 0.007 | 10/24/2016 | 0.063 | 0.028 | 0.029 | 10/24/2016 | 0.003 | 0.001 | 0.000 |
| 10/25/2016 | 0.007 | 10/25/2016 | 0.063 | 0.029 | 0.029 | 10/25/2016 | 0.003 | 0.001 | 0.000 |
| 10/26/2016 | 0.001 | 10/26/2016 | 0.063 | 0.028 | 0.029 | 10/26/2016 | 0.003 | 0.001 | 0.000 |
| 10/27/2016 | 0.001 | 10/27/2016 | 0.063 | 0.028 | 0.029 | 10/27/2016 | 0.003 | 0.001 | 0.000 |
| 10/28/2016 | 0.001 | 10/28/2016 | 0.063 | 0.028 | 0.029 | 10/28/2016 | 0.003 | 0.001 | 0.000 |
| 10/29/2016 | 0.001 | 10/29/2016 | 0.063 | 0.028 | 0.008 | 10/29/2016 | 0.003 | 0.000 | 0.000 |
| 10/30/2016 | 0.001 | 10/30/2016 | 0.064 | 0.028 | 0.000 | 10/30/2016 | 0.003 | 0.000 | 0.000 |
| 10/31/2016 | 0.001 | 10/31/2016 | 0.064 | 0.028 | 0.021 | 10/31/2016 | 0.003 | 0.000 | 0.000 |

**Table 3.2 Monthly Flow Totals**

**Avtex Site Lift Stations, Test Wells and Viscose Basin**

## November 2016

| Lift Stations Flow Report | | Test Wells Flow Report | | | | Viscose Basin Flow Report | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | Total LS Flow (MGD) | Date | TW1 Flow (MGD) | TW2 Flow (MGD) | TW3 Flow (MGD) | Date | VB9 Flow (MGD) | VB10 Flow (MGD) | VB 11 Flow (MGD) |
| 11/1/2016 | 0.001 | 11/1/2016 | 0.064 | 0.028 | 0.026 | 11/1/2016 | 0.003 | 0.000 | 0.001 |
| 11/2/2016 | 0.001 | 11/2/2016 | 0.063 | 0.028 | 0.029 | 11/2/2016 | 0.003 | 0.000 | 0.001 |
| 11/3/2016 | 0.001 | 11/3/2016 | 0.063 | 0.028 | 0.029 | 11/3/2016 | 0.003 | 0.000 | 0.000 |
| 11/4/2016 | 0.001 | 11/4/2016 | 0.063 | 0.028 | 0.029 | 11/4/2016 | 0.003 | 0.000 | 0.000 |
| 11/5/2016 | 0.001 | 11/5/2016 | 0.063 | 0.028 | 0.029 | 11/5/2016 | 0.003 | 0.000 | 0.000 |
| 11/6/2016 | 0.001 | 11/6/2016 | 0.063 | 0.028 | 0.029 | 11/6/2016 | 0.003 | 0.000 | 0.000 |
| 11/7/2016 | 0.001 | 11/7/2016 | 0.063 | 0.028 | 0.029 | 11/7/2016 | 0.003 | 0.000 | 0.000 |
| 11/8/2016 | 0.001 | 11/8/2016 | 0.063 | 0.028 | 0.029 | 11/8/2016 | 0.003 | 0.000 | 0.000 |
| 11/9/2016 | 0.001 | 11/9/2016 | 0.063 | 0.028 | 0.029 | 11/9/2016 | 0.003 | 0.000 | 0.000 |
| 11/10/2016 | 0.001 | 11/10/2016 | 0.063 | 0.028 | 0.029 | 11/10/2016 | 0.003 | 0.000 | 0.000 |
| 11/11/2016 | 0.001 | 11/11/2016 | 0.063 | 0.028 | 0.029 | 11/11/2016 | 0.002 | 0.000 | 0.000 |
| 11/12/2016 | 0.001 | 11/12/2016 | 0.063 | 0.028 | 0.029 | 11/12/2016 | 0.003 | 0.000 | 0.000 |
| 11/13/2016 | 0.001 | 11/13/2016 | 0.063 | 0.027 | 0.019 | 11/13/2016 | 0.003 | 0.000 | 0.001 |
| 11/14/2016 | 0.001 | 11/14/2016 | 0.063 | 0.027 | 0.013 | 11/14/2016 | 0.002 | 0.000 | 0.001 |
| 11/15/2016 | 0.001 | 11/15/2016 | 0.063 | 0.027 | 0.026 | 11/15/2016 | 0.002 | 0.000 | 0.001 |
| 11/16/2016 | 0.001 | 11/16/2016 | 0.063 | 0.027 | 0.029 | 11/16/2016 | 0.002 | 0.000 | 0.001 |
| 11/17/2016 | 0.001 | 11/17/2016 | 0.063 | 0.027 | 0.029 | 11/17/2016 | 0.002 | 0.000 | 0.001 |
| 11/18/2016 | 0.001 | 11/18/2016 | 0.063 | 0.027 | 0.029 | 11/18/2016 | 0.002 | 0.000 | 0.001 |
| 11/19/2016 | 0.001 | 11/19/2016 | 0.063 | 0.027 | 0.029 | 11/19/2016 | 0.002 | 0.000 | 0.001 |
| 11/20/2016 | 0.001 | 11/20/2016 | 0.063 | 0.027 | 0.029 | 11/20/2016 | 0.002 | 0.000 | 0.001 |
| 11/21/2016 | 0.001 | 11/21/2016 | 0.063 | 0.027 | 0.015 | 11/21/2016 | 0.002 | 0.000 | 0.001 |
| 11/22/2016 | 0.001 | 11/22/2016 | 0.064 | 0.027 | 0.020 | 11/22/2016 | 0.002 | 0.000 | 0.001 |
| 11/23/2016 | 0.001 | 11/23/2016 | 0.063 | 0.027 | 0.026 | 11/23/2016 | 0.002 | 0.000 | 0.001 |
| 11/24/2016 | 0.001 | 11/24/2016 | 0.063 | 0.027 | 0.029 | 11/24/2016 | 0.002 | 0.000 | 0.001 |
| 11/25/2016 | 0.001 | 11/25/2016 | 0.063 | 0.027 | 0.029 | 11/25/2016 | 0.002 | 0.000 | 0.001 |
| 11/26/2016 | 0.001 | 11/26/2016 | 0.061 | 0.027 | 0.029 | 11/26/2016 | 0.002 | 0.000 | 0.001 |
| 11/27/2016 | 0.001 | 11/27/2016 | 0.063 | 0.027 | 0.029 | 11/27/2016 | 0.002 | 0.000 | 0.001 |
| 11/28/2016 | 0.001 | 11/28/2016 | 0.063 | 0.027 | 0.029 | 11/28/2016 | 0.002 | 0.000 | 0.001 |
| 11/29/2016 | 0.001 | 11/29/2016 | 0.058 | 0.026 | 0.002 | 11/29/2016 | 0.002 | 0.000 | 0.001 |
| 11/30/2016 | 0.002 | 11/30/2016 | 0.064 | 0.028 | 0.018 | 11/30/2016 | 0.002 | 0.000 | 0.001 |

**Table 3.2 Monthly Flow Totals**

**Avtex Site Lift Stations, Test Wells and Viscose Basin**

## December 2016

| Lift Stations Flow Report | | Test Wells Flow Report | | | | Viscose Basin Flow Report | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | Total LS Flow (MGD) | Date | TW1 Flow (MGD) | TW2 Flow (MGD) | TW3 Flow (MGD) | Date | VB9 Flow (MGD) | VB10 Flow (MGD) | VB 11 Flow (MGD) |
| 12/1/2016 | 0.002 | 12/1/2016 | 0.063 | 0.028 | 0.026 | 12/1/2016 | 0.002 | 0.000 | 0.001 |
| 12/2/2016 | 0.003 | 12/2/2016 | 0.063 | 0.028 | 0.029 | 12/2/2016 | 0.001 | 0.000 | 0.001 |
| 12/3/2016 | 0.003 | 12/3/2016 | 0.063 | 0.028 | 0.029 | 12/3/2016 | 0.002 | 0.000 | 0.001 |
| 12/4/2016 | 0.002 | 12/4/2016 | 0.063 | 0.028 | 0.029 | 12/4/2016 | 0.002 | 0.000 | 0.001 |
| 12/5/2016 | 0.002 | 12/5/2016 | 0.063 | 0.028 | 0.011 | 12/5/2016 | 0.003 | 0.000 | 0.001 |
| 12/6/2016 | 0.014 | 12/6/2016 | 0.063 | 0.028 | 0.000 | 12/6/2016 | 0.003 | 0.000 | 0.001 |
| 12/7/2016 | 0.015 | 12/7/2016 | 0.063 | 0.028 | 0.000 | 12/7/2016 | 0.002 | 0.000 | 0.001 |
| 12/8/2016 | 0.015 | 12/8/2016 | 0.063 | 0.027 | 0.000 | 12/8/2016 | 0.005 | 0.000 | 0.001 |
| 12/9/2016 | 0.003 | 12/9/2016 | 0.063 | 0.027 | 0.000 | 12/9/2016 | 0.008 | 0.000 | 0.001 |
| 12/10/2016 | 0.002 | 12/10/2016 | 0.063 | 0.027 | 0.000 | 12/10/2016 | 0.012 | 0.001 | 0.000 |
| 12/11/2016 | 0.002 | 12/11/2016 | 0.063 | 0.027 | 0.015 | 12/11/2016 | 0.014 | 0.001 | 0.000 |
| 12/12/2016 | 0.002 | 12/12/2016 | 0.063 | 0.027 | 0.026 | 12/12/2016 | 0.004 | 0.001 | 0.001 |
| 12/13/2016 | 0.002 | 12/13/2016 | 0.063 | 0.027 | 0.029 | 12/13/2016 | 0.004 | 0.001 | 0.001 |
| 12/14/2016 | 0.002 | 12/14/2016 | 0.063 | 0.027 | 0.006 | 12/14/2016 | 0.003 | 0.001 | 0.001 |
| 12/15/2016 | 0.001 | 12/15/2016 | 0.063 | 0.027 | 0.000 | 12/15/2016 | 0.002 | 0.001 | 0.000 |
| 12/16/2016 | 0.001 | 12/16/2016 | 0.063 | 0.027 | 0.000 | 12/16/2016 | 0.002 | 0.000 | 0.000 |
| 12/17/2016 | 0.001 | 12/17/2016 | 0.063 | 0.027 | 0.000 | 12/17/2016 | 0.002 | 0.000 | 0.000 |
| 12/18/2016 | 0.001 | 12/18/2016 | 0.063 | 0.027 | 0.000 | 12/18/2016 | 0.002 | 0.000 | 0.000 |
| 12/19/2016 | 0.001 | 12/19/2016 | 0.064 | 0.027 | 0.007 | 12/19/2016 | 0.002 | 0.000 | 0.000 |
| 12/20/2016 | 0.001 | 12/20/2016 | 0.063 | 0.027 | 0.007 | 12/20/2016 | 0.002 | 0.000 | 0.000 |
| 12/21/2016 | 0.001 | 12/21/2016 | 0.063 | 0.024 | 0.007 | 12/21/2016 | 0.002 | 0.000 | 0.000 |
| 12/22/2016 | 0.001 | 12/22/2016 | 0.063 | 0.027 | 0.021 | 12/22/2016 | 0.002 | 0.000 | 0.000 |
| 12/23/2016 | 0.002 | 12/23/2016 | 0.063 | 0.027 | 0.026 | 12/23/2016 | 0.002 | 0.000 | 0.000 |
| 12/24/2016 | 0.006 | 12/24/2016 | 0.063 | 0.026 | 0.029 | 12/24/2016 | 0.002 | 0.000 | 0.000 |
| 12/25/2016 | 0.006 | 12/25/2016 | 0.063 | 0.026 | 0.003 | 12/25/2016 | 0.002 | 0.000 | 0.000 |
| 12/26/2016 | 0.001 | 12/26/2016 | 0.063 | 0.026 | 0.000 | 12/26/2016 | 0.002 | 0.000 | 0.000 |
| 12/27/2016 | 0.001 | 12/27/2016 | 0.063 | 0.026 | 0.000 | 12/27/2016 | 0.002 | 0.000 | 0.000 |
| 12/28/2016 | 0.001 | 12/28/2016 | 0.063 | 0.026 | 0.000 | 12/28/2016 | 0.002 | 0.000 | 0.000 |
| 12/29/2016 | 0.001 | 12/29/2016 | 0.063 | 0.014 | 0.000 | 12/29/2016 | 0.002 | 0.000 | 0.000 |
| 12/30/2016 | 0.001 | 12/30/2016 | 0.063 | 0.016 | 0.000 | 12/30/2016 | 0.002 | 0.000 | 0.000 |
| 12/31/2016 | 0.001 | 12/31/2016 | 0.064 | 0.025 | 0.000 | 12/31/2016 | 0.002 | 0.000 | 0.000 |

*Attachment 4*

*Preliminary Site-Wide Quarterly Inspection*

# Quarterly Inspection Report

Inpected by: M. Robinson / H. Lipomi
Date: 12-09-2016
Report No.: 2016-12
Areas Inspected: See Map

| Questions | Response | | Comments and Recommendations |
|---|---|---|---|
| **1. Remediation/Restoration Areas** | | | |
| Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on an attached map. | ☑ Yes | ☐ No | Slight to moderate settlement with standing water noted in a small/isolated few areas (shown on attached map). |
| Is erosion evident? If Yes, describe the type of erosion (rills, gullies), record approximate dimensions (length, width, depth) and indicate location(s) on an attached map. | ☑ Yes | ☐ No | Minor erosion noted in a few small areas (see map for locations and details) |
| Are potential leachate seeps evident or migration of contamination? If Yes, describe the nature (size, color, flow rate), record location on an attached map, and photograph.<br><br>[Note: Check former seep areas in unnamed tributary north of VB 4-6, check pond area north of VB 9, and check other likely areas (e.g., embankments of VBs, SBs)] | ☑ Yes | ☐ No | See map for locations. Potential seeps:<br>-South of LS2 (wet)<br>-SE of VB-2&3 (wet)<br>-NW of VB-7&8 (dry) |
| Do landfill/basin embankments show signs of erosion, failure (e.g., cracking, sloughing) or migration of contamination (e.g., seeps, exposed waste)? If Yes, describe the nature (type, size), record location on an attached map, and photograph<br><br>[Note: Check river-side of embankments along river, if safe to do so.] | ☐ Yes | ☑ No | |
| Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on an attached map. | ☑ Yes | ☐ No | Isolated/minor bare areas noted. See map for locations |

# Quarterly Inspection Report

Inpected by: M. Robinson / H. Lipomi
Date: 12-09-2016
Report No.: 2016-12
Areas Inspected: See Map

| Questions | Response | | Comments and Recommendations |
|---|---|---|---|
| Is there woody vegetation greater than 2 inches in diameter or 5 feet in height on the cover system(s)? If Yes, describe where and actions to be taken (refer to Section 4.2 of the O&M Plan). | ☑ Yes | ☐ No | A few small trees noted. See map for locations |
| Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on an attached map. | ☑ Yes | ☐ No | Large rills forming in roadway southwest of VB-10 (see map) |
| Are obstruction(s) (brush, debris, timber, leaves, sediment) interfering with the proper functioning of ditches, gutters or flumes? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on an attached map. | ☑ Yes | ☐ No | Minor obstructions at two locations:<br>1. Sediment building up at end of culvert southeast of VB-10 causing standing water in culvert. Issue to be monitored.<br>2. Small brush causing minor obstruction of flow under roadway west of SB-2 |
| Is sediment deposited in diversion berms, ditches gutters, flumes or culverts deeper than ¼ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on an attached map. | ☐ Yes | ☑ No | |

# Quarterly Inspection Report

Inpected by: M. Robinson / H. Lipomi
Date: 12-09-2016
Report No.: 2016-12
Areas Inspected: See Map

| Questions | Response | | Comments and Recommendations |
|---|---|---|---|
| **2. Surface Water Drainage and Erosion Control System** | | | |
| Is erosion evident? If Yes, describe the drainage structure inspected (ditch, gutter, flume, culvert, outfall, rip-rap), the type of erosion (rills, gullies, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on an attached map. | ☑ Yes | ☐ No | Minor erosion noted in a few isolated areas. See map for locations. Also previously mentioned erosion southwest of VB-10. |
| Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on an attached map. | ☑ Yes | ☐ No | |
| Is erosion evident at drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on an attached map. | ☐ Yes | ☑ No | |

Inspection Checklist (check items that were inspected; document concerns noted; refer to attached Drawings for specific areas)

**Viscos Basins 1-3**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert Inlets & outles | ☑ Rip-rap channels | ☑ Access road near unit | ☐ |

**Viscos Basins 4-6**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert Inlets & outles<br>- N, E, & W of VB 4-6;<br>- Pond W of VB 4-6 | ☑ Rip-rap channels | ☑ Down chutes | ☑ Gas Vent Filter & Fence |
| ☑ Former seep area<br>- N of VB 4-6 | ☑ LS #1 & #2 and Fencing | ☑ Access road near unit | ☐ |

**Viscos Basins 7-8**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert Inlets & outles (between VB-1 and VB-7) | ☑ Rip-rap channels | ☑ Down chutes | ☑ Leachate Collection Manhole (MW VB7) |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

**Viscos Basins 9-11**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Drop inlests on VB-11 | ☑ Culver inlets & outlets (S&W VB-11; N VB-11 & VB-9; and SW VB-10) | ☑ Rip-rap channels | ☑ Down chutes |
| ☑ Access road near unit | ☑ Seep area in pond north of VB-9 | ☑ VB 9-11 fence and gates | ☑ LS #4 and Fencing |

**New Landfill**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & outlets (NE & SE of NLF) | ☑ Rip-rap channels | ☑ Down chutes | ☑ LS #3 and Fencing |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

**SB-1**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & outlets (NE SB-1; SB-2; SE SB-3; NE SB-4; & S SB-4) | ☑ Rip-rap channels & outlets by River | ☑ Down chutes (SB-1 & SB-4) | ☐ |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

## Inspection Checklist (check items that were inspected; document concerns noted; refer to attached Drawings for specific areas)

**SB-2**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Culvert inlets & Outlets (S & W Sides) |
| ☑ Berms along River (site & river side) | ☑ Rip-rap channels & outlets by River | ☑ Access road near unit | ☐ |

**SB-3**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & Outlets (SE)) | ☑ Rip-rap channels & outlets by River | ☑ Drop inlets (W side) | ☑ Access Road near unit |
| ☐ | ☐ | ☐ | ☐ |

**SB-4**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Culvert inlets & outlets (NE & S sides) | ☑ Down chutes (S Side) | ☑ Drop inlet (N side) | ☑ Berms along River (site & river side) |
| ☑ Access road near unit | ☐ | ☐ | ☐ |

**SB-5**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Gas Vents |
| ☑ Berms along River and E side | ☑ Access Road near unit | ☐ | ☐ |
| ☐ | ☐ | ☐ | ☐ |

**FAB 1-3**

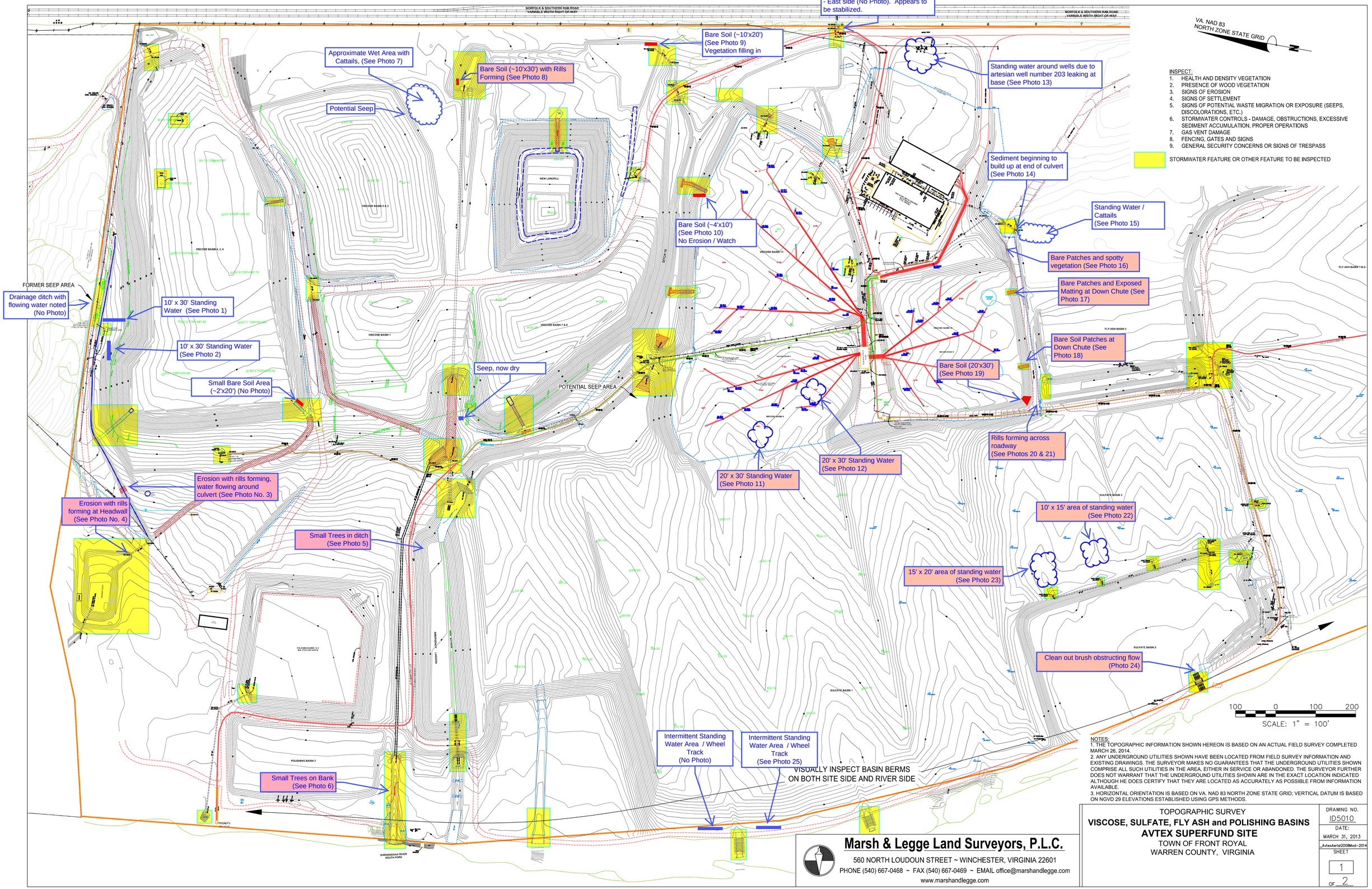
| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Culvert inlets & outlets (E & S FAB1-2; SW FAB3) |
| ☑ Access Road near unit | ☐ | ☐ | ☐ |

**FAS & FARA**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Culvert inlets & outlets (E & N FAS; E FARA) |
| ☑ Access Road near unit | ☐ | ☐ | ☐ |

**EL, PB 1-2, PB-3**

| | | | |
|---|---|---|---|
| ☑ Vegetation | ☑ Erosion | ☑ Settlement | ☑ Rip-rap Channels |
| ☑ Culvert inlets & outlets (E & W EL; NW PB-1-2; S PB-3) | ☑ Access Road near unit | ☐ | ☐ |




NOTES:
1. THE TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AN ACTUAL FIELD SURVEY COMPLETED MARCH 26, 2014.
2. ANY UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.
3. HORIZONTAL ORIENTATION IS BASED ON VA. NAD 83 NORTH ZONE STATE GRID; VERTICAL DATUM IS BASED ON NGVD 29 ELEVATIONS ESTABLISHED USING GPS METHODS.

**Marsh & Legge Land Surveyors, P.L.C.**
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www.marshandlegge.com

TOPOGRAPHIC SURVEY
**VISCOSE, SULFATE, FLY ASH and POLISHING BASINS**
**AVTEX SUPERFUND SITE**
TOWN OF FRONT ROYAL
WARREN COUNTY, VIRGINIA

DRAWING NO. ID5010
DATE: MARCH 31, 2013
_AvtexAerial2008Mod--2014
SHEET 1 OF 2

VA. NAD 83
NORTH ZONE STATE GRID

N

NORFOLK & SOUTHERN RAILROAD
VARIABLE WIDTH RIGHT-OF-WAY

FLY ASH BASIN 6

FLY ASH BASIN 1 & 2

FLY ASH BASIN 3

SULFATE BASIN 5

SULFATE BASIN 4

SULFATE BASIN 3

SULFATE BASIN 2

SHENANDOAH RIVER

SHENANDOAH RIVER

See Sheet 1 of 2

Remove dead trees from inlet
(See Photo 27)

Remove dead trees from inlet
(See Photo 26)

Remove trees from bank
(See Photos 28 and 29)

VISUALLY INSPECT BASIN BERMS
ON BOTH SITE SIDE AND RIVER SIDE

INSPECT:

1. HEALTH AND DENSITY VEGETATION
2. PRESENCE OF WOOD VEGETATION
3. SIGNS OF EROSION
4. SIGNS OF SETTLEMENT
5. SIGNS OF POTENTIAL WASTE MIGRATION OR EXPOSURE (SEEPS, DISCOLORATIONS, ETC.)
6. STORMWATER CONTROLS - DAMAGE, OBSTRUCTIONS, EXCESSIVE SEDIMENT ACCUMULATION, PROPER OPERATIONS
7. GAS VENT DAMAGE
8. FENCING, GATES AND SIGNS
9. GENERAL SECURITY CONCERNS OR SIGNS OF TRESPASS

STORMWATER FEATURE OR OTHER FEATURE TO BE INSPECTED

100 0 100 200
SCALE: 1" = 100'


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TOPOGRAPHIC SURVEY
**VISCOSE, SULFATE, FLY ASH and POLISHING BASINS**
**AVTEX SUPERFUND SITE**
TOWN OF FRONT ROYAL
WARREN COUNTY, VIRGINIA

DRAWING NO.
ID5010
DATE:
MARCH 13, 2014
_AvtexAerial2008Mod~2014
SHEET
2
OF 2

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 1 ***Unit:*** *OU-10* **Basin/Landfill**: VB-4, 5, & 6

**Date :** 12/08/2016

**Photo Description:** Area of standing water adjacent to LS-2.

**Photo Number:** 2 ***Unit:*** OU-10 **Basin/Landfill:** VB-4, 5, & 6

**Date :** 12/08/2016

**Photo Description:** Area of standing water adjacent to LS-2

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 3 ***Unit:*** *OU-10* **Basin/Landfill**: VB-4, 5, & 6

**Date :** 12/08/2016

**Photo Description::** Rills forming on access road to LS-1 west of VB-4, 5, & 6

**Photo Number:** 4 ***Unit:*** OU-10 **Basin/Landfill:** VB-4, 5, & 6

**Date :** 12/08/2016

**Photo Description:** Minor erosion with rills adjacent to headwall in southeast corner of Sediment Basin 1.

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 5 ***Unit:*** *OU-10* **Basin/Landfill**: VB-1 / VB-7&8

**Date :** 12/08/2016

**Photo Description:** Small trees in the EL.

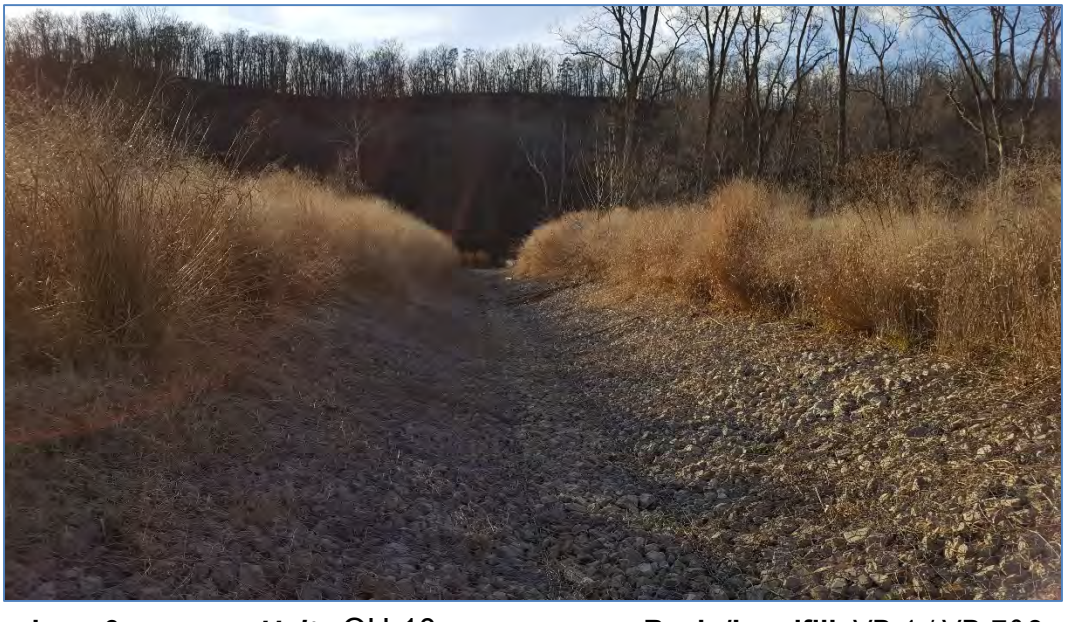


**Photo Number:** 6 ***Unit:*** OU-10 **Basin/Landfill:** VB-1 / VB-7&8

**Date :** 12/08/2016

**Photo Description:** Small Tree in bank of ditch

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 7 ***Unit:*** *OU-10* **Basin/Landfill**: VB-7&8

**Date :** 12/08/2016

**Photo Description:** Large wet area with Cattails southeast of VB 7&8.

**Photo Number:** 8 ***Unit:*** OU-10 **Basin/Landfill:** VB-7&8

**Date :** 12/08/2016

**Photo Description:** Bare soil (~10' x30`) with rills southeast of VB-7&8 (Sediment basin between NLF and VB-7&8.

**Photo Number:** 9 ***Unit:*** *OU-10* **Basin/Landfill**: NLF

**Date :** 12/08/2016

**Photo Description:** Bare soil (~10'x20') in the southeast corner of the basin located southeast of the NLF; continues to fill in with vegetation.

**Photo Number:** 10 ***Unit:*** OU-7 **Basin/Landfill:** VB-11

**Date :** 12/08/2016

**Photo Description:** Bare Soil (~4'x10') adjacent to downdrain north of VB-11.

**Photo Number:** 11 ***Unit:*** *OU-7* **Basin/Landfill**: VB-9

**Date :** 12/08/2016

**Photo Description:** 20’ x 30’ area of standing water on VB-9 (1 of 2).

**Photo Number:** 12 ***Unit:*** OU-7 **Basin/Landfill:** VB-9

**Date :** 12/08/2016

**Photo Description:** 20’ x 30’ area of standing water on VB-9 (2 of 2).

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 13 ***Unit:*** *OU-7* **Basin/Landfill**: General Site

**Date :** 12/08/2016

**Photo Description:** Standing water around well 203 east of treatment plant. Water appears to be coming from the base of this artesian well.

**Photo Number:** 14 ***Unit:*** OU-7 **Basin/Landfill:** VB-10

**Date :** 12/08/2016

**Photo Description:** Sediment building up at end of culvert under access road.

**Photo Number:** 15 ***Unit:*** *OU-7* **Basin/Landfill**: VB-10

**Date :** 12/08/2016

**Photo Description:** Sediment building up at end of culvert under access road creating standing water with cattails.

**Photo Number:** 16 ***Unit:*** OU-7 **Basin/Landfill:** VB-10

**Date :** 12/08/2016

**Photo Description:** Bare patches and spotty vegetation in southeast corner of VB-10.

**Photo Number:** 17 ***Unit:*** *OU-7* **Basin/Landfill**: VB-10

**Date :** 12/08/2016

**Photo Description:** Bare patches and exposed matting at down chute in southeast corner of VB-10.

**Photo Number:** 18 ***Unit:*** OU-7 **Basin/Landfill:** VB-10

**Date :** 12/08/2016

**Photo Description:** Bare patches and exposed matting at down chute in southwest corner of VB-10.

**Photo Number:** 19 ***Unit:*** *OU-7* **Basin/Landfill**: VB-10

**Date :** 12/08/2016

**Photo Description:** Bare soil (~20'x30') at the southwest corner of VB-10.

**Photo Number:** 20 ***Unit:*** OU-7 **Basin/Landfill:** VB-10

**Date :** 12/08/2016

**Photo Description:** Rills forming across driveway in southwest corner of VB-11

**Photo Number:** 21 ***Unit:*** *OU-7* **Basin/Landfill**: VB-10

**Date :** 12/08/2016

**Photo Description:** Rills forming across driveway in southwest corner of VB-11.

**Photo Number:** 22 ***Unit:*** *NTCRA Basins* **Basin/Landfill:** SB-3

**Date :** 12/08/2016

**Photo Description:** 10’ x 15’ area of standing water on SB-3

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

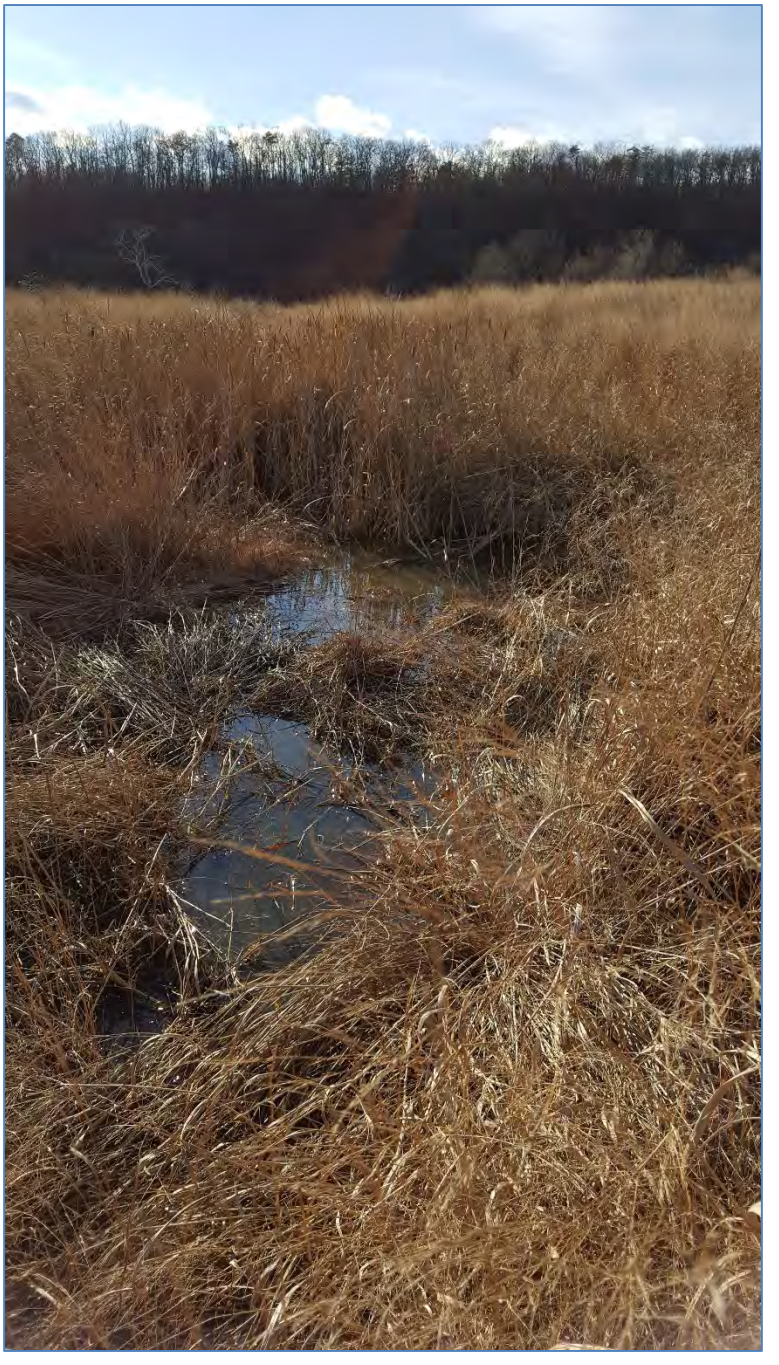


**Photo Number:** 23 ***Unit:*** *NTCRA Basins* **Basin/Landfill:** SB-3

**Date :** 12/08/2016

**Photo Description: 15' x 20' area of standing water on SB-3 near northeast corner of SB-2.**

# Quarterly Inspection Report Photographic Log
# Avtex Superfund Site
# Front Royal, Virginia

**Photo Number:** 24 ***Unit:*** *NTCRA Basins* **Basin/Landfill**: SB-2

**Date :** 12/08/2016

**Photo Description:** Brush growing at culvert under roadway.

**Photo Number:** 25 ***Unit:*** *NTCRA Basins* **Basin/Landfill:** SB-1

**Date :** 12/08/2016

**Photo Description:** Standing water along roadway from mowing activities.

**Photo Number:** 26 ***Unit:*** *Fly Ash Basins* **Basin/Landfill**: FAB-6

**Date :** 12/08/2016

**Photo Description:** Dead trees in inlet

**Photo Number:** 27 ***Unit:*** *Fly Ash Basins* **Basin/Landfill:** FAB-6

**Date :** 12/08/2016

**Photo Description:** Dead trees in inlet

**Photo Number:** 28 ***Unit:*** *Basins* **Basin/Landfill**: SB-5

**Date :** 12/08/2016

**Photo Description:** Trees on west bank of SB-5.

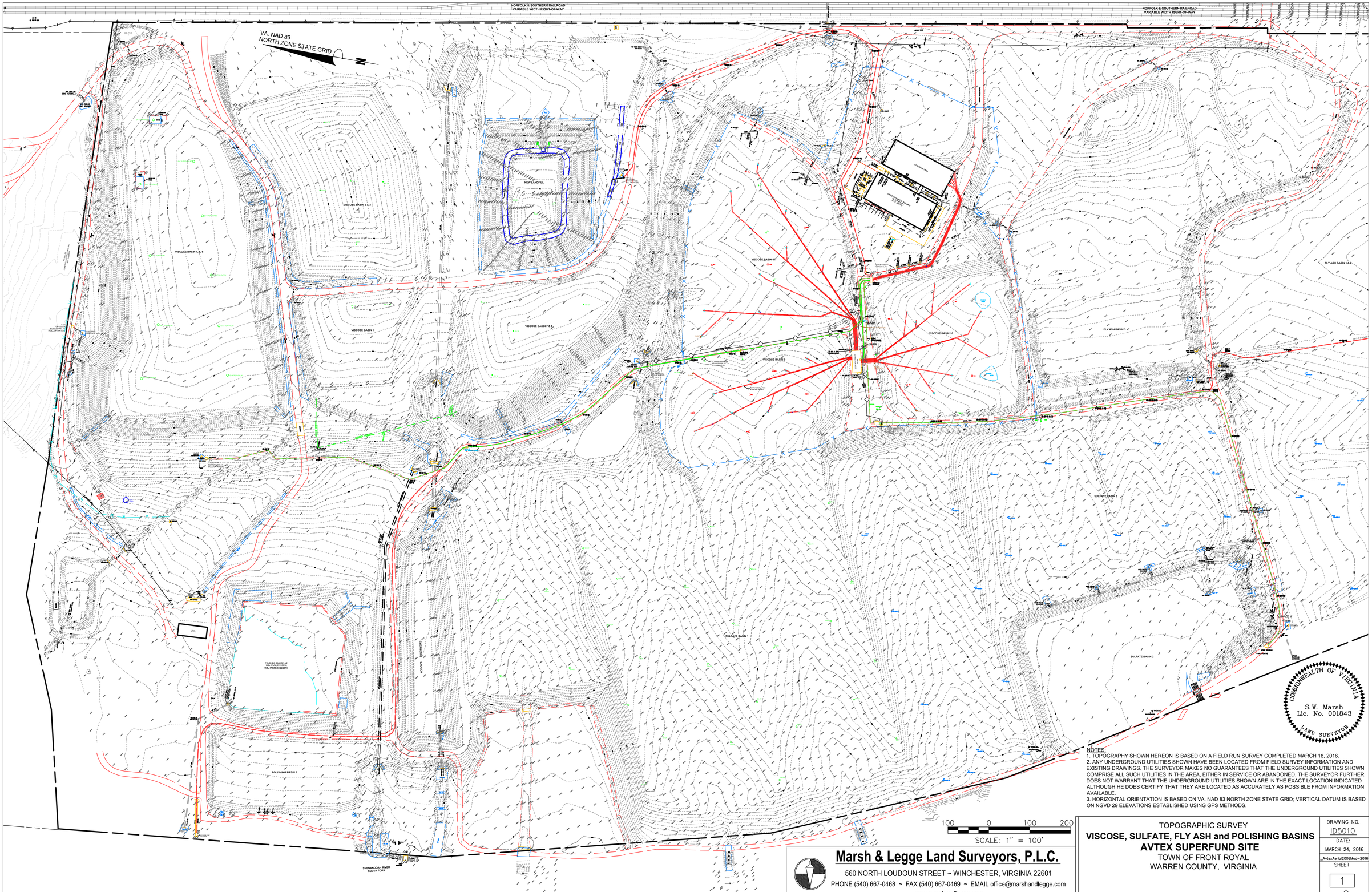
**Photo Number:** 29 ***Unit:*** *Fly Ash Basins* **Basin/Landfill:** FAB-6

**Date :** 12/08/2016

**Photo Description:** Trees on west bank of SB-5.

# APPENDIX B
## BASELINE SURVEY

PARSONS




NOTES:
1. TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD RUN SURVEY COMPLETED MARCH 18, 2016.
2. ANY UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.
3. HORIZONTAL ORIENTATION IS BASED ON VA. NAD 83 NORTH ZONE STATE GRID; VERTICAL DATUM IS BASED ON NGVD 29 ELEVATIONS ESTABLISHED USING GPS METHODS.

**Marsh & Legge Land Surveyors, P.L.C.**
560 NORTH LOUDOUN STREET ~ WINCHESTER, VIRGINIA 22601
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www.marshandlegge.com

TOPOGRAPHIC SURVEY
**VISCOSE, SULFATE, FLY ASH and POLISHING BASINS**
**AVTEX SUPERFUND SITE**
TOWN OF FRONT ROYAL
WARREN COUNTY, VIRGINIA

DRAWING NO. ID5010
DATE: MARCH 24, 2016
_AvtexAerial2008Mod-2016
SHEET 1 OF 2

VA. NAD 83
NORTH ZONE STATE GRID

N

NORFOLK & SOUTHERN RAILROAD
VARIABLE WIDTH RIGHT-OF-WAY

FLY ASH BASIN 6

FLY ASH BASIN 1 & 2

FLY ASH BASIN 3

SULFATE BASIN 5

SULFATE BASIN 4

SULFATE BASIN 3

SULFATE BASIN 2

SHENANDOAH RIVER

SHENANDOAH RIVER

COMMONWEALTH OF VIRGINIA
S.W. Marsh
Lic. No. 001843
LAND SURVEYOR

100 0 100 200
SCALE: 1" = 100'


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TOPOGRAPHIC SURVEY
**VISCOSE, SULFATE, FLY ASH and POLISHING BASINS**
**AVTEX SUPERFUND SITE**
TOWN OF FRONT ROYAL
WARREN COUNTY, VIRGINIA

DRAWING NO.
ID5010
DATE:
MARCH 24, 2016
_AvtexAerial2008Mod~2016
SHEET
2
OF 2

# APPENDIX C
## WETLAND MONITORING REPORT

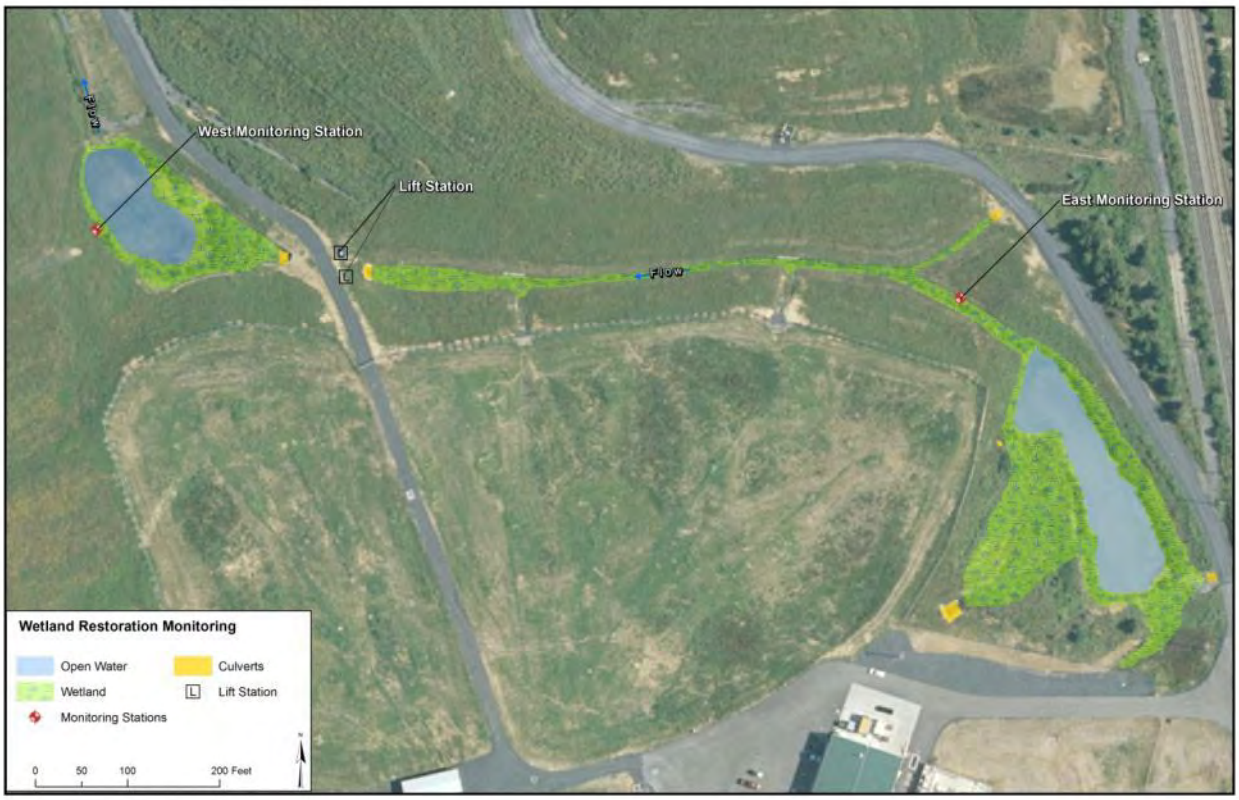
PARSONS

# Avtex Front Royal Site

# Wetland Monitoring Report

## Front Royal, Virginia

September 2016



Prepared by:
Luke F. Eggering, PWS

PARSONS

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## 1.0 Introduction and Site Background

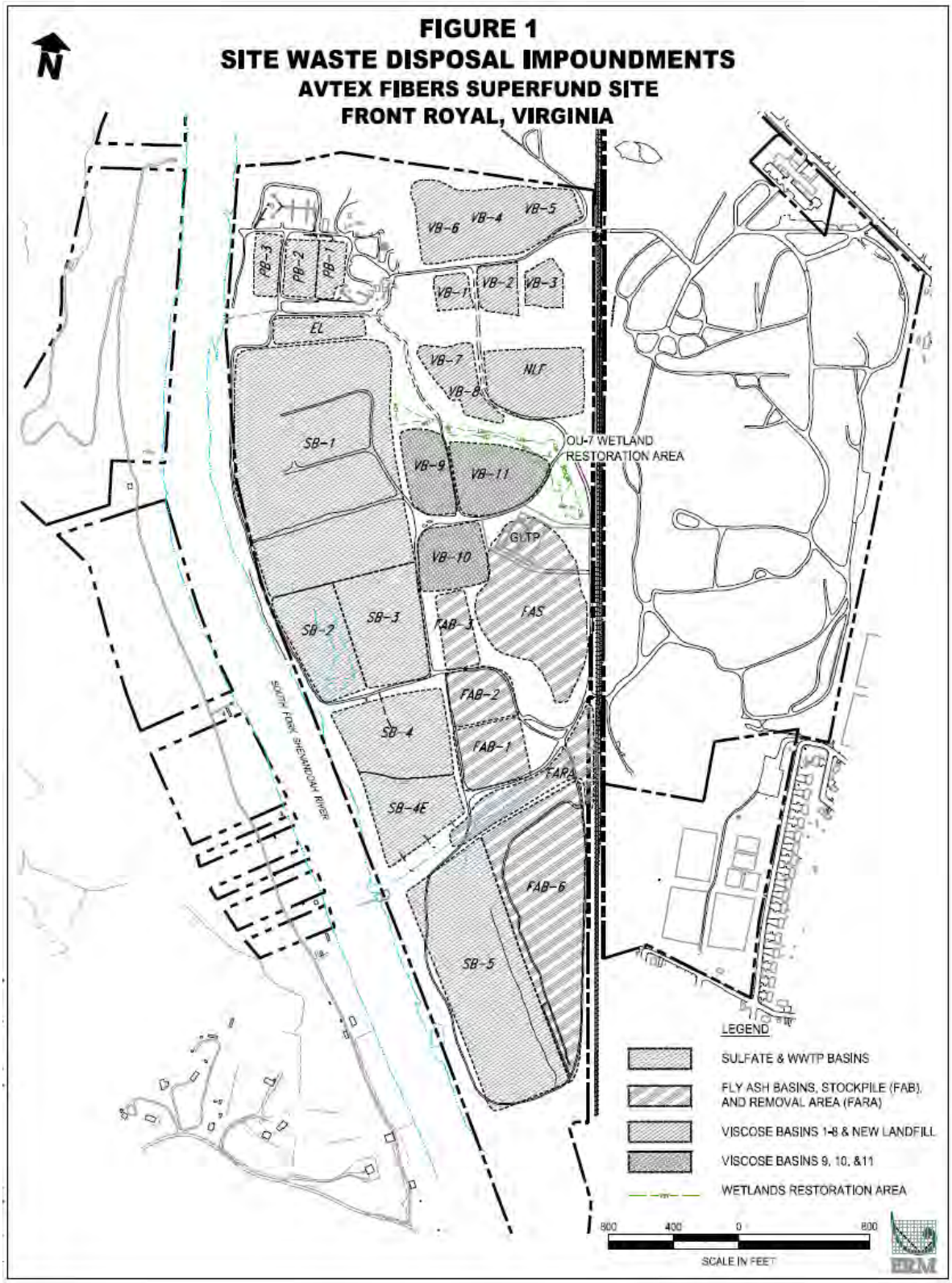
The Avtex Fibers Superfund Site (Site) is a former rayon and polyester fiber manufacturing facility consisting of 440 acres of property along the banks of the South Fork of the Shenandoah River in Front Royal, Virginia. As shown on Figure 1, the Site property is roughly bisected by the Norfolk Southern Railroad, which separates the former plant production areas (east of tracks nearest town) from the former waste disposal areas (west of tracks along river).

Operations at the Site began in 1940, when American Viscose opened a rayon production plant. In 1963, American Viscose sold the plant and property to FMC, and in 1976, FMC sold the plant and property to Avtex Fibers, Inc. (Avtex), which was ordered by the state of Virginia to abruptly shut down the plant in November 1989. Avtex filed for bankruptcy shortly thereafter in 1990. Plant operations generated three major waste types: a zinc sulfate sludge, fly ash, and viscose waste (a cellulose material containing carbon disulfide and high pH). Most of the wastes were disposed in a series of basins located on the west portion of the property, and a significant groundwater plume resulted from chemical discharge from several of the viscose waste basins. Plant operations resulted in chemical impacts to the former manufacturing buildings and associated sewer system. Chemical releases from the plant area also resulted in soil contamination.

FMC conducted remediation work at the Front Royal Site under a Consent Decree (CD) executed by FMC and the USEPA in 1999. The Site construction tasks were finishing in early 2014, with only the startup and commissioning activities for the Groundwater and Leachate Treatment Plant (GLTP) remaining.

A wetland restoration area was completed as part of the Operating Unit (OU) 7 remediation. The overall Site and OU-7 wetland restoration area are shown on Figure 1. This wetland restoration area was scheduled to be monitored annually for five full growing seasons (2014-2018). The monitoring effort focused on the hydrology, soils, and vegetative plant communities to document success of the restoration effort. The March 2014 FMC Operations and Maintenance Plan described the scope of work for the wetland restoration monitoring, and it is described in Attachment 3. The first wetland monitoring effort occurred September 23-25, 2014. The second wetland monitoring effort occurred September 14-18, 2015, and the third wetland monitoring effort occurred on October 18-20, 2016.

Figure 1. Site Layout for Wetland Restoration Area [adapted from FMC Operations and Management Plan, 2014]



## 2.0 Wetland Restoration Monitoring

During the October 2016 wetland survey, the success of the hydrologic regime, evidence of reducing soil conditions, and the establishment of hydrophytic vegetation was evaluated and documented using photographs and field observation notes. Field observations included recording the location of the water table, noting indications of the oxidation/reduction process in the emergent wetland area, and documenting the presence of facultative wetland (FACW) and obligate wetland (OBL) plant species. Comparison in previous wetland monitoring efforts (2014-2015) were made to document the annual change in hydrology and hydrophytic vegetation. The establishment of hydrophytic vegetation was assessed based on the presence of the desired plant community types within the restoration area. The goal at the end of the five-year monitoring period is to have an overall species composition consisting of greater than 50%. facultative (FAC) or wetter (FACW or OBL) vegetation.

### 2.1 Wetland Restoration Site Observations

Wetland plant communities were evident in the wetland restoration area. The wetland plant communities were confined to the east pond, the central drainage ditch, and the west pond, because of the obvious elevation changes immediately adjacent to these features. There was very little wetland fringe, or transition area, from the wetland community to the upland community due to these abrupt changes in elevation. Broadleaf cattail (*Typha latifolia*) and to a lesser extent narrowleaf cattail (*Typha angustifolia*) with possible hybrid cattails were dominant plants in the restoration area. In 2016, consistent with the 2015 survey findings, cattails are becoming the dominant wetland plant throughout the restoration site. However, stands of soft rush (*Juncus effusus*), green bulrush (*Scirpus atrovirens*), barnyard grass (*Echinochloa crusgali*), and flatsedge (*Cyperus esculentus*) were evident in the pond margins usually up-gradient from the cattails. Woolgrass (*Scirpus cyperinus*) was abundant near the east pond, and arrow arum (*Peltandra virginica*) and arrowhead (*Sagitaria graminea*) were found in the central drainage ditch.

Consistent with the 2014-2015 surveys, in 2016 the adjacent uplands were dominated by warm season grasses, such as switchgrass (*Panicum virgatum*) and Virginia wild rye (*Elymus virginicus*), with some big bluestem (*Andopogon gerardii*) intermixed. The uplands also contained other planted broadleaves, such as birdsfoot trefoil (*Lotus corniculatus*), round headed bush clover (*Lespedeza capitata*), and deer-tongue (*Dichanthelium clandestinum*).

The overall wetland area, open water areas, culvert locations, Lift Station #4, and wetland monitoring stations are shown on Figure 2. The lift station and underdrain system drain the groundwater under the area covered by the 40 mil High Density Polyethylene (HDPE) liner, which is impermeable. The liner generally covers the central portion of the wetland restoration area up to the east pond. The west pond is not underlain by the liner.

The open water areas of the east and west ponds lacked vegetation, which would preclude them from being considered functioning wetlands. However, these ponds are being filled with silt from onsite erosion and in a dry year, it is likely that most of the pond area will become covered with wetland vegetation. In 2015 and 2016 there was more submerged aquatic vegetation visible than in 2014. It was not possible to identify the aquatics to species, but it is believed that there was *Ludwigia* and *Potamogeton* species.

Figure 2. Wetland Restoration Area Site Layout for September 2016 Wetland Monitoring.

The east and west ponds had evidence of some use by shorebirds and waterfowl, however these species were not as prevalent as the two previous surveys. Several unidentified shorebirds were observed on the mudflats of both ponds. Mallards and wood ducks were observed feeding and loafing in the ponds and on other waterbodies at the Avtex Site. White-tailed deer sign continued to be abundant in 2016, and one doe with two fawns was flushed from the cattails near the east pond, and two fawns were observed near the west pond.

Shorebirds using the pond west of the wetland restoration area.

## 2.2 Wetland Monitoring Stations

Two permanent wetland monitoring stations, the East Monitoring Station and the West Monitoring Station, were established in 2014 to document changes in species composition over the five-year monitoring period. Establishment of the monitoring station consisted of placing a marker stake and installing a piezometer (shallow water monitoring well) at each site. The locations of the monitoring stations are shown on Figure 2. The East Monitoring Station piezometer measures to a depth of approximately 24 inches due to the presence of the HDPE liner at that depth, and the West Monitoring Station piezometer measures to 36 inches below the surface.

Since the soils were imported to the Site for restoration/creation, it is understood that the typical hydric soil indicators, such as low chroma matrix, mottling, hydrogen-sulfide smell, etc., would likely be lacking for the monitoring period. The presence of hydric soils and evidence of reducing soil conditions were documented. In addition, the presence of soil saturation and/or inundation within restoration areas was noted.

Wetland hydrology was observed and photographed. Areas of inundation and saturation were noted, as well as areas without the proper hydrology, i.e. uplands.

West (left) and East (right) Wetland Monitoring Stations showing piezometers and marking stakes.

## 2.3 Wetland Monitoring Station Observations

The field wetland data sheets for the wetland monitoring stations are included in Attachment 1. The data sheets list the dominant species and percent cover for those species within a 0.01-acre area. The area was obtained by analyzing an approximately 24-foot diameter circle with the monitoring station stake being the center of that circle. The monitoring stations were positioned so that the wetland, wetland fringe, and the adjacent upland were within the survey area.

In general, the monitoring stations had both upland and wetland plant communities and a narrow transition zone between those two habitat types that had a mixture of upland and wetland vegetation. Figure 2 illustrates the approximate wetland boundaries for the overall mitigation site and the wetland monitoring station locations. The 2016 boundaries were virtually identical to the 2014 and 2015 boundaries.

The West Monitoring Station piezometer had groundwater present at 32 inches, and the East Monitoring Station piezometer was dry except for the last half inch (this may have been in the bottom well cap, however). It is likely that water from stormwater events moves through the soil from the surface to the liner, and this groundwater migrates down-gradient to the west. The drawings for Lift Station #4 and underdrain system are included in Attachment 4. Lift Station #4 and the underdrain system pumps groundwater below the HDPE liner to the GLTP for treatment.

The soils throughout the wetland restoration area are composed of mixed fill imported from outside the Avtex Site. There is a mixture of rock, sand, and loam with some clay that makes any soil core difficult to analyze. There were no clear indications of reducing soil conditions, except on the thin surface soils near the saturated ponds and ditches that appeared to be reducing due to prolonged inundation. In general, the soil colors ranged from 10YR5/6 to 10YR6/6 with textures ranging from a coarse sandy loam to a clayey loam. There was a very dark surface layer in the top two inches in the wettest portion of the sample plot of the east monitoring station that was 10YR3/1.

Soil core samples from West Monitoring Station (left) and East Monitoring Station (right). Notice the dark surface soil for the east station.

## 3.0 Management Implications and Suggested Improvements

During the September 2014 and 2015 wetland survey and again in the October 2016 survey, two very small populations of common reed or Phragmites (*Phragmites australis*) were identified in the east end of the wetland restoration area. The population coverage appears to be growing slightly from the previous surveys, which is a concern. This invasive species has the potential to expand and dominate the wetland habitats. If possible, these small stands of Phragmites should be mowed prior to seed setting, usually around August 1st, and spot treated with herbicide. An aggressive approach to controlling this species would help ensure that a diverse wetland plant community is maintained throughout the five-year monitoring period. No visible treatment had occurred in 2016, and the populations appear to be expanding slightly. Control of this species was discussed with the local support staff, and the area of concern was visited.

Two other species of concern in the wetland restoration area include broadleaf cattail and narrowleaf cattail. These species are colonial and have the ability to overtake a wetland plant community. Herbicide application is not recommended to control cattails, because cattails are present throughout the entire wetland restoration area, and herbicides would adversely affect the planted and native wetland species. The cattails should be mowed at a height of approximately 18-24 inches in mid July to stunt their colonization/progression throughout the Site. A sickle mower would be advantageous for mowing in areas of the wetland fringe where cattails grow but are difficult to reach with normal mowing equipment. No evidence of cattail control was observed during the 2016 survey, but it is still recommended for 2017.

# Attachment 1 - Wetland Data Sheets

## WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Avtex City/County: Front Royal/Warren County Sampling Date: 10/19/16

Applicant/Owner: State: VA Sampling Point: east well

Investigator(s): Lyle F. Eggerding, PWS Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope/ditch Local relief (concave, convex, none): Slope (%): 5%

Subregion (LRR or MLRA): Lat: 38.926964 Long: -78.211729 Datum:

Soil Map Unit Name: Fill Material from site capping NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | |
|---|---|---|
| Hydrophytic Vegetation Present? | Yes X No | **Is the Sampled Area within a Wetland?** Yes X No |
| Hydric Soil Present? | Yes No X | |
| Wetland Hydrology Present? | Yes X No | |

Remarks:
The narrow ditch portion of the east monitoring station continues to function as wetland. The hydrology is present and the soils are beginning reduced. The northwest half of the plot remains an upland.

### HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes X No ____ Depth (inches): 3 inches

Water Table Present? Yes X No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 10 inches

**Wetland Hydrology Present?** Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
The wetland hydrology at the east monitoring station is confined to the narrow ditch portion of the plot.

Piezometer was dry except at the last inch.

US Army Corps of Engineers — Eastern Mountains and Piedmont – Version 2.0

**VEGETATION (Four Strata) – Use scientific names of plants.** Sampling Point: East Mon Stratum

| Tree Stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | _____ = Total Cover | | |

50% of total cover: _____ 20% of total cover: _____

| Sapling/Shrub Stratum (Plot size: _____) | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| | _____ = Total Cover | | |

50% of total cover: _____ 20% of total cover: _____

| Herb Stratum (Plot size: _____) | | | |
|---|---|---|---|
| 1. broadleaf cattail (Typha latifolia) | 10% | Yes | OBL |
| 2. Narrowleaf & hybrid (Typha spp.) | 60% | Yes | OBL |
| 3. rice cutgrass (Leersia oryzoides) | 40% | Yes | OBL |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | _____ = Total Cover | | |

50% of total cover: _____ 20% of total cover: _____

| Woody Vine Stratum (Plot size: _____) | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | _____ = Total Cover | | |

50% of total cover: _____ 20% of total cover: _____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species _____ | x 1 = _____ |
| FACW species _____ | x 2 = _____ |
| FAC species _____ | x 3 = _____ |
| FACU species _____ | x 4 = _____ |
| UPL species _____ | x 5 = _____ |
| Column Totals: _____ (A) | _____ (B) |

Prevalence Index = B/A = _____

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Four Vegetation Strata:**

**Tree** – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/Shrub** – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vine** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Cattails and rice cutgrass shade out other wetland vegetation.

The upland is dominated by Virginia rye, switchgrass, lespedeza, tall fescue and Virginia broomsedge (→ look up).

**SOIL** Sampling Point: Est Plot

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-2 | 2.5Y 4/1 | 90% | 10YR 4/4 | 10% | | | loam | |
| 2-12 | 10YR 4/4 | 100% | | | | | sandy loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes _____ No X

Remarks:

The mapped soil is not the current soil. It is fill material from off-site.

## WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Avtex City/County: Front Royal / Warren County Sampling Date: 10/19/16

Applicant/Owner: State: VA Sampling Point: Western 1

Investigator(s): Luke F. Eggering, PWS Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): 10%

Subregion (LRR or MLRA): Lat: 38.927156 Long: -78.214972 Datum:

Soil Map Unit Name: Fill material from site capping NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No | **Is the Sampled Area within a Wetland?** Yes X No |
| Hydric Soil Present? | Yes | No X | |
| Wetland Hydrology Present? | Yes X | No | |

Remarks:

The eastern half of the sample plot is functioning as a wetland and the western half is an upland habitat. The correct wetland hydrology is present and the soils are being reduced in the eastern half of the sample plot.

### HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes | No X | Depth (inches): |
| Water Table Present? | Yes X | No | Depth (inches): |
| Saturation Present? (includes capillary fringe) | Yes X | No | Depth (inches): |

**Wetland Hydrology Present?** Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The crayfish burrows are only in the eastern half of the sample plot.

Piezometer had water at 32 inches from the bottom.

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**VEGETATION (Four Strata) – Use scientific names of plants.** Sampling Point: wet well

| Tree Stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | = Total Cover | | |
| 50% of total cover: ____ 20% of total cover: ____ | | | |
| **Sapling/Shrub Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| | = Total Cover | | |
| 50% of total cover: ____ 20% of total cover: ____ | | | |
| **Herb Stratum** (Plot size: _____) | | | |
| 1. Broadleaf cattail (Typha latifolia) | 15% | Yes | OBL |
| 2. Soft rush (Juncus effusus) | 10% | Yes | FACW |
| 3. Narrowleaf cattail/hybrid (Typha) | 80% | Yes | OBL |
| 4. wood nettle (Laportea canadensis) | 5% | No | FACW |
| 5. rice cutgrass (Leersia oryzoides) | 8% | Yes | OBL |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | = Total Cover | | |
| 50% of total cover: ____ 20% of total cover: ____ | | | |
| **Woody Vine Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |
| 50% of total cover: ____ 20% of total cover: ____ | | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species | x 1 = | |
| FACW species | x 2 = | |
| FAC species | x 3 = | |
| FACU species | x 4 = | |
| UPL species | x 5 = | |
| Column Totals: (A) | | (B) |

Prevalence Index = B/A = _____

**Hydrophytic Vegetation Indicators:**

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Four Vegetation Strata:**

**Tree** – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/Shrub** – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vine** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

The western half of the plot is dominated by deer tongue (Dichotomum clandestinum) 90% coverage with 10% tall fescue and 5% virginia rye. Cattails are a mix of broadleaf, narrowleaf, and hybrids that shade out almost all of the other herbaceous species.

**SOIL** Sampling Point: westwall

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 4/4 | 100% | | | | | | loamy sand & silt |
| 8-12 | 10 YR 5/4 | 100% | | | | | | Rocky, Sandy fill |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** _____ **No** X

Remarks:

Although the soils are introduced fill material and are not hydric, there is evidence that they are beginning to reduce.

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## Attachment 2 – 2016 Wetland Monitoring - Photograph Log

West pond facing south, notice cattails dominate the pond margin.

West pond showing the cattail margin and aquatic plants, facing south.

Cattails (*Typha* spp.) and arrowhead (*Sagitaria* spp.) in the west pond. Notice dense mat of floating duckweed (*Lemna* spp).

*Sagitaria* in west pond with dense mat of duckweed.

West monitoring station pre-maintenance, showing wetland community on the right, facing northwest.

West monitoring station post maintenance, facing northwest.

East monitoring station pre-maintenance, facing south.

East monitoring station post-maintenance facing south, with wetland plant community in the ditch on the right.

Rice cutgrass (*Leersia oryzoides*) and narrowleaf cattails (*Typha angustifolia*) in west pond margin.

Woolgrass (*Scirpus cyperinus*) and other plants along the southwest corner of the west pond (facing southeast).

East pond in 2015 facing northwest. Notice phragmites on south bank.

East pond in 2016 facing northwest. Notice that the amount of water in the pond is much reduced.

Common reed (*Phragmites australis*) stand near the east pond in 2015.

Phragmites stand in 2016 (facing east). Notice that the population has expanded slightly. It is recommended that this area be mowed and treat with herbicide.

Vegetation inthe central portion of the central ditch (facing northeast). Notice that wetland vegetation is in a very narrow band in the ditch and upland vegetation is on both sides.

West end of the central ditch (facing northeast). Notice the dense stand of soft rush (*Juncus effusus*).

## Attachment 3 - Wetland Restoration Monitoring – Scope of Work

Source: *FMC OPERATIONS AND MAINTENANCE PLAN*, March14, 2014

### 2.4 *WETLAND RESTORATION MONITORING*

The wetland restoration area completed as part of the OU-7 remediation (refer to Figure 1) will be monitored annually for 5 full growing seasons after the restoration area has been constructed and planted. The first monitoring event will occur in the fall of 2014. Monitoring will occur annually in the fall through 2018.

Monitoring events will focus on evaluating the success of the wetland restoration, including an assessment of hydrology, soils, and vegetation within the restoration area. These parameters will be evaluated based on the following success criteria:

- The success of the hydrologic regime will be evaluated and documented using photographs and field observation notes collected throughout the monitoring period. Field observations will include recording the location of the water table, noting indications of the oxidation/reduction process in the emergent wetland area and documenting the presence of facultative wetland (F ACVV) and/ or obligate wetland (OBL) plant species. With respect to recording water depths and/ or surface water elevations, it should be noted that surface water is the primary source of hydrology for the wetland restoration area and will be the most important indicator of a successful hydrologic regime.

- Assessment of hydric soils will be based on the presence of soil saturation and/ or inundation within restoration areas [the soil was imported to the Site for restoration/ creation, and therefore, the typical hydric soil indicators (e.g., mottling, low chroma matrix, etc.) will likely be lacking for the monitoring period.).

- The establishment of hydrophytic vegetation will be assessed based on the presence of the desired plant community types within the restoration area by the end of the 5-year monitoring period. Species composition shall consist of greater than 50% facultative (FAC) or wetter (FACW or OBL) vegetation by the end of the 5-year monitoring period.

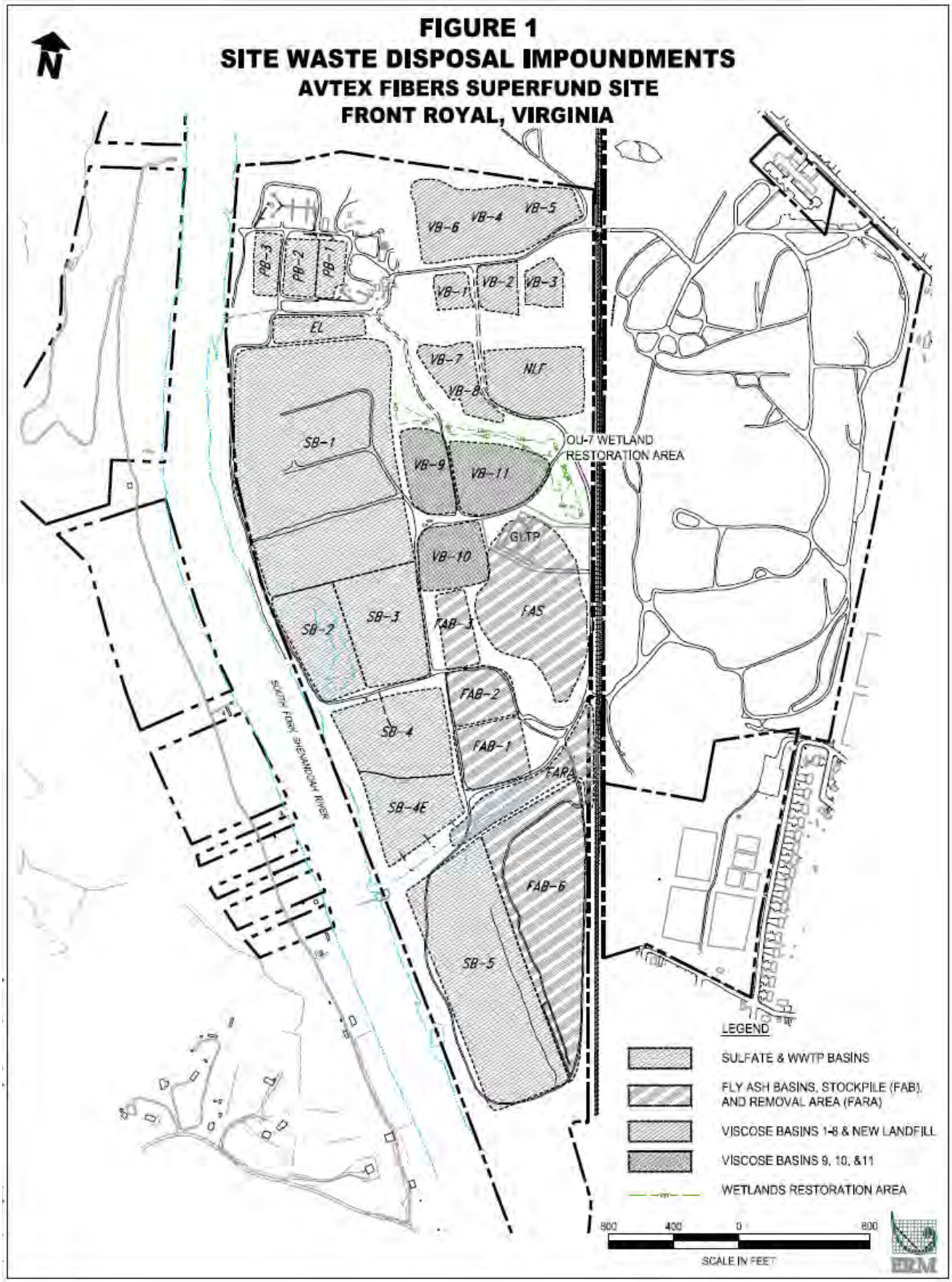


FIGURE 1
SITE WASTE DISPOSAL IMPOUNDMENTS
AVTEX FIBERS SUPERFUND SITE
FRONT ROYAL, VIRGINIA
N
VB-6
VB-4
VB-5
PB-3
PB-2
PB-1
VB-1
VB-2
VB-3
EL
VB-7
NLF
VB-8
SB-1
OU-7 WETLAND
RESTORATION AREA
VB-9
VB-11
GLTP
VB-10
SB-2
SB-3
FAB-3
FAS
FAB-2
SB-4
FAB-1
FARA
SB-4E
FAB-6
SB-5
SOUTH FORK SHENANDOAH RIVER
LEGEND
SULFATE & WWTP BASINS
FLY ASH BASINS, STOCKPILE (FAB), AND REMOVAL AREA (FARA)
VISCOSE BASINS 1-8 & NEW LANDFILL
VISCOSE BASINS 9, 10, &11
WETLANDS RESTORATION AREA
800
400
0
800
SCALE IN FEET
ERM

## Attachment 4 – Underdrain and Lift Station 4 Drawings

Source: FMC OU-7 Updates and Modification to Final Remedial Design, 2011.

### Figure 4.1. Lift Station 4 and Underdrain Collection

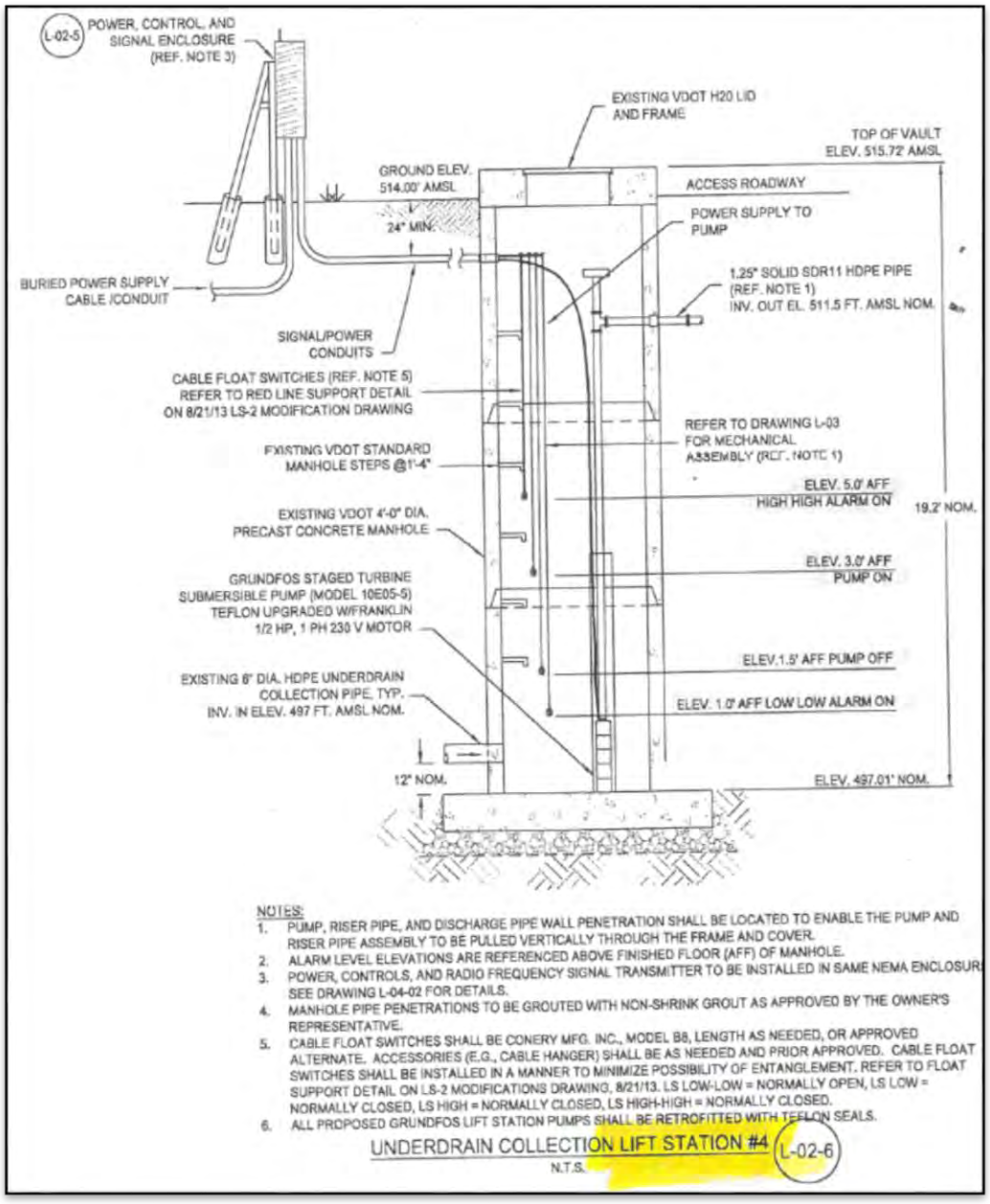
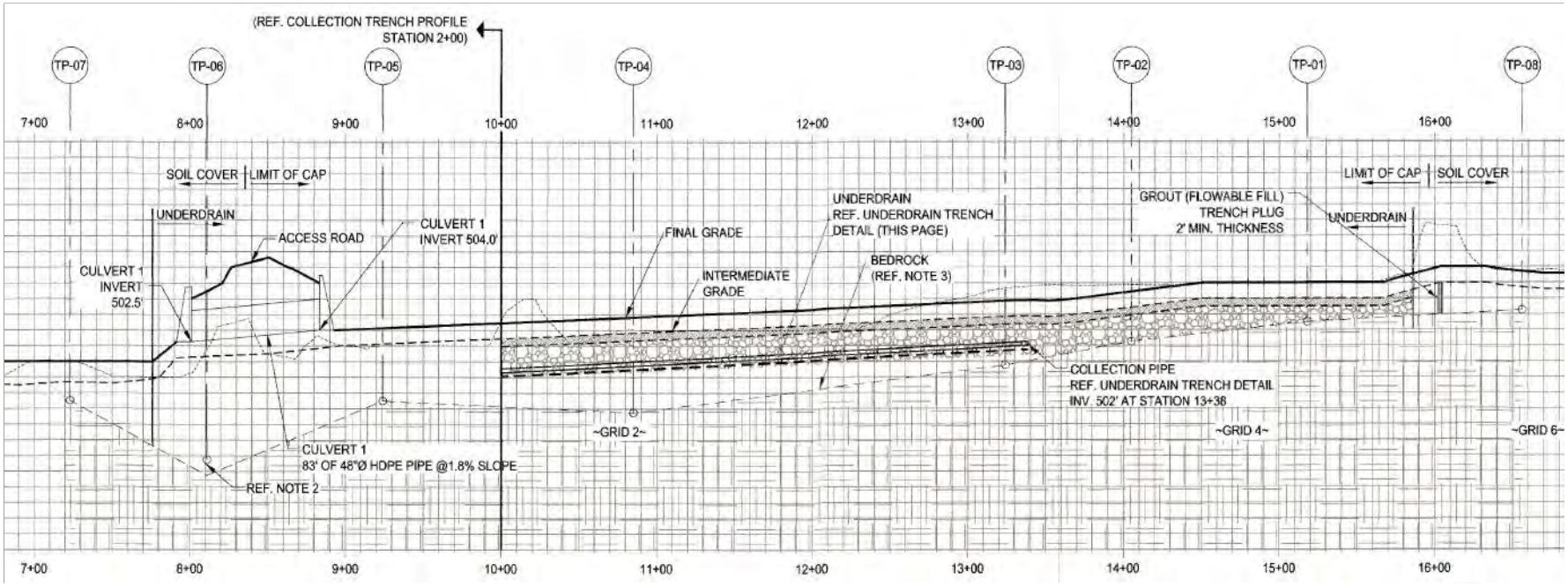


Figure 4.2. Lift Station 4 and Underdrain Collection



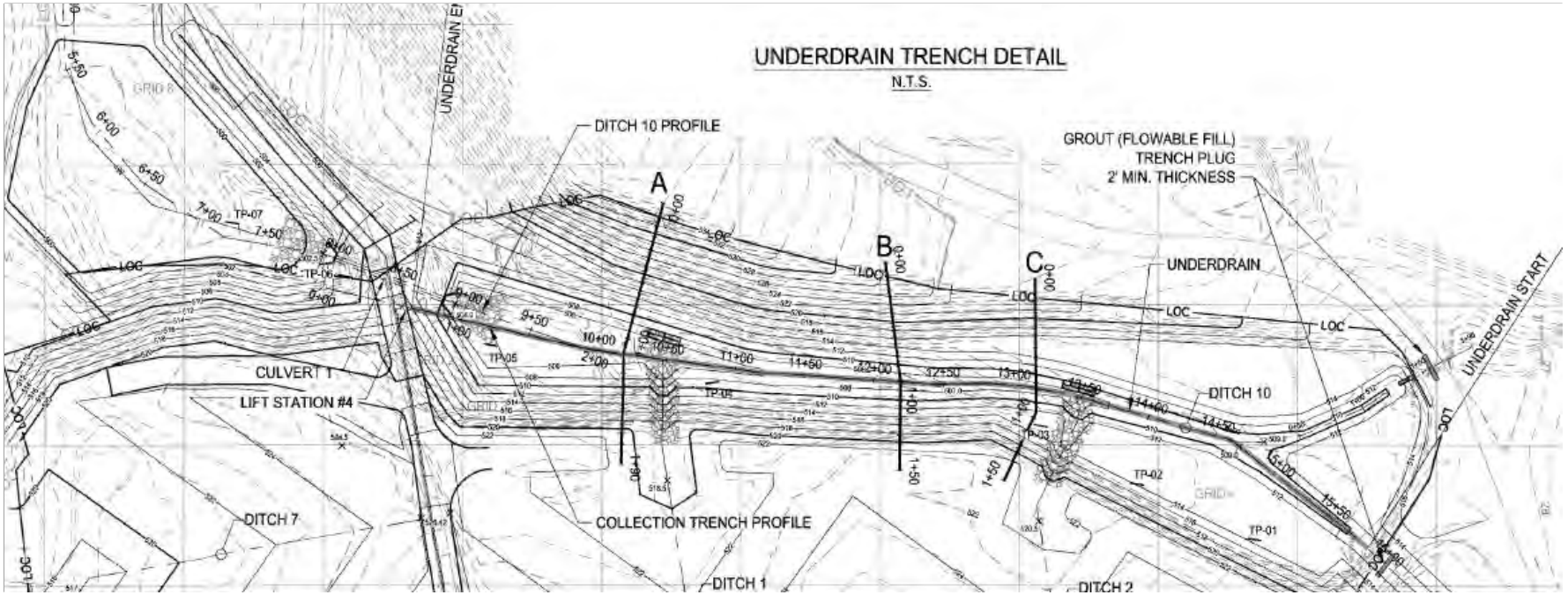
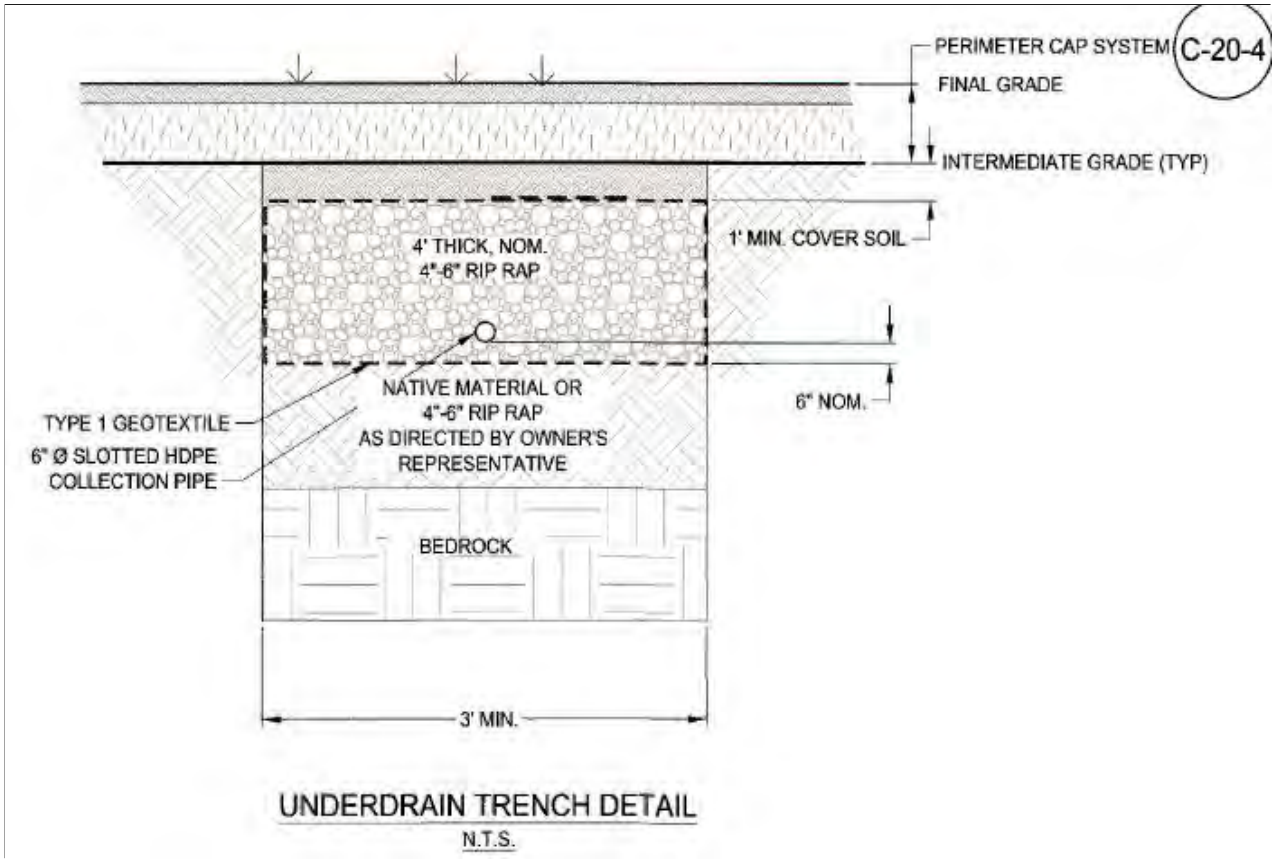



Figure 4.3. Underdrain Trench Detail.



# APPENDIX D
## PASSIVE GAS VENT MONITORING DATA AND INSPECTION FORMS

PARSONS

# GAS VENT INSPECTION AND MONITORING FORM
## Avtex Fibers Superfund Site
## Front Royal, Virginia

**Date:** 3/9/16

**Technician:** M. Robinson / H. Lipani

**Basins Included in Inspection (circle each):**

(SBs 1, 3, 4) VBs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 New Landfill

| | | | | | |
|---|---|---|---|---|---|
| **Precipitation (current)** | □ rain | □ snow | □ sleet | □ mix | □ other |
| | □ light | □ moderate | □ heavy | | None |
| **Temperature (current)** | 63 F | | | | |
| **Wind Direction (blowing from)** | □ N | □ NE | □ E | □ SE | □ variable |
| | □ S | ☒ SW | □ W | □ NW | |
| **Approximate Wind Speed** | 6 mph | | | | |
| **Cloud Cover** | ☒ clear | □ lt. clouds | □ overcast | □ foggy | |
| **Barometric Pressure** | 30.10 inches | | | | |

| Question | Response | | Comments |
|---|---|---|---|
| 1. Are any of the vents disturbed or damaged? If yes, provide specific comments. | (Yes) | No | SB-1 GV-1 leaning 5°E<br>GV-4 " 10°S<br>GV-10 " 15°N<br>GV-11 " 5°N<br>GV-19 " 5°W<br>GV-23 " 5°N<br>GV-24 " 5°S<br>GV-25 " 10°S<br>GV-28 " 5°N<br>GV-29 " 15°N<br>GV-33 " 5°W<br>SB-4 GV-5 " 5°W |
| 2. Are all vent screens intact? If NO, provide specific comments | (Yes) | No | |
| 3. Are any vent opening obstructed? If YES, provide specific comments. | Yes | (No) | |
| 4. Photos – collected of issues or conditions require major repair or rework. Describe. | Yes | (No) | |
| 5. Any conditions that prevent system from operating properly or present an immediate threat to human health or environment. If YES, make notifications | Yes | (No) | |

**Additional comments/observations/concerns:**

**Note: If further space is required, provide comments on a separate sheet.**

# GAS VENT INSPECTION AND MONITORING FORM
## Avtex Fibers Superfund Site
## Front Royal, Virginia

**Date:** 3/9/16
**Technician:** M. Robinson / M. Lipsey
**Basins Included in Inspection (circle each):**

SBs 1, 3, 4 (VBs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11) (New Landfill)

| | | | | | |
|---|---|---|---|---|---|
| **Precipitation (current)** | □ rain | □ snow | □ sleet | □ mix | □ other |
| | □ light | □ moderate | □ heavy | | None |
| **Temperature (current)** | 63 F | | | | |
| **Wind Direction (blowing from)** | □ N | □ NE | □ E | □ SE | □ variable |
| | □ S | ☒ SW | □ W | □ NW | |
| **Approximate Wind Speed** | 6 mph | | | | |
| **Cloud Cover** | ☒ clear | □ lt. clouds | □ overcast | □ foggy | |
| **Barometric Pressure** | 30.10 inches | | | | |

| Question | Response | | Comments |
|---|---|---|---|
| 1. Are any of the vents disturbed or damaged? If yes, provide specific comments. | (Yes) | No | GV-7 GV-9 leaning 5° W<br>GV-10 " 5° S |
| 2. Are all vent screens intact? If NO, provide specific comments | (Yes) | No | |
| 3. Are any vent opening obstructed? If YES, provide specific comments. | Yes | (No) | |
| 4. Photos – collected of issues or conditions require major repair or rework. Describe. | Yes | (No) | |
| 5. Any conditions that prevent system from operating properly or present an immediate threat to human health or environment. If YES, make notifications | Yes | (No) | |

**Additional comments/observations/concerns:**

**Note: If further space is required, provide comments on a separate sheet.**

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: NLF
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV22 | Vent Reading | 03/09/16 16:23 | 3.5 | 70 | 0 | 0.0 | None | 29.49 |
| OU10BZ22 | Breathing Zone | 03/09/16 16:22 | 0 | 0 | 0 | 0.0 | None | 29.49 |
| OU10GV23 | Vent Reading | 03/09/16 16:27 | 11.4 | >100 | 0 | 0.1 | None | 29.49 |
| OU10BZ23 | Breathing Zone | 03/09/16 16:25 | 0 | 0 | 0 | 0.0 | None | 29.49 |
| OU10GV24 | Vent Reading | 03/09/16 16:34 | 15.2 | >100 | 0 | 0.0 | None | 29.5 |
| OU10BZ24 | Breathing Zone | 03/09/16 16:32 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| OU10GV25 | Vent Reading | 03/09/16 16:31 | 14.4 | >100 | 0 | 0.0 | None | 29.5 |
| OU10BZ25 | Breathing Zone | 03/09/16 16:29 | 0 | 0 | 0 | 0.0 | None | 29.5 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: SB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB1-GV01 | Vent Reading | 03/09/16 10:14 | 0 | 0 | 1 | 0.0 | None | 29.69 |
| SB1-BZ01 | Breathing Zone | 03/09/16 10:12 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-GV02 | Vent Reading | 03/09/16 10:11 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-BZ02 | Breathing Zone | 03/09/16 10:09 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-GV03 | Vent Reading | 03/09/16 10:07 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-BZ03 | Breathing Zone | 03/09/16 10:04 | 0 | 0 | 1 | 0.0 | None | 29.67 |
| SB1-GV04 | Vent Reading | 03/09/16 10:26 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-BZ04 | Breathing Zone | 03/09/16 10:24 | 0 | 0 | 1 | 0.0 | None | 29.71 |
| SB1-GV05 | Vent Reading | 03/09/16 10:22 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-BZ05 | Breathing Zone | 03/09/16 10:20 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-GV06 | Vent Reading | 03/09/16 10:18 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-BZ06 | Breathing Zone | 03/09/16 10:16 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-GV07 | Vent Reading | 03/09/16 10:30 | 0 | 0 | 1 | 0.1 | None | 29.7 |
| SB1-BZ07 | Breathing Zone | 03/09/16 10:28 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-GV08 | Vent Reading | 03/09/16 10:34 | 0 | 0 | 1 | 0.0 | None | 29.69 |
| SB1-BZ08 | Breathing Zone | 03/09/16 10:32 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-GV09 | Vent Reading | 03/09/16 10:38 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-BZ09 | Breathing Zone | 03/09/16 10:36 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-GV10 | Vent Reading | 03/09/16 10:42 | 0 | 0 | 1 | 0.0 | None | 29.68 |
| SB1-BZ10 | Breathing Zone | 03/09/16 10:40 | 0 | 0 | 1 | 0.0 | None | 29.69 |
| SB1-GV11 | Vent Reading | 03/09/16 10:45 | 0 | 0 | 1 | 0.0 | None | 29.69 |
| SB1-BZ11 | Breathing Zone | 03/09/16 10:44 | 0 | 0 | 1 | 0.0 | None | 29.68 |
| SB1-GV12 | Vent Reading | 03/09/16 10:49 | 0 | 0 | 1 | 0.0 | None | 29.69 |
| SB1-BZ12 | Breathing Zone | 03/09/16 10:47 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-GV13 | Vent Reading | 03/09/16 10:52 | 0 | 0 | 1 | 0.0 | None | 29.71 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: SB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB1-BZ13 | Breathing Zone | 03/09/16 10:51 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB1-GV14 | Vent Reading | 03/09/16 13:23 | 0 | 0 | 0 | 0.0 | None | 29.6 |
| SB1-BZ14 | Breathing Zone | 03/09/16 13:21 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB1-GV15 | Vent Reading | 03/09/16 13:27 | 0 | 0 | 0 | 0.0 | None | 29.6 |
| SB1-BZ15 | Breathing Zone | 03/09/16 13:25 | 0 | 0 | 0 | 0.0 | None | 29.61 |
| SB1-GV16 | Vent Reading | 03/09/16 13:31 | 0 | 0 | 1 | 0.0 | None | 29.59 |
| SB1-BZ16 | Breathing Zone | 03/09/16 13:29 | 0 | 0 | 1 | 0.0 | None | 29.59 |
| SB1-GV17 | Vent Reading | 03/09/16 13:36 | 0 | 0 | 1 | 0.0 | None | 29.59 |
| SB1-BZ17 | Breathing Zone | 03/09/16 13:33 | 0 | 0 | 1 | 0.0 | None | 29.59 |
| SB1-GV18 | Vent Reading | 03/09/16 13:40 | 0 | 0 | 1 | 0.0 | None | 29.58 |
| SB1-BZ18 | Breathing Zone | 03/09/16 13:38 | 0 | 0 | 1 | 0.0 | None | 29.58 |
| SB1-GV19 | Vent Reading | 03/09/16 13:44 | 0.1 | 2 | 1 | 0.0 | None | 29.58 |
| SB1-BZ19 | Breathing Zone | 03/09/16 13:42 | 0 | 0 | 1 | 0.0 | None | 29.59 |
| SB1-GV20 | Vent Reading | 03/09/16 13:49 | 0.4 | 8 | 1 | 0.0 | None | 29.59 |
| SB1-BZ20 | Breathing Zone | 03/09/16 13:47 | 0 | 0 | 1 | 0.0 | None | 29.58 |
| SB1-GV21 | Vent Reading | 03/09/16 13:52 | 0.7 | 14 | 1 | 0.0 | None | 29.58 |
| SB1-BZ21 | Breathing Zone | 03/09/16 13:50 | 0 | 0 | 1 | 0.0 | None | 29.58 |
| SB1-GV22 | Vent Reading | 03/09/16 13:56 | 0 | 0 | 1 | 0.0 | None | 29.58 |
| SB1-BZ22 | Breathing Zone | 03/09/16 13:54 | 0 | 0 | 1 | 0.0 | None | 29.57 |
| SB1-GV23 | Vent Reading | 03/09/16 14:00 | 0 | 0 | 1 | 0.0 | None | 29.57 |
| SB1-BZ23 | Breathing Zone | 03/09/16 13:58 | 0 | 0 | 1 | 0.0 | None | 29.57 |
| SB1-GV24 | Vent Reading | 03/09/16 14:03 | 0 | 0 | 1 | 0.0 | None | 29.57 |
| SB1-BZ24 | Breathing Zone | 03/09/16 14:01 | 0 | 0 | 1 | 0.0 | None | 29.56 |
| SB1-GV25 | Vent Reading | 03/09/16 14:07 | 0 | 0 | 1 | 0.0 | None | 29.57 |
| SB1-BZ25 | Breathing Zone | 03/09/16 14:05 | 0 | 0 | 1 | 0.0 | None | 29.57 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: SB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB1-GV26 | Vent Reading | 03/09/16 14:11 | 0 | 0 | 1 | 0.0 | None | 29.57 |
| SB1-BZ26 | Breathing Zone | 03/09/16 14:09 | 0 | 0 | 1 | 0.0 | None | 29.57 |
| SB1-GV27 | Vent Reading | 03/09/16 14:19 | 0 | 0 | 1 | 0.0 | None | 29.56 |
| SB1-BZ27 | Breathing Zone | 03/09/16 14:17 | 0 | 0 | 1 | 0.0 | None | 29.56 |
| SB1-GV28 | Vent Reading | 03/09/16 14:23 | 0 | 0 | 1 | 0.0 | None | 29.56 |
| SB1-BZ28 | Breathing Zone | 03/09/16 14:21 | 0 | 0 | 1 | 0.0 | None | 29.57 |
| SB1-GV29 | Vent Reading | 03/09/16 14:27 | 0 | 0 | 1 | 0.0 | None | 29.56 |
| SB1-BZ29 | Breathing Zone | 03/09/16 14:25 | 0 | 0 | 1 | 0.0 | None | 29.55 |
| SB1-GV30 | Vent Reading | 03/09/16 14:31 | 0 | 0 | 1 | 0.0 | None | 29.55 |
| SB1-BZ30 | Breathing Zone | 03/09/16 14:29 | 0 | 0 | 1 | 0.0 | None | 29.55 |
| SB1-GV31 | Vent Reading | 03/09/16 14:35 | 0 | 0 | 1 | 0.0 | None | 29.57 |
| SB1-BZ31 | Breathing Zone | 03/09/16 14:33 | 0 | 0 | 1 | 0.0 | None | 29.56 |
| SB1-GV32 | Vent Reading | 03/09/16 14:39 | 0 | 0 | 1 | 0.0 | None | 29.57 |
| SB1-BZ32 | Breathing Zone | 03/09/16 14:37 | 0 | 0 | 1 | 0.0 | None | 29.56 |
| SB1-GV33 | Vent Reading | 03/09/16 14:42 | 0 | 0 | 1 | 0.0 | None | 29.58 |
| SB1-BZ33 | Breathing Zone | 03/09/16 14:40 | 0 | 0 | 1 | 0.0 | None | 29.57 |
| SB1-GV34 | Vent Reading | 03/09/16 14:46 | 0 | 0 | 1 | 0.0 | None | 29.56 |
| SB1-BZ34 | Breathing Zone | 03/09/16 14:44 | 0 | 0 | 1 | 0.0 | None | 29.56 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: SB-3
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB3-GV01 | Vent Reading | 03/09/16 9:30 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB3-BZ01 | Breathing Zone | 03/09/16 9:28 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB3-GV02 | Vent Reading | 03/09/16 9:26 | 0.2 | 4 | 1 | 0.0 | None | 29.72 |
| SB3-BZ02 | Breathing Zone | 03/09/16 9:24 | 0 | 0 | 1 | 0.0 | None | 29.71 |
| SB3-GV03 | Vent Reading | 03/09/16 9:22 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB3-BZ03 | Breathing Zone | 03/09/16 9:19 | 0 | 0 | 1 | 0.0 | None | 29.71 |
| SB3-GV04 | Vent Reading | 03/09/16 9:17 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB3-BZ04 | Breathing Zone | 03/09/16 9:15 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB3-GV05 | Vent Reading | 03/09/16 9:13 | 0 | 0 | 1 | 0.0 | None | 29.73 |
| SB3-BZ05 | Breathing Zone | 03/09/16 9:11 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB3-GV06 | Vent Reading | 03/09/16 9:58 | 0.2 | 4 | 1 | 0.0 | None | 29.71 |
| SB3-BZ06 | Breathing Zone | 03/09/16 9:56 | 0 | 0 | 1 | 0.0 | None | 29.71 |
| SB3-GV07 | Vent Reading | 03/09/16 9:35 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB3-BZ07 | Breathing Zone | 03/09/16 9:32 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB3-GV08 | Vent Reading | 03/09/16 9:39 | 0 | 0 | 1 | 0.1 | None | 29.72 |
| SB3-BZ08 | Breathing Zone | 03/09/16 9:37 | 0 | 0 | 1 | 0.1 | None | 29.72 |
| SB3-GV09 | Vent Reading | 03/09/16 9:43 | 0 | 0 | 1 | 0.1 | None | 29.72 |
| SB3-BZ09 | Breathing Zone | 03/09/16 9:41 | 0 | 0 | 1 | 0.1 | None | 29.71 |
| SB3-GV10 | Vent Reading | 03/09/16 9:47 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB3-BZ10 | Breathing Zone | 03/09/16 9:45 | 0 | 0 | 1 | 0.0 | None | 29.71 |
| SB3-GV11 | Vent Reading | 03/09/16 9:50 | 2.4 | 48 | 1 | 0.0 | None | 29.72 |
| SB3-BZ11 | Breathing Zone | 03/09/16 9:48 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB3-GV12 | Vent Reading | 03/09/16 9:54 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB3-BZ12 | Breathing Zone | 03/09/16 9:52 | 0 | 0 | 1 | 0.0 | None | 29.71 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: SB-4
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB4-GV01 | Vent Reading | 03/09/16 9:09 | 0 | 0 | 1 | 0.0 | None | 29.71 |
| SB4-BZ01 | Breathing Zone | 03/09/16 9:07 | 0 | 0 | 1 | 0.0 | None | 29.71 |
| SB4-GV02 | Vent Reading | 03/09/16 9:05 | 0 | 0 | 1 | 0.0 | None | 29.71 |
| SB4-BZ02 | Breathing Zone | 03/09/16 9:03 | 0 | 0 | 1 | 0.0 | None | 29.71 |
| SB4-GV03 | Vent Reading | 03/09/16 8:53 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB4-BZ03 | Breathing Zone | 03/09/16 8:51 | 0 | 0 | 1 | 0.0 | None | 29.74 |
| SB4-GV04 | Vent Reading | 03/09/16 8:49 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB4-BZ04 | Breathing Zone | 03/09/16 8:47 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB4-GV05 | Vent Reading | 03/09/16 8:30 | 0 | 0 | 0 | 0.0 | None | 29.7 |
| SB4-BZ05 | Breathing Zone | 03/09/16 8:27 | 0 | 0 | 0 | 0.0 | None | 29.69 |
| SB4-GV06 | Vent Reading | 03/09/16 8:38 | 0 | 0 | 0 | 0.0 | None | 29.7 |
| SB4-BZ06 | Breathing Zone | 03/09/16 8:35 | 0 | 0 | 0 | 0.0 | None | 29.7 |
| SB4-GV07 | Vent Reading | 03/09/16 8:41 | 0 | 0 | 0 | 0.0 | None | 29.7 |
| SB4-BZ07 | Breathing Zone | 03/09/16 8:39 | 0 | 0 | 0 | 0.0 | None | 29.71 |
| SB4-GV08 | Vent Reading | 03/09/16 8:45 | 0 | 0 | 1 | 0.0 | None | 29.71 |
| SB4-BZ08 | Breathing Zone | 03/09/16 8:43 | 0 | 0 | 1 | 0.0 | None | 29.7 |
| SB4-GV09 | Vent Reading | 03/09/16 4:42 | 0 | 0 | 0 | 0.0 | None | 29.68 |
| SB4-BZ09 | Breathing Zone | 03/09/16 4:44 | 0 | 0 | 0 | 0.0 | None | 29.69 |
| SB4-GV10 | Vent Reading | 03/09/16 7:50 | 0 | 0 | 0 | 0.0 | None | 29.69 |
| SB4-BZ10 | Breathing Zone | 03/09/16 7:48 | 0 | 0 | 0 | 0.0 | None | 29.7 |
| SB4-GV11 | Vent Reading | 03/09/16 7:53 | 0 | 0 | 0 | 0.0 | None | 29.7 |
| SB4-BZ11 | Breathing Zone | 03/09/16 7:51 | 0 | 0 | 0 | 0.0 | None | 29.71 |
| SB4-GV12 | Vent Reading | 03/09/16 7:57 | 0 | 0 | 0 | 0.0 | None | 29.7 |
| SB4-BZ12 | Breathing Zone | 03/09/16 7:55 | 0 | 0 | 0 | 0.0 | None | 29.71 |
| SB4-GV13 | Vent Reading | 03/09/16 8:17 | 0 | 0 | 0 | 0.0 | None | 29.69 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: SB-4
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB4-BZ13 | Breathing Zone | 03/09/16 8:15 | 0 | 0 | 0 | 0.0 | None | 29.69 |
| SB4-GV14 | Vent Reading | 03/09/16 8:22 | 0 | 0 | 0 | 0.0 | None | 29.68 |
| SB4-BZ14 | Breathing Zone | 03/09/16 8:19 | 0 | 0 | 0 | 0.0 | None | 29.69 |
| SB4-GV15 | Vent Reading | 03/09/16 8:01 | 0 | 0 | 0 | 0.0 | None | 29.7 |
| SB4-BZ15 | Breathing Zone | 03/09/16 7:59 | 0 | 0 | 0 | 0.0 | None | 29.7 |
| SB4-GV16 | Vent Reading | 03/09/16 8:26 | 0 | 0 | 0 | 0.0 | None | 29.68 |
| SB4-BZ16 | Breathing Zone | 03/09/16 8:24 | 0 | 0 | 0 | 0.0 | None | 29.69 |
| SB4-GV17 | Vent Reading | 03/09/16 8:06 | 0 | 0 | 0 | 0.0 | None | 29.69 |
| SB4-BZ17 | Breathing Zone | 03/09/16 8:03 | 0 | 0 | 0 | 0.0 | None | 29.7 |
| SB4-GV18 | Vent Reading | 03/09/16 8:57 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB4-BZ18 | Breathing Zone | 03/09/16 8:55 | 0 | 0 | 1 | 0.0 | None | 29.73 |
| SB4-GV19 | Vent Reading | 03/09/16 8:33 | 0 | 0 | 0 | 0.0 | None | 29.69 |
| SB4-BZ19 | Breathing Zone | 03/09/16 8:31 | 0 | 0 | 0 | 0.0 | None | 29.69 |
| SB4-GV20 | Vent Reading | 03/09/16 9:01 | 0 | 0 | 1 | 0.0 | None | 29.73 |
| SB4-BZ20 | Breathing Zone | 03/09/16 8:58 | 0 | 0 | 1 | 0.0 | None | 29.72 |
| SB4-GV21 | Vent Reading | 03/09/16 8:13 | 0 | 0 | 0 | 0.0 | None | 29.69 |
| SB4-BZ21 | Breathing Zone | 03/09/16 8:11 | 0 | 0 | 0 | 0.0 | None | 29.7 |
| SB4-GV22 | Vent Reading | 03/09/16 8:09 | 0 | 0 | 0 | 0.0 | None | 29.7 |
| SB4-BZ22 | Breathing Zone | 03/09/16 8:07 | 0 | 0 | 0 | 0.0 | None | 29.69 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: VB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV11 | Vent Reading | 03/09/16 15:40 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU10BZ11 | Breathing Zone | 03/09/16 15:38 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU10GV12 | Vent Reading | 03/09/16 15:43 | 2.4 | 48 | 0 | 0.0 | None | 29.52 |
| OU10BZ12 | Breathing Zone | 03/09/16 15:41 | 0 | 0 | 0 | 0.0 | None | 29.52 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: VB-10
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU7-GV04 | Vent Reading | 03/09/16 17:15 | 29 | >100 | 0 | 0.1 | None | 29.52 |
| OU7-BZ04 | Breathing Zone | 03/09/16 17:13 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU7-GV05 | Vent Reading | 03/09/16 17:12 | 26.3 | >100 | 0 | 0.1 | None | 29.51 |
| OU7-BZ05 | Breathing Zone | 03/09/16 17:10 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU7-GV06 | Vent Reading | 03/09/16 17:08 | 27.3 | >100 | 0 | 0.0 | None | 29.51 |
| OU7-BZ06 | Breathing Zone | 03/09/16 17:06 | 0 | 0 | 0 | 0.0 | None | 29.51 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: VB-11
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU7-GV07 | Vent Reading | 03/09/16 17:33 | 31.6 | >100 | 0 | 0.1 | None | 29.51 |
| OU7-BZ07 | Breathing Zone | 03/09/16 17:31 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU7-GV08 | Vent Reading | 03/09/16 17:37 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU7-BZ08 | Breathing Zone | 03/09/16 17:35 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU7-GV09 | Vent Reading | 03/09/16 17:41 | 1.4 | 28 | 0 | 0.0 | None | 29.52 |
| OU7-BZ09 | Breathing Zone | 03/09/16 17:39 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU7-GV10 | Vent Reading | 03/09/16 17:45 | 16.3 | >100 | 0 | 0.0 | None | 29.52 |
| OU7-BZ10 | Breathing Zone | 03/09/16 17:43 | 0 | 0 | 0 | 0.0 | None | 29.52 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: VB-2, VB-3
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV13 | Vent Reading | 03/09/16 15:54 | 10.9 | >100 | 0 | 0.0 | None | 29.52 |
| OU10BZ13 | Breathing Zone | 03/09/16 15:52 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| OU10GV14 | Vent Reading | 03/09/16 15:48 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU10BZ14 | Breathing Zone | 03/09/16 15:45 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU10GV15 | Vent Reading | 03/09/16 16:05 | 0.2 | 4 | 0 | 0.0 | None | 29.51 |
| OU10BZ15 | Breathing Zone | 03/09/16 16:03 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| OU10GV16 | Vent Reading | 03/09/16 15:57 | 4.1 | 82 | 0 | 0.0 | None | 29.52 |
| OU10BZ16 | Breathing Zone | 03/09/16 15:56 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU10GV17 | Vent Reading | 03/09/16 16:01 | 8.8 | >100 | 0 | 0.0 | None | 29.53 |
| OU10BZ17 | Breathing Zone | 03/09/16 15:59 | 0 | 0 | 0 | 0.0 | None | 29.53 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: VB-4, VB-5, VB-6
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV01 | Vent Reading | 03/09/16 15:13 | 0.3 | 6 | 1 | 0.0 | None | 29.53 |
| OU10BZ01 | Breathing Zone | 03/09/16 15:11 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| OU10GV02 | Vent Reading | 03/09/16 15:17 | 0.2 | 4 | 1 | 0.0 | None | 29.52 |
| OU10BZ02 | Breathing Zone | 03/09/16 15:15 | 0 | 0 | 1 | 0.0 | None | 29.52 |
| OU10GV03 | Vent Reading | 03/09/16 15:20 | 1.3 | 26 | 1 | 0.0 | None | 29.52 |
| OU10BZ03 | Breathing Zone | 03/09/16 15:18 | 0 | 0 | 1 | 0.0 | None | 29.52 |
| OU10GV04 | Vent Reading, Before Filter | 03/09/16 15:27 | 12.9 | >100 | 1 | 0.3 | None | 29.52 |
| OU10GV04 | Vent Reading, After Filter | 03/09/16 15:25 | 17.7 | >100 | 1 | 0.3 | None | 29.52 |
| OU10BZ04 | Breathing Zone | 03/09/16 15:23 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU10GV05 | Vent Reading, Before Filter | 03/09/16 15:35 | 16.3 | >100 | 1 | 0.0 | None | 29.51 |
| OU10GV05 | Vent Reading, After Filter | 03/09/16 15:33 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU10BZ05 | Breathing Zone | 03/09/16 15:30 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU10GV06 | Vent Reading | 03/09/16 15:09 | 0.2 | 4 | 1 | 0.0 | None | 29.53 |
| OU10BZ06 | Breathing Zone | 03/09/16 15:07 | 0 | 0 | 1 | 0.0 | None | 29.53 |
| OU10GV07 | Vent Reading | 03/09/16 15:05 | 0 | 0 | 1 | 0.0 | None | 29.52 |
| OU10BZ07 | Breathing Zone | 03/09/16 15:03 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU10GV08 | Vent Reading | 03/09/16 15:01 | 0 | 0 | 1 | 0.0 | None | 29.52 |
| OU10BZ08 | Breathing Zone | 03/09/16 15:00 | 0 | 0 | 1 | 0.0 | None | 29.52 |
| OU10GV09 | Vent Reading | 03/09/16 14:58 | 0 | 0 | 1 | 0.0 | None | 29.52 |
| OU10BZ09 | Breathing Zone | 03/09/16 14:56 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU10GV10 | Vent Reading | 03/09/16 14:54 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU10BZ10 | Breathing Zone | 03/09/16 14:53 | 0 | 0 | 0 | 0.0 | None | 29.57 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: VB-7, VB-8
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV18 | Vent Reading | 03/09/16 16:20 | 2.4 | 48 | 0 | 0.0 | None | 29.52 |
| OU10BZ18 | Breathing Zone | 03/09/16 16:17 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU10GV19 | Vent Reading | 03/09/16 16:08 | 1.1 | 22 | 0 | 0.0 | None | 29.52 |
| OU10BZ19 | Breathing Zone | 03/09/16 16:07 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| OU10GV20 | Vent Reading | 03/09/16 16:12 | 15.8 | >100 | 0 | 0.0 | None | 29.51 |
| OU10BZ20 | Breathing Zone | 03/09/16 16:10 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU10GV21 | Vent Reading | 03/09/16 16:15 | 6.6 | >100 | 0 | 0.0 | Slight | 29.5 |
| OU10BZ21 | Breathing Zone | 03/09/16 16:13 | 0 | 0 | 0 | 0.0 | Slight | 29.51 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr1
Technician: M. Robinson
Landfill or Basin: VB-9
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 3/9/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU7-GV01 | Vent Reading | 03/09/16 17:25 | 0.4 | 8 | 0 | 0.0 | None | 29.51 |
| OU7-BZ01 | Breathing Zone | 03/09/16 17:24 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU7-GV02 | Vent Reading | 03/09/16 17:22 | 18.9 | >100 | 0 | 0.0 | None | 29.52 |
| OU7-BZ02 | Breathing Zone | 03/09/16 17:20 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU7-GV03 | Vent Reading | 03/09/16 17:18 | 37 | >100 | 0 | 0.1 | None | 29.5 |
| OU7-BZ03 | Breathing Zone | 03/09/16 17:16 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU7-GV11 | Vent Reading | 03/09/16 17:30 | 25.2 | >100 | 0 | 0.2 | Slight | 29.51 |
| OU7-BZ11 | Breathing Zone | 03/09/16 17:27 | 0 | 0 | 0 | 0.0 | Slight | 29.51 |

# GAS VENT INSPECTION AND MONITORING FORM
## Avtex Fibers Superfund Site
## Front Royal, Virginia

**Date:** 6/14/16
**Technician:** Robinson / Harder
**Basins Included in Inspection (circle each):**

(SBs 1, 3, 4) VBs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 New Landfill

**Precipitation (current)** □ rain □ snow □ sleet □ mix □ other
□ light □ moderate □ heavy None

**Temperature (current)** 78 F

**Wind Direction (blowing from)** ☒ N □ NE □ E □ SE □ variable
□ S □ SW □ W □ NW

**Approximate Wind Speed** 3 mph

**Cloud Cover** ☒ clear □ lt. clouds □ overcast □ foggy

**Barometric Pressure** 29.5 inches

| Question | Response | | Comments |
|---|---|---|---|
| 1. Are any of the vents disturbed or damaged? If yes, provide specific comments. | (Yes) | No | SB-1 GV-1 leaning 5° E<br>GV-4 " 10° S<br>GV-9 " 5° S<br>GV-10 " 10° N<br>GV-11 " 5° N<br>GV-15 " 5° E<br>GV-19 " 5° W<br>GV-21 " 5° N<br>GV-24 " 5° S<br>GV-25 " 10° S<br>GV-29 " 5° N<br>GV-33 " 5° W<br>SB-4 GV-5 " 5° W |
| 2. Are all vent screens intact? If NO, provide specific comments | (Yes) | No | |
| 3. Are any vent opening obstructed? If YES, provide specific comments. | Yes | (No) | |
| 4. Photos – collected of issues or conditions require major repair or rework. Describe. | Yes | (No) | |
| 5. Any conditions that prevent system from operating properly or present an immediate threat to human health or environment. If YES, make notifications | Yes | (No) | |

**Additional comments/observations/concerns:**

**Note: If further space is required, provide comments on a separate sheet.**

# GAS VENT INSPECTION AND MONITORING FORM
## Avtex Fibers Superfund Site
## Front Royal, Virginia

**Date:** 6/15/16

**Technician:** Robinson / Harder

**Basins Included in Inspection (circle each):**

SBs 1, 3, 4 (VBs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11) (New Landfill)

| | | | | | |
|---|---|---|---|---|---|
| **Precipitation (current)** | ☐ rain | ☐ snow | ☐ sleet | ☐ mix | ☐ other None |
| | ☐ light | ☐ moderate | ☐ heavy | | |
| **Temperature (current)** | 68 F | | | | |
| **Wind Direction (blowing from)** | ☐ N | ☐ NE | ☐ E | ☒ SE | ☐ variable |
| | ☐ S | ☐ SW | ☐ W | ☐ NW | |
| **Approximate Wind Speed** | 2 mph | | | | |
| **Cloud Cover** | ☒ clear | ☐ lt. clouds | ☐ overcast | ☐ foggy | |
| **Barometric Pressure** | 29.5 inches | | | | |

| Question | Response | | Comments |
|---|---|---|---|
| 1. Are any of the vents disturbed or damaged? If yes, provide specific comments. | (Yes) | No | GV-7 GV-9 leaning 5° W<br>GV-10 leaning 5° S |
| 2. Are all vent screens intact? If NO, provide specific comments | (Yes) | No | |
| 3. Are any vent opening obstructed? If YES, provide specific comments. | Yes | (No) | |
| 4. Photos – collected of issues or conditions require major repair or rework. Describe. | Yes | (No) | |
| 5. Any conditions that prevent system from operating properly or present an immediate threat to human health or environment. If YES, make notifications | Yes | (No) | |

**Additional comments/observations/concerns:**

**Note: If further space is required, provide comments on a separate sheet.**

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: NLF
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/15/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV22 | Vent Reading | 06/15/16 10:31 | 4.3 | 86 | 0 | 0.0 | None | 29.45 |
| OU10BZ22 | Breathing Zone | 06/15/16 10:28 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| OU10GV23 | Vent Reading | 06/15/16 10:34 | 9.7 | >100 | 0 | 0.0 | None | 29.44 |
| OU10BZ23 | Breathing Zone | 06/15/16 10:32 | 0 | 0 | 0 | 0.0 | None | 29.45 |
| OU10GV24 | Vent Reading | 06/15/16 10:42 | 6.6 | >100 | 0 | 0.0 | None | 29.44 |
| OU10BZ24 | Breathing Zone | 06/15/16 10:40 | 0 | 0 | 0 | 0.0 | None | 29.43 |
| OU10GV25 | Vent Reading | 06/15/16 10:38 | 14.6 | >100 | 0 | 0.0 | None | 29.45 |
| OU10BZ25 | Breathing Zone | 06/15/16 10:36 | 0 | 0 | 0 | 0.0 | None | 29.44 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: SB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/14/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB1-GV01 | Vent Reading | 06/14/16 16:33 | 0 | 0 | 0 | 0.0 | None | 29.49 |
| SB1-BZ01 | Breathing Zone | 06/14/16 16:30 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB1-GV02 | Vent Reading | 06/14/16 16:45 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB1-BZ02 | Breathing Zone | 06/14/16 16:43 | 0 | 0 | 0 | 0.0 | None | 29.49 |
| SB1-GV03 | Vent Reading | 06/14/16 16:48 | 0 | 0 | 0 | 0.0 | None | 29.49 |
| SB1-BZ03 | Breathing Zone | 06/14/16 16:46 | 0 | 0 | 0 | 0.0 | None | 29.49 |
| SB1-GV04 | Vent Reading | 06/14/16 16:53 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-BZ04 | Breathing Zone | 06/14/16 16:52 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-GV05 | Vent Reading | 06/14/16 16:57 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ05 | Breathing Zone | 06/14/16 16:55 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-GV06 | Vent Reading | 06/14/16 17:00 | 8 | >100 | 0 | 0.1 | None | 29.48 |
| SB1-BZ06 | Breathing Zone | 06/14/16 16:58 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-GV07 | Vent Reading | 06/14/16 17:04 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ07 | Breathing Zone | 06/14/16 17:03 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-GV08 | Vent Reading | 06/14/16 17:07 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-BZ08 | Breathing Zone | 06/14/16 17:05 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-GV09 | Vent Reading | 06/14/16 17:10 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ09 | Breathing Zone | 06/14/16 17:08 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| SB1-GV10 | Vent Reading | 06/14/16 17:14 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ10 | Breathing Zone | 06/14/16 17:12 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| SB1-GV11 | Vent Reading | 06/14/16 17:17 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ11 | Breathing Zone | 06/14/16 17:16 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| SB1-GV12 | Vent Reading | 06/14/16 17:22 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-BZ12 | Breathing Zone | 06/14/16 17:20 | 0 | 0 | 0 | 0.0 | None | 29.41 |
| SB1-GV13 | Vent Reading | 06/14/16 17:24 | 0 | 0 | 0 | 0.1 | None | 29.47 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: SB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/14/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB1-BZ13 | Breathing Zone | 06/14/16 17:23 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-GV14 | Vent Reading | 06/14/16 17:27 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ14 | Breathing Zone | 06/14/16 17:26 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-GV15 | Vent Reading | 06/14/16 17:30 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ15 | Breathing Zone | 06/14/16 17:29 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-GV16 | Vent Reading | 06/14/16 17:33 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ16 | Breathing Zone | 06/14/16 17:32 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-GV17 | Vent Reading | 06/14/16 17:36 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| SB1-BZ17 | Breathing Zone | 06/14/16 17:35 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| SB1-GV18 | Vent Reading | 06/14/16 17:40 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| SB1-BZ18 | Breathing Zone | 06/14/16 17:38 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| SB1-GV19 | Vent Reading | 06/14/16 17:42 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ19 | Breathing Zone | 06/14/16 17:41 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| SB1-GV20 | Vent Reading | 06/14/16 17:45 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ20 | Breathing Zone | 06/14/16 17:44 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-GV21 | Vent Reading | 06/14/16 17:49 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ21 | Breathing Zone | 06/14/16 17:47 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-GV22 | Vent Reading | 06/14/16 17:52 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ22 | Breathing Zone | 06/14/16 17:50 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-GV23 | Vent Reading | 06/14/16 17:55 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ23 | Breathing Zone | 06/14/16 17:53 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-GV24 | Vent Reading | 06/14/16 17:58 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ24 | Breathing Zone | 06/14/16 17:56 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-GV25 | Vent Reading | 06/14/16 18:00 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-BZ25 | Breathing Zone | 06/14/16 17:59 | 0 | 0 | 0 | 0.0 | None | 29.46 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: SB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/14/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB1-GV26 | Vent Reading | 06/14/16 18:03 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ26 | Breathing Zone | 06/14/16 18:01 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-GV27 | Vent Reading | 06/14/16 18:06 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| SB1-BZ27 | Breathing Zone | 06/14/16 18:04 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-GV28 | Vent Reading | 06/14/16 18:08 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ28 | Breathing Zone | 06/14/16 18:07 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-GV29 | Vent Reading | 06/14/16 18:11 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ29 | Breathing Zone | 06/14/16 18:09 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| SB1-GV30 | Vent Reading | 06/14/16 18:16 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ30 | Breathing Zone | 06/14/16 18:12 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| SB1-GV31 | Vent Reading | 06/14/16 18:22 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ31 | Breathing Zone | 06/14/16 18:20 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-GV32 | Vent Reading | 06/14/16 18:19 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-BZ32 | Breathing Zone | 06/14/16 18:18 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| SB1-GV33 | Vent Reading | 06/14/16 18:28 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| SB1-BZ33 | Breathing Zone | 06/14/16 18:27 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB1-GV34 | Vent Reading | 06/14/16 18:25 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB1-BZ34 | Breathing Zone | 06/14/16 18:23 | 0 | 0 | 0 | 0.0 | None | 29.48 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: SB-3
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/14/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB3-GV01 | Vent Reading | 06/14/16 16:01 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB3-BZ01 | Breathing Zone | 06/14/16 15:59 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB3-GV02 | Vent Reading | 06/14/16 15:58 | 1.3 | 26 | 0 | 0.0 | None | 29.5 |
| SB3-BZ02 | Breathing Zone | 06/14/16 15:57 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB3-GV03 | Vent Reading | 06/14/16 15:55 | 2.5 | 50 | 0 | 0.0 | None | 29.49 |
| SB3-BZ03 | Breathing Zone | 06/14/16 15:53 | 0 | 0 | 0 | 0.0 | None | 29.49 |
| SB3-GV04 | Vent Reading | 06/14/16 15:52 | 4.6 | 92 | 0 | 0.1 | None | 29.51 |
| SB3-BZ04 | Breathing Zone | 06/14/16 15:50 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB3-GV05 | Vent Reading | 06/14/16 15:49 | 0.8 | 16 | 1 | 0.0 | None | 29.51 |
| SB3-BZ05 | Breathing Zone | 06/14/16 15:46 | 0 | 0 | 0 | 0.0 | None | 29.49 |
| SB3-GV06 | Vent Reading | 06/14/16 16:23 | 2.7 | 54 | 1 | 0.0 | None | 29.5 |
| SB3-BZ06 | Breathing Zone | 06/14/16 16:22 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB3-GV07 | Vent Reading | 06/14/16 16:04 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB3-BZ07 | Breathing Zone | 06/14/16 16:02 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB3-GV08 | Vent Reading | 06/14/16 16:06 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB3-BZ08 | Breathing Zone | 06/14/16 16:05 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB3-GV09 | Vent Reading | 06/14/16 16:09 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB3-BZ09 | Breathing Zone | 06/14/16 16:07 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB3-GV10 | Vent Reading | 06/14/16 16:12 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB3-BZ10 | Breathing Zone | 06/14/16 16:10 | 0 | 0 | 0 | 0.0 | None | 29.49 |
| SB3-GV11 | Vent Reading | 06/14/16 16:16 | 10.7 | >100 | 1 | 0.5 | None | 29.5 |
| SB3-BZ11 | Breathing Zone | 06/14/16 16:14 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB3-GV12 | Vent Reading | 06/14/16 16:19 | 0 | 0 | 0 | 0.0 | None | 29.49 |
| SB3-BZ12 | Breathing Zone | 06/14/16 16:18 | 0 | 0 | 0 | 0.0 | None | 29.49 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: SB-4
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/14/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB4-GV01 | Vent Reading | 06/14/16 15:43 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB4-BZ01 | Breathing Zone | 06/14/16 15:41 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-GV02 | Vent Reading | 06/14/16 15:40 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-BZ02 | Breathing Zone | 06/14/16 15:38 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-GV03 | Vent Reading | 06/14/16 15:29 | 1.1 | 22 | 0 | 0.0 | None | 29.5 |
| SB4-BZ03 | Breathing Zone | 06/14/16 15:28 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-GV04 | Vent Reading | 06/14/16 15:26 | 12.2 | >100 | 0 | 0.1 | None | 29.5 |
| SB4-BZ04 | Breathing Zone | 06/14/16 15:24 | 0 | 0 | 0 | 0.0 | None | 29.49 |
| SB4-GV05 | Vent Reading | 06/14/16 15:08 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB4-BZ05 | Breathing Zone | 06/14/16 15:06 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-GV06 | Vent Reading | 06/14/16 15:16 | 0.1 | 2 | 0 | 0.0 | None | 29.5 |
| SB4-BZ06 | Breathing Zone | 06/14/16 15:15 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB4-GV07 | Vent Reading | 06/14/16 15:19 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-BZ07 | Breathing Zone | 06/14/16 15:18 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB4-GV08 | Vent Reading | 06/14/16 15:23 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-BZ08 | Breathing Zone | 06/14/16 15:21 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-GV09 | Vent Reading | 06/14/16 14:31 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-BZ09 | Breathing Zone | 06/14/16 14:28 | 0 | 0 | 0 | 0.0 | None | N/A |
| SB4-GV10 | Vent Reading | 06/14/16 14:35 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-BZ10 | Breathing Zone | 06/14/16 14:33 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB4-GV11 | Vent Reading | 06/14/16 14:38 | 0.5 | 10 | 0 | 0.1 | None | 29.51 |
| SB4-BZ11 | Breathing Zone | 06/14/16 14:37 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB4-GV12 | Vent Reading | 06/14/16 14:42 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-BZ12 | Breathing Zone | 06/14/16 14:40 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-GV13 | Vent Reading | 06/14/16 14:58 | 0 | 0 | 0 | 0.0 | None | 29.52 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: SB-4
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/14/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB4-BZ13 | Breathing Zone | 06/14/16 14:56 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB4-GV14 | Vent Reading | 06/14/16 15:01 | 0 | 0 | 1 | 0.0 | None | 29.51 |
| SB4-BZ14 | Breathing Zone | 06/14/16 15:00 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-GV15 | Vent Reading | 06/14/16 14:46 | 0.5 | 10 | 0 | 0.1 | None | 29.52 |
| SB4-BZ15 | Breathing Zone | 06/14/16 14:44 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-GV16 | Vent Reading | 06/14/16 15:04 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-BZ16 | Breathing Zone | 06/14/16 15:03 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB4-GV17 | Vent Reading | 06/14/16 14:51 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-BZ17 | Breathing Zone | 06/14/16 14:50 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB4-GV18 | Vent Reading | 06/14/16 15:33 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-BZ18 | Breathing Zone | 06/14/16 15:31 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-GV19 | Vent Reading | 06/14/16 15:13 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB4-BZ19 | Breathing Zone | 06/14/16 15:11 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| SB4-GV20 | Vent Reading | 06/14/16 15:35 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-BZ20 | Breathing Zone | 06/14/16 15:34 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-GV21 | Vent Reading | 06/14/16 14:49 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-BZ21 | Breathing Zone | 06/14/16 14:47 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB4-GV22 | Vent Reading | 06/14/16 14:55 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB4-BZ22 | Breathing Zone | 06/14/16 14:53 | 0 | 0 | 0 | 0.0 | None | 29.52 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: VB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/15/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV11 | Vent Reading | 06/15/16 9:48 | 3.2 | 64 | 0 | 0.0 | None | 29.47 |
| OU10BZ11 | Breathing Zone | 06/15/16 9:46 | 0 | 0 | 0 | 0.0 | None | N/A |
| OU10GV12 | Vent Reading | 06/15/16 9:52 | 4.3 | 86 | 0 | 0.1 | None | 29.48 |
| OU10BZ12 | Breathing Zone | 06/15/16 9:50 | 0 | 0 | 0 | 0.0 | None | 29.47 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: VB-10
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/15/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU7-GV04 | Vent Reading | 06/15/16 10:53 | 31.7 | >100 | 0 | 0.2 | None | 29.46 |
| OU7-BZ04 | Breathing Zone | 06/15/16 10:51 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| OU7-GV05 | Vent Reading | 06/15/16 10:57 | 27.5 | >100 | 1 | 0.2 | None | 29.46 |
| OU7-BZ05 | Breathing Zone | 06/15/16 10:55 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| OU7-GV06 | Vent Reading | 06/15/16 11:01 | 21.1 | >100 | 0 | 0.1 | None | 29.47 |
| OU7-BZ06 | Breathing Zone | 06/15/16 10:59 | 0 | 0 | 0 | 0.0 | None | 29.47 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: VB-11
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/15/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU7-GV07 | Vent Reading | 06/15/16 11:25 | 17.1 | >100 | 0 | 0.2 | None | 29.48 |
| OU7-BZ07 | Breathing Zone | 06/15/16 11:23 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| OU7-GV08 | Vent Reading | 06/15/16 11:29 | 1.1 | 22 | 0 | 0.1 | None | 29.47 |
| OU7-BZ08 | Breathing Zone | 06/15/16 11:27 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| OU7-GV09 | Vent Reading | 06/15/16 11:34 | 1.9 | 38 | 0 | 0.2 | None | 29.46 |
| OU7-BZ09 | Breathing Zone | 06/15/16 11:31 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| OU7-GV10 | Vent Reading | 06/15/16 11:37 | 11.5 | >100 | 0 | 0.2 | None | 29.48 |
| OU7-BZ10 | Breathing Zone | 06/15/16 11:35 | 0 | 0 | 0 | 0.0 | None | 29.47 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: VB-2, VB-3
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/15/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV13 | Vent Reading | 06/15/16 10:00 | 15.4 | >100 | 0 | 0.0 | None | 29.45 |
| OU10BZ13 | Breathing Zone | 06/15/16 9:58 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| OU10GV14 | Vent Reading | 06/15/16 9:56 | 4.2 | 84 | 0 | 0.0 | None | 29.47 |
| OU10BZ14 | Breathing Zone | 06/15/16 9:54 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| OU10GV15 | Vent Reading | 06/15/16 10:11 | 9.3 | >100 | 0 | 0.0 | None | 29.46 |
| OU10BZ15 | Breathing Zone | 06/15/16 10:09 | 0 | 0 | 0 | 0.0 | None | 29.45 |
| OU10GV16 | Vent Reading | 06/15/16 10:03 | 3.2 | 64 | 0 | 0.1 | None | 29.45 |
| OU10BZ16 | Breathing Zone | 06/15/16 10:01 | 0 | 0 | 0 | 0.0 | None | 29.45 |
| OU10GV17 | Vent Reading | 06/15/16 10:07 | 6.4 | >100 | 0 | 0.0 | None | 29.46 |
| OU10BZ17 | Breathing Zone | 06/15/16 10:05 | 0 | 0 | 0 | 0.0 | None | 29.46 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: VB-4, VB-5, VB-6
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/15/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV01 | Vent Reading | 06/15/16 9:13 | 24.9 | >100 | 0 | 0.3 | None | 29.48 |
| OU10BZ01 | Breathing Zone | 06/15/16 9:11 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| OU10GV02 | Vent Reading | 06/15/16 9:17 | 23.2 | >100 | 0 | 0.2 | None | 29.47 |
| OU10BZ02 | Breathing Zone | 06/15/16 9:14 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| OU10GV03 | Vent Reading | 06/15/16 9:22 | 15.7 | >100 | 1 | 0.2 | None | 29.46 |
| OU10BZ03 | Breathing Zone | 06/15/16 9:19 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| OU10GV04 | Vent Reading, Before Filter | 06/15/16 9:29 | 40.7 | >100 | 272 | 2.3 | None | 29.47 |
| OU10GV04 | Vent Reading, After Filter | 06/15/16 9:28 | 22.8 | >100 | 0 | 0.0 | None | 29.47 |
| OU10BZ04 | Breathing Zone | 06/15/16 9:25 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| OU10GV05 | Vent Reading, Before Filter | 06/15/16 9:39 | 32.9 | >100 | 224 | 2.2 | None | 29.46 |
| OU10GV05 | Vent Reading, After Filter | 06/15/16 9:37 | 2.3 | 46 | 0 | 0.0 | None | 29.46 |
| OU10BZ05 | Breathing Zone | 06/15/16 9:35 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| OU10GV06 | Vent Reading | 06/15/16 9:07 | 32.6 | >100 | 0 | 0.4 | None | 29.48 |
| OU10BZ06 | Breathing Zone | 06/15/16 9:05 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| OU10GV07 | Vent Reading | 06/15/16 9:02 | 31.1 | >100 | 0 | 0.5 | None | 29.47 |
| OU10BZ07 | Breathing Zone | 06/15/16 9:00 | 0.1 | 2 | 0 | 0.0 | None | 29.47 |
| OU10GV08 | Vent Reading | 06/15/16 8:58 | 33.3 | >100 | 1 | 0.2 | None | 29.46 |
| OU10BZ08 | Breathing Zone | 06/15/16 8:56 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| OU10GV09 | Vent Reading | 06/15/16 8:53 | 21.4 | >100 | 1 | 0.2 | None | 29.47 |
| OU10BZ09 | Breathing Zone | 06/15/16 8:50 | 0 | 0 | 0 | 0.0 | None | N/A |
| OU10GV10 | Vent Reading | 06/15/16 8:43 | 15.8 | >100 | 0 | 0.0 | None | 29.46 |
| OU10BZ10 | Breathing Zone | 06/15/16 8:39 | 0 | 0 | 0 | 0.0 | None | 29.47 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: VB-7, VB-8
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/15/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV18 | Vent Reading | 06/15/16 10:26 | 1.3 | 26 | 0 | 0.0 | None | 29.47 |
| OU10BZ18 | Breathing Zone | 06/15/16 10:24 | 0 | 0 | 0 | 0.0 | None | 29.45 |
| OU10GV19 | Vent Reading | 06/15/16 10:15 | 0.4 | 8 | 0 | 0.0 | None | 29.47 |
| OU10BZ19 | Breathing Zone | 06/15/16 10:13 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| OU10GV20 | Vent Reading | 06/15/16 10:18 | 10.1 | >100 | 0 | 0.2 | None | 29.46 |
| OU10BZ20 | Breathing Zone | 06/15/16 10:16 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| OU10GV21 | Vent Reading | 06/15/16 10:22 | 11 | >100 | 0 | 0.0 | None | 29.46 |
| OU10BZ21 | Breathing Zone | 06/15/16 10:20 | 0 | 0 | 0 | 0.0 | None | 29.47 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr2
Technician: M. Robinson
Landfill or Basin: VB-9
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 6/15/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU7-GV01 | Vent Reading | 06/15/16 11:16 | 2.4 | 48 | 0 | 0.0 | None | 29.47 |
| OU7-BZ01 | Breathing Zone | 06/15/16 11:14 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| OU7-GV02 | Vent Reading | 06/15/16 11:12 | 22 | >100 | 0 | 0.2 | None | 29.47 |
| OU7-BZ02 | Breathing Zone | 06/15/16 11:10 | 0 | 0 | 0 | 0.0 | None | 29.43 |
| OU7-GV03 | Vent Reading | 06/15/16 11:05 | 31.6 | >100 | 0 | 0.4 | None | 29.47 |
| OU7-BZ03 | Breathing Zone | 06/15/16 11:03 | 0 | 0 | 0 | 0.0 | None | 29.45 |
| OU7-GV11 | Vent Reading | 06/15/16 11:20 | 37.1 | >100 | 3 | 0.2 | None | 29.48 |
| OU7-BZ11 | Breathing Zone | 06/15/16 11:18 | 0 | 0 | 0 | 0.0 | None | 29.47 |

# GAS VENT INSPECTION AND MONITORING FORM
## Avtex Fibers Superfund Site
## Front Royal, Virginia

**Date:** 9/8/16

**Technician:** Robinson / Harder

**Basins Included in Inspection (circle each):**

(SBs 1, 3, 4) VBs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 New Landfill

| | | | | | |
|---|---|---|---|---|---|
| **Precipitation (current)** | ☒ rain | ☐ snow | ☐ sleet | ☐ mix | ☐ other |
| | ☒ light | ☐ moderate | ☐ heavy | | |
| **Temperature (current)** | 78 F | | | | |
| **Wind Direction (blowing from)** | ☐ N | ☐ NE | ☐ E | ☐ SE | ☐ variable |
| | ☐ S | ☐ SW | ☐ W | ☐ NW | (WNW) |
| **Approximate Wind Speed** | 5 mph | | | | |
| **Cloud Cover** | ☐ clear | ☐ lt. clouds | ☒ overcast | ☐ foggy | |
| **Barometric Pressure** | 29.4 inches | | | | |

| Question | Response | | Comments |
|---|---|---|---|
| 1. Are any of the vents disturbed or damaged? If yes, provide specific comments. | (Yes) | No | SB-1 GV-1 leaning 5°E<br>GV-4 " 10°S<br>GV-9 " 5°S<br>GV-10 " 10°S<br>GV-11 " 5°N<br>GV-15 " 5°E<br>GV-19 " 5°W<br>GV-21 " 5°N<br>GV-24 " 5°S<br>GV-25 " 10°S<br>GV-29 " 5°N<br>GV-33 " 5°W<br>SB-4 GV-5 " 5°W |
| 2. Are all vent screens intact? If NO, provide specific comments | (Yes) | No | |
| 3. Are any vent opening obstructed? If YES, provide specific comments. | Yes | (No) | |
| 4. Photos – collected of issues or conditions require major repair or rework. Describe. | Yes | (No) | |
| 5. Any conditions that prevent system from operating properly or present an immediate threat to human health or environment. If YES, make notifications | Yes | (No) | |

**Additional comments/observations/concerns:**

**Note: If further space is required, provide comments on a separate sheet.**

# GAS VENT INSPECTION AND MONITORING FORM
## Avtex Fibers Superfund Site
## Front Royal, Virginia

**Date:** 9/8/16

**Technician:** Robinson / Harder

**Basins Included in Inspection (circle each):**

SBs 1, 3, 4 (VBs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11) (New Landfill)

| | | | | | |
|---|---|---|---|---|---|
| **Precipitation (current)** | □ rain | □ snow | □ sleet | □ mix | □ other None |
| | □ light | □ moderate | □ heavy | | |
| **Temperature (current)** | 90 F | | | | |
| **Wind Direction (blowing from)** | □ N | □ NE | □ E | □ SE | □ variable |
| | □ S | □ SW | □ W | □ NW | WNW |
| **Approximate Wind Speed** | 5 mph | | | | |
| **Cloud Cover** | □ clear | ☒ lt. clouds | □ overcast | □ foggy | |
| **Barometric Pressure** | 29.5 inches | | | | |

| Question | Response | | Comments |
|---|---|---|---|
| 1. Are any of the vents disturbed or damaged? If yes, provide specific comments. | (Yes) | No | OU-7 GU-9 leaning 5°W<br>GU-10 leaning 5°S |
| 2. Are all vent screens intact? If NO, provide specific comments | (Yes) | No | |
| 3. Are any vent opening obstructed? If YES, provide specific comments. | Yes | (No) | |
| 4. Photos – collected of issues or conditions require major repair or rework. Describe. | Yes | (No) | |
| 5. Any conditions that prevent system from operating properly or present an immediate threat to human health or environment. If YES, make notifications | Yes | (No) | |

**Additional comments/observations/concerns:**

**Note: If further space is required, provide comments on a separate sheet.**

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: NLF
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV22 | Vent Reading | 09/08/16 17:17 | 5.6 | >100 | 0 | 0.0 | None | 29.37 |
| OU10BZ22 | Breathing Zone | 09/08/16 17:15 | 0 | 0 | 0 | 0.0 | None | 29.41 |
| OU10GV23 | Vent Reading | 09/08/16 17:20 | 22.9 | >100 | 0 | 0.0 | None | 29.37 |
| OU10BZ23 | Breathing Zone | 09/08/16 17:18 | 0 | 0 | 0 | 0.0 | None | 29.38 |
| OU10GV24 | Vent Reading | 09/08/16 17:26 | 22.2 | >100 | 0 | 0.0 | None | 29.38 |
| OU10BZ24 | Breathing Zone | 09/08/16 17:24 | 0 | 0 | 0 | 0.0 | None | 29.38 |
| OU10GV25 | Vent Reading | 09/08/16 17:23 | 28.6 | >100 | 1 | 0.0 | None | 29.39 |
| OU10BZ25 | Breathing Zone | 09/08/16 17:21 | 0 | 0 | 0 | 0.0 | None | 29.39 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: SB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB1-GV01 | Vent Reading | 09/08/16 10:04 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-BZ01 | Breathing Zone | 09/08/16 10:03 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-GV02 | Vent Reading | 09/08/16 10:01 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ02 | Breathing Zone | 09/08/16 10:00 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-GV03 | Vent Reading | 09/08/16 9:58 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ03 | Breathing Zone | 09/08/16 9:56 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-GV04 | Vent Reading | 09/08/16 10:16 | 0.1 | 2 | 0 | 0.0 | None | 29.54 |
| SB1-BZ04 | Breathing Zone | 09/08/16 10:15 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-GV05 | Vent Reading | 09/08/16 10:13 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-BZ05 | Breathing Zone | 09/08/16 10:11 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-GV06 | Vent Reading | 09/08/16 10:08 | 5.1 | >100 | 1 | 0.0 | None | 29.53 |
| SB1-BZ06 | Breathing Zone | 09/08/16 10:06 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-GV07 | Vent Reading | 09/08/16 10:20 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ07 | Breathing Zone | 09/08/16 10:18 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-GV08 | Vent Reading | 09/08/16 10:22 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ08 | Breathing Zone | 09/08/16 10:21 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-GV09 | Vent Reading | 09/08/16 10:25 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-BZ09 | Breathing Zone | 09/08/16 10:24 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-GV10 | Vent Reading | 09/08/16 10:28 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-BZ10 | Breathing Zone | 09/08/16 10:27 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB1-GV11 | Vent Reading | 09/08/16 10:31 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ11 | Breathing Zone | 09/08/16 10:30 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB1-GV12 | Vent Reading | 09/08/16 10:34 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ12 | Breathing Zone | 09/08/16 10:33 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-GV13 | Vent Reading | 09/08/16 10:38 | 0 | 0 | 0 | 0.0 | None | 29.53 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: SB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB1-BZ13 | Breathing Zone | 09/08/16 10:36 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB1-GV14 | Vent Reading | 09/08/16 10:44 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-BZ14 | Breathing Zone | 09/08/16 10:43 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-GV15 | Vent Reading | 09/08/16 10:47 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ15 | Breathing Zone | 09/08/16 10:46 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-GV16 | Vent Reading | 09/08/16 10:50 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-BZ16 | Breathing Zone | 09/08/16 10:48 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB1-GV17 | Vent Reading | 09/08/16 10:53 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB1-BZ17 | Breathing Zone | 09/08/16 10:51 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-GV18 | Vent Reading | 09/08/16 10:56 | 0 | 0 | 1 | 0.0 | None | 29.52 |
| SB1-BZ18 | Breathing Zone | 09/08/16 10:55 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB1-GV19 | Vent Reading | 09/08/16 10:59 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-BZ19 | Breathing Zone | 09/08/16 10:58 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-GV20 | Vent Reading | 09/08/16 11:02 | 0 | 0 | 1 | 0.0 | None | 29.52 |
| SB1-BZ20 | Breathing Zone | 09/08/16 11:01 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB1-GV21 | Vent Reading | 09/08/16 11:06 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB1-BZ21 | Breathing Zone | 09/08/16 11:04 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-GV22 | Vent Reading | 09/08/16 11:09 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ22 | Breathing Zone | 09/08/16 11:08 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-GV23 | Vent Reading | 09/08/16 11:12 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB1-BZ23 | Breathing Zone | 09/08/16 11:11 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB1-GV24 | Vent Reading | 09/08/16 11:15 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB1-BZ24 | Breathing Zone | 09/08/16 11:13 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB1-GV25 | Vent Reading | 09/08/16 12:39 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB1-BZ25 | Breathing Zone | 09/08/16 12:37 | 0 | 0 | 0 | 0.0 | None | N/A |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: SB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB1-GV26 | Vent Reading | 09/08/16 12:42 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ26 | Breathing Zone | 09/08/16 12:41 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB1-GV27 | Vent Reading | 09/08/16 12:45 | 0.2 | 4 | 0 | 0.0 | None | 29.52 |
| SB1-BZ27 | Breathing Zone | 09/08/16 12:44 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-GV28 | Vent Reading | 09/08/16 12:48 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB1-BZ28 | Breathing Zone | 09/08/16 12:47 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB1-GV29 | Vent Reading | 09/08/16 12:51 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB1-BZ29 | Breathing Zone | 09/08/16 12:50 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB1-GV30 | Vent Reading | 09/08/16 12:55 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB1-BZ30 | Breathing Zone | 09/08/16 12:53 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB1-GV31 | Vent Reading | 09/08/16 13:01 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB1-BZ31 | Breathing Zone | 09/08/16 13:00 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-GV32 | Vent Reading | 09/08/16 12:59 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB1-BZ32 | Breathing Zone | 09/08/16 12:57 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB1-GV33 | Vent Reading | 09/08/16 13:08 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB1-BZ33 | Breathing Zone | 09/08/16 13:06 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB1-GV34 | Vent Reading | 09/08/16 13:05 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| SB1-BZ34 | Breathing Zone | 09/08/16 13:03 | 0 | 0 | 0 | 0.0 | None | 29.51 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: SB-3
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB3-GV01 | Vent Reading | 09/08/16 9:28 | 0.1 | 2 | 0 | 0.0 | None | 29.54 |
| SB3-BZ01 | Breathing Zone | 09/08/16 9:26 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB3-GV02 | Vent Reading | 09/08/16 9:24 | 2.4 | 48 | 0 | 0.0 | None | 29.54 |
| SB3-BZ02 | Breathing Zone | 09/08/16 9:23 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB3-GV03 | Vent Reading | 09/08/16 9:21 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB3-BZ03 | Breathing Zone | 09/08/16 9:19 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB3-GV04 | Vent Reading | 09/08/16 9:18 | 0.1 | 2 | 1 | 0.0 | None | 29.54 |
| SB3-BZ04 | Breathing Zone | 09/08/16 9:16 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB3-GV05 | Vent Reading | 09/08/16 9:15 | 0 | 0 | 1 | 0.0 | None | 29.54 |
| SB3-BZ05 | Breathing Zone | 09/08/16 9:13 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB3-GV06 | Vent Reading | 09/08/16 9:52 | 1.8 | 36 | 1 | 0.0 | None | 29.54 |
| SB3-BZ06 | Breathing Zone | 09/08/16 9:50 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB3-GV07 | Vent Reading | 09/08/16 9:32 | 0.1 | 2 | 0 | 0.0 | None | 29.55 |
| SB3-BZ07 | Breathing Zone | 09/08/16 9:29 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB3-GV08 | Vent Reading | 09/08/16 9:35 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB3-BZ08 | Breathing Zone | 09/08/16 9:33 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB3-GV09 | Vent Reading | 09/08/16 9:38 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB3-BZ09 | Breathing Zone | 09/08/16 9:36 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB3-GV10 | Vent Reading | 09/08/16 9:41 | 1.4 | 28 | 0 | 0.0 | None | 29.54 |
| SB3-BZ10 | Breathing Zone | 09/08/16 9:40 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB3-GV11 | Vent Reading | 09/08/16 9:44 | 2.3 | 46 | 1 | 0.0 | None | 29.54 |
| SB3-BZ11 | Breathing Zone | 09/08/16 9:42 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB3-GV12 | Vent Reading | 09/08/16 9:48 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB3-BZ12 | Breathing Zone | 09/08/16 9:46 | 0 | 0 | 0 | 0.0 | None | 29.54 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: SB-4
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB4-GV01 | Vent Reading | 09/08/16 9:11 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-BZ01 | Breathing Zone | 09/08/16 9:09 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB4-GV02 | Vent Reading | 09/08/16 9:08 | 0 | 0 | 1 | 0.0 | None | 29.53 |
| SB4-BZ02 | Breathing Zone | 09/08/16 9:06 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB4-GV03 | Vent Reading | 09/08/16 8:57 | 0.3 | 6 | 0 | 0.0 | None | 29.53 |
| SB4-BZ03 | Breathing Zone | 09/08/16 8:55 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB4-GV04 | Vent Reading | 09/08/16 8:53 | 9.6 | >100 | 1 | 0.0 | None | 29.53 |
| SB4-BZ04 | Breathing Zone | 09/08/16 8:52 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB4-GV05 | Vent Reading | 09/08/16 8:36 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-BZ05 | Breathing Zone | 09/08/16 8:34 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB4-GV06 | Vent Reading | 09/08/16 8:43 | 0.2 | 4 | 0 | 0.0 | None | 29.52 |
| SB4-BZ06 | Breathing Zone | 09/08/16 8:41 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-GV07 | Vent Reading | 09/08/16 8:46 | 0.1 | 2 | 0 | 0.0 | None | 29.54 |
| SB4-BZ07 | Breathing Zone | 09/08/16 8:45 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-GV08 | Vent Reading | 09/08/16 8:50 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB4-BZ08 | Breathing Zone | 09/08/16 8:48 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB4-GV09 | Vent Reading | 09/08/16 7:54 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB4-BZ09 | Breathing Zone | 09/08/16 7:51 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| SB4-GV10 | Vent Reading | 09/08/16 7:57 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB4-BZ10 | Breathing Zone | 09/08/16 7:55 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-GV11 | Vent Reading | 09/08/16 8:01 | 0.1 | 2 | 0 | 0.0 | None | 29.61 |
| SB4-BZ11 | Breathing Zone | 09/08/16 7:59 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB4-GV12 | Vent Reading | 09/08/16 8:04 | 0 | 0 | 0 | 0.0 | None | 30.15 |
| SB4-BZ12 | Breathing Zone | 09/08/16 8:03 | 0 | 0 | 0 | 0.0 | None | 29.8 |
| SB4-GV13 | Vent Reading | 09/08/16 8:24 | 0 | 0 | 1 | 0.0 | None | 29.53 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: SB-4
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB4-BZ13 | Breathing Zone | 09/08/16 8:21 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB4-GV14 | Vent Reading | 09/08/16 8:28 | 0 | 0 | 1 | 0.0 | None | 29.52 |
| SB4-BZ14 | Breathing Zone | 09/08/16 8:26 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB4-GV15 | Vent Reading | 09/08/16 8:19 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB4-BZ15 | Breathing Zone | 09/08/16 8:17 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB4-GV16 | Vent Reading | 09/08/16 8:31 | 0 | 0 | 1 | 0.0 | None | 29.52 |
| SB4-BZ16 | Breathing Zone | 09/08/16 8:29 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-GV17 | Vent Reading | 09/08/16 8:12 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB4-BZ17 | Breathing Zone | 09/08/16 8:10 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-GV18 | Vent Reading | 09/08/16 9:04 | 0.5 | 10 | 1 | 0.0 | None | 29.53 |
| SB4-BZ18 | Breathing Zone | 09/08/16 9:02 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB4-GV19 | Vent Reading | 09/08/16 8:40 | 0.4 | 8 | 1 | 0.0 | None | 29.52 |
| SB4-BZ19 | Breathing Zone | 09/08/16 8:38 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-GV20 | Vent Reading | 09/08/16 9:00 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB4-BZ20 | Breathing Zone | 09/08/16 8:58 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB4-GV21 | Vent Reading | 09/08/16 8:15 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB4-BZ21 | Breathing Zone | 09/08/16 8:14 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB4-GV22 | Vent Reading | 09/08/16 8:09 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-BZ22 | Breathing Zone | 09/08/16 8:07 | 0 | 0 | 0 | 0.0 | None | 29.54 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: VB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV11 | Vent Reading | 09/08/16 15:45 | 24.5 | >100 | 0 | 0.0 | None | 29.43 |
| OU10BZ11 | Breathing Zone | 09/08/16 15:43 | 0 | 0 | 0 | 0.0 | None | N/A |
| OU10GV12 | Vent Reading | 09/08/16 15:48 | 15.5 | >100 | 0 | 0.0 | None | 29.43 |
| OU10BZ12 | Breathing Zone | 09/08/16 15:46 | 0 | 0 | 0 | 0.0 | None | 29.43 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: VB-10
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU7-GV04 | Vent Reading | 09/08/16 17:39 | 37.4 | >100 | 3 | 0.0 | None | 29.39 |
| OU7-BZ04 | Breathing Zone | 09/08/16 17:37 | 0 | 0 | 0 | 0.0 | None | 29.39 |
| OU7-GV05 | Vent Reading | 09/08/16 17:35 | 35.2 | >100 | 6 | 0.0 | None | 29.39 |
| OU7-BZ05 | Breathing Zone | 09/08/16 17:34 | 0 | 0 | 0 | 0.0 | None | 29.4 |
| OU7-GV06 | Vent Reading | 09/08/16 17:32 | 25.8 | >100 | 0 | 0.0 | None | 29.39 |
| OU7-BZ06 | Breathing Zone | 09/08/16 17:30 | 0 | 0 | 0 | 0.0 | None | 29.39 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: VB-11
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU7-GV07 | Vent Reading | 09/08/16 17:58 | 12 | >100 | 0 | 0.0 | None | 29.4 |
| OU7-BZ07 | Breathing Zone | 09/08/16 17:56 | 0 | 0 | 0 | 0.0 | None | 29.35 |
| OU7-GV08 | Vent Reading | 09/08/16 18:01 | 0.8 | 16 | 0 | 0.0 | None | 29.4 |
| OU7-BZ08 | Breathing Zone | 09/08/16 17:59 | 0 | 0 | 0 | 0.0 | None | 29.39 |
| OU7-GV09 | Vent Reading | 09/08/16 18:04 | 1.4 | 28 | 0 | 0.0 | None | 29.39 |
| OU7-BZ09 | Breathing Zone | 09/08/16 18:02 | 0 | 0 | 0 | 0.0 | None | 29.39 |
| OU7-GV10 | Vent Reading | 09/08/16 18:07 | 5 | >100 | 0 | 0.0 | None | 29.39 |
| OU7-BZ10 | Breathing Zone | 09/08/16 18:06 | 0 | 0 | 0 | 0.0 | None | 29.4 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: VB-2, VB-3
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV13 | Vent Reading | 09/08/16 16:03 | 45 | >100 | 0 | 0.0 | None | 29.43 |
| OU10BZ13 | Breathing Zone | 09/08/16 16:01 | 0 | 0 | 0 | 0.0 | None | 29.38 |
| OU10GV14 | Vent Reading | 09/08/16 15:51 | 25 | >100 | 0 | 0.0 | None | 29.42 |
| OU10BZ14 | Breathing Zone | 09/08/16 15:49 | 0 | 0 | 0 | 0.0 | None | 29.44 |
| OU10GV15 | Vent Reading | 09/08/16 16:54 | 54.7 | >100 | 0 | 0.0 | None | 29.41 |
| OU10BZ15 | Breathing Zone | 09/08/16 16:52 | 0 | 0 | 0 | 0.0 | None | 29.41 |
| OU10GV16 | Vent Reading | 09/08/16 16:06 | 13.2 | >100 | 0 | 0.0 | None | 29.43 |
| OU10BZ16 | Breathing Zone | 09/08/16 16:04 | 0 | 0 | 0 | 0.0 | None | 29.43 |
| OU10GV17 | Vent Reading | 09/08/16 16:51 | 26.7 | >100 | 0 | 0.0 | None | 29.42 |
| OU10BZ17 | Breathing Zone | 09/08/16 16:49 | 0 | 0 | 0 | 0.0 | None | N/A |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: VB-4, VB-5, VB-6
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV01 | Vent Reading | 09/08/16 13:31 | 44.8 | >100 | 0 | 0.0 | None | 29.45 |
| OU10BZ01 | Breathing Zone | 09/08/16 13:29 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| OU10GV02 | Vent Reading | 09/08/16 13:34 | 43 | >100 | 2 | 0.0 | None | 29.45 |
| OU10BZ02 | Breathing Zone | 09/08/16 13:33 | 0 | 0 | 0 | 0.0 | None | 29.45 |
| OU10GV03 | Vent Reading | 09/08/16 13:40 | 46.8 | >100 | 9 | 0.0 | None | 29.44 |
| OU10BZ03 | Breathing Zone | 09/08/16 13:38 | 0 | 0 | 0 | 0.0 | None | N/A |
| OU10GV04 | Vent Reading, Before Filter | 09/08/16 13:46 | 48.2 | >100 | >>>> | 11.9 | None | 29.46 |
| OU10GV04 | Vent Reading, After Filter | 09/08/16 13:45 | 18.7 | >100 | 130 | 0.3 | None | 29.46 |
| OU10BZ04 | Breathing Zone | 09/08/16 13:43 | 0 | 0 | 0 | 0.0 | None | 29.45 |
| OU10GV05 | Vent Reading, Before Filter | 09/08/16 13:57 | 46.7 | >100 | >>>> | 10.4 | None | 29.45 |
| OU10GV05 | Vent Reading, After Filter | 09/08/16 13:56 | 1.4 | 28 | 0 | 0.0 | None | 29.45 |
| OU10BZ05 | Breathing Zone | 09/08/16 13:55 | 0 | 0 | 0 | 0.0 | None | N/A |
| OU10GV06 | Vent Reading | 09/08/16 13:27 | 49.5 | >100 | 20 | 0.0 | None | 29.46 |
| OU10BZ06 | Breathing Zone | 09/08/16 13:25 | 0 | 0 | 0 | 0.0 | None | 29.47 |
| OU10GV07 | Vent Reading | 09/08/16 13:24 | 47.4 | >100 | 0 | 0.0 | None | 29.46 |
| OU10BZ07 | Breathing Zone | 09/08/16 13:22 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| OU10GV08 | Vent Reading | 09/08/16 13:20 | 47.1 | >100 | 0 | 0.0 | None | 29.46 |
| OU10BZ08 | Breathing Zone | 09/08/16 13:18 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| OU10GV09 | Vent Reading | 09/08/16 13:17 | 47.1 | >100 | 0 | 0.0 | None | 29.46 |
| OU10BZ09 | Breathing Zone | 09/08/16 13:15 | 0 | 0 | 0 | 0.0 | None | 29.46 |
| OU10GV10 | Vent Reading | 09/08/16 13:13 | 42.2 | >100 | 1 | 0.0 | None | 29.46 |
| OU10BZ10 | Breathing Zone | 09/08/16 13:12 | 0 | 0 | 0 | 0.0 | None | 29.51 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: VB-7, VB-8
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV18 | Vent Reading | 09/08/16 17:13 | 5.4 | >100 | 0 | 0.0 | None | 29.4 |
| OU10BZ18 | Breathing Zone | 09/08/16 17:11 | 0 | 0 | 0 | 0.0 | None | 29.41 |
| OU10GV19 | Vent Reading | 09/08/16 17:00 | 15.7 | >100 | 6 | 0.3 | None | 29.42 |
| OU10BZ19 | Breathing Zone | 09/08/16 16:57 | 0 | 0 | 0 | 0.0 | None | 29.44 |
| OU10GV20 | Vent Reading | 09/08/16 17:06 | 37.4 | >100 | 4 | 0.0 | None | 29.35 |
| OU10BZ20 | Breathing Zone | 09/08/16 17:01 | 0 | 0 | 1 | 0.0 | None | 29.41 |
| OU10GV21 | Vent Reading | 09/08/16 17:09 | 44.2 | >100 | 0 | 0.0 | None | 29.4 |
| OU10BZ21 | Breathing Zone | 09/08/16 17:08 | 0 | 0 | 0 | 0.0 | None | 29.42 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr3
Technician: M. Robinson
Landfill or Basin: VB-9
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 9/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU7-GV01 | Vent Reading | 09/08/16 17:49 | 2.7 | 54 | 0 | 0.0 | None | 29.4 |
| OU7-BZ01 | Breathing Zone | 09/08/16 17:48 | 0 | 0 | 0 | 0.0 | None | 29.39 |
| OU7-GV02 | Vent Reading | 09/08/16 17:47 | 15.2 | >100 | 0 | 0.0 | None | 29.39 |
| OU7-BZ02 | Breathing Zone | 09/08/16 17:44 | 0 | 0 | 0 | 0.0 | None | 29.39 |
| OU7-GV03 | Vent Reading | 09/08/16 17:43 | 38 | >100 | 1 | 0.0 | None | 29.39 |
| OU7-BZ03 | Breathing Zone | 09/08/16 17:41 | 0 | 0 | 0 | 0.0 | None | 29.39 |
| OU7-GV11 | Vent Reading | 09/08/16 17:53 | 28.5 | >100 | 2 | 0.0 | None | 29.4 |
| OU7-BZ11 | Breathing Zone | 09/08/16 17:51 | 0 | 0 | 0 | 0.0 | None | 29.39 |

# GAS VENT INSPECTION AND MONITORING FORM
## Avtex Fibers Superfund Site
## Front Royal, Virginia

**Date:** 12/7/16 and 12/18/16
**Technician:** M. Rosiere + M. Harder
**Basins Included in Inspection (circle each):**

(SBs 1, 3, 4) VBs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 New Landfill

| | | | | | |
|---|---|---|---|---|---|
| **Precipitation (current)** | □ rain | □ snow | □ sleet | □ mix | ☒ other None |
| | □ light | □ moderate | □ heavy | | |
| **Temperature (current)** | 38-40 F | | | | |
| **Wind Direction (blowing from)** | □ N | □ NE | □ E | □ SE | □ variable |
| | □ S | □ SW | □ W | ☒ NW | |
| **Approximate Wind Speed** | 5-20 mph | | | | |
| **Cloud Cover** | □ clear | □ lt. clouds | ☒ overcast | □ foggy | |
| **Barometric Pressure** | 30 inches | | | | |

| Question | Response | | Comments |
|---|---|---|---|
| 1. Are any of the vents disturbed or damaged? If yes, provide specific comments. | (Yes) | No | SB-1 GV-1 leaning 5° E<br>GV-4 leaning 20° W<br>GV-9 " 5° S<br>GV-10 " 10° S<br>GV-11 " 5° W<br>GV-15 " 5° E<br>GV-19 " 5° W<br>GV-21 " 5° W<br>GV-24 " 15° SW<br>GV-25 " 10° S<br>GV-29 " 5° W<br>GV-33 " 5° W<br>SB-4 GV-5 " 5° W<br>GV-9 " W<br>GV-18 3" standing water around vent |
| 2. Are all vent screens intact? If NO, provide specific comments | (Yes) | No | |
| 3. Are any vent opening obstructed? If YES, provide specific comments. | Yes | (No) | |
| 4. Photos – collected of issues or conditions require major repair or rework. Describe. | Yes | (No) | |
| 5. Any conditions that prevent system from operating properly or present an immediate threat to human health or environment. If YES, make notifications | Yes | (No) | |

**Additional comments/observations/concerns:**

**Note: If further space is required, provide comments on a separate sheet.**

# GAS VENT INSPECTION AND MONITORING FORM
## Avtex Fibers Superfund Site
## Front Royal, Virginia

**Date:** 12/8/16

**Technician:** M. Robinson / M. Harder

**Basins Included in Inspection (circle each):**

SBs 1, 3, 4 (VBs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11) (New Landfill)

| | | | | | |
|---|---|---|---|---|---|
| **Precipitation (current)** | □ rain | □ snow | □ sleet | □ mix | ☒ other None |
| | □ light | □ moderate | □ heavy | | |
| **Temperature (current)** | 30 F | | | | |
| **Wind Direction (blowing from)** | □ N | □ NE | □ E | □ SE | □ variable |
| | □ S | □ SW | □ W | ☒ NW | |
| **Approximate Wind Speed** | 10 mph | | | | |
| **Cloud Cover** | □ clear | □ lt. clouds | ☒ overcast | □ foggy | |
| **Barometric Pressure** | 30.07 inches | | | | |

| Question | Response | | Comments |
|---|---|---|---|
| 1. Are any of the vents disturbed or damaged? If yes, provide specific comments. | (Yes) | No | GV-7 GV-1 leaning 5°W<br>GV-9 " 5°W<br>GV-10 " 5°W |
| 2. Are all vent screens intact? If NO, provide specific comments | (Yes) | No | |
| 3. Are any vent opening obstructed? If YES, provide specific comments. | Yes | (No) | |
| 4. Photos – collected of issues or conditions require major repair or rework. Describe. | Yes | (No) | |
| 5. Any conditions that prevent system from operating properly or present an immediate threat to human health or environment. If YES, make notifications | Yes | (No) | |

**Additional comments/observations/concerns:**

**Note: If further space is required, provide comments on a separate sheet.**

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: NLF
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV22 | Vent Reading | 12/08/16 9:45 | 5.5 | >100 | 0 | 0.0 | None | 29.48 |
| OU10BZ22 | Breathing Zone | 12/08/16 9:44 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| OU10GV23 | Vent Reading | 12/08/16 9:47 | 13.9 | >100 | 0 | 0.0 | None | 29.51 |
| OU10BZ23 | Breathing Zone | 12/08/16 9:46 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU10GV24 | Vent Reading | 12/08/16 9:52 | 14.7 | >100 | 0 | 0.0 | None | 29.49 |
| OU10BZ24 | Breathing Zone | 12/08/16 9:51 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU10GV25 | Vent Reading | 12/08/16 9:50 | 12.9 | >100 | 0 | 0.0 | None | 29.5 |
| OU10BZ25 | Breathing Zone | 12/08/16 9:48 | 0 | 0 | 0 | 0.0 | None | 29.52 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: SB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB1-GV01 | Vent Reading | 12/08/16 8:03 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ01 | Breathing Zone | 12/08/16 8:02 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB1-GV02 | Vent Reading | 12/08/16 8:01 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ02 | Breathing Zone | 12/08/16 7:59 | 0 | 0 | 0 | 0.0 | None | 29.59 |
| SB1-GV03 | Vent Reading | 12/08/16 7:58 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB1-BZ03 | Breathing Zone | 12/08/16 7:56 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB1-GV04 | Vent Reading | 12/08/16 8:12 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB1-BZ04 | Breathing Zone | 12/08/16 8:11 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB1-GV05 | Vent Reading | 12/08/16 8:08 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB1-BZ05 | Breathing Zone | 12/08/16 8:07 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB1-GV06 | Vent Reading | 12/08/16 8:05 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ06 | Breathing Zone | 12/08/16 8:04 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-GV07 | Vent Reading | 12/08/16 8:15 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB1-BZ07 | Breathing Zone | 12/08/16 8:13 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB1-GV08 | Vent Reading | 12/08/16 8:16 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-BZ08 | Breathing Zone | 12/08/16 8:15 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-GV09 | Vent Reading | 12/08/16 8:18 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB1-BZ09 | Breathing Zone | 12/08/16 8:17 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB1-GV10 | Vent Reading | 12/08/16 8:20 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-BZ10 | Breathing Zone | 12/08/16 8:19 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB1-GV11 | Vent Reading | 12/08/16 8:22 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-BZ11 | Breathing Zone | 12/08/16 8:21 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-GV12 | Vent Reading | 12/08/16 8:24 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB1-BZ12 | Breathing Zone | 12/08/16 8:23 | 0 | 0 | 0 | 0.0 | None | 29.59 |
| SB1-GV13 | Vent Reading | 12/08/16 8:27 | 0 | 0 | 0 | 0.0 | None | 29.56 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: SB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB1-BZ13 | Breathing Zone | 12/08/16 8:26 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-GV14 | Vent Reading | 12/08/16 8:29 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB1-BZ14 | Breathing Zone | 12/08/16 8:28 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB1-GV15 | Vent Reading | 12/08/16 8:30 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ15 | Breathing Zone | 12/08/16 8:30 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-GV16 | Vent Reading | 12/08/16 8:32 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-BZ16 | Breathing Zone | 12/08/16 8:31 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-GV17 | Vent Reading | 12/08/16 8:34 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-BZ17 | Breathing Zone | 12/08/16 8:33 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-GV18 | Vent Reading | 12/08/16 8:38 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ18 | Breathing Zone | 12/08/16 8:37 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-GV19 | Vent Reading | 12/08/16 8:39 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ19 | Breathing Zone | 12/08/16 8:39 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-GV20 | Vent Reading | 12/08/16 8:41 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-BZ20 | Breathing Zone | 12/08/16 8:40 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-GV21 | Vent Reading | 12/08/16 8:44 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ21 | Breathing Zone | 12/08/16 8:42 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB1-GV22 | Vent Reading | 12/08/16 8:45 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB1-BZ22 | Breathing Zone | 12/08/16 8:44 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB1-GV23 | Vent Reading | 12/08/16 8:47 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ23 | Breathing Zone | 12/08/16 8:46 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB1-GV24 | Vent Reading | 12/08/16 8:49 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-BZ24 | Breathing Zone | 12/08/16 8:48 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-GV25 | Vent Reading | 12/08/16 8:52 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-BZ25 | Breathing Zone | 12/08/16 8:50 | 0 | 0 | 0 | 0.0 | None | 29.57 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: SB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB1-GV26 | Vent Reading | 12/08/16 8:54 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ26 | Breathing Zone | 12/08/16 8:53 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-GV27 | Vent Reading | 12/08/16 8:57 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-BZ27 | Breathing Zone | 12/08/16 8:56 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB1-GV28 | Vent Reading | 12/08/16 9:00 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| SB1-BZ28 | Breathing Zone | 12/08/16 8:59 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB1-GV29 | Vent Reading | 12/08/16 9:02 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB1-BZ29 | Breathing Zone | 12/08/16 9:01 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB1-GV30 | Vent Reading | 12/08/16 9:04 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB1-BZ30 | Breathing Zone | 12/08/16 9:03 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB1-GV31 | Vent Reading | 12/08/16 9:08 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB1-BZ31 | Breathing Zone | 12/08/16 9:07 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB1-GV32 | Vent Reading | 12/08/16 9:06 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB1-BZ32 | Breathing Zone | 12/08/16 9:05 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB1-GV33 | Vent Reading | 12/08/16 9:12 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB1-BZ33 | Breathing Zone | 12/08/16 9:11 | 0 | 0 | 0 | 0.0 | None | 29.6 |
| SB1-GV34 | Vent Reading | 12/08/16 9:10 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB1-BZ34 | Breathing Zone | 12/08/16 9:09 | 0 | 0 | 0 | 0.0 | None | 29.59 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: SB-3
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/7/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB3-GV01 | Vent Reading | 12/07/16 16:38 | 0.8 | 16 | 0 | 0.0 | None | 29.56 |
| SB3-BZ01 | Breathing Zone | 12/07/16 16:36 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB3-GV02 | Vent Reading | 12/07/16 16:35 | 1 | 20 | 0 | 0.0 | None | 29.56 |
| SB3-BZ02 | Breathing Zone | 12/07/16 16:34 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB3-GV03 | Vent Reading | 12/07/16 16:32 | 0.4 | 8 | 0 | 0.0 | None | 29.55 |
| SB3-BZ03 | Breathing Zone | 12/07/16 16:31 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB3-GV04 | Vent Reading | 12/07/16 16:30 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB3-BZ04 | Breathing Zone | 12/07/16 16:28 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB3-GV05 | Vent Reading | 12/07/16 16:27 | 0 | 0 | 0 | 0.0 | None | 29.58 |
| SB3-BZ05 | Breathing Zone | 12/07/16 16:25 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB3-GV06 | Vent Reading | 12/07/16 16:54 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| SB3-BZ06 | Breathing Zone | 12/07/16 16:53 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB3-GV07 | Vent Reading | 12/07/16 16:41 | 0.2 | 4 | 0 | 0.0 | None | 29.56 |
| SB3-BZ07 | Breathing Zone | 12/07/16 16:39 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB3-GV08 | Vent Reading | 12/07/16 16:44 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB3-BZ08 | Breathing Zone | 12/07/16 16:42 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB3-GV09 | Vent Reading | 12/07/16 16:46 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB3-BZ09 | Breathing Zone | 12/07/16 16:45 | 0 | 0 | 0 | 0.0 | None | 29.26 |
| SB3-GV10 | Vent Reading | 12/07/16 16:48 | 3.6 | 72 | 0 | 0.0 | None | 29.55 |
| SB3-BZ10 | Breathing Zone | 12/07/16 16:47 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB3-GV11 | Vent Reading | 12/07/16 16:50 | 1.4 | 28 | 0 | 0.0 | None | 29.54 |
| SB3-BZ11 | Breathing Zone | 12/07/16 16:49 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB3-GV12 | Vent Reading | 12/07/16 16:52 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB3-BZ12 | Breathing Zone | 12/07/16 16:50 | 0 | 0 | 0 | 0.0 | None | 29.54 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: SB-4
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/7/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB4-GV01 | Vent Reading | 12/07/16 16:24 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-BZ01 | Breathing Zone | 12/07/16 16:22 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-GV02 | Vent Reading | 12/07/16 16:21 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-BZ02 | Breathing Zone | 12/07/16 16:20 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-GV03 | Vent Reading | 12/07/16 16:10 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-BZ03 | Breathing Zone | 12/07/16 16:08 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-GV04 | Vent Reading | 12/07/16 16:07 | 0.3 | 6 | 0 | 0.0 | None | 29.56 |
| SB4-BZ04 | Breathing Zone | 12/07/16 16:05 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-GV05 | Vent Reading | 12/07/16 15:51 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-BZ05 | Breathing Zone | 12/07/16 15:49 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-GV06 | Vent Reading | 12/07/16 15:57 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-BZ06 | Breathing Zone | 12/07/16 15:55 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-GV07 | Vent Reading | 12/07/16 16:00 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-BZ07 | Breathing Zone | 12/07/16 15:59 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-GV08 | Vent Reading | 12/07/16 16:03 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-BZ08 | Breathing Zone | 12/07/16 16:01 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-GV09 | Vent Reading | 12/07/16 15:12 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-BZ09 | Breathing Zone | 12/07/16 15:10 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| SB4-GV10 | Vent Reading | 12/07/16 15:15 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-BZ10 | Breathing Zone | 12/07/16 15:13 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB4-GV11 | Vent Reading | 12/07/16 15:18 | 0 | 0 | 1 | 0.0 | None | 29.55 |
| SB4-BZ11 | Breathing Zone | 12/07/16 15:16 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-GV12 | Vent Reading | 12/07/16 15:21 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB4-BZ12 | Breathing Zone | 12/07/16 15:19 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-GV13 | Vent Reading | 12/07/16 15:39 | 0 | 0 | 0 | 0.0 | None | 29.55 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: SB-4
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/7/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| SB4-BZ13 | Breathing Zone | 12/07/16 15:37 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| SB4-GV14 | Vent Reading | 12/07/16 15:45 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-BZ14 | Breathing Zone | 12/07/16 15:43 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-GV15 | Vent Reading | 12/07/16 15:42 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-BZ15 | Breathing Zone | 12/07/16 15:40 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-GV16 | Vent Reading | 12/07/16 15:48 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-BZ16 | Breathing Zone | 12/07/16 15:46 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-GV17 | Vent Reading | 12/07/16 15:32 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-BZ17 | Breathing Zone | 12/07/16 15:30 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-GV18 | Vent Reading | 12/07/16 16:15 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-BZ18 | Breathing Zone | 12/07/16 16:14 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-GV19 | Vent Reading | 12/07/16 15:54 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-BZ19 | Breathing Zone | 12/07/16 15:52 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-GV20 | Vent Reading | 12/07/16 16:18 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| SB4-BZ20 | Breathing Zone | 12/07/16 16:17 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-GV21 | Vent Reading | 12/07/16 15:36 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-BZ21 | Breathing Zone | 12/07/16 15:34 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| SB4-GV22 | Vent Reading | 12/07/16 15:26 | 0 | 0 | 1 | 0.0 | None | 29.54 |
| SB4-BZ22 | Breathing Zone | 12/07/16 15:27 | 0 | 0 | 0 | 0.0 | None | 29.56 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: VB-1
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV11 | Vent Reading | 12/08/16 9:17 | 1.1 | 22 | 0 | 0.0 | None | 29.55 |
| OU10BZ11 | Breathing Zone | 12/08/16 9:15 | 0 | 0 | 0 | 0.0 | None | 29.55 |
| OU10GV12 | Vent Reading | 12/08/16 9:18 | 1 | 20 | 0 | 0.0 | None | 29.5 |
| OU10BZ12 | Breathing Zone | 12/08/16 9:17 | 0 | 0 | 0 | 0.0 | None | 29.55 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: VB-10
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU7-GV04 | Vent Reading | 12/08/16 10:19 | 34.1 | >100 | 0 | 0.0 | None | 29.56 |
| OU7-BZ04 | Breathing Zone | 12/08/16 10:18 | 0 | 0 | 0 | 0.0 | None | 29.56 |
| OU7-GV05 | Vent Reading | 12/08/16 10:16 | 28.2 | >100 | 0 | 0.0 | None | 29.57 |
| OU7-BZ05 | Breathing Zone | 12/08/16 10:15 | 0 | 0 | 0 | 0.0 | None | 29.57 |
| OU7-GV06 | Vent Reading | 12/08/16 10:13 | 17.3 | >100 | 0 | 0.0 | None | 29.53 |
| OU7-BZ06 | Breathing Zone | 12/08/16 10:12 | 0 | 0 | 0 | 0.0 | None | 29.49 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: VB-11
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU7-GV07 | Vent Reading | 12/08/16 10:35 | 16 | >100 | 0 | 0.0 | None | 29.51 |
| OU7-BZ07 | Breathing Zone | 12/08/16 10:34 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| OU7-GV08 | Vent Reading | 12/08/16 10:37 | 0.4 | 8 | 0 | 0.0 | None | 29.53 |
| OU7-BZ08 | Breathing Zone | 12/08/16 10:36 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| OU7-GV09 | Vent Reading | 12/08/16 10:39 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU7-BZ09 | Breathing Zone | 12/08/16 10:38 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| OU7-GV10 | Vent Reading | 12/08/16 10:41 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU7-BZ10 | Breathing Zone | 12/08/16 10:40 | 0 | 0 | 0 | 0.0 | None | 29.53 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: VB-2, VB-3
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV13 | Vent Reading | 12/08/16 9:23 | 19.8 | >100 | 0 | 0.0 | None | 29.51 |
| OU10BZ13 | Breathing Zone | 12/08/16 9:22 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| OU10GV14 | Vent Reading | 12/08/16 9:21 | 1.2 | 24 | 0 | 0.0 | None | 29.5 |
| OU10BZ14 | Breathing Zone | 12/08/16 9:20 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| OU10GV15 | Vent Reading | 12/08/16 9:31 | 5.8 | >100 | 0 | 0.0 | None | 29.52 |
| OU10BZ15 | Breathing Zone | 12/08/16 9:29 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU10GV16 | Vent Reading | 12/08/16 9:26 | 1.4 | 28 | 0 | 0.0 | None | 29.5 |
| OU10BZ16 | Breathing Zone | 12/08/16 9:25 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU10GV17 | Vent Reading | 12/08/16 9:28 | 0.8 | 16 | 0 | 0.0 | None | 29.51 |
| OU10BZ17 | Breathing Zone | 12/08/16 9:27 | 0 | 0 | 0 | 0.0 | None | 29.53 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virginia

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: VB-4, VB-5, VB-6
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV01 | Vent Reading | 12/08/16 11:04 | 43.1 | >100 | 0 | 0.0 | None | 29.49 |
| OU10BZ01 | Breathing Zone | 12/08/16 11:03 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU10GV02 | Vent Reading | 12/08/16 11:06 | 26.5 | >100 | 0 | 0.0 | None | 29.48 |
| OU10BZ02 | Breathing Zone | 12/08/16 11:05 | 0 | 0 | 0 | 0.0 | None | 29.51 |
| OU10GV03 | Vent Reading | 12/08/16 11:09 | 41.6 | >100 | 0 | 0.0 | None | 29.5 |
| OU10BZ03 | Breathing Zone | 12/08/16 11:08 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU10GV04 | Vent Reading, Before Filter | 12/08/16 11:25 | 42.5 | >100 | >>>> | 11.9 | None | 29.48 |
| OU10GV04 | Vent Reading, After Filter | 12/08/16 11:24 | 8.5 | >100 | 0 | 0.0 | None | 29.48 |
| OU10BZ04 | Breathing Zone | 12/08/16 11:12 | 0 | 0 | 0 | 0.0 | Slight | 29.51 |
| OU10GV05 | Vent Reading, Before Filter | 12/08/16 11:18 | 39.3 | >100 | 346 | 1.0 | None | 29.48 |
| OU10GV05 | Vent Reading, After Filter | 12/08/16 11:16 | 0.5 | 10 | 0 | 0.0 | None | 29.48 |
| OU10BZ05 | Breathing Zone | 12/08/16 11:15 | 0 | 0 | 0 | 0.0 | Slight | 29.51 |
| OU10GV06 | Vent Reading | 12/08/16 11:01 | 44.7 | >100 | 0 | 0.0 | None | 29.5 |
| OU10BZ06 | Breathing Zone | 12/08/16 11:00 | 0 | 0 | 0 | 0.0 | None | 29.49 |
| OU10GV07 | Vent Reading | 12/08/16 10:58 | 42.6 | >100 | 0 | 0.0 | None | 29.49 |
| OU10BZ07 | Breathing Zone | 12/08/16 10:57 | 0 | 0 | 0 | 0.0 | None | 29.48 |
| OU10GV08 | Vent Reading | 12/08/16 10:56 | 43.3 | >100 | 0 | 0.0 | None | 29.48 |
| OU10BZ08 | Breathing Zone | 12/08/16 10:54 | 0 | 0 | 0 | 0.0 | None | 29.5 |
| OU10GV09 | Vent Reading | 12/08/16 10:53 | 42.3 | >100 | 0 | 0.0 | None | 29.5 |
| OU10BZ09 | Breathing Zone | 12/08/16 10:52 | 0 | 0 | 0 | 0.0 | None | 29.52 |
| OU10GV10 | Vent Reading | 12/08/16 10:50 | 34.6 | >100 | 0 | 0.0 | None | 29.51 |
| OU10BZ10 | Breathing Zone | 12/08/16 10:48 | 0 | 0 | 0 | 0.0 | None | 29.51 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: VB-7, VB-8
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU10GV18 | Vent Reading | 12/08/16 9:41 | 3.2 | 64 | 0 | 0.0 | None | 29.52 |
| OU10BZ18 | Breathing Zone | 12/08/16 9:40 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| OU10GV19 | Vent Reading | 12/08/16 9:33 | 0.6 | 12 | 0 | 0.0 | None | 29.51 |
| OU10BZ19 | Breathing Zone | 12/08/16 9:32 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| OU10GV20 | Vent Reading | 12/08/16 9:36 | 11.7 | >100 | 0 | 0.0 | None | 29.51 |
| OU10BZ20 | Breathing Zone | 12/08/16 9:35 | 0 | 0 | 0 | 0.0 | None | 29.53 |
| OU10GV21 | Vent Reading | 12/08/16 9:38 | 8.4 | >100 | 0 | 0.0 | None | 29.5 |
| OU10BZ21 | Breathing Zone | 12/08/16 9:37 | 0 | 0 | 0 | 0.0 | None | 29.53 |

GAS VENT INSPECTION AND MONITORING FORM
Avtex Fibers Superfund Site
Front Royal, Virgina

Date: 2016-Qtr4
Technician: M. Robinson
Landfill or Basin: VB-9
Gas Monitoring Device: GEM™5000/G501507 and MiniRAE3000 Photoionization Detector (PID) for Organic Vapor
Meter Calibration (date/person): 12/8/2016 M. Robinson

| Vent ID | Sample Location | Date/Time | CH4 (%) | LEL (%) | H2S (ppm) | Organic Vapor (ppm) | Odors Noticed (none/weak/mild/strong) | Barometric Pressure (inches Hg) |
|---|---|---|---|---|---|---|---|---|
| OU7-GV01 | Vent Reading | 12/08/16 10:29 | 0.3 | 6 | 0 | 0.0 | None | 29.54 |
| OU7-BZ01 | Breathing Zone | 12/08/16 10:28 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| OU7-GV02 | Vent Reading | 12/08/16 10:27 | 25.7 | >100 | 0 | 0.0 | Slight | 29.52 |
| OU7-BZ02 | Breathing Zone | 12/08/16 10:26 | 0 | 0 | 0 | 0.0 | Slight | 29.52 |
| OU7-GV03 | Vent Reading | 12/08/16 10:22 | 42.7 | >100 | 2 | 0.0 | None | 29.53 |
| OU7-BZ03 | Breathing Zone | 12/08/16 10:21 | 0 | 0 | 0 | 0.0 | None | 29.54 |
| OU7-GV11 | Vent Reading | 12/08/16 10:31 | 42.1 | >100 | 1 | 0.0 | None | 29.55 |
| OU7-BZ11 | Breathing Zone | 12/08/16 10:30 | 0 | 0 | 0 | 0.0 | None | 29.55 |

# APPENDIX E
## GAS VENT FILTER INSPECTION AND MONITORING FORMS

PARSONS

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 1/28/16 Time: 02:00pm

Technician(s): Steiner, Push

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☐ | ☐ | |
| Multi RAE 4 Gas Monitor | ☐ | ☐ | |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Weather Conditions: | Clear ☐ | Rain ☐ | Snow ☐ | Sleet ☐ | Mix ☐ | | | |
| Precipitation Intensity: | | light ☐ | Moderate ☐ | Heavy ☐ | | | | |
| Temperature (current): | | | | | | | | |
| Wind direction (blowing from): | N ☐ | NE ☐ | E ☐ | SE ☐ | Variable ☐ | | | |
| | S ☐ | SW ☐ | W ☐ | NW ☐ | | | | |
| Approximate Wind Speed: | | mph | | | | | | |
| Cloud Cover: | Clear ☐ | Light ☐ | Overcast ☐ | Foggy ☐ | | | | |
| Barometric Pressure: | | | inches | | | | | |

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | | | | | | | |
| GV-5 Before Filter | | | | | | | |
| GV-5 After Filter | | | | | | | |
| GV-4 Breathing zone | | | | | | | |
| GV-4 Before Filter | | | | | | | |
| GV-4 After Filter | | | | | | | |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☐ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☐ |
| 3. Are signs in place? | ☐ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☐ |
| 5. Is filter properly connected? | ☐ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☐ | ☐ |
| 7.Media changeout required? | ☐ | ☐ |
| 8. Other observations/comments/ concerns | | |

Comments

Unable to gain access to vents due to snow.

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# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 2/25/16 Time: 12:45

Technician(s): JH, MS

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | 2/23 MS |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | 2/23 MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☑ Moderate ☐ Heavy ☐

Temperature (current):

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☑

Approximate Wind Speed: 4 mph

Cloud Cover: Clear ☐ Light ☐ Overcast ☑ Foggy ☐

Barometric Pressure: 29.52 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 12:45 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 12:49 | 0 | 20.9 | .1 | 0.1 | 0 | None |
| GV-5 After Filter | 12:47 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Breathing zone | 12:51 | 0 | 21.2 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 12:53 | 1 | 20.9 | 0 | .1 | 0 | None |
| GV-4 After Filter | 12:55 | 0 | 20.7 | 0 | 0 | 0 | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 3/31/16 Time: 1315

Technician(s): Steiner, Henry

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | HS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | HS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Weather Conditions: | Clear ☑ | Rain ☐ | Snow ☐ | Sleet ☐ | Mix ☐ |
| Precipitation Intensity: | | light ☐ | Moderate ☐ | Heavy ☐ | |
| Temperature (current): | 71 | | | | |
| Wind direction (blowing from): | N ☐ | NE ☐ | E ☑ | SE ☑ | Variable ☐ |
| | S ☐ | SW ☐ | W ☐ | NW ☐ | |
| Approximate Wind Speed: | 20 mph | | | | |
| Cloud Cover: | Clear ☑ | Light ☐ | Overcast ☐ | Foggy ☐ | |
| Barometric Pressure: | 29.37 inches | | | | |

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1326 | 0 | 20.7 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 1328 | 1 | 20.5 | 0 | 0 | 0 | None |
| GV-5 After Filter | 1330 | 1 | 20.6 | 0 | .2 | 0 | None |
| GV-4 Breathing zone | 1319 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 1322 | 0 | 20.7 | 0 | 0 | 0 | None |
| GV-4 After Filter | 1324 | 0 | 20.7 | 0 | .1 | 3 | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

Windy gigs spinning

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 5/10/16 Time: 200

Technician(s): Steiner, Miller

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☐ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☑ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☑ Moderate ☑ Heavy ☐

Temperature (current): 60

Wind direction (blowing from): N ☑ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 6 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☑ Foggy ☐

Barometric Pressure: _____ inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 2:00 | Ø | 20.7 | Ø | Ø | Ø | None |
| GV-5 Before Filter | 2:02 | Ø | 10.6 | Ø | 24 | 39 | None |
| GV-5 After Filter | 2:04 | Ø | 20.3 | Ø | .4 | 4 | None |
| GV-4 Breathing zone | 2:06 | Ø | 20.7 | Ø | Ø | Ø | None |
| GV-4 Before Filter | 2:08 | 10 | 7.2 | Ø | 26 | Ø | None |
| GV-4 After Filter | 2:10 | Ø | 20.5 | Ø | 10.6 | 19 | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7. Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

Windy sig both spinning

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 5-12-16 Time: 2:00p

Technician(s): AP

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☐ | JH |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | JH |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 70

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☑
S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 3 mph

Cloud Cover: Clear ☐ Light ☐ Overcast ☑ Foggy ☐

Barometric Pressure: inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 2:00 | 0 | 20.9 | 0 | 0 | 0 | NONE |
| GV-5 Before Filter | 2:01 | 2 | 10.3 | 0 | 21.7 | 93 | NONE |
| GV-5 After Filter | 2:02 | 0 | 20.2 | 0 | 1 | 3 | NONE |
| GV-4 Breathing zone | 2:05 | 0 | 20.5 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 2:06 | 4 | 2.2 | 0 | 41.4 | <99 | None |
| GV-4 After Filter | 2:07 | 1 | 11.2 | 0 | 20.3 | 91 | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

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# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 5/17/16 Time: 1515

Technician(s): Miller, Steiner

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS 5/17 |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | MS 5/17 |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☐ Rain ☑ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☑ Moderate ☐ Heavy ☐

Temperature (current): 52

Wind direction (blowing from): N ☑ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 0 mph

Cloud Cover: Clear ☐ Light ☐ Overcast ☑ Foggy ☐

Barometric Pressure: 29.67 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1518 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 1520 | 11 | 4.5 | 0 | 33.7 | +99 | None |
| GV-5 After Filter | 1522 | 1 | 19.8 | 0 | 2.1 | +99 | None |
| GV-4 Breathing zone | 1524 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 1526 | 2 | 1.3 | 0 | 41.7 | +99 | None |
| GV-4 After Filter | 1528 | 1 | 15.0 | 0 | 32.9 | +99 | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

Rev. A 7/2015

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 5/19/16 Time: 1440

Technician(s): Steiner, Henry

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☐ | HS |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | HS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 64

Wind direction (blowing from): N ☑ NE ☑ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 5 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 29.62 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1441 | 0 | 20.7 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 1443 | 19 | 6.9 | 0 | 28.6 | +99 | None |
| GV-5 After Filter | 1445 | 0 | 20.3 | 0 | .7 | 10 | None |
| GV-4 Breathing zone | 1447 | 0 | 20.5 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 1449 | 23 | 4.0 | 0 | 34 | +99 | |
| GV-4 After Filter | 1451 | 0 | 11.4 | 0 | 19.2 | +99 | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7. Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

Windy gigs spinning

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 5-27-16 Time: 10:25

Technician(s): Steiner

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 81

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: mph

Cloud Cover: Clear ☐ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 29.59 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 10:25 | 0 | 20.4 | 0 | 0 | 0 | None |
| GV-5 Before Filter | | 54 | 3.3 | 0 | 35.7 | +99 | None |
| GV-5 After Filter | | 0 | 19.8 | 0 | 1.2 | 0 | None |
| GV-4 Breathing zone | 10:30 | 1 | 20.7 | 0 | 0 | 0 | Weak |
| GV-4 Before Filter | | 134 | 2.8 | 0 | 34.9 | +99 | None |
| GV-4 After Filter | | 2 | 12.4 | 0 | 16.1 | +99 | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☐ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☐ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

Rev. A 7/2015

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 5/31/16 Time: 2:50

Technician(s): Steiner

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☐ | NS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | NS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 80

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 0 mph

Cloud Cover: Clear ☐ Light ☑ Overcast ☐ Foggy ☐

Barometric Pressure: 29.31 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 2:53 | 0 | 20.9 | 0 | 0 | 0 | none |
| GV-5 Before Filter | 2:55 | 105 | 4.0 | .2 | 35.5 | 85 | none |
| GV-5 After Filter | 2:54 | 0 | 20.2 | 0 | .7 | 0 | none |
| GV-4 Breathing zone | 2:57 | 1 | 20.9 | 0 | 0 | 0 | none |
| GV-4 Before Filter | 2:59 | 233 | 2.3 | 0 | 37.8 | >99 | none |
| GV-4 After Filter | 2:58 | 1 | 11.7 | 0 | 20.6 | >99 | none |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 6/2/16 Time: 300

Technician(s): Steiner

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Weather Conditions: | Clear | ☑ | Rain | ☐ | Snow | ☐ | Sleet | ☐ | Mix ☐ |
| Precipitation Intensity: | | | light | ☐ | Moderate | ☐ | Heavy | ☐ | |
| Temperature (current): | | | | | | | | | |
| Wind direction (blowing from): | N | ☐ | NE | ☐ | E | ☐ | SE | ☐ | Variable ☐ |
| | S | ☐ | SW | ☐ | W | ☐ | NW | ☐ | |
| Approximate Wind Speed: | | | mph | | | | | | |
| Cloud Cover: | Clear | ☐ | Light | ☐ | Overcast | ☑ | Foggy | ☐ | |
| Barometric Pressure: | | | 29.5 | | inches | | | | |

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 258 | 0 | 20.6 | 0.0 | 0 | 0 | None |
| GV-5 Before Filter | 300 | 97 | 7.5 | 0.0 | 24.8 | 66 | None |
| GV-5 After Filter | 302 | 0 | 20.3 | 0.0 | .1 | 13 | None |
| GV-4 Breathing zone | 304 | 1 | 20.4 | 0.0 | .1 | 0 | None |
| GV-4 Before Filter | 306 | 171 | 7.1 | .4 | 37.9 | >99 | None |
| GV-4 After Filter | 308 | 1 | 12.6 | 0.0 | 19.5 | 57 | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 6/7/16 Time: 2:10

Technician(s): Steiner

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☑ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☑ Moderate ☐ Heavy ☐

Temperature (current): 81

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☑ W ☑ NW ☐

Approximate Wind Speed: 7 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 28.99 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 210 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 212 | 200 | 5 | 1. | 31.5 | >99 | None |
| GV-5 After Filter | 214 | 0 | 20.9 | 0 | .8 | 20 | None |
| GV-4 Breathing zone | 216 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 218 | 355 | 5.5 | 1 | 31 | >99% | None |
| GV-4 After Filter | 220 | 1 | 12.2 | 0 | 17.4 | >99 | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 6/9/16 Time: 150

Technician(s): Steiner

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 77

Wind direction (blowing from): N ☑ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 0 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 150 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 152 | 185 | 5.2 | 2.3 | 29.3 | >99 | None |
| GV-5 After Filter | 154 | 0 | 20.9 | 0 | .4 | 11 | None |
| GV-4 Breathing zone | 156 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 158 | 10 | 9.4 | 0.3 | 30.7 | >99 | None |
| GV-4 After Filter | 200 | 1 | 15.2 | 0 | 10.8 | >99 | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 6/16/16 Time: 1:26

Technician(s): Steiner

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 86

Wind direction (blowing from): N ☐ NE ☑ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 2 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 29.69 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1:26p | 0 | 20.9 | 0 | 0 | 0 | NONE |
| GV-5 Before Filter | | 321 | 3.9 | 0.8 | 34.0 | 99+ | NONE |
| GV-5 After Filter | | 0 | 20.9 | 0 | 1.6 | 15 | NONE |
| GV-4 Breathing zone | 1:30p | 2 | 20.7 | 0 | 0 | 0 | NONE |
| GV-4 Before Filter | | 343 | 2.1 | 0.3 | 38.0 | 99+ | NONE |
| GV-4 After Filter | | 2 | 9.4 | 0 | 24.4 | 68 | NONE |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 6/23/16 Time: 2:25 PM

Technician(s): F. Miller

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | FM |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | FM |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 74

Wind direction (blowing from): N ☐ NE ☑ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 2-5 mph

Cloud Cover: Clear ☐ Light ☐ Overcast ☑ Foggy ☐

Barometric Pressure: 29.29 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 2:25 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 2:25 | 534 | 2.4 | 2.6 | 30% | >99 | None |
| GV-5 After Filter | 2:25 | 0 | 19.9 | 0 | .8% | 13% | None |
| GV-4 Breathing zone | 2:35 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 2:35 | 268 | 2.3 | .5 | 35% | >99% | None |
| GV-4 After Filter | 2:35 | 0 | 17 | 0 | 10% | >99% | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 6-28-16 Time: 14:20

Technician(s): JP JH

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | JH 6/28/16 |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | JH 6/28/16 |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 90°

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☑ W ☐ NW ☐

Approximate Wind Speed: 5 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 29.83 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 14:20 | 0 | 20.9 | 0 | 0 | 0 | NONE |
| GV-5 Before Filter | | 485 | 4.9 | 2.3 | 31.5 | 99+ | " |
| GV-5 After Filter | | 0 | 8.8 | 0 | 1.1 | 20 | " |
| GV-4 Breathing zone | | 0 | 20.9 | 0 | 0 | 0 | NONE |
| GV-4 Before Filter | | 490 | .4 | .2 | 40.8 | 99+ | " |
| GV-4 After Filter | | 1 | 15.1 | 0 | 13.5 | 99+ | " |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 6-30-16 Time: 2:30p

Technician(s):

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | JH 6/30 |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | JH 6/30 |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 81

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☑ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 1 mph

Cloud Cover: Clear ☐ Light ☑ Overcast ☐ Foggy ☐

Barometric Pressure: 30.00 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 14:30 | 0 | 20.5 | 0 | 0 | 0 | NONE |
| GV-5 Before Filter | | 590 | 3.9 | 3.2 | 32.5 | 99+ | NONE |
| GV-5 After Filter | | 0 | 19.7 | 0 | 1.5 | 30 | NONE |
| GV-4 Breathing zone | 14:40 | 1 | 20.3 | 0 | .1 | 0 | NONE |
| GV-4 Before Filter | | 543 | 0.1 | 0.2 | 24.1 | 99+ | NONE |
| GV-4 After Filter | | 1 | 10.8 | 0 | 24.6 | 99+ | Weak |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7. Media changeout required? | ☐ | ☐ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 7/5/16 Time: 1440

Technician(s): Steiner, Miller

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 84

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1440 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 1442 | 820 | 11 | 2 | 33.9 | >99 | None |
| GV-5 After Filter | 1444 | 0 | 20.9 | 0 | 1.4 | 5 | None |
| GV-4 Breathing zone | 1446 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 1448 | 560 | 0 | 0 | 40 | 76 | None |
| GV-4 After Filter | 1450 | 2 | 10 | 0 | 22.5 | >99 | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

Whirly gigs not spinning

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 7/7/16 Time: 250

Technician(s): Steiner, Miller

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS |
| Multi RAE 4 Gas Monitor | ☐ | ☐ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 90

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☑ SW ☐ W ☐ NW ☐

Approximate Wind Speed: Ø mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1450 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 1452 | 804 | 2.8 | 1.7 | 33.1 | >99 | None |
| GV-5 After Filter | 1454 | 0 | 19.6 | 0 | 1.5 | 25 | None |
| GV-4 Breathing zone | 1456 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 1458 | 640 | 1.3 | .3 | 40.2 | >99 | None |
| GV-4 After Filter | 1500 | 0 | 12.5 | 0 | 16 | >99 | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

Which gigs NOT Spining

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 7-13-16 Time: 7:14

Technician(s): AP / JH

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☒ | ☐ | |
| Multi RAE 4 Gas Monitor | ☒ | ☐ | |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☒ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 70°

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: None mph

Cloud Cover: Clear ☐ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 7:15 | 0 | 20.6 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 7:16 | 794 | 4.1 | 0 | 32.8 | 69 | " |
| GV-5 After Filter | 7:17 | 0 | 19.5 | 2.3 | 2.7 | <99 | " |
| GV-4 Breathing zone | 7:18 | 1 | 20.4 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 7:18 | 574 | 8.5 | 0 | 25.7 | <99 | " |
| GV-4 After Filter | 7:19 | 1 | 3 | 5.7 | 39.8 | <99 | " |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☒ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☒ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☒ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 7-15-16 Time: 9:45

Technician(s): AP / JH

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☒ | ☐ | |
| Multi RAE 4 Gas Monitor | ☒ | ☐ | |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☒ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 81°

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☒ W ☐ NW ☐

Approximate Wind Speed: 1 mph

Cloud Cover: Clear ☐ Light ☐ Overcast ☒ Foggy ☐

Barometric Pressure: 29.49 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 9:45 | 0 | 20.5 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 9:46 | 755 | 3.0 | 2.7 | 33.4 | <99 | " |
| GV-5 After Filter | 9:46 | 0 | 20.2 | 0 | .5 | 15 | " |
| GV-4 Breathing zone | 9:47 | 0 | 20.2 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 9:48 | 572 | 3.1 | 2.3 | 34.1 | <99 | " |
| GV-4 After Filter | 9:48 | 0 | 17.9 | 0 | 5.8 | <99 | " |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☒ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☒ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☒ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 7/20/16 Time: 1:30

Technician(s): Steiner, plauger

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Weather Conditions: | Clear ☑ | Rain ☐ | Snow ☐ | Sleet ☐ | Mix ☐ | | | |
| Precipitation Intensity: | | light ☐ | Moderate ☐ | Heavy ☐ | | | | |
| Temperature (current): 86 | | | | | | | | |
| Wind direction (blowing from): | N ☐ | NE ☐ | E ☐ | SE ☐ | Variable ☐ | | | |
| | S ☐ | SW ☐ | W ☐ | NW ☑ | | | | |
| Approximate Wind Speed: 4 mph | | | | | | | | |
| Cloud Cover: | Clear ☑ | Light ☐ | Overcast ☐ | Foggy ☐ | | | | |
| Barometric Pressure: 30.17 inches | | | | | | | | |

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | ~~130~~ | 0 | 20.9 | 0 | 0 | 0 | NONE |
| GV-5 Before Filter | 132 | 944 | 4.4 | 1.4 | 32.1 | 99+ | NONE |
| GV-5 After Filter | 135 | 0 | ~~20.2~~ | 0.2 | 1.0 | ~~45~~ | NONE |
| GV-4 Breathing zone | 137 | 2 | 20.9 | 0 | 0 | 0 | NONE |
| GV-4 Before Filter | 140 | 877 | 0.7 | 5.8 | 39.6 | ~~99+~~ | NONE |
| GV-4 After Filter | 142 | 4 | 13.1 | 0 | ~~15~~ | 99+ | NONE |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 7-22-16 Time: 1:40

Technician(s): AP / JH

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☐ | |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Weather Conditions: | Clear ☒ | Rain ☐ | Snow ☐ | Sleet ☐ | Mix ☐ |
| Precipitation Intensity: | | light ☐ | Moderate ☐ | Heavy ☐ | |
| Temperature (current): | 92° | | | | |
| Wind direction (blowing from): | N ☐ | NE ☐ | E ☐ | SE ☐ | Variable ☒ |
| | S ☐ | SW ☐ | W ☐ | NW ☐ | |
| Approximate Wind Speed: | 2 mph | | | | |
| Cloud Cover: | Clear ☐ | Light ☒ | Overcast ☐ | Foggy ☐ | |
| Barometric Pressure: | 29.51 inches | | | | |

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1:43 | 0 | 20.7 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 1:43 | 901 | 6.1 | 5.3 | 30.4 | <99 | " |
| GV-5 After Filter | 1:44 | 0 | 19.8 | 1.4 | 1.6 | 57 | " |
| GV-4 Breathing zone | 1:44 | 0 | 20.3 | 1.1 | .2 | 0 | None |
| GV-4 Before Filter | 1:45 | 887 | 0.2 | 7.7 | 40.3 | <99 | " |
| GV-4 After Filter | 1:45 | 11 | 12.7 | .7 | 17.1 | <99 | " |

| | Y | N | Comments |
|---|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ | |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☒ | |
| 3. Are signs in place? | ☑ | ☐ | |
| 4. Are there any signs of malodors in or around system? | ☐ | ☒ | |
| 5. Is filter properly connected? | ☑ | ☐ | |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ | |
| 7.Media changeout required? | ☐ | ☒ | |
| 8. Other observations/comments/ concerns | | | |

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 7/26/15 Time: 1:25

Technician(s): JH / MS

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | 7/17 MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | 7/17 MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: ☑ Clear ☐ Rain ☐ Snow ☐ Sleet ☐ Mix

Precipitation Intensity: ☐ light ☐ Moderate ☐ Heavy

Temperature (current): 90

Wind direction (blowing from): ☐ N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☑ SW ☐ W ☐ NW

Approximate Wind Speed: 2 mph

Cloud Cover: ☐ Clear ☐ Light ☑ Overcast ☐ Foggy

Barometric Pressure: 29.39 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1:26 | 0 | 20.9 | 0 | 0 | 0 | none |
| GV-5 Before Filter | 1:28 | 895 | 5.7 | 6.9 | 25.5 | >99 | none |
| GV-5 After Filter | 1:27 | 0 | 19.8 | 3.3 | 1.5 | 42 | none |
| GV-4 Breathing zone | 1:29 | 1 | 20.6 | 0 | 0 | 0 | none |
| GV-4 Before Filter | 1:31 | 924 | 2 | 8.6 | 37.4 | >99 | none |
| GV-4 After Filter | 1:30 | 56 | 12 | 2.4 | 16.4 | >99 | none |

| | Y | N | Comments |
|---|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ | |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ | |
| 3. Are signs in place? | ☑ | ☐ | |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ | |
| 5. Is filter properly connected? | ☑ | ☐ | |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ | |
| 7.Media changeout required? | ☐ | ☑ | |
| 8. Other observations/comments/ concerns | | | |

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 7-29-16 Time: 10:30

Technician(s): AP / JH

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☐ | 7-17-16 MS |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | 7-17-16 MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 74°

Wind direction (blowing from): N/A N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: mph

Cloud Cover: Clear ☐ Light ☑ Overcast ☐ Foggy ☐

Barometric Pressure: 29.43 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 10:30 | 0 | 20.5 | 0 | .1 | 0 | None |
| GV-5 Before Filter | 10:30 | <1000 | 2.9 | 0 | 32.9 | 29 | " |
| GV-5 After Filter | 10:30 | 0 | 19.4 | 0 | 2.4 | 0 | " |
| GV-4 Breathing zone | 10:35 | 3 | 20.7 | 0 | .1 | 0 | None |
| GV-4 Before Filter | 10:35 | 947 | 2 | 2.5 | 39.4 | 51 | " |
| GV-4 After Filter | 10:35 | 70 | 10.9 | 0 | 17.2 | 5 | " |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 8/2/16 Time: 2:20

Technician(s): Steiner, Miller

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 82

Wind direction (blowing from): N ☑ NE ☑ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 7 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 30.10 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 220 | 0 | 20.9 | 0.0 | 0 | 0 | None |
| GV-5 Before Filter | 222 | 830 | 2.2 | 4.3 ~~24~~ | 33.9 | ~~5~~8 | None |
| GV-5 After Filter | 224 | 0 | 19.3 | 0.0 | 1.9 | 0 | None |
| GV-4 Breathing zone | 230 | 0 | 20.9 | 0.0 | 0 | 0 | Weak |
| GV-4 Before Filter | 232 | >1000 | 0.2 | 8.0 | 39.7 | 65 | None |
| GV-4 After Filter | 233 | 320 | 20.5 | 2.1 | 23 | 54 ~~LEL~~ | None |

| | Y | N | Comments |
|---|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ | |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ | |
| 3. Are signs in place? | ☑ | ☐ | |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ | |
| 5. Is filter properly connected? | ☑ | ☐ | |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☐ | ☑ | GV5 before filter spring valve broken |
| 7.Media changeout required? | ☐ | ☑ | |
| 8. Other observations/comments/ concerns | | | |

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 8/4/16 Time: 1:35

Technician(s): Steiner / Plauger

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 82

Wind direction (blowing from): N ☐ NE ☑ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 2 mph

Cloud Cover: Clear ☐ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 30.08 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 130 | 0 | 20.6 | 0 | 0.1 | 0 | NONE |
| GV-5 Before Filter | 132 | 720 | 3.4 | 0 | 31.6 | 0 | NONE |
| GV-5 After Filter | 133 | 0 | 19.8 | 0 | 4.13 | 0 | NONE |
| GV-4 Breathing zone | 135 | 3 | 20.9 | ~~0~~ N/A | 0.1 | ~~0~~ N/A | NONE |
| GV-4 Before Filter | 137 | 1000+ | 0.3 | 8 | 39.8 | 54 | mild |
| GV-4 After Filter | 140 | 613 | 7.4 | 7.8 | 24.7 | 27 | NONE |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7. Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

Replaced CPC connector on GV 5

Rev. A 7/2015

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 8/9/16 Time: 2:45

Technician(s): Steiner / Miller

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: ☑ Clear ☐ Rain ☐ Snow ☐ Sleet ☐ Mix

Precipitation Intensity: ☐ light ☐ Moderate ☐ Heavy

Temperature (current): 75

Wind direction (blowing from): ☐ N ☐ NE ☐ E ☑ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW

Approximate Wind Speed: 3 mph

Cloud Cover: ☑ Clear ☑ Light ☐ Overcast ☐ Foggy

Barometric Pressure: 30.20 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 2:45 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 2:47 | >1000 | 0.2 | 2.8 | 38 | 24 | None |
| GV-5 After Filter | 2:50 | 0 | 19.7 | 0 | 1.3 | 0 | None |
| GV-4 Breathing zone | 2:52 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 2:54 | ~~71000~~ | ~~9.2~~ | 70 | ~~39.2~~ | 52 | None |
| GV-4 After Filter | 2:56 | 524 | 5.5 | 1.5 | 30.0 | 20 | Weak |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7. Media changeout required? | ☑ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

on GV 4

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 8/16/16 Time: 1300

Technician(s): Steiner / Ranger

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☐ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 90

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☑ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 8 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 30.20 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1300 | 0 | 20.9 | 0 | 0 | 0 | NONE |
| GV-5 Before Filter | 1302 | 976 | 1.4 | 2.2 | 36.0 | 53 | NONE |
| GV-5 After Filter | 1304 | 0 | 19.6 | 0 | 1.3 | 4 | NONE |
| GV-4 Breathing zone | 1306 | 0 | 20.9 | 0 | 0 | 0 | NONE |
| GV-4 Before Filter | 1308 | +1000 | 0.5 | 6.4 | 39.2 | +99 | NONE |
| GV-4 After Filter | 1310 | 3 | 10.8 | 0 | 18.5 | 61 | NONE |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7. Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 8/18/16 Time: 1:40

Technician(s): Steinert Henry

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | 8/18/16 MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | 8/18/16 MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 91

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☑ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 2 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 29.99 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1:42 | 1 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 1:44 | >1000 | 20.9 | 0.8 | 37.2 | 10 | None |
| GV-5 After Filter | 1:46 | 1 | 20.9 | 0 | 1.6 | 0 | None |
| GV-4 Breathing zone | 1:48 | 6 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 1:50 | >1000 | 0.2 | 53.7 | 37.3 | >99 | None |
| GV-4 After Filter | 1:52 | 6 | 18.1 | 0 | 20.4 | >99 | None |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7. Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 8/23/16 Time: 2:05

Technician(s): Steiner/Plauger

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | 8/18 MS |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | 8/18 MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 81

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☑ Variable ☐ S ☑ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 2 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 30.26 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 2:05 | 0 | 21.9 | 0 | 0 | 0 | NONE |
| GV-5 Before Filter | 2:08 | +1,000 | 1.0 | 7.4 | 37.7 | 99+ | NONE |
| GV-5 After Filter | 2:10 | 0 | 20.3 | 0 | 1.2 | 4 | NONE |
| GV-4 Breathing zone | 2:12 | 5 | 20.9 | 0 | 0 | 0 | NONE |
| GV-4 Before Filter | 2:13 | +1,000 | 1.2 | 8.0 | 39.7 | +99 | NONE |
| GV-4 After Filter | 2:15 | 4 | 11.4 | 0 | 20 | +99 | NONE |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 8/25/17 Time: 2:16

Technician(s): JH / JP

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | MS 8/27 |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 75

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☑ W ☐ NW ☐

Approximate Wind Speed: 2.5 mph

Cloud Cover: Clear ☐ Light ☐ Overcast ☑ Foggy ☐

Barometric Pressure: 29.82 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 2:23 | 0 | 21.7 | 0 | 0 | 0 | NONE |
| GV-5 Before Filter | 2:25 | +1,000 | 0.5 | ~~1.6~~ | 37.8 | +99 | NONE |
| GV-5 After Filter | 2:27 | 1.0 | 19.4 | 0.2 | 1.6 | 25 | NONE |
| GV-4 Breathing zone | 2:16 | 5 | 21.5 | 0 | 0 | 0 | NONE |
| GV-4 Before Filter | 2:18 | +1,000 | 0.5 | 1.6 | 39.3 | 99+ | Weak |
| GV-4 After Filter | 2:20 | 389 | 4.4 | 1.6 | 248 | 99+ | Weak |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☑ | ☐ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

Weak at GV-4

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 8/30/16 Time: 2:46

Technician(s): Steiner/Henry

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | 8/18/16 MS |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | 8/30/16 SH |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: 0.0 light ☑ Moderate ☐ Heavy ☐

Temperature (current): 84

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☑ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 5 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 30.10 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 2:46 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 2:48 | >1000 | 13.5 | 7.1 | 37.5 | >99 | None |
| GV-5 After Filter | 2:50 | 0 | 19.8 | 0.1 | 2.0 | 39 | None |
| GV-4 Breathing zone | 2:52 | 5 | 20.5 | 0 | 0 | 0 | mild |
| GV-4 Before Filter | 2:54 | >1000 | 9.4 | 1.6 | 38.9 | >99 | None |
| GV-4 After Filter | 2:56 | 770 | 13 | 2.3 | 22.2 | >99 | Strong |

| | Y | N | Comments |
|---|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ | |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ | |
| 3. Are signs in place? | ☑ | ☐ | |
| 4. Are there any signs of malodors in or around system? | ☑ | ☐ | GW odors |
| 5. Is filter properly connected? | ☐ | ☐ | |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ | |
| 7. Media changeout required? | ☐ | ☑ | |
| 8. Other observations/comments/ concerns | | | Whirly gigs not spinning |

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 9/2/16 Time: 1:40

Technician(s): JH/MS

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | MS 9/18/16 |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | MS 8/18/16 |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 75

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☑ W ☐ NW ☐

Approximate Wind Speed: 3-6 mph

Cloud Cover: Clear ☐ Light ☑ Overcast ☐ Foggy ☐

Barometric Pressure: 29.58 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1:40 | ~~20.9~~ 0 | 20.9 | 0 | 0 | 0 | none |
| GV-5 Before Filter | 1:42 | 71000 | 1.3 | 13.8 | 36.9 | 35 | none |
| GV-5 After Filter | 1:44 | 0 | 19.9 | 0 | 1.5 | 0 | none |
| GV-4 Breathing zone | 1:46 | 6 | 20.7 | 0 | 0 | 0 | none |
| GV-4 Before Filter | 1:48 | 71000 | 1.7 | 52.3 | 39 | 799 | none |
| GV-4 After Filter | 1:50 | 6 | 9.6 | 0 | 22.2 | 99 | none |

| | Y | N | Comments |
|---|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ | |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ | |
| 3. Are signs in place? | ☑ | ☐ | |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ | |
| 5. Is filter properly connected? | ☑ | ☐ | |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ | |
| 7.Media changeout required? | ☐ | ☑ | |
| 8. Other observations/comments/ concerns | | | GV-4 vent spinning |

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 9-6-16 Time: 2:45

Technician(s): AP JH

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☐ | AP 9-6-18 |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | AP 9-6-18 |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 91°

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☑ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 2 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 29.86 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 2:45 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | | 489 | 4.8 | 2.3 | 31 | 99+ | " |
| GV-5 After Filter | | 0 | 8.2 | 0 | 1.1 | 18 | " |
| GV-4 Breathing zone | | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Before Filter | | 472 | .5 | .2 | 40.8 | 99+ | " |
| GV-4 After Filter | | 1 | 15.9 | 0 | 13.1 | 99+ | " |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☑ | ☐ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 9-9-16 Time: 1:15

Technician(s): AP JH

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☐ | 9-9-16 AP |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | 9-9-16 AP |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 92°

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 0 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 29.97 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1:15 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | | 554 | 4.1 | 1.9 | 30 | 99+ | " |
| GV-5 After Filter | | 0 | 7.1 | 0 | 1.5 | 12 | " |
| GV-4 Breathing zone | | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Before Filter | | 467 | .3 | .5 | 52 | 99+ | " |
| GV-4 After Filter | | 1 | 7.1 | 0 | 13.5 | 99+ | " |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☑ | ☐ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: ~~9/13/16~~ 9/13/16 Time: 1.45

Technician(s): JH/AP

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | 8/17 MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | 8/17 MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 84

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☑ W ☐ NW ☐

Approximate Wind Speed: 6 mph

Cloud Cover: Clear ☐ Light ☑ Overcast ☐ Foggy ☐

Barometric Pressure: 29.57 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1:45 | 0 | 20.6 | 0 | 0 | 0 | None |
| GV-5 Before Filter | | 1000+ | 19.9 | 72 | 38.2 | 58 | |
| GV-5 After Filter | | 0 | 20.4 | 0 | 2.4 | 6 | |
| GV-4 Breathing zone | 1:50 | 4 | 20.6 | 0 | 0 | 0 | None |
| GV-4 Before Filter | | 1000+ | 14.3 | 57 | 39.3 | 99+ | |
| GV-4 After Filter | | 4 | 19.6 | 0 | 21.4 | 57 | |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☐ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

Rev. A 7/2015

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 9-16-16 Time: 2:38

Technician(s): MS/JH

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☐ | MS |
| Multi RAE 4 Gas Monitor | ☑ | ☐ | MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 73

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☑ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 5 mph

Cloud Cover: Clear ☐ Light ☐ Overcast ☑ Foggy ☐

Barometric Pressure: 29.64 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 2:38 | 0 | 20.6 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 2:40 | >1000 | 15.2 | 36 | 38.3 | >99 | None |
| GV-5 After Filter | 2:42 | 0 | 20.6 | 0 | 1.2 | 7 | None |
| GV-4 Breathing zone | 2:45 | 0 | 20.7 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 2:48 | >1000 | 13.5 | 58.2 | 39.5 | >99 | None |
| GV-4 After Filter | 2:50 | 356 | 18.6 | 32.3 | 19.6 | >99 | None |

| | Y | N | Comments |
|---|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ | |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ | |
| 3. Are signs in place? | ☑ | ☐ | |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ | |
| 5. Is filter properly connected? | ☑ | ☐ | |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ | |
| 7.Media changeout required? | ☐ | ☑ | |
| 8. Other observations/comments/ concerns | | | Whirly gig spinning or both |

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 9-20-16 Time: 1:50

Technician(s): AP JH

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | 8-18-16 MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | 9-20-16 JH |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 79°

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☑ NW ☐

Approximate Wind Speed: 5 mph

Cloud Cover: Clear ☐ Light ☑ Overcast ☐ Foggy ☐

Barometric Pressure: 30.10 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1:50p | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | | 1000+ | 20 | 4.3 | 37.3 | 63 | |
| GV-5 After Filter | | 0 | 20.9 | 0 | 1.4 | 0 | |
| GV-4 Breathing zone | | 0 | 20.7 | 0 | 0 | 0 | None |
| GV-4 Before Filter | | 1000+ | 14.8 | 48 | 38.1 | 99+ | |
| GV-4 After Filter | | 653 | 19.6 | 45.6 | 16.3 | 99+ | |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

GV-4 Vent Not Spinning

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 7/22/16 Time: 12:45

Technician(s): Steiner, Philip

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☑ | 8/30 MS |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | 8/30 MS |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 79

Wind direction (blowing from): N ☑ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 2 mph

Cloud Cover: Clear ☑ Light ☐ Overcast ☐ Foggy ☐

Barometric Pressure: 30.20 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 12:55 | 0 | 20.7 | 0 | 0 | 0 | None |
| GV-5 Before Filter | | 7/000 | 0.3 | 2.1 | 38.9 | 799 | None |
| GV-5 After Filter | | 0 | 19.3 | 0 | 20.8 | 14 | None |
| GV-4 Breathing zone | 1:05 | 5.0 | 19.3 | 0 | 0 | 0 | mild |
| GV-4 Before Filter | | 7/000 | 0 | 1.5 | 39.4 | 799 | Weak sulfur odor |
| GV-4 After Filter | | 7/000 | 1.0 | 4.1 | 36.8 | 799 | |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7. Media changeout required? | ☐ | ☐ |
| 8. Other observations/comments/ concerns | | |

Comments

GV4 Vent Spinning

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 10-5-16 Time: 2:30

Technician(s): AP / JH

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☐ | ☐ | |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | 10-5-16 MS |
| Mini RAE 3000 VOC Monitor | ☑ | ☑ | 10-5-16 MS |

Weather Conditions: Clear ☒ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 65°

Wind direction (blowing from): N ☒ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 3 mph

Cloud Cover: Clear ☐ Light ☐ Overcast ☒ Foggy ☐

Barometric Pressure: 29.77 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 2:40 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | | 1000+ | .1 | 4.7 | 39.4 | 48 | " |
| GV-5 After Filter | | 0 | 20.9 | 0 | 1.6 | 0 | " |
| GV-4 Breathing zone | 2:50 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Before Filter | | 1000+ | 0 | 46.2 | 40.4 | 99+ | " |
| GV-4 After Filter | | 1000+ | 1.1 | 35.4 | 37.4 | 13 | " |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7. Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

GV-4 Vent not spining freely

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 10-7-16 Time: 1:45

Technician(s): AP / JH

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☐ | ☐ | |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | MS |
| Mini RAE 3000 VOC Monitor | ☑ | ☑ | MS |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 67

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: mph

Cloud Cover: Clear ☐ Light ☐ Overcast ☒ Foggy ☐

Barometric Pressure: inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1:50 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | | 1000 | 14.3 | 20.0 | 40.3 | 99+ | " |
| GV-5 After Filter | | 0 | 20.9 | 0 | 2.5 | 0 | " |
| GV-4 Breathing zone | 1:55 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-4 Before Filter | | 1000+ | 0.0 | 32.8 | 40.5 | 99+ | " |
| GV-4 After Filter | | 1000+ | .3 | 54.3 | 38.3 | 99+ | " |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☐ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☐ |
| 3. Are signs in place? | ☐ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☐ |
| 5. Is filter properly connected? | ☐ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☐ | ☐ |
| 7.Media changeout required? | ☐ | ☐ |
| 8. Other observations/comments/ concerns | ☐ | ☐ |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 10/11/16 Time: 2:50

Technician(s): JH MS

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☑ | ☐ | 9/20/16 |
| Multi RAE 4 Gas Monitor | ☑ | ☑ | 9/20/16 |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

Weather Conditions: Clear ☑ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 64

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☑ S ☐ SW ☐ W ☐ NW ☐

Approximate Wind Speed: 3-5 mph

Cloud Cover: Clear ☐ Light ☑ Overcast ☐ Foggy ☐

Barometric Pressure: 30.41 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 2:50 | 0 | 20.9 | .1 | .1 | 0 | none |
| GV-5 Before Filter | 2:54 | 909 | 0.9 | 1.2 | 40.3 | 8 | none |
| GV-5 After Filter | 2:52 | 0 | 20.9 | .2 | 2.5 | 0 | none |
| GV-4 Breathing zone | 2:57 | 8 | 20.9 | 0 | .1 | 0 | weak |
| GV-4 Before Filter | 3:01 | >1000 | 1.7 | 20.2 | 40.3 | >99 | none |
| GV-4 After Filter | 2:59 | 335 | 8.4 | .6 | 25.8 | 0 | none |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☐ | ☑ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

~~Well vent broke~~

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 11-17-16 Time: 2:00pm

Technician(s): AP JH

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☐ | ☐ | |
| Multi RAE 4 Gas Monitor | ☒ | ☐ | JP |
| Mini RAE 3000 VOC Monitor | ☐ | ☐ | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Weather Conditions: | Clear ☒ | Rain ☐ | Snow ☐ | Sleet ☐ | Mix ☐ |
| Precipitation Intensity: | | light ☐ | Moderate ☐ | Heavy ☐ | |
| Temperature (current): | | | | | |
| Wind direction (blowing from): | N ☐ | NE ☐ | E ☐ | SE ☒ | Variable ☐ |
| | S ☐ | SW ☐ | W ☐ | NW ☐ | |
| Approximate Wind Speed: 2 | | mph | | | |
| Cloud Cover: | Clear ☒ | Light ☐ | Overcast ☐ | Foggy ☐ | |
| Barometric Pressure: 29.4 | | | inches | | |

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 2:05 | 0 | 20.9 | 0 | 0 | 0 | None |
| GV-5 Before Filter | 2:05 | 318 | 7.6 | 0. | 31.2 | 7100 | " |
| GV-5 After Filter | 2:07 | 0 | 9.4 | 0 | 0 | 0 | " |
| GV-4 Breathing zone | 2:09 | 0 | 20.8 | 0 | 0 | 0 | None |
| GV-4 Before Filter | 2:09 | 370 | 7.4 | 0 | 41.2 | 7100 | " |
| GV-4 After Filter | 2:10 | 1 | 19.1 | 0 | 25.1 | 7100 | " |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☑ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☑ |
| 3. Are signs in place? | ☑ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☑ |
| 5. Is filter properly connected? | ☑ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☑ | ☐ |
| 7.Media changeout required? | ☐ | ☑ |
| 8. Other observations/comments/ concerns | | |

Comments

# PARSONS

## Gas Vent Filter Inspection & Monitoring Form

Date: 12/8/16 Time: 11:15

Technician(s): Robinson + Hardo

| Gas Monitoring Devices: | Used? | Calibrated? | Date & Initials |
|---|---|---|---|
| Land Tec GEM5000 | ☒ | ☒ | 12/8/16 MGR |
| Multi RAE 4 Gas Monitor | ☐ | ☐ | |
| Mini RAE 3000 VOC Monitor | ☒ | ☒ | 12/8/16 MGR |

Weather Conditions: Clear ☒ Rain ☐ Snow ☐ Sleet ☐ Mix ☐

Precipitation Intensity: light ☐ Moderate ☐ Heavy ☐

Temperature (current): 42

Wind direction (blowing from): N ☐ NE ☐ E ☐ SE ☐ Variable ☐ S ☐ SW ☐ W ☐ NW ☒

Approximate Wind Speed: 5-20 mph

Cloud Cover: Clear ☐ Light ☐ Overcast ☒ Foggy ☐

Barometric Pressure: 30 inches

| Monitoring Location | Time | $H_2S$ (ppm) | $O_2$ | VOC (ppm) | CH4 (%) | LEL (%) | Odors Noticed (none/weak/mild/strong) |
|---|---|---|---|---|---|---|---|
| GV-5 Breathing Zone | 1115 | Ø | 20.6 | Ø | Ø | Ø | Slight/weak |
| GV-5 Before Filter | 1118 | 346 | 0.7 | 1.0 | 39.3 | >100 | |
| GV-5 After Filter | 1116 | Ø | 20.3 | Ø | 0.5 | 10 | |
| GV-4 Breathing zone | 1112 | Ø | 20.6 | Ø | Ø | Ø | None |
| GV-4 Before Filter | 1125 | >1,000 | Ø | 11.9 | 42.5 | >100 | |
| GV-4 After Filter | 1124 | Ø | 16.7 | Ø | 8.5 | >100 | |

| | Y | N |
|---|---|---|
| 1. Are the gates locked and fencing functioning properly? | ☒ | ☐ |
| 2. Any signs of damage, tampering or trespass? | ☐ | ☒ |
| 3. Are signs in place? | ☒ | ☐ |
| 4. Are there any signs of malodors in or around system? | ☐ | ☒ |
| 5. Is filter properly connected? | ☒ | ☐ |
| 6. Are all ports and openings operating properly? (e.g., unobstructed) | ☒ | ☐ |
| 7.Media changeout required? | ☐ | ☒ |
| 8. Other observations/comments/ concerns | | |

Comments

# APPENDIX F
## LABORATORY REPORTS

PARSONS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-109402-1
Client Project/Site: FMC Avtex Fibers Superfund Site
Revision: 1

For:
Parsons Corporation
4701 Hedgemore Drive
Charlotte, North Carolina 28270

Attn: Michael Robinson

*Authorized for release by:*
*1/31/2017 2:13:36 PM*

Heather Wagner, Project Manager I
(615)301-5763
heather.wagner@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Sample Summary

Client: Parsons Corporation
Project/Site: FMC Avtex Fibers Superfund Site

TestAmerica Job ID: 490-109402-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Leachate | 08/08/16 09:55 | 08/10/16 09:03 |
| 490-109402-2 | TB-080916-01 | Water | 08/09/16 06:05 | 08/10/16 09:03 |
| 490-109402-3 | 2016L-TW-01 | Ground Water | 08/09/16 08:05 | 08/10/16 09:03 |
| 490-109402-4 | 2016L-TW-02 | Ground Water | 08/09/16 08:20 | 08/10/16 09:03 |
| 490-109402-5 | 2016L-LS-03 | Leachate | 08/09/16 08:30 | 08/10/16 09:03 |
| 490-109402-6 | 2016L-VB-11 | Leachate | 08/09/16 08:40 | 08/10/16 09:03 |
| 490-109402-7 | 2016L-LS-02 | Leachate | 08/09/16 10:00 | 08/10/16 09:03 |
| 490-109402-8 | 2016L-LS-04 | Leachate | 08/09/16 10:00 | 08/10/16 09:03 |
| 490-109402-9 | 2016L-LS-04D | Leachate | 08/09/16 10:00 | 08/10/16 09:03 |
| 490-109402-10 | 2016L-VB-10 | Leachate | 08/09/16 10:20 | 08/10/16 09:03 |
| 490-109402-11 | 2016L-LS-01 | Leachate | 08/09/16 11:40 | 08/10/16 09:03 |
| 490-109402-12 | 2016L-TW-03 | Ground Water | 08/09/16 14:20 | 08/10/16 09:03 |

## Job ID: 490-109402-1

**Laboratory: TestAmerica Nashville**

**Narrative**

NO2/NO3 and TKN data missing from level 2 and 4.

## CASE NARRATIVE

## Client: Parsons Corporation

## Project: FMC Avtex Fibers Superfund Site

## Report Number: 490-109402-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Nashville attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

**REVISED REPORT**

Revised to correct the missing nitrate/nitrite and TKN data. This report replaces the report issued 9/2/16.

**RECEIPT**

The samples were received on 8/10/2016 9:03 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.4º C, 0.5º C, 0.7º C, 2.4º C and 3.9º C.

**VOLATILE ORGANIC COMPOUNDS (GC-MS)**

Samples 2016L-VB-09 (490-109402-1), TB-080916-01 (490-109402-2), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/12/2016, 08/13/2016 and 08/16/2016.

The following sample(s) were collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, the pH was outside the required criteria when verified by the laboratory: 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04 (490-109402-8[DU]), 2016L-LS-04 (490-109402-8[MS]), 2016L-LS-04 (490-109402-8[MSD]),

## Job ID: 490-109402-1 (Continued)

### Laboratory: TestAmerica Nashville (Continued)

2016L-VB-10 (490-109402-10) and 2016L-LS-01 (490-109402-11). The samples were analyzed within the seven day holding time for unpreserved samples.

The following sample(s) were collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, the pH was outside the required criteria when verified by the laboratory: 2016L-VB-09 (490-109402-1). The sample was not analyzed within the seven day holding time for unpreserved samples.

Samples 2016L-VB-09 (490-109402-1)[50X], 2016L-TW-02 (490-109402-4)[10X], 2016L-LS-02 (490-109402-7)[5X] and 2016L-LS-01 (490-109402-11)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**METALS (ICPMS)**

Samples 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for Metals (ICPMS) in accordance with EPA SW-846 Methods 6020A. The samples were prepared on 08/12/2016 and analyzed on 08/14/2016.

Antimony was detected in method blank MB 490-362248/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Iron failed the recovery criteria high for the MS/MSD of sample 2016L-LS-04MS/MSD (490-109402-8) in batch 490-362647.

Refer to the QC report for details.

Samples 2016L-VB-09 (490-109402-1)[10X], 2016L-VB-11 (490-109402-6)[10X], 2016L-LS-02 (490-109402-7)[10X], 2016L-VB-10 (490-109402-10)[10X] and 2016L-LS-01 (490-109402-11)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**ALKALINITY**

Samples 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for alkalinity in accordance with SM 2320B. The samples were analyzed on 08/11/2016.

The following samples was saturated for alkalinity and would not titrate completely: 2016L-VB-09 (490-109402-1), 2016L-VB-10 (490-109402-10) and 2016L-LS-01 (490-109402-11).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**CONDUCTIVITY**

Samples 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for conductivity in accordance with SM 2510B. The samples were analyzed on 08/11/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**TOTAL DISSOLVED SOLIDS**

Samples 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for total dissolved solids in

## Job ID: 490-109402-1 (Continued)

### Laboratory: TestAmerica Nashville (Continued)

accordance with SM 2540C. The samples were analyzed on 08/11/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**TOTAL PHOSPHORUS**

Samples 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for total phosphorus in accordance with EPA Method 365.4. The samples were prepared on 08/10/2016 and 08/16/2016 and analyzed on 08/11/2016 and 08/16/2016.

Phosphorus, Total failed the recovery criteria high for the MSD of sample 2016L-LS-04MSD (490-109402-8) in batch 490-362136.

Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**CHEMICAL OXYGEN DEMAND**

Samples 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for chemical oxygen demand in accordance with EPA Method 410.4. The samples were analyzed on 08/16/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**CHEMICAL OXYGEN DEMAND**

Samples 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for chemical oxygen demand in accordance with EPA Method 410.4. The samples were analyzed on 08/16/2016.

Samples 2016L-VB-09 (490-109402-1)[20X], 2016L-TW-01 (490-109402-3)[2X], 2016L-TW-02 (490-109402-4)[5X], 2016L-VB-11 (490-109402-6)[10X], 2016L-LS-02 (490-109402-7)[2X], 2016L-LS-04 (490-109402-8)[2X], 2016L-LS-04D (490-109402-9)[2X], 2016L-VB-10 (490-109402-10)[10X] and 2016L-LS-01 (490-109402-11)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**DENSITY**

Samples 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for Density in accordance with ASTM Method D1475_98. The samples were analyzed on 08/11/2016 and 08/12/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**TOTAL NITROGEN BY CALCULATION**

Samples 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for total nitrogen by calculation in accordance with a calculated method. The samples were analyzed on 08/16/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**SULFIDE**

Samples 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5),

## Job ID: 490-109402-1 (Continued)

### Laboratory: TestAmerica Nashville (Continued)

2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for sulfide in accordance with SM 4500_S2_F. The samples were prepared on 08/15/2016 and analyzed on 08/15/2016 and 08/16/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**UNIONIZED HYDROGEN SULFIDE**

Samples 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for Unionized hydrogen sulfide in accordance with SM4500_S2_H. The samples were analyzed on 08/18/2016.

Due to missing field temperature results the calculation was performed using laboratory temperature of 25.3°C for the following samples: 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**BIOCHEMICAL OXYGEN DEMAND**

Samples 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for Biochemical Oxygen Demand in accordance with SM 5210B. The samples were analyzed on 08/10/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**FIELD SAMPLING**

Samples 2016L-VB-09 (490-109402-1), 2016L-TW-01 (490-109402-3), 2016L-TW-02 (490-109402-4), 2016L-LS-03 (490-109402-5), 2016L-VB-11 (490-109402-6), 2016L-LS-02 (490-109402-7), 2016L-LS-04 (490-109402-8), 2016L-LS-04D (490-109402-9), 2016L-VB-10 (490-109402-10), 2016L-LS-01 (490-109402-11) and 2016L-TW-03 (490-109402-12) were analyzed for Field Sampling in accordance with approved methodologies. The samples were analyzed on 08/08/2016 and 08/09/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

## Qualifiers

### GC/MS VOA

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

### Metals

| Qualifier | Qualifier Description |
|---|---|
| ^ | ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits. |
| B | Compound was found in the blank and sample. |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |
| F1 | MS and/or MSD Recovery is outside acceptance limits. |

### General Chemistry

| Qualifier | Qualifier Description |
|---|---|
| H | Sample was prepped or analyzed beyond the specified holding time |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |
| F1 | MS and/or MSD Recovery is outside acceptance limits. |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative error ratio |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

## Client Sample ID: 2016L-VB-09

**Date Collected: 08/08/16 09:55**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-1

**Matrix: Leachate**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Carbon disulfide** | **5.32** | | 0.0250 | 0.0110 | mg/L | | | 08/16/16 16:21 | 50 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *106* | | *70 - 130* | | *08/16/16 16:21* | *50* |
| *4-Bromofluorobenzene (Surr)* | *107* | | *70 - 130* | | *08/16/16 16:21* | *50* |
| *Dibromofluoromethane (Surr)* | *93* | | *70 - 130* | | *08/16/16 16:21* | *50* |
| *Toluene-d8 (Surr)* | *105* | | *70 - 130* | | *08/16/16 16:21* | *50* |

### Method: 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Arsenic** | **0.00880** | **J** | 0.0200 | 0.00500 | mg/L | | 08/12/16 10:38 | 08/14/16 03:06 | 10 |
| **Iron** | **0.823** | | 0.250 | 0.200 | mg/L | | 08/12/16 10:38 | 08/14/16 03:06 | 10 |
| **Antimony** | **0.0106** | **J ^ B** | 0.0200 | 0.00500 | mg/L | | 08/12/16 10:38 | 08/14/16 03:06 | 10 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Kjeldahl Nitrogen as N** | **10.3** | | 5.00 | 2.80 | mg/L | | 08/12/16 13:41 | 08/16/16 12:28 | 1 |
| **Phosphorus, Total** | **0.299** | | 0.100 | 0.0500 | mg/L | | 08/16/16 08:49 | 08/16/16 15:20 | 1 |
| **Chemical Oxygen Demand** | **2850** | | 400 | 80.0 | mg/L | | | 08/16/16 18:29 | 20 |
| Carbonate Alkalinity as CaCO3 | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 11:45 | 1 |
| Bicarbonate Alkalinity as CaCO3 | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 11:45 | 1 |
| Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 11:45 | 1 |
| Hydroxide Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 11:45 | 1 |
| **Total Dissolved Solids** | **7220** | | 100 | 70.0 | mg/L | | | 08/11/16 15:20 | 1 |
| Nitrate Nitrite as N | <0.0400 | | 0.100 | 0.0400 | mg/L | | | 08/18/16 13:11 | 1 |
| Un-ionized Hydrogen Sulfide | <0.100 | | 1.00 | 0.100 | mg/L | | | 08/18/16 09:02 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Density** | **1.04** | | 0.100 | 0.100 | g/mL | | | 08/11/16 08:47 | 1 |
| **Specific Conductance** | **8180** | | 10.0 | 10.0 | umhos/cm | | | 08/11/16 15:00 | 1 |
| **Biochemical Oxygen Demand** | **1970** | **H** | 1200 | 1200 | mg/L | | | 08/10/16 13:22 | 20 |
| **Nitrogen, Total** | **10.3** | | 0.100 | 0.100 | mg/L | | | 08/16/16 22:59 | 1 |

### General Chemistry - Dissolved

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chemical Oxygen Demand** | **3570** | | 1000 | 200 | mg/L | | | 08/16/16 18:34 | 50 |
| Sulfide, Dissolved | <0.500 | | 1.00 | 0.500 | mg/L | | 08/15/16 17:30 | 08/15/16 18:30 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **BOD, Dissolved** | **1930** | **H** | 1200 | 1200 | mg/L | | | 08/10/16 13:29 | 20 |

### Method: Field Sampling - Field Sampling

| Analyte | Result | Qualifier | NONE | NONE | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Field pH** | **7.61** | | | | SU | | | 08/08/16 08:55 | 1 |

Client: Parsons Corporation
Project/Site: FMC Avtex Fibers Superfund Site

TestAmerica Job ID: 490-109402-1

**Client Sample ID: TB-080916-01**
**Date Collected: 08/09/16 06:05**
**Date Received: 08/10/16 09:03**

**Lab Sample ID: 490-109402-2**
**Matrix: Water**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | <0.000220 | | 0.000500 | 0.000220 | mg/L | | | 08/12/16 03:39 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *110* | | *70 - 130* | | *08/12/16 03:39* | *1* |
| *4-Bromofluorobenzene (Surr)* | *106* | | *70 - 130* | | *08/12/16 03:39* | *1* |
| *Dibromofluoromethane (Surr)* | *95* | | *70 - 130* | | *08/12/16 03:39* | *1* |
| *Toluene-d8 (Surr)* | *107* | | *70 - 130* | | *08/12/16 03:39* | *1* |

## Client Sample ID: 2016L-TW-01

**Date Collected: 08/09/16 08:05**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-3

**Matrix: Ground Water**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 0.190 | | 0.000500 | 0.000220 | mg/L | | | 08/12/16 04:59 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *109* | | *70 - 130* | | *08/12/16 04:59* | *1* |
| *4-Bromofluorobenzene (Surr)* | *107* | | *70 - 130* | | *08/12/16 04:59* | *1* |
| *Dibromofluoromethane (Surr)* | *97* | | *70 - 130* | | *08/12/16 04:59* | *1* |
| *Toluene-d8 (Surr)* | *108* | | *70 - 130* | | *08/12/16 04:59* | *1* |

### Method: 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0157 | | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 02:17 | 1 |
| Iron | 0.386 | | 0.0250 | 0.0200 | mg/L | | 08/12/16 10:38 | 08/14/16 02:17 | 1 |
| Antimony | 0.00282 | ^ B | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 02:17 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Kjeldahl Nitrogen as N | 0.817 | | 0.250 | 0.140 | mg/L | | 08/10/16 15:35 | 08/12/16 10:36 | 1 |
| Phosphorus, Total | 0.576 | | 0.100 | 0.0500 | mg/L | | 08/10/16 15:35 | 08/11/16 13:43 | 1 |
| Chemical Oxygen Demand | 120 | | 40.0 | 8.00 | mg/L | | | 08/16/16 18:29 | 2 |
| Carbonate Alkalinity as CaCO3 | 11.5 | | 10.0 | 5.00 | mg/L | | | 08/11/16 11:52 | 1 |
| Bicarbonate Alkalinity as CaCO3 | 466 | | 10.0 | 5.00 | mg/L | | | 08/11/16 11:52 | 1 |
| Alkalinity | 478 | | 10.0 | 5.00 | mg/L | | | 08/11/16 11:52 | 1 |
| Hydroxide Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 11:52 | 1 |
| Total Dissolved Solids | 957 | | 10.0 | 7.00 | mg/L | | | 08/11/16 15:20 | 1 |
| Nitrate Nitrite as N | 1.86 | | 0.100 | 0.0400 | mg/L | | | 08/18/16 13:12 | 1 |
| Un-ionized Hydrogen Sulfide | 4.97 | | 1.00 | 0.100 | mg/L | | | 08/18/16 09:02 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Density | 0.999 | | 0.100 | 0.100 | g/mL | | | 08/11/16 08:47 | 1 |
| Specific Conductance | 1580 | | 10.0 | 10.0 | umhos/cm | | | 08/11/16 15:00 | 1 |
| Biochemical Oxygen Demand | 82.6 | | 60.0 | 60.0 | mg/L | | | 08/10/16 22:51 | 1 |
| Nitrogen, Total | 2.68 | | 0.100 | 0.100 | mg/L | | | 08/16/16 22:58 | 1 |

### General Chemistry - Dissolved

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | 125 | | 20.0 | 4.00 | mg/L | | | 08/16/16 18:34 | 1 |
| Sulfide, Dissolved | 29.6 | | 1.00 | 0.500 | mg/L | | 08/15/16 17:30 | 08/16/16 17:44 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| BOD, Dissolved | 76.0 | | 60.0 | 60.0 | mg/L | | | 08/10/16 22:51 | 1 |

### Method: Field Sampling - Field Sampling

| Analyte | Result | Qualifier | NONE | NONE | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Field pH | 8.47 | | | | SU | | | 08/09/16 07:05 | 1 |

## Client Sample ID: 2016L-TW-02

**Date Collected: 08/09/16 08:20**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-4

**Matrix: Ground Water**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 0.847 | | 0.00500 | 0.00220 | mg/L | | | 08/13/16 00:22 | 10 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *111* | | *70 - 130* | | *08/13/16 00:22* | *10* |
| *4-Bromofluorobenzene (Surr)* | *109* | | *70 - 130* | | *08/13/16 00:22* | *10* |
| *Dibromofluoromethane (Surr)* | *92* | | *70 - 130* | | *08/13/16 00:22* | *10* |
| *Toluene-d8 (Surr)* | *88* | | *70 - 130* | | *08/13/16 00:22* | *10* |

### Method: 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0296 | | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 02:22 | 1 |
| Iron | 0.0513 | | 0.0250 | 0.0200 | mg/L | | 08/12/16 10:38 | 08/14/16 02:22 | 1 |
| Antimony | 0.00478 | ^ B | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 02:22 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Kjeldahl Nitrogen as N | 1.03 | | 0.250 | 0.140 | mg/L | | 08/10/16 15:35 | 08/12/16 10:37 | 1 |
| Phosphorus, Total | 0.824 | | 0.100 | 0.0500 | mg/L | | 08/10/16 15:35 | 08/11/16 13:44 | 1 |
| Chemical Oxygen Demand | 212 | | 100 | 20.0 | mg/L | | | 08/16/16 18:29 | 5 |
| Carbonate Alkalinity as CaCO3 | 37.9 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:01 | 1 |
| Bicarbonate Alkalinity as CaCO3 | 839 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:01 | 1 |
| Alkalinity | 877 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:01 | 1 |
| Hydroxide Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:01 | 1 |
| Total Dissolved Solids | 1780 | | 20.0 | 14.0 | mg/L | | | 08/11/16 15:20 | 1 |
| Nitrate Nitrite as N | <0.0400 | | 0.100 | 0.0400 | mg/L | | | 08/18/16 13:18 | 1 |
| Un-ionized Hydrogen Sulfide | 6.60 | | 1.00 | 0.100 | mg/L | | | 08/18/16 09:02 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Density | 0.999 | | 0.100 | 0.100 | g/mL | | | 08/11/16 08:47 | 1 |
| Specific Conductance | 2580 | | 10.0 | 10.0 | umhos/cm | | | 08/11/16 15:00 | 1 |
| Biochemical Oxygen Demand | 114 | | 100 | 100 | mg/L | | | 08/10/16 22:51 | 5 |
| Nitrogen, Total | 1.03 | | 0.100 | 0.100 | mg/L | | | 08/16/16 22:58 | 1 |

### General Chemistry - Dissolved

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | 137 | | 20.0 | 4.00 | mg/L | | | 08/16/16 18:34 | 1 |
| Sulfide, Dissolved | 39.4 | | 1.00 | 0.500 | mg/L | | 08/15/16 17:30 | 08/16/16 17:44 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| BOD, Dissolved | 108 | | 100 | 100 | mg/L | | | 08/10/16 22:51 | 5 |

### Method: Field Sampling - Field Sampling

| Analyte | Result | Qualifier | NONE | NONE | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Field pH | 7.9 | | | | SU | | | 08/09/16 07:20 | 1 |

## Client Sample ID: 2016L-LS-03

**Date Collected: 08/09/16 08:30**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-5

**Matrix: Leachate**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Carbon disulfide** | **0.000284** | **J** | 0.000500 | 0.000220 | mg/L | | | 08/12/16 19:58 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *112* | | *70 - 130* | | *08/12/16 19:58* | *1* |
| *4-Bromofluorobenzene (Surr)* | *104* | | *70 - 130* | | *08/12/16 19:58* | *1* |
| *Dibromofluoromethane (Surr)* | *95* | | *70 - 130* | | *08/12/16 19:58* | *1* |
| *Toluene-d8 (Surr)* | *99* | | *70 - 130* | | *08/12/16 19:58* | *1* |

### Method: 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Arsenic** | **0.00134** | **J** | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 02:39 | 1 |
| **Iron** | **16.4** | | 0.0250 | 0.0200 | mg/L | | 08/12/16 10:38 | 08/14/16 02:39 | 1 |
| **Antimony** | **0.000976** | **J ^ B** | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 02:39 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Kjeldahl Nitrogen as N** | **4.62** | | 0.250 | 0.140 | mg/L | | 08/10/16 15:35 | 08/12/16 10:40 | 1 |
| **Phosphorus, Total** | **1.48** | | 0.100 | 0.0500 | mg/L | | 08/10/16 15:35 | 08/11/16 13:45 | 1 |
| **Chemical Oxygen Demand** | **45.9** | | 20.0 | 4.00 | mg/L | | | 08/16/16 18:29 | 1 |
| Carbonate Alkalinity as CaCO3 | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:07 | 1 |
| **Bicarbonate Alkalinity as CaCO3** | **623** | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:07 | 1 |
| **Alkalinity** | **623** | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:07 | 1 |
| Hydroxide Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:07 | 1 |
| **Total Dissolved Solids** | **1220** | | 20.0 | 14.0 | mg/L | | | 08/11/16 15:20 | 1 |
| Nitrate Nitrite as N | <0.0400 | | 0.100 | 0.0400 | mg/L | | | 08/18/16 13:19 | 1 |
| Un-ionized Hydrogen Sulfide | <0.100 | | 1.00 | 0.100 | mg/L | | | 08/18/16 09:02 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Density** | **1.03** | | 0.100 | 0.100 | g/mL | | | 08/11/16 08:47 | 1 |
| **Specific Conductance** | **1870** | | 10.0 | 10.0 | umhos/cm | | | 08/11/16 15:00 | 1 |
| **Biochemical Oxygen Demand** | **11.8** | | 6.00 | 6.00 | mg/L | | | 08/10/16 22:51 | 1 |
| **Nitrogen, Total** | **4.62** | | 0.100 | 0.100 | mg/L | | | 08/16/16 22:58 | 1 |

### General Chemistry - Dissolved

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chemical Oxygen Demand** | **40.8** | | 20.0 | 4.00 | mg/L | | | 08/16/16 18:34 | 1 |
| Sulfide, Dissolved | <0.500 | | 1.00 | 0.500 | mg/L | | 08/15/16 17:30 | 08/16/16 17:44 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **BOD, Dissolved** | **3.03** | | 2.00 | 2.00 | mg/L | | | 08/10/16 22:51 | 1 |

### Method: Field Sampling - Field Sampling

| Analyte | Result | Qualifier | NONE | NONE | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Field pH** | **6.52** | | | | SU | | | 08/09/16 07:30 | 1 |

## Client Sample ID: 2016L-VB-11

**Date Collected: 08/09/16 08:40**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-6

**Matrix: Leachate**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 0.0458 | | 0.000500 | 0.000220 | mg/L | | | 08/12/16 06:18 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *112* | | *70 - 130* | | *08/12/16 06:18* | *1* |
| *4-Bromofluorobenzene (Surr)* | *104* | | *70 - 130* | | *08/12/16 06:18* | *1* |
| *Dibromofluoromethane (Surr)* | *97* | | *70 - 130* | | *08/12/16 06:18* | *1* |
| *Toluene-d8 (Surr)* | *103* | | *70 - 130* | | *08/12/16 06:18* | *1* |

### Method: 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0314 | | 0.0200 | 0.00500 | mg/L | | 08/12/16 10:38 | 08/14/16 03:12 | 10 |
| Iron | 4.46 | | 0.250 | 0.200 | mg/L | | 08/12/16 10:38 | 08/14/16 03:12 | 10 |
| Antimony | 0.00706 | J ^ B | 0.0200 | 0.00500 | mg/L | | 08/12/16 10:38 | 08/14/16 03:12 | 10 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Kjeldahl Nitrogen as N | 1.19 | | 0.250 | 0.140 | mg/L | | 08/10/16 15:35 | 08/12/16 10:41 | 1 |
| Phosphorus, Total | 0.441 | | 0.100 | 0.0500 | mg/L | | 08/10/16 15:35 | 08/11/16 13:46 | 1 |
| Chemical Oxygen Demand | 1240 | | 200 | 40.0 | mg/L | | | 08/16/16 18:29 | 10 |
| Carbonate Alkalinity as CaCO3 | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:18 | 1 |
| Bicarbonate Alkalinity as CaCO3 | 1350 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:18 | 1 |
| Alkalinity | 1350 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:18 | 1 |
| Hydroxide Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:18 | 1 |
| Total Dissolved Solids | 1720 | | 20.0 | 14.0 | mg/L | | | 08/11/16 15:20 | 1 |
| Nitrate Nitrite as N | <0.0400 | | 0.100 | 0.0400 | mg/L | | | 08/18/16 13:21 | 1 |
| Un-ionized Hydrogen Sulfide | 0.784 | J | 1.00 | 0.100 | mg/L | | | 08/18/16 09:02 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Density | 1.03 | | 0.100 | 0.100 | g/mL | | | 08/12/16 08:47 | 1 |
| Specific Conductance | 2600 | | 10.0 | 10.0 | umhos/cm | | | 08/11/16 15:00 | 1 |
| Biochemical Oxygen Demand | 49.1 | | 20.0 | 20.0 | mg/L | | | 08/10/16 22:51 | 1 |
| Nitrogen, Total | 1.19 | | 0.100 | 0.100 | mg/L | | | 08/16/16 22:58 | 1 |

### General Chemistry - Dissolved

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | 137 | | 20.0 | 4.00 | mg/L | | | 08/16/16 18:34 | 1 |
| Sulfide, Dissolved | 4.68 | | 1.00 | 0.500 | mg/L | | 08/15/16 17:30 | 08/16/16 17:44 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| BOD, Dissolved | 11.7 | | 6.00 | 6.00 | mg/L | | | 08/10/16 22:51 | 1 |

### Method: Field Sampling - Field Sampling

| Analyte | Result | Qualifier | NONE | NONE | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Field pH | 7.02 | | | | SU | | | 08/09/16 07:40 | 1 |

## Client Sample ID: 2016L-LS-02

**Date Collected: 08/09/16 10:00**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-7

**Matrix: Leachate**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Carbon disulfide** | **0.0168** | | 0.00250 | 0.00110 | mg/L | | | 08/12/16 06:44 | 5 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *108* | | *70 - 130* | | *08/12/16 06:44* | *5* |
| *4-Bromofluorobenzene (Surr)* | *103* | | *70 - 130* | | *08/12/16 06:44* | *5* |
| *Dibromofluoromethane (Surr)* | *96* | | *70 - 130* | | *08/12/16 06:44* | *5* |
| *Toluene-d8 (Surr)* | *102* | | *70 - 130* | | *08/12/16 06:44* | *5* |

### Method: 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Arsenic** | **0.199** | | 0.0200 | 0.00500 | mg/L | | 08/12/16 10:38 | 08/14/16 03:18 | 10 |
| **Iron** | **0.275** | | 0.250 | 0.200 | mg/L | | 08/12/16 10:38 | 08/14/16 03:18 | 10 |
| **Antimony** | **0.0102** | **J ^ B** | 0.0200 | 0.00500 | mg/L | | 08/12/16 10:38 | 08/14/16 03:18 | 10 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Kjeldahl Nitrogen as N** | **2.19** | | 0.250 | 0.140 | mg/L | | 08/10/16 15:35 | 08/12/16 10:42 | 1 |
| **Phosphorus, Total** | **4.12** | | 0.100 | 0.0500 | mg/L | | 08/10/16 15:35 | 08/11/16 13:47 | 1 |
| **Chemical Oxygen Demand** | **238** | | 40.0 | 8.00 | mg/L | | | 08/16/16 18:29 | 2 |
| **Carbonate Alkalinity as CaCO3** | **434** | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:32 | 1 |
| Bicarbonate Alkalinity as CaCO3 | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:32 | 1 |
| Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:32 | 1 |
| Hydroxide Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:32 | 1 |
| **Total Dissolved Solids** | **7710** | | 100 | 70.0 | mg/L | | | 08/11/16 15:20 | 1 |
| Nitrate Nitrite as N | <0.0400 | | 0.100 | 0.0400 | mg/L | | | 08/18/16 13:26 | 1 |
| **Un-ionized Hydrogen Sulfide** | **0.512** | **J** | 1.00 | 0.100 | mg/L | | | 08/18/16 09:02 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Density** | **1.01** | | 0.100 | 0.100 | g/mL | | | 08/12/16 08:47 | 1 |
| **Specific Conductance** | **10100** | | 10.0 | 10.0 | umhos/cm | | | 08/11/16 15:00 | 1 |
| **Biochemical Oxygen Demand** | **5.18** | | 2.00 | 2.00 | mg/L | | | 08/10/16 22:51 | 1 |
| **Nitrogen, Total** | **2.19** | | 0.100 | 0.100 | mg/L | | | 08/16/16 22:58 | 1 |

### General Chemistry - Dissolved

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chemical Oxygen Demand** | **235** | | 40.0 | 8.00 | mg/L | | | 08/16/16 18:34 | 2 |
| **Sulfide, Dissolved** | **3.06** | | 1.00 | 0.500 | mg/L | | 08/15/16 17:30 | 08/16/16 17:44 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **BOD, Dissolved** | **4.06** | | 2.00 | 2.00 | mg/L | | | 08/10/16 22:51 | 1 |

### Method: Field Sampling - Field Sampling

| Analyte | Result | Qualifier | NONE | NONE | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Field pH** | **8.9** | | | | SU | | | 08/09/16 09:00 | 1 |

## Client Sample ID: 2016L-LS-04

**Date Collected: 08/09/16 10:00**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-8

**Matrix: Leachate**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 0.0274 | | 0.000500 | 0.000220 | mg/L | | | 08/12/16 07:11 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *112* | | *70 - 130* | | *08/12/16 07:11* | *1* |
| *4-Bromofluorobenzene (Surr)* | *107* | | *70 - 130* | | *08/12/16 07:11* | *1* |
| *Dibromofluoromethane (Surr)* | *96* | | *70 - 130* | | *08/12/16 07:11* | *1* |
| *Toluene-d8 (Surr)* | *107* | | *70 - 130* | | *08/12/16 07:11* | *1* |

### Method: 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.00775 | | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 01:43 | 1 |
| Iron | 0.392 | F1 | 0.0250 | 0.0200 | mg/L | | 08/12/16 10:38 | 08/14/16 01:43 | 1 |
| Antimony | 0.00120 | J ^ B | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 01:43 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Kjeldahl Nitrogen as N | 4.74 | | 0.250 | 0.140 | mg/L | | 08/10/16 15:35 | 08/12/16 10:43 | 1 |
| Phosphorus, Total | 0.991 | F1 | 0.100 | 0.0500 | mg/L | | 08/10/16 15:35 | 08/11/16 13:55 | 1 |
| Chemical Oxygen Demand | 199 | | 40.0 | 8.00 | mg/L | | | 08/16/16 18:29 | 2 |
| Carbonate Alkalinity as CaCO3 | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:41 | 1 |
| Bicarbonate Alkalinity as CaCO3 | 1200 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:41 | 1 |
| Alkalinity | 1200 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:41 | 1 |
| Hydroxide Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 12:41 | 1 |
| Total Dissolved Solids | 2830 | | 20.0 | 14.0 | mg/L | | | 08/11/16 15:20 | 1 |
| Nitrate Nitrite as N | <0.0400 | F1 | 0.100 | 0.0400 | mg/L | | | 08/18/16 12:57 | 1 |
| Un-ionized Hydrogen Sulfide | 2.98 | | 1.00 | 0.100 | mg/L | | | 08/18/16 09:02 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Density | 1.03 | | 0.100 | 0.100 | g/mL | | | 08/12/16 08:47 | 1 |
| Specific Conductance | 3750 | | 10.0 | 10.0 | umhos/cm | | | 08/11/16 15:00 | 1 |
| Biochemical Oxygen Demand | 39.2 | | 30.0 | 30.0 | mg/L | | | 08/10/16 22:51 | 5 |
| Nitrogen, Total | 4.74 | | 0.100 | 0.100 | mg/L | | | 08/16/16 22:58 | 1 |

### General Chemistry - Dissolved

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | 192 | | 40.0 | 8.00 | mg/L | | | 08/16/16 18:34 | 2 |
| Sulfide, Dissolved | 17.8 | | 1.00 | 0.500 | mg/L | | 08/15/16 17:30 | 08/16/16 17:44 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| BOD, Dissolved | 37.2 | | 30.0 | 30.0 | mg/L | | | 08/10/16 22:51 | 5 |

### Method: Field Sampling - Field Sampling

| Analyte | Result | Qualifier | NONE | NONE | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Field pH | 7.34 | | | | SU | | | 08/09/16 09:00 | 1 |

## Client Sample ID: 2016L-LS-04D

**Date Collected: 08/09/16 10:00**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-9

**Matrix: Leachate**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 0.0256 | | 0.000500 | 0.000220 | mg/L | | | 08/12/16 08:03 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *112* | | *70 - 130* | | *08/12/16 08:03* | *1* |
| *4-Bromofluorobenzene (Surr)* | *106* | | *70 - 130* | | *08/12/16 08:03* | *1* |
| *Dibromofluoromethane (Surr)* | *95* | | *70 - 130* | | *08/12/16 08:03* | *1* |
| *Toluene-d8 (Surr)* | *104* | | *70 - 130* | | *08/12/16 08:03* | *1* |

### Method: 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.00779 | | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 02:44 | 1 |
| Iron | 1.67 | | 0.0250 | 0.0200 | mg/L | | 08/12/16 10:38 | 08/14/16 02:44 | 1 |
| Antimony | 0.00103 | J ^ B | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 02:44 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Kjeldahl Nitrogen as N | 5.07 | | 0.250 | 0.140 | mg/L | | 08/10/16 15:35 | 08/12/16 10:45 | 1 |
| Phosphorus, Total | 1.02 | | 0.100 | 0.0500 | mg/L | | 08/10/16 15:35 | 08/11/16 13:51 | 1 |
| Chemical Oxygen Demand | 195 | | 40.0 | 8.00 | mg/L | | | 08/16/16 18:29 | 2 |
| Carbonate Alkalinity as CaCO3 | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:00 | 1 |
| Bicarbonate Alkalinity as CaCO3 | 1210 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:00 | 1 |
| Alkalinity | 1210 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:00 | 1 |
| Hydroxide Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:00 | 1 |
| Total Dissolved Solids | 2730 | | 20.0 | 14.0 | mg/L | | | 08/11/16 15:20 | 1 |
| Nitrate Nitrite as N | 0.0900 | J | 0.100 | 0.0400 | mg/L | | | 08/18/16 13:01 | 1 |
| Un-ionized Hydrogen Sulfide | 3.11 | | 1.00 | 0.100 | mg/L | | | 08/18/16 09:02 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Density | 1.00 | | 0.100 | 0.100 | g/mL | | | 08/12/16 08:47 | 1 |
| Specific Conductance | 3810 | | 10.0 | 10.0 | umhos/cm | | | 08/11/16 15:00 | 1 |
| Biochemical Oxygen Demand | 122 | | 60.0 | 60.0 | mg/L | | | 08/10/16 22:51 | 10 |
| Nitrogen, Total | 5.16 | | 0.100 | 0.100 | mg/L | | | 08/16/16 22:58 | 1 |

### General Chemistry - Dissolved

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | 196 | | 40.0 | 8.00 | mg/L | | | 08/16/16 18:34 | 2 |
| Sulfide, Dissolved | 24.4 | | 1.00 | 0.500 | mg/L | | 08/15/16 17:30 | 08/16/16 17:44 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| BOD, Dissolved | 42.5 | | 20.0 | 20.0 | mg/L | | | 08/10/16 22:51 | 10 |

### Method: Field Sampling - Field Sampling

| Analyte | Result | Qualifier | NONE | NONE | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Field pH | 7.34 | | | | SU | | | 08/09/16 09:00 | 1 |

## Client Sample ID: 2016L-VB-10

**Date Collected: 08/09/16 10:20**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-10

**Matrix: Leachate**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 0.185 | | 0.000500 | 0.000220 | mg/L | | | 08/12/16 08:30 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *111* | | *70 - 130* | | *08/12/16 08:30* | *1* |
| *4-Bromofluorobenzene (Surr)* | *106* | | *70 - 130* | | *08/12/16 08:30* | *1* |
| *Dibromofluoromethane (Surr)* | *95* | | *70 - 130* | | *08/12/16 08:30* | *1* |
| *Toluene-d8 (Surr)* | *108* | | *70 - 130* | | *08/12/16 08:30* | *1* |

### Method: 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0769 | | 0.0200 | 0.00500 | mg/L | | 08/12/16 10:38 | 08/14/16 03:23 | 10 |
| Iron | 0.644 | | 0.250 | 0.200 | mg/L | | 08/12/16 10:38 | 08/14/16 03:23 | 10 |
| Antimony | 0.0131 | J ^ B | 0.0200 | 0.00500 | mg/L | | 08/12/16 10:38 | 08/14/16 03:23 | 10 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Kjeldahl Nitrogen as N | 5.50 | | 0.250 | 0.140 | mg/L | | 08/10/16 15:35 | 08/12/16 10:46 | 1 |
| Phosphorus, Total | 1.53 | | 0.100 | 0.0500 | mg/L | | 08/10/16 15:35 | 08/11/16 13:52 | 1 |
| Chemical Oxygen Demand | 897 | | 200 | 40.0 | mg/L | | | 08/16/16 18:29 | 10 |
| Carbonate Alkalinity as CaCO3 | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:14 | 1 |
| Bicarbonate Alkalinity as CaCO3 | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:14 | 1 |
| Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:14 | 1 |
| Hydroxide Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:14 | 1 |
| Total Dissolved Solids | 7930 | | 100 | 70.0 | mg/L | | | 08/11/16 15:20 | 1 |
| Nitrate Nitrite as N | <0.0400 | | 0.100 | 0.0400 | mg/L | | | 08/18/16 13:03 | 1 |
| Un-ionized Hydrogen Sulfide | 4.09 | | 1.00 | 0.100 | mg/L | | | 08/18/16 09:02 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Density | 1.01 | | 0.100 | 0.100 | g/mL | | | 08/12/16 08:47 | 1 |
| Specific Conductance | 9930 | | 10.0 | 10.0 | umhos/cm | | | 08/11/16 15:00 | 1 |
| Biochemical Oxygen Demand | 342 | | 120 | 120 | mg/L | | | 08/10/16 22:51 | 20 |
| Nitrogen, Total | 5.50 | | 0.100 | 0.100 | mg/L | | | 08/16/16 22:58 | 1 |

### General Chemistry - Dissolved

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | 508 | | 100 | 20.0 | mg/L | | | 08/16/16 18:34 | 5 |
| Sulfide, Dissolved | 11.7 | | 1.00 | 0.500 | mg/L | | 08/15/16 17:30 | 08/16/16 17:44 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| BOD, Dissolved | 72.0 | | 40.0 | 40.0 | mg/L | | | 08/10/16 22:51 | 20 |

### Method: Field Sampling - Field Sampling

| Analyte | Result | Qualifier | NONE | NONE | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Field pH | 8.07 | | | | SU | | | 08/09/16 09:20 | 1 |

## Client Sample ID: 2016L-LS-01

**Date Collected: 08/09/16 11:40**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-11

**Matrix: Leachate**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 0.00410 | | 0.00250 | 0.00110 | mg/L | | | 08/12/16 08:56 | 5 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *110* | | *70 - 130* | | *08/12/16 08:56* | *5* |
| *4-Bromofluorobenzene (Surr)* | *103* | | *70 - 130* | | *08/12/16 08:56* | *5* |
| *Dibromofluoromethane (Surr)* | *94* | | *70 - 130* | | *08/12/16 08:56* | *5* |
| *Toluene-d8 (Surr)* | *94* | | *70 - 130* | | *08/12/16 08:56* | *5* |

### Method: 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.117 | | 0.0200 | 0.00500 | mg/L | | 08/12/16 10:38 | 08/14/16 03:29 | 10 |
| Iron | 11.9 | | 0.250 | 0.200 | mg/L | | 08/12/16 10:38 | 08/14/16 03:29 | 10 |
| Antimony | 0.00843 | J ^ B | 0.0200 | 0.00500 | mg/L | | 08/12/16 10:38 | 08/14/16 03:29 | 10 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Kjeldahl Nitrogen as N | 3.05 | | 0.250 | 0.140 | mg/L | | 08/10/16 15:35 | 08/12/16 10:47 | 1 |
| Phosphorus, Total | 1.09 | | 0.100 | 0.0500 | mg/L | | 08/10/16 15:35 | 08/11/16 13:53 | 1 |
| Chemical Oxygen Demand | 206 | | 40.0 | 8.00 | mg/L | | | 08/16/16 18:29 | 2 |
| Carbonate Alkalinity as CaCO3 | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:29 | 1 |
| Bicarbonate Alkalinity as CaCO3 | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:29 | 1 |
| Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:29 | 1 |
| Hydroxide Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:29 | 1 |
| Total Dissolved Solids | 6380 | | 100 | 70.0 | mg/L | | | 08/11/16 15:20 | 1 |
| Nitrate Nitrite as N | <0.0400 | | 0.100 | 0.0400 | mg/L | | | 08/18/16 13:08 | 1 |
| Un-ionized Hydrogen Sulfide | 1.96 | | 1.00 | 0.100 | mg/L | | | 08/18/16 09:02 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Density | 1.04 | | 0.100 | 0.100 | g/mL | | | 08/12/16 08:47 | 1 |
| Specific Conductance | 8560 | | 10.0 | 10.0 | umhos/cm | | | 08/11/16 15:00 | 1 |
| Biochemical Oxygen Demand | 10.6 | | 10.0 | 10.0 | mg/L | | | 08/10/16 22:51 | 5 |
| Nitrogen, Total | 3.05 | | 0.100 | 0.100 | mg/L | | | 08/16/16 22:58 | 1 |

### General Chemistry - Dissolved

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | 196 | | 40.0 | 8.00 | mg/L | | | 08/16/16 18:34 | 2 |
| Sulfide, Dissolved | 0.564 | J | 1.00 | 0.500 | mg/L | | 08/15/16 17:30 | 08/16/16 17:44 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| BOD, Dissolved | 3.93 | | 2.00 | 2.00 | mg/L | | | 08/10/16 22:51 | 1 |

### Method: Field Sampling - Field Sampling

| Analyte | Result | Qualifier | NONE | NONE | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Field pH | 7.27 | | | | SU | | | 08/09/16 10:40 | 1 |

## Client Sample ID: 2016L-TW-03

**Date Collected: 08/09/16 14:20**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-12

**Matrix: Ground Water**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Carbon disulfide** | **0.00126** | | 0.000500 | 0.000220 | mg/L | | | 08/12/16 09:23 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *111* | | *70 - 130* | | *08/12/16 09:23* | *1* |
| *4-Bromofluorobenzene (Surr)* | *104* | | *70 - 130* | | *08/12/16 09:23* | *1* |
| *Dibromofluoromethane (Surr)* | *94* | | *70 - 130* | | *08/12/16 09:23* | *1* |
| *Toluene-d8 (Surr)* | *94* | | *70 - 130* | | *08/12/16 09:23* | *1* |

### Method: 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000500 | | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 02:50 | 1 |
| **Iron** | **0.273** | | 0.0250 | 0.0200 | mg/L | | 08/12/16 10:38 | 08/14/16 02:50 | 1 |
| **Antimony** | **0.000911** | **J ^ B** | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 02:50 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Kjeldahl Nitrogen as N** | **0.499** | | 0.250 | 0.140 | mg/L | | 08/10/16 15:35 | 08/12/16 10:48 | 1 |
| Phosphorus, Total | <0.0500 | | 0.100 | 0.0500 | mg/L | | 08/10/16 15:35 | 08/11/16 13:54 | 1 |
| **Chemical Oxygen Demand** | **27.6** | | 20.0 | 4.00 | mg/L | | | 08/16/16 18:29 | 1 |
| Carbonate Alkalinity as CaCO3 | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:35 | 1 |
| **Bicarbonate Alkalinity as CaCO3** | **257** | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:35 | 1 |
| **Alkalinity** | **257** | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:35 | 1 |
| Hydroxide Alkalinity | <5.00 | | 10.0 | 5.00 | mg/L | | | 08/11/16 13:35 | 1 |
| **Total Dissolved Solids** | **736** | | 10.0 | 7.00 | mg/L | | | 08/11/16 15:20 | 1 |
| Nitrate Nitrite as N | <0.0400 | | 0.100 | 0.0400 | mg/L | | | 08/18/16 13:10 | 1 |
| Un-ionized Hydrogen Sulfide | <0.100 | | 1.00 | 0.100 | mg/L | | | 08/18/16 09:02 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Density** | **0.998** | | 0.100 | 0.100 | g/mL | | | 08/12/16 08:47 | 1 |
| **Specific Conductance** | **1130** | | 10.0 | 10.0 | umhos/cm | | | 08/11/16 15:00 | 1 |
| **Biochemical Oxygen Demand** | **10.2** | | 6.00 | 6.00 | mg/L | | | 08/10/16 22:51 | 1 |
| **Nitrogen, Total** | **0.499** | | 0.100 | 0.100 | mg/L | | | 08/16/16 22:58 | 1 |

### General Chemistry - Dissolved

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chemical Oxygen Demand** | **28.4** | | 20.0 | 4.00 | mg/L | | | 08/16/16 18:34 | 1 |
| **Sulfide, Dissolved** | **3.79** | | 1.00 | 0.500 | mg/L | | 08/15/16 17:30 | 08/16/16 17:44 | 1 |

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **BOD, Dissolved** | **6.74** | | 6.00 | 6.00 | mg/L | | | 08/10/16 22:51 | 1 |

### Method: Field Sampling - Field Sampling

| Analyte | Result | Qualifier | NONE | NONE | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Field pH** | **6.98** | | | | SU | | | 08/09/16 13:20 | 1 |

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 490-361967/6**
**Matrix: Water**
**Analysis Batch: 361967**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | <0.000220 | | 0.000500 | 0.000220 | mg/L | | | 08/12/16 03:13 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *110* | | *70 - 130* | | *08/12/16 03:13* | *1* |
| *4-Bromofluorobenzene (Surr)* | *107* | | *70 - 130* | | *08/12/16 03:13* | *1* |
| *Dibromofluoromethane (Surr)* | *95* | | *70 - 130* | | *08/12/16 03:13* | *1* |
| *Toluene-d8 (Surr)* | *107* | | *70 - 130* | | *08/12/16 03:13* | *1* |

**Lab Sample ID: LCS 490-361967/3**
**Matrix: Water**
**Analysis Batch: 361967**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | | | 0.0500 | 0.04422 | | mg/L | | 88 | 64 - 135 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *102* | | *70 - 130* |
| *4-Bromofluorobenzene (Surr)* | *111* | | *70 - 130* |
| *Dibromofluoromethane (Surr)* | *90* | | *70 - 130* |
| *Toluene-d8 (Surr)* | *107* | | *70 - 130* |

**Lab Sample ID: LCSD 490-361967/4**
**Matrix: Water**
**Analysis Batch: 361967**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | | | 0.0500 | 0.04637 | | mg/L | | 93 | 64 - 135 | 5 | 16 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *103* | | *70 - 130* |
| *4-Bromofluorobenzene (Surr)* | *111* | | *70 - 130* |
| *Dibromofluoromethane (Surr)* | *95* | | *70 - 130* |
| *Toluene-d8 (Surr)* | *107* | | *70 - 130* |

**Lab Sample ID: 490-109402-8 MS**
**Matrix: Leachate**
**Analysis Batch: 361967**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 0.0274 | | 0.0500 | 0.07233 | | mg/L | | 90 | 35 - 150 | | |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *111* | | *70 - 130* |
| *4-Bromofluorobenzene (Surr)* | *111* | | *70 - 130* |
| *Dibromofluoromethane (Surr)* | *98* | | *70 - 130* |
| *Toluene-d8 (Surr)* | *92* | | *70 - 130* |

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 490-109402-8 MSD**
**Matrix: Leachate**
**Analysis Batch: 361967**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 0.0274 | | 0.0500 | 0.07010 | | mg/L | | 85 | 35 - 150 | 3 | 34 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *110* | | *70 - 130* |
| *4-Bromofluorobenzene (Surr)* | *112* | | *70 - 130* |
| *Dibromofluoromethane (Surr)* | *98* | | *70 - 130* |
| *Toluene-d8 (Surr)* | *94* | | *70 - 130* |

**Lab Sample ID: 490-109402-8 DU**
**Matrix: Leachate**
**Analysis Batch: 361967**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 0.0274 | | | 0.02333 | | mg/L | | | | 16 | 21 |

| *Surrogate* | *DU %Recovery* | *DU Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *106* | | *70 - 130* |
| *4-Bromofluorobenzene (Surr)* | *107* | | *70 - 130* |
| *Dibromofluoromethane (Surr)* | *94* | | *70 - 130* |
| *Toluene-d8 (Surr)* | *105* | | *70 - 130* |

**Lab Sample ID: MB 490-362291/6**
**Matrix: Water**
**Analysis Batch: 362291**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | <0.000220 | | 0.000500 | 0.000220 | mg/L | | | 08/12/16 16:00 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *113* | | *70 - 130* | | *08/12/16 16:00* | *1* |
| *4-Bromofluorobenzene (Surr)* | *106* | | *70 - 130* | | *08/12/16 16:00* | *1* |
| *Dibromofluoromethane (Surr)* | *99* | | *70 - 130* | | *08/12/16 16:00* | *1* |
| *Toluene-d8 (Surr)* | *88* | | *70 - 130* | | *08/12/16 16:00* | *1* |

**Lab Sample ID: LCS 490-362291/3**
**Matrix: Water**
**Analysis Batch: 362291**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | | | 0.0500 | 0.04226 | | mg/L | | 85 | 64 - 135 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *106* | | *70 - 130* |
| *4-Bromofluorobenzene (Surr)* | *110* | | *70 - 130* |
| *Dibromofluoromethane (Surr)* | *99* | | *70 - 130* |
| *Toluene-d8 (Surr)* | *93* | | *70 - 130* |

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MB 490-362995/6**
**Matrix: Water**
**Analysis Batch: 362995**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | <0.000220 | | 0.000500 | 0.000220 | mg/L | | | 08/16/16 12:58 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *103* | | *70 - 130* | | *08/16/16 12:58* | *1* |
| *4-Bromofluorobenzene (Surr)* | *106* | | *70 - 130* | | *08/16/16 12:58* | *1* |
| *Dibromofluoromethane (Surr)* | *97* | | *70 - 130* | | *08/16/16 12:58* | *1* |
| *Toluene-d8 (Surr)* | *107* | | *70 - 130* | | *08/16/16 12:58* | *1* |

**Lab Sample ID: LCS 490-362995/3**
**Matrix: Water**
**Analysis Batch: 362995**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | | | 0.0500 | 0.04810 | | mg/L | | 96 | 64 - 135 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *101* | | *70 - 130* |
| *4-Bromofluorobenzene (Surr)* | *113* | | *70 - 130* |
| *Dibromofluoromethane (Surr)* | *94* | | *70 - 130* |
| *Toluene-d8 (Surr)* | *112* | | *70 - 130* |

**Lab Sample ID: LCSD 490-362995/4**
**Matrix: Water**
**Analysis Batch: 362995**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | | | 0.0500 | 0.05012 | | mg/L | | 100 | 64 - 135 | 4 | 16 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *101* | | *70 - 130* |
| *4-Bromofluorobenzene (Surr)* | *112* | | *70 - 130* |
| *Dibromofluoromethane (Surr)* | *92* | | *70 - 130* |
| *Toluene-d8 (Surr)* | *110* | | *70 - 130* |

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 490-362248/1-A**
**Matrix: Water**
**Analysis Batch: 362647**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 362248**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000500 | | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 01:32 | 1 |
| Iron | <0.0200 | | 0.0250 | 0.0200 | mg/L | | 08/12/16 10:38 | 08/14/16 01:32 | 1 |
| Antimony | 0.0007761 | J ^ | 0.00200 | 0.000500 | mg/L | | 08/12/16 10:38 | 08/14/16 01:32 | 1 |

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 490-362248/2-A**
**Matrix: Water**
**Analysis Batch: 362647**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 362248**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Arsenic | 0.100 | 0.08890 | | mg/L | | 89 | 80 - 120 |
| Iron | 1.00 | 1.060 | | mg/L | | 106 | 80 - 120 |
| Antimony | 0.100 | 0.09627 | ^ | mg/L | | 96 | 80 - 120 |

**Lab Sample ID: 490-109402-8 MS**
**Matrix: Leachate**
**Analysis Batch: 362647**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**
**Prep Batch: 362248**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.00775 | | 0.100 | 0.09671 | | mg/L | | 89 | 75 - 125 |
| Iron | 0.392 | F1 | 1.00 | 8.227 | F1 | mg/L | | 784 | 75 - 125 |
| Antimony | 0.00120 | J ^ B | 0.100 | 0.09349 | ^ | mg/L | | 92 | 75 - 125 |

**Lab Sample ID: 490-109402-8 MSD**
**Matrix: Leachate**
**Analysis Batch: 362647**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**
**Prep Batch: 362248**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.00775 | | 0.100 | 0.09703 | | mg/L | | 89 | 75 - 125 | 0 | 20 |
| Iron | 0.392 | F1 | 1.00 | 8.016 | F1 | mg/L | | 762 | 75 - 125 | 3 | 20 |
| Antimony | 0.00120 | J ^ B | 0.100 | 0.09136 | ^ | mg/L | | 90 | 75 - 125 | 2 | 20 |

**Lab Sample ID: 490-109402-8 DU**
**Matrix: Leachate**
**Analysis Batch: 362647**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**
**Prep Batch: 362248**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.00775 | | 0.007669 | | mg/L | | 1 | 20 |
| Iron | 0.392 | F1 | 0.3741 | | mg/L | | 5 | 20 |
| Antimony | 0.00120 | J ^ B | 0.001216 | J ^ | mg/L | | 1 | 20 |

## Method: 351.2 - Nitrogen, Total Kjeldahl

**Lab Sample ID: MB 490-361840/1-A**
**Matrix: Water**
**Analysis Batch: 362272**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 361840**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Kjeldahl Nitrogen as N | <0.140 | | 0.250 | 0.140 | mg/L | | 08/10/16 15:35 | 08/12/16 10:29 | 1 |

**Lab Sample ID: LCS 490-361840/2-A**
**Matrix: Water**
**Analysis Batch: 362272**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 361840**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Kjeldahl Nitrogen as N | 2.50 | 2.740 | | mg/L | | 110 | 90 - 110 |

## Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

**Lab Sample ID: 490-109402-8 MS**
**Matrix: Leachate**
**Analysis Batch: 362272**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**
**Prep Batch: 361840**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Kjeldahl Nitrogen as N | 4.74 | | 2.50 | 7.290 | | mg/L | | 102 | 90 - 110 |

**Lab Sample ID: 490-109402-8 MSD**
**Matrix: Leachate**
**Analysis Batch: 362272**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**
**Prep Batch: 361840**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Kjeldahl Nitrogen as N | 4.74 | | 2.50 | 7.340 | | mg/L | | 104 | 90 - 110 | 1 | 20 |

**Lab Sample ID: MB 490-362386/1-A**
**Matrix: Water**
**Analysis Batch: 363134**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 362386**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Kjeldahl Nitrogen as N | <0.140 | | 0.250 | 0.140 | mg/L | | 08/12/16 13:41 | 08/16/16 12:26 | 1 |

**Lab Sample ID: LCS 490-362386/2-A**
**Matrix: Water**
**Analysis Batch: 363134**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 362386**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Kjeldahl Nitrogen as N | 2.50 | 2.580 | | mg/L | | 103 | 90 - 110 |

## Method: 365.4 - Phosphorus, Total

**Lab Sample ID: MB 490-361849/1-A**
**Matrix: Water**
**Analysis Batch: 362136**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 361849**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total | <0.0500 | | 0.100 | 0.0500 | mg/L | | 08/10/16 15:35 | 08/11/16 13:39 | 1 |

**Lab Sample ID: LCS 490-361849/2-A**
**Matrix: Water**
**Analysis Batch: 362136**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 361849**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Phosphorus, Total | 2.00 | 2.133 | | mg/L | | 107 | 90 - 110 |

**Lab Sample ID: 490-109402-8 MS**
**Matrix: Leachate**
**Analysis Batch: 362136**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**
**Prep Batch: 361849**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total | 0.991 | F1 | 2.00 | 3.138 | | mg/L | | 107 | 73 - 119 |

## Method: 365.4 - Phosphorus, Total (Continued)

**Lab Sample ID: 490-109402-8 MSD** — **Client Sample ID: 2016L-LS-04**
**Matrix: Leachate** — **Prep Type: Total/NA**
**Analysis Batch: 362136** — **Prep Batch: 361849**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total | 0.991 | F1 | 2.00 | 3.458 | F1 | mg/L | | 123 | 73 - 119 | 10 | 20 |

**Lab Sample ID: MB 490-362927/1-A** — **Client Sample ID: Method Blank**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 363185** — **Prep Batch: 362927**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total | <0.0500 | | 0.100 | 0.0500 | mg/L | | 08/16/16 08:49 | 08/16/16 15:14 | 1 |

**Lab Sample ID: LCS 490-362927/2-A** — **Client Sample ID: Lab Control Sample**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 363185** — **Prep Batch: 362927**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Phosphorus, Total | 2.00 | 1.905 | | mg/L | | 95 | 90 - 110 |

**Lab Sample ID: LCSD 490-362927/3-A** — **Client Sample ID: Lab Control Sample Dup**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 363185** — **Prep Batch: 362927**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total | 2.00 | 1.955 | | mg/L | | 98 | 90 - 110 | 3 | 20 |

## Method: 410.4 - COD

**Lab Sample ID: MB 490-363226/24** — **Client Sample ID: Method Blank**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 363226**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | <4.00 | | 20.0 | 4.00 | mg/L | | | 08/16/16 18:34 | 1 |

**Lab Sample ID: MB 490-363226/3** — **Client Sample ID: Method Blank**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 363226**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | <4.00 | | 20.0 | 4.00 | mg/L | | | 08/16/16 18:29 | 1 |

**Lab Sample ID: LCS 490-363226/25** — **Client Sample ID: Lab Control Sample**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 363226**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | 50.0 | 49.25 | | mg/L | | 98 | 90 - 110 |

## Method: 410.4 - COD (Continued)

**Lab Sample ID: LCS 490-363226/4**
**Matrix: Water**
**Analysis Batch: 363226**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | 50.0 | 48.19 | | mg/L | | 96 | 90 - 110 |

**Lab Sample ID: LCSD 490-363226/26**
**Matrix: Water**
**Analysis Batch: 363226**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | 50.0 | 49.05 | | mg/L | | 98 | 90 - 110 | 0 | 20 |

**Lab Sample ID: LCSD 490-363226/5**
**Matrix: Water**
**Analysis Batch: 363226**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | 50.0 | 48.91 | | mg/L | | 98 | 90 - 110 | 1 | 20 |

**Lab Sample ID: 490-109402-8 DU**
**Matrix: Leachate**
**Analysis Batch: 363226**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | 199 | | 200.2 | | mg/L | | 0.4 | 20 |

**Lab Sample ID: 490-109402-8 DU**
**Matrix: Leachate**
**Analysis Batch: 363226**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Dissolved**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | 192 | | 186.8 | | mg/L | | 3 | 20 |

## Method: D1475-98(2003) - Density

**Lab Sample ID: 490-109402-1 DU**
**Matrix: Leachate**
**Analysis Batch: 362690**

**Client Sample ID: 2016L-VB-09**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Density | 1.04 | | 1.035 | | g/mL | | 0 | 20 |

**Lab Sample ID: 490-109402-8 DU**
**Matrix: Leachate**
**Analysis Batch: 362690**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Density | 1.03 | | 1.032 | | g/mL | | 0 | 20 |

## Method: SM 2320B - Alkalinity

**Lab Sample ID: LCS 490-362148/5**
**Matrix: Water**
**Analysis Batch: 362148**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Alkalinity | 100 | 96.84 | | mg/L | | 97 | 90 - 110 |

**Lab Sample ID: LCSD 490-362148/6**
**Matrix: Water**
**Analysis Batch: 362148**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity | 100 | 92.60 | | mg/L | | 93 | 90 - 110 | 4 | 20 |

**Lab Sample ID: 490-109402-8 DU**
**Matrix: Leachate**
**Analysis Batch: 362148**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Carbonate Alkalinity as CaCO3 | <5.00 | | <5.00 | | mg/L | | NC | 20 |
| Bicarbonate Alkalinity as CaCO3 | 1200 | | 1201 | | mg/L | | 0.3 | 20 |
| Alkalinity | 1200 | | 1201 | | mg/L | | 0.3 | 20 |
| Hydroxide Alkalinity | <5.00 | | <5.00 | | mg/L | | NC | 20 |

## Method: SM 2510B - Conductivity, Specific Conductance

**Lab Sample ID: LCS 490-362183/3**
**Matrix: Water**
**Analysis Batch: 362183**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Specific Conductance | 1410 | 1386 | | umhos/cm | | 98 | 90 - 110 |

**Lab Sample ID: 490-109402-1 DU**
**Matrix: Leachate**
**Analysis Batch: 362183**

**Client Sample ID: 2016L-VB-09**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 8180 | | 8190 | | umhos/cm | | 0.1 | 10 |

**Lab Sample ID: 490-109402-8 DU**
**Matrix: Leachate**
**Analysis Batch: 362183**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 3750 | | 3760 | | umhos/cm | | 0.3 | 10 |

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 490-361474/1**
**Matrix: Water**
**Analysis Batch: 361474**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | <7.00 | | 10.0 | 7.00 | mg/L | | | 08/11/16 15:20 | 1 |

**Lab Sample ID: LCS 490-361474/2**
**Matrix: Water**
**Analysis Batch: 361474**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 100 | 108.0 | | mg/L | | 108 | 90 - 110 |

**Lab Sample ID: 490-109402-8 DU**
**Matrix: Leachate**
**Analysis Batch: 361474**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 2830 | | 2324 | | mg/L | | 20 | 20 |

## Method: SM 4500 NO3 F - Nitrogen, Nitrate

**Lab Sample ID: MB 490-363836/6**
**Matrix: Water**
**Analysis Batch: 363836**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate Nitrite as N | <0.0400 | | 0.100 | 0.0400 | mg/L | | | 08/18/16 12:53 | 1 |

**Lab Sample ID: LCS 490-363836/7**
**Matrix: Water**
**Analysis Batch: 363836**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Nitrate Nitrite as N | 2.99 | 3.283 | | mg/L | | 110 | 90 - 110 |

**Lab Sample ID: LCSD 490-363836/8**
**Matrix: Water**
**Analysis Batch: 363836**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate Nitrite as N | 2.99 | 3.262 | | mg/L | | 109 | 90 - 110 | 1 | 20 |

**Lab Sample ID: 490-109402-8 MS**
**Matrix: Leachate**
**Analysis Batch: 363836**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate Nitrite as N | <0.0400 | F1 | 2.99 | 0.8770 | F1 | mg/L | | 29 | 90 - 110 |

## Method: SM 4500 NO3 F - Nitrogen, Nitrate (Continued)

**Lab Sample ID: 490-109402-8 MSD** — **Client Sample ID: 2016L-LS-04**
**Matrix: Leachate** — **Prep Type: Total/NA**
**Analysis Batch: 363836**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate Nitrite as N | <0.0400 | F1 | 2.99 | 0.8680 | F1 | mg/L | | 29 | 90 - 110 | 1 | 20 |

## Method: SM 4500 S2 F - Sulfide, Total

**Lab Sample ID: 490-109402-8 MS** — **Client Sample ID: 2016L-LS-04**
**Matrix: Leachate** — **Prep Type: Dissolved**
**Analysis Batch: 363233** — **Prep Batch: 363466**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Sulfide, Dissolved | 17.8 | | 20.0 | 39.43 | | mg/L | | 108 | 70 - 130 |

**Lab Sample ID: 490-109402-8 MSD** — **Client Sample ID: 2016L-LS-04**
**Matrix: Leachate** — **Prep Type: Dissolved**
**Analysis Batch: 363233** — **Prep Batch: 363466**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfide, Dissolved | 17.8 | | 20.0 | 39.43 | | mg/L | | 108 | 70 - 130 | 0 | 10 |

**Lab Sample ID: 490-109402-1 DU** — **Client Sample ID: 2016L-VB-09**
**Matrix: Leachate** — **Prep Type: Dissolved**
**Analysis Batch: 363266** — **Prep Batch: 363466**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Sulfide, Dissolved | <0.500 | | <0.500 | | mg/L | | NC | 20 |

**Lab Sample ID: 490-109402-8 DU** — **Client Sample ID: 2016L-LS-04**
**Matrix: Leachate** — **Prep Type: Dissolved**
**Analysis Batch: 363233** — **Prep Batch: 363466**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Sulfide, Dissolved | 17.8 | | 18.55 | | mg/L | | 4 | 20 |

## Method: SM5210B - BOD, 5 Day

**Lab Sample ID: USB 490-361988/1** — **Client Sample ID: Method Blank**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 361988**

| Analyte | USB Result | USB Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Biochemical Oxygen Demand | <2.00 | | 2.00 | 2.00 | mg/L | | | 08/10/16 22:51 | 1 |
| BOD, Dissolved | <2.00 | | 2.00 | 2.00 | mg/L | | | 08/10/16 22:51 | 1 |

**Lab Sample ID: LCS 490-361988/2** — **Client Sample ID: Lab Control Sample**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 361988**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Biochemical Oxygen Demand | 3.96 | 4.182 | | mg/L | | 106 | 85 - 115 |
| BOD, Dissolved | 3.96 | 4.182 | | mg/L | | 106 | 85 - 115 |

**Lab Sample ID: 490-109402-8 DU**
**Matrix: Leachate**
**Analysis Batch: 361988**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Biochemical Oxygen Demand | 39.2 | | | 42.18 | | mg/L | | | | 7 | 20 |

**Lab Sample ID: USB 490-362031/1**
**Matrix: Water**
**Analysis Batch: 362031**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | USB Result | USB Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Biochemical Oxygen Demand | <2.00 | | 2.00 | 2.00 | mg/L | | | 08/10/16 22:51 | 1 |
| BOD, Dissolved | <2.00 | | 2.00 | 2.00 | mg/L | | | 08/10/16 22:51 | 1 |

**Lab Sample ID: LCS 490-362031/2**
**Matrix: Water**
**Analysis Batch: 362031**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Biochemical Oxygen Demand | | | 3.96 | 4.090 | | mg/L | | 103 | 85 - 115 | | |
| BOD, Dissolved | | | 3.96 | 4.090 | | mg/L | | 103 | 85 - 115 | | |

**Lab Sample ID: 490-109402-8 DU**
**Matrix: Leachate**
**Analysis Batch: 361988**

**Client Sample ID: 2016L-LS-04**
**Prep Type: Dissolved**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BOD, Dissolved | 37.2 | | | 40.23 | | mg/L | | | | 8 | 20 |

## GC/MS VOA

### Analysis Batch: 361967

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-2 | TB-080916-01 | Total/NA | Water | 8260B | |
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | 8260B | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | 8260B | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | 8260B | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | 8260B | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | 8260B | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | 8260B | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | 8260B | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | 8260B | |
| MB 490-361967/6 | Method Blank | Total/NA | Water | 8260B | |
| LCS 490-361967/3 | Lab Control Sample | Total/NA | Water | 8260B | |
| LCSD 490-361967/4 | Lab Control Sample Dup | Total/NA | Water | 8260B | |
| 490-109402-8 MS | 2016L-LS-04 | Total/NA | Leachate | 8260B | |
| 490-109402-8 MSD | 2016L-LS-04 | Total/NA | Leachate | 8260B | |
| 490-109402-8 DU | 2016L-LS-04 | Total/NA | Leachate | 8260B | |

### Analysis Batch: 362291

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | 8260B | |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | 8260B | |
| MB 490-362291/6 | Method Blank | Total/NA | Water | 8260B | |
| LCS 490-362291/3 | Lab Control Sample | Total/NA | Water | 8260B | |

### Analysis Batch: 362995

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | 8260B | |
| MB 490-362995/6 | Method Blank | Total/NA | Water | 8260B | |
| LCS 490-362995/3 | Lab Control Sample | Total/NA | Water | 8260B | |
| LCSD 490-362995/4 | Lab Control Sample Dup | Total/NA | Water | 8260B | |

## Metals

### Prep Batch: 362248

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | 3010A | |
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | 3010A | |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | 3010A | |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | 3010A | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | 3010A | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | 3010A | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | 3010A | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | 3010A | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | 3010A | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | 3010A | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | 3010A | |
| MB 490-362248/1-A | Method Blank | Total/NA | Water | 3010A | |
| LCS 490-362248/2-A | Lab Control Sample | Total/NA | Water | 3010A | |
| 490-109402-8 MS | 2016L-LS-04 | Total/NA | Leachate | 3010A | |
| 490-109402-8 MSD | 2016L-LS-04 | Total/NA | Leachate | 3010A | |
| 490-109402-8 DU | 2016L-LS-04 | Total/NA | Leachate | 3010A | |

## Metals (Continued)

### Analysis Batch: 362647

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | 6020A | 362248 |
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | 6020A | 362248 |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | 6020A | 362248 |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | 6020A | 362248 |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | 6020A | 362248 |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | 6020A | 362248 |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | 6020A | 362248 |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | 6020A | 362248 |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | 6020A | 362248 |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | 6020A | 362248 |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | 6020A | 362248 |
| MB 490-362248/1-A | Method Blank | Total/NA | Water | 6020A | 362248 |
| LCS 490-362248/2-A | Lab Control Sample | Total/NA | Water | 6020A | 362248 |
| 490-109402-8 MS | 2016L-LS-04 | Total/NA | Leachate | 6020A | 362248 |
| 490-109402-8 MSD | 2016L-LS-04 | Total/NA | Leachate | 6020A | 362248 |
| 490-109402-8 DU | 2016L-LS-04 | Total/NA | Leachate | 6020A | 362248 |

## General Chemistry

### Analysis Batch: 361474

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | SM 2540C | |
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | SM 2540C | |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | SM 2540C | |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | SM 2540C | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | SM 2540C | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | SM 2540C | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | SM 2540C | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | SM 2540C | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | SM 2540C | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | SM 2540C | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | SM 2540C | |
| MB 490-361474/1 | Method Blank | Total/NA | Water | SM 2540C | |
| LCS 490-361474/2 | Lab Control Sample | Total/NA | Water | SM 2540C | |
| 490-109402-8 DU | 2016L-LS-04 | Total/NA | Leachate | SM 2540C | |

### Prep Batch: 361840

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | 351.2 | |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | 351.2 | |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | 351.2 | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | 351.2 | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | 351.2 | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | 351.2 | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | 351.2 | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | 351.2 | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | 351.2 | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | 351.2 | |
| MB 490-361840/1-A | Method Blank | Total/NA | Water | 351.2 | |
| LCS 490-361840/2-A | Lab Control Sample | Total/NA | Water | 351.2 | |

## General Chemistry (Continued)

### Prep Batch: 361840 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-8 MS | 2016L-LS-04 | Total/NA | Leachate | 351.2 | |
| 490-109402-8 MSD | 2016L-LS-04 | Total/NA | Leachate | 351.2 | |

### Prep Batch: 361849

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | 365.2/365.3/365 | |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | 365.2/365.3/365 | |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | 365.2/365.3/365 | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | 365.2/365.3/365 | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | 365.2/365.3/365 | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | 365.2/365.3/365 | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | 365.2/365.3/365 | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | 365.2/365.3/365 | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | 365.2/365.3/365 | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | 365.2/365.3/365 | |
| MB 490-361849/1-A | Method Blank | Total/NA | Water | 365.2/365.3/365 | |
| LCS 490-361849/2-A | Lab Control Sample | Total/NA | Water | 365.2/365.3/365 | |
| 490-109402-8 MS | 2016L-LS-04 | Total/NA | Leachate | 365.2/365.3/365 | |
| 490-109402-8 MSD | 2016L-LS-04 | Total/NA | Leachate | 365.2/365.3/365 | |

### Analysis Batch: 361988

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Dissolved | Leachate | SM5210B | |
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | SM5210B | |
| 490-109402-3 | 2016L-TW-01 | Dissolved | Ground Water | SM5210B | |
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | SM5210B | |
| 490-109402-4 | 2016L-TW-02 | Dissolved | Ground Water | SM5210B | |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | SM5210B | |
| 490-109402-5 | 2016L-LS-03 | Dissolved | Leachate | SM5210B | |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | SM5210B | |
| 490-109402-6 | 2016L-VB-11 | Dissolved | Leachate | SM5210B | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | SM5210B | |
| 490-109402-7 | 2016L-LS-02 | Dissolved | Leachate | SM5210B | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | SM5210B | |
| 490-109402-8 | 2016L-LS-04 | Dissolved | Leachate | SM5210B | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | SM5210B | |
| 490-109402-9 | 2016L-LS-04D | Dissolved | Leachate | SM5210B | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | SM5210B | |
| USB 490-361988/1 | Method Blank | Total/NA | Water | SM5210B | |
| LCS 490-361988/2 | Lab Control Sample | Total/NA | Water | SM5210B | |
| 490-109402-8 DU | 2016L-LS-04 | Dissolved | Leachate | SM5210B | |
| 490-109402-8 DU | 2016L-LS-04 | Total/NA | Leachate | SM5210B | |

### Analysis Batch: 362031

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-10 | 2016L-VB-10 | Dissolved | Leachate | SM5210B | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | SM5210B | |
| 490-109402-11 | 2016L-LS-01 | Dissolved | Leachate | SM5210B | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | SM5210B | |
| 490-109402-12 | 2016L-TW-03 | Dissolved | Ground Water | SM5210B | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | SM5210B | |

## General Chemistry (Continued)

### Analysis Batch: 362031 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| USB 490-362031/1 | Method Blank | Total/NA | Water | SM5210B | |
| LCS 490-362031/2 | Lab Control Sample | Total/NA | Water | SM5210B | |

### Analysis Batch: 362136

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | 365.4 | 361849 |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | 365.4 | 361849 |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | 365.4 | 361849 |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | 365.4 | 361849 |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | 365.4 | 361849 |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | 365.4 | 361849 |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | 365.4 | 361849 |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | 365.4 | 361849 |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | 365.4 | 361849 |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | 365.4 | 361849 |
| MB 490-361849/1-A | Method Blank | Total/NA | Water | 365.4 | 361849 |
| LCS 490-361849/2-A | Lab Control Sample | Total/NA | Water | 365.4 | 361849 |
| 490-109402-8 MS | 2016L-LS-04 | Total/NA | Leachate | 365.4 | 361849 |
| 490-109402-8 MSD | 2016L-LS-04 | Total/NA | Leachate | 365.4 | 361849 |

### Analysis Batch: 362148

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | SM 2320B | |
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | SM 2320B | |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | SM 2320B | |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | SM 2320B | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | SM 2320B | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | SM 2320B | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | SM 2320B | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | SM 2320B | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | SM 2320B | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | SM 2320B | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | SM 2320B | |
| LCS 490-362148/5 | Lab Control Sample | Total/NA | Water | SM 2320B | |
| LCSD 490-362148/6 | Lab Control Sample Dup | Total/NA | Water | SM 2320B | |
| 490-109402-8 DU | 2016L-LS-04 | Total/NA | Leachate | SM 2320B | |

### Analysis Batch: 362183

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | SM 2510B | |
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | SM 2510B | |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | SM 2510B | |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | SM 2510B | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | SM 2510B | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | SM 2510B | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | SM 2510B | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | SM 2510B | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | SM 2510B | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | SM 2510B | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | SM 2510B | |
| LCS 490-362183/3 | Lab Control Sample | Total/NA | Water | SM 2510B | |

## General Chemistry (Continued)

### Analysis Batch: 362183 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 DU | 2016L-VB-09 | Total/NA | Leachate | SM 2510B | |
| 490-109402-8 DU | 2016L-LS-04 | Total/NA | Leachate | SM 2510B | |

### Analysis Batch: 362272

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | 351.2 | 361840 |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | 351.2 | 361840 |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | 351.2 | 361840 |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | 351.2 | 361840 |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | 351.2 | 361840 |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | 351.2 | 361840 |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | 351.2 | 361840 |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | 351.2 | 361840 |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | 351.2 | 361840 |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | 351.2 | 361840 |
| MB 490-361840/1-A | Method Blank | Total/NA | Water | 351.2 | 361840 |
| LCS 490-361840/2-A | Lab Control Sample | Total/NA | Water | 351.2 | 361840 |
| 490-109402-8 MS | 2016L-LS-04 | Total/NA | Leachate | 351.2 | 361840 |
| 490-109402-8 MSD | 2016L-LS-04 | Total/NA | Leachate | 351.2 | 361840 |

### Prep Batch: 362386

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | 351.2 | |
| MB 490-362386/1-A | Method Blank | Total/NA | Water | 351.2 | |
| LCS 490-362386/2-A | Lab Control Sample | Total/NA | Water | 351.2 | |

### Analysis Batch: 362690

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | D1475-98(2003) | |
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | D1475-98(2003) | |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | D1475-98(2003) | |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | D1475-98(2003) | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | D1475-98(2003) | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | D1475-98(2003) | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | D1475-98(2003) | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | D1475-98(2003) | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | D1475-98(2003) | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | D1475-98(2003) | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | D1475-98(2003) | |
| 490-109402-1 DU | 2016L-VB-09 | Total/NA | Leachate | D1475-98(2003) | |
| 490-109402-8 DU | 2016L-LS-04 | Total/NA | Leachate | D1475-98(2003) | |

### Prep Batch: 362927

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | 365.2/365.3/365 | |
| MB 490-362927/1-A | Method Blank | Total/NA | Water | 365.2/365.3/365 | |
| LCS 490-362927/2-A | Lab Control Sample | Total/NA | Water | 365.2/365.3/365 | |
| LCSD 490-362927/3-A | Lab Control Sample Dup | Total/NA | Water | 365.2/365.3/365 | |

## General Chemistry (Continued)

### Analysis Batch: 363134

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | 351.2 | 362386 |
| MB 490-362386/1-A | Method Blank | Total/NA | Water | 351.2 | 362386 |
| LCS 490-362386/2-A | Lab Control Sample | Total/NA | Water | 351.2 | 362386 |

### Analysis Batch: 363185

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | 365.4 | 362927 |
| MB 490-362927/1-A | Method Blank | Total/NA | Water | 365.4 | 362927 |
| LCS 490-362927/2-A | Lab Control Sample | Total/NA | Water | 365.4 | 362927 |
| LCSD 490-362927/3-A | Lab Control Sample Dup | Total/NA | Water | 365.4 | 362927 |

### Analysis Batch: 363226

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Dissolved | Leachate | 410.4 | |
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | 410.4 | |
| 490-109402-3 | 2016L-TW-01 | Dissolved | Ground Water | 410.4 | |
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | 410.4 | |
| 490-109402-4 | 2016L-TW-02 | Dissolved | Ground Water | 410.4 | |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | 410.4 | |
| 490-109402-5 | 2016L-LS-03 | Dissolved | Leachate | 410.4 | |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | 410.4 | |
| 490-109402-6 | 2016L-VB-11 | Dissolved | Leachate | 410.4 | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | 410.4 | |
| 490-109402-7 | 2016L-LS-02 | Dissolved | Leachate | 410.4 | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | 410.4 | |
| 490-109402-8 | 2016L-LS-04 | Dissolved | Leachate | 410.4 | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | 410.4 | |
| 490-109402-9 | 2016L-LS-04D | Dissolved | Leachate | 410.4 | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | 410.4 | |
| 490-109402-10 | 2016L-VB-10 | Dissolved | Leachate | 410.4 | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | 410.4 | |
| 490-109402-11 | 2016L-LS-01 | Dissolved | Leachate | 410.4 | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | 410.4 | |
| 490-109402-12 | 2016L-TW-03 | Dissolved | Ground Water | 410.4 | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | 410.4 | |
| MB 490-363226/24 | Method Blank | Total/NA | Water | 410.4 | |
| MB 490-363226/3 | Method Blank | Total/NA | Water | 410.4 | |
| LCS 490-363226/25 | Lab Control Sample | Total/NA | Water | 410.4 | |
| LCS 490-363226/4 | Lab Control Sample | Total/NA | Water | 410.4 | |
| LCSD 490-363226/26 | Lab Control Sample Dup | Total/NA | Water | 410.4 | |
| LCSD 490-363226/5 | Lab Control Sample Dup | Total/NA | Water | 410.4 | |
| 490-109402-8 DU | 2016L-LS-04 | Dissolved | Leachate | 410.4 | |
| 490-109402-8 DU | 2016L-LS-04 | Total/NA | Leachate | 410.4 | |

### Analysis Batch: 363233

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-3 | 2016L-TW-01 | Dissolved | Ground Water | SM 4500 S2 F | 363466 |
| 490-109402-4 | 2016L-TW-02 | Dissolved | Ground Water | SM 4500 S2 F | 363466 |
| 490-109402-5 | 2016L-LS-03 | Dissolved | Leachate | SM 4500 S2 F | 363466 |
| 490-109402-6 | 2016L-VB-11 | Dissolved | Leachate | SM 4500 S2 F | 363466 |
| 490-109402-7 | 2016L-LS-02 | Dissolved | Leachate | SM 4500 S2 F | 363466 |

## General Chemistry (Continued)

### Analysis Batch: 363233 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-8 | 2016L-LS-04 | Dissolved | Leachate | SM 4500 S2 F | 363466 |
| 490-109402-9 | 2016L-LS-04D | Dissolved | Leachate | SM 4500 S2 F | 363466 |
| 490-109402-10 | 2016L-VB-10 | Dissolved | Leachate | SM 4500 S2 F | 363466 |
| 490-109402-11 | 2016L-LS-01 | Dissolved | Leachate | SM 4500 S2 F | 363466 |
| 490-109402-12 | 2016L-TW-03 | Dissolved | Ground Water | SM 4500 S2 F | 363466 |
| 490-109402-8 MS | 2016L-LS-04 | Dissolved | Leachate | SM 4500 S2 F | 363466 |
| 490-109402-8 MSD | 2016L-LS-04 | Dissolved | Leachate | SM 4500 S2 F | 363466 |
| 490-109402-8 DU | 2016L-LS-04 | Dissolved | Leachate | SM 4500 S2 F | 363466 |

### Analysis Batch: 363243

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | Total Nitrogen | |
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | Total Nitrogen | |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | Total Nitrogen | |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | Total Nitrogen | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | Total Nitrogen | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | Total Nitrogen | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | Total Nitrogen | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | Total Nitrogen | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | Total Nitrogen | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | Total Nitrogen | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | Total Nitrogen | |

### Analysis Batch: 363266

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Dissolved | Leachate | SM 4500 S2 F | 363466 |
| 490-109402-1 DU | 2016L-VB-09 | Dissolved | Leachate | SM 4500 S2 F | 363466 |

### Prep Batch: 363466

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Dissolved | Leachate | SM 4500 S2 B | |
| 490-109402-3 | 2016L-TW-01 | Dissolved | Ground Water | SM 4500 S2 B | |
| 490-109402-4 | 2016L-TW-02 | Dissolved | Ground Water | SM 4500 S2 B | |
| 490-109402-5 | 2016L-LS-03 | Dissolved | Leachate | SM 4500 S2 B | |
| 490-109402-6 | 2016L-VB-11 | Dissolved | Leachate | SM 4500 S2 B | |
| 490-109402-7 | 2016L-LS-02 | Dissolved | Leachate | SM 4500 S2 B | |
| 490-109402-8 | 2016L-LS-04 | Dissolved | Leachate | SM 4500 S2 B | |
| 490-109402-9 | 2016L-LS-04D | Dissolved | Leachate | SM 4500 S2 B | |
| 490-109402-10 | 2016L-VB-10 | Dissolved | Leachate | SM 4500 S2 B | |
| 490-109402-11 | 2016L-LS-01 | Dissolved | Leachate | SM 4500 S2 B | |
| 490-109402-12 | 2016L-TW-03 | Dissolved | Ground Water | SM 4500 S2 B | |
| 490-109402-8 MS | 2016L-LS-04 | Dissolved | Leachate | SM 4500 S2 B | |
| 490-109402-8 MSD | 2016L-LS-04 | Dissolved | Leachate | SM 4500 S2 B | |
| 490-109402-1 DU | 2016L-VB-09 | Dissolved | Leachate | SM 4500 S2 B | |
| 490-109402-8 DU | 2016L-LS-04 | Dissolved | Leachate | SM 4500 S2 B | |

### Analysis Batch: 363658

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | SM4500 S2 H | |
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | SM4500 S2 H | |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | SM4500 S2 H | |

## General Chemistry (Continued)

### Analysis Batch: 363658 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | SM4500 S2 H | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | SM4500 S2 H | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | SM4500 S2 H | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | SM4500 S2 H | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | SM4500 S2 H | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | SM4500 S2 H | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | SM4500 S2 H | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | SM4500 S2 H | |

### Analysis Batch: 363836

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | SM 4500 NO3 F | |
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | SM 4500 NO3 F | |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | SM 4500 NO3 F | |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | SM 4500 NO3 F | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | SM 4500 NO3 F | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | SM 4500 NO3 F | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | SM 4500 NO3 F | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | SM 4500 NO3 F | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | SM 4500 NO3 F | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | SM 4500 NO3 F | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | SM 4500 NO3 F | |
| MB 490-363836/6 | Method Blank | Total/NA | Water | SM 4500 NO3 F | |
| LCS 490-363836/7 | Lab Control Sample | Total/NA | Water | SM 4500 NO3 F | |
| LCSD 490-363836/8 | Lab Control Sample Dup | Total/NA | Water | SM 4500 NO3 F | |
| 490-109402-7 MS | 2016L-LS-02 | Total/NA | Leachate | SM 4500 NO3 F | |
| 490-109402-7 MSD | 2016L-LS-02 | Total/NA | Leachate | SM 4500 NO3 F | |
| 490-109402-8 MS | 2016L-LS-04 | Total/NA | Leachate | SM 4500 NO3 F | |
| 490-109402-8 MSD | 2016L-LS-04 | Total/NA | Leachate | SM 4500 NO3 F | |

## Field Service / Mobile Lab

### Analysis Batch: 364757

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 490-109402-1 | 2016L-VB-09 | Total/NA | Leachate | Field Sampling | |
| 490-109402-3 | 2016L-TW-01 | Total/NA | Ground Water | Field Sampling | |
| 490-109402-4 | 2016L-TW-02 | Total/NA | Ground Water | Field Sampling | |
| 490-109402-5 | 2016L-LS-03 | Total/NA | Leachate | Field Sampling | |
| 490-109402-6 | 2016L-VB-11 | Total/NA | Leachate | Field Sampling | |
| 490-109402-7 | 2016L-LS-02 | Total/NA | Leachate | Field Sampling | |
| 490-109402-8 | 2016L-LS-04 | Total/NA | Leachate | Field Sampling | |
| 490-109402-9 | 2016L-LS-04D | Total/NA | Leachate | Field Sampling | |
| 490-109402-10 | 2016L-VB-10 | Total/NA | Leachate | Field Sampling | |
| 490-109402-11 | 2016L-LS-01 | Total/NA | Leachate | Field Sampling | |
| 490-109402-12 | 2016L-TW-03 | Total/NA | Ground Water | Field Sampling | |

# Lab Chronicle

Client: Parsons Corporation
Project/Site: FMC Avtex Fibers Superfund Site

TestAmerica Job ID: 490-109402-1

## Client Sample ID: 2016L-VB-09

**Date Collected: 08/08/16 09:55**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-1

**Matrix: Leachate**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 50 | 10 mL | 10 mL | 362995 | 08/16/16 16:21 | AK1 | TAL NSH |
| Total/NA | Prep | 3010A | | | 50 mL | 50 mL | 362248 | 08/12/16 10:38 | RDF | TAL NSH |
| Total/NA | Analysis | 6020A | | 10 | | | 362647 | 08/14/16 03:06 | KKK | TAL NSH |
| Total/NA | Prep | 351.2 | | | 1 mL | 20 mL | 362386 | 08/12/16 13:41 | ADJ | TAL NSH |
| Total/NA | Analysis | 351.2 | | 1 | | | 363134 | 08/16/16 12:28 | PEK | TAL NSH |
| Total/NA | Prep | 365.2/365.3/365 | | | 20 mL | 20 mL | 362927 | 08/16/16 08:49 | LDT | TAL NSH |
| Total/NA | Analysis | 365.4 | | 1 | 20 mL | 20 mL | 363185 | 08/16/16 15:20 | SDL | TAL NSH |
| Dissolved | Analysis | 410.4 | | 50 | 2 mL | 2 mL | 363226 | 08/16/16 18:34 | MSJ | TAL NSH |
| Total/NA | Analysis | 410.4 | | 20 | 2 mL | 2 mL | 363226 | 08/16/16 18:29 | MSJ | TAL NSH |
| Total/NA | Analysis | D1475-98(2003) | | 1 | | | 362690 | 08/11/16 08:47 | RN | TAL NSH |
| Total/NA | Analysis | SM 2320B | | 1 | 35 mL | 35 mL | 362148 | 08/11/16 11:45 | AEC | TAL NSH |
| Total/NA | Analysis | SM 2510B | | 1 | | | 362183 | 08/11/16 15:00 | JAB | TAL NSH |
| Total/NA | Analysis | SM 2540C | | 1 | 10 mL | 100 mL | 361474 | 08/11/16 15:20 | EAR | TAL NSH |
| Total/NA | Analysis | SM 4500 NO3 F | | 1 | 50 mL | 50 mL | 363836 | 08/18/16 13:11 | REM | TAL NSH |
| Dissolved | Prep | SM 4500 S2 B | | | 50 mL | 50 mL | 363466 | 08/15/16 17:30 | REM | TAL NSH |
| Dissolved | Analysis | SM 4500 S2 F | | 1 | 50 mL | 50 mL | 363266 | 08/15/16 18:30 | REM | TAL NSH |
| Total/NA | Analysis | SM4500 S2 H | | 1 | | | 363658 | 08/18/16 09:02 | REM | TAL NSH |
| Dissolved | Analysis | SM5210B | | 20 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 13:29 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | SM5210B | | 20 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 13:22 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | Total Nitrogen | | 1 | | | 363243 | 08/16/16 22:59 | SOG | TAL NSH |
| Total/NA | Analysis | Field Sampling | | 1 | | | 364757 | 08/08/16 08:55 | HJW | TAL NSH |

## Client Sample ID: TB-080916-01

**Date Collected: 08/09/16 06:05**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-2

**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 10 mL | 10 mL | 361967 | 08/12/16 03:39 | SLM | TAL NSH |

## Client Sample ID: 2016L-TW-01

**Date Collected: 08/09/16 08:05**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-3

**Matrix: Ground Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 10 mL | 10 mL | 361967 | 08/12/16 04:59 | SLM | TAL NSH |
| Total/NA | Prep | 3010A | | | 50 mL | 50 mL | 362248 | 08/12/16 10:38 | RDF | TAL NSH |
| Total/NA | Analysis | 6020A | | 1 | | | 362647 | 08/14/16 02:17 | KKK | TAL NSH |
| Total/NA | Prep | 351.2 | | | 20 mL | 20 mL | 361840 | 08/10/16 15:35 | SDL | TAL NSH |

# Lab Chronicle

Client: Parsons Corporation
Project/Site: FMC Avtex Fibers Superfund Site

TestAmerica Job ID: 490-109402-1

## Client Sample ID: 2016L-TW-01

**Date Collected: 08/09/16 08:05**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-3

**Matrix: Ground Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 351.2 | | 1 | | | 362272 | 08/12/16 10:36 | PEK | TAL NSH |
| Total/NA | Prep | 365.2/365.3/365 | | | 20 mL | 20 mL | 361849 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 365.4 | | 1 | 20 mL | 20 mL | 362136 | 08/11/16 13:43 | SDL | TAL NSH |
| Dissolved | Analysis | 410.4 | | 1 | 2 mL | 2 mL | 363226 | 08/16/16 18:34 | MSJ | TAL NSH |
| Total/NA | Analysis | 410.4 | | 2 | 2 mL | 2 mL | 363226 | 08/16/16 18:29 | MSJ | TAL NSH |
| Total/NA | Analysis | D1475-98(2003) | | 1 | | | 362690 | 08/11/16 08:47 | RN | TAL NSH |
| Total/NA | Analysis | SM 2320B | | 1 | 35 mL | 35 mL | 362148 | 08/11/16 11:52 | AEC | TAL NSH |
| Total/NA | Analysis | SM 2510B | | 1 | | | 362183 | 08/11/16 15:00 | JAB | TAL NSH |
| Total/NA | Analysis | SM 2540C | | 1 | 100 mL | 100 mL | 361474 | 08/11/16 15:20 | EAR | TAL NSH |
| Total/NA | Analysis | SM 4500 NO3 F | | 1 | 50 mL | 50 mL | 363836 | 08/18/16 13:12 | REM | TAL NSH |
| Dissolved | Prep | SM 4500 S2 B | | | 50 mL | 50 mL | 363466 | 08/15/16 17:30 | REM | TAL NSH |
| Dissolved | Analysis | SM 4500 S2 F | | 1 | 50 mL | 50 mL | 363233 | 08/16/16 17:44 | ADJ | TAL NSH |
| Total/NA | Analysis | SM4500 S2 H | | 1 | | | 363658 | 08/18/16 09:02 | REM | TAL NSH |
| Dissolved | Analysis | SM5210B | | 1 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | SM5210B | | 1 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | Total Nitrogen | | 1 | | | 363243 | 08/16/16 22:58 | SOG | TAL NSH |
| Total/NA | Analysis | Field Sampling | | 1 | | | 364757 | 08/09/16 07:05 | HJW | TAL NSH |

## Client Sample ID: 2016L-TW-02

**Date Collected: 08/09/16 08:20**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-4

**Matrix: Ground Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 10 | 10 mL | 10 mL | 362291 | 08/13/16 00:22 | RP | TAL NSH |
| Total/NA | Prep | 3010A | | | 50 mL | 50 mL | 362248 | 08/12/16 10:38 | RDF | TAL NSH |
| Total/NA | Analysis | 6020A | | 1 | | | 362647 | 08/14/16 02:22 | KKK | TAL NSH |
| Total/NA | Prep | 351.2 | | | 20 mL | 20 mL | 361840 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 351.2 | | 1 | | | 362272 | 08/12/16 10:37 | PEK | TAL NSH |
| Total/NA | Prep | 365.2/365.3/365 | | | 20 mL | 20 mL | 361849 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 365.4 | | 1 | 20 mL | 20 mL | 362136 | 08/11/16 13:44 | SDL | TAL NSH |
| Dissolved | Analysis | 410.4 | | 1 | 2 mL | 2 mL | 363226 | 08/16/16 18:34 | MSJ | TAL NSH |
| Total/NA | Analysis | 410.4 | | 5 | 2 mL | 2 mL | 363226 | 08/16/16 18:29 | MSJ | TAL NSH |
| Total/NA | Analysis | D1475-98(2003) | | 1 | | | 362690 | 08/11/16 08:47 | RN | TAL NSH |
| Total/NA | Analysis | SM 2320B | | 1 | 35 mL | 35 mL | 362148 | 08/11/16 12:01 | AEC | TAL NSH |
| Total/NA | Analysis | SM 2510B | | 1 | | | 362183 | 08/11/16 15:00 | JAB | TAL NSH |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 361474 | 08/11/16 15:20 | EAR | TAL NSH |
| Total/NA | Analysis | SM 4500 NO3 F | | 1 | 50 mL | 50 mL | 363836 | 08/18/16 13:18 | REM | TAL NSH |
| Dissolved | Prep | SM 4500 S2 B | | | 50 mL | 50 mL | 363466 | 08/15/16 17:30 | REM | TAL NSH |

TestAmerica Nashville

## Client Sample ID: 2016L-TW-02

**Date Collected: 08/09/16 08:20**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-4

**Matrix: Ground Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Dissolved | Analysis | SM 4500 S2 F | | 1 | 50 mL | 50 mL | 363233 | 08/16/16 17:44 | ADJ | TAL NSH |
| Total/NA | Analysis | SM4500 S2 H | | 1 | | | 363658 | 08/18/16 09:02 | REM | TAL NSH |
| Dissolved | Analysis | SM5210B | | 5 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | SM5210B | | 5 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | Total Nitrogen | | 1 | | | 363243 | 08/16/16 22:58 | SOG | TAL NSH |
| Total/NA | Analysis | Field Sampling | | 1 | | | 364757 | 08/09/16 07:20 | HJW | TAL NSH |

## Client Sample ID: 2016L-LS-03

**Date Collected: 08/09/16 08:30**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-5

**Matrix: Leachate**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 10 mL | 10 mL | 362291 | 08/12/16 19:58 | RP | TAL NSH |
| Total/NA | Prep | 3010A | | | 50 mL | 50 mL | 362248 | 08/12/16 10:38 | RDF | TAL NSH |
| Total/NA | Analysis | 6020A | | 1 | | | 362647 | 08/14/16 02:39 | KKK | TAL NSH |
| Total/NA | Prep | 351.2 | | | 20 mL | 20 mL | 361840 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 351.2 | | 1 | | | 362272 | 08/12/16 10:40 | PEK | TAL NSH |
| Total/NA | Prep | 365.2/365.3/365 | | | 20 mL | 20 mL | 361849 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 365.4 | | 1 | 20 mL | 20 mL | 362136 | 08/11/16 13:45 | SDL | TAL NSH |
| Dissolved | Analysis | 410.4 | | 1 | 2 mL | 2 mL | 363226 | 08/16/16 18:34 | MSJ | TAL NSH |
| Total/NA | Analysis | 410.4 | | 1 | 2 mL | 2 mL | 363226 | 08/16/16 18:29 | MSJ | TAL NSH |
| Total/NA | Analysis | D1475-98(2003) | | 1 | | | 362690 | 08/11/16 08:47 | RN | TAL NSH |
| Total/NA | Analysis | SM 2320B | | 1 | 35 mL | 35 mL | 362148 | 08/11/16 12:07 | AEC | TAL NSH |
| Total/NA | Analysis | SM 2510B | | 1 | | | 362183 | 08/11/16 15:00 | JAB | TAL NSH |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 361474 | 08/11/16 15:20 | EAR | TAL NSH |
| Total/NA | Analysis | SM 4500 NO3 F | | 1 | 50 mL | 50 mL | 363836 | 08/18/16 13:19 | REM | TAL NSH |
| Dissolved | Prep | SM 4500 S2 B | | | 50 mL | 50 mL | 363466 | 08/15/16 17:30 | REM | TAL NSH |
| Dissolved | Analysis | SM 4500 S2 F | | 1 | 50 mL | 50 mL | 363233 | 08/16/16 17:44 | ADJ | TAL NSH |
| Total/NA | Analysis | SM4500 S2 H | | 1 | | | 363658 | 08/18/16 09:02 | REM | TAL NSH |
| Dissolved | Analysis | SM5210B | | 1 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | SM5210B | | 1 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | Total Nitrogen | | 1 | | | 363243 | 08/16/16 22:58 | SOG | TAL NSH |
| Total/NA | Analysis | Field Sampling | | 1 | | | 364757 | 08/09/16 07:30 | HJW | TAL NSH |

## Client Sample ID: 2016L-VB-11

**Date Collected: 08/09/16 08:40**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-6

**Matrix: Leachate**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 10 mL | 10 mL | 361967 | 08/12/16 06:18 | SLM | TAL NSH |
| Total/NA | Prep | 3010A | | | 50 mL | 50 mL | 362248 | 08/12/16 10:38 | RDF | TAL NSH |
| Total/NA | Analysis | 6020A | | 10 | | | 362647 | 08/14/16 03:12 | KKK | TAL NSH |
| Total/NA | Prep | 351.2 | | | 20 mL | 20 mL | 361840 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 351.2 | | 1 | | | 362272 | 08/12/16 10:41 | PEK | TAL NSH |
| Total/NA | Prep | 365.2/365.3/365 | | | 20 mL | 20 mL | 361849 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 365.4 | | 1 | 20 mL | 20 mL | 362136 | 08/11/16 13:46 | SDL | TAL NSH |
| Dissolved | Analysis | 410.4 | | 1 | 2 mL | 2 mL | 363226 | 08/16/16 18:34 | MSJ | TAL NSH |
| Total/NA | Analysis | 410.4 | | 10 | 2 mL | 2 mL | 363226 | 08/16/16 18:29 | MSJ | TAL NSH |
| Total/NA | Analysis | D1475-98(2003) | | 1 | | | 362690 | 08/12/16 08:47 | RN | TAL NSH |
| Total/NA | Analysis | SM 2320B | | 1 | 35 mL | 35 mL | 362148 | 08/11/16 12:18 | AEC | TAL NSH |
| Total/NA | Analysis | SM 2510B | | 1 | | | 362183 | 08/11/16 15:00 | JAB | TAL NSH |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 361474 | 08/11/16 15:20 | EAR | TAL NSH |
| Total/NA | Analysis | SM 4500 NO3 F | | 1 | 50 mL | 50 mL | 363836 | 08/18/16 13:21 | REM | TAL NSH |
| Dissolved | Prep | SM 4500 S2 B | | | 50 mL | 50 mL | 363466 | 08/15/16 17:30 | REM | TAL NSH |
| Dissolved | Analysis | SM 4500 S2 F | | 1 | 50 mL | 50 mL | 363233 | 08/16/16 17:44 | ADJ | TAL NSH |
| Total/NA | Analysis | SM4500 S2 H | | 1 | | | 363658 | 08/18/16 09:02 | REM | TAL NSH |
| Dissolved | Analysis | SM5210B | | 1 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | SM5210B | | 1 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | Total Nitrogen | | 1 | | | 363243 | 08/16/16 22:58 | SOG | TAL NSH |
| Total/NA | Analysis | Field Sampling | | 1 | | | 364757 | 08/09/16 07:40 | HJW | TAL NSH |

## Client Sample ID: 2016L-LS-02

**Date Collected: 08/09/16 10:00**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-7

**Matrix: Leachate**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 5 | 10 mL | 10 mL | 361967 | 08/12/16 06:44 | SLM | TAL NSH |
| Total/NA | Prep | 3010A | | | 50 mL | 50 mL | 362248 | 08/12/16 10:38 | RDF | TAL NSH |
| Total/NA | Analysis | 6020A | | 10 | | | 362647 | 08/14/16 03:18 | KKK | TAL NSH |
| Total/NA | Prep | 351.2 | | | 20 mL | 20 mL | 361840 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 351.2 | | 1 | | | 362272 | 08/12/16 10:42 | PEK | TAL NSH |
| Total/NA | Prep | 365.2/365.3/365 | | | 20 mL | 20 mL | 361849 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 365.4 | | 1 | 20 mL | 20 mL | 362136 | 08/11/16 13:47 | SDL | TAL NSH |
| Dissolved | Analysis | 410.4 | | 2 | 2 mL | 2 mL | 363226 | 08/16/16 18:34 | MSJ | TAL NSH |
| Total/NA | Analysis | 410.4 | | 2 | 2 mL | 2 mL | 363226 | 08/16/16 18:29 | MSJ | TAL NSH |
| Total/NA | Analysis | D1475-98(2003) | | 1 | | | 362690 | 08/12/16 08:47 | RN | TAL NSH |
| Total/NA | Analysis | SM 2320B | | 1 | 35 mL | 35 mL | 362148 | 08/11/16 12:32 | AEC | TAL NSH |

# Lab Chronicle

Client: Parsons Corporation
Project/Site: FMC Avtex Fibers Superfund Site

TestAmerica Job ID: 490-109402-1

## Client Sample ID: 2016L-LS-02

**Date Collected: 08/09/16 10:00**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-7

**Matrix: Leachate**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | SM 2510B | | 1 | | | 362183 | 08/11/16 15:00 | JAB | TAL NSH |
| Total/NA | Analysis | SM 2540C | | 1 | 10 mL | 100 mL | 361474 | 08/11/16 15:20 | EAR | TAL NSH |
| Total/NA | Analysis | SM 4500 NO3 F | | 1 | 50 mL | 50 mL | 363836 | 08/18/16 13:26 | REM | TAL NSH |
| Dissolved | Prep | SM 4500 S2 B | | | 50 mL | 50 mL | 363466 | 08/15/16 17:30 | REM | TAL NSH |
| Dissolved | Analysis | SM 4500 S2 F | | 1 | 50 mL | 50 mL | 363233 | 08/16/16 17:44 | ADJ | TAL NSH |
| Total/NA | Analysis | SM4500 S2 H | | 1 | | | 363658 | 08/18/16 09:02 | REM | TAL NSH |
| Dissolved | Analysis | SM5210B | | 1 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | SM5210B | | 1 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | Total Nitrogen | | 1 | | | 363243 | 08/16/16 22:58 | SOG | TAL NSH |
| Total/NA | Analysis | Field Sampling | | 1 | | | 364757 | 08/09/16 09:00 | HJW | TAL NSH |

## Client Sample ID: 2016L-LS-04

**Date Collected: 08/09/16 10:00**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-8

**Matrix: Leachate**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 10 mL | 10 mL | 361967 | 08/12/16 07:11 | SLM | TAL NSH |
| Total/NA | Prep | 3010A | | | 50 mL | 50 mL | 362248 | 08/12/16 10:38 | RDF | TAL NSH |
| Total/NA | Analysis | 6020A | | 1 | | | 362647 | 08/14/16 01:43 | KKK | TAL NSH |
| Total/NA | Prep | 351.2 | | | 20 mL | 20 mL | 361840 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 351.2 | | 1 | | | 362272 | 08/12/16 10:43 | PEK | TAL NSH |
| Total/NA | Prep | 365.2/365.3/365 | | | 20 mL | 20 mL | 361849 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 365.4 | | 1 | 20 mL | 20 mL | 362136 | 08/11/16 13:55 | SDL | TAL NSH |
| Dissolved | Analysis | 410.4 | | 2 | 2 mL | 2 mL | 363226 | 08/16/16 18:34 | MSJ | TAL NSH |
| Total/NA | Analysis | 410.4 | | 2 | 2 mL | 2 mL | 363226 | 08/16/16 18:29 | MSJ | TAL NSH |
| Total/NA | Analysis | D1475-98(2003) | | 1 | | | 362690 | 08/12/16 08:47 | RN | TAL NSH |
| Total/NA | Analysis | SM 2320B | | 1 | 35 mL | 35 mL | 362148 | 08/11/16 12:41 | AEC | TAL NSH |
| Total/NA | Analysis | SM 2510B | | 1 | | | 362183 | 08/11/16 15:00 | JAB | TAL NSH |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 361474 | 08/11/16 15:20 | EAR | TAL NSH |
| Total/NA | Analysis | SM 4500 NO3 F | | 1 | 50 mL | 50 mL | 363836 | 08/18/16 12:57 | REM | TAL NSH |
| Dissolved | Prep | SM 4500 S2 B | | | 50 mL | 50 mL | 363466 | 08/15/16 17:30 | REM | TAL NSH |
| Dissolved | Analysis | SM 4500 S2 F | | 1 | 50 mL | 50 mL | 363233 | 08/16/16 17:44 | ADJ | TAL NSH |
| Total/NA | Analysis | SM4500 S2 H | | 1 | | | 363658 | 08/18/16 09:02 | REM | TAL NSH |
| Dissolved | Analysis | SM5210B | | 5 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |

## Client Sample ID: 2016L-LS-04

**Date Collected: 08/09/16 10:00**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-8

**Matrix: Leachate**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | SM5210B | | 5 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | Total Nitrogen | | 1 | | | 363243 | 08/16/16 22:58 | SOG | TAL NSH |
| Total/NA | Analysis | Field Sampling | | 1 | | | 364757 | 08/09/16 09:00 | HJW | TAL NSH |

## Client Sample ID: 2016L-LS-04D

**Date Collected: 08/09/16 10:00**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-9

**Matrix: Leachate**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 10 mL | 10 mL | 361967 | 08/12/16 08:03 | SLM | TAL NSH |
| Total/NA | Prep | 3010A | | | 50 mL | 50 mL | 362248 | 08/12/16 10:38 | RDF | TAL NSH |
| Total/NA | Analysis | 6020A | | 1 | | | 362647 | 08/14/16 02:44 | KKK | TAL NSH |
| Total/NA | Prep | 351.2 | | | 20 mL | 20 mL | 361840 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 351.2 | | 1 | | | 362272 | 08/12/16 10:45 | PEK | TAL NSH |
| Total/NA | Prep | 365.2/365.3/365 | | | 20 mL | 20 mL | 361849 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 365.4 | | 1 | 20 mL | 20 mL | 362136 | 08/11/16 13:51 | SDL | TAL NSH |
| Dissolved | Analysis | 410.4 | | 2 | 2 mL | 2 mL | 363226 | 08/16/16 18:34 | MSJ | TAL NSH |
| Total/NA | Analysis | 410.4 | | 2 | 2 mL | 2 mL | 363226 | 08/16/16 18:29 | MSJ | TAL NSH |
| Total/NA | Analysis | D1475-98(2003) | | 1 | | | 362690 | 08/12/16 08:47 | RN | TAL NSH |
| Total/NA | Analysis | SM 2320B | | 1 | 35 mL | 35 mL | 362148 | 08/11/16 13:00 | AEC | TAL NSH |
| Total/NA | Analysis | SM 2510B | | 1 | | | 362183 | 08/11/16 15:00 | JAB | TAL NSH |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 361474 | 08/11/16 15:20 | EAR | TAL NSH |
| Total/NA | Analysis | SM 4500 NO3 F | | 1 | 50 mL | 50 mL | 363836 | 08/18/16 13:01 | REM | TAL NSH |
| Dissolved | Prep | SM 4500 S2 B | | | 50 mL | 50 mL | 363466 | 08/15/16 17:30 | REM | TAL NSH |
| Dissolved | Analysis | SM 4500 S2 F | | 1 | 50 mL | 50 mL | 363233 | 08/16/16 17:44 | ADJ | TAL NSH |
| Total/NA | Analysis | SM4500 S2 H | | 1 | | | 363658 | 08/18/16 09:02 | REM | TAL NSH |
| Dissolved | Analysis | SM5210B | | 10 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | SM5210B | | 10 | | | 361988 | | SD | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | Total Nitrogen | | 1 | | | 363243 | 08/16/16 22:58 | SOG | TAL NSH |
| Total/NA | Analysis | Field Sampling | | 1 | | | 364757 | 08/09/16 09:00 | HJW | TAL NSH |

## Client Sample ID: 2016L-VB-10

**Date Collected: 08/09/16 10:20**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-10

**Matrix: Leachate**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 10 mL | 10 mL | 361967 | 08/12/16 08:30 | SLM | TAL NSH |
| Total/NA | Prep | 3010A | | | 50 mL | 50 mL | 362248 | 08/12/16 10:38 | RDF | TAL NSH |
| Total/NA | Analysis | 6020A | | 10 | | | 362647 | 08/14/16 03:23 | KKK | TAL NSH |
| Total/NA | Prep | 351.2 | | | 20 mL | 20 mL | 361840 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 351.2 | | 1 | | | 362272 | 08/12/16 10:46 | PEK | TAL NSH |
| Total/NA | Prep | 365.2/365.3/365 | | | 20 mL | 20 mL | 361849 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 365.4 | | 1 | 20 mL | 20 mL | 362136 | 08/11/16 13:52 | SDL | TAL NSH |
| Dissolved | Analysis | 410.4 | | 5 | 2 mL | 2 mL | 363226 | 08/16/16 18:34 | MSJ | TAL NSH |
| Total/NA | Analysis | 410.4 | | 10 | 2 mL | 2 mL | 363226 | 08/16/16 18:29 | MSJ | TAL NSH |
| Total/NA | Analysis | D1475-98(2003) | | 1 | | | 362690 | 08/12/16 08:47 | RN | TAL NSH |
| Total/NA | Analysis | SM 2320B | | 1 | 35 mL | 35 mL | 362148 | 08/11/16 13:14 | AEC | TAL NSH |
| Total/NA | Analysis | SM 2510B | | 1 | | | 362183 | 08/11/16 15:00 | JAB | TAL NSH |
| Total/NA | Analysis | SM 2540C | | 1 | 10 mL | 100 mL | 361474 | 08/11/16 15:20 | EAR | TAL NSH |
| Total/NA | Analysis | SM 4500 NO3 F | | 1 | 50 mL | 50 mL | 363836 | 08/18/16 13:03 | REM | TAL NSH |
| Dissolved | Prep | SM 4500 S2 B | | | 50 mL | 50 mL | 363466 | 08/15/16 17:30 | REM | TAL NSH |
| Dissolved | Analysis | SM 4500 S2 F | | 1 | 50 mL | 50 mL | 363233 | 08/16/16 17:44 | ADJ | TAL NSH |
| Total/NA | Analysis | SM4500 S2 H | | 1 | | | 363658 | 08/18/16 09:02 | REM | TAL NSH |
| Dissolved | Analysis | SM5210B | | 20 | | | 362031 | | SDL | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | SM5210B | | 20 | | | 362031 | | SDL | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | Total Nitrogen | | 1 | | | 363243 | 08/16/16 22:58 | SOG | TAL NSH |
| Total/NA | Analysis | Field Sampling | | 1 | | | 364757 | 08/09/16 09:20 | HJW | TAL NSH |

## Client Sample ID: 2016L-LS-01

**Date Collected: 08/09/16 11:40**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-11

**Matrix: Leachate**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 5 | 10 mL | 10 mL | 361967 | 08/12/16 08:56 | SLM | TAL NSH |
| Total/NA | Prep | 3010A | | | 50 mL | 50 mL | 362248 | 08/12/16 10:38 | RDF | TAL NSH |
| Total/NA | Analysis | 6020A | | 10 | | | 362647 | 08/14/16 03:29 | KKK | TAL NSH |
| Total/NA | Prep | 351.2 | | | 20 mL | 20 mL | 361840 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 351.2 | | 1 | | | 362272 | 08/12/16 10:47 | PEK | TAL NSH |
| Total/NA | Prep | 365.2/365.3/365 | | | 20 mL | 20 mL | 361849 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 365.4 | | 1 | 20 mL | 20 mL | 362136 | 08/11/16 13:53 | SDL | TAL NSH |
| Dissolved | Analysis | 410.4 | | 2 | 2 mL | 2 mL | 363226 | 08/16/16 18:34 | MSJ | TAL NSH |
| Total/NA | Analysis | 410.4 | | 2 | 2 mL | 2 mL | 363226 | 08/16/16 18:29 | MSJ | TAL NSH |
| Total/NA | Analysis | D1475-98(2003) | | 1 | | | 362690 | 08/12/16 08:47 | RN | TAL NSH |
| Total/NA | Analysis | SM 2320B | | 1 | 35 mL | 35 mL | 362148 | 08/11/16 13:29 | AEC | TAL NSH |

# Lab Chronicle

Client: Parsons Corporation
Project/Site: FMC Avtex Fibers Superfund Site

TestAmerica Job ID: 490-109402-1

## Client Sample ID: 2016L-LS-01

**Date Collected: 08/09/16 11:40**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-11

**Matrix: Leachate**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | SM 2510B | | 1 | | | 362183 | 08/11/16 15:00 | JAB | TAL NSH |
| Total/NA | Analysis | SM 2540C | | 1 | 10 mL | 100 mL | 361474 | 08/11/16 15:20 | EAR | TAL NSH |
| Total/NA | Analysis | SM 4500 NO3 F | | 1 | 50 mL | 50 mL | 363836 | 08/18/16 13:08 | REM | TAL NSH |
| Dissolved | Prep | SM 4500 S2 B | | | 50 mL | 50 mL | 363466 | 08/15/16 17:30 | REM | TAL NSH |
| Dissolved | Analysis | SM 4500 S2 F | | 1 | 50 mL | 50 mL | 363233 | 08/16/16 17:44 | ADJ | TAL NSH |
| Total/NA | Analysis | SM4500 S2 H | | 1 | | | 363658 | 08/18/16 09:02 | REM | TAL NSH |
| Dissolved | Analysis | SM5210B | | 1 | | | 362031 | | SDL | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | SM5210B | | 5 | | | 362031 | | SDL | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | Total Nitrogen | | 1 | | | 363243 | 08/16/16 22:58 | SOG | TAL NSH |
| Total/NA | Analysis | Field Sampling | | 1 | | | 364757 | 08/09/16 10:40 | HJW | TAL NSH |

## Client Sample ID: 2016L-TW-03

**Date Collected: 08/09/16 14:20**
**Date Received: 08/10/16 09:03**

## Lab Sample ID: 490-109402-12

**Matrix: Ground Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 10 mL | 10 mL | 361967 | 08/12/16 09:23 | SLM | TAL NSH |
| Total/NA | Prep | 3010A | | | 50 mL | 50 mL | 362248 | 08/12/16 10:38 | RDF | TAL NSH |
| Total/NA | Analysis | 6020A | | 1 | | | 362647 | 08/14/16 02:50 | KKK | TAL NSH |
| Total/NA | Prep | 351.2 | | | 20 mL | 20 mL | 361840 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 351.2 | | 1 | | | 362272 | 08/12/16 10:48 | PEK | TAL NSH |
| Total/NA | Prep | 365.2/365.3/365 | | | 20 mL | 20 mL | 361849 | 08/10/16 15:35 | SDL | TAL NSH |
| Total/NA | Analysis | 365.4 | | 1 | 20 mL | 20 mL | 362136 | 08/11/16 13:54 | SDL | TAL NSH |
| Dissolved | Analysis | 410.4 | | 1 | 2 mL | 2 mL | 363226 | 08/16/16 18:34 | MSJ | TAL NSH |
| Total/NA | Analysis | 410.4 | | 1 | 2 mL | 2 mL | 363226 | 08/16/16 18:29 | MSJ | TAL NSH |
| Total/NA | Analysis | D1475-98(2003) | | 1 | | | 362690 | 08/12/16 08:47 | RN | TAL NSH |
| Total/NA | Analysis | SM 2320B | | 1 | 35 mL | 35 mL | 362148 | 08/11/16 13:35 | AEC | TAL NSH |
| Total/NA | Analysis | SM 2510B | | 1 | | | 362183 | 08/11/16 15:00 | JAB | TAL NSH |
| Total/NA | Analysis | SM 2540C | | 1 | 100 mL | 100 mL | 361474 | 08/11/16 15:20 | EAR | TAL NSH |
| Total/NA | Analysis | SM 4500 NO3 F | | 1 | 50 mL | 50 mL | 363836 | 08/18/16 13:10 | REM | TAL NSH |
| Dissolved | Prep | SM 4500 S2 B | | | 50 mL | 50 mL | 363466 | 08/15/16 17:30 | REM | TAL NSH |
| Dissolved | Analysis | SM 4500 S2 F | | 1 | 50 mL | 50 mL | 363233 | 08/16/16 17:44 | ADJ | TAL NSH |
| Total/NA | Analysis | SM4500 S2 H | | 1 | | | 363658 | 08/18/16 09:02 | REM | TAL NSH |
| Dissolved | Analysis | SM5210B | | 1 | | | 362031 | | SDL | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |

# Lab Chronicle

Client: Parsons Corporation
Project/Site: FMC Avtex Fibers Superfund Site

TestAmerica Job ID: 490-109402-1

**Client Sample ID: 2016L-TW-03**
**Date Collected: 08/09/16 14:20**
**Date Received: 08/10/16 09:03**

**Lab Sample ID: 490-109402-12**
**Matrix: Ground Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | SM5210B | | 1 | | | 362031 | | SDL | TAL NSH |
| | | | | | | | (Start) | 08/10/16 22:51 | | |
| | | | | | | | (End) | 08/15/16 17:15 | | |
| Total/NA | Analysis | Total Nitrogen | | 1 | | | 363243 | 08/16/16 22:58 | SOG | TAL NSH |
| Total/NA | Analysis | Field Sampling | | 1 | | | 364757 | 08/09/16 13:20 | HJW | TAL NSH |

**Laboratory References:**

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

# Method Summary

Client: Parsons Corporation
Project/Site: FMC Avtex Fibers Superfund Site

TestAmerica Job ID: 490-109402-1

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 8260B | Volatile Organic Compounds (GC/MS) | SW846 | TAL NSH |
| 6020A | Metals (ICP/MS) | SW846 | TAL NSH |
| 351.2 | Nitrogen, Total Kjeldahl | MCAWW | TAL NSH |
| 365.4 | Phosphorus, Total | EPA | TAL NSH |
| 410.4 | COD | MCAWW | TAL NSH |
| D1475-98(2003) | Density | ASTM | TAL NSH |
| SM 2320B | Alkalinity | SM | TAL NSH |
| SM 2510B | Conductivity, Specific Conductance | SM | TAL NSH |
| SM 2540C | Solids, Total Dissolved (TDS) | SM | TAL NSH |
| SM 4500 NO3 F | Nitrogen, Nitrate | SM | TAL NSH |
| SM 4500 S2 F | Sulfide, Total | SM | TAL NSH |
| SM4500 S2 H | Unionized Hydrogen Sulfide | SM | TAL NSH |
| SM5210B | BOD, 5 Day | SM | TAL NSH |
| Total Nitrogen | Nitrogen, Total | EPA | TAL NSH |
| Field Sampling | Field Sampling | EPA | TAL NSH |

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

# Certification Summary

Client: Parsons Corporation
Project/Site: FMC Avtex Fibers Superfund Site

TestAmerica Job ID: 490-109402-1

## Laboratory: TestAmerica Nashville

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Virginia | NELAP | 3 | 460152 | 06-14-17 |

The following analytes are included in this report, but certification is not offered by the governing authority:

| Analysis Method | Prep Method | Matrix | Analyte |
|---|---|---|---|
| D1475-98(2003) | | Ground Water | Density |
| D1475-98(2003) | | Leachate | Density |
| Field Sampling | | Ground Water | Field pH |
| Field Sampling | | Leachate | Field pH |
| SM 2320B | | Ground Water | Bicarbonate Alkalinity as CaCO3 |
| SM 2320B | | Ground Water | Carbonate Alkalinity as CaCO3 |
| SM 2320B | | Ground Water | Hydroxide Alkalinity |
| SM 2320B | | Leachate | Bicarbonate Alkalinity as CaCO3 |
| SM 2320B | | Leachate | Carbonate Alkalinity as CaCO3 |
| SM 2320B | | Leachate | Hydroxide Alkalinity |
| SM4500 S2 H | | Ground Water | Un-ionized Hydrogen Sulfide |
| SM4500 S2 H | | Leachate | Un-ionized Hydrogen Sulfide |
| Total Nitrogen | | Ground Water | Nitrogen, Total |
| Total Nitrogen | | Leachate | Nitrogen, Total |

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

490-109402 Chain of Custody

Nashville, TN

# COOLER RECEIPT FORM

Cooler Received/Opened On 8/10/2016 @ 0903

Time Samples Removed From Cooler 1030 Time Samples Placed In Storage 1124 (2 Hour Window)

1. Tracking # 4009 (last 4 digits, FedEx) Courier: _fedex_

IR Gun ID 17960353 pH Strip Lot HC564992 Chlorine Strip Lot 072815A

2. Temperature of rep. sample or temp blank when opened: 2.4 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO (NA)

4. Were custody seals on outside of cooler? (YES)...NO...NA

If yes, how many and where: 1 front

5. Were the seals intact, signed, and dated correctly? (YES)..NO...NA

6. Were custody papers inside cooler? (YES)..NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) TNC

7. Were custody seals on containers: YES (NO) and Intact YES...NO...(NA)

Were these signed and dated correctly? YES...NO...(NA)

8. Packing mat'l used? Bubblewrap (Plastic bag) Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)..NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)..NO...NA

12. Did all container labels and tags agree with custody papers? (YES)..NO...NA

13a. Were VOA vials received? YES..(NO)..NA

b. Was there any observable headspace present in any VOA vial? YES...NO...(NA)

14. Was there a Trip Blank in this cooler? YES..(NO)..NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) MSM

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? (YES)..NO..NA

b. Did the bottle labels indicate that the correct preservatives were used (YES)..NO...NA

16. Was residual chlorine present? YES..(NO)..NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) MSM

17. Were custody papers properly filled out (ink, signed, etc)? (YES)..NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)..NO...NA

19. Were correct containers used for the analysis requested? (YES)..NO...NA

20. Was sufficient amount of sample sent in each container? (YES)..NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) MSM

I certify that I attached a label with the unique LIMS number to each container (intial) MSM

21. Were there Non-Conformance issues at login? YES..(NO) Was a NCM generated? YES..(NO)..#_____

BIS = Broken in shipment

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Loc: 490
109402
#1
C

Nashville, TN

# COOLER RECEIPT FORM

Cooler Received/Opened On 8/10/2016 @ 0903

Time Samples Removed From Cooler 1030 Time Samples Placed In Storage 1129 (2 Hour Window)

1. Tracking # 3907 (last 4 digits, FedEx) Courier: _fedex_

IR Gun ID 18290455 pH Strip Lot HC564992 Chlorine Strip Lot 072815A

2. Temperature of rep. sample or temp blank when opened: 3.9 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO..(NA)

4. Were custody seals on outside of cooler? (YES)..NO...NA

If yes, how many and where: 1 front

5. Were the seals intact, signed, and dated correctly? (YES)..NO...NA

6. Were custody papers inside cooler? (YES)..NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES (NO) and Intact YES...NO..(NA)

Were these signed and dated correctly? YES...NO..(NA)

8. Packing mat'l used? Bubblewrap (Plastic bag) Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)..NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)..NO...NA

12. Did all container labels and tags agree with custody papers? (YES)..NO...NA

13a. Were VOA vials received? YES..(NO)..NA

b. Was there any observable headspace present in any VOA vial? YES...NO..(NA)

14. Was there a Trip Blank in this cooler? YES..(NO)..NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) mam

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? (YES) NO..NA

b. Did the bottle labels indicate that the correct preservatives were used (YES)..NO...NA

16. Was residual chlorine present? YES..(NO)..NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) mam

17. Were custody papers properly filled out (ink, signed, etc)? (YES)..NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)..NO...NA

19. Were correct containers used for the analysis requested? (YES)..NO...NA

20. Was sufficient amount of sample sent in each container? (YES)..NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) mam

I certify that I attached a label with the unique LIMS number to each container (intial) mam

21. Were there Non-Conformance issues at login? YES..(NO) Was a NCM generated? YES..(NO)..#_____

BIS = Broken in shipment

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Loc: 490
109402
#1
B

Nashville, TN

# COOLER RECEIPT FORM

Cooler Received/Opened On 8/10/2016 @ 0903

Time Samples Removed From Cooler 1030 Time Samples Placed In Storage 1124 (2 Hour Window)

1. Tracking # 3804 (last 4 digits, FedEx) Courier: _fedex_

IR Gun ID 18290455 pH Strip Lot HC564992 Chlorine Strip Lot 072815A

2. Temperature of rep. sample or temp blank when opened: 0.4 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO..(NA)

4. Were custody seals on outside of cooler? 2 front (YES)...NO...NA

If yes, how many and where: _____

5. Were the seals intact, signed, and dated correctly? (YES)...NO...NA

6. Were custody papers inside cooler? (YES)...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) B

7. Were custody seals on containers: YES (NO) and Intact YES...NO...(NA)

Were these signed and dated correctly? YES...NO...(NA)

8. Packing mat'l used? Bubblewrap (Plastic bag) Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)...NO...NA

12. Did all container labels and tags agree with custody papers? (YES)...NO...NA

13a. Were VOA vials received? YES (NO) NA

b. Was there any observable headspace present in any VOA vial? YES...NO...(NA)

14. Was there a Trip Blank in this cooler? YES (NO) NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) mbm

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? (YES) NO..NA

b. Did the bottle labels indicate that the correct preservatives were used (YES)...NO...NA

16. Was residual chlorine present? YES (NO) NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) mbm

17. Were custody papers properly filled out (ink, signed, etc)? (YES)...NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)...NO...NA

19. Were correct containers used for the analysis requested? (YES)...NO...NA

20. Was sufficient amount of sample sent in each container? (YES)...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) mbm

I certify that I attached a label with the unique LIMS number to each container (intial) mbm

21. Were there Non-Conformance issues at login? YES...(NO) Was a NCM generated? YES...(NO) #_____

BIS = Broken in shipment

Loc: 490
109402
#1
A

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Nashville, TN

# COOLER RECEIPT FORM

Cooler Received/Opened On 8/10/2016 @ 0903

Time Samples Removed From Cooler 1030 Time Samples Placed In Storage 1121 (2 Hour Window)

1. Tracking # 3609 (last 4 digits, FedEx) Courier: _fedex_

IR Gun ID 18290455 pH Strip Lot HC564992 Chlorine Strip Lot 072815A

2. Temperature of rep. sample or temp blank when opened: 0.7 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO..(NA)

4. Were custody seals on outside of cooler? 1 front YES..NO...NA

If yes, how many and where: _____

5. Were the seals intact, signed, and dated correctly? YES..NO...NA

6. Were custody papers inside cooler? YES..NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES (NO) and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap (Plastic bag) Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)..NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)..NO...NA

12. Did all container labels and tags agree with custody papers? (YES)..NO...NA

13a. Were VOA vials received? YES..(NO)..NA

b. Was there any observable headspace present in any VOA vial? YES...NO...(NA)

14. Was there a Trip Blank in this cooler? YES..(NO)..NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) _____ MDM

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? (YES)..NO..NA

b. Did the bottle labels indicate that the correct preservatives were used (YES)..NO...NA

16. Was residual chlorine present? YES..(NO)..NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) MDM

17. Were custody papers properly filled out (ink, signed, etc)? (YES)..NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)..NO...NA

19. Were correct containers used for the analysis requested? (YES)..NO...NA

20. Was sufficient amount of sample sent in each container? (YES)..NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) MDM

I certify that I attached a label with the unique LIMS number to each container (intial) MDM

21. Were there Non-Conformance issues at login? YES..(NO) Was a NCM generated? YES..(NO)..#_____

BIS = Broken in shipment

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

# 490-109402

Nashville, TN

## COOLER RECEIPT FORM

Cooler Received/Opened On 8/10/2016 @ 0903

Time Samples Removed From Cooler 1030 Time Samples Placed In Storage 1124 (2 Hour Window)

1. Tracking # 3701 (last 4 digits, FedEx) Courier: _fedex_

IR Gun ID 18290455 pH Strip Lot HC564992 Chlorine Strip Lot 072815A

2. Temperature of rep. sample or temp blank when opened: 0.5 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES..NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES..NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO..NA

14. Was there a Trip Blank in this cooler? YES..NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO..NA

b. Did the bottle labels indicate that the correct preservatives were used YES..NO...NA

16. Was residual chlorine present? YES..NO..NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES..NO...NA

18. Did you sign the custody papers in the appropriate place? YES..NO...NA

19. Were correct containers used for the analysis requested? YES..NO...NA

20. Was sufficient amount of sample sent in each container? YES..NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (intial) _____

21. Were there Non-Conformance issues at login? YES NO Was a NCM generated? YES NO #_____

BIS = Broken in shipment

# CHAIN-OF-CUSTODY/Analytical Request Document

**COC #:** FR-16051

**Section A**
Required Client Information:

| | |
|---|---|
| Company: | Parsons FMC |
| Address: | 4701 Hedgemore Drive |
| | Charlotte, NC 28209 |
| Email To: | Michael.Robinson@Parsons.com |
| Phone: (704) 558-4255 | Fax: |
| **Requested Due Date/TAT:** | **Standard** |

**Section B**
Required Project Information:

| | |
|---|---|
| Report To: | Michael Robinson |
| Copy To: | Deb Andresko |
| | deb.andrasko@ghd.com |
| Purchase Order No.: | |
| Project Name: | FMC-Avtex Fibers, Front Royal, VA |
| Project Number: | 449965 |

**Section C**
Lab Information:

| | |
|---|---|
| Attention: | Heather Wagner |
| Company Name: | TestAmerica Nashville |
| Address: | 2960 Foster Creighton |
| | Nashville, TN 37204 |
| Phone: | (615) 726-0177 |
| Email: | Heather.Wagner@testamericainc.com |

**REGULATORY AGENCY**
☐ NPDES ☐ Ground Water ☐ Drinking Water
☐ UST ☐ RCRA ■ EPA/ CERCLA

**Site Location: Front Royal**
**State: VA**

**Data Package Request:** Level 2, Level 4, and EDD (in EQuIS Region 2 format)

Loc: 490
109402

**Section D**
Required Client Information:

**Valid Sample Matrix Codes:**

| MATRIX: | CODE: | MATRIX: | CODE: | MATRIX: | CODE: |
|---|---|---|---|---|---|
| Drinking Water | WP | Sediment | SE | Outdoor Ambient Air | AO |
| Ground Water | WG | Soil | SO | Indoor Ambient Air | AI |
| Waste Water | WW | Surfce Water | WS | Tissue | TS |
| Leachate | WL | Blank | WQ | | |

| Monitoring Unit | Start Depth (ft) | End Depth (ft) | Field Sample ID MUST BE UNIQUE | Sample Date | Sample Time | Sample Type | Sample Matrix | Sample Purpose | # of Cont | MS/MSD | Composite (y/n) | Total Metals-6020A | VOCs (Short List)-8260B LL | Hyd. Sulfide-SM 4500 S2H | Total BOD-SM 5210B | Soluble BOD-SM 5210B | Total COD-EPA 410.4 | Soluble COD-EPA 410.4 | TDS-SM 2540C | Total Nitrogen-SM 4500 N | Tot Phosphorus-EPA 365.4 | Alkalinity-SM 2320B | Density-ASTM D1475 | COC #: FR-16051 Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Preservative (for waters only): | | | | | | | | | | | | |
| | | | | | | | | | | Footnote | | (1) | (2) | (3) | | | | | | (4) | | | | |
| Process | | | 2016L-VB-09 | 08/08/16 | 9:55 | LEACH | WL | REG | 13 | | N | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | -1 |
| Process | | | TB-080916-01 | 08/09/16 | 6:05 | FIELDQC | WQ | TB | 2 | | N | | ✓ | | | | | | | | | | | 2 |
| Process | | | 2016L-TW-01 | 08/09/16 | 8:05 | GW | WG | REG | 13 | | N | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 3 |
| Process | | | 2016L-TW-02 | 08/09/16 | 8:20 | GW | WG | REG | 13 | | N | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 4 |
| Process | | | 2016L-LS-03 | 08/09/16 | 8:30 | LEACH | WL | REG | 13 | | N | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 5 |
| Process | | | 2016L-VB-11 | 08/09/16 | 8:40 | LEACH | WL | REG | 13 | | N | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 6 |
| Process | | | 2016L-LS-02 | 08/09/16 | 10:00 | LEACH | WL | REG | 13 | | N | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 7 |
| Process | | | 2016L-LS-04 | 08/09/16 | 10:00 | LEACH | WL | REG | 39 | ✓ | N | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 8 |
| Process | | | 2016L-LS-04-D | 08/09/16 | 10:00 | LEACH | WL | FD | 13 | | N | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 9 |
| Process | | | 2016L-VB-10 | 08/09/16 | 10:20 | LEACH | WL | REG | 13 | | N | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 10 |
| Process | | | 2016L-LS-01 | 08/09/16 | 11:40 | LEACH | WL | REG | 13 | | N | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 11 |

**Special Instructions:**
(1) Metals 6020A - Sb,As,Fe
(2) Short List VOCs - Carbon Disulfide
(3) Un-ionized Hydrogen Sulfide (SM 4500 S2H) is calculated based on Dissolved Sulfide (SM 4500 S2D), pH (SM 4500 H+B), and Specific Conductance (SM 2510B).
(4) Total Nitrogen (SM 4500 N) is calculated based on Total Nitrate/Nitrite (4500 NO3 F) and TKN (EPA 351.2).

| | | | | | |
|---|---|---|---|---|---|
| Samplers Name: K. Short/A. Lipomi/ M. Hawker/B. Simpson | Company: Parsons | Relinquished By: FedEx | Company: Parsons | Cooler Temp. | Custody Seals Intact Y/N |
| | Date/Time: 8/9/16 -1615 | | Date/Time: 8/9/16 -1615 | Rec'd on Ice: Y/N | Samples Intact Y/N |
| Shipment Method: FedEx | Shipment Tracking No | Accepted By: | Company: TAN | Cooler Temp. 0.5 / 0.7 / 0.4 | Custody Seals Intact Y/N |
| | Date/Time: 8/9/16 -1615 | | Date/Time: 8-10-16 @ 0903 | Rec'd on Ice: (Y) N 3.9 / 2.4 | Samples Intact Y/N |

**Preservatives: 0 = None; [1 = HCL]; [2 = HNO3]; [3 = H2SO4]; [4 = NaOH]; [5 = Zn Acetate]; [6 = MeOH]; [7 = NaHSO4]; 8 = Other (specify):**

*Date Printed: 8/9/2016*

# CHAIN-OF-CUSTODY/Analytical Request Document

**COC #:** FR-16051

**Section A**
Required Client Information:

| | |
|---|---|
| Company: | Parsons FMC |
| Address: | 4701 Hedgemore Drive |
| | Charlotte, NC 28209 |
| Email To: | Michael.Robinson@Parsons.com |
| Phone: (704) 558-4255 | Fax: |
| **Requested Due Date/TAT:** | **Standard** |

**Section B**
Required Project Information:

| | |
|---|---|
| Report To: | Michael Robinson |
| Copy To: | Deb Andresko |
| | deb.andrasko@ghd.com |
| Purchase Order No.: | |
| Project Name: | FMC-Avtex Fibers, Front Royal, VA |
| Project Number: | 449965 |

**Section C**
Lab Information:

| | |
|---|---|
| Attention: | Heather Wagner |
| Company Name: | TestAmerica Nashville |
| Address: | 2960 Foster Creighton |
| | Nashville, TN 37204 |
| Phone: | (615) 726-0177 |
| Email: | Heather.Wagner@testamericainc.com |

**REGULATORY AGENCY**
☐ NPDES ☐ Ground Water ☐ Drinking Water
☐ UST ☐ RCRA ■ EPA/ CERCLA

**Site Location: Front Royal**
**State: VA**

Loc: 490
**109402**

**Data Package Request:** Level 2, Level 4, and EDD (in EQuIS Region 2 format)

**Section D**
Required Client Information:

**Valid Sample Matrix Codes:**

| MATRIX: | CODE: | MATRIX: | CODE: | MATRIX: | CODE: |
|---|---|---|---|---|---|
| Drinking Water | WP | Sediment | SE | Outdoor Ambient Air | AO |
| Ground Water | WG | Soil | SO | Indoor Ambient Air | AI |
| Waste Water | WW | Surfce Water | WS | Tissue | TS |
| Leachate | WL | Blank | WQ | | |

**Preservative (for waters only):**

| Monitoring Unit | Start Depth (ft) | End Depth (ft) | Field Sample ID MUST BE UNIQUE | Sample Date | Sample Time | Sample Type | Sample Matrix | Sample Purpose | # of Cont | MS/MSD | Composite (y/n) | Total Metals-6020A (1) | VOCs (Short List)-8260B LL (2) | Hyd. Sulfide-SM 4500 S2H (3) | Total BOD-SM 5210B | Soluble BOD-SM 5210B | Total COD-EPA 410.4 | Soluble COD-EPA 410.4 | TDS-SM 2540C | Total Nitrogen-SM 4500 N (4) | Tot Phosphorus-EPA 365.4 | Alkalinity-SM 2320B | Density-ASTM D1475 | | | | COC #: FR-16051 Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Footnote | | 2 | 1 | 4,5 | 0 | 0 | 3 | 3 | 0 | 3 | 3 | 0 | 0 | | | | |
| Process | | | 2016L-TW-03 | 08/09/16 | 14:20 | GW | WG | REG | 13 | ☐ | N | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | | | | 12 |

**Special Instructions:**
(1) Metals 6020A - Sb,As,Fe
(2) Short List VOCs - Carbon Disulfide
(3) Un-ionized Hydrogen Sulfide (SM 4500 S2H) is calculated based on Dissolved Sulfide (SM 4500 S2D), pH (SM 4500 H+B), and Specific Conductance (SM 2510B).
(4) Total Nitrogen (SM 4500 N) is calculated based on Total Nitrate/Nitrite (4500 NO3 F) and TKN (EPA 351.2).

| | | | | | |
|---|---|---|---|---|---|
| Samplers Name: K Stuart/H. Lipomi/B. Simons | Company Parsons | Relinquished By: | Company | Cooler Temp. | Custody Seals Intact Y/N |
| | Date/Time 8/9/16-1615 | | Date/Time | Rec'd on Ice: Y/N | Samples Intact Y/N |
| Shipment Method: FedEx | Shipment Tracking No | Accepted By: [signature] | Company TAW | Cooler Temp. | Custody Seals Intact Y/N |
| | Date/Time 8/9/16-1615 | | Date/Time 8/10/16 @ 0903 | Rec'd on Ice: Y/N | Samples Intact Y/N |

**Preservatives: 0 = None; [1 = HCL]; [2 = HNO3]; [3 = H2SO4]; [4 = NaOH]; [5 = Zn Acetate]; [6 = MeOH]; [7 = NaHSO4]; 8 = Other (specify):**

***Date Printed: 8/9/2016***

# Login Sample Receipt Checklist

Client: Parsons Corporation

Job Number: 490-109402-1

**Login Number: 109402**
**List Number: 1**
**Creator: McBride, Mike**

**List Source: TestAmerica Nashville**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | N/A | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | False | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | True | |

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-109765-1
Client Project/Site: FMC Front Royal-GLTP AVTEX FIBERS

For:
Parsons Corporation
301 Plainfield Road
Suite 350
Syracuse, New York 13212

Attn: Heather Philip

*Authorized for release by:*
*8/15/2016 2:03:19 PM*

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*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Sample Summary

Client: Parsons Corporation
Project/Site: FMC Front Royal-GLTP AVTEX FIBERS

TestAmerica Job ID: 490-109765-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 490-109765-1 | AF 8-3 OF 004 | Water | 08/03/16 09:30 | 08/04/16 09:02 |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative error ratio |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

# Method Summary

Client: Parsons Corporation
Project/Site: FMC Front Royal-GLTP AVTEX FIBERS

TestAmerica Job ID: 490-109765-1

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| Acute Toxicity - C.dubia | General Sub Contract Method | NONE | |
| Acute Toxicity - Fathead Minnow | General Sub Contract Method | NONE | |

**Protocol References:**

NONE = NONE

**Laboratory References:**

= Brentwood, TN, 201 Summit View Drive, Ste. 300, Brentwood, TN 37027

# Certification Summary

Client: Parsons Corporation
Project/Site: FMC Front Royal-GLTP AVTEX FIBERS

TestAmerica Job ID: 490-109765-1

## Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Virginia | NELAP | 3 | 460152 | 06-14-17 |

Prepared for
**TestAmerica**
**Nashville, Tennessee**

Date
**August 2016**

# TOXICITY TEST RESULTS

## PROJECT NUMBER: 38-38221B

RAMBOLL ENVIRON

Ms. Heather Wagner
Test America, Inc.
2960 Foster Creighton Drive
Nashville, TN 37204

**GLTP ACUTE TOXICITY TEST RESULTS –AUGUST 2016**
**RAMBOLL ENVIRON PROJECT NO. 38-38221B**

August 12, 2016

Ramboll Environ
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Dear Ms. Wagner:
Attached are the results of the definitive (five-dilution) 48-hour, static, acute whole effluent toxicity (WET) tests performed with samples collected from the Groundwater and Leachate Treatment Plant (GLTP) in Front Royal, VA. Testing was conducted to assess toxicity according to Section V of Virginia Guidance Memorandum 00-2012. Testing was conducted with *Pimephales promelas* (fathead minnow) and *Ceriodaphnia dubia (C. dubia*). The tests were initiated on August 4, 2016, with a grab sample collected and shipped the previous day. The sample receipt temperature was 2.8 ºC, which is within the EPA-required temperature of 0.0 to 6.0 ºC (see chain-of-custody form). Test organisms were exposed to 6.25, 12.5, 25, 50, and 100 percent effluent concentrations and a moderately hard water control.

Test protocols followed USEPA 821-R-02-012, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*. Controls for both tests met USEPA test acceptability criteria. Results are summarized below:

*NELAP Accredited or Laboratory Certification in the following United States:* AR (02-008-0), AZ (0751), CA (2465), FL (E87896), IA (386), KS (E-10391), LA (02061), MN, NC (003), OK (9973), SC (84015), TX (T104704410-11-2), VA (460171), WI (399050850), WV (351).
Test Results contained in this report meet NELAP requirements.

| TOXICITY TEST RESULTS | | |
|---|---|---|
| **Test Endpoint** | **Fathead minnow** | ***C. dubia*** |
| 48-hr LC50 Value | > 100% | > 100% |
| TUa | < 1 | < 1 |
| Percent Mortality in 100% Effluent | 0 % | 0 % |
| LC50 – median lethal concentration<br>TUa – acute toxic unit, 100/LC50 | | |

The results of these tests indicated no toxicity, with LC50 values of greater than 100% effluent for both test species. The corresponding TUa values are less than one.

This report contains 18 pages, which include: this summary report, data review form and Virginia test summary sheet, copies of the tests datasheets (attachment 1), Virginia chain-of-custody, Ramboll Environ chain-of-custody form, and monthly

reference toxicant data, (attachment 2) and spacer and attachment pages.

Thank you for the continued opportunity to assist TestAmerica and their clients with their toxicity testing needs. If you have any questions or concerns regarding this report, please feel free to contact me at (615) 277-7517.

Yours sincerely

**Liza Heise**
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**Data Review Form**

**Acute and Chronic WET Tests**

**Ramboll Environ**

The raw data (i.e., laboratory bench sheets) and data in the applicable summary sheets have been checked and found to be complete. Additionally, test conditions and control performance meet test acceptability criteria specified by the US Environmental Protection Agency and the certifying state authority for the tests conducted[1].

Robin L. Richards

**Robin L. Richards, REM**
Department Head
Water Management and Planning

[1] Any data limitations regarding their applicability for determining NPDES permit compliance are discussed in the report cover letter.

## ATTACHMENT 1

## VIRGINIA TEST CONDITIONS SHEET, STATISTICAL ANALYSIS, AND RAW DATA SHEETS

PERMITTEE: Groundwater and Leachate Treatment Plant OUTFALL: _____ NPDES#: _____

TEST DATES: 08/04/16 TO 08/06/16

## SUMMARY OF ACTUAL TEST CONDITIONS

1. TEST TYPE: Acute definitive
2. TEST DURATION: 48 - hr
3. TEST ORGANISM: Fathead minnow / *C. dubia*
4. ORGANISM AGE: 8 days / <24 hrs
5. TEST TEMPERATURE (LOW TO HIGH): 24.0-25.2 / 24.3–25.7
6. LIGHT INTENSITY: 72.4 ftc / 60.4 ftc
7. PHOTOPERIOD: 16-hr light / 8-hr dark
8. TEST CHAMBER SIZE: 250 mL / 30 mL
9. TEST SOLUTION VOLUME: 200 mL / 15-20 mL
10. # ORGANISMS/TEST CHAMBER: 10 / 5
11. # REPLICATES/CONCENTRATION: 2 / 4
12. FOOD TYPE, AMOUNT, FREQUENCY: none
13. AERATION RATE/INITIATION TIME: none
14. DILUTION WATER: Moderately hard synthetic reconstituted
15. CULTURE WATER FOR TEST ORGANISMS: Moderately hard synthetic reconstituted
16. TEST CONCENTRATIONS: 0, 6.25, 12.5, 25, 50, 100%
17. ACUTE TEST ACCEPTABILITY CRITERION OF ≥90% SURVIVAL IN CONTROLS: Yes
18. CHRONIC TEST ACCEPTABILITY CRITERIA OF ≥80% SURVIVAL IN CONTROLS, AND AVERAGE 15 NEONATES/SURVIVING ADULT OR CONTROL LARVAE WEIGH ≥0.25 mg: NA
19. ACUTE TEST $LC_{50}$: >100 STATISTICAL PROGRAM/VERSION: observation
    CONFIDENCE LIMITS: _____
20. CHRONIC TEST NOEC SURVIVAL: _____ NOEC REPRODUCTION/GROWTH: _____
    TEST NOEC: _____ $LC_{50}$ AT 48 HOURS: _____

# CETIS Analytical Report

Report Date: 10 Aug-16 08:11 (p 1 of 2)
Test Code: 17371fm | 09-8279-4650

**Fathead Minnow 48-h Acute Survival Test** — **Ramboll Environ**

| | | | | | |
|---|---|---|---|---|---|
| **Analysis ID:** | 07-0901-7490 | **Endpoint:** | 48h Survival Rate | **CETIS Version:** | CETISv1.8.4 |
| **Analyzed:** | 10 Aug-16 8:11 | **Analysis:** | Linear Interpolation (ICPIN) | **Official Results:** | Yes |
| **Batch ID:** | 04-5068-7598 | **Test Type:** | Survival (48h) | **Analyst:** | |
| **Start Date:** | 04 Aug-16 | **Protocol:** | EPA/821/R-02-012 (2002) | **Diluent:** | Mod-Hard Synthetic Water |
| **Ending Date:** | 05 Aug-16 | **Species:** | Pimephales promelas | **Brine:** | Not Applicable |
| **Duration:** | 24h | **Source:** | Aquatic Biosystems, CO | **Age:** | |
| **Sample ID:** | 01-0211-9079 | **Code:** | 61636A7 | **Client:** | Test America |
| **Sample Date:** | 03 Aug-16 | **Material:** | Industrial Effluent | **Project:** | WET Quarterly Compliance Test (3Q) |
| **Receive Date:** | 04 Aug-16 | **Source:** | Discharge Monitoring Report | | |
| **Sample Age:** | 24h (2.8 °C) | **Station:** | AF-004 | | |

**Linear Interpolation Options**

| X Transform | Y Transform | Seed | Resamples | Exp 95% CL | Method |
|---|---|---|---|---|---|
| Linear | Linear | 1374628 | 1000 | Yes | Two-Point Interpolation |

**Point Estimates**

| Level | % | 95% LCL | 95% UCL | TU | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|
| LC50 | >100 | N/A | N/A | <1 | NA | NA |

**48h Survival Rate Summary** — Calculated Variate(A/B)

| C-% | Control Type | Count | Mean | Min | Max | Std Err | Std Dev | CV% | %Effect | A | B |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | Lab Water | 2 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% | 20 | 20 |
| 6.25 | | 2 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% | 20 | 20 |
| 12.5 | | 2 | 0.85 | 0.8 | 0.9 | 0.05 | 0.07071 | 8.32% | 15.0% | 17 | 20 |
| 25 | | 2 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% | 20 | 20 |
| 50 | | 2 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% | 20 | 20 |
| 100 | | 2 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% | 20 | 20 |

**48h Survival Rate Detail**

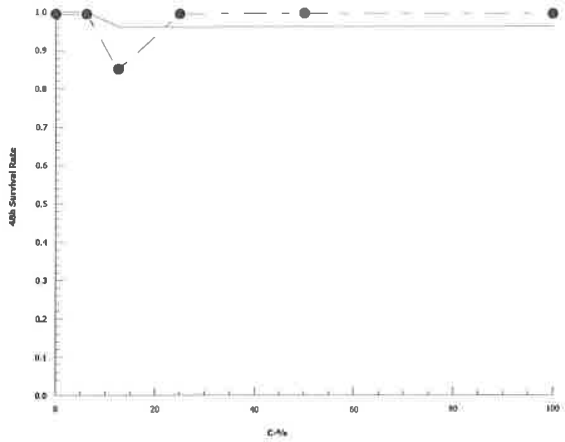
| C-% | Control Type | Rep 1 | Rep 2 |
|---|---|---|---|
| 0 | Lab Water | 1 | 1 |
| 6.25 | | 1 | 1 |
| 12.5 | | 0.9 | 0.8 |
| 25 | | 1 | 1 |
| 50 | | 1 | 1 |
| 100 | | 1 | 1 |

**48h Survival Rate Binomials**

| C-% | Control Type | Rep 1 | Rep 2 |
|---|---|---|---|
| 0 | Lab Water | 10/10 | 10/10 |
| 6.25 | | 10/10 | 10/10 |
| 12.5 | | 9/10 | 8/10 |
| 25 | | 10/10 | 10/10 |
| 50 | | 10/10 | 10/10 |
| 100 | | 10/10 | 10/10 |

| | | | | | |
|---|---|---|---|---|---|
| **Analysis ID:** | 07-0901-7490 | **Endpoint:** | 48h Survival Rate | **CETIS Version:** | CETISv1.8.4 |
| **Analyzed:** | 10 Aug-16 8:11 | **Analysis:** | Linear Interpolation (ICPIN) | **Official Results:** | Yes |

**Graphics**



# 48-HR ACUTE TOXICITY TEST DATA SHEET
EPA-821-R-02-012 Method 2000.0

Page 1 of 1

| | | | | | |
|---|---|---|---|---|---|
| LOG: | 18371 | TEST TYPE: | Static, Daily Renewal | TEST VESSEL CAPACITY: | 250 mL |
| JOB NO: | Front Royal, VA | TEST ORGANISM: | FATHEAD MINNOW | TEST SOLUTION VOLUME: | 200 mL |
| CLIENT: | TA Parsons | ORGANISM AGE (date): | 7/27/16 | NO. ORGANISMS/VESSEL: | 10 |
| EFFLUENT: | AF 8-3 OF 004 | ORGANISM SOURCE: | ABS # 5059 | NO. REPLICATES: | 2 |
| SAMPLE "B" NOS.: | 19950 | PHOTOPERIOD | 16 hrs light/8 hrs dark | DILUTION WATER: | Type: MH No. 6293 |
| SAMPLE DATE: | 8/3/16 | START DATE/TIME: | 8/4/16 1130 | DILUTIONS MADE BY: | HM |
| ORGANISM SOURCE TEMP: | 24.4 | END DATE/TIME: | 8/6/16 1042 | FED 2 hrs PRIOR TO TEST: | Time: 1400 Intls: 0700 |
| FOOD BATCH: | 5577 | RANDOMIZED BY: | HM | 48 hr. LC50 = | >100 95% CI = NC |

| Conc (%) | Vessel ID | Survival (#) 0 | 24 | 48 | DEAD | DO (mg/L) 0 | 24 | 48 | pH (s.u.) 0 | 24 | 48 | Temperature (°C) 0 | 24 | 48 | Conductivity (umhos/cm) 0 | 24 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MH | A | 10 | 10 | 10 | 0 | 8.6 | | 8.4 | 7.74 | | 7.76 | 24.1 | | 25.2 | 210 | | 210 |
| | B | 10 | 10 | 10 | 0 | | 8.1 | | | 7.62 | | | 24.2 | | | 213 | |
| 6.25 | A | 10 | 10 | 10 | 0 | 8.6 | | 8.4 | 7.76 | | 7.67 | 24.4 | | 25.0 | 330 | | 333 |
| | B | 10 | 10 | 10 | 0 | | 8.1 | | | 7.72 | | | 24.2 | | | 335 | |
| 12.5 | A | 10 | 10 | 9 | 1 | 8.6 | | 8.4 | 7.81 | | 7.80 | 24.3 | | 24.9 | 576 | | 533 |
| | B | 10 | 9 | 8 | 2 | | 8.2 | | | 7.81 | | | 24.1 | | | 575 | |
| 25 | A | 10 | 10 | 10 | 0 | 8.8 | | 8.4 | 7.89 | | 8.00 | 24.6 | | 24.6 | 937 | | 901 |
| | B | 10 | 10 | 10 | 0 | | 8.1 | | | 7.99 | | | 24.0 | | | 944 | |
| 50 | A | 10 | 10 | 10 | 0 | 8.8 | | 8.4 | 7.96 | | 8.36 | 24.4 | | 24.9 | 1714 | | 1590 |
| | B | 10 | 10 | 10 | 0 | | 8.0 | | | 8.16 | | | 24.2 | | | 1609 | |
| 100 | A | 10 | 10 | 10 | 0 | 8.5 | | 8.4 | 8.01 | | 8.48 | 24.5 | | 24.5 | 3330 | | 2950 |
| | B | 10 | 10 | 10 | 0 | | 8.2 | | | 8.41 | | | 24.0 | | | 3160 | |

| Params: | HM | HM | TL |
|---|---|---|---|
| Initials: | HM | LM | TL |
| Time: | 1130 | 1102 | 1042 |
| Date: | 8/4 | 8/5 | 8/6 |

| | Control Primary | 100% Effluent |
|---|---|---|
| Hardness (mg/L) | 90.8 | 1100 |
| Alkalinity (mg/L) | 41 | 250 |
| TRC (mg/L) | <0.02 | <0.02 |
| Ammonia (mg/L) | — | <0.1 |

Comments:
MH Made: 7/30/16
MH 1st Use: 8/3/16
Light Levels: 72.4

# CETIS Analytical Report

Report Date: 10 Aug-16 08:02 (p 1 of 2)
Test Code: 18371Cd | 13-1964-8771

## Ceriodaphnia 48-h Acute Survival Test

Ramboll Environ

| | | | | | |
|---|---|---|---|---|---|
| **Analysis ID:** | 20-7833-8695 | **Endpoint:** | 48h Survival Rate | **CETIS Version:** | CETISv1.8.4 |
| **Analyzed:** | 10 Aug-16 8:01 | **Analysis:** | Linear Interpolation (ICPIN) | **Official Results:** | Yes |
| **Batch ID:** | 09-4548-4251 | **Test Type:** | Survival (48h) | **Analyst:** | |
| **Start Date:** | 04 Aug-16 | **Protocol:** | EPA/821/R-02-012 (2002) | **Diluent:** | Mod-Hard Synthetic Water |
| **Ending Date:** | 06 Aug-16 | **Species:** | Ceriodaphnia dubia | **Brine:** | Not Applicable |
| **Duration:** | 48h | **Source:** | In-House Culture | **Age:** | |
| **Sample ID:** | 01-0211-9079 | **Code:** | 61636A7 | **Client:** | Test America |
| **Sample Date:** | 03 Aug-16 | **Material:** | Industrial Effluent | **Project:** | WET Quarterly Compliance Test (3Q) |
| **Receive Date:** | 04 Aug-16 | **Source:** | Discharge Monitoring Report | | |
| **Sample Age:** | 24h (2.8 °C) | **Station:** | AF-004 | | |

### Linear Interpolation Options

| X Transform | Y Transform | Seed | Resamples | Exp 95% CL | Method |
|---|---|---|---|---|---|
| Linear | Linear | 433824 | 1000 | Yes | Two-Point Interpolation |

### Test Acceptability Criteria

| Attribute | Test Stat | TAC Limits | Overlap | Decision |
|---|---|---|---|---|
| Control Resp | 1 | 0.9 - NL | Yes | Passes Acceptability Criteria |

### Point Estimates

| Level | % | 95% LCL | 95% UCL | TU | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|
| LC50 | >100 | N/A | N/A | <1 | NA | NA |

### 48h Survival Rate Summary

| | | | Calculated Variate(A/B) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C-% | Control Type | Count | Mean | Min | Max | Std Err | Std Dev | CV% | %Effect | A | B |
| 0 | Lab Water | 4 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% | 20 | 20 |
| 6.25 | | 4 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% | 20 | 20 |
| 12.5 | | 4 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% | 20 | 20 |
| 25 | | 4 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% | 20 | 20 |
| 50 | | 4 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% | 20 | 20 |
| 100 | | 4 | 0.95 | 0.8 | 1 | 0.05 | 0.1 | 10.53% | 5.0% | 19 | 20 |

### 48h Survival Rate Detail

| C-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Lab Water | 1 | 1 | 1 | 1 |
| 6.25 | | 1 | 1 | 1 | 1 |
| 12.5 | | 1 | 1 | 1 | 1 |
| 25 | | 1 | 1 | 1 | 1 |
| 50 | | 1 | 1 | 1 | 1 |
| 100 | | 0.8 | 1 | 1 | 1 |

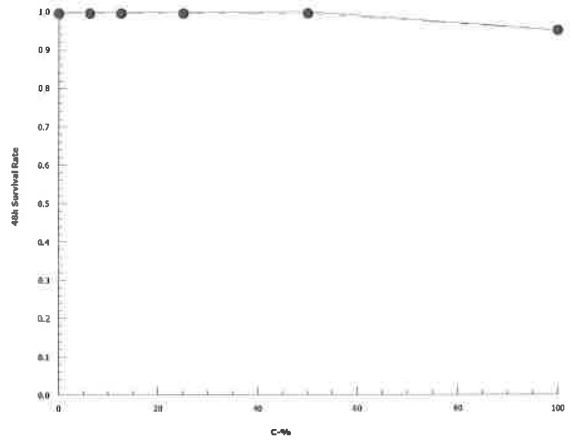
### 48h Survival Rate Binomials

| C-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Lab Water | 5/5 | 5/5 | 5/5 | 5/5 |
| 6.25 | | 5/5 | 5/5 | 5/5 | 5/5 |
| 12.5 | | 5/5 | 5/5 | 5/5 | 5/5 |
| 25 | | 5/5 | 5/5 | 5/5 | 5/5 |
| 50 | | 5/5 | 5/5 | 5/5 | 5/5 |
| 100 | | 4/5 | 5/5 | 5/5 | 5/5 |

**Ceriodaphnia 48-h Acute Survival Test** — **Ramboll Environ**

| | | | | | |
|---|---|---|---|---|---|
| **Analysis ID:** | 20-7833-8695 | **Endpoint:** | 48h Survival Rate | **CETIS Version:** | CETISv1.8.4 |
| **Analyzed:** | 10 Aug-16 8:01 | **Analysis:** | Linear Interpolation (ICPIN) | **Official Results:** | Yes |

**Graphics**



Ramboll Environ Test Log No. 18371
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8/15/2016

**48-HR ACUTE TOXICITY TEST DATA SHEET**
**EPA-821-R-02-012 Method 2002.0**



| | | | | | |
|---|---|---|---|---|---|
| LOG: | 18371 | TEST TYPE: | Static, Daily Renewal | TEST VESSEL CAPACITY: | 30 mL |
| JOB NO: | Front Royal VA | TEST ORGANISM: | *Ceriodaphnia dubia* | TEST SOLUTION VOLUME: | 15 - 20 mL |
| CLIENT: | TA Parsons | ORGANISM AGE (date): | 8/3-4/16 (1356-0718) | NO. ORGANISMS/VESSEL: | 5 |
| EFFLUENT: | AF 8-~~0~~3 OF 004 | ORGANISM SOURCE: | 11458-59 | NO. REPLICATES: | 4 |
| SAMPLE "B" NOS.: | 19950 | PHOTOPERIOD | 16 hrs light/8 hrs dark | DILUTION WATER: | Type MH No. 16293 |
| SAMPLE DATE: | 8/3/16 | START DATE/TIME: | 8/4/16 1052 | DILUTIONS MADE BY: | HM |
| ORGANISM SOURCE TEMP: | 24.7 | END DATE/TIME: | 8/6/16 1024 | FED @ LEAST 2 HR. PRIOR TO TEST: | Time: 0718 Intls: LM |
| FOOD BATCH: | 5660/5642 | RANDOMIZED BY: | LM | 48 hr. LC50 = > 100 | 95% CI = NC |

| Conc (%) | Vessel ID | Survival (#) 0 | 24 | 48 | DEAD | DO (mg/L) 0 | 24 | 48 | pH (s.u.) 0 | 24 | 48 | Temperature (°C) 0 | 24 | 48 | Conductivity (umhos/cm) 0 | 24 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MH | A | 5 | 5 | 5 | 0 | 8.6 | | 8.5 | 7.74 | | 7.96 | 24.3 | | 25.1 | 210 | | 196 |
| | B | 5 | 5 | 5 | 0 | | 8.3 | | | 7.83 | | | 25.1 | | | 230 | |
| | C | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| 6.25 | A | 5 | 5 | 5 | 0 | 8.6 | | 8.5 | 7.76 | | 7.83 | 24.9 | | 25.6 | 338 | | 444 |
| | B | 5 | 5 | 5 | 0 | | 8.5 | | | 7.86 | | | 25.2 | | | 355 | |
| | C | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| 12.5 | A | 5 | 5 | 5 | 0 | 8.6 | | 8.5 | 7.81 | | 8.08 | 25.0 | | 25.7 | 576 | | 564 |
| | B | 5 | 5 | 5 | 0 | | 8.6 | | | 8.00 | | | 25.1 | | | 550 | |
| | C | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| 25 | A | 5 | 5 | 5 | 0 | 8.8 | | 8.5 | 7.89 | | 8.25 | 24.8 | | 25.6 | 932 | | 934 |
| | B | 5 | 5 | 5 | 0 | | 8.7 | | | 8.16 | | | 24.9 | | | 922 | |
| | C | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |

| | | | |
|---|---|---|---|
| Params: | HM | HM | TC |
| Initials: | LM | LM | TC |
| Time: | 1052 | 1058 | 1024 |
| Date: | 8/4 | 8/5 | 8/6 |

| | Control Primary | 100% Effluent |
|---|---|---|
| Hardness (mg/L) | 80.8 | 160 |
| Alkalinity (mg/L) | 41 | 250 |
| TRC (mg/L) | <0.02 | <0.02 |
| Ammonia (mg/L) | — | <0.1 |

Comments:
MH Made: 7/30/16
MH 1st Use: 8/3/16
Light Level: 60.4

# 48-HR ACUTE TOXICITY TEST DATA SHEET
EPA-821-R-02-012 Method 2002.0

| | | | | | |
|---|---|---|---|---|---|
| LOG: | 18371 | TEST TYPE: | Static, Daily Renewal | TEST VESSEL CAPACITY: | 30 mL |
| JOB NO: | Front Royal, VA | TEST ORGANISM: | *Ceriodaphnia dubia* | TEST SOLUTION VOLUME: | 15 - 20 mL |
| CLIENT: | TA Parsons | SAMPLE B #: | 19951 | NO. ORGANISMS/VESSEL: | 5 |
| EFFLUENT: | AF 8-0 OF 004 | TEST START DATE: | 8/4/16 | NO. REPLICATES: | 4 |

| Conc (%) | Vessel ID | Survival (#) 0 | 24 | 48 | DEAD | DO (mg/L) 0 | 24 | 48 | pH (s.u.) 0 | 24 | 48 | Temperature (°C) 0 | 24 | 48 | Conductivity (umhos/cm) 0 | 24 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | A | 5 | 5 | 5 | 0 | 8.8 | | 8.5 | 7.96 | | 8.43 | 24.7 | | 24.4 | 1714 | | 1610 |
| | B | 5 | 5 | 5 | 0 | | 8.6 | | | 8.40 | | | 24.8 | | | 1613 | |
| | C | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| 100 | A | 5 | 5 | 4 | 1 | 8.5 | | 8.5 | 8.01 | | 8.63 | 24.6 | | 25.6 | 3330 | | 3130 |
| | B | 5 | 5 | 5 | 0 | | 8.4 | | | 8.51 | | | 24.9 | | | 3160 | |
| | C | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |

Comments:

## ATTACHMENT 2

## VIRGINIA CHAIN-OF-CUSTODY DOCUMENTATION, RAMBOLL ENVIRON CHAIN-OF-CUSTODY DOCUMENTATION, AND MONTHLY REFERENCE TOXICANT DATA

## CHAIN-OF-CUSTODY

PERMITTEE: Groundwater and Leachate Treatment Plant NPDES#: _____

OUTFALL: _____ FLOW TYPE (CIRCLE ONE): CONTINUOUS INTERMITTENT BATCH STORMWATER OTHER: _____

## SAMPLE INFORMATION

1. GRAB: ___ DATE/TIME COLLECTED: _____ AMOUNT: _____
2. TIME COMPOSITE: ___ COLLECTED FROM (Date/Time): _____ TO (Date/Time): _____

   NUMBER/VOL OF SUBSAMPLES: _____ TIME INCREMENT: _____ TOTAL AMOUNT: _____
3. FLOW-PROPORTIONAL COMPOSITE: ___ COLLECTED FROM: _____ TO: _____

   SET VOLUME SUBSAMPLE/VOLUME FLOW: _____ TOTAL AMOUNT: _____

   FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW/SET TIME INCREMENTS - ATTACH SAMPLE AND FLOW INFORMATION.
4. NAME OF SAMPLER: _____ AFFILIATION: _____

## FIELD PARAMETERS

1. GRAB SAMPLES: pH: _____ TEMPERATURE: _____°C CHLORINE RESIDUAL: _____mg/l TIME: _____
2. COMPOSITES: TEMPERATURE: (last grab) ___°C CHLORINATED?: ____ DECHLORINATED?: ____ AGENT?: _____

   pH (Composite): _____ TEMPERATURE (Composite): _____°C TIME: _____
3. NAME OF ANALYST: _____ AFFILIATION: _____
4. METHOD OF SHIPMENT: _____ COOLANT USED: _____ SHIPMENT DATE/TIME: _____

RELINQUISHED BY:

_____ TIME/DATE

_____ TIME/DATE

_____ TIME/DATE

RECEIVED BY:

_____ TIME/DATE

_____ TIME/DATE

_____ TIME/DATE

## EFFLUENT CONDITION UPON ARRIVAL AT LABORATORY

DATE: 08/04/2016 TIME: 0930 ICE PRESENT: (Yes)/No SAMPLE ID: AF-8-3-OF 004 : VOLUME: 4L

TEMPERATURE 2.8 °C pH: 8.00 CL RESIDUAL: <0.02 mg/l DO: 8.3 mg/l CONDUCTIVITY: 3330 µmhos

VISUAL/SCENT DESCRIPTION: Clear, no odor

ANALYST: LM

VA DEQ OWPS-TMP 06/06/96

Project Name: Parsons | Project Number: 449962.02000

Industry:

Phone: 540 635 3110 | FAX:

County: Warren | City: Front Royal | State: VA

Sample Collected by (print): Meredith Steiner | NPDES Permit No.:

Sample Collected by (signature): | NPDES Test: ☐ No ☐ Yes

**CHAIN-OF-CUSTODY**

RAMBOLL ENVIRON
201 Summit View Drive, Suite 300
Brentwood, TN 37027
PHONE: (615) 277-7570
FAX: (615) 377-4976

| Sample Location / ID | Comp/Grab | Container Type | Chilled During Collection (Y/N) | Start Date/Time | End Date/Time | No. of Cntrs | Total Volume in liters | Analysis Requested: Acute Fathead minnow * | Acute Bannerfin shiner | Acute *Ceriodaphnia dubia* * | Acute *Daphnia pulex* | Chronic Fathead minnow | Chronic *Ceriodaphnia dubia* | Continuous Batch Tests | Discrete Batch Tests | Other | Description Definitive or Screen | Sample B# (lab only) | Receipt Temp °C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AF 8-3 OF 004 | Grab | Cubetainer | N | 8-3-16/0930 | | 1 | | X | | X | | | | | | | | 1950 | 2.8 |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | |

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - Wastewater **AW** - Ambient Water **ML** - Mixed Liquor **SL** - Sludge **SD** - Sediment **OT** - Other _____

Remarks:

Measured TRC (if applicable): 0.02 mg/L

| Relinquished by: (Signature) | Date: | Time: | Received by: (Signature) | Samples shipped via: ☐ FedEx ☐ Other Courier ☒ UPS ☐ Hand Delivered | Condition: (lab use only) |
|---|---|---|---|---|---|
| | 8-3-16 | 1015 | | | ice present |
| Relinquished by: (Signature) | Date: | Time: | Received by: (Signature) | Containers/Volume Received: 4L | |
| Relinquished by: (Signature) | Date: | Time: | Received for lab by: (Signature) | Date: 8/4/16 | Time: 0910 | pH upon arrival: 7.3 | DO upon arrival: 8.5 |

1
2
3
4
5
6
7

**Sample Receipt Checklist:**

Client: TA Parsons VA

Date/Time received 8/4/16 0902 by HM

1. Cooler sealed and intact upon arrival? Yes No
2. Custody seals present? Yes No
3. Samples received below 6 degrees Celsius? Yes No
4. Was ice present? Yes No
5. Is the COC filled out correctly including the sample date/time and signed? Yes No
6. Was the sample received within 36 hours of collection? Yes No
7. Did the sample(s) arrive in good condition? Yes No
8. Was pH and DO measured and in range? Yes No
9. Was residual chlorine present? Yes No
   - 1.0 mg/L? (did dechlor occur) Yes No

Comments:

| Batch # | Sample ID | Temp (C°) | pH (s.u.) | DO (mg/L) | TRC (mg/L) |
|---|---|---|---|---|---|
| 19950 | PF-83 of 004 | 2.8 | 8.00 | 8.3 | <0.02 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

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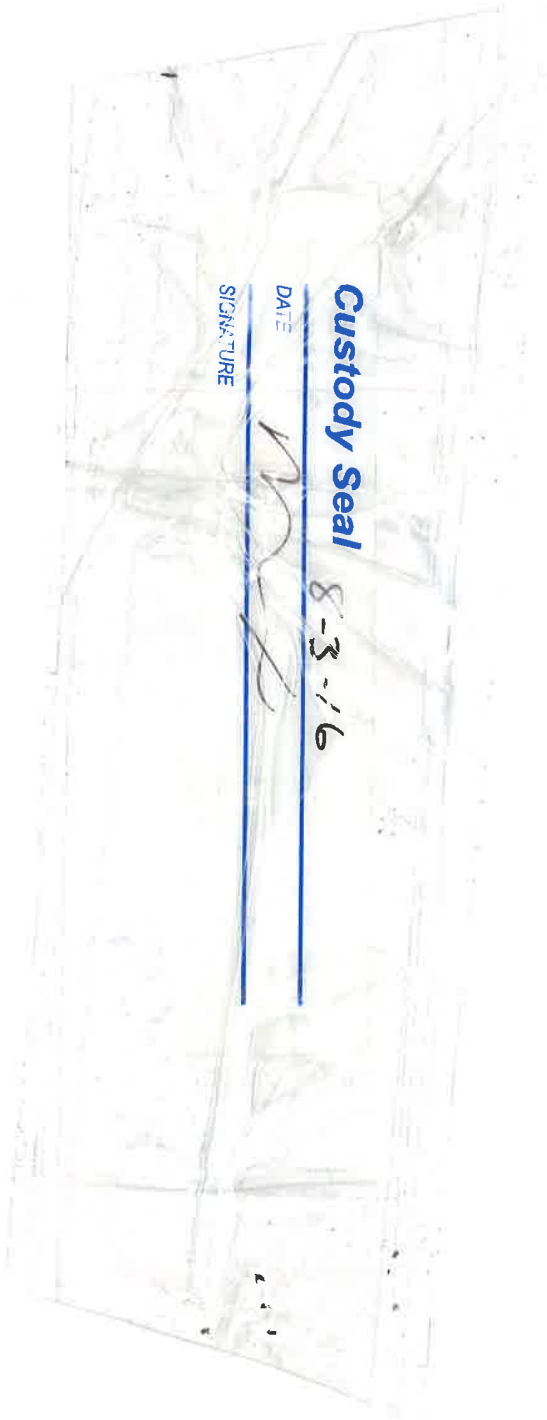
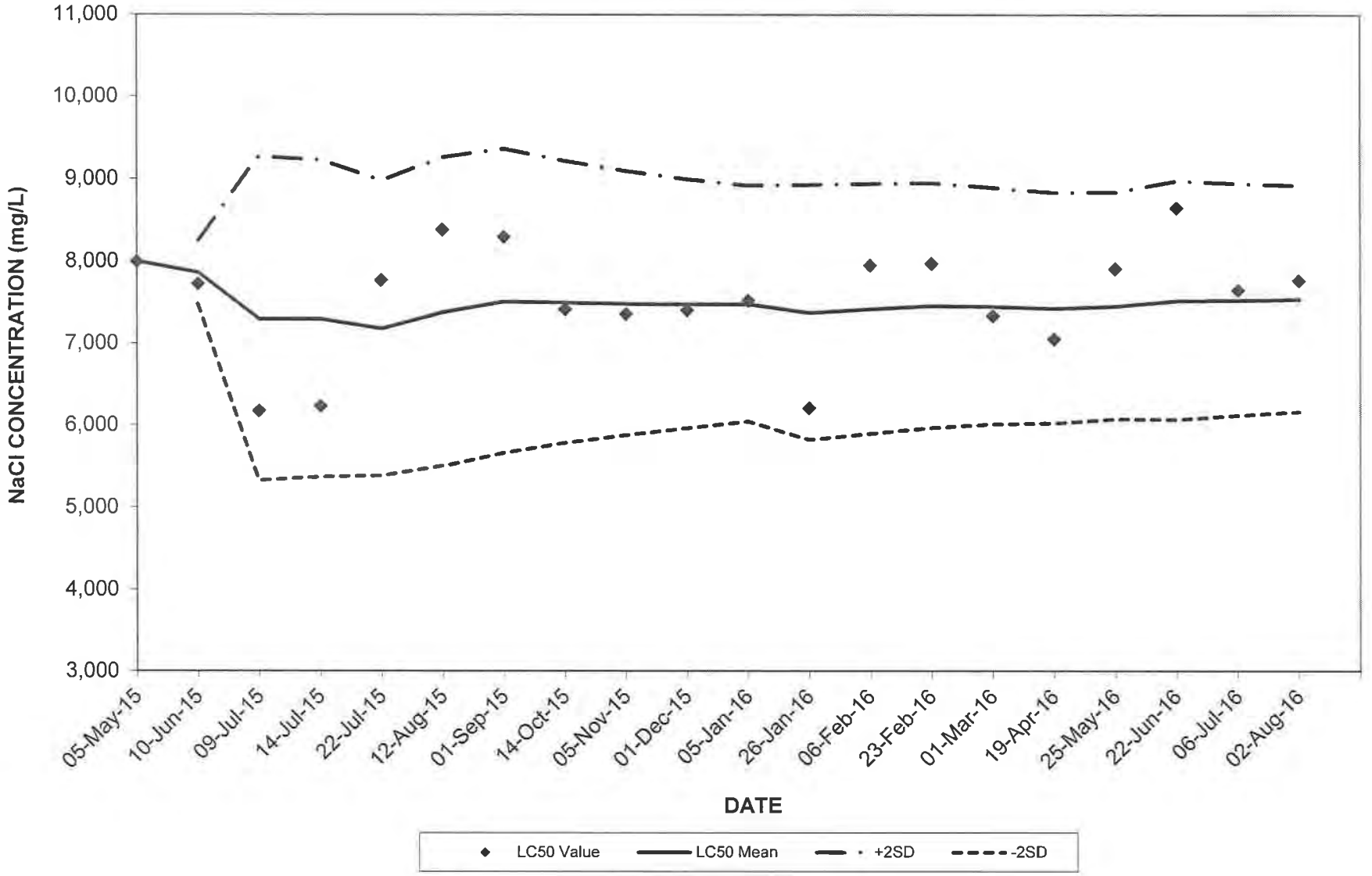

Custody Seal
8-3-16
DATE
SIGNATURE

# RAMBOLL ENVIRON ACUTE REFERENCE TOXICANT TESTS (NaCl) 2015 - 2016
## Fathead Minnows



# Ramboll Environ Ecotox Reference Toxicant Testing

**Fathead minnow ACUTE REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2015 - 2016**

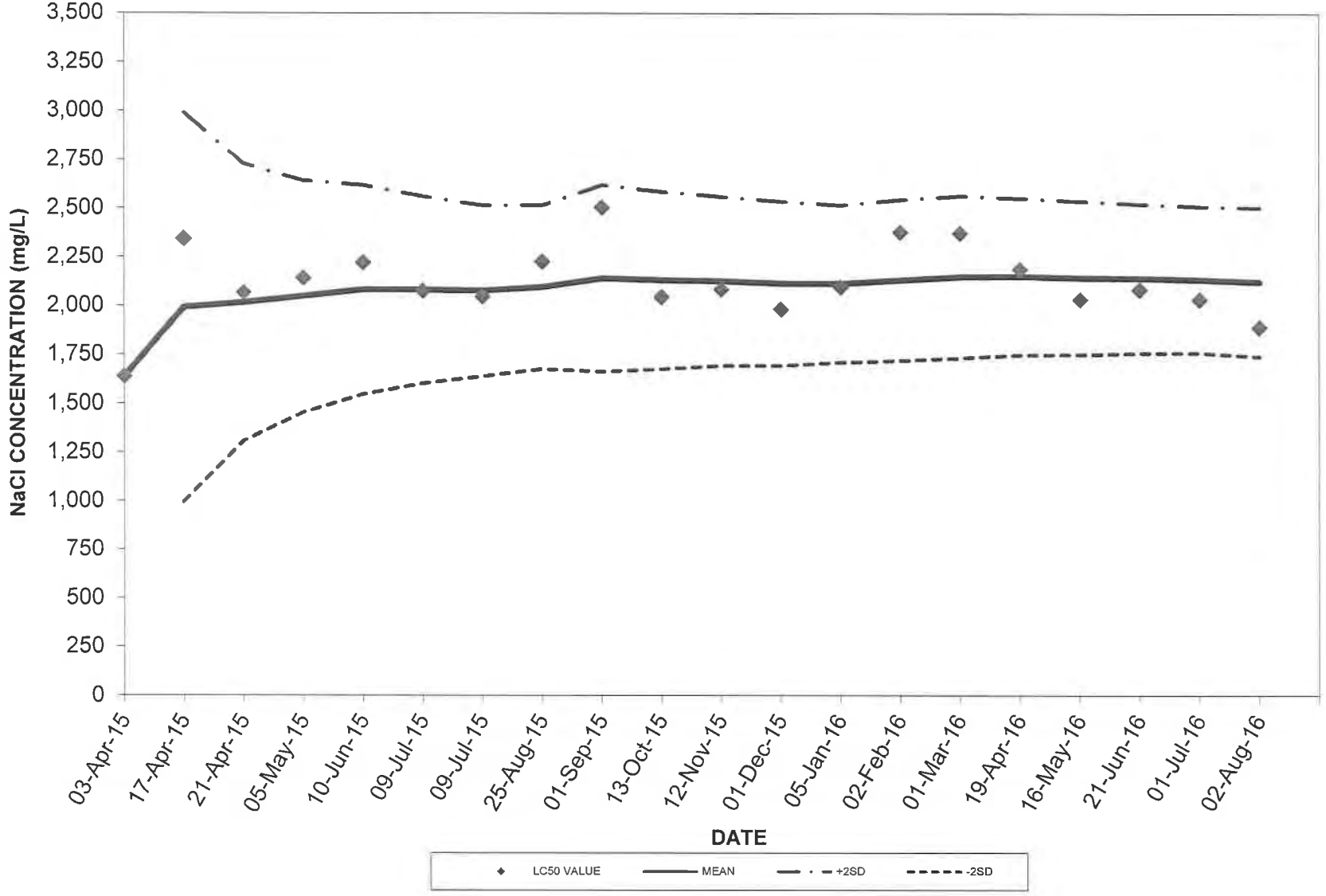
| Test Number | Log Number | Test Initiation Date | Control Survival (%) | 48-hr LC50 (mg/L) | 95% Confidence Intervals (mg/L) | LC50 Cumulative Mean (mg/L) | LC50 Cumulative St. Dev. (mg/L) | 2+ St. Dev. (mg/L) | 2- St. Dev. (mg/L) | Coefficient of Variation (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17575 | 05-May-15 | 100 | 8,000 | 6,851 - 9,341 | 8,000 | | | | |
| 2 | 17649 | 10-Jun-15 | 100 | 7,727 | 6,623 - 9,016 | 7,864 | 193 | 8,250 | 7,477 | 0 |
| 3 | 17689 | 09-Jul-15 | 100 | 6,172 | 5,858 - 6,502 | 7,300 | 986 | 9,272 | 5,328 | 2 |
| 4 | 17695 | 14-Jul-15 | 100 | 6,235 | 5,953 - 6,529 | 7,300 | 965 | 9,230 | 5,369 | 11 |
| 5 | 17714 | 22-Jul-15 | 100 | 7,765 | 7,388 - 8,161 | 7,180 | 898 | 8,975 | 5,385 | 12 |
| 6 | 17748 | 12-Aug-15 | 100 | 8,375 | 7,922 - 8,855 | 7,379 | 940 | 9,258 | 5,500 | 11 |
| 7 | 17792 | 01-Sep-15 | 100 | 8,297 | 8,015 - 8,589 | 7,510 | 925 | 9,360 | 5,660 | 12 |
| 8 | 17866 | 14-Oct-15 | 100 | 7,419 | 7,227 - 7,616 | 7,499 | 857 | 9,213 | 5,784 | 11 |
| 9 | 17918 | 05-Nov-15 | 95 | 7,360 | 7,058 - 7,673 | 7,483 | 803 | 9,090 | 5,877 | 11 |
| 10 | 17949 | 01-Dec-15 | 100 | 7,406 | 7,153 - 7,667 | 7,476 | 758 | 8,991 | 5,960 | 10 |
| 11 | 17996 | 05-Jan-16 | 100 | 7,524 | 7,316 - 7,738 | 7,480 | 719 | 8,918 | 6,042 | 10 |
| 12 | 18020 | 26-Jan-16 | 100 | 6,208 | 5,742 - 6,712 | 7,374 | 778 | 8,929 | 5,819 | 9 |
| 13 | 18044 | 06-Feb-16 | 100 | 7,945 | 7,525 - 8,389 | 7,418 | 761 | 8,940 | 5,896 | 10 |
| 14 | 18067 | 23-Feb-16 | 100 | 7,967 | 7,649 - 8,298 | 7,457 | 746 | 8,949 | 5,965 | 10 |
| 15 | 18075 | 01-Mar-16 | 100 | 7,337 | 7,064 - 7,621 | 7,449 | 719 | 8,888 | 6,010 | 10 |
| 16 | 18180 | 19-Apr-16 | 100 | 7,053 | 6,813 - 7,302 | 7,424 | 702 | 8,828 | 6,020 | 9 |
| 17 | 18251 | 25-May-16 | 100 | 7,903 | 7,640 - 8,175 | 7,453 | 690 | 8,832 | 6,073 | 9 |
| 18 | 18302 | 22-Jun-16 | 100 | 8,640 | 8,318 - 8,975 | 7,519 | 725 | 8,969 | 6,068 | 9 |
| 19 | 18330 | 06-Jul-16 | 100 | 7,650 | 7,363 - 7,949 | 7,525 | 705 | 8,936 | 6,115 | 9 |
| 20 | 18364 | 02-Aug-16 | 100 | 7,760 | 7,448 - 8,086 | 7,537 | 689 | 8,914 | 6,160 | 9 |

**Notes:**

NR - Not Reliable
LC50 - Concentration of sodium chloride which was lethal to 50 percent of the test organisms
NC - Not calculable;
Moderately Hard control water was used in all reference toxicant tests
* ARO fish
All tests unless noted are tested with fish purchased from ABS

# RAMBOLL ENVIRON ACUTE REFERENCE TOXICANT (NaCl) 2015 - 2016

## *Ceriodaphnia dubia*



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8/10/2016

# RAMBOLL ENVIRON Ecotox Reference Toxicant Testing

**Ceriodaphnia dubia ACUTE REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2015 - 2016**

| Test Number | Log Number | Test Initiation Date | Control Survival (%) | 48-hr LC50 (mg/L) | 95% Confidence Intervals (mg/L) | LC50 Cumulative Mean (mg/L) | LC50 Cumulative St. Dev. (mg/L) | 2+ St. Dev. (mg/L) | 2- St. Dev. (mg/L) | Coefficient of Variation (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17512 | 03-Apr-15 | 100 | 1,639 | 1,516 - 1,771 | 1,639 | | | | |
| 2 | 17537 | 17-Apr-15 | 100 | 2,343 | 2,168 - 2,531 | 1,991 | 498 | 2,987 | 995 | 18 |
| 3 | 17541 | 21-Apr-15 | 100 | 2,067 | 1,915 - 2,231 | 2,016 | 355 | 2,726 | 1,307 | 14 |
| 4 | 17577 | 05-May-15 | 100 | 2,142 | 1,999 - 2,296 | 2,048 | 296 | 2,640 | 1,455 | 13 |
| 5 | 17650 | 10-Jun-15 | 100 | 2,220 | 2,097 - 2,351 | 2,082 | 268 | 2,618 | 1,546 | 12 |
| 6 | 17688 | 09-Jul-15 | 100 | 2,076 | 2,001 - 2,154 | 2,081 | 240 | 2,561 | 1,602 | 11 |
| 7 | 17687 | 09-Jul-15 | 100 | 2,046 | 1,936 - 2,162 | 2,076 | 219 | 2,515 | 1,638 | 10 |
| 8 | 17779 | 25-Aug-15 | 100 | 2,225 | 2,136 - 2,317 | 2,095 | 210 | 2,514 | 1,675 | 9 |
| 9 | 17793 | 01-Sep-15 | 100 | 2,505 | 2,404 - 2,610 | 2,140 | 239 | 2,619 | 1,662 | 11 |
| 10 | 17863 | 13-Oct-15 | 100 | 2,045 | 1,954 - 2,141 | 2,131 | 227 | 2,586 | 1,676 | 10 |
| 11 | 17929 | 12-Nov-15 | 100 | 2,083 | 2,000 - 2,166 | 2,126 | 216 | 2,559 | 1,694 | 10 |
| 12 | 17952 | 01-Dec-15 | 100 | 1,981 | 1,906 - 2,060 | 2,114 | 210 | 2,535 | 1,694 | 10 |
| 13 | 17997 | 05-Jan-16 | 100 | 2,095 | 2,006 - 2,187 | 2,113 | 202 | 2,516 | 1,710 | 9 |
| 14 | 18027 | 02-Feb-16 | 100 | 2,376 | 2,290 - 2,458 | 2,132 | 206 | 2,544 | 1,720 | 9 |
| 15 | 18077 | 01-Mar-16 | 100 | 2,371 | 2,275 - 2,471 | 2,148 | 208 | 2,563 | 1,732 | 9 |
| 16 | 18179 | 19-Apr-16 | 100 | 2,186 | 2,096 - 2,281 | 2,150 | 201 | 2,552 | 1,748 | 9 |
| 17 | 18228 | 16-May-16 | 100 | 2,030 | 1,940 - 2,123 | 2,143 | 197 | 2,537 | 1,749 | 9 |
| 18 | 18299 | 21-Jun-16 | 100 | 2,082 | 1,992 - 2,176 | 2,140 | 192 | 2,523 | 1,757 | 9 |
| 19 | 18326 | 01-Jul-16 | 100 | 2,032 | 1,952 - 2,115 | 2,134 | 188 | 2,509 | 1,758 | 9 |
| 20 | 18363 | 02-Aug-16 | 100 | 1,889 | 1,814 - 1,969 | 2,122 | 191 | 2,503 | 1,740 | 9 |

Notes:

Moderately Hard Water was used as the Control Water in each test

LC50 - Concentration of sodium chloride which was lethal to 50 percent of the test organisms.

NC - Not calculable; NA - Not Applicable

Started new dilution series Sept 2013 and finallized concentrations Oct 2013

*Used old dilution series

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-117611-1
Client Project/Site: FMC Front Royal-GLTP AVTEX FIBERS

For:
Parsons Corporation
301 Plainfield Road
Suite 350
Syracuse, New York 13212

Attn: Heather Philip

*Authorized for release by:*
*12/7/2016 3:37:24 PM*

Heather Wagner, Project Manager I
(615)301-5763
heather.wagner@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

# Table of Contents

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Sample Summary . . . . . 3
Definitions . . . . . 4
Method Summary . . . . . 5
Certification Summary . . . . . 6
Subcontract Data . . . . . 7

# Sample Summary

Client: Parsons Corporation
Project/Site: FMC Front Royal-GLTP AVTEX FIBERS

TestAmerica Job ID: 490-117611-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 490-117611-1 | AF 11-16 OF | Water | 11/16/16 12:08 | 11/17/16 09:20 |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative error ratio |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

# Method Summary

Client: Parsons Corporation
Project/Site: FMC Front Royal-GLTP AVTEX FIBERS

TestAmerica Job ID: 490-117611-1

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| Acute Toxicity - C.dubia | General Sub Contract Method | NONE | |
| Acute Toxicity - Fathead Minnow | General Sub Contract Method | NONE | |

**Protocol References:**

NONE = NONE

**Laboratory References:**

= Brentwood, TN, 201 Summit View Drive, Ste. 300, Brentwood, TN 37027

# Certification Summary

Client: Parsons Corporation
Project/Site: FMC Front Royal-GLTP AVTEX FIBERS

TestAmerica Job ID: 490-117611-1

## Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Virginia | NELAP | 3 | 460152 | 06-14-17 |

Prepared for
**TestAmerica**
**Nashville, Tennessee**

Date
**November 2016**

# TOXICITY TEST RESULTS

## PROJECT NUMBER: 38-40089A

Ms. Heather Wagner
Test America, Inc.
2960 Foster Creighton Drive
Nashville, TN 37204

**GLTP ACUTE TOXICITY TEST RESULTS –NOVEMBER 2016**
**RAMBOLL ENVIRON PROJECT NO. 38-40089A**

December 7, 2016

Ramboll Environ
201 Summit View Dr Ste 300
Brentwood, TN 37027
USA

T +1 615 277 7570
F +1 615 377 4976
www.ramboll-environ.com

Dear Ms. Wagner:
Attached are the results of the definitive (five-dilution) 48-hour, static, acute whole effluent toxicity (WET) tests performed with samples collected from the Groundwater and Leachate Treatment Plant (GLTP) in Front Royal, VA. Testing was conducted to assess toxicity according to Section V of Virginia Guidance Memorandum 00-2012. Testing was conducted with *Pimephales promelas* (fathead minnow) and *Ceriodaphnia dubia (C. dubia*). The tests were initiated on November 17, 2016, with a grab sample collected and shipped the previous day. The sample receipt temperature was 1.7 ºC, which is within the EPA-required temperature of 0.0 to 6.0 ºC (see chain-of-custody form). Test organisms were exposed to 6.25, 12.5, 25, 50, and 100 percent effluent concentrations and a moderately hard water control.

Test protocols followed USEPA 821-R-02-012, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*. Controls for both tests met USEPA test acceptability criteria. Results are summarized below:

*NELAP Accredited or Laboratory Certification in the following United States:* AR (02-008-0), AZ (0751), CA (2465), FL (E87896), IA (386), KS (E-10391), LA (02061), MN, NC (003), OK (9973), SC (84015), TX (T104704410-11-2), VA (460171), WI (399050850), WV (351).
Test Results contained in this report meet NELAP requirements.

| TOXICITY TEST RESULTS | | |
|---|---|---|
| **Test Endpoint** | **Fathead minnow** | ***C. dubia*** |
| 48-hr LC50 Value | > 100% | > 100% |
| TUa | < 1 | < 1 |
| Percent Mortality in 100% Effluent | 0 % | 0 % |
| LC50 – median lethal concentration<br>TUa – acute toxic unit, 100/LC50 | | |

The results of these tests indicated no toxicity, with LC50 values of greater than 100% effluent for both test species. The corresponding TUa values are less than one.

This report contains 18 pages, which include: this summary report, data review form and Virginia test summary sheet, copies of the tests datasheets (attachment 1), Virginia chain-of-custody, Ramboll Environ chain-of-custody form, and monthly

reference toxicant data, (attachment 2) and spacer and attachment pages.

Thank you for the continued opportunity to assist TestAmerica and their clients with their toxicity testing needs. If you have any questions or concerns regarding this report, please feel free to contact me at (615) 277-7517.

Yours sincerely

**Liza Heise**
Project Manager
Water Quality and Ecotoxicology

D +1 615 2777517
lheise@ramboll.com

**Robin L. Richards, REM**
Department Head
Water Management and Planning

D +1 703 5162431
rrichards@ramboll.com

**Data Review Form**

**Acute and Chronic WET Tests**

**Ramboll Environ**

The raw data (i.e., laboratory bench sheets) and data in the applicable summary sheets have been checked and found to be complete. Additionally, test conditions and control performance meet test acceptability criteria specified by the US Environmental Protection Agency and the certifying state authority for the tests conducted[1].

**Robin L. Richards, REM**
Department Head
Water Management and Planning

[1] Any data limitations regarding their applicability for determining NPDES permit compliance are discussed in the report cover letter.

## ATTACHMENT 1

## VIRGINIA TEST CONDITIONS SHEET, STATISTICAL ANALYSIS, AND RAW DATA SHEETS

PERMITTEE: Groundwater and Leachate Treatment Plant OUTFALL: AF NPDES#: _____

TEST DATES: 11/17/16 TO 11/19/16

## SUMMARY OF ACTUAL TEST CONDITIONS

1. TEST TYPE: Acute definitive
2. TEST DURATION: 48 - hr
3. TEST ORGANISM: Fathead minnow / *C. dubia*
4. ORGANISM AGE: 8 days / <24 hrs
5. TEST TEMPERATURE (LOW TO HIGH): 24.0-25.3 / 24.0–24.6
6. LIGHT INTENSITY: 86.4 ftc /58.4 ftc
7. PHOTOPERIOD: 16-hr light / 8-hr dark
8. TEST CHAMBER SIZE: 250 mL / 30 mL
9. TEST SOLUTION VOLUME: 200 mL / 15-20 mL
10. # ORGANISMS/TEST CHAMBER: 10 / 5
11. # REPLICATES/CONCENTRATION: 2 / 4
12. FOOD TYPE, AMOUNT, FREQUENCY: none
13. AERATION RATE/INITIATION TIME: none
14. DILUTION WATER: Moderately hard synthetic reconstituted
15. CULTURE WATER FOR TEST ORGANISMS: Moderately hard synthetic reconstituted
16. TEST CONCENTRATIONS: 0, 6.25, 12.5, 25, 50, 100%
17. ACUTE TEST ACCEPTABILITY CRITERION OF ≥90% SURVIVAL IN CONTROLS: Yes
18. CHRONIC TEST ACCEPTABILITY CRITERIA OF ≥80% SURVIVAL IN CONTROLS, AND AVERAGE 15 NEONATES/SURVIVING ADULT OR CONTROL LARVAE WEIGH ≥0.25 mg: NA
19. ACUTE TEST $LC_{50}$: >100 STATISTICAL PROGRAM/VERSION: observation
    CONFIDENCE LIMITS: _____
20. CHRONIC TEST NOEC SURVIVAL: _____ NOEC REPRODUCTION/GROWTH: _____
    TEST NOEC: _____ $LC_{50}$ AT 48 HOURS: _____

# 48-HR ACUTE TOXICITY TEST DATA SHEET
EPA-821-R-02-012 Method 2000.0

Page 1 of 1

| | | | | | |
|---|---|---|---|---|---|
| LOG: | 18607 | TEST TYPE: | Static, Daily Renewal | TEST VESSEL CAPACITY: | 250 mL |
| JOB NO: | 3840089A | TEST ORGANISM: | FATHEAD MINNOW | TEST SOLUTION VOLUME: | 200 mL |
| CLIENT: | TA Parsons | ORGANISM AGE (date): | 11/9/16 | NO. ORGANISMS/VESSEL: | 10 |
| EFFLUENT: | AF ~~8-0~~ 11-16 OF 004 | ORGANISM SOURCE: | ABS #5772 | NO. REPLICATES: | 2 |
| SAMPLE "B" NOS.: | 20202 | PHOTOPERIOD | 16 hrs light/8 hrs dark | DILUTION WATER: | Type: MH No. 6374 |
| SAMPLE DATE: | 11/16/16 | START DATE/TIME: | 11/17/16 1320 | DILUTIONS MADE BY: | LM |
| ORGANISM SOURCE TEMP: | 24.3 | END DATE/TIME: | 11/19/16 1327 | FED 2 hrs PRIOR TO TEST: | Time: 0900 Intls: LM |
| FOOD BATCH: | 5577 | RANDOMIZED BY: | LM | 48 hr. LC50 = >100 % | 95% CI = NC |

| Conc (%) | Vessel ID | Survival (#) 0 | 24 | 48 | DEAD | DO (mg/L) 0 | 24 | 48 | pH (s.u.) 0 | 24 | 48 | Temperature (°C) 0 | 24 | 48 | Conductivity (umhos/cm) 0 | 24 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MH | A | 10 | 10 | 10 | 0 | 8.4 | | | 7.70 | | | 24.3 | | | 201 | | |
| | B | 10 | 9 | 9 | 1 | | 8.6 | 8.5 | | 7.72 | 7.80 | | 25.1 | 24.4 | | 215 | 217 |
| 6.25 | A | 10 | 10 | 10 | 0 | 8.4 | | | 7.73 | | | 24.0 | | | 318 | | |
| | B | 10 | 10 | 10 | 0 | | 8.4 | 8.5 | | 7.73 | 7.85 | | 25.1 | 25.0 | | 342 | 349 |
| 12.5 | A | 10 | 10 | 10 | 0 | 8.6 | | | 7.77 | | | 24.1 | | | 506 | | |
| | B | 10 | 10 | 10 | 0 | | 8.3 | 8.5 | | 7.80 | 7.98 | | 25.0 | 24.8 | | 523 | 532 |
| 25 | A | 10 | 10 | 10 | 0 | 8.6 | | | 7.77 | | | 24.0 | | | 783 | | |
| | B | 10 | 10 | 10 | 0 | | 8.2 | 8.5 | | 8.02 | 8.17 | | 25.3 | 24.0 | | 795 | 833 |
| 50 | A | 10 | 10 | 10 | 0 | 8.6 | | | 7.80 | | | 24.0 | 25.1 | | 1383 | | |
| | B | 10 | 10 | 10 | 0 | | 8.2 | 8.5 | | 8.18 | 8.33 | | ~~25.7~~ | 24.6 | | 1372 | 1380 |
| 100 | A | 10 | 9 | 10 | 0 | 8.6 | | | 7.77 | | | 24.0 | | | 2580 | | |
| | B | 10 | 9 | 10 | 0 | | 8.3 | 8.5 | | 8.40 | 8.58 | | 25.0 | 24.3 | | 2480 | 2570 |

| | | | | | Control Primary | 100% Effluent | Comments: |
|---|---|---|---|---|---|---|---|
| Params: | LM | LM | TL | Hardness (mg/L) | 824 | 148 | MH Made: 11/12/16 |
| Initials: | LM | | AM | Alkalinity (mg/L) | 41 | 250 | MH 1st Use: 11/17/16 |
| Time: | 1320 | 1144 | 1327 | TRC (mg/L) | <0.02 | <0.02 | Light Levels: 84.4 |
| Date: | 11/17 | 11/18 | 11/19 | Ammonia (mg/L) | — | <0.1 | |

# 48-HR ACUTE TOXICITY TEST DATA SHEET
EPA-821-R-02-012 Method 2002.0

| | | | | | |
|---|---|---|---|---|---|
| LOG: | 18607 | TEST TYPE: | Static, Daily Renewal | TEST VESSEL CAPACITY: | 30 mL |
| JOB NO: | 384008 9A | TEST ORGANISM: | *Ceriodaphnia dubia* | TEST SOLUTION VOLUME: | 15 - 20 mL |
| CLIENT: | TA Parsons | ORGANISM AGE (date): | 11/16-17/16 (15:10-0752) | NO. ORGANISMS/VESSEL: | 5 |
| EFFLUENT: | AF ~~8-8~~ 11-16 OF 004 | ORGANISM SOURCE: | 11577 | NO. REPLICATES: | 4 |
| SAMPLE "B" NOS.: | 20203 | PHOTOPERIOD | 16 hrs light/8 hrs dark | DILUTION WATER: | Type: MH No. 6374 |
| SAMPLE DATE: | 11/16/16 | START DATE/TIME: | 11/17/16 1312 | DILUTIONS MADE BY: | LM |
| ORGANISM SOURCE TEMP: | 24.6 | END DATE/TIME: | 11/19/16 1256 | FED @ LEAST 2 HR. PRIOR TO TEST: | Time: 0752 Intls: LM |
| FOOD BATCH: | 5737, 5770 | RANDOMIZED BY: | LM | 48 hr. LC50 = >100 % | 95% CI = NC |

| Conc (%) | Vessel ID | Survival (#) 0 | 24 | 48 | DEAD | DO (mg/L) 0 | 24 | 48 | pH (s.u.) 0 | 24 | 48 | Temperature (°C) 0 | 24 | 48 | Conductivity (umhos/cm) 0 | 24 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MH | A | 5 | 5 | 5 | 0 | 8.4 | | | 7.70 | | | 24.3 | | | 201 | | |
| | B | 5 | 5 | 5 | 0 | | 8.3 | | | 7.87 | | | 24.0 | 24.2 | | 216 | |
| | C | 5 | 5 | 5 | 0 | | | 8.5 | | | 7.93 | | | | | | 263 |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| 6.25 | A | 5 | 5 | 5 | 0 | 8.4 | | | 7.73 | | | 24.1 | | | 318 | | |
| | B | 5 | 5 | 5 | 0 | | 8.4 | | | 7.97 | | | 24.4 | 24.1 | | 332 | |
| | C | 5 | 5 | 5 | 0 | | | 8.5 | | | 8.12 | | | | | | 360 |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| 12.5 | A | 5 | 5 | 5 | 0 | 8.6 | | | 7.77 | | | 24.3 | | | 506 | | |
| | B | 5 | 5 | 5 | 0 | | 8.3 | | | 8.13 | | | 24.2 | 24.0 | | 513 | |
| | C | 5 | 5 | 5 | 0 | | | 8.5 | | | 8.23 | | | | | | 541 |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| 25 | A | 5 | 4 | 4 | 1 | 8.4 | | | 7.77 | | | 24.3 | | | 783 | | |
| | B | 5 | 5 | 5 | 0 | | 8.2 | | | 8.23 | | | 24.0 | 24.2 | | 822 | |
| | C | 5 | 5 | 5 | 0 | | | 8.5 | | | 8.37 | | | | | | 872 |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |

| Params: | M | LTH | TL |
|---|---|---|---|
| Initials: | LM | ~ | HM |
| Time: | 1312 | 1153 | 1250 |
| Date: | 11/17 | 11/18 | 11/19 |

| | Control Primary | 100% Effluent |
|---|---|---|
| Hardness (mg/L) | 82.4 | 148 |
| Alkalinity (mg/L) | 41 | 250 |
| TRC (mg/L) | <0.02 | <0.02 |
| Ammonia (mg/L) | — | <0.1 |

Comments:
MH Made: 11/12/16
MH 1st Use: 11/17/16
Light Level: 58.0 (fc)

## 48-HR ACUTE TOXICITY TEST DATA SHEET
EPA-821-R-02-012 Method 2002.0



| | | | | | |
|---|---|---|---|---|---|
| LOG: | 18607 | TEST TYPE: | Static, Daily Renewal | TEST VESSEL CAPACITY: | 30 mL |
| JOB NO: | 3840089A | TEST ORGANISM: | *Ceriodaphnia dubia* | TEST SOLUTION VOLUME: | 15 - 20 mL |
| CLIENT: | TA Parsons | SAMPLE B #: | 20202 | NO. ORGANISMS/VESSEL: | 5 |
| EFFLUENT: | AF 8-0 OF 004 | TEST START DATE: | 11/17/16 | NO. REPLICATES: | 4 |

| Conc (%) | Vessel ID | Survival (#) 0 | 24 | 48 | DEAD | DO (mg/L) 0 | 24 | 48 | pH (s.u.) 0 | 24 | 48 | Temperature (°C) 0 | 24 | 48 | Conductivity (umhos/cm) 0 | 24 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | A | 5 | 5 | 5 | 0 | 8.6 | | | 7.80 | | | 24.3 | | | 838 | | |
| | B | 5 | 5 | 5 | 0 | | 8.2 | | | 8.47 | | | 24.0 | 24.2 | | 1427 | |
| | C | 5 | 5 | 5 | 0 | | | 8.4 | | | 8.56 | | | | | | 1425 |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| 100 | A | 5 | 5 | 5 | 0 | 8.4 | | | 7.77 | | | 24.3 | | | | | |
| | B | 5 | 5 | 5 | 0 | | 8.3 | | | 8.63 | | | 24.0 | 24.3 | | | |
| | C | 5 | 5 | 5 | 0 | | | 8.4 | | | 8.72 | | | | 2580 | | |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | 2580 | |
| | | | | | | | | | | | | | | | | | 2530 |

**Comments:**

## ATTACHMENT 2

## VIRGINIA CHAIN-OF-CUSTODY DOCUMENTATION, RAMBOLL ENVIRON CHAIN-OF-CUSTODY DOCUMENTATION, AND MONTHLY REFERENCE TOXICANT DATA

## CHAIN-OF-CUSTODY

PERMITTEE: Groundwater and Leachate Treatment Plant NPDES#: _____

OUTFALL: AF FLOW TYPE (CIRCLE ONE): CONTINUOUS INTERMITTENT BATCH STORMWATER OTHER: _____

### SAMPLE INFORMATION

1. GRAB: ___ DATE/TIME COLLECTED: _____ AMOUNT: _____
2. TIME COMPOSITE: ___ COLLECTED FROM (Date/Time): _____ TO (Date/Time): _____

   NUMBER/VOL OF SUBSAMPLES: _____ TIME INCREMENT: _____ TOTAL AMOUNT: _____
3. FLOW-PROPORTIONAL COMPOSITE: ___ COLLECTED FROM: _____ TO: _____

   SET VOLUME SUBSAMPLE/VOLUME FLOW: _____ TOTAL AMOUNT: _____

   FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW/SET TIME INCREMENTS - ATTACH SAMPLE AND FLOW INFORMATION.
4. NAME OF SAMPLER: _____ AFFILIATION: _____

### FIELD PARAMETERS

1. GRAB SAMPLES: pH: _____ TEMPERATURE: _____°C CHLORINE RESIDUAL: _____mg/l TIME: _____
2. COMPOSITES: TEMPERATURE: (last grab) ___°C CHLORINATED?: ___ DECHLORINATED?: ___ AGENT?: _____

   pH (Composite): _____ TEMPERATURE (Composite): _____°C TIME: _____
3. NAME OF ANALYST: _____ AFFILIATION: _____
4. METHOD OF SHIPMENT: _____ COOLANT USED: _____ SHIPMENT DATE/TIME: _____

| RELINQUISHED BY: | RECEIVED BY: |
|---|---|
| _____ TIME/DATE | _____ TIME/DATE |
| _____ TIME/DATE | _____ TIME/DATE |
| _____ TIME/DATE | _____ TIME/DATE |

### EFFLUENT CONDITION UPON ARRIVAL AT LABORATORY

DATE: 11/17/2016 TIME: 0920 ICE PRESENT: (Yes)/No SAMPLE ID: AF-11-16OF ... : VOLUME: 4L

TEMPERATURE 1.7 °C pH: 7.77 CL RESIDUAL: <0.02 mg/l DO: 8.6 mg/l CONDUCTIVITY: 2580 µmhos

VISUAL/SCENT DESCRIPTION: Clear, no odor

ANALYST: AM

VA DEQ OWPS-TMP 06/06/96

## Sample Receipt Checklist:

Client: PARSONS

Date/Time received 11/17/16 0920 by KM

| | | |
|---|---|---|
| 1. Cooler sealed and intact upon arrival? | Yes | No |
| 2. Custody seals present? | Yes | No |
| 3. Samples received below 6 degrees Celsius? | Yes | No |
| 4. Was ice present? | Yes | No |
| 5. Is the COC filled out correctly including the sample date/time and signed? | Yes | No |
| 6. Was the sample received within 36 hours of collection? | Yes | No |
| 7. Did the sample(s) arrive in good condition? | Yes | No |
| 8. Was pH and DO measured and in range? | Yes | No |
| 9. Was residual chlorine present? | Yes | No |
| ➢ 1.0 mg/L? (did dechlor occur) | Yes | No |

Comments:

| Batch # | Sample ID | Temp (C°) | pH (s.u.) | DO (mg/L) | TRC (mg/L) |
|---|---|---|---|---|---|
| 20202 | AFILL100F | 1.7 | 7.77 | 8.6 | <0.02 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

L:\Ecotox Lab\FORMS

Project Name: Parsons | Project Number: 449962.02000

Industry:

Phone: 540-635-3110 | FAX:

County: Warren | City: Front Royal | State: VA

Sample Collected by (print): Adam Pugh

Sample Collected by (signature):

NPDES Permit No.:

NPDES Test: ☐ No ☐ Yes

**CHAIN-OF-CUSTODY**

RAMBOLL ENVIRON
201 Summit View Drive, Suite 300
Brentwood, TN 37027
PHONE: 615-277-7554
FAX: (615) 377-4976

| Sample Location / ID | Comp/Grab | Container Type | Chilled During Collection (Y/N) | Start Date/Time | End Date/Time | No. of Cntrs | Total Volume in liters | Analysis Requested: Acute Fathead minnow | Acute Bannerfin shiner | Acute *Ceriodaphnia dubia* | Acute *Daphnia pulex* | Chronic Fathead minnow | Chronic *Ceriodaphnia dubia* | Continuous Batch Tests | Discrete Batch Tests | Other | Description Definitive or Screen | Sample B# (lab only) | Receipt Temp °C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AF11-160F | Grab | Container | N | 11-16-16 Dip | | | | X | | X | | | | | | | | 20202 | 1.7 |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - Wastewater **AW** - Ambient Water **ML** - Mixed Liquor **SL** - Sludge **SD** - Sediment **OT** - Other _____

Remarks: Clear, pale yellow

Measured TRC (if applicable): _____ mg/L

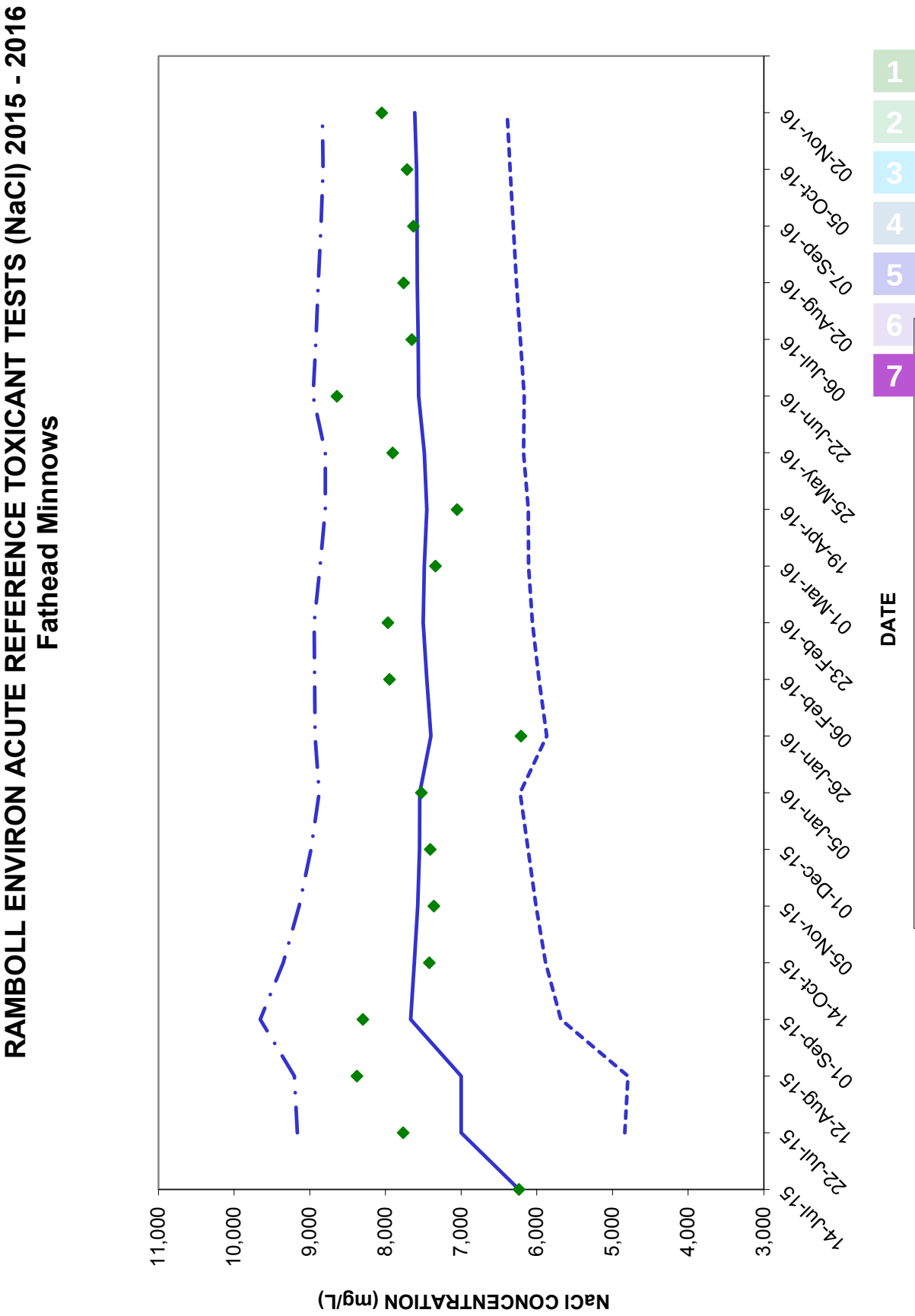
| Relinquished by: (Signature) | Date: | Time: | Received by: (Signature) |
|---|---|---|---|
| | 11-16-16 | 3:30 p | |
| Relinquished by: (Signature) | Date: | Time: | Received by: (Signature) |
| Relinquished by: (Signature) | Date: | Time: | Received for lab by: (Signature) |

Samples shipped via: ☐ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered

Condition: OK (lab use only)

Containers/Volume Received: 1 4L

Date: 11/17/16 | Time: 0820 | pH upon arrival: 7.77 | DO upon arrival: 8.6


RAMBOLL ENVIRON ACUTE REFERENCE TOXICANT TESTS (NaCl) 2015 - 2016
Fathead Minnows
NaCl CONCENTRATION (mg/L)
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
14-Jul-15
22-Jul-15
12-Aug-15
01-Sep-15
14-Oct-15
05-Nov-15
01-Dec-15
05-Jan-16
26-Jan-16
06-Feb-16
23-Feb-16
01-Mar-16
19-Apr-16
25-May-16
22-Jun-16
06-Jul-16
02-Aug-16
07-Sep-16
05-Oct-16
02-Nov-16
DATE
1
2
3
4
5
6
7

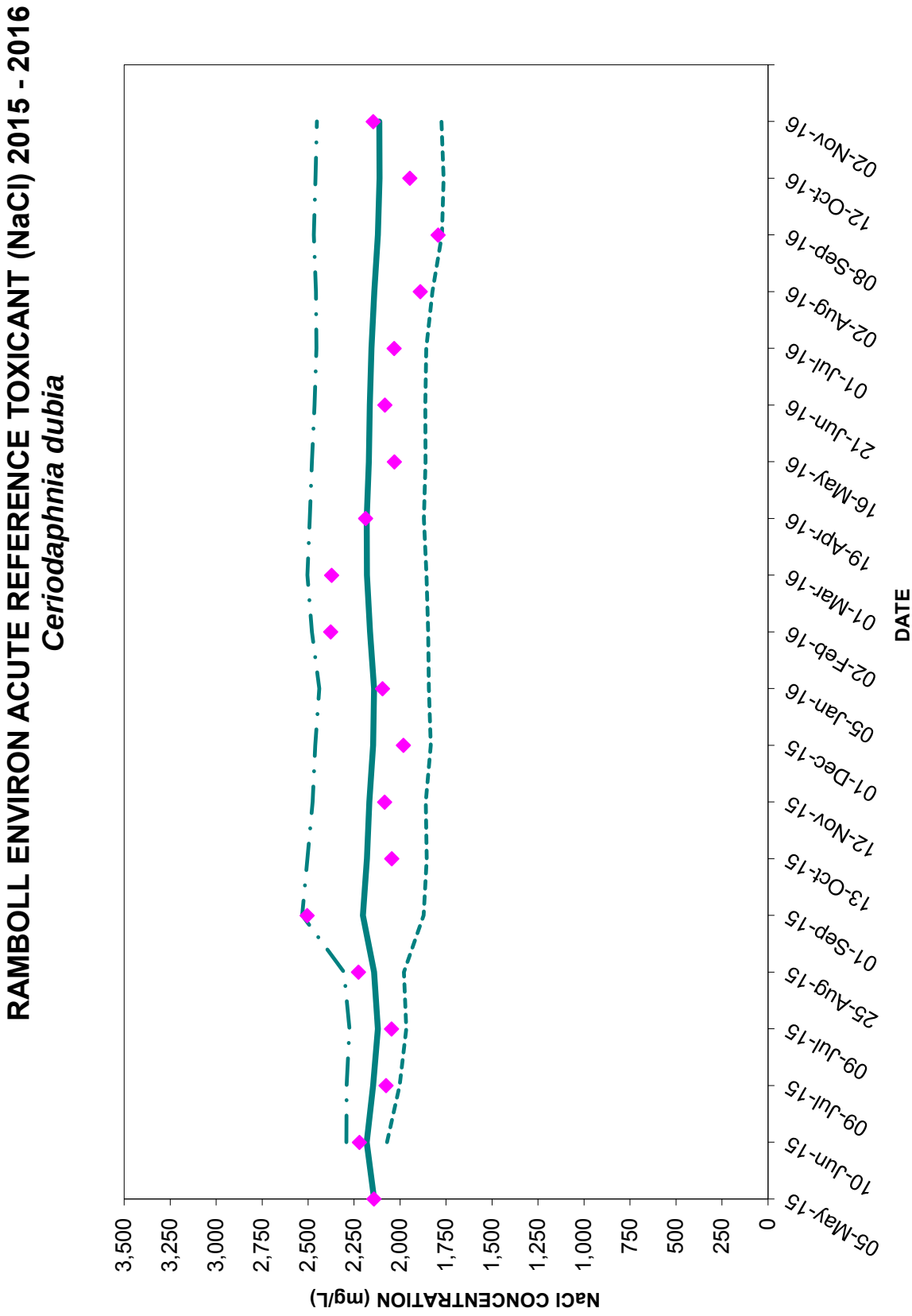
# Ramboll Environ Ecotox Reference Toxicant Testing

**Fathead minnow ACUTE REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2015 - 2016**

| Test Number | Log Number | Test Initiation Date | Control Survival (%) | 48-hr LC50 (mg/L) | 95% Confidence Intervals (mg/L) | LC50 Cumulative Mean (mg/L) | LC50 Cumulative St. Dev. (mg/L) | 2+ St. Dev. (mg/L) | 2- St. Dev. (mg/L) | Coefficient of Variation (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17695 | 14-Jul-15 | 100 | 6,235 | 5,953 - 6,529 | 6,235 | | | | |
| 2 | 17714 | 22-Jul-15 | 100 | 7,765 | 7,388 - 8,161 | 7,000 | 1,082 | 9,164 | 4,836 | 0 |
| 3 | 17748 | 12-Aug-15 | 100 | 8,375 | 7,922 - 8,855 | 7,000 | 1,102 | 9,205 | 4,795 | 11 |
| 4 | 17792 | 01-Sep-15 | 100 | 8,297 | 8,015 - 8,589 | 7,668 | 993 | 9,654 | 5,682 | 12 |
| 5 | 17866 | 14-Oct-15 | 100 | 7,419 | 7,227 - 7,616 | 7,618 | 867 | 9,353 | 5,884 | 11 |
| 6 | 17918 | 05-Nov-15 | 95 | 7,360 | 7,058 - 7,673 | 7,575 | 783 | 9,141 | 6,010 | 10 |
| 7 | 17949 | 01-Dec-15 | 100 | 7,406 | 7,153 - 7,667 | 7,551 | 717 | 8,986 | 6,116 | 9 |
| 8 | 17996 | 05-Jan-16 | 100 | 7,524 | 7,316 - 7,738 | 7,548 | 664 | 8,876 | 6,219 | 9 |
| 9 | 18020 | 26-Jan-16 | 100 | 6,208 | 5,742 - 6,712 | 7,399 | 765 | 8,929 | 5,868 | 8 |
| 10 | 18044 | 06-Feb-16 | 100 | 7,945 | 7,525 - 8,389 | 7,453 | 742 | 8,937 | 5,970 | 10 |
| 11 | 18067 | 23-Feb-16 | 100 | 7,967 | 7,649 - 8,298 | 7,500 | 721 | 8,941 | 6,059 | 9 |
| 12 | 18075 | 01-Mar-16 | 100 | 7,337 | 7,064 - 7,621 | 7,487 | 689 | 8,864 | 6,109 | 9 |
| 13 | 18180 | 19-Apr-16 | 100 | 7,053 | 6,813 - 7,302 | 7,453 | 670 | 8,794 | 6,113 | 9 |
| 14 | 18251 | 25-May-16 | 100 | 7,903 | 7,640 - 8,175 | 7,485 | 655 | 8,795 | 6,175 | 9 |
| 15 | 18302 | 22-Jun-16 | 100 | 8,640 | 8,318 - 8,975 | 7,562 | 698 | 8,958 | 6,166 | 8 |
| 16 | 18330 | 06-Jul-16 | 100 | 7,650 | 7,363 - 7,949 | 7,568 | 675 | 8,917 | 6,218 | 9 |
| 17 | 18364 | 02-Aug-16 | 100 | 7,760 | 7,448 - 8,086 | 7,579 | 655 | 8,889 | 6,269 | 9 |
| 18 | 18425 | 07-Sep-16 | 100 | 7,628 | 7,327 - 7,942 | 7,582 | 636 | 8,853 | 6,311 | 8 |
| 19 | 18464 | 05-Oct-16 | 100 | 7,713 | 7,482 - 7,951 | 7,589 | 618 | 8,825 | 6,352 | 8 |
| 20 | 18511 | 02-Nov-16 | 100 | 8,046 | 7,741 - 8,341 | 7,612 | 611 | 8,833 | 6,391 | 8 |

**Notes:**

NR - Not Reliable
LC50 - Concentration of sodium chloride which was lethal to 50 percent of the test organisms.
NC - Not calculable;
Moderately Hard control water was used in all reference toxicant tests
* ARO fish
All tests unless noted are tested with fish purchased from ABS


RAMBOLL ENVIRON ACUTE REFERENCE TOXICANT (NaCl) 2015 - 2016
Ceriodaphnia dubia
NaCl CONCENTRATION (mg/L)
3,500
3,250
3,000
2,750
2,500
2,250
2,000
1,750
1,500
1,250
1,000
750
500
250
0
05-May-15
10-Jun-15
09-Jul-15
09-Jul-15
09-Jul-15
25-Aug-15
01-Sep-15
13-Oct-15
12-Nov-15
01-Dec-15
05-Jan-16
02-Feb-16
01-Mar-16
19-Apr-16
16-May-16
21-Jun-16
01-Jul-16
02-Aug-16
08-Sep-16
12-Oct-16
02-Nov-16
DATE
LC50 VALUE
MEAN
+2SD
-2SD

# RAMBOLL ENVIRON Ecotox Reference Toxicant Testing

**Ceriodaphnia dubia ACUTE REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2015 - 2016**

| Test Number | Log Number | Test Initiation Date | Control Survival (%) | 48-hr LC50 (mg/L) | 95% Confidence Intervals (mg/L) | LC50 Cumulative Mean (mg/L) | LC50 Cumulative St. Dev. (mg/L) | 2+ St. Dev. (mg/L) | 2- St. Dev. (mg/L) | Coefficient of Variation (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17577 | 05-May-15 | 100 | 2,142 | 1,999 - 2,296 | 2,142 | | | | |
| 2 | 17650 | 10-Jun-15 | 100 | 2,220 | 2,097 - 2,351 | 2,181 | 55 | 2,291 | 2,071 | 2 |
| 3 | 17688 | 09-Jul-15 | 100 | 2,076 | 2,001 - 2,154 | 2,146 | 72 | 2,290 | 2,002 | 3 |
| 4 | 17687 | 09-Jul-15 | 100 | 2,046 | 1,936 - 2,162 | 2,121 | 77 | 2,275 | 1,967 | 3 |
| 5 | 17779 | 25-Aug-15 | 100 | 2,225 | 2,136 - 2,317 | 2,142 | 81 | 2,305 | 1,979 | 3 |
| 6 | 17793 | 01-Sep-15 | 100 | 2,505 | 2,404 - 2,610 | 2,202 | 165 | 2,533 | 1,872 | 7 |
| 7 | 17863 | 13-Oct-15 | 100 | 2,045 | 1,954 - 2,141 | 2,180 | 162 | 2,504 | 1,856 | 7 |
| 8 | 17929 | 12-Nov-15 | 100 | 2,083 | 2,000 - 2,166 | 2,168 | 154 | 2,476 | 1,860 | 7 |
| 9 | 17952 | 01-Dec-15 | 100 | 1,981 | 1,906 - 2,060 | 2,147 | 157 | 2,461 | 1,833 | 7 |
| 10 | 17997 | 05-Jan-16 | 100 | 2,095 | 2,006 - 2,187 | 2,142 | 149 | 2,439 | 1,844 | 7 |
| 11 | 18027 | 02-Feb-16 | 100 | 2,376 | 2,290 - 2,458 | 2,163 | 158 | 2,479 | 1,847 | 7 |
| 12 | 18077 | 01-Mar-16 | 100 | 2,371 | 2,275 - 2,471 | 2,180 | 162 | 2,504 | 1,856 | 7 |
| 13 | 18179 | 19-Apr-16 | 100 | 2,186 | 2,096 - 2,281 | 2,181 | 155 | 2,491 | 1,871 | 7 |
| 14 | 18228 | 16-May-16 | 100 | 2,030 | 1,940 - 2,123 | 2,170 | 154 | 2,479 | 1,861 | 7 |
| 15 | 18299 | 21-Jun-16 | 100 | 2,082 | 1,992 - 2,176 | 2,164 | 151 | 2,465 | 1,863 | 7 |
| 16 | 18326 | 01-Jul-16 | 100 | 2,032 | 1,952 - 2,115 | 2,156 | 149 | 2,454 | 1,858 | 7 |
| 17 | 18363 | 02-Aug-16 | 100 | 1,889 | 1,814 - 1,969 | 2,140 | 158 | 2,457 | 1,824 | 7 |
| 18 | 18428 | 08-Sep-16 | 95 | 1,792 | 1,622 - 1,923 | 2,121 | 174 | 2,469 | 1,773 | 8 |
| 19 | 18475 | 12-Oct-16 | 100 | 1,946 | 1,876 - 2,024 | 2,112 | 174 | 2,459 | 1,764 | 8 |
| 20 | 18510 | 02-Nov-16 | 100 | 2,145 | 2,057 - 2,236 | 2,113 | 169 | 2,452 | 1,775 | 8 |

Notes:

Moderately Hard Water was used as the Control Water in each test

LC50 - Concentration of sodium chloride which was lethal to 50 percent of the test organisms.

NC - Not calculable; NA - Not Applicable

Started new dilution series Sept 2013 and finallized concentrations Oct 2013

*Used old dilution series

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-121746-1
Client Project/Site: FMC Front Royal-GLTP AVTEX FIBERS

For:
Parsons Corporation
301 Plainfield Road
Suite 350
Syracuse, New York 13212

Attn: Heather Philip

*Authorized for release by:*
*2/17/2017 11:29:51 AM*

Heather Wagner, Project Manager I
(615)301-5763
heather.wagner@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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Certification Summary . . . . . 6
Subcontract Data . . . . . 7

# Sample Summary

Client: Parsons Corporation
Project/Site: FMC Front Royal-GLTP AVTEX FIBERS

TestAmerica Job ID: 490-121746-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 490-121746-1 | AF2-9OF | Water | 02/09/17 12:00 | 02/10/17 11:35 |

Client: Parsons Corporation
Project/Site: FMC Front Royal-GLTP AVTEX FIBERS

TestAmerica Job ID: 490-121746-1

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative error ratio |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

# Method Summary

Client: Parsons Corporation
Project/Site: FMC Front Royal-GLTP AVTEX FIBERS

TestAmerica Job ID: 490-121746-1

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| Acute Toxicity - C.dubia | General Sub Contract Method | NONE | |
| Acute Toxicity - Fathead Minnow | General Sub Contract Method | NONE | |

**Protocol References:**

NONE = NONE

**Laboratory References:**

= Brentwood, TN, 201 Summit View Drive, Ste. 300, Brentwood, TN 37027

# Certification Summary

Client: Parsons Corporation
Project/Site: FMC Front Royal-GLTP AVTEX FIBERS

TestAmerica Job ID: 490-121746-1

## Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Virginia | NELAP | 3 | 460152 | 06-14-17 |

Prepared for
**TestAmerica**
**Nashville, Tennessee**

Date
**February 2017**

# TOXICITY TEST RESULTS

## PROJECT NUMBER: 38-40089A

## TESTAMERICA NO: 490-121746

Ms. Heather Wagner
Test America, Inc.
2960 Foster Creighton Drive
Nashville, TN 37204

**GLTP ACUTE TOXICITY TEST RESULTS – FEBRUARY 2017**
**RAMBOLL ENVIRON PROJECT NO. 38-40089A**

Dear Ms. Wagner:
Attached are the results of the definitive (five-dilution) 48-hour, static, acute whole effluent toxicity (WET) tests performed with samples collected from the Groundwater and Leachate Treatment Plant (GLTP) in Front Royal, VA. Testing was conducted to assess toxicity according to Section V of Virginia Guidance Memorandum 00-2012. Testing was conducted with *Pimephales promelas* (fathead minnow) and *Ceriodaphnia dubia (C. dubia*). The tests were initiated on February 10, 2017, with a grab sample collected and shipped the previous day. The sample receipt temperature was 1.3 ºC, which is within the EPA-required temperature of 0.0 to 6.0 ºC (see chain-of-custody form). Test organisms were exposed to 6.25, 12.5, 25, 50, and 100 percent effluent concentrations and a moderately hard water control.

Test protocols followed USEPA 821-R-02-012, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*. Controls for both tests met USEPA test acceptability criteria. Results are summarized below:

| TOXICITY TEST RESULTS | | |
|---|---|---|
| **Test Endpoint** | **Fathead minnow** | ***C. dubia*** |
| 48-hr LC50 Value | > 100% | > 100% |
| TUa | < 1 | < 1 |
| Percent Mortality in 100% Effluent | 0 % | 0 % |
| LC50 – median lethal concentration<br>TUa – acute toxic unit, 100/LC50 | | |

Although there was some mortality observed in the lower concentration of the *C. dubia* test, it was not enough to generate an LC50. The LC50 values are greater than 100% effluent for both test species. The corresponding TUa values are less than one.

This report contains 18 pages, which include: this summary report, data review form and Virginia test summary sheet, copies of the tests datasheets (attachment

February 16, 2017

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*NELAP Accredited or Laboratory Certification in the following United States:* AR (02-008-0), AZ (0751), CA (2465), FL (E87896), IA (386), KS (E-10391), LA (02061), MN, NC (003), OK (9973), SC (84015), TX (T104704410-11-2), VA (460171), WI (399050850), WV (351).
Test Results contained in this report meet NELAP requirements.

1), Virginia chain-of-custody, Ramboll Environ chain-of-custody form, and monthly reference toxicant data, (attachment 2) and spacer and attachment pages.

Thank you for the continued opportunity to assist TestAmerica and their clients with their toxicity testing needs. If you have any questions or concerns regarding this report, please feel free to contact me at (615) 277-7517.

Yours sincerely

**Liza Heise**
Project Manager
Water Quality and Ecotoxicology

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lheise@ramboll.com

**Robin L. Richards, REM**
Principal
Water Management and Planning

D +1 703 5162431
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**Data Review Form**

**Acute and Chronic WET Tests**

**Ramboll Environ**

The raw data (i.e., laboratory bench sheets) and data in the applicable summary sheets have been checked and found to be complete. Additionally, test conditions and control performance meet test acceptability criteria specified by the US Environmental Protection Agency and the certifying state authority for the tests conducted[1].

**Robin L. Richards, REM**
Department Head
Water Management and Planning

[1] Any data limitations regarding their applicability for determining NPDES permit compliance are discussed in the report cover letter.

## ATTACHMENT 1

## VIRGINIA TEST CONDITIONS SHEET, STATISTICAL ANALYSIS, AND RAW DATA SHEETS

PERMITTEE: Groundwater and Leachate Treatment Plant OUTFALL: AF NPDES#: _____

TEST DATES: 2/10/17 TO 2/12/17

## SUMMARY OF ACTUAL TEST CONDITIONS

1. TEST TYPE: Acute definitive
2. TEST DURATION: 48 - hr
3. TEST ORGANISM: Fathead minnow / *C. dubia*
4. ORGANISM AGE: 8 days / <24 hrs
5. TEST TEMPERATURE (LOW TO HIGH): 24.0-24.6 / 24.0–24.7
6. LIGHT INTENSITY: 62.9 ftc /73.7 ftc
7. PHOTOPERIOD: 16-hr light / 8-hr dark
8. TEST CHAMBER SIZE: 250 mL / 30 mL
9. TEST SOLUTION VOLUME: 200 mL / 15-20 mL
10. # ORGANISMS/TEST CHAMBER: 10 / 5
11. # REPLICATES/CONCENTRATION: 2 / 4
12. FOOD TYPE, AMOUNT, FREQUENCY: none
13. AERATION RATE/INITIATION TIME: none
14. DILUTION WATER: Moderately hard synthetic reconstituted
15. CULTURE WATER FOR TEST ORGANISMS: Moderately hard synthetic reconstituted
16. TEST CONCENTRATIONS: 0, 6.25, 12.5, 25, 50, 100%
17. ACUTE TEST ACCEPTABILITY CRITERION OF ≥90% SURVIVAL IN CONTROLS: Yes
18. CHRONIC TEST ACCEPTABILITY CRITERIA OF ≥80% SURVIVAL IN CONTROLS, AND AVERAGE 15 NEONATES/SURVIVING ADULT OR CONTROL LARVAE WEIGH ≥0.25 mg: NA
19. ACUTE TEST $LC_{50}$: >100 STATISTICAL PROGRAM/VERSION: observation
    CONFIDENCE LIMITS: _____
20. CHRONIC TEST NOEC SURVIVAL: _____ NOEC REPRODUCTION/GROWTH: _____
    TEST NOEC: _____ $LC_{50}$ AT 48 HOURS: _____

# 48-HR ACUTE TOXICITY TEST DATA SHEET
EPA-821-R-02-012 Method 2000.0



| | | | | | |
|---|---|---|---|---|---|
| LOG: | 18787 | TEST TYPE: | Static, Daily Renewal | TEST VESSEL CAPACITY: | 250 mL |
| JOB NO: | 384009917 | TEST ORGANISM: | FATHEAD MINNOW | TEST SOLUTION VOLUME: | 200 mL |
| CLIENT: | TA Parsons | ORGANISM AGE (date): | 2/5/17 | NO. ORGANISMS/VESSEL: | 10 |
| EFFLUENT: | AF2-90F | ORGANISM SOURCE: | ~~ABC~~ #5848 | NO. REPLICATES: | 2 |
| SAMPLE "B" NOS.: | 20357 | PHOTOPERIOD | 16 hrs light/8 hrs dark | DILUTION WATER: | Type: MH No. 10441 |
| SAMPLE DATE: | 2/9/17 | START DATE/TIME: | 2/10/17 1344 | DILUTIONS MADE BY: | LM |
| ORGANISM SOURCE TEMP: | 24.5 | END DATE/TIME: | 2/12/17 1307 | FED 2 hrs PRIOR TO TEST: | Time: 1000 Intls: LM |
| FOOD BATCH: | 5836 | RANDOMIZED BY: | LM | 48 hr. LC50 = | >100 95% CI = NC |

| Conc (%) | Vessel ID | Survival (#) 0 | 24 | 48 | DEAD | DO (mg/L) 0 | 24 | 48 | pH (s.u.) 0 | 24 | 48 | Temperature (°C) 0 | 24 | 48 | Conductivity (umhos/cm) 0 | 24 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LM also | | | | | | | | | | | | | | | |
| MH | A | 10 | 10 | 10 | 0 | 8.6 | | | 7.80 | | | 24.0 | | | 728 | | |
| | B | 10 | 10 | 10 | 0 | | 8.4 | 8.7 | | 7.74 | 7.52 | | 24.2 | 24.1 | | 2216 | 218 |
| 6.25 | A | 10 | 10 | 10 | 0 | 8.7 | | | 7.81 | | | 24.0 | | | 400 | | |
| | B | 10 | 10 | 10 | 0 | | 8.5 | 8.6 | | 7.68 | 7.68 | | 24.5 | 24.4 | | 398 | 381 |
| 12.5 | A | 10 | 10 | 10 | 0 | 8.8 | | | 7.82 | | | 24.1 | | | 666 | | |
| | B | 10 | 10 | 10 | 0 | | 8.4 | 8.6 | | 7.70 | 7.83 | | 24.2 | 24.4 | | 1004 | 573 |
| 25 | A | 10 | 10 | 10 | 0 | 8.7 | | | 7.80 | | | 24.1 | | | 9107 | | |
| | B | 10 | 10 | 10 | 0 | | 8.3 | 8.6 | | 7.81 | 7.94 | | 24.6 | 24.6 | | 942 | 905 |
| 50 | A | 10 | 10 | 10 | 0 | 8.6 | | | 7.79 | | | 24.2 | | | 1730 | | |
| | B | 10 | 10 | 10 | 0 | | 8.3 | 8.6 | | 7.98 | 8.16 | | 24.4 | 24.3 | | 1602 | 1611 |
| 100 | A | 10 | 10 | 10 | 0 | 8.8 | | | 7.66 | | | 24.4 | | | 3000 | | |
| | B | 10 | 10 | 10 | 0 | | 8.1 | 8.6 | | 8.30 | 8.42 | | 24.8 | 24.5 | | 3010 | 2860 |

| Params: | | | |
|---|---|---|---|
| Initials: | LM | LM | AM |
| Time: | 1344 | 1300 | 1307 |
| Date: | 2/10 | 2/11 | 2/12 |

| | Control Primary | 100% Effluent |
|---|---|---|
| Hardness (mg/L) | 88.8 | 144 |
| Alkalinity (mg/L) | 43 | 205 |
| TRC (mg/L) | <0.02 | 0.04 |
| Ammonia (mg/L) | — | <0.1 |

Comments:
MH Made: 2/5/17
MH 1st Use: 2/8/17
Light Levels: 62.9

# 48-HR ACUTE TOXICITY TEST DATA SHEET
EPA-821-R-02-012 Method 2002.0



| | | | | | |
|---|---|---|---|---|---|
| LOG: | 18787 | TEST TYPE: | Static, Daily Renewal | TEST VESSEL CAPACITY: | 30 mL |
| JOB NO: | 38400894 | TEST ORGANISM: | *Ceriodaphnia dubia* | TEST SOLUTION VOLUME: | 15 - 20 mL |
| CLIENT: | TA Parsons | ORGANISM AGE (date): | 2/9-10/17 1330-0800 | NO. ORGANISMS/VESSEL: | 5 |
| EFFLUENT: | AF2-91F | ORGANISM SOURCE: | 116105-67 | NO. REPLICATES: | 4 |
| SAMPLE "B" NOS.: | 20857 | PHOTOPERIOD | 16 hrs light/8 hrs dark | DILUTION WATER: | Type MH No. 10441 |
| SAMPLE DATE: | 2/9/17 | START DATE/TIME: | 2/10/17 1133 | DILUTIONS MADE BY: | LM |
| ORGANISM SOURCE TEMP: | 24.6 | END DATE/TIME: | 2/12/17 1124 | FED @ LEAST 2 HR. PRIOR TO TEST: | Time: 0804 Initls: LM |
| FOOD BATCH: | 5832,47 | RANDOMIZED BY: | LM | 48 hr. LC50 = >100 | 95% CI = NC |

| Conc (%) | Vessel ID | Survival (#) 0 | 24 | 48 | DEAD | DO (mg/L) 0 | 24 | 48 | pH (s.u.) 0 | 24 | 48 | Temperature (°C) 0 | 24 | 48 | Conductivity (umhos/cm) 0 | 24 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MH | A | 5 | 5 | 5 | 0 | 8.1 | | | 7.80 | | | 24.2 | | | 228 | | |
| | B | 5 | 5 | 5 | 0 | | 8.7 | | | 7.94 | | | 24.2 | 24.1 | | 283 | |
| | C | 5 | 5 | 5 | 0 | | | 8.6 | | | 7.99 | | | | | | 287 |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| 6.25 | A | 5 | 5 | 5 | 0 | 8.2 | | | 7.81 | | | 24.6 | | | 400 | | |
| | B | 5 | 5 | 5 | 0 | | 8.7 | | | 7.76 | | | 24.2 | 24.2 | | 425 | |
| | C | 5 | 5 | 4 | 1 | | | 8.6 | | | 7.93 | | | | | | 446 |
| | D | 5 | 4 | 3 | 2 | | | | | | | | | | | | |
| 12.5 | A | 5 | 5 | 5 | 0 | 8.4 | | | 7.82 | | | 24.5 | | | 604 | | |
| | B | 5 | 4 | 4 | 1 | | 8.7 | | | 7.86 | | | 24.0 | 24.1 | | 642 | |
| | C | 5 | 5 | 5 | 0 | | | 8.6 | | | 8.04 | | | | | | 667 |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| 25 | A | 5 | 5 | 5 | 0 | 8.2 | | | 7.80 | | | 24.7 | | | 907 | | |
| | B | 5 | 5 | 5 | 0 | | 8.6 | | | 8.03 | | | 24.1 | 24.2 | | 1034 | |
| | C | 5 | 5 | 5 | 0 | | | 8.6 | | | 8.20 | | | | | | 1081 |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |

| Params: | MH | TL | TL |
|---|---|---|---|
| Initials: | LM | TL | MH |
| Time: | 1133 | 1123 | 1124 |
| Date: | 2/10 | 2/11 | 2/12 |

| | Control Primary | 100% Effluent |
|---|---|---|
| Hardness (mg/L) | 88.8 | 144 |
| Alkalinity (mg/L) | 43 | 205 |
| TRC (mg/L) | <0.02 | 0.04 |
| Ammonia (mg/L) | — | 20.1 |

Comments:
MH Made: 2/5/17
MH 1st Use: 2/8/17
Light Level: 73.7

OHMEZ/10/12

# 48-HR ACUTE TOXICITY TEST DATA SHEET
EPA-821-R-02-012 Method 2002.0



| | | | | | |
|---|---|---|---|---|---|
| LOG: | 18727 | TEST TYPE: | Static, Daily Renewal | TEST VESSEL CAPACITY: | 30 mL |
| JOB NO: | 384008A | TEST ORGANISM: | *Ceriodaphnia dubia* | TEST SOLUTION VOLUME: | 15 - 20 mL |
| CLIENT: | TA Parsons | SAMPLE B #: | 20358 | NO. ORGANISMS/VESSEL: | 5 |
| EFFLUENT: | AFZ-90F | TEST START DATE: | 2/10/17 | NO. REPLICATES: | 4 |

| Conc (%) | Vessel ID | Survival (#) 0 | 24 | 48 | DEAD | DO (mg/L) 0 | 24 | 48 | pH (s.u.) 0 | 24 | 48 | Temperature (°C) 0 | 24 | 48 | Conductivity (umhos/cm) 0 | 24 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | A | 5 | 5 | 5 | 0 | 8.3 | | | ~~7.8~~ 7.790 | | | 24.6 | | | 1730 | | |
| | B | 5 | 5 | 5 | 0 | | 8.7 | | | 8.27 | | | 24.1 | 24.2 | | 1812 | |
| | C | 5 | 5 | 5 | 0 | | | 8.5 | | | 8.38 | | | | | | 1862 |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |
| 100 | A | 5 | 5 | 5 | 0 | 8.2 | | | 7.66 | | | 24.3 | | | 3200 | | |
| | B | 5 | 5 | 5 | 0 | | 8.7 | | | 8.42 | | | 24.2 | 24.0 | | 3280 | |
| | C | 5 | 5 | 5 | 0 | | | 8.5 | | | 8.55 | | | | | | 3340 |
| | D | 5 | 5 | 5 | 0 | | | | | | | | | | | | |

Comments:

I:\ecotox lab\labforms\client test sheets\analytics\48hacutecd48HACUTEcdfmm.xls

## ATTACHMENT 2

## VIRGINIA CHAIN-OF-CUSTODY DOCUMENTATION, RAMBOLL ENVIRON CHAIN-OF-CUSTODY DOCUMENTATION, AND MONTHLY REFERENCE TOXICANT DATA

## CHAIN-OF-CUSTODY

PERMITTEE: Groundwater and Leachate Treatment Plant NPDES#: _____

OUTFALL: AF FLOW TYPE (CIRCLE ONE): CONTINUOUS INTERMITTENT BATCH STORMWATER OTHER: _____

## SAMPLE INFORMATION

1. GRAB: ___ DATE/TIME COLLECTED: _____ AMOUNT: _____
2. TIME COMPOSITE: ___ COLLECTED FROM (Date/Time): _____ TO (Date/Time): _____

   NUMBER/VOL OF SUBSAMPLES: _____ TIME INCREMENT: _____ TOTAL AMOUNT: _____
3. FLOW-PROPORTIONAL COMPOSITE: ___ COLLECTED FROM: _____ TO: _____

   SET VOLUME SUBSAMPLE/VOLUME FLOW: _____ TOTAL AMOUNT: _____

   FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW/SET TIME INCREMENTS - ATTACH SAMPLE AND FLOW INFORMATION.
4. NAME OF SAMPLER: _____ AFFILIATION: _____

## FIELD PARAMETERS

1. GRAB SAMPLES: pH: _____ TEMPERATURE: _____°C CHLORINE RESIDUAL: _____mg/l TIME: _____
2. COMPOSITES: TEMPERATURE: (last grab) ___°C CHLORINATED?: ___ DECHLORINATED?: ___ AGENT?: _____

   pH (Composite): _____ TEMPERATURE (Composite): _____°C TIME: _____
3. NAME OF ANALYST: _____ AFFILIATION: _____
4. METHOD OF SHIPMENT: _____ COOLANT USED: _____ SHIPMENT DATE/TIME: _____

RELINQUISHED BY:

_____ TIME/DATE

_____ TIME/DATE

_____ TIME/DATE

RECEIVED BY:

_____ TIME/DATE

_____ TIME/DATE

_____ TIME/DATE

## EFFLUENT CONDITION UPON ARRIVAL AT LABORATORY

DATE: 2/10/17 TIME: 0906 ICE PRESENT: (Yes)/No SAMPLE ID: AF2-9OF _____: VOLUME: 4L

TEMPERATURE 1.3 °C pH: 7.77 CL RESIDUAL: 0.04 mg/l DO: 8.7 mg/l CONDUCTIVITY: 3200 µmhos

VISUAL/SCENT DESCRIPTION: Clear, no odor

_____ ANALYST: AM

VA DEQ OWPS-TMP 06/06/96

Project Name: PARSONS Project Number: 414962.02000

Industry:

Phone: 540-635-3110 FAX:

County: WARREN City: FRONT ROYAL State: VA

Sample Collected by (print): ADAM PEAK

Sample Collected by (signature):

NPDES Permit No.:

NPDES Test: ☐ No ☐ Yes

**CHAIN-OF-CUSTODY**

RAMBOLL ENVIRON
201 Summit View Drive, Suite 300
Brentwood, TN 37027
PHONE: 615-277-7554
FAX: (615) 377-4976

| Sample Location / ID | Comp/Grab | Container Type | Chilled During Collection (Y/N) | Start Date/Time | End Date/Time | No. of Cntrs | Total Volume in liters | Acute Fathead minnow | Acute Bannerfin shiner | Acute *Ceriodaphnia dubia* | Acute *Daphnia pulex* | Chronic Fathead minnow | Chronic *Ceriodaphnia dubia* | Continuous Batch Tests | Discrete Batch Tests | Other | Description Definitive or Screen | Sample B# (lab only) | Receipt Temp °C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Analysis Requested | | | | | | | | | | | |
| AF2-90F | Grab | Cubitainer | N | 2-9-17 1130 | | | | X | | X | | | | | | | | 20857 | 1.3 |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - Wastewater **AW** - Ambient Water **ML** - Mixed Liquor **SL** - Sludge **SD** - Sediment **OT** - Other _____

Remarks:

Measured TRC (if applicable): _____ mg/L

| Relinquished by: (Signature) | Date: | Time: | Received by: (Signature) |
|---|---|---|---|
| | 2-9-17 | 330 P | |
| Relinquished by: (Signature) | Date: | Time: | Received by: (Signature) |
| | | | |
| Relinquished by: (Signature) | Date: | Time: | **Received for lab by: (Signature)** |
| | | | |

**Samples shipped via:** ☐ FedEx ☐ Other Courier ☒ UPS ☐ Hand Delivered

**Condition:** OK **(lab use only)**

**Containers/Volume Received:** 4C

| Date: | Time: | pH upon arrival: | DO upon arrival: |
|---|---|---|---|
| 2/10/17 | 0900 | 7.72 | 8.7 |

Slightly yellow-tinted, transparent.

**Sample Receipt Checklist:**

Client: TA Parsons

Date/Time received 2/10/17 0900 by HH

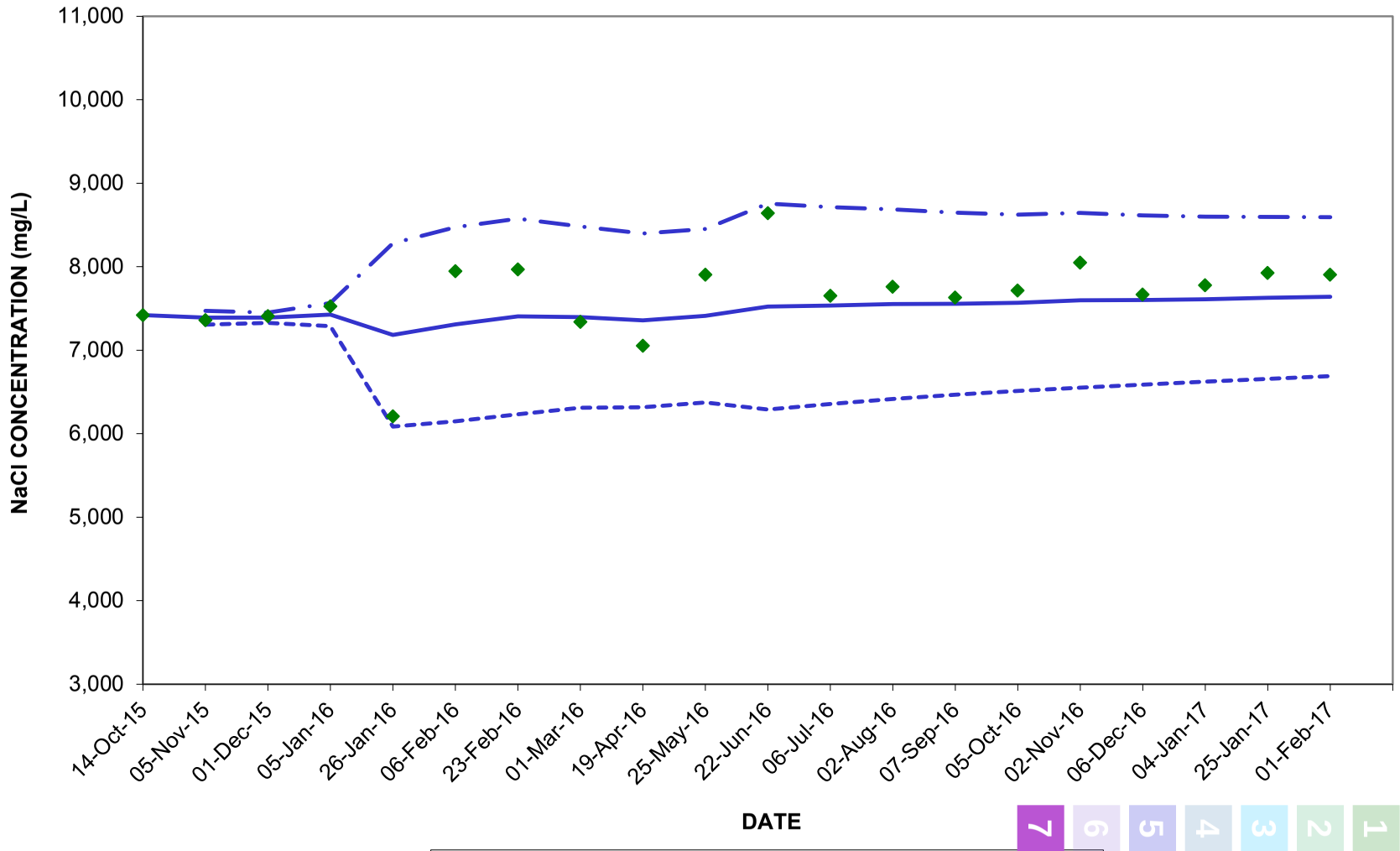
| | | |
|---|---|---|
| 1. Cooler sealed and intact upon arrival? | (Yes) | No |
| 2. Custody seals present? | Yes | (No) |
| 3. Samples received below 6 degrees Celsius? | (Yes) | No |
| 4. Was ice present? | (Yes) | No |
| 5. Is the COC filled out correctly including the sample date/time and signed? | (Yes) | No |
| 6. Was the sample received within 36 hours of collection? | (Yes) | No |
| 7. Did the sample(s) arrive in good condition? | (Yes) | No |
| 8. Was pH and DO measured and in range? | (Yes) | No |
| 9. Was residual chlorine present? | (Yes) | No |
| ➢ 1.0 mg/L? (did dechlor occur) | Yes | (No) |

Comments:

| Batch # | Sample ID | Temp (C°) | pH (s.u.) | DO (mg/L) | TRC (mg/L) |
|---|---|---|---|---|---|
| 20352 | AF2-90F | 1.3 | 7.77 | 8.7 | 0.04 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

L:\Ecotox Lab\FORMS

## RAMBOLL ENVIRON ACUTE REFERENCE TOXICANT TESTS (NaCl) 2015 - 2017
## Fathead Minnows



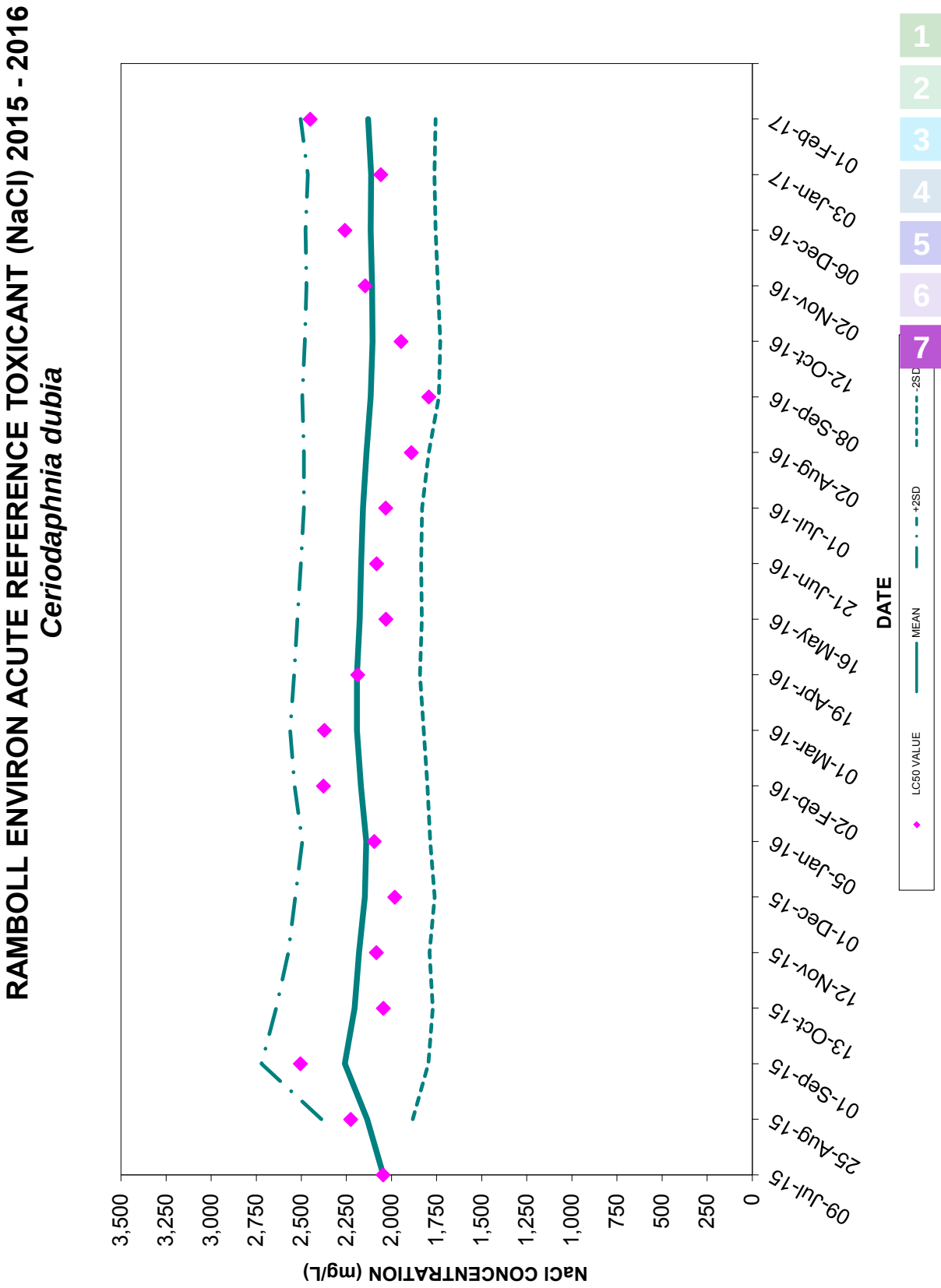
# Ramboll Environ Ecotox Reference Toxicant Testing

**Fathead minnow ACUTE REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2015 - 2017**

| Test Number | Log Number | Test Initiation Date | Control Survival (%) | 48-hr LC50 (mg/L) | 95% Confidence Intervals (mg/L) | LC50 Cumulative Mean (mg/L) | LC50 Cumulative St. Dev. (mg/L) | 2+ St. Dev. (mg/L) | 2- St. Dev. (mg/L) | Coefficient of Variation (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17866 | 14-Oct-15 | 100 | 7,419 | 7,227 - 7,616 | 7,419 | | | | |
| 2 | 17918 | 05-Nov-15 | 95 | 7,360 | 7,058 - 7,673 | 7,390 | 42 | 7,473 | 7,306 | 0 |
| 3 | 17949 | 01-Dec-15 | 100 | 7,406 | 7,153 - 7,667 | 7,390 | 31 | 7,452 | 7,328 | 0 |
| 4 | 17996 | 05-Jan-16 | 100 | 7,524 | 7,316 - 7,738 | 7,427 | 69 | 7,566 | 7,289 | 0 |
| 5 | 18020 | 26-Jan-16 | 100 | 6,208 | 5,742 - 6,712 | 7,183 | 549 | 8,281 | 6,086 | 1 |
| 6 | 18044 | 06-Feb-16 | 100 | 7,945 | 7,525 - 8,389 | 7,310 | 581 | 8,472 | 6,149 | 7 |
| 7 | 18067 | 23-Feb-16 | 100 | 7,967 | 7,649 - 8,298 | 7,404 | 585 | 8,575 | 6,233 | 7 |
| 8 | 18075 | 01-Mar-16 | 100 | 7,337 | 7,064 - 7,621 | 7,396 | 543 | 8,481 | 6,311 | 7 |
| 9 | 18180 | 19-Apr-16 | 100 | 7,053 | 6,813 - 7,302 | 7,358 | 520 | 8,398 | 6,317 | 7 |
| 10 | 18251 | 25-May-16 | 100 | 7,903 | 7,640 - 8,175 | 7,412 | 520 | 8,452 | 6,372 | 7 |
| 11 | 18302 | 22-Jun-16 | 100 | 8,640 | 8,318 - 8,975 | 7,524 | 617 | 8,757 | 6,290 | 7 |
| 12 | 18330 | 06-Jul-16 | 100 | 7,650 | 7,363 - 7,949 | 7,534 | 589 | 8,713 | 6,356 | 8 |
| 13 | 18364 | 02-Aug-16 | 100 | 7,760 | 7,448 - 8,086 | 7,552 | 568 | 8,687 | 6,417 | 7 |
| 14 | 18425 | 07-Sep-16 | 100 | 7,628 | 7,327 - 7,942 | 7,557 | 546 | 8,648 | 6,466 | 7 |
| 15 | 18464 | 05-Oct-16 | 100 | 7,713 | 7,482 - 7,951 | 7,568 | 527 | 8,622 | 6,513 | 7 |
| 16 | 18511 | 02-Nov-16 | 100 | 8,046 | 7,741 - 8,341 | 7,597 | 523 | 8,644 | 6,551 | 7 |
| 17 | 18629 | 06-Dec-16 | 95 | 7,666 | 7,304 - 8,047 | 7,601 | 507 | 8,615 | 6,588 | 7 |
| 18 | 18678 | 04-Jan-17 | 100 | 7,776 | 7,569 - 7,988 | 7,611 | 494 | 8,598 | 6,624 | 6 |
| 19 | 18706 | 25-Jan-17 | 100 | 7,923 | 7,381 - 8.505 | 7,628 | 485 | 8,597 | 6,658 | 6 |
| 20 | 18714 | 01-Feb-17 | 100 | 7,903 | 7,601 - 8,216 | 7,641 | 476 | 8,593 | 6,689 | 6 |

**Notes:**

NR - Not Reliable
LC50 - Concentration of sodium chloride which was lethal to 50 percent of the test organisms.
NC - Not calculable;
Moderately Hard control water was used in all reference toxicant tests
* ARO fish
All tests unless noted are tested with fish purchased from ABS


RAMBOLL ENVIRON ACUTE REFERENCE TOXICANT (NaCl) 2015 - 2016
Ceriodaphnia dubia
NaCl CONCENTRATION (mg/L)
3,500
3,250
3,000
2,750
2,500
2,250
2,000
1,750
1,500
1,250
1,000
750
500
250
0
09-Jul-15
25-Aug-15
01-Sep-15
13-Oct-15
12-Nov-15
01-Dec-15
05-Jan-16
02-Feb-16
01-Mar-16
19-Apr-16
16-May-16
21-Jun-16
01-Jul-16
02-Aug-16
08-Sep-16
12-Oct-16
02-Nov-16
06-Dec-16
03-Jan-17
01-Feb-17
DATE
LC50 VALUE
MEAN
+2SD
-2SD

# RAMBOLL ENVIRON Ecotox Reference Toxicant Testing

**Ceriodaphnia dubia ACUTE REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2015 - 2016**

| Test Number | Log Number | Test Initiation Date | Control Survival (%) | 48-hr LC50 (mg/L) | 95% Confidence Intervals (mg/L) | LC50 Cumulative Mean (mg/L) | LC50 Cumulative St. Dev. (mg/L) | 2+ St. Dev. (mg/L) | 2- St. Dev. (mg/L) | Coefficient of Variation (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17687 | 09-Jul-15 | 100 | 2,046 | 1,936 - 2,162 | 2,046 | | | | |
| 2 | 17779 | 25-Aug-15 | 100 | 2,225 | 2,136 - 2,317 | 2,136 | 127 | 2,389 | 1,882 | 4 |
| 3 | 17793 | 01-Sep-15 | 100 | 2,505 | 2,404 - 2,610 | 2,259 | 231 | 2,721 | 1,796 | 8 |
| 4 | 17863 | 13-Oct-15 | 100 | 2,045 | 1,954 - 2,141 | 2,205 | 217 | 2,639 | 1,771 | 9 |
| 5 | 17929 | 12-Nov-15 | 100 | 2,083 | 2,000 - 2,166 | 2,181 | 196 | 2,572 | 1,789 | 8 |
| 6 | 17952 | 01-Dec-15 | 100 | 1,981 | 1,906 - 2,060 | 2,148 | 193 | 2,534 | 1,761 | 8 |
| 7 | 17997 | 05-Jan-16 | 100 | 2,095 | 2,006 - 2,187 | 2,140 | 177 | 2,495 | 1,785 | 8 |
| 8 | 18027 | 02-Feb-16 | 100 | 2,376 | 2,290 - 2,458 | 2,170 | 184 | 2,538 | 1,801 | 8 |
| 9 | 18077 | 01-Mar-16 | 100 | 2,371 | 2,275 - 2,471 | 2,192 | 185 | 2,562 | 1,822 | 8 |
| 10 | 18179 | 19-Apr-16 | 100 | 2,186 | 2,096 - 2,281 | 2,191 | 174 | 2,540 | 1,843 | 8 |
| 11 | 18228 | 16-May-16 | 100 | 2,030 | 1,940 - 2,123 | 2,177 | 172 | 2,522 | 1,832 | 8 |
| 12 | 18299 | 21-Jun-16 | 100 | 2,082 | 1,992 - 2,176 | 2,169 | 167 | 2,502 | 1,835 | 7 |
| 13 | 18326 | 01-Jul-16 | 100 | 2,032 | 1,952 - 2,115 | 2,158 | 164 | 2,486 | 1,830 | 7 |
| 14 | 18363 | 02-Aug-16 | 100 | 1,889 | 1,814 - 1,969 | 2,139 | 173 | 2,485 | 1,793 | 8 |
| 15 | 18428 | 08-Sep-16 | 95 | 1,792 | 1,622 - 1,923 | 2,116 | 189 | 2,495 | 1,737 | 9 |
| 16 | 18475 | 12-Oct-16 | 100 | 1,946 | 1,876 - 2,024 | 2,105 | 188 | 2,481 | 1,729 | 9 |
| 17 | 18510 | 02-Nov-16 | 100 | 2,145 | 2,057 - 2,236 | 2,108 | 182 | 2,472 | 1,743 | 8 |
| 18 | 18631 | 06-Dec-16 | 100 | 2,258 | 2,185 - 2,335 | 2,116 | 180 | 2,476 | 1,755 | 8 |
| 19 | 18671 | 03-Jan-17 | 100 | 2,059 | 1,958 - 2,164 | 2,113 | 176 | 2,464 | 1,762 | 8 |
| 20 | 18713 | 01-Feb-17 | 100 | 2,450 | 2,374 - 2,528 | 2,130 | 187 | 2,504 | 1,756 | 9 |

Notes:

Moderately Hard Water was used as the Control Water in each test

LC50 - Concentration of sodium chloride which was lethal to 50 percent of the test organisms.

NC - Not calculable; NA - Not Applicable

# APPENDIX G
## DATA VALIDATION REPORTS

PARSONS

# Memorandum

January 31, 2017

| | | | |
|---|---|---|---|
| To: | Michael Robinson | Ref. No.: | 11119510-001 |
| From: | Deb Andrasko/eew/4 | Tel: | 716-205-1911 |

**Subject:** **Analytical Results and Full Validation**
**Annual Leachate Water Sampling**
**Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

## 1. Introduction

This document details a validation of analytical results for leachate water samples collected in support of the Annual Leachate Water Sampling at the Avtex Fibers Superfund site during August 2016. Samples were submitted to TestAmerica Laboratory, located in Nashville, Tennessee. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Full Contract Laboratory Program (CLP) equivalent raw data deliverables were provided by the laboratory. Evaluation of the data was based on information obtained from the finished data sheets, raw data, chain of custody forms, calibration data, blank data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spike (MS) samples, and field QC samples. The assessment of analytical and in-house data included checks for: data consistency (by observing comparability of duplicate analyses), adherence to accuracy and precision criteria, and transmittal errors.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008

These items will subsequently be referred to as the "Guidelines" in this Memorandum.

## 2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were analyzed within the required holding times with the exception of biological oxygen demand (BOD) and carbon disulfide

for some of the samples. The associated sample results were qualified as estimated based on the potential low bias (see Table 4).

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

# 3. Gas Chromatography/Mass Spectrometer (GC/MS) – Tuning and Mass Calibration (Instrument Performance Check) and Inductively Coupled Plasma/Mass Spectrometer (ICP/MS)

## 3.1 Organic Analyses

Prior to volatile organic compound (VOC) analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, methods require the analysis of the specific tuning compound bromofluorobenzene (BFB). The resulting spectra must meet the criteria cited in the method before analysis is initiated. Analysis of the tuning compound must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

Tuning compounds were analyzed at the required frequency throughout VOC analysis periods. All tuning criteria were met indicating that proper optimization of the instrumentation was achieved.

## 3.2 Inorganic Analyses

To ensure adequate mass resolution, identification, and to some degree, sensitivity, the performance of each ICP/MS instrument used for metals analyses is checked prior to calibration and initiating an analysis sequence through the analysis of a tuning solution.

Instrument performance check data were reviewed. The tuning solution was analyzed at the required frequency throughout the analyses. The results of all instrument performance checks were within the method acceptance criteria, indicating that proper optimization of the instrumentation was achieved.

# 4. Initial Calibration - Organic Analyses

## 4.1 GC/MS

To quantify VOCs of interest in samples, calibration of the GC/MS over a specific concentration range must be performed. Initially, a minimum of a five-point calibration curve containing all compounds of interest is analyzed to characterize instrument response for each analyte over a specific concentration range. Linearity of the calibration curve and instrument sensitivity are evaluated against the following criteria:

i) All relative response factors (RRFs) must be greater than or equal to 0.05 (0.01 for poor responders)

ii) The percent relative standard deviation (RSD) values must not exceed 20.0 percent (40 percent for poor responders) or a minimum correlation coefficient (R) of 0.99 and minimum coefficient of determination ($R^2$) of 0.99 if linear and quadratic equation calibration curves, respectively, are used.

The initial calibration data for VOCs were reviewed. All compounds met the above criteria for sensitivity and linearity.

## 5. Initial Calibration – Inorganic Analyses

Initial calibration of the instruments ensures that they are capable of producing satisfactory quantitative data at the beginning of a series of analyses. For ICP/MS analysis, a calibration blank and at least one standard must be analyzed at each wavelength to establish the analytical curve. For instrumental general chemistry analyses, a calibration blank and a minimum of five standards must be analyzed to establish the analytical curve, and resulting correlation coefficients (R) must be 0.995 or greater. Most of the inorganic chemistry methods analyzed for this event were non-instrumental methods, i.e. titrimetric or gravimetric, and calibration criteria is not applicable.

After the analyses of the calibration curves, an initial calibration verification (ICV) standard must be analyzed to verify the analytical accuracy of the calibration curves. All analyte recoveries from the analyses of the ICVs must be within the following control limits:

| Analytical Method | Parameter | Control Limits |
|---|---|---|
| ICP/MS | Metals | 90 - 110% |
| Instrumental General Chemistry | Phosphorus, Chemical Oxygen Demand | 85 - 115% |

Upon review of the data, it was determined that the calibration curves and ICVs were analyzed at the proper frequencies and that all of the above-specified criteria were met. The laboratory effectively demonstrated that the instrumentation used for metals and general chemistry analyses were properly calibrated prior to sample analysis.

## 6. Continuing Calibration - Organic Analyses

### 6.1 GC/MS

To ensure that instrument calibration for VOC analyses is acceptable throughout the sample analysis period, continuing calibration standards must be analyzed and compared to the initial calibration curve every 12 hours.

The following criteria were employed to evaluate continuing calibration data:

i) All RRF values must be greater than or equal to 0.05 (0.01 for poor responders)

ii) Percent difference (%D) values must not exceed 25 percent (40 percent for poor responders)

Calibration standards were analyzed at the required frequency, and the results met the above criteria for instrument sensitivity and stability.

## 7. Continuing Calibration - Inorganic Analyses

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration verification (CCV) standards are analyzed on a regular basis. Each CCV is deemed acceptable if all analyte recoveries are within the control limits specified above for the ICVs. If some of the CCV analyte recoveries are outside the control limits, samples analyzed before and after the CCV, up until the previous and proceeding CCV analyses, are affected.

For this study, CCVs were analyzed at the proper frequency. All analyte recoveries reported for the CCVs were within the specified limits.

## 8. Contract Required Detection Limit (CRDL) Standard Analyses

To verify the linearity of the ICP/MS calibration near the detection limit, a standard is analyzed which contains the ICP/MS analytes at specified concentrations. This standard must be analyzed at the beginning and end of each sample analysis run or a minimum of twice per 8-hour period.

CRDL recoveries were evaluated using the criteria specified in the October 2004 "Guidelines". The CRDL recoveries were acceptable.

## 9. Laboratory Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures. Additionally, initial and continuing calibration blanks (ICBs/CCBs) are routinely analyzed after each ICV/CCV for the inorganic parameters.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

### 9.1 Organic Analyses

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

### 9.2 Inorganic Analyses

Upon review of the ICBs, CCBs, and method blanks, it was noted that an antimony concentration was observed above the method detection limit (MDL) in the method blank. Associated positive sample results with similar concentrations to the level reported in the blank were qualified as non-detect (see Table 5).

## 10. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for VOCs are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for VOC determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the laboratory criteria.

## 11. Internal Standards (IS) Analyses

IS data were evaluated for all VOC and ICP/MS metals sample analyses.

### 11.1 Organics Analyses

To ensure that changes in the GC/MS sensitivity and response do not affect sample analysis results, IS compounds are added to each sample prior to analysis. All results are then calculated as a ratio of the IS responses.

The sample IS results were evaluated against the following criteria:

i) The retention time of the IS must not vary more than ±30 seconds from the associated calibration standard.

ii) IS area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated calibration standard.

All organic IS recoveries and retention times met the above criteria.

### 11.2 Inorganic Analyses

IS elements were added to all samples prior to metals analysis by ICP/MS. Overall instrument stability and performance for metals analyses were monitored using the IS intensity data. IS recoveries were assessed using control limits of 60-125 percent.

All inorganic IS recoveries were acceptable, demonstrating adequate analytical performance.

## 12. Laboratory Control Sample Analyses

LCS and/or laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

### 12.1 Organic Analyses

The LCS/LCSD contained the compound of interest. All LCS recoveries and RPDs were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

### 12.2 Inorganic Analyses

The LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision.

## 13. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

MS/MSD analyses were performed on the site-sample as specified in Table 1 for VOCs, total and dissolved sulfide, metals, chemical oxygen demand (COD), and phosphorus.

### 13.1 Organic Analyses

The MS/MSD samples were spiked with all compound of interest. The percent recoveries and RPD value were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

### 13.2 Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". The MS/MSD recoveries for iron could not be assessed due to sample concentration significantly greater than the spiked amount. All other percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision.

## 14. Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory for alkalinity, specific conductance, total dissolved solids, sulfide, BOD, COD, and density. The laboratory performed additional site-specific duplicate analyses internally. The duplicate results were evaluated per the "Guidelines".

All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

## 15. ICP/MS Serial Dilution

The serial dilution determines whether significant physical or chemical interferences exist due to sample matrix. A minimum of 1 per 20 investigative samples or at least 1 per analytical batch must be analyzed at a five-fold dilution. For samples with sufficient analyte concentrations (>50 times the method detection limit), the serial dilution results must agree within 10 percent of the original results.

A serial dilution was performed on each MS/MSD sample. All results met the criteria above.

## 16. ICP Interference Check Sample Analysis (ICS)

To verify that the laboratory has established proper inter-element and background correction factors, ICSs are analyzed. These samples contain high concentrations of aluminum, calcium, magnesium, and iron and are analyzed at the beginning and end of each sample analysis period. The ICSs are evaluated against recovery control limits of 80 to 120 percent.

ICS analysis results were evaluated for all samples using the criteria in the "Guidelines". All ICS recoveries and results were acceptable.

## 17. Field QA/QC Samples

The field QA/QC consisted of 1 trip blank sample, and 1 field duplicate sample set.

### 17.1 Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, a trip blank was submitted to the laboratory for VOC analysis. All results were non-detect for the compounds of interest.

### 17.2 Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, a field duplicate sample set was collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with the duplicate sample must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criteria is one times the RL value for water samples.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision, with the exception of BOD and iron. The associated sample results were qualified as estimated based on the indicated variability (see Table 6).

## 18. Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the PQL but greater than the MDL were reported as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the sample-specific MDL in Table 2.

All BOD and COD total results were greater than the dissolved results or within the allowed method variability with the exception of one COD sample. The associated results were qualified as estimated (see Table 7).

## 19. Target Compound Identification

To minimize erroneous compound identification during organic analyses, qualitative criteria including compound retention time and mass spectra were evaluated according to the identification criteria established by the methods. The samples identified in Table 1 were reviewed. The organic compounds reported adhered to the specified identification criteria.

## 20. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable with the specific qualifications noted herein.

**Table 1**

**Sample Collection and Analysis Summary**
**Annual Leachate Water Sampling**
**Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| Sample Identification | Location | Matrix | Collection Date (mm/dd/yyyy) | Collection Time (hr:min) | Parameters | | | | | | | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Total Nitrogen (calculated) | VOCs | Metals, total | BOD, total & dissolved | Hydrogen Sulfide, un-ionized | Sulfide (dissolved) | Total Dissolved Solids | Specific Conductivity | Alkalinity, total | pH (field parameter) | COD, total & dissolved | Phosphorus, total | Density | |
| 2016L-VB-09 | VB-09 | Water | 08/08/2016 | 09:55 | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| 2016L-VB-10 | VB-10 | Water | 08/09/2016 | 10:20 | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| 2016L-LS-01 | LS-01 | Water | 08/09/2016 | 11:40 | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| 2016L-TW-03 | TW-03 | Water | 08/09/2016 | 14:20 | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| TB-080916-01 | - | Water | 08/09/2016 | 06:05 | | X | | | | | | | | | | | | Trip blank |
| 2016L-TW-01 | TW-01 | Water | 08/09/2016 | 08:05 | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| 2016L-TW-02 | TW-02 | Water | 08/09/2016 | 08:20 | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| 2016L-LS-03 | LS-03 | Water | 08/09/2016 | 08:30 | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| 2016L-VB-11 | VB-11 | Water | 08/09/2016 | 08:40 | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| 2016L-LS-02 | LS-02 | Water | 08/09/2016 | 10:00 | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| 2016L-LS-04 | LS-04 | Water | 08/09/2016 | 10:00 | X | X | X | X | X | X | X | X | X | X | X | X | X | MS/MSD/DUP |
| 2016L-LS-04D | LS-04 | Water | 08/09/2016 | 10:00 | X | X | X | X | X | X | X | X | X | X | X | X | X | FD (2016L-LS-04) |

Notes:

| | |
|---|---|
| "-" | - Not applicable |
| FD | - Field Duplicate Sample of sample in parenthesis |
| BOD | - Biological Oxygen Demand |
| COD | - Chemical Oxygen Demand |
| MS/MSD | - Matrix Spike/Matrix Spike Duplicate |
| DUP | - Laboratory duplicate |

**Table 2**

**Analytical Results Summary**
**Annual Leachate Water Sampling**
**Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| Location ID: | | LS-01 | LS-02 | LS-03 | LS-04 | LS-04 | TW-01 |
|---|---|---|---|---|---|---|---|
| Sample Name: | | 2016L-LS-01 | 2016L-LS-02 | 2016L-LS-03 | 2016L-LS-04 | 2016L-LS-04D | 2016L-TW-01 |
| Sample Date: | | 08/09/2016 | 08/09/2016 | 08/09/2016 | 08/09/2016 | 08/09/2016 Duplicate | 08/09/2016 |
| **Parameters** | **Unit** | | | | | | |
| **Volatile Organic Compounds** | | | | | | | |
| Carbon disulfide | mg/L | 0.00410 | 0.0168 | 0.000284 J | 0.0274 | 0.0256 | 0.190 |
| **Metals** | | | | | | | |
| Antimony | mg/L | 0.00843 J | 0.0102 J | 0.000976 U | 0.00120 U | 0.00103 U | 0.00282 U |
| Arsenic | mg/L | 0.117 | 0.199 | 0.00134 J | 0.00775 | 0.00779 | 0.0157 |
| Iron | mg/L | 11.9 | 0.275 | 16.4 | 0.392 J | 1.67 J | 0.386 |
| **General Chemistry** | | | | | | | |
| Density | g/mL | 1.04 | 1.01 | 1.03 | 1.03 | 1.00 | 0.999 |
| Alkalinity, bicarbonate | mg/L | 5.00 U | 5.00 U | 623 | 1200 | 1210 | 466 |
| Alkalinity, carbonate | mg/L | 5.00 U | 434 | 5.00 U | 5.00 U | 5.00 U | 11.5 |
| Alkalinity, hydroxide | mg/L | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| Alkalinity, total (as CaCO3) | mg/L | 5.00 U | 5.00 U | 623 | 1200 | 1210 | 478 |
| Biochemical oxygen demand (BOD) | mg/L | 10.6 | 5.18 | 11.8 | 39.2 J | 122 J | 82.6 |
| Biochemical oxygen demand (dissolved) | mg/L | 3.93 | 4.06 | 3.03 | 37.2 | 42.5 | 76.0 |
| Chemical oxygen demand (COD) | mg/L | 206 | 238 | 45.9 | 199 | 195 | 120 |
| Chemical oxygen demand (COD) (dissolved) | mg/L | 196 | 235 | 40.8 | 192 | 196 | 125 |
| Hydrogen sulfide (unionized) | mg/L | 1.96 | 0.512 J | 0.100 U | 2.98 | 3.11 | 4.97 |
| Phosphorus | mg/L | 1.09 | 4.12 | 1.48 | 0.991 | 1.02 | 0.576 |
| Sulfide (dissolved) | mg/L | 0.564 J | 3.06 | 0.500 U | 17.8 | 24.4 | 29.6 |
| Total dissolved solids (TDS) | mg/L | 6380 | 7710 | 1220 | 2830 | 2730 | 957 |
| Total nitrogen | mg/L | 3.05 | 2.19 | 4.62 | 4.74 | 5.16 | 2.68 |
| Conductance, specific | umhos/cm | 8560 | 10100 | 1870 | 3750 | 3810 | 1580 |

**Table 2**

**Analytical Results Summary**
**Annual Leachate Water Sampling**
**Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| Location ID: | | TW-02 | TW-03 | VB-09 | VB-10 | VB-11 |
|---|---|---|---|---|---|---|
| Sample Name: | | 2016L-TW-02 | 2016L-TW-03 | 2016L-VB-09 | 2016L-VB-10 | 2016L-VB-11 |
| Sample Date: | | 08/09/2016 | 08/09/2016 | 08/08/2016 | 08/09/2016 | 08/09/2016 |
| **Parameters** | **Unit** | | | | | |
| **Volatile Organic Compounds** | | | | | | |
| Carbon disulfide | mg/L | 0.847 | 0.00126 | 5.32 J | 0.185 | 0.0458 |
| **Metals** | | | | | | |
| Antimony | mg/L | 0.00478 | 0.000911 U | 0.0106 J | 0.0131 J | 0.00706 J |
| Arsenic | mg/L | 0.0296 | 0.000500 U | 0.00880 J | 0.0769 | 0.0314 |
| Iron | mg/L | 0.0513 | 0.273 | 0.823 | 0.644 | 4.46 |
| **General Chemistry** | | | | | | |
| Density | g/mL | 0.999 | 0.998 | 1.04 | 1.01 | 1.03 |
| Alkalinity, bicarbonate | mg/L | 839 | 257 | 5.00 U | 5.00 U | 1350 |
| Alkalinity, carbonate | mg/L | 37.9 | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| Alkalinity, hydroxide | mg/L | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| Alkalinity, total (as CaCO3) | mg/L | 877 | 257 | 5.00 U | 5.00 U | 1350 |
| Biochemical oxygen demand (BOD) | mg/L | 114 | 10.2 | 1970 J | 342 | 49.1 |
| Biochemical oxygen demand (dissolved) | mg/L | 108 | 6.74 | 1930 J | 72.0 | 11.7 |
| Chemical oxygen demand (COD) | mg/L | 212 | 27.6 | 2850 J | 897 | 1240 |
| Chemical oxygen demand (COD) (dissolved) | mg/L | 137 | 28.4 | 3570 J | 508 | 137 |
| Hydrogen sulfide (unionized) | mg/L | 6.60 | 0.100 U | 0.100 U | 4.09 | 0.784 J |
| Phosphorus | mg/L | 0.824 | 0.0500 U | 0.299 | 1.53 | 0.441 |
| Sulfide (dissolved) | mg/L | 39.4 | 3.79 | 0.500 U | 11.7 | 4.68 |
| Total dissolved solids (TDS) | mg/L | 1780 | 736 | 7220 | 7930 | 1720 |
| Total nitrogen | mg/L | 1.03 | 0.499 | 10.3 | 5.50 | 1.19 |
| Conductance, specific | umhos/cm | 2580 | 1130 | 8180 | 9930 | 2600 |

Notes:

J - Estimated concentration
U - Not detected; associated reporting limit is estimated

**Table 3**

**Analytical Methods**
**Annual Leachate Water Sampling**
**Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| Parameter | Method | Matrix | Holding Time Collection to Analysis (Days) |
|---|---|---|---|
| Select Volatile Organic Compounds (VOCs) | SW-846 8260B | Water | 14 (preserved)<br>7 (unpreserved) |
| Metals | SW-846 6020A | Water | 180 |
| Biological Oxygen Demand | SM5210B | Water | 48 hours |
| Chemical Oxygen Demand (total and dissolved) | EPA MCAWW 410.4 | Water | 28 |
| Sulfide, dissolved | SM4500-S2-F | Water | 7 |
| Hydrogen sulfide (un-ionized) | SM4500-S2-H | Water | 7 |
| Total dissolved solids (TDS) | SM2540C | Water | 7 |
| Specific Conductivity | SM2510 | Water | 28 |
| Nitrogen, total | calculation | Water | NA |
| Alkalinity, total (as CaCO3) | SM2320B | Water | 14 |
| Phosphorus, total | EPA MCAWW 365.4 | Water | 28 |
| Density | ASTM D1475 | Water | 7 |

Notes:

NA - Not applicable

Method References:

SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions

SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions

EPA - MCAWW - “Methods for Chemical Analysis of Water and Waste,” EPA-600/4-79-020, revised March 1983, with subsequent revisions

ASTM - Annual Book of ASTM Standards, American Society for Testing Materials, Section 5 and Section 11

**Table 4**

**Qualified Sample Results Due to Holding Time Exceedance**
**Annual Leachate Water Sampling**
**Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| Parameter | Sample ID | Holding Time (hours) | Holding Time Criteria (hours) | Analyte | Qualified Sample Results | Units |
|---|---|---|---|---|---|---|
| General Chemistry | 2016L-VB-09 | 51.5 | 48 | Biochemical oxygen demand (BOD) | 1970 J | mg/L |
| | | | | Biochemical oxygen demand (dissolved) | 1930 J | mg/L |
| Volatiles | 2016L-VB-09 | 8 | 7 | Carbon disulfide | 5.32 J | mg/L |

Notes:

J - Estimated concentration

**Table 5**

**Qualified Sample Results Due to Analyte Concentrations in the Method Blanks**
**Annual Leachate Water Sampling**
**Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| Parameter | Analyte | Analysis Date (mm/dd/yyyy) | Blank Result | Sample ID | Original Result | Qualified Result | Units |
|---|---|---|---|---|---|---|---|
| Metals | Antimony | 08/14/2016 | 0.0007761 J | 2016L-TW-03 | 0.000911 J | 0.000911 U | mg/L |
| | | | | 2016L-TW-01 | 0.00282 | 0.00282 U | mg/L |
| | | | | 2016L-LS-03 | 0.000976 J | 0.000976 U | mg/L |
| | | | | 2016L-LS-04 | 0.00120 J | 0.00120 U | mg/L |
| | | | | 2016L-LS-04D | 0.00103 J | 0.00103 U | mg/L |

Notes:

U - Not detected at the associated reporting limit
J - Estimated concentration

**Table 6**

**Qualified Sample Data Due to Variability in Field Duplicate Results**
**Annual Leachate Water Sampling**
**Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| Parameter | Analyte | RPD/Diff | | Sample ID | Qualified Result | Field Duplicate Sample ID | Qualified Result | Units |
|---|---|---|---|---|---|---|---|---|
| Metals | Iron | 123 | - | 2016L-LS-04 | 0.392 J | 2016L-LS-04D | 1.67 J | mg/l |
| General Chemistry | Biochemical oxygen demand (BOD) | 103 | - | 2016L-LS-04 | 39.2 J | 2016L-LS-04D | 122 J | mg/l |

Notes:

- - Not applicable
Diff - Difference (i.e., >1X RL for waters)
RPD - Relative Percent Difference
J - Estimated concentration

**Table 7**

**Qualified Sample Data Due to Discrepancies Between Total and Dissolved Results**
**Annual Leachate Water Sampling**
**Avtex Fibers Superfund Site**
**Front Royal, Virginia**
**August 2016**

| Parameter | Sample ID | Analyte | %D | Criteria (percent) | Qualified Total Result | Qualified Dissolved Result | Units |
|---|---|---|---|---|---|---|---|
| General Chemistry | 2016L-VB-09 | Chemical oxygen demand (COD) | 22 | 20 | 2850 J | 3570 J | mg/l |

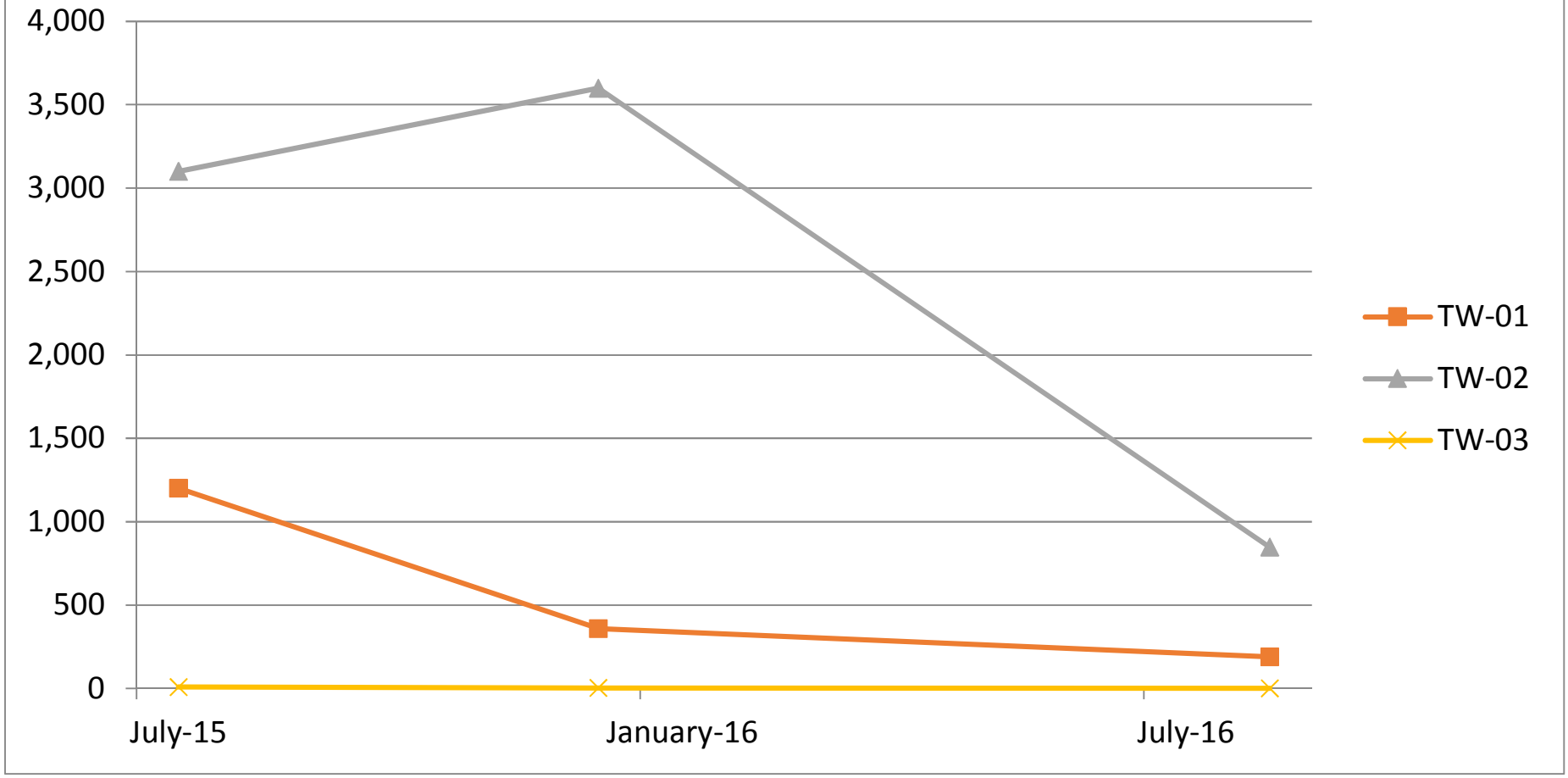
Notes:

%D - Percent Difference
J - Estimated concentration

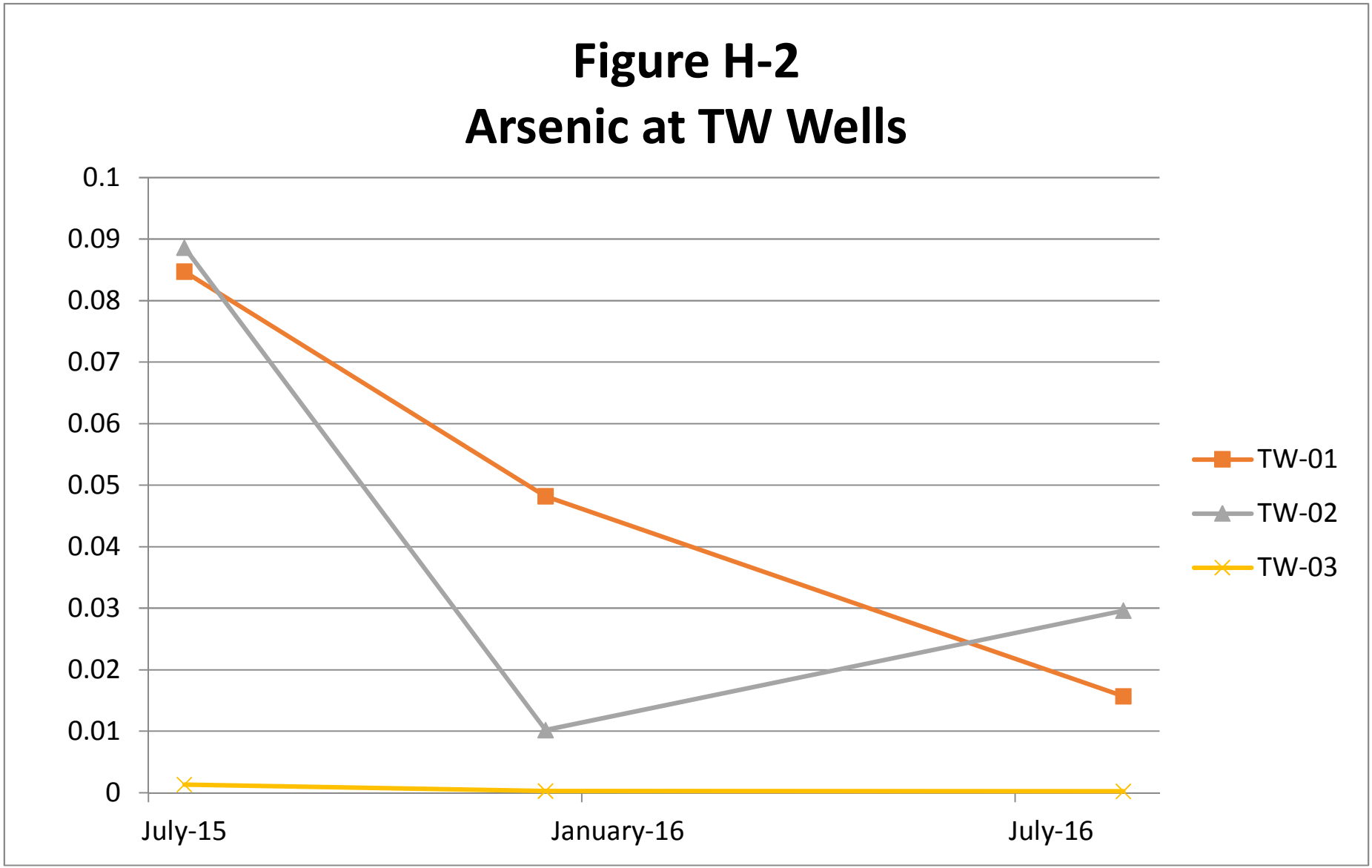
# APPENDIX H
## GLTP INFLUENT TREND PLOTS

PARSONS

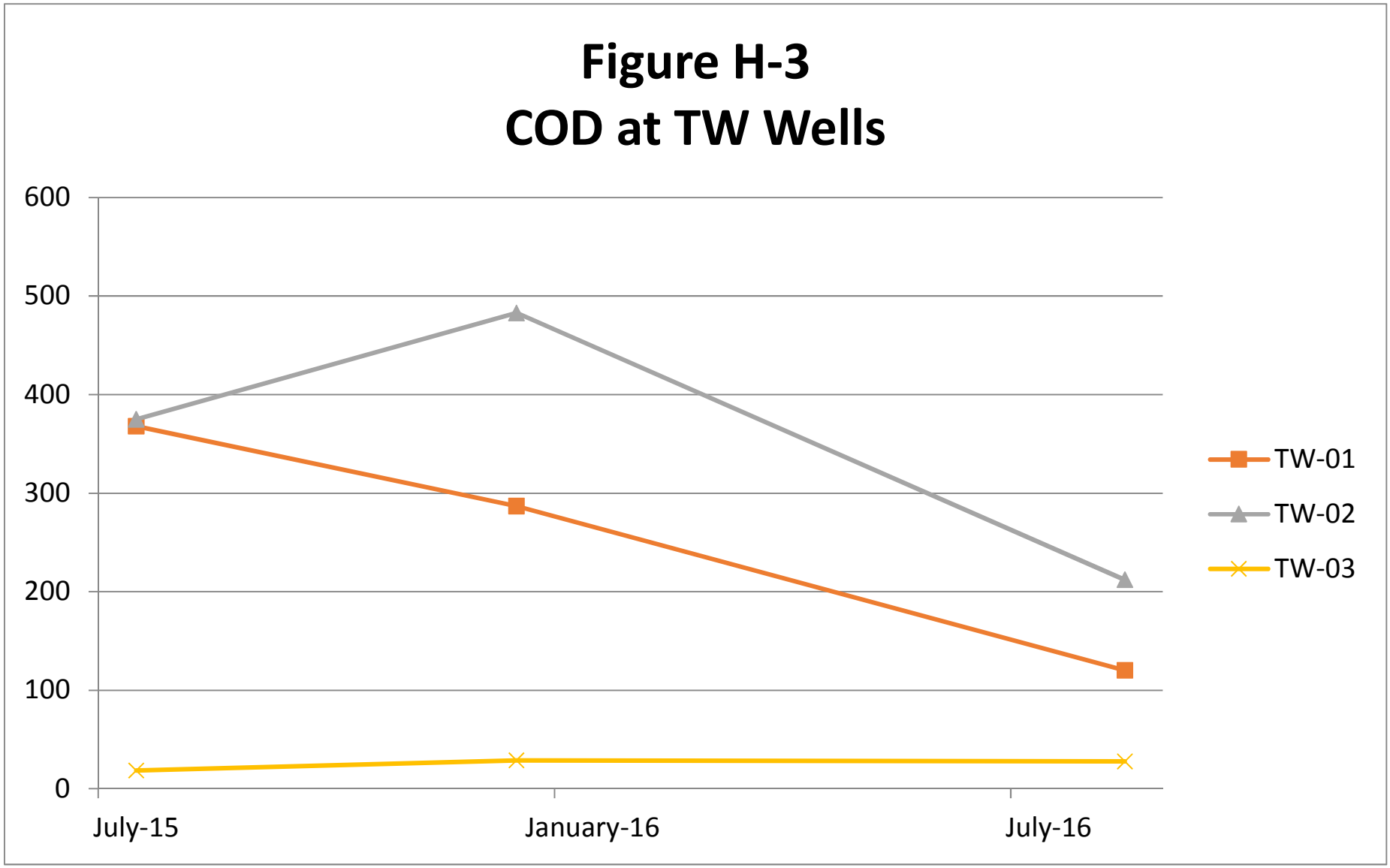
# Figure H-1
# Carbon Disulfide at TW Wells



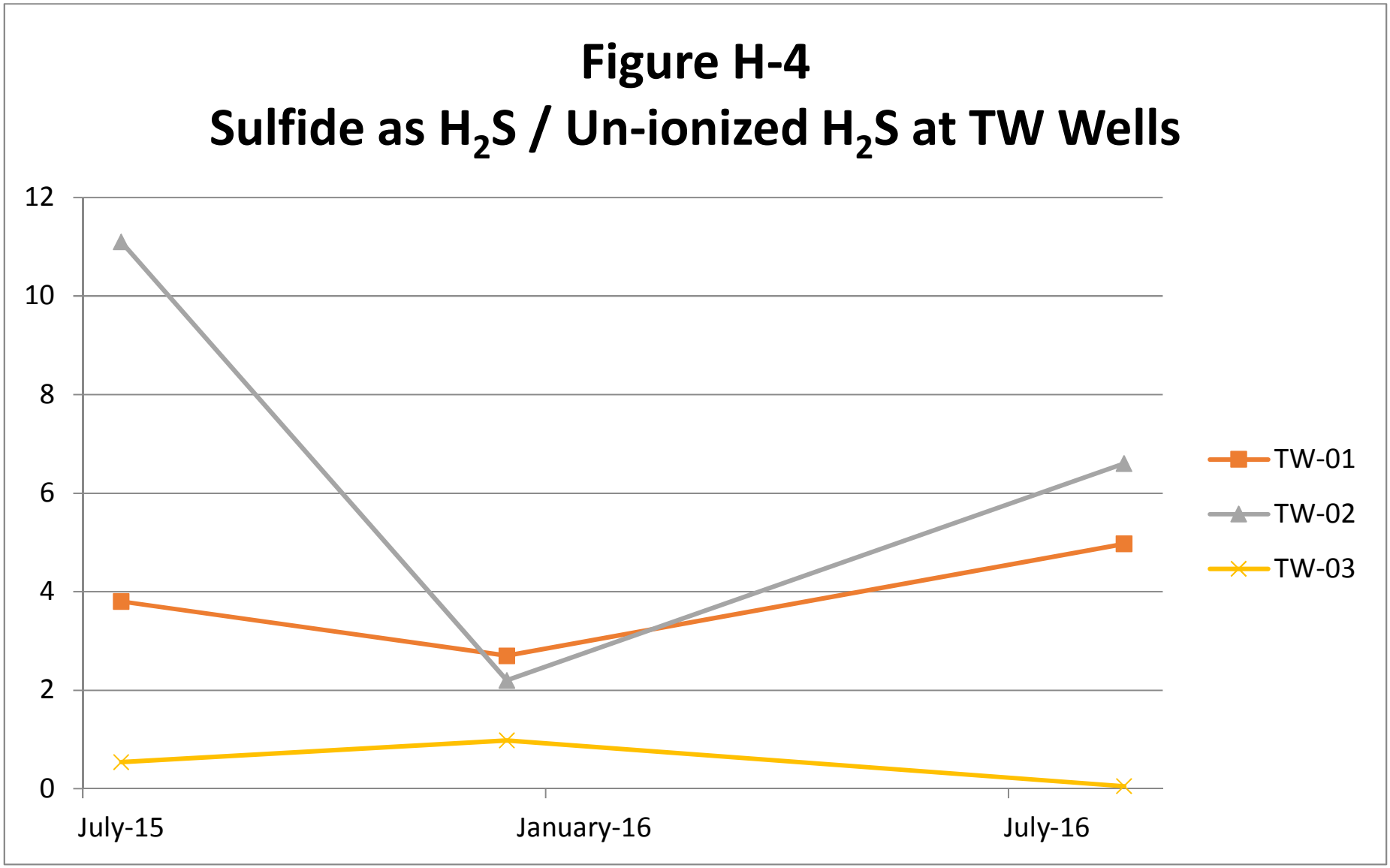
# Figure H-2
# Arsenic at TW Wells



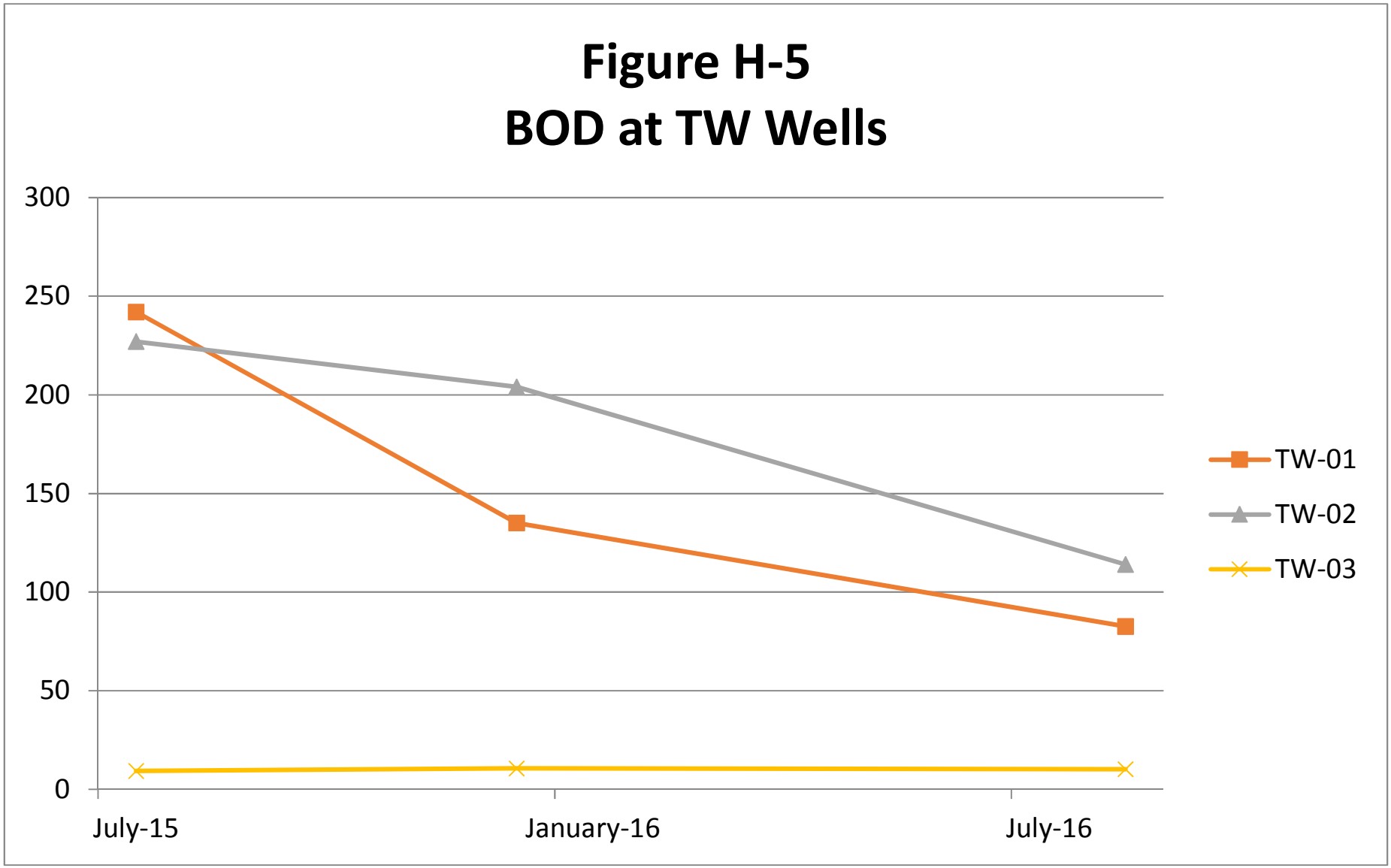
# Figure H-3
# COD at TW Wells



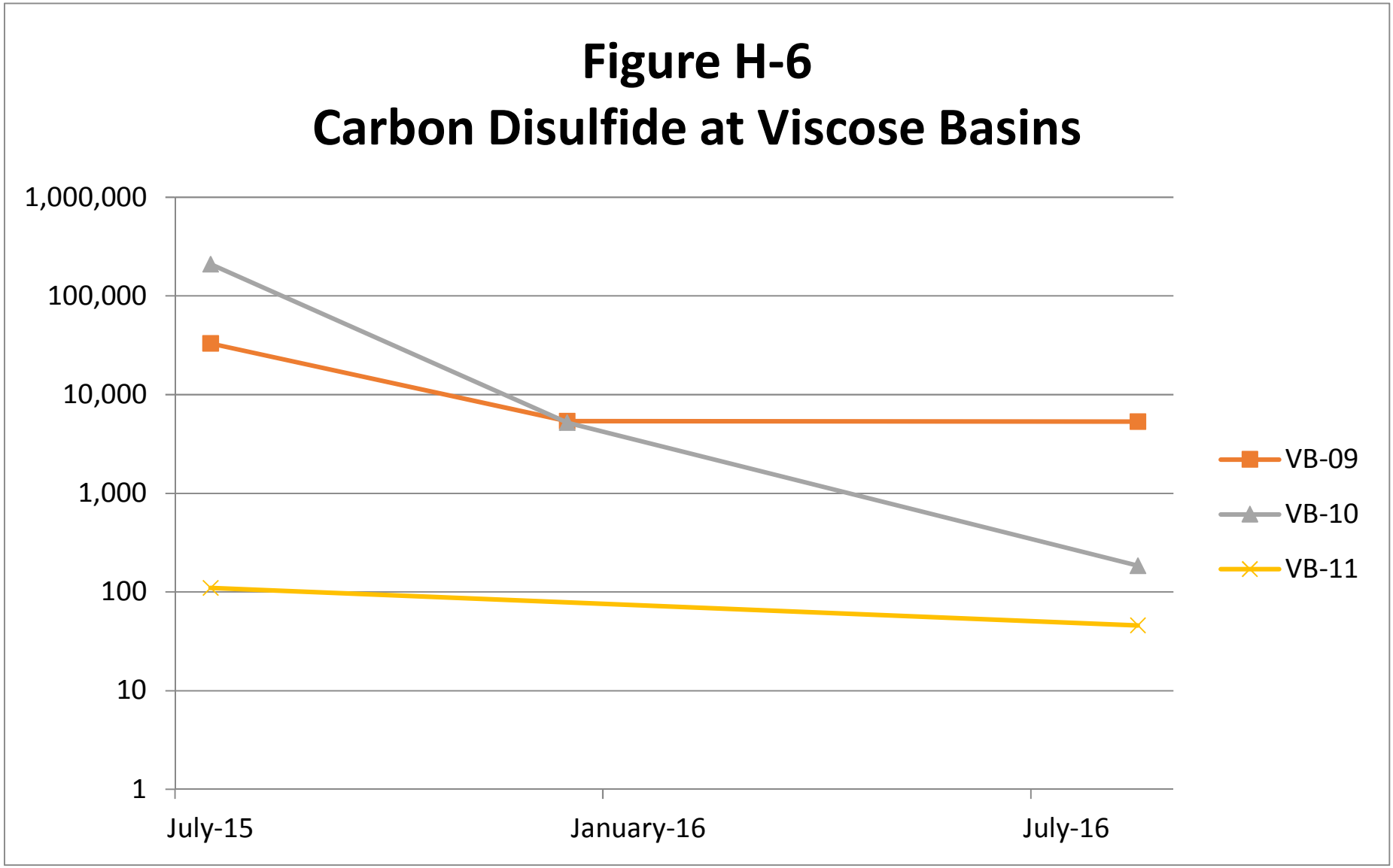
# Figure H-4
# Sulfide as $H_2S$ / Un-ionized $H_2S$ at TW Wells



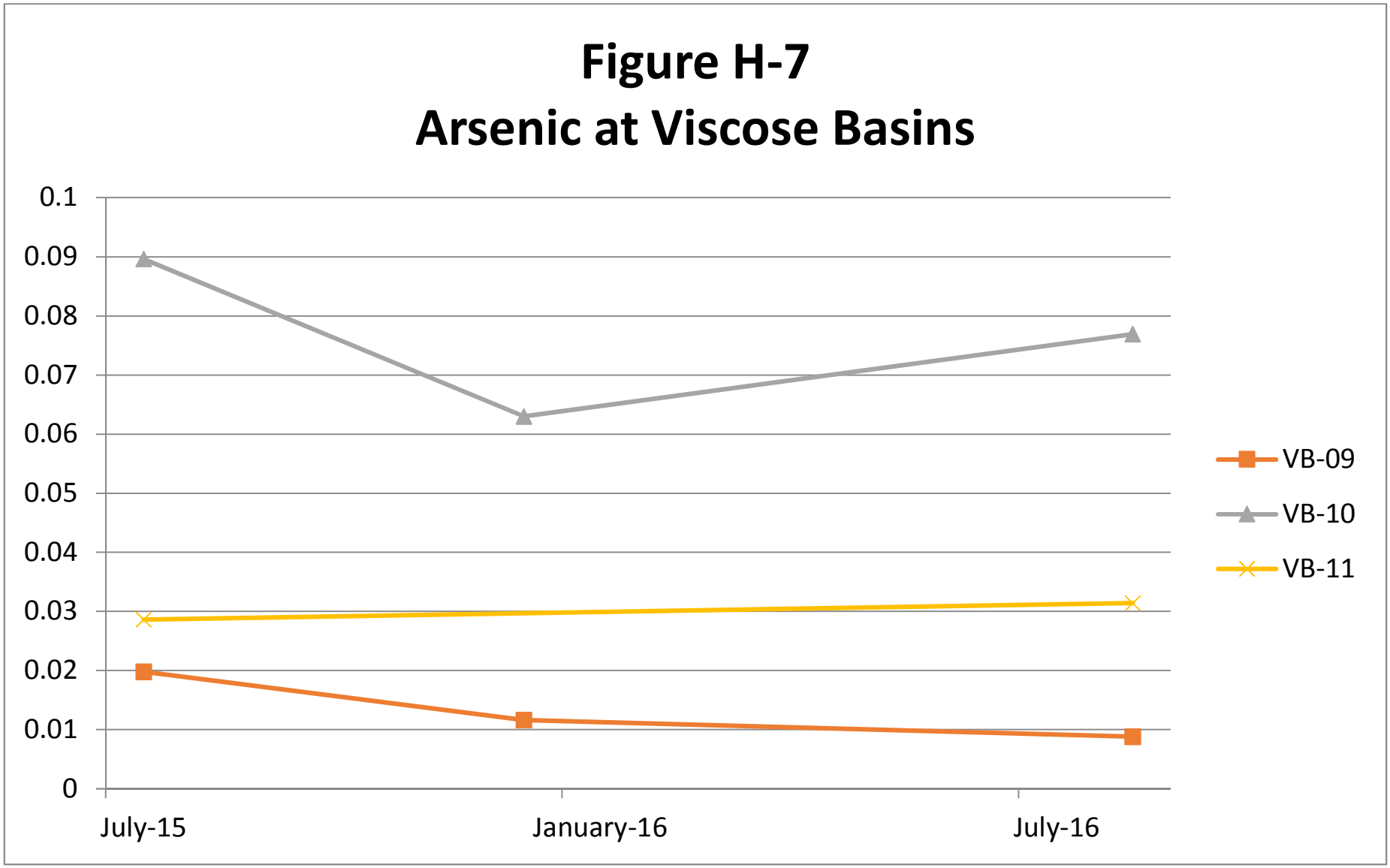
# Figure H-5
# BOD at TW Wells



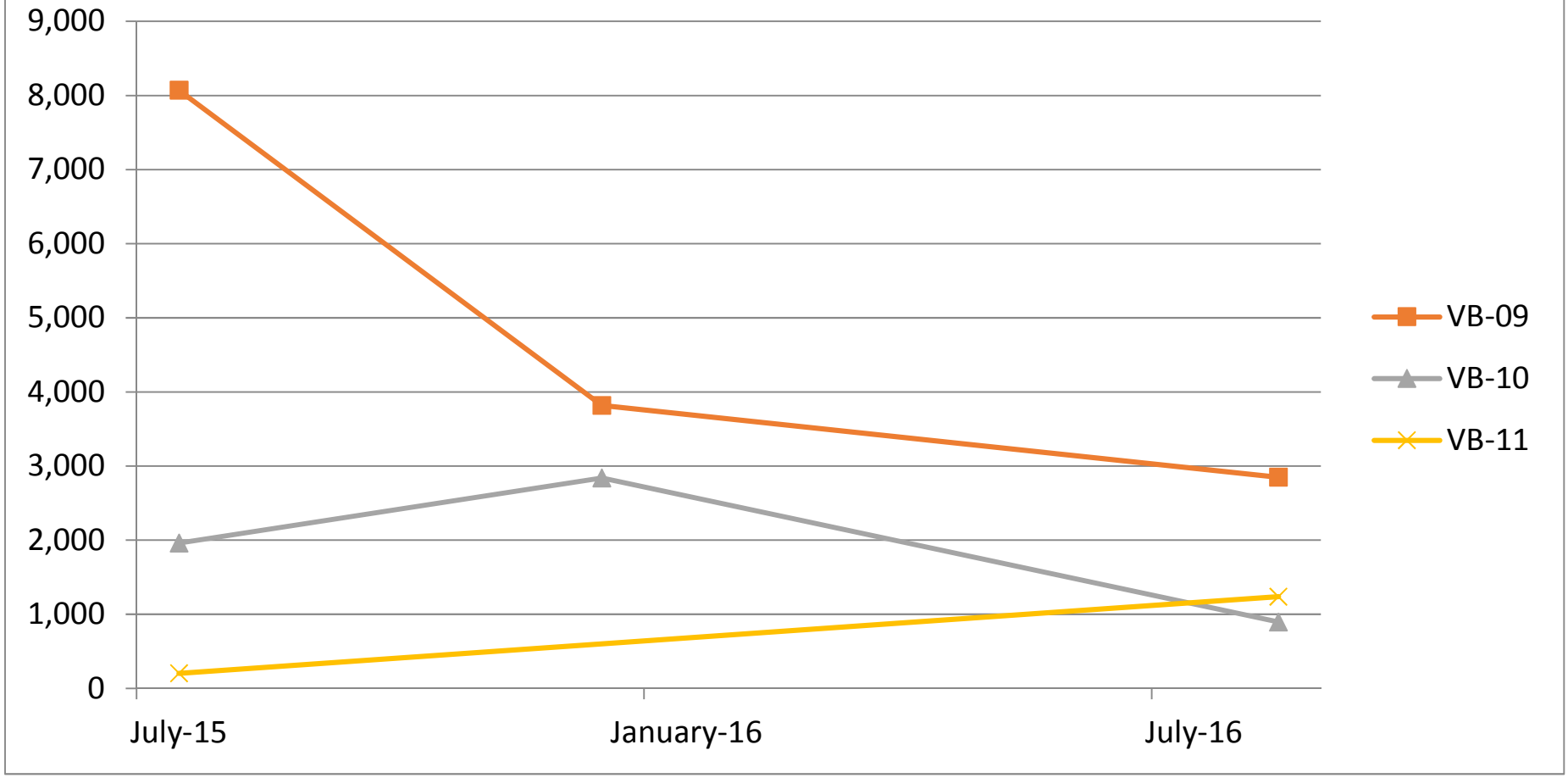
# Figure H-6
# Carbon Disulfide at Viscose Basins



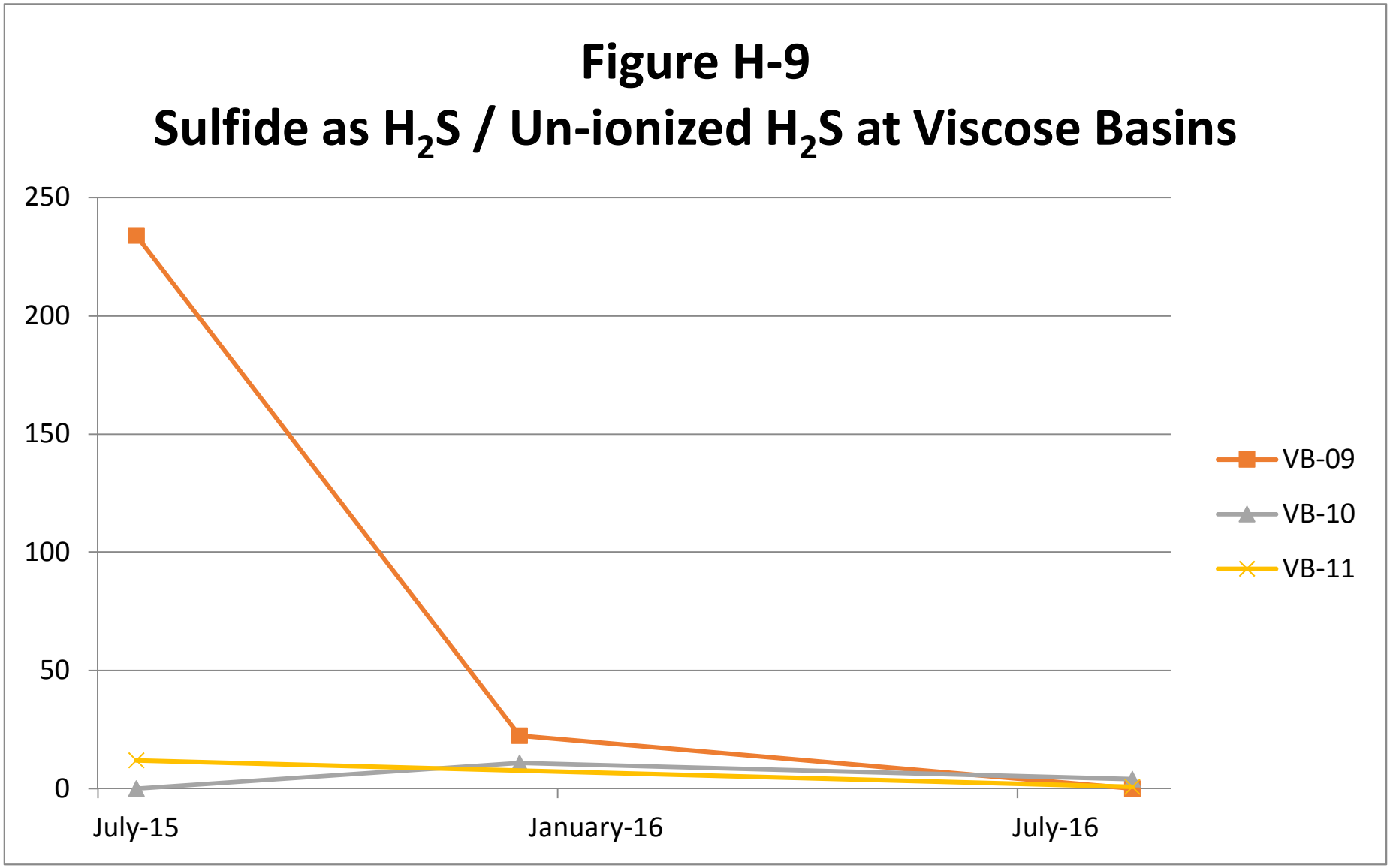
# Figure H-7
# Arsenic at Viscose Basins



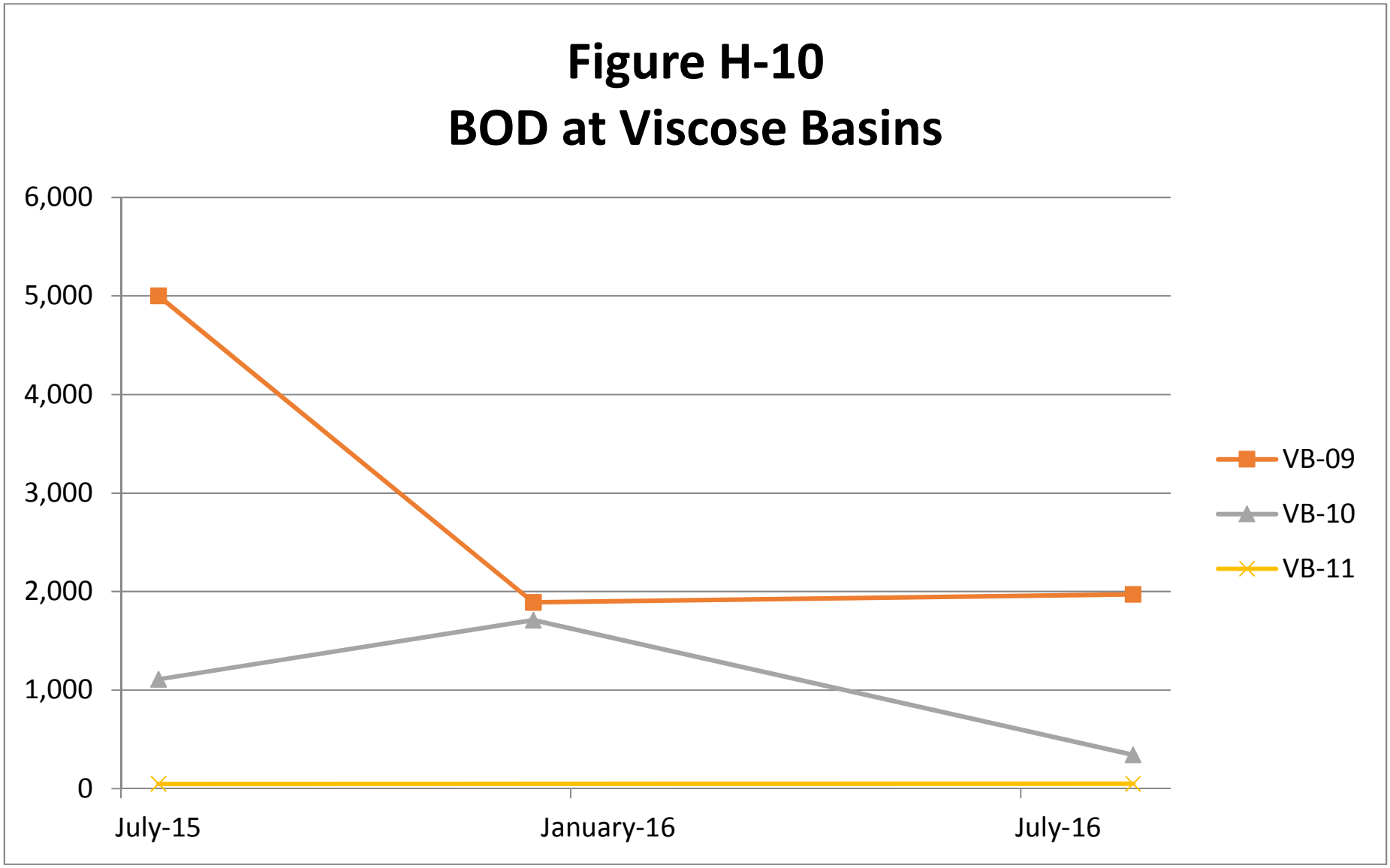
# Figure H-8
# COD at Viscose Basins



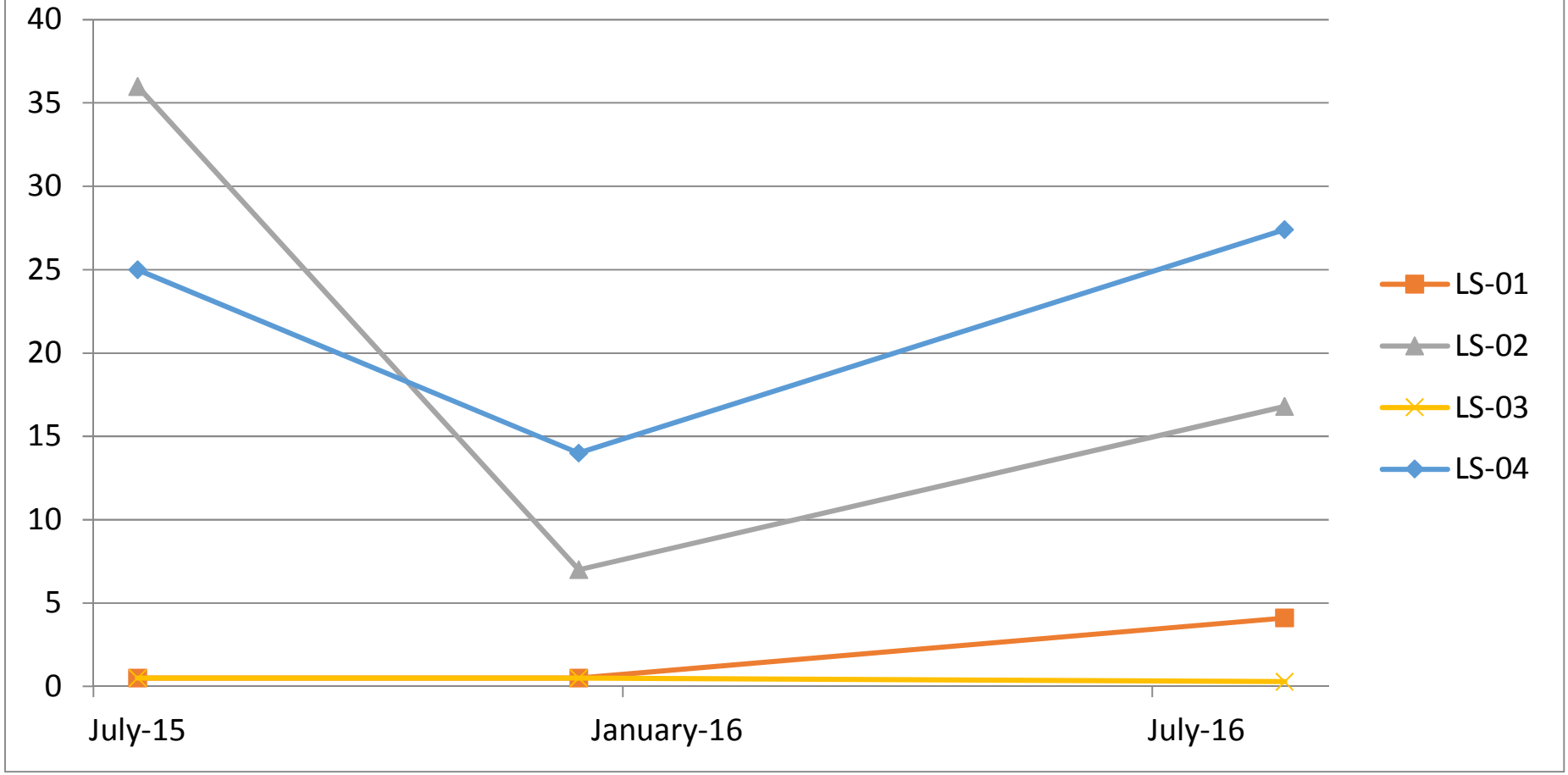
# Figure H-9
# Sulfide as $H_2S$ / Un-ionized $H_2S$ at Viscose Basins



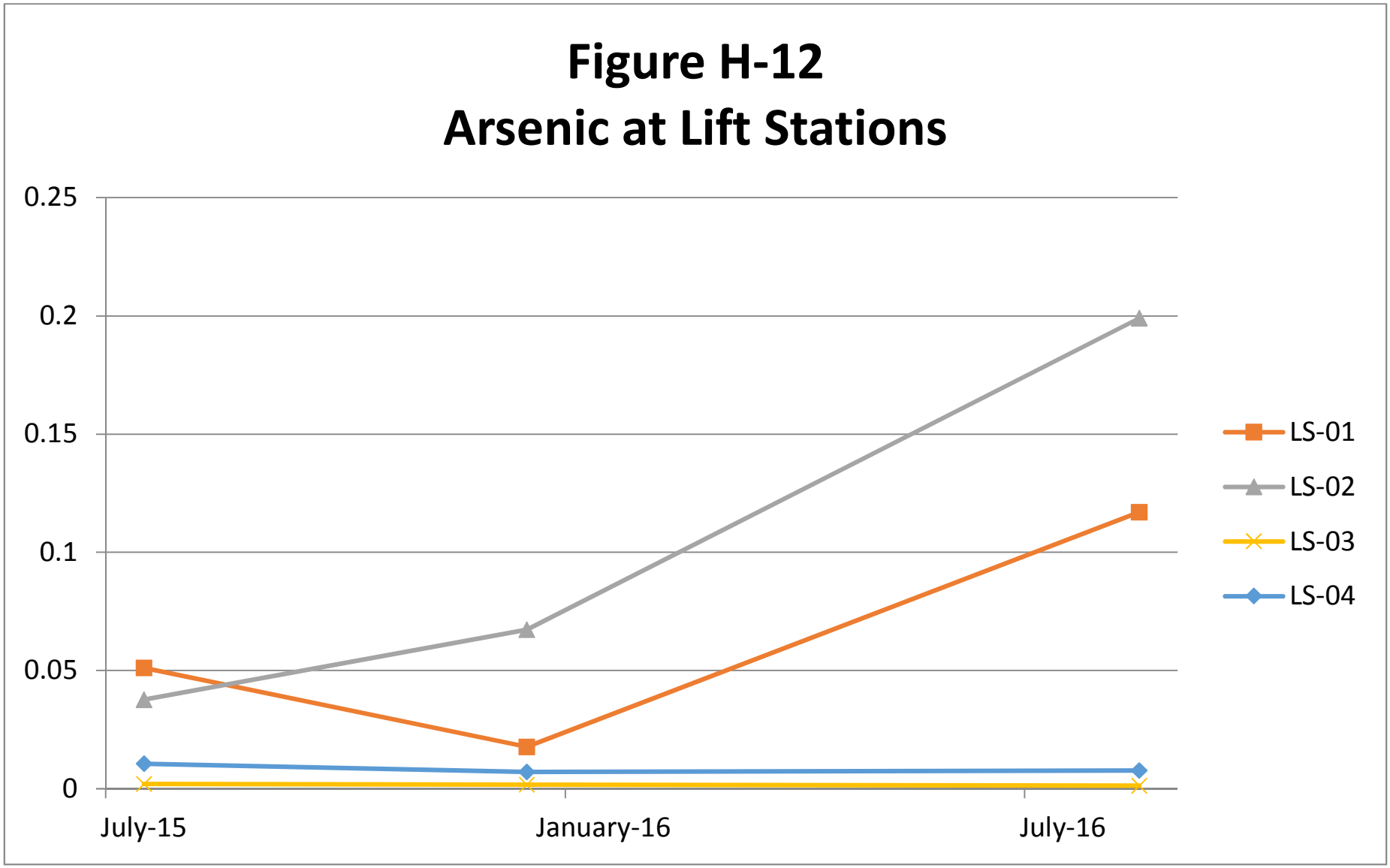
# Figure H-10
# BOD at Viscose Basins



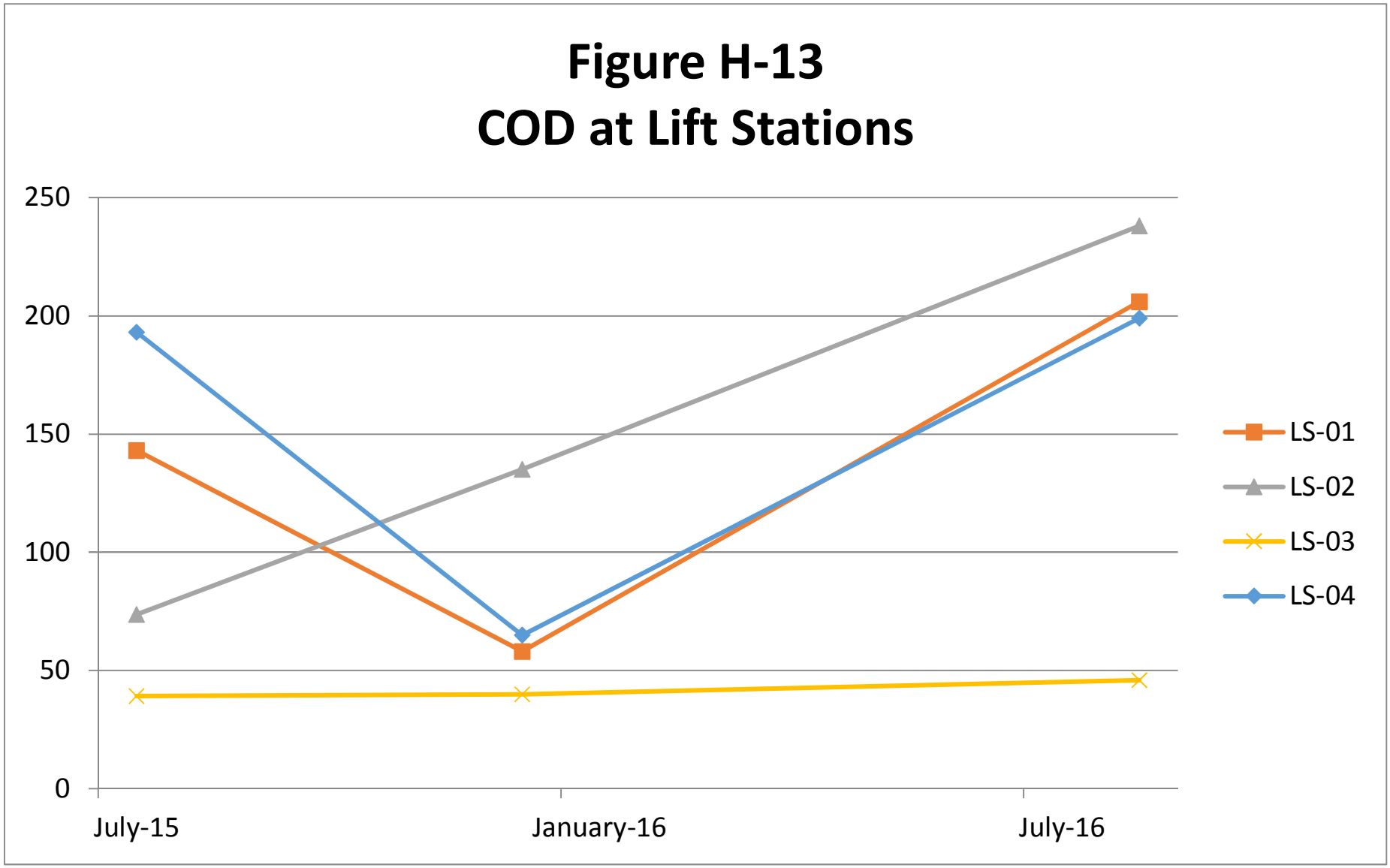
# Figure H-11
# Carbon Disulfide at Lift Stations



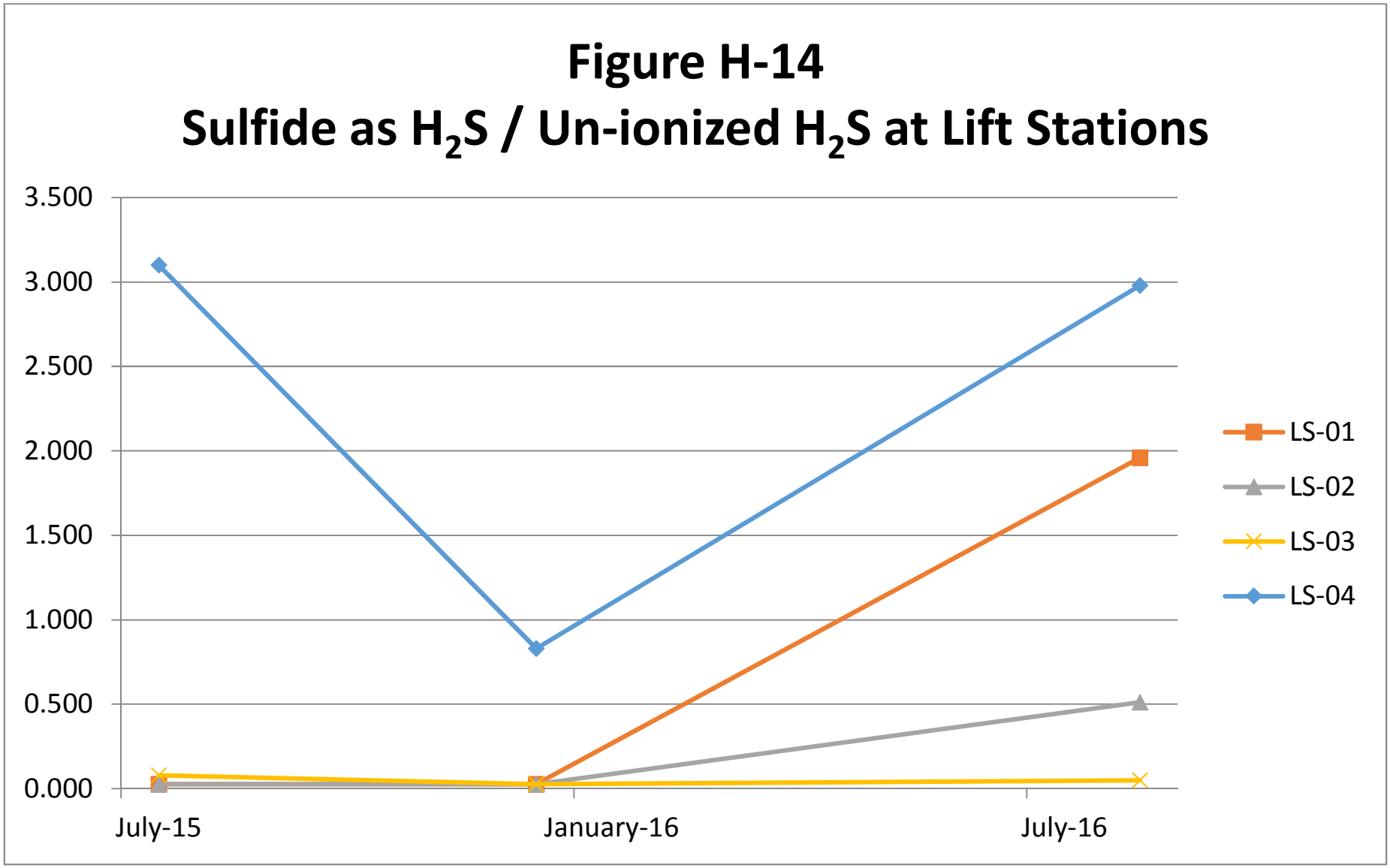
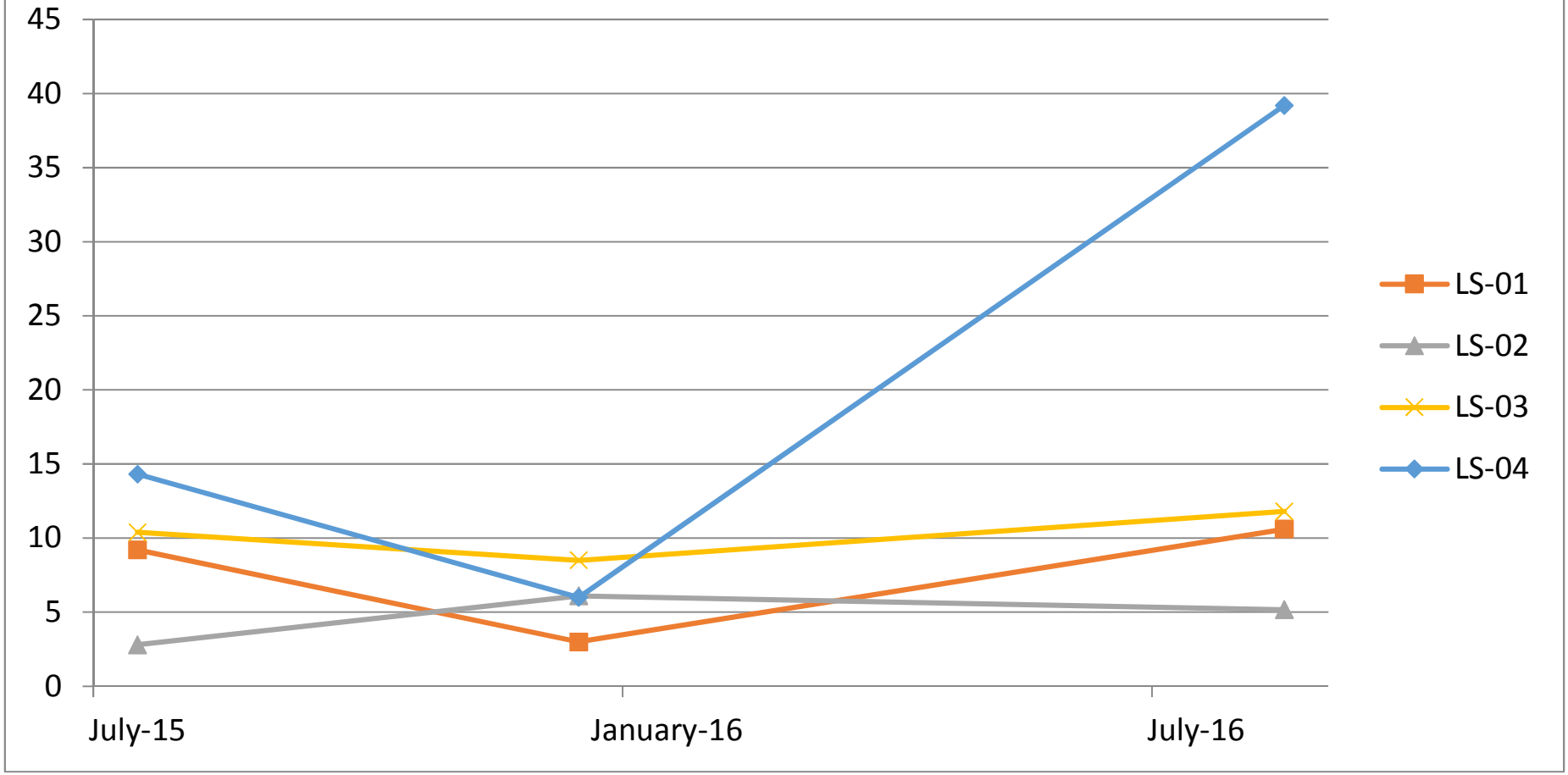
# Figure H-12
# Arsenic at Lift Stations



# Figure H-13
# COD at Lift Stations



# Figure H-14
# Sulfide as $H_2S$ / Un-ionized $H_2S$ at Lift Stations



# Figure H-15
# BOD at Lift Stations