Corrective Measures Effectiveness Report
January 2020 Monitoring Event
Former Chemical Laundry and
Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

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LIST OF ACRONYMS

ADEM	Alabama Department of Environmental Management
ARBCA	*Alabama Risk-Based Corrective Action Guidance Manual, Revision 3*
Army	United States Department of the Army
cis-1,2-DCE	cis-1,2-dichloroethene
CMER	Corrective Measures Effectiveness Report
CMIP	*Final Corrective Measures Implementation Plan, Chemical Laundry and Motor Pool Area 1500, Parcel 94(7) McClellan, Anniston, Alabama*
COC	Constituent of concern
DO	Dissolved oxygen
DQS	Data Quality Summary
EBS	*Environmental Baseline Study*
EPA	United States Environmental Protection Agency
ESE	Environmental Science & Engineering, Inc.
FFS	*Focused Feasibility Study*
ft/ft	Feet per foot
IT	IT Corporation
LTM	Long-term monitoring
LUC	Land use control
McClellan	Former Fort McClellan
MCL	Maximum contaminant level
MDA	McClellan Development Authority
MES	Matrix Environmental Services, LLC
µg/L	Micrograms per liter
MNA	Monitored natural attenuation
ORP	Oxidation-reduction potential
QAP	*Quality Assurance Plan*
QA	Quality assurance
QC	Quality control
RI	*Remedial Investigation*
RSL	Regional Screening Level
SAIC	Science Applications International Corporation
SAP	*Final Installation-Wide Sampling and Analysis Plan*
SI	*Site Investigation*
Site	Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
TCE	Trichloroethene
TDS	Total dissolved solids
TKN	Total kjeldahl nitrogen
trans-1,2-DCE	trans-1,2-dichloroethene
UST	Underground storage tank
VOC	Volatile organic compound

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EXECUTIVE SUMMARY

The purpose of this Corrective Measures Effectiveness Report (CMER) is to document the progress of achieving the remedial objectives for contaminated groundwater at the Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7) (Site), located at the former Fort McClellan (McClellan) in Anniston, Alabama, during the Long-Term Monitoring (LTM) sample event conducted in January 2020. This report was prepared by Matrix Environmental Services, LLC (MES) on behalf of the McClellan Development Authority (MDA).

During the January 2020 groundwater monitoring event, groundwater samples were collected from one residuum well and five bedrock wells and analyzed for volatile organic compounds (VOCs). Groundwater samples from bedrock well FTA-94-MW11 were also analyzed for monitored natural attenuation (MNA) parameters light hydrocarbons, total and dissolved iron and manganese, ammonia, nitrate, nitrite, sulfate, and total kjeldahl nitrogen (TKN). The groundwater analytical results for the Site-specific constituents of concern (COCs) chlorobenzene, trichloroethene (TCE), and vinyl chloride, and TCE degradation products cis-1,2-dichloroethene (cis-1,2-DCE) and trans-1,2-dichloroethene (trans-1,2-DCE) were compared to the Maximum Contaminant Levels (MCLs).

The concentrations of COCs in bedrock monitoring well FTA-94-MW11 continue to fluctuate over time, with TCE and vinyl chloride at levels greater than the MCLs in January 2020. None of the degradation product concentrations in the bedrock monitoring wells exceeded the MCLs during the January 2020 sampling event. The presence of methane and the low concentrations of electron acceptor sulfate indicate that reducing conditions are present for biologically mediated reductive dehalogenation of chlorinated solvents. The low magnitudes of the horizontal hydraulics gradients indicate limited groundwater movement at the Site.

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1.0 INTRODUCTION

The purpose of this Corrective Measures Effectiveness Report (CMER) is to document the progress of achieving the remedial action objectives for contaminated groundwater at the Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7) (Site), located at the former Fort McClellan (McClellan) in Anniston, Alabama, during the Long-Term Monitoring (LTM) sample event conducted in January 2020. Figure 1-1 shows a site map of McClellan and Figure 1-2 shows a parcel location map of the Site. This report was prepared by Matrix Environmental Services, LLC (MES) on behalf of the McClellan Development Authority (MDA).

1.1 Report Purpose and Objectives

This CMER summarizes groundwater monitoring data collected at the Site during the January 2020 monitoring event, as per the *Final Corrective Measures Implementation Plan, Chemical Laundry and Motor Pool Area 1500, Parcel 94(7) McClellan, Anniston, Alabama (CMIP)* (MES, 2006 [Revised 2015]). Objectives for the January 2020 monitoring event and this CMER include:

- Describe the activities performed at the Site during the January 2020 monitoring event.
- Summarize environmental sampling data from previous investigations and monitoring events and present analytical results for the January 2020 monitoring event.
- Compare the current results of the groundwater samples to historical groundwater results.
- Compare the analytical results for the constituents of concern and their degradation products to the Maximum Contaminant Levels (MCLs) to assess the progress of natural attenuation at the Site.

1.2 Report Organization

This CMER is organized as follows:

- Section 1.0 - summarizes the project background, purpose of the CMER, and report organization.
- Section 2.0 - presents a summary of the Site characterization, corrective measures, and previous environmental investigations and monitoring events.
- Section 3.0 - describes the activities conducted during the January 2020 monitoring event.
- Section 4.0 - presents the results of the January 2020 monitoring event.
- Section 5.0 - presents the summary, conclusions, and recommendations.
- Section 6.0 - provides the references cited in this report.
- Tables that support the CMER.
- Figures that support the CMER.
- Appendix A contains the Groundwater Levels and Sample Collection Logs.
- Appendix B contains the Chain-of-Custody Forms.
- Appendix C contains the Data Quality Summary.
- Appendix D contains the Historical Analytical Data for Detected VOCs in Groundwater Compared to MCLs.

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2.0 SITE CHARACTERIZATION

This section summarizes the Site description and physical setting, land use, previous investigations conducted at the Site, and corrective measures.

2.1 Site Description and Physical Setting

The Site is located in the central area of McClellan, along Langley Avenue and south of St. Clair Road (Figure 1-2). The Site was formerly used as a vehicle maintenance facility, including three gas stations, and garment impregnation facilities. The garment impregnation facilities reportedly laundered garments to neutralize chemical warfare material (CWM). The garments were also treated to render them relatively impermeable to CWM. The impregnation plants reportedly used large volumes of toluene or ethyl alcohol, and possibly wax and "chlorinated oil". The buildings at the Site have been demolished. Two concrete slab foundations remain at the Site along with concrete sumps or grease pits. The remainder of the Site is covered with asphalt pavement.

The lithologic sequence encountered at the Site consists of an upper interval of residuum 6 to 50 feet thick overlying fractured, weathered limestone. Bedrock at the Site has been mapped as Ordovician-age Little Oak and Newala Limestones, undifferentiated, and Mississippian/ Ordovician-age Floyd and Athens Shale, undifferentiated. An asymmetric anticlinal fold strikes northeast across the parcel and plunges to the southwest (Figure 2-1).

Soil at the Site has been mapped as Anniston and Allen series and the Philo series. Anniston and Allen gravelly loams consist of strongly acid, deep well-drained friable soils. Along the bank of Ingram Creek, the soil is classified as the Philo and Stendal fine sandy loams. The Philo series consist of strongly acid, moderately well-drained soil that is developing in local and general alluvium.

Groundwater flow in the residuum generally conforms to surface topography and flows predominately to the northeast towards Ingram Creek. Groundwater flow in the bedrock appears to be structurally controlled following the general trend of the underlying limestone and flowing away from the inferred location of the anticlinal fold hinge.

The history, geology, soil, and hydrogeology of the Site is described in greater detail in the *Draft Remedial Investigation Report, Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)* by IT Corporation (IT) (2002).

2.2 Land Use and Land Use Controls

The proposed future land use for the Site is a technology and research park, as proposed in the Re-Use Plan (EDAW Inc., 1997, amended by the JPA in June 2005). Current land use controls (LUCs) at the Site include a restriction on the consumptive or other use of groundwater and direct contact with groundwater below the Site, unless proper safety and disposal measures as approved by the Alabama Department of Environmental Management (ADEM), are implemented (United States Department of the Army [Army], 2003). Environmental Covenant Number FY-12-08.00 for the Site, submitted to ADEM by the MDA in accordance with the Alabama Uniform Environmental Covenants Act, Code of Alabama §§ 35-19-1 through 35-19-

14, was filed in Probate on August 13, 2014. The covenant describes restrictions within the covenant boundary that does not include the boundary area of Parcel 94(7). The covenant boundary is located downgradient of the Parcel 94(7) boundary where concentrations of COCs were detected in groundwater.

2.3 Summary of Previous Investigations

Previous investigations conducted at the Site include:

- *Environmental Baseline Study* (*EBS*) (Environmental Science & Engineering, Inc. [ESE], 1998) and *Site Investigation* (*SI)* (Science Applications International Corporation [SAIC], 1993): An *EBS* was conducted to document current environmental conditions of the Fort McClellan property (ESE, 1998). Subsequently an *SI* was completed in 1998, which included a geophysical investigation to identify potential underground storage tanks (USTs). No USTs were found at the Site (SAIC, 1993).
- *Remedial Investigation (RI)* (IT, 2002): A *RI* was performed in two phases and chlorinated solvents were detected in groundwater collected from residuum and bedrock monitoring wells. Based on the *RI* sample collection, VOCs in groundwater appeared to be centered in the vicinity of residuum well FTA-94-MW01 and bedrock well FTA-94-MW11. The occurrence of vinyl chloride, cis-1,2-dichloroethene (cis-1,2-DCE), and trans-1,2-dichloroethene (trans-1,2-DCE), degradation products of trichloroethene (TCE), was generally restricted to these two monitoring wells. During the *RI*, TCE and vinyl chloride were identified as constituents of concern (COCs) at the Site (IT, 2002).
- *Focused Feasibility Study* (*FFS*) (IT, 2003): IT conducted a *FFS* based on information collected during the *RI*, including a streamlined human health risk assessment based on a residential exposure scenario. The *FFS* recommended that LUCs coupled with MNA most appropriately addressed the groundwater contamination at the Site. ADEM concurred with the recommendations of the *FFS* to implement LUCs and MNA to address groundwater contamination at the Site (ADEM, 2003a). ADEM also requested that one round of groundwater samples be collected and analyzed for MNA parameters before implementation of LUCs and MNA (ADEM, 2003b). Although it was not identified as a COC in the *RI*, chlorobenzene was included as a COC in the *FFS* because its maximum detected concentration in groundwater exceeded the MCL.

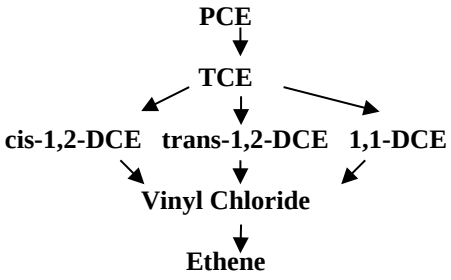
2.4 Corrective Measures

This section includes a brief description of MNA, the selected correctives measures for contaminated groundwater at the Site, and summarizes the previous monitoring events conducted to monitor the effectiveness of MNA at the Site.

2.4.1 Monitored Natural Attenuation

Natural attenuation refers to naturally occurring processes in groundwater that act without human intervention to reduce the mass, toxicity, mobility, volume or concentration of contaminants in media. These processes include advection, dispersion, diffusion, sorption and degradation. In-situ biodegradation of organic compounds involve the microbial transfer of electrons from electron donors (e.g., natural organic material, fuel hydrocarbons, and the less oxidized

chlorinated solvents) to electron acceptors (e.g., oxygen, nitrate, iron, manganese, sulfate, carbon dioxide, and the more oxidized chlorinated solvents) and can occur under aerobic or anaerobic conditions. Under natural conditions native organic carbon is used as an electron donor and dissolved oxygen (DO) is used first as the prime electron acceptor during aerobic respiration. After the DO is consumed, anaerobic microorganisms typically use additional electron acceptors (as available) in the following order of preference: nitrate, iron, sulfate, and carbon dioxide. Chlorinated solvent degradation largely occurs by reductive dechlorination. In general, reductive dechlorination of chlorinated ethenes occurs by sequential dechlorination as follows:



Intrinsic biodegradation results in changes in the concentrations of microbial respiratory substrates and products. The conditions existing at the site can be determined by examining changes in contaminant concentrations, changes in the concentrations of electron acceptors and products, and changes in groundwater chemistry parameters. Further details concerning the MNA process used at the Site are provided in the *CMIP* (MES, 2006 [Revised 2015]) and the *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater* (United States Environmental Protection Agency [EPA], 1998).

2.4.2 March/April 2004 Baseline Sampling Event and CMIP

One round of groundwater samples was collected during March/April 2004 to obtain additional data to support implementation of MNA as the selected remedy for contaminated groundwater at the Site. The groundwater samples collected during the March/April 2004 sampling event were analyzed for VOCs and MNA parameters including ethane, ethene, methane, iron, manganese, nitrate, nitrite, and sulfate. The results of the groundwater samples collected in March/April 2004 are presented in *Table 2-4* of the *CMIP* (MES, 2006 [Revised 2015]). The highest concentrations of VOCs were in the groundwater sample collected from residuum monitoring well FTA-94-MW01 and bedrock monitoring well FTA-94-MW11.

The concentrations of the MNA parameters were used to aid in identifying if conditions were favorable to successfully implement MNA. The presence of methane in the bedrock wells and low or nondetect concentrations of nitrate, nitrite, and sulfate indicated that reducing conditions were present and appropriate for biologically mediated reductive dehalogenation of chlorinated solvents. Methane was detected at a higher concentration in bedrock monitoring well FTA-94-MW14 (1,600 micrograms per liter [µg/L]), however, because this well is located upgradient of the contaminated groundwater and groundwater at this location contained detectable concentrations of organic carbon, the higher concentration of methane was believed to be a product of fermentation of organic material.

The *CMIP* incorporated the findings of the previous investigations and the March/April 2004

groundwater sampling. MNA was implemented at the Site as outlined in the *CMIP*.

2.4.3 Summary of Previous Monitoring Events

To monitor the effectiveness of MNA at the Site, groundwater samples were collected during previous monitoring events from February 2005 to January 2019 and analyzed for VOCs and MNA parameters. The results of these monitoring events were submitted to ADEM in the following *CMERs*.

- *Final (Revised) CMER, February 2005 Sampling Event* (MES, 2007a)
- *Final CMER, December 2005 Sampling Event* (MES, 2007b)
- *Final CMER, June 2006 Sampling Event* (MES, 2007c)
- *Final CMER, December 2006 Sampling Event* (MES, 2008)
- *Final CMER, June 2007 Sampling Event* (MES, 2010)
- *Final CMER, December 2007, June 2008, December 2008, December 2009, and December 2010 Monitoring Events* (*December 2007 to December 2010 CMER*) (MES, 2012)
- *CMER, January 2013 Monitoring Event* (MES, 2013a)
- *CMER, January 2014 Monitoring Event* (MES, 2014)
- *CMER, January 2015 Monitoring Event* (*January 2015 CMER*) (MES, 2015a)
- *CMER, January 2016 Monitoring Event (MES, 2016)*
- *CMER, January 2017 Monitoring Event (MES, 2017)*
- *CMER, January 2018 Monitoring Event (MES, 2018)*
- *CMER, January 2019 Monitoring Event (MES, 2019)*

VOC concentrations have decreased over time in the residuum and bedrock groundwater, with the exception of bedrock monitoring well FTA-94-MW11. The concentrations for TCE and vinyl chloride in bedrock monitoring well FTA-94-MW11, which is located at the source of the contaminated groundwater, have fluctuated over time around the respective MCLs. The low concentrations of electron acceptor sulfate in groundwater at well FTA-94-MW11 indicated that reducing conditions were present for biologically mediated reductive dehalogenation of chlorinated solvents. Previous groundwater monitoring sample events have shown there is no significant migration of the groundwater contaminant plume from the source area at the Site.

Based on the results of previous groundwater monitoring events, the *December 2007 to December 2010 CMER* (MES, 2012) recommended a reduction in the number of groundwater wells and analytical parameters for future sampling rounds, as described below.

- Collect groundwater samples from residuum monitoring well FTA-94-MW03, and bedrock monitoring wells FTA-94-MW11, FTA-94-MW12, FTA-94-MW13, FTA-94-MW15, and FTA-94-MW16 annually and analyze for VOCs to continue monitoring the effectiveness of MNA and to ensure contaminant migration is not occurring at the Site.
- Analyze the groundwater sample from well FTA-94-MW11 for MNA parameters dissolved oxygen, nitrates, manganese, ferrous iron, sulfate, dissolved gases (methane, ethane, and ethane), and oxidation-reduction potential annually, to ensure conditions remain suitable for MNA.
- Collect water levels from the bedrock wells at the Site to monitor groundwater flow within the bedrock zone.

ADEM concurred with the above recommendations in their letter dated November 7, 2012 (ADEM, 2012).

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3.0 SUMMARY OF JANUARY 2020 MONITORING ACTIVITIES

To meet the recommended actions outlined in the *CMIP* (MES, 2006 [Revised 2017]) and the *December 2007 to December 2010 CMER* (MES, 2012), the following activities were performed during the January 2020 monitoring event:

- Collected groundwater samples from one residuum well (FTA-94-MW03) and five bedrock wells (FTA-94-MW011 to FTA-94-MW13, FTA-94-MW15, and FTA-94-MW16) and analyzed for VOCs by Method SW8260B.
- Collected groundwater levels from the monitoring wells that were sampled (i.e., FTA-94-MW03, FTA-94-MW011 to FTA-94-MW13, FTA-94-MW15, and FTA-94-MW16), plus bedrock wells FTA-94-MW06 and FTA-94-MW14 to monitor groundwater flow in the bedrock zone.
- Collected and analyzed groundwater from bedrock well FTA-94-MW11 for MNA parameters light hydrocarbons by Method RSK-175, total and dissolved iron and manganese by Method SW6010B, ammonia by Method E350.1, total kjeldahl nitrogen (TKN) by Method E351.2, and anions (nitrate, nitrite, and sulfate) by Method SW9060.

3.1 Groundwater Sampling

Groundwater samples were collected from one residuum and five bedrock wells. Figure 3-1 shows the locations of the groundwater wells. Table 3-1 presents a summary of the groundwater sample station names, field quality control (QC) samples, and analytical parameters.

The groundwater samples were collected in accordance with methodology presented in the *Final Installation Wide Sampling and Analysis Plan* (*SAP*) (MES, 2013b). Before groundwater samples were collected, groundwater levels were measured to the nearest hundredth of a foot using a Solinst™ water level indicator and total well depth was measured and recorded. The groundwater samples were collected using low-flow sampling procedures, i.e., using an adjustable rate pump to remove water from the screened interval of a monitoring well at a rate that produces minimal drawdown of the groundwater in the well. Polyethylene tubing leading from the discharge side of the submersible pump was connected to a flow-through cell equipped with a YSI Model Multiprobe Water Quality Meter to measure chemical and physical parameters within the groundwater. Measurements of chemical and physical parameters were used to indicate when groundwater quality stabilized and sampling could begin. Chemical and physical field screening parameters included pH, conductivity, DO, oxidation-reduction potential (ORP), total dissolved solids (TDS), turbidity, and temperature. Groundwater levels, pumping rate, and volume of groundwater removed were also recorded. Ferrous iron was also measured in the field for bedrock well FTA-94-MW11 using a Hach Model IR-18C color disc field test kit and recorded on the sample collection logs along with the chemical and physical field screening parameters. The monitoring well sample collection logs are provided in Appendix A.

Groundwater samples were collected from the polyethylene tubing after it was identified that the field screening data had stabilized. Laboratory-supplied sample bottles were filled, labeled, placed in a chilled cooler, and shipped under chain-of-custody procedures to Eurofins TestAmerica, Savannah, Georgia. The chain-of-custody forms for the groundwater samples collected during the January 2020 sampling event are provided in Appendix B.

3.2 Data Quality Review

MES reviewed the analytical data for the groundwater samples collected during the January 2020 monitoring event. The data quality review was performed in accordance with the *Quality Assurance Plan (QAP) (Appendix A of the SAP)* (MES, 2013b) to assess compliance with the Quality Assurance (QA) objectives, and to assess hard copy and electronic deliverable consistency and integrity. The analytical data for the groundwater samples collected during the January 2020 monitoring event is provided in Tables 4-5 and 4-6. The Data Quality Summary (DQS) for the January 2020 groundwater samples is included in Appendix C.

4.0 RESULTS OF JANUARY 2020 MONITORING EVENT

This section discusses the results of the January 2020 monitoring event conducted at the Site.

4.1 Groundwater Levels

Groundwater elevations measured during the January 2020 groundwater sampling event are presented in Table 4-1. Figure 4-1 shows groundwater elevations and estimated potentiometric contour lines for the bedrock monitoring wells.

As indicated in Figure 4-1, groundwater in the bedrock flows in a northerly direction.

To further aid in assessing groundwater flow at the Site, horizontal hydraulic gradients were calculated using the groundwater data collected in January 2020, presented in Table 4-2. The horizontal hydraulic gradients in the bedrock zone were low ranging from 0.001 feet per foot (ft/ft) to 0.029 ft/ft. Site-wide horizontal hydraulic gradients averaged 0.009 ft/ft for the bedrock.

4.2 Groundwater Field Parameter Results

Measurements of field screening parameters, including pH, conductivity, DO, ORP, TDS, turbidity, and temperature, were used to indicate when groundwater quality had stabilized and sampling could begin. Ferrous iron was also measured and recorded in the field for bedrock well FTA-94-MW11. The field parameters for the groundwater samples are presented in the groundwater sampling logs in Appendix A, and summarized in Table 4-3.

4.3 Analytical Data and Data Quality Review

The analytical data for the January 2020 monitoring event is included in Tables 4-5 and 4-6. MES reviewed the analytical data in accordance with the *QAP* (MES, 2013b). The results of the data quality review for the groundwater samples collected during the January 2020 monitoring event are presented in the DQS in Appendix C. Based on the data quality review, the analytical data generated for these monitoring events are adequate to fulfill program objectives and are suitable for preparation of this report. A more detailed discussion of the analytical results can be found in the DQS (Appendix C).

4.4 Summary of Groundwater Analytical Results

During the January 2020 monitoring event, groundwater samples were collected and analyzed for VOCs and MNA parameters. This section summarizes the analytical results for the groundwater samples.

4.4.1 Volatile Organic Compounds

The analytical results for VOCs detected in the groundwater samples during the January 2020 monitoring event are presented in Table 4-4 and summarized below.

- Chlorobenzene was detected in bedrock well FTA-94-MW11 (41 µg/L).

- Cis-1,2-DCE was detected in bedrock well FTA-94-MW11 (4.4 µg/L).
- Trans-1,2-DCE was detected at an estimated concentration in bedrock well FTA-94-MW11 (1.7 µg/L).
- TCE was detected in residuum well FTA-94-MW03 (0.69 µg/L), and, bedrock well FTA-94-MW11 (54 µg/L).
- Vinyl chloride was detected in bedrock well FTA-94-MW11 (4.7 µg/L).

4.4.2 MNA Parameters

Groundwater samples collected from bedrock well FTA-94-MW11 during the January 2020 monitoring event were analyzed for the MNA parameters listed in Table 3-1. The concentrations of these constituents help to assess conditions for attenuation via biodegradation. The analytical results for the MNA parameters for bedrock well FTA-94-MW11 are presented in Table 4-4. Sulfate (7.1 µg/L) and methane (58 µg/L) were detected in well FTA-94-MW11. Ethane, ethene, nitrate and nitrite were either not detected or present at low concentrations. Table 4-6 presents the results for the MNA parameters in bedrock well FTA-94-MW11 from the baseline groundwater sampling event conducted in March 2004 and subsequent groundwater sampling events.

4.5 Evaluation of Remedy Effectiveness

Groundwater samples were collected at the Site to evaluate the MNA at the Site via contaminant concentration changes over time. The analytical results for the Site-specific COCs (chlorobenzene, TCE, and vinyl chloride) and for degradation products cis-1,2-DCE and trans-1,2-DCE for the groundwater samples collected in January 2020 were compared to the analytical results from the previous monitoring events and to MCLs in Table 4-5.

4.5.1 Maximum Contaminant Levels

Analytical results for Site-specific COCs chlorobenzene, TCE, and vinyl chloride and degradation products cis-1,2-DCE and trans-1,2-DCE are compared to the MCLs in Table 4-5. TCE and vinyl chloride concentrations in the bedrock monitoring well FTA-94-MW11 exceeded the MCLs during the January 2020 sampling event.

A table showing the historical detected VOCs concentrations compared to MCLs for the previous sampling rounds conducted through December 2010 is included in Appendix D. Only chlorobenzene, TCE, and vinyl chloride have historically been detected at concentrations greater than the MCLs.

4.5.2 Concentration Trends Over Time

Figure 4-2a and 4-2b show the trends in VOC concentrations and groundwater elevations over time for the Site-specific COCs and degradation products in bedrock well FTA-94-MW11. TCE slightly increased in concentration from 2018 to 2019 while the other COCs exhibited very minor fluctuations or remained the same.

4.5.3 Evidence for Natural Attenuation

The decrease in concentrations of VOCs in well FTA-94-MW11 since the March/April 2004 baseline sampling event provides evidence that MNA is occurring at the Site. The presence of methane, low concentrations of electron acceptor sulfate and dissolved oxygen, in addition to negative ORP indicate that reducing conditions are present for biologically mediated reductive dehalogenation of chlorinated solvents.

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5.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This section summarizes the activities and groundwater results for the January 2020 groundwater monitoring event and presents conclusions and recommendations.

5.1 Summary of Activities

Activities conducted at the Site included:

- Collected groundwater levels from one residuum well and seven bedrock wells.
- Collected groundwater samples from one residuum well and five bedrock wells and analyzed for VOCs.
- Collected and analyzed groundwater from bedrock well FTA-94-MW11 for MNA parameters light hydrocarbons, total and dissolved iron and manganese, ammonia, nitrate, nitrite, sulfate, and TKN.
- Compared analytical results to MCLs to assess the ongoing monitored natural attenuation at the Site.

5.2 Summary of Results

The following summarizes the results of the January 2020 monitoring event:

- Groundwater in the bedrock flows in a northerly direction (Figure 4-1).
- The horizontal hydraulic gradients in the bedrock zone were low, ranging from 0.001 ft/ft to 0.029 ft/ft and averaging 0.009 ft/ft Site-wide for the bedrock (Table 4-2).
- Five VOCs (chlorobenzene, cis-1,2-DCE, trans-1,2-DCE, TCE, and vinyl chloride) were detected in one or more of the January 2020 groundwater samples (Table 4-4).
- TCE slightly increased in concentration from January 2019 to January 2020; the other COCs exhibited minor fluctuations (Figure 4-2).
- TCE and vinyl chloride in well FTA-94-MW11 exceeded MCLs during the January 2020 sampling event (Table 4-5).
- The presence of methane and low concentrations of electron acceptor sulfate indicate that reducing conditions are present for biologically mediated reductive dehalogenation of chlorinated solvents.

5.3 Conclusions and Recommendations

The presence of methane, low concentrations of electron acceptor sulfate and dissolved oxygen, as well as negative ORP in groundwater at the Site indicate that conditions are still favorable for biologically-mediated MNA at the Site. The low magnitudes of the horizontal hydraulics gradients indicate limited groundwater movement at the Site. Past and present groundwater monitoring sample events have shown there is no significant migration of the groundwater contaminant plume from the source area at the Site, i.e., bedrock monitoring well FTA-94-MW11. The concentrations for COCs in bedrock monitoring well FTA-94-MW11 continue to fluctuate over time, with TCE and vinyl chloride levels greater than the MCLs in January 2020. These data have been used to estimate a range of values for a first-order point decay rate for TCE concentrations which results in a point attenuation rate between 0.029 per day (half-life of 23.9

years) and 0.134 per day (half-life of 5.2 years.) These rates result in a range of estimated time to reach MCL concentration of 5 ppb for TCE between 8 years ago (2012) and 5 years from now (2025.) These TCE concentration data also provide evidence that there is likely contaminant present in the subsurface at an elevation that is sporadically exposed to saturated conditions and therefore only occasionally actively attenuated. This condition introduces significant uncertainty in the point attenuation rate estimates and provides an explanation for the obvious inaccuracy in the estimates. Based on this evaluation of past behavior and demonstration that developing reliable point attenuation rates is problematic it is likely that the process to restore groundwater concentrations of COCs and degradation products to below MCLs may take several decades. Based on the results of the January 2020 monitoring event, the MDA recommends continued groundwater monitoring at the Site.

6.0 REFERENCES

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TABLES

Table 3-1: Groundwater Samples and Parameters, January 2020 Monitoring Event
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Station Name	Sample Date	Matrix	QC Code	WLs[1]	E650.1	E351.2	RSK-175	SW6010B	SW8260B	SW9056
FTA-94-MW01	*	WG	NS	X						
FTA-94-MW02	*	WG	NS	X						
FTA-94-MW03	1/27/20	WG	NS	X					X	
FTA-94-MW04	*	WG	NS	X						
FTA-94-MW05	*	WG	NS	X						
FTA-94-MW06	*	WG	NS	X						
FTA-94-MW07	*	WG	NS	X						
FTA-94-MW08	*	WG	NS	X						
FTA-94-MW09	*	WG	NS	X						
FTA-94-MW10	*	WG	NS	X						
FTA-94-MW11	1/28/20	WG	NS	X	X	X	X	X	X	X
FTA-94-MW11	1/28/20	WG	FD		X	X	X	X	X	X
FTA-94-MW12	1/27/20	WG	NS	X					X	
FTA-94-MW13	1/28/20	WG	NS	X					X	
FTA-94-MW14	*	WG	NS	X						
FTA-94-MW15	1/27/20	WG	NS	X					X	
FTA-94-MW16	1/27/20	WG	NS	X					X	
TB547	1/28/20	W	TB						X	

Notes:

EB = Equipment blank
FD = Field duplicate
LD = Laboratory duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
NS = Normal Sample
QC = Quality control
TB = Trip blank
W = Water
WG = Groundwater
WS = Source water

Method SW8260B = Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Monitored Natural Attenuation Parameters:

Method SE350.1 = Ammonia by spectrophotometry
Method E351.2 = Total Kjeldahl Nitrogen (TKN) by spectrophotometry
Method RSK-175 = Methane, Ethane, and Ethene by gas chromatography (GC)
Method SW6010B = Total and Dissolved Iron and Manganese by Inductively Coupled Plasma-Atomic Emission Spectrometry
Method SW9056 = Anions (Sulfate, Nitrate, Nitrite) by Ion Chromatography

[1] Water Levels (WLs) were collected on 1/27/20.

* No groundwater sample was collected, only WLs were collected on 1/27/20.

Table 4-1: Groundwater Elevations, January 2020 Monitoring Event
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Well Location	Well Type	Measurement Date	Depth to Water (ft BTOC)	Ground Elevation (ft msl)	Top of Casing Elevation (ft msl)	Screen Interval (ft bgs)	Well Depth (ft BTOC)	Groundwater Elevation (ft msl)
FTA-94-MW03	residuum	1/27/2020	5.06	784.57	786.49	6 - 21	22.60	781.43
FTA-94-MW06	bedrock	1/27/2020	5.36	787.84	789.78	5.5 - 20.5	27.69	784.42
FTA-94-MW11	bedrock	1/27/2020	22.94	804.82	806.79	57.2 - 67.2	70.81	783.85
FTA-94-MW12	deep bedrock	1/27/2020	4.78	785.13	787.16	81.1 - 91.1	93.95	782.38
FTA-94-MW13	deep bedrock	1/27/2020	24.77	805.89	808.06	116 - 126	127.9	783.29
FTA-94-MW14	bedrock	1/27/2020	17.87	807.44	807.2	65 - 75	75.30	789.33
FTA-94-MW15	deep bedrock	1/27/2020	12.50	793.14	795.19	35 - 45	93.32	782.69
FTA-94-MW16	bedrock	1/27/2020	9.48	790.99	793.0	81.4 - 91.4	46.65	783.52

Notes:
bgs = below ground surface
BTOC = Below top of casing
ft = feet
msl = Mean sea level

Table 4-2: Horizontal Hydraulic Gradients, January 2020 Monitoring Event
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Upgradient Well	Well Type	Groundwater Elevation	Downgradient Well	Well Type	Groundwater Elevation	Estimated Groundwater Flow Direction	Horizontal Distance	Groundwater Elevation Difference (feet)	Horizontal Gradient (ft/ft)
FTA-94-MW06	bedrock	784.42	FTA-94-MW12	deep bedrock	782.38	north-northwest	313	2.04	0.007
FTA-94-MW11	bedrock	783.85	FTA-94-MW12	deep bedrock	782.38	northeast	277	1.47	0.005
FTA-94-MW11	bedrock	783.85	FTA-94-MW13	deep bedrock	783.29	southwest	47	0.56	0.012
FTA-94-MW11	bedrock	783.85	FTA-94-MW16	bedrock	783.52	north	281	0.33	0.001
FTA-94-MW14	bedrock	789.33	FTA-94-MW13	deep bedrock	783.29	north	206	6.04	0.029
FTA-94-MW15	deep bedrock	782.69	FTA-94-MW12	deep bedrock	782.38	east	155	0.31	0.002
							Average Horizontal Gradient:		**0.009**

Notes:
Elevations in feet above mean sea level.
ft/ft = feet per foot

Table 4-3: Groundwater Field Parameters, January 2020 Monitoring Event
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Sample Location	Well Type	Sample Date	Temperature (^{o}C)	Conductivity (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	TDS (g/L)	Turbidity (NTU)	pH	Fe (II) (mg/L)
FTA-94-MW03	residuum	1/27/20	14.1	491	1.21	54.6	0.3192	25.81	7.25	NM
FTA-94-MW11	bedrock	1/28/20	16.5	469	1.39	-9.8	0.3043	3.27	7.29	0
FTA-94-MW12	deep bedrock	1/27/20	13.20	518	0.98	-149.9	0.3368	10.30	7.58	NM
FTA-94-MW13	deep bedrock	1/28/20	16.80	450	6.39	-216.9	0.293	3.21	9.41	NM
FTA-94-MW15	deep bedrock	1/27/20	15.20	630	1.79	37.1	0.4095	3.97	7.93	NM
FTA-94-MW16	bedrock	1/27/20	15.60	354	2.90	96.1	0.2301	7.71	11.26	NM

Notes:
^{o}C = Degrees Celsius
Fe (II) = Ferrous Iron
g/L = Grams per liter
mg/L = Milligrams per liter
µs/cm = Microsiemens per centimeter
mV = Millivolts
NM = Not measured
NTU = Nephelometric turbidity units
ORP = Oxidation-reduction potential
TDS = Total Dissolved Solids

Table 4-4: Groundwater Results for Detected VOCs and MNA Parameters, January 2020 Monitoring Event
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston Alabama

Method	Parameters	Units	FTA-94-MW03 1/27/20	FTA-94-MW11 1/28/20	FTA-94-MW12 1/27/20	FTA-94-MW13 1/27/20	FTA-94-MW15 1/27/20	FTA-94-MW16 1/27/20
VOCs								
SW8260B	Chlorobenzene	µg/L	< 1	41	< 1	< 1	< 1	< 1
SW8260B	Cis-1,2-Dichloroethene	µg/L	< 1	4.4	< 1	< 1	< 1	< 1
SW8260B	Trans-1,2-Dichloroethene	µg/L	< 1	1.7	< 1	< 1	< 1	< 1
SW8260B	Trichloroethene	µg/L	0.69 J	54	< 1	< 1	< 1	< 1
SW8260B	Vinyl Chloride	µg/L	< 1	4.7	< 1	< 1	< 1	< 1
MNA Parameters								
RSK-175	Methane	µg/L	--	58	--	--	--	--
SW6010C	Iron	µg/L	--	17 J	--	--	--	--
SW6010C	Manganese	µg/L	--	15	--	--	--	--
SW6010C	Manganese, dissolved	µg/L	--	9.8 J	--	--	--	--
SW9056A	Sulfate	mg/L	--	7.1	--	--	--	--

Notes:

-- = not analyzed/sampled

< = Indicates the analyte was not detected at the reported quantitation limit shown.

µg/L = micrograms per liter

mg/L = milligrams per liter

MNA = Monitored Natural Attenuation

VOCs = Volatile Organic Compounds

Lab Flag:

J = Estimated detection. Concentration is between the method detection limit and the reporting limit.

Table 4-5: VOC COCs and Degradation Products in Groundwater Compared to MCLs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston Alabama

VOCs (µg/L)	MCL	FTA-94-MW03 (Residuum)																	
		11/29/00	4/2/02	3/24/04	2/11/05	12/13/05	6/20/06	12/11/06	6/18/07	12/10/07	6/25/08	12/9/08	12/22/09	12/15/10	1/22/13	1/14/14	1/13/15	1/12/16	1/17/17
Chlorobenzene (COC)	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene (DP)	70	< 5	0.22 J	< 1	< 1	< 1	< 1	< 1	0.22 J	< 1	0.28 J	< 1	0.31 J	0.26 J	0.3 J	0.28 J	0.24 J	< 1.0	< 1.0
trans-1,2-Dichloroethene (DP)	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene (COC)	5	2.5 J (J)	1.5	1	0.76 J	0.8 J	1.2	0.73 J	1.1	1.3	1.1	0.9 J	1.1	1.1	0.81 J	0.86 J	0.9 J	0.93 J	1.1
Vinyl Chloride (COC)	2	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8

VOCs (µg/L)	MCL	FTA-94-MW03 (Residuum)		
		1/23/18	1/9/19	1/27/20
Chlorobenzene (COC)	100	< 1	< 1	< 1
cis-1,2-Dichloroethene (DP)	70	< 1	< 1	< 1
trans-1,2-Dichloroethene (DP)	100	< 1	< 1	< 1
Trichloroethene (COC)	5	0.52 J	0.80 J	0.69 J
Vinyl Chloride (COC)	2	< 0.8	< 1	< 1

VOCs (µg/L)	MCL	FTA-94-MW11 (Bedrock)																	
		12/18/00	3/23/04	2/8/05	12/15/05	6/19/06	12/11/06	6/18/07	12/13/07	6/24/08	12/8/08	12/22/09	12/14/10	1/22/13	1/15/14	1/14/15	1/12/16	1/17/17	1/23/18
Chlorobenzene (COC)	100	300	10	4.1	25	31	11	< 1	16	< 1	2.4	< 1	12	< 1	18	< 1.0	4.3 (JM)	17	28
cis-1,2-Dichloroethene (DP)	70	37	13	6.2	12	19	9	< 1	5.4	< 1	6.9	< 1	4.4	< 1	3.6	< 1.0	1.8	3.8	6.9
trans-1,2-Dichloroethene (DP)	100	8.3	2	0.76 J	1	1.6	1.1	< 1	1.2	< 1	0.61 J	< 1	0.62 J	< 1	0.84 J	< 1.0	0.50 J	0.83 J	1.2
Trichloroethene (COC)	5	75	34	16	18	41	16	1.1	6	1.2	5.2	0.98 J	3.4	< 1	25	0.49 J	10 (JM)	5.3	17
Vinyl Chloride (COC)	2	25	1.4	0.52 J	2.4	8.3	9.7	< 1	13	< 0.8	2	< 0.8	16	< 0.8	8.9	< 0.8	9.3	20	20

VOCs (µg/L)	MCL	FTA-94-MW11 (Bedrock)	
		1/9/19	1/28/20
Chlorobenzene (COC)	100	39	41
cis-1,2-Dichloroethene (DP)	70	3.8	4.4
trans-1,2-Dichloroethene (DP)	100	1.7	1.7
Trichloroethene (COC)	5	39	54
Vinyl Chloride (COC)	2	6.6	4.7

Table 4-5: VOC COCs and Degradation Products in Groundwater Compared to MCLs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston Alabama

		FTA-94-MW12 (Deep Bedrock)																	
VOCs (µg/L)	**MCL**	**5/24/01**	**3/25/04**	**2/14/05**	**12/13/05**	**6/20/06**	**12/11/06**	**6/18/07**	**12/12/07**	**6/25/08**	**12/9/08**	**12/22/09**	**12/15/10**	**1/22/13**	**1/14/14**	**1/13/15**	**1/12/16**	**1/18/17**	**1/23/18**
Chlorobenzene (COC)	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1
cis-1,2-Dichloroethene (DP)	70	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0.32 J	< 1.0	< 1.0	< 1.0	< 1
trans-1,2-Dichloroethene (DP)	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1
Trichloroethene (COC)	5	< 5	< 1	< 1	0.74 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1
Vinyl Chloride (COC)	2	< 5	< 1	< 1	< 1	< 1	0.28 J	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8

		FTA-94-MW12 (Deep Bedrock)	
VOCs (µg/L)	**MCL**	**1/9/19**	**1/27/20**
Chlorobenzene (COC)	100	< 1	< 1
cis-1,2-Dichloroethene (DP)	70	< 1	< 1
trans-1,2-Dichloroethene (DP)	100	< 1	< 1
Trichloroethene (COC)	5	< 1	< 1
Vinyl Chloride (COC)	2	< 1	< 1

		FTA-94-MW13 (Deep Bedrock)																	
VOCs (µg/L)	**MCL**	**7/18/01**	**10/15/01**	**4/3/02**	**3/23/04**	**2/8/05**	**6/19/06**	**12/13/06**	**6/18/07**	**12/12/07**	**6/24/08**	**12/8/08**	**12/15/09**	**12/14/10**	**1/22/13**	**1/15/14**	**1/14/15**	**1/12/16**	**1/17/17**
Chlorobenzene (COC)	100	< 1	< 1 (nv)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene (DP)	70	0.6 J (J)	0.46 J (nv)	0.62 J	0.72 J	0.22 J	0.83 J	< 1	< 1	1.3	1	0.93 J	0.88 J	0.53 J	0.48 J	< 1.0	0.37 J	0.27 J	0.27 J
trans-1,2-Dichloroethene (DP)	100	< 1	< 1 (nv)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene (COC)	5	7	4.8 (nv)	5.5	10	2	1 J	0.34 J	0.26 J	< 1	0.28 J	0.29 J	0.35 J	0.24 J	0.2 J	< 1.0	< 1.0	< 1.0	0.24 J
Vinyl Chloride (COC)	2	< 1	< 2 (nv)	< 1	< 1	< 1	< 1	< 1	< 1	0.37 J	< 0.8	< 0.8	0.25 J	< 0.8	0.27 J	< 0.8	< 0.8	< 0.8	< 0.8

		FTA-94-MW13 (Deep Bedrock)		
VOCs (µg/L)	**MCL**	**1/23/18**	**1/9/19**	**1/27/20**
Chlorobenzene (COC)	100	< 1	< 1	< 1
cis-1,2-Dichloroethene (DP)	70	0.22 J	< 1	< 1
trans-1,2-Dichloroethene (DP)	100	< 1	< 1	< 1
Trichloroethene (COC)	5	< 1	< 1	< 1
Vinyl Chloride (COC)	2	< 0.8	< 1	< 1

Table 4-5: VOC COCs and Degradation Products in Groundwater Compared to MCLs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston Alabama

		FTA-94-MW15 (Deep Bedrock)																	
VOCs (µg/L)	**MCL**	**7/20/01**	**4/2/02**	**3/23/04**	**2/10/05**	**12/19/05**	**6/21/06**	**12/13/06**	**6/20/07**	**12/12/07**	**6/25/08**	**12/9/08**	**12/14/09**	**12/14/10**	**1/21/13**	**1/14/14**	**1/14/15**	**1/11/16**	**1/17/17**
Chlorobenzene (COC)	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene (DP)	70	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene (DP)	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene (COC)	5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride (COC)	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8

		FTA-94-MW15 (Deep Bedrock)		
VOCs (µg/L)	**MCL**	**1/22/18**	**1/9/19**	**1/27/20**
Chlorobenzene (COC)	100	< 1	< 1	< 1
cis-1,2-Dichloroethene (DP)	70	< 1	< 1	< 1
trans-1,2-Dichloroethene (DP)	100	< 1	< 1	< 1
Trichloroethene (COC)	5	< 1	< 1	< 1
Vinyl Chloride (COC)	2	< 0.8	< 1	< 1

		FTA-94-MW16 (Bedrock)																	
VOCs (µg/L)	**MCL**	**7/19/01**	**3/25/04**	**2/10/05**	**12/20/05**	**6/21/06**	**12/13/06**	**6/20/07**	**12/12/07**	**6/25/08**	**12/9/08**	**12/14/09**	**12/14/10**	**1/21/13**	**1/14/14**	**1/13/15**	**1/11/16**	**1/17/17**	**1/22/18**
Chlorobenzene (COC)	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene (DP)	70	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene (DP)	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene (COC)	5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0.27 J	< 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride (COC)	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8

		FTA-94-MW16 (Bedrock)	
VOCs (µg/L)	**MCL**	**1/9/19**	**1/27/20**
Chlorobenzene (COC)	100	< 1	< 1
cis-1,2-Dichloroethene (DP)	70	< 1	< 1
trans-1,2-Dichloroethene (DP)	100	< 1	< 1
Trichloroethene (COC)	5	0.67 J	< 1
Vinyl Chloride (COC)	2	< 1	< 1

Notes:
< = Indicates the analyte was not detected at the reported quantitation limit shown.
COC = Constituent of concern
DP = Degradation product
µg/L = micrograms per liter
MCL = Maximum Contaminant Level
VOCs = Volatile Organic Compounds

Result > MCL

Lab Flag:
J = Estimated detection. Concentration is between the method detection limit and the practical quantitation limit.
Validation Flags:
(nv) = Not validated
(J) = The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample.
(JM) = Estimated detection; matrix spike and matrix spike duplicate were outside laboratory control limits.

Samples collected in 2000 through 2002 by IT Corporation (IT), data from IT's *Remedial Investigation* (IT, 2002).
Samples collected in 2004 to the present by Matrix Environmental Services, LLC (MES).

Table 4-6: Current and Historical Groundwater Results for MNA Parameters for Well FTA-94-MW11
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston Alabama

MNA Parameters	Units	FTA-94-MW11							
		3/23/04 (Baseline)	2/8/05	12/15/05	6/19/06	12/11/06	6/18/07	12/13/07	6/24/08
Ethane	µg/L	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Ethene	µg/L	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Methane	µg/L	17	7.7	27	33	11	0.71 J	15	< 1.2
Iron (Total)	mg/L	1.81	0.656 J	0.605 J	--	0.393 J	0.0418 J	0.505 J	0.299 J
Iron (Dissolved)	mg/L	1.32	0.517 J	0.315 J	--	< 1	< 1	0.0563 J	< 1
Manganese (Total)	mg/L	0.146	0.125	0.0858	--	0.0542	0.0113	0.0778	0.0372
Manganese (Dissolved)	mg/L	0.135	0.111	0.0886	--	0.0686	0.0041 J	0.0788	< 0.01
Nitrate-N	mg/L	< 0.1	0.112	(UJC)	--	< 0.1	0.11	< 0.1	0.198
Nitrite-N	mg/L	< 0.1	< 0.1	< 0.1	--	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	7.6	10.8	5.52	--	6.67	7.47	9.76	9.33
Ammonia (NH3-N)	mg/L	< 0.1	0.352	< 0.1	--	< 0.1	0.19	< 0.1	0.304
Total Kjeldahl Nitrogen (TKN)	mg/L	0.306	0.522	0.19 (JC)	--	0.158	0.235	0.167	0.309

MNA Parameters	Units	FTA-94-MW11							
		12/8/08	12/15/09	12/14/10	1/22/13	1/15/14	1/14/15	1/12/16	1/17/17
Ethane	µg/L	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Ethene	µg/L	< 1.5	< 1.5	< 1.5	< 1.5	1.3 J	< 1.5	< 1.5	0.7 J
Methane	µg/L	8.5	< 1.2	67	0.4 J	30	< 1.2	5.4 (JQ)	13
Iron (Total)	mg/L	0.213 J	0.0547 J	0.391 J	0.135 J	0.184 J	0.0427 J	0.330 J	1.25
Iron (Dissolved)	mg/L	< 1	< 1	< 1	0.0565 J	0.0627 J	< 1.0	0.139 J	0.340 J
Manganese (Total)	mg/L	0.117	0.00503 J	0.065	0.0133	0.0165	< 0.01	(JQ)	0.0513
Manganese (Dissolved)	mg/L	0.119	< 0.010	0.022	0.00605 J	0.00967 J	< 0.01	0.0177	0.0508
Nitrate-N	mg/L	< 0.1	0.0559 J	0.0842 J	0.0822 J	< 0.1	0.179	0.0584 J	0.104
Nitrite-N	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	12.7	5.48	5.39	4.87	4.22	3.68	5.08 (JQ)	4.18
Ammonia (NH3-N)	mg/L	< 0.1	0.121	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Kjeldahl Nitrogen (TKN)	mg/L	0.13	0.397	0.307	0.368	0.701	0.226	0.175	0.168

Table 4-6: Current and Historical Groundwater Results for MNA Parameters for Well FTA-94-MW11
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston Alabama

		FTA-94-MW11		
MNA Parameters	**Units**	**1/23/18**	**1/9/19**	**1/28/20**
Ethane	µg/L	< 1.5	< 1.1	< 1.1
Ethene	µg/L	1 J	< 1	< 1.0
Methane	µg/L	34	< 0.58	58
Iron (Total)	mg/L	0.881 J	0.11	17 J
Iron (Dissolved)	mg/L	0.411 J	0.025 J	< 50
Manganese (Total)	mg/L	0.0535	0.015	15
Manganese (Dissolved)	mg/L	0.0698	0.0093 J	9.8 J
Nitrate-N	mg/L	< 0.1	< 0.05	< 0.050
Nitrite-N	mg/L	< 0.1	< 0.05	< 0.050
Sulfate	mg/L	4.17	3.8	7.1
Ammonia (NH3-N)	mg/L	0.0758 J	< 0.25 (UJ)	< 0.25
Total Kjeldahl Nitrogen (TKN)	mg/L	0.183	0.11 J	< 0.20

Notes:

-- = not analyzed/sampled

< = Indicates the analyte was not detected at the reported quantitation limit shown.

µg/L = micrograms per liter

mg/L = milligrams per liter

MNA = Monitored Natural Attenuation

Lab Flag:

J = Estimated detection. Concentration is between the method detection limit and the reporting limit.

Validation Qualifiers (denoted with parenthesis):

J = Estimated detection. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ = Estimated reporting limit due to low QC recovery(ies).

Validation Sub-qualifiers:

C = Continuing calibration was outside method-specific control limits.

M = Matrix spike/matrix spike duplicate outside project criteria.

Q = Field duplicate was outside project criteria.

FIGURES

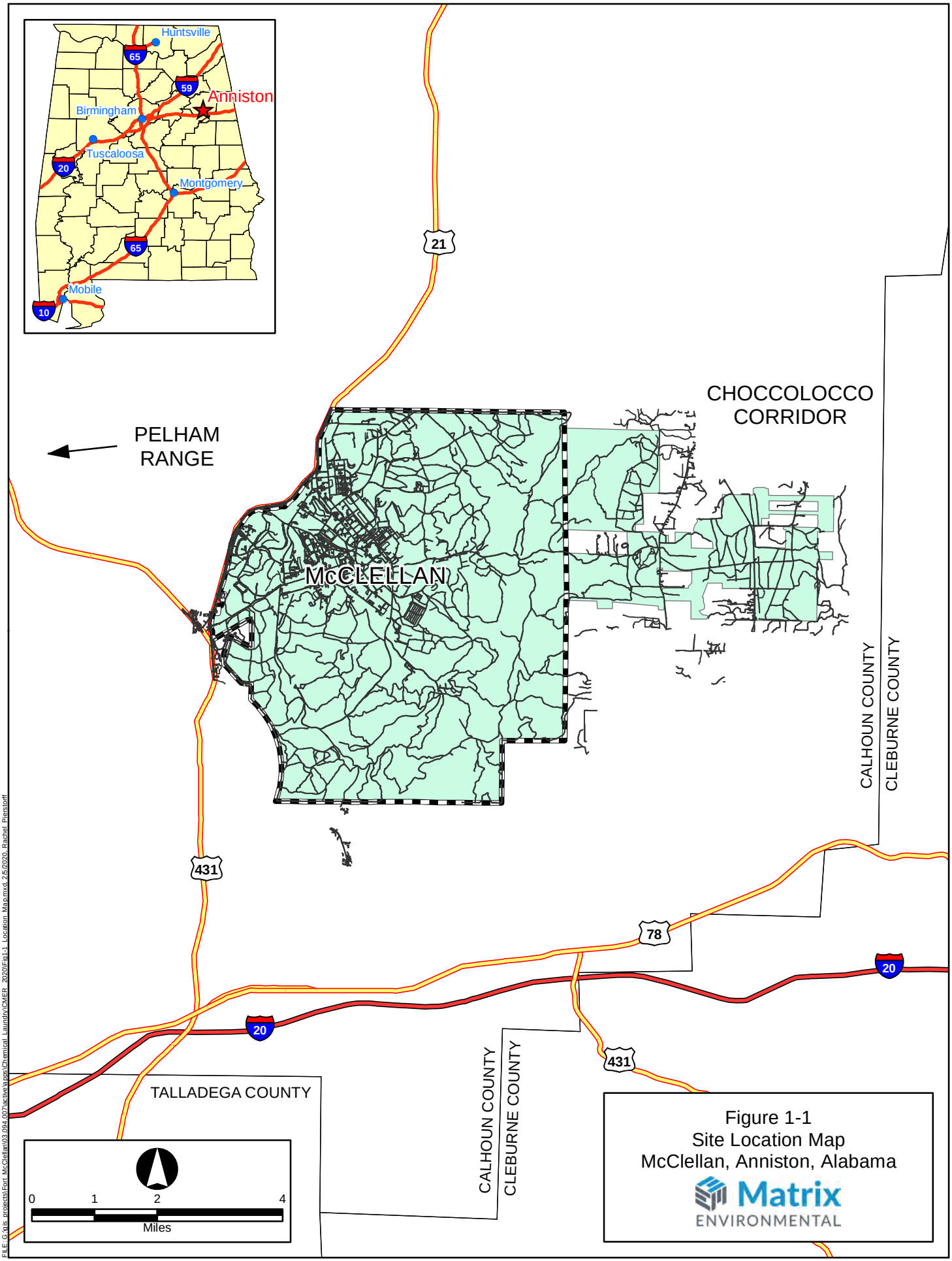


Figure 1-1
Site Location Map
McClellan, Anniston, Alabama

Matrix ENVIRONMENTAL

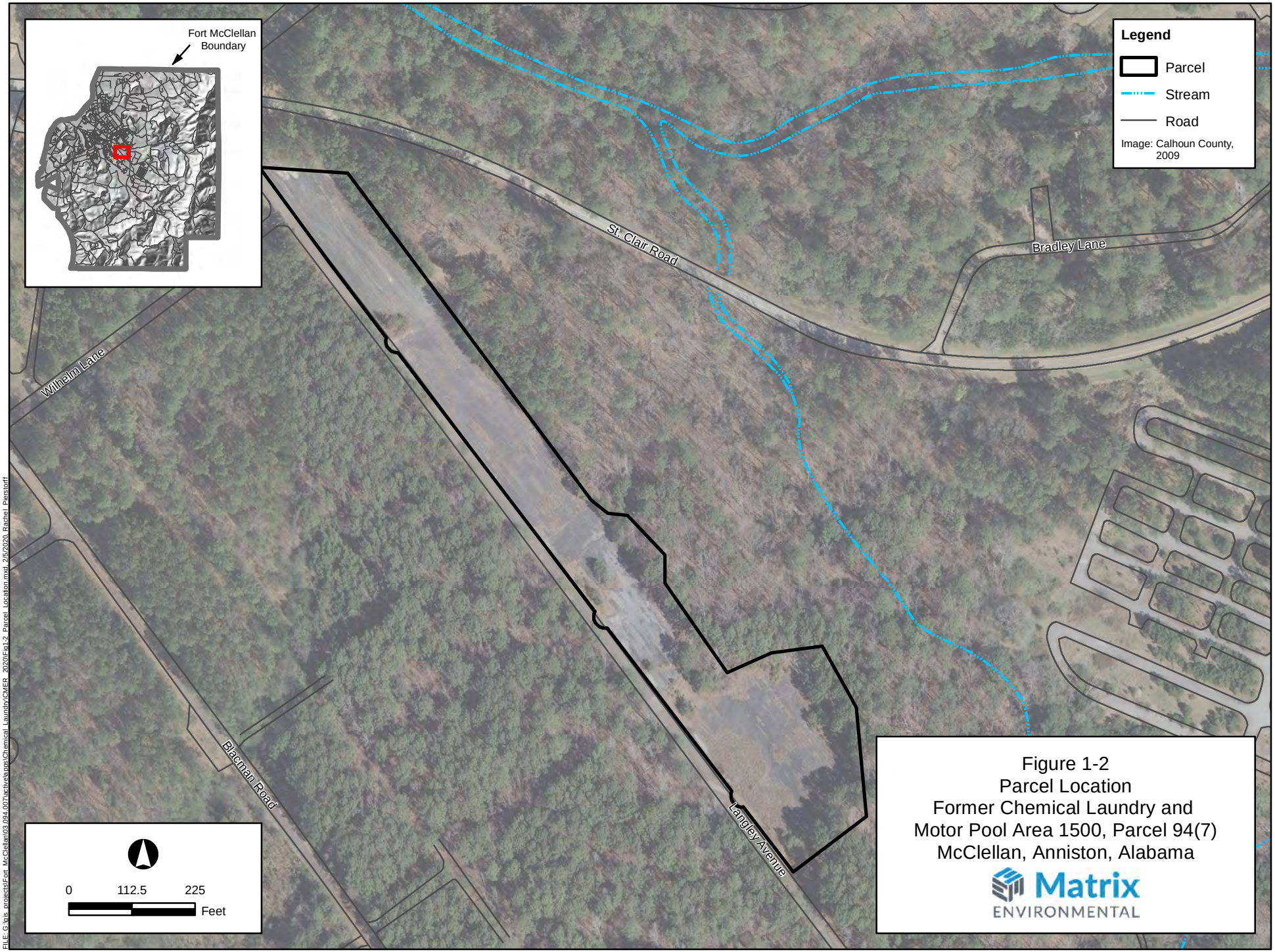
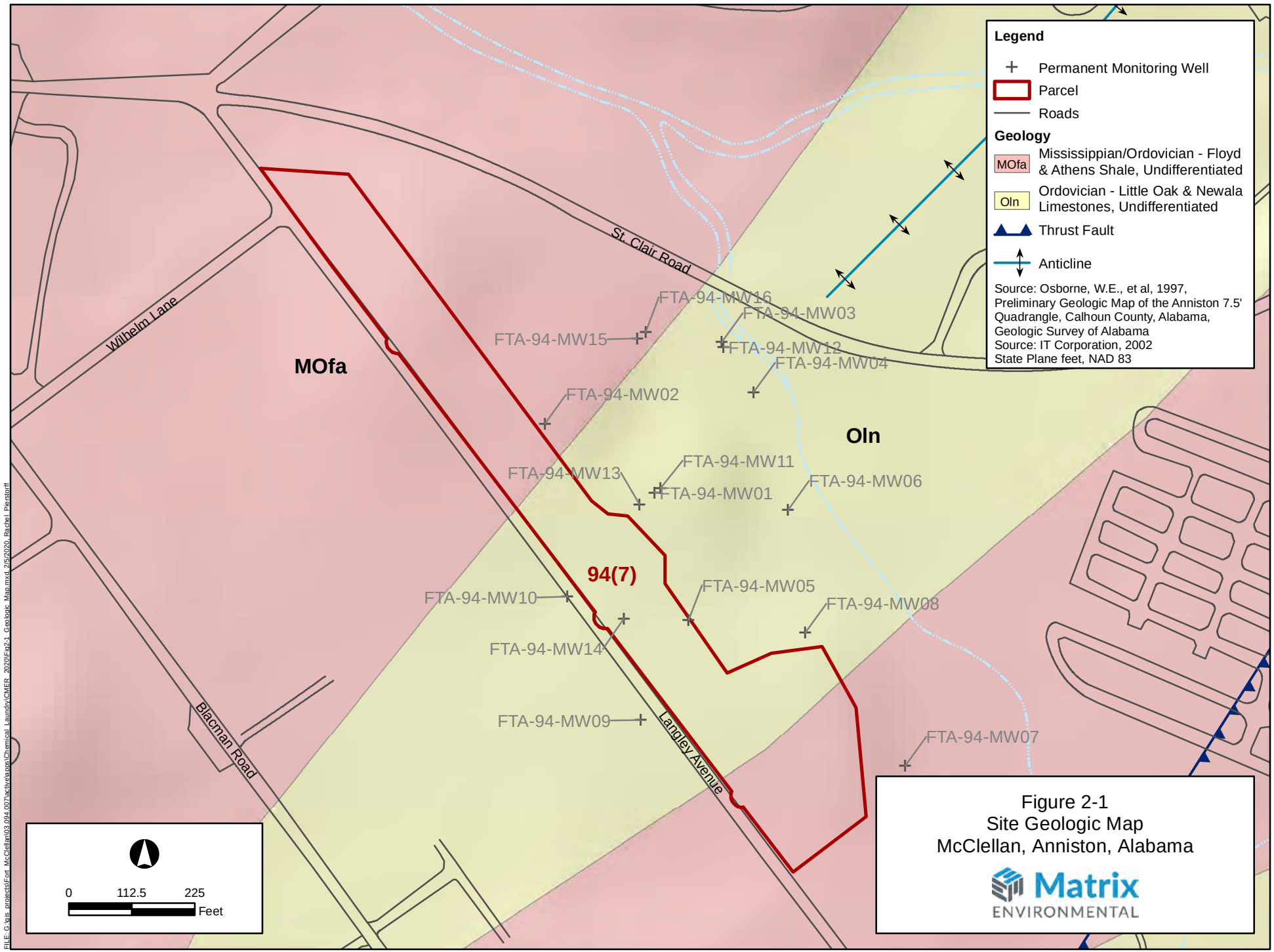


Figure 1-2
Parcel Location
Former Chemical Laundry and
Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Matrix ENVIRONMENTAL

FILE: G:\gis_projects\Fort_McClellan\03.094.007\activeMaps\Chemical_Laundry\CMER_2020\Fig1-2_Parcel_Location.mxd 2/5/2020 Rachel Pierstorff


Legend
Permanent Monitoring Well
Parcel
Roads
Geology
MOfa
Mississippian/Ordovician - Floyd & Athens Shale, Undifferentiated
Oln
Ordovician - Little Oak & Newala Limestones, Undifferentiated
Thrust Fault
Anticline
Source: Osborne, W.E., et al, 1997, Preliminary Geologic Map of the Anniston 7.5' Quadrangle, Calhoun County, Alabama, Geologic Survey of Alabama
Source: IT Corporation, 2002
State Plane feet, NAD 83
St. Clair Road
Wilhelm Lane
Blacman Road
Langley Avenue
MOfa
Oln
94(7)
FTA-94-MW16
FTA-94-MW03
FTA-94-MW15
FTA-94-MW12
FTA-94-MW04
FTA-94-MW02
FTA-94-MW11
FTA-94-MW13
FTA-94-MW01
FTA-94-MW06
FTA-94-MW10
FTA-94-MW05
FTA-94-MW08
FTA-94-MW14
FTA-94-MW09
FTA-94-MW07
0
112.5
225
Feet
Figure 2-1
Site Geologic Map
McClellan, Anniston, Alabama
Matrix
ENVIRONMENTAL

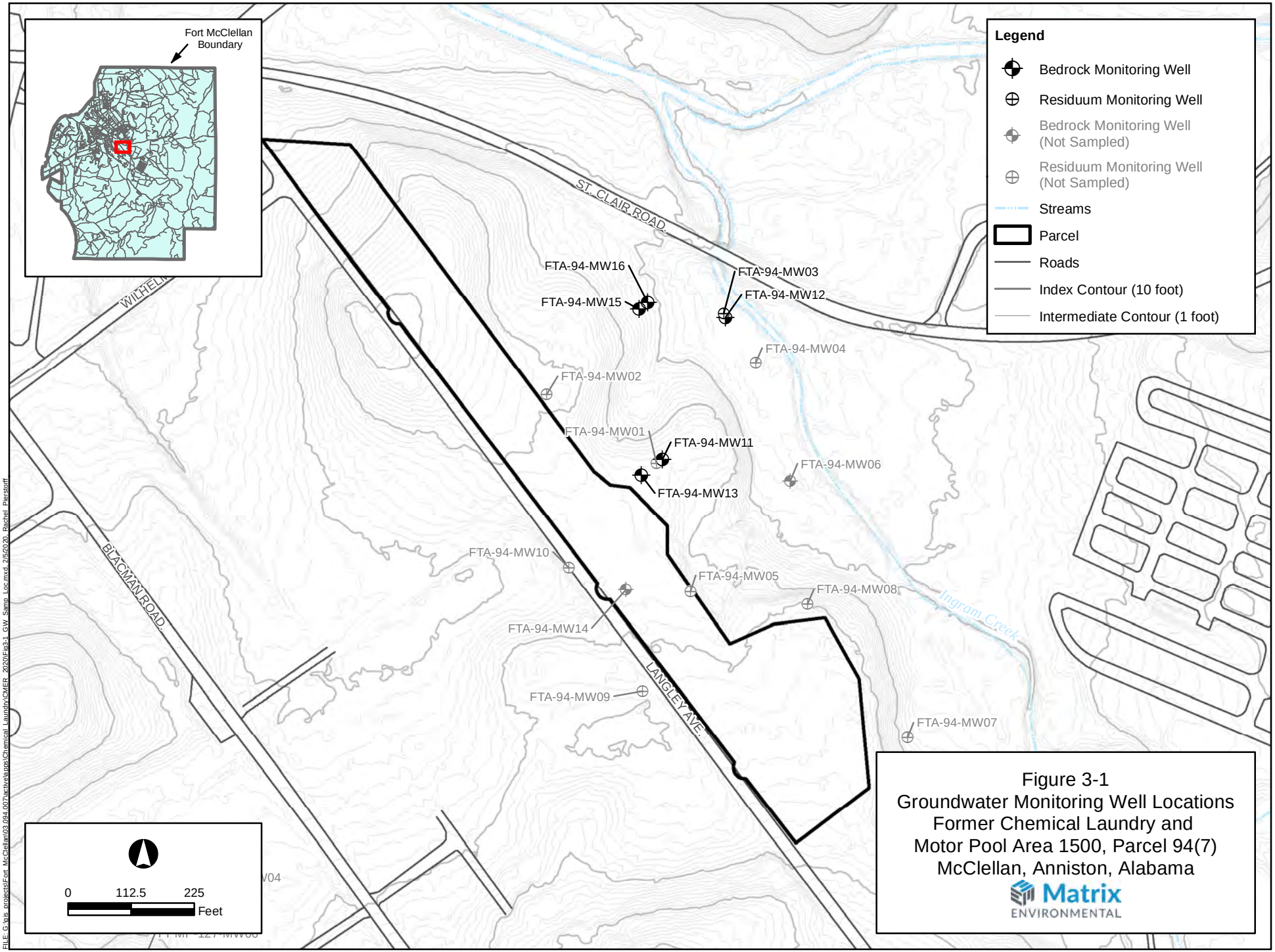
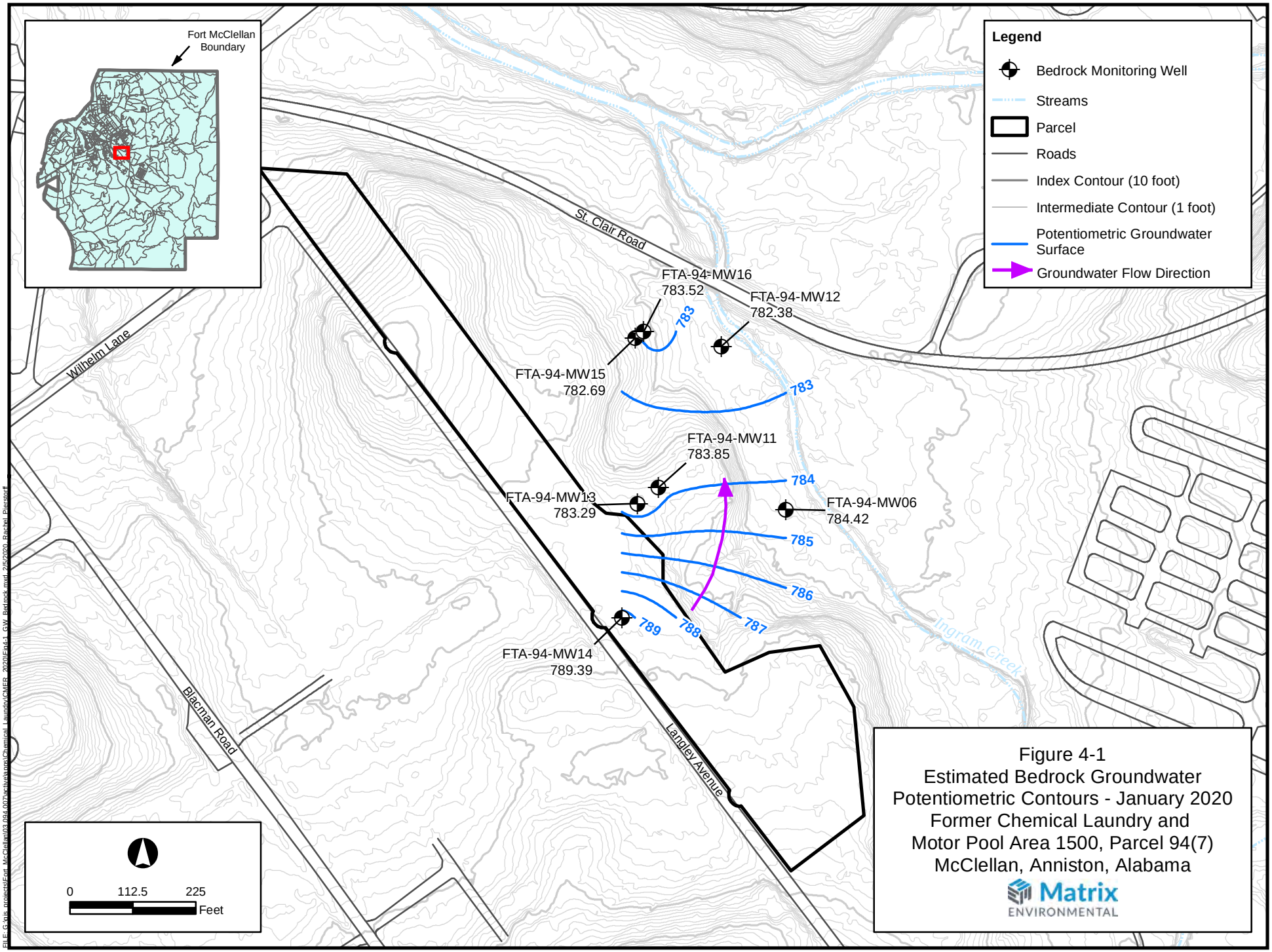
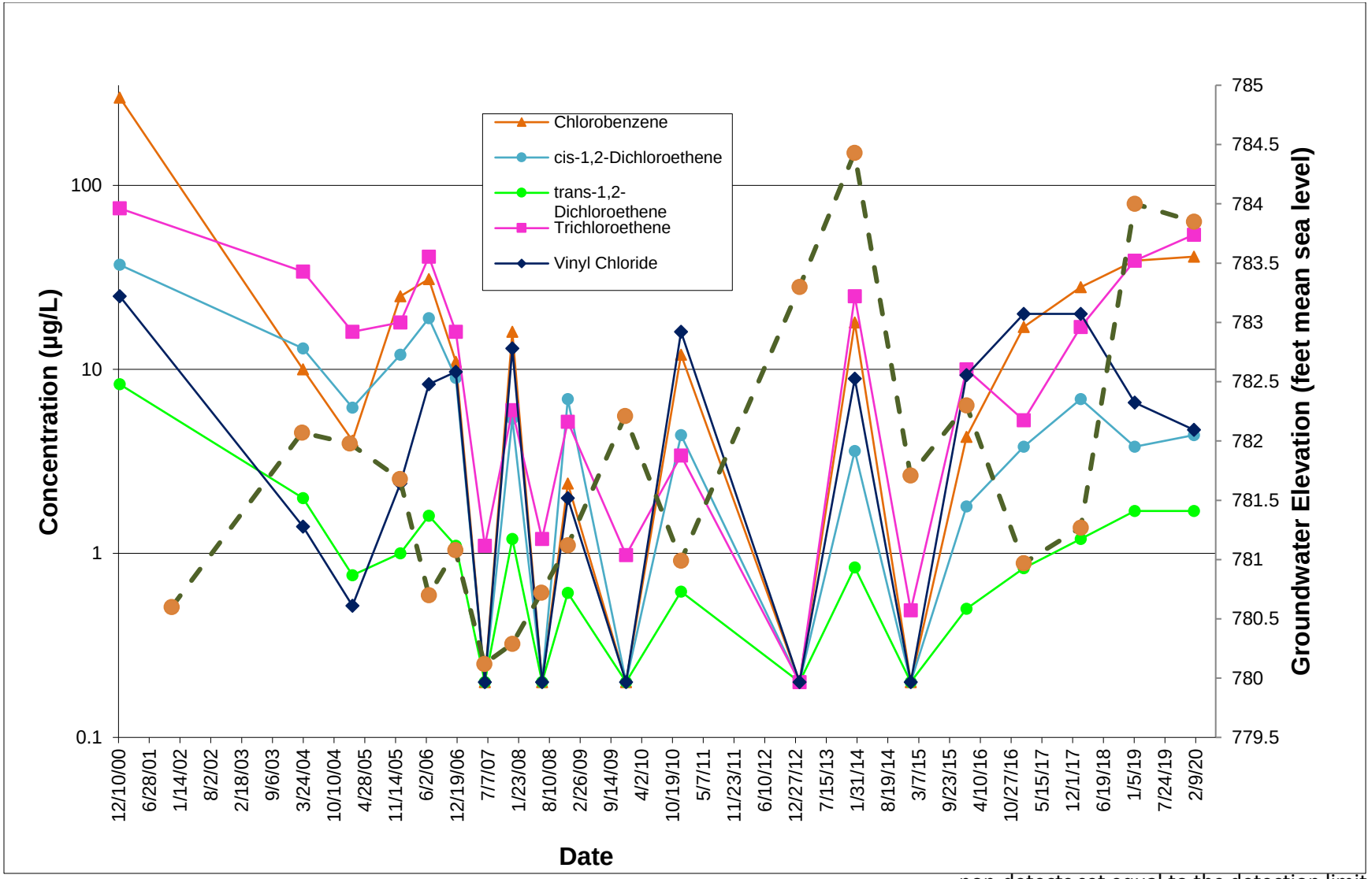


Figure 3-1
Groundwater Monitoring Well Locations
Former Chemical Laundry and
Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Matrix ENVIRONMENTAL

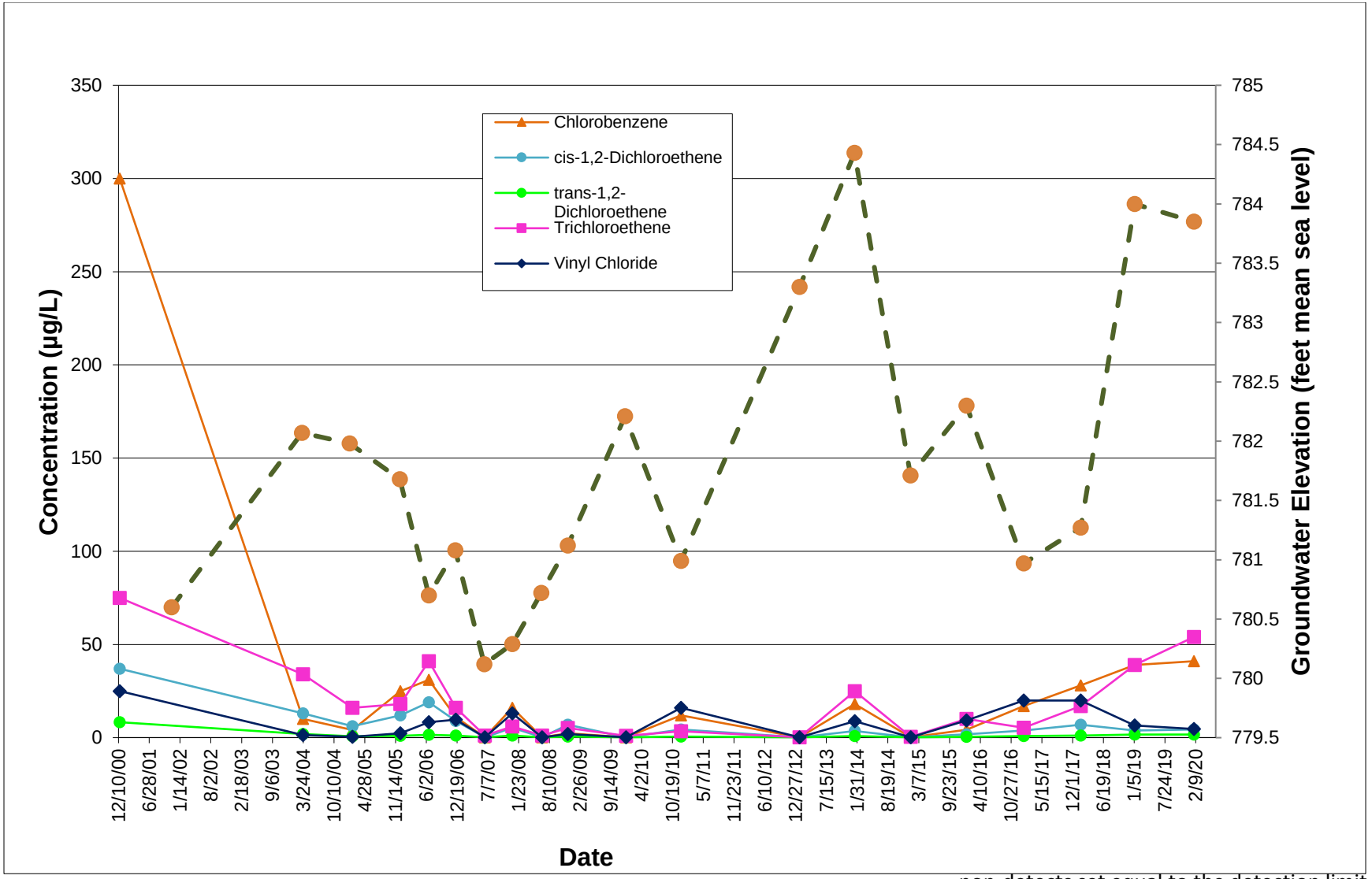

Fort McClellan Boundary
Legend
Bedrock Monitoring Well
Streams
Parcel
Roads
Index Contour (10 foot)
Intermediate Contour (1 foot)
Potentiometric Groundwater Surface
Groundwater Flow Direction
St. Clair Road
Wilhelm Lane
Blacman Road
Langley Avenue
Ingram Creek
FTA-94-MW16
783.52
FTA-94-MW12
782.38
FTA-94-MW15
782.69
FTA-94-MW11
783.85
FTA-94-MW13
783.29
FTA-94-MW06
784.42
FTA-94-MW14
789.39
783
784
785
786
787
788
789
0
112.5
225
Feet
Figure 4-1
Estimated Bedrock Groundwater Potentiometric Contours - January 2020
Former Chemical Laundry and
Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama
Matrix ENVIRONMENTAL



non-detects set equal to the detection limit

Matrix ENVIRONMENTAL

Figure 4-2a: VOC Concentrations and Groundwater Trends Well FTA-94-MW11 (Logarithmic Scale)
Former Chemical Laundry and
Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama



non-detects set equal to the detection limit

Matrix ENVIRONMENTAL

Figure 4-2b: VOC Concentrations and Groundwater Trends Well FTA-94-MW11 (Linear Scale)

Former Chemical Laundry and
Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

APPENDICES

Corrective Measures Effectiveness Report
January 2020 Monitoring Event
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

APPENDIX A

Groundwater Levels and Sample Collection Logs

Matrix Environmental Services
283 Rucker Street
Anniston, Alabama 36205
(256) 847-0780
(256) 847-0905

Project Name
Chem Laundry

Project Number
19.094.20-02.1

GROUNDWATER LEVELS

Field Personnel	Measuring Equipment	Date
Tulley/Abernathy	Solinst Water Level Meter	1/27/2020

Conditions

Well ID	Casing Diameter (in)	Date	Time	Depth to Water (feet)	Well Depth (feet)	Water Column (feet)	Initials
FTA-94-MW02	2	1/27/2020	9:35	28.93	55.00	26.07	DA
FTA-94-MW10	2	1/27/2020	9:40	15.88	38.49	22.61	DA
FTA-94-MW14	4	1/27/2020	9:43	17.81	75.30	57.49	DA
FTA-94-MW09	2	1/27/2020	9:50	18.38	32.18	13.80	DA
FTA-94-MW05	2	1/27/2020	9:47	19.43	38.26	18.83	DA
FTA-94-MW08	2	1/27/2020	9:55	21.22	26.28	5.06	DA
FTA-94-MW07	2	1/27/2020	8:55	6.55	20.01	13.46	DA
FTA-94-MW16	4	1/27/2020	10:00	9.48	46.65	37.17	DA
FTA-94-MW06	4	1/27/2020	9:05	5.36	27.69	22.33	DA
FTA-94-MW15	4	1/27/2020	10:03	12.5	93.32	80.82	DA
FTA-94-MW03	2	1/27/2020	8:30	5.06	22.60	17.54	DA
FTA-94-MW12	2	1/27/2020	8:45	4.78	93.95	89.17	DA
FTA-94-MW04	2	1/27/2020	9:12	4.81	22.13	17.32	DA
FTA-94-MW11	4	1/27/2020	9:20	22.94	70.81	47.87	DA
FTA-94-MW01	4	1/27/2020	9:25	23.53	44.42	20.89	DA
FTA-94-MW13	4	1/27/2020	9:30	24.77	127.93	103.16	DA

Matrix ENVIRONMENTAL

Matrix Environmental Services
1601 Blake Street, Suite 200
Denver, Colorado 80202
(303) 572-0200
(303) 572-0202

Station Name/Sample ID	
FTA-94-MW03	
Project	**Project Number**
McClellan	19.094.20-02.1

GROUNDWATER SAMPLING LOG

Groundwater Depth (TOC) 5.06 feet	**Sample Method** Low Flow	**Sampler** Tulley	**Date** 1/27/2020
Well Depth (TOC) 22.6 feet		**Location (Site)** Chem Laundry	**Begin Time** 8:30
	Equipment Geocontrol Pro, Water Level Meter	**Laboratory** TestAmerica	**Sample Depth** 18.0
Water Column Thickness 17.54 feet		**Sample Suite** See COCs	
Casing Diameter 2 inches	**Temperature (°F)** 45	**Meters** YSI Pro Plus, Geocontrol PRO	**Serial numbers**
Casing Volume 2.81 gallons 1"=x0.04 2"=x0.16 4"=x0.65 6"=x1.47 8"=x10.4	**Weather Conditions** Overcast	**Calibration** Field 1/27/2020	**Ferrous Iron (Fe II) (mg/L)** N/A
Well Elevation (TOC) 786.49 feet			
Groundwater Elevation 781.43 feet	**Parameter Stabilization** temp +/- 1° DO +/- 10% Turbidity +/- 10% cond +/- 3% ORP +/- 10mV pH +/- 0.1 unit	**Product Observed (yes/no)** N/A	**Depth to product** N/A

Time	Volume removed (gallon)	Temp (°C)	Cond (µS/cm)	DO (mg/L)	ORP (mV)	TDS (g/L)	Turbidity (NTU)	pH	Description		
									clarity	color	odor
9:15	750	14.10	484.6	2.24	114.3	0.3153	117.40	7.14	Cloudy	Brown	None
9:20	750	14.10	484.9	1.87	109.6	0.3153	90.86	7.16	Cloudy	Brown	None
9:25	750	14.20	486.2	3.67	84.7	0.3165	75.47	7.19	Cloudy	Brown	None
9:30	750	14.10	489.1	1.06	64.5	0.3179	57.40	7.22	Cloudy	Yellow	None
9:35	750	14.00	489.3	0.75	63.5	0.3179	56.47	7.23	Cloudy	Yellow	None
9:40	750	14.00	489	2.30	63.9	0.3179	55.58	7.23	Cloudy	Yellow	None
9:45	750	14.10	489.9	4.53	57.7	0.3185	29.74	7.24	Cloudy	Clear	None
9:50	750	14.10	490.1	4.12	55.0	0.3185	25.86	7.25	Cloudy	Clear	None
9:55	750	14.10	490.7	1.12	54.9	0.3192	25.01	7.25	Cloudy	Clear	None
10:00	750	14.10	490.7	0.87	54.7	0.3192	26.06	7.25	Cloudy	Clear	None
10:05	750	14.10	490.9	1.21	54.6	0.3192	25.81	7.25	Cloudy	Clear	None
10:06			Collected Sample Suite								

Total Time (min.)	Total Volume Removed	Well pumped dry (yes/no)	Notes
50	7500	No	

QA/QC Samples	Signature
N/A	9-2

Matrix ENVIRONMENTAL

Matrix Environmental Services
1601 Blake Street, Suite 200
Denver, Colorado 80202
(303) 572-0200
(303) 572-0202

Station Name/Sample ID	
FTA-94-MW11	
Project	**Project Number**
McClellan	19.094.20-02.1

GROUNDWATER SAMPLING LOG

Groundwater Depth (TOC) 22.94 feet	**Sample Method** Low Flow	**Sampler** Tulley	**Date** 1/28/2020
Well Depth (TOC) 70.81 feet		**Location (Site)** Chem Laundery	**Begin Time** 11:00
Water Column Thickness 47.87 feet	**Equipment** Geocontrol Pro, Water Level Meter	**Laboratory** TestAmerica	**Sample Depth** 62.0
		Sample Suite See COCs	
Casing Diameter 4 inches	**Temperature (°F)** 54	**Meters** YSI Pro Plus, Geocontrol PRO	**Serial numbers**
Casing Volume 31.12 gallons 1"=x0.04 2"=x0.16 4"=x0.65 6"=x1.47 8"=x10.4	**Weather Conditions** Sunny	**Calibration** Field 1/28/2020	**Ferrous Iron (Fe II) (mg/L)** 0
Well Elevation (TOC) 806.79 feet			
Groundwater Elevation 783.85 feet	**Parameter Stabilization** temp +/- 1° DO +/- 10% Turbidity +/- 10% cond +/- 3% ORP +/- 10mV pH +/- 0.1 unit	**Product Observed (yes/no)** N/A	**Depth to product** N/A

Time	Volume removed (gallon)	Temp (°C)	Cond (µS/cm)	DO (mg/L)	ORP (mV)	TDS (g/L)	Turbidity (NTU)	pH	Description		
									clarity	color	odor
11:15	500	16.30	295.9	4.03	28.3	0.1924	6.29	7.82	Clear	Clear	None
11:20	500	16.20	372.8	2.49	41.4	0.2424	7.24	7.50	Clear	Clear	None
11:25	500	16.20	397.5	2.28	27.9	0.2581	5.66	7.44	Clear	Clear	None
11:30	500	16.30	416.1	1.96	18.1	0.2704	4.98	7.40	Clear	Clear	None
11:35	500	16.60	444.7	1.27	-8.5	0.2919	3.51	7.32	Clear	Clear	None
11:40	500	16.50	464.8	1.07	-14.1	0.3023	4.03	7.29	Clear	Clear	None
11:45	500	16.60	465.5	1.16	-14.3	0.3029	2.98	7.29	Clear	Clear	None
11:50	500	16.60	468.5	1.51	-10.6	0.3042	3.03	7.29	Clear	Clear	None
11:55	500	16.50	468.6	1.39	-9.8	0.3043	3.27	7.29	Clear	Clear	None
11:56			Collected Sample Suite								

Total Time (min.)	Total Volume Removed	Well pumped dry (yes/no)	Notes
40	4000	No	

QA/QC Samples
Dup 340

Signature

Matrix Environmental Services
1601 Blake Street, Suite 200
Denver, Colorado 80202
(303) 572-0200
(303) 572-0202

Station Name/Sample ID	
FTA-94-MW12	
Project	**Project Number**
McClellan	19.094.20-02.1

GROUNDWATER SAMPLING LOG

Groundwater Depth (TOC) 4.78 feet	**Sample Method** Low Flow	**Sampler** Tulley	**Date** 1/27/2020
Well Depth (TOC) 93.95 feet		**Location (Site)** Chem Laundry	**Begin Time** 10:30
Water Column Thickness 89.17 feet	**Equipment** Geocontrol Pro, Water Level Meter	**Laboratory** TestAmerica	**Sample Depth** 85.0
		Sample Suite See COCs	
Casing Diameter 2 inches	**Temperature (°F)** 48	**Meters** YSI Pro Plus, Geocontrol PRO	**Serial numbers**
Casing Volume 14.27 gallons 1"=x0.04 2"=x0.16 4"=x0.65 6"=x1.47 8"=x10.4	**Weather Conditions** Overcast	**Calibration** Field 1/27/2020	**Ferrous Iron (Fe II) (mg/L)** N/A
Well Elevation (TOC) 787.16 feet			
Groundwater Elevation 782.38 feet	**Parameter Stabilization** temp +/- 1° DO +/- 10% Turbidity +/- 10% cond +/- 3% ORP +/- 10mV pH +/- 0.1 unit	**Product Observed (yes/no)** N/A	**Depth to product** N/A

Time	Volume removed (gallon)	Temp (°C)	Cond (µS/cm)	DO (mg/L)	ORP (mV)	TDS (g/L)	Turbidity (NTU)	pH	Description		
									clarity	color	odor
10:45	500	14.00	546.4	3.42	-104.6	0.3354	5.04	7.57	Clear	Clear	None
10:50	500	14.20	516.6	1.90	-127.9	0.3361	6.84	7.58	Clear	Clear	None
10:55	500	14.10	516.2	1.56	-137.6	0.3354	7.76	7.57	Clear	Clear	None
11:00	500	14.00	517.2	1.30	-144.6	0.3361	9.12	7.57	Clear	Clear	None
11:05	500	13.60	518.5	1.32	-144.4	0.3367	10.02	7.57	Clear	Clear	None
11:10	500	11.90	522.1	1.22	-140.7	0.3393	9.85	7.52	Clear	Clear	None
11:15	500	12.00	519.9	1.10	-140.9	0.3361	9.88	7.52	Clear	Clear	None
11:20	500	12.60	517.7	1.04	-148.9	0.3367	10.10	7.57	Clear	Clear	None
11:25	500	12.90	517.9	1.03	-149.8	0.3367	9.98	7.58	Clear	Clear	None
11:30	500	13.20	518.1	0.98	-149.9	0.3368	10.30	7.58	Clear	Clear	None
11:31			Collecting Sample Suite								

Total Time (min.)	Total Volume Removed	Well pumped dry (yes/no)	Notes
45	4500	No	

QA/QC Samples	Signature
N/A	

Matrix ENVIRONMENTAL

Matrix Environmental Services
1601 Blake Street, Suite 200
Denver, Colorado 80202
(303) 572-0200
(303) 572-0202

Station Name/Sample ID	
FTA-94-MW13	
Project	**Project Number**
McClellan	19.094.20-02.1

GROUNDWATER SAMPLING LOG

Groundwater Depth (TOC) 24.77 feet	**Sample Method** Low Flow	**Sampler** Tulley	**Date** 1/28/2020
Well Depth (TOC) 127.93 feet		**Location (Site)** Chem Laundry	**Begin Time** 9:00
	Equipment Geocontrol Pro, Water Level Meter	**Laboratory** TestAmerica	**Sample Depth** 120.0
Water Column Thickness 103.16 feet		**Sample Suite** See COCs	
Casing Diameter 4 inches	**Temperature (°F)** 43	**Meters** YSI Pro plus, Geocontrol PRO	**Serial numbers**
Casing Volume 67.05 gallons 1"=x0.04 2"=x0.16 4"=x0.65 6"=x1.47 8"=x10.4	**Weather Conditions** Sunny	**Calibration** Field 1/28/2020	**Ferrous Iron (Fe II) (mg/L)** N/A
808.06 feet			
Groundwater Elevation 783.29 feet	**Parameter Stabilization** temp +/- 1° DO +/- 10% Turbidity +/- 10% cond +/- 3% ORP +/- 10mV pH +/- 0.1 unit	**Product Observed (yes/no)** N/A	**Depth to product** N/A

Time	Volume removed (gallon)	Temp (°C)	Cond (µS/cm)	DO (mg/L)	ORP (mV)	TDS (g/L)	Turbidity (NTU)	pH	Description		
									clarity	color	odor
9:35	500	13.40	464.8	7.93	-80.4	0.301	9.59	8.94	Clear	Clear	None
9:40	500	13.70	460.2	5.63	-102.2	0.298	9.02	9.08	Clear	Clear	None
9:45	500	14.90	453.8	5.27	-203.3	0.296	8.86	9.38	Clear	Clear	None
9:50	500	14.90	454.6	5.56	-204.8	0.295	7.07	9.38	Clear	Clear	None
9:55	500	14.80	454.6	2.14	-205.9	0.295	6.98	9.38	Clear	Clear	None
10:00	500	15.30	453.1	4.67	-212.5	0.294	6.37	9.40	Clear	Clear	None
10:05	500	16.00	450.6	4.72	-215.5	0.293	3.33	9.41	Clear	Clear	None
10:10	500	16.40	449.8	6.55	-217.3	0.293	2.90	9.41	Clear	Clear	None
10:15	500	16.80	449.6	6.39	-216.9	0.293	3.21	9.41	Clear	Clear	None
10:16	Collecting Sample Suite										
							JR				
							1-28-2020				

Total Time (min.)	Total Volume Removed	Well pumped dry (yes/no)	Notes
40	4000	No	

QA/QC Samples N/A

Signature

Matrix ENVIRONMENTAL

Matrix Environmental Services
1601 Blake Street, Suite 200
Denver, Colorado 80202
(303) 572-0200
(303) 572-0202

Station Name/Sample ID	
FTA-94-MW15	
Project	**Project Number**
McClellan	19.094.20-02.1

GROUNDWATER SAMPLING LOG

Groundwater Depth (TOC) 12.5 feet	**Sample Method** Low Flow	**Sampler** Tulley	**Date** 1/27/2020
Well Depth (TOC) 93.32 feet	**Equipment** Geocontrol Pro, Water Level Meter	**Location (Site)** Chem Laundry	**Begin Time** 12:30
Water Column Thickness 80.82 feet		**Laboratory** TestAmerica	**Sample Depth** 85.0
		Sample Suite See COCs	
Casing Diameter 4 inches	**Temperature (°F)** 48	**Meters** YSI Pro Plus, Geocontrol PRO	**Serial numbers**
Casing Volume 52.53 gallons 1"=x0.04 2"=x0.16 4"=x0.65 6"=x1.47 8"=x10.4	**Weather Conditions** Overcast	**Calibration** Field 1/27/2020	**Ferrous Iron (Fe II) (mg/L)** N/A
Well Elevation (TOC) 795.19 feet			
Groundwater Elevation 782.69 feet	**Parameter Stabilization** temp +/- 1° DO +/- 10% Turbidity +/- 10% cond +/- 3% ORP +/- 10mV pH +/- 0.1 unit	**Product Observed (yes/no)** N/A	**Depth to product** N/A

Time	Volume removed (gallon)	Temp (°C)	Cond (µS/cm)	DO (mg/L)	ORP (mV)	TDS (g/L)	Turbidity (NTU)	pH	Description		
									clarity	color	odor
13:00	500	13.70	634.6	3.11	23.5	0.4108	17.85	7.97	Clear	Clear	None
13:05	500	14.00	632.8	3.02	21.2	0.4095	16.86	7.97	Clear	Clear	None
13:10	500	14.70	633	3.59	15.3	0.4095	14.09	7.95	Clear	Clear	None
13:15	500	14.50	632	4.36	29.0	0.4095	13.56	7.94	Clear	Clear	None
13:20	500	15.00	630	2.32	28.4	0.4095	3.98	7.92	Clear	Clear	None
13:25	500	15.20	630	1.79	36.7	0.4095	4.04	7.93	Clear	Clear	None
13:30	500	15.20	630	1.81	36.9	0.4095	3.11	7.93	Clear	Clear	None
13:35	500	15.20	630	1.79	37.1	0.4095	3.97	7.93	Clear	Clear	None
13:36	Collected Sample Suite										

Total Time (min.)	Total Volume Removed	Well pumped dry (yes/no)	Notes
35	3500	No	

QA/QC Samples	Signature
N/A	

Matrix ENVIRONMENTAL

Matrix Environmental Services
1601 Blake Street, Suite 200
Denver, Colorado 80202
(303) 572-0200
(303) 572-0202

Station Name/Sample ID	
FTA-94-MW16	
Project	**Project Number**
McClellan	19.094.20-02.1

GROUNDWATER SAMPLING LOG

Groundwater Depth (TOC) 9.48 feet	**Sample Method** Low Flow	**Sampler** Tulley	**Date** 1/27/2020
Well Depth (TOC) 46.65 feet		**Location (Site)** Chem Laundry	**Begin Time** 14:00
Water Column Thickness 35.99 feet	**Equipment** Geocontrol Pro, Water Level Meter	**Laboratory** TestAmerica	**Sample Depth** 40.0
		Sample Suite See COCs	
Casing Diameter 4 inches	**Temperature (°F)** 52	**Meters** YSI Pro Plus, Geocontrol PRO	**Serial numbers**
Casing Volume 23.39 gallons 1"=x0.04 2"=x0.16 4"=x0.65 6"=x1.47 8"=x10.4	**Weather Conditions** Sunny	**Calibration** Field 1/27/2020	**Ferrous Iron (Fe II) (mg/L)** N/A
Well Elevation (TOC) 793 feet			
Groundwater Elevation 783.52 feet	**Parameter Stabilization** temp +/- 1° DO +/- 10% Turbidity +/- 10% cond +/- 3% ORP +/- 10mV pH +/- 0.1 unit	**Product Observed (yes/no)** N/A	**Depth to product** N/A

Time	Volume removed (gallon)	Temp (°C)	Cond (µS/cm)	DO (mg/L)	ORP (mV)	TDS (g/L)	Turbidity (NTU)	pH	Description		
									clarity	color	odor
14:20	500	15.30	354.9	3.58	37.0	0.2301	9.00	11.18	Clear	Clear	None
14:25	500	15.40	354.1	3.82	39.2	0.2294	8.76	11.21	Clear	Clear	None
14:30	500	15.70	354	3.07	68.1	0.2294	7.14	11.25	Clear	Clear	None
14:35	500	15.50	353.8	2.79	75.7	0.2301	8.08	11.26	Clear	Clear	None
14:40	500	15.50	354.2	2.80	94.5	0.2301	7.99	11.26	Clear	Clear	None
14:45	500	15.50	354.4	3.03	95.9	0.2301	7.07	11.25	Clear	Clear	None
14:50	500	15.60	354.3	2.90	96.1	0.2301	7.71	11.26	Clear	Clear	None
14:51				Collected Sample Suite							

Total Time (min.)	Total Volume Removed	Well pumped dry (yes/no)	Notes
30	3000	No	

QA/QC Samples	Signature
N/A	

APPENDIX B

Chain-of-Custody Forms

MATRIX ENVIRONMENTAL SERVICES CHAIN OF CUSTODY RECORD

COC Number 5970
Cooler ID 1 of 1
Page 1 of 1

Laboratory TestAmerica
Lab Contact Jon Lawhon; Amy Ragnaldsen
MES Contact Betty Van Pelt
MES Phone 801-699-1246
Project Parcel 94(7), Chem Laundry/Motor Pool
Task # 19.094.20-02.1
Lab contract:

Samplers Signature

SWMU	Station ID	QC Code	Station Code	Matrix	Sample Method	Date Collected	Sample Time	Analysis: SW8260 - VOC 3-40 mL vials, HCL	RSK-175-M,E,E 3-40mL vials, HCl	SW6010B Metals, Fe, Mn - Total 1 - 250mL poly, HNO3	SW6010B Metals, Fe, Mn - Dissolved (lab filter) 1 - 250mL poly, None	4500-NH3F, 4500NorgC 1-250 mL poly, H2SO4	SW9056 Nitrate, Nitrite, Sulfate 1-125 mL poly, none	SW8260 - VOC 2-40 mL vials, HCL
LTM - ChemLaundry	FTA-94-MW03	NS	MW	Water	BP	1/27/20	10:06	X						
LTM - ChemLaundry	FTA-94-MW11	NS	MW	Water	BP	1/28/20	11:56	X	X	X	X	X	X	
LTM - ChemLaundry	FTA-94-MW12	NS	MW	Water	BP	1/27/20	11:31	X						
LTM - ChemLaundry	FTA-94-MW13	NS	MW	Water	BP	1/28/20	10:16	X						
LTM - ChemLaundry	FTA-94-MW15	NS	MW	Water	BP	1/27/20	13:36	X						
LTM - ChemLaundry	FTA-94-MW16	NS	MW	Water	BP	1/27/20	14:51	X						
LTM - ChemLaundry	DUP340	FD	MW	Water	BP	1/28/20	N/A	X	X	X	X	X	X	
LTM - ChemLaundry	TB547	TB	WQ	Water	G	1/28/20	13:30							X

NOTES:

QC Code: NS = Investigative Sample, FD = Field Duplicate, MS/MSD = Matrix Spike/Matrix Spike Duplicate, EB = Equipment Blank, TB = Trip Blank, WQ = Water Quality, WS = Source Water
Station Type = MW = Monitoring Well, BH = Bore Hole, SD = Sediment, SW = Surface Water, SS = Surface Soil, SU = Sump, WS = Waste Solid/Soil, WW = Waste Water
White Copy = Lab COC, Yellow COC = Field Copy, Pink COC = Data Mgmt
Sampling Method: G = Grab, BP = bladder pump, PDB = PDB bag
Double the number of bottles for MS/MSD

COMMENTS:

Relinquished by (Signature):
Date/Time: 1/28/20 14:00
Received by (Signature): Fed Ex

Relinquished by (Signature):
Date/Time:
Received by (Signature):

DUP #340 - FTA-94-MW11

APPENDIX C

Data Quality Summary

Appendix C

Data Quality Summary:

Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)

McClellan, Anniston, Alabama

January 2020 Monitoring Event

Prepared for:

MCCLELLAN
DEVELOPMENT AUTHORITY

Prepared by:

Matrix

283 Rucker Street, Bldg. 3165
Anniston, Alabama 36205
(256) 847-0780
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March 2020

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ATTACHMENTS

LIST OF ABBREVIATIONS AND ACRONYMS

ADEM	Alabama Department of Environmental Management
ARBCA	*Alabama Risk-Based Corrective Action Guidance Manual, Revision 3*
CCAL	Continuing calibration
CMI Plan	*Final Corrective Measures Implementation Plan*
COC	Chain-of-custody
December 2007 to December 2010 CMER	*Final Corrective Measures Effectiveness Report, December 2007, June 2008, December 2008, December 2009, and December 2010 Monitoring Events*
DQO	Data Quality Objective
DQS	Data Quality Summary
EB	Equipment blank
EPA	United States Environmental Protection Agency
FD	Field duplicate
GC	Gas chromatography
GC/MS	Gas chromatography/mass spectrometry
ICAL	Initial calibration
IDL	Instrument detection limit
IS	Internal standard
LCS	Laboratory control sample
LCSD	Laboratory control sample duplicate
LFS	low flow sampling
MCL	Maximum contaminant level
MDA	McClellan Development Authority
MDL	Method detection limit
MES	Matrix Environmental Services, LLC
MNA	Monitored Natural Attenuation
MS	Matrix spike
MSD	Matrix spike duplicate
PARCCS	Precision, accuracy, representativeness, completeness, comparability, and sensitivity
QA	Quality assurance
QAP	*Quality Assurance Plan*
QC	Quality control
%R	Percent recovery
RL	Reporting limit
RPD	Relative percent difference
RSD	Relative standard deviation
Site	Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
SOP	Standard operating procedure
TAL	TestAmerica Laboratories, Inc.
TB	Trip blank
TKN	Total Kjeldahl Nitrogen
VOC	Volatile Organic Compound

1.0 INTRODUCTION

Matrix Environmental Services, LLC (MES) has prepared this Data Quality Summary (DQS) on behalf of the McClellan Development Authority (MDA) in support of the sampling event conducted in January 2020 at the Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7) (the Site) within McClellan, Anniston, Alabama, formerly known as Fort McClellan. The purpose of this sampling event was to collect data to support the implementation of monitored natural attenuation (MNA) as part of the remedial alternative for contaminated groundwater at the Site.

This DQS addresses the data quality review for groundwater samples collected during the January 2020 sampling event. The approved methods used to conduct the investigation are discussed in the *Quality Assurance Plan* (*QAP*) in *Appendix A* of the *Final Installation-Wide Sampling and Analysis Plan* (MES, 2013) which details the specifics of quality assurance (QA) and quality control (QC) with respect to sampling and data evaluation.

2.0 PROJECT DESCRIPTION

Project objectives and QA objectives in terms of precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) are described in this section.

2.1 PROJECT OBJECTIVES

The objective of the environmental sampling at the Site is to evaluate the effectiveness of MNA in groundwater at the Site for the degradation of chlorinated solvents. To support this objective, groundwater samples were collected from one residuum well and five bedrock wells during one round of sampling conducted in January 2020 using low flow sampling (LFS) techniques. The groundwater samples were analyzed for volatile organic compounds (VOCs) and MNA parameters.

2.2 DATA QUALITY LEVELS

During the field program, groundwater samples were collected and analyzed with screening level methods for field parameters and definitive level methods for specific chemical analytes. Screening and definitive level data are defined as follows (United States Environmental Protection Agency [EPA], 1994):

- Screening Level Data – Screening level data are subject to minimal QC requirements. Results are often not compound-specific and not quantitative, but results are available in real time. Obtaining screening level data is less costly than obtaining definitive level data, but the results are less defensible because of the greater potential for error and the inherent precision and accuracy limitations. This level is normally used for field investigation health and safety screening, but can also be used to identify media or samples for consideration for further analyses. Field pH, conductivity, temperature, turbidity, total dissolved solids, dissolved oxygen, and oxidation/reduction potential measurements collected during this investigation are considered screening level data.

- Definitive Level Data - Analyses performed using established analytical procedures and strict QC procedures produce definitive level data. Applicable EPA test methods (EPA, 1983 and 1986) were used to collect definitive level data for the Site. Analytical results produced were analyte-specific with confirmation of analyte identity and concentration. Definitive level data meeting quality criteria are suitable for site assessments, risk assessments, remedial design, and remediation efforts.

2.3 DATA QUALITY OBJECTIVES

QA objectives in terms of PARCCS are outlined below.

Precision is a measure of the reproducibility of a set of duplicate analytical results, usually under prescribed similar conditions. Precision, as discussed in Section A3.3.1 in the *QAP*, is expressed in terms of the relative percent difference (RPD) between duplicate determinations, or in terms of

the relative standard deviation (RSD) when three or more determinations are made. Various measures of precision exist depending on the prescribed similar conditions.

Overall sampling and analysis precision was assessed using RPDs for duplicate environmental samples and matrix spike/matrix spike duplicates (MS/MSDs). The RPDs for laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results were used to assess laboratory precision. RPD is defined as the difference between two measurements divided by their mean and expressed as a percent (%) as shown in the following equation:

$$RPD = \frac{|X - Y|}{(X + Y) / 2} \times 100\%$$

where:

X = Primary sample concentration (primary field investigative sample, MS, or LCS)
Y = Duplicate sample concentration (laboratory duplicate, field duplicate [FD], MSD, or LCSD)

To evaluate precision, the RPDs for MS/MSDs, laboratory duplicates, and LCS/LCSDs were compared to laboratory historical limits. The RPDs for FDs were compared to the project precision goal of 50 percent for aqueous samples.

The RSD is the standard deviation of a set of values divided by the average value expressed as a percent as shown in the following equation:

$$RSD = S/\overline{X} \times 100$$

where:

S = The standard deviation of the sample data
$\overline{X}$ = The arithmetic mean of the sample data

RSDs can be used to evaluate the linearity of the initial calibration (EPA, 1986).

Accuracy is a measure of the agreement of an analytical result with the true value. Accuracy, as discussed in Section A3.3.2 in the *QAP*, is typically expressed as a percent recovery (%R) calculated by the ratio of the measurement and accepted true value as shown in the following equation:

$$\%R = ((Xs - Xu) / K) \times 100\%$$

where:

Xs = Measured value of the spiked sample
Xu = Measured value of the unspiked sample
K = Known amount of the spike in the sample

Analytical accuracy is assessed through the analysis of spikes such as surrogates, MS/MSDs and LCS/LCSDs, performance evaluation samples, standard reference materials and calibration check samples. Surrogates and MS/MSDs are spiked into the actual sample matrix and are accuracy indicators that take into account the nature of the matrix in question and the native

concentration of the analyte spiked. Matrix variability or interferences from high concentrations of native compounds may adversely affect spike recovery and yield less than conclusive data. Accuracy checks that focus on analytical method and consist of compounds spiked in a blank or non-interfering matrix (e.g., LCSs or calibration check samples) address the accuracy of the method or instrumentation at detecting the target analyte(s) at a certain quantification level and are not considered to be subject to matrix effects. The accuracy of sample results can also be affected by holding time violations.

Representativeness, as described in Section A3.3.3 in the *QAP*, is a qualitative parameter that expresses the degree to which sample data actually represent the matrix conditions. For example, in conducting groundwater monitoring, representativeness requires proper location of wells and the collection of samples under consistent, documented procedures. Wells are located based upon the results of the hydrogeologic study in progress and are designed to provide maximum coverage of the flow conditions. Requirements and procedures for sample collection and handling are designed to maximize sample representativeness. Representativeness can also be monitored by reviewing field documentation and by performing field QA audits.

Completeness, as discussed in Section A3.3.4 in the *QAP*, represents the percentage of valid data collected from a sampling/analytical program or measurement system compared to the amount achieved under optimal conditions. The completeness goal for investigative samples is 95 percent. Completeness is calculated using the following formula:

$$\text{Percent Complete} = \frac{\text{Valid Data}}{\text{Total Data}} \times 100\%$$

Valid data are identified during the data review process as being acceptable for use or usable as qualified. Invalid data are identified as rejected.

Comparability, as discussed in Section A3.3.5 of the *QAP*, is a qualitative parameter expressing the confidence with which one data set can be compared with another. Comparability for sampling and analysis tasks is achieved by:

- Specifying well-recognized techniques and accepted standard methods for sampling and analysis, and using well-trained sampling and analysis technicians to execute the prescribed methods consistently.
- Requiring that sampling and analysis personnel produce adequate documentation to record how the prescribed methods were actually executed.
- Noting non-conformances and corrective measures taken.

Specifying standardized laboratory methods helps to ensure that the data generated for a sampling event are comparable to past and future sampling events.

Sensitivity is used broadly here to describe the method detection limits (MDLs) or reporting limits (RLs) established to meet project-specific data quality objectives (DQOs). In addition, sensitivity can be used to describe the capability of a method or instrument to discriminate

between measurement responses. Several limits have been established to describe sensitivity requirements as specified in Section A3.3.6 of the *QAP*. Reported instrument detection limits (IDLs) and MDLs are typically based upon a reagent water matrix or purified solid, and ignore sample matrix interferences and the resulting effects on the limits. For this reason, published MDLs or IDLs may not be achievable for environmental samples. The *QAP* RLs were generated by the laboratory and may exceed Maximum Contaminant Levels (MCLs) due to instrument limitations. Section 6.2 discusses the comparisons between the MCLs and the laboratory RLs and MDLs for the sampling events.

2.4 ANALYTICAL SERVICES

TestAmerica Laboratories, Inc. (TAL), Savannah, Georgia, provided analytical services for the sampling conducted by MES.

2.4.1 Analytical Program

The *QAP* lists the EPA analytical methods used to meet definitive data requirements. The methods used to analyze constituents of concern in samples during the January 2020 sampling event are:

- Method SW8260B - VOCs by Gas Chromatography/Mass Spectrometry (GC/MS)
- Method RSK-175 - Light hydrocarbons methane, ethane, and ethene by gas chromatography (GC)
- Method SW6010C - Total and Dissolved Metals (iron and manganese) by Inductively Coupled Plasma Atomic Emission Spectrometry
- Method SW9056A - Anions (Sulfate, Nitrate, Nitrite) by Ion Chromatography
- Method EPA 350.1 - Ammonia by Colorimetry
- Method EPA 351.2 - Total Kjeldahl Nitrogen (TKN) by Spectrophotometry

2.4.2 Quality Control

The *QAP* describes the analytical QC requirements. The results of the analytical QC data review for this sampling event are presented in Section 5.0.

3.0 DEVIATIONS FROM PLANNED FIELD ACTIVITIES

Field activities were performed as outlined in the *Final Corrective Measures Implementation Plan (CMI Plan)* (MES, 2006). No deviations from the *CMI Plan* were noted during the preparation of this DQS.

4.0 ASSESSMENT OF DATA QUALITY

Data quality is assessed through two review processes. The contracted analytical laboratory performs the first data review to assess compliance with *QAP*-approved analytical methods (MES, 2013) and with laboratory standard operating procedures. MES performs the second data review to assess compliance with the QA objectives, and to assess hard copy and electronic deliverable consistency and integrity.

4.1 LABORATORY DATA QUALITY ASSESSMENT

The laboratory data quality assessment includes an analytical data review to ensure accurate and complete data reporting and compliance with the analytical method specifications.

4.1.1 Laboratory Qualification of Data

The laboratory will flag analytical results, when necessary, to indicate potential impacts to data usability and to alert the user to special analytical conditions. More than one qualifier may be used to indicate multiple conditions or situations that apply to an individual result. The following laboratory qualifiers were used during this investigation:

FLAG	DESCRIPTION
J	Estimated value. The analyte is positively identified, and the concentration is less than the RL but greater than the MDL.
U	Analyte is not detected above the RL.

4.2 MES DATA QUALITY AND USABILITY ASSESSMENT

The following sections describe the procedures that MES followed to assess the quality and usability of both field measurement and definitive data. Data assessment is complete when 100 percent of the information have been collected and reviewed. Based on the results of the review process, data are categorized as fully usable, usable as qualified, or rejected.

4.2.1 Data Review and Validation

MES reviewed the analytical data in accordance with the *QAP* (MES, 2013), analytical methods (EPA, 1986), and *USEPA Contract Laboratory Program National Functional Guidelines for Organic and Inorganic Data Review* (EPA, 2014a and 2014b). The data review process included reviewing and evaluating 100 percent of the hard copy data for (1) extraction and analysis holding times, (2) surrogate recoveries, (3) blank detections, (4) LCS/LCSD recoveries and RPDs, (5) MS/MSD recoveries and RPDs, (6) FD RPDs, (7) laboratory duplicate RPDs, if applicable, (8) initial and continuing calibrations, (9) instrument tuning and performance, (10) reporting limits, and (11) completeness of the chain-of-custody (COC) forms.

Hard copy data packages were checked to verify that the following items were included:

- Case narrative
- Data summary sheets
- Initial and continuing calibrations
- Method or preparation blanks (at least one per QC batch)
- MS/MSD (5 percent of client samples)
- LCS/LCSD (one per QC batch)
- Duplicate analyses (laboratory duplicate sample, LCS/LCSD, MS/MSD, as applicable)
- Holding times
- Retention time window calculation (if applicable)
- Standard preparation sheets
- Linear range calculations (correlation coefficients)

The results of the review of the chemical data obtained during this investigation are included in Section 5.0. The laboratory data package is included in Attachment C1.

4.2.2 MES Qualification of Data

Based on the data review, MES may assign final qualifiers to analytical results on both the hard copy results and in the database. The following final qualifiers may be assigned to the results to describe data quality and usability:

FLAG	DESCRIPTION
J	Estimated detection. The associated numerical value is the approximate concentration of the analyte in the sample.
UJ	Analyte was analyzed for, but was not detected. The reported quantitation limit is estimated.
U	Result was qualified as not detected above the RL or reported sample quantitation limit.

In addition to the qualifier, a sub-qualifier is applied to describe the specific multiple conditions or situations that apply to an individual result. These qualifiers and sub-qualifiers are collectively referred to as validation codes.

Whenever duplicate sets of results were reported by the laboratory due to dilutions, re-analyses, re-extractions, or dual column analytical methods, the MES reviewer chose the "most-preferred" results based on the data review. In Section 5.0, only the reportable data are shown in Tables C5-2 to C5-6.

5.0 RESULTS OF QUALITY CONTROL ANALYSES

Table C5-1 lists samples and analytical methods included in the January 2020 sampling event for the Site. To evaluate the data quality, the results were compared to method requirements and laboratory historical control limits.

No data were qualified based on the data review process. None of the analytical data were rejected. The results of the data review process are discussed further in the following sections.

5.1 QUALITY CONTROL PROCEDURES AND RESULTS OF QUALITY CONTROL ANALYSES

Two types of QC results were used to evaluate data quality: field QC samples were collected and analyzed to evaluate field sampling activities, and laboratory QC samples were analyzed to evaluate laboratory analytical procedures and maintain control of the analytical methods.

5.1.1 Field Quality Control Procedures and Analyses

Field QC samples included MS/MSD samples, FD and trip blank (TB). The *QAP* was used as the guidance document to identify the appropriate number of field QC samples, procedures for their collection and analysis, and evaluation of results required for this sampling event. The evaluation procedures for the field QC sample analyses are summarized below.

5.1.1.1 Matrix Spike/Matrix Spike Duplicate and Laboratory Duplicate Samples

MS and MSD samples are investigative samples spiked by the laboratory with known concentrations of target analytes. MS and MSD sample results are used to evaluate possible matrix interferences. The formulas used to calculate the percent recoveries and RPDs are presented in Section 2.3.

Accuracy was assessed by calculating the MS and MSD %Rs of the concentrations of the target analytes added to the investigative sample. The %Rs were then compared to laboratory historical control limits. When both the MS and MSD %Rs were outside laboratory historical control limits, MS/MSD qualifiers were applied only to the results for the investigative sample used for the MS/MSD. When only an MS was analyzed, qualifiers were applied when the MS %R was outside laboratory historical control limits. Low recoveries in an MS/MSD may indicate the matrix has negatively influenced the results. Constituent concentrations could be potentially higher in samples with low MS/ MSD recoveries. High MS/MSD recoveries may indicate the matrix has positively influenced the results. Constituent concentrations may be potentially lower in samples with high MS/MSD recoveries.

Precision was assessed by calculating the RPDs for the MS/MSD sample pairs and laboratory duplicate samples. The MS/MSD and laboratory duplicate RPD values were reviewed to assess the precision of the analytical results based on the magnitude of the RPD values. In cases where a target analyte was not detected in at least one of the MS/MSD or laboratory duplicate sample pair, an RPD would not be valid, and therefore, was not calculated. Qualifiers were not

applied based on the MS/MSD or laboratory duplicate RPD values, however, the MS/MSD and laboratory duplicate RPD values were compared to laboratory historical control limits to assess if further evaluation of the data was warranted.

For the January 2020 sampling event, site specific MS/MSD was not collected; batch QC was analyzed for the MS and MSD for Methods SW8260B, RSK-175, and SW6010B; for the MS and laboratory duplicate for Methods E350.1 and E351.2; and FTA- 94-MW11 was used for the batch QC for Method SW9056A. Data in this SDG are not qualified based on batch QC from another project. No sample results were qualified because of MS and MSD percent recovery data for method SW9056A. A summary of the MS/MSD %R data is shown in Table C5-2.

Because greater than 98 percent of the MS and MSD percent recovery results were within the laboratory control limits, the overall accuracy of the analytical results is considered to be acceptable.

A summary of the MS/MSD RPD data are shown in Tables C5-2. All of the MS/MSD RPD values met the laboratory's historical control limits. Because greater than 98 percent of the MS/MSD and laboratory duplicate RPD results were within the laboratory control limits, the overall variability of the precision measurements is considered to be acceptable.

5.1.1.2 Field Duplicate Samples

FD samples were collected and analyzed as specified in the *QAP* (Section A6.3.5). FD samples are independent samples collected simultaneously or in immediate succession with the original investigative samples such that they are expected to be equally representative of the medium at the time of sampling. These samples provide precision information for the entire measurement system, including sample collection, handling, shipping, storage, preparation, and analysis. The precision of FD pairs was assessed by calculating the RPDs using the equation in Section 2.3. In cases where a target analyte was not detected in either sample or was detected in only one of the samples, an RPD would not be valid, and therefore, was not calculated.

One groundwater FD sample was collected for the January 2020 sampling event. Table C5-3 lists the original station name from the COC forms (i.e. COC IDs used to disguise the sample's identity when the sample was sent to the laboratory), the parent station name, and the methods analyzed.

The results for the FD and associated investigative sample analyses were reviewed to assess the precision of the analytical results based on the magnitude of the RPD values. Table C5-4 presents the results of detected analytes. The criterion of 50% for aqueous samples was used to assess if further evaluation of the data was warranted. All the field duplicate RPDs met criteria with one exception, however at least one of the results for manganese, dissolved is trace level and were therefore not qualified. The overall variability of the precision measurements is considered acceptable.

5.1.1.3 Trip Blank Analyses

TBs are used to assess the potential introduction of contaminants from sample containers or during the sampling, transportation, and storage procedures (MES, 2013). A TB sample consists of VOC sample vials filled in the laboratory with American Society of Testing and Materials Type II reagent grade water, transported to the sampling site, handled like an environmental sample and returned to the laboratory for analysis. TBs are not opened in the field and are only prepared when aqueous VOC samples are scheduled to be collected and analyzed by the laboratory. Sample results are considered affected by trip blank contamination when the sample concentration is less than five times the blank concentration (ten times for common laboratory contaminants acetone, methylene chloride, and 2-butanone). Affected sample results less than the reporting limit and less than five times the associated blank concentrations are considered non-detects at the reporting limit. Affected sample results greater than the reporting limit and less than five times the blank concentration are considered non-detects at the concentration observed in the sample. One TB was collected for the January 2020 sampling event. No analytes were detected in the TB collected during the January 2020 sampling event. No data qualified for TBs.

5.1.2 Laboratory Quality Control Procedures and Analyses

Laboratory QC checks include internal system checks and QC samples used to monitor the possible effect of laboratory activities on sample results. The analytical method and method-specific Standard Operating Procedures (SOPs) developed by the laboratory define the types of laboratory QC checks required. QC procedures followed by the laboratory include sample container inspection, COC documentation review, sample holding time review, LCS/LCSD analyses, method blank analyses, and surrogate spike percent recovery evaluation. The laboratories are also responsible for analytical instrument calibration, which includes method-specific criteria for initial and continuing calibrations for external and internal standard calibration procedures.

5.1.2.1 Initial Sample Inspection and Chain-of-Custody Documentation

The laboratory inspected the shipping containers upon receipt and compared the contents with the COC form associated with each cooler. Information from the sample check-in procedure was recorded on the Sample Receipt Form, including sample receipt anomalies. These forms were used by the laboratory to document that sample identifications listed on the COC forms agreed with the samples contained in the coolers. The laboratory verified that COC forms were filled out properly, sample containers were not broken, custody seals were intact, the pH met method-specific criteria for water samples (if applicable), and cooler temperatures were maintained at 4 ± 2 degrees Celsius. The completed forms are included in the laboratory analytical packages and were reviewed during the data review process. The samples arrived at the laboratory at the proper temperature, and no sample containers were damaged during transit.

MES compared the data on the COC forms with the laboratory reports and documented any differences. If minor discrepancies were found and verified by the laboratory, the laboratory

reports and MES electronic databases were corrected. In addition to the COC checks, MES reviewers verified approximately 10 percent of the laboratory hard copy reports against the laboratory electronic data deliverables.

5.1.2.2 Holding Times

Samples were shipped regularly in coordination with the analytical laboratory to ensure analyses were conducted within the required holding times. The time elapsed between sample collection and sample extraction/analysis was calculated as part of the review process to evaluate if holding times were met. Holding time criteria were met for the sampling event included in this DQS, therefore, accuracy of the analytical results is acceptable with regards to holding time.

5.1.2.3 Laboratory Control Sample/Laboratory Control Sample Duplicate

The laboratory analyzed LCS/LCSD pairs with each analytical batch of field samples to assess internal precision and accuracy. LCS/LCSD pairs consisted of analyte-free water spiked with selected target constituents of known concentration. The LCS/LCSD %Rs and RPDs are used to determine laboratory accuracy and precision, respectively. The formulas used to calculate the %Rs and RPDs are presented in Section 2.3. The %Rs and RPDs were then compared to laboratory historical control limits. When the LCS and LCSD %Rs were outside laboratory historical control limits, the LCS/LCSD qualifications were applied to investigative samples within the same analytical batch. Qualifiers were applied only when both the LCS and LCSD %Rs were outside laboratory historical control limits. In cases where only an LCS was analyzed, qualifiers were applied when the LCS %R was outside laboratory historical control limits. Qualifiers were not applied based on LCS/LCSD RPD values, however, the LCS/LCSD RPD values were compared to laboratory historical control limits to assess if further evaluation of the data was warranted. For the sampling event included in this DQS, MES reviewed the LCS/LCSD %Rs and RPDs for Methods RSK-175, E350.1, E351.2, SW6010B, SW8260B, and SW9056A.

Table C5-5 shows the LCS/LCSD %R and RPD data. The LCS/LCSD %Rs and RPDs met criteria with the exceptions noted. 2-Hexanone and 4-methyl-2-penatanone were above acceptance criteria in the LCS and LCSD but not detected in associated samples. Trans-1,2-dichloropropene was above criteria in the LCS but not detected in associated samples. Because no qualifiers were required based on the LCS/LCSD %Rs, and because greater than 96 percent of the RPD results were within the laboratory control limits, the overall accuracy and precision measurements are considered to be acceptable.

5.1.2.4 Method Blank Samples

Method blanks are prepared and analyzed by the laboratory to assess the level of background interferences and possible contamination in the analytical system. The method blank must be carried through the complete procedure and contain analyte-free reagents in the same volumes as used in processing the samples. The goal is to conduct investigative sample analysis in such a manner that sample contamination is not introduced by the analytical methods, equipment, or

reagents. If such contamination occurs, it is usually identified by the detection of target analytes at trace or low concentrations in the method blanks. When these detections are found, the laboratory investigates the source, qualifies the affected data as appropriate according to the magnitude of the detections, and implements corrective measures as appropriate. For the sampling event included in this DQS, method blanks were prepared and analyzed with each analytical batch for Methods RSK-175, E350.1, E351.2, SW6010B, SW8260B, and SW9056A. No analytes were detected in the method blank samples; no qualifiers were required based on method blank results.

5.1.2.5 Surrogate Recovery

Surrogate spike compounds were added to investigative samples during organic analyses to assess the individual matrix effect of investigative samples and to monitor overall analytical system performance. Surrogate recoveries that are outside the laboratory historical control limits may indicate performance problems with the analytical system and extraction procedures, or significant matrix effects when evaluated in conjunction with the MS/MSD results. MES reviewers used laboratory historical control limits to assess percent recoveries for surrogate spike constituents. For sample results affected by surrogate percent recoveries less than the lower control limit, detects were qualified as estimated (J) and may be biased low, and non-detects were qualified as estimated (UJ) and may be potential false negatives. For sample results affected by surrogate percent recoveries greater than the upper control limit, detects were qualified as estimated (J) and may be biased high. No qualifiers are required for non-detect results based on high surrogate recoveries. A summary of the surrogate percent recovery data is provided in Table C5-6. All surrogates met acceptance criteria. No qualifiers were required for sample results based on surrogate recoveries.

5.1.2.6 Internal Standards

Adherence to method-specific internal standards (ISs) criteria ensures that GC/MS sensitivity and response are stable during each analysis. *SW-846* (EPA, 1986) recommended ISs are often brominated, fluorinated, or stable isotopically labeled analogs of specific target compounds, or are closely related compounds whose presence in environmental samples is unlikely. The IS spike solution is added after the preparation or extraction of a sample. ISs are used in internal calibration methods to correct sample results affected by column injection loss, purging loss, or viscosity effects. ISs are added to environmental samples, control standards, and blanks, in accordance with method requirements and laboratory SOPs (MES, 2013). No qualifiers were required for sample results based on the IS data.

5.1.2.7 Initial and Continuing Calibration

The calibration of an analytical instrument involves the delineation of the relationship between the response of the instrument and the concentration of an analyte introduced into the instrument. An initial calibration (ICAL) is performed on an analytical instrument prior to the analysis of samples to ensure that the equipment is capable of producing acceptable qualitative and quantitative data. The continuing calibration (CCAL) is the verification of the ICAL at periodic intervals. The CCAL demonstrates that the instrument is capable of acceptable performance

during the course of the analytical analysis. Review of the ICAL data included the evaluation of the correlation coefficients and relative standard deviations. Review of the CCAL data included the evaluation of the percent difference between the concentration of the CCAL standard and the expected concentration. For sample results associated with CCAL data that did not meet method-specific criteria, detects and non-detects were qualified as estimated (J and UJ, respectively). No qualifiers were required for samples based on ICAL and CCAL data.

5.2 SUMMARY OF DATA QUALITY INDICATORS

A summary of the data quality indicators in terms of the PARCCS are described in this section.

5.2.1 Precision

As discussed in Section 2.3, the precision evaluation included field precision (FDs), laboratory precision (LCS/LCSDs), and combined field/laboratory precision (MS/MSDs). The MS/MSD, FD, and LCS/LCSD RPDs are discussed in Sections 5.1.1.1, 5.1.1.2, and 5.1.2.3 of this report, respectively. Based on this evaluation, the precision of the data is acceptable for its intended use.

5.2.2 Accuracy

As discussed in Section 2.3, the accuracy evaluation included a comparison of spike recoveries from field samples (surrogate and MS/MSD spikes) and laboratory QC samples (LCS and LCSD), and assessing holding time. The MS/MSD, LCS/LCSD, and surrogate spike recoveries are discussed in Sections 5.1.1.1, 5.1.2.3, and 5.1.2.5, respectively, and holding time is discussed in Section 5.1.2.2. Recoveries from MS/MSDs, LCS/LCSD and surrogate percent recoveries were compared to laboratory historical control limits to determine a laboratory's ability to accurately determine both qualitative and quantitative results. The investigative sample results were within the required percent recovery limits. The investigative sample results were within the required holding time limits. Based on this evaluation, the accuracy of the data is acceptable for its intended use.

5.2.3 Representativeness

Representativeness is the degree to which the data accurately and precisely portray the environmental conditions being studied. For this investigation, sampling procedures and locations were selected to accurately represent overall Site conditions and were biased toward areas that were likely to exhibit evidence of past releases. Sampling was conducted using known, approved field procedures to minimize variability introduced during field sampling. The investigative and FD analyses indicate that the overall combined variability introduced by the sampling procedures, sample matrix, and laboratory analysis is acceptable, and the FD samples are representative of the data associated with the investigative sample.

5.2.5 Completeness

Completeness refers to the amount of valid data obtainable from a measurement system compared to the expected amount of data. Data that have not been qualified as rejected during the data validation process are considered to be valid. As presented in the *QAP* (MES, 2013), a completeness goal of 95 percent was established for investigations. Of the 359 investigative and field duplicate sample records from the January 2020 sampling event, no records were qualified as rejected based on MES' review of the data. Therefore a completeness of 100 percent was calculated for the sampling event, which exceeds project goals. One hundred percent of the results are usable and are acceptable for their intended use.

5.2.6 Comparability

Comparability expresses the confidence with which one data set can be compared to another. Comparability objectives were met by minimizing the number of contract laboratories used, using EPA methods for analyses, and reporting results in standardized units. The comparability objective for the project was fulfilled.

6.0 REPORTING LIMITS AND DATA USES

This section discusses the laboratory reporting limits and how they compare to the MCLs.

6.1 LABORATORY REPORTING LIMITS

TAL confirms reporting limits on an annual or quarterly basis by performing MDL studies. The MDL is defined as the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is generated from the analysis of a sample in a given matrix containing the analyte (40 Code of Federal Regulations, Chapter 1, Part 136, Appendix B). The reporting limit is defined as the lowest concentration of the target analyte required to be reported. This value is based on project-specific criteria.

The laboratory reports detections that are below the reporting limit as estimated values by assigning a flag to the analytical result. This flag is assigned because the laboratory cannot accurately quantify analyte concentrations at levels below the reporting limit. For detections in the concentration range between the MDL and the reporting limit, the laboratory is confident of the analyte identification and detection but can only estimate the analyte concentration.

6.2 COMPARISON OF LABORATORY REPORTING LIMITS TO MCLs

For this assessment, the MCLs were compared to the laboratory RLs and MDLs, shown in Table C6-1. The laboratory RLs and MDLs for the investigative samples were equal to or less than the MCLs.

7.0 CONCLUSIONS

This DQS presents in specific terms the QA and QC practices used to achieve the project objectives for the Site during the January 2020 sampling event. Samples were collected and analyzed in accordance with EPA methods and using laboratory-specific QA/QC procedures. These procedures were followed to generate legally and technically defensible data.

Some of the quality issues addressed in Section 5.0 of this report resulted in qualification of investigative sample results. One sample result was qualified based on MS/MSD recoveries (Table C5-2). Two analytes in the equipment blank were qualified based on detection in the source water blank. Based on this review, the analytical data generated for the January 2020 sampling event are acceptable and adequate to fulfill program objectives and may be used to evaluate the effectiveness of the selected remedy for the Site.

8.0 REFERENCES

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TABLES

Table C5-1: Sample Index
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Site Name	Station Name	QC Code	Matrix	Sample Date	Lab	Delivery Group	Laboratory Sample ID	Method
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW03	NS	WG	1/27/20	TALSAV	680-179731-1	680-179731-1	SW8260B
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	NS	WG	1/28/20	TALSAV	680-179731-1	680-179731-2	E350.1
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	NS	WG	1/28/20	TALSAV	680-179731-1	680-179731-2	E351.2
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	NS	WG	1/28/20	TALSAV	680-179731-1	680-179731-2	RSK-175
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	NS	WG	1/28/20	TALSAV	680-179731-1	680-179731-2	SW6010C
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	NS	WG	1/28/20	TALSAV	680-179731-1	680-179731-2	SW8260B
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	NS	WG	1/28/20	TALSAV	680-179731-1	680-179731-2	SW9056A
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	MSD	WG	1/28/20	TALSAV	680-179731-1	680-179731-2 MSD	SW9056A
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	MS	WG	1/28/20	TALSAV	680-179731-1	680-179731-2 MS	SW9056A
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	FD	WG	1/28/20	TALSAV	680-179731-1	680-179731-7	E350.1
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	FD	WG	1/28/20	TALSAV	680-179731-1	680-179731-7	E351.2
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	FD	WG	1/28/20	TALSAV	680-179731-1	680-179731-7	RSK-175
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	FD	WG	1/28/20	TALSAV	680-179731-1	680-179731-7	SW6010C
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	FD	WG	1/28/20	TALSAV	680-179731-1	680-179731-7	SW8260B
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW11	FD	WG	1/28/20	TALSAV	680-179731-1	680-179731-7	SW9056A
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW12	NS	WG	1/27/20	TALSAV	680-179731-1	680-179731-3	SW8260B
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW13	NS	WG	1/28/20	TALSAV	680-179731-1	680-179731-4	SW8260B
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW15	NS	WG	1/27/20	TALSAV	680-179731-1	680-179731-5	SW8260B
PARCEL 94(7), CHEM LAUNDRY/MOTOR POOL	FTA-94-MW16	NS	WG	1/27/20	TALSAV	680-179731-1	680-179731-6	SW8260B
MCCLELLAN FIELD QC	TRIP BLANK	TB	W	1/28/20	TALSAV	680-179731-1	680-179731-8	SW8260B

Notes:

FD = Field duplicate
ID = Identification
LD = Laboratory duplicate
MS = Matrix spike
MSD = Matrix spike duplicate
NS = Normal sample
QC = Quality Control
TALSAV = TestAmerica Laboratories Inc., Savannah, Georgia
TB = Trip blank
W = Water
WG = Groundwater

Table C5-2: Summary of MS/MSD Recoveries and RPDs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Station Name	Matrix	Sample Date	Delivery Group	Method	TOT/ DIS	Parameter Name	MS %R	MSD %R	%R LCL	%R UCL	RPD	RPD Limit
FTA-94-MW11	WG	1/28/20	680-179731-1	SW9056A	TOT	Nitrate-N	94	95	75	125	0	30
FTA-94-MW11	WG	1/28/20	680-179731-1	SW9056A	TOT	Nitrite-N	92	93	75	125	0	40

Notes:
%R = Percent recovery
LCL = Lower control limit
UCL = Upper control limit
MS = Matrix spike
MSD = Matrix spike duplicate
RPD = Relative percent difference
WG = Groundwater

Table C5-3: Field Duplicate Cross Reference
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Matrix	COC ID	Parent Station Name	Sample Date	Delivery Group	Method
WG	DUP340	FTA-94-MW11	1/28/20	680-179731-1	E350.1
WG	DUP340	FTA-94-MW11	1/28/20	680-179731-1	E351.2
WG	DUP340	FTA-94-MW11	1/28/20	680-179731-1	RSK-175
WG	DUP340	FTA-94-MW11	1/28/20	680-179731-1	SW6010C
WG	DUP340	FTA-94-MW11	1/28/20	680-179731-1	SW8260B
WG	DUP340	FTA-94-MW11	1/28/20	680-179731-1	SW9056A

Notes:
COC = Chain-of-Custody
ID = Identification
WG = Groundwater

Table C5-4: Summary of Field Duplicate and Investigative Sample RPDs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Station Name	Matrix	Sample Date	Delivery Group	Method	Total or Dissolved	Parameter Name	FD Sample Value	FD Lab Flag	NS Sample Value	NS Lab Flag	Units	RPD	RPD Limit
FTA-94-MW11	WG	1/28/20	680-179731-	RSK-175	Z	Methane	41		58		µg/L	34.3	50
FTA-94-MW11	WG	1/28/20	680-179731-	SW6010C	Z	Iron	20	J	17	J	µg/L	16.2	50
FTA-94-MW11	WG	1/28/20	680-179731-	SW6010C	Z	Manganese	18		15		µg/L	18.2	50
FTA-94-MW11	WG	1/28/20	680-179731-	SW6010C	Z	Manganese, dissolved	17		9.8	J	µg/L	**53.7**	50
FTA-94-MW11	WG	1/28/20	1	SW8260B	Z	Chlorobenzene	41		41		µg/L	0.0	50
FTA-94-MW11	WG	1/28/20	680-179731-	SW8260B	Z	Cis-1,2-Dichloroethene	4.7		4.4		µg/L	6.6	50
FTA-94-MW11	WG	1/28/20	680-179731-	SW8260B	Z	Trans-1,2-Dichloroethene	1.9		1.7		µg/L	11.1	50
FTA-94-MW11	WG	1/28/20	1	SW8260B	Z	Trichloroethene	60		54		µg/L	10.5	50
FTA-94-MW11	WG	1/28/20	680-179731-	SW8260B	Z	Vinyl Chloride	4.6		4.7		µg/L	2.2	50
FTA-94-MW11	WG	1/28/20	1	SW9056A	Z	Sulfate	7.2		7.1		mg/L	1.4	50

Notes:
FD = Field duplicate
mg/L = milligrams per liter
NA = not applicable
NS = Normal Sample
RPD = Relative percent difference
WG = Groundwater
Blue text and outlined indicate RPD outside acceptance criteria.

Lab Flags:
J = Estimated value. The analyte is positively identified and the concentration is less than the reporting limit (RL) but greater than the method detection limit (MDL).

Table C5-5: Summary of LCS/LCSD Recoveries and RPDs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Matrix	Method	Delivery Group	Analysis Date	Analytical Batch	TOT/ DIS	Parameter Name	LCS %R	LCSD %R	LCL	UCL	RPD	RPD Limit
W	SW8260B	680-179731-1	2/2/20	680-605888	--	1,1,1,2-Tetrachloroethane	107	107	80	121	0.0	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	1,1,1-Trichloroethane	101	103	80	120	2.0	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	1,1,2,2-Tetrachloroethane	107	106	80	120	0.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	1,1,2-Trichloroethane	111	111	80	120	0.0	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	1,1-Dichloroethane	105	107	80	120	1.9	30
W	SW8260B	680-179731-1	2/2/20	680-605888	--	1,1-Dichloroethene	92	95	76	120	3.2	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	1,2,3-Trichloropropane	110	109	80	123	0.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	1,2-Dibromo-3-Chloropropane	98	101	71	134	3.0	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	1,2-Dibromoethane	112	112	80	120	0.0	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	1,2-Dichlorobenzene	106	108	80	120	1.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	1,2-Dichloropropane	109	110	80	120	0.9	50
W	SW8260B	680-179731-1	2/2/20	680-605888	--	1,3-Dichloropropane	111	112	80	120	0.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	1,4-Dichlorobenzene	105	108	80	120	2.8	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	2-Butanone (MEK)	105	106	80	131	0.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	2-Hexanone	111	112	74	127	0.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	4-Methyl-2-Pentanone (MIBK)	111	111	76	124	0.0	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Acetone	95	95	70	135	0.0	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Acrylonitrile	106	105	80	123	0.9	30
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Benzene	103	106	80	120	2.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Bromochloromethane	102	103	80	120	1.0	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Bromodichloromethane	111	112	80	120	0.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Bromoform	106	105	74	126	0.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Bromomethane	104	107	62	130	3	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Carbon Disulfide	95	99	80	120	4	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Carbon Tetrachloride	98	101	76	123	3	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Chlorobenzene	104	105	80	120	1.0	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Chloroethane	90	93	66	135	3.3	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Chloroform	107	109	80	120	1.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Chloromethane	94	97	69	131	3.1	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Cis-1,2-Dichloroethene	107	108	80	120	0.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Cis-1,3-Dichloropropene	112	113	80	120	0.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Dibromochloromethane	112	113	80	121	0.9	20

Table C5-5: Summary of LCS/LCSD Recoveries and RPDs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Matrix	Method	Delivery Group	Analysis Date	Analytical Batch	TOT/ DIS	Parameter Name	LCS %R	LCSD %R	LCL	UCL	RPD	RPD Limit
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Dibromomethane	107	109	80	120	1.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Ethylbenzene	105	106	80	120	0.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Iodomethane	89	93	52	142	4.4	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Methylene Chloride	101	101	80	120	0.0	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Mtbe	103	103	80	120	0.0	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Styrene	109	110	80	120	0.9	30
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Tetrachloroethylene	102	105	80	121	2.9	30
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Toluene	108	110	80	113	1.8	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Trans-1,2-Dichloroethene	99	102	80	120	3.0	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Trans-1,3-Dichloropropene	115	116	80	120	0.9	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Trans-1,4-Dichloro-2-Butene	112	111	68	125	0.9	30
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Trichloroethene	103	106	80	120	2.9	30
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Trichlorofluoromethane	89	93	60	141	4.4	30
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Vinyl Acetate	117	118	67	135	0.9	30
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Vinyl Chloride	89	91	71	128	2.2	20
W	SW8260B	680-179731-1	2/2/20	680-605888	--	Xylenes (Total)	106	107	80	120	0.9	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	1,1,1,2-Tetrachloroethane	105	104	80	121	1.0	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	1,1,1-Trichloroethane	101	101	80	120	0.0	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	1,1,2,2-Tetrachloroethane	113	110	80	120	2.7	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	1,1,2-Trichloroethane	119	114	80	120	4.3	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	1,1-Dichloroethane	110	109	80	120	0.9	30
W	SW8260B	680-179731-1	2/5/20	680-606263	--	1,1-Dichloroethene	91	92	76	120	1.1	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	1,2,3-Trichloropropane	114	111	80	123	2.7	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	1,2-Dibromo-3-Chloropropane	101	105	71	134	3.9	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	1,2-Dibromoethane	116	113	80	120	2.6	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	1,2-Dichlorobenzene	105	105	80	120	0.0	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	1,2-Dichloropropane	115	112	80	120	2.6	50
W	SW8260B	680-179731-1	2/5/20	680-606263	--	1,3-Dichloropropane	119	114	80	120	4.3	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	1,4-Dichlorobenzene	103	103	80	120	0.0	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	2-Butanone (MEK)	117	114	80	131	2.6	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	2-Hexanone	**134**	**131**	74	127	2.3	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	4-Methyl-2-Pentanone (MIBK)	**132**	**128**	76	124	3.1	20

Table C5-5: Summary of LCS/LCSD Recoveries and RPDs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Matrix	Method	Delivery Group	Analysis Date	Analytical Batch	TOT/ DIS	Parameter Name	LCS %R	LCSD %R	LCL	UCL	RPD	RPD Limit
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Acetone	107	106	70	135	0.9	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Acrylonitrile	120	117	80	123	2.5	30
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Benzene	107	105	80	120	1.9	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Bromochloromethane	102	100	80	120	2.0	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Bromodichloromethane	115	112	80	120	2.6	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Bromoform	105	102	74	126	2.9	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Bromomethane	94	90	62	130	4.3	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Carbon Disulfide	95	95	80	120	0.0	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Carbon Tetrachloride	96	98	76	123	2.1	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Chlorobenzene	102	101	80	120	1.0	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Chloroethane	88	86	66	135	2.3	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Chloroform	110	109	80	120	0.9	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Chloromethane	91	92	69	131	1.1	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Cis-1,2-Dichloroethene	110	111	80	120	0.9	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Cis-1,3-Dichloropropene	117	113	80	120	3.5	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Dibromochloromethane	115	111	80	121	3.5	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Dibromomethane	113	109	80	120	3.6	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Ethylbenzene	104	104	80	120	0.0	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Iodomethane	74	77	52	142	4.0	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Methylene Chloride	102	100	80	120	2.0	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Mtbe	109	105	80	120	3.7	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Styrene	108	107	80	120	0.9	30
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Tetrachloroethylene	100	99	80	121	1.0	30
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Toluene	110	108	80	113	1.8	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Trans-1,2-Dichloroethene	100	99	80	120	1.0	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Trans-1,3-Dichloropropene	**122**	117	80	120	4.2	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Trans-1,4-Dichloro-2-Butene	121	120	68	125	0.8	30
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Trichloroethene	100	99	80	120	1.0	30
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Trichlorofluoromethane	83	85	60	141	2.4	30
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Vinyl Acetate	128	124	67	135	3.2	30
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Vinyl Chloride	86	86	71	128	0.0	20
W	SW8260B	680-179731-1	2/5/20	680-606263	--	Xylenes (Total)	105	106	80	120	0.9	20

Table C5-5: Summary of LCS/LCSD Recoveries and RPDs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Matrix	Method	Delivery Group	Analysis Date	Analytical Batch	TOT/ DIS	Parameter Name	LCS %R	LCSD %R	LCL	UCL	RPD	RPD Limit
W'	SW6010C	680-179731-1	1/31/20	680-605745	Dis	Iron	102	101	80	120	1.0	20
W	SW6010C	680-179731-1	1/31/20	680-605745	Dis	Manganese	102	102	80	120	0.0	20
W'	SW6010C	680-179731-1	1/31/20	680-605661	--	Iron	99	--	80	120	**NA**	20
W	SW6010C	680-179731-1	1/31/20	680-605661	--	Manganese	101	--	80	120	**NA**	20
W	RSK-175	680-179731-1	2/4/20	680-606199	--	Ethane	100	91	75	125	9.4	20
W	RSK-175	680-179731-1	2/4/20	680-606199	--	Ethene	101	92	75	125	9.3	20
W	RSK-175	680-179731-1	2/4/20	680-606199	--	Methane	101	93	75	125	8.2	20
W	SW9056A	680-179731-1	1/29/20	680-605521	--	Nitrate-N	96	96	90	110	0.0	20
W	SW9056A	680-179731-1	1/29/20	680-605521	--	Nitrite-N	104	103	90	110	1.0	20
W	SW9056A	680-179731-1	1/29/20	680-605522	--	Sulfate	109	110	90	110	0.9	20
W	E351.2	680-179731-1	2/7/20	680-606632	--	Nitrogen, Kjeldahl, Total	92	--	90	110	**NA**	20
W	E350.1	680-179731-1	2/13/20	680-607292	--	Ammonia (Nh3-N)	94	--	90	110	**NA**	20

Notes:
-- = Not applicable
%R = Percent recovery
DIS = Dissolved
LCL = Lower control limit
UCL = Upper control limit
LCS = Laboratory control sample
LCSD = Laboratory control sample duplicate
RPD = Relative percent difference
TOT = Total
W = Water

Blue text and outlined indicate RPD outside acceptance criteria.

Table C5-6: Summary of Surrogate Recoveries
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Delivery Group	Method	Station Name	Sample Date	Matrix	QC Code	Parameter Name	%R	LCL	UCL
680-179731-1	SW8260B	FTA-94-MW03	1/27/20	WG	NS	1,2-Dichloroethane-D4	105	73	131
680-179731-1	SW8260B	FTA-94-MW03	1/27/20	WG	NS	4-Bromofluorobenzene	92	80	120
680-179731-1	SW8260B	FTA-94-MW03	1/27/20	WG	NS	Dibromofluoromethane	102	80	122
680-179731-1	SW8260B	FTA-94-MW03	1/27/20	WG	NS	Toluene-D8	100	80	120
680-179731-1	SW8260B	FTA-94-MW11	1/28/20	WG	NS	1,2-Dichloroethane-D4	113	73	131
680-179731-1	SW8260B	FTA-94-MW11	1/28/20	WG	NS	4-Bromofluorobenzene	94	80	120
680-179731-1	SW8260B	FTA-94-MW11	1/28/20	WG	NS	Dibromofluoromethane	101	80	122
680-179731-1	SW8260B	FTA-94-MW11	1/28/20	WG	NS	Toluene-D8	102	80	120
680-179731-1	SW8260B	FTA-94-MW11	1/28/20	WG	FD	1,2-Dichloroethane-D4	113	73	131
680-179731-1	SW8260B	FTA-94-MW11	1/28/20	WG	FD	4-Bromofluorobenzene	95	80	120
680-179731-1	SW8260B	FTA-94-MW11	1/28/20	WG	FD	Dibromofluoromethane	100	80	122
680-179731-1	SW8260B	FTA-94-MW11	1/28/20	WG	FD	Toluene-D8	102	80	120
680-179731-1	SW8260B	FTA-94-MW12	1/27/20	WG	NS	1,2-Dichloroethane-D4	106	73	131
680-179731-1	SW8260B	FTA-94-MW12	1/27/20	WG	NS	4-Bromofluorobenzene	91	80	120
680-179731-1	SW8260B	FTA-94-MW12	1/27/20	WG	NS	Dibromofluoromethane	101	80	122
680-179731-1	SW8260B	FTA-94-MW12	1/27/20	WG	NS	Toluene-D8	100	80	120
680-179731-1	SW8260B	FTA-94-MW13	1/28/20	WG	NS	1,2-Dichloroethane-D4	113	73	131
680-179731-1	SW8260B	FTA-94-MW13	1/28/20	WG	NS	4-Bromofluorobenzene	94	80	120
680-179731-1	SW8260B	FTA-94-MW13	1/28/20	WG	NS	Dibromofluoromethane	102	80	122
680-179731-1	SW8260B	FTA-94-MW13	1/28/20	WG	NS	Toluene-D8	102	80	120
680-179731-1	SW8260B	FTA-94-MW15	1/27/20	WG	NS	1,2-Dichloroethane-D4	107	73	131
680-179731-1	SW8260B	FTA-94-MW15	1/27/20	WG	NS	4-Bromofluorobenzene	92	80	120
680-179731-1	SW8260B	FTA-94-MW15	1/27/20	WG	NS	Dibromofluoromethane	102	80	122
680-179731-1	SW8260B	FTA-94-MW15	1/27/20	WG	NS	Toluene-D8	100	80	120
680-179731-1	SW8260B	FTA-94-MW16	1/27/20	WG	NS	1,2-Dichloroethane-D4	113	73	131
680-179731-1	SW8260B	FTA-94-MW16	1/27/20	WG	NS	4-Bromofluorobenzene	93	80	120
680-179731-1	SW8260B	FTA-94-MW16	1/27/20	WG	NS	Dibromofluoromethane	100	80	122
680-179731-1	SW8260B	FTA-94-MW16	1/27/20	WG	NS	Toluene-D8	100	80	120

Table C5-6: Summary of Surrogate Recoveries
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston, Alabama

Delivery Group	Method	Station Name	Sample Date	Matrix	QC Code	Parameter Name	%R	LCL	UCL

Notes:
EB = Equipment blank
FD = Field duplicate
LCL = Lower control limit
NS = Normal sample
QC = Quality control
%R = Percent recovery
TB = Trip blank
UCL = Upper control limit
W = Water
WG = Groundwater
WS = Source water

Table C6-1: Reporting Limits and Method Detection Limits Compared to MCLs
Former Chemical Laundry, Parcel 94(7)
McClellan, Anniston, Alabama

Matrix	Method	Parameter Name	MDL	RL	Units	MCL *
WG	SW8260B	1,1,1-Trichloroethane	0.37	1	µg/L	200
WG	SW8260B	1,1,2,2-Tetrachloroethane	0.62	1	µg/L	--
WG	SW8260B	1,1,2-Trichloroethane	0.33	1	µg/L	5
WG	SW8260B	1,1-Dichloroethane	0.38	1	µg/L	--
WG	SW8260B	1,1-Dichloroethene	0.36	1	µg/L	7
WG	SW8260B	1,2-Dichloroethane	0.2	1	µg/L	5
WG	SW8260B	1,2-Dichloropropane	0.2	1	µg/L	5
WG	SW8260B	2-Butanone (MEK)	4	10	µg/L	--
WG	SW8260B	2-Hexanone	2.3	10	µg/L	--
WG	SW8260B	4-Methyl-2-Pentanone (MIBK)	4	10	µg/L	--
WG	SW8260B	Acetone	5	10	µg/L	--
WG	SW8260B	Benzene	0.2	1	µg/L	5
WG	SW8260B	Bromodichloromethane	0.2	1	µg/L	80
WG	SW8260B	Bromoform	0.3	1	µg/L	80
WG	SW8260B	Bromomethane	0.3	2	µg/L	--
WG	SW8260B	Carbon Disulfide	0.2	1	µg/L	--
WG	SW8260B	Carbon Tetrachloride	0.2	1	µg/L	5
WG	SW8260B	Chlorobenzene	0.2	1	µg/L	100
WG	SW8260B	Chloroform	0.2	1	µg/L	80
WG	SW8260B	Chloromethane	0.3	2	µg/L	--
WG	SW8260B	Cis-1,2-Dichloroethene	0.2	1	µg/L	70
WG	SW8260B	Dibromochloromethane	0.2	1	µg/L	80
WG	SW8260B	Ethylbenzene	0.2	1	µg/L	700
WG	SW8260B	Methylene Chloride	0.5	2	µg/L	5
WG	SW8260B	Styrene	0.2	1	µg/L	100
WG	SW8260B	Tetrachloroethene	0.2	1	µg/L	5
WG	SW8260B	Toluene	0.2	1	µg/L	1000
WG	SW8260B	Trans-1,2-Dichloroethene	0.2	1	µg/L	100
WG	SW8260B	Trichloroethene	0.48	1	µg/L	5
WG	SW8260B	Vinyl Acetate	0.81	2	µg/L	--
WG	SW8260B	Vinyl Chloride	0.5	1	µg/L	2
WG	SW8260B	Xylenes (Total)	0.23	1	µg/L	10000
WG	SW6010B	Iron	0.017	0.05	mg/L	--
WG	SW6010B	Manganese	0.001	0.01	mg/L	--
WG	SW9056	Nitrate-N	0.023	0.05	mg/L	10
WG	SW9056	Nitrite-N	0.023	0.05	mg/L	1

Notes:

-- = MCL not established.

Indicates the limit is greater than the MCL.

MCL = Maximum Contaminant Level

MDL = Method detection limit

µg/L = micrograms per liter

mg/L = milligrams per liter

RL = Reporting limit

*MCL is United States Environmental Protection Agency MCL from Reginal Screening Levels for Chemical Contaminants at Superfund Cites, March 5, 2020.

ATTACHMENT C1

Laboratory Data Forms

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

Laboratory Job ID: 680-179731-1
Client Project/Site: Parcel 94(7), Chem Laundry/Motor Pool

For:
Matrix Environmental Services, LLC
1601 Blake Street
Suite 200
Denver, Colorado 80202

Attn: Ms. Betty Van Pelt

Authorized for release by:
2/14/2020 4:04:42 PM

Jon Lawhon, Project Manager I
(912)250-0283
jon.lawhon@testamericainc.com

Definitions/Glossary

Client: Matrix Environmental Services, LLC
Project/Site: Parcel 94(7), Chem Laundry/Motor Pool

Job ID: 680-179731-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

Metals

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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)

Sample Summary

Client: Matrix Environmental Services, LLC
Job ID: 680-179731-1
Project/Site: Parcel 94(7), Chem Laundry/Motor Pool

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
680-179731-1	FTA-94-MW03	Water	01/27/20 10:06	01/29/20 09:00	
680-179731-2	FTA-94-MW11	Water	01/28/20 11:56	01/29/20 09:00	
680-179731-3	FTA-94-MW12	Water	01/27/20 11:31	01/29/20 09:00	
680-179731-4	FTA-94-MW13	Water	01/28/20 10:16	01/29/20 09:00	
680-179731-5	FTA-94-MW15	Water	01/27/20 13:36	01/29/20 09:00	
680-179731-6	FTA-94-MW16	Water	01/27/20 14:51	01/29/20 09:00	
680-179731-7	DUP340	Water	01/28/20 00:00	01/29/20 09:00	
680-179731-8	TB547	Water	01/28/20 13:30	01/29/20 09:00	

Job ID: 680-179731-1

Laboratory: Eurofins TestAmerica, Savannah

Narrative

CASE NARRATIVE

Client: Matrix Environmental Services, LLC

Project: Parcel 94(7), Chem Laundry/Motor Pool

Report Number: 680-179731-1

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 the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT
The samples were received on 1/29/2020 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.0º C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples FTA-94-MW03 (680-179731-1), FTA-94-MW11 (680-179731-2), FTA-94-MW12 (680-179731-3), FTA-94-MW13 (680-179731-4), FTA-94-MW15 (680-179731-5), FTA-94-MW16 (680-179731-6), DUP340 (680-179731-7) and TB547 (680-179731-8) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/02/2020 and 02/05/2020.

Method 8260B: Surrogate recovery was outside acceptance limits for the following matrix spike duplicate (MSD) sample: (680-179796-D-5 MSD). The parent sample's surrogate recovery was within limits. The MSD sample has been qualified and reported.

Method 8260B: The matrix spike duplicate (MSD) recoveries for analytical batch 680-605888 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8260B: The matrix spike / matrix spike duplicate (MS/MSD) precision for analytical batch 680-605888 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8260B: The laboratory control sample (LCS) for analytical batch 680-606263 recovered outside control limits for the following analytes: 2-Hexanone, 4-Methyl-2-pentanone (MIBK) and trans-1,3-Dichloropropene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260B: The laboratory control sample duplicate (LCSD) for analytical batch 680-606263 recovered outside control limits for the following analytes: 2-Hexanone and 4-Methyl-2-pentanone (MIBK). These analytes were biased high in the LCSD and were not detected in the associated samples; therefore, the data have been reported.

Method 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-606263.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DISSOLVED GASES
Samples FTA-94-MW11 (680-179731-2) and DUP340 (680-179731-7) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 02/04/2020.

Job ID: 680-179731-1 (Continued)

Laboratory: Eurofins TestAmerica, Savannah (Continued)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

METALS (ICP) - DISSOLVED
Samples FTA-94-MW11 (680-179731-2) and DUP340 (680-179731-7) were analyzed for Metals (ICP) - Dissolved in accordance with EPA SW-846 Method 6010C. The samples were prepared and analyzed on 01/31/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

METALS (ICP)
Samples FTA-94-MW11 (680-179731-2) and DUP340 (680-179731-7) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 01/30/2020 and analyzed on 01/31/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

AMMONIA
Samples FTA-94-MW11 (680-179731-2) and DUP340 (680-179731-7) were analyzed for ammonia in accordance with EPA Method 350.1. The samples were analyzed on 02/13/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL KJELDAHL NITROGEN (TKN)
Samples FTA-94-MW11 (680-179731-2) and DUP340 (680-179731-7) were analyzed for total kjeldahl nitrogen (TKN) in accordance with EPA Method 351.2. The samples were prepared on 02/06/2020 and analyzed on 02/07/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

9056 ANIONS
Samples FTA-94-MW11 (680-179731-2) and DUP340 (680-179731-7) were analyzed for 9056 Anions in accordance with SW 846 9056. The samples were analyzed on 01/29/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS BY IC (NITRATE/NITRITE)
Samples FTA-94-MW11 (680-179731-2) and DUP340 (680-179731-7) were analyzed for Anions by IC (Nitrate/Nitrite) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 01/29/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client: Matrix Environmental Services, LLC
Job ID: 680-179731-1
Project/Site: Parcel 94(7), Chem Laundry/Motor Pool

Client Sample ID: FTA-94-MW03
Lab Sample ID: 680-179731-1
Date Collected: 01/27/20 10:06
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	7.0	U	10	7.0	ug/L			02/02/20 15:48	1
Acrylonitrile	10	U	20	10	ug/L			02/02/20 15:48	1
Benzene	0.43	U	1.0	0.43	ug/L			02/02/20 15:48	1
Bromochloromethane	0.45	U	1.0	0.45	ug/L			02/02/20 15:48	1
Bromodichloromethane	0.44	U	1.0	0.44	ug/L			02/02/20 15:48	1
Bromoform	0.43	U	1.0	0.43	ug/L			02/02/20 15:48	1
Bromomethane	2.5	U	5.0	2.5	ug/L			02/02/20 15:48	1
2-Butanone (MEK)	3.4	U	10	3.4	ug/L			02/02/20 15:48	1
Carbon disulfide	1.0	U	2.0	1.0	ug/L			02/02/20 15:48	1
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/02/20 15:48	1
Chlorobenzene	0.26	U	1.0	0.26	ug/L			02/02/20 15:48	1
Chloroethane	2.5	U	5.0	2.5	ug/L			02/02/20 15:48	1
Chloroform	0.50	U	1.0	0.50	ug/L			02/02/20 15:48	1
Chloromethane	0.40	U	1.0	0.40	ug/L			02/02/20 15:48	1
cis-1,2-Dichloroethene	0.41	U	1.0	0.41	ug/L			02/02/20 15:48	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	ug/L			02/02/20 15:48	1
Dibromochloromethane	0.32	U	1.0	0.32	ug/L			02/02/20 15:48	1
1,2-Dibromo-3-Chloropropane	1.1	U	5.0	1.1	ug/L			02/02/20 15:48	1
1,2-Dibromoethane	0.44	U	1.0	0.44	ug/L			02/02/20 15:48	1
Dibromomethane	0.35	U	1.0	0.35	ug/L			02/02/20 15:48	1
1,2-Dichlorobenzene	0.37	U	1.0	0.37	ug/L			02/02/20 15:48	1
1,4-Dichlorobenzene	0.46	U	1.0	0.46	ug/L			02/02/20 15:48	1
1,1-Dichloroethane	0.38	U	1.0	0.38	ug/L			02/02/20 15:48	1
1,2-Dichloroethane	0.50	U	1.0	0.50	ug/L			02/02/20 15:48	1
1,1-Dichloroethene	0.36	U	1.0	0.36	ug/L			02/02/20 15:48	1
1,2-Dichloropropane	0.67	U	1.0	0.67	ug/L			02/02/20 15:48	1
1,3-Dichloropropane	0.34	U	1.0	0.34	ug/L			02/02/20 15:48	1
Ethylbenzene	0.33	U	1.0	0.33	ug/L			02/02/20 15:48	1
2-Hexanone	2.0	U	10	2.0	ug/L			02/02/20 15:48	1
Iodomethane	5.0	U	10	5.0	ug/L			02/02/20 15:48	1
Methylene Chloride	2.5	U	5.0	2.5	ug/L			02/02/20 15:48	1
4-Methyl-2-pentanone (MIBK)	2.1	U	10	2.1	ug/L			02/02/20 15:48	1
Methyl tert-butyl ether	0.30	U	10	0.30	ug/L			02/02/20 15:48	1
Styrene	0.27	U	1.0	0.27	ug/L			02/02/20 15:48	1
1,1,1,2-Tetrachloroethane	0.37	U	1.0	0.37	ug/L			02/02/20 15:48	1
1,1,2,2-Tetrachloroethane	0.62	U	1.0	0.62	ug/L			02/02/20 15:48	1
Tetrachloroethylene	0.74	U	1.0	0.74	ug/L			02/02/20 15:48	1
Toluene	0.48	U	1.0	0.48	ug/L			02/02/20 15:48	1
trans-1,4-Dichloro-2-butene	0.51	U	2.0	0.51	ug/L			02/02/20 15:48	1
trans-1,2-Dichloroethene	0.37	U	1.0	0.37	ug/L			02/02/20 15:48	1
trans-1,3-Dichloropropene	0.42	U	1.0	0.42	ug/L			02/02/20 15:48	1
1,1,1-Trichloroethane	0.37	U	1.0	0.37	ug/L			02/02/20 15:48	1
1,1,2-Trichloroethane	0.33	U	1.0	0.33	ug/L			02/02/20 15:48	1
Trichloroethene	**0.69**	**J**	1.0	0.48	ug/L			02/02/20 15:48	1
Trichlorofluoromethane	0.42	U	1.0	0.42	ug/L			02/02/20 15:48	1
1,2,3-Trichloropropane	0.39	U	1.0	0.39	ug/L			02/02/20 15:48	1
Vinyl acetate	0.81	U	2.0	0.81	ug/L			02/02/20 15:48	1
Vinyl chloride	0.50	U	1.0	0.50	ug/L			02/02/20 15:48	1
Xylenes, Total	0.23	U	1.0	0.23	ug/L			02/02/20 15:48	1

Client Sample ID: FTA-94-MW03
Lab Sample ID: 680-179731-1
Date Collected: 01/27/20 10:06
Matrix: Water
Date Received: 01/29/20 09:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*02/02/20 15:48*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 122*		*02/02/20 15:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*73 - 131*		*02/02/20 15:48*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*02/02/20 15:48*	*1*

Client Sample ID: FTA-94-MW11
Lab Sample ID: 680-179731-2
Date Collected: 01/28/20 11:56
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	7.0	U	10	7.0	ug/L			02/05/20 15:53	1
Acrylonitrile	10	U	20	10	ug/L			02/05/20 15:53	1
Benzene	0.43	U	1.0	0.43	ug/L			02/05/20 15:53	1
Bromochloromethane	0.45	U	1.0	0.45	ug/L			02/05/20 15:53	1
Bromodichloromethane	0.44	U	1.0	0.44	ug/L			02/05/20 15:53	1
Bromoform	0.43	U	1.0	0.43	ug/L			02/05/20 15:53	1
Bromomethane	2.5	U	5.0	2.5	ug/L			02/05/20 15:53	1
2-Butanone (MEK)	3.4	U	10	3.4	ug/L			02/05/20 15:53	1
Carbon disulfide	1.0	U	2.0	1.0	ug/L			02/05/20 15:53	1
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/05/20 15:53	1
Chlorobenzene	**41**		1.0	0.26	ug/L			02/05/20 15:53	1
Chloroethane	2.5	U	5.0	2.5	ug/L			02/05/20 15:53	1
Chloroform	0.50	U	1.0	0.50	ug/L			02/05/20 15:53	1
Chloromethane	0.40	U	1.0	0.40	ug/L			02/05/20 15:53	1
cis-1,2-Dichloroethene	**4.4**		1.0	0.41	ug/L			02/05/20 15:53	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	ug/L			02/05/20 15:53	1
Dibromochloromethane	0.32	U	1.0	0.32	ug/L			02/05/20 15:53	1
1,2-Dibromo-3-Chloropropane	1.1	U	5.0	1.1	ug/L			02/05/20 15:53	1
1,2-Dibromoethane	0.44	U	1.0	0.44	ug/L			02/05/20 15:53	1
Dibromomethane	0.35	U	1.0	0.35	ug/L			02/05/20 15:53	1
1,2-Dichlorobenzene	0.37	U	1.0	0.37	ug/L			02/05/20 15:53	1
1,4-Dichlorobenzene	0.46	U	1.0	0.46	ug/L			02/05/20 15:53	1
1,1-Dichloroethane	0.38	U	1.0	0.38	ug/L			02/05/20 15:53	1
1,2-Dichloroethane	0.50	U	1.0	0.50	ug/L			02/05/20 15:53	1
1,1-Dichloroethene	0.36	U	1.0	0.36	ug/L			02/05/20 15:53	1
1,2-Dichloropropane	0.67	U	1.0	0.67	ug/L			02/05/20 15:53	1
1,3-Dichloropropane	0.34	U	1.0	0.34	ug/L			02/05/20 15:53	1
Ethylbenzene	0.33	U	1.0	0.33	ug/L			02/05/20 15:53	1
2-Hexanone	2.0	U *	10	2.0	ug/L			02/05/20 15:53	1
Iodomethane	5.0	U	10	5.0	ug/L			02/05/20 15:53	1
Methylene Chloride	2.5	U	5.0	2.5	ug/L			02/05/20 15:53	1
4-Methyl-2-pentanone (MIBK)	2.1	U *	10	2.1	ug/L			02/05/20 15:53	1
Methyl tert-butyl ether	0.30	U	10	0.30	ug/L			02/05/20 15:53	1
Styrene	0.27	U	1.0	0.27	ug/L			02/05/20 15:53	1
1,1,1,2-Tetrachloroethane	0.37	U	1.0	0.37	ug/L			02/05/20 15:53	1
1,1,2,2-Tetrachloroethane	0.62	U	1.0	0.62	ug/L			02/05/20 15:53	1
Tetrachloroethylene	0.74	U	1.0	0.74	ug/L			02/05/20 15:53	1
Toluene	0.48	U	1.0	0.48	ug/L			02/05/20 15:53	1
trans-1,4-Dichloro-2-butene	0.51	U	2.0	0.51	ug/L			02/05/20 15:53	1

Client Sample ID: FTA-94-MW11
Lab Sample ID: 680-179731-2
Date Collected: 01/28/20 11:56
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	**1.7**		1.0	0.37	ug/L			02/05/20 15:53	1
trans-1,3-Dichloropropene	0.42	U *	1.0	0.42	ug/L			02/05/20 15:53	1
1,1,1-Trichloroethane	0.37	U	1.0	0.37	ug/L			02/05/20 15:53	1
1,1,2-Trichloroethane	0.33	U	1.0	0.33	ug/L			02/05/20 15:53	1
Trichloroethene	**54**		1.0	0.48	ug/L			02/05/20 15:53	1
Trichlorofluoromethane	0.42	U	1.0	0.42	ug/L			02/05/20 15:53	1
1,2,3-Trichloropropane	0.39	U	1.0	0.39	ug/L			02/05/20 15:53	1
Vinyl acetate	0.81	U	2.0	0.81	ug/L			02/05/20 15:53	1
Vinyl chloride	**4.7**		1.0	0.50	ug/L			02/05/20 15:53	1
Xylenes, Total	0.23	U	1.0	0.23	ug/L			02/05/20 15:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*		*02/05/20 15:53*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 122*		*02/05/20 15:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*73 - 131*		*02/05/20 15:53*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*02/05/20 15:53*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**58**		0.58	0.29	ug/L			02/04/20 18:03	1
Ethane	0.55	U	1.1	0.55	ug/L			02/04/20 18:03	1
Ethene	0.50	U	1.0	0.50	ug/L			02/04/20 18:03	1

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.023	U	0.050	0.023	mg/L			01/29/20 16:26	1
Sulfate	**7.1**		1.0	0.40	mg/L			01/29/20 20:49	1
Nitrite as N	0.023	U	0.050	0.023	mg/L			01/29/20 16:26	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**17**	**J**	50	17	ug/L		01/30/20 14:56	01/31/20 16:17	1
Manganese	**15**		10	1.0	ug/L		01/30/20 14:56	01/31/20 16:17	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Iron	17	U	50	17	ug/L		01/31/20 09:36	01/31/20 19:59	1
Dissolved Manganese	**9.8**	**J**	10	1.0	ug/L		01/31/20 09:36	01/31/20 19:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	0.10	U	0.25	0.10	mg/L			02/13/20 09:49	1
Nitrogen, Kjeldahl	0.10	U	0.20	0.10	mg/L		02/06/20 16:26	02/07/20 09:31	1

Client Sample ID: FTA-94-MW12
Lab Sample ID: 680-179731-3
Date Collected: 01/27/20 11:31
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	7.0	U	10	7.0	ug/L			02/02/20 16:11	1

Client Sample ID: FTA-94-MW12
Lab Sample ID: 680-179731-3

Date Collected: 01/27/20 11:31
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrylonitrile	10	U	20	10	ug/L			02/02/20 16:11	1
Benzene	0.43	U	1.0	0.43	ug/L			02/02/20 16:11	1
Bromochloromethane	0.45	U	1.0	0.45	ug/L			02/02/20 16:11	1
Bromodichloromethane	0.44	U	1.0	0.44	ug/L			02/02/20 16:11	1
Bromoform	0.43	U	1.0	0.43	ug/L			02/02/20 16:11	1
Bromomethane	2.5	U	5.0	2.5	ug/L			02/02/20 16:11	1
2-Butanone (MEK)	3.4	U	10	3.4	ug/L			02/02/20 16:11	1
Carbon disulfide	1.0	U	2.0	1.0	ug/L			02/02/20 16:11	1
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/02/20 16:11	1
Chlorobenzene	0.26	U	1.0	0.26	ug/L			02/02/20 16:11	1
Chloroethane	2.5	U	5.0	2.5	ug/L			02/02/20 16:11	1
Chloroform	0.50	U	1.0	0.50	ug/L			02/02/20 16:11	1
Chloromethane	0.40	U	1.0	0.40	ug/L			02/02/20 16:11	1
cis-1,2-Dichloroethene	0.41	U	1.0	0.41	ug/L			02/02/20 16:11	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	ug/L			02/02/20 16:11	1
Dibromochloromethane	0.32	U	1.0	0.32	ug/L			02/02/20 16:11	1
1,2-Dibromo-3-Chloropropane	1.1	U	5.0	1.1	ug/L			02/02/20 16:11	1
1,2-Dibromoethane	0.44	U	1.0	0.44	ug/L			02/02/20 16:11	1
Dibromomethane	0.35	U	1.0	0.35	ug/L			02/02/20 16:11	1
1,2-Dichlorobenzene	0.37	U	1.0	0.37	ug/L			02/02/20 16:11	1
1,4-Dichlorobenzene	0.46	U	1.0	0.46	ug/L			02/02/20 16:11	1
1,1-Dichloroethane	0.38	U	1.0	0.38	ug/L			02/02/20 16:11	1
1,2-Dichloroethane	0.50	U	1.0	0.50	ug/L			02/02/20 16:11	1
1,1-Dichloroethene	0.36	U	1.0	0.36	ug/L			02/02/20 16:11	1
1,2-Dichloropropane	0.67	U	1.0	0.67	ug/L			02/02/20 16:11	1
1,3-Dichloropropane	0.34	U	1.0	0.34	ug/L			02/02/20 16:11	1
Ethylbenzene	0.33	U	1.0	0.33	ug/L			02/02/20 16:11	1
2-Hexanone	2.0	U	10	2.0	ug/L			02/02/20 16:11	1
Iodomethane	5.0	U	10	5.0	ug/L			02/02/20 16:11	1
Methylene Chloride	2.5	U	5.0	2.5	ug/L			02/02/20 16:11	1
4-Methyl-2-pentanone (MIBK)	2.1	U	10	2.1	ug/L			02/02/20 16:11	1
Methyl tert-butyl ether	0.30	U	10	0.30	ug/L			02/02/20 16:11	1
Styrene	0.27	U	1.0	0.27	ug/L			02/02/20 16:11	1
1,1,1,2-Tetrachloroethane	0.37	U	1.0	0.37	ug/L			02/02/20 16:11	1
1,1,2,2-Tetrachloroethane	0.62	U	1.0	0.62	ug/L			02/02/20 16:11	1
Tetrachloroethylene	0.74	U	1.0	0.74	ug/L			02/02/20 16:11	1
Toluene	0.48	U	1.0	0.48	ug/L			02/02/20 16:11	1
trans-1,4-Dichloro-2-butene	0.51	U	2.0	0.51	ug/L			02/02/20 16:11	1
trans-1,2-Dichloroethene	0.37	U	1.0	0.37	ug/L			02/02/20 16:11	1
trans-1,3-Dichloropropene	0.42	U	1.0	0.42	ug/L			02/02/20 16:11	1
1,1,1-Trichloroethane	0.37	U	1.0	0.37	ug/L			02/02/20 16:11	1
1,1,2-Trichloroethane	0.33	U	1.0	0.33	ug/L			02/02/20 16:11	1
Trichloroethene	0.48	U	1.0	0.48	ug/L			02/02/20 16:11	1
Trichlorofluoromethane	0.42	U	1.0	0.42	ug/L			02/02/20 16:11	1
1,2,3-Trichloropropane	0.39	U	1.0	0.39	ug/L			02/02/20 16:11	1
Vinyl acetate	0.81	U	2.0	0.81	ug/L			02/02/20 16:11	1
Vinyl chloride	0.50	U	1.0	0.50	ug/L			02/02/20 16:11	1
Xylenes, Total	0.23	U	1.0	0.23	ug/L			02/02/20 16:11	1

Client Sample ID: FTA-94-MW12
Lab Sample ID: 680-179731-3

Date Collected: 01/27/20 11:31
Matrix: Water
Date Received: 01/29/20 09:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*80 - 120*		*02/02/20 16:11*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 122*		*02/02/20 16:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*73 - 131*		*02/02/20 16:11*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*02/02/20 16:11*	*1*

Client Sample ID: FTA-94-MW13
Lab Sample ID: 680-179731-4

Date Collected: 01/28/20 10:16
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	7.0	U	10	7.0	ug/L			02/05/20 16:17	1
Acrylonitrile	10	U	20	10	ug/L			02/05/20 16:17	1
Benzene	0.43	U	1.0	0.43	ug/L			02/05/20 16:17	1
Bromochloromethane	0.45	U	1.0	0.45	ug/L			02/05/20 16:17	1
Bromodichloromethane	0.44	U	1.0	0.44	ug/L			02/05/20 16:17	1
Bromoform	0.43	U	1.0	0.43	ug/L			02/05/20 16:17	1
Bromomethane	2.5	U	5.0	2.5	ug/L			02/05/20 16:17	1
2-Butanone (MEK)	3.4	U	10	3.4	ug/L			02/05/20 16:17	1
Carbon disulfide	1.0	U	2.0	1.0	ug/L			02/05/20 16:17	1
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/05/20 16:17	1
Chlorobenzene	0.26	U	1.0	0.26	ug/L			02/05/20 16:17	1
Chloroethane	2.5	U	5.0	2.5	ug/L			02/05/20 16:17	1
Chloroform	0.50	U	1.0	0.50	ug/L			02/05/20 16:17	1
Chloromethane	0.40	U	1.0	0.40	ug/L			02/05/20 16:17	1
cis-1,2-Dichloroethene	0.41	U	1.0	0.41	ug/L			02/05/20 16:17	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	ug/L			02/05/20 16:17	1
Dibromochloromethane	0.32	U	1.0	0.32	ug/L			02/05/20 16:17	1
1,2-Dibromo-3-Chloropropane	1.1	U	5.0	1.1	ug/L			02/05/20 16:17	1
1,2-Dibromoethane	0.44	U	1.0	0.44	ug/L			02/05/20 16:17	1
Dibromomethane	0.35	U	1.0	0.35	ug/L			02/05/20 16:17	1
1,2-Dichlorobenzene	0.37	U	1.0	0.37	ug/L			02/05/20 16:17	1
1,4-Dichlorobenzene	0.46	U	1.0	0.46	ug/L			02/05/20 16:17	1
1,1-Dichloroethane	0.38	U	1.0	0.38	ug/L			02/05/20 16:17	1
1,2-Dichloroethane	0.50	U	1.0	0.50	ug/L			02/05/20 16:17	1
1,1-Dichloroethene	0.36	U	1.0	0.36	ug/L			02/05/20 16:17	1
1,2-Dichloropropane	0.67	U	1.0	0.67	ug/L			02/05/20 16:17	1
1,3-Dichloropropane	0.34	U	1.0	0.34	ug/L			02/05/20 16:17	1
Ethylbenzene	0.33	U	1.0	0.33	ug/L			02/05/20 16:17	1
2-Hexanone	2.0	U *	10	2.0	ug/L			02/05/20 16:17	1
Iodomethane	5.0	U	10	5.0	ug/L			02/05/20 16:17	1
Methylene Chloride	2.5	U	5.0	2.5	ug/L			02/05/20 16:17	1
4-Methyl-2-pentanone (MIBK)	2.1	U *	10	2.1	ug/L			02/05/20 16:17	1
Methyl tert-butyl ether	0.30	U	10	0.30	ug/L			02/05/20 16:17	1
Styrene	0.27	U	1.0	0.27	ug/L			02/05/20 16:17	1
1,1,1,2-Tetrachloroethane	0.37	U	1.0	0.37	ug/L			02/05/20 16:17	1
1,1,2,2-Tetrachloroethane	0.62	U	1.0	0.62	ug/L			02/05/20 16:17	1
Tetrachloroethylene	0.74	U	1.0	0.74	ug/L			02/05/20 16:17	1
Toluene	0.48	U	1.0	0.48	ug/L			02/05/20 16:17	1
trans-1,4-Dichloro-2-butene	0.51	U	2.0	0.51	ug/L			02/05/20 16:17	1

Client Sample ID: FTA-94-MW13
Lab Sample ID: 680-179731-4
Date Collected: 01/28/20 10:16
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	0.37	U	1.0	0.37	ug/L			02/05/20 16:17	1
trans-1,3-Dichloropropene	0.42	U *	1.0	0.42	ug/L			02/05/20 16:17	1
1,1,1-Trichloroethane	0.37	U	1.0	0.37	ug/L			02/05/20 16:17	1
1,1,2-Trichloroethane	0.33	U	1.0	0.33	ug/L			02/05/20 16:17	1
Trichloroethene	0.48	U	1.0	0.48	ug/L			02/05/20 16:17	1
Trichlorofluoromethane	0.42	U	1.0	0.42	ug/L			02/05/20 16:17	1
1,2,3-Trichloropropane	0.39	U	1.0	0.39	ug/L			02/05/20 16:17	1
Vinyl acetate	0.81	U	2.0	0.81	ug/L			02/05/20 16:17	1
Vinyl chloride	0.50	U	1.0	0.50	ug/L			02/05/20 16:17	1
Xylenes, Total	0.23	U	1.0	0.23	ug/L			02/05/20 16:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*		*02/05/20 16:17*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 122*		*02/05/20 16:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*73 - 131*		*02/05/20 16:17*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*02/05/20 16:17*	*1*

Client Sample ID: FTA-94-MW15
Lab Sample ID: 680-179731-5
Date Collected: 01/27/20 13:36
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	7.0	U	10	7.0	ug/L			02/02/20 16:34	1
Acrylonitrile	10	U	20	10	ug/L			02/02/20 16:34	1
Benzene	0.43	U	1.0	0.43	ug/L			02/02/20 16:34	1
Bromochloromethane	0.45	U	1.0	0.45	ug/L			02/02/20 16:34	1
Bromodichloromethane	0.44	U	1.0	0.44	ug/L			02/02/20 16:34	1
Bromoform	0.43	U	1.0	0.43	ug/L			02/02/20 16:34	1
Bromomethane	2.5	U	5.0	2.5	ug/L			02/02/20 16:34	1
2-Butanone (MEK)	3.4	U	10	3.4	ug/L			02/02/20 16:34	1
Carbon disulfide	1.0	U	2.0	1.0	ug/L			02/02/20 16:34	1
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/02/20 16:34	1
Chlorobenzene	0.26	U	1.0	0.26	ug/L			02/02/20 16:34	1
Chloroethane	2.5	U	5.0	2.5	ug/L			02/02/20 16:34	1
Chloroform	0.50	U	1.0	0.50	ug/L			02/02/20 16:34	1
Chloromethane	0.40	U	1.0	0.40	ug/L			02/02/20 16:34	1
cis-1,2-Dichloroethene	0.41	U	1.0	0.41	ug/L			02/02/20 16:34	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	ug/L			02/02/20 16:34	1
Dibromochloromethane	0.32	U	1.0	0.32	ug/L			02/02/20 16:34	1
1,2-Dibromo-3-Chloropropane	1.1	U	5.0	1.1	ug/L			02/02/20 16:34	1
1,2-Dibromoethane	0.44	U	1.0	0.44	ug/L			02/02/20 16:34	1
Dibromomethane	0.35	U	1.0	0.35	ug/L			02/02/20 16:34	1
1,2-Dichlorobenzene	0.37	U	1.0	0.37	ug/L			02/02/20 16:34	1
1,4-Dichlorobenzene	0.46	U	1.0	0.46	ug/L			02/02/20 16:34	1
1,1-Dichloroethane	0.38	U	1.0	0.38	ug/L			02/02/20 16:34	1
1,2-Dichloroethane	0.50	U	1.0	0.50	ug/L			02/02/20 16:34	1
1,1-Dichloroethene	0.36	U	1.0	0.36	ug/L			02/02/20 16:34	1
1,2-Dichloropropane	0.67	U	1.0	0.67	ug/L			02/02/20 16:34	1
1,3-Dichloropropane	0.34	U	1.0	0.34	ug/L			02/02/20 16:34	1

Client Sample ID: FTA-94-MW15
Lab Sample ID: 680-179731-5
Date Collected: 01/27/20 13:36
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.33	U	1.0	0.33	ug/L			02/02/20 16:34	1
2-Hexanone	2.0	U	10	2.0	ug/L			02/02/20 16:34	1
Iodomethane	5.0	U	10	5.0	ug/L			02/02/20 16:34	1
Methylene Chloride	2.5	U	5.0	2.5	ug/L			02/02/20 16:34	1
4-Methyl-2-pentanone (MIBK)	2.1	U	10	2.1	ug/L			02/02/20 16:34	1
Methyl tert-butyl ether	0.30	U	10	0.30	ug/L			02/02/20 16:34	1
Styrene	0.27	U	1.0	0.27	ug/L			02/02/20 16:34	1
1,1,1,2-Tetrachloroethane	0.37	U	1.0	0.37	ug/L			02/02/20 16:34	1
1,1,2,2-Tetrachloroethane	0.62	U	1.0	0.62	ug/L			02/02/20 16:34	1
Tetrachloroethylene	0.74	U	1.0	0.74	ug/L			02/02/20 16:34	1
Toluene	0.48	U	1.0	0.48	ug/L			02/02/20 16:34	1
trans-1,4-Dichloro-2-butene	0.51	U	2.0	0.51	ug/L			02/02/20 16:34	1
trans-1,2-Dichloroethene	0.37	U	1.0	0.37	ug/L			02/02/20 16:34	1
trans-1,3-Dichloropropene	0.42	U	1.0	0.42	ug/L			02/02/20 16:34	1
1,1,1-Trichloroethane	0.37	U	1.0	0.37	ug/L			02/02/20 16:34	1
1,1,2-Trichloroethane	0.33	U	1.0	0.33	ug/L			02/02/20 16:34	1
Trichloroethene	0.48	U	1.0	0.48	ug/L			02/02/20 16:34	1
Trichlorofluoromethane	0.42	U	1.0	0.42	ug/L			02/02/20 16:34	1
1,2,3-Trichloropropane	0.39	U	1.0	0.39	ug/L			02/02/20 16:34	1
Vinyl acetate	0.81	U	2.0	0.81	ug/L			02/02/20 16:34	1
Vinyl chloride	0.50	U	1.0	0.50	ug/L			02/02/20 16:34	1
Xylenes, Total	0.23	U	1.0	0.23	ug/L			02/02/20 16:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*02/02/20 16:34*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 122*		*02/02/20 16:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*73 - 131*		*02/02/20 16:34*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*02/02/20 16:34*	*1*

Client Sample ID: FTA-94-MW16
Lab Sample ID: 680-179731-6
Date Collected: 01/27/20 14:51
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	7.0	U	10	7.0	ug/L			02/05/20 16:40	1
Acrylonitrile	10	U	20	10	ug/L			02/05/20 16:40	1
Benzene	0.43	U	1.0	0.43	ug/L			02/05/20 16:40	1
Bromochloromethane	0.45	U	1.0	0.45	ug/L			02/05/20 16:40	1
Bromodichloromethane	0.44	U	1.0	0.44	ug/L			02/05/20 16:40	1
Bromoform	0.43	U	1.0	0.43	ug/L			02/05/20 16:40	1
Bromomethane	2.5	U	5.0	2.5	ug/L			02/05/20 16:40	1
2-Butanone (MEK)	3.4	U	10	3.4	ug/L			02/05/20 16:40	1
Carbon disulfide	1.0	U	2.0	1.0	ug/L			02/05/20 16:40	1
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/05/20 16:40	1
Chlorobenzene	0.26	U	1.0	0.26	ug/L			02/05/20 16:40	1
Chloroethane	2.5	U	5.0	2.5	ug/L			02/05/20 16:40	1
Chloroform	0.50	U	1.0	0.50	ug/L			02/05/20 16:40	1
Chloromethane	0.40	U	1.0	0.40	ug/L			02/05/20 16:40	1
cis-1,2-Dichloroethene	0.41	U	1.0	0.41	ug/L			02/05/20 16:40	1

Client: Matrix Environmental Services, LLC
Job ID: 680-179731-1
Project/Site: Parcel 94(7), Chem Laundry/Motor Pool

Client Sample ID: FTA-94-MW16
Lab Sample ID: 680-179731-6
Date Collected: 01/27/20 14:51
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	ug/L			02/05/20 16:40	1
Dibromochloromethane	0.32	U	1.0	0.32	ug/L			02/05/20 16:40	1
1,2-Dibromo-3-Chloropropane	1.1	U	5.0	1.1	ug/L			02/05/20 16:40	1
1,2-Dibromoethane	0.44	U	1.0	0.44	ug/L			02/05/20 16:40	1
Dibromomethane	0.35	U	1.0	0.35	ug/L			02/05/20 16:40	1
1,2-Dichlorobenzene	0.37	U	1.0	0.37	ug/L			02/05/20 16:40	1
1,4-Dichlorobenzene	0.46	U	1.0	0.46	ug/L			02/05/20 16:40	1
1,1-Dichloroethane	0.38	U	1.0	0.38	ug/L			02/05/20 16:40	1
1,2-Dichloroethane	0.50	U	1.0	0.50	ug/L			02/05/20 16:40	1
1,1-Dichloroethene	0.36	U	1.0	0.36	ug/L			02/05/20 16:40	1
1,2-Dichloropropane	0.67	U	1.0	0.67	ug/L			02/05/20 16:40	1
1,3-Dichloropropane	0.34	U	1.0	0.34	ug/L			02/05/20 16:40	1
Ethylbenzene	0.33	U	1.0	0.33	ug/L			02/05/20 16:40	1
2-Hexanone	2.0	U *	10	2.0	ug/L			02/05/20 16:40	1
Iodomethane	5.0	U	10	5.0	ug/L			02/05/20 16:40	1
Methylene Chloride	2.5	U	5.0	2.5	ug/L			02/05/20 16:40	1
4-Methyl-2-pentanone (MIBK)	2.1	U *	10	2.1	ug/L			02/05/20 16:40	1
Methyl tert-butyl ether	0.30	U	10	0.30	ug/L			02/05/20 16:40	1
Styrene	0.27	U	1.0	0.27	ug/L			02/05/20 16:40	1
1,1,1,2-Tetrachloroethane	0.37	U	1.0	0.37	ug/L			02/05/20 16:40	1
1,1,2,2-Tetrachloroethane	0.62	U	1.0	0.62	ug/L			02/05/20 16:40	1
Tetrachloroethylene	0.74	U	1.0	0.74	ug/L			02/05/20 16:40	1
Toluene	0.48	U	1.0	0.48	ug/L			02/05/20 16:40	1
trans-1,4-Dichloro-2-butene	0.51	U	2.0	0.51	ug/L			02/05/20 16:40	1
trans-1,2-Dichloroethene	0.37	U	1.0	0.37	ug/L			02/05/20 16:40	1
trans-1,3-Dichloropropene	0.42	U *	1.0	0.42	ug/L			02/05/20 16:40	1
1,1,1-Trichloroethane	0.37	U	1.0	0.37	ug/L			02/05/20 16:40	1
1,1,2-Trichloroethane	0.33	U	1.0	0.33	ug/L			02/05/20 16:40	1
Trichloroethene	0.48	U	1.0	0.48	ug/L			02/05/20 16:40	1
Trichlorofluoromethane	0.42	U	1.0	0.42	ug/L			02/05/20 16:40	1
1,2,3-Trichloropropane	0.39	U	1.0	0.39	ug/L			02/05/20 16:40	1
Vinyl acetate	0.81	U	2.0	0.81	ug/L			02/05/20 16:40	1
Vinyl chloride	0.50	U	1.0	0.50	ug/L			02/05/20 16:40	1
Xylenes, Total	0.23	U	1.0	0.23	ug/L			02/05/20 16:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*80 - 120*		*02/05/20 16:40*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 122*		*02/05/20 16:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*73 - 131*		*02/05/20 16:40*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*02/05/20 16:40*	*1*

Client Sample ID: DUP340
Lab Sample ID: 680-179731-7
Date Collected: 01/28/20 00:00
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	7.0	U	10	7.0	ug/L			02/05/20 17:03	1
Acrylonitrile	10	U	20	10	ug/L			02/05/20 17:03	1
Benzene	0.43	U	1.0	0.43	ug/L			02/05/20 17:03	1

Client: Matrix Environmental Services, LLC
Project/Site: Parcel 94(7), Chem Laundry/Motor Pool

Job ID: 680-179731-1

Client Sample ID: DUP340
Date Collected: 01/28/20 00:00
Date Received: 01/29/20 09:00

Lab Sample ID: 680-179731-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromochloromethane	0.45	U	1.0	0.45	ug/L			02/05/20 17:03	1
Bromodichloromethane	0.44	U	1.0	0.44	ug/L			02/05/20 17:03	1
Bromoform	0.43	U	1.0	0.43	ug/L			02/05/20 17:03	1
Bromomethane	2.5	U	5.0	2.5	ug/L			02/05/20 17:03	1
2-Butanone (MEK)	3.4	U	10	3.4	ug/L			02/05/20 17:03	1
Carbon disulfide	1.0	U	2.0	1.0	ug/L			02/05/20 17:03	1
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/05/20 17:03	1
Chlorobenzene	**41**		1.0	0.26	ug/L			02/05/20 17:03	1
Chloroethane	2.5	U	5.0	2.5	ug/L			02/05/20 17:03	1
Chloroform	0.50	U	1.0	0.50	ug/L			02/05/20 17:03	1
Chloromethane	0.40	U	1.0	0.40	ug/L			02/05/20 17:03	1
cis-1,2-Dichloroethene	**4.7**		1.0	0.41	ug/L			02/05/20 17:03	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	ug/L			02/05/20 17:03	1
Dibromochloromethane	0.32	U	1.0	0.32	ug/L			02/05/20 17:03	1
1,2-Dibromo-3-Chloropropane	1.1	U	5.0	1.1	ug/L			02/05/20 17:03	1
1,2-Dibromoethane	0.44	U	1.0	0.44	ug/L			02/05/20 17:03	1
Dibromomethane	0.35	U	1.0	0.35	ug/L			02/05/20 17:03	1
1,2-Dichlorobenzene	0.37	U	1.0	0.37	ug/L			02/05/20 17:03	1
1,4-Dichlorobenzene	0.46	U	1.0	0.46	ug/L			02/05/20 17:03	1
1,1-Dichloroethane	0.38	U	1.0	0.38	ug/L			02/05/20 17:03	1
1,2-Dichloroethane	0.50	U	1.0	0.50	ug/L			02/05/20 17:03	1
1,1-Dichloroethene	0.36	U	1.0	0.36	ug/L			02/05/20 17:03	1
1,2-Dichloropropane	0.67	U	1.0	0.67	ug/L			02/05/20 17:03	1
1,3-Dichloropropane	0.34	U	1.0	0.34	ug/L			02/05/20 17:03	1
Ethylbenzene	0.33	U	1.0	0.33	ug/L			02/05/20 17:03	1
2-Hexanone	2.0	U *	10	2.0	ug/L			02/05/20 17:03	1
Iodomethane	5.0	U	10	5.0	ug/L			02/05/20 17:03	1
Methylene Chloride	2.5	U	5.0	2.5	ug/L			02/05/20 17:03	1
4-Methyl-2-pentanone (MIBK)	2.1	U *	10	2.1	ug/L			02/05/20 17:03	1
Methyl tert-butyl ether	0.30	U	10	0.30	ug/L			02/05/20 17:03	1
Styrene	0.27	U	1.0	0.27	ug/L			02/05/20 17:03	1
1,1,1,2-Tetrachloroethane	0.37	U	1.0	0.37	ug/L			02/05/20 17:03	1
1,1,2,2-Tetrachloroethane	0.62	U	1.0	0.62	ug/L			02/05/20 17:03	1
Tetrachloroethylene	0.74	U	1.0	0.74	ug/L			02/05/20 17:03	1
Toluene	0.48	U	1.0	0.48	ug/L			02/05/20 17:03	1
trans-1,4-Dichloro-2-butene	0.51	U	2.0	0.51	ug/L			02/05/20 17:03	1
trans-1,2-Dichloroethene	**1.9**		1.0	0.37	ug/L			02/05/20 17:03	1
trans-1,3-Dichloropropene	0.42	U *	1.0	0.42	ug/L			02/05/20 17:03	1
1,1,1-Trichloroethane	0.37	U	1.0	0.37	ug/L			02/05/20 17:03	1
1,1,2-Trichloroethane	0.33	U	1.0	0.33	ug/L			02/05/20 17:03	1
Trichloroethene	**60**		1.0	0.48	ug/L			02/05/20 17:03	1
Trichlorofluoromethane	0.42	U	1.0	0.42	ug/L			02/05/20 17:03	1
1,2,3-Trichloropropane	0.39	U	1.0	0.39	ug/L			02/05/20 17:03	1
Vinyl acetate	0.81	U	2.0	0.81	ug/L			02/05/20 17:03	1
Vinyl chloride	**4.6**		1.0	0.50	ug/L			02/05/20 17:03	1
Xylenes, Total	0.23	U	1.0	0.23	ug/L			02/05/20 17:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*02/05/20 17:03*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 122*		*02/05/20 17:03*	*1*

Client Sample ID: DUP340
Lab Sample ID: 680-179731-7
Date Collected: 01/28/20 00:00
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*73 - 131*		*02/05/20 17:03*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*02/05/20 17:03*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**41**		0.58	0.29	ug/L			02/04/20 18:16	1
Ethane	0.55	U	1.1	0.55	ug/L			02/04/20 18:16	1
Ethene	0.50	U	1.0	0.50	ug/L			02/04/20 18:16	1

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**0.025**	**J**	0.050	0.023	mg/L			01/29/20 18:01	1
Sulfate	**7.2**		1.0	0.40	mg/L			01/29/20 21:02	1
Nitrite as N	0.023	U	0.050	0.023	mg/L			01/29/20 18:01	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**20**	**J**	50	17	ug/L		01/30/20 14:56	01/31/20 16:22	1
Manganese	**18**		10	1.0	ug/L		01/30/20 14:56	01/31/20 16:22	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Iron	17	U	50	17	ug/L		01/31/20 09:36	01/31/20 20:14	1
Dissolved Manganese	**17**		10	1.0	ug/L		01/31/20 09:36	01/31/20 20:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	0.10	U	0.25	0.10	mg/L			02/13/20 09:49	1
Nitrogen, Kjeldahl	0.10	U	0.20	0.10	mg/L		02/06/20 16:26	02/07/20 09:27	1

Client Sample ID: TB547
Lab Sample ID: 680-179731-8
Date Collected: 01/28/20 13:30
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	7.0	U	10	7.0	ug/L			02/05/20 14:43	1
Acrylonitrile	10	U	20	10	ug/L			02/05/20 14:43	1
Benzene	0.43	U	1.0	0.43	ug/L			02/05/20 14:43	1
Bromochloromethane	0.45	U	1.0	0.45	ug/L			02/05/20 14:43	1
Bromodichloromethane	0.44	U	1.0	0.44	ug/L			02/05/20 14:43	1
Bromoform	0.43	U	1.0	0.43	ug/L			02/05/20 14:43	1
Bromomethane	2.5	U	5.0	2.5	ug/L			02/05/20 14:43	1
2-Butanone (MEK)	3.4	U	10	3.4	ug/L			02/05/20 14:43	1
Carbon disulfide	1.0	U	2.0	1.0	ug/L			02/05/20 14:43	1
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/05/20 14:43	1
Chlorobenzene	0.26	U	1.0	0.26	ug/L			02/05/20 14:43	1
Chloroethane	2.5	U	5.0	2.5	ug/L			02/05/20 14:43	1
Chloroform	0.50	U	1.0	0.50	ug/L			02/05/20 14:43	1
Chloromethane	0.40	U	1.0	0.40	ug/L			02/05/20 14:43	1
cis-1,2-Dichloroethene	0.41	U	1.0	0.41	ug/L			02/05/20 14:43	1

Client Sample ID: TB547
Lab Sample ID: 680-179731-8
Date Collected: 01/28/20 13:30
Matrix: Water
Date Received: 01/29/20 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	ug/L			02/05/20 14:43	1
Dibromochloromethane	0.32	U	1.0	0.32	ug/L			02/05/20 14:43	1
1,2-Dibromo-3-Chloropropane	1.1	U	5.0	1.1	ug/L			02/05/20 14:43	1
1,2-Dibromoethane	0.44	U	1.0	0.44	ug/L			02/05/20 14:43	1
Dibromomethane	0.35	U	1.0	0.35	ug/L			02/05/20 14:43	1
1,2-Dichlorobenzene	0.37	U	1.0	0.37	ug/L			02/05/20 14:43	1
1,4-Dichlorobenzene	0.46	U	1.0	0.46	ug/L			02/05/20 14:43	1
1,1-Dichloroethane	0.38	U	1.0	0.38	ug/L			02/05/20 14:43	1
1,2-Dichloroethane	0.50	U	1.0	0.50	ug/L			02/05/20 14:43	1
1,1-Dichloroethene	0.36	U	1.0	0.36	ug/L			02/05/20 14:43	1
1,2-Dichloropropane	0.67	U	1.0	0.67	ug/L			02/05/20 14:43	1
1,3-Dichloropropane	0.34	U	1.0	0.34	ug/L			02/05/20 14:43	1
Ethylbenzene	0.33	U	1.0	0.33	ug/L			02/05/20 14:43	1
2-Hexanone	2.0	U *	10	2.0	ug/L			02/05/20 14:43	1
Iodomethane	5.0	U	10	5.0	ug/L			02/05/20 14:43	1
Methylene Chloride	2.5	U	5.0	2.5	ug/L			02/05/20 14:43	1
4-Methyl-2-pentanone (MIBK)	2.1	U *	10	2.1	ug/L			02/05/20 14:43	1
Methyl tert-butyl ether	0.30	U	10	0.30	ug/L			02/05/20 14:43	1
Styrene	0.27	U	1.0	0.27	ug/L			02/05/20 14:43	1
1,1,1,2-Tetrachloroethane	0.37	U	1.0	0.37	ug/L			02/05/20 14:43	1
1,1,2,2-Tetrachloroethane	0.62	U	1.0	0.62	ug/L			02/05/20 14:43	1
Tetrachloroethylene	0.74	U	1.0	0.74	ug/L			02/05/20 14:43	1
Toluene	0.48	U	1.0	0.48	ug/L			02/05/20 14:43	1
trans-1,4-Dichloro-2-butene	0.51	U	2.0	0.51	ug/L			02/05/20 14:43	1
trans-1,2-Dichloroethene	0.37	U	1.0	0.37	ug/L			02/05/20 14:43	1
trans-1,3-Dichloropropene	0.42	U *	1.0	0.42	ug/L			02/05/20 14:43	1
1,1,1-Trichloroethane	0.37	U	1.0	0.37	ug/L			02/05/20 14:43	1
1,1,2-Trichloroethane	0.33	U	1.0	0.33	ug/L			02/05/20 14:43	1
Trichloroethene	0.48	U	1.0	0.48	ug/L			02/05/20 14:43	1
Trichlorofluoromethane	0.42	U	1.0	0.42	ug/L			02/05/20 14:43	1
1,2,3-Trichloropropane	0.39	U	1.0	0.39	ug/L			02/05/20 14:43	1
Vinyl acetate	0.81	U	2.0	0.81	ug/L			02/05/20 14:43	1
Vinyl chloride	0.50	U	1.0	0.50	ug/L			02/05/20 14:43	1
Xylenes, Total	0.23	U	1.0	0.23	ug/L			02/05/20 14:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*02/05/20 14:43*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 122*		*02/05/20 14:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*73 - 131*		*02/05/20 14:43*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*02/05/20 14:43*	*1*

Client: Matrix Environmental Services, LLC
Project/Site: Parcel 94(7), Chem Laundry/Motor Pool

Job ID: 680-179731-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-605888/10
Matrix: Water
Analysis Batch: 605888

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	7.0	U	10	7.0	ug/L			02/02/20 14:15	1
Acrylonitrile	10	U	20	10	ug/L			02/02/20 14:15	1
Benzene	0.43	U	1.0	0.43	ug/L			02/02/20 14:15	1
Bromochloromethane	0.45	U	1.0	0.45	ug/L			02/02/20 14:15	1
Bromodichloromethane	0.44	U	1.0	0.44	ug/L			02/02/20 14:15	1
Bromoform	0.43	U	1.0	0.43	ug/L			02/02/20 14:15	1
Bromomethane	2.5	U	5.0	2.5	ug/L			02/02/20 14:15	1
2-Butanone (MEK)	3.4	U	10	3.4	ug/L			02/02/20 14:15	1
Carbon disulfide	1.0	U	2.0	1.0	ug/L			02/02/20 14:15	1
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/02/20 14:15	1
Chlorobenzene	0.26	U	1.0	0.26	ug/L			02/02/20 14:15	1
Chloroethane	2.5	U	5.0	2.5	ug/L			02/02/20 14:15	1
Chloroform	0.50	U	1.0	0.50	ug/L			02/02/20 14:15	1
Chloromethane	0.40	U	1.0	0.40	ug/L			02/02/20 14:15	1
cis-1,2-Dichloroethene	0.41	U	1.0	0.41	ug/L			02/02/20 14:15	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	ug/L			02/02/20 14:15	1
Dibromochloromethane	0.32	U	1.0	0.32	ug/L			02/02/20 14:15	1
1,2-Dibromo-3-Chloropropane	1.1	U	5.0	1.1	ug/L			02/02/20 14:15	1
1,2-Dibromoethane	0.44	U	1.0	0.44	ug/L			02/02/20 14:15	1
Dibromomethane	0.35	U	1.0	0.35	ug/L			02/02/20 14:15	1
1,2-Dichlorobenzene	0.37	U	1.0	0.37	ug/L			02/02/20 14:15	1
1,4-Dichlorobenzene	0.46	U	1.0	0.46	ug/L			02/02/20 14:15	1
1,1-Dichloroethane	0.38	U	1.0	0.38	ug/L			02/02/20 14:15	1
1,2-Dichloroethane	0.50	U	1.0	0.50	ug/L			02/02/20 14:15	1
1,1-Dichloroethene	0.36	U	1.0	0.36	ug/L			02/02/20 14:15	1
1,2-Dichloropropane	0.67	U	1.0	0.67	ug/L			02/02/20 14:15	1
1,3-Dichloropropane	0.34	U	1.0	0.34	ug/L			02/02/20 14:15	1
Ethylbenzene	0.33	U	1.0	0.33	ug/L			02/02/20 14:15	1
2-Hexanone	2.0	U	10	2.0	ug/L			02/02/20 14:15	1
Iodomethane	5.0	U	10	5.0	ug/L			02/02/20 14:15	1
Methylene Chloride	2.5	U	5.0	2.5	ug/L			02/02/20 14:15	1
4-Methyl-2-pentanone (MIBK)	2.1	U	10	2.1	ug/L			02/02/20 14:15	1
Methyl tert-butyl ether	0.30	U	10	0.30	ug/L			02/02/20 14:15	1
Styrene	0.27	U	1.0	0.27	ug/L			02/02/20 14:15	1
1,1,1,2-Tetrachloroethane	0.37	U	1.0	0.37	ug/L			02/02/20 14:15	1
1,1,2,2-Tetrachloroethane	0.62	U	1.0	0.62	ug/L			02/02/20 14:15	1
Tetrachloroethylene	0.74	U	1.0	0.74	ug/L			02/02/20 14:15	1
Toluene	0.48	U	1.0	0.48	ug/L			02/02/20 14:15	1
trans-1,4-Dichloro-2-butene	0.51	U	2.0	0.51	ug/L			02/02/20 14:15	1
trans-1,2-Dichloroethene	0.37	U	1.0	0.37	ug/L			02/02/20 14:15	1
trans-1,3-Dichloropropene	0.42	U	1.0	0.42	ug/L			02/02/20 14:15	1
1,1,1-Trichloroethane	0.37	U	1.0	0.37	ug/L			02/02/20 14:15	1
1,1,2-Trichloroethane	0.33	U	1.0	0.33	ug/L			02/02/20 14:15	1
Trichloroethene	0.48	U	1.0	0.48	ug/L			02/02/20 14:15	1
Trichlorofluoromethane	0.42	U	1.0	0.42	ug/L			02/02/20 14:15	1
1,2,3-Trichloropropane	0.39	U	1.0	0.39	ug/L			02/02/20 14:15	1
Vinyl acetate	0.81	U	2.0	0.81	ug/L			02/02/20 14:15	1
Vinyl chloride	0.50	U	1.0	0.50	ug/L			02/02/20 14:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-605888/10
Matrix: Water
Analysis Batch: 605888

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	0.23	U	1.0	0.23	ug/L			02/02/20 14:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*02/02/20 14:15*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 122*		*02/02/20 14:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*73 - 131*		*02/02/20 14:15*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*02/02/20 14:15*	*1*

Lab Sample ID: LCS 680-605888/4
Matrix: Water
Analysis Batch: 605888

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	250	237		ug/L		95	70 - 135
Acrylonitrile	500	529		ug/L		106	80 - 123
Benzene	50.0	51.7		ug/L		103	80 - 120
Bromochloromethane	50.0	50.8		ug/L		102	80 - 120
Bromodichloromethane	50.0	55.3		ug/L		111	80 - 120
Bromoform	50.0	53.2		ug/L		106	74 - 126
Bromomethane	50.1	52.1		ug/L		104	62 - 130
2-Butanone (MEK)	250	262		ug/L		105	80 - 131
Carbon disulfide	50.0	47.7		ug/L		95	80 - 120
Carbon tetrachloride	50.0	49.1		ug/L		98	76 - 123
Chlorobenzene	50.0	52.0		ug/L		104	80 - 120
Chloroethane	50.0	45.3		ug/L		90	66 - 135
Chloroform	50.0	53.3		ug/L		107	80 - 120
Chloromethane	50.0	47.1		ug/L		94	69 - 131
cis-1,2-Dichloroethene	50.0	53.3		ug/L		107	80 - 120
cis-1,3-Dichloropropene	50.0	56.0		ug/L		112	80 - 120
Dibromochloromethane	50.0	55.9		ug/L		112	80 - 121
1,2-Dibromo-3-Chloropropane	50.0	49.1		ug/L		98	71 - 134
1,2-Dibromoethane	50.0	55.9		ug/L		112	80 - 120
Dibromomethane	50.0	53.6		ug/L		107	80 - 120
1,2-Dichlorobenzene	50.0	53.0		ug/L		106	80 - 120
1,4-Dichlorobenzene	50.0	52.6		ug/L		105	80 - 120
1,1-Dichloroethane	50.0	52.3		ug/L		105	80 - 120
1,2-Dichloroethane	50.0	54.7		ug/L		109	80 - 120
1,1-Dichloroethene	50.0	46.1		ug/L		92	76 - 120
1,2-Dichloropropane	50.0	54.6		ug/L		109	80 - 120
1,3-Dichloropropane	50.0	55.6		ug/L		111	80 - 120
Ethylbenzene	50.0	52.3		ug/L		105	80 - 120
2-Hexanone	250	278		ug/L		111	74 - 127
Iodomethane	50.0	44.4		ug/L		89	52 - 142
Methylene Chloride	50.0	50.3		ug/L		101	80 - 120
4-Methyl-2-pentanone (MIBK)	250	277		ug/L		111	76 - 124
Methyl tert-butyl ether	50.0	51.3		ug/L		103	80 - 120
Styrene	50.0	54.5		ug/L		109	80 - 120
1,1,1,2-Tetrachloroethane	50.0	53.4		ug/L		107	80 - 121

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-605888/4
Matrix: Water
Analysis Batch: 605888

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1,2,2-Tetrachloroethane			50.0	53.5		ug/L		107	80 - 120		
Tetrachloroethylene			50.0	50.9		ug/L		102	80 - 121		
Toluene			50.0	53.8		ug/L		108	80 - 113		
trans-1,4-Dichloro-2-butene			50.0	55.8		ug/L		112	68 - 125		
trans-1,2-Dichloroethene			50.0	49.7		ug/L		99	80 - 120		
trans-1,3-Dichloropropene			50.0	57.4		ug/L		115	80 - 120		
1,1,1-Trichloroethane			50.0	50.4		ug/L		101	80 - 120		
1,1,2-Trichloroethane			50.0	55.3		ug/L		111	80 - 120		
Trichloroethene			50.0	51.4		ug/L		103	80 - 120		
Trichlorofluoromethane			50.0	44.4		ug/L		89	60 - 141		
1,2,3-Trichloropropane			50.0	54.8		ug/L		110	80 - 123		
Vinyl acetate			100	117		ug/L		117	67 - 135		
Vinyl chloride			50.1	44.8		ug/L		89	71 - 128		
Xylenes, Total			100	106		ug/L		106	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*106*		*80 - 122*
1,2-Dichloroethane-d4 (Surr)	*108*		*73 - 131*
Toluene-d8 (Surr)	*107*		*80 - 120*

Lab Sample ID: LCSD 680-605888/5
Matrix: Water
Analysis Batch: 605888

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
Acetone			250	237		ug/L		95	70 - 135	0	30
Acrylonitrile			500	526		ug/L		105	80 - 123	1	20
Benzene			50.0	53.2		ug/L		106	80 - 120	3	20
Bromochloromethane			50.0	51.7		ug/L		103	80 - 120	2	20
Bromodichloromethane			50.0	55.9		ug/L		112	80 - 120	1	20
Bromoform			50.0	52.7		ug/L		105	74 - 126	1	20
Bromomethane			50.1	53.8		ug/L		107	62 - 130	3	20
2-Butanone (MEK)			250	265		ug/L		106	80 - 131	1	20
Carbon disulfide			50.0	49.3		ug/L		99	80 - 120	3	20
Carbon tetrachloride			50.0	50.4		ug/L		101	76 - 123	3	20
Chlorobenzene			50.0	52.6		ug/L		105	80 - 120	1	20
Chloroethane			50.0	46.6		ug/L		93	66 - 135	3	20
Chloroform			50.0	54.6		ug/L		109	80 - 120	2	20
Chloromethane			50.0	48.4		ug/L		97	69 - 131	3	30
cis-1,2-Dichloroethene			50.0	54.1		ug/L		108	80 - 120	1	20
cis-1,3-Dichloropropene			50.0	56.6		ug/L		113	80 - 120	1	20
Dibromochloromethane			50.0	56.4		ug/L		113	80 - 121	1	20
1,2-Dibromo-3-Chloropropane			50.0	50.3		ug/L		101	71 - 134	2	20
1,2-Dibromoethane			50.0	56.0		ug/L		112	80 - 120	0	20
Dibromomethane			50.0	54.4		ug/L		109	80 - 120	1	20
1,2-Dichlorobenzene			50.0	54.1		ug/L		108	80 - 120	2	20
1,4-Dichlorobenzene			50.0	54.0		ug/L		108	80 - 120	3	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-605888/5
Matrix: Water
Analysis Batch: 605888

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
1,1-Dichloroethane	50.0	53.5		ug/L		107	80 - 120	2	20
1,2-Dichloroethane	50.0	55.1		ug/L		110	80 - 120	1	50
1,1-Dichloroethene	50.0	47.4		ug/L		95	76 - 120	3	20
1,2-Dichloropropane	50.0	55.2		ug/L		110	80 - 120	1	20
1,3-Dichloropropane	50.0	55.8		ug/L		112	80 - 120	0	20
Ethylbenzene	50.0	53.0		ug/L		106	80 - 120	1	20
2-Hexanone	250	279		ug/L		112	74 - 127	0	20
Iodomethane	50.0	46.7		ug/L		93	52 - 142	5	30
Methylene Chloride	50.0	50.7		ug/L		101	80 - 120	1	20
4-Methyl-2-pentanone (MIBK)	250	278		ug/L		111	76 - 124	0	20
Methyl tert-butyl ether	50.0	51.7		ug/L		103	80 - 120	1	20
Styrene	50.0	55.2		ug/L		110	80 - 120	1	20
1,1,1,2-Tetrachloroethane	50.0	53.7		ug/L		107	80 - 121	1	20
1,1,2,2-Tetrachloroethane	50.0	53.1		ug/L		106	80 - 120	1	20
Tetrachloroethylene	50.0	52.3		ug/L		105	80 - 121	3	20
Toluene	50.0	54.9		ug/L		110	80 - 113	2	20
trans-1,4-Dichloro-2-butene	50.0	55.6		ug/L		111	68 - 125	0	30
trans-1,2-Dichloroethene	50.0	50.9		ug/L		102	80 - 120	2	20
trans-1,3-Dichloropropene	50.0	58.1		ug/L		116	80 - 120	1	30
1,1,1-Trichloroethane	50.0	51.4		ug/L		103	80 - 120	2	20
1,1,2-Trichloroethane	50.0	55.5		ug/L		111	80 - 120	0	20
Trichloroethene	50.0	52.9		ug/L		106	80 - 120	3	20
Trichlorofluoromethane	50.0	46.4		ug/L		93	60 - 141	5	20
1,2,3-Trichloropropane	50.0	54.3		ug/L		109	80 - 123	1	30
Vinyl acetate	100	118		ug/L		118	67 - 135	0	20
Vinyl chloride	50.1	45.8		ug/L		91	71 - 128	2	20
Xylenes, Total	100	107		ug/L		107	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*108*		*80 - 122*
1,2-Dichloroethane-d4 (Surr)	*108*		*73 - 131*
Toluene-d8 (Surr)	*110*		*80 - 120*

Lab Sample ID: MB 680-606263/10
Matrix: Water
Analysis Batch: 606263

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	7.0	U	10	7.0	ug/L			02/05/20 14:20	1
Acrylonitrile	10	U	20	10	ug/L			02/05/20 14:20	1
Benzene	0.43	U	1.0	0.43	ug/L			02/05/20 14:20	1
Bromochloromethane	0.45	U	1.0	0.45	ug/L			02/05/20 14:20	1
Bromodichloromethane	0.44	U	1.0	0.44	ug/L			02/05/20 14:20	1
Bromoform	0.43	U	1.0	0.43	ug/L			02/05/20 14:20	1
Bromomethane	2.5	U	5.0	2.5	ug/L			02/05/20 14:20	1
2-Butanone (MEK)	3.4	U	10	3.4	ug/L			02/05/20 14:20	1
Carbon disulfide	1.0	U	2.0	1.0	ug/L			02/05/20 14:20	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-606263/10
Matrix: Water
Analysis Batch: 606263

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/05/20 14:20	1
Chlorobenzene	0.26	U	1.0	0.26	ug/L			02/05/20 14:20	1
Chloroethane	2.5	U	5.0	2.5	ug/L			02/05/20 14:20	1
Chloroform	0.50	U	1.0	0.50	ug/L			02/05/20 14:20	1
Chloromethane	0.40	U	1.0	0.40	ug/L			02/05/20 14:20	1
cis-1,2-Dichloroethene	0.41	U	1.0	0.41	ug/L			02/05/20 14:20	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	ug/L			02/05/20 14:20	1
Dibromochloromethane	0.32	U	1.0	0.32	ug/L			02/05/20 14:20	1
1,2-Dibromo-3-Chloropropane	1.1	U	5.0	1.1	ug/L			02/05/20 14:20	1
1,2-Dibromoethane	0.44	U	1.0	0.44	ug/L			02/05/20 14:20	1
Dibromomethane	0.35	U	1.0	0.35	ug/L			02/05/20 14:20	1
1,2-Dichlorobenzene	0.37	U	1.0	0.37	ug/L			02/05/20 14:20	1
1,4-Dichlorobenzene	0.46	U	1.0	0.46	ug/L			02/05/20 14:20	1
1,1-Dichloroethane	0.38	U	1.0	0.38	ug/L			02/05/20 14:20	1
1,2-Dichloroethane	0.50	U	1.0	0.50	ug/L			02/05/20 14:20	1
1,1-Dichloroethene	0.36	U	1.0	0.36	ug/L			02/05/20 14:20	1
1,2-Dichloropropane	0.67	U	1.0	0.67	ug/L			02/05/20 14:20	1
1,3-Dichloropropane	0.34	U	1.0	0.34	ug/L			02/05/20 14:20	1
Ethylbenzene	0.33	U	1.0	0.33	ug/L			02/05/20 14:20	1
2-Hexanone	2.0	U	10	2.0	ug/L			02/05/20 14:20	1
Iodomethane	5.0	U	10	5.0	ug/L			02/05/20 14:20	1
Methylene Chloride	2.5	U	5.0	2.5	ug/L			02/05/20 14:20	1
4-Methyl-2-pentanone (MIBK)	2.1	U	10	2.1	ug/L			02/05/20 14:20	1
Methyl tert-butyl ether	0.30	U	10	0.30	ug/L			02/05/20 14:20	1
Styrene	0.27	U	1.0	0.27	ug/L			02/05/20 14:20	1
1,1,1,2-Tetrachloroethane	0.37	U	1.0	0.37	ug/L			02/05/20 14:20	1
1,1,2,2-Tetrachloroethane	0.62	U	1.0	0.62	ug/L			02/05/20 14:20	1
Tetrachloroethylene	0.74	U	1.0	0.74	ug/L			02/05/20 14:20	1
Toluene	0.48	U	1.0	0.48	ug/L			02/05/20 14:20	1
trans-1,4-Dichloro-2-butene	0.51	U	2.0	0.51	ug/L			02/05/20 14:20	1
trans-1,2-Dichloroethene	0.37	U	1.0	0.37	ug/L			02/05/20 14:20	1
trans-1,3-Dichloropropene	0.42	U	1.0	0.42	ug/L			02/05/20 14:20	1
1,1,1-Trichloroethane	0.37	U	1.0	0.37	ug/L			02/05/20 14:20	1
1,1,2-Trichloroethane	0.33	U	1.0	0.33	ug/L			02/05/20 14:20	1
Trichloroethene	0.48	U	1.0	0.48	ug/L			02/05/20 14:20	1
Trichlorofluoromethane	0.42	U	1.0	0.42	ug/L			02/05/20 14:20	1
1,2,3-Trichloropropane	0.39	U	1.0	0.39	ug/L			02/05/20 14:20	1
Vinyl acetate	0.81	U	2.0	0.81	ug/L			02/05/20 14:20	1
Vinyl chloride	0.50	U	1.0	0.50	ug/L			02/05/20 14:20	1
Xylenes, Total	0.23	U	1.0	0.23	ug/L			02/05/20 14:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*		*02/05/20 14:20*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 122*		*02/05/20 14:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*73 - 131*		*02/05/20 14:20*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*02/05/20 14:20*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-606263/4
Matrix: Water
Analysis Batch: 606263

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	250	269		ug/L		107	70 - 135
Acrylonitrile	500	602		ug/L		120	80 - 123
Benzene	50.0	53.6		ug/L		107	80 - 120
Bromochloromethane	50.0	50.9		ug/L		102	80 - 120
Bromodichloromethane	50.0	57.4		ug/L		115	80 - 120
Bromoform	50.0	52.5		ug/L		105	74 - 126
Bromomethane	50.1	47.3		ug/L		94	62 - 130
2-Butanone (MEK)	250	293		ug/L		117	80 - 131
Carbon disulfide	50.0	47.6		ug/L		95	80 - 120
Carbon tetrachloride	50.0	48.1		ug/L		96	76 - 123
Chlorobenzene	50.0	51.2		ug/L		102	80 - 120
Chloroethane	50.0	44.0		ug/L		88	66 - 135
Chloroform	50.0	54.9		ug/L		110	80 - 120
Chloromethane	50.0	45.5		ug/L		91	69 - 131
cis-1,2-Dichloroethene	50.0	55.2		ug/L		110	80 - 120
cis-1,3-Dichloropropene	50.0	58.4		ug/L		117	80 - 120
Dibromochloromethane	50.0	57.7		ug/L		115	80 - 121
1,2-Dibromo-3-Chloropropane	50.0	50.7		ug/L		101	71 - 134
1,2-Dibromoethane	50.0	58.0		ug/L		116	80 - 120
Dibromomethane	50.0	56.4		ug/L		113	80 - 120
1,2-Dichlorobenzene	50.0	52.6		ug/L		105	80 - 120
1,4-Dichlorobenzene	50.0	51.5		ug/L		103	80 - 120
1,1-Dichloroethane	50.0	54.8		ug/L		110	80 - 120
1,2-Dichloroethane	50.0	58.1		ug/L		116	80 - 120
1,1-Dichloroethene	50.0	45.3		ug/L		91	76 - 120
1,2-Dichloropropane	50.0	57.5		ug/L		115	80 - 120
1,3-Dichloropropane	50.0	59.3		ug/L		119	80 - 120
Ethylbenzene	50.0	52.1		ug/L		104	80 - 120
2-Hexanone	250	336	*	ug/L		134	74 - 127
Iodomethane	50.0	37.0		ug/L		74	52 - 142
Methylene Chloride	50.0	50.8		ug/L		102	80 - 120
4-Methyl-2-pentanone (MIBK)	250	330	*	ug/L		132	76 - 124
Methyl tert-butyl ether	50.0	54.3		ug/L		109	80 - 120
Styrene	50.0	54.2		ug/L		108	80 - 120
1,1,1,2-Tetrachloroethane	50.0	52.4		ug/L		105	80 - 121
1,1,2,2-Tetrachloroethane	50.0	56.4		ug/L		113	80 - 120
Tetrachloroethylene	50.0	50.0		ug/L		100	80 - 121
Toluene	50.0	55.0		ug/L		110	80 - 113
trans-1,4-Dichloro-2-butene	50.0	60.5		ug/L		121	68 - 125
trans-1,2-Dichloroethene	50.0	50.0		ug/L		100	80 - 120
trans-1,3-Dichloropropene	50.0	61.0	*	ug/L		122	80 - 120
1,1,1-Trichloroethane	50.0	50.4		ug/L		101	80 - 120
1,1,2-Trichloroethane	50.0	59.3		ug/L		119	80 - 120
Trichloroethene	50.0	50.0		ug/L		100	80 - 120
Trichlorofluoromethane	50.0	41.7		ug/L		83	60 - 141
1,2,3-Trichloropropane	50.0	57.0		ug/L		114	80 - 123
Vinyl acetate	100	128		ug/L		128	67 - 135
Vinyl chloride	50.1	43.2		ug/L		86	71 - 128

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-606263/4
Matrix: Water
Analysis Batch: 606263

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Xylenes, Total			100	105		ug/L		105	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*106*		*80 - 122*
1,2-Dichloroethane-d4 (Surr)	*114*		*73 - 131*
Toluene-d8 (Surr)	*109*		*80 - 120*

Lab Sample ID: LCSD 680-606263/5
Matrix: Water
Analysis Batch: 606263

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
Acetone			250	266		ug/L		106	70 - 135	1	30
Acrylonitrile			500	586		ug/L		117	80 - 123	3	20
Benzene			50.0	52.6		ug/L		105	80 - 120	2	20
Bromochloromethane			50.0	49.8		ug/L		100	80 - 120	2	20
Bromodichloromethane			50.0	56.1		ug/L		112	80 - 120	2	20
Bromoform			50.0	50.8		ug/L		102	74 - 126	3	20
Bromomethane			50.1	45.2		ug/L		90	62 - 130	5	20
2-Butanone (MEK)			250	285		ug/L		114	80 - 131	3	20
Carbon disulfide			50.0	47.3		ug/L		95	80 - 120	1	20
Carbon tetrachloride			50.0	48.8		ug/L		98	76 - 123	1	20
Chlorobenzene			50.0	50.6		ug/L		101	80 - 120	1	20
Chloroethane			50.0	42.9		ug/L		86	66 - 135	2	20
Chloroform			50.0	54.3		ug/L		109	80 - 120	1	20
Chloromethane			50.0	46.3		ug/L		92	69 - 131	2	30
cis-1,2-Dichloroethene			50.0	55.3		ug/L		111	80 - 120	0	20
cis-1,3-Dichloropropene			50.0	56.7		ug/L		113	80 - 120	3	20
Dibromochloromethane			50.0	55.5		ug/L		111	80 - 121	4	20
1,2-Dibromo-3-Chloropropane			50.0	52.5		ug/L		105	71 - 134	3	20
1,2-Dibromoethane			50.0	56.3		ug/L		113	80 - 120	3	20
Dibromomethane			50.0	54.3		ug/L		109	80 - 120	4	20
1,2-Dichlorobenzene			50.0	52.3		ug/L		105	80 - 120	0	20
1,4-Dichlorobenzene			50.0	51.7		ug/L		103	80 - 120	0	20
1,1-Dichloroethane			50.0	54.4		ug/L		109	80 - 120	1	20
1,2-Dichloroethane			50.0	56.6		ug/L		113	80 - 120	3	50
1,1-Dichloroethene			50.0	46.0		ug/L		92	76 - 120	1	20
1,2-Dichloropropane			50.0	56.2		ug/L		112	80 - 120	2	20
1,3-Dichloropropane			50.0	57.0		ug/L		114	80 - 120	4	20
Ethylbenzene			50.0	52.0		ug/L		104	80 - 120	0	20
2-Hexanone			250	327	*	ug/L		131	74 - 127	3	20
Iodomethane			50.0	38.3		ug/L		77	52 - 142	4	30
Methylene Chloride			50.0	50.0		ug/L		100	80 - 120	1	20
4-Methyl-2-pentanone (MIBK)			250	321	*	ug/L		128	76 - 124	3	20
Methyl tert-butyl ether			50.0	52.6		ug/L		105	80 - 120	3	20
Styrene			50.0	53.6		ug/L		107	80 - 120	1	20
1,1,1,2-Tetrachloroethane			50.0	52.1		ug/L		104	80 - 121	0	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-606263/5
Matrix: Water
Analysis Batch: 606263

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
1,1,2,2-Tetrachloroethane			50.0	55.2		ug/L		110	80 - 120	2	20
Tetrachloroethylene			50.0	49.3		ug/L		99	80 - 121	2	20
Toluene			50.0	54.1		ug/L		108	80 - 113	2	20
trans-1,4-Dichloro-2-butene			50.0	60.0		ug/L		120	68 - 125	1	30
trans-1,2-Dichloroethene			50.0	49.4		ug/L		99	80 - 120	1	20
trans-1,3-Dichloropropene			50.0	58.5		ug/L		117	80 - 120	4	30
1,1,1-Trichloroethane			50.0	50.4		ug/L		101	80 - 120	0	20
1,1,2-Trichloroethane			50.0	56.8		ug/L		114	80 - 120	4	20
Trichloroethene			50.0	49.5		ug/L		99	80 - 120	1	20
Trichlorofluoromethane			50.0	42.6		ug/L		85	60 - 141	2	20
1,2,3-Trichloropropane			50.0	55.3		ug/L		111	80 - 123	3	30
Vinyl acetate			100	124		ug/L		124	67 - 135	3	20
Vinyl chloride			50.1	43.1		ug/L		86	71 - 128	0	20
Xylenes, Total			100	106		ug/L		106	80 - 120	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 122*
1,2-Dichloroethane-d4 (Surr)	*111*		*73 - 131*
Toluene-d8 (Surr)	*107*		*80 - 120*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-606119/8
Matrix: Water
Analysis Batch: 606119

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.29	U	0.58	0.29	ug/L			02/04/20 13:33	1
Ethane	0.55	U	1.1	0.55	ug/L			02/04/20 13:33	1
Ethene	0.50	U	1.0	0.50	ug/L			02/04/20 13:33	1
Methane (TCD)	39	U	390	39	ug/L			02/04/20 13:33	1

Lab Sample ID: LCS 680-606119/3
Matrix: Water
Analysis Batch: 606119

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane			154	155		ug/L		101	75 - 125
Ethane			288	288		ug/L		100	75 - 125
Ethene			269	271		ug/L		101	75 - 125

Lab Sample ID: LCS 680-606119/6
Matrix: Water
Analysis Batch: 606119

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)			1920	1830		ug/L		95	75 - 125

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCSD 680-606119/4
Matrix: Water
Analysis Batch: 606119

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
Methane			154	143		ug/L		93	75 - 125	8	30
Ethane			288	263		ug/L		91	75 - 125	9	30
Ethene			269	247		ug/L		92	75 - 125	9	30

Lab Sample ID: LCSD 680-606119/7
Matrix: Water
Analysis Batch: 606119

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
Methane (TCD)			1920	1810		ug/L		94	75 - 125	1	30

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 680-605521/2
Matrix: Water
Analysis Batch: 605521

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.023	U	0.050	0.023	mg/L			01/29/20 15:24	1
Nitrite as N	0.023	U	0.050	0.023	mg/L			01/29/20 15:24	1

Lab Sample ID: LCS 680-605521/3
Matrix: Water
Analysis Batch: 605521

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N			0.999	0.957		mg/L		96	90 - 110
Nitrite as N			0.997	1.03		mg/L		104	90 - 110

Lab Sample ID: LCSD 680-605521/4
Matrix: Water
Analysis Batch: 605521

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 as N			0.999	0.959		mg/L		96	90 - 110	0	15
Nitrite as N			0.997	1.03		mg/L		103	90 - 110	0	15

Lab Sample ID: 680-179731-2 MS
Matrix: Water
Analysis Batch: 605521

Client Sample ID: FTA-94-MW11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.023	U	0.999	0.940		mg/L		94	80 - 120
Nitrite as N	0.023	U	0.997	0.916		mg/L		92	80 - 120

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 680-179731-2 MSD
Matrix: Water
Analysis Batch: 605521

Client Sample ID: FTA-94-MW11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.023	U	0.999	0.951		mg/L		95	80 - 120	1	15
Nitrite as N	0.023	U	0.997	0.922		mg/L		93	80 - 120	1	15

Lab Sample ID: MB 680-605522/2
Matrix: Water
Analysis Batch: 605522

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.40	U	1.0	0.40	mg/L			01/29/20 15:14	1

Lab Sample ID: LCS 680-605522/3
Matrix: Water
Analysis Batch: 605522

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.9		mg/L		109	90 - 110

Lab Sample ID: LCSD 680-605522/4
Matrix: Water
Analysis Batch: 605522

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
Sulfate	10.0	11.0		mg/L		110	90 - 110	0	15

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-605661/1-A
Matrix: Water
Analysis Batch: 605945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605661

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	17	U	50	17	ug/L		01/30/20 14:56	01/31/20 14:56	1
Manganese	1.0	U	10	1.0	ug/L		01/30/20 14:56	01/31/20 14:56	1

Lab Sample ID: LCS 680-605661/2-A
Matrix: Water
Analysis Batch: 605945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605661

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5010	4940		ug/L		99	80 - 120
Manganese	400	405		ug/L		101	80 - 120

Lab Sample ID: MB 680-605745/1-A
Matrix: Water
Analysis Batch: 605945

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 605745

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Iron	17	U	50	17	ug/L		01/31/20 09:36	01/31/20 19:14	1
Dissolved Manganese	1.0	U	10	1.0	ug/L		01/31/20 09:36	01/31/20 19:14	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 680-605745/2-A
Matrix: Water
Analysis Batch: 605945

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 605745

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Iron	5010	5120		ug/L		102	80 - 120
Dissolved Manganese	400	412		ug/L		103	80 - 120

Lab Sample ID: LCSD 680-605745/3-A
Matrix: Water
Analysis Batch: 605945

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 605745

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Iron	5010	5060		ug/L		101	80 - 120	1	20
Dissolved Manganese	400	406		ug/L		102	80 - 120	1	20

Method: 350.1-1993 R2.0 - Nitrogen, Ammonia

Lab Sample ID: MB 680-607292/12
Matrix: Water
Analysis Batch: 607292

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	0.10	U	0.25	0.10	mg/L			02/13/20 09:40	1

Lab Sample ID: LCS 680-607292/11
Matrix: Water
Analysis Batch: 607292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.937		mg/L		94	90 - 110

Method: 351.2-1993 R2.0 - Nitrogen, Total Nitrogen

Lab Sample ID: MB 680-606539/10-A
Matrix: Water
Analysis Batch: 606632

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606539

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	0.10	U	0.20	0.10	mg/L		02/06/20 16:26	02/07/20 09:11	1

Lab Sample ID: LCS 680-606539/11-A
Matrix: Water
Analysis Batch: 606632

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606539

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	2.00	1.84		mg/L		92	75 - 125

GC/MS VOA

Analysis Batch: 605888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-179731-1	FTA-94-MW03	Total/NA	Water	8260B	
680-179731-3	FTA-94-MW12	Total/NA	Water	8260B	
680-179731-5	FTA-94-MW15	Total/NA	Water	8260B	
MB 680-605888/10	Method Blank	Total/NA	Water	8260B	
LCS 680-605888/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-605888/5	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 606263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-179731-2	FTA-94-MW11	Total/NA	Water	8260B	
680-179731-4	FTA-94-MW13	Total/NA	Water	8260B	
680-179731-6	FTA-94-MW16	Total/NA	Water	8260B	
680-179731-7	DUP340	Total/NA	Water	8260B	
680-179731-8	TB547	Total/NA	Water	8260B	
MB 680-606263/10	Method Blank	Total/NA	Water	8260B	
LCS 680-606263/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-606263/5	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 606119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-179731-2	FTA-94-MW11	Total/NA	Water	RSK-175	
680-179731-7	DUP340	Total/NA	Water	RSK-175	
MB 680-606119/8	Method Blank	Total/NA	Water	RSK-175	
LCS 680-606119/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-606119/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-606119/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-606119/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	

HPLC/IC

Analysis Batch: 605521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-179731-2	FTA-94-MW11	Total/NA	Water	9056A	
680-179731-7	DUP340	Total/NA	Water	9056A	
MB 680-605521/2	Method Blank	Total/NA	Water	9056A	
LCS 680-605521/3	Lab Control Sample	Total/NA	Water	9056A	
LCSD 680-605521/4	Lab Control Sample Dup	Total/NA	Water	9056A	
680-179731-2 MS	FTA-94-MW11	Total/NA	Water	9056A	
680-179731-2 MSD	FTA-94-MW11	Total/NA	Water	9056A	

Analysis Batch: 605522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-179731-2	FTA-94-MW11	Total/NA	Water	9056A	
680-179731-7	DUP340	Total/NA	Water	9056A	
MB 680-605522/2	Method Blank	Total/NA	Water	9056A	
LCS 680-605522/3	Lab Control Sample	Total/NA	Water	9056A	
LCSD 680-605522/4	Lab Control Sample Dup	Total/NA	Water	9056A	

Metals

Prep Batch: 605661

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-179731-2	FTA-94-MW11	Total/NA	Water	3010A	
680-179731-7	DUP340	Total/NA	Water	3010A	
MB 680-605661/1-A	Method Blank	Total/NA	Water	3010A	
LCS 680-605661/2-A	Lab Control Sample	Total/NA	Water	3010A	

Filtration Batch: 605742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-179731-2	FTA-94-MW11	Dissolved	Water	FILTRATION	
680-179731-7	DUP340	Dissolved	Water	FILTRATION	

Prep Batch: 605745

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-179731-2	FTA-94-MW11	Dissolved	Water	3005A	605742
680-179731-7	DUP340	Dissolved	Water	3005A	605742
MB 680-605745/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 680-605745/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 680-605745/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Analysis Batch: 605945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-179731-2	FTA-94-MW11	Dissolved	Water	6010C	605745
680-179731-2	FTA-94-MW11	Total/NA	Water	6010C	605661
680-179731-7	DUP340	Dissolved	Water	6010C	605745
680-179731-7	DUP340	Total/NA	Water	6010C	605661
MB 680-605661/1-A	Method Blank	Total/NA	Water	6010C	605661
MB 680-605745/1-A	Method Blank	Total Recoverable	Water	6010C	605745
LCS 680-605661/2-A	Lab Control Sample	Total/NA	Water	6010C	605661
LCS 680-605745/2-A	Lab Control Sample	Total Recoverable	Water	6010C	605745
LCSD 680-605745/3-A	Lab Control Sample Dup	Total Recoverable	Water	6010C	605745

General Chemistry

Prep Batch: 606539

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-179731-2	FTA-94-MW11	Total/NA	Water	Digestion	
680-179731-7	DUP340	Total/NA	Water	Digestion	
MB 680-606539/10-A	Method Blank	Total/NA	Water	Digestion	
LCS 680-606539/11-A	Lab Control Sample	Total/NA	Water	Digestion	

Analysis Batch: 606632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-179731-2	FTA-94-MW11	Total/NA	Water	351.2-1993 R2.0	606539
680-179731-7	DUP340	Total/NA	Water	351.2-1993 R2.0	606539
MB 680-606539/10-A	Method Blank	Total/NA	Water	351.2-1993 R2.0	606539
LCS 680-606539/11-A	Lab Control Sample	Total/NA	Water	351.2-1993 R2.0	606539

Analysis Batch: 607292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-179731-2	FTA-94-MW11	Total/NA	Water	350.1-1993 R2.0	
680-179731-7	DUP340	Total/NA	Water	350.1-1993 R2.0	
MB 680-607292/12	Method Blank	Total/NA	Water	350.1-1993 R2.0	

General Chemistry (Continued)

Analysis Batch: 607292 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-607292/11	Lab Control Sample	Total/NA	Water	350.1-1993 R2.0	

Lab Chronicle

Client: Matrix Environmental Services, LLC
Job ID: 680-179731-1
Project/Site: Parcel 94(7), Chem Laundry/Motor Pool

Client Sample ID: FTA-94-MW03
Lab Sample ID: 680-179731-1
Date Collected: 01/27/20 10:06
Matrix: Water
Date Received: 01/29/20 09:00

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	5 mL	5 mL	605888	02/02/20 15:48	Y1S	TAL SAV
	Instrument ID: CMSC									

Client Sample ID: FTA-94-MW11
Lab Sample ID: 680-179731-2
Date Collected: 01/28/20 11:56
Matrix: Water
Date Received: 01/29/20 09:00

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	5 mL	5 mL	606263	02/05/20 15:53	UI	TAL SAV
	Instrument ID: CMSC									
Total/NA	Analysis	RSK-175		1	17 mL	17 mL	606119	02/04/20 18:03	MYD	TAL SAV
	Instrument ID: CVGU									
Total/NA	Analysis	9056A		1	5 mL	5 mL	605522	01/29/20 20:49	UI	TAL SAV
	Instrument ID: CICH									
Total/NA	Analysis	9056A		1	5 mL	5 mL	605521	01/29/20 16:26	CS	TAL SAV
	Instrument ID: CICL									
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	605742	01/31/20 09:34	AJR	TAL SAV
Dissolved	Prep	3005A			50 mL	50 mL	605745	01/31/20 09:36	AJR	TAL SAV
Dissolved	Analysis	6010C		1			605945	01/31/20 19:59	BCB	TAL SAV
	Instrument ID: ICPE									
Total/NA	Prep	3010A			50 mL	50 mL	605661	01/30/20 14:56	AJR	TAL SAV
Total/NA	Analysis	6010C		1			605945	01/31/20 16:17	BCB	TAL SAV
	Instrument ID: ICPE									
Total/NA	Analysis	350.1-1993 R2.0		1	2 mL	2 mL	607292	02/13/20 09:49	AMH	TAL SAV
	Instrument ID: KONELAB1									
Total/NA	Prep	Digestion			20 mL	20 mL	606539	02/06/20 16:26	SM	TAL SAV
Total/NA	Analysis	351.2-1993 R2.0		1			606632	02/07/20 09:31	NVF	TAL SAV
	Instrument ID: LACHAT3									

Client Sample ID: FTA-94-MW12
Lab Sample ID: 680-179731-3
Date Collected: 01/27/20 11:31
Matrix: Water
Date Received: 01/29/20 09:00

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	5 mL	5 mL	605888	02/02/20 16:11	Y1S	TAL SAV
	Instrument ID: CMSC									

Client Sample ID: FTA-94-MW13
Lab Sample ID: 680-179731-4
Date Collected: 01/28/20 10:16
Matrix: Water
Date Received: 01/29/20 09:00

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	5 mL	5 mL	606263	02/05/20 16:17	UI	TAL SAV
	Instrument ID: CMSC									

Lab Chronicle

Client: Matrix Environmental Services, LLC
Job ID: 680-179731-1
Project/Site: Parcel 94(7), Chem Laundry/Motor Pool

Client Sample ID: FTA-94-MW15
Lab Sample ID: 680-179731-5
Date Collected: 01/27/20 13:36
Matrix: Water
Date Received: 01/29/20 09:00

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	5 mL	5 mL	605888	02/02/20 16:34	Y1S	TAL SAV
	Instrument ID: CMSC									

Client Sample ID: FTA-94-MW16
Lab Sample ID: 680-179731-6
Date Collected: 01/27/20 14:51
Matrix: Water
Date Received: 01/29/20 09:00

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	5 mL	5 mL	606263	02/05/20 16:40	UI	TAL SAV
	Instrument ID: CMSC									

Client Sample ID: DUP340
Lab Sample ID: 680-179731-7
Date Collected: 01/28/20 00:00
Matrix: Water
Date Received: 01/29/20 09:00

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	5 mL	5 mL	606263	02/05/20 17:03	UI	TAL SAV
	Instrument ID: CMSC									
Total/NA	Analysis	RSK-175		1	17 mL	17 mL	606119	02/04/20 18:16	MYD	TAL SAV
	Instrument ID: CVGU									
Total/NA	Analysis	9056A		1	5 mL	5 mL	605522	01/29/20 21:02	UI	TAL SAV
	Instrument ID: CICH									
Total/NA	Analysis	9056A		1	5 mL	5 mL	605521	01/29/20 18:01	CS	TAL SAV
	Instrument ID: CICL									
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	605742	01/31/20 09:34	AJR	TAL SAV
Dissolved	Prep	3005A			50 mL	50 mL	605745	01/31/20 09:36	AJR	TAL SAV
Dissolved	Analysis	6010C		1			605945	01/31/20 20:14	BCB	TAL SAV
	Instrument ID: ICPE									
Total/NA	Prep	3010A			50 mL	50 mL	605661	01/30/20 14:56	AJR	TAL SAV
Total/NA	Analysis	6010C		1			605945	01/31/20 16:22	BCB	TAL SAV
	Instrument ID: ICPE									
Total/NA	Analysis	350.1-1993 R2.0		1	2 mL	2 mL	607292	02/13/20 09:49	AMH	TAL SAV
	Instrument ID: KONELAB1									
Total/NA	Prep	Digestion			20 mL	20 mL	606539	02/06/20 16:26	SM	TAL SAV
Total/NA	Analysis	351.2-1993 R2.0		1			606632	02/07/20 09:27	NVF	TAL SAV
	Instrument ID: LACHAT3									

Client Sample ID: TB547
Lab Sample ID: 680-179731-8
Date Collected: 01/28/20 13:30
Matrix: Water
Date Received: 01/29/20 09:00

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	5 mL	5 mL	606263	02/05/20 14:43	UI	TAL SAV
	Instrument ID: CMSC									

Lab Chronicle

Client: Matrix Environmental Services, LLC
Job ID: 680-179731-1
Project/Site: Parcel 94(7), Chem Laundry/Motor Pool

Laboratory References:

TAL SAV = Eurofins TestAmerica, Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: Matrix Environmental Services, LLC
Job ID: 680-179731-1
Project/Site: Parcel 94(7), Chem Laundry/Motor Pool

Laboratory: Eurofins TestAmerica, Savannah

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Florida	NELAP	E87052	06-30-20

Method Summary

Client: Matrix Environmental Services, LLC
Job ID: 680-179731-1
Project/Site: Parcel 94(7), Chem Laundry/Motor Pool

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL SAV
9056A	Anions, Ion Chromatography	SW846	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
350.1-1993 R2.0	Nitrogen, Ammonia	MCAWW	TAL SAV
351.2-1993 R2.0	Nitrogen, Total Nitrogen	MCAWW	TAL SAV
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL SAV
3010A	Preparation, Total Metals	SW846	TAL SAV
5030B	Purge and Trap	SW846	TAL SAV
Digestion	Digestion, Hot Block	MCAWW	TAL SAV
FILTRATION	Sample Filtration	None	TAL SAV

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = Eurofins TestAmerica, Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

MATRIX ENVIRONMENTAL SERVICES CHAIN OF CUSTODY RECORD

COC Number 5970
Cooler ID 1 of 1
Page 1 of 1

Laboratory TestAmerica
Lab Contact Jon Lawhon; Amy Ragnaldsen
MES Contact Betty Van Pelt
MES Phone 801-699-1246
Project Parcel 94(7), Chem Laundry/Motor Pool
Task # 19.094.20-02.1
Lab contract:

Samplers Signature

SWMU	Station ID	QC Code	Station Code	Matrix	Sample Method	Date Collected	Sample Time	Analysis: SW8260 - VOC 3-40 mL vials, HCL	RSK-175-M,E,E 3-40mL vials, HCl	SW6010B Metals, Fe, Mn - Total 1 - 250mL poly, HNO3	SW6010B Metals, Fe, Mn - Dissolved (lab filter) 1 - 250mL poly, None	4500-NH3F, 4500NorgC 1-250 mL poly, H2SO4	SW9056 Nitrate, Nitrite, Sulfate 1-125 mL poly, none	SW8260 - VOC 2-40 mL vials, HCL
LTM - ChemLaundry	FTA-94-MW03	NS	MW	Water	BP	1/27/20	10:06	X						
LTM - ChemLaundry	FTA-94-MW11	NS	MW	Water	BP	1/28/20	11:56	X	X	X	X	X	X	
LTM - ChemLaundry	FTA-94-MW12	NS	MW	Water	BP	1/27/20	11:31	X						
LTM - ChemLaundry	FTA-94-MW13	NS	MW	Water	BP	1/28/20	10:16	X						
LTM - ChemLaundry	FTA-94-MW15	NS	MW	Water	BP	1/27/20	13:36	X						
LTM - ChemLaundry	FTA-94-MW16	NS	MW	Water	BP	1/27/20	14:51	X						
LTM - ChemLaundry	DUP340	FD	MW	Water	BP	1/28/20	N/A	X	X	X	X	X	X	
LTM - ChemLaundry	TB547	TB	WQ	Water	G	1/28/20	13:30							X

NOTES:
QC Code: NS = Investigative Sample, FD = Field Duplicate, MS/MSD = Matrix Spike/Matrix Spike Duplicate, EB = Equipment Blank, TB = Trip Blank, WQ = Water Quality, WS = Source Water
Station Type = MW = Monitoring Well, BH = Bore Hole, SD = Sediment, SW = Surface Water, SS = Surface Soil, SU = Sump, WS = Waste Solid/Soil, WW = Waste Water
White Copy = Lab COC, Yellow COC = Field Copy, Pink COC = Data Mgmt
Sampling Method: G = Grab, BP = bladder pump, PDB = PDB bag
Double the number of bottles for MS/MSD
COMMENTS:

Relinquished by (Signature):
Date/Time: 1/28/20 14:00
Received by (Signature): Fed Ex

Relinquished by (Signature):
Date/Time:
Received by (Signature): C Banda 01-29-2020 0900
4.1.6 (CF) 5.0°c

680-179731 Chain of Custody

Login Sample Receipt Checklist

Client: Matrix Environmental Services, LLC

Job Number: 680-179731-1

Login Number: 179731
List Number: 1
Creator: Banda, Christy S

List Source: Eurofins TestAmerica, Savannah

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
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?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
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.	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX D

Historical Analytical Data (1998-2010) for Detected VOCs in Groundwater Compared to MCLs

Appendix D: Historical Analytical Data (1998-2010) for Detected VOCs in Groundwater Compared to MCLs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston Alabama

		FTA-94-MW01 (Residuum)													
VOCs (µg/L)	**MCL**	**11/16/98**	**12/1/00**	**4/4/02**	**3/23/04**	**2/8/05**	**12/15/05**	**6/19/06**	**12/11/06**	**6/18/07**	**12/11/07**	**6/24/08**	**12/8/08**	**12/22/09**	**12/14/10**
1,1,1-Trichloroethane	200	< 1	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 1	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone (MEK)	-	< 10 (R)	< 20 (R)	NA	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 (UJC)	< 10	< 10	< 10
Acetone	-	< 10 (R)	< 20 (R)	NA	< 10	< 10	10 U^ (UB)	< 10	< 10	< 10 (UJC)	< 10	< 10 (UJC)	< 10	< 10	< 10
Benzene	5	< 1	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	-	< 1	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1 (UJC)	< 1	< 1	< 1	< 1	0.26 J
Chlorobenzene	100	3.4	16	< 1	< 1	< 1	< 1	0.21 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	80	< 1	< 5	0.22 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	6.9	21	2.8	1	< 1	0.25 J	< 1	0.29 J	< 1	< 1	< 1	< 1	0.21 J	< 1
Methylene Chloride	-	< 1 (UJ)	< 5	0.72 J	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	1000	< 1	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	0.97 J (J)	4.6 J (J)	0.6 J	0.26 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	5	25	53	18	11	2.8	3.9	1.1	4	0.78 J	0.95 J	2.3	1.4	4.3	1.3
Vinyl Chloride	2	0.92 J (J)	14	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8

		FTA-94-MW02 (Residuum)											
VOCs (µg/L)	**MCL**	**11/29/00**	**4/6/04**	**2/9/05**	**12/14/05**	**6/20/06**	**12/11/06**	**6/19/07**	**12/11/07**	**6/23/08**	**12/8/08**	**12/15/09**	**12/16/10**
1,1,1-Trichloroethane	200	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone (MEK)	-	< 20 (R)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	-	< 20 (R)	2.6 J	< 10	< 10	< 10	< 10	< 10	< 10	< 10 (UJC)	< 10	< 10	< 10
Benzene	5	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chlorobenzene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	80	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Methylene Chloride	-	< 5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	1000	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	5	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Vinyl Chloride	2	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8

Appendix D: Historical Analytical Data (1998-2010) for Detected VOCs in Groundwater Compared to MCLs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston Alabama

		FTA-94-MW03 (Residuum)												
VOCs (µg/L)	**MCL**	**11/29/00**	**4/2/02**	**3/24/04**	**2/11/05**	**12/13/05**	**6/20/06**	**12/11/06**	**6/18/07**	**12/10/07**	**6/25/08**	**12/9/08**	**12/22/09**	**12/15/10**
1,1,1-Trichloroethane	200	< 5	NA	0.53 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone (MEK)	-	< 20 (R)	NA	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	-	< 20 (R)	NA	< 10	< 10	3.4 J	< 10	< 10	< 10 (UJC)	< 10	< 10	< 10 (UJC)	< 10	< 10
Benzene	5	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	-	< 5	0.45 J	< 1	< 1	< 1	< 1	< 1	< 1 (UJC)	< 1	< 1 (UJC)	< 1.0	< 1	< 1
Chlorobenzene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	80	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	< 5	0.22 J	< 1	< 1	< 1	< 1	< 1	0.22 J	< 1	0.28 J	< 1	0.31 J	0.26 J
Methylene Chloride	-	< 5	0.23 J	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	1000	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	5	2.5 J (J)	1.5	1	0.76 J	0.8 J	1.2	0.73 J	1.1	1.3	1.1	0.9 J	1.1	1.1
Vinyl Chloride	2	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8

		FTA-94-MW04 (Residuum)											
VOCs (µg/L)	**MCL**	**12/4/00**	**3/22/04**	**2/11/05**	**12/14/05**	**6/21/06**	**12/12/06**	**6/19/07**	**12/10/07**	**6/25/08**	**12/9/08**	**12/14/09**	**12/15/10**
1,1,1-Trichloroethane	200	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone (MEK)	-	< 20 (R)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	-	< 20 (R)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 (UJC)	< 10	< 10	< 10
Benzene	5	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	-	< 5	< 1	< 1	< 1	0.36 J	< 1	0.35 J	< 1	0.48 J (JC)	< 1	< 1	< 1
Chlorobenzene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	80	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	< 5	< 1	< 1	< 1	< 1	< 1	0.21 J	0.51 J	< 1	< 1	< 1	< 1
Methylene Chloride	-	< 5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	1000	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	5	< 5	< 1	< 1	0.24 J	< 1	< 1	0.35 J	4.1	0.24 J	< 1	< 1	0.33 J
Vinyl Chloride	2	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8

Appendix D: Historical Analytical Data (1998-2010) for Detected VOCs in Groundwater Compared to MCLs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston Alabama

		FTA-94-MW05 (Residuum)											
VOCs (µg/L)	**MCL**	**11/30/00**	**3/22/04**	**2/10/05**	**12/19/05**	**6/20/06**	**12/12/06**	**6/18/07**	**12/10/07**	**6/25/08**	**12/9/08**	**12/22/09**	**12/15/10**
1,1,1-Trichloroethane	200	< 5	0.61 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone (MEK)	-	< 20 (R)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	-	< 20 (R)	< 10	< 10	< 10	< 10	< 10	< 10 (UJC)	< 10	< 10	< 10 (UJC)	< 10	< 10
Benzene	5	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1 (UJC)	< 1	< 1	< 1	< 1	< 1
Chlorobenzene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	80	< 5	< 1	0.21 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Methylene Chloride	-	< 5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	1000	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	5	< 5	3.1	2.3	1.3	2.5	1.2	2.2	2.1	2.5	0.73 J	0.77 J	0.46 J
Vinyl Chloride	2	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8

		FTA-94-MW06 (Bedrock)												
VOCs (µg/L)	**MCL**	**5/30/01**	**3/27/02**	**3/25/04**	**2/11/05**	**12/14/05**	**6/21/06**	**12/12/06**	**6/19/07**	**12/10/07**	**6/24/08**	**12/9/08**	**12/14/09**	**12/15/10**
1,1,1-Trichloroethane	200	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 5	0.54 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone (MEK)	-	< 20	NA	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 (UJC)	< 10	< 10	< 10
Acetone	-	< 20	NA	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 (UJC)	< 10 (UJC)	< 10	< 10
Benzene	5	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chlorobenzene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	80	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Methylene Chloride	-	1.9 J (J)	0.31 J	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	1000	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	5	< 5	0.52 J	0.4 J	< 1	0.34 J	0.2 J	< 1	< 1	< 1	0.37 J	< 1	< 1	< 1
Vinyl Chloride	2	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8

Appendix D: Historical Analytical Data (1998-2010) for Detected VOCs in Groundwater Compared to MCLs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
McClellan, Anniston Alabama

		FTA-94-MW07 (Residuum)												
VOCs (µg/L)	**MCL**	**12/4/00**	**4/9/02**	**3/30/04**	**2/10/05**	**12/14/05**	**6/21/06**	**12/12/06**	**6/20/07**	**12/11/07**	**6/24/08**	**12/9/08**	**12/14/09**	**12/15/10**
1,1,1-Trichloroethane	200	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	Dry
1,1,2,2-Tetrachloroethane	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	Dry
2-Butanone (MEK)	-	< 20 (R)	NA	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 (UJC)	Dry	< 10	Dry
Acetone	-	< 20 (R)	NA	< 10	< 10	< 10	< 10	< 10	17 (JC)	6.4 J	< 10 (UJC)	Dry	< 10	Dry
Benzene	5	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	Dry
Carbon Disulfide	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1 (UJC)	< 1	0.28 J	Dry	< 1	Dry
Chlorobenzene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	Dry
Chloroform	80	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	Dry
cis-1,2-Dichloroethene	70	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	Dry
Methylene Chloride	-	< 5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	Dry	< 2	Dry
Toluene	1000	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	Dry
trans-1,2-Dichloroethene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	Dry
Trichloroethene	5	1.5 J (J)	0.87 J	< 1	0.46 J	0.86 J	< 1	0.4 J	< 1	0.47 J	< 1	Dry	0.23 J	Dry
Vinyl Chloride	2	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.8	Dry	< 0.8	Dry

		FTA-94-MW09 (Residuum)											
VOCs (µg/L)	**MCL**	**12/4/00**	**4/9/02**	**3/22/04**	**2/9/05**	**12/15/05**	**6/20/2006**	**12/12/06**	**12/11/07**	**6/23/08**	**12/8/08**	**12/22/09**	**12/16/10**
1,1,1-Trichloroethane	200	< 5	NA	0.22 J	< 1	< 1	< 1	< 1	Dry	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	< 1	< 1	< 1
2-Butanone (MEK)	-	< 20 (R)	NA	< 10	< 10	< 10	< 10	< 10	Dry	< 10	< 10	< 10	< 10
Acetone	-	< 20 (R)	NA	< 10	< 10	< 10	< 10	< 10	Dry	< 10 (UJC)	< 10 (UJC)	< 10	< 10
Benzene	5	< 5	NA	< 1	< 1	< 1	< 1	< 1	Dry	< 1	< 1	< 1	< 1
Carbon Disulfide	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	< 1	< 1	< 1
Chlorobenzene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	< 1	< 1	< 1
Chloroform	80	< 5	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	< 5	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	< 1	< 1	< 1
Methylene Chloride	-	< 5	0.37 J	< 2	< 2	< 2	< 2	< 2	Dry	< 2	< 2	< 2	< 2
Toluene	1000	< 5	NA	< 1	< 1	< 1	< 1	< 1	Dry	< 1	0.32 J	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	< 1	< 1	< 1
Trichloroethene	5	< 5	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 1	< 1	< 1	< 1
Vinyl Chloride	2	< 5	< 1	< 1	< 1	< 1	< 1	< 1	Dry	< 0.8	< 0.8	< 0.8	< 0.8

Appendix D: Historical Analytical Data (1998-2010) for Detected VOCs in Groundwater Compared to MCLs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
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		FTA-94-MW10 (Residuum)											
VOCs (µg/L)	**MCL**	**11/30/00**	**4/8/02**	**2/14/05**	**12/14/05**	**6/20/06**	**12/12/06**	**6/19/07**	**12/11/07**	**6/23/08**	**12/8/08**	**12/22/09**	**12/16/10**
1,1,1-Trichloroethane	200	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone (MEK)	-	< 20 (R)	NA	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	-	< 20 (R)	NA	< 10	< 10	< 10	< 10	< 10	< 10	< 10 (UJC)	< 10	< 10	< 10
Benzene	5	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chlorobenzene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	80	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Methylene Chloride	-	< 5	0.3 J	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	1000	< 5	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	5	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Vinyl Chloride	2	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8

		FTA-94-MW11 (Bedrock)											
VOCs (µg/L)	**MCL**	**12/18/00**	**3/23/04**	**2/8/05**	**12/15/05**	**6/19/06**	**12/11/06**	**6/18/07**	**12/13/07**	**6/24/08**	**12/8/08**	**12/22/09**	**12/14/10**
1,1,1-Trichloroethane	200	< 5	0.39 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0.24 J
2-Butanone (MEK)	-	< 20 (R)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 (UJC)	< 10	< 10	< 10
Acetone	-	< 20 (R)	< 10	< 10	< 10	< 10	< 10	< 10 (UJC)	< 10	6.4 J (JC)	< 10	< 10	< 10
Benzene	5	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	-	< 5	< 1	0.33 J	< 1	< 1	< 1	< 1 (UJC)	< 1	< 1	< 1	< 1	< 1
Chlorobenzene	100	300	10	4.1	25	31	11	< 1	16	< 1	2.4	< 1	12
Chloroform	80	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	37	13	6.2	12	19	9	< 1	5.4	< 1	6.9	< 1	4.4
Methylene Chloride	-	< 5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	1000	< 5	< 1	0.21 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	8.3	2	0.76 J	1	1.6	1.1	< 1	1.2	< 1	0.61 J	< 1	0.62 J
Trichloroethene	5	75	34	16	18	41	16	1.1	6	1.2	5.2	0.98 J	3.4
Vinyl Chloride	2	25	1.4	0.52 J	2.4	8.3	9.7	< 1	13	< 0.8	2	< 0.8	16

Appendix D: Historical Analytical Data (1998-2010) for Detected VOCs in Groundwater Compared to MCLs
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		FTA-94-MW12 (Deep Bedrock)											
VOCs (µg/L)	**MCL**	**5/24/01**	**3/25/04**	**2/14/05**	**12/13/05**	**6/20/06**	**12/11/06**	**6/18/07**	**12/12/07**	**6/25/08**	**12/9/08**	**12/22/09**	**12/15/10**
1,1,1-Trichloroethane	200	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone (MEK)	-	< 20	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	-	14 J (J)	4.6 J	< 10	6.8 J	< 10	< 10	< 10 (UJC)	< 10	< 10	< 10 (UJC)	< 10	< 10
Benzene	5	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	-	< 5	< 1	< 1	< 1	0.7 J	< 1	< 1 (UJC)	< 1	0.35 J (JC)	< 1	< 1	0.38 J
Chlorobenzene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	80	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Methylene Chloride	-	< 5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	1000	< 5	< 1	< 1	0.71 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	< 5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	5	< 5	< 1	< 1	0.74 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Vinyl Chloride	2	< 5	< 1	< 1	< 1	< 1	0.28 J	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8

		FTA-94-MW13 (Deep Bedrock)												
VOCs (µg/L)	**MCL**	**7/18/01**	**10/15/01**	**4/3/02**	**3/23/04**	**2/8/05**	**6/19/06**	**12/13/06**	**6/18/07**	**12/12/07**	**6/24/08**	**12/8/08**	**12/15/09**	**12/14/10**
1,1,1-Trichloroethane	200	< 1	< 1 (nv)	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 1	< 1 (nv)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone (MEK)	-	< 10 (R)	0.86 J (nv)	NA	< 10	< 10	< 10	< 10	< 10	< 10	< 10 (UJC)	< 10	< 10	< 10
Acetone	-	< 10 (R)	3 JB (nv)	NA	< 10	< 10	7.8 J	< 10	< 10 (UJC)	< 10	6.9 J (JC)	< 10 (UJC)	< 10	< 10
Benzene	5	< 1	< 1 (nv)	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	-	< 1 (UJ)	< 1 (nv)	0.32 J	< 1	< 1	0.26 J	0.38 J	2 (JC)	< 1	< 1	< 1	< 1	0.26 J
Chlorobenzene	100	< 1	< 1 (nv)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	80	< 1	< 1 (nv)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	0.6 J (J)	0.46 J (nv)	0.62 J	0.72 J	0.22 J	0.83 J	< 1	< 1	1.3	1	0.93 J	0.88 J	0.53 J
Methylene Chloride	-	< 2	< 2 (nv)	0.31 J	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	1000	< 1	< 1 (nv)	NA	< 1	0.43 J	< 1	< 1	< 1	< 1	< 1	0.31 J	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	< 1	< 1 (nv)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	5	7	4.8 (nv)	5.5	10	2	1 J	0.34 J	0.26 J	< 1	0.28 J	0.29 J	0.35 J	0.24 J
Vinyl Chloride	2	< 1	< 2 (nv)	< 1	< 1	< 1	< 1	< 1	< 1	0.37 J	< 0.8	< 0.8	0.25 J	< 0.8

Appendix D: Historical Analytical Data (1998-2010) for Detected VOCs in Groundwater Compared to MCLs
Former Chemical Laundry and Motor Pool Area 1500, Parcel 94(7)
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		FTA-94-MW14 (Bedrock)												
VOCs (µg/L)	**MCL**	**7/24/01**	**4/5/02**	**3/30/04**	**2/9/05**	**12/19/05**	**6/20/06**	**12/13/06**	**6/18/07**	**12/12/07**	**6/23/08**	**12/8/08**	**12/22/09**	**12/16/10**
1,1,1-Trichloroethane	200	< 1	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone (MEK)	-	< 10 (R)	NA	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	-	< 10 (R)	NA	9 J	< 10	< 10	< 10	< 10	5 J (JC)	< 10	8.1 J (JC)	< 10	< 10	< 10
Benzene	5	1.7	NA	3.9	0.2 J	2.2	4.7	2.9	3.3	3.1	3.7	3	2.2	2.3
Carbon Disulfide	-	< 1	< 1	< 1	< 1	< 1	5.2	11	13 (JC)	11	16	11	5.9	5.3
Chlorobenzene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	80	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Methylene Chloride	-	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	1000	< 1	NA	< 1	0.73 J	0.51 J	0.34 J	< 1	< 1	< 1	0.44 J	0.26 J	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	5	0.92 J (J)	0.92 J	0.64 J	2.6	1.1	0.42 J	0.28 J	0.26 J	< 1	< 1	< 1	0.28 J	0.21 J
Vinyl Chloride	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0.36 J	< 0.8	0.22 J	0.2 J	< 0.8

		FTA-94-MW15 (Deep Bedrock)												
VOCs (µg/L)	**MCL**	**7/20/01**	**4/2/02**	**3/23/04**	**2/10/05**	**12/19/05**	**6/21/06**	**12/13/06**	**6/20/07**	**12/12/07**	**6/25/08**	**12/9/08**	**12/14/09**	**12/14/10**
1,1,1-Trichloroethane	200	< 1	NA	0.35 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone (MEK)	-	< 10 (R)	NA	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	-	< 10 (R)	NA	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 (UJC)	< 10	< 10
Benzene	5	< 1	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	-	< 1 (UJ)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1 (UJC)	< 1	< 1	< 1
Chlorobenzene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	80	0.28 J (J)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Methylene Chloride	-	< 2	0.86 J	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	1000	< 1	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Vinyl Chloride	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8

Appendix D: Historical Analytical Data (1998-2010) for Detected VOCs in Groundwater Compared to MCLs
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		FTA-94-MW16 (Bedrock)											
VOCs (µg/L)	**MCL**	**7/19/01**	**3/25/04**	**2/10/05**	**12/20/05**	**6/21/06**	**12/13/06**	**6/20/07**	**12/12/07**	**6/25/08**	**12/9/08**	**12/14/09**	**12/14/10**
1,1,1-Trichloroethane	200	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	-	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone (MEK)	-	< 10 (R)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	-	< 10 (R)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 (UJC)	< 10	< 10
Benzene	5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	-	< 1 (UJ)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1 (UJC)	< 1	< 1	< 1
Chlorobenzene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	80	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	70	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Methylene Chloride	-	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	1000	< 1	< 1	0.35 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1 U^ (UB)
trans-1,2-Dichloroethene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0.27 J
Vinyl Chloride	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.8	< 0.8	< 0.8	< 0.8

Notes:
- Indicates no established MCL
< = Indicates the analyte was not detected at the reported quantitation limit shown.
µg/L = micrograms per liter
VOCs = Volatile Organic Compounds

Lab Flag:
J = Estimated detection. Concentration is between the method detection limit and the practical quantitation limit.
U = Analyte is not detected above the RL.
^ = Lab flag updated by MES data reviewer.
Validation Qualifiers (delineated with parenthesis):
(nv) = Not validated
(J) = The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample.
UJ = Analyte was analyzed for, but was not detected. The reported quantitation limit is estimated.
U = Result was qualified as not detected above the level of the reporting limit or reported sample quantitation limit.
Validation Sub-qualifier:
B = Result was qualified based on method blank or trip blank contamination.
C = Continuing calibration was outside method-specific control limits.

Samples collected from 2000 through 2002 by IT Corporation (IT), data from IT's *Remedial Investigation* (IT, 2002).
Samples collected from 2004 through 2010 by Matrix Environmental Services, LLC (MES).
Because residuum well FTA-94-MW08 has been dry since the December 2005 sampling event, and was sampled during only two sampling rounds in February 2001 and February 2005, this well was not included in this table. Groundwater from well FTA-94-MW08 was non-detect for VOCs in February 2001 and February 2005 (MES, 2012).

Result > MCL